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AN INVENTORY OF THE VASCULAR PLANTS OF AMISTAD NATIONAL RECREATION AREA, VAL VERDE CO., TEXAS

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Abstract: Amistad National Recreation Area is a 23,186 ha property in Val Verde County, Texas. A floral inventory was conducted in 2003–2004, producing a checklist of 699 taxa with 99 infraspecific taxa, 686 species, 402 genera, and 106 families. There are 651 native taxa and 48 introduced. No federally or state listed plants were documented. Seventeen species of conservation concern were verified within the park. Thirteen taxa endemic to Texas were recorded. Plant communities were also noted and compared to those previously reported for the site.

Amistad National Recreation Area (Amistad NRA) is located in southwest Texas along the U.S.-Mexico border near the town of Del Rio, Texas. The recreation area extends along the Rio Grande from above Langtry to just above Del Rio, and up two tributaries of the Rio Grande, the Pecos, and Devils Rivers, for dozens of miles. The recreation area was created after the construction of Amistad Dam that was built in 1969 below the confluence of the Rio Grande and the Devils River. Lake Amistad International Reservoir has approximately 1,432 km (890 mi) of shoreline with numerous coves and inlets, 869 km (540 mi) in the United States and 563 km (350 mi) in Mexico. The park's boundary is mostly unfenced. Amistad NRA is located in Val Verde County, Texas (Figure 1) and consists of 23,186 ha (57,294 ac), including areas covered by the reservoir (NPS 2006). Except for some upland areas beyond the main body of the reservoir (including five Hunt Areas), the actual land area of the NRA fluctuates with changing reservoir levels. The national recreation area's boundary is generally defined as the reservoir surface and shore area up to the 348.8-meter (1,144.3-foot) elevation contour above mean sea level, with a pool conservation level contour of 340.5 meter (1,117 feet) above mean sea level. Water in the reservoir is used for municipal and irrigation purposes for communities downstream along the Rio Grande (NPS 2004).

The climate of Amistad NRA is semi-arid, with hot summers and mild dry winters (Golden et al., 1982; Natural Fibers Information Center 1987). Rainfall occurs primarily in two time periods: April through June and September through October, with >80% of the annual precipitation occurring from April to October. Average annual precipitation in Del Rio is 469 mm (18.5 in). However, precipitation tends to fall erratically, with monthly and yearly totals often straying far from the average. During the August 1998 flood, 432 mm (17.02 in) of rain, almost the average annual rainfall, fell during one day, in contrast to the average annual precipitation in 1956 that was only 110.2 mm (4.34 in). During the field sessions of this study (April 2002 to October 2003), a year long drought was broken, and precipitation was above average most months. Average monthly temperatures vary from 10°C (50° F) in winter to 27°C (81° F) in summer. Temperatures can be quite hot, especially in the summer, with an average of 124 days over 32°C (90°F). Freezing temperatures occur on average only 19 days a year (National Weather Service 2003).

Geologically Amistad NRA is fairly homogeneous (Bureau of Economic Geology 1977). Most of the outcropping and underlying rock is Cretaceous limestone. The Salmon Peak and Buda limestones are the most common, while the Del Rio clay (calcareous and gypsiferous clay), is locally

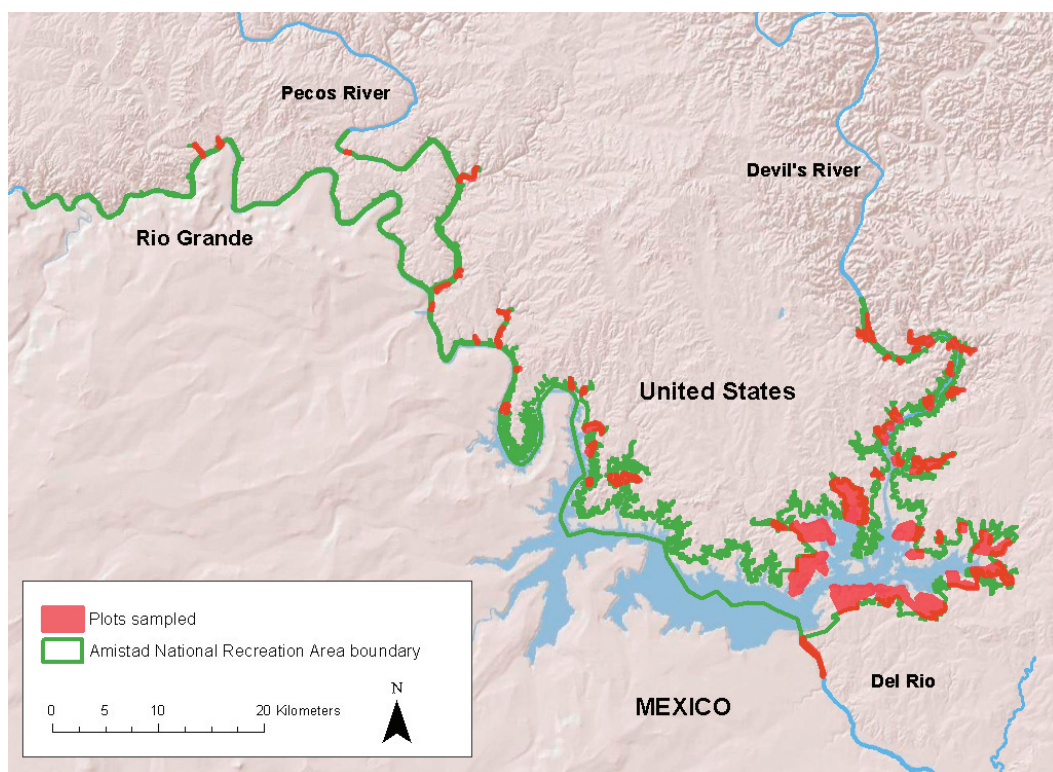


FIG. 1. Amistad National Recreation Area with plot locations.

common at some sites. Along the narrow Rio Grande corridor of the park, upstream from the confluence with the Pecos River, the Devils River limestone replaces the others as the most common rock type. Some minor outcrops of the Eagle Ford formation (shales, siltstones, and limestone) and the Pliocene or Pleistocene Uvalde gravel formation also occur within Amistad NRA boundaries.

Most of the soils within Amistad NRA are shallow, rocky and alkaline (Golden et al. 1982). The rivers and drainages that have not been permanently flooded contain primarily riparian type soils. Along the Rio Grande, the soils (Rio Grande Series) are deep, loamy and silty. Near the end of the Amistad NRA boundary along the Devils River, the soils are unstabilized, nearly barren, sandy, gravelly, rocky sediments (Riverwash soil map unit) that wash in from the surrounding limestone hills. Areas of

exposed limestone bedrock also occur. The rest of the Devils River within the recreation area as well as the drainages of San Pedro Creek are in the Dev Series (very gravelly clay loams). The Pecos River (within the recreation area boundary) has little soil development, and is mapped as Langtry-Rock outcrop association. Although the association is mostly composed of limestone rock outcrops, Langtry soils are rocky clay loams.

The upland soils of Amistad NRA also vary by location. From the park's uppermost reaches on the Rio Grande to Langtry, the soils are primarily the Mariscal-Lozier association (shallow, rocky loams) and the Lozier-Shumla association (shallow loamy to gravelly loamy soils). From Langtry to Seminole Canyon, the soils are the same as those along the Pecos, the Langtry-Rock outcrop association. Below Seminole Canyon to Evans Creek, the Langtry-Rock

outcrop association is still frequent, but other soils such as the Felipe and Zorra soil association (shallow gravelly clays and stony loams, respectively), the Valverde silty clay loam (a deep soil), and the Zorra-Rock outcrop complex (mostly Zorra soils but some rock outcrops) are also common. The soils of the uplands within the Amistad NRA boundary along the Devils River are primarily Langtry-Rock outcrop and Zorra-Rock outcrop as are Hunt Areas 1 and 3. The rest of Amistad NRA is a mix of mainly Felipe and Zorra soils, Zorra-rock outcrop, Valverde silty clay loam, and the Olmos very gravelly loam (a shallow soil).

Topographically Amistad NRA consists of rolling hills and plateaus dissected by numerous small drainages and steep-sided canyons. Three major drainages systems (Rio Grande, Devils, and Pecos Rivers) cut through the area. The confluence of the Rio Grande, Devils River, and San Pedro, Evans and California Creeks form a large basin with a more gently rolling topography, but this area is now submerged beneath the reservoir. Vertical relief within the recreation area varies depending on location and lake level, but most of the hill and plateaus rise 15–46 m (50–150 ft) above the surrounding terrain. Sheer cliffs occur along the Rio Grande, Devils and Pecos Rivers. Indian Cliffs (see cover) along the Devils River rises 61m (200 ft) above the river. Elevation within Amistad NRA varies little, due to the elevational boundary. However elevation does range from a low of 284 m AGL (930 ft) along the Rio Grande below the dam to a high of 373 m AGL (1224 ft) in Hunt Area 1.

The primary source of groundwater in the park is from the Edwards-Trinity aquifer. Most of the major springs within Amistad NRA have been permanently covered or occasionally flooded. Goodenough Springs was the third largest spring in Texas (Brune 1981), and despite being covered with over 40 m (131 ft) of water, still manages to produce a small flow. Aside from scattered plant collections and historical

photographs, there is little record of what the vegetation was like. The springs at the mouth of Big Satan Canyon along the Devils River maintain one of the more interesting wetland plant communities found within Amistad NRA, probably due to their escape from inundation. The same is true for Dead Man Springs along the Pecos River. Indian Springs has recently resurfaced with a drop in lake level, but it will take decades, or more likely centuries, for the vegetation to return to pre-lake composition and structure. Likewise the vegetation that has been subjected to fluctuating lake levels has been drastically changed. Most recently emergent sites are vegetated by a combination of non-native and primary successional native species. Even the substrate and soil have been highly altered, with soils washed away leaving bare, exposed, cracked limestone. Thus, there is probably little hope for these sites to return to their former species composition.

Climate, geology, soils, topography and hydrology are the major influences on plant communities. Three Texas ecoregions, South Texas Plains (also referred to as Tamaulipan Brushland), Edwards Plateau and Trans-Pecos (or Chihuahuan Desert), converge within Amistad NRA (Hatch et al. 1990). From the south, South Texas Plains mixed shrublands of blackbrush (*Acacia rigidula*), guajillo (*Acacia berlandieri*) and Texas barometer bush (*Leucophyllum frutescens*) mingle with the oak (*Quercus* spp.)-juniper (*Juniperus* spp.) woodlands of the Edwards Plateau which are primarily found north and east of the park. And from the west, creosote bush (*Larrea tridentata*) and lechuguilla (*Agave lechuguilla*), indicator species of the Chihuahuan Desert (Trans-Pecos ecoregion), blend with both of the aforementioned ecoregions. The semi-arid nature of this landscape is tempered somewhat by the presence of springs, rivers, and the human-created reservoir. These water features provide wetter microhabitats, allowing the presence of more mesic vegetation than would normally be encountered in this region.

Land-use history has also shaped the vegetation. Fire suppression may have led to an increase in woody vegetation. Cattle, sheep, and goat ranching were common throughout the area. Bulldozing, root-plowing, chaining and hand-clearing of woody, native vegetation were often employed to "improve" forage. Sites with deeper soils may have been plowed and seeded with non-native grasses, such as King Ranch bluestem (*Bothriochloa ischaemum* var. *songarica*), Bermuda grass (*Cynodon dactylon*), and buffelgrass (*Pennisetum ciliare*). Irrigated row crop agriculture may have also occurred in the bottomland areas that are now flooded.

Val Verde County, and in particular, the area encompassing Amistad NRA, have been of interest to botanists for many years. Yet, only one floristic inventory (at the Air Force's Laughlin Recreation Area) has been done within Amistad NRA (Texas Natural Heritage Program 1995), and no comprehensive vascular plant inventory of the entire park had been conducted. As part of the National Park Service's (NPS) Inventory and Monitoring Program, a thorough floral inventory of Amistad NRA was proposed (NPS 2001). In addition, the park's previous list of plant communities was expanded.

METHODS

The objective of this study was to conduct as complete a vascular plant inventory as possible. Thus, random selection of sampling locations was deemed too time-consuming, costly, not physically possible in some cases, and inadequate to capture more than a small percentage of the flora. Other factors that influenced selection of sampling locations included the long and contorted boundary of Amistad NRA, the difficulty of access, the constantly changing lake level, and the disturbed nature of the exposed inundation zone. Sampling locations were instead determined by David Larson, the former park biologist for Amistad NRA, and the author, based on prior experience

with the recreation area and the flora, as well as topographic and hydrologic features. Using this methodology, 106 potential sampling sites were identified. From these, 69 sites were identified as highest priority for sampling due to their botanical diversity or size and location above the inundation zone. The remaining 47 sites (primarily small canyons along the Rio Grande and Devils River) were assigned a lower priority; however, 10 were randomly selected for investigation.

A list of plant species potentially occurring within the recreation area was compiled from floristic inventories at Seminole Canyon State Historic Site (Labus 1989, Hedges and Poole 2002) and Devils River State Natural Area (Poole and Hedges 1999), as well as various literature references and herbarium specimens (Worthington 2002). This excellent summary was abetted by searches of the online University of Texas at Austin Plant Resources Center database and the Digital Flora of Texas database maintained at Texas A&M University. Additionally NPS contractors surveyed the Sul Ross State University Herbarium for specimens collected within the vicinity of Amistad NRA. A small collection of plant specimens made by an interpretive specialist Elisabeth Armijo, Vidal Davila, and Emery Leonard at Amistad NRA during the 1970s provided several unusual records. Collections were also made by David Larson and an intern during 2001. A survey of Laughlin Recreation Area (leased to the Air Force by the NPS) conducted by the Texas Natural Heritage Program in 1993 and 1994 also supplied additional species for the list (Texas Natural Heritage Program 1995).

All these sources formed the basis of a master plant list that was used in the field. When species were encountered, they were noted by site and frequency. When species were encountered that had not been previously vouchered, they were collected if in good shape (i.e., necessary amount of material such as leaves, flowers, and/or fruits to permit identification). Whenever possible

two specimens were collected to deposit at The University of Texas at Austin and Sul Ross State University herbaria. Specimens in good shape were also collected when positive identification could not be made in the field. All specimens were identified at The University of Texas at Austin herbarium, using the following primary sources: *The Manual of the Vascular Plants of Texas* (Correll and Johnston 1970), *Trees and Shrubs of the Trans-Pecos and Adjacent Areas* (Powell 1998), *Grasses of the Trans-Pecos and Adjacent Areas* (Powell 1994), and *Cacti of Texas and Neighboring States: a field guide* (Weniger 1984). After specimens were keyed out, they were compared to the herbarium collections to check accuracy and range. Range was also checked in *Atlas of the Vascular Plants of Texas* (Turner et al. 2003). In addition to the previously mentioned references, the following field guides were also used for quick plant identification in the field: *Wildflowers of the Big Bend Country* (Warnock 1970), *Wildflowers of the Guadalupe Mountains and the Sand Dune Country, Texas* (Warnock 1974), *Wildflowers of the Davis Mountains and Marathon Basin, Texas* (Warnock 1977), *Wildflowers of the Texas Hill Country* (Enquist 1987), *Woody Plants of the Lower Rio Grande Valley, Texas* (Lonard et al. 1991), and *Trees, Shrubs and Cacti of South Texas* (Everitt and Drawe 1993). Nomenclature, both scientific and common names, primarily follows that of used by Worthington (2002) with additions or updates from Hatch et al. (1990), Jones et al. (1997), Flora of North America (1993+), and the USDA PLANTS database (<http://plants.usda.gov/>, accessed on 8/23/2012).

RESULTS

Sixty-one sites were visited, some more than once, during the two year survey (Figure 1). Of the original list of 69 survey sites, 12 were not surveyed. Eight of these sites on the Pecos River or upper Rio Grande were not surveyed due to either high or low

water which made access extremely difficult or impossible. Two randomly chosen sites were also not surveyed because it was felt that they would not add new species or habitats to the project. One site, Panther Canyon along the Rio Grande, had vertical walls down to the water line and was inaccessible. Finally another canyon that was mistaken for the selected Twin Canyon (in spite of the use of GPS and maps), and three additional sites visited were surveyed before the contract was finalized, for a total of 61 sites.

A total of 583 vascular plant taxa were encountered during the survey. An additional 116 taxa were confirmed as being collected within the Amistad NRA boundary, but were not observed during the course of the study (Appendix A: Documented Flora). Forty taxa were found that had never been reported before for the park or general vicinity. Although no threatened or endangered species were found, two potential Tobusch fishhook cactus (*Sclerocactus breviphamatus* subsp. *tobuschii*), a Federal and State of Texas endangered species, were encountered. However, precise identification could not be made as the plants were not in flower. Seventeen species of conservation concern were documented in the park (see Table 1), and are indicated by a "C" in Appendix A. Thirteen species endemic to Texas were also found and are indicated by an "E" in Appendix A. Forty-one non-native species were observed, and another seven non-natives have been documented within Amistad NRA but were not seen during the course of the study.

At the request of the National Park Service, a list of potential species for Amistad NRA was compiled from Worthington (2002) and other sources at the beginning of the study. Of those species, 116 were ascertained not to occur within the park or even have a remote chance of occurring there (Poole 2004). Specimen misidentifications and taxonomic changes accounted for most of the taxa within the excluded flora. However, some specimens reported as being

TABLE 1. Species of conservation concern documented in Amistad National Recreation Area.

Taxon name	Global and state rank
<i>Acleisanthes wrightii</i>	G2S2
<i>Astragalus wrightii</i>	G3S3
<i>Cirsium turneri</i>	G3S3
<i>Cuscusta exaltata</i>	G3S3
<i>Euphorbia peplidion</i>	G3S3
<i>Flyriella parryi</i>	G3S3
<i>Galium correllii</i>	G2S1
<i>Hesperaloe parviflora</i>	G3S3
<i>Matelea sagittifolia</i>	G3S3
<i>Pediomelum humile</i>	G1S1
<i>Perityle angustifolia</i>	G3G4S3
<i>Polygala palmeri</i>	G3S2
<i>Prunus minutiflora</i>	G3S3
<i>Seymeria texana</i>	G3S3
<i>Streptanthus platycarpus</i>	G3S3
<i>Vitis rupestris</i>	G3S1
<i>Yeatesia platystegia</i>	G3S2

Global and state ranks are assigned by NatureServe. See <http://www.natureserve.org/explorer> for rank definition and assignment process.

from Amistad NRA could not be found in the various online databases, and some species were only represented by sight records. In these cases if the available range information in the online databases, various floras and checklists was outside of Val Verde County, these records were considered misidentifications, and excluded from the Amistad NRA plant list.

A total of 76 plant communities were identified at Amistad NRA (Appendix B). These communities were more finely drawn than the original 10 plant associations identified by Larson (2002). In fact, 48 of these more finely delineated communities would fit within the broader delimitations defined by Larson. Of the other 28 communities, not accounted for by Larson (2002), many are disturbance and/or wetland/aquatic communities.

A quick visual estimate of species' frequency was recorded for each species observed during site visits (Table 2; Poole

2004). Frequency categories were based on professional judgement. As sites were sometimes visited multiple times, and often separate lists were made for vegetatively disparate parts of the site (for example uplands vs. inundation zones), a list was developed combining the frequencies of the same species within the same overall site (Poole 2004). When the temporal or ecological frequencies varied during different visits, the more common frequency was selected for the site.

Additionally an overall frequency level was determined for each species for Amistad NRA as a whole. Overall frequency was determined primarily by park frequency (number of sites occupied) and modified by site frequency (Table 2). Most of the plants at Amistad NRA (80% of the species) occur at very low frequencies. Sixty-three percent of the flora fell into the park-wide rare category, and 17% was labeled as infrequent. Only 16% of the flora fell into one of the common categories. The remaining 4% of the flora was equally split between the frequent and abundant categories.

DISCUSSION

Despite the major human-induced disturbances to which the Amistad NRA flora has been subjected (i.e., dam construction, flooding, fluctuating water levels, overgrazing, and browsing by large populations of goats and feral non-native exotic game species), the park flora is still quite diverse. More plant taxa (699) have been documented at Amistad NRA than have been recorded at Devils River State Natural Area (DRSNA) and Dolan Falls Preserve (DFP) combined (565 plant taxa) (Poole and Hedges 1999).

There are several reasons for the higher number of species at Amistad NRA. Although the park is slightly smaller acreage-wise than DRSNA/DFP, the more or less linear configuration of Amistad NRA, extending for approximately 80.5 km (50 mi) along the Rio Grande, from north of Del Rio to west of Langtry, and for 24–32 km

TABLE 2. Frequency categories for plant species at individual sites and for Amistad National Recreation Area (park-wide) (from Poole 2004).

Frequency category	Site level	Park level
Rare	<10 individuals or small (<1m ²) patch	<10 sites
Infrequent	10–25 individuals or small patches	10–25 sites
Common	>25–1,000 individuals or small patches	26–40 sites
Very locally common	Common, but at a highly localized area of the site or common at very few sites	May occur at fewer sites
Locally common	Common, but not throughout the site	26–40 sites
Common (rare)	<10 individuals or small (<1m ²) patch	26–40 sites
Common (infrequent)	10–25 individuals or small patches	26–40 sites
Frequent	Plant community subdominant	41–50 sites
Very locally frequent	Frequent, but at a highly localized area of the site or frequent at very few sites	May occur at fewer sites
Locally frequent	Frequent, but not throughout the site	41–50 sites
Frequent (infrequent)	10–25 individuals or small patches	41–50 sites
Frequent (locally common)	Common, but not throughout the site	41–50 sites
Abundant	Plant community dominant	>50 sites
Abundant (infrequent)	10–25 individuals or small patches	>50 sites
Abundant (locally common)	Common, but not throughout the site	>50 sites
Abundant (common)	>25–1,000 individuals or small patches	>50 sites

(15–20 mi) up the Pecos and Devils Rivers, covers a greater longitudinal area. Both sites contain elements of three ecoregions (South Texas Plains, Edwards Plateau, and Trans-Pecos). The DRSNA/DFP is more heavily weighted toward Edwards Plateau and South Texas Plains ecoregions, while Amistad NRA contains more South Texas Plains and Trans-Pecos (Chihuahuan Desert) elements. Influence from the Edwards Plateau vegetation associations are found primarily along the Devils River portion. Perhaps the relative contributions of the three ecoregions make a difference in the total number of taxa. While the flora of DRSNA/DFP is 97% native (18 non-native species), the Amistad NRA flora has almost three times as many non-native species (41 observed and another 7 previously vouchered but not seen during this study), but non-natives still only account for 7% of the flora.

Most of the plant taxa (63%) encountered at Amistad NRA were quite rare (i.e., fewer than 10 individuals or patches at a site, and occurring at less than 10 sites). Reasons for this are not clear, but the extreme

fluctuations in the climate (frequent drought/flood, high summer temperatures), the past human impacts, and the present heavy grazing/browsing pressure may all be contributing factors. Since most species occur at low or localized levels, this pattern may not be significant.

The 10 most common species (found at 50 or more sites, and fairly common at these sites) are all native, perennial plants. However, within the group of the next 10 most common species are two, locally frequent non-native grasses, King Ranch bluestem and Bermuda grass. These two species comprise much of the grasslands in the inundation zone. Although high profile species such as salt cedar (*Tamarix ramosissima*), giant cane (*Arundo donax*), hydrilla (*Hydrilla verticillata*), buffelgrass, and Lehmann lovegrass (*Eragrostis lehmanniana*) receive more attention, these two aforementioned grasses probably cover more area, and perhaps do more harm to the native plant diversity.

Plant communities at Amistad NRA are highly influenced by soils, geology, topography,

geography, climate, and perhaps most of all, by anthropogenic forces (i.e., past land use history). Many of the plant communities identified at Amistad NRA are directly related to human-caused disturbances, particularly those associated with the rise and fall of Lake Amistad.

Larson (2002) identified 10 preliminary plant alliances occurring in the park. These alliances were rather broadly drawn. During the course of this floristic inventory, more narrowly delimited plant communities (more along the association level) were determined. Appendix B (Plant Community List) provides a list of these communities, and which of the more broadly defined alliances that they might fall within.

The most widespread alliance was the *Acacia rigidula*-*Leucophyllum frutescens*-*Acacia berlandieri* shrubland. This type was encountered at almost every upland site at Amistad NRA, and 26 more narrowly defined community types fell within it (see Appendix B). While these are almost exclusively non-inundation zone communities, at Blackbrush Point where *Acacia rigidula* dominates the landscape, it does occur with *Baccharis neglecta* in the inundation zone.

Another geographically widespread alliance, the *Acacia farnesiana* woodland/shrubland, correlated with seven narrowly defined community types. The *Acacia farnesiana* woodland/shrubland communities are exclusively inundation zone communities although their component species may sometimes be present outside the inundation zone. These communities usually occur in upper reaches of former inundation zones where exposure has occurred for a certain length of time. Non-native species such as salt cedar, King Ranch bluestem and Bermuda grass are often common in this disturbed environment.

Another geographically widespread alliance, the *Prosopis glandulosa* woodland/shrubland was separated into six narrowly defined community types. The group contains both upland and former inundation zone communities. Those types that are

found within the former inundation at its uppermost reaches probably represent the highest successional status that the former inundation zone is currently able to obtain.

The *Phragmites australis* herbaceous vegetation broadly defined as occurring along riparian areas of the Rio Grande, Pecos, and Devils Rivers, was subdivided into 5 smaller types. These communities occur along the river's edge, or, particularly in the case of *Arundo donax*, along the reservoir edge or slightly inland.

The Rock outcrop/butte sparse vegetation, defined by Larson (2002) as occurring on the Zorro-Rock Outcrop complex, was divided into three associations (it should be noted that many of the *Acacia rigidula*-*Leucophyllum frutescens*-*Acacia berlandieri* shrubland types are found on this formation as well). Two of these communities (*Porophyllum scoparium* sparsely vegetated rock outcrop and *Porophyllum scoparium*-*Heterotheca fulcrata*-*Penstemon baccharifolius* Sparsely Vegetated Rock Outcrop) are found only above the inundation zone. The other (*Phyla nodiflora*-*Nicotiana glauca*-*Vitex agnus-castus* Rock Outcrop Sparse Vegetation) occurs only in the inundation zone either on formerly inundated cliff faces or on large slabs of limestone rock broken by inundation and wave action.

There was a one-to-one correlation between two Larson and Poole community types. There was a one-to-one correspondence between the *Quercus pungens*-*Celtis laevigata* woodland and the *Quercus fusiformis* woodland. The Open Cliff Sparse Vegetation and the *Acacia berlandieri*-*Quercus pungens* var. *vaseyana*-*Q. fusiformis*-*Porophyllum scoparium*-*Perityle lindheimeri* Open Cliff Very Sparse Vegetation also appeared to be correlated. However this latter community may relate better to the *Acacia rigidula*-*Leucophyllum frutescens*-*Acacia berlandieri* Shrubland alliance. It occurs exclusively above the inundation zone.

No examples of Larson's *Hilaria belangeri*-*Bouteloua curtipendula* Herbaceous Vegetation were found. In fact *H. belangeri* was seen at only two sites (Lowry Springs

and Diablo East Viewpoint picnic area), and only at an infrequent level. However, eight other grassland communities were identified during this survey. Almost all were composed either of non-native species, or native species of poor livestock forage quality. This indicates that the lands within the boundary of Amistad NRA have been severely over-utilized.

An additional 28 communities were described that did not fit well into any of the Larson categories. Most of these were wetland, aquatic, or intermittently flooded types. Perhaps the most ubiquitous community at Amistad NRA (next to the *Acacia rigidula-Leucophyllum frutescens-Acacia berlandieri* Shrubland) is the *Phyla nodiflora-Cynodon dactylon-Bacopa monnieri* Herbaceous Vegetation. This wetland community type is a pioneer of the most recently exposed substrate within the inundation zone. More natural wetland types such as the *Eleocharis* spp. Herbaceous Vegetation and the *Schoenoplectus californicus* Herbaceous Vegetation were only found outside of the reservoir's influence.

At slightly higher elevations in the inundation zone and on the successional scale are the various communities dominated by *Baccharis neglecta*. Within the inundation zone, this native species often teams with non-native species such as *Bothriochloa ischaemum* var. *songarica* or *Tamarix ramosissima*. However it also occurs in riparian sites rarely inundated by the lake with other native species (for example, *Baccharis neglecta-Indigofera lindheimeri* Shrubland, *Baccharis neglecta-Phragmites australis* Shrubland). Also another species of *Baccharis*, *B. salicifolia*, forms similar community types. Both *Baccharis* species, although native, are adapted to riparian disturbances, and thus are able to thrive in both the inundation zone and other, more natural riparian habitats.

Other species have also adapted to life in the riparian disturbance zone. *Cephalanthus occidentalis* communities and the *Indigofera lindheimeri-Senna lindheimeri* Shrubland can be found both in and out of the inundation zone. The *Chilopsis*

linearis-Indigofera lindheimeri Shrubland occurs only in non-inundation areas while the *Opuntia engelmannii* var. *lindheimeri-Salvia farinacea* Shrubland was only encountered in an intermittent drainage within the inundation zone.

There are few truly aquatic communities at Amistad NRA, but the highly invasive, non-native species *Hydrilla verticillata* forms one within the reservoir. The extent of this noxious plant is not known, but should be determined and the species eradicated. A native aquatic plant community, the *Justicia americana* Emergent Aquatic Vegetation, is common in the upper Devils River.

On the western side of Amistad NRA, communities more common to the Chihuahuan Desert were found. The *Agave lechuguilla-Dasyilirion texanum* Shrubland and the *Fouquieria splendens* Shrubland were represented by a few, small and poorly formed examples.

The only truly unique community for the United States, although it is more common in Mexico, is the *Quercus gravezii-Pistacia mexicana* Woodland. This community occurs at very few sites within the park boundary and should be protected.

CONCLUSION

The flora of Amistad NRA is quite botanically diverse, despite the fact that many of the collection areas of the pre-dam era have been dramatically and irreversibly altered by temporary or permanent inundation. The remaining flora is highly threatened by non-native plant and animal species. The sheer numbers of free-ranging livestock, almost exclusively Spanish goats, and exotic wildlife such as aoudads, is staggering. At some sites goat pellets are the most frequently encountered ground cover, surpassing rocks and any vegetation. Because Amistad NRA is not fenced along most of its boundary, livestock and wildlife wander at will. Unless this situation is

addressed, plant diversity will likely decline within the park boundaries.

Non-native plants pose a different threat to the native flora. As long as the inundation zone continues to fluctuate, non-native plant species will have a strong foothold at Amistad NRA. These species thrive on the disturbance that the rising and falling reservoir levels provide. As these species invade the less disturbed upland sites, their highly competitive nature will allow them to crowd out the native species. Concentrations of these non-native species in upland areas should be identified and eliminated although it will be a constant battle.

