

THE VASCULAR FLORA OF KERR WILDLIFE MANAGEMENT AREA, KERR COUNTY, TEXAS

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ABSTRACT

An inventory of the vascular plants of Kerr Wildlife Management Area, Kerr County, Texas, was conducted from 2006 to spring 2009. The area consists of 21 natural plant community associations and three land use classes. The Sawgrass-Spikesedge-Beakrush-Black Bogrush-Aparejogross Herbaceous Vegetation Association, and Ashe Juniper-Bastard Oak-Plateau Live Oak Woodland Association is reported as new to the state. The checklist reports 719 taxa from 106 families and 410 genera, with 27 of the species being endemic to the state. The largest families were Asteraceae (113 species), Poaceae (109 species), Fabaceae (38 species), and Euphorbiaceae (34 species). Non-native species comprised 9.04% (65 species) of the flora. Among the more unusual plant records for the area, which consists of a mixture of eastern and western species, are *Rhynchospora capillacea*, *Petrophytum caespitosum*, and *Echeandia flavescens*. Statistics on the adequacy of sampling and a comparative vegetation analysis are also presented.

RESUMEN

Se realizó un inventario de las plantas vasculares del Área de Manejo de Vida Silvestre de Kerr, Condado de Kerr, Tejas, entre 2006 y primavera 2009. Se demostró que el área contiene 21 asociaciones de plantas naturales, y cuatro clases de uso de la tierra. Se citó como nueva para el estado las Asociaciones de Vegetación Herbácea de Sawgrass-Spikesedge-Beakrush-Black Bogrush-Aparejogross y Ashe Juniper-Bastard Oak-Plateau Live Oak Woodland Asociación. En el catálogo se citan 719 taxones de 106 familias y 410 géneros, con 27 de las especies endémicas del estado. Las familias más grandes fueron Asteraceae (113 especies), Poaceae (109 especies), Fabaceae (38 especies), y Euphorbiaceae (34 especies). Las especies no nativas constituyeron el 9.04% (65 especies) de la flora. Entre las citas más interesantes para el área, que consta de una mezcla de especies orientales y occidentales, están *Rhynchospora capillacea*, *Petrophytum caespitosum*, y *Echeandia flavescens*. Se presentan estadísticas sobre la adecuación del muestreo y un análisis comparado de la vegetación.

Kerr Wildlife Management Area (KWMA) is located in the south central portion of the Edwards Plateau vegetation area (Terletzkey & Van Auken 1996; Van Auken 1988). Geologically, KWMA is characterized by dry and seepy limestone cliffs, canyons with shaded ravines and boulders, outcrops, glades, spring-fed drainages, and the Guadalupe River. Vegetatively, the Edwards Plateau has been described as a region of significant endemism (Correll & Johnston 1970). Carr (2008) lists 88 species as endemic to the region. Additionally, Plateau vegetation is distinctive because of woody eastern species that are present as disjuncts or reach the western limits of their distribution there. These include *Lindera benzoin*, *Bignonia capreolata*, *Hamamelis virginiana*, *Aesculus pavia*, *Ulmus rubra*, *Aristolochia serpentaria*, *Berchemia scandens*, *Morus rubra*, *Tilia americana*, and *Menispermum canadense*. Herbaceous vegetation with a similar distribution pattern, which is generally not discussed in this context, includes *Scleria verticillata*, *Bromus pubescens*, *Paronychia virginica*, *Ageratina altissima*, *Silphium radula*, *Mitreola petiolata*, *Aquilegia canadensis*, *Hypericum drummondii*, and *H. mutilum*. A brief summary of the early botanical exploration of the Plateau region is in Singhurst et al. (2007).

KWMA was purchased from the Presbyterian MO Ranch Assembly by the Texas Game and Fish Com-

mission (now Texas Parks and Wildlife Department) in June 1950 with funds made available by the Pittman-Robertson Wildlife Restoration Act. The initial purpose of KWMA was to serve as a wildlife research and demonstration area where biologists could study and evaluate wildlife and habitat management practices. During the 1960s, the objectives of the KWMA were expanded to include maintaining optimal productivity of range land, thus maximizing monetary return, while sustaining maximum wildlife resources. This objective permitted the initial habitat manipulation, particularly the clearing of large areas of mature Ashe juniper (*Juniperus ashei*) for both range and wildlife habitat enhancement. In 1989, more flexible multiple-use goals, which included research, demonstration, education, preservation, conservation, and recreation, were adopted and are currently used as a management guide.

MATERIALS AND METHODS

The checklist is largely based upon examination of specimens collected between 1955 and 2001 which are deposited in the Baylor University Herbarium (BAYLU). Additional specimens from the University of Texas Herbarium (TEX and LL), Kerr WMA Herbarium (acronym KWMA used within), and the S.M. Tracy Herbarium (TAES) were also examined. Field studies were conducted from 2006 through spring 2009, with emphasis on finding species expected to be present, but not yet vouchered. These specimens were also deposited at BAYLU.

Nomenclature generally follows that of Correll and Johnston (1970), with updates and corrections as needed from Hatch et al. (1990), Jones et al. (1997), and NRCS, USDA (2010).

The vegetational analysis compared species richness of floristic inventories of various areas (see Table 1) of Texas. Documented species lists were compared against Arrhenius' (1921) model subsequently adapted by Williams and Lutterschmidt (2006) in order to determine the adequacy of the KWMA sampling effort. Species richness and geographic area of KWMA, nine selected sites, and the state of Texas, were log-transformed into a database. A statistical relation of species richness as a function of geographic area produces a theoretical slope (z) and intercept (d) based on this formula: $S = dA^z$ (Arrhenius 1921). A linear function is created from this log-transformed data and the slope determines a theoretical value of species fidelity equated per unit area and thereby an empirical measure of sampling effort. Arrhenius (1921) first fit a model to data on increasing species number with increasing size of area sampled. Relationship between species and area partly arises because of increasing likelihood of habitat diversity with increasing area sampled (Diamond 1988). Arrhenius explicitly stated that his power formula, $S = S(A) = dA^z$, was empirical and should be regarded as an approximation whose existence was entirely dependent on agreement with data from lists of flora that he had obtained. Because his formula calculated an average number of species occurring in an area, he also contemplated the problem of establishing a stochastic model for species richness in smaller land parcels consumed by a larger land mass. In order to relate area to species occurrence, Arrhenius assumed that any individual of any species of this smaller area must have an equal opportunity of occurrence in the larger area and thus probability could be expected. However, expectation in occurrence contrasts sharply with the difficulties of explaining variance by this equation (Ugland et al. 2003). It is suggested that a disturbance regime, or lack of one, is a significant contributor to relationship exceptions and variance. Similar approaches have been taken more or less independently by several authors who examined the distribution of individuals and presence/absence pattern of species (e.g. Gleason 1922; Hurlbert 1971; Heck et al. 1975; Brewer & Williamson 1980; Coleman 1981; Ney-Nifle & Mangel 1999; Williams & Lutterschmidt 2006). All of the proposed formulae may be regarded as variants of Arrhenius's (1921) original model. For an historical review of species-area curves, see McGuinness (1984).

The Sørensen coefficient (1948; also known as "quotient of similarity," was used as a community similarity index to compare KWMA to both Mason Mountain WMA and Enchanted Rock State Natural Area (ERSNA) to quantitatively assess the best floristic comparison. Numbers of species within each of the three areas were cross-checked for commonality of species occurrence and used as: $CC_s = 2c / s_1 + s_2$, where s_1 and s_2 are species number in communities 1 and 2, respectively, c is the number of species common to

TABLE 1. Known values of species richness for vascular plants and associated geographic area from published and unpublished inventories in Texas, USA.

Region	Species number	Predicted Species	Area (km2)	Citation
Amistad NRA	707	498.96	57.4242	Poole (unpub.)
Big Lake Bottom WMA	459	413.09	17.0182	Fleming et al. 2002
Enchanted Rock SNA	555	357.61	6.7234	O’Kennon (unpub.)
Fairfield Lake SRA	497	351.06	5.9697	Do 1996
Fort Hood Military Res.	988	764.55	896.3829	Hansen (unpub.)
Gus Engeling WMA	920	480.60	45.1060	Singhurst et al. 2003
Kerr WMA	719	442.84	26.6313	Singhurst et al. this paper
Madison County	985	803.69	1236.3422	Neill and Wilson 2001
Mason Mountain WMA	693	428.93	21.6859	Singhurst et al. 2007
McLennan County	1118	907.22	2697.5428	Hannick 2009 (unpub. thesis)
Texas	5524	2140.26	677940.3	Diggs et al. 1999

both communities. The value of CC_s ranges from 0 (when no species are common to either community) to 1.0 (when all species are found in each community of interest).

The Sørensen coefficient is an adaptation of Jaccard’s (1902) coefficient of community originally stated as: $CC_j = c / (s_1 + s_2) - c$ and was originally utilized to accompany data consisting of presence or absence of species. The following caution should be noted: for a given amount of similarity between communities, the similarity indices (Sørensen and Jaccard) do not necessarily express the same quantitative values. Thus, both express similarity between communities, but should not be compared against each other. Assessment of overlapping plant associations and groupings applying similarity indices are attempts to quantify niche overlap, an arena of significant disagreement among contemporary ecologists (Looman & Campbell 1960; Hurlbert 1978; Abrams 1980; Wallace 1981; Hurlbert 1982; Abrams 1982; Ungland et al. 2003).

Based on dominant species, landscape position, and soil water content, natural plant community associations (NatureServe 2008) and land use classes were circumscribed and mapped for KWMA utilizing 1996 digital orthophoto aerial photography and ERDAS Imagine 8.7 software (Leica Geosystems 2008).

DESCRIPTION OF STUDY AREA

KWMA consists of 2635.5 ha (6514.9 acres) located 35.5 km (22 miles) west of Kerrville, Texas. The topography, soil types, and vegetation of KWMA are representative of the surrounding Edwards Plateau Ecological Region. Soils are generally rocky and shallow, covering a substratum of limestone. Topography is gently rolling to hilly with occasional draws (a shallow, open, natural, drainage) and small canyons. Annual rainfall from 1951 to 1986 averaged 64.7 cm (25.48 inches), with the wettest months being April, May, June, August, September, and October. KWMA is drained by the North Fork of the Guadalupe River which also forms part of the southern boundary. Most drainages are intermittent. Several small springs and the Guadalupe River provide the only natural permanent water sources. Elevation varies from 588.3 m (1930 feet) to 682.8 m (2240 feet), with average elevation being 609.6 m (ca. 2000 feet). With respect to management at KWMA, practices used are designed to encourage perennial bunch grasses and maintain a high diversity of herbaceous annuals and perennials and include prescribed burning (especially winter burns), cedar control on dry uplands, and light grazing.

KWMA supports a diversity of native wildlife species. These include white-tailed deer (*Odocoileus virginianus*), Rio Grande wild turkey (*Meleagris gallopavo intermedia*), javelina (*Pecari tajacu*), eastern cottontail rabbit (*Sylvilagus floridanus*), black-tailed jackrabbit (*Lepus californicus*), northern raccoon (*Procyon lotor*), striped skunk (*Mephitis mephitis*), and Virginia opossum (*Didelphis virginiana*), all being abundant. Larger predators such as coyote (*Canis latrans*) and bobcat (*Lynx rufus*) are uncommon. Historically, mountain lion (*Felis concolor*), American black bear (*Ursus americanus*), and gray wolf (*Canis lupus*) inhabited the area, but

all have been extirpated. Hahn (1951) reported that black bear was present in this vicinity as late as 1905 and the last recorded killing of a gray wolf was at the head of the North Fork of the Guadalupe River in 1913. KWMA has recorded 191 species of resident and migratory birds and 29 species of herpetofauna. Exotic wildlife species intentionally introduced to the area are axis deer (*Axis axis*), aoudad sheep (*Ammotragus lervia*), and sika deer (*Cervus nippon*). Also present is the feral hog (*Sus scrofa*), which probably originated from escaped stock.

Three federally listed endangered species occur on KWMA. These include two birds, the black-capped vireo (*Vireo atricapillus*) and the golden-cheeked warbler (*Dendroica chrysoparia*) and one plant, the Tobusch fishhook cactus (*Sclerocactus brevihamatus* ssp. *tobuschii*).

RESULTS AND DISCUSSION

Twenty-one natural plant community associations (NatureServe 2008) and three land use classes were determined to be present in KWMA. Two natural associations, Sawgrass-Spikesedge-Beakrush-Black Bogrush-Aparejoggrass Herbaceous Vegetation Association and Ashe Juniper - Bastard Oak - Plateau Live Oak Woodland are described as new associations for Texas. The other associations are of common occurrence in the Edwards Plateau vegetational area. Land use classes include developed, old field and reservoirs. For the purpose of organization, the plant community association descriptions are separated into system categories that include uplands, canyons, cliff faces, floodplain, springs, seeps, and aquatic types, and land use classes. In general, the associations are discussed from north to south. All references to geology are based upon the Llano [Map] Sheet, University of Texas Bureau of Economic Geology, 1981.

NATURAL TERRESTRIAL ASSOCIATIONS

Upland Types

Plateau Live Oak / Curly-mesquite Woodland Vegetation Association (Allard 1990, Diamond 1993) occurs on limestone with clay soils in the Edwards Plateau. Normally it is found on flat to moderately rolling terrain of 0–5% slope. It comprises 60.7 ha (150.1 ac) and is developed on the lower Cretaceous Segovia Member of the Edwards Limestone Formation. This association is concentrated in the northwestern portion of KWMA (Fig. 1). The vegetation is dominated by *Quercus fusiformis* and grasslands or grassy openings with *Bouteloua curtipendula* (both varieties), *Hilaria belangeri*, and *Schizachyrium scoparium*. Other important components in the understory include *Condalia hookeri*, *C. spathulata*, *Juniperus ashei*, *Quercus buckleyi*, *Q. sinuata* var. *breviloba*, *Q. stellata* var. *stellata*, *Rhus lanceolata*, *R. trilobata*, and *Ulmus crassifolia*.

Post Oak - Blackjack Oak / Little Bluestem Woodland Vegetation Association (Diamond 1993; Hoagland 2000) occurs over shallow soils on limestone mesa tops in the Cross Timbers and Prairies, Edwards Plateau, and Post Oak Savanna Ecoregions in Texas as well as Cross Timbers in Kansas and Oklahoma. Land form is flat to rolling with 0–5% slope. Approximately 70.7 ha (174.7 ac) of KWMA consists of this formation, which is developed on the lower Cretaceous Segovia Member of Edwards Limestone Formation. This association is found in the northern portion of KWMA (Fig. 1). The area is dominated by *Quercus stellata* var. *stellata*, *Q. marilandica*, and *Schizachyrium scoparium* and varies from open woodland to savanna. Shrub species include *Diospyros texana*, *Cylindropuntia leptocaulis*, and *Smilax bona-nox*. Dominant grasses and forbs include *Andropogon gerardii*, *Berlandiera betonicifolia*, *Carex planostachys*, *Cheilanthes tomentosa*, *Cocculus carolinus*, *Cyperus rotundus*, *Heterotheca subaxillaris*, *Hypericum drummondii*, *Leptochloa dubia*, *Matelea gonocarpus*, and *Sorghastrum nutans*. Generally, there is low forb diversity.

Plateau Live Oak - Post Oak Savanna Vegetation Association (Diamond 1993; Hoagland 2000) occurs over shallow soils on limestone mesa tops in the Edwards Plateau and Post Oak Savanna Ecoergions in Texas and in the Quartz and Wichita Mountains in Oklahoma. The association is found on flat to rolling terrain with 0–5% slope on the lower Cretaceous Segovia Member of Edwards Limestone Formation. Approximately 120.3 ha (297.3 ac) of the association occur in the northern and eastern portion of KWMA (Fig. 1). Dominant plants are *Quercus fusiformis*, *Q. stellata* var. *stellata*, *Diospyros texana*, and *Schizachyrium*

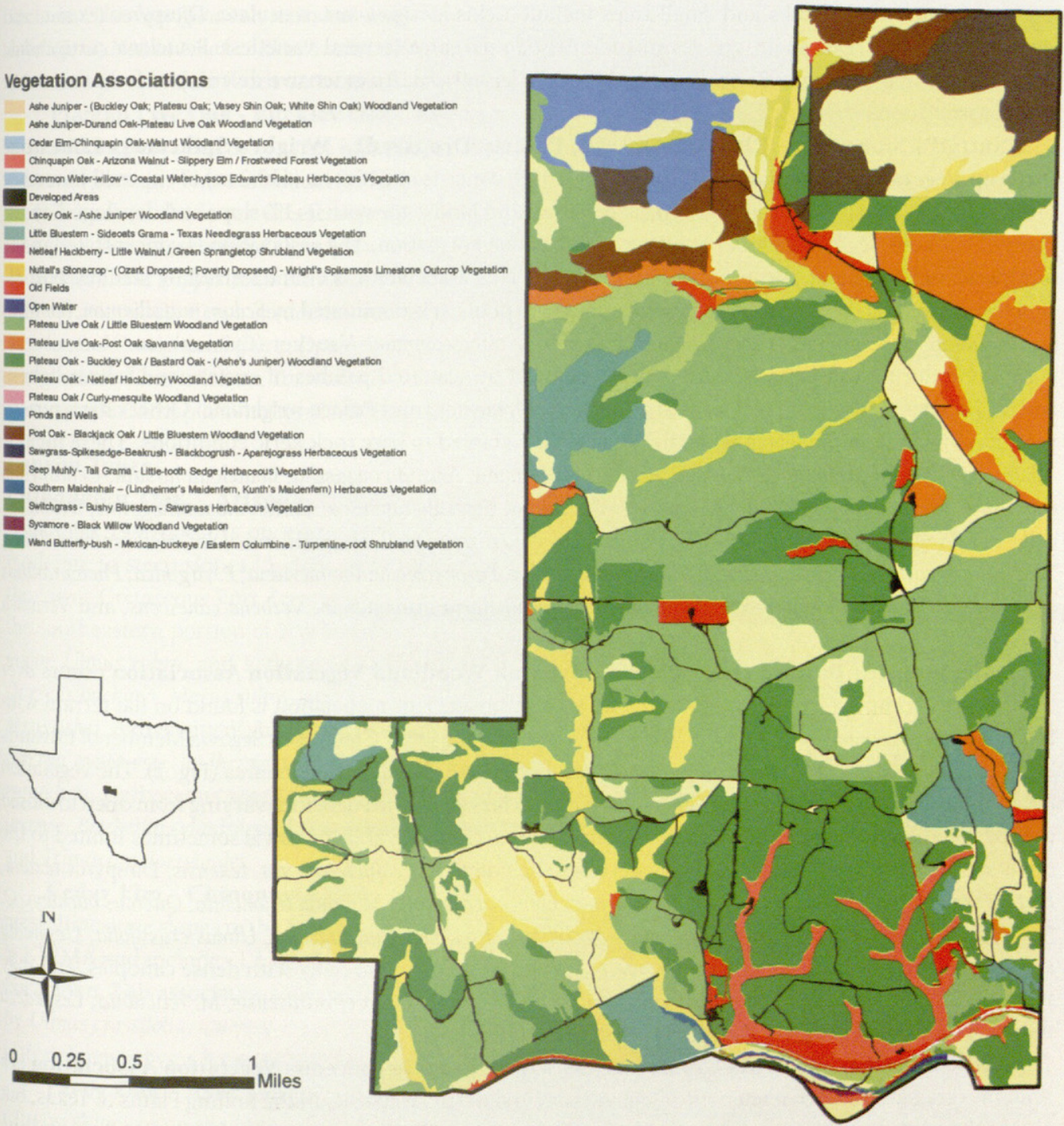


Fig. 1. The inset map shows Kerr County and vicinity map showing Kerr Wildlife Management Area Vegetation Associations (Leica Geosystems 2008, NatureServe 2008)

scoparium. Shrub species include *Mahonia trifoliolata* and *Opuntia engelmannii* var. *lindheimeri*. Dominant grasses include *Bothriochloa laguroides*, *Bouteloua curtipendula* (both varieties), *B. pectinata*, *B. rigidiseta*, *Hilaria belangeri*, *Muhlenbergia reverchonii*, and *Panicum virgatum*. A moderate diversity of forbs is present.

Plateau Live Oak / Little Bluestem Woodland Vegetation Association (Diamond 1993) occurs on gently sloping to nearly flat slopes in the eastern Edwards Plateau and Cross Timber Ecoregions in Texas and in Quartz and Wichita Mountains in Oklahoma. This association consists of about 739.5 ha (1827.4 ac) found on flat to rolling upland landscape with 0–5% slope. It is best developed on the lower Cretaceous Segovia Member of Edwards Limestone Formation. The association is concentrated in the central and southwestern portion of KWMA (Fig. 1). The area is dominated by *Quercus fusiformis* and *Schizachyrium*

scoparium. Important shrubs and small trees include *Celtis laevigata* var. *reticulata*, *Diospyros texana*, and *Mahonia trifoliolata*. Dominant grasses include *Aristida purpurea* (several varieties), *Bouteloua curtipendula* (both varieties), *B. pectinata*, *B. rigidiseta*, and *Nassella leucotricha*. An extensive diversity of forbs can occur in this association.

Nuttall's Stonecrop - (Ozark Dropseed, Poverty Dropseed) - Wright's Spikemoss Limestone Outcrop Vegetation Association (NatureServe 2008) consists of 246.9 ha (610.2 ac) of exposed limestone surfaces in the Edwards Plateau. It is typical of flat upland landscape with 0–1% slope and developed on the lower Cretaceous Segovia Member of Edwards Limestone Formation. The association is concentrated in the southwest and southeast portion of KWMA (Fig. 1). This association is characterized by shallow pothole depressions that accumulate soils or serve as ephemeral pools. It is dominated by *Sedum nuttallianum*, *Sporobolus ozarkanus*, *S. vaginiflorus*, and *Selaginella wrightii*. *Nostoc commune* Vaucher (Cyanophyta, Nostocaceae) is common during wet periods. Bare rock is occupied by scattered patches of crustose and foliose lichens and bryophytes (Musci). Typical ferns are *Cheilanthes tomentosa* and *Pellaea wrightiana*. Other characteristic vegetation includes annuals (ephemerals) and species adapted to bare rock xeric conditions. These include *Allium drummondii*, *Ammannia coccinea*, *Arenaria benthamii*, *Aristida oligantha*, *Bouteloua hirsuta*, *Centaureum calycosum*, *Chaetopappa asteroides*, *Cooperia pedunculata*, *Crassula aquatica*, *Croton monanthogynus*, *Draba cuneifolia*, *Echinochloa walteri*, *Erioneuron pilosum*, *Hedeoma drummondii*, *Hedyotis crassifolia*, *Heteranthera dubia*, *Juncus marginatus*, *Ludwigia repens*, *Nothoscordum bivalve*, *Paronychia lindheimeriana*, *P. virginica*, *Phemeranthus aurantiacus*, *Plantago virginica*, *Polygala lindheimeri*, *Scutellaria drummondii*, *Verbena canescens*, and *Veronica peregrina*.

Ashe Juniper - Bastard Oak - Plateau Live Oak Woodland Vegetation Association occurs over shallow soils on limestone mesa tops in the Edwards Plateau. This association is found on flat terrain with 0–2% slope and consists of 173.8 ha (429.6 ac) developed on the lower Cretaceous Segovia Member of Edwards Limestone Formation. It is found along drainages throughout the management area (Fig. 1). The vegetation is dominated by *Juniperus ashei* and *Quercus sinuata* var. *breviloba*, with densities varying from open to closed canopy woodlands. When canopy cover is dense, *Quercus sinuata* var. *breviloba* is sometimes limited to the understory. Other components in the understory include *Cercis canadensis* var. *texensis*, *Diospyros texana*, *Forestiera pubescens*, *Fraxinus texensis*, *Ilex decidua*, *Lonicera albiflora*, *Mahonia trifoliolata*, *Quercus buckleyi*, *Q. fusiformis*, *Rhus trilobata*, *R. virens*, *Sophora secundiflora*, *Toxicodendron radicans*, *Ulmus crassifolia*, *Ungnadia speciosa*, and *Yucca rupicola*. Herbaceous cover is generally sparse, especially with dense canopies, and may include *Carex planostachys*, *Commelina erecta*, *Galactia texana*, *Matelea edwardsensis*, *M. reticulata*, *Lespedeza texana*, *Rhynchosia senna*, *Sporobolus compositus*, and *Tragia ramosa*.

Little Bluestem - Sideoats Grama - Texas winter-grass herbaceous Vegetation Association is a midgrass grassland and characteristic of uplands over relatively deep soils in the Rolling Plains of Texas, but also in the central and western Edwards Plateau (Diamond 1993). This association is found on flat to rolling terrain with 0–5% slope. It includes 306.8 ha (758.1 ac) on the lower Cretaceous Fort Terrett and Segovia Member of Edwards Limestone Formation in the western and southern portion of KWMA (Fig. 1). The area is dominated by *Schizachyrium scoparium*, *Bouteloua curtipendula* (both varieties), and *Nassella leucotricha*. Trees species include *Juniperus ashei* and *Prosopis glandulosa*. Shrub species include *Opuntia engelmannii* var. *lindheimeri*, and *Ziziphus obtusifolia*. Typical grasses include *Aristida purpurea* (several varieties), *Bothriochloa barbinodis*, *Bouteloua barbata*, *Digitaria californica*, *Hilaria belangeri*, *Panicum obtusum*, *Sorghastrum nutans*, and *Tridens muticus*. An extensive diversity of forbs can occur in this association.

Ashe Juniper - (Buckley Oak, Plateau Live Oak, Vasey Shin Oak, Bastard Oak) Woodland Vegetation Association (Diamond 1993) consists of woodlands over shallow soils on limestone slopes in the Edwards Plateau. This association is found on flat to rolling terrain with 0–5% slope and consists of 413.3 ha (1021.2 ac) on the lower Cretaceous Fort Terrett and Segovia Member of Edwards Limestone Formation. The association is scattered throughout the KWMA (Fig. 1). Dominants are *Juniperus ashei* with mixtures of *Quercus buckleyi*, *Q. fusiformis*, *Q. pungens* var. *vaseyana*, and *Q. sinuata* var. *breviloba*. Tree species

include *Celtis laevigata* var. *reticulata* and *Fraxinus texensis*. Shrub species include *Diospyros texana*, *Mahonia trifoliolata*, *Nolina texana*, *Rhus virens*, *Toxicodendron radicans*, and *Yucca rupicola*. Herbaceous flora include *Bouteloua curtipendula* (both varieties), *Carex planostachys*, *Lespedeza texana*, and *Schizachyrium scoparium*.

Plateau Live Oak - Buckley Oak / Bastard Oak - (Ashe Juniper) Woodland Vegetation Association (NatureServe 2008) consists of woodlands occurring over shallow soils on limestone mesa tops in the Edwards Plateau. This association is found on flat to rolling terrain with 0–5% slope and consists of 713.1 ha (1762 ac) on the lower Cretaceous Fort Terrett and Segovia Member of Edwards Limestone Formation. The association is scattered throughout the management area (Fig. 1). It is dominated by *Quercus fusiformis*, *Q. buckleyi*, and *Juniperus ashei* and characterized by a mixture of other trees and shrubs such as *Celtis laevigata* var. *reticulata*, *Cercis canadensis* var. *texensis*, *Forestiera pubescens*, *Frangula caroliniana*, *Fraxinus texensis*, *Ilex decidua*, *Lonicera albiflora*, *Opuntia engelmannii* var. *lindheimeri*, *Quercus sinuata* var. *breviloba*, *Sideroxylon lanuginosum*, *Rhus trilobata*, *Toxicodendron radicans*, *Ulmus crassifolia*, and *Ungnadia speciosa*. Herbaceous species include *Carex planostachys*, *Chaerophyllum tainturieri*, *Limnodea arkansana*, and *Nassella leucotricha*.

Canyon Types

Chinquapin Oak - Arizona Walnut - Slippery Elm / Frostweed Forest Vegetation Association (Diamond 1993) occurs on mesic limestone slopes in the Edwards Plateau. This association is found on moderate to steep slopes (5–20% slope) at KWMA. It consists of 49.5 ha (122.3 ac) and is developed on the lower Cretaceous Fort Terrett Member of Edwards Limestone Formation. This association is found in the southeastern portion of KWMA (Fig. 1). The vegetation is dominated by *Quercus muehlenbergii*, *Juglans major*, *Ulmus rubra*, and *Verbesina virginica*. Other tree species include *Carya illinoensis*, *Fraxinus texensis*, *Quercus buckleyi*, *Morus rubra*, and *Ulmus crassifolia*. Subcanopy species include *Morus microphylla* and *Juniperus ashei*. A diversity of shrubs and woody vines may include *Aesculus pavia* var. *pavia*, *Cornus drummondii*, *Garrya ovata* ssp. *lindheimeri*, *Frangula caroliniana*, *Ilex decidua*, *Parthenocissus quinquefolia*, and *Viburnum rufidulum*. Herbaceous species include *Adiantum capillus-veneris*, *Carex edwardsiana*, *C. planostachys*, *Galium texense*, *Brickellia cylindracea*, *Chaetopappa effusa*, *Desmodium paniculatum*, *Geum canadense*, *Packera obovata*, and *Tripsacum dactyloides*.

Cedar Elm - Chinquapin Oak - Arizona Walnut Woodland Vegetation Association occurs on mesic limestone slopes in the Edwards Plateau. This association is found on moderately steep slopes (5–15%) at KWMA and includes 1.1 ha (2.7 ac) on the lower Cretaceous Fort Terrett Member of Edwards Limestone Formation. This association is found in the southeastern portion of KWMA (Fig. 1). The vegetation dominated by *Ulmus crassifolia*, *Quercus muehlenbergii*, and *Juglans major*. The understory consists of *Bromus pubescens*, *Carex planostachys*, *Chasmanthium latifolium*, *Elymus virginicus*, *Panicum virgatum*, and *Verbesina virginica*.

Lacey Oak - Ashe Juniper Woodland Vegetation Association (Diamond 1993) occurs on rocky canyon slopes or on shallow soils that have developed over limestone in the southern and southwestern portion of the Edwards Plateau. This association is found on moderately to steep slopes (5–35%) at KWMA and includes 52.8 ha (130.4 ac) on the lower Cretaceous Fort Terrett and Segovia Member of Edwards Limestone Formation. The association is concentrated in the eastern and western portion of KWMA (Fig. 1). The area is dominated by *Quercus laceyi* and *Juniperus ashei*. Other important canopy components include *Quercus buckleyi*, *Q. fusiformis*, *Q. muehlenbergii*, and *Ulmus crassifolia*. Understory shrubs include *Cornus drummondii*, *Ilex decidua*, *Ptelea trifoliata*, and *Ungnadia speciosa* (Riskind and Diamond 1988).

Cliff Face Types

Wand Butterfly-bush - Mexican buckeye / American Columbine - Dutchman's pipe Shrubland Vegetation Association (NatureServe 2008) occurs on limestone rim rock along mesic canyons in the southern portion of the Edwards Plateau. This association is found on very steep slopes to vertical cliff faces and comprises 4.2 ha (10.3 ac) on the lower Cretaceous Fort Terrett Member of Edwards Limestone Formation. It is limited to the southeastern portion of area (Fig. 1). Typical dominants are *Buddleja racemosa* ssp. *incana*, *Ungnadia speciosa*, *Aquilegia canadensis*, and *Aristolochia serpentaria*. Other shrubs include *Ageratina havanensis*, *Croton*

fruticulosus, *Eysenhardtia texana*, *Morus microphylla*, *Nolina lindheimeri*, *N. texana*, *Parthenocissus quinquefolia*, *Petrophytum caespitosum*, *Rhus trilobata*, *R. virens*, *Toxicodendron radicans*, and *Yucca rupicola*. Characteristic herbaceous species included *Acalypha phleoides*, *Aristolochia coryi*, *Asplenium resiliens*, *Brickellia cylindracea*, *Chamaesyce villifera*, *Cheilanthes alabamensis*, *C. horridula*, *Desmodium psilophyllum*, *Lespedeza texana*, *Linum rupestre*, *Pellaea atropurpurea*, *P. ovata*, *Perityle lindheimeri*, *Polygala lindheimeri*, *Phyllanthus polygonoides*, and *Salvia roemeriana*.

NATURAL AQUATIC ASSOCIATIONS

Floodplain Types

Plateau Live Oak - Netleaf Hackberry Woodland Vegetation Association (Diamond 1993) occurs along dry to mesic flood plains of streams on the Edwards Plateau, South Texas Plains, and Trans Pecos Ecoregions. This association consists of 81.5 ha (201.5 ac) developed on the lower Cretaceous Segovia Member of Edwards Limestone Formation. It is limited to northwestern portion of KWMA (Fig. 1). The association is dominated by *Quercus fusiformis* and *Celtis laevigata* var. *reticulata*. Other trees and shrubs include *Juglans major*, *Diospyros texana*, *Fraxinus texensis*, *Juniperus ashei*, and *Ulmus crassifolia*. Forb diversity is generally low.

Netleaf Hackberry - Little Walnut / Green Sprangletop Shrubland Vegetation Association (Diamond 1993) occurs along dry to intermittent streams on the Edwards Plateau and Chihuahuan Desert. This association comprises 81.2 ha (200.7 ac) in the northwestern part of KWMA (Fig. 1) developed on the lower Cretaceous Segovia Member of Edwards Limestone Formation. Vegetation is dominated by *Celtis laevigata* var. *reticulata* and *Juglans microcarpa*. Other woody plants include *Diospyros texana*, *Fraxinus texensis*, *Sideroxylon lanuginosum* ssp. *albicans*, and *Smilax bona-nox*. Characteristic herbs can include *Bothriochloa barbinodis* var. *barbinodis*, *Bouteloua curtipendula* (both varieties), and *Leptochloa dubia*.

Sycamore - Black Willow Woodland Vegetation Association (NatureServe 2008) occurs along periodically scoured flat-bedded limestone on relatively flat terrain along creekbeds and riverbeds in the Edwards Plateau and adjacent areas. It consists of small narrow strips typically not more than 10 m wide in moist to wet gravelly soils. This association consists of 2.5 ha (1.0 ac) along the shores of the North Fork of the Guadalupe River developed on the lower Cretaceous Fort Terrett Member of Edwards Limestone Formation and is limited to the southeastern portion of KWMA (Fig. 1). This association is dominated by *Platanus occidentalis* and *Salix nigra*, often as scattered small trees since this association receives frequent catastrophic floods. Another tree species that infrequently occupies this community is *Populus deltoides*. A poorly developed shrub layer included *Amorpha fruticosa*, *Baccharis neglecta*, *Cephalanthus occidentalis*, and *Juglans microcarpa*. Herbaceous species varies with moisture, disturbance, and other factors.

Spring, Seep, and Aquatic Types

Switchgrass - Bushy Bluestem - Jamaica Sawgrass Herbaceous Vegetation Association (NatureServe 2008) occurs along periodically scoured flat-bedded limestone shores of perennial streams on the Edwards and Stockton Plateaus. Terrain is relatively flat. The association is comprised of herbaceous flora that is rooted in cracks and in soil mats along the edges and minor shelves along the river's edge of the North Fork of the Guadalupe River. This association consists of 1.3 ha (3.2 ac) developed on the lower Cretaceous Segovia Member of Edwards Limestone Formation and is limited to the southeastern portion of KWMA (Fig. 1). The dominants include *Panicum virgatum*, *Andropogon glomeratus*, and *Cladium mariscus* ssp. *jamaicense*. This stream-scoured grassland varies in density from very open to dense. Woody shrubs and trees may occur as scattered individuals, and may include *Platanus occidentalis*, *Salix nigra*, *Juglans microcarpa*, *Baccharis neglecta*, and *B. salicifolia*. Herbaceous flora includes *Eleocharis caribaea*, *E. montevidensis*, *Eupatorium serotinum*, *Fuirena simplex*, *Indigofera lindheimeriana*, *Ratibida columnifera*, *Rhynchospora corollata*, *R. nivea*, *Schizachyrium scoparium*, and *Solidago altissima*.

Sawgrass - Spikesedge - Beakrush/Whitetop - Black bogrush - Aparejoggrass Herbaceous Vegetation Association occurs along spring and seep influenced herbaceous wetlands along creeks and rivers of the Edward Plateau. Sites are dominated by sedges, grasses, and other herbaceous flora. This association

includes 4.1 ha (10.0 ac) along the shores of the North Fork of the Guadalupe River in the southwestern portion of KWMA (Fig. 1) developed on the lower Cretaceous Segovia Member of Edwards Limestone Formation. Dominants include *Cladium mariscus* ssp. *jamaicense*, *Eleocharis rostellata*, *E. montevidensis*, *E. caribaea*, *Rhynchospora capillacea*, *R. nivea*, and *R. colorata*, *Schoenus nigricans*, and *Muhlenbergia utilis*. The substrate includes well developed marl clays and gravels over limestone bed rock. Sites occur as braided mats of vegetation in mucky soils originating at spring sources (spring heads on slopes or bases of limestone bluffs). The sites can extend into the floodplain of the river as a matrix of patchy islands of well developed muck with small streamlet channels braiding through the vegetation patches. Seepage slopes are spongy. High concentrations of calcium carbonate cake layers can be present. Significant herbaceous plants often associated with this wetland community include *Adiantum capillus-veneris*, *Andropogon glomeratus*, *Carex edwardsiana*, *C. microdonta*, *C. muhlenbergii*, *Bidens laevis*, *Boehmeria cylindrica*, *Centella asiatica*, *Epipactus gigantea*, *Fimbristylis puberula*, *Fuirena simplex*, *Helenium microcephalum* var. *microcephalum*, *Juncus texanus*, *Ludwigia repens*, *Lythrum ovalifolium*, *Mitreola petiolata*, *Nasturtium officinale*, *Lobelia cardinalis*, *Muhlenbergia lindheimeri*, *M. reverchonii*, *Dichanthelium acuminatum* var. *lindheimeri*, *D. oligosanthos* var. *scribnerianum*, *Panicum virgatum*, *Pluchea odorata*, *Sorghastrum nutans*, *Symphyotrichum praealtum*, *Paspalum pubiflorum*, *Thelypteris ovata* var. *lindheimeri*, *Utricularia gibba*, *Verbena scabra*, and *Verbesina lindheimeri*. The few woody species that occur in these wetlands include *Cephalanthus occidentalis*, *Lindera benzoin*, *Platanus occidentalis*, and *Salix nigra*. Unusual species include *Rhynchospora capillacea*, *Rudbeckia fulgida*, and *Scleria verticillata*.

Seep Muhly - Tall Grama - Little-tooth Sedge Herbaceous Vegetation Association (NatureServe 2008) occurs on ephemeral moist, open, rocky slopes on the Edwards Plateau. This association includes 0.2 ha (0.4 ac) developed on the lower Cretaceous Segovia Member of Edwards Limestone Formation and is limited to the southeastern portion of KWMA (Fig. 1). The dominants include *Muhlenbergia reverchonii*, *Bouteloua pectinata*, and *Carex perdentata*. Other herbaceous species *Agalinis edwardsiana*, *Aristida purpurea* (several varieties), *Calylophus berlandieri*, *Carex planostachys*, *Centaureum beyrichii*, *Desmanthus velutinus*, *Galphimia angustifolia*, *Hedeoma drummondii*, *Heliotropium tenellum*, *Liatris mucronata*, *Marshallia caespitosa*, *Melampodium leucanthum*, *Oenothera triloba*, *Paronychia virginica*, *Pedimelum hypogaeum*, *Polygala alba*, *P. lindheimeri*, *Salvia texana*, *Spiranthes magnicamporum*, *Stenaria nigricans* var. *nigricans*, *Stillingia texana*, *Tetraneuris scaposa*, *Thamnosma texana*, *Thelesperma simplicifolium*, *Vernonia lindheimeri*, and *Wedelia texana*.

Southern Maidenhair - (Lindheimer's Maidenfern, Kunth's Maidenfern) Herbaceous Vegetation Association (NatureServe 2008) occurs on cliff faces and lower slopes of forested box canyons on the Edwards Plateau, usually in narrow horizontal bands where seepage from exposed limestone or water from perennial or nearly perennial creeks consistently provides greater moisture than is available on adjacent slopes. This association consists of 4.2 ha (10.3 ac) developed on the lower Cretaceous Fort Terrett Member of Edwards Limestone Formation in the southeastern portion of KWMA (Fig. 1). The area is dominated by *Adiantum capillus-veneris* and *Thelypteris ovata* var. *lindheimeri*. Other prominent herbaceous species are *Epipactus gigantea*, *Hydrocotyle verticillata*, *Dichanthelium acuminatum* var. *lindheimeri*, *Samolus valerandi* ssp. *parviflorus*, and *Silphium radula*.

American Water-willow - Coastal Water-hyssop Edwards Plateau Herbaceous Vegetation Association (NatureServe 2008) occurs on relatively permanently watered streams which flow over flat-bedded limestone strata on the Edwards Plateau. This association consists of 0.3 ha (0.6 ac) developed on the lower Cretaceous Segovia Member of Edwards Limestone Formation. It is present in the southern portion of KWMA (Fig. 1). The dominants include *Justicia americana* and *Bacopa monnieri*. Other herbaceous flora includes *Cyperus* spp., *Fuirena simplex*, *Eleocharis caribaea*, *E. montevidensis*, *Lobelia cardinalis*, *Ludwigia palustris*, *Rhynchospora colorata*, and *R. nivea*.

LAND USE ASSOCIATIONS

Developed land (Fig. 1) consists of about 61.5 ha (152 ac) that are heavily impacted by human use, such as lawns and parking areas near buildings, roads, etc. Typically, these areas are occupied by early successional flora that vary from season to season and frequency of disturbance. Herbaceous flora include *Capsella bursa-*

pastoris, *Erodium cicutarium*, *Geranium texanum*, *Glandularia bipinnatifida* var. *bipinnatifida*, *Krigia caespitosa*, *Lamium amplexicaule*, *Lepidium virginicum*, *Plantago virginica*, *Stellaria media*, and *Veronica peregrina*.

Old field vegetation (Fig. 1) consists of 64.7 ha (159.9 ac) of mostly non-native grasses and dominated by *Bothriochloa ischaemum*. Herbaceous vegetation is quite variable and includes plants such as *Asclepias viridiflora*, *Bromus unioloides*, *Conyza canadensis*, *Cucurbita foetidissima*, *Glandularia bipinnatifida* var. *bipinnatifida*, *Gutierrezia texana*, *Hordeum pusillum*, *Lygodesmia texana*, *Melilotis officinalis*, *Ratibita columnifera*, *Ruellia nudiflora*, *Salvia farinacea*, *Sida abutifolia*, *Solanum* spp., *Verbascum thapsus*, *Verbena officinale*, and *Vulpia octoflora*.

Ponds and wells (Fig. 1) consists of 0.1 ha (0.3 ac) of mostly marginal and shallow ponds and wells dominated by emergent rushes, sedges, and grasses. Herbaceous vegetation includes *Agalinis homolantha*, *Ammannia coccinea*, *Cyperus erythrorhizos*, *C. strigosus*, *Echinochloa walteri*, *Eleocharis montevidensis*, *Juncus interior*, and *J. marginatus*. Other associated flora includes *Eclipta prostrata*, *Helenium elegans*, *Lindernia dubia*, *Marsilea vestita*, *Mecardonia procumbens*, *Pluchea odorata*, and *Xanthium strumarium*.

VEGETATIONAL ANALYSIS

Figure 2 demonstrates an adequate sampling indicated by the Kerr WMA datum point above the slope of the determined function, moreover data for both MMWMA and ERSNA place those sampling efforts above this slope-line suggesting these proximal locales can be compared legitimately. The Sørensen coefficient designates MMWMA as more analogous in floristic composition than ERSNA and the statistic for Jaccard's coefficient of community is in agreement with that floristic similarity (Table 2).

Summary Data of the Flora

The vascular flora of KWMA consists of 719 taxa (species and below). Families represented by the largest number of species are Asteraceae (with 113 species), Poaceae (109), Fabaceae (38) and Euphorbiaceae (34). Apparently, the drier nature of KWMA is more agreeable to the Euphorbiaceae and less so for the Cyperaceae, which is the fourth largest family within Texas. The Cyperaceae is represented by 27 species in KWMA, which includes four species of *Carex* and nine species of *Cyperus*, while in Texas as a whole these two genera have 96 and 56 species respectively. Other large families include Lamiaceae (22), Apiaceae (17), and Scrophulariaceae (15).

Of the 719 species reported for KWMA, 65 (9.04%) are considered to be non-native. This compares favorably with other wildlife management areas in Texas. For example, Mason Mountain WMA has 8.5 % of its flora introduced (Singhurst et al. 2007), while Gus Engeling WMA, of the Post Oak Savannah of the eastern part of the state, has 6.34 % introduced species (Singhurst et al. 2003). Diggs et al. (1999), reports 17.7% of the flora treated in their work (north central Texas) as non-native. The easily noticed trend is that the areas with a larger human population and more accessibility have a higher percentage of non-natives species present. Several of the non-natives present at KWMA may have been intentionally introduced as part of land management plans.

The following species, subspecies, and varieties documented to occur in KWMA, are considered endemic to the state of Texas (Correll & Johnston 1970; Carr 2008): *Agalinis edwardsiana*, *Argythamnia simulans*, *Astragalus wrightii*, *Brickellia eupatorioides* var. *gracillima*, *Buddleja racemosa* ssp. *incana*, *Carex edwardsiana*, *Chaetopappa bellidifolia*, *C. effusa*, *Clematis texensis*, *Euphorbia roemeriana*, *Galactia texana*, *Matelea edwardsensis*, *Monarda punctata* ssp. *punctata* var. *intermedia*, *Nolina lindheimeriana*, *Parthenocissus heptaphylla*, *Pedimelum hypogaeum* var. *scaposum*, *Penstemon triflorus* ssp. *triflorus*, *Phlox roemeriana*, *Physaria densiflora*, *P. recurvata*, *Sclerocactus brevihamatus* ssp. *tobuschii*, *Tradescantia edwardsiana*, *Tragia nigricans*, *Verbesina lindheimeri*, *Valerianella stenocarpa*, *Vitis monticola*, and *Yucca rupicola*.

Following are comments on unusual or interesting plant distributions.

Rhynchospora capillacea.—In Texas, this species is recorded only from Kerr Co. The nearest known occurrence is 355 miles to the north in the Soper Bog (Railroad Bog) in Choctaw County, Oklahoma. The

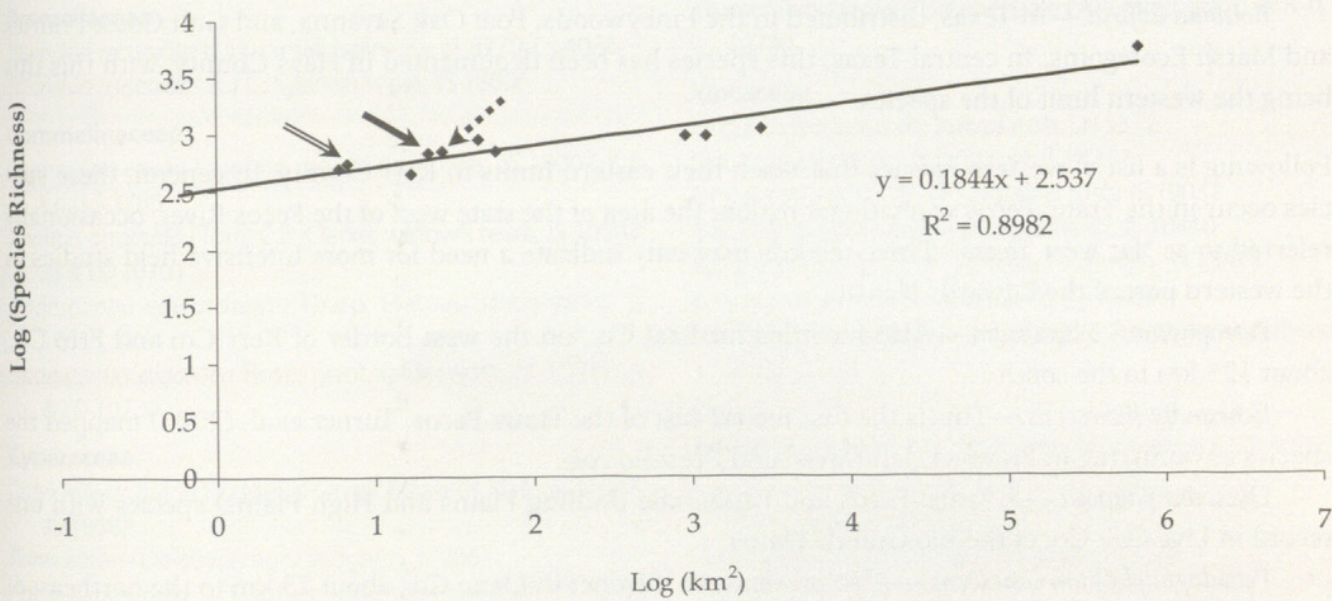


FIG. 2. Logarithmic relationship between species richness and geographic area represented by solid regression line. This regression indicates a relationship between species richness and geographic area explaining 89.88% of variation in species richness. Diamonds signify floristic inventories from Table 1, broken arrow indicates Kerr WMA, solid arrow designates Mason Mountain WMA, and double lined arrow points to Enchanted Rock State Natural Area.

TABLE 2. Comparison of Kerr WMA species richness for vascular plants and associated Sørensen coefficient calculated against published accounts and unpublished inventory in Texas, USA.

Region	Species number	Sørensen Similarity	Jaccard's Community Coefficient	Coefficient	Area (km2)	Citation
Enchanted Rock SNA	555	.4694	.3067	6.7234	O'Kennon (unpub.)	
Kerr WMA	719	—	—	26.6313	Singhurst et al. 2010	
Mason Mountain WMA	693	.6388	.4693	21.6859	Singhurst et al. 2007	

next location is in the northern Ozarks near the Missouri border. *Rhynchospora capillacea* is a fen specialist in the east and northeast United States. Apparently, the species requires cool running waters, here found on the Guadalupe River.

Asclepias verticillata.—Southwest limit of distribution, common in eastern half of Texas.

Fuirena squarrosa.—Approaching the western limit of distribution, but also few scattered records further west in the state (see Turner et al. 2003).

Hypoxis wrightii.—In Texas, known from few counties in the post oak savannahs and pinelands of the eastern quarter of the state.

Rudbeckia fulgida.—Presently limited to the pineywoods of east Texas, disjunct here (and in Gillespie Co.)

Agalinas homolantha.—Generally distributed in the eastern half of state, this being the western limit.

Vicia caroliniana.—An eastern species (previously known as far west as Travis and Comal cos.) that may possibly have been introduced as a wildlife food.

Physaria gracilis.—Generally distributed in north-central and east-central Texas, this being the western limit of the species.

Leptopus phyllanthoides.—In Texas, distributed along the eastern edge of the Balcones Escarpment from Johnson to Bexar cos., and also Val Verde Co. Elsewhere in southwest Missouri, northwest Arkansas, southeast Oklahoma, and central Alabama. In Texas, generally found on honeycombed limestone. Not often collected.

Boltonia diffusa.—In Texas, distributed in the Pineywoods, Poat Oak Savanna, and Gulf Coast Prairies and Marsh Ecoregions. In central Texas, this species has been documented in Hays County, with this being the western limit of the species.

Following is a list of western species that reach their eastern limits in Kerr County. In general, these species occur in the Trans-Pecos vegetational region, the area of the state west of the Pecos River, occasionally referred to as “far west Texas.” These records may only indicate a need for more intensive field studies in the western part of the Edwards Plateau.

Petrophytum caespitosum.—Also recorded for Real Co., on the west border of Kerr Co. and Frio Co., about 125 km to the south.

Echeandia flavescens.—This is the first record east of the Trans-Pecos. Turner et al. (2003) mapped the species as occurring in Brewster, Jeff Davis, and Presidio cos.

Dyssodia papposa.—A Trans-Pecos and Panhandle (Rolling Plains and High Plains) species with one record in Live Oak Co. of the Rio Grande Plains.

Pseudognaphalium canescens.—Also present as a disjunct in Llano Co., about 75 km to the northeast of Kerr Co.

Viguiera stenoloba.—Also known from the Rio Grande Plains, especially those counties adjoining the Rio Grande [River].

ANNOTATED CHECKLIST OF THE FLORA

The annotated checklist is divided into pteridophytes, gymnosperms, and angiosperms, which are subdivided into monocots and dicots. Family, genus, and species are arranged alphabetically beneath each major heading. Collectors and collection numbers are referenced as following: **CAM** = C.A. McMahan, **DH** = Donnie Harmel, **FG** = Frank Gould, **KW** = Kerr Wildlife Management Area staff, **MM** = Morton May, **JS** = Jason Singhurst, **LH** = Laura Hansen, **LS** = Laura Sanchez (earlier name for LH), **S&R** = D. Seigler & W. Renold, **TD** = Timery Deboe, **TT** = Thomas Trinzle, and **AC** = Amy Choy. An asterisk (*) denotes an introduced species. Common names are included to facilitate ease of use by persons unfamiliar with botanical names.

PTERIDOPHYTES

Aspleniaceae

Asplenium resiliens Kunze; black stem spleenwort fern; JS 8473; 10592; 10627

Marsilaceae

Marsilea vestita Hook. & Grev. ssp. *vestita*; water clover fern; JS 10228

Pteridaceae

Adiantum capillus-veneris L.; southern maidenhair fern; JS 8500; 9970; LS 3843

Astrolepis integerrima (Hook.) Benham & Windham; hybrid cloakfern; LH 5860

Astrolepis sinuata (Lag. ex Sw.) Bentham & Windham ssp. *sinuata*; bulb lip fern; JS 18130

Cheilanthes alabamensis (Buckley) Kunze; Alabama lip fern; LS 3948

Cheilanthes horridula Maxon; rough lip fern; LH 5863

Cheilanthes tomentosa Link; woolly lip fern; JS 18003

Pellaea atropurpurea (L.) Link; purple cliffbrake fern; JS 10054; LS 3947

Pellaea ovata (Desv.) Weatherby; ovate leaf cliffbrake; JS 8771; 10055

Pellaea wrightiana Hook.; Hook's cliffbrake fern; JS 8490, 10058

Selaginellaceae

Selaginella wrightii Hieron.; Wright's spikemoss; JS 10044; LS 4106

Thelypteridaceae

Thelypteris ovata R.P. St. John var. *lindheimeri* (C. Chr.) A.R. Sm.; Lindheimer's maidenhair fern; JS 9971; LS 3836

GYMNOSPERMS

Cupressaceae

Juniperus ashei Buchh.; Ashe juniper; JS 18004; DH s.n.; FG 8288; LS 3812

Juniperus pinchotii Sudw.; Pinchot's juniper; JS 17205

Taxodium distichum (L.) Rich.; bald cypress; JS 17207

ANGIOSPERMS - Monocots

Agavaceae

Agave americana L.; American century plant; JS 18005

Dasyllirion texanum Scheele; Texas sotol; JS 10563

Nolina lindheimeriana (Scheele) S. Wats.; devil's shoestring; JS 10574

Nolina texana S. Wats.; sacahuista; LH 4773

Yucca reverchonii Trel.; Plateau yucca; JS 10649

Yucca rupicola Scheele; Texas yucca; JS 10372

Bromeliaceae

Tillandsia recurvata (L.) L.; small ballmoss; JS 8770; LS 4086

Tillandsia usneoides (L.) L.; Spanish moss; JS 18006

Commelinaceae

Commelina erecta L.; white mouth dayflower; JS 18007; KW s.n.; LS 3785

Tinantia anomala (Torr.) C.B. Clarke; widow's tears; JS 10588; JS & TD 10701

Tradescantia edwardsiana Tharp; Plateau spiderwort; JS 10655; KW s.n.

Tradescantia gigantea Rose; giant spiderwort; JS 10655; JS & TD 10730

Cyperaceae

Carex edwardsiana Bridges & Orzell; Edwards Plateau sedge; JS 10582

Carex emoryi Dewey; Emory sedge; JS 17206

Carex perdentata S.D. Jones; little-tooth sedge; LS 3722; 4214

Carex planostachys Kunze; cedar sedge; JS & TD 10698; KW s.n.; LS 3753

Cladium mariscus (L.) Pohl ssp. *jamaicense* (Crantz) Kükenh.; Jamaica sawgrass; JS 9995; 9996; LS 3838

Cyperus acuminatus Torr. & Hook. ex Torr.; taperleaf flatsedge; JS 9997; LS 3923; 5311

Cyperus erythrorhizos Muhl.; red root; JS 10464

Cyperus flavescens L.; yellow flatsedge; JS 15970

Cyperus odoratus L.; fragrant flatsedge; JS 10760

Cyperus pseudothyrsiflorus (Kükenth.) J. Rich. Carter & S.D. Jones; flatsedge; LH 4979; 5318

**Cyperus rotundus* L.; nutgrass; JS 10223

Cyperus sphaerolepis Boeckeler; Rusby's flatsedge; LH 5320

Cyperus squarrosus L.; bearded flatsedge; JS 18011

Cyperus strigosus L.; false nutgrass; FG 8141; LS 4565

Eleocharis geniculata (L.) Roem. & Schult.; Canada spikesedge; JS 15963

Eleocharis montevidensis Kunth; sand spikesedge; JS 10220

Eleocharis palustris (L.) Roem. & Schult.; large spikesedge; JS 9974

Eleocharis parvula (Roem. & Schult.) Link ex Bluff, Nees & Schauer; dwarf spikesedge; JS 18008

Eleocharis rostellata (Torr.) Torr.; beaked spikerush; JS 15960

Fimbristylis puberula (Michx.) Vahl; hairy fimbry; JS 10640; LH 4986

Fuirena simplex Vahl; western umbrella sedge; JS 9975; LS 3929; LH 4987

Fuirena squarrosa Michx.; hairy umbrella sedge; JS 8498

Rhynchospora capillacea Torr.; horned beakrush; JS 15964

Rhynchospora colorata (L.) H. Pfeiffer; star rush whitetop; JS 9965; LS 3864

Rhynchospora nivea Boeck.; snowy white top sedge; JS 8499; 9964; 15965; LS 3845

Schoenus nigricans L.; black bogrush; JS 18009

Scleria verticillata Muhl. ex Willd.; low nutrush; JS 15973; LS 4100

Iridaceae

Sisyrinchium chilense Hook.; sword leaf blue-eyed grass; JS & TD 10739; KW s.n.; LH 4785

Sisyrinchium langlosii Greene; pale blue-eyed grass; JS & TD 10740

Juncaceae

Juncus dichotomus Ell.; forked rush; LH 5312

Juncus interior Wieg.; inland rush; LS 4212

Juncus marginatus Rostk.; grassleaf rush; JS 10031

Juncus scirpoides Lam.; needlepod rush; JS 10460

Juncus texanus (Engelm.) Coville; Texas rush; JS 15975

Juncus torreyi Coville; Torrey's rush; LH 4988

Juncus validus Coville var. *fascinatus* M.C. Johnston; roundhead rush; JS 10638

Liliaceae

Allium canadense L.; Canada garlic; JS 10449; JS & TD 10707

Allium drummondii Regel; Drummond onion; JS 10387; JS & TD 10708; KW s.n.; LH 4762

Cooperia drummondii Herb.; cebolleta; LS 3945

Cooperia pedunculata Herb.; giant rain lily; JS 10064; 10433; JS & TD 10700; LS 3793

Echeandia flavescens (J.A. & J.H. Schultes) Cruden; Torrey's craglily; JS 18010

Hypoxis wrightii (Baker) Brackett; Wright's star-grass; LH 4982

Nothoscordum bivalve (L.) Britt.; crow poison; JS 10045; KW s.n.; LS 4541

Schoenocaulon drummondii A. Gray; green lily; JS 10392; 10576

Schoenocaulon texanum Scheele; Texas sabadilla; LH 4771

Najadaceae

Najas guadalupensis (Spreng.) Magnus; southern naiad; JS 15966

Orchidaceae

Epipactis gigantea Dougl. ex Hook; giant helleborine orchid; JS 9969; 10566; LH 4985

Spiranthes magnicamporum Sheviak; ladies' tresses orchid; JS 18012

Poaceae

**Aegilops cylindrica* Host; jointed goat grass; LS 3763

Andropogon gerardii Vitman; big bluestem; JS 18013; KW s.n.; LS 4117

Andropogon glomeratus (Walt.) B.S.P.; bushy bluestem; JS 10004; 10033; FG 8159; LS 4116

Aristida oligantha Michx.; oldfield threeawn; JS 10626; FG 8258; LS 3910

Aristida purpurea Nutt. var. *longiseta* (Steud.) Vasey; red three-awn; LS 3757; 4409

Aristida purpurea Nutt. var. *nealleyi* (Vasey) Allred; blue three-awn; LS 4053; 4560

Aristida purpurea Nutt. var. *purpurea*; purple threeawn; JS 10422; FG 8259; LS 4411

Aristida purpurea Nutt. var. *wrightii* (Nash) Allred; Wright's threeawn; JS 10579b; FG 8266; LS 4410; LH 5030

Bothriochloa barbinodis (Lag.) Herter var. *barbinodis*; cane bluestem; JS 10674; 10458; KW s.n.

Bothriochloa barbinodis (Lag.) Herter var. *perforata* (Trin. ex Fourn.) Gould; pinhole bluestem; LS 3912

**Bothriochloa ischaemum* (L.) Keng var. *songarica* (Rupr. ex

- Fisch. & Mey.) Celarier & Harlan; King Ranch bluestem; JS 10006; KW s.n.; LS 3768; LH 5310
- Bothriochloa laguroides* (DC.) Herter ssp. *torreyana* (Steud.) Allred & Gould; silver bluestem; JS 10007; 10667; KW s.n.; FG 8278; LS 3765; 4407
- Bouteloua barbata* Lag.; sixweeks grass; JS 10226a
- Bouteloua curtipendula* (Michx.) Torr. var. *caespitosa* Gould & Kap.; sideoats grama; JS 10584; FG 8289; MM 5514; LS 3907
- Bouteloua curtipendula* (Michx.) Torr. var. *curtipendula*; side oats grama; JS 9979; FG 8289; LS 3906
- Bouteloua hirsuta* Lag.; hairy grama; FG 8262; 8451; 8452; LS 3918
- Bouteloua rigidiseta* (Steud.) Hitchc. var. *rigidiseta*; Texas grama; JS 10397; FG 8284; LS 3762
- Bouteloua pectinata* Featherly; tall grama; LS 4543
- Bouteloua trifida* Thurb.; red grama; FG 8453; 8281; LS 4047
- Bouteloua uniflora* Vasey; Neally grama; FG 8255; MM 5520
- **Bromus arvensis* L.; Japanese brome; JS 10404; JS & TD 10728; LS 3124; 3724
- **Bromus cartharticus* Vahl; rescue grass; JS 10391; FG 8307; LS 3723
- Bromus pubescens* Muhl. ex Wild.; hairy brome; JS & TD 10729
- **Bromus tectorum* L. var. *tectorum*; cheat grass; JS & TD 10727; KW s.n.
- Buchloe dactyloides* (Nutt.) Engelm.; buffalo grass; JS 10473; FG 8303; LS 3731
- Cenchrus spinifex* Cav.; common sand bur; JS 9953; FG 8280; LS 4536
- Chloris andropogonoides* Fourn.; slimspike windmill grass; FG 8295; LS 3766
- Chloris cucullata* Bisch.; hooded windmill grass; JS 10677
- Chloris subdolichostachya* Muell.; short-spike windmill grass; LS 4406
- Chloris verticillata* Nutt.; tumble windmill grass; JS 10424; LS 3784; 3911; 4114
- **Cynodon dactylon* (L.) Pers.; bermuda grass; JS 10676; LS 3751
- **Desmazeria rigida* (L.) Tutin; cat grass; JS 10630; LS 3774
- Dichanthelium acuminatum* (Sw.) Gould & C.A. Clark var. *acuminatum*; woolly rosette grass; LS 3844
- Dichanthelium acuminatum* (Sw.) Gould & C.A. Clark var. *lindheimeri* (Nash) Gould & C.A. Clark; Lindheimer panicgrass; JS 15971
- Dichanthelium oligosanthos* (Schult.) Gould var. *scribnerianum* (Nash) Gould; Scribner's rosette grass; LS 3797
- Dichanthelium pedicellatum* (Vasey) Gould; cedar rosette grass; FG 8262; 8454
- Digitaria californica* (Benth.) Henr.; Arizona cottontop; KW s.n.
- Digitaria ciliaris* (Retz.) Koeler; southern crabgrass; LS 4090
- Digitaria cognata* (Schult.) Pilger; fall witchgrass; FG 8252
- Digitaria pubiflora* (Vasey) Wipff; Carolina crabgrass; LS 4113; LH 5018
- **Echinochloa colona* (L.) Link; Jungle rice; JS 10456; FG 8298; LS 3924; 4091; 4566
- **Echinochloa walteri* (Pursh) A. Heller; Coast cockspur; JS 10675
- Elymus canadensis* L. *canadensis*; Canada wildrye; KW s.n.; LS 3783
- Elymus virginicus* L.; Virginia wildrye; JS 10437; LS 3855
- **Eragrostis barrelieri* Daveau; Mediterranean love grass; LS 4085
- **Eragrostis cilianensis* (All.) Vign. ex Janchen.; stinkgrass; JS 10461; FG 8467; 8309; LS 4051; 4068
- Eragrostis curtipedicellata* Buckley; gummy lovegrass; LS 3934; 3957
- Eragrostis intermedia* Hitchc.; plains lovegrass; FG 8287; KW s.n.; LS 3909; 4108
- Eragrostis lugens* Nees; mourning lovegrass; FG 8287
- Eragrostis pectinacea* Michx.) Nees ex Steud.; tufted lovegrass; JS 10226b
- **Eragrostis superba* Peyr.; Wilmann's lovegrass; LH 5319
- Eriochloa contracta* Hitchc.; prairie cupgrass; FG 8300
- Eriochloa sericea* (Scheele) Munro ex Vasey; Texas cupgrass; KW s.n.; LS 3798
- Erioneuron pilosum* (Buckley) Nash; hairy erioneuron; JS 10403; JS & TD 10725; LS 3756
- Hilaria belangeri* (Steud.) Nash.; common curly mesquite; JS 10043; FG 8243; LS 3914
- Hordeum jubatum* L.; foxtail barley; FG 8274
- Hordeum pusillum* Nutt.; little barley; JS 10471; LS 3727
- **Hordeum vulgare* L.; barley; JS 10443
- Leersia oryzoides* (L.) Sw.; rice cutgrass; JS 18014
- Leptochloa dubia* (Kunth.) Nees; green sprangletop; JS 10445; 10610; KW s.n.; LS 4077
- Leptochloa panicea* (Retz.) Ohwi ssp. *mucronata* (Michx.) Nowack; red sprangletop; JS 10468; KW s.n.
- Limnodea arkansana* (Nutt.) L.H. Dewey; Ozark grass; JS & TD 10755; KW s.n.; LS 3729
- **Lolium perenne* L.; perennial ryegrass; JS 10459; 10797; LH 5028
- Melica nitens* (Scribn.) Nutt. ex Piper; three flower melic; JS 10450; 10590; KW s.n.; LS 3870
- Muhlenbergia lindheimeri* Hitchc.; Lindheimer muhly; JS 10005; 10062; LS 4118
- Muhlenbergia reverchonii* Vasey & Scribn.; seep muhly; JS & TD 10733; KW s.n.; MM 5515; LS 4079
- Muhlenbergia schreberi* J.F. Gmel.; nimblewill muhly; JS 10577
- Muhlenbergia utilis* (Torr.) Hitchc.; aparejogress; JS 15961
- Nassella leucotricha* (Trin. & Rupr.) Pohl; Texas winter-grass; JS 10421; 10578; FG 8270; LS 3728
- Panicum capillare* L.; common witchgrass; JS 10408
- **Panicum coloratum* L.; Klein grass; LS 3846; 3942; 4568
- Panicum dichotomiflorum* Michx.; fall panicum; JS 10224
- Panicum diffusum* Sw.; spreading panicum; JS 10579a
- Panicum hallii* Vasey var. *hallii*; Halls panicum; JS 10677; FG 8249; LS 4050; 4416; 4532
- Panicum hians* Ell.; gaping panicum; JS 18015
- Panicum obtusum* Kunth; vine mesquite; JS 10600; FG 8272; LS 3908; 3956
- Panicum virgatum* L.; switchgrass; JS 9985; FG 8470; LS 3927
- **Paspalum dilatatum* Poir.; dallisgrass; JS 10446; KW s.n.; LS 3833
- Paspalum distichum* L.; knot grass; LH 5313

Paspalum pubiflorum Rupr. ex Fourn. var. *pubiflorum*; hairyseed paspalum; JS 10668; LS 4546

Paspalum setaceum Michx.; thin paspalum; JS 10595

**Paspalum urvillei* Steud.; vasseygrass; JS 10606; LS 3832

Phalaris caroliniana Walt.; Carolina canarygrass; JS 10466

**Poa annua* L.; annual bluegrass; JS 18016; LS 3717

**Polypogon monspeliensis* (L.) Desf.; rabbitfoot panicum; JS 10598; LS 3871

**Polypogon viridis* (Gouan) Breistr.; water bent grass; LS 3839

Schedonnardus paniculatus (Nutt.) Trel.; tumblegrass; FG 8296; LS 3764

**Schedonorus phoenix* (Scop.) Holub; tall fescue; LS 3847

Schizachyrium scoparium (Michx.) Nash var. *scoparium*; little bluestem; JS 9986; FG 8259; LS 4107

Setaria leucopila (Scribn. & Merr.) K. Schum.; streambed bristlegrass; LS 4554; LH 5021

Setaria parviflora (Poir.) Kerguelen; knot-root bristlegrass; JS 18017; FG 9292

Setaria scheelei (Steud.) Hitchc.; southwestern bristlegrass; FG 8469; MM 5516; LS 4081; 4551

Sorghastrum nutans (L.) Nash; yellow Indiangrass; JS 10022; KW s.n.; LS 4112

**Sorghum halapense* (L.) Pers.; Johnson grass; JS 10008; FG 8279; LS 3848

Sphenopholis obtusata (Michx.) Scribn. var. *obtusata*; prairie wedgescale; JS 18018

Sporobolus compositus (Poir.) Merr. var. *compositus* (Trin.) Kartesz & Gandhi; composite dropseed; JS 10032; KW s.n.; LS 4048; 4109; 4539; 4544; 4555

Sporobolus cryptandrus (Torr.) A. Gray; sand dropseed; FG 8264; LS 4052

Sporobolus neglectus Nash; puffsheath dropseed; LS 4110

Sporobolus ozarkanus Fernald; Ozark dropseed; LS 4552; 4570

Sporobolus pyramidatus (Lam.) Hitchc.; whorled dropseed; JS 10651

Sporobolus vaginiflorus (Torr. ex A. Gray) Alph. Wood; poverty dropseed; JS 9951; FG 8450

**Stenotaphrum secundatum* (Walt.) Kuntze; St. Augustine grass; JS 10596; LH 5316

Tridens albescens (Vasey) Woot. & Standl.; white tridens; JS 18019; FG 8277; LS 3767

Tridens eragrostoides (Vasey & Scribn.) Nash ex Small; lovegrass tridens; LS 4122

Tridens muticus (Torr.) Nash; slim tridens; JS 10753; FG 8482; LS 4049

Tripsacum dactyloides (L.) L.; eastern gammagrass; JS 9958; 10553; LS 3831

Trisetum interruptum Buckley; prairie trisetum; KW s.n.; MM 5541

Urochloa fusca (Sw.) B.F. Hansen & Wunderlin; brown-top signal grass; FG 8297; LS 4084; LH 5024

Vulpia octoflora (Walt.) Rydb.; sixweekgrass; JS & TD 10405; 10724; KW s.n.; LS 4206

Pontederiaceae

Heteranthera dubia (Jacq.) MacM.; grassleaf mudplantain; JS 9963a

Heteranthera limosa (Sw.) Willd.; blue mud plantain; LS 3959

Potamogetonaceae

Potamogeton diversifolius Raf.; waterthread pondweed; JS 18020

Potamogeton nodosus Poir.; long leaf pondweed; JS 9981; LH 5952

Smilacaceae

Smilax bona-nox L.; saw greenbrier; JS 9960; 10585; KW s.n.; LS 3806

Typhaceae

Typha latifolia L.; common cattail; JS 18021

ANGIOSPERMS - Dicots

Acanthaceae

Carlowrightia texana Hendrick. & Daniel; carlowrightia; JS 18022

Dicliptera brachiata (Pursh) Spreng.; dicliptera; JS 18023

Dyschoriste linearis (Torr. & A. Gray) Kuntze; narrow leaf dyschoriste; JS 18024

Justicia americana (L.) Vahl; American water willow; JS 10549; LS 3842

Ruellia metziae Tharp; Metz's wild petunia; LS 4041

Ruellia nudiflora (Engelm. & A. Gray) Urban var. *nudiflora*; violet ruellia; JS 18025

Aizoaceae

Trianthema portulacastrum L.; horse purslane; KW s.n.

Amaranthaceae

**Alternanthera caracasana* Kunth; chaff flower; FG 8292; LS 4418

**Amaranthus albus* L.; tumbleweed amaranth; JS 10624; KW s.n.; LS 4072

**Amaranthus blitoides* S. Wats.; prostrate pigweed; LS 4564

Amaranthus palmeri S. Wats.; carelessnessweed; JS 18026

Amaranthus polygonoides L.; tropical amaranth; LS 4534

Amaranthus retroflexus L.; green amaranth; LS 4082

Amaranthus rudis Sauer; amaranth; JS 18027

Gossypianthus lanuginosus (Poir.) Moq.; cotton flower; LS 4419

Anacardiaceae

Rhus glabra L.; smooth sumac; JS 10442; KW s.n.

Rhus lanceolata (A. Gray) Britt.; prairie sumac; CAM 16b; DH s.n.; LS 3921; LH 5321

Rhus microphylla Engelm.; little-leaf sumac; JS 18028

Rhus trilobata Nutt.; skunkbush sumac; LS 4217; JS 18029; DH s.n.; CAM 51b; KW s.n.

Rhus virens Lindh. ex A. Gray ssp. *virens*; evergreen sumac; JS 10010; KW s.n.; LS 4123

Toxicodendron radicans (L.) Kuntze; poison oak; JS 18030; LS 4218

Apiaceae

Berula erecta (Huds.) Coville; cutleaf waterparsnip; JS 17208

Bifora americana Benth. & Hook. f. ex S. Wats.; prairie bishop; JS 18031

Bowlesia incana Ruiz & Pav.; hoary bowlesia; JS & TD 10703

- Centella asiatica* (L.) Urban; spadeleaf; JS 10013; 10616; LS 4414; LH 4984
- Chaerophyllum tainturieri* Hook. var. *tainturieri*; chervil; JS & TD 10706; KW s.n.; LS 3780
- Cicuta maculata* L.; spotted water hemlock; JS & TD 10712; LS 3928
- **Conium maculatum* L.; poison hemlock; JS 10639
- **Cyclospermum leptophyllum* (Pers.) Sprague ex Britt. & P. Wilson; slim-lobe celery; LS 3858
- Daucus pusillus* Michx.; southwestern carrot; JS 10407; LS 3746
- Hydrocotyle prolifera* Kellogg; whorled water pennywort; LS 3863
- Hydrocotyle verticillata* Thunb.; water pennywort; JS 10014; 10602
- Polytaenia texana* (J.M. Coult. & Rose) Mathias & Constance; prairie parsnip; JS 10642
- Ptilimnium capillaceum* (Michx.) Raf.; herbwilliam; JS 10418
- Sanicula canadensis* L.; Canada sanicle; JS 10444
- Spermolepis divaricata* (Walter) Raf. ex Ser.; forked scaleseed; LH 5019
- Spermolepis inermis* (Nutt. ex DC.) Mathias & Constance; spreading scaleseed; JS & TD 10711; LS 3779; 3790; 3859
- **Torilis arvensis* (Huds.) Link; hedge parsley; JS 10400; KW s.n.; LS 3735

Apocynaceae

- Apocynum cannabinum* L.; dogbane; JS 10669
- Asclepias asperula* (Decne.) Woodson; trailing milkweed; JS 10371; TT & AC 147; LS 4056
- Asclepias oenotheroides* Cham. & Schltdl.; hierba de zizotes; JS 10678; LS 4549
- Asclepias texana* A. Heller; Texas milkweed; JS 10057; 10561; LS 4104
- Asclepias verticillata* L.; whorled milkweed; JS 10652
- Asclepias viridiflora* Raf.; green antelope horn; JS 10677; KW s.n.
- Cynanchum racemosum* (Jacq.) Jacq. var. *unifarium* (Scheele) Sundell; talayote; LH 5023
- Funastrum crispum* (Benth.) Schltr.; wavyleaf twinevine; JS 18032; KW s.n.
- Matelea biflora* (Raf.) Woods.; two-flower milkvine; JS 18033; LS 4058
- Matelea edwardsensis* Correll; plateau milkvine; JS 18034
- Matelea gonocarpus* (Walt.) Shinnars; angular-fruit milkvine; JS 18035
- Matelea reticulata* (Engelm. ex A. Gray) Woods.; net-vein milkvine; LS 3755

Aquifoliaceae

- Ilex decidua* Walt.; deciduous holly; LS 4220

Aristolochiaceae

- Aristolochia coryi* I.M. Johnst.; Cory dutchman's pipe; JS 10053; FG 8761; LS 3854; 3935
- Aristolochia serpentaria* L.; dutchman's pipe; JS 10586; LS 3841; 4221

Asteraceae

- Achillea millefolium* L.; western yarrow; JS 18036

- Ageratina altissima* (L.) King & H. Rob.; white snakeroot; JS 8494
- Ageratina havanensis* (Kunth) King & H.E. Robins.; Havana snakeroot; JS 8475; 10594; LS 3869; 4561
- Ambrosia artemisiifolia* L.; common ragweed; JS 10050
- Ambrosia confertiflora* DC.; field ragweed; FG 8201; LS 4531; S&R 928
- Ambrosia psilostachya* DC.; western ragweed; JS 18037; LS 4562
- Amphiachyris dracunculoides* (DC.) Nutt.; broomweed; JS 18038
- Aphanostephus ramosissimus* DC. var. *ramosissimus*; plains lazy daisy; FG 8271; 8304; LS 3801; LH 4779; 5020
- Aphanostephus skirrhobasis* (DC.) Trel. var. *skirrhobasis*; Arkansas lazy daisy; JS 10420
- Artemisia ludoviciana* Nutt.; Louisiana sagewort; JS 18039; LS 4548
- Baccharis neglecta* Britton; Roosevelt-weed; LS 4119; 4540
- Baccharis salicina* Torr. & A. Gray; seepwillow; KW s.n.
- Baccharis texana* (Torr. & A. Gray) A. Gray; prairie weed; JS 8487; 9950
- Berlandiera betonicifolia* (Hook.) Small; Texas greeneyes; JS 10380; 10644
- Bidens bipinnata* L.; Spanish needles; JS 10819
- Bidens laevis* (L.) Britton, Sterns & Poggenb.; smooth beggartick; JS 15971; LS 4557
- Boltonia diffusa* Elliot; smallhead doll's daisy; JS 15969
- Brickellia cylindracea* A. Gray & Engelm.; brickell bush; JS 4095
- Brickellia eupatorioides* (L.) Shinnars var. *gracillima* (A. Gray) B.L. Turner; false boneset; JS 9983
- Calyptocarpus vialis* Less.; prostrate lawnflower; JS 10641; LS 3952
- **Carduus nutans* L. var. *macrocephalus* (Desf.) Boivin; muskthistle; JS 10556; LS 3742; LH 5323
- **Carduus tenuiflorus* W. Curtis; slender bristletistle; JS & TD 10732
- Centaurea americana* Nutt.; American basket flower; JS 10643
- **Centaurea melitensis* L.; Malta centaurea; JS & TD 10720; KW s.n.; LS 3741
- Chaetopappa asteroides* Nutt. ex DC.; common least daisy; JS 9952; KW s.n.
- Chaetopappa bellidifolia* (A. Gray & Engelm.) Shinnars; hairy least daisy; JS 10423; KW s.n.; LS 3787; LH 4776; 4991
- Chaetopappa effusa* (A. Gray) Shinnars; spreading least daisy; JS 8495
- Chaptalia texana* Greene; nodding lettuce; JS 10646
- Chrysactinia mexicana* A. Gray; damianita; LS 3802
- Cirsium ochrocentrum* A. Gray; yellow spine thistle; JS 10455
- Cirsium texanum* Buckley; southern thistle; JS 10556; KW s.n.; LS 3760
- Cirsium undulatum* (Nutt.) Spreng.; wavyleaf thistle; JS 10386
- **Cirsium vulgare* (Savi) Ten.; bull thistle; LH 5027
- Conyza canadensis* (L.) Cronq. var. *glabrata* (A. Gray) Cronq.; Canada fleabane; JS 18040; KW s.n.; LS 4073

- Conyza ramosissima* Cronq.; low conyza; FG 8304
- Coreopsis basilis* (Dietr.) Blake; goldenmane coreopsis; JS 10428; 10573; KW s.n.
- Coreopsis tinctoria* Nutt. var. *tinctoria*; plains coreopsis; JS & TD 10695
- Dracopis amplexicaulis* (Vahl) Cass.; clasping coneflower; JS 10617
- Dyssodia papposa* (Vent.) Hitchc.; mayweed dogweed; JS 18041
- Eclipta prostrata* (L.) L.; Yerba de Tago; JS 18131
- Engelmannia peristenia* (Raf.) Goodman & C.A. Lawson; Engelmann's daisy; LH 4977
- Erigeron modestus* A. Gray; plains fleabane; JS 18042; 10546; KW s.n.; LS 3800
- Eupatorium serotinum* Michx.; late eupatorium; JS 8483; 9968; LS 4096
- Evax prolifera* Nutt. ex DC.; bighead evax; JS 10398; KW s.n.; LS 3769; LH 4778
- Evax verna* Raf.; many-stem evax; JS 10406; LH 4777
- Gaillardia pulchella* Foug. var. *pulchella*; firewheel; JS 10414; KW s.n.; LS 3748
- Gaillardia suavis* (A. Gray & Engelm.) Britt. & Rusby; small ray firewheel; JS 10394; LH 4770
- Gamochaeta purpurea* (L.) Cabrera; cudweed; JS 10048
- Grindelia squarrosa* (Pursh) Dunal; curly-cup gumweed; JS 18043
- Gutierrezia texana* (DC.) Torr. & A. Gray var. *texana*; Texas broomweed; JS 18044; FG 8243; LS 4537
- Helenium amarum* (Raf.) H. Rock var. *badium* (A. Gray ex S. Watson) Waterf.; basin sneezeweed; JS 18045
- Helenium elegans* DC.; common sneezeweed; JS 10603
- Helenium microcephalum* DC. var. *microcephalum*; smallhead sneezeweed; JS 10454; LH 5033
- Helianthus annuus* L.; common sunflower; FG s.n.; KW s.n.; LH 5317
- Helianthus maximiliani* Schrad.; Maximillian sunflower; JS 10672; LS 3932
- Heterotheca subaxillaris* (Lam.) Britt. & Rusby; camphorweed; JS 18046; KW s.n.
- Hymenopappus scabiosaeus* L'Her.; flat-top woolly white; JS 10042; 10448; LH 4974
- Krigia caespitosa* (Raf.) Chamb.; weedy dwarf dandelion; JS 18047
- Lactuca canadensis* L. var. *canadensis*; Canada lettuce; JS 10558
- Lactuca ludoviciana* (Nutt.) Riddell; western wild lettuce; LH 5026
- **Lactuca serriola* L.; prickly lactuca; KW s.n.
- Laennecia coulteri* (A. Gray) G.L. Nesom; Coulter conyza; FG 8217
- Liatris mucronata* DC.; blazing star; JS 10066
- Lindheimera texana* A. Gray; Texas star; JS 10447
- Lygodesmia texana* (Torr. & A. Gray) Greene; Texas skeleton plant; JS 10656; LH 4992
- Marshallia caespitosa* Nutt. ex DC. var. *signata* Beadle & F.E. Boynt.; Barbara's button; JS 10436
- Melampodium leucanthum* Torr. & A. Gray; plains blackfoot; JS 18048; KW s.n.; LS 3943
- Packera obovata* (Muhl. ex Willd.) W.A. Weber & A. Löve; round-leaf ragwort; JS & TD 10718
- Packera plattensis* (Nutt.) W.A. Weber & A. Löve; prairie groundsel; JS & TD 10719; KW s.n.
- Palafoxia callosa* (Nutt.) Torr. & A. Gray; palafoxia; JS 10065
- Parthenium hysterophorus* L.; false ragweed; LS 4076; LH 5031
- Perityle lindheimeri* (A. Gray) Shinnery; Lindheimer rock daisy; JS 8479; 10635; LS 3851
- Pinaropappus roseus* (Less.) Less.; white rock lettuce; JS & TD 10743; KW s.n.; LH 4769
- Pluchea odorata* (L.) Cass.; purple stinkweed; JS 18049
- Pseudognaphalium canescens* (DC.) W.A. Weber; Wright cudweed; JS 8476
- Pseudognaphalium obtusifolium* (L.) Hilliard & B.L. Burt; fragrant cudweed; JS 10227
- Psilostrophe tagetina* (Nutt.) Greene; paper flower; JS 8496
- Pyrrhopappus carolinianus* DC.; false dandelion; JS 10425
- Pyrrhopappus pauciflorus* (D. Don) DC.; many-stem false dandelion; KW s.n.
- Ratibida columnifera* (Nutt) Woot. & Standl.; Mexican hat; JS 10389; JS & TD 10696; LS 3773
- Ratibida tagetes* (James) Barnh.; short-ray prairie coneflower; JS 10601
- Rudbeckia fulgida* Aiton; orange coneflower; JS 17577
- Rudbeckia hirta* L. var. *pulcherrima* Farw.; black-eyed Susan; LH 5315
- Silphium radula* Nutt.; roughstem rosinweed; JS 10604
- Simsia calva* (Engelm. & A. Gray) A. Gray; awnless bush sunflower; KW s.n.; LS 4055
- Solidago altissima* L.; common goldenrod; JS 9972
- Solidago juliae* G.L. Nesom; Julia's goldenrod; LS 4115
- Solidago nemoralis* Aiton; oldfield goldenrod; JS 9998; LS 4550
- Solidago petiolaris* Aiton; goldenrod; JS 9973
- Solidago radula* Nutt.; rough goldenrod; JS 10568
- **Sonchus asper* (L.) Hill; prickly sowthistle; JS 8501; 10431
- Symphytotrichum divaricatum* (Nutt.) G.L. Nesom; hierba del marrano; JS 10000
- Symphytotrichum drummondii* (Lindl.) G.L. Nesom var. *texanum* (Burgess) G.L. Nesom; Texas aster; JS 10225
- Symphytotrichum ericoides* (L.) G.L. Nesom; heath aster; JS 18050
- Symphytotrichum patens* (Aiton) G.L. Nesom var. *patens*; skydrop aster; JS 18051
- Symphytotrichum praealtum* (Poir.) G.L. Nesom var. *praealtum*; willow-leaf aster; JS 15962; LS 4120; 4558
- Symphytotrichum sericeum* (Vent.) G.L. Nesom; silky aster; JS 18052
- **Taraxacum officinale* F.H. Wiggers; common dandelion; JS 10388; LH 5580
- Tetragonotheca texana* Engelm & A. Gray ex A. Gray; Plateau nerve ray; FG 8245; LS 3936
- Tetraneuris acaulis* (Pursh) Greene; stemless four-nerve daisy; KW s.n.
- Tetraneuris linearifolia* (Hook.) Greene; fineleaf fournerved daisy; JS 10379; FG 8216; LS 3737

- Tetraneuris scaposa* (DC.) Greene; stemmy fournerved daisy; JS & TD 10722; LS 3941
- Thelesperma filifolium* (Hook.) A. Gray; greenthread; LS 3749
- Thelesperma megapotamicum* (Spreng.) Kuntze; Hopi tea greenthread; JS 10385
- Thelesperma simplicifolium* A. Gray; slender greenthread; LS 3803
- Verbesina encelioides* (Cav.) Benth. & Hook. f. ex A. Gray; cowpen daisy; JS 8482; LS 3931
- Verbesina lindheimeri* B.L. Rob. & Greenm.; Lindheimer's crown-beard; JS 15974
- Verbesina virginica* L.; frostweed; JS 9991; LS 4101
- Vernonia lindheimeri* A. Gray & Engelm. ex A. Gray; ironweed; JS 18053
- Viguiera stenoloba* Blake; resin bush; LS 3940; 4569
- Wedelia texana* (A. Gray) B.L. Turner; orange zemenia; JS 18054; FG 8231; 8263; LS 4062
- **Xanthium spinosum* L.; spiny cocklebur; FG 8348
- Xanthium strumarium* L.; abrojo; JS 18055

Berberidaceae

- Mahonia trifoliolata* (Moric.) Fedