
Texas Vegetation Classification Project: Interpretive Booklet for Phase 5

Texas Parks and Wildlife
Department and Texas
Natural Resources
Information System

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Introduction

The Texas Parks and Wildlife Department is mapping the existing vegetation of Texas at fine spatial and thematic resolution (more mapped vegetation types) over the course of six years (Figure 1). Phases 1 through 4 of the project, covering the eastern half of Texas, are complete. The following document accompanies Phase 5, including the Trans-Pecos Texas, the far western edge of the Edwards Plateau and Stockton Plateau, and the southern portion of the High Plains and adjacent Rolling Plains.

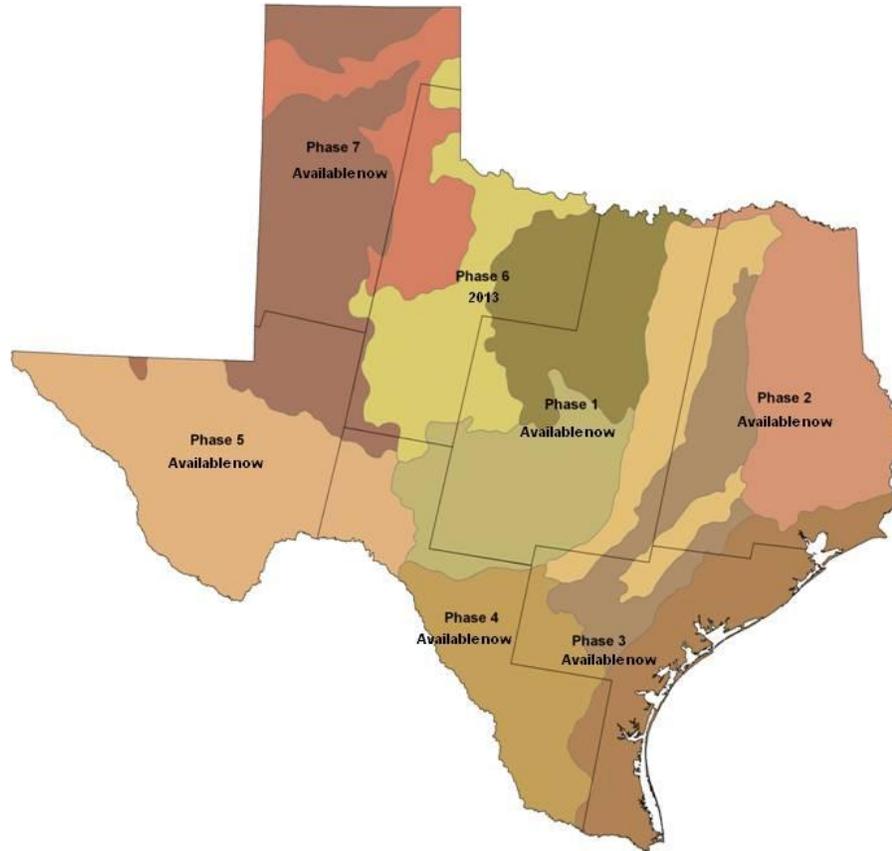


Figure 1. Texas Vegetation Classification Project Schedule

The general procedure used to classify and map existing vegetation includes (1) mapping land cover from 30 m resolution satellite imagery, (2) developing image objects from air photos to improve spatial resolution to 10 m, and (3) modeling existing vegetation using information developed from digital county soil surveys and variables developed from digital elevation models. Detailed overall methods are contained in the Phase 1 interpretative booklet, available on the Texas Parks and Wildlife public web site.

More than 110 different current vegetation types were mapped in Phase 5, making this the most diverse phase of mapping for the state. High Plains, Edwards Plateau, and Rolling Plains types were all mapped, in addition to Trans-Pecos types. In the Trans-Pecos, more than 60 types were mapped, in large part due to topographic and concomitant climatic diversity. “mountain islands’ of forest vegetation are contained within ‘seas’ of lower elevation desert scrub and grassland. Dunes, gyp-influenced, and salty areas add to the variability in the region.

Modeling rules for current vegetation were complicated in the Trans-Pecos. We accounted for variation in substrate and geology, topography (%slope), elevation, and climate. Larger mountain ranges such as the Guadalupe, Davis, and Chisos have significant influences on precipitation and temperature, and influences tend to extend to lower elevations along the flanks of those ranges than they do in smaller mountain ranges. The elevation of desert basins tends to slope gently upward from southeast to northwest in the Trans-Pecos, and overall precipitation increases toward the east. Finally, soils developed in place from igneous materials (e.g. the Davis Mountains) tend to hold more water and are often more nutrient-rich than those developed from limestone (e.g. the Guadalupe Mountains), and soil differences extend to surrounding colluvial hills and alluvial desert basins. Hence, simple rules cannot be applied to model current vegetation. For example, gray oak communities are not replaced by pinyon pine-juniper communities at a predictable slope exposure/elevation, and grasslands are not replaced by desert scrub communities at predictable elevations, across the entire Trans-Pecos region.

General modeling rules and caveats for the Trans-Pecos include:

- (1) Sand dune and gyp-influenced areas were identified based on soils maps, and as in other regions of Texas, these were more or less well-mapped. Gyp-influenced types, in particular, appear to be liberally mapped. Sandy soils were inconsistently mapped in the far western portion of the region, resulting in some stark boundaries in community type mapping.
- (2) Broadleaf evergreen woodland types (e.g. gray oak) and coniferous evergreen woodland and shrubland types (e.g. pinyon-juniper) often occur together at nearly the same elevation in low mountains, and share many component species. These types were separated based on land cover alone, which is not entirely accurate.
- (3) Invasive types including saltcedar across the region and giant reed along the Rio Grande are conservatively mapped. Mapped riparian and especially floodplain forest types may often be saltcedar-dominated.

Special Acknowledgements

Esteban Muldavin of New Mexico State University and Helen Poulos of Wesleyan University graciously provided input for Phase 5. Dr. Muldavin provided plot data and classification work he and co-workers have done in the Guadalupe and Davis Mountains. Dr. Poulos provided plot data and classification work she has done in the Davis and Chisos Mountains.

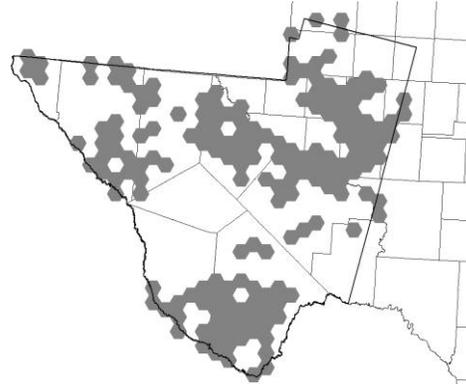
Mapped Vegetation Type Descriptions and Ecological Interpretations

The brief descriptions of existing vegetation types that follow help the user understand the type and amount of variation that might be circumscribed within a given mapped type. We sometimes refer to methods used in modeling and mapping in order to help the user better understand the concepts used to define a type. Photographs have been taken at every ground verification point for all phases, and we selected from those to provide the illustrations. Even though we have collected more than 4,000 ground verification points, many of the less common mapped vegetation types were not sampled, and their general character was inferred from field experience. Modeling and mapping results flow from the line of thought that asserts different types of plant communities prevail on different landforms and soils.

Barren

Area in Phase 5: 213,142 acres (86,256 ha)

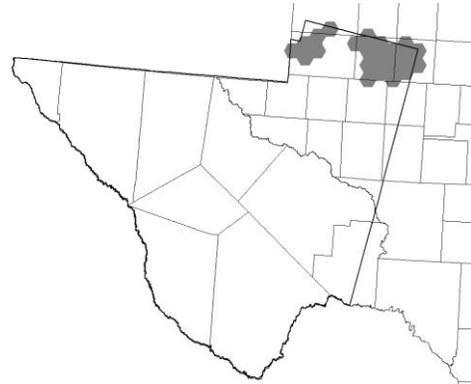
Description of Mapped Type: This type includes areas where little or no vegetation cover existed at the time of image data collection. In Phase 5, this mainly includes barren areas within Trans-Pecos desert scrub or desert grassland types.



CRP/Other Improved Grassland

Area in Phase 5: 113,024 acres (45,739 ha)

Description of Mapped Type: This type was modeled in the northeastern portion of Phase 5 and includes various grassland types that have either been seeded on former cropland or have been improved for domestic livestock by application of Natural Resources Conservation Service management practices.



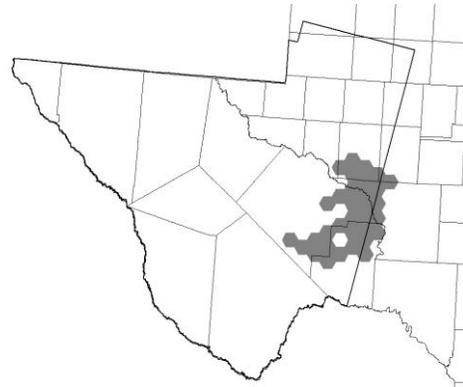
Edwards Plateau: Ashe Juniper Motte and Woodland

Area in Phase 5: 15,552 acres (6294 ha)

Description of Mapped Type: This type is restricted to small patches on the eastern side of Phase 5 over limestone. Ashe juniper is the most frequent dominant, and redberry juniper is sometimes important. This type may occur with other Edwards Plateau semi-arid grassland or shrubland types, or may be mixed with Trans-Pecos types to the west.

Where to Visit:

Independence Creek Preserve



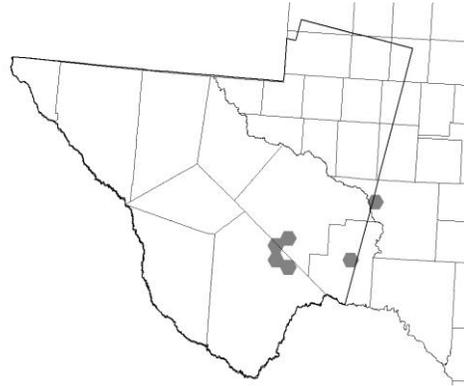
Edwards Plateau: Barren or Grassy Cliff/Bluff

Area in Phase 5: 60 acres (24 ha)

Description of Mapped Type: This type is mapped on slopes >100%, primarily limestone cliffs or escarpments of the Edwards and Stockton Plateau. These areas are generally steep enough to be essentially barren.

Where to Visit:

None



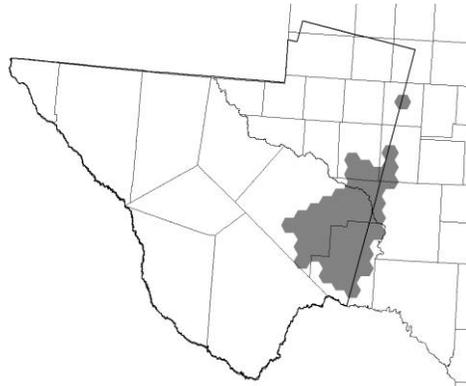
Edwards Plateau: Deciduous Semi-arid Shrubland

Area in Phase 5: 1,181,766 acres (478,244 ha)

Description of Mapped Type: Shrub and small tree species such as honey mesquite, Texas persimmon, Plateau live oak, cenizo, Ashe juniper, and redberry juniper are commonly important in this broadly-circumscribed type. Succulents including Lindheimer pricklypear, *Opuntia* spp., Texas sotol, Texas sacahuista, Torrey's yucca, and lechuguilla are common, and grasses such as sideoats grama, threeawn species, slim tridens, white tridens, curly-mesquite, hairy tridens, and red grama may be important.

Where to Visit:

Independence Creek Preserve



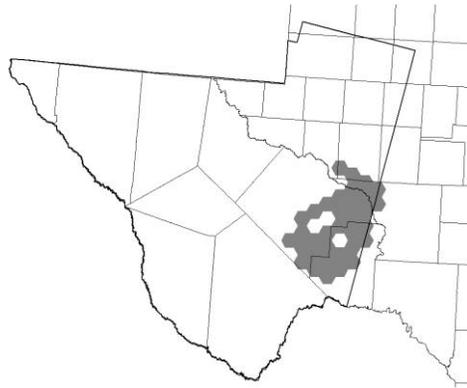
Edwards Plateau: Deciduous Semi-arid Slope Shrubland

Area in Phase 5: 189,497 acres (76,687 ha)

Description of Mapped Type: This type is similar to the Edwards Plateau: Deciduous Semi-arid Shrubland, but is mapped on slopes >20%, and supports a greater diversity of shrubs, succulents, and grasses. Guajillo, cenizo, catclaw mimosa, Vasey shin oak, Texas mountain-laurel, Texas persimmon, Rio Grande stickpea, Ashe juniper, and redberry juniper are common. Succulents such as Texas sotol, lechuguilla, *Opuntia* species, and Torrey's yucca are also common. Herbaceous cover is often sparse, and sideoats grama, purple threeawn, hairy grama, and hairy tridens may be present

Where to Visit:

None



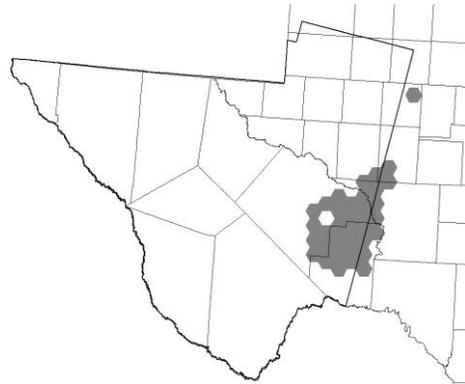
Edwards Plateau: Juniper Semi-arid Shrubland

Area in Phase 5: 320,350 acres (129,641 ha)

Description of Mapped Type: Redberry juniper and Ashe juniper may both be present in this type, together with species such as plateau live oak, honey mesquite, Texas persimmon, Texas sotol, and agarito. Important grasses may include sideoats grama, purple threeawn, curly-mesquite, slim tridens, hairy tridens, and Texas wintergrass.

Where to Visit:

Independence Creek Preserve



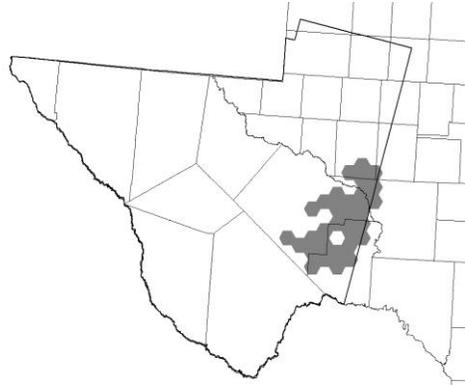
Edwards Plateau: Juniper Semi-arid Slope Shrubland

Area in Phase 5: 51,656 acres (20,904 ha)

Description of Mapped Type: This type is similar to the Juniper Semi-arid Shrubland but is mapped on slopes >20% and overall cover is generally lower. Common species of this diverse type in Phase 5 include redberry juniper, Ashe juniper, Vasey shin oak, Texas persimmon, white shin oak, guajillo, and redberry juniper. Succulents including Texas sotol, lechuguilla, Torrey's yucca, and *Opuntia* species are often important.

Where to Visit:

None



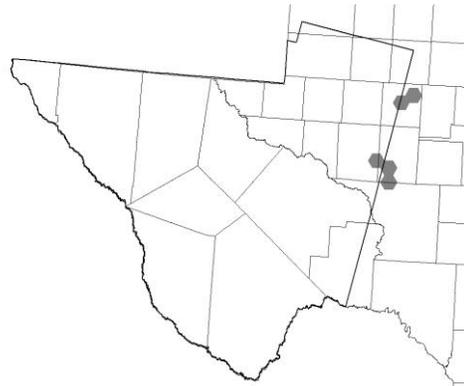
Edwards Plateau: Playa

Area in Phase 5: 281 acres (114 ha)

Description of Mapped Type: Buffalograss, white tridens, slim tridens, tobosa, yellow stonecrop, and cane bluestem are common components of this type, which is mapped in upland depressions and shallow lake beds.

Where to Visit:

None



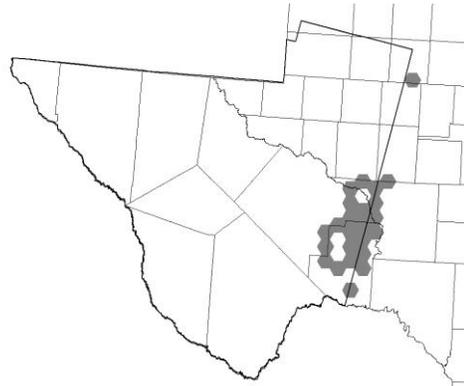
Edwards Plateau: Riparian Ashe Juniper Forest

Area in Phase 5: 1,426 acres (577 ha)

Description of Mapped Type: Ashe juniper, plateau live oak, and sugar hackberry are common dominants of this narrow evergreen woodland along mainly first-order streams.

Where to Visit:

Independence Creek Preserve



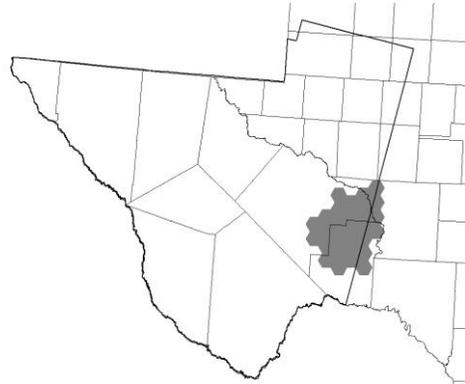
Edwards Plateau: Riparian Ashe Juniper Shrubland

Area in Phase 5: 57,399 acres (23,229 ha)

Description of Mapped Type: This type is mapped primarily along first- or second-order stream corridors, and circumscribes a fairly wide variety of vegetation types. Ashe juniper, and in Phase 5 redberry juniper, are often dominant. Species such as Texas persimmon, honey mesquite, whitebrush, and plateau live oak may be important. This type may simply represent a more dense and more diverse version of surrounding juniper-dominated shrublands along upland drainages.

Where to Visit:

Independence Creek Preserve



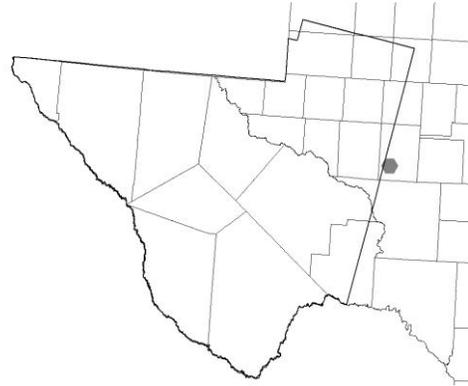
Edwards Plateau: Riparian Barrens

Area in Phase 5: 70 acres (28 ha)

Description of Mapped Type: This type is mapped where barren areas occur along first- or second-order streams in the Edwards Plateau, and may represent essentially bare limestone rock or gravel bars.

Where to Visit:

None



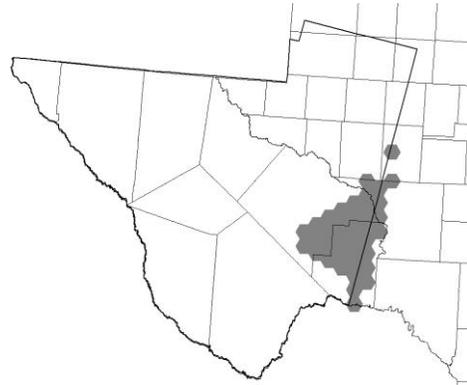
Edwards Plateau: Riparian Deciduous Shrubland

Area in Phase 5: 166,632 acres (67,434 ha)

Description of Mapped Type: A variety of small trees or shrubs such as honey mesquite, sugar hackberry, desert willow, *Baccharis* species, Texas persimmon, honey mesquite, redberry juniper, or whitebrush may dominate this broadly circumscribed type that is mapped mainly along first order upland drainages.

Where to Visit:

Independence Creek Preserve



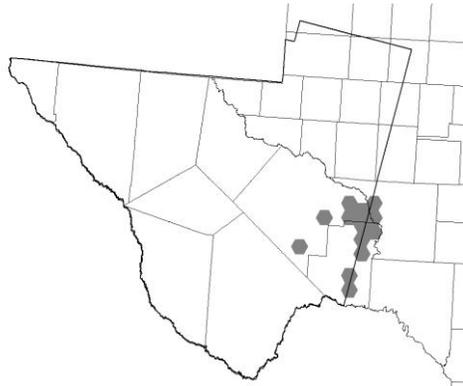
Edwards Plateau: Riparian Hardwood - Ashe Juniper Forest

Area in Phase 5: 66 acres (27 ha)

Description of Mapped Type: Ashe juniper and plateau live oak are the most frequent dominant trees of this mixed forest, and cedar elm, sycamore, green ash, and sugar hackberry are common trees.

Where to Visit:

Independence Creek Preserve



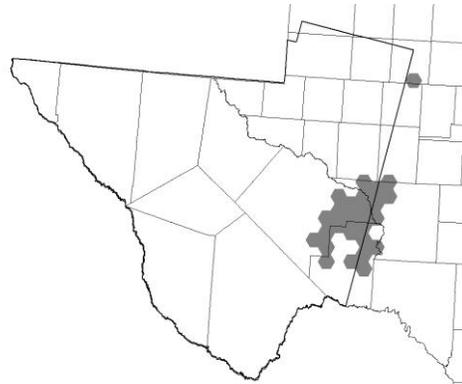
Edwards Plateau: Riparian Hardwood Forest

Area in Phase 5: 515 acres (208 ha)

Description of Mapped Type: This narrow, deciduous forest along mainly first-order streams may contain cedar elm, plateau live oak, Texas oak, sugar hackberry, American sycamore, green ash, pecan, or boxelder as important overstory trees. Ashe juniper, elbowbush, Texas persimmon, whitebrush, or common buttonbush may be present in the shrub layer.

Where to Visit:

Independence Creek Preserve



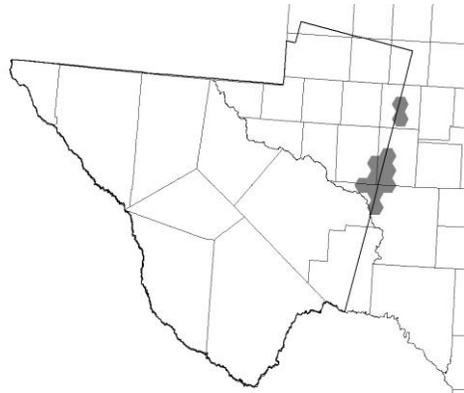
Edwards Plateau: Riparian Herbaceous Vegetation

Area in Phase 5: 3,034 acres (1,228 ha)

Description of Mapped Type: This is a broadly-defined grassland that may be dominated by a variety of grasses such as sideoats grama, common curly-mesquite, threeawns, tridens species, or King Ranch bluestem. Plateau live oak, sugar hackberry, honey mesquite, Ashe juniper, redberry juniper, and Texas persimmon are common woody components.

Where to Visit:

None



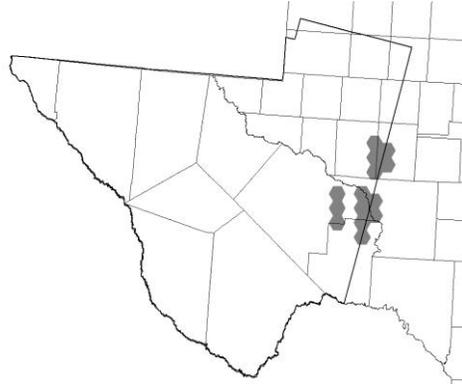
Edwards Plateau: Riparian Herbaceous Wetland

Area in Phase 5: 520 acres (210 ha)

Description of Mapped Type: A variety of herbaceous sedges, rushes, spikerushes, bulrushes, smartweeds, and grasses, together with shrubs such as black willow and common buttonbush, may be common in this mapped type.

Where to Visit:

None



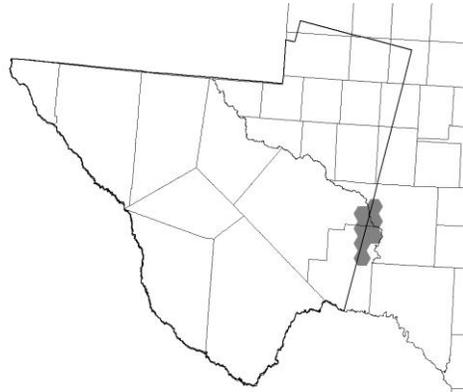
Edwards Plateau: Riparian Live Oak Forest

Area in Phase 5: 1,730 acres (700 ha)

Description of Mapped Type: Plateau live oak and sugar hackberry are the common canopy dominants of this mainly evergreen forest in Phase 5. Other important species may include Texas persimmon, honey mesquite, Ashe juniper, and redberry juniper.

Where to Visit:

Independence Creek Preserve



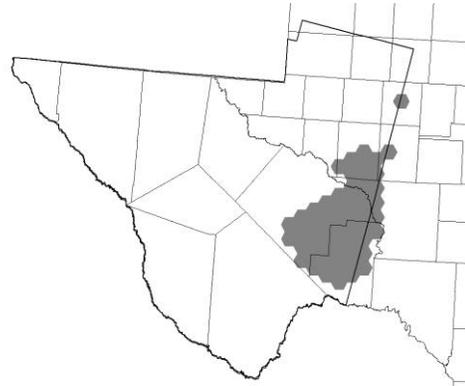
Edwards Plateau: Semi-arid Grassland

Area in Phase 5: 802,342 acres (324,697 ha)

Description of Mapped Type: This type often contains a mix of grasses and shrubs with grasses such as purple threeawn, red grama, sideoats grama, curly-mesquite, slim tridens, and Texas wintergrass common. Shrubs may include redberry juniper, honey mesquite, agarito, Texas persimmon, Ashe juniper, creosotebush, and cenizo.

Where to Visit:

Independence Creek Preserve



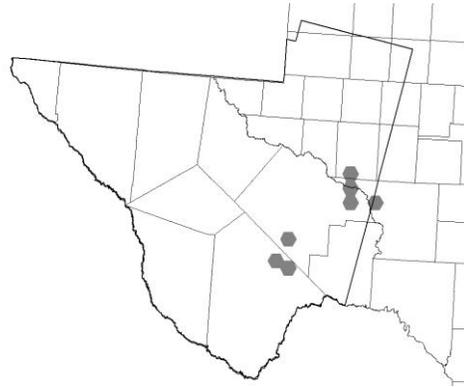
Edwards Plateau: Wooded Cliff/Bluff

Area in Phase 5: 41 acres (17 ha)

Description of Mapped Type: Generally limestone cliffs with some woody canopy cover, mostly resulting from canopy cover of surrounding slopes. Other woody species such as Lindheimer's silktassel, mock-orange, and butterflybush may also be encountered.

Where to Visit:

None



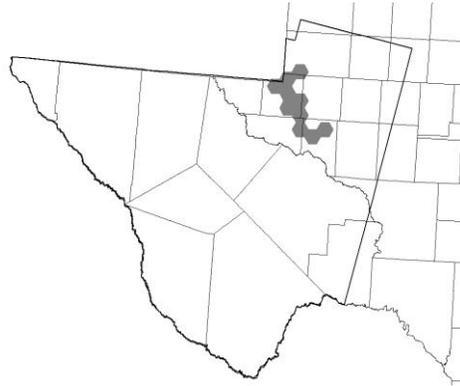
High Plains: Active Sand Dunes

Area in Phase 5: 44,762 acres (18,115 ha)

Description of Mapped Type: This type consists of essentially barren sand dunes. Scattered honey mesquite, sand sage, Havard's shin oak, sand dropseed, sand bluestem, Mediterranean lovegrass, and other grasses may be present.

Where to Visit:

Monahans Sandhills State Park



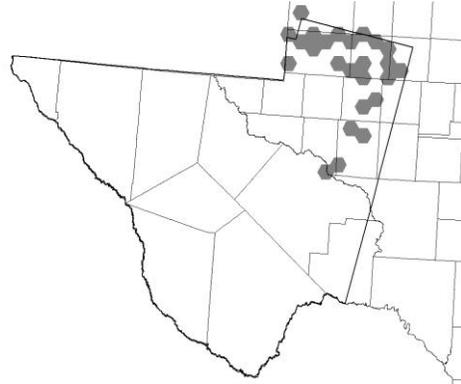
High Plains: Alkali Sacaton Grassland

Area in Phase 5: 9,424 acres (3,814 ha)

Description of Mapped Type: This type may consist of low-diversity stands of alkali sacaton, or may include more diverse areas with species such as honey mesquite, tobosa, and four-wing saltbush.

Where to Visit:

None



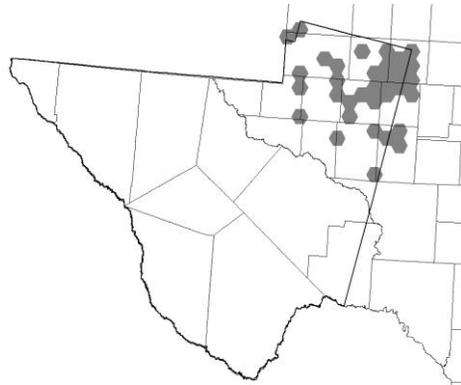
High Plains: Depressional Marsh

Area in Phase 5: 907 acres (367 ha)

Description of Mapped Type: This type is wet or alternately wet and dry and may support a variety of mainly herbaceous species. Species such as spikerushes, smartweeds, cattails, and bulrushes may be present, together with grasses such as buffalograss and shrubs such as willow, *Baccharis* species, and common buttonbush. Some areas may also be salty with species such as saltcedar and sea purslane.

Where to Visit:

None



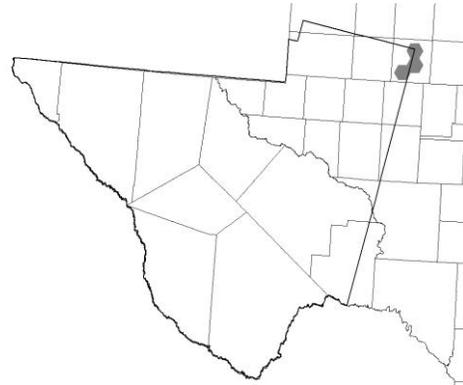
High Plains: Floodplain Hardwood Forest

Area in Phase 5: 330 acres (133 ha)

Description of Mapped Type: Important tree species within this variable type may include eastern cottonwood, netleaf hackberry, black willow, western soapberry, and honey mesquite. Saltcedar is a common invasive species.

Where to Visit:

None



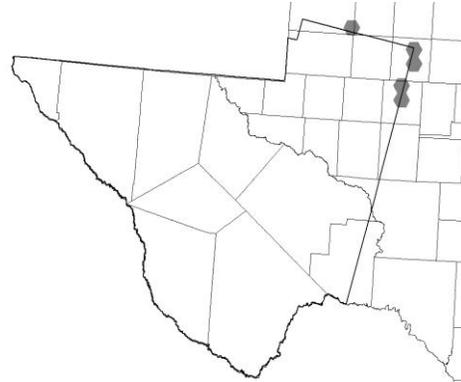
High Plains: Floodplain Herbaceous Vegetation

Area in Phase 5: 687 acres (278 ha)

Description of Mapped Type: This type may be represented by grasslands within a variety of moisture regimes and under different management influences. In good condition, mid- and tallgrasses such as sideoats grama, little bluestem, and big bluestem may be present, but on the modern landscape earlier successional stage or introduced grasses such as blue grama, buffalograss, and Bermudagrass are often more common.

Where to Visit:

None



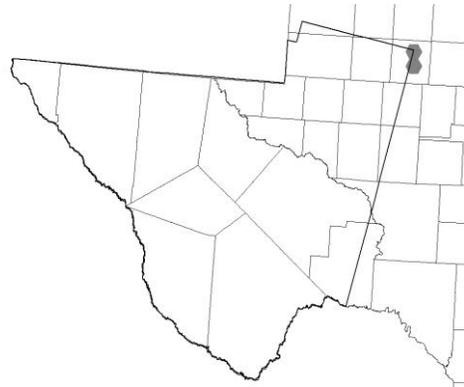
High Plains: Floodplain Live Oak Forest

Area in Phase 5: 34 acres (14 ha)

Description of Mapped Type: This type is rare in Phase 5, and contains plateau live oak among the dominants. Other tree species may include eastern cottonwood, netleaf hackberry, honey mesquite, western soapberry, and black willow. Saltcedar is a common invasive species.

Where to Visit:

None



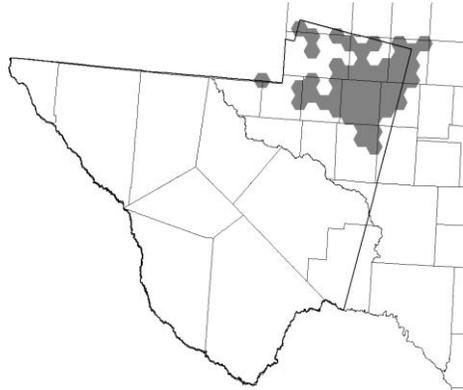
High Plains: Mesquite Shrubland

Area in Phase 5: 36,484 acres (14,764 ha)

Description of Mapped Type: This type is dominated by honey mesquite together with shrubs such as lotebush and redberry juniper and short grasses such as threeawns, tridens species, blue grama, and buffalograss.

Where to Visit:

Big Spring State Park



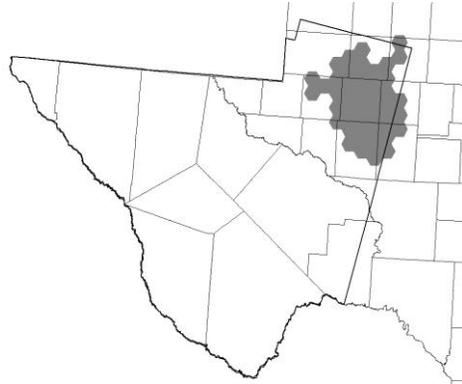
High Plains: Playa Grassland

Area in Phase 5: 12,086 acres (4,891 ha)

Description of Mapped Type: This type represents playas that are generally alternately wet and dry, and vary from year to year and from place to place across short distances. Typical dominant grasses include buffalograss, vine mesquite, Bermudagrass, and western wheatgrass. Honey mesquite is a common woody component, and *Opuntia* species are often present.

Where to Visit:

None



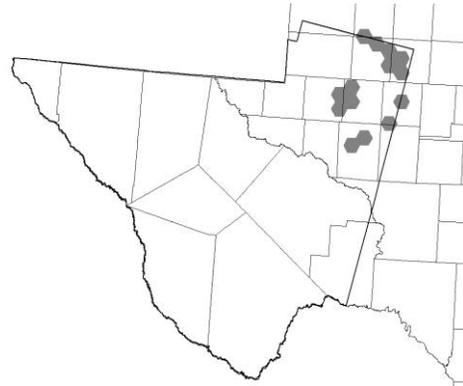
High Plains: Playa Lake

Area in Phase 5: 250 acres (101 ha)

Description of Mapped Type: These playas were open water in all seasons during the time of data collection for this mapping project (circa 2010).

Where to Visit:

None



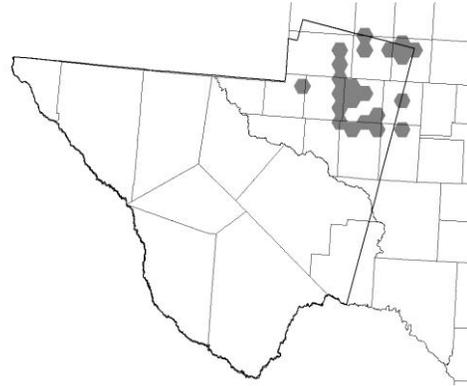
High Plains: Playa Marsh

Area in Phase 5: 334 acres (135 ha)

Description of Mapped Type: Wet areas within playas are represented by this type, which varies from year to year and across short distances on the ground. Spikerushes, cattails, smartweeds, frog fruit, and bulrushes may be present.

Where to Visit:

None



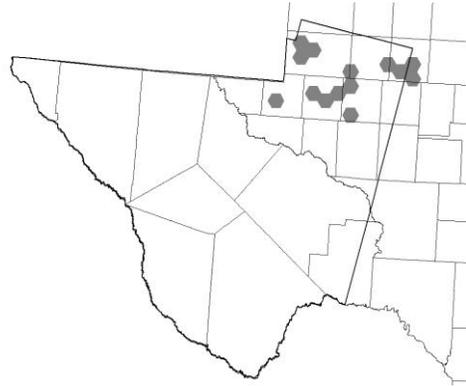
High Plains: Riparian Barrens

Area in Phase 5: 85 acres (34 ha)

Description of Mapped Type: This type consisted of essentially bare ground (sand, gravel, or rock) during all seasons at the time of data collection for this mapping project (circa 2010).

Where to Visit:

None



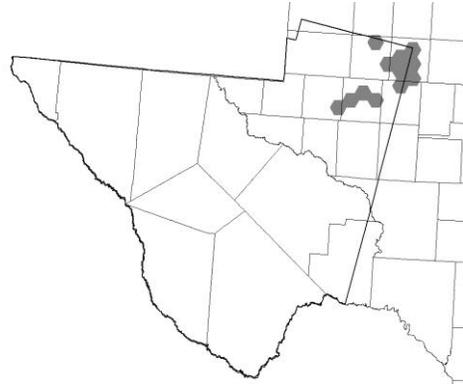
High Plains: Riparian Hardwood Forest

Area in Phase 5: 2,197 acres (889 ha)

Description of Mapped Type: Trees such as netleaf hackberry, black willow, plains cottonwood, and honey mesquite may be common in this variable type that is mapped along upland drainages. Often the type may be a more dense representation of surrounding upland shrublands, and some areas may be dominated by saltcedars or Russian olive.

Where to Visit:

None



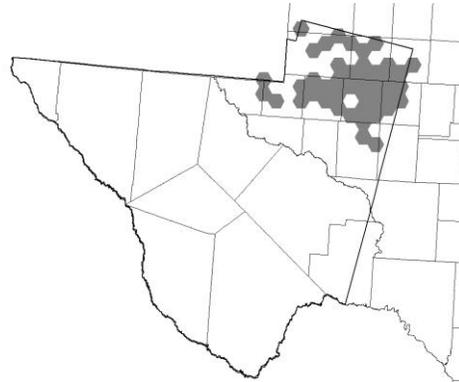
High Plains: Riparian Herbaceous Vegetation

Area in Phase 5: 9,327 acres (3,774 ha)

Description of Mapped Type: These upland drainages may be slightly wetter representations of surrounding grasslands and shrublands. Short grasses such as buffalograss, blue grama, and tobosa may be present together with introduced Bermudagrass and shrubs such as honey mesquite and wolfberry.

Where to Visit:

None



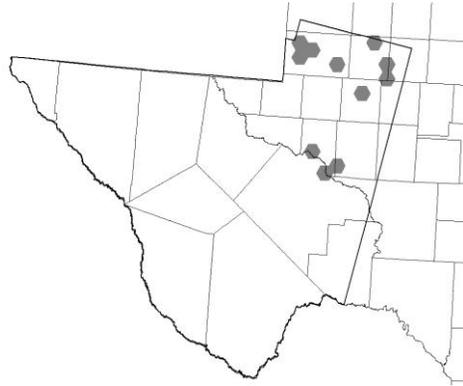
High Plains: Salt Lake

Area in Phase 5: 5,222 acres (2,113 ha)

Description of Mapped Type: This type was open water or bare ground in all seasons during the time of data collection for this mapping project (circa 2010)

Where to Visit:

None



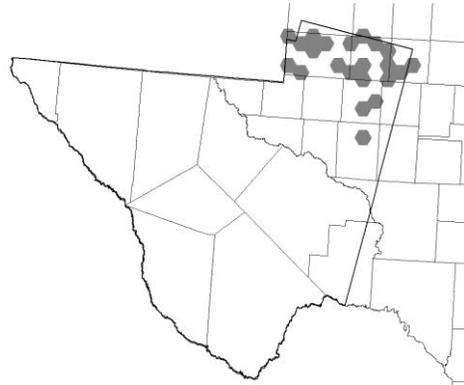
High Plains: Salt Lake Shrubland

Area in Phase 5: 14,161 acres (5,731 ha)

Description of Mapped Type: This type is mapped in depressions associated with drainages or in circular basins, and may be dominated by four-wing saltbush, saltcedar, or honey mesquite. Grasses such as alkali sacaton, saltgrass, and foxtail are common components.

Where to Visit:

None



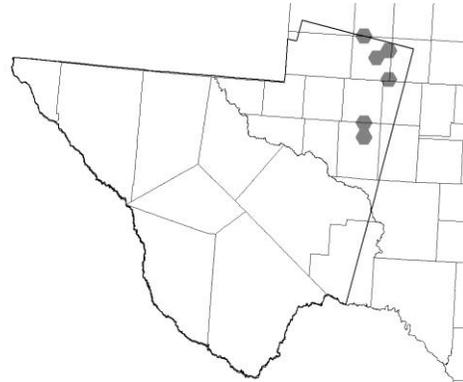
High Plains: Salt Marsh

Area in Phase 5: 50 acres (20 ha)

Description of Mapped Type: This type is mapped in depressions associated with drainages or in circular basins, and may be dominated by bulrushes, cattails, and spikerushes. Alkali sacaton and saltgrass are common grasses, and four-wing saltbush and saltcedar are associated shrubs.

Where to Visit:

None



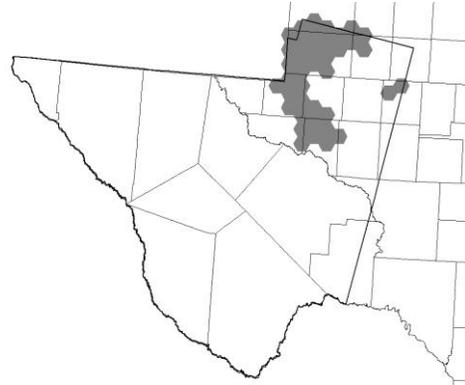
High Plains: Sand Prairie

Area in Phase 5: 487,434 acres (197,258 ha)

Description of Mapped Type: This type is mapped on soils that range from deep sand to shallower sandy loams under a variety of management regimes, and hence are quite variable. Common grasses include sand dropseed, common sandbur, giant dropseed, sand bluestem, little bluestem, and thin paspalum. Havard's shin oak, honey mesquite, and sand sage are common woody components.

Where to Visit:

Monahans Sandhills State Park



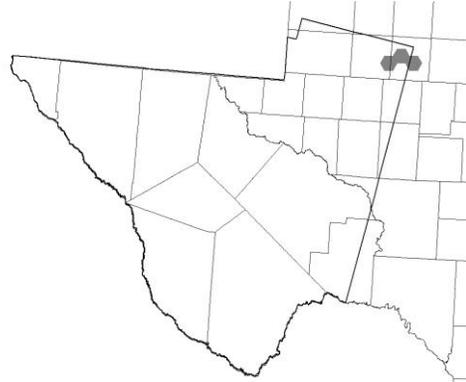
High Plains: Sandhill Deciduous Shrub Duneland

Area in Phase 5: 125 acres (51 ha)

Description of Mapped Type: This uncommon type consists mainly of dense shrubland that may be generally similar in composition to High Plains: Sandhill Shinnery Duneland (most often dominated by Havard's shin oak, sand sage, or honey mesquite).

Where to Visit:

None



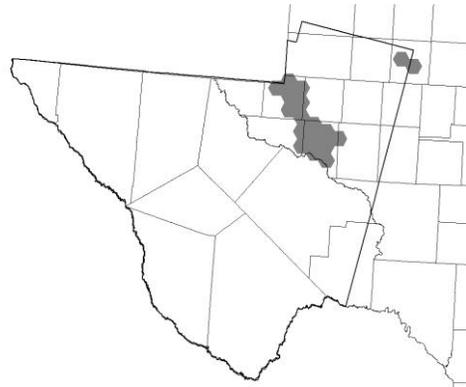
High Plains: Sandhill Shinnery Duneland

Area in Phase 5: 235,627 acres (95,355 ha)

Description of Mapped Type: This type occurs over deep sands and is most often dominated by Havard's shin oak, sand sage, or honey mesquite. Buckley's yucca is a common succulent, and giant dropseed, sand dropseed, and Mediterranean lovegrass are common grasses.

Where to Visit:

Monahans Sandhills State Park



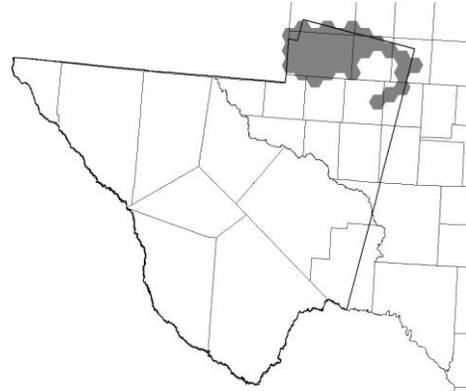
High Plains: Sandy Deciduous Shrubland

Area in Phase 5: 217,389 acres (87,974 ha)

Description of Mapped Type: This type is mapped over soils that are more or less sandy and deep, and circumscribes a good deal of variation. Honey mesquite is a common dominant, with Havard's shin oak or sand sage occurring over sandier soils. Sand dropseed and Mediterranean lovegrass are common grasses.

Where to Visit:

None



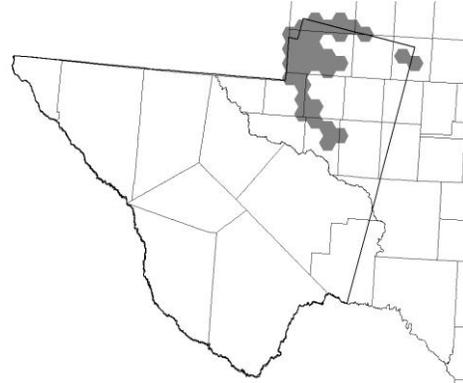
High Plains: Sandy Shinnery Shrubland

Area in Phase 5: 410,166 acres (165,988 ha)

Description of Mapped Type: This type is mapped over sandy soils that are close to deep sands, and is often dominated by Havard's shin oak, sand sage, or honey mesquite. Sand dropseed and Mediterranean lovegrass are common grasses.

Where to Visit:

None



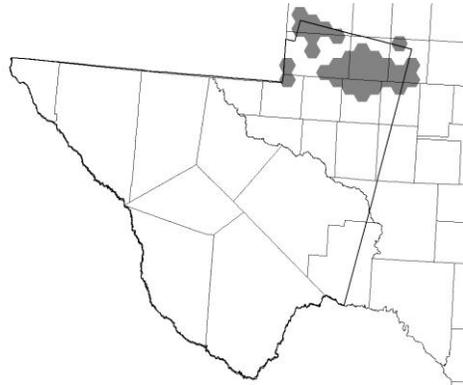
High Plains: Shortgrass Prairie

Area in Phase 5: 82,527 acres (33,398 ha)

Description of Mapped Type: Buffalograss and blue grama are common dominants of this type. Other grasses may include hairy grama, sideoats grama, western wheatgrass, and purple threeawn. Broom snakeweed and sand sage are common woody components.

Where to Visit:

Big Spring State Park



Native Invasive: Catclaw Shrubland

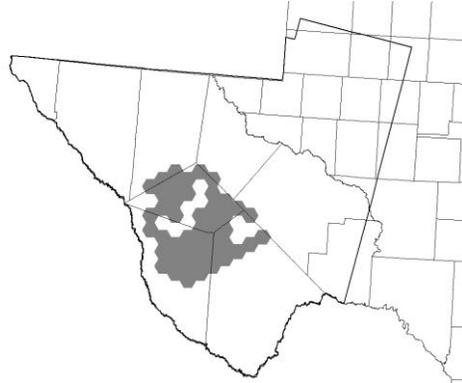
Area in Phase 5: 221,344 acres (89,575 ha)

Description of Mapped Type: These dense shrublands are generally dominated by catclaw acacia, and catclaw mimosa. Mariola and honey mesquite are other common woody components, and Torrey's yucca and sotol and common succulents.

Where to Visit:

Davis Mountains State Park

Fort Davis National Historic Site



Native Invasive: Juniper Shrubland

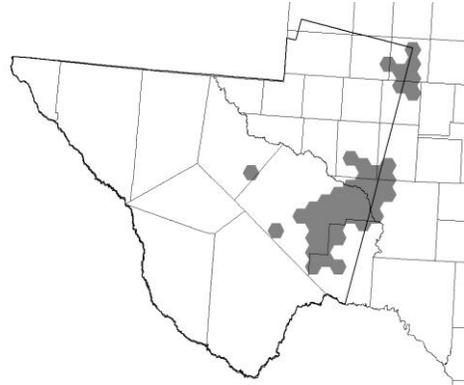
Area in Phase 5: 38,573 acres (15,610 ha)

Description of Mapped Type: This type contains mainly Ashe juniper and redberry juniper shrublands in Phase 5. Honey mesquite, lotebush, and creostebush are common components. The type is mapped on soils that are classically considered to have supported grasslands or open shrublands in pre-European settlement times.

Where to Visit:

Big Bend Ranch State Park

Elephant Mountain Wildlife Management Area



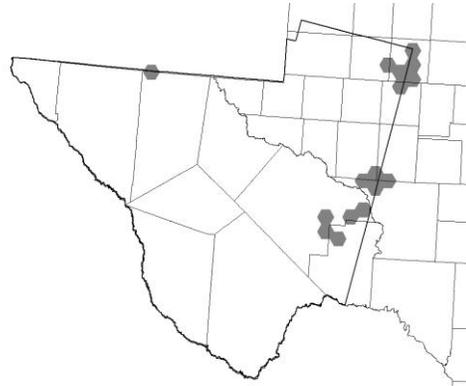
Native Invasive: Juniper Woodland

Area in Phase 5: 1,101 acres (446 ha)

Description of Mapped Type: This type consists of dense, low woodlands with Ashe juniper or redberry juniper in Phase 5. Other common species may include plateau live oak (within the range of this species), honey mesquite, and lotebush. The type is mapped on soils that are classically considered to have supported grasslands or open shrublands in pre-European settlement times.

Where to Visit:

Guadalupe Mountains National Park



Native Invasive: Mesquite - Creosotebush Shrubland

Area in Phase 5: 2,272,452 acres (919,630 ha)

Description of Mapped Type: Relatively dense shrublands dominated by either creosotebush or honey mesquite are characteristic of this type. It is mapped over soils that are classically considered well-watered enough to have supported grasslands or open shrublands in pre-European settlement times. Catclaw acacia, tarbush, four-wing saltbush, and mariola are common components. *Opuntia* species and yuccas are common succulents.

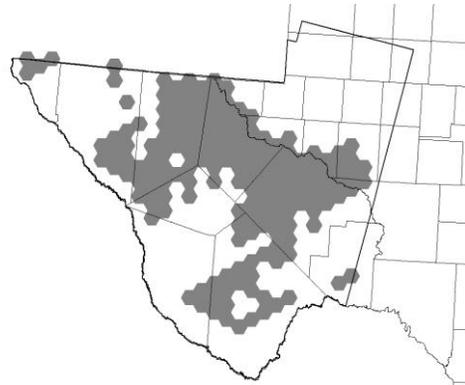
Where to Visit:

Big Bend National Park

Black Gap Wildlife Management Area

Elephant Mountain Wildlife Management Area

Guadalupe Mountains National Park



Native Invasive: Mesquite Shrubland

Area in Phase 5: 2,680,445 acres (1,084,739 ha)

Description of Mapped Type: Relatively dense honey mesquite shrublands are characteristic of this broadly-defined type in Phase 5. Other common species include redberry juniper, wolfberry, and creosotebush. *Yucca* species and *Opuntia* species are common succulents. The type is mapped on soils that are classically considered to have supported grasslands or open shrublands in pre-European settlement times.

Where to Visit:

Big Bend National Park

Davis Mountains

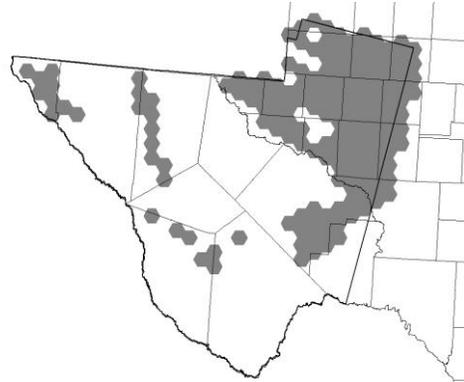
Elephant Mountain Wildlife Management Area

Guadalupe Mountains National Park

Gypsum Dunes Preserve

Hueco Tanks State Park & Historic Site

Independence Creek Preserve



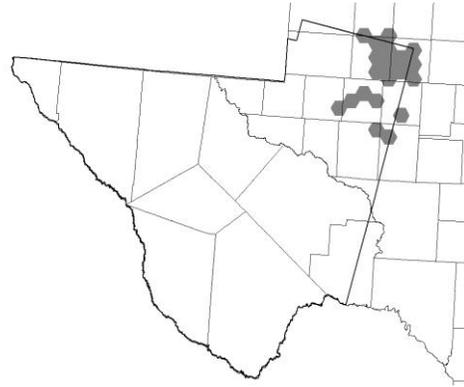
Non-native Invasive: Elm - Olive Woodland

Area in Phase 5: 4,572 acres (1,850 ha)

Description of Mapped Type: Siberian elm and Russian olive are common dominants of this type, which is most often mapped over relatively moist soils in the High Plains.

Where to Visit:

None



Non-native Invasive: Giant Reed

Area in Phase 5: 1,563 acres (633 ha)

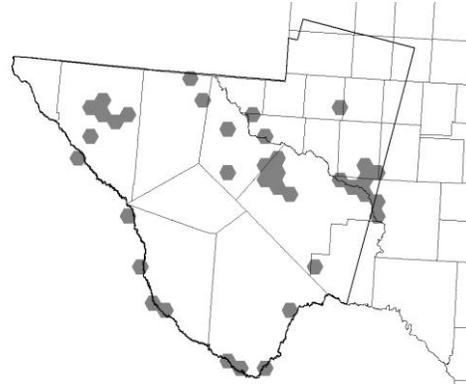
Description of Mapped Type: This type consists of essentially monotypic stands of giant reed, and is mapped on floodplain soils of the Rio Grande. Stands usually occur immediately adjacent to the river and may extend away from the river to cover most of the moist floodplain soils along some sections of the river.

Where to Visit:

Big Bend National Park

Black Gap Wildlife Management Area

Las Palomas Wildlife Management Area



Non-native Invasive: Saltcedar Shrubland

Area in Phase 5: 10,997 acres (4,450 ha)

Description of Mapped Type: Saltcedar often forms nearly monotypic stands. This type is mapped on salty soils along floodplains of major streams and in other moist, salty soils.

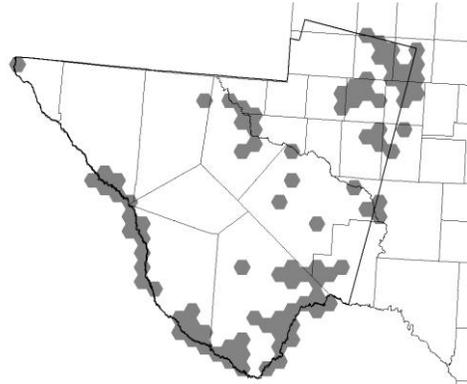
Where to Visit:

Big Bend National Par

Big Bend Ranch State Park

Black Gap Wildlife Management Area

Las Palomas Wildlife Management Area



Open Water

Area in Phase 5: 13,448 acres (5,442 ha)

Description of Mapped Type: Large lakes, stock ponds, and rivers are included in this type, but open water of playas is mapped as High Plains: Playa Lake. Some alternately wet and dry areas may support sparse vegetation.

Where to Visit:

Big Bend National Park

Big Bend Ranch State Park

Black Gap Wildlife Management Area

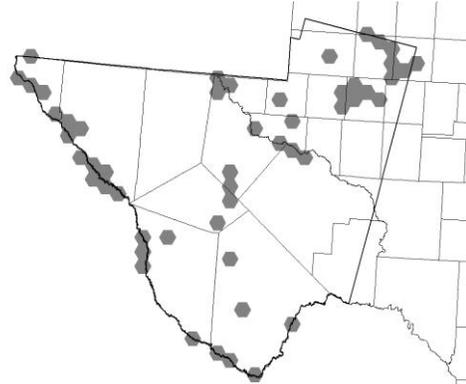
Davis Mountains

Elephant Mountain Wildlife Management Area

Guadalupe Mountains National Park

Las Palomas Wildlife Management Area

Sierra Diablo Wildlife Management Area



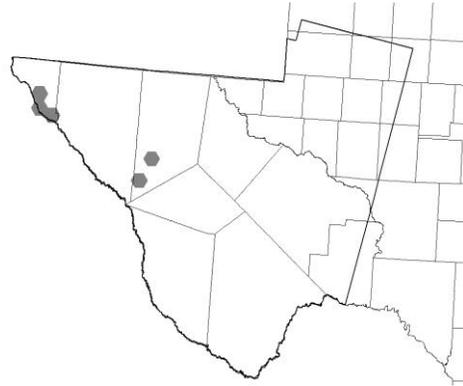
Orchard

Area in Phase 5: 13,460 acres (5,447 ha)

Description of Mapped Type: This type includes mainly pecan orchards and other intensively managed, cropped areas along the Rio Grande.

Where to Visit:

None



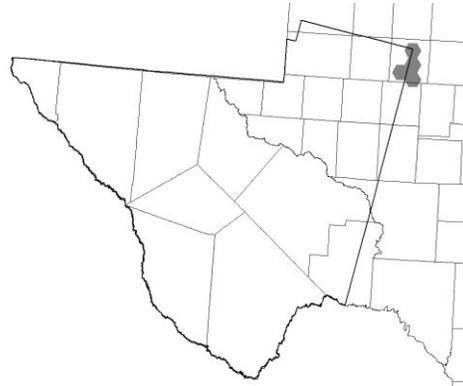
Rolling Plains: Breaks Deciduous Shrubland

Area in Phase 5: 16,124 acres (6,525 ha)

Description of Mapped Type: This type is dominated by species such as Mohr's shin oak, feather dalea, honey mesquite, and mountain mahogany. Redberry juniper is a common component. Purple threeawn, sideoats grama, blue grama, and hairy grama are common grasses.

Where to Visit:

Big Spring State Park



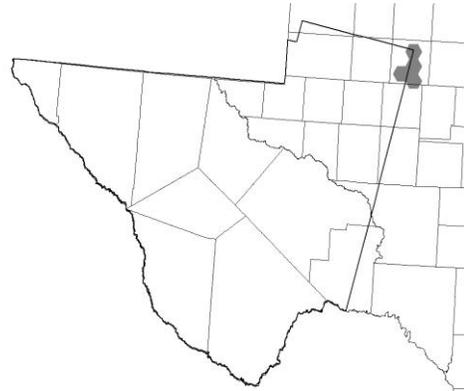
Rolling Plains: Breaks Evergreen Shrubland

Area in Phase 5: 19,658 acres (7,955 ha)

Description of Mapped Type: Redberry juniper is the most common dominant of this type, and Ashe juniper may be important. Feather dalea, honey mesquite, and mountain mahogany are common components. Purple threeawn, sideoats grama, blue grama, and hairy grama are common grasses.

Where to Visit:

None



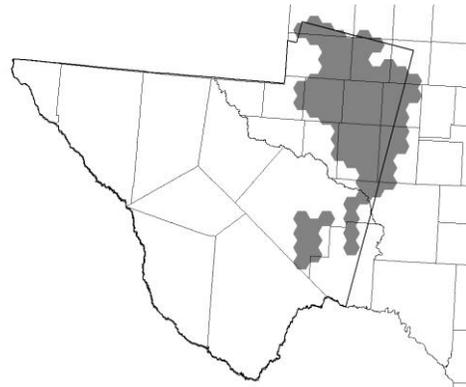
Rolling Plains: Mixedgrass Prairie

Area in Phase 5: 608,343 acres (246,188 ha)

Description of Mapped Type: This type circumscribes a variety of grasslands across a relatively large area and under various past and current management regimes. Texas wintergrass, composite dropseed, sideoats grama, little bluestem, silver bluestem, and western wheatgrass are common in areas that are better-watered or less-grazed. Tobosa, burrograss, curly-mesquite, purple threeawn, blue grama, red grama, and buffalograss are common in less well-watered or more heavily grazed areas. Honey mesquite, wolfberry, redberry juniper, *Opuntia* species, and *Yucca* species are common components.

Where to Visit:

Independence Creek Preserve



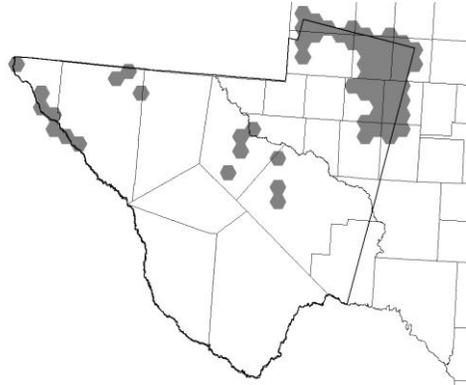
Row Crops

Area in Phase 5: 726,868 acres (294,154 ha)

Description of Mapped Type: This type includes all cropland where fields are fallow for some portion of the year. Some fields may rotate into and out of cultivation frequently, and year-round cover crops and tame hay fields are generally mapped as grassland.

Where to Visit:

None



Southwest: Mesquite / Tobosa Grassland

Area in Phase 5: 312,165 acres (126,329 ha)

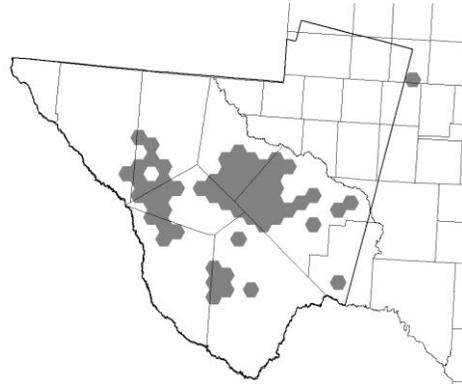
Description of Mapped Type: Clay flats with honey mesquite and other woody species such as wolfberry, jointfir (Ephedra), tarbush, and allthorn characterize this type. Grasses such as tobosa, galleta, blue grama, and western wheatgrass are also common components.

Where to Visit:

Balmorhea State Park

Big Bend Ranch State Park

Elephant Mountain Wildlife Management Area



Southwest: Tobosa Grassland

Area in Phase 5: 462,714 acres (187,254 ha)

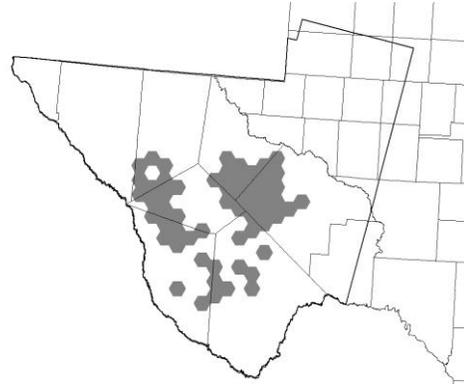
Description of Mapped Type: Tobosa, blue grama, galleta, vine mesquite, and western wheatgrass are common grasses of this type, which is mapped on clay flats. Honey mesquite, and rough jointfir are common woody components, and *Opuntia* and *Yucca* species are often present. Russian thistle is a common weedy herbaceous component.

Where to Visit:

Balmorhea State Park

Big Bend Ranch State Park

Elephant Mountain Wildlife Management Area



Trans-Pecos: Cliff and Outcrop

Area in Phase 5: 48,349 acres (19,566 ha)

Description of Mapped Type: This type is mapped where slopes are $>100\%$ in the Trans-Pecos region.

Where to Visit:

Big Bend National Park

Big Bend Ranch State Park

Black Gap Wildlife Management Area

Davis Mountains State Park

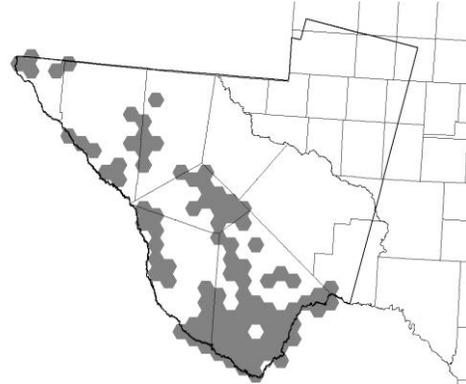
Elephant Mountain Wildlife Management Area

Fort Davis National Historic Site

Guadalupe Mountains National Park

Hueco Tanks State Park & Historic Site

Sierra Diablo Wildlife Management Area



Trans-Pecos: Creosotebush - Succulent Scrub

Area in Phase 5: 651,221 acres (263,540 ha)

Description of Mapped Type: This type is mapped at low elevations, mainly in the southern Trans-Pecos and on dissected colluvial and alluvial flats or sandstone associated with mountains near the Rio Grande. It is similar to the Trans-Pecos: Creosote Scrub, but overall vegetation cover is usually lower, and ocotillo and succulent cacti are often conspicuous components. The community may be relatively diverse with species such as lechuguilla, Torrey's yucca, mariola, leatherstem, oreja de perro, *Yucca* species, *Opuntia* species, and *Echinocereus* species (small, ribbed cacti) present. Chino grama, fluffgrass, bush muhly, and threeawns are common grasses.

Where to Visit:

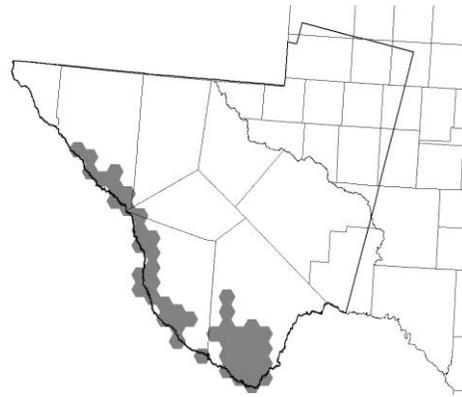
Big Bend National Park

Big Bend Ranch State Park

Black Gap Wildlife Management Area

Fort Leaton State Historical Site

Las Palomas Wildlife Management Area



Trans-Pecos: Creosotebush Scrub

Area in Phase 5: 5,160,306 acres (2,088,305 ha)

Description of Mapped Type: This type is mapped at low elevations within intermountain basins in the Trans-Pecos, mainly on flats or gently rolling landscapes over gravelly colluvial or alluvial soils. Creosotebush is often the primary dominant, and diversity may be low. Other woody species may include honey mesquite, mariola, catclaw acacia, and whitethorn acacia. Common succulents include Christmas cactus, Torrey's yucca, Engelmann pricklypear, lechuguilla, and *Opuntia* species. Bush muhly, fluffgrass, burrograss, white tridens, threeawns, and chino grama are common grasses.

Where to Visit:

Big Bend National Park

Big Bend Ranch State Park

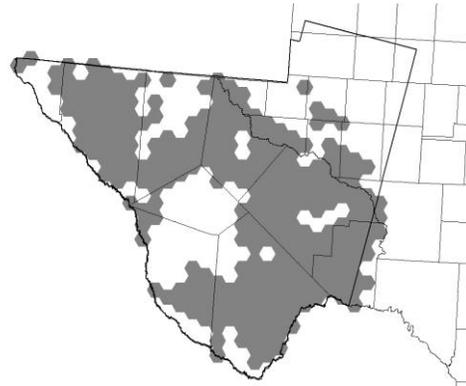
Black Gap Wildlife Management Area

Elephant Mountain Wildlife Management Area

Guadalupe Mountains National Park

Hueco Tanks State Park & Historic Site

Sierra Diablo Wildlife Management Area



Trans-Pecos: Deciduous Chaparral

Area in Phase 5: 92,055 acres (37,254 ha)

Description of Mapped Type: This type is mapped on relatively steep slopes at moderate to high elevations. Common dominants include mountain mahogany, desert ceanothus, Wright's silktassel, Wright's beebush, and little-leaf ash. Other common species include gray oak, Vasey shin oak, sandpaper oak, scrub oak, Mohr's shin oak, Gambel oak, Mexican pinyon pine, and pinyon pine (Guadalupe Mountains).

Where to Visit:

Big Bend National Park

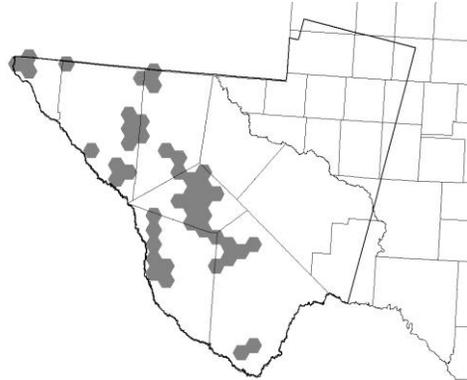
Davis Mountains State Park

Elephant Mountain Wildlife Management Area

Fort Davis National Historic Site

Guadalupe Mountains National Park

Sierra Diablo Wildlife Management Area



Trans-Pecos: Desert Badland

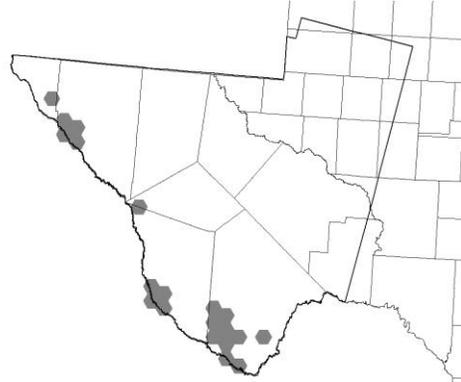
Area in Phase 5: 14,594 acres (5,906 ha)

Description of Mapped Type: This type is represented by essentially barren badland areas within the low elevation deserts of the Trans-Pecos.

Where to Visit:

Big Bend National Park

Big Bend Ranch State Park



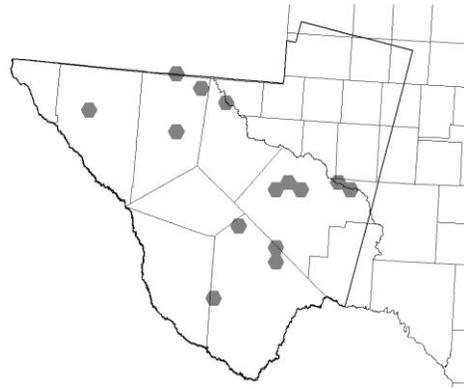
Trans-Pecos: Desert Cienega Marsh

Area in Phase 5: 1,731 acres (701 ha)

Description of Mapped Type: This type circumscribes desert marsh or wet grassland areas that may be more or less wet and more or less salty. Different water regimes cause zonation in some of the larger cienegas, with wetter areas dominated by bulrushes, slightly drier areas dominated by salgrass, and drier areas still dominated by Alakali sacaton. Other common species include big sacaton, alkali muhly, sea purslane, desert horse purslane, and seepweed. Honey mesquite, four-wing saltbush, and saltcedar are common woody components.

Where to Visit:

None



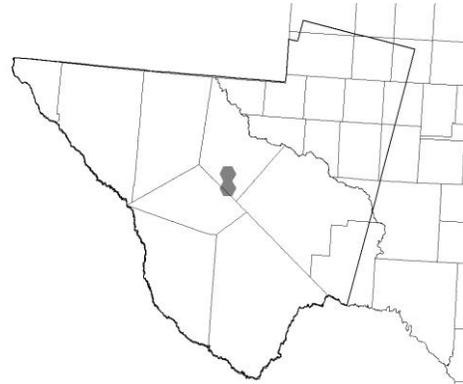
Trans-Pecos: Desert Cienega Shrubland

Area in Phase 5: 219 acres (89 ha)

Description of Mapped Type: This type is mapped over wet, salty soils and is most often dominated by saltcedars, four-wing saltbush or honey mesquite. Associated marsh may include bulrushes, saltgrass, and Alkali sacaton as important species.

Where to Visit:

None



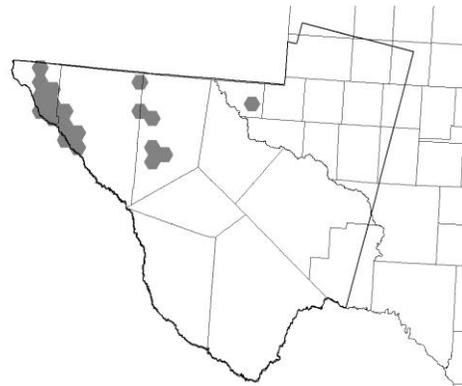
Trans-Pecos: Desert Deep Sand and Dune Grassland

Area in Phase 5: 29,451 acres (11,918 ha)

Description of Mapped Type: This type is mapped over deep sands and dunes, mainly in the far western part of the Trans-Pecos. Diversity of herbaceous species is often relatively high, and common components include sand dropseed, giant dropseed, mesa dropseed, black grama, little bluestem, broom pea, threeawns, rayed palafoxia, bindweed heliotrope, grassland croton, and woolly blue star. Soap tree yucca, honey mesquite, and sand sage are common shrub and succulent species.

Where to Visit:

Guadalupe Mountains National Park



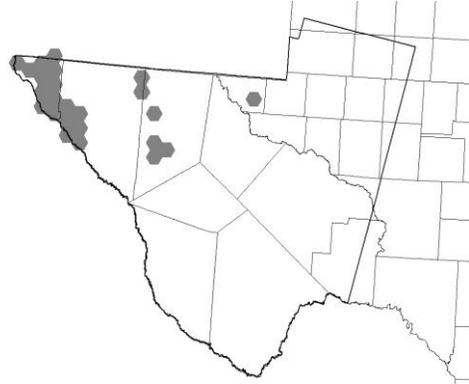
Trans-Pecos: Desert Deep Sand and Dune Shrubland

Area in Phase 5: 236,484 acres (95,702 ha)

Description of Mapped Type: This type is mapped over deep desert sands mainly in the far western part of the Trans-Pecos. Species such as honey mesquite, sand sage, soap tree yucca are common dominants. Diversity of associated grasses and forbs may be high, with species such as sand dropseed, mesa dropseed, giant dropseed, black grama, broom pea, grassland croton, and spectaclepod common.

Where to Visit:

Guadalupe Mountains National Park



Trans-Pecos: Desert Pavement

Area in Phase 5: 190,659 acres (77,157 ha)

Description of Mapped Type: This type is represented by mainly barren areas of low-elevation desert. Small cacti, sparse creosotebush or other shrubs, and annual grasses are usually present.

Where to Visit:

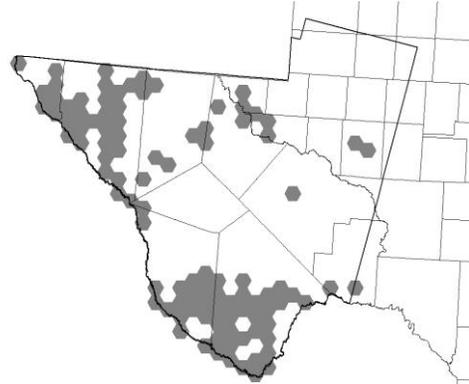
Big Bend National Park

Big Bend Ranch State Park

Black Gap Wildlife Management Area

Fort Leaton State Historic Site

Guadalupe Mountains National Park



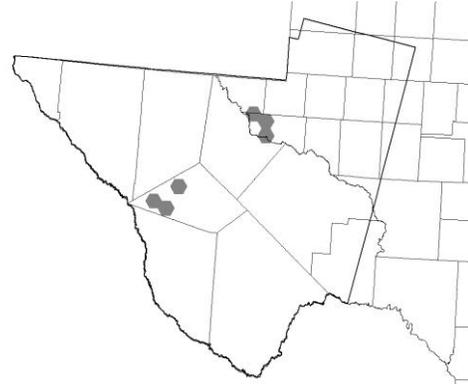
Trans-Pecos: Desert Playa Grassland

Area in Phase 5: 568 acres (230 ha)

Description of Mapped Type: This rare type was mapped where grassland occurred over soils mapped as playas. Salinity is often high, and vegetation may be relatively sparse, with species such as saltgrass, pickle-weed, oreja de perro, seepweed, Russian thistle, and four-wing saltbush common.

Where to Visit:

None



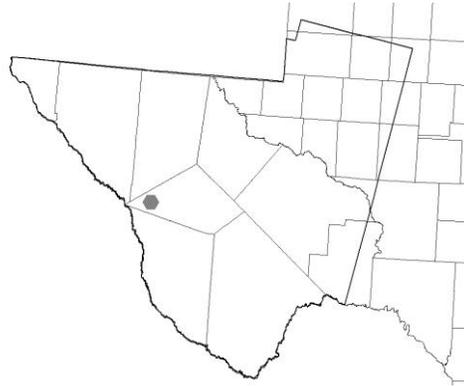
Trans-Pecos: Desert Playa Lake and Barrens

Area in Phase 5: 17 acres (7 ha)

Description of Mapped Type: This rare type was mapped where water or barren land cover occurred over soils mapped as playas.

Where to Visit:

None



Trans-Pecos: Desert Volcanic Rockland

Area in Phase 5: 31,564 acres (12,774 ha)

Description of Mapped Type: This type is represented by essentially barren areas over volcanic rocks. Sparse cover of grasses, succulents, and shrubs may be present.

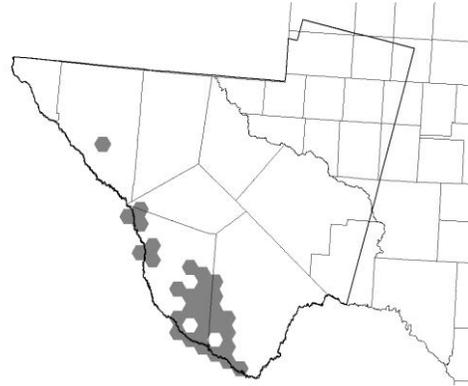
Where to Visit:

Big Bend National Park

Big Bend Ranch State Park

Black Gap Wildlife Management Area

Hueco Tanks State Park & Historic Site



Trans-Pecos: Desert Wash Barren

Area in Phase 5: 104,217 acres (42,175 ha)

Description of Mapped Type: This type is mapped in sparsely vegetated areas along arroyos and draws at relatively low elevation in the Trans-Pecos. Sparse cover of desert shrubs, succulents, and grasses is usually present.

Where to Visit:

Big Bend National Park

Big Bend Ranch State Park

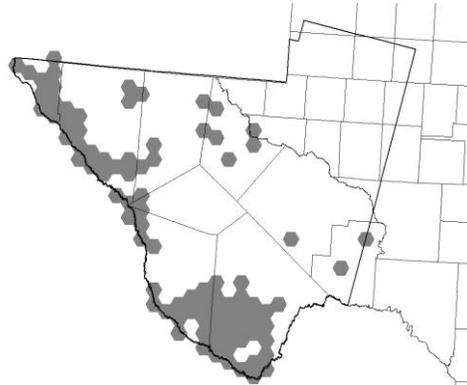
Black Gap Wildlife Management Area

Elephant Mountain Wildlife Management Area

Guadalupe Mountains National Park

Independence Creek Preserve

Sierra Diablo Wildlife Management Area



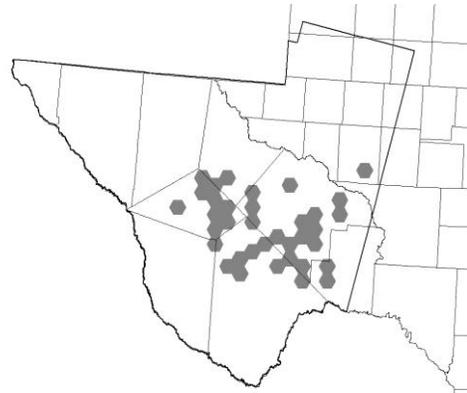
Trans-Pecos: Desert Wash Evergreen Shrubland

Area in Phase 5: 2,579 acres (1,044 ha)

Description of Mapped Type: This type is mapped along relatively low elevation arroyos and draws, and is generally represented by relatively dense shrublands, with species such as redberry juniper, honey mesquite, splitleaf brickelbush, seep willow, desert willow, Apache plume, littleleaf sumac, little walnut, creosotebush, *Acacia* species, and netleaf hackberry.

Where to Visit:

Davis Mountains State Park



Trans-Pecos: Desert Wash Grassland

Area in Phase 5: 280,224 acres (113,403 ha)

Description of Mapped Type: This type is mapped along relatively low elevation arroyos and draws. Common grasses include sideoats grama, silver bluestem, black grama, and threeawn species. Some areas may be well-watered and salty, and support species such as saltgrass and alkali sacaton. Common shrubs include honey mesquite, creosotebush, desert willow, little walnut, Texas persimmon, and *Acacia* species.

Where to Visit:

Big Bend National Park

Big Bend Ranch State Park

Black Gap Wildlife Management Area

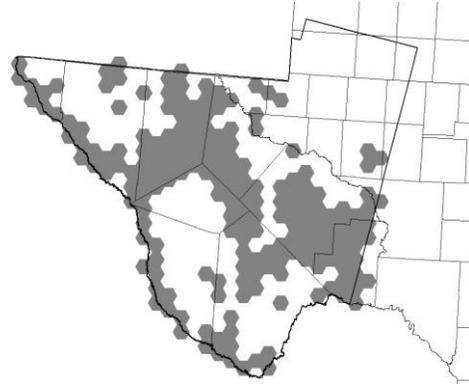
Davis Mountains State Park

Elephant Mountain Wildlife Management Area

Fort Leaton State Historical Site

Independence Creek Preserve

Las Palomas Wildlife Management Area



Trans-Pecos: Desert Wash Shrubland

Area in Phase 5: 1,373,104 acres (555,676 ha)

Description of Mapped Type: This type is mapped along relatively low elevation arroyos and draws. A variety of water regimes are represented, and hence a variety of shrubland types. Common shrubs and small trees include honey mesquite, creosotebush, littleleaf sumac, little-leaf ash, little walnut, ocotillo, seep willow, desert willow, netleaf hackberry, whitethorn acacia, junipers, and whitebrush. Torrey's yucca, sotol, and Christmas cactus are common succulents. Sideoats grama, alkali sacaton, streambed bristlegrass, silver bluestem, tobosa, and chino grama are common grasses.

Where to Visit:

Balmorhea State Park

Big Bend National Park

Big Bend Ranch State Park

Black Gap Wildlife Management Area

Davis Mountains State Park

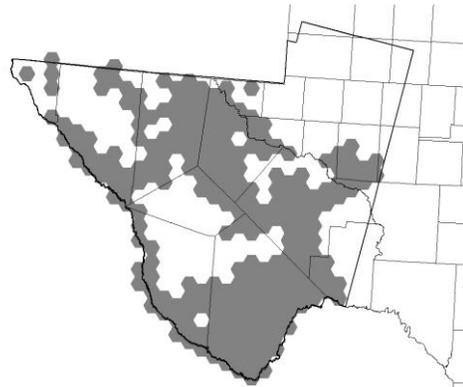
Elephant Mountain Wildlife Management Area

Fort Leaton State Historical Site

Guadalupe Mountains National Park

Hueco Tanks State Park & Historic Site

Las Palomas Wildlife Management Area



Trans-Pecos: Evergreen Chaparral

Area in Phase 5: 11,059 acres (4,476 ha)

Description of Mapped Type: This type is mapped on relatively steep slopes at moderate to high elevations. Common dominants include species such as gray oak, Vasey shin oak, sandpaper oak, scrub oak, Mohr's shin oak, Gambel oak, Mexican pinyon pine, and pinyon pine (Guadalupe Mountains). Other common species include mountain mahogany, desert ceanothus, Wright's silktassel, Wright's beebush, and little-leaf ash.

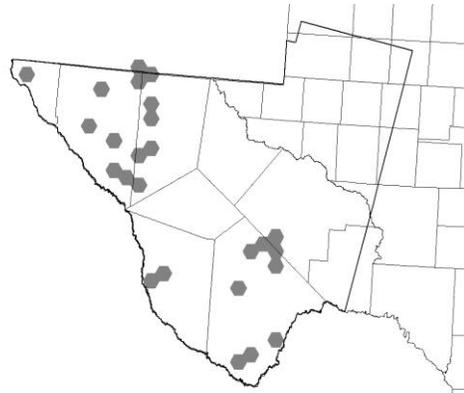
Where to Visit:

Big Bend National Park

Black Gap Wildlife Management Area

Guadalupe Mountains National Park

Sierra Diablo Wildlife Management Area



Trans-Pecos: Gray Oak Savanna and Woodland

Area in Phase 5: 124,706 acres (50,467 ha)

Description of Mapped Type: This type is mapped at fairly low elevations in the mountains, and generally has more oaks than the closely related Trans-Pecos: Pinyon - Juniper and Pinyon - Juniper - Oak types. Common components include gray oak, pinyon or Mexican pinyon pine, and junipers. Other components may include Emory oak, silverleaf oak, Arizona white oak, netleaf oak, Mohr's shin oak, and alligator juniper. Open woodlands may be grassy (see Trans-Pecos: Mountain Grassland).

Where to Visit:

Big Bend National Park

Big Bend Ranch State Park

Black Gap Wildlife Management Area

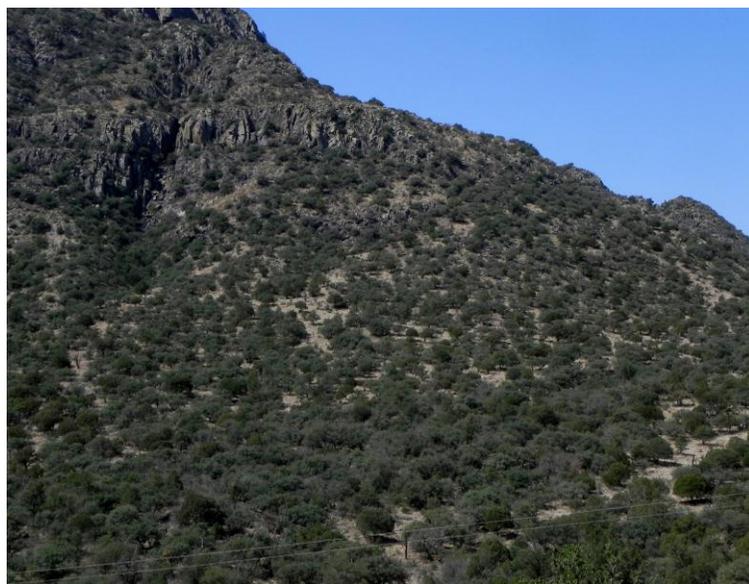
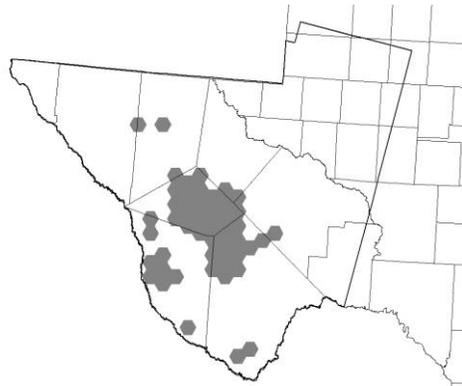
Davis Mountains State Park

Elephant Mountain Wildlife Management Area

Fort Davis National Historic Site

Guadalupe Mountains National Park

Sierra Diablo Wildlife Management Area



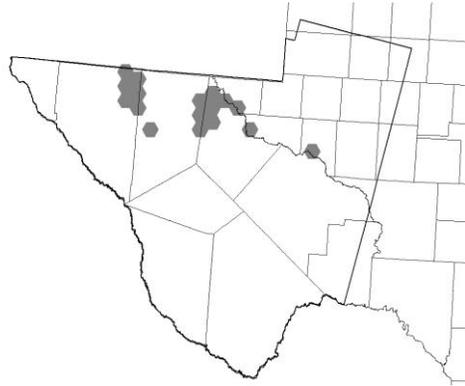
Trans-Pecos: Gyp Barrens

Area in Phase 5: 45,316 acres (18,339 ha)

Description of Mapped Type: This type is represented by essentially barren areas over gyp-influenced soils. Sparse cover of gyp-tolerant shrubs and grasses is usually present.

Where to Visit:

Guadalupe Mountains National Park



Trans-Pecos: Gyp Dune

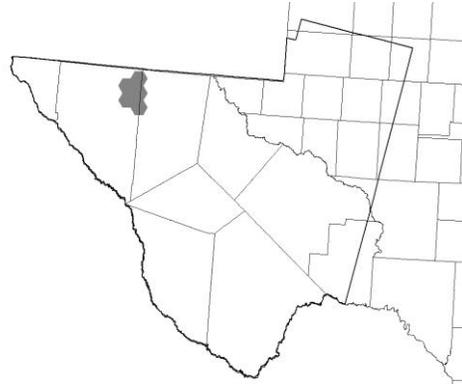
Area in Phase 5: 10,638 acres (4,305 ha)

Description of Mapped Type: This type is mainly mapped over sandy soils in the gyp-influenced area in the vicinity of the Guadalupe Mountains, and includes both barren and vegetated, stabilized dunes. Important species may include gypgrass, gyp grama, rough coldenia, sand sage, broom pea, hoary rosemary-mint, wooly dalea, sand bluestem, giant dropseed, and Indian ricegrass.

Where to Visit:

Guadalupe Mountains National Park

Gypsum Dunes Preserve



Trans-Pecos: Gyp Grassland

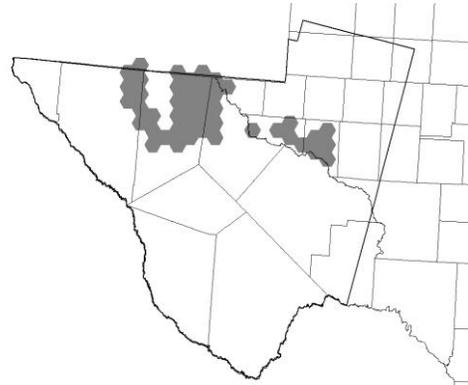
Area in Phase 5: 519,799 acres (210,355 ha)

Description of Mapped Type: This type is mapped over gyp-influenced soils, usually at relatively low elevations. Important species may include gypgrass, gyp grama, rough coldenia, sand nama, threadleaf glowwort, and onion blanket-flower. Four-wing saltbush, Torrey's ephedra, honey mesquite, creosotebush, and javelina bush are common shrubs.

Where to Visit:

Guadalupe Mountains National Park

Gypsum Dunes Preserve



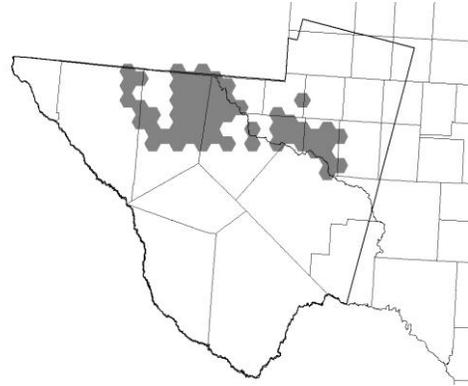
Trans-Pecos: Gyp Shrubland

Area in Phase 5: 302,694 acres (122,496 ha)

Description of Mapped Type: This type is mapped over gyp-influenced soils, usually at relatively low elevations. Important shrubs may include honey mesquite, four-wing saltbush, Torrey's ephedra, creosotebush, burrobrush, Torrey's yucca, and javelina bush. Other common species include gypgrass, gyp grama, rough coldenia, sand nama, threadleaf glowwort, and onion blanket-flower.

Where to Visit:

Guadalupe Mountains National Park



Trans-Pecos: High Mountain Conifer Forest and Woodland

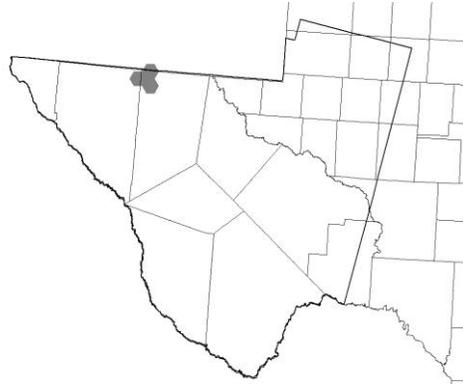
Area in Phase 5: 7,546 acres (3,054 ha)

Description of Mapped Type: This type is mapped at high elevations, mainly in the Guadalupe Mountains, and contains species such as ponderosa pine or Arizona ponderosa pine (in the Chisos Mountains), Douglas-fir, southwestern white pine, Mexican pinyon or pinyon pine, Chisos red oak, chinkapin oak, Gambel oak, alligator juniper, and other juniper species.

Where to Visit:

Big Bend National Park

Guadalupe Mountains National Park



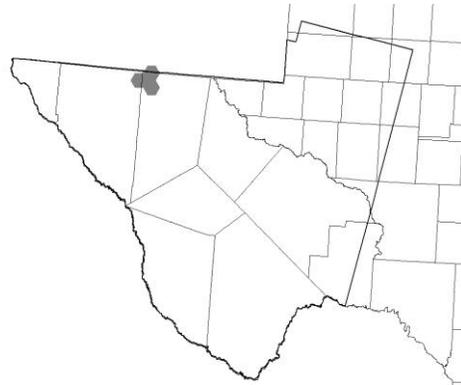
Trans-Pecos: High Mountain Evergreen Shrubland

Area in Phase 5: 663 acres (268 ha)

Description of Mapped Type: This type is mapped only on steep slopes at higher elevation in the Guadalupe Mountains. Representative examples may include dense Gambel oak shrubs, or may contain young or sparse tree species from surrounding evergreen forests or woodlands. Common species include juniper species, Gambel oak, mountain mahogany, pinyon pine, ponderosa pine, and Douglas-fir.

Where to Visit:

Guadalupe Mountains National Park



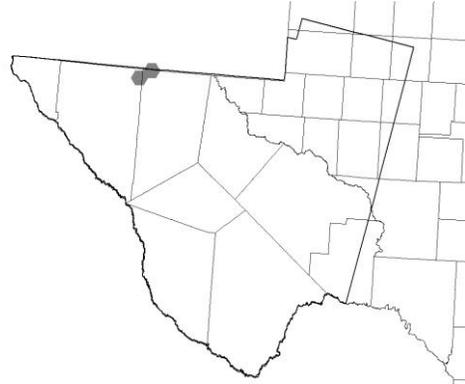
Trans-Pecos: High Mountain Mixed Conifer - Oak Forest and Woodland

Area in Phase 5: 384 acres (155 ha)

Description of Mapped Type: This type is mapped only at high elevations in the Guadalupe Mountains. Common species include both evergreen and deciduous species, including species such as Gambel oak, Douglas-fir, ponderosa pine, pinyon pine, gray oak, and juniper species.

Where to Visit:

Guadalupe Mountains National Park



Trans-Pecos: Hill and Foothill Grassland

Area in Phase 5: 3,254,593 acres (1,317,089 ha)

Description of Mapped Type: This type is mapped over gravelly or rocky, generally sloping soils that are not continuous and thus support a mixture of grasses, shrubs, and succulents. Important grasses may include sideoats grama, black grama, chino grama, tanglehead, threeawns, bush muhly, Arizona cottontop, and fluffgrass. Common shrubs include ocotillo, creosotebush, mariola, skeleton-leaf golden eye, and whitethorn acacia. Common succulents include Torrey's yucca, lechuguilla, sotol, Texas sacahuista, Engelmann pricklypear, and other *Opuntia* and *Echinocereus* (small, ribbed cacti) species.

Where to Visit:

Balmorhea State Park

Big Bend National Park

Big Bend Ranch State Park

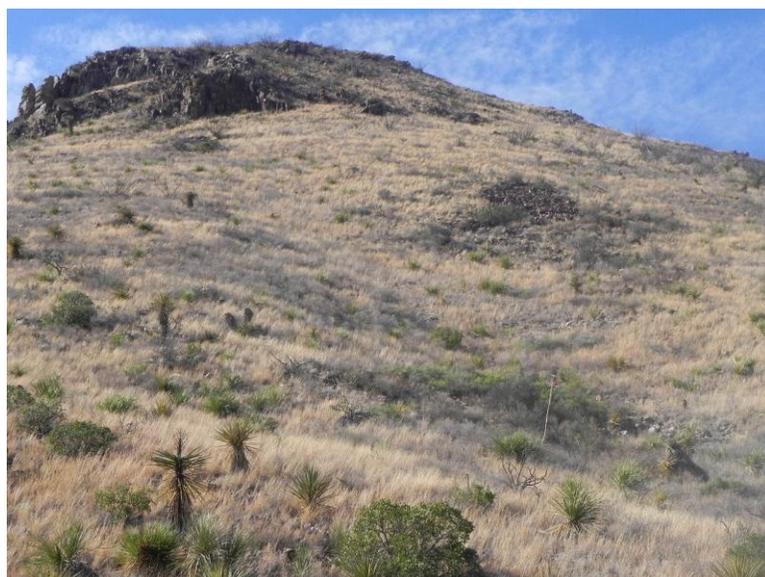
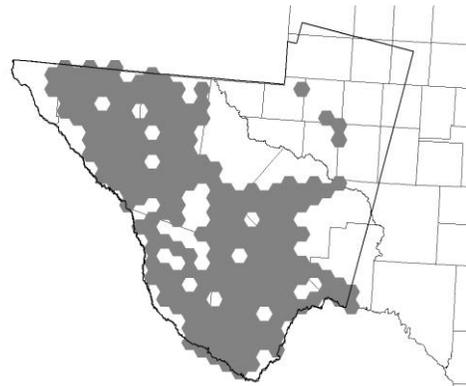
Black Gap Wildlife Management Area

Davis Mountains State Park

Elephant Mountain Wildlife Management Area

Fort Davis National Historic Site

Guadalupe Mountains National Park



Trans-Pecos: Juniper Savanna and Woodland

Area in Phase 5: 68,823 acres (27,852 ha)

Description of Mapped Type: This type is mapped at relatively low elevations in mountains and foothills, and is most often dominated by juniper species (rose-fruited, alligator, redberry). Gray oak, Mohr's shin oak, Emory oak, and Mexican pinyon or pinyon pine are common woody components. Other elements may include Texas sotol, Torrey's yucca, and evergreen sumac. Sideoats grama, black grama, and bull muhly are common grasses.

Where to Visit:

Big Bend National Park

Big Bend Ranch State Park

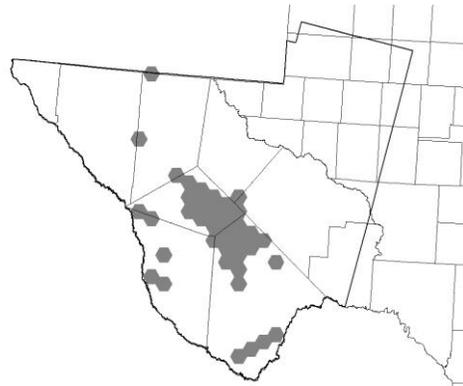
Black Gap Wildlife Management Area

Davis Mountains State Park

Elephant Mountain Wildlife Management Area

Fort Davis National Historic Site

Guadalupe Mountains National Park



Trans-Pecos: Loamy Plains Grassland

Area in Phase 5: 2,241,158 acres (906,966 ha)

Description of Mapped Type: This type is mapped over relatively deep, loamy soils, often in areas within a matrix of broad grasslands over shallower soils (Trans-Pecos: Shallow Desert Grassland) or more rolling, discontinuous soils (Trans-Pecos: Desert Grassland). Important grasses may include sideoats grama, black grama, blue grama, hairy grama, tobosa, silver bluestem, and fluffgrass. Honey mesquite is a common invasive species, along with tarbush and creosotebush, but these areas generally lack javelina bush, whitethorn acacia, or juniper species in much density.

Where to Visit:

Big Bend National Park

Big Bend Ranch State Park

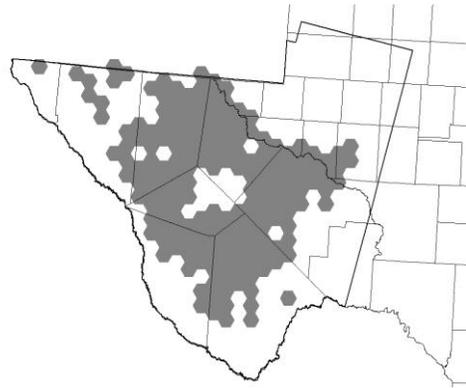
Black Gap Wildlife Management Area

Davis Mountains State Park

Elephant Mountain Wildlife Management Area

Fort Davis National Historic Site

Guadalupe Mountains National Park



Trans-Pecos: Lower Montane Riparian Grassland

Area in Phase 5: 53,038 acres (21,464 ha)

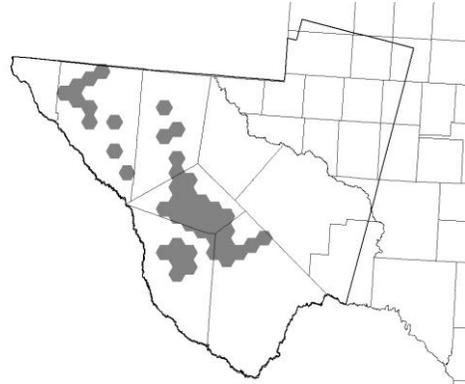
Description of Mapped Type: This type is mapped along drainages that lack significant woody cover, and circumscribes areas that are more or less well-watered. Common grasses include blue grama, sideoats grama, threeawns, tobosa, black grama, bush muhly, deergrass, and silver bluestem.

Where to Visit:

Davis Mountains State Park

Fort Davis National Historic Site

Guadalupe Mountains National Park



Trans-Pecos: Lower Montane Riparian Shrubland

Area in Phase 5: 527,990 acres (213,670 ha)

Description of Mapped Type: This type is mapped along drainages that are more or less well watered and circumscribes a good deal of variation. Areas along perennial streams are included, as well as areas that represent better-watered versions of adjacent upland communities. Common components may include seepwillow, Apache plume, catclaw mimosa, desert willow, netleaf hackberry, littleleaf sumac, evergreen sumac, catclaw acacia, whitethorn acacia, Gray oak, common buttonbush, netleaf hackberry, and willow species.

Where to Visit:

Big Bend National Park

Big Bend Ranch State Park

Black Gap Wildlife Management Area

Davis Mountains State Park

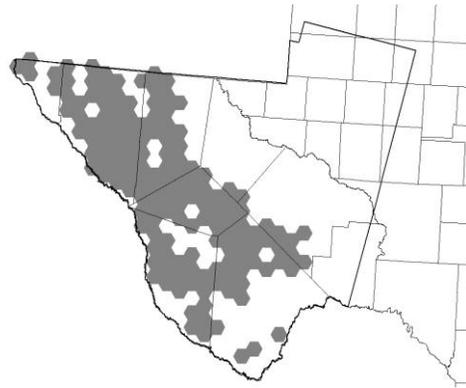
Elephant Mountain Wildlife Management Area

Fort Davis National Historic Site

Guadalupe Mountains National Park

Hueco Tanks State Park & Historic Site

Sierra Diablo Wildlife Management Area



Trans-Pecos: Lower Montane Riparian Woodland

Area in Phase 5: 8,102 acres (3,279 ha)

Description of Mapped Type: This type is mapped along small drainages and circumscribes areas that are more or less well-watered. Communities sometimes represent better-watered versions of adjacent uplands, and are sometimes more riparian in nature. Common trees may include Arizona cottonwood, Rio Grande cottonwood, velvet ash, little walnut, Chisos red oak, Emory oak, and netleaf hackberry. Shrubs may include Mexican buckeye, Apache plume, catclaw mimosa, willow species, and common buttonbush.

Where to Visit:

Big Bend National Park

Big Bend Ranch State Park

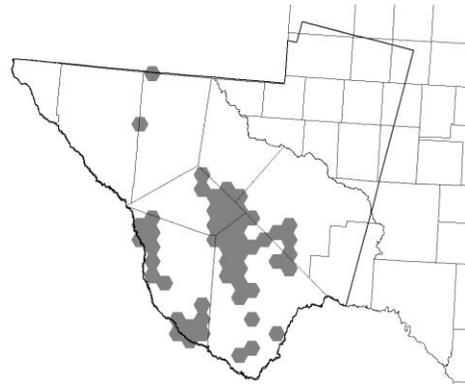
Black Gap Wildlife Management Area

Davis Mountains State Park

Elephant Mountain Wildlife Management Area

Guadalupe Mountains National Park

Sierra Diablo Wildlife Management Area



Trans-Pecos: Marsh

Area in Phase 5: 4,801 acres (1,943 ha)

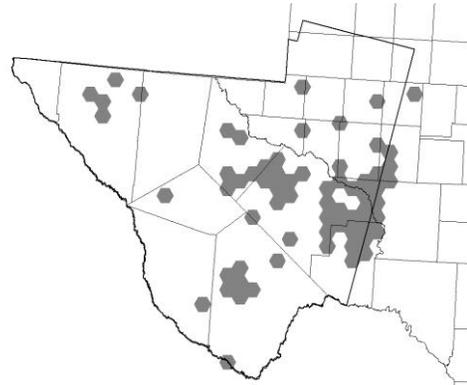
Description of Mapped Type: This is a generic type that was assigned to marsh where soils were not considered naturally moist. A variety of moist areas, including man-made stock tanks that are alternately wet and dry, are included. Common dominants include spikerushes, cattails, Bermudagrass, and smartweeds.

Where to Visit:

Big Bend National Park

Big Bend Ranch State Park

Independence Creek Preserve



Trans-Pecos: Mixed Desert Shrubland

Area in Phase 5: 3,098,391 acres (1,253,876 ha)

Description of Mapped Type: This type is mapped on moderate slopes, usually in hills and low mountains rather than alluvial or colluvial desert basins. Shrub diversity is often relatively high, and common components include mariola, creosotebush, whitethorn acacia, skeleton-leaf golden eye, honey mesquite, catclaw acacia, Torrey's yucca, lechuguilla, sotol, and ocotillo. To the east within Phase 5, South Texas Plains species such as cenizo, guajillo, and blackbrush may be important.

Where to Visit:

Big Bend National Park

Big Bend Ranch State Park

Black Gap Wildlife Management Area

Davis Mountains State Park

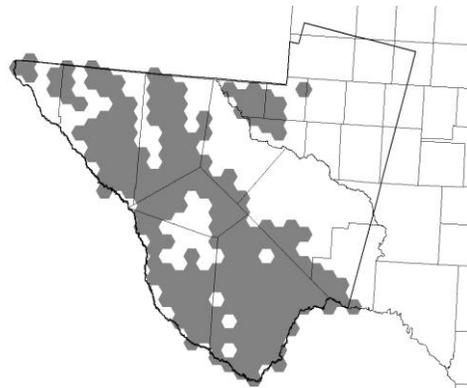
Elephant Mountain Wildlife Management Area

Fort Davis National Historic Site

Guadalupe Mountains National Park

Hueco Tanks State Park & Historic Site

Sierra Diablo Wildlife Management Area



Trans-Pecos: Mixed Oak Savanna and Woodland

Area in Phase 5: 145,004 acres (58,681 ha)

Description of Mapped Type: This type is mapped on moderately high to high mountain slopes, and often circumscribes areas that are relatively open and grassy and are dominated mainly by oak species. Common oaks include gray, Emory, silverleaf, Arizona white, netleaf, and Mohr's shin oak. Pinyon pine, Mexican pinyon pine, alligator juniper, and other juniper species are also common. Grasslands may be intermixed with species such as sideoats grama, bull muhly, black grama, and hairy grama common.

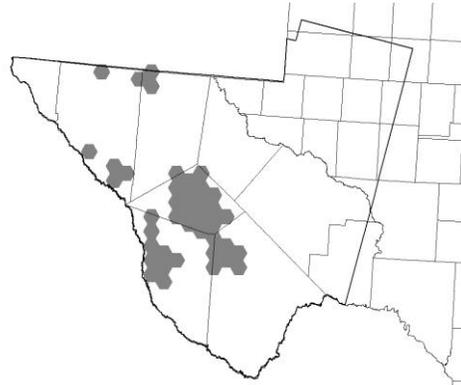
Where to Visit:

Big Bend National Park

Davis Mountains State Park

Elephant Mountain Wildlife Management Area

Guadalupe Mountains National Park



Trans-Pecos: Montane Mesic and Canyon Evergreen Shrubland

Area in Phase 5: 6,177 acres (2,500 ha)

Description of Mapped Type: This type is mapped mainly in canyons along streams, and may represent communities on a variety of substrates and under different moisture regimes. Species composition varies among the mountain ranges (Guadalupe, Davis, and Chisos). Common components include Mexican pinyon pine, pinyon pine, alligator juniper, other juniper species, mountain mahogany, desert ceanothus, littleleaf sumac, gray oak, evergreen sumac, eggleaf siltassel, and *Acacia* species.

Where to Visit:

Big Bend National Park

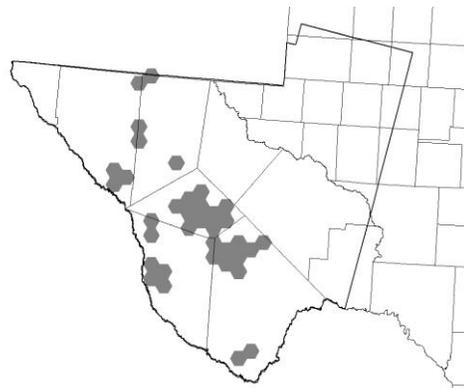
Black Gap Wildlife Management Area

Davis Mountains State Park

Elephant Mountain Wildlife Management Area

Guadalupe Mountains National Park

Sierra Diablo Wildlife Management Area



Trans-Pecos: Montane Mesic and Canyon Hardwood - Pine - Juniper Forest

Area in Phase 5: 13,330 acres (5,394 ha)

Description of Mapped Type: This type is mapped mainly in canyons along streams, and may represent communities on a variety of substrates and under different moisture regimes. Species composition varies among the mountain ranges (Guadalupe, Davis, and Chisos). Common components include ponderosa or Arizona pine, pinyon or Mexican pinyon pine, alligator juniper, gray oak, Emory oak, Chisos red oak, chinkapin oak, bigtooth maple, and southwestern chokecherry.

Where to Visit:

Big Bend National Park

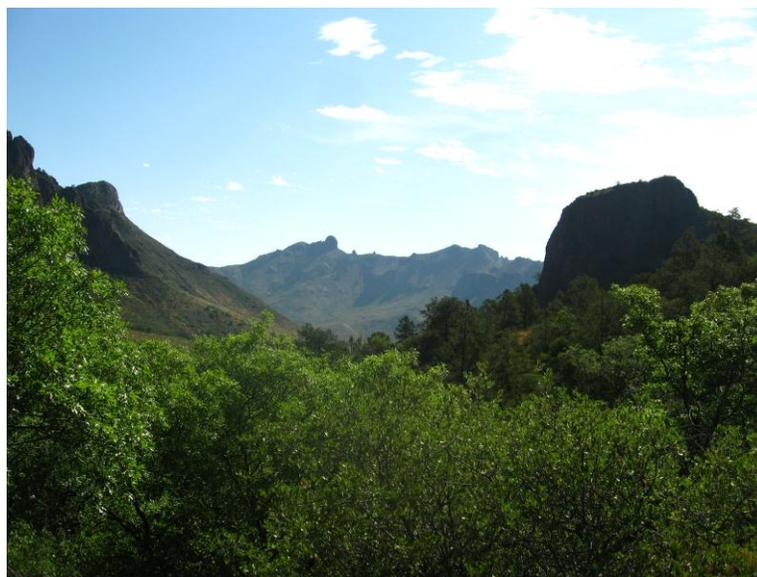
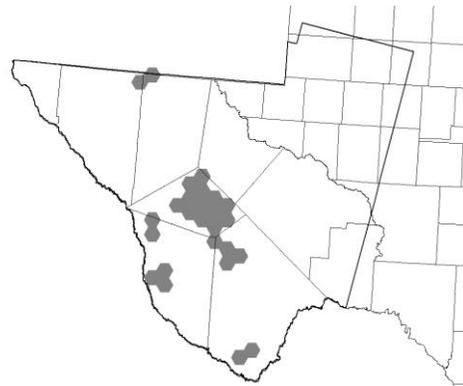
Black Gap Wildlife Management Area

Davis Mountains State Park

Elephant Mountain Wildlife Management Area

Guadalupe Mountains National Park

Sierra Diablo Wildlife Management Area



Trans-Pecos: Montane Mesic and Canyon Hardwood Forest

Area in Phase 5: 8,038 acres (3,253 ha)

Description of Mapped Type: This type is mapped mainly in canyons along streams, and may represent communities on a variety of substrates and under different moisture regimes. Species composition varies among the mountain ranges (Guadalupe, Davis, and Chisos). Chisos red oak, chinkapin oak, gray oak, Emory oak, netleaf oak, velvet ash, and Chisos oak may be present. Alligator juniper, weeping juniper, pinyon or Mexican pinyon pine, ponderosa pine, and Arizona pine may be present.

Where to Visit:

Big Bend National Park

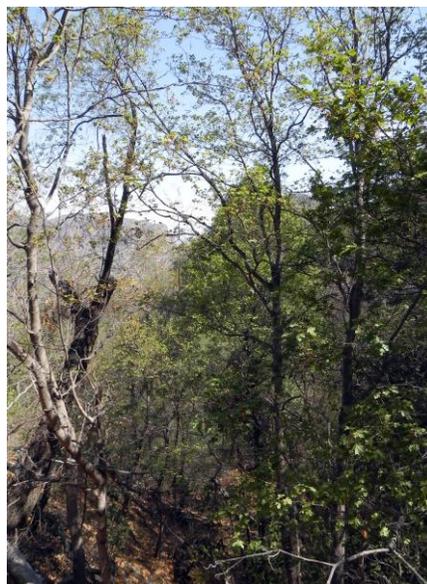
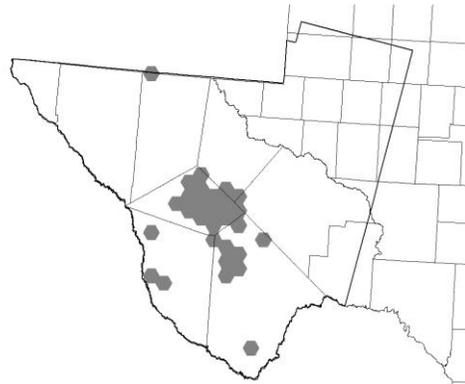
Big Bend Ranch State Park

Davis Mountains State Park

Elephant Mountain Wildlife Management Area

Guadalupe Mountains National Park

Sierra Diablo Wildlife Management Area



Trans-Pecos: Montane Mesic and Canyon Pine - Juniper Forest

Area in Phase 5: 5,910 acres (2,392 ha)

Description of Mapped Type: This type is mapped mainly in canyons along streams, and may represent communities on a variety of substrates and under different moisture regimes. Species composition varies among the mountain ranges (Guadalupe, Davis, and Chisos). Common components include ponderosa or Arizona pine, pinyon or Mexican pinyon pine, Douglas-fir, Arizona cypress, and alligator juniper. Other species such as gray oak, Emory oak, Chisos red oak, chinkapin oak, and southwestern chokecherry may be present.

Where to Visit:

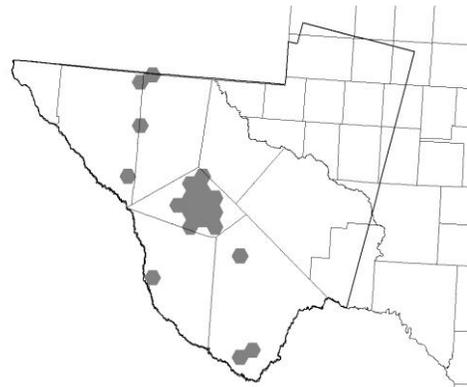
Big Bend National Park

Davis Mountains State Park

Fort Davis National Historic Site

Guadalupe Mountains National Park

Sierra Diablo Wildlife Management Area



Trans-Pecos: Montane Mesic and Canyon Shrubland

Area in Phase 5: 28,456 acres (11,516 ha)

Description of Mapped Type: This type is mapped mainly in canyons along streams, and may represent communities on a variety of substrates and under different moisture regimes. Species composition varies among the mountain ranges (Guadalupe, Davis, and Chisos). Sparse woodlands and shrublands are characteristic of this type, with species such as Mexican buckeye, western hop-hornbeam, Big Bend hop hornbeam, Tracy hawthorn, velvet ash, southwestern chokecherry, and Texas madrone often present.

Where to Visit:

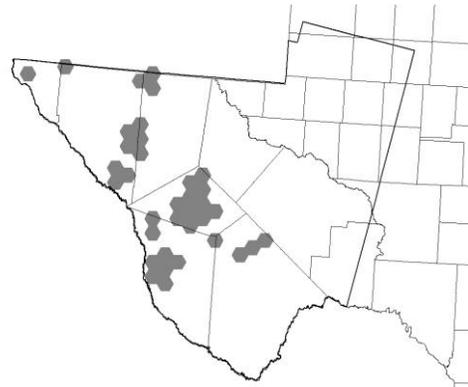
Big Bend National Park

Davis Mountains State Park

Elephant Mountain Wildlife Management Area

Guadalupe Mountains National Park

Sierra Diablo Wildlife Management Area



Trans-Pecos: Mountain Evergreen Oak - Pine Shrubland

Area in Phase 5: 6,138 acres (2,484 ha)

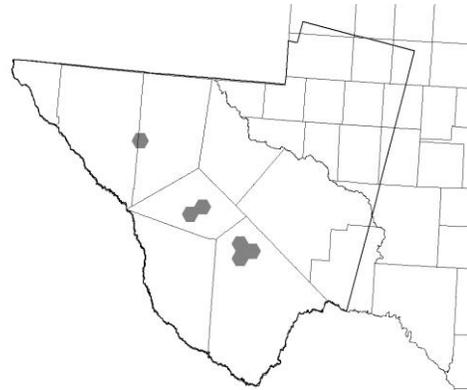
Description of Mapped Type: This type is mapped at relatively high elevations, and represents sparse or young growth of oaks (Gambel, silverleaf, gray), ponderosa pine, Mexican pinyon pine or pinyon pine, and juniper species. Elements of the Trans-Pecos: Mountain Grassland are common components.

Where to Visit:

Big Bend National Park

Davis Mountains State Park

Sierra Diablo Wildlife Management Area



Trans-Pecos: Mountain Grassland

Area in Phase 5: 323,008 acres (130,717 ha)

Description of Mapped Type: A variety of grassland types at different elevations are represented by this type. These grasslands are often diverse, with species such as sideoats grama, blue grama, bull muhly, black grama, silver bluestem, tanglehead, Texas bluestem, woolyspike balsamscale, and pinyon ricegrass. This type is often interspersed with woodlands dominated by species such as pinyon or Mexican pinyon pine, ponderosa or Arizona pine, gray oak, and juniper species.

Where to Visit:

Big Bend National Park

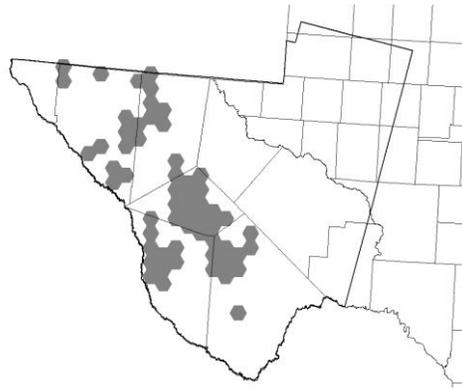
Black Gap Wildlife Management Area

Davis Mountains State Park

Elephant Mountain Wildlife Management Area

Guadalupe Mountains National Park

Sierra Diablo Wildlife Management Area



Trans-Pecos: Pinyon - Juniper - Oak Woodland

Area in Phase 5: 57,411 acres (23,234 ha)

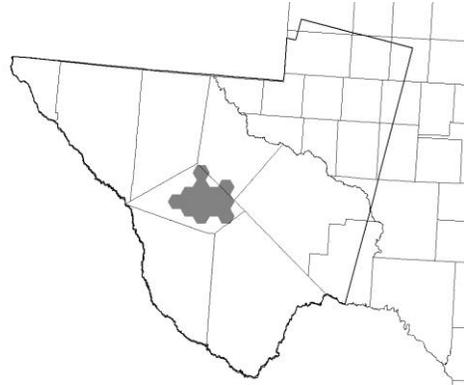
Description of Mapped Type: This type is mapped at moderate to low elevations and is most often dominated by a mixture of evergreen and deciduous trees and shrubs. Common elements include Mexican pinyon or pinyon pine, alligator juniper and other juniper species, Gray oak, Emory oak, and Mohr's shin oak.

Where to Visit:

Davis Mountains State Park

Guadalupe Mountains National Park

Sierra Diablo Wildlife Management Area



Trans-Pecos: Pinyon - Juniper Shrubland

Area in Phase 5: 282,184 acres (114,196 ha)

Description of Mapped Type: This type is mapped at moderate to lower elevations, and is most often dominated by shrubs or low trees such as Mexican pinyon pine, pinyon pine, paper-shell pinyon, alligator juniper, and other junipers. Gray oak, Mohr's shin oak, evergreen sumac, and skunkbush sumac are common components. Grasses are often interspersed with species such as sideoats grama, blue grama, black grama, and bull muhly often present.

Where to Visit:

Big Bend National Park

Black Gap Wildlife Management Area

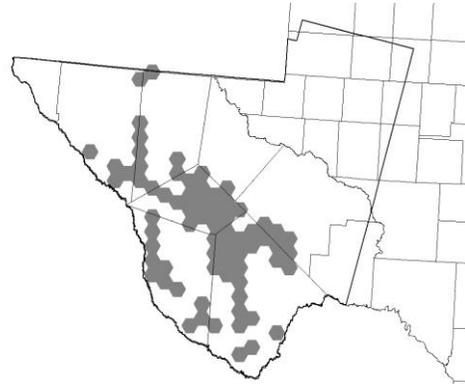
Davis Mountains State Park

Elephant Mountain Wildlife Management Area

Guadalupe Mountains National Park

Hueco Tanks State Park & Historic Site

Sierra Diablo Wildlife Management Area



Trans-Pecos: Pinyon - Juniper Woodland

Area in Phase 5: 92,157 acres (37,295 ha)

Description of Mapped Type: This type is mapped at moderate to lower elevations, and is represented by relatively dense stands of trees and shrubs with pinyon, Mexican pinyon, paper-shell pinyon, alligator juniper, and other juniper species common dominants. Mohr's oak, gray oak, Emory oak, and mountain mahogany may also be important.

Where to Visit:

Big Bend National Park

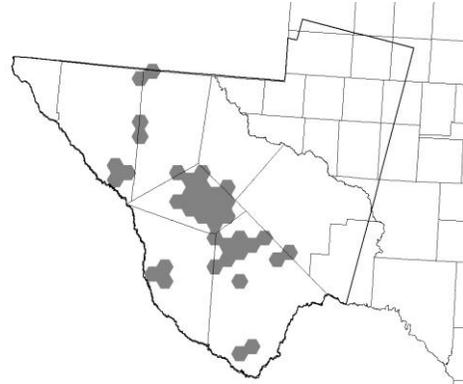
Black Gap Wildlife Management Area

Davis Mountains State Park

Elephant Mountain Wildlife Management Area

Guadalupe Mountains National Park

Sierra Diablo Wildlife Management Area



Trans-Pecos: Ponderosa/Arizona Pine - Oak Woodland

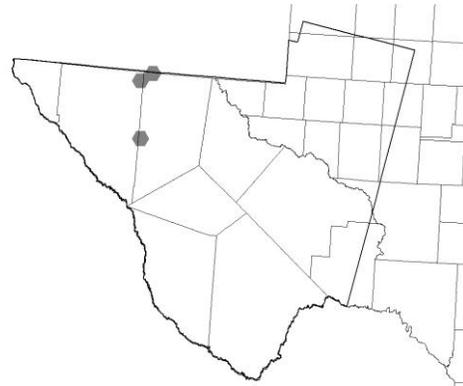
Area in Phase 5: 118 acres (48 ha)

Description of Mapped Type: This type is rare and contains elements of the Trans-Pecos: Ponderosa/Arizona Pine Woodland but tends to be more open, with more deciduous oak species among the dominants.

Where to Visit:

Guadalupe Mountains National Park

Sierra Diablo Wildlife Management Area



Trans-Pecos: Ponderosa/Arizona Pine Woodland

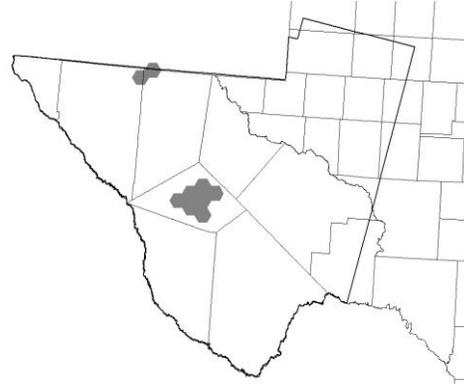
Area in Phase 5: 19,432 acres (7,864 ha)

Description of Mapped Type: This type is mapped at relative high elevations and is often dominated by ponderosa pine, Arizona pine in the Chisos Mountains, Mexican pinyon pine, or pinyon pine. Other common species include Emory oak, gray oak, Gambel oak, silverleaf oak, and alligator juniper. Common shrubs include mountain mahogany, snowberry species, and catclaw mimosa.

Where to Visit:

Davis Mountains State Park

Guadalupe Mountains National Park



Trans-Pecos: Riparian Barren

Area in Phase 5: 5,245 acres (2,123 ha)

Description of Mapped Type: This type represents essentially bare rock or sand bars along upland drainages.

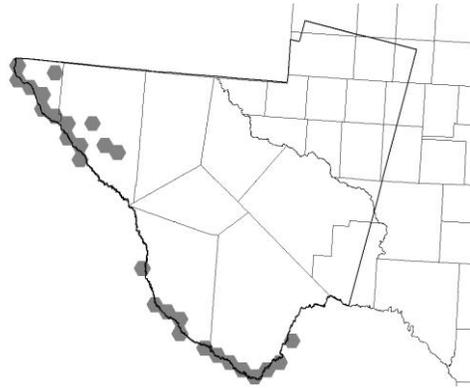
Where to Visit:

Big Bend National Park

Big Bend Ranch State Park

Guadalupe Mountains National Park

Sierra Diablo Wildlife Management Area



Trans-Pecos: Riparian Shrubland

Area in Phase 5: 189,742 acres (76,786 ha)

Description of Mapped Type: This type is mapped along small upland drainages, and may represent a more dense version of shrublands in the surrounding landscape, or may be more well-watered than surrounding areas. Common species include honey mesquite, *Baccharis* species, brickellbush species, Apache plume, little walnut, and desert willow.

Where to Visit:

Big Bend National Park

Big Bend Ranch State Park

Black Gap Wildlife Management Area

Elephant Mountain Wildlife Management Area

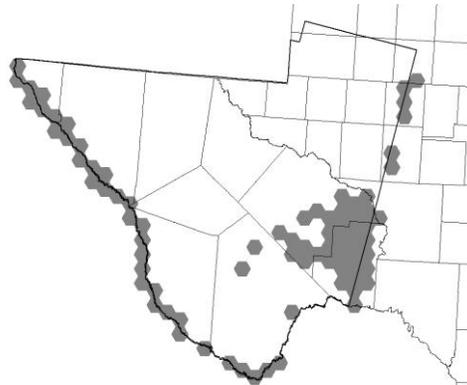
Fort Leaton State Historical Site

Guadalupe Mountains National Park

Independence Creek Preserve

Las Palomas Wildlife Management Area

Sierra Diablo Wildlife Management Area



Trans-Pecos: Riparian Woodland

Area in Phase 5: 10,733 acres (4,343 ha)

Description of Mapped Type: This type is mapped along small upland drainages and may be more or less well-watered. Common species include netleaf hackberry, honey mesquite, western soapberry, black willow, saltcedar, desert willow, *Baccharis* species, and Apache plume.

Where to Visit:

Big Bend National Park

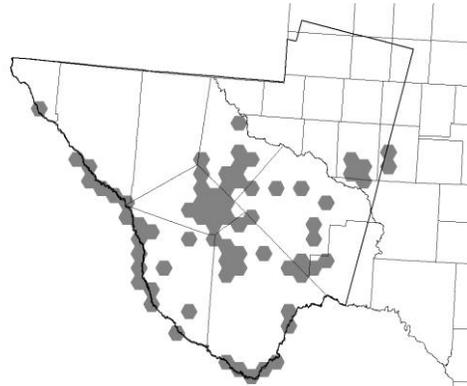
Big Bend Ranch State Park

Black Gap Wildlife Management Area

Davis Mountains State Park

Fort Davis National Historic Site

Las Palomas Wildlife Management Area



Trans-Pecos: Rocky Mountain Gambel Oak - Mixed Shrubland

Area in Phase 5: 2,493 acres (1,009 ha)

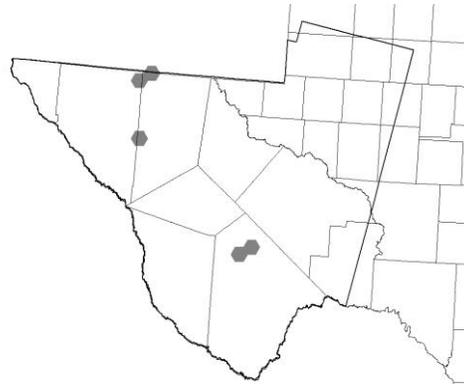
Description of Mapped Type: This type is mapped at relatively high elevations and circumscribes open woodlands and shrublands. Gambel oak is the most common dominant, but species such as mountain mahogany, New Mexico locust, mountain snowberry, and skunkbush sumac are often present. Trees such as ponderosa pine, pinyon pines, alligator juniper, gray oak and chinkapin oak may be present.

Where to Visit:

Big Bend National Park

Guadalupe Mountains National Park

Sierra Diablo Wildlife Management Area



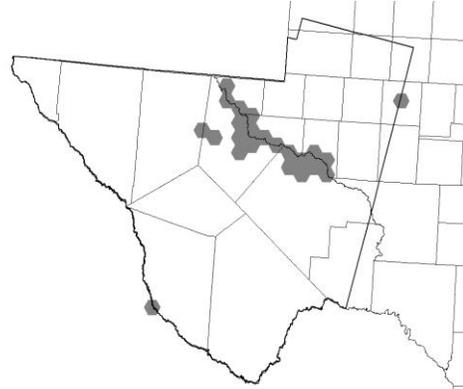
Trans-Pecos: Salty Desert Grassland

Area in Phase 5: 174,291 acres (70,533 ha)

Description of Mapped Type: This type is mapped on salty, moist soils, especially along the Pecos River but also in other salty basins and alluvial fans. Alkali sacaton is often dominant, and species such as Russian thistle, false Rhodes grass, pink pappusgrass, tobosa, burrow grass, desert seepweed and pickle-weed are often present. Shrubs and small trees such as honey mesquite, four-wing saltbush, allthorn, lotebush, and salt cedar are often present.

Where to Visit:

None



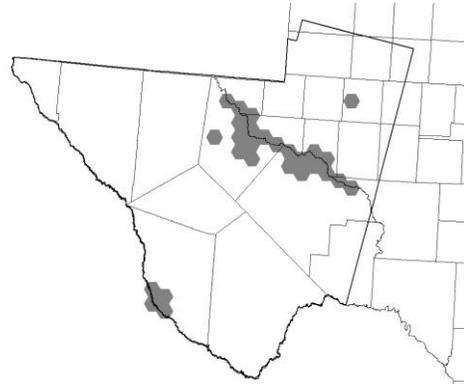
Trans-Pecos: Salty Desert Scrub

Area in Phase 5: 215,907 acres (87,374 ha)

Description of Mapped Type: This type is mapped on salty, moist soils, especially along the Pecos River but also in other salty basins and alluvial fans. Shrubs such as honey mesquite, four-wing saltbush, saltcedars, allthorn, pickle-weed, southern Jimmy-weed, and lotebush are common components. Herbaceous species may include species such as alkali sacaton, Russian thistle, false Rhodes grass, pink pappusgrass, and desert seepweed.

Where to Visit:

None



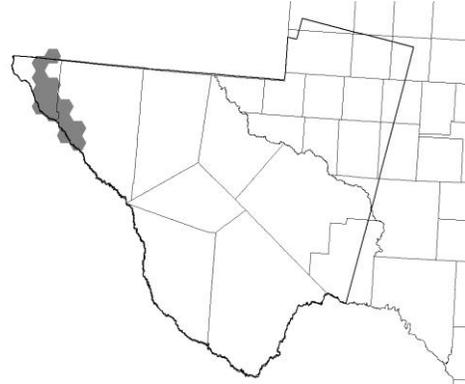
Trans-Pecos: Sand Dune

Area in Phase 5: 103,128 acres (41,734 ha)

Description of Mapped Type: This type is mapped on essentially barren sand dunes in low desert areas of the western part of the Trans-Pecos. Sparse grasses and shrubs such as honey mesquite, yucca species, sand dropseed, and threeawns are often present.

Where to Visit:

Guadalupe Mountains National Park



Trans-Pecos: Sandy Desert Grassland

Area in Phase 5: 860,588 acres (348,268 ha)

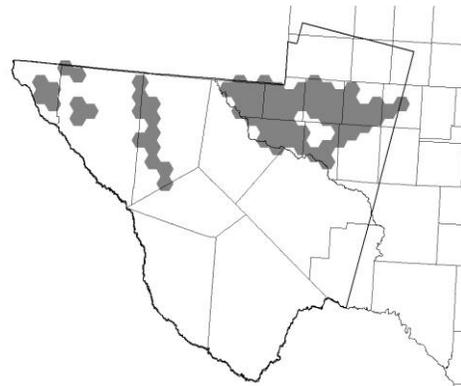
Description of Mapped Type: This type is mapped in relatively low elevation desert, mainly in the northern part of the Trans-Pecos and extending into the southern High Plains. Common components include grasses such as sand dropseed, tobosa, Lehmann lovegrass, Mediterranean lovegrass, threeawns, white tridens, mesa dropseed, common sandspur, and sand muhly. Honey mesquite, creosotebush, catclaw acacia, and yucca species may be present.

Where to Visit:

Guadalupe Mountains National Park

Gypsum Dunes Preserve

Hueco Tanks State Park & Historic Site



Trans-Pecos: Shallow Plains Grassland

Area in Phase 5: 887,276 acres (359,068 ha)

Description of Mapped Type: This type is mapped over shallow soils, often in areas within a matrix of broad grasslands over deeper soils (Trans-Pecos: Loamy Plains Grassland) or more rolling, discontinuous soils (Trans-Pecos: Hill and Foothill Grassland). Important grasses may include sideoats grama, black grama, blue grama, hairy grama, tobosa, silver bluestem, and fluffgrass. Javelina bush, juniper species, and whitethorn acacia are common shrubs, but most areas lack honey mesquite, tarbush, or creosotebush in much density.

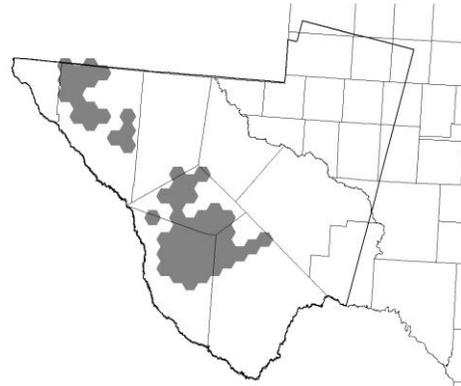
Where to Visit:

Davis Mountains State Park

Fort Davis National Historic Site

Guadalupe Mountains National Park

Sierra Diablo Wildlife Management Area



Trans-Pecos: Sparse Creosotebush Scrub

Area in Phase 5: 2,095,494 acres (848,018 ha)

Description of Mapped Type: This type is mapped in low desert flats and is commonly dominated by a sparse cover of creosotebush with a low diversity of other species. Shrubs such as mariola and whitethorn acacia may be present, together with succulents such as Torrey's yucca, lechuguilla, and ocotillo.

Where to Visit:

Big Bend National Park

Big Bend Ranch State Park

Black Gap Wildlife Management Area

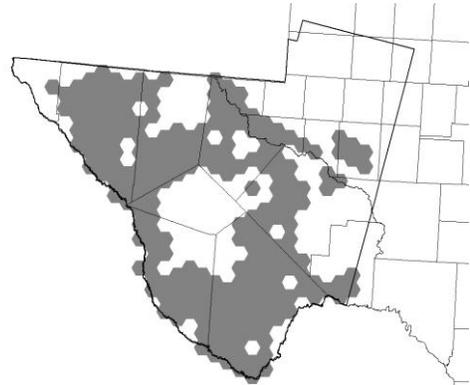
Elephant Mountain Wildlife Management Area

Fort Leaton State Historical Site

Hueco Tanks State Park & Historic Site

Las Palomas Wildlife Management Area

Sierra Diablo Wildlife Management Area



Trans-Pecos: Succulent Desert Scrub

Area in Phase 5: 1,264,380 acres (511,677 ha)

Description of Mapped Type: This type is mapped at low elevations on relatively steep slopes. Shrub, succulent, and grass diversity is often relatively high. Succulents may include species such as Torrey's yucca, Texas sotol, lechuguilla, and candelilla. Shrubs such as ocotillo, creosotebush, mariola, whitethorn acacia, leatherstem, skeleton-leaf golden eye, honey mesquite, and desert olive are common. Grasses may include species such as chino grama, black grama, sideoats grama, slim tridens, and threeawns.

Where to Visit:

Big Bend National Park

Big Bend Ranch State Park

Black Gap Wildlife Management Area

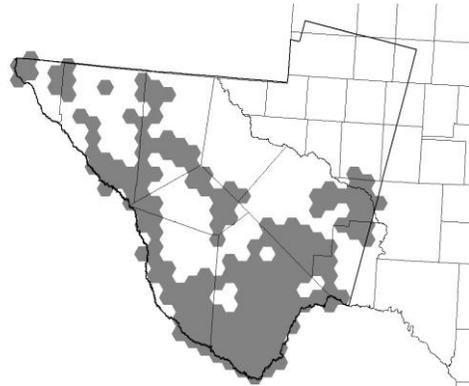
Davis Mountains State Park

Elephant Mountain Wildlife Management Area

Fort Davis National Historic Site

Guadalupe Mountains National Park

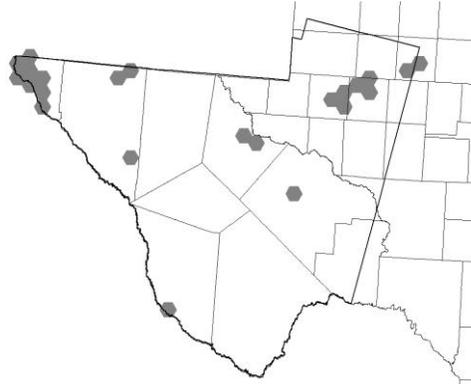
Sierra Diablo Wildlife Management Area



Urban High Intensity

Area in Phase 5: 21,529 acres (8,713 ha)

Description of Mapped Type: This type consists of built-up areas and wide transportation corridors that are dominated by impervious cover.



Urban Low Intensity

Area in Phase 5: 170,579 acres (69,031 ha)

Description of Mapped Type: This type includes areas that are built-up but not entirely covered by impervious cover, and includes most of the non-industrial areas within cities and towns.