There are many areas of botanical interest within Amistad NRA. The Devils River from Indian Cliffs Canyon upstream contains many species rarely if at all seen in other areas of the park. Satan Canyon has both wetland and upland canyon areas that are quite unique. The Plateau live oak grove areas such as those in Satan Canyon, Lowry Springs, Live Oak Creek, Seminole Canyon and Oak Motte in Hunt Area 4 represent communities at the edge of their range. They should be monitored, and in the case of Oak Motte, fenced to exclude livestock and restored. The *Quercus gravesii*-*Pistacia mexicana* community in Pink Cave Cove and other sites that were not observed during this study is very rare in the United States, and should also be monitored. The upper portion of the Pecos River above the reservoir's influence deserves to be restored (i.e., removal of non-native species) as this area is quite unique as is the upland and cliff face area of the Pecos River picnic and boat launch area. Amistad NRA's property below the dam, although somewhat disturbed, contains many interesting wetlands that may harbor rare species. Restoration (removal of non-native species) is also needed here.

To delimit fully the natural plant communities in the park, additional work is needed. The plant community list provided with this report represents an educated guess based upon single (usually) observations of a

site. Undoubtedly the plant community list will be refined with more intensive work. As more vegetation surveys are completed, high quality examples of even the common, upland communities should be sought out and protected. Monitoring of these examples would provide a gauge of the overall natural health of Amistad NRA.

The rarest species that are well-documented at Amistad NRA, such as cliff bedstraw (*Galium correllii*) and cliff thistle (*Cirsium turneri*) occur in Mile Canyon and in the canyon of the Pecos River. These two species should be monitored on an annual basis. The possible occurrence of Tobusch fishhook cactus (*Sclerocactus brevihamatus* ssp. *tobuschii*) should be checked during flowering season to determine the true identities of the plants. The documented, but not recently verified occurrence of the Rydberg's scurfpea (*Pedimelum humile*) should also be searched for when the other local populations are in flower. Staff should become familiar with these species as well as other rare plants such as Texas trumpets (*Acleisanthes crassifolia*), Wright's trumpets (*A. wrightii*), and Correll's false dragonhead (*Physostegia correllii*), that may eventually be found within the park, as well as the other species indicated as being of conservation concern in Appendix A.

Amistad NRA presents a rare opportunity to protect and preserve a sizeable amount (ca. 10%) of the floral diversity of Texas. Although many individual plants may have been destroyed by inundation, and many more are threatened by non-native animals and plants, the NPS has been presented a challenge to conserve this unique environment and the plants within it.

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APPENDIX A

DOCUMENTED FLORA OF AMISTAD NATIONAL RECREATION AREA

This list is composed of taxa either collected or seen by the author, or from other vouchered collections at various herbaria (noted by their abbreviations in bold in parentheses) that were determined to occur (based on their locational information) within the boundaries of Amistad NRA. Nomenclature, both scientific and common names, primarily follows that of used by Worthington (2002) with additions or updates from Hatch et al. (1990), Jones et al. (1997), Flora of North America (1993+), and the USDA PLANTS database (<http://plants.usda.gov/>, accessed on 8/23/2012). The alphabetic codes that follow the taxa's common name represent species of conservation concern (C), Texas endemic (E), and non-native taxa (I).

FERNS AND FERN ALLIES

SELAGINELLACEAE

- Selaginella lepidophylla* (Hook. & Grev.) Spring resurrection plant
Rare on rock outcrops
Correll 12989, 6/27/1946 (LL); *Correll 14919, 10/7/1952 (LL)*; *Labus 046, 11/22/1989 (TEX)*
- Selaginella underwoodii* Hieron. Underwood's spikemoss
Not seen during this study; canyon rims in Seminole Canyon State Park
Labus 15, 11/22/1987 (TEX); *Labus 56, 11/22/1987 (TEX)*
- Selaginella wrightii* Hieron. Wright's spikemoss
Very locally common on rock outcrops
Poole 4604, 6/27/2002 (TEX-NPS); *Correll 12902, 6/27/1946 (LL)*; *Correll 14916, 10/7/1952 (LL)*; *Warnock 22729, 8/10/1967 (SRSC)*

ANEMIACEAE

- Anemia mexicana* Klotzsch Mexican fern
Rare in Seminole Canyon and mouth of Pecos River
Turner s.n., 9/13/1948 (SRSC)

EQUISETACEAE

- Equisetum hyemale* L. subsp. *affine* (Engelm.) Calder & Roy L. Taylor scouring-rush horsetail
Not seen during this study; along Rio Grande between Langtry and mouth of Pecos River
Warnock 11960, 3/29/1954 (SRSC)
This specimen may be misidentified as a duplicate at LL is identified as *E. laevigatum*. However, according to Turner et al. (2003), *E. hyemale* does occur in the vicinity.
- Equisetum laevigatum* A. Braun smooth scouring-rush
Not seen during this study; along the Rio Grande between Langtry and mouth of Pecos
Warnock 11960, 3/29/1954 (LL)

MARSILEACEAE

- Marsilea vestita* Hook. & Grev. **subsp. vestita** narrowleaf pepperwort
 Rare in silty clay soils in inundation zone
 Poole 4832, 6/20/2003 (TEX-NPS)

PTERIDACEAE

- Adiantum capillus-veneris* L. southern maidenhair
 Rare in seeps or springs
 Ferris s.n., 1903 (US); Warnock 11970, 3/28/1954 (LL, SRSC); Warnock 21392, no date (SRSC)
- Argyrochosma microphylla* (Mett. ex Kuhn) Windham littleleaf cliffbrake
 (*Notholaena parvifolia* R. M. Tryon)
 Rare on rock outcrops or rocky soils
 Correll 12907, 6/27/1946 (LL); Parks 232, 4/10/1949 (SRSC); Warnock 22727, 8/10/1967 (SRSC); Warnock 47202, 3/29/1947 (SRSC, TEX)
- Astrolepis cochisensis* (Goodd.) D. Benham & Windham Cochise scaly cloakfern
 (*Cheilanthes cochisensis* (Goodd.) Mickel; *Notholaena cochisensis* Goodd.)
 Rare on rock outcrops or rocky soils
 Parks 278, 4/10/1949 (SRSC)
- Astrolepis integerrima* (Hook.) D. Benham & Windham wavyleaf cloakfern
 (*Cheilanthes integerrima* (Hook.) Mickel; *Notholaena integerrima* (Hook.) Hevly)
 Rare on rocky outcrops or rocky soils
 Poole 4463, 4/17/2002 (TEX-NPS); Correll 12897, 6/27/1946 (LL); Correll 14922, 10/7/1952 (LL); Holmes 5723, 5/10/1992 (TEX); Warnock 22726, 8/10/1967 (SRSC); Warnock 47224, 3/29/1947 (SRSC)
- Astrolepis sinuata* (Lag. ex Sw.) D. Benham & Windham **subsp. sinuata** bulb lipfern
 (*Cheilanthes sinuata* (Lag. ex Sw.) Domin; *Notholaena sinuata* (Lag. ex Sw.) Kaulf.)
 Rare on rock outcrops or rocky soils
 Poole 4545, 5/22/2002 (TEX-NPS); Correll 12919, 6/28/1946 (LL); Correll 13482, 7/27/1946 (LL); Soxman 225, 4/9/1939 (TEX)
- Astrolepis windhamii* D. Benham Windham's scaly cloakfern
 Not seen during this study; canyon rims
 Correll 12903, 6/27/1946 (LL); Labus 37, 11/22/1987 (TEX)
- Cheilanthes aemula* Maxon Texas lipfern
 Not seen during this study; canyons
 Correll 12910, 6/27/1946 (LL); Warnock 47173, 3/29/1947 (SRSC)
- Cheilanthes alabamensis* (Buckley) Kunze Alabama lipfern
 Infrequent in shaded mesic environments
 Poole 4696, 10/29/2002 (TEX-NPS); Correll 12914, 6/27/1946 (LL); Parks 220, 4/10/1949 (SRSC); Warnock 22079, 8/10/1967 (SRSC)
- Cheilanthes horridula* Maxon prickly lipfern
 Rare in canyons on rock outcrops and rocky soil
 Correll 12901, 6/27/1946 (LL); Correll 12918, 6/28/1946 (LL); Correll 14917, 10/7/1952 (LL); Correll 14920, 10/7/1952 (LL); Labus 049, 11/22/1987 (TEX); Mears 2587, 4/17/1968 (TEX)
- Notholaena copelandii* C. C. Hall Copeland cloakfern
 (*N. candida* (M. Martens & Galeotti) Hook. var. *copelandii* (C. C. Hall) R. M. Tryon)
 Rare in canyons of rock outcrops and rocky soils

Poole 4464, 4/17/2002 (TEX-NPS); Correll 12911, 6/17/1946 (LL); Correll 13474, 7/27/1946 (LL); Correll 14923, 10/7/1952 (LL); Labus 054, 11/22/1987 (TEX); Warnock 22719, 8/10/1967 (SRSC); Warnock 47127, 3/19/1949 (SRSC, TEX); Warnock 47203, 3/19/1947 (SRSC)

Notholaena nealleyi Seaton ex J. M. Coult. Nealley's cloakfern
(*N. schaffneri* (E. Fourn.) Underw. ex Davenp. var. *nealleyi* (Seaton ex J. M. Coult.) Pic. Serm.)

Rare on rock outcrops and rocky soils

Correll 12899, 6/27/1946 (LL); Correll 13475, 7/26/1946 (LL); Correll 14918, 10/7/1952 (LL); Correll 14975, 10/9/1952 (LL); Parks 277, 4/10/1949 (SRSC); Stangel 1, 2/20/1982 (SPLT)

Notholaena neglecta Maxon Maxon's cloakfern

Not seen during this study; canyon of the Rio Grande, Langtry

Correll 12900, 6/27/1946 (LL)

Notholaena standleyi Maxon star cloakfern

Rare on rock outcrops and rocky slopes

Correll 128986, 6/27/1946, (LL)

Pellaea ovata (Desv.) Weath. zigzag cliffbrake

Rare on rock outcrops and rocky slopes

Correll 12917, 6/28/1946 (LL); Warnock 47216, 3/27/1947 (SRSC)

THELYPTERIDACEAE

Thelypteris ovata R. P. St. John var. *lindheimeri* (C. Chr.) A. R. Sm. Lindheimer's maiden fern

Rare in mesic drainages

Mears 2585, 4/27/2968 (TEX); Turner s.n., 9/13/1948 (SRSC); Warnock 21393, 7/29/1967 (SRSC, TEX); Warnock 22732, 8/10/1967 (SRSC); Warnock 40107, 5/24/1966 (SRSC); Warnock 47207, 3/29/1947 (LL, SRSC)

GYMNOSPERMS

CUPRESSACEAE

Juniperus ashei J. Buchholz Ashe juniper
Infrequent on slopes or disturbed environments

Poole 4903, 10/7/2003 (TEX-NPS)

Juniperus pinchotii Sudw. redberry juniper

Rare on uplands

Powell 3414, 3/31/1979 (SRSC)

EPHEDRACEAE

Ephedra antisyphilitica Berland. ex C. A. Mey. clap-weed, popote
Infrequent on rocky slopes and uplands

Labus 070a, 3/19/1988 (TEX); Amistad NRA Interpretive Collection

Ephedra aspera Engelm. ex S. Watson boundary ephedra

Rare on rocky slopes and uplands

Poole 4706, 2/19/2003 (TEX-NPS); Poole 4723, 2/21/2003 (TEX-NPS); Correll 23577, 4/15/1961 (LL)

Ephedra pedunculata Engelm. ex S. Watson vine joint-fir

Not seen during this study; dry banks of Devil's River near Del Rio

Albers 46151, 8/30/1949 (TEX)

DICOTYLEDONS

ACANTHACEAE

- Carlowrightia torreyana*** Washsh. Torrey's wrightwort
 Infrequent on rocky slopes and uplands
Poole 4601, 6/27/2002 (TEX-NPS); Correll 19399, 7/7/1958 (LL); Turner 902, 5/22/1949 (TEX); Warnock 21390, 7/29/1967 (SRSC); Warnock 47135, 3/29/1947 (SRSC)
- Dyschoriste linearis*** (Torr. & A. Gray) Kuntze narrowleaf dyschoriste
 Rare along drainages
McVaugh 10588, 5/22/1949 (US)
- Justicia americana*** (L.) Vahl American waterwillow
 Rare in shallow water (locally common in the Devil's River)
Poole 4655, 7/1/2002 (TEX-NPS); Correll 27776, 6/14/1963 (LL)
- Ruellia corzoi*** B. Tharp & F. A. Barkley Corzo's wild petunia
 Not seen during this study; rocky slopes and hills
McVaugh 8235, 5/9/1947 (TEX); Powell 3398, 10/27/1978 (SRSC)
- Ruellia humilis*** Nutt. fringeleaf wild petunia
 Not seen during this study. Laughlin Air Force Base marina
Freeman s.n., 4/30/1977 (UTEP)
- Ruellia nudiflora*** (Engelm. & A. Gray) Urb. **var. nudiflora** violet wild petunia
 Rare in flood plains (rarely frequent in uplands)
Poole 4656, 7/12/2002 (TEX-NPS); Amistad NRA Interpretive Collection
- Ruellia nudiflora*** (Engelm. & A. Gray) Urb. **var. runyonii** (Tharp & F. A. Barkley) B.L. Runyon's wild petunia
 Turner
 Rare in shaded canyons and along drainages
Correll19401, 7/7/1958 (LL); Crutchfield 3394, 7/13/1967 (LL); Turner 915, 5/22/1949 (SRSC, TEX); Warnock 21389, 7/29/1967 (SRSC)
- Ruellia occidentalis*** (A. Gray) Tharp & F. A. Barkley western wild petunia
 Rare (occasionally locally common) in understory in canyons and uplands
Poole 4680, 10/10/2002 (TEX-NPS); Poole 4822, 2/21/2003 (TEX-NPS); Poole 4914, 10/9/2003 (TEX-NPS); Skiles 4, 6/26/1952 (SRSC)
- Ruellia parryi*** A. Gray Parry's wild petunia
 Infrequent in canyons and uplands
Poole 4489, 4/17/2002 (TEX-NPS); Warnock 287, 4/10/1949 (SRSC); Warnock 22712, 8/10/1967 (SRSC); Warnock 47170, 3/19/1947 (SRSC)
- Siphonoglossa pilosella*** (Nees) Torr. hairy tubetongue
 Infrequent in canyons and uplands
Poole 4538a, 5/22/2002 (TEX-NPS); Poole 4600, 6/27/2002 (TEX-NPS); Poole 4621, 7/11/2002 (TEX-NPS); Warnock 235, 4/10/1949 (SRSC); Warnock 47166, 3/29/1947 (SRSC)
- Yeatesia platystegia*** (Torr.) Hilsenb. Montell bractspike (C)
 Rare in canyons
Poole 4640, 7/11/2002 (TEX-NPS)

AMARANTHACEAE

- Alternanthera caracasana*** Kunth mat chaff-flower
 Rare in disturbed areas
Poole 4131, 9/6/1994 (TEX); Poole 4524, 5/21/2002 (TEX-NPS); Poole 4829, 6/20/2003 (TEX-NPS)

- Amaranthus palmeri*** S. Watson Palmer's amaranth
Not seen during this study; Laughlin Air Force Base Recreation Area
Poole 4132, 9/6/1994 (TEX)
- Amaranthus scleropoides*** E. Uline & W. L. Bray bonebract amaranth
Rare in rocky soils on slopes or uplands
Poole 4531, 5/22/2002 (TEX-NPS)
- Froelichia arizonica*** Thornber ex Standl. Arizona snakecotton
Rare in canyons and on slopes
Poole 4547, 5/22/2002 (TEX-NPS)
- Froelichia gracilis*** (Hook.) Moq. slender snakecotton
Not seen during this study; Seminole Canyon State Historical Park
Labus 374, 10/16/1988 (SWT)

ANACARDIACEAE

- Pistacia mexicana*** Kunth Texas pistachio
(*P. texana* Swingle)
Rare in canyons
Powell 1403, 4/17/1966 (SRSC); Powell 3055, 2/18/1977 (SRSC); Warnock 11805, 11/14/1953 (LL, SRSC)
- Rhus microphylla*** Engelm. ex A. Gray littleleaf sumac
Rare in canyons and uplands
Poole 4733, 3/25/2003 (TEX-NPS)
- Rhus virens*** L. ex A. Gray var. *virens* evergreen sumac
Infrequent in canyons and uplands
Poole 4902, 10/7/2003 (TEX-NPS)
- Toxicodendron radicans*** (L.) Kuntze poison ivy
Infrequent in mesic areas
Powell 1404, 4/17/1966 (SRSC); Traverse 2146, 5/10/1961 (LL)

APIACEAE

- Ammoselinum butleri*** (Engelm. ex S. Watson) J. M. Coulter & Rose Butler's sand parsley
Rare along river banks
Poole 4811, 5/20/2003 (TEX-NPS)
- Ammoselinum popei*** Torr. & A. Gray Pope's sand parsley
Infrequent in drainages and disturbed areas
Poole 4753, 3/27/2003 (TEX-NPS); Mears 2494, 4/16/1968 (TEX); Parks 256, 4/10/1949 (LL, SRSC); Powell 3442, 3/31/1979 (SRSC); Turner 914, 5/22/1949 (SRSC); Warnock 47169, 3/29/1947 (SRSC)
- Bowlesia incana*** Ruiz & Pav. hoary bowlesia
Rare along intermittent drainages, creek and river banks
Whitehouse 11336, 4/1/1933 (SRSC)
- Chaerophyllum tainturieri*** Hook. chervil
Rare in disturbed areas
Observed once at the head of the south fork of San Pedro Creek but not collected
- Ciclospermum leptophyllum*** (Pers.) Sprague ex Britton & P. Wilson slimlobe celery (I)
(*Apium leptophyllum* (Pers.) F. Muell. ex Benth.)
Not seen during this study; sandy loam river banks on Devil's River (now inundated)
Crutchfield 3406, 7/13/1967 (LL)

- Cicuta maculata* L. spotted water hemlock
Not seen during this study; mud along Devil's River bank (now inundated)
Crutchfield 3401, 7/13/1967 (LL)
- Daucus pusillus* Michx. southwestern carrot
Infrequent in disturbed areas
Poole 4764, 3/28/2003 (TEX-NPS)
- Eryngium diffusum* Torr. bushy eryngo
Rare in disturbed areas
Poole 4634, 3/27/2003 (TEX-NPS)
- Eryngium leavenworthii* Torr. & A. Gray Leavenworth's eryngo
Rare on river banks and terraces in Devil's River area
Poole 4634, 7/11/2002 (TEX-NPS)
- Hydrocotyle verticillata* Thunb. whorled pennywort
Rare in shallow water (locally common in Devil's River area)
Poole 4587, 6/26/2002 (TEX-NPS); Correll 25082-A, 5/2/1962 (LL); Crutchfield 3409, 7/13/1967 (LL)
- Spermolepis inermis* (Nutt. ex DC.) Mathias & Constance smooth scaleseed
Locally common in intermittent drainages or other gravelly soil areas
Casaday 3, no date (Amistad NRA collection)
- Torilis arvensis* (Huds.) Link sockbane (I)
Infrequent in disturbed areas
Poole 4750, 3/27/2003 (TEX-NPS)

APOCYNACEAE

- Amsonia longiflora* Torr. var. *salpignantha* (Woodson) McLaughlin trumpet slimpod
Rare in rocky areas in canyons and drainages
Poole 4758, 3/28/2003 (TEX-NPS); Johnston 12435, 3/17/1976 (LL)
- Telosiphonia macrosiphon* (Torr.) Henrickson plateau rock trumpet
(*Macrosiphonia macrosiphon* (Torr.) A. Heller)
Rare on rocky slopes and uplands
Freeman s.n., 4/30/1977 (UTEP); Thompson 214, 9/17/1958 (TEX)

ARISTOLOCHIACEAE

- Aristolochia coryi* I.M. Johnst. Cory's pipevine
Infrequent on rocky slopes and rock outcrops
Poole 4131a, 9/6/1994 (TEX); Poole 4577, 5/24/2002 (TEX-NPS); Correll 32604, 4/21/1966 (LL); Turner 99-217, 5/1/1999 (SRSC, TEX); Wright 567, 7/17 & 7/25/1849 (GH)

ASCLEPIADACEAE

- Asclepias oenotheroides* Schltld. & Cham. longhorn milkweed
Rare in grasslands
Poole 4515, 5/21/2002 (TEX-NPS); Poole 4820, 6/19/2003 (TEX-NPS)
- Cynanchum barbigerum* (Scheele) Shinnars bearded swallowwort
Rare vine on shrubs on rocky slopes and flats
Poole 4915, 10/9/2003 (TEX-NPS)

- Cynanchum maccartii* Shinnery McCarty's swallowwort
 Infrequent vine on shrubs on rocky slopes and flats
 Poole 4562, 5/22/2002 (TEX-NPS)
- Cynanchum racemosum* (Jacq.) Jacq. var. *unifarium* (Scheele) Sundell talayote
 Rare vine on shrubs on rocky slopes and flats
 Poole 4568, 5/23/2002 (TEX-NPS); Correll 27777, 6/14/1963 (LL); Thompson 192, 9/17/1958 (TEX); Warnock 21375, 7/29/1967 (SRSC, TEX)
- Matelea reticulata* (Engelm. ex A. Gray) Woodson pearl milkvine
 Rare vine on shrubs in canyons
 Poole 4642 & 4654, 7/11/2002 (TEX-NPS); Warnock 197, 4/10/1949 (LL)
- Matelea sagittifolia* (A. Gray) Woodson ex Shinnery arrowleaf milkvine (C)
 Not seen during this study; rocky hills
 McVaugh 7727, 3/31/1947 (TEX)
- Sarcostemma crispum* Benth. wavyleaf twinevine
 Rare vine on shrubs on rocky slopes and flats
 Warnock 22878, 5/22/1969 (SRSC)
- Sarcostemma cynanchoides* J. Decne. var. *cynanchoides* twinevine
 Rare vine on shrubs on rocky slopes and flats
 Thompson 193, 9/17/1958 (TEX)

ASTERACEAE

- Acourtia runcinata* (D. Don) B. L. Turner peonia
 (*Perezia runcinata* (D. Don) A. Gray)
 Infrequent under shrubs on rocky soils
 McVaugh 8250, 5/9/1947 (SRSC); Powell 1400, 4/17/1966 (TEX); Warnock 47221, 3/29/1947 (SRSC)
- Ageratina havanensis* (Kunth) R. M. King & H. Rob. shrubby boneset
 (*Eupatorium havanense* Kunth)
 Rare on cliffs and rock outcrops
 Poole 4698, 10/30/2002 (TEX-NPS); Powell 3396, 10/27/1978 (SRSC, TEX)
- Amblyolepis setigera* DC. huisache daisy
 Rare in grasslands
 Warnock 222, 4/10/1949 (SRSC)
- Ambrosia artemisiifolia* L. common ragweed
 Rare in disturbed areas
 Poole 4912, 10/7/2003 (TEX-NPS); Seigler DS-2757, 7/21/1970 (TEX)
- Ambrosia psilostachya* DC. western ragweed
 Infrequent in disturbed areas
 Poole 4596, 6/26/2002 (TEX-NPS); Poole 4664, 7/12/2002 (TEX-NPS)
- Aphanostephus ramosissimus* DC. var. *ramosissimus* lazy daisy
 Infrequent in grasslands or disturbed areas
 Poole 4564, 5/22/2002 (TEX-NPS); Casaday 16, 5/4/2001 (Amistad NRA collection); Larson 9, no date (Amistad NRA collection); Mears 2500, 4/16/1968 (TEX); Warnock 259, 4/10/1949 (LL)
- Aphanostephus riddellii* Torr. & A. Gray Riddell's lazy daisy
 Not seen during this study; Mile Canyon
 Warnock 261, 4/10/1949 (SRSC)
- Artemisia dracunculus* L. false tarragon sagewort
 (*A. glauca* Pall. ex Willd.)
 Rare in disturbed areas
 Observed once in the middle fork of San Pedro Creek but not collected

- Baccharis neglecta*** Britton Roosevelt weed
Abundant in the inundation zone, along drainages, creek, rivers, and disturbed areas
Poole 4904, 10/7/2003 (TEX-NPS); Henrickson 22622, 10/9/1999 (TEX)
- Baccharis salicifolia*** (Ruiz & Pav.) Pers. seepwillow
(*B. glutinosa* Pers.)
Infrequent along drainages, creeks, and rivers
Crutchfield 3414, 7/13/1967 (LL)
- Bahia absinthifolia*** Benth. var. ***dealbata*** (A. Gray) A. Gray hairy-seed bahia
Rare (locally common at a few sites) in rocky soils
Poole 3768, 11/3/1993 (TEX); Poole 4685, 10/11/2002 (TEX-NPS); Casaday 6, no date (Amistad NRA collection); Warnock 47163, 3/29/1947 (LL, SRSC)
- Baileya multiradiata*** Harv. & A. Gray desert marigold
Rare on rocky soils
Amistad NRA Interpretive Collection; Tharp 8885, 6/14/1931 (TEX)
- Brickellia eupatorioides*** (L.) Shinnery var. ***chlorolepis*** (Wooton & Standl.) B. L. Turner southwest kuhnia
(*Kuhnia chlorolepis* Wooton & Standl.)
Rare in rocky, intermittent drainages
Poole 4598, 6/26/2002 (TEX-NPS)
- Brickellia laciniata*** A. Gray splitleaf brickellbush
Infrequent in rocky, intermittent drainages
Poole 4697, 10/29/2002 (TEX-NPS); Casaday 42, 6/18/2001 (Amistad NRA collection); Labus 373, 10/16/1988 (SWT)
- Calyptocarpus vialis*** Less. straggler daisy
Infrequent (locally common in a few sites) along creek or river banks or disturbed sites
McVaugh 8246, 5/9/1947 (TEX); Thompson 188, 9/17/1958 (TEX); Turner 884, 5/22/1949 (TEX)
- Carduus tenuiflorus*** Curtis slender bristlethistle (I)
Rare along river banks
Poole 4810, 5/20/2003 (TEX-NPS)
- Centaurea americana*** Nutt. American basketflower
Rare in disturbed gravelly soils
Poole 4806, 5/14/2003 (TEX-NPS); Amistad NRA Interpretive Collection
- Centaurea melitensis*** L. yellow star-thistle (I)
Common in disturbed areas
Poole 4749, 3/27/2003 (TEX-NPS)
- Chaetopappa bellidifolia*** (A. Gray & Engelm.) Shinnery hairy lestdaisy (E)
Infrequent in gravelly soils along intermittent drainages
Poole 4620, 7/11/2002 (TEX-NPS); Labus 62, 3/19/1988 (SWT); Labus 103, 4/23/1988 (SWT); Labus 230, 5/23/1988 (SWT); McVaugh 7723, 3/31/1947 (TEX); Warnock 916, 5/22/1949 (TEX)
- Chaetopappa bellioides*** (A. Gray) Shinnery manyflower lestdaisy
Infrequent in gravelly soils on slopes, rock outcrops, and uplands
Poole 3272, 5/6/1993 (TEX); Poole 4492, 4/17/2002 (TEX-NPS); Poole 4531a, 5/22/2002 (TEX-NPS); Poole 4565, 5/22/2002 (TEX-NPS); Casaday 2, no date (Amistad NRA collection); Johnston 26, 4/1/1958 (TEX); Parks 228, 4/10/1949 (TEX); Powell 3451, 3/21/1979 (SRSC); Scudday 689, 7/1/1979 (SRSC); Warnock 47152, 3/29/1947 (SRSC); Worthington 8249, 5/17/1982 (UTEP); Worthington 12043, 6/2/1984 (UTEP)

- Chaptalia texana*** Greene silverpuff (E)
 (*C. nutans* (L.) Pol. var. *texana* (Greene) Burkart)
 Rare on loamy soils in partial shade on slopes and uplands
 Poole 4913, 10/9/2003 (TEX-NPS); Labus 336, 10/8/1988 (SWT)
- Chloracantha spinosa*** (Benth.) G. L. Nesom spiny aster
 (*Aster spinosus* Benth.; *Erigeron ortegae* S. F. Blake; *Leucosyris spinosa* (Benth.) Greene)
 Rare (locally common at a few sites) in disturbed mesic areas
 Poole 4671, 10/9/2002 (TEX-NPS)
- Chrysactinia mexicana*** A. Gray damianita
 Rare on rocky soils and rock outcrops
 Observed at Laughlin Air Force Base Recreation Area and along Live Oak Creek but not collected
- Cirsium texanum*** Buckley Texas thistle
 Infrequent in disturbed areas
 Poole 4771, 4/9/2003 (TEX-NPS)
- Cirsium turneri*** Warnock Turner's cliff thistle (C)
 Rare on cliffs
 Poole 4901, 10/7/2003 (TEX-NPS)
- Conyza canadensis*** (L.) Cronquist var. *canadensis* horsetail conyza
 Rare in disturbed areas
 Poole 4784, 4/11/2003 (TEX-NPS)
- Conyza coulteri*** A. Gray Coulter's conyza
 Rare in disturbed areas
 Poole 4729, 3/25/2003 (TEX-NPS); Reed 2252, 5/31/2001 (TAMU)
- Eclipta prostrata*** (L.) L. false daisy
 Not seen during this study; canyons along lower Devil's River and Rio Grande between Langtry and the mouth of the Pecos River
 Warnock 11693, 9/26/1953 (SRSC); Warnock 11969, 3/28/1954 (SRSC)
- Erigeron colomexicanus*** A. Nelson running fleabane
 Not seen during this study; Mile Canyon
 Parks 249, 4/10/1949 (TEX)
- Erigeron modestus*** A. Gray Plains fleabane
 Infrequent on rocky soils, rock outcrops, and cliffs
 Poole 4468, 4/17/2002 (TEX-NPS); Poole 4528, 5/12/2002 (TEX-NPS); Poole 4576, 5/24/2002 (TEX-NPS); Parks 249, 4/10/1949 (SRSC); Worthington 8252, 5/17/1982 (TEX, UTEP); Worthington 12030, 7/2/1984 (TEX, UTEP)
- Eupatorium greggii*** A. Gray Gregg's eupatorium
 (*Conoclinium dissectum* A. Gray; *C. greggii* (A. Gray) Small)
 Rare in gravelly silty soils in drainages
 Poole 4791, 5/8/2003 (TEX-NPS); Labus 397, 12/17/1988 (SWT, TEX)
- Eupatorium serotinum*** Michx. white boneset
 Rare (locally common in Big Satan Canyon) on rock outcrops and rocky soils
 Poole 3763, 11/3/1993 (TEX); Poole 4628, 7/11/2002 (TEX-NPS); Thompson 185, 9/17/1958 (TEX)
- Evax prolifera*** Nutt. ex DC. flathead rabbit tobacco
 Infrequent in shallow soils and disturbed areas
 Observed at Big Satan Canyon, Hunt Areas 1, 2, 4 & 5, San Pedro Creek, Diablo East, and Live Oak Creek but not collected.

- Evax verna*** Raf. roundhead rabbit tobacco
(*Diaperia verna* (Raf.) Morefield)
Infrequent (locally common at some sites) in shallow soils and disturbed areas
Labus 181, 5/11/1988 (SWT); *Larson* 3, 4/19/2002 (Amistad NRA collection); *Mears* 2497, 4/16/1968 (TEX); *Parks* 234, 4/10/1949 (LL, SRSC); *Powell* 3441, 3/3/1979 (SRSC); *Reed* 11965, 5/31/2001 (TAMU); *Tharp* 49332, 4/16/1949 (TEX); *Warnock* 11965, 3/28/1954 (SRSC)
- Florestina tripteris*** DC. sticky palafoxia
Not seen during this study; Amistad Dam
Warnock 22877, 5/22/1969 (SRSC)
- Flourensia cernua*** DC. tarbush
Rare (locally common at Hunt Area 2) on rocky soils
Labus 27, 11/22/1987 (TEX)
- Flyriella parryi*** (A. Gray) R. M. King & H. Robs. Shinner's brickellbush (C)
(*Brickellia shineri* M. E. Jones ex Flyr)
Rare (locally common in Seminole Canyon & Pink Cave Cove) on cliffs & boulders
Poole 4465, 4/17/2002 (TEX-NPS); *Correll* 32610, 4/21/1966 (LL); *Labus* 142, 5/10/1988 (SWT)
- Gaillardia coahuilensis*** B. L. Turner Coahuila Indian blanket
(misapplied as *G. mexicana* A. Gray)
Rare on gravelly soils in disturbed areas or on rock outcrops
Poole 4579, 5/24/2002 (TEX-NPS); *Turner* 15681, 5/31/1987 (SRSC, TEX)
- Gaillardia pinnatifida*** Torr. slender gaillardia
Rare on gravelly soils in intermittent drainages
Observed in small canyon along Devil's River but not collected.
- Gaillardia pulchella*** Foug. var. *pulchella* Indian blanket
Infrequent on gravelly soils and in disturbed areas
Freeman s.n., 4/30/1977 (UTEF); *Labus* 175, 5/11/1988 (SWT)
- Gaillardia suavis*** (Engelm. & A. Gray) Britton & Rusby rayless gaillardia
Rare on rocky soils
Parks 203, 4/10/1949 (SRSC)
- Gochnatia hypoleuca*** (DC.) A. Gray chomonque
Rare on rocky slopes
Poole 4687, 10/11/2002 (TEX-NPS); *Amistad Interpretive Collection*
- Gutierrezia microcephala*** (DC.) A. Gray threadleaf snakeweed
(*Xanthocephalum microcephalum* (DC.) Shinners)
Infrequent (locally at some sites) on gravelly silty soils or rock outcrops in inundation zone
Poole 4600a, 6/27/2002 (TEX-NPS); *Poole* 4909, 10/7/2003 (TEX-NPS); *Labus* 287, 8/24/1988 (SWT)
- Gutierrezia sarothrae*** (Pursh) Britton & Rusby broom snakeweed
(*Xanthocephalum sarothrae* (Pursh) Shinners)
Not seen during this study; Laughlin Air Force Base Recreation Area
Observed but not collected (Texas Natural Heritage Program 1995)
- Gutierrezia sphaerocephala*** A. Gray roundleaf snakeweed
Rare in disturbed areas
Poole 4136, 9/7/1994 (TEX); *Thompson* 208, 9/17/1958 (TEX)
- Gymnosperma glutinosa*** Less. tatalencho
Common on rocky soils and rock outcrops
Observed at numerous locations but not collected

- Haploesthes greggii*** A. Gray **var. *texana*** (J. M. Coult.) I. M. Johnst. false broomweed
Not seen during this study; Eagle Cave Canyon & Hwy 90 bridge over Amistad Reservoir
Correll 32607, 4/21/1966 (LL); *Worthington* 8247, 5/17/1982 (UTEP)
- Helenium elegans*** DC. **var. *elegans*** pretty sneezeweed
Not seen during this study; Laughlin Air Force Base Recreation Area
Observed but not collected (Texas Natural Heritage Program 1995)
- Helenium microcephalum*** DC. **var. *microcephalum*** smallhead sneezeweed
Infrequent on gravelly slopes in inundation zone
Poole 4517, 5/21/2002 (TEX-NPS); *Larson* 19, 6/19/2001 (Amistad NRA collection);
Warnock 919, 5/22/1949 (SRSC); *Worthington* 2035, 7/2/1984 (UTEP)
- Helianthus annuus*** L. common sunflower
Rare in disturbed areas
Poole 4930, 10/10/2003 (TEX-NPS)
- Heterotheca fulcrata*** (Greene) Shinners rocky goldaster
Rare (locally common at most sites) on gravelly soils
Poole 4581, 5/24/2002 (TEX-NPS); *Warnock* 21379, 7/29/1967 (SRSC); *Warnock* 22717, 8/10/1967 (SRSC)
- Heterotheca subaxillaris*** (Lam.) Britton & Rusby camphorweed
Rare (locally common at most sites) on rock outcrops and cliffs
Warnock W853, 10/12/1940 (SRSC, TEX)
- Hymenoxys odorata*** DC. fragrant bitterweed
Rare on rocky silty soils on flats and slopes in inundation zone
Poole 4563, 5/22/2002 (TEX-NPS); *Warnock* 47177, 3/29/1947 (SRSC)
- Lactuca serriola*** L. wild lettuce (I)
Infrequent in rocky slopes in inundation zone & disturbed areas
Poole 4523, 5/21/2002 (TEX-NPS); *Reed* 2247, 5/31/2001 (TAMU)
- Lindheimera texana*** A. Gray & Engelm. Texas star
Not seen during this study; Devil's River dam (now inundated)
McVaugh 7735, 3/31/1947 (TEX)
- Machaeranthera pinnatifida*** (Hook.) Shinners **var. *pinnatifida*** lacy tansyaster
Rare (locally common at one site) in rocky caliche soils on gentle slopes
Poole 4519, 5/21/2002 (TEX-NPS)
- Melampodium cinereum*** DC. **var. *hirtellum*** Stuessy blackfoot daisy
Rare in gravelly soils
Warnock 47155, 3/28/1947 (SRSC)
- Melampodium leucanthum*** Torr. & A. Gray plains blackfoot daisy
Rare in gravelly, silty soils along intermittent drainages
Freeman s.n., 4/30/1977
- Palafoxia callosa*** (Nutt.) Torr. & A. Gray small palafoxia
Rare (locally common at one site) on rock slopes & outcrops
Poole 3767, 11/3/1993 (TEX); *Poole* 4690, 10/29/2002 (TEX-NPS); *Labus* 133, 5/10/1988 (SWT)
- Palafoxia texana*** DC. **var. *texana*** Texas palafoxia
Rare on gravelly soils
Warnock 22887, 4/1/1969 (SRSC)
- Parthenium confertum*** A. Gray lyreleaf parthenium
Common on gravelly slopes
Poole 4488, 4/17/2002 (TEX-NPS); *Labus* 107, 4/23/1988 (SWT); *Larson* 40, 6/18/2001 (Amistad NRA collection); *Thompson* 206, 9/17/1958 (TEX); *Warnock* 685, 4/30/1949 (SRSC)

- Parthenium hysterophorus*** L. ragweed parthenium
 Not seen during this study; Laughlin Air Force Base Recreation Area
 Observed but not collected (Texas Natural Heritage Program 1995)
- Parthenium incanum*** Kunth mariola
 Infrequent in gravelly intermittent drainages
Poole 4703, 10/31/2002 (TEX-NPS); *Labus* 11, 11/22/1987 (SWT); *Labus* 324, 10/1/1988 (SWT)
- Perityle angustifolia*** (A. Gray) Shinners narrowleaf rockdaisy (C, E)
 Infrequent (locally common in some sites) on cliffs and rock outcrops
Labus 233, 5/23/1988 (SWT); *Skiles* 7, 6/26/1952 (SRSC); *Turner* 280-5, 9/13/1948 (SRSC); *Warnock* 11755, 9/26/1953 (SRSC); *Warnock* 22705, 8/10/1967 (SRSC); *Warnock* 23612, 5/24/1966 (SRSC); *Worthington* 12027, 6/2/1984 (UTEP)
- Perityle lindheimeri*** (A. Gray) Shinners Lindheimer rockdaisy
 Rare (locally common in Big Satan Canyon) on cliffs and rock outcrops
 Observed at several sites (Devil's River, San Pedro Creek area, & Blackbrush Point) but not collected
- Pinaropappus roseus*** (Less.) Less. rock lettuce
 Common on rocky soils, often in disturbed sites
Powell 3438, 3/31/1979 (SRSC); *Warnock* 47149, 3/29/1947 (SRSC)
- Pluchea odorata*** (L.) Cass. purple pluchea
 Rare along creek or riverbanks or associated wetlands
Poole 3760, 11/2/1993 (TEX); *Hanks* 2, 10/5/1980 (SRSC)
- Porophyllum scoparium*** A. Gray poreleaf
 Common on rocky soils, rock outcrops, and cliffs
Poole 4234, 9/6/1994 (TEX)
- Pseudognaphalium luteoalbum*** (L.) Hilliard & B. L. Burt Jersey cudweed (I)
 Rare in rocky to silty soils on flats or rocky slopes in inundation zone
Poole 4550, 5/22/2002 (TEX-NPS); *Poole* 4614, 6/28/2002 (TEX-NPS)
- Psilostrophe gnaphalodes*** DC. cudweed paperflower
 Rare (locally common at one site) on rocky slopes
Poole 4503, 5/21/2002 (TEX-NPS); *Labus* 26, 11/11/1987 (SWT); *Labus* 349, 10/9/1988 (SWT)
- Psilostrophe tagetina*** (Nutt.) Greene var. *cerifera* (A. Nelson) B. L. Turner hairy paperflower
 Not seen during this study; bluffs of Rio Grande, Langtry
Worthington 12044, 6/2/1984 (UTEP)
- Pyrrhopappus pauciflorus*** (D. Don) DC. manystem false dandelion
 Not seen during this study
Warnock 22896, 4/1/1969 (SRSC)
- Ratibida columnifera*** (Nutt.) Wootton & Standl. Mexican hat
 Infrequent (locally common at some sites) in grasslands and disturbed sites
Freeman s.n., 4/30/1977 (UTEP); *Labus* 93, 4/23/1988 (SWT); *Labus* 192, 5/10/1988 (SWT); *Reed* 2262, 5/31/2001 (TAMU)
- Senecio flaccidus*** Less. var. *flaccidus* threadleaf groundsel
 (*S. douglasii* DC. var. *jamesii* (Torr. & A. Gray) Ediger ex Correll & M. C. Johnston; *S. douglasii* DC. var. *longilobus* (Benth.) L. D. Benson)
 Common in grasslands and rocky slopes in inundation zone
Poole 4713, 2/20/2003 (TEX-NPS); *Labus* 5, 11/22/1987 (SWT); *Labus* 68, 3/19/1988 (SWT)
- Simsia calva*** (Engelm. & A. Gray) A. Gray bush sunflower
 Infrequent on gravelly slopes
Poole 4480, 4/17/2002 (TEX-NPS); *Poole* 4508, 5/21/2002 (TEX-NPS); *Powell* 3445, 3/31/1979 (SRSC); *Spooner* 11739, 9/26/1953 (SRSC); *Warnock* 47137, 3/29/1947 (SRSC); *Warnock* 47182, 3/29/1947 (SRSC)

- Solidago juliae*** G. L. Nesom Julia's goldenrod
Rare on rock outcrop in river
Poole 4919, 10/19/2003 (TEX-NPS)
- Sonchus oleraceus*** L. common sowthistle (I)
Infrequent in disturbed sites
Poole 4728, 3/7/2003 (TEX-NPS)
- Symphotrichum divaricatum*** (Nutt.) G. L. Nesom hierba del marrano
(*Aster subulatus* Michx. var. *ligulatus* Shinners)
Not seen during this study; Laughlin Air Force Base Recreation Area, Devil's River hwy bridge, Pecos River east bank south of Hwy 90 high bridge
Poole 3757, 11/2/1993 (TEX); Henrickson 22624, 10/9/1999 (TEX); Warnock 11674, 9/26/1953 (TEX)
- Symphotrichum expansum*** (Poepp. ex Spreng.) G. L. Nesom southwestern annual saltmarsh aster
Not seen during this study; Devil's River at hwy bridge & island west of Devil's River channel
Powell 3397, 10/27/1978 (SRSC); Warnock 11718, 9/26/1953 (SRSC)
- Tetragonotheca texana*** A. Gray & Engelm. Plateau nerveray
Rare on gravelly soils
Observed once in Big Satan Canyon but not collected
- Tetraneuris scaposa*** (DC.) Greene var. ***argyrocaulon*** (K. F. Parker) K. F. Parker clustered bitterweed
Rare in caliche soils in disturbed areas
Poole 4794, 5/8/2003 (TEX-NPS)
- Thelesperma megapotamicum*** (Spreng.) Kuntze bighead greenthread
Rare in rocky intermittent drainages, rocky soils, and rock outcrops
Observed in Big Satan Canyon & canyon 71 but not collected
- Thelesperma simplicifolium*** A. Gray slender greenthread
Infrequent on gravelly flats and slopes
Poole 4485, 4/17/2002 (TEX-NPS); Poole 4510, 5/21/2002 (TEX-NPS); Labus 109, 226, 228, 4/23/1988 (SWT); Reed 2263, 5/31/2001 (TAMU)
- Thymophylla acerosa*** (DC.) Strother needle dogweed
(*Dyssodia acerosa* DC.)
Infrequent (locally common at several sites) on rocky flats and slopes
Poole 3758, 11/2/1993 (TEX); Poole 4511, 5/21/2002 (TEX-NPS); Larson 20, 6/19/2001 (Amistad NRA collection); Powell 3412, 3/31/1979 (SRSC)
- Thymophylla micropoides*** (DC.) Strother woolly dogweed
(*Dyssodia micropoides* DC.)
Common on rocky flats
Poole 4689, 10/11/2002 (TEX-NPS); Labus 2, 11/22/1987 (SWT); Powell 3432, 3/31/1979 (SRSC); Sharp 8825, 6/14/1931 (SWT); Warnock 11708, 9/26/1953 (SRSC); Warnock 47150, 3/29/1947 (SRSC); Worthington 8251, 5/17/1982 (UTEP); Worthington 26169, 3/16/1997 (UTEP)
- Thymophylla pentachaeta*** (DC.) Small var. ***pentachaeta*** parralena
(*Dyssodia pentachaeta* (DC.) B. L. Robs.)
Infrequent (locally common at a few sites) on rocky flats and slopes, disturbed sites
Poole 4521, 5/21/2002 (TEX-NPS); Poole 4745, 3/26/2003 (TEX-NPS); Casaday 19, 5/14/2001 (Amistad NRA collection)
- Thymophylla setifolia*** Lag. var. ***radiata*** (A. Gray) Strother Texas pricklyleaf
(*Dyssodia setifolia* (Lag.) B. L. Robs. var. *radiata* (A. Gray) Strother; *D. setifolia* (Lag.) B. L. Robs. var. *greggii* (A. Gray) M. C. Johnst.; *D. greggii* (A. Gray) B. L. Robs.; *T. greggii* A. Gray)

Rare (locally common at one site) on rocky slopes and flats, disturbed sites
 Observed at Indian Cliffs canyon, San Pedro Creek area, Spur 454 campground,
 Blackbrush Point, and Hunt Area 2 but not collected

Thymophylla tenuiloba (DC.) Small var. ***tenuiloba*** bristleleaf dogweed
 (*Dyssodia tenuiloba* (DC.) B. L. Rob.)

Common on rocky flats and slopes, disturbed areas
 Poole 4553, 5/22/2002 (TEX-NPS); Correll 27124, 3/31/1963 (LL); Warnock 11683, 9/26/
 1953 (LL)

Thymophylla tenuiloba (DC.) Small var. ***treculii*** (A. Gray) Strother
 Trecul's bristleleaf dogweed
 (*Dyssodia tenuiloba* (DC.) B. L. Rob. var. *treculii* (A. Gray) Strother; *D. treculii* (A. Gray)
 B. L. Rob.)

Rare on rocky flats and slopes
 Larson 8, 4/19/2001 (Amistad NRA collection)

Verbesina encelioides (Cav.) Benth. & Hook. f. ex A. Gray cowpen daisy
 Infrequent on gravelly flats and slopes, disturbed areas
 Poole 4782, 4/10/2003 (TEX-NPS); Labus 162, 5/10/1988 (SWT); Labus 190, 5/11/1988
 (SWT); Hanks 1, 11/8/1980 (SRSC); Warnock 279, 4/10/1949 (SRSC); Warnock 11759, 9/
 26/1953 (SRSC)

Viguiera stenoloba S. F. Blake skeletonleaf goldeneye
 Rare on thin rocky soils over bedrock
 Poole 4931, 10/10/2003 (TEX-NPS); Warnock 11682, 9/26/1953 (SRSC)

Wedelia acapulcensis Kunth var. ***hispida*** (Kunth) Strother hairy zexmenia
 (*W. hispida* Kunth; *W. texana* (A. Gray) B. L. Turner; *Zexmenia hispida* (Kunth) A. Gray)
 Frequent on rocky flats and slopes, rock outcrops and disturbed areas
 Labus 254, 5/23/1988 (SWT); McVaugh 10592, 5/22/1949 (SRSC); Warnock 11738, 9/26/
 1953 (SRSC); Worthington 12048, 6/2/1984 (UTEP)

Xanthium strumarium L. cocklebur
 Infrequent on silty floodplains and mesic areas in disturbed sites
 Poole 4917, 10/9/2003 (TEX-NPS)

BERBERIDACEAE

Berberis trifoliolata Moric. agarita
 (*Mahonia trifoliolata* (Moric.) Fedde)
 Common on upland rocky flats and slopes
 Flyr 916, 3/26/1966 (TEX); Labus 71, 3/19/1988 (SWT, TEX, TAMU); Mears 2602, 4/17/
 1968 (TEX); Parks 201, 4/10/1949 (SRSC)

BIGNONIACEAE

Chilopsis linearis (Cav.) Sweet desert willow
 Rare on gravelly soils in intermittent drainages, on rocky outcrops and rocky slopes
 Poole 4808, 5/19/2003 (TEX-NPS); Traverse 2145, 5/10/1961(LL)

Tecoma stans (L.) Juss. ex Kunth yellow bells
 Rare (locally common at one site) on rocky slopes, rock outcrops, and cliffs
 Observed in Deadman's Canyon but not collected

BORAGINACEAE

- Cryptantha mexicana* (Brandege) I. M. Johnst. Mexican cryptantha
 Infrequent on rocky slopes
Poole 3273, 5/6/1993 (TEX); Poole 3817, 4/11/1994 (TEX); Poole 4474, 4/17/2002 (TEX-NPS); Poole 4535, 5/22/2002 (TEX-NPS); Parks 252, 4/10/1949 (SRSC); Reed 2246, 5/31/2002 (TAMU); Warnock 47171, 3/29/1947 (SRSC)
- Cryptantha palmeri* (A. Gray) Payson Palmer's cryptantha
 (*C. coryi* I. M. Johnst.)
 Not seen during this study; Castle Canyon Island
Powell 3429, 3/31/1979 (SRSC)
- Heliotropium confertifolium* (Torr.) Torr. ex A. Gray leafy heliotrope
 Rare on silty, rocky slopes in inundation zone
Poole 4831, 6/20/2003 (TEX-NPS); Parks 231, 4/10/1949 (SRSC)
- Heliotropium curassavicum* L. seaside heliotrope
 Infrequent (locally common in inundation zone) on silty flats and gentle slopes
Worthington 12038, 6/2/1984 (UTEP)
- Heliotropium procumbens* Mill. fourspike heliotrope
 Rare on rocky, silty soils in intermittent drainages
Poole 4800, 5/9/2003 (TEX-NPS)
- Heliotropium torreyi* I. M. Johnst. Torrey heliotrope
 Frequent on gravelly flats and slopes
Poole 4688, 10/11/2002 (TEX-NPS); Jones 8031, 3/16/1992 (UTEP); Powell 3389, 10/27/1978 (SRSC)
- Lappula occidentalis* (S. Watson) Greene flatspine stickseed
 (*L. redowskii* (Hornem.) Green)
 Rare on gravelly slopes
Poole 4490, 4/17/2002 (TEX-NPS)
- Lithospermum matamorensense* DC. rough gromwell
 Rare on steep rocky outcrops
Poole 4545a, 5/22/2002 (TEX-NPS); Mears 2564, 4/16/1968 (TEX)
- Lithospermum parksii* I. M. Johnst. Parks' gromwell
 Not seen during this study; Laughlin Air Force Base Marina
Freeman s.n., 4/30/1977 (UTEP)
- Omphalodes aliena* A. Gray Mexican navelseed
 Rare on rocky uplands
Correll 30816, 4/3/1965 (LL); McVaugh 7699, 3/29/1947 (SRSC); Turner 528, 4/18/1949 (SRSC); Warnock 224, 4/10/1949 (SRSC); Warnock 47200, 3/27/1947 (SRSC); Worthington 26180, 3/16/1997 (UTEP)
- Tiquilia canescens* (A. DC.) A. T. Richardson gray coldenia
 Frequent on rocky flats, slopes, and uplands
Larson 37, 6/19/2001 (Amistad NRA collection)

BRASSICACEAE

- Descurainia pinnata* (Walter) Britton tansy mustard
 Infrequent on silty flats and disturbed areas
Poole 4717, 2/20/2003 (TEX-NPS); Correll 27139-A, 3/30/1963 (LL); Flyr 903, 3/26/1966 (TEX); Parks 270, 4/10/1949 (LL)

- Draba cuneifolia*** Nutt. ex Torr. & A. Gray wedgeleaf draba
 Rare on rocky flats
 Warnock 47138, 3/29/1947 (SRSC, TEX)
- Lepidium austrinum*** Small hairy peppergrass
 (*L. lasiocarpum* Nutt. ex Torr. & A. Gray var. *orbiculare* (Thell.) C. L. Hitchc.)
 Rare on gravelly clay flats and gentle slopes, inundation zone
 Poole 4521a, 5/21/2002 (TEX-NPS); Flyr 889, 3/26/1966 (TEX); Flyr 971, 4/1/1966 (TEX);
 Hinckley 411, 3/10/1950 (SRSC); Warnock 47148, 3/29/1947 (SRSC)
- Lepidium lasiocarpum*** Nutt. ex Torr. & A. Gray var. *wrightii* (A. Gray) C. L. Hitchc. hairy pod peppergrass
 Common on silty flats and rock outcrops
 Poole 4718, 2/20/2003 (TEX-NPS); Poole 4801, 5/9/2003 (TEX-NPS); Flyr 339, 3/16/1965 (TEX); Parks 272, 4/3/1953 (LL); Powell 3444, 3/31/1979 (SRSC); Warnock 214, 4/10/1949 (LL); Warnock 3899 & 3900, 3/31/1959 (SRSC); Warnock 47184, 3/29/1947 (SRSC)
- Lepidium virginicum*** L. smooth pepperweed
 Rare in disturbed areas
 Observed at Rough Canyon Marina and a canyon near Rio Grande buoy 22S, but not collected
- Nerisyrenia camporum*** (A. Gray) Greene mesa greggii
 Not seen during this study; west of Comstock on Rio Grande & Seminole Canyon State Historical Park
 Johnston 8, 12/1958 (TEX); Labus 123, 4/23/1988 (SWT); Labus 224, 5/18/1988 (SWT)
- Physaria argyraea*** (A. Gray) O’Kane & Al-Shehbaz silver bladderpod
 (*Lesquerella argyraea* (A. Gray) S. Watson)
 Infrequent on rocky slopes
 Poole 3814, 11/1/1994 (TEX); Poole 4573, 5/24/2003 (TEX-NPS); Poole 4716, 2/20/2003 (TEX-NPS); Correll 27122, 3/31/1963 (LL); Larson 5, 4/19/2001 (Amistad NRA collection); Rollins 6156, 4/15/1961 (LL)
- Physaria fendleri*** (A. Gray) O’Kane & Al-Shehbaz Fendler’s bladderpod
 (*Lesquerella fendleri* (A. Gray) S. Watson)
 Rare on silty or rocky soils on river banks or on rock outcrops or cliffs
 Labus 124, 4/23/1988 (SWT); Labus 189, 5/11/1988 (SWT); McVaugh 7734, 3/31/1947 (TEX); Neff 95-4-15-4, 4/15/1992 (TEX); Warnock 11959, 3/28/1954 (SRSC); Warnock 47133, 3/29/1947 (SRSC); Worthington 55817, 3/16/1997 (UTEP)
- Physaria gordonii*** (A. Gray) O’Kane & Al-Shehbaz Gordon bladderpod
 (*Lesquerella gordonii* (A. Gray) S. Watson)
 Not seen during this study; Laughlin Air Force Base Marina
 Freeman s.n., 4/30/1977 (UTEP)
- Physaria gracilis*** (Hook.) O’Kane & Al-Shehbaz spreading bladderpod
 (*Lesquerella gracilis* (Hook.) S. Watson)
 Rare on rocky soils
 Powell 3439, 3/31/1979 (SRSC); Worthington 8248, 5/17/1982 (UTEP)
- Physaria purpurea*** (A. Gray) O’Kane & Al-Shehbaz rose bladderpod
 (*Lesquerella purpurea* (A. Gray) S. Watson)
 Not seen during this study; Mile Canyon and Pump Canyon
 Correll 19408, 7/7/1958 (LL); Flyr 336, 3/6/1965 (TEX); Flyr 841, 11/20/1965 (TEX); Flyr 1004, 4/3/1966 (TEX); Parks 280, 4/10/1949 (TEX); Rollins 6160, 4/15/1961 (LL)
- Rorippa teres*** (Michx.) Stuckey var. *teres* southern marsh yellow cress
 Not seen during this study; Mile Canyon
 Parks 284, 4/10/1949 (TEX)

- Sisymbrium irio*** L. London rocket (I)
 Rare on silty flats, disturbed areas
 Poole 4719, 2/20/2003 (TEX-NPS); Warnock 47165, 3/29/1947 (LL, SRSC)
- Streptanthus platycarpus*** A. Gray broadpod twistflower (C)
 Rare on rocky slopes, rock outcrops, and cliffs
 Hinckley 417, 3/10/1950 (SRSC, TEX); Turner 492, 4/18/1949 (SRSC); Warnock 11962, 3/28/1954 (SRSC); Warnock 47128, 3/28/1947 (SRSC, TEX)

CACTACEAE

- Ancistrocactus brevihamatus*** (Engelm.) Britton & Rose rosy flowered fishhook cactus
 (*Sclerocactus brevihamatus* (Engelm.) D. R. Hunt var. *brevihamatus*)
 Infrequent on rocky slopes and flats
 Poole 4712, 2/19/2003 (TEX-NPS)
- Ancistrocactus uncinatus*** (Galeotti ex Pfeiff.) L. D. Benson var. ***wrightii*** (Engelm.) L. D. Benson
 Chihuahuan fishhook cactus
 (*Glandulicactus uncinatus* (Galeotti ex Pfeiff.) Backeb. var. *wrightii* (Engelm.) Backeb.;
Sclerocactus uncinatus (Galeotti ex Pfeiff.) N. P. Taylor var. *wrightii* (Engelm.) N. P. Taylor)
 Rare on rock outcrops, ledges, and cliffs
 Observe at Diablo East Viewpoint picnic area but not collected
- Ariocarpus fissuratus*** (Engelm.) K. Schum. living rock
 Not seen during this study; hills near mouth of Pecos River
 Bigelow s.n., 1852 (MO)
- Coryphantha echinus*** (Engelm.) Britton & Rose sea urchin cactus
 (*C. cornifera* (DC.) Lem. var. *echinus* (Engelm.) L. D. Benson)
 Rare on rocky soils and rock outcrops
 Observed at Rough Canyon, San Pedro Creek, Diablo East Viewpoint picnic area, Hunt Area 2, and Live Oak Creek but not collected
- Coryphantha pottsiana*** (Poselger) A. D. Zimmerman Pott's cory cactus
 Rare on rocky slopes and flats
 Warnock 22845, 5/28/1969 (SRSC); Worthington 8260, 5/17/1982 (UTEP)
- Coryphantha robertii*** A. Berger junior Tom Thumb cactus
 (*Escobaria emskoetteriana* Borg)
 Infrequent (locally common at some sites) on rocky flats and slopes
 Poole 4711, 2/19/2003 (TEX-NPS)
- Coryphantha sulcata*** (Engelm.) Britton & Rose pineapple cactus
 Infrequent on rocky soils and rock outcrops
 Observed at Rough Canyon, Hunt Areas 1, 4 & 5, Blackbrush Point, Diablo East, Governor's Landing, & Rock Quarry campground but not collected
- Echinocactus horizonthalonius*** (Lem.) eagle's claw
 Rare in rocky soil
 Observed at Hunt Area 2 but not collected.
- Echinocactus texensis*** Hopffer horsecrippler
 Rare in rocky soil.
 Observed at Hunt Areas 1, 2, 4 & 5, San Pedro Creek, & Governor's Landing but not collected

- Echinocereus enneacanthus*** Engelm. **var. *enneacanthus*** pitaya
 (*E. enneacanthus* Engelm. **var. *dubius*** (Engelm.) L. D. Benson)
 Common on gravelly flats
Poole 4827, 6/19/2003 (TEX-NPS)
- Echinocereus pectinatus*** (Scheidw.) Engelm. **var. *wenigeri*** L. D. Benson
 Weniger's hedgehog cactus
 Rare on rocky flats
 Observed at Hunt Area 2 but not collected.
- Echinocereus triglochidiatus*** Engelm. **var. *paucispinus*** W. T. Marshall claretcup cactus
 (*E. coccineus* Engelm. **var. *paucispinus*** D. J. Ferguson)
 Infrequent on rocky flats, outcrops, ledges, and bluffs
Poole 4779, 4/10/2003 (TEX-NPS)
- Epithelantha micromeris*** (Engelm.) F. A. C. Weber ex Britton & Rose button cactus
 Rare on shallow gravelly soils over bedrock
Poole 4710, 2/19/2003 (TEX-NPS)
- Ferocactus hamatacanthus*** (Muehlenpf.) Britton & Rose Turks' head cactus
 Common on outcrops and cliffs
 Widespread throughout the area but not collected.
- Mammillaria heyderi*** Muehlenpf. **var. *heyderi*** flattened mammillaria
 Infrequent on shallow, gravelly soils
 Observed at numerous sites but not collected
- Mammillaria prolifera*** (Mill.) Haw. **var. *texana*** (Engelm.) Borg hair-covered cactus
 Rare on gravelly soils on gentle slopes and uplands
Brady s.n., no date (SRSC)
- Neolloydia conoidea*** (DC.) Britton & Rose Chihuahuan beehive
 Rare on rocky slopes
 Observed at Hunt Area 1, Rough Canyon on the Rio Grande & Live Oak Creek but not collected
- Opuntia atrispina*** Griffiths Border pricklypear
 Common on shallow, rocky soils on flats and uplands
Poole 4780, 4/10/2003 (TEX-NPS); Fields 2556, 4/15/1960 (TEX); Grant 77-32, 4/21/1978 (TEX)
- Opuntia engelmannii*** Salm-Dyck ex Engelm. **var. *lindheimeri*** (Engelm.) B. D. Parfitt & Pinkava
 Lindheimer pricklypear
 (*O. lindheimeri* Engelm.)
 Abundant on rocky flats, slopes, rock outcrops, and ledges
Poole 4789, 5/8/2003 (TEX-NPS); Zimmerman 2282, 9/7/1985 (SRSC)
- Opuntia leptocaulis*** DC. tasajillo
 Abundant on rocky flats, slopes, rock outcrops, ledges, and disturbed areas
Poole 4907, 10/7/2003 (TEX-NPS); Labus 29, 11/22/1987 (SWT, TEX)
- Opuntia phaeacantha*** Engelm. brownspine pricklypear
 Infrequent on rocky flats, slopes, rock outcrops, and ledges
 Observed scattered throughout area but not collected
- Opuntia schottii*** Engelm. **var. *schottii*** dog cholla
 Rare (locally abundant at one site) on shallow rocky soils on flats
Schott s.n., 10/1853 (MO)
- Thelocactus setispinus*** (Engelm.) E. F. Anderson twisted rib cactus
 (*Ferocactus setispinus* (Engelm.) L. D. Benson)
 Rare on gravelly flats
Poole 4824, 6/19/2003 (TEX-NPS)

CAMPANULACEAE

- Lobelia berlandieri*** A. DC. var. ***brachypoda*** (A. Gray) McVaugh blue lobelia
(*L. brachypoda* (A. Gray) Small)
Rare in shallow water or on rocky soils or ledges at edges of rivers
Correll 15995, 4/18/1957 (LL); *Correll 25073, 5/21/1962 (LL)*; *Turner 890, 5/22/1949 (SRSC)*; *Warnock 23662, 5/24/1966 (SRSC)*
- Triodanis coloradoensis*** McVaugh Colorado Venus' looking-glass
Rare on rocky slopes, flats, and intermittent drainages
Freeman s.n., 4/30/1977 (UTEP); *McVaugh 8239, 5/9/1947 (TEX)*
- Triodanis leptocarpa*** Nieuwl. slimpod Venus' looking-glass
Not seen during this study; Amistad Dam
Warnock 22873, 5/22/1959 (SRSC)
- Triodanis perfoliata*** (L.) Nieuwl. Venus' looking-glass
Rare on rocky slopes, flats, and intermittent drainages
Turner 519, 4/18/1949 (SRSC); *Turner 896, 5/22/1949 (TEX)*; *Warnock 226, 4/10/1949 (SRSC)*

CAPPARIDACEAE

- Koeberlinia spinosa*** Zucc. allthorn
Infrequent on rocky flats and slopes
Labus 194, 5/18/1988 (SWT); *Labus 378, 10/16/1988 (SWT, TEX)*
- Polanisia dodecandra*** (L.) DC. var. ***trachysperma*** (Torr. & A. Gray) Iltis clammyweed
Rare in gravelly soils along intermittent drainages, creeks, and rivers
Poole 4626, 7/11/2002 (TEX-NPS); *Flyr 765, 10/11/1965 (TEX)*; *Amistad NRA Interpretive collection*; *Thompson 205, 9/17/1958 (TEX)*

CARYOPHYLLACEAE

- Arenaria benthamii*** Fenzl ex Torr. & A. Gray Bentham sandwort
Infrequent on rocky soils
Poole 4755, 3/27/2003 (TEX-NPS); *Mears 2596, 4/17/1968 (TEX)*; *Parks 227, 4/10/1949 (SRSC)*; *Warnock 47212, 3/19/1947 (SRSC)*
- Paronychia jamesii*** Torr. & A. Gray James nailwort
Not seen during this study; Mile Canyon & Seminole Canyon State Historical Park
Labus 400, 12/17/1988 (SWT); *Parks 223, 4/10/1949 (SRSC)*
- Silene antirrhina*** L. sleepy catchfly
Not seen during this study; Mile Canyon
Parks 251, 4/10/1949 (LL, SRSC)

CELASTRACEAE

- Mortonia sempervirens*** A. Gray rough mortonia
Not seen during this study; bluffs along the Rio Grande around Langtry
Correll 34157, 5/19/1967 (LL); *Tharp 49331, 4/16/1949 (LL)*; *Worthington 12028, 6/2/1984 (UTEP)*
- Schaefferia cuneifolia*** A. Gray desert yaupon
Common on rocky flats, slopes, and uplands
Labus 32, 11/22/1987 (TEX); *McVaugh 7738, 3/331/1947 (TEX)*

CHENOPODIACEAE

- Chenopodium berlandieri* Moq. var. *berlandieri* pitseed goosefoot
Rare on gravelly soils along intermittent drainages, creeks and rivers
Poole 4639, 7/11/2002 (TEX-NPS)
- Salsola tragus* L. Russian thistle (I)
Rare in disturbed areas
Poole 4921, 10/10/2003 (TEX-NPS)
- Suaeda moquinii* (Torr.) Greene quelite saladó
Not seen during this study; mouth of the Pecos River
Warnock 47197, 3/29/1947 (SRSC)

COCHLOSPERMACEAE

- Amoreuxia wrightii* A. Gray yellow show
Rare on rocky flats and slopes, uplands
Warnock 22863, 5/22/1969 (SRSC)

CONVOLVULACEAE

- Convolvulus arvensis* L. field bindweed (I)
Infrequent, trailing along ground or twining on low vegetation, rocky flats and slopes
Observed in several scattered sites but not collected
- Convolvulus equitans* Benth. hoary bindweed
Infrequent, trailing along ground or on low vegetation, on rocky flats and slopes
Correll 27120, 27123, & 27128, 3/31/1963 (LL); *Reed* 2242, 5/31/2001 (TAMU); *Warnock* 47139, 3/29/1947 (SRSC, TEX)
- Dichondra micrantha* Urb. Asian ponyfoot
Rare on rocky flats and slopes
Cory 38063, 8/16/1941 (TAES, TEX); *Warnock* 11653, 9/26/1953 (LL, SRSC)
- Evolvulus alsinoides* (L.) L. var. *hirticaulis* Torr. ojo de vibora
Rare in gravelly soils on flats and slopes
Correll 19405, 7/7/1958 (LL); *Labus* 331, 10/8/1988 (TEX); *Skiles* 2, 6/2/1952 (SRSC)
- Evolvulus sericeus* Sw. silky evolvulus
Infrequent in gravelly soils on flats and slopes
Worthington 8253, no date (UTEP)
- Ipomoea cordatotriloba* Dennst. tievine
(*I. trichocarpa* Elliott)
Rare, climbing on shrubs
- Ipomoea costellata* Torr. crestrub morning glory
Rare in rocky clay soils in uplands
Observed in Pink Cave Cove but not collected
- Ipomoea lindheimeri* A. Gray Lindheimer morning glory
Rare, twining on shrubs
Amistad NRA Interpretive collection; *Skiles* 8, 6/26/1952 (SRSC); *Turner* 500, 4/18/1949 (SRSC, TEX); *Turner* 531, 4/18/1949 (SRSC)
- Ipomoea rupicola* House cliff morning glory
Not seen during this study; Goodenough Springs & New Island
Scudday 685, 6/30/1979 (SRSC); *Warnock* 11812, 11/14/1953 (SRSC)
- Ipomoea sagittata* Poir. saltmarsh morning glory
Rare, climbing on shrubs
Poole 4905, 10/7/2003 (TEX-NPS)

- Merremia dissecta*** (Jacq.) Hallier f. alamovine
 Rare, climbing on shrubs or clambering over rock faces
Amistad NRA Interpretive collection; Correll 25081, 5/2/1962 (LL); Traverse 2128, 5/10/1961 (TEX); Warnock 11669, 9/26/1953 (SRSC, TEX); Warnock 22860, 5/22/1969 (SRSC); Worthington 8244, 5/17/1982 (UTEP)

CRASSULACEAE

- Sedum wrightii*** A. Gray Wright's stonecrop
 Rare on rock outcrops, boulders, ledges, and cliffs
 Poole 4599, 6/26/2002 (TEX-NPS); Correll 30669, 11/13/1964 (LL); Uhl 868, no date (BH); Warnock 11813, 11/14/1953 (LL)

CUCURBITACEAE

- Apodanthera undulata*** A. Gray chile coyote
 Not seen during this study; Seminole Canyon
 Labus 387, 12/17/1988 (SWT)
- Cucurbita foetidissima*** Kunth buffalo gourd
 Rare, trailing along ground primarily in disturbed areas such as inundation zone
 Poole 4814, 5/23/2003 (TEX-NPS)
- Ibervillea lindheimeri*** (A. Gray) Greene Lindheimer globeberry
 Rare, climbing on shrubs
 Labus 308, 8/24/1988 (SWT)
- Ibervillea tenuisecta*** (A. Gray) Small slimlobe globeberry
 Rare, climbing on shrubs
 Poole 4701, 10/31/2002 (TEX-NPS); *Amistad NRA Interpretive collection*
- Melothria pendula*** L. creeping cucumber
 Rare, climbing on shrubs or trees, or clambering over rock outcrops
 Poole 4669, 10/9/2003 (TEX-NPS)

CUSCUTACEAE

- Cuscuta exaltata*** Engelm. oak dodder (C)
 Rare, climbing on oak trees
 Observed in Big Satan and Seminole canyons, but not collected
- Cuscuta indecora*** Choisy var. *indecora* bigseed alfalfa dodder
 Not seen during this study; along Devil's River at highway bridge
 Warnock 11655, 9/26/1953 (SRSC)
- Cuscuta indecora*** Choisy var. *neuropetala* (Engelm.) Hitchc. bigseed dodder
 Infrequent, twining on herbaceous species and shrubs
 Poole 4505, 5/21/2002 (TEX-NPS)
- Cuscuta pentagona*** Engelm. var. *pubescens* (Engelm.) Yunck. bushclover dodder
 Rare, twining on herbaceous species and shrubs
 Poole 4491, 4/17/2002 (TEX-NPS)

EBENACEAE

- Diospyros texana*** Scheele Texas persimmon
 Frequent on rocky slopes, flats, rock outcrops and ledges
 Freeman s.n., 4/30/1977 (UTEP); Labus 59, 11/22/1987 (SWT, TEX); Parks 281, 4/10/1949 (SRSC); Powell 3061, 2/18/1977 (SRSC); Powell 3416, 3/31/1979 (SRSC); Reed 2301, 5/31/2001 (TAMU); Warnock 47161, 3/29/1947 (SRSC); Worthington 12042, 6/2/1984 (UTEP)

EUPHORBIACEAE

- Acalypha monostachya*** Cav. creeping copperleaf
(*A. hederacea* Torr.)
Infrequent on rocky slopes, flats, boulders, ledges and cliffs
Poole 4471, 4/17/2002 (TEX-NPS); Poole 4484, 4/17/2002 (TEX-NPS); Labus 92, 4/23/1988 (TEX); McVaugh 8256, 5/9/1947 (TEX); Thompson 203, 9/17/1958 (TEX); Warnock 47130, 3/29/1947 (SRSC); Worthington 8245, 5/17/1982 (UTEP)
- Acalypha phleoides*** Cav. Lindheimer copperleaf
(*A. lindheimeri* Müll. Arg.)
Rare on rocky intermittent drainages, rocky slopes and flats
Poole 4625, 7/11/2002 (TEX-NPS); Turner 920, 5/22/1949 (SRSC); Warnock 11662, 9/26/1953 (LL, SRSC)
- Andrachne phyllanthoides*** (Nutt.) Müll. Arg. maidenbush
(*Leptopus phyllanthoides* (Nutt.) G. L. Webster)
Not seen during this study; mouth of the Pecos
Havard s.n., 10/1883 (US)
- Argythamnia neomexicana*** Müll. Arg. New Mexico wildmercury
Rare on rocky or silty soils on flats or slopes
Poole 4536, 5/22/2002 (TEX-NPS); Flyr 1067, 4/24/1966 (TEX); Thompson 207, 9/17/1958 (TEX)
- Bernardia myricifolia*** (Scheele) S. Watson brush myrtlecroton
Infrequent on rocky slopes or flats
Powell 3388, 10/27/1978 (SRSC); Scudday 692, 7/1/1979 (SRSC); Warnock 3895, 3/31/1959 (SRSC); Warnock 22723, 8/10/1967 (SRSC); Warnock 22728, 8/10/1967 (SRSC); Warnock 47126, 3/29/1947 (SRSC); Warnock 47162, 3/29/1947 (TEX)
- Bernardia obovata*** I. M. Johnst. desert myrtlecroton
Infrequent on rocky slopes or flats
Observed throughout the site but not collected
- Chamaesyce acuta*** Millsp. pointed spurge
Not seen during this study; Seminole Canyon State Historical Park
Labus 178, 5/11/1988 (TEX)
- Chamaesyce albomarginata*** (Torr. & A. Gray) Small whitemargin spurge
Rare on gravelly soils in disturbed areas
Poole 4533, 5/22/2002 (TEX-NPS)
- Chamaesyce angusta*** (Engelm.) Small narrowleaf spurge
Rare on rocky slopes, rocky intermittent drainages, rock ledges, and outcrops
Poole 4525, 5/21/2002 (TEX-NPS); Poole 4624, 7/11/2002 (TEX-NPS); Poole 4759, 3/28/2003 (TEX-NPS); Correll 32603, 4/12/1966 (LL); Hinckley 422, 3/10/1949 (SRSC); Parks 198, 4/10/1949 (SRSC, TEX); Reed 2296, 5/31/2001 (TAMU); Turner 508, 4/18/1949 (SRSC); Turner 99-219, 5/2/1999 (TEX); Warnock 22711, 8/10/1967 (SRSC); Warnock 47185, 3/26/1947 (SRSC, TEX)
- Chamaesyce cinerascens*** (Engelm.) Small shy spurge
Rare on gravelly gentle slopes
Poole 4525, 5/21/2002 (TEX-NPS); Casaday 35, 5/15/2001 (Amistad NRA collection); Correll 32601, 4/21/1996 (LL); Flyr s.n., 3/25/1966 (TEX); Warnock 3897, 3/31/1959 (SRSC)
- Chamaesyce glyptosperma*** (Engelm.) Small ridgeseed spurge
Not seen during this study; canyon of Rio Grande at Langtry
Hinckley 151, 7/3/1949 (SRSC, TEX)

- Chamaesyce hyssopifolia*** (L.) Small hyssop-leaf spurge
 Not seen during this study; Devil's River at hwy bridge
 Warnock 11658, 9/26/1953 (SRSC, TEX)
- Chamaesyce maculata*** (L.) Small spotted spurge
 Rare on gravelly soils in intermittent drainages
 Poole 4623, 7/11/2002 (TEX-NPS)
- Chamaesyce prostrata*** (Aiton) Small prostrate spurge
 Rare on gravelly sand wash on bedrock in inundation zone
 Poole 4821, 6/19/2003 (TEX-NPS)
- Chamaesyce serpens*** (Kunth) Small smooth matspurg
 Rare on gravelly silty soils on flats or slopes or gravelly intermittent drainages
 Poole 4570, 5/24/2002 (TEX-NPS); Poole 4646, 7/11/2002 (TEX-NPS); Poole 4825, 6/19/2003 (TEX-NPS); Poole 4828, 6/20/2003 (TEX-NPS); Labus 18, 11/11/1987 (TEX); Turner s.n., 9/13/1948 (SRSC); Turner 523, 4/18/1949 (SRSC); Warnock 47145, 3/29/1947 (SRSC)
- Croton capitatus*** Michx. var. ***lindheimeri*** (Engelm. & A. Gray) Müll. Arg. Lindheimer's hogwort
 Not seen during this study; Laughlin Air Force Base Recreation Area
 Poole 3764, 11/3/1993 (TEX)
- Croton dioicus*** (Cav.) grassland croton
 Frequent on rocky flats, slopes, boulders, and cliffs
 Poole 4473, 4/17/2002 (TEX-NPS); Poole 4504, 5/21/2002 (TEX-NPS); Correll 27778, 6/14/1963 (LL); Labus 39, 11/22/1987 (TEX); Labus 79, 4/23/1988 (TEX); Larson 35, 6/18/2001 (Amistad NRA collection); Larson 41, 6/18/2001 (Amistad NRA collection); Powell 3425, 3/31/1979 (SRSC); Reed 2256, 5/31/2001 (TAMU)
- Croton fruticosus*** Engelm. ex Torr. bush croton
 Rare (locally common at one site) on rocky slopes
 McVaugh 10597, 5/22/1949 (LL); Parks 206, 4/10/1949 (LL, SRSC)
- Croton incanus*** Kunth vara blanca
 (misapplied as *C. torreyanus* Müll. Arg. by Texas authors)
 Infrequent (locally common at several sites) on rock outcrops and cliffs in canyons
 Poole 4549, 5/22/2002 (TEX-NPS); Poole 4648, 7/11/2002 (TEX-NPS); Poole 4768, 4/8/2003 (TEX-NPS); Casaday 25, 5/22/2001 (Amistad NRA collection); Hinckley 423, 3/10/1950 (LL, SRSC); Labus 58, 11/22/1987 (TEX); Labus 207, 5/18/1988 (TAMU); Labus 290, 8/24/1988 (TAMU); Turner 502, 4/18/1949 (SRSC); Warnock 3905, 3/31/1959 (SRSC, TEX); Warnock 11316, 4/3/1953 (LL, SRSC); Warnock 47141, 3/29/1947 (LL, SRSC)
- Croton lindheimerianus*** Scheele var. ***lindheimerianus*** Tharp croton
 Not seen during this study; Rio Grande Trail, Seminole Canyon State Historical Park
 Labus 361, 10/9/1988 (TEX)
- Croton monanthogynus*** Michx. oneseed croton
 Infrequent on gravelly or silty flats or gentle slopes, disturbed areas
 Poole 3765, 11/3/1993 (TEX); Labus 41, 11/22/1987 (TEX); Powell 3387, 11/27/1978 (SRSC)
- Croton pottsii*** (Klotzsch) Müll. Arg. leatherweed croton
 Rare (locally common at two sites) on caliche flats or gentle slopes
 Poole 4819, 6/19/2003 (TEX-NPS); Labus 361, 10/9/1988 (TEX)
- Euphorbia antisiphilitica*** Zucc. candelilla
 Rare on rocky flats and gentle slopes
 Warnock 21391, 7/29/1967 (SRSC)

- Euphorbia cyathophora*** Murray wild poinsettia
(*Poinsettia cyathophora* (Murray) Klotzsch & Garcke)
Rare in silty or rocky soils in intermittent drainages
McVaugh 8248, 5/19/1947 (TEX)
- Euphorbia dentata*** Michx. toothed spurge
(*Poinsettia dentata* (Michx.) Klotzsch & Garcke; *E. dentata* Michx. var. *gracillima* Millsp.)
Rare on silty or gravelly soils in intermittent drainages, rocky slopes, and ledges
Poole 4470, 4/17/2002 (TEX-NPS); Poole 4527, 5/21/2002 (TEX-NPS); Poole 4537, 5/22/2002 (TEX-NPS); Poole 4657, 7/12/2002 (TEX-NPS); McVaugh 10607, 5/22/1949 (LL); Parks 257, 4/10/1949 (SRSC); Warnock 11668, 9/26/1953 (LL, SRSC); Warnock 11808, 11/14/1953 (SRSC, TEX)
- Euphorbia longicuris*** Scheele longhorn spurge
Rare in rocky intermittent drainages.
Poole 4721, 2/20/2003 (TEX-NPS)
- Euphorbia peplidion*** Engelm. low euphorbia (C, E)
Rare in silty or rocky soils in along rivers or intermittent drainages
Warnock 47143, 3/29/1947 (SRSC)
- Euphorbia spathulata*** Lam. warty spurge
Not seen during this study; Hwy 90 & Devil's River
Warnock 3901, 3/31/1959 (SRSC)
- Jatropha dioica*** Cerv. var. *dioica* leatherstem
Common on rocky soils on flats, slopes, rock outcrops, and ledges
Cory 38034, 8/16/1941 (TAES); Freeman s.n., 4/30/1977 (UTEP); Reed 2267, 5/31/2001 (TAMU); Warnock 22707, 8/10/1967 (SRSC); Warnock 22864, 5/22/1969 (SRSC)
- Phyllanthus polygonoides*** Nutt. ex Spreng. knotweed leafflower
Infrequent on rocky slopes, disturbed areas
Poole 4603, 6/27/2002 (TEX-NPS); Powell 3450, 3/31/1979 (SRSC); Warnock 3902, 3/31/1959 (SRSC); Warnock 9910, 4/8/1951 (SRSC); Warnock 47187, 3/29/1947 (SRSC)
- Ricinus communis*** L. castorbean (I)
Infrequent (locally common at several sites) on silty, rocky soils on creek or river banks
Hinckley 421, 3/10/1950 (TEX); Mears 2413, 4/16/1968 (TEX)
- Stillingia treculiana*** (Müll. Arg.) I. M. Johnst. Trecul stillingia
Rare on gravelly caliche flats
Poole 4567, 5/23/2002 (TEX-NPS); Ertter 5403, 5/18/1984 (TEX); Labus 28, 11/22/1987 (TAES, TAMU, TEX)
- Tragia amblyodonta*** (Müll. Arg.) Pax & K. Hoffm. dogtooth noseburn
Rare in gravelly soils in flats and gentle slopes
Parks 219, 4/10/1949 (SRSC)
- Tragia ramosa*** Torr. catnip noseburn
Common on silty or gravelly soils on flats and slopes
Poole 4497, 4/17/2002 (TEX-NPS)
- Triadica sebifera*** (L.) Small Chinese tallow tree (I)
(*Sapium sebiferum* (L.) Roxb.)
Rare, one mature tree on rocky slope in inundation zone
Poole 4534, 5/22/2002 (TEX-NPS)

FABACEAE

- Acacia angustissima*** (Mill.) Kuntze var. *hirta* (Nutt.) B. L. Rob. prairie acacia
Not seen during this study
Riley 1557, 4/29/1997 (TAMU)

- Acacia berlandieri*** Benth. guajillo
Abundant (community dominant) on rocky flats and slopes
Hill 4000, 3/14/1976 (TAES); *Hogg s.n.*, no date (UTEP); *Labus 14*, 11/22/1987 (TEX); *Labus 401*, 2/4/1989 (TEX); *Lieb 802*, 5/2/1987 (UTEP); *Mears 2609*, 4/17/1968 (TEX); *Melchert 291*, 6/1962 (TEX); *Traverse 2134*, 5/10/1961 (LL, SRSC)
- Acacia constricta*** A. Gray white thorn acacia
Rare (locally common at the only site) on silty floodplain
Observed only below Amistad Dam but not collected
- Acacia farnesiana*** (L.) Willd. huisache
(*A. smallii* Isley; *A. minuta* (M. E. Jones) R. M. Beauch. var. *minuta*)
Abundant (community dominant) on silty or rocky soils in the inundation zone
Poole 4731, 3/25/2003 (TEX-NPS)
- Acacia greggii*** A. Gray catclaw acacia
Rare on silty and/or rocky soils along rivers, creeks, or intermittent drainages
Labus 75, 4/23/1988 (SWT, TEX)
- Acacia neovernicosa*** Isley stickleaf acacia
Rare on silty, rocky soils on flats and gentle slopes
Poole 4793, 5/8/2003 (TEX-NPS); *Labus 35*, 11/22/1987 (SWT, TEX); *Labus 80*, 4/23/1988 (TEX)
- Acacia rigidula*** Benth. blackbrush
Abundant (community dominant) on rocky soils
Freeman s.n., 4/30/1977 (UTEP); *Labus 9*, 11/22/1987 (SWT, TEX); *Labus 72*, 3/19/1988 (SWT, TEX); *Mears 2623*, 4/17/1968 (TEX); *Powell 3390*, 10/27/1978 (SRSC); *Powell 3428*, 3/31/1979 (SRSC); *Seigler 8979*, 3/23/1975 (ILL); *Traverse 2136*, 5/10/1961 (LL, SRSC); *Warnock 3903*, 3/31/1959 (SRSC); *Warnock 47159*, 3/29/1947 (SRSC)
- Acacia roemeriana*** Scheele Roemer acacia
Common on rocky soils on slopes and uplands, rock outcrops, and ledges
Poole 4730, 3/25/2003 (TEX-NPS); *Correll 38419*, 4/10/1970 (LL); *Hill 3976*, 3/14/1976 (TAES); *Labus 166*, 5/10/1988 (SWT, TAMU, TEX)
- Acacia wrightii*** Benth. Wright acacia
(*Acacia greggii* A. Gray var. *wrightii* (Benth.) Isley)
Rare on silty, gravelly soils in intermittent drainages
Poole 4790, 5/8/2003 (TEX-NPS)
- Astragalus nuttallianus*** DC. var. *austrinus* (Small) Barneby small flowered milkvetch
(*A. austrinus* (Small) E. D. Schulz)
Infrequent in thin gravelly soils on gentle slopes
Poole 4478, 4/17/2002 (TEX-NPS); *Powell 3424*, 3/31/1979 (SRSC); *Warnock 205*, 4/10/1949 (LL); *Warnock 11974*, 3/28/1954 (LL)
- Astragalus wrightii*** A. Gray Wright locoweed (C, E)
Not seed during this study; Seminole Canyon State Historical Park
Labus 211, 5/18/1988 (SWT)
- Calliandra conferta*** Benth. fairy duster
Common (community dominant) on rocky slopes and flats on uplands
Labus 43, 11/22/1987 (SWT, TEX); *Labus 88*, 4/23/1988 (SWT); *McVaugh 10604*, 5/22/1949 (LL); *Scudday 682*, 6/30/1979 (SRSC, TEX); *Warnock 47215*, 3/29/1947 (SRSC)
- Cercis canadensis*** L. var. *texensis* (S. Watson) M. Hopkins redbud
Rare (locally common at one site) on rocky slopes or flats
Poole 4724, 3/7/2003 (TEX-NPS)

- Dalea aurea* Nutt. ex Pursh golden dalea
Rare on rocky soils
Observed once at the Pecos River picnic area & boat launch but not collected
- Dalea formosa* Torr. feather dalea
Rare on rocky soils on flats and slopes on uplands
Labus 1, 11/22/1987 (SWT, TEX); *Labus* 88, 4/23/1988 (TAMU, TEX); *Labus* 392, 12/17/1988 (SWT, TEX)
- Dalea frutescens* A. Gray black dalea
Rare on rocky slopes and flats on uplands
Poole 4787, 5/8/2003 (TEX-NPS); *Warnock* 11702, 9/26/1953 (SRSC, TEX)
- Dalea nana* Torr. ex A. Gray dwarf dalea
Infrequent on gravelly soils on flats and slopes
Poole 4569, 5/23/2002 (TEX-NPS); *Labus* 391, 12/17/1988 (SWT); *Parks* 238, 4/10/1949 (SRSC); *Warnock* 23627, 5/24/1966 (SRSC)
- Dalea neomexicana* (A. Gray) Cory New Mexico dalea
Not seen during this study; Seminole Canyon State Historical Park
Labus 271, 4/23/1988 (SWT)
- Dalea pogonathera* A. Gray var. *pogonathera* bearded dalea
Rare on rocky soils on slopes and flats
Warnock 47147, 3/29/1947 (SRSC)
- Dalea pogonathera* A. Gray var. *walkerae* (Tharp & F. A. Barkley) B. L. Turner Walker's bearded dalea
Rare on rocky soils on slopes and flats
Poole 4481, 4/17/2002 (TEX-NPS); *Larson* 28, 6/19/2001 (Amistad NRA collection)
- Desmanthus obtusus* S. Watson bundleflower
Not seen during this study; Hwy 90 Pecos River turnoff & Seminole State Historical Park
Labus 188, 5/11/1988 (SWT); *Luckow* 3529, 7/25/1987 (TEX)
- Desmanthus velutinus* Scheele hairy bundleflower
Not seen during this study, Seminole Canyon
Luckow 2719, 8/2/1985 (TEX)
- Desmanthus virgatus* (L.) Willd. wild tantan
Rare in grasslands
Poole 4925, 10/10/2003 (TEX-NPS)
- Eysenhardtia texana* Scheele Texas kidneywood
Common on rocky slopes and flats, rock outcrops and ledges
Labus 165, 5/10/1988 (SWT, TAMU, TEX); *Scudday* 688, 7/1/1979 (SRSC); *Warnock* 11705, 9/26/1953 (SRSC); *Warnock* 22724, 8/10/1967 (SRSC); *Worthington* 12034, 6/2/1984 (UTEP)
- Galactia texana* (Scheele) A. Gray Texas milkpea (E)
Rare, twining on trees and shrubs, on rock outcrops and cliffs
Poole 4645, 7/11/2002 (TEX-NPS)
- Hoffmannseggia glauca* (Ortega) Eifert sicklepod rushpea
Rare on rocky, gentle slopes
Poole 4506, 5/21/2002 (TEX-NPS); *Mears* 2520, 4/16/1968 (TEX)
- Hoffmannseggia oxycarpa* Benth. sharppod rushpea
Not seen during this study; Castle Canyon Island & Seminole Canyon State Historical Park
Labus 120, 4/23/1988 (TEX); *Powell* 3417, 3/31/1979 (SRSC)

- Indigofera lindheimeriana* Scheele creek indigo
Common in rocky intermittent drainages
Poole 4667, 7/12/2002 (TEX-NPS); Labus 237, 5/23/1988 (SWT); Thompson 183, 9/17/1958 (TEX)
- Leucaena retusa* Benth. golden ball leadtree
Rare on rocky slopes, rock outcrops, and ledges
Labus 57, 11/22/1987 (SWT, TEX); Riley 156, 4/29/1997 (TAMU); Turner 515, 4/18/1949 (SRSC)
- Lupinus texana* Hook. Texas bluebonnet
Rare in grasslands
Observed once at Seminole Canyon but not collected
- Medicago arabica* (L.) Huds. spotted bur-clover (I)
Rare in disturbed areas
Warnock 47164, 3/29/1947 (SRSC)
- Melilotus indicus* (L.) All. annual yellow sourclover (I)
Rare on rocky soils on uplands in disturbed areas
Poole 4740, 3/26/2003 (TEX-NPS)
- Mimosa aculeaticarpa* Ortega var. *biuncifera* (Benth.) Barneby catclaw mimosa
Common on rocky intermittent drainages, slopes, flats, rocky outcrops and ledges
Poole 4770, 4/9/2003 (TEX-NPS); Poole 4775, 4/10/2003 (TEX-NPS); Reed 2293, 5/31/2001 (TAMU)
- Mimosa borealis* A. Gray fragrant mimosa
Infrequent on rocky soils on slopes, flats, drainages, rocky outcrops, and ledges
Correll 34156, 5/9/1967 (LL); Labus 94, 4/23/1988 (SWT, TEX); Warnock 11711, 9/26/1953 (SRSC)
- Mimosa texana* (A. Gray) Small Texas mimosa
Rare on rocky soils on flats and slopes, drainages, rocky outcrops and ledges
Poole 3274, 5/6/1993 (TEX); Ertter 5398, 5/18/1984 (TEX); McVaugh 10590, 5/22/1949 (LL, SRSC)
- Parkinsonia aculeata* L. retama
Infrequent (locally common at some sites) on silty soils in inundation zone
Poole 4796, 5/8/2003 (TEX-NPS)
- Parkinsonia texana* (A. Gray) S. Watson var. *texana* Texas paloverde
(*Cercidium texanum* A. Gray)
Rare (locally common at most sites) on rocky slopes, rocky outcrops, and uplands
Poole 4792, 5/8/2003 (TEX-NPS)
- Pediomelum humile* Rydb. Rydberg scurfpea (C)
(*Psoralea rydbergii* Cory)
Not seen during this study; foot of Devil's Lake & Castle Creek island
McVaugh 8261, 5/8/1947 (BRIT, DS, F, GH, MICH); Powell 3413, 3/31/1979 (SRSC)
- Prosopis glandulosa* Torr. var. *glandulosa* mesquite
Abundant on gravelly and/or silty soils in flats, drainages, and slopes
Poole 4773, 4/9/2003 (TEX-NPS); Labus 81, 4/23/1988 (SWT, TEX)
- Prosopis glandulosa* Torr. var. *torreyana* (L. D. Benson) M. C. Johnst. western honey mesquite
Rare on silty soils along rivers or drainages
Poole 4595a, 6/26/2002 (TEX-NPS)
- Rhynchosia senna* Gillies ex Hook. var. *texana* (Torr. & A. Gray) M. C. Johnst. Texas snoutbean
(*R. texana* Torr & A. Gray)
Rare on rocky flats, slope, rock outcrops, ledges, and bluffs
Correll 32600, 4/21/1966 (LL)

- Senna bauhinioides*** (A. Gray) H. S. Irwin & Barneby shrubby senna
(*Cassia bauhinioides* A. Gray)
Infrequent in rocky intermittent drainages, slopes, and rock outcrops
Poole 4495, 4/17/2002 (TEX-NPS); *Labus 320*, 10/1/1988 (SWT)
- Senna lindheimeriana*** (Scheele) H. S. Irwin & Barneby Lindheimer senna
(*Cassia lindheimeriana* Scheele)
Common on rocky flats, slopes, outcrops, and ledges
Labus 12 & 44, 11/22/1987 (SWT); *Reed 2259*, 5/31/2001 (TAMU); *Thompson 200*, 9/17/1958 (TEX)
- Senna pumilio*** (A. Gray) H. S. Irwin & Barneby dwarf senna
(*Cassia pumilio* A. Gray)
Rare on rocky slopes and flats
Poole 4777, 4/10/2003 (TEX-NPS)
- Senna roemeriana*** (Scheele) H. S. Irwin & Barneby two leaf senna
(*Cassia roemeriana* Scheele)
Rare on rocky and/or silty soils on slopes, drainages, flats, and ledges
Poole 4774, 4/9/2003 (TEX-NPS); *Labus 73*, 4/23/1988 (SWT); *Labus 171*, 5/11/1988 (SWT, TEX)
- Sophora secundiflora*** (Ortega) Lag. ex DC. Texas mountain laurel
Common on rocky flats, slope, outcrops, and ledges
Hanson s.n., 3/8/1919 (TEX); *Labus 65*, 3/19/1988 (SWT, TAMU, TEX); *Warnock 47220*, 3/29/1947 (SRSC); *Worthington 12033*, 6/2/1984 (UTEP)
- Vicia leavenworthii*** Nutt. ex Torr. & A. Gray Leavenworth's vetch
(*V. ludoviciana* Nutt. ex Torr. & A. Gray subsp. *leavenworthii* (Nutt. ex Torr. & A. Gray) Lassetter & C. R. Gunn)
Infrequent on rocky slopes, flats, and intermittent drainages
Poole 4496, 4/17/2002 (TEX-NPS); *Poole 4714*, 2/20/2003 (TEX-NPS); *Hinckley 414*, 3/10/1950 (SRSC); *McVaugh 7696*, 3/29/1947 (TEX); *Parks 229*, 4/10/1949 (SRSC); *Powell 3449*, 3/31/1979 (SRSC); *Turner 517*, 4/18/1949 (SRSC); *Warnock 3898*, 3/31/1959 (SRSC); *Warnock 11949*, 3/28/1954 (SRSC); *Warnock 47194*, 3/29/1947 (SRSC)

FAGACEAE

- Quercus fusiformis*** Small Plateau liveoak
Infrequent (locally common, community dominant) on rocky slopes, flats, outcrops, drainages, creek and river banks
Poole 4920, 10/10/2003 (TEX-NPS); *Hinckley 418*, 3/10/1950 (LL, SRSC); *Labus 292*, 8/24/1988 (SWT); *Powell 3057*, 2/18/1977 (SRSC, TEX); *Warnock 47201*, 3/29/1947 (SRSC); *Wendt 1141*, 8/21/1975 (LL)
- Quercus gravesii*** Sudw. Graves oak
Rare (common in Pink Cave Cove) on rocky slopes and flats in intermittent drainages
Labus 341, 10/8/1988 (SWT, TEX); *Lowrey s.n.*, 9/24/1988 (TEX); *Powell 3056*, 2/18/1977 (SRSC, TEX); *Riskind 2293*, 4/26/1978 (SRSC, TEX)
- Quercus mohriana*** Buckley ex Rydb. Mohr's shin oak
Rare on rocky slopes and flats in intermittent drainages
Observed once in Mile Canyon but not collected
- Quercus pungens*** Liebm. var. *vaseyana* (Buckley) C. H. Mull. Vasey oak
Infrequent (locally common in a few sites) on rocky slopes, intermittent drainages, ledges, outcrops & cliffs

Poole 4650, 7/11/2002 (TEX-NPS); Poole 4767, 4/8/2003 (TEX-NPS); Poole 4809, 5/19/2003 (TEX-NPS); Flyr 728 & 758, 10/10/1965 (TEX); Flyr 792, 10/23/1965 (TEX); Flyr 1009, 4/3/1966 (TEX); Hinckley 418, 3/10/1950 (LL); Labus 342, 10/8/1988 (SWT, TEX); Mears 2610, 4/17/1968 (TEX); Parks 258, 4/10/1949 (SRSC); Warnock 22721, 22722, & 22730, 8/10/1967 (SRSC); Warnock 47201 & 47219, 3/29/1947 (SRSC)

FOUQUIERIACEAE

Fouquieria splendens Engelm. **subsp. *splendens*** ocotillo
 Infrequent (locally common at a few sites) on rocky flats, slopes, outcrops & ledges
Labus 61, 3/19/1988 (SWT, TAMU, TEX); Parks 225, 4/10/1949 (SRSC); Tharp 49330, 4/10/1949 (TEX)

FUMARIACEAE

Corydalis curvisiliqua Engelm. scrambled eggs
 Rare on silty soils along river banks
Poole 4726, 3/7/2003 (TEX-NPS)

Corydalis micrantha (Engelm. ex A. Gray) A. Gray **subsp. *texensis*** G. B. Ownbey Texas corydalis (E)
 Rare on shallow gravelly soils on gentle slopes
Poole 4482, 4/17/2002 (TEX-NPS)

GENTIANACEAE

Centaurium calycosum (Buckley) Fernald rosita
 Rare on rock outcrops, rocky flats and ledges
Poole 4546, 5/22/2002 (TEX-NPS); Amistad NRA Interpretive Collection; Casaday 18, 5/14/2001 (Amistad NRA collection); Correll 25074, 5/2/1962 (TEX); Scudday 684-B, 6/30/1979 (SRSC); Skiles 3, 6/26/1952 (SRSC); Turner 888 & 891, 5/22/1949 (SRSC); Turner 15682, 5/31/1987 (TEX); Warnock 22720, 8/10/1967 (SRSC); Worthington 8250, 5/17/1982 (UTEP)

Eustoma exaltatum (L.) Salisb. ex G. Don prairie gentian
 Rare on gravelly alluvium along intermittent creek in inundation zone
Poole 4627, 7/11/2002 (TEX-NPS)

GERANIACEAE

Erodium cicutarium (L.) L'Hér. ex Aiton alfilaria (I)
 Rare on disturbed areas
Poole 4738, 3/26/2003 (TEX-NPS)

Erodium texanum A. Gray Texas stork's bill
 Infrequent on silty and/or gravelly soils on flats or river banks
Warnock 47160, 3/29/1947 (SRSC)

HYDRANGEACEAE

Fendlera wrightii (Engelm. & A. Gray) A. Heller cliff fendlerbush
 Rare on rocky soils, slopes, rock outcrops or cliffs in intermittent drainages
Poole 4756, 3/28/2003 (TEX-NPS)

HYDROPHYLLACEAE

- Nama havardii* A. Gray Havard's fiddleleaf
 Not seen during this study; Pump Canyon
 Correll 19406, 7/7/1958 (LL)
- Nama hispida* A. Gray rough nama
 Infrequent on shallow gravelly soils on slopes and flats, disturbed areas
 Poole 4475, 4/17/2002 (TEX-NPS); Parks 265, 4/10/1949 (SRSC); Reed 2244, 5/31/2001 (TAMU)
- Nama jamaicensis* L. fiddleleaf nama
 Rare on shallow rocky soils
 Parks 230, 4/10/1949 (SRSC); Turner 918, 5/22/1949 (SRSC); Warnock 3896, 3/31/1959 (SRSC); Warnock 11968, 3/28/1954 (SRSC)
- Nama parvifolia* (Torr.) Greenm. small leaf fiddlehead
 Rare on shallow rocky soils
 Poole 3818, 4/11/1994 (TEX); Freeman s.n., 4/30/1977 (UTEP); Powell 3431, 3/31/1979 (SRSC)
- Phacelia congesta* Hook. bluecurls
 Infrequent on rocky slopes and intermittent drainages
 Poole 4754, 3/27/2003 (TEX-NPS); Freeman s.n., 4/30/1977 (UTEP); Powell 3430, 3/31/1979 (SRSC); Warnock 47190, 3/29/1947 (SRSC)
- Phacelia patuliflora* (Engelm. & A. Gray) A. Gray var. *teucrifolia* (I. M. Johnst.)
 Constance sand phacelia
 Rare on rocky slopes, ledges, cliffs, and intermittent drainages
 Poole 4769, 4/8/2003 (TEX-NPS); Warnock 1948, 3/28/1954 (SRSC); Warnock 47205, 3/29/1947 (SRSC)

JUGLANDACEAE

- Carya illinoensis* (Wangenh.) K. Koch pecan
 Rare in silty soils along river banks
 Flyr 972, 4/1/1966 (TEX)
- Juglans microcarpa* Berland. little walnut
 Rare (locally common at a few sites) in rocky intermittent drainages or rocky banks of creeks and rivers
 Flyr 979, 4/1/1966 (TEX); Flyr 1005, 4/2/1966 (TEX); Labus 137, 5/10/1988 (SHST, SWT); Traverse 2140, 5/10/1961 (LL)

KRAMERIACEAE

- Krameria bicolor* S. Watson white ratany
 (*K. grayi* Rose & Painter)
 Rare (locally common at one site) on rock outcrops and uplands
 Poole 4561, 5/22/2002 (TEX-NPS)
- Krameria ramosissima* (A. Gray) S. Watson calderona
 Infrequent (locally rare at several sites) on rocky flats, slopes, and uplands
 McVaugh 8237, 5/9/1947 (TEX); Powell 3419, 3/31/1979 (SRSC); Warnock 22862, 5/22/1969 (SRSC)

LAMIACEAE

- Hedeoma acinoides* Scheele annual pennyroyal
 Rare on rocky soils in intermittent drainages
 McVaugh 7721, 3/31/1947 (TEX)

- Hedeoma drummondii*** Benth. **var. *drummondii*** limoncillo
 Common on rocky slopes, flats, & intermittent drainages
Poole 4477, 4/17/2002 (TEX-NPS); Correll 38416, 4/10/1970 (LL); Johnston 24, 12/1958 (TEX); Reed 2257, 5/31/2001 (TAMU); Scudday 687, 7/1/1979 (SRSC); Turner 3792, 5/1/1955 (TEX); Warnock 11957, 5/29/1954 (SRSC); Warnock 47154, 5/29/1947 (SRSC)
- Hedeoma nana*** (Torr.) Briq. dwarf hedeoma
 Rare in gravelly intermittent drainages or rocky slopes and flats
Casaday 33, 5/14/2001 (Amistad NRA collection); Correll 19394, 7/7/1958 (LL)
- Marrubium vulgare*** L. horehound (I)
 Common on silty and/or rocky soils on flats, inundation zone & disturbed areas
Poole 4732, 3/25/2003 (TEX-NPS)
- Monarda citriodora*** Cerv. ex Lag. lemon beebalm
 Rare on rocky slopes, flats, outcrops, and ledges
Turner 921, 5/22/1949 (SRSC)
- Monarda punctata*** L. spotted beebalm
 Not seen during this study; mouth of the Devil's River (now inundated)
Cory 15234, 7/6/1935 (TEX)
- Salvia ballotiflora*** Benth. shrubby blue sage
 Common on rocky slopes, flats, rock outcrops, ledges, and intermittent drainages
Ertter 5412, 5/19/1984 (TEX); Turner 491, 4/13/1949 (SRSC, TEX); Warnock 196, 4/10/1949 (SRSC, TEX); Warnock 47214, 3/29/1947 (SRSC); Worthington 8254, 5/17/1984 (UTEP)
- Salvia farinacea*** Benth. **var. *farinacea*** mealy sage
 Infrequent (locally common at several sites) on rocky flats, slopes, ledges, & intermittent drainages
Albers 46155, 8/30/1946 (TEX); Thompson 196, 9/17/1958 (TEX)
- Salvia roemeriana*** Scheele cedar sage
 Rare on rocky slopes, ledges, cliffs, and intermittent drainages
Poole 4762, 3/28/2003 (TEX-NPS)
- Salvia texana*** (Scheele) Torr. Texas sage
 Rare on rocky slopes, flats, ledges, and intermittent drainages
Poole 4826, 6/19/2003 (TEX-NPS); Correll 27127, 3/31/1963 (LL); McVaugh 7726, 3/31/1947 (SRSC, TEX); Powell 3421, 3/31/1979 (SRSC)
- Scutellaria drummondii*** Benth. **var. *edwardsiana*** B. L. Turner Drummond's skullcap
 Common on rocky flats, slopes, ledges, and intermittent drainages
McVaugh 7224, 3/31/1947 (SRSC, TEX); Mears 2499, 4/16/1968 (TEX); Powell 3420, 3/31/1979 (SRSC); Turner 911, 5/22/1949 (SRSC)
- Scutellaria texana*** B. L. Turner Texas skullcap
 Not seen during this study; Pump Canyon, Rio Grande between Pecos River & Langtry, between mouth of the Pecos River and Hwy 90
Correll 19369 & 19420, 7/7/1958 (LL); Turner 524, 4/18/1949 (SRSC); Warnock 11953, 3/28/1954 (LL, SRSC); Warnock 47146, 3/29/1947 (SRSC)
- Teucrium canadense*** L. American germander
 Rare in gravelly and/or silty soils along intermittent drainages and river banks
Poole 4622, 7/11/2002 (TEX-NPS); Crutchfield 3397, 7/13/1967 (LL)

LENTIBULARIACEAE

- Utricularia gibba*** L. conespur bladderwort
 Rare in shallow water along rivers
Poole 4630, 7/11/2002 (TEX-NPS)

LINACEAE

Linum berlandieri Hook. var. *filifolium* (Shinners) C. M. Rogers Berlandier's yellow flax
(*L. rigidum* Pursh var. *filifolium* Shinners)

Infrequent on shallow gravelly soils on flats or gentle slopes

Poole 4483, 4/17/2002 (TEX-NPS); Casaday 31, 5/18/2001 (Amistad NRA collection);

Powell 3418, 3/31/1979 (SRSC); Warnock 47186, 3/29/1947 (SRSC)

Linum rupestre (A. Gray) Engelm. ex A. Gray rock flax

Infrequent on rocky slopes, flats, outcrops, bluffs, and intermittent drainages

Poole 4572, 5/24/2002 (TEX-NPS); Casaday 30, 5/18/2001 (Amistad NRA collection); Correll

32609, 4/21/1966 (LL); Warnock 22872, 3/22/1969 (SRSC); Warnock 47186, 3/29/1947 (SRSC)

LOASACEAE

Cevallia sinuata Lag. stinging cevallia

Common on rocky flats, slopes, and intermittent drainages

Labus 193, 5/18/1988 (SWT); Thompson 197, 9/17/1958 (TEX)

Eucnide bartonioides Zucc. rock nettle

Infrequent on rock outcrops and cliffs

Hanks 4, 11/8/1980 (SRSC); Labus 340, 10/8/1988 (SWT); Turner 905, 5/22/1949 (SRSC,

TEX); Worthington 12039, 6/2/1984 (UTEP)

Mentzelia albescens (Gillies ex Arn.) Griseb. wavyleaf mentzelia

Not seen during this study; just east of Amistad Dam

Sikes 455, no date (LL)

Mentzelia oligosperma Nutt. stickleaf, chicken-thief

Infrequent on rocky slopes, flats, and ledges

Correll 19389, 7/7/1958 (LL); Scudday 694, 7/1/1979 (SRSC, TEX)

LOGANIACEAE

Mitreola petiolata (Walter ex J. F. Gmel.) Torr. & A. Gray hornpod

Not seen during this study; Painted Canyon

Warnock 21380, 7/29/1967 (SRSC)

LYTHRACEAE

Lythrum californicum Torr. & A. Gray California loosestrife

Rare on rock outcrops, boulders, ledges, floodplain terraces, and spring-fed areas

Poole 4607, 6/28/2002 (TEX-NPS); Cory s.n., 8/16/1941 (TAES); Crutchfield 3402, 7/13/

1967 (LL); Turner 887, 5/22/1949 (SRSC)

MALPIGHIACEAE

Aspicarpa hyssopifolia A. Gray hyssophead aspleaf

Not seen during this study; Amistad Dam & Hwy 90 at Pecos River

Turner 509, 4/18/1949 (SRSC); Warnock 22861, 5/22/1969 (SRSC)

Galphimia angustifolia Benth. narrowleaf thryallis

(*Thryallis angustifolia* (Benth.) Kuntze)

Rare on rock outcrops, ledges, and cliffs

Poole 4641, 7/11/2002 (TEX-NPS); Warnock 23619, 5/24/1966 (SRSC)

MALVACEAE

- Abutilon fruticosum*** Guill. & Perr. Texas indianmallow
(misapplied by Texas authors as *A. incanum* (Link) Sweet)
Rare on rocky slopes, flats, and gravelly soils in intermittent drainages & along rivers
Amistad NRA Interpretive Collection; Thompson 290, 9/15/1958 (TEX); Warnock 11657, 9/26/1953 (TEX); Warnock 11678, 9/26/1953 (LL)
- Abutilon parvulum*** A. Gray little leaf abutilon
Rare on rocky slopes
Poole 4530, 5/21/2002 (TEX-NPS)
- Abutilon wrightii*** A. Gray Wright's indianmallow
Infrequent on rocky slopes
Poole 4529, 5/12/2002 (TEX-NPS); Labus 192, 5/18/1988 (SWT); Labus 334, 10/8/1988 (SWT); Mears 2560, 4/16/1968 (TEX); Mears 2620, 4/17/1968 (TEX); Warnock 47225, 3/29/1947 (SRSC)
- Allowissadula holosericea*** (Scheele) D. M. Bates velvet leaf mallow
Frequent on silty soils along intermittent drainages
Poole 4681, 10/10/2002 (TEX-NPS); Amistad NRA Interpretive collection; Labus 314, 8/24/1988 (SWT)
- Callirhoe leiocarpa*** R. F. Martin tall poppymallow
Not seen during this study; Hwy 90 at Pecos River bridge
Turner 525B, 4/18/1949 (LL)
- Herissantia crispa*** (L.) Brizicky netvein herissantia
Rare on rocky slopes, ledges, and intermittent drainages
Turner 493, 4/18/1949 (SRSC)
- Hibiscus coulteri*** Harv. ex A. Gray yellow desert-mallow
Rare on rocky slopes
Parks 262, 4/10/1949 (SRSC)
- Hibiscus martianus*** Zucc. heartleaf hibiscus
(*H. cardiophyllus* A. Gray)
Infrequent on rocky slopes, flats, and cliffs
Amistad NRA Interpretive collection; Labus 249, 5/23/1988 (SWT); Tharp 8817, 6/14/1941 (TEX); Warnock 47196, 5/29/1947 (TEX)
- Malvastrum coromandelianum*** (L.) Garcke threelobe falsemallow
Rare on rocky slopes and intermittent drainages
Reed 2268, 5/31/2001 (TAMU); Warnock W855, 10/20/1940 (SRSC, TEX); Warnock 11688, 9/26/1953 (LL)
- Meximalva filipes*** (A. Gray) Fryxell violet sida
(*Sida filipes* A. Gray)
Common on rocky slopes, flats, slopes, and intermittent drainages
Casaday 26, no date (Amistad NRA collection); Labus 60, (SWT, TAES, TEX); Labus 335, 10/8/1988 (SWT)
- Sida abutifolia*** Mill. creeping yellow sida
Common on silty and/or rocky soils on flats, slopes, ledges, & intermittent drainages
Poole 3816, 4/2/1994 (TEX); Poole 4666, 7/12/2002 (TEX-NPS); Labus 161, 5/10/1988 (SWT); Labus 172, 5/11/1988 (SWT, TAMU, TEX); McVaugh 10603, 5/22/1949 (TEX); Mears 2625, 4/17/1968 (TEX); Parks 263, 4/10/1949 (SRSC); Thompson 204, 9/17/1958 (TEX)
- Sida longipes*** A. Gray stalkflower sida
Rare on rocky slopes, uplands, rock outcrops, and intermittent drainages
Observed in Hunt Area 1 and Canyon 87 but not collected

- Sphaeralcea angustifolia* (Cav.) G. Don narrowleaf globe mallow
Rare on rocky flats, slopes, ledges, intermittent drainages, & disturbed areas
Poole 4704, 2/19/2003 (TEX-NPS); Poole 4742, 3/26/2003 (TEX-NPS)

MELIACEAE

- Melia azedarach* L. Chinaberry (I)
Rare on rocky slopes in disturbed areas
Poole 4704, 2/19/2003 (TEX-NPS)

MENISPERMACEAE

- Cocculus carolinus* (L.) DC. Carolina snailseed
Rare, twining on shrubs on rocky slopes, ledges, and intermittent drainages
Poole 4647, 7/11/2002 (TEX-NPS)

MORACEAE

- Morus alba* L. white mulberry (I)
Rare on rocky slopes in inundation zone
Poole 4737, 3/26/2003 (TEX-NPS); Flyr 965, 4/1/1966 (TEX)

NYCTAGINACEAE

- Acleisanthes anisophylla* A. Gray oblique-leaf trumpets
Infrequent on silty alluvial soils above intermittent drainages
Poole 4679, 10/10/2002 (TEX-NPS)

- Acleisanthes longiflora* A. Gray angel trumpets
Infrequent on rocky slopes, ledges, rock outcrops, bluffs, and disturbed areas
Poole 4805, 5/14/2003 (TEX-NPS)

- Acleisanthes wrightii* (A. Gray) Benth. & Hook. f. ex Hemsl. Wright's trumpets (C, E)
Not seen during this study; Seminole Canyon State Historical Park
Labus 357, 10/9/1988 (SWT, TEX)

- Allionia incarnata* L. trailing four-o'clock
Rare on rocky slopes and outcrops
Poole 4543a, 5/22/2002 (TEX-NPS); Labus 364, 10/16/1988 (SWT, TEX); Labus 377, 10/16/1988 (SWT); Thompson 194, 9/17/1958 (TEX)

- Boerhavia coccinea* Mill. scarlet spiderling
Not seen during this study; near mouth of Devil's River
Thompson 202, 9/17/1958 (TEX)

- Boerhavia linearifolia* A. Gray narrowleaf spiderling
Infrequent on rocky slopes, flats, ledges, and intermittent drainages
Poole 3815, 4/11/1994 (TEX); Poole 4130, 9/6/1994 (TEX); Poole 4479, 4/17/2002 (TEX-NPS); Poole 4548, 5/22/2002 (TEX-NPS); Correll 14915, 10/7/1952 (LL); Labus 121, 4/23/1988 (SWT, TAMU, TEX); Turner 504, 4/18/1949 (SRSC); Turner s.n., 9/13/1948 (SRSC); Warnock 22710, 8/10/1967 (SRSC)

- Cyphomeris gypsophiloides* (M. Martens & Galeotti) Stand. red cyphomeris
Infrequent on rocky slopes, boulders, cliffs, canyons, and intermittent drainages
Poole 4467, 4/17/2002 (TEX-NPS); Goldschmidt s.n., 10/22/1932 (TEX); Labus 375, 10/16/1988 (SWT); Mahrt 92, 10/13/1990 (TEX); Parks 207, 4/10/1949 (SRSC); Turner 503, 4/18/1949 (SRSC)

- Mirabilis albida*** (Walter) Heimerl white four-o'clock
(*M. dumetorum* Shinners; *M. grayana* (Stand.) Standl.; *M. oblongifolia* (A. Gray) Heimerl)
Rare on cliffs, boulders, and outcrops
Poole 4699, 10/30/2002 (TEX-NPS); Turner 901, 5/22/1949 (SRSC, TEX)
- Nyctaginea capitata*** Choisy scarlet muskflower
Rare on flats, ledges, and disturbed areas
Poole 4817, 6/19/2003 (TEX-NPS); Labus 372, 10/16/1988 (SWT)

OLEACEAE

- Forestiera angustifolia*** Torr. narrowleaf elbowbush
Common rocky slopes and flats
Poole 4776, 4/10/2003 (TEX-NPS); Labus 402, 2/4/1989 (TEX)
- Forestiera reticulata*** Torr. netleaf elbowbush
Rare on rocky slopes, ledges, bluffs, outcrops, and cliffs
Poole 4651, 7/11/2002 (TEX-NPS); Labus 293, 8/24/1988 (TAMU)
- Fraxinus berlandieriana*** A. DC. Berlandier ash
Rare on silty soils along river and creek banks, rock ledges, canyons
Poole 4594, 6/26/2002 (TEX-NPS); Correll 12908, 6/27/1946 (LL); Correll 19391, 7/7/1958 (LL); Correll 32611, 4/21/1966 (LL); Correll 38413, 4/10/1970 (LL); Mears 2493, 4/16/1968 (TEX); Parks 209, 4/10/1949 (LL, SRSC); Warnock 47199, 3/29/1947 (LL, SRSC)
- Fraxinus greggii*** A. Gray Gregg ash
Infrequent (locally common at a few sites) on rocky slopes, ledges, outcrops, & intermittent drainages
Mears 2615, 4/17/1968 (TEX); Parks 216, 4/10/1949 (TEX); Powell 3058, 2/18/1977 (SRSC); Reed 2294, 5/31/2001 (TAMU); Warnock 47209, 3/29/1947 (SRSC); Worthington 26183, 3/16/1997 (UTEP)
- Fraxinus texensis*** (A. Gray) Sarg. Texas ash
Rare in silty soils along river and creek banks
Observed in uppermost Amistad reaches of Devil's River and the south fork of San Pedro Creek but not collected.
- Menodora heterophylla*** Moric. ex A. DC. redbud menodora
Rare on grasslands, rocky flats and slopes
Turner 898, 5/22/1949 (SRSC)
- Menodora longiflora*** A. Gray showy menodora
Rare (locally common at only site) on rocky slopes, cliffs, ledges, outcrops, boulders, bluffs, and flats
Poole 4668, 10/9/2002 (TEX-NPS); Amistad NRA Interpretive collection
- Menodora scabra*** A. Gray rough menodora
Rare in rocky flats, slopes, outcrops, ledges, bluffs, cliffs, and intermittent drainages
Observed at the Rock Quarry campground, Cow Creek, & Pecos River picnic area but not collected

ONAGRACEAE

- Calylophus berlandieri*** Spach subsp. *berlandieri* halfshrub sundrops
Rare on gravelly slopes, flats, and disturbed areas
Poole 4476, 4/17/2002 (TEX-NPS); Poole 4578, 5/24/2002 (TEX-NPS)
- Calylophus berlandieri*** Spach subsp. *pinifolius* (Engelm. ex A. Gray) Towner Berlandier's sundrops
Not seen during this study; Amistad Reservoir area
Flyr 946, 3/27/1966 (TEX)

- Calylophus hartwegii*** (Benth.) P. H. Raven **subsp. *maccartii*** (Shinners) Towner & P. H. Raven
Pringle evening primrose
Rare on rocky slopes, flats, and disturbed areas
Poole 4734, 3/25/2003 (TEX-NPS); *Flyr* 719, 10/9/1965 (TEX); *Flyr* 879, 3/26/1966 (TEX);
McVaugh 8259, 5/9/1947 (TEX)
- Calylophus hartwegii*** (Benth.) P. H. Raven **subsp. *pubescens*** (A. Gray) Towner & P. H. Raven
Grand Prairie evening primrose
Not seen during this study; Amistad Reservoir area
Flyr 719, 10/9/1966 (TEX)
- Gaura calcicola*** P. H. Raven & D. P. Greg. Texas beeblossom
Rare on silty and/or gravelly soils along river banks, rocky slopes, and ledges
Poole 4663, 7/12/2002 (TEX-NPS); *Labus* 151, 5/10/1988 (SWT); *Reed* 2292, 5/31/2002
(TAMU)
- Gaura coccinea*** Pursh scarlet gaura
Rare on rocky flats and slopes
Observed once in Seminole Canyon State Historical Park but not collected.
- Gaura suffulta*** A. Gray **var. *suffulta*** wild honeysuckle
Rare (locally common at one site) on silty and/or gravelly soils
Correll 27130, 3/31/1963 (LL)
- Ludwigia octovalvis*** (Jacq.) P. H. Raven shrubby water primrose
Rare in silty soils along edges of rivers
Crutchfield 3399, 7/13/1967 (LL)
- Oenothera falfurriae*** W. Dietr. & W. L. Wagner royal evening primrose (E)
Not seen during this study; Mile Canyon
Parks 271, 4/10/1949 (TEX). Note that this same specimen at SRSC is identified as *O. pubescens*.
- Oenothera kunthiana*** (Spach) Munz Kunth sundrops
Not seen during this study; Mile Canyon, Devil's River bridge, Castle Canyon Island,
mouth of Pecos River, and Rio Grande between Langtry and the Pecos River
Parks 208, 4/10/1949 (SRSC); *Powell* 3422, 3/31/1979 (SRSC); *Turner* 899, 5/22/1949
(SRSC); *Turner* 21-114, 3/25/2001 (TEX); *Warnock* 11964, 3/28/1954 (SRSC); *Warnock*
47132, 3/29/1947 (SRSC, TEX)
- Oenothera laciniata*** Hill cutleaf evening primrose
Not seen during this study; Painted Canyon
Warnock 21378, 21386, 7/29/1967 (SRSC)
- Oenothera primiveris*** A. Gray desert evening primrose
Not seen during this study; bluffs above Rio Grande at Langtry
Worthington 55863, 3/16/1997 (UTEP)
- Oenothera pubescens*** Willd. ex Spreng. South American evening primrose
Not seen during this study; Mile Canyon
Parks 271, 4/10/1949 (SRSC). Note that this same specimen at TEX is identified as *O. falfurriae*.
- Oenothera rosea*** L'Hér. ex Aiton rose sundrops
Rare on river bank ledges, rocky intermittent drainages, or disturbed areas
Poole 4761, 3/28/2003 (TEX-NPS)
- Oenothera triloba*** Nutt. stemless evening primrose
Rare along canyons and rivers
Parks 286, 4/10/1949 (SRSC); *Warnock* 47136, 3/29/1947 (SRSC)

OXALIDACEAE

- Oxalis dichondrifolia* A. Gray ponyfoot woodsorrel
Rare on rocky slopes, intermittent drainages, and disturbed areas
Poole 4499, 4/17/2002 (TEX-NPS); Ertter 5404, 5/18/1984 (TEX); Turner 897, 5/22/1949 (SRSC)
- Oxalis dillenii* Jacq. yellow woodsorrel
Infrequent on silty or rocky soils on river banks, intermittent drainages, flats, & slopes
Poole 4727, 3/7/2003 (TEX-NPS)
- Oxalis drummondii* A. Gray Drummond woodsorrel
Rare on rocky slopes
Amistad NRA Interpretive collection; Parks 202, 4/10/1949 (SRSC); Warnock 47211, 3/29/1947 (SRSC)
- Oxalis violacea* L. violet woodsorrel
Not seen during this study; mouth of Pecos River & Seminole Canyon State Historical Park
Havard s.n., 10/1883 (US); Labus 379, 10/16/1988 (TEX)

PAPAVERACEAE

- Argemone aenea* G. B. Ownbey golden pricklypoppy
Not seen during this study; canyon at mouth of Pecos River
Warnock 47181, 3/29/1947 (SRSC, TEX)
- Argemone chisosensis* G. B. Ownbey Chisos pricklypoppy
Infrequent on rocky soils in intermittent drainages and disturbed areas
Poole 4702, 10/31/2002 (TEX-NPS)
- Argemone mexicana* L. yellow pricklypoppy
Infrequent on rocky slopes, flats, intermittent drainages, and disturbed areas
Poole 4763, 3/28/2003 (TEX-NPS); Reed 2241, 5/31/2001 (TAMU)

PASSIFLORACEAE

- Passiflora affinis* Engelm. yellow passionflower
Rare (locally common at one site), climbing on trees, shrubs, or rock outcrops or cliffs
Observed at San Pedro campground area & North Oak Tree Camp canyon but not collected.
- Passiflora tenuiloba* Engelm. slenderlobe passionflower
Infrequent on trees, shrubs, rock outcrops, ledges, and cliffs
Labus 86, 4/23 1988 (SWT, TEX); Warnock 11707, 9/26/1953 (SRSC, TEX); Warnock 22715, 8/10/1967 (SRSC)

PEDALIACEAE

- Proboscidea louisianica* (Mill.) Thell. Devil's claw
Rare (locally common at one site) on silty and/or rocky soils in intermittent drainages or disturbed sites
Amistad NRA Interpretive Collection; Ertter 5407, 5/18/1984 (TEX)

PHYTOLACEAE

- Rivina humilis* L. pigeonberry
Rare (locally frequent at one site) on rocky flats, outcrops, bluffs, & intermittent drainages
Labus 40, 11/22/1987 (SWT); Labus 386, 12/17/1988 (SWT); McVaugh 8252, 5/19/1947 (TEX); Turner 885, 5/22/1949 (SRSC, TEX)

PLANTAGINACEAE

- Plantago helleri* Small Heller plantain
 Infrequent (locally common at a few sites) on gravelly flats, slopes, & disturbed areas
Parks 275, 4/10/1949 (SRSC); Warnock 47158, 3/29/1947 (SRSC)
- Plantago rhodosperma* Decne. redseed plantain
 Infrequent (locally common at several sites) on silty and/or rocky soils on flats, slopes, intermittent drainages, and disturbed areas
Brown 6043, 4/12/1968 (TEX); Hogg s.n., 4/19/1978 (UTEP); Powell 3435, 3/31/1979 (SRSC); Warnock 47227, 3/29/1947 (SRSC)

PLATANACEAE

- Platanus occidentalis* L. sycamore
 Rare (locally common at most sites) on rocky river and stream banks
Poole 4918, 10/9/2003 (TEX-NPS); Flyr 958, 3/27/1966 (TEX)

POLEMONIACEAE

- Gilia incisa* Benth. cutleaf gilia
 Infrequent on rocky slopes, flats, and intermittent drainages
Poole 4746, 3/26/2003 (TEX-NPS); McVaugh 8238, 5/19/1947 (TEX); Mears 2577, 4/17/1968 (TEX); Turner 529, 4/18/1949 (SRSC); Warnock 21385, 7/29/1967 (SRSC); Warnock 47144, 3/29/1947 (SRSC, TEX)
- Gilia rigidula* Benth. subsp. *acerosa* (A. Gray) Wherry blue gilia
 Rare on rocky slopes and flats
Casaday 7, no date (Amistad NRA collection)
- Gilia rigidula* Benth. subsp. *rigidula* blue gilia
 Rare on rocky slopes and flats
Pruski 740, 4/8/1979 (TEX)

POLYGALACEAE

- Polygala lindheimeri* A. Gray var. *lindheimeri* purple milkwort
 Infrequent on rocky slopes, outcrops, cliffs, ledges, upland flats, & disturbed areas
Poole 4542, 5/22/2002 (TEX-NPS); Correll 19398, 7/7/1958 (LL); Correll 27145, 3/31/1963 (LL); Correll 32602, 5/11/1988 (LL); Labus 174, 5/11/1988 (TEX); Larson 29, 6/19/2001 (Amistad NRA collection); McVaugh 8251, 5/9/1947 (TEX); Turner 507, 4/18/1949 (LL, SRSC); Wendt 1137, 1139, 8/12/1975 (LL)
- Polygala macradenia* A. Gray glandleaf milkwort
 Rare (locally common at two sites) on rocky slopes, outcrops, ledges, cliffs, & uplands
Poole 4781, 4/10/2003 (TEX-NPS)
- Polygala ovatifolia* A. Gray eggleaf milkwort
 Infrequent on rocky slopes, flats, ledges, rock outcrops, boulders, & intermittent drainages
Poole 4686, 10/11/2002, (TEX-NPS); Correll 32606, 4/21/1966 (LL)
- Polygala palmeri* S. Watson rock milkwort (C)
 Rare on gentle gravelly slopes and flats
Poole 4487, 4/17/2002 (TEX-NPS); Warnock 11704a, 9/26/1953 (SRSC); Warnock 19419, 7/7/1958 (LL)
- Polygala scoparioides* Chodat broom milkwort
 Rare on gravelly soils on flats, slopes, and disturbed areas
Poole 4459, 4/16/2002 (TEX-NPS); Langford s.n., 8/26/1967 (LL)

POLYGONACEAE

- Eriogonum havardii* S. Watson Havard's wild buckwheat
Not seen during this study; bluffs and ledges along Rio Grande near Langtry
Correll 34158, 5/9/1967 (LL); Hinckley 158, 7/3/1949 (SRSC, TEX)
- Persicaria hydropiperoides* (Michx.) Small swamp smartweed
(*Polygonum hydropiperoides* Michx.)
Rare in silty soils along river banks
Warnock 11690, 9/26/1953 (TEX)
- Persicaria maculosa* A. Gray lady's thumb (I)
(*Polygonum persicaria* L.)
Rare (locally common at only site) on silty soils along rivers
Thompson 186, 9/17/1958 (TEX)
- Persicaria punctata* (Elliott) Small water smartweed
(*Polygonum punctatum* Elliott)
Rare (locally common at one site) on silty soils along river and creeks
Poole 4137, 9/16/1994 (TEX); Poole 4618, 6/28/2002 (TEX-NPS); Crutchfield 3403, 7/13/1967 (LL)
- Rumex altissimus* Alph. Wood pale dock
Not seen during this study; Devil's River near Del Rio
Whitehouse s.n., 4/1/1933 (TEX)
- Rumex maritimus* L. golden dock
Rare (locally common at a few sites) on rocky and/or silty soils along rivers or drainages, also inundation zone
Poole 4135, 9/16/1994 (TEX); Poole 4551, 5/22/2002 (TEX-NPS); Poole 4615, 6/28/2002 (TEX-NPS); Turner 99-218, 5/2/1999 (SRSC, TAES, TEX)
- Rumex stenophyllus* Ledeb. narrowleaf dock
Not seen during this study; Rio Grande at Langtry
Worthington 12036, 6/2/1984 (UTEP)
- Rumex violascens* Rech. f. violet dock
Not seen during this study; Mile Canyon
Parks 276, 4/10/1949 (SRSC); Skiles 11, 8/26/1952 (SRSC)

PORTULACEAE

- Portulaca oleracea* L. common purslane
Rare in gravelly soils in flats and disturbed areas
Observed at Rough Canyon and San Pedro campground but not collected
- Portulaca pilosa* L. shaggy portulaca
(*P. mundula* I. M. Johnst.)
Rare on rocky slopes, bluffs, uplands, gravelly silty river banks, and disturbed areas
Poole 4665, 7/12/2002 (TEX-NPS); Hinckley 152, 7/3/1949 (TEX)

PRIMULACEAE

- Anagallis arvensis* L. scarlet pimpernel (I)
Not seen during this study; Devil's River near Del Rio
Correll 15997, 4/18/1957 (LL, SRSC); Hanson s.n., 3/18/1919 (TEX); Turner 889, 5/22/1949 (SRSC, TEX)

Samolus ebracteatus* Kunth subsp. *cuneatus (Small) R. Kunth largeflower brookweed
(*S. cuneatus* Small)

Rare on moist soils or ledges along river banks

Poole 3761, 11/2/1993 (TEX); *Correll 14976*, 10/9/1952 (LL); *Correll 15998*, 4/18/1957 (LL); *Flyr 1059*, 4/23/1966 (TEX); *Labus 148*, 5/10/1988 (SWT)

Samolus valerandi* L. subsp. *parviflorus (Raf.) Hultén smallflower brookweed
(*S. parviflorus* Raf.)

Rare on gravelly soils along river banks or rocky sites near springs

Poole 4605, 6/28/2002 (TEX-NPS); *Correll 15999*, 4/18/1957 (LL); *Crutchfield 3404*, 7/13/1967 (LL); *Warnock 47179*, 3/29/1947 (SRSC)

RAFFLESACEAE

Pilostyles thurberi A. Gray Thurber's stemsucker

Rare on *Dalea frutescens* on rocky slopes

Poole 4507, 5/21/2002 (TEX-NPS)

RANUNCULACEAE

Anemone edwardsiana Tharp twoflower anemone (E)

Rare on rocky slopes, flats, ledge, bluffs, cliffs, and rock outcrops

Poole 4705, 2/19/2003 (TEX-NPS); *McVaugh 7730*, 3/31/1947 (TEX)

Anemone tuberosa* Rydb. var. *texana Enquist & Crozier tuber anemone

Not seen during this study; Devil's River Lake, Pecos River at Hwy 90 bridge, bluffs of Rio Grande near Langtry, Amistad NRA old headquarters

Amistad NRA Interpretive collection; *Hinckley 424*, 3/10/1950 (SRSC); *McVaugh 7729*, 3/31/1947 (TEX); *Worthington 26173*, 3/16/1997 (UTEP)

Clematis drummondii Torr. & A. Gray old man's beard

Common, climbing on cliffs, boulders, fences, shrubs, and disturbed areas

Poole 4928, 10/10/2003 (TEX-NPS)

Clematis pitcheri Torr. & A. Gray leatherflower

Rare, climbing on shrubs, boulders, and cliffs

Warnock 11689, 9/26/1953 (LL, SRSC)

Delphinium madrense S. Watson Sierra Madre larkspur

Rare on rocky slopes and flats

Correll 27162, 3/31/1963 (LL)

Ranunculus sceleratus L. blister buttercup

Not seen during this study; Pump Canyon

Correll 23576, 4/15/1961 (LL)

RESEDACEAE

Oligomeris linifolia (Vahl) J. F. Macbr. lineleaf whitepuff

Rare on silty and/or rocky slopes and intermittent drainages, inundation zone

Poole 4715, 2/20/2003 (TEX-NPS)

RHAMNACEAE

Colubrina texensis (Torr. & A. Gray) A. Gray hog-plum

Common on rocky slopes, flats, ledges, intermittent drainages, and disturbed areas

Labus 30, 11/22/1987 (TEX); *Labus* 84, 4/23/1988 (TEX); *Parks* 210, 212, 4/10/1949 (SRSC); *Reed* 2303, 5/31/2001 (TAMU); *Skiles* 10, 6/26/1952 (SRSC); *Warnock* 11804, 11/14/1953 (SRSC); *Warnock* 47213, 3/29/1947 (SRSC)

Condalia hookeri M. C. Johnst. var. *hookeri* brasil
Infrequent on rocky slopes, flats, ledges, and intermittent drainages
Warnock W358, 10/12/1940 (GH, LL, SRSC)

Condalia spathulata A. Gray narrowleaf squawbush
Infrequent (locally common at several sites) on rocky slopes, flats, and uplands
Observed at over 20 sites but not collected

Condalia viridis I. M. Johnst. green squawbush
Infrequent (locally common at a few sites) on rocky flats, slopes, ledges, and uplands
Poole 4684, 10/11/2002 (TEX-NPS); *Labus* 045, 11/22/1987 (TEX); *Reed* 2266, 5/31/2001 (TAMU)

Karwinskia humboldtiana (Schult.) Zucc. coyotillo
Frequent on rocky slopes, flats, ledges, bluffs, uplands, and intermittent drainages
Correll 19397, 7/7/1958 (LL); *Correll* 38414, 4/10/1970 (LL); *Hinckley* 420, 3/10/1950 (SRSC, TEX); *Johnston* 46, 12/1958 (TEX); *Labus* 016, 11/22/1987 (TEX); *McVaugh* 8240, 5/9/1947 (TEX); *Parks* 260, 4/10/1949 (SRSC); *Reed* 2291, 5/31/2001 (TAMU); *Suttkus* 66-1, 5/15/1966 (SRSC, TEX); *Tharp* 8816, 6/14/1931 (SRSC, TEX); *Warnock* 21189, 10/12/1940 (LL, SRSC); *Warnock* 22713, 8/10/1967 (SRSC); *Warnock* 47157, 3/29/1947 (SRSC)

Ziziphus obtusifolia (Hook. ex Torr. & A. Gray) A. Gray lotebush
Common on rocky flats, slopes, ledges, bluffs, rock outcrops, boulders, and intermittent drainages
Ertter 5399, 5/18/1984 (TEX); *Labus* 076, 4/23/1988 (TEX)

ROSACEAE

Prunus minutiflora Engelm. ex A. Gray Texas almond (C, E)
Rare on rocky slopes, bluffs, ledges, outcrops, and uplands
Poole 4722, 2/21/2003 (TEX-NPS); *Poole* 4751, 3/27/2003 (TEX-NPS); *Carr* 10931, 2/28/1991 (TEX); *McVaugh* 772, 3/31/1947 (TEX)

Rubus trivialis Michx. var. *duplaris* (Shinners) Mahler Rio Grande dewberry
(*R. riograndis* L. H. Bailey)
Rare (locally common at one site) on rocky soils near intermittent drainages
Observed at Canyon 6 and Oak Tree Camp but not collected

RUBIACEAE

Cephalanthus occidentalis L. buttonbush
Common in silty, rocky soil along rivers or frequently flooded intermittent drainages
Labus 159, 5/10/1988 (TEX); *Thompson* 187, 9/17/1958 (TEX)

Galium aparine L. cling-on bedstraw
Rare (locally common at one site) on silty soils on river banks and intermittent drainages
Poole 4725, 3/7/2003 (TEX-NPS)

Galium correllii Dempster Correll's bedstraw (C)
Rare on cliffs, boulders, and rock outcrops
Correll 32612, 4/12/1966 (LL); *Crutchfield* 3393, 7/13/1967 (LL); *Johnston* 12448, 4/29/1979 (TEX)

Galium microphyllum A. Gray bracted bedstraw
Not seen during this study; Pump Canyon
Correll 38409, 4/10/1970 (LL)

- Galium proliferum*** A. Gray spreading bedstraw
Common on rocky flats, boulders, rock outcrops, and intermittent drainages
Parks 241, 4/10/1949 (SRSC); *Powell 3443*, 3/31/1979 (SRSC); *Warnock 11963*, 3/28/1954 (SRSC)
- Galium virgatum*** Nutt. wand bedstraw
Rare (locally common at two sites) on rocky flats, rock outcrops, bluffs, and intermittent drainages
Mears 2592, 5/17/1968 (TEX)
- Houstonia acerosa*** (A. Gray) A. Gray needleleaf bluets
(*Hedyotis acerosa* A. Gray)
Rare on rocky slopes and flats
Casaday 37, 5/15/2001 (Amistad NRA collection)
- Stenaria nigricans*** (Lam.) Terrell var. *nigricans* prairie bluets
(*Hedyotis nigricans* (Lam.) Fosberg)
Infrequent (locally common at two sites) on rocky outcrops, boulders, cliffs, ledges, rocky slopes, and intermittent drainages
Poole 4619, 7/11/2002 (TEX-NPS); *Correll 27780*, 6/14/1963 (LL); *Correll 32605*, 4/21/1966 (LL); *Freeman s.n.*, 4/30/1977 (UTEP); *Labus 147*, 5/10/1988 (TEX); *Scudday 690*, 7/1/1979 (SRSC); *Turner 490*, 4/13/1949 (SRSC); *Turner s.n.*, 6/1/1948 (SRSC)

RUTACEAE

- Ptelea trifoliata*** L. skunkbush, wafer ash
Rare (locally common at two sites) on rocky slopes, boulders, and intermittent drainages
Flyr 1073, 4/24/1966 (TEX); *Warnock 22865*, 5/22/1969 (SRSC)
- Thamnosma texana*** (A. Gray) Torr. Dutchman's breeches
Infrequent on rocky flats, slopes, uplands, and disturbed areas
Poole 4741, 3/26/2003 (TEX-NPS); *Carr 10933*, 2/28/1991 (TEX); *Labus 100*, 4/23/1988 (TAMU, TEX); *Warnock 23628*, 5/24/1966 (SRSC)

SALICACEAE

- Populus deltoides*** W. Bartram ex Marshall eastern cottonwood
Rare on rocky, silty soils along drainages and rivers
Poole 4783, 4/11/2003 (TEX-NPS)
- Salix exigua*** Nutt. coyote willow
(*S. thurberi* Rowlee)
Rare (locally common at one site) on silty soils on river terraces
Poole 4582, 6/26/2002 (TEX-NPS); *Argus 11688*, 5/15/1985 (TEX); *Dorn 7189*, 5/2/1997 (RM); *Flyr 954*, 4/1/1966 (TEX)
- Salix gooddingii*** C. R. Ball Goodding willow
Rare (common at one site) on rocky and/or silty river banks, intermittent drainages, and rocky slopes (inundation zone)
Poole 4602, 6/26/2002 (TEX-NPS); *Argus 11690*, 11691, 5/15/1985 (TEX)
- Salix nigra*** Marshall black willow
Infrequent (locally common at several sites) on river banks and intermittent drainages
Cory 38091, 8/17/1941 (TEX); *Flyr 1006*, 4/3/1966 (TEX); *Labus 135*, 5/10/1988 (SWT, TAMU, TEX); *Powell 3907*, 3/31/1979 (SRSC); *Skiles 12*, 6/26/1952 (SRSC)

SAPINDACEAE

- Sapindus saponaria* L. var. *drummondii*** (Hook. & Arn.) L. D. Benson
western soapberry
Rare along rocky flats and intermittent drainages
Traverse 2149, 5/10/1961 (LL)
- Serjania brachycarpa*** A. Gray
littlefruit slipplejack
Rare, sprawling on shrubs at cliff base
Poole 4670, 10/9/2002 (TEX-NPS)
- Ungnadia speciosa*** Endl.
Mexican buckeye
Rare (locally common at two sites) on rocky slopes, boulders, ledges, canyons, and intermittent drainages
Labus 066, 3/19/1988 (TAMU, TEX); Mears 2616, 4/17/1968 (TEX)

SAPOTACEAE

- Sideroxylon lanuginosum* Michx. subsp. *rigidum*** (A. Gray) T. D. Penn.
coma, gum elastic
(*Bumelia lanuginosa* (Michx.) Pers.)
Rare on rocky slopes and intermittent drainages
Labus 295, 8/24/1988 (SWT); Warnock 47206, 3/29/1947 (SRSC)

SCROPHULARIACEAE

- Bacopa monnieri*** (L.) Wettst.
water hyssop
Infrequent (community dominant at most sites) on river banks or ledges or lower inundation zone
Poole 4532, 5/22/2002 (TEX-NPS); Crutchfield 3400, 7/13/1967 (LL); Mears 2544, 4/16/1968 (TEX)
- Castilleja rigida*** Eastw.
rigid Indian paintbrush
(*C. latebracteata* Pennell)
Rare on rocky slopes, flats, and cliffs
Poole 3812, 4/11/1994 (TEX); Poole 4757, 3/28/2003 (TEX-NPS); Goldschmidt s.n., 10/28/1932 (TEX); McVaugh 7720, 3/31/1947 (TEX)
- Castilleja sessiliflora*** Pursh
downy Indian paintbrush
Not seen during this study; Hwy 277 South campsite and Painted Canyon
Amistad NRA Interpretive collection; Goldsmith s.n., 10/22/1932 (TEX)
- Leucophyllum frutescens*** (Berland.) I. M. Johnst.
cenizo
Abundant (community dominant) on rocky flat, slopes, ledges, and rock outcrops
Freeman s.n., 4/30/1977 (UTEP); Labus 82, 4/23/1988 (TEX); Worthington 8257, 5/17/1982 (UTEP)
- Leucospora multifida*** (Michx.) Nutt.
narrowleaf conobea
(*Stemodia multifida* (Michx.) Spreng.)
Rare on rocky intermittent drainages or boulders
Poole 4608, 6/29/2002 (TEX-NPS); Poole 4644, 7/11/2002 (TEX-NPS)
- Maurandya antirrhiniflora*** Humb. & Bonpl. ex Willd.
snapdragon vine
Common, climbing on shrubs or along ground
Mears 2614, 4/17/1968 (TEX); Powell 3426, 3/31/1979 (SRSC); Turner 520, 4/18/1949 (SRSC)
- Mimulus glabratus*** Kunth
yellow monkeyflower
Rare (common at only site) on rocky alluvium near spring
Poole 4606, 6/28/2002 (TEX-NPS)

- Penstemon baccharifolius*** Hook. baccharisleaf penstemon
 Infrequent (locally common at several sites) on cliffs, bluffs, rock outcrops, and boulders
Poole 4643, 7/11/2002 (TEX-NPS); Amistad NRA Interpretive Collection; Correll 19402, 7/7/1958 (LL); Goldschmidt s.n., 10/22/1932 (TEX); Labus 42, 11/22/1987 (TEX); Powell 3059, 2/18/1977 (SRSC); Turner 15964, 5/19/1991 (SRSC, TEX); Turner s.n., 6/15/1948 (SRSC); Warnock 11694, 9/26/1953 (TEX); Warnock 22725, 8/10/1967 (SRSC); Warnock 23618, 5/24/1966 (SRSC); Warnock 47223, 3/29/1947 (SRSC); Woodruff 305, 5/17/1989 (TEX); Worthington 12016, 6/2/1984 (UTEP)
- Seymeria texana*** (A. Gray) Pennell Texas seymeria (C, E)
 Rare on rocky slopes or flats in grasslands or shrublands
 Observed once in Hunt Area but not collected
- Stemodia schottii*** Holz. Schott's stemodia
 Rare on silty clay soils in intermittent drainage in inundation zone
Poole 4830, 6/20/2003 (TEX-NPS)
- Verbascum thapsus*** L. common mullein (I)
 Rare on ledges, intermittent drainages, flats, and disturbed areas
Poole 4766, 3/28/2003 (TEX-NPS)
- Veronica peregrina*** L. wandering veronica
 Not seen during this study; Mile Canyon and near mouth of the Pecos River
Parks 264, 4/10/1949 (SRSC); Warnock 47180, 3/29/1947 (SRSC)

SIMAROUBACEAE

- Castela erecta*** Turpin **subsp. *texana*** (Torr. & A. Gray) Cronquist goatbush
 Infrequent (locally common at a few sites) on rocky slopes, flats, and ledges
Ertter 5400, 5/18/1984 (TEX); Labus 074, 4/23/1988 (TEX); McVaugh 7739, 3/31/1947 (TEX); Powell 3415, 3/31/1979 (SRSC)

SOLANACEAE

- Calibrachoa parviflora*** (Juss.) D'Arcy mudflat petunia
 (*Petunia parviflora* Juss.)
 Infrequent (locally common at several sites) on rocky and/or silty soils on flats or gentle slopes in intermittent drainages, along river banks, and inundation zone
Poole 4552, 5/22/2002 (TEX-NPS); Ertter 5416, 5/19/1984 (TEX); Flyr 995, 4/2/1966 (TEX); Parks 266, 4/10/1949 (LL, SRSC); Warnock 47178, 3/29/1947 (SRSC, TEX); Worthington 12037, 6/2/1984 (UTEP)
- Chamaesaracha sordida*** (Dunal) A. Gray hairy false nightshade
 Rare on rocky slopes or flats
Correll 15994, 4/18/1957 (LL); Mears 2556, 4/16/1968 (TEX); Neff 94-4-15-2, 4/15/1992 (TEX)
- Chamaesaracha villosa*** Rydb. Trans-Pecos five-eyes
 Rare (locally common at a few sites) on rocky flats, slopes, and intermittent streambeds
Poole 4493, 4/17/2002 (TEX-NPS)
- Datura inoxia*** Mill. Indian apple
 Infrequent on rocky and/or silty soils on slopes or flats in disturbed areas
Poole 3766, 11/3/1993 (TEX); Poole 4566, 5/22/2002 (TEX-NPS)
- Hunzikeria texana*** (Torr.) D'Arcy Texas cupflower
 (*Leptoglossis texana* (Torr.) A. Gray; *Nierembergia viscosa* Torr.)
 Rare (locally common at one site) on rocky flats, slopes, and uplands
Flyr 887, 3/26/1966 (TEX); Flyr 1018, 4/4/1966 (TEX); Flyr 1082, 4/24/1966 (TEX); Freeman s.n., 4/30/1977 (UTEP); Goldschmidt s.n., 10/22/1932 (TEX); Hinckley 413, 3/10/

1950 (LL, SRSC); *McVaugh* 7733, 3/31/1947 (TEX); *Powell* 3427, 3/31/1979 (SRSC); *Warnock* 47131, 3/29/1947 (SRSC)

Lycium berlandieri Dunal Berlandier wolfberry

Infrequent on rocky flats and slopes.

Correll 30668, 11/13/1964 (LL); *Flyr* 810, 10/25/1965 (TEX); *Flyr* 819, 11/8/1965 (TEX); *Warnock* 11696, 9/26/1953 (LL)

Nicotiana glauca Graham tree tobacco (I)

Frequent on rocky and/or sandy soils on slopes, flats, river banks, ledges, boulders, and cliffs in inundation zone

Bray s.n., 6/3/1902 (TEX); *Hogg s.n.*, 4/20/1978 (UTEP); *Parks* 273, 4/10/1949 (LL); *Thompson* 199, 9/17/1958 (TEX)

Nicotiana repanda Willd. ex Lehm. fiddleleaf tobacco

Infrequent on rocky flats, slopes, intermittent drainages, ledges, stream and river banks

Poole 4494, 4/17/2002 (TEX-NPS); *McVaugh* 8249, 5/19/1947 (TEX); *Parks* 204, 9/17/1958 (LL, SRSC); *Skiles* 5, 6/26/1952 (SRSC); *Warnock* 47176, 3/29/1947 (SRSC)

Nicotiana trigonophylla Dunal desert tobacco

Infrequent on rocky flats, slopes, ledges, bluffs, and intermittent drainages

Johnson 6, 12/1/1958 (TEX); *Warnock* 221, 4/10/1949 (SRSC); *Warnock* 47188, 3/29/1947 (SRSC)

Physalis cinerascens (Dunal) Hitchc. var. *cinerascens* beach groundcherry

Infrequent (locally common at one site) on rocky and/or silty soils on flats, slopes, and disturbed areas

Poole 4560, 5/22/2002 (TEX-NPS); *Poole* 4580, 5/24/2002 (TEX-NPS); *Correll* 38411, 4/10/1970 (LL); *Parks* 199, 4/10/1949 (SRSC); *Turner* 527, 4/18/1949 (SRSC); *Warnock* 47167, 3/29/1947 (LL, SRSC)

Quincula lobata (Torr.) Raf. purple groundcherry

(*Physalis lobata* Torr.)

Rare (locally common at one site) on rocky and/or silty flats, slopes, and disturbed areas

Flyr 924, 3/26/1966 (TEX); *Parks* 253, 4/10/1949 (SRSC); *Powell* 3452, 5/31/1979 (SRSC); *Tharp* 8843, 6/14/1931 (TEX); *Warnock* 47142, 3/29/1949 (SRSC); *Worthington* 8258, 5/17/1982 (UTEP)

Solanum elaeagnifolium Cav. silverleaf nightshade

Common on rocky and/or silty soils on flats, slopes, floodplains, and disturbed areas

Poole 4785, 4/11/2003 (TEX-NPS)

Solanum ptycanthum Dunal ex DC. American nightshade

(misapplied by Texas authors as *S. americanum* Mill.)

Rare in rocky flats, slopes, and intermittent drainages

Poole 4629, 7/11/2002 (TEX-NPS); *Skiles* 13, 6/26/1952 (SRSC)

Solanum rostratum Dunal buffalobur

Infrequent (locally common at two sites) on rocky and/or silty soils on flats, slopes, intermittent drainages, and disturbed areas

Poole 4812, 5/20/2003 (TEX-NPS)

Solanum triquetrum Cav. Texas nightshade

Rare, sprawling on shrubs, boulders, rock outcrops, or cliffs

Correll 19403, 7/7/1958 (LL); *Correll* 30667, 11/13/1964 (LL); *Powell* 3437, 3/31/1979 (SRSC); *Warnock* 22876, 5/22/1969 (SRSC); *Warnock* 47218, 3/29/1947 (SRSC)

STERCULIACEAE

- Ayenia pilosa* Cristóbal dwarf ayenia
Rare on rocky slopes, ledges, and rock outcrops
McVaugh 8236, 5/9/1947 (TEX)
- Hermannia texana* A. Gray Texas hermannia
Rare on rocky slopes, flats, uplands, and intermittent drainages
McVaugh 8241, 5/9/1947 (TEX); Reed 2252, 5/31/2001 (TAMU)
- Melochia pyramidata* L. pyramid flower
Rare on river banks, intermittent drainages, and ledges
Poole 4597, 6/26/2002 (TEX-NPS); Labus 276, 8/24/1988 (SWT); Turner 917, 5/22/1949 (SRSC); Warnock W856, 10/12/1940 (SRSC, TEX)

TAMARICACEAE

- Tamarix aphylla* (L.) H. Karst. athel (I)
Rare in rocky soils in inundation zone
Poole 4743, 3/26/2003 (TEX-NPS)
- Tamarix ramosissima* Ledeb. salt cedar (I)
Common on rocky, silty, and/or clay soils on flats or gentle slopes along river banks, wetlands, floodplains, and inundation zone
Poole 3271, 5/6/1993 (TEX); Poole 4512, 5/21/2002 (TEX-NPS); Poole 4744, 3/26/2003 (TEX-NPS); Larson 18, 6/19/2001 (Amistad NRA collection); Reed 2248, 5/31/2001 (TAMU); Turner 99-216, 5/2/1999 (SRSC)

ULMACEAE

- Celtis laevigata* Willd. var. *laevigata* sugar hackberry
Rare on rocky and/or silty soils in river banks, floodplains, and canyons
Correll 27136, 3/31/1963 (LL); Flyr 768, 10/11/1965 (TEX); Flyr 801, 10/23/1965 (TEX); Flyr 1033, 4/26/1966 (TEX)
- Celtis laevigata* Willd. var. *reticulata* (Torr.) L. D. Benson netleaf hackberry
(*C. reticulata* Torr.)
Common on rocky slopes, uplands, ledges, bluffs, and intermittent drainages
Poole 4786, 4/11/2003 (TEX-NPS); Flyr 785, 10/23 1965 (TEX)
- Celtis pallida* Torr. granjeno
(*C. ehrenbergiana* (Klotzsch) Liebm.)
Common on rocky slopes, flats, ledges, bluffs, river banks, and intermittent drainages
Poole 4799, 5/9/2003 (TEX-NPS); Poole 4815, 5/23/2003 (TEX-NPS); Hinckley 153, 7/3/1949 (SRSC); Labus 31, 11/22/1987 (SWT, TEX); Turner 497, 4/18/1949 (SRSC)
- Ulmus pumila* L. Chinese elm (I)
Rare, cultivated
Observed at Pecos River picnic area but not collected

URTICACEAE

- Boehmeria cylindrica* (L.) Sw. false nettle
Rare on sandy or rocky soils along river banks and shallow water along boat docks
Crutchfield 3396, 7/13/1967 (LL); Warnock W859, 10/12/1940 (SRSC, TEX)
- Parietaria pensylvanica* Muhl. ex Willd. Pennsylvania pellitory
Frequent on rocky and/or silty soils along flats, slopes, ledges, rock outcrops, riverbanks, and intermittent drainages
Correll 27139, 3/31/1963 (LL); Labus 154, 5/10/1988 (TEX); Labus 248, 5/23/1988 (SWT); Parks 285, 4/10/1949 (SRSC); Powell 3834, 3/31/1979 (SRSC); Warnock 11971, 3/28/1954 (SRSC); Warnock 47153, 3/29/1947 (SRSC)

VERBENACEAE

- Aloysia gratissima*** (Gillies & Hook.) Tronc. beebrush
 Frequent on rocky and/or silty soils on flats, slopes, river banks, and intermittent drainages
Poole 4778, 4/10/2003 (TEX-NPS); Ertter 5402, 5/18/1984 (TEX); Flyr 731, 10/10/1965 (TEX); Mears 2495, 4/16/1968 (TEX); Thompson 191, 11/17/1958 (TEX); Warnock 47195, 3/29/1947 (SRSC)
- Bouchea linifolia*** A. Gray groovestem bouchea
 Rare (locally common at one site) on rocky flats, slopes, ledges, and intermittent drainages
Poole 4700, 10/20/2002 (TEX-NPS)
- Glandularia bipinnatifida*** (Nutt.) Nutt. var. *bipinnatifida* Dakota vervain
 (*Verbena bipinnatifida* Nutt.)
 Rare on rocky and/or silty soils along flats, river terraces, or intermittent drainages
Poole 4736, 3/26/2003 (TEX-NPS)
- Glandularia pumila*** (Rydb.) Umber low pink vervain
 (*Verbena pumila* Rydb.)
 Rare (locally common at one site) on rocky and/or silty soils along flats, ledges, slopes, river terraces, and intermittent drainages
Poole 4709, 2/19/2003 (TEX-NPS); Flyr 912, 3/26/1966 (TEX); Mears 2547, 4/16/1968 (TEX)
- Glandularia quadrangulata*** (A. Heller) Umber beaked vervain
 (*Verbena quadrangulata* A. Heller)
 Rare on rocky and/silty soils on flats, ledges, bluffs, river terraces, and intermittent drainages
Poole 4735, 3/26/2003 (TEX-NPS); Turner 498, 4/19/1949 (SRSC); Turner 21-112, 3/25/2001 (TEX)
- Lantana achyranthifolia*** Desf. brushland lantana
 (*L. macropoda* Torr.)
 Infrequent on rocky slopes. rock outcrops, bluffs, river terraces, and intermittent drainages
Poole 4466, 4/17/2002 (TEX-NPS); Poole 4571, 5/24/2002 (TEX-NPS); Correll 38415, 4/10/1970 (LL); Cory 38096, 8/17/1941 (TEX); Reed 2287, 5/31/2001 (TAMU); Scudday 695, 7/1/1979 (SRSC); Tharp s.n., 6/14/1931 (TEX); Turner 23-139, 6/8/2003 (TEX); Worthington 8256, 5/17/1982 (UTEP); Worthington 26177, 3/16/1977 (UTEP)
- Lantana urticoides*** Hayek calico bush
 (misapplied by H. Moldenke and Texas authors as *L. horrida* Kunth)
 Infrequent (locally common at one site) on rocky slopes. flats, bluffs, and rock outcrops
Amistad NRA Interpretive Collection; Hinckley 410, 3/11/1950 (SRSC); Labus 089, 4/23/1988 (SHST, TEX); Reed 2261, 5/31/2001 (TAMU); Scudday 691, 7/1/1979 (SRSC); Turner 23-187, 6/8/2003 (TEX); Worthington 12031, 6/2/1984 (UTEP)
- Lantana velutina*** M. Martens & Galeotti velvet lantana
 Not seen during this study; Hwy 90 bridge over Amistad Reservoir
Worthington 8255, 5/17/1982 (UTEP)
- Lippia graveolens*** Kunth scented lippia
 Common (locally abundant at several sites) on rocky slopes, flats, ledges, bluffs, and rock outcrops
Poole 3762, 11/2/1993 (TEX); Poole 4469, 4/17/2002 (TEX-NPS); Poole 4575, 5/24/2002 (TEX-NPS); Mears 2631, 4/17/1968 (SRSC, TEX); Powell 3395, 10/27/1978 (SRSC);

Scudday 683, 6/30/1979 (SRSC); *Turner* 23-138, 6/8/2003 (TEX); *Worthington* 12029, 6/2/1984 (UTEP)

Phyla nodiflora (L.) Greene frogfruit
(*P. incisa* Small)

Abundant on rocky and/or silty soils on flats, river terraces, slopes, intermittent drainages, and disturbed areas

Poole 4460, 4/16/2002 (TEX-NPS); *Poole* 4498, 4/17/2002 (TEX-NPS); *Poole* 4522, 5/21/2002 (TEX-NPS); *Crutchfield* 3405, 7/13/1967 (LL); *Labus* 140, 5/10/1988 (TEX); *Labus* 170, no date (SHST); *Larson* 12, 4/19/2001 (Amistad NRA collection); *Larson* 24, 6/19/2001 (Amistad NRA collection)

Tetraclea coulteri A. Gray Coulter's wrinklefruit

Not seen during this study; Laughlin Air Force Base Recreation Area

Observed but not collected (Texas Natural Heritage Program 1995)

Verbena canescens Kunth gray vervain

Infrequent (locally common at one site) on rocky slopes, flats, ledges, rock outcrops, and disturbed areas

Poole 4520, 5/21/2002 (TEX-NPS); *Poole* 4555, 5/22/2002 (TEX-NPS); *Poole* 4708, 2/19/2003 (TEX-NPS); *Freeman s.n.*, 4/30/1977 (UTEP); *Labus* 99, 4/23/1988 (TAMU); *Mears* 2501, 4/16/1968 (TEX); *Powell* 3447, 3/31/1979 (SRSC); *Pruski* 749, 4/8/1979 (TEX); *Reed* 2245, 5/31/2001 (TAMU); *Warnock* 47168, 3/29/1947 (SRSC)

Verbena halei Small slender vervain

Rare on rocky and/or silty soils on river banks or intermittent drainages

Poole 4662, 7/12/2002 (TEX-NPS); *Labus* 090, 4/23/1988 (SHST, TEX); *Parks* 254, 4/10/1949 (TEX)

Verbena neomexicana (A. Gray) Small New Mexico vervain

Infrequent on rocky and/or silty soils on slopes, flats, and intermittent drainages

Worthington 55882, 3/16/1997 (UTEP)

Verbena perennans Wooton perennial vervain

Not seen during this study; *Spur* 454

Reed 2251, 5/31/2001 (TAMU)

Verbena plicata Greene whitevein vervain

Rare on rocky and/or silty soils on flats, slopes, bluffs, and intermittent drainages

Poole 4554, 5/22/2002 (TEX-NPS); *Turner* 21-113, 3/25/2001 (TEX)

Vitex agnus-castus L. chastetree (I)

Infrequent (locally common at several sites) on rocky slopes, flats, ledges, rock outcrops, and cliffs

Poole 4798, 5/9/2003 (TEX-NPS)

VIOLACEAE

Hybanthus verticillatus (Ortega) Baill. green violet

Rare on rocky slopes or rock outcrops

Parks 217, 4/10/1949 (SRSC); *Warnock* 47191, 3/29/1947 (SRSC, TEX)

VISCACEAE

Phoradendron tomentosum (DC.) Engelm. ex A. Gray mistletoe

Infrequent on *Prosopis glandulosa* in rocky, silty soils on flats

Poole 4798, 5/9/2003 (TEX-NPS)

VITACEAE

- Cissus incisa* Des Moul. cow itch, ivy treebine
 Infrequent, climbing on trees, shrubs, rocks, cliffs, and ledges
Ertter 5415, 5/19/1984 (TEX); *Warnock* 22708, 8/10/1967 (SRSC); *Worthington* 12032, 6/2/1984 (UTEP)
- Parthenocissus heptaphylla* (Buckley) Britton ex Small sevenleaf creeper (E)
 Rare, climbing on trees, shrubs, and rocks; North Oak Tree Camp
 Observed once but not collected
- Vitis monticola* Buckley mountain grape
 Rare (locally common at one site), climbing on trees, shrubs, ledges, cliffs, and rock outcrops
Poole 4649, 7/11/2002 (TEX-NPS); *Correll* 38412, 4/10/1970 (LL)
- Vitis rupestris* Scheele sand grape (C)
 Not seen during this study; Seminole Canyon State Park
Labus 138, 5/10/1988 (SHST)

ZYGOPHYLLACEAE

- Guaiacum angustifolia* Engelm. guayacán
 Common on rocky slopes, flats, ledges, river terraces, and intermittent drainages
Ertter 5413, 5/19/1984 (TEX); *Scudday* 697, 7/1/1979 (SRSC); *Warnock* 47174, 3/29/1947 (SRSC)
- Larrea tridentata* (Sesse & Moc. ex DC.) Coville creosotebush
 Rare (locally common at one site) on rocky slopes, ledges, and flats
Poole 4772, 4/9/2003 (TEX-NPS); *Flyr* 1089, 4/24/1966 (TEX); *Labus* 034, 11/22/1987 (TEX)

MONOCOTYLEDONS

AGAVACEAE

- Agave americana* L. century plant
 Rare; Hwy 277 North campground and Pecos River picnic area
 Observed in cultivation but not collected
- Agave lechuguilla* Torr. lechuguilla
 Common (locally abundant at a few sites) on rocky flats, ledges, bluffs, and rock outcrops
Poole 4802, 5/12/2003 (TEX-NPS); *Flyr* 865, 1/15/1966 (TEX)
- Dasyilirion texanum* Scheele sotol
 Frequent on rocky slopes, flats, ledges, bluffs, rock outcrops, and intermittent drainages
Labus 017, 11/22/1987 (TEX); *Mears* 2627, 4/17/1968 (TEX)
- Hesperaloe parviflora* (Torr.) J. M. Coult. red yucca (C)
 Rare on rocky slopes and flats
Flyr 1065, 4/23/1966 (TEX)
- Nolina texana* S. Watson beargrass
 Infrequent on rocky slopes, flats, ledges, and intermittent drainages
 Observed at 15 sites but not collected
- Yucca constricta* Buckley Buckley yucca
 Rare on rocky slopes
 Observed once at Hunt Area 4 but not collected
- Yucca reverchonii* Trel. San Angelo yucca
 Rare on rocky slopes
Flyr 1078, 4/24/1966 (TEX)

- Yucca thompsoniana* Trel. Thompson yucca
Common on rocky slopes and flats
Poole 4788, 5/8/2003 (TEX-NPS)
- Yucca torreyi* Shafer Torrey yucca
Frequent on rocky slopes, flats, ledges, and bluffs
Correll 27135, 3/31/1963 (LL); Flyr 989. 4/2/1966 (TEX); Nichols 3-22-92.2, 3/22/1992 (TEX)

BROMELIACEAE

- Tillandsia recurvata* (L.) L. ballmoss
Rare (locally common at only site) on *Quercus fusiformis*
Observed at Pafford's Crossing but not collected

COMMELINACEAE

- Commelina erecta* L. erect dayflower
Not seen during this study; near Devil's Cave near mouth of Devil's River
Thompson 236, 9/18/1958 (TEX)
- Tinantia anomala* (Torr.) C. B. Clarke false dayflower
(*Commelinantia anomala* (Torr.) Tharp
Rare (locally common at one site) on rocky slopes, flats, ledges, and intermittent drainages
Correll 27129, 3/31/1963 (LL); McVaugh 8253, 5/9/1947 (TEX); Powell 3446, 3/31/1979 (SRSC); Turner 526, 4/18/1949 (SRSC)
- Tradescantia brevifolia* (Torr.) Rose Trans-Pecos spiderwort
Rare on river and stream banks, intermittent drainages
Thompson 237, 9/18/1958 (TEX); Warnock 22731, 8/10/1967 (SRSC)
- Tradescantia occidentalis* (Britton) Smyth prairie spiderwort
Not seen during this study; hills above Devil's Lake dam and east bank of Pecos River near Hwy 90 bridge
McVaugh 8243, 5/9/1947 (TEX); Turner 494, 4/18/1949 (SRSC)

CYPERACEAE

- Carex planostachys* Kunze cedar sedge
Rare on rocky clay soils or along intermittent drainages
Poole 4807, 5/19/2003 (TEX-NPS)
- Cladium mariscus* (L.) Pohl subsp. *jamaicense* (Crantz) Kük. Jamaica sawgrass
(*C. jamaicense* Crantz)
Rare (locally common at most sites) on rocky and/or silty soils on gravel bars or ledges in rivers
Poole 4592, 6/26/2002 (TEX-NPS); Cory 38025, 8/16/1941 (TEX); Crutchfield 3417, 7/13/1967 (LL)
- Cyperus elegans* L. sticky flatsedge
Rare in shallow pools on bedrock in canyons and along rivers
Poole 4695, 10/29/2002 (TEX-NPS); Cory 37966, 8/15/1941 (TEX); Goldsmith 9194, 10/22/1932 (TEX)
- Cyperus ochraceus* Vahl pond flatsedge
Rare in silty soil along river bank
Poole 4585, 6/26/2002 (TEX-NPS)

- Cyperus odoratus*** L. fragrant flatsedge
 Rare (locally common at two sites) on rocky, silty and/or clay soils on river banks and ledges and inundation zone
Poole 4133, 9/6/1994 (TEX); Poole 4461, 4/16/2002 (TEX-NPS); Poole 4541, 5/22/2002 (TEX-NPS); Poole 4610, 6/28/2002 (TEX-NPS); Henrickson 22621 5, 10/9/1999 (TEX)
- Cyperus squarrosus*** L. bearded flatsedge
 (*C. aristatus* Rottb.)
 Rare on thin silty or clay soils over ledges or boulders along springs or rivers
Poole 4610a, 6/28/2002 (TEX-NPS)
- Eleocharis cellulosa*** Torr. Gulf Coast spikesedge
 Rare (locally common at both sites) in mud or on bedrock in water along rivers
Poole 4635, 7/11/2002 (TEX-NPS); Cory 38019, 8/16/1941 (TEX); Crutchfield 3398, 7/13/1967 (LL)
- Eleocharis geniculata*** (L.) Roem. & Schult. annual spikesedge
 (misapplied as *E. caribaea* (Rottb.) S. F. Blake)
 Rare (locally common at three sites) in rocky, silty and/or clay soils or bedrock on river banks and near springs
Poole 4631, 7/11/2002 (TEX-NPS); Cory 38016, 8/16/1941 (TEX); Crutchfield 3407, 7/13/1967 (LL); Nealley 122, 10/1892 (TEX)
- Eleocharis montevidensis*** Kunth sand spikesedge
 Infrequent (locally common at most sites) on silty river banks, gravel bars, or near springs
Poole 4589, 6/26/2002 (TEX-NPS); Poole 4613, 6/28/2002 (TEX-NPS); Correll 25075, 5/2/1962 (LL); Parks 267, 4/10/1949 (SRSC)
- Fimbristylis vahlii*** (Lam.) Link Vahl's fimbry
 Rare (common at only site) on rocky slopes and flats near springs
Poole 4611, 6/28/2002 (TEX-NPS)
- Fuirena simplex*** Vahl porcupine sedge
 Rare (locally common at one site) on silty soils or bedrock along rivers and near springs
Poole 4609, 6/28/2002 (TEX-NPS); Correll 14915A, 10/7/1952 (LL); Crutchfield 3416, 7/13/1967 (LL); Warnock 11801, 11/14/1953 (TEX)
- Rhynchospora colorata*** (L.) H. Pfeiff. whitetop sedge
 (*Dichromena colorata* (L.) Hitchc.)
 Rare on bedrock along rivers or intermittent drainages
Poole 4636, 7/11/2002 (TEX-NPS); Poole 4659, 7/12/2002 (TEX-NPS)
- Schoenoplectus californicus*** (C. A. Mey.) Soják California bulrush
 (*Scirpus californicus* (C. A. Mey.) Steud.)
 Rare (locally frequent at one site) on silty soils along rivers
Poole 4584, 6/26/2002 (TEX-NPS); Crutchfield 3408, 7/13/1967 (LL)
- Schoenoplectus pungens*** (Vahl) Palla American bulrush
 (*Scirpus pungens* Vahl)
 Not seen during this study; Amistad Reservoir area
Flyr 978, 4/1/1966 (TEX)

HYDROCHARITACEAE

- Hydrilla verticillata*** (L. f.) Royle hydrilla (I)
 Rare (locally common at all sites) in shallow, still water at lake edges
Poole 4803, 5/12/2003 (TEX-NPS)

IRIDACEAE

- Sisyrinchium bifforme*** E. P. Bicknell wiry blue-eyed grass
(*S. dimorphum* R. L. Oliv.)
Not seen during this study; Devil's River, west of Del Rio
Correll 15996, 4/18/1957 (LL)
- Sisyrinchium scabrum*** Cham. & Schltdl. swordleaf blue-eyed grass
(*S. ensigerum* E. P. Bicknell; *S. chilense* Hook.)
Rare on silty soils along rivers
Warnock 3907, 3/31/1959 (SRSC)

JUNCACEAE

- Juncus bufonius*** L. toad rush
Not seen during this study; Mile Canyon along Rio Grande
Parks 260, 4/10/1949 (LL, SRSC)
- Juncus nodosus*** L. jointed rush
Rare in silty soils near springs
Poole 4612, 6/28/2002 (TEX-NPS)
- Juncus torreyi*** Coville Torrey rush
Rare in silty and/or rocky soils along rivers
Worthington 12041, 6/2/1984 (UTEP)

LEMNACEAE

- Lemna valdiviana*** Phil. pale duckweed
Rare, floating on water in spring runs or still water in inundation zones
Poole 4765, 3/28/2003 (TEX-NPS)

LILIACEAE

- Allium drummondii*** Regel Drummond wild onion
Rare on rocky flats, slopes, grasslands, bedrock, intermittent drainages, and disturbed areas
Poole 4760, 3/28/2003 (TEX-NPS); Carr 10930, 2/28/1991 (TEX); Flyr 904, 3/25/1966 (TEX); McVaugh 7728, 3/31/1947 (TEX); Powell 3434, 3/31/1979 (SRSC); Warnock 47204, 3/29/1947 (SRSC); Worthington 26176, 3/16/1997 (UTEP)
- Cooperia drummondii*** Herb. cebolleta
(*Zephyranthes chlorosolen* (Herb.) D. Dietr.)
Rare on rocky slopes
Worthington 8246, 5/17/1982 (UTEP)
- Cooperia pedunculata*** Herb. giant rainlily
(*Zephyranthes drummondii* D. Don)
Rare on rocky slopes and river banks
Correll 25082, 5/2/1962 (LL); McVaugh 8234, 5/9/1947 (TEX)
- Nothoscordum bivalve*** (L.) Britton crow-poison
Rare on rocky slopes, flats, and intermittent drainages
Poole 4908, 10/7/2003 (TEX-NPS)

NAJADACEAE

- Najas guadalupensis*** (Spreng.) Magnus Guadalupe water nymph
Rare (locally common at one site) in shallow waters of rivers

Correll 25080, 5/2/1962 (LL); *Crutchfield 3411*, 7/13/1967 (LL); *Larson 52*, 8/16/2001 (Amistad NRA collection)

Najas marina L. spiny water nymph

Not seen during this study; Devil's River across from marina
Larson 47 & 48, 8/16/2001 (Amistad NRA collection)

POACEAE

Andropogon glomeratus (Walter) Britton, Sterns, & Poggenb. bushy bluestem
Infrequent (locally common at several sites) on silty soils along river banks and wetlands
Poole 4813, 5/22/2003 (TEX-NPS); *Labus 064*, 3/19/1988 (TEX); *Warnock 11717*, 9/26/1953 (LL)

Aristida purpurea Nutt. var. *longiseta* (Steud.) Vasey red threeawn
Rare (locally common at a few sites) in disturbed areas
Poole 4462, 4/16/2002 (TEX-NPS); *Casaday s.n.*, 5/18/2001 (Amistad NRA collection);
Larson 21, 6/19/2001 (Amistad NRA collection)

Aristida purpurea Nutt. var. *nealleyi* (Vasey) Allred Nealley threeawn
(*A. glauca* (Nees) Walpers)
Not seen during this study; mouth of Pecos River, Mile Canyon, Castle Canyon Island
Parks 279, 4/10/1949 (SRSC); *Powell 3433*, 3/31/1979 (SRSC); *Warnock 22716*, 8/10/1967 (SRSC); *Warnock 47189*, 3/29/1947 (SRSC)

Aristida purpurea Nutt. var. *purpurea* purple threeawn
Common on rocky slopes, flats, and disturbed areas
Poole 4516, 5/21/2002 (TEX-NPS); *Casaday s.n.*, 5/18/2001 (Amistad NRA collection);
Larson 23, 6/19/2001 (Amistad NRA collection)

Aristida purpurea Nutt. var. *wrightii* (Nash) Allred Wright's threeawn
Infrequent (locally common at most sites) on rocky slopes, flats, and disturbed areas
Poole 3275, 5/6/1993 (TEX); *Amistad NRA Interpretive Collection*; *Larson 16 & 17*, 6/19/2001 (Amistad NRA collection); *Larson 36*, 6/18/2001 (Amistad NRA collection)

Arundo donax L. giant cane (I)
Infrequent (locally common to abundant at most sites) along river banks and mesic disturbed areas
Poole 4929, 10/10/2003 (TEX-NPS)

Avena fatua L. wild oat (I)
Rare on rocky slopes and flats, disturbed areas
Gould 11368, 5/25/1965 (TEX)

Bothriochloa barbinodis (Lag.) Herter cane bluestem
Infrequent (locally common at most sites) on rocky slopes and flats.
Observed at 10 sites but not collected.

Bothriochloa ischaemum (L.) Keng var. *songarica* (Rupr. ex Fisch. & C. A. Mey.) Celarier & J. R. Harlan

King Ranch bluestem (I)
Frequent on rocky slopes, flats, ledges, and disturbed areas
Poole 4514, 5/21/2002 (TEX-NPS); *Poole 4739*, 3/26/2003 (TEX-NPS); *Reed 2250*, 5/31/2001 (TAMU)

Bothriochloa laguroides (DC.) Herter subsp. *torreyana* (Steud.) Allred & Gould silver bluestem
(*B. saccharoides* (Sw.) Rydb. var. *torreyana* (Steud.) Gould)
Infrequent (locally common at most sites) on rocky slopes, flats, ledges, and floodplains
Poole 3759, 11/2/1993 (TEX); *Poole 4588*, 6/26/2002 (TEX-NPS); *Amistad NRA Interpretive Collection*; *Labus 157*, 5/10/1988 (TAMU); *Labus 337*, 10/8/1988 (TEX);
Larson 38, 6/18/2001 (Amistad NRA collection); *Turner 907*, 5/22/1949 (SRSC)

- Bouteloua barbata*** Lag. sixweeks grama
 Rare on rocky and/or silty slopes and flats
Poole 4556, 5/22/2002 (TEX-NPS)
- Bouteloua curtipendula*** (Mich.) Torr. sideoats grama
 Common on rocky slopes, flats, ledges, and outcrops
Poole 4804, 5/14/2003 (TEX-NPS); Amistad NRA Interpretive Collection; Labus 169, 5/10/1988 (TEX)
- Bouteloua hirsuta*** Lag. hairy grama
 Rare (locally common at one site) on rocky slopes, flats, and intermittent drainages
Poole 4675, 10/10/2002 (TEX-NPS); Labus 393, 12/17/1988 (TEX)
- Bouteloua rigidiseta*** (Steud.) Hitchc. Texas grama
 Rare on silty slopes on gentle slopes
Poole 4823, 6/19/2003 (TEX-NPS)
- Bouteloua trifida*** Thurb. red grama
 Common on rocky flats, ledges, slopes, floodplains, and disturbed areas
Poole 4526, 5/21/2002 (TEX-NPS); Poole 4683, 10/11/2002 (TEX-NPS); Poole 4916, 10/9/2003 (TEX-NPS); Amistad NRA Interpretive Collection; Casaday 12, 5/4/2001 (Amistad NRA collection); Labus 127, 4/23/1988 (TEX); Labus 329, 10/1/1988 (TEX); Larson 22, 6/19/2001 (Amistad NRA collection); Parks 240, 4/10/1949 (SRSC); Powell 3392, 10/27/1978 (SRSC); Warnock23631, 5/24/1966 (SRSC); Worthington 12049, 6/2/1984 (UTEP)
- Brachiaria fasciculata*** (Sw.) Parodi browntop panicum
 (*Panicum fasciculatum* Sw.; *Urochloa fasciculata* (Sw.) R. D. Webster)
 Not seen during this study; near mouth of Pecos River
Warnock 11697, 9/26/1953 (TEX); Warnock 11743, 9/26/1953 (LL)
- Bromus catharticus*** Vahl rescue grass (I)
 (*B. unioloides* Kunth)
 Rare on rocky slopes, flats, and intermittent drainages
Poole 4748, 3/27/2003 (TEX-NPS); Labus 149, 5/10/1988 (TEX)
- Bromus rubens*** L. red brome (I)
 (*B. madritensis* L. subsp. *rubens* (L.) Husn.)
 Not seen during this study; Seminole Canyon State Historical Park campground
Labus 122, 4/23/1988 (TAMU, TEX)
- Buchloe dactyloides*** (Nutt.) Engelm. buffalograss
 Rare (locally common at one site) on rocky flats, slopes, river terraces, and intermittent drainages
Warnock 11699, 9/26/1953 (SRSC)
- Cenchrus echinatus*** L. southern sandbur
 Not seen during this study; railroad at Devil's River
Eggert s.n., 9/11/1900 (TEX)
- Cenchrus incertus*** M. A. Curtis common sandbur
 (*C. spinifex* Cav.)
 Infrequent (locally common at most sites) on rocky and/or silty soils on flats, slopes, and disturbed areas
Poole 4922, 10/10/2003 (TEX-NPS); Amistad NRA Interpretive Collection; Labus 091, 4/23/1988 (TEX)
- Cenchrus myosuroides*** Kunth big sandbur
 Rare on silty soils along river banks
Poole 4591, 6/26/2002 (TEX-NPS); Eggert s.n., 9/11/1900 (TEX); Hinckley 416, 3/10/1950 (SRSC); Parks 350, 5/31/1949 (LL, SRSC)

- Chloris crinita*** Lag. false Rhodesgrass
(*Trichloris crinita* (Lag.) Parodi)
Not seen during this study; Pecos River canyon below Hwy 90 bridge
Hinckley 465, 7/22/1950 (SRSC)
- Chloris cucullata*** Bisch. hooded windmill grass
Rare on rocky slopes, flats, ledges, and rock outcrops
Amistad NRA Interpretive collection; Labus 315, 8/24/1988 (ASTC); *Warnock* 11712, 9/26/1953 (SRSC); *Worthington* 12047, 6/2/1984 (UTEP)
- Chloris pluriflora*** (E. Fourn.) Clayton multiflower false Rhodesgrass
(*Trichloris pluriflora* E. Fourn.)
Rare along river banks
Correll 27134, 3/31/1963 (LL)
- Chloris subdolichostachya*** C. Müll. shortspike windmill grass
(*C. cucullata* Bisch. X *C. verticillata* Nutt.)
Rare on rocky or silty soils along intermittent drainages
Poole 4678, 10/10/2002 (TEX-NPS)
- Chloris verticillata*** Nutt. tumble windmill grass
Rare on rocky soils on ledges
Poole 4927, 10/10/2003 (TEX-NPS)
- Cynodon dactylon*** (L.) Pers. Bermuda grass (I)
Frequent on rocky and/or silty soils on river banks, floodplains, flats, slopes, ledges, rock outcrops, and disturbed areas
Labus 85, 4/23/1988 (TEX)
- Dasyochloa pulchella*** (Kunth) Rydb. fluffgrass
(*Erioneuron pulchellum* (Kunth) Tateoka)
Rare (common at only site) on rocky flats, slopes, ledges, outcrops, and intermittent drainages
Labus 365, 10/16/1988 (TEX)
- Dichanthelium acuminatum*** (Sw.) Gould & C. A. Clark var. ***acuminatum*** woolly panicgrass
(*Panicum acuminatum* Sw.; *P. lanuginosum* Elliott)
Not seen during this study; Painted Canyon
Warnock 21381, 7/29/1967 (SRSC)
- Dichanthelium pedicellatum*** (Vasey) Gould cedar panicgrass
(*Panicum pedicellatum* Vasey)
Rare (locally common at one site) on rock outcrops, ledges, boulders, and intermittent drainages
Poole 4653, 7/11/2002 (TEX-NPS)
- Dichanthium annulatum*** (Forssk.) Stapf Kleberg bluestem (I)
Rare (locally common at only site) on rocky slopes
Poole 4513, 5/21/2002 (TEX-NPS)
- Digitaria californica*** (Benth.) Henrard Arizona cottontop
(*Trichachne californica* (Benth.) Chase)
Rare on rocky slopes, flats, ledges, rock outcrops, and intermittent drainages
Labus 346, 10/8/1988 (TAMU); *Labus* 363, 10/9/1988 (TEX); *Turner* 499, 4/18/1949 (SRSC); *Warnock* 352, no date (LL, SRSC)
- Digitaria cognata*** (Schult.) Pilg. fall witchgrass
(*Leptoloma cognatum* (Schult.) Chase)
Rare (locally common at one site) on rocky slopes, rock outcrops, and intermittent drainages

Poole 4500, 4/17/2002 (TEX-NPS); *Poole 4544*, 5/22/2002 (TEX-NPS); *Larson 30*, 6/19/2001 (Amistad NRA collection); *McVaugh 10609*, 5/22/1949 (LL, SRSC); *Powell 3391*, 10/27/1978 (SRSC); *Warnock 900*, 5/22/1949 (SRSC); *Warnock 47183*, 3/29/1947 (SRSC, TEX)

Echinochloa colona (L.) Link jungle-rice (I)

Not seen during this study; side canyon at Lake Walk on Devil's River

Warnock 11692, 9/26/1953 (SRSC, TEX)

Echinochloa muricata (P. Beauv.) Fernald rough barnyard grass

Rare (locally common at only site) on rocky disturbed slopes, flats, and river bank

Henrickson 22620, 10/9/1999 (TEX); *Warnock 354*, no date (LL)

Echinochloa walteri (Pursh) A. Heller coast cockspur grass

Not seen during this study; side canyon at Lake Walk on Devil's River

Warnock 11685A, 9/26/1953 (SRSC)

Elymus canadensis L. Canada wildrye

Rare (locally common at one site) on rocky, silty soils on river banks

Poole 4660, 7/12/2002 (TEX-NPS)

Eragrostis barrelieri Daveau Mediterranean lovegrass (I)

Rare on rocky slopes, flats, and intermittent drainages

Labus 312, 8/24/1988 (ASTC, TAMU)

Eragrostis cilianensis (All.) Vignolo ex Janch. stinkgrass (I)

Rare on rocky and/or silty soils in intermittent drainages

Poole 4558, 5/22/2002 (TEX-NPS)

Eragrostis curtipedicellata Buckley gummy lovegrass

Rare on rocky clay soil on slopes

Poole 4518, 5/21/2002 (TEX-NPS)

Eragrostis intermedia Hitchc. Plains lovegrass

Infrequent on rocky slopes, flats, and intermittent drainages

Poole 4501, 4/17/2002 (TEX-NPS); *Poole 4509*, 5/21/2002 (TEX-NPS); *Poole 4637*, 7/11/2002 (TEX-NPS); *Labus 129*, 4/23/1988 (TEX); *Labus 306*, 8/24/1988 (ASTC); *Warnock 11691*, 9/26/1953 (SRSC, TEX)

Eragrostis lehmanniana Nees Lehmann's lovegrass (I)

Rare (locally common at one site) on rocky and/or silty river banks, slopes, and intermittent drainages

Poole 4658, 7/12/2002 (TEX-NPS); *Poole 4682*, 10/11/2002 (TEX-NPS)

Eragrostis palmeri S. Watson Rio Grande lovegrass

Rare on rocky, silty, and/or clay soils over bedrock or in intermittent drainages

Poole 4672, 10/9/2002 (TEX-NPS); *Poole 4673* & *4674*, 10/10/2002 (TEX-NPS); *Gould 9749*, 10/1/1961 (TAES, TEX); *Silveus 765* & *1539*, 10/6/1932 (LL)

Eragrostis pectinacea (Michx.) Nees spreading lovegrass

Rare on rocky and/or silty soils on flats and slopes

Poole 4557, 5/22/2002 (TEX-NPS)

Eriochloa sericea (Scheele) Munro ex Vasey silky cupgrass

Not seen during this study; Blackbrush Point

Amistad NRA Interpretive Collection

Erioneuron pilosum (Buckley) Nash hairy tridens

Common on rocky and/or silty soils on river banks, slopes, flats, outcrops, and ledges

Poole 4661, 7/12/2002 (TEX-NPS); *Amistad NRA Interpretive Collection*; *Labus 7*, 11/22/1987 (TEX); *Labus 51*, 11/22/1987 (ASTC); *Labus 125*, 4/23/1988 (TEX); *Labus 262*, 8/23/

- 1988 (TAMU); *Parks* 243, 4/10/1949 (LL); *Warnock* 47193, 3/29/1947 (SRSC); *Worthington* 12046, 6/2/1984 (UTEP)
- Hemarthria altissima*** (Poir.) Stapf & C. E. Hubb. limpograss (I)
(*Manisuris altissima* (Poir.) Hitchc.)
Rare on silty soils on river banks
Poole 4583, 6/26/2002 (TEX-NPS)
- Heteropogon contortus*** (L.) P. Beauv. ex Roem. & Schult. tanglehead
Rare (locally common at one site) on rocky slopes, flats, and intermittent drainages
Poole 4906, 10/7/2003 (TEX-NPS); *Amistad NRA Interpretive Collection*; *Labus* 267, 8/23/1988 (ASTC); *Labus* 319, 10/1/1988 (TEX)
- Hilaria belangeri*** (Steud.) Nash curly mesquite
Rare on rocky and/or silty soils in intermittent drainages
Poole 4910, 10/7/2003 (TEX-NPS)
- Hilaria mutica*** (Buckley) Benth. tobosagrass
(*Pleuraphis mutica* Buckley)
Not seen during this study; Seminole Canyon State Historical Park and mouth of the Pecos River
Labus 353, 10/9/1988 (TEX); *Larson* 13 & 14, 6/19/2001 (Amistad NRA collection); *Warnock* 11698, 9/26/1953 (LL, SRSC)
- Leptochloa dubia*** (Kunth) Nees green sprangletop
Infrequent on rocky flats and slopes
Gould 9748, 10/1/1961 (TAES, TEX); *Labus* 004, 11/22/1987 (TEX)
- Leptochloa fascicularis*** (Lam.) A. Gray salt sprangletop
Infrequent (locally common at one site) on silty soils along river banks and intermittent drainages
Poole 4595, 6/26/2002 (TEX-NPS); *Poole* 4923, 10/10/2003 (TEX-NPS); *Silveus* 269, 8/13/1931 (TEX); *Silveus* 2377, 8/3/1936 (TAES, TEX)
- Leptochloa uninervia*** (J. Presl.) Hitchc. & Chase Mexican sprangletop
Not seen during this study; Devil's River west of Del Rio, mouth of Pecos River, and Mile Canyon
Hinckley 412, 3/10/1950 (SRSC); *Parks* 353, 5/31/1949 (SRSC); *Silveus* 7639, 8/13/1936 (TEX)
- Limnodea arkansana*** (Nutt.) L. H. Dewey Ozarkgrass
Rare on silty soils in intermittent drainages
Poole 4747, 3/27/2003 (TEX-NPS); *Turner* 521, 4/18/1949 (SRSC)
- Lolium perenne*** L. perennial ryegrass (I)
Not seen during this study; Hwy 90 Devil's River bridge
Turner 912, 5/22/1949 (SRSC)
- Melica nitens*** (Scribn.) Nutt. ex Piper threeflower melic
Rare on rocky, often shaded, slopes
Correll 27142, 3/31/1963 (LL); *McVaugh* 8254, 5/9/1947 (TEX)
- Muhlenbergia parviglumis*** Vasey longawn muhly
Rare (locally common at one site) in rocky and/or silty soils in intermittent drainages
Poole 4911, 10/7/2003 (TEX-NPS)
- Muhlenbergia porteri*** Scribn. ex Beal bush muhly
Rare on rock outcrops
Poole 4543, 5/22/2002 (TEX-NPS)
- Nassella leucotricha*** (Trin. & Rupr.) R. W. Pohl Texas wintergrass
(*Stipa leucotricha* Trin. & Rupr.)

Infrequent (locally common at three sites) on rocky and/or silty soils in intermittent drainages, often in woodlands

Larson 1, 4/19/2001 (**Amistad NRA collection**)

Panicum antidotale Retz. blue panicum (I)

Not seen during this study

Powell (1994) cites a location along the Pecos River bank near the railroad bridge.

However, no voucher specimen was found at SRSC or in the online herbaria databases.

Panicum hallii Vasey var. *filipes* (Scribn.) F. R. Waller filly panicum

(*P. filipes* Scribn.)

Rare (locally common at one site) on rocky slopes, flats, and intermittent drainages

Observed at Hunt Areas 3 and 5, and Seminole Canyon, but not collected

Panicum hallii Vasey var. *hallii* Hall's panicum

Rare on rocky slopes, flats, and rock outcrops

Poole 4544a, 5/22/2002 (**TEX-NPS**); *Casaday s.n.*, 5/18/2001 (**Amistad NRA collection**);

Gould 11369, 5/25/1965 (**TAES, TEX**); *Labus 301*, 8/24/1988 (**ASTC**); *Labus 326*, 10/1/

1988 (**TEX**); *Parks 239*, 4/10/1949 (**SRSC**)

Panicum virgatum L. switchgrass

Rare (locally common at most sites) on rocky and/or silty soils on banks, terraces, and ledges along rivers, intermittent drainages, and springs

Poole 4632, 7/11/2002 (**TEX-NPS**); *Cory 38007*, 8/16/1941 (**TEX**)

Pappophorum bicolor E. Fourn. pink pappusgrass

Common on rocky slopes, flats, ledges, and intermittent drainages

Poole 4472, 4/17/2002 (**TEX-NPS**); *Poole 4539*, 5/22/2002 (**TEX-NPS**); *Labus 20*, 11/22/

1987 (**TEX**); *Labus 196*, 5/18/1988 (**TAMU**); *Labus 269*, 8/23/1988 (**TAES**); *Labus 309*, 8/

24/1988 (**ASTC**); *Parks 246*, 4/10/1949 (**LL**); *Reed 2300*, 5/31/2001 (**TAMU**); *Scudday 684*,

6/30/1979 (**SRSC**); *Warnock 11710*, 9/26/1953 (**LL, SRSC**)

Paspalum dilatatum Poir. dallisgrass (I)

Rare in rocky and/or silty soils along rivers or drainages

Labus 144, 5/10/1988 (**TAMU, TEX**)

Paspalum pubiflorum Rupr. ex E. Fourn. hairyseed paspalum

Rare (locally common at two sites) on rocky and/or silty soils along river banks, intermittent drainages, or ephemeral pools on ledges

Poole 4586 & 4593, 6/26/2002 (**TEX-NPS**); *Poole 4652*, 7/11/2002 (**TEX-NPS**); *Poole 4693*,

10/29/2002 (**TEX-NPS**); *Warnock 11716*, 9/26/1953 (**LL, SRSC**)

Paspalum urvillei Steud. Vaseygrass (I)

Rare (locally common at two sites) on rocky and/or silty soils along river banks, inundated ledges, intermittent drainages, and around springs

Poole 4616, 6/28/2002 (**TEX-NPS**)

Pennisetum ciliare (L.) Link buffelgrass (I)

(*Cenchrus ciliare* L.)

Infrequent (locally common at most sites) on rocky slopes, flats, ledges, rock outcrops, bluffs, intermittent drainages, floodplains, and disturbed areas

Labus 316, 8/24/1988 (**ATSC**); *Mears 2510*, 4/16/1968 (**TEX**); *Reed 2264*, 5/31/2001

(**TAMU**); *Worthington 12045*, 6/2/1984 (**UTEP**)

Phragmites australis (Cav.) Trin. ex Steud. giant reed

(*P. communis* Trin.)

Infrequent (locally common to abundant at most sites) in shallow water at river's edge or in wet silty soils along intermittent drainages

Mears 2604, 4/17/1968 (**TEX**)

- Poa bigelovii*** Vasey & Scribn. Bigelow bluegrass
Rare on silty soils in flats and intermittent drainages
Poole 4720, 2/20/2003 (TEX-NPS); Silveus 2574-C, 4/19/1938 (TEX); Warnock 11958, 3/28/1954 (SRSC)
- Polypogon monspeliensis*** (L.) Desf. rabbit-foot grass (I)
Rare in wet soils along river banks and intermittent drainages
Parks 213, 4/10/1949 (SRSC); Warnock 11951, 3/28/1954 (LL, SRSC)
- Polypogon viridis*** (Gouan) Briestr. water bentgrass (I)
(*Agrostis semiverticillata* (Forssk.) C. Chr.)
Not seen during this study; Hwy 90 and Devil's River
Turner 903, 5/22/1949 (SRSC); Warnock 3906, 3/31/1959 (SRSC)
- Schizachyrium scoparium*** (Michx.) Nash little bluestem
Rare (locally common at two sites) on rocky slopes and intermittent drainages
Warnock 11732, 9/26/1953 (SRSC)
- Setaria grisebachii*** E. Fourn. Grisebach bristlegrass
Rare in intermittent drainages
Warnock 11687, 9/26/1953 (LL)
- Setaria leucopila*** (Scribn. & Merr.) K. Schum. Plains bristlegrass
Rare on rocky slopes, flats, and intermittent drainages
Poole 4502, 4/17/2002 (TEX-NPS); Poole 4538, 6/28/2002 (TEX-NPS); Hinckley 415, 3/10/1950 (SRSC)
- Setaria parviflora*** (Poir.) Kerguélen knotroot bristlegrass
(misapplied as *S. geniculata* P. Beauv.)
Rare (locally common at two sites) rocky and/or silty soils or inundated ledges on river banks, springs, or intermittent drainages
- Setaria pumila*** (Poir.) Roem. & Schult. yellow bristlegrass (I)
(misapplied as *S. glauca* by Gould (1975) and Correll & Johnston (1970))
Rare on inundated bedrock or intermittent drainages
Poole 4694, 10/29/2002 (TEX-NPS)
- Setaria ramiseta*** (Vasey) Pilg. Rio Grande bristlegrass
(*Panicum reverchonii* Vasey)
Not seen during this study; Mile Canyon
Parks 351, 5/31/1949 (LL)
- Setaria scheelei*** (Steud.) Hitchc. southwestern bristlegrass
Rare (locally common at three sites) in rocky and/or silty soils on terraces, bluffs, and intermittent drainages
Poole 4638, 7/11/2002 (TEX-NPS); Poole 4676, 10/10/2002 (TEX-NPS); Hinckley 467, 7/22/1950 (SRSC); Silveus 764, 10/5/1932 (TAES, TEX); Turner 904, 5/22/1949 (SRSC)
- Setaria texana*** Emery Texas bristlegrass
Not seen during this study; Seminole Canyon State Historical Park
Labus 303, 8/24/1988 (TAMU)
- Setaria viridis*** (L.) P. Beauv. green bristlegrass
Not seen during this study; Devil's River at Hwy 90
Turner 906, 5/22/1949 (SRSC)
- Sorghum halepense*** (L.) Pers. Johnsongrass (I)
Rare (locally common at one site) on rocky and/or silty soils along river banks or disturbed areas
Poole 4795, 5/8/2002 (TEX-NPS); Labus 152, 5/10/1988 (TEX)
- Sphenopholis obtusata*** (Michx.) Scribn. prairie wedgescale
Not seen during this study; old Devil's River bridge 10 miles northwest of Del Rio
Gould 11356, 5/25/1965 (TAES, TEX)

- Sporobolus cryptandrus* (Torr.) A. Gray sand dropseed
Rare (locally common at only site) on silty slopes on disturbed site
Poole 4924, 10/10/2002 (TEX-NPS); Parks 268, 4/10/1949 (SRSC)
- Sporobolus pyramidatus* (Lam.) Hitchc. whorled dropseed
Rare on rocky and/or silty soils on slopes, flats, and disturbed areas
Poole 4559, 5/22/2002 (TEX-NPS)
- Trichoneura elegans* Swallen Silveus' grass
Not seen during this study; Devil's River west of Del Rio
Silveus 297, 8/31/1931 (TEX)
- Tridens albescens* (Vasey) Wooton & Standl. white tridens
Rare on inundated bedrock in intermittent canyons, along river banks, or other wet areas
Poole 4692, 10/29/2002 (TEX-NPS); Amistad NRA Interpretive Collection; Labus 145, 5/10/1988 (TEX)
- Tridens eragrostoides* (Vasey & Scribn.) Nash lovegrass tridens
Not seen during this study; Pecos River below Hwy 90
Hinckley 466, 7/22/1950 (SRSC)
- Tridens muticus* (Torr.) Nash var. *muticus* slim tridens
Rare on rocky slopes
Poole 4540, 5/22/2002 (TEX-NPS); Casaday s.n., 5/18/2001 (Amistad NRA collection); Labus 299, 8/24/1988 (TAMU); Labus 323, 10/1/1988 (TEX); Powell 3394, 10/27/1978 (SRSC)
- Tridens texanus* (S. Watson) Nash Texas tridens
Infrequent (locally common at two sites) on rocky slopes, flats, and intermittent drainages
Poole 4486, 4/17/2002 (TEX-NPS); Poole 4677, 10/10/2002 (TEX-NPS); Poole 4818, 6/19/2003 (TEX-NPS); McVaugh 10591, 5/22/1949 (LL, SRSC); Parks 247, 4/10/1949 (LL); Turner s.n., 9/13/1943 (SRSC); Warnock 11695, 9/26/1953 (SRSC); Warnock 23630, 5/24/1966 (SRSC)
- Trisetum interruptum* Buckley prairie trisetum
Not seen during this study; Mile Canyon, Rio Grande between Langtry and mouth of the Pecos River, northwest of Amistad Dam along the Rio Grande
Mears 2607, 4/17/1968 (TEX); Parks 244, 4/10/1949 (LL); Warnock 11972, 3/28/1954 (LL, SRSC)
- Vulpia octoflora* (Walter) Rydb. common sixweeksgrass
Not seen during this study; Laughlin Air Force Base Recreation Area and mouth of Pecos River
Poole 3813, 11/11/1994 (TEX); Warnock 47198, 3/29/1947 (SRSC)

POTAMOGETONACEAE

- Potamogeton illinoensis* Morong Illinois pondweed
Rare in shallow water along edges of rivers and lakes
Correll 25079, 5/2/1962 (LL, SRSC); Crutchfield 3412, 7/13/1967 (LL); Larson 42, 43, 44, & 46, 8/16/2001 (Amistad NRA collection)
- Potamogeton pectinatus* L. fennel-leaf pondweed
Rare in shallow water along edges of lakes
Larson 49, 50, & 51, 8/16/2001 (Amistad NRA collection)

SMILACACEAE

- Smilax bona-nox* L. common greenbriar
Infrequent (locally frequent at one site), climbing on trees, shrubs, and rock outcrops
Correll 27140, 3/31/1963 (LL); Hinckley 419, 3/10/1950 (SRSC); Holmes 5706, 5/10/1992 (TEX); Powell 3060, 2/18/1977 (TEX); Warnock 47210, 3/29/1947 (SRSC)

TYPHACEAE***Typha domingensis*** Pers.

tule

(T. angustifolia L.)

Rare (locally abundant at one site) in shallow water along rivers and inundated bedrock in intermittent canyons

*Poole 4691, 10/29/2002 (TEX-NPS); Crutchfield 3410, 7/13/1967 (LL)***ZANNICHELLIACEAE*****Zannichellia palustris*** L.

common poolmat

Not seen during this study; stream ca. 2 miles northwest of entrance to Lake Walk

Correll 25076, 5/2/1962 (LL)

APPENDIX B. Plant communities of amistad national recreation area comparison of poole and larson.

Poole 2003–2004	Larson 2002
<i>Acacia berlandieri</i> shrubland	<i>Acacia rigidula-Leucophyllum frutescens-Acacia berlandieri</i> shrubland
<i>Acacia berlandieri-Acacia rigidula</i> shrubland	<i>Acacia rigidula-Leucophyllum frutescens-Acacia berlandieri</i> shrubland
<i>Acacia berlandieri-Calliandra conferta-Castela erecta</i> subsp. <i>texana-Forestiera angustifolia</i> shrubland	<i>Acacia rigidula-Leucophyllum frutescens-Acacia berlandieri</i> shrubland
<i>Acacia berlandieri-Diospyros texana-Sophora secundiflora</i> shrubland	<i>Acacia rigidula-Leucophyllum frutescens-Acacia berlandieri</i> shrubland
<i>Acacia berlandieri-Krameria ramosissima</i> shrubland	<i>Acacia rigidula-Leucophyllum frutescens-Acacia berlandieri</i> shrubland
<i>Acacia berlandieri-Leucophyllum frutescens</i> shrubland	<i>Acacia rigidula-Leucophyllum frutescens-Acacia berlandieri</i> shrubland
<i>Acacia berlandieri-Quercus pungens</i> var. <i>vaseyana-Q. fusiformis-Porophyllum scoparium-Perityle lindheimeri</i> open cliff very sparse vegetation	<i>Acacia rigidula-Leucophyllum frutescens-Acacia berlandieri</i> shrubland or open cliff sparse vegetation
<i>Acacia farnesiana</i> woodland	<i>Acacia minuata</i> woodland
<i>Acacia farnesiana-Baccharis neglecta</i> shrubland	<i>Acacia minuata</i> woodland
<i>Acacia farnesiana-Baccharis neglecta-Tamarix ramosissima</i> shrubland	<i>Acacia minuata</i> woodland
<i>Acacia farnesiana</i> -mixed grass open woodland	<i>Acacia minuata</i> woodland
<i>Acacia farnesiana-Prosopis glandulosa-Aloysia gratissima</i> woodland	<i>Acacia minuata</i> woodland
<i>Acacia farnesiana-Prosopis glandulosa-Tamarix ramosissima</i> shrubland	<i>Acacia minuata</i> woodland
<i>Acacia rigidula</i> shrubland	<i>Acacia rigidula-Leucophyllum frutescens-Acacia berlandieri</i> shrubland
<i>Acacia rigidula-Acacia berlandieri</i> shrubland	<i>Acacia rigidula-Leucophyllum frutescens-Acacia berlandieri</i> shrubland
<i>Acacia rigidula-Acacia berlandieri-Jatropha dioica-Selaginella wrightii</i> shrubland	<i>Acacia rigidula-Leucophyllum frutescens-Acacia berlandieri</i> shrubland
<i>Acacia rigidula-Acacia berlandieri-Leucophyllum frutescens</i> shrubland	<i>Acacia rigidula-Leucophyllum frutescens-Acacia berlandieri</i> shrubland
<i>Acacia rigidula-Aloysia gratissima</i> shrubland	<i>Acacia rigidula-Leucophyllum frutescens-Acacia berlandieri</i> shrubland
<i>Acacia rigidula-Baccharis neglecta</i> shrubland	<i>Acacia rigidula-Leucophyllum frutescens-Acacia berlandieri</i> shrubland
<i>Acacia rigidula-Calliandra conferta</i> shrubland	<i>Acacia rigidula-Leucophyllum frutescens-Acacia berlandieri</i> shrubland
<i>Acacia rigidula-Diospyros texana-Bothriochloa ischaemum</i> var. <i>songarica</i> shrubland	<i>Acacia rigidula-Leucophyllum frutescens-Acacia berlandieri</i> shrubland
<i>Acacia rigidula-Krameria ramosissima</i> shrubland	<i>Acacia rigidula-Leucophyllum frutescens-Acacia berlandieri</i> shrubland
<i>Acacia rigidula-Leucophyllum frutescens</i> shrubland	<i>Acacia rigidula-Leucophyllum frutescens-Acacia berlandieri</i> shrubland
<i>Agave lechuguilla-Dasylyrion texanum</i> shrubland	None
<i>Aristida purpurea</i> grassland	None

APPENDIX B. Continued.

Poole 2003–2004	Larson 2002
<i>Aristida purpurea</i> - <i>Bothriochloa ischaemum</i> var. <i>songarica</i> grassland	None
<i>Arundo donax</i> break	<i>Phragmites australis</i> herbaceous vegetation
<i>Baccharis neglecta</i> shrubland	None
<i>Baccharis neglecta</i> - <i>Bothriochloa ischaemum</i> var. <i>songarica</i> shrubland	None
<i>Baccharis neglecta</i> - <i>Indigofera lindheimeri</i> shrubland	None
<i>Baccharis neglecta</i> - <i>Parkinsonia aculeata</i> shrubland	None
<i>Baccharis neglecta</i> - <i>Phragmites australis</i> shrubland	<i>Phragmites australis</i> herbaceous vegetation
<i>Bothriochloa ischaemum</i> var. <i>songarica</i> - <i>Pennisetum ciliare</i> - <i>Pappophorum bicolor</i> grassland	None
<i>Bothriochloa laguroides</i> subsp. <i>torreyana</i> - <i>Aristida purpurea</i> - <i>Bothriochloa ischaemum</i> var. <i>songarica</i> grassland	None
<i>Calliandra conferta</i> - <i>Acacia berlandieri</i> shrubland	<i>Acacia rigidula</i> - <i>Leucophyllum frutescens</i> - <i>Acacia berlandieri</i> shrubland
<i>Calliandra conferta</i> - <i>Krameria ramosissima</i> shrubland	<i>Acacia rigidula</i> - <i>Leucophyllum frutescens</i> - <i>Acacia berlandieri</i> shrubland
<i>Celtis laevigata</i> var. <i>reticulata</i> - <i>Acacia rigidula</i> - <i>Prosopis glandulosa</i> woodland	<i>Prosopis glandulosa</i> woodland
<i>Cephalanthus occidentalis</i> shrubland	None
<i>Cephalanthus occidentalis</i> - <i>Acacia farnesiana</i> shrubland	<i>Acacia minuata</i> shrubland
<i>Cephalanthus occidentalis</i> - <i>Baccharis neglecta</i> - <i>Indigofera lindheimeri</i> shrubland	None
<i>Chilopsis linearis</i> - <i>Indigofera lindheimeri</i> shrubland	None
<i>Cynodon dactylon</i> grassland	None
<i>Eleocharis</i> spp. herbaceous vegetation	None
<i>Fouquieria splendens</i> shrubland	None
<i>Hydrilla verticillata</i> submerged aquatic vegetation	None
<i>Indigofera lindheimeri</i> - <i>Senna lindheimeri</i> shrubland	None
<i>Justicia americana</i> emergent aquatic vegetation	None
<i>Leucophyllum frutescens</i> shrubland	<i>Acacia rigidula</i> - <i>Leucophyllum frutescens</i> - <i>Acacia berlandieri</i> shrubland
<i>Leucophyllum frutescens</i> - <i>Acacia berlandieri</i> shrubland	<i>Acacia rigidula</i> - <i>Leucophyllum frutescens</i> - <i>Acacia berlandieri</i> shrubland
<i>Lippia graveolens</i> - <i>Acacia berlandieri</i> shrubland	<i>Acacia rigidula</i> - <i>Leucophyllum frutescens</i> - <i>Acacia berlandieri</i> shrubland
<i>Lippia graveolens</i> - <i>Acacia rigidula</i> shrubland	<i>Acacia rigidula</i> - <i>Leucophyllum frutescens</i> - <i>Acacia berlandieri</i> shrubland
<i>Lippia graveolens</i> - <i>Aristida purpurea</i> shrubland	<i>Acacia rigidula</i> - <i>Leucophyllum frutescens</i> - <i>Acacia berlandieri</i> shrubland
None	<i>Hilaria belangeri</i> - <i>Bouteloua curtipendula</i> herbaceous vegetation

APPENDIX B. Continued.

Poole 2003–2004	Larson 2002
<i>Opuntia engelmannii</i> var. <i>lindheimeri</i> - <i>Salvia farinacea</i> shrubland	None
<i>Pappophorum bicolor</i> grassland	None
<i>Parkinsonia texana</i> - <i>Castela erecta</i> subsp. <i>texana</i> - <i>Forestiera angustifolia</i> shrubland	<i>Acacia rigidula</i> - <i>Leucophyllum frutescens</i> - <i>Acacia berlandieri</i> shrubland
<i>Pennisetum ciliare</i> grassland	None
<i>Phragmites australis</i> - <i>Arundo donax</i> riparian corridor	<i>Phragmites australis</i> herbaceous vegetation
<i>Phragmites australis</i> - <i>Panicum virgatum</i> grassland	<i>Phragmites australis</i> herbaceous vegetation
<i>Phyla nodiflora</i> - <i>Cynodon dactylon</i> - <i>Bacopa monnieri</i> herbaceous vegetation	None
<i>Phyla nodiflora</i> - <i>Nicotiana glauca</i> - <i>Vitex agnuscactus</i> rock outcrop sparse vegetation	Rock outcrop/butte sparse vegetation
<i>Platanus occidentalis</i> - <i>Cladium mariscus</i> subsp. <i>jamaicensis</i> - <i>Phragmites australis</i> - <i>Panicum virgatum</i> very sparse woodland	<i>Phragmites australis</i> herbaceous vegetation
<i>Porophyllum scoparium</i> sparsely vegetated rock outcrop	Rock outcrop/butte sparse vegetation
<i>Porophyllum scoparium</i> - <i>Heterotheca fulcrata</i> - <i>Penstemon baccharifolius</i> sparsely vegetated rock outcrop	Rock outcrop/butte sparse vegetation
<i>Prosopis glandulosa</i> woodland	<i>Prosopis glandulosa</i> woodland
<i>Prosopis glandulosa</i> - <i>Acacia farnesiana</i> woodland	<i>Prosopis glandulosa</i> woodland
<i>Prosopis glandulosa</i> - <i>Aloysia gratissima</i> - <i>Baccharis neglecta</i> woodland	<i>Prosopis glandulosa</i> woodland
<i>Prosopis glandulosa</i> - <i>Celtis pallida</i> woodland	<i>Prosopis glandulosa</i> woodland
<i>Prosopis glandulosa</i> - <i>Leucophyllum frutescens</i> shrubland	<i>Prosopis glandulosa</i> shrubland
<i>Quercus fusiformis</i> woodland	<i>Quercus fusiformis</i> - <i>Celtis laevigata</i> woodland
<i>Quercus gravesii</i> - <i>Pistacia mexicana</i> woodland	None
<i>Salix gooddingii</i> - <i>Baccharis salicifolia</i> woodland	None
<i>Salix nigra</i> - <i>Tamarix ramosissima</i> - <i>Baccharis neglecta</i> - <i>Cynodon dactylon</i> woodland	None
<i>Salix nigra</i> - <i>Tamarix ramosissima</i> - <i>Baccharis salicifolia</i> - <i>Cynodon dactylon</i> woodland	None
<i>Salvia ballotiflora</i> - <i>Rhus virens</i> - <i>Diospyros texana</i> shrubland	<i>Acacia rigidula</i> - <i>Leucophyllum frutescens</i> - <i>Acacia berlandieri</i> shrubland
<i>Schoenoplectus californicus</i> herbaceous vegetation	None
<i>Tamarix ramosissima</i> - <i>Baccharis neglecta</i> shrubland	None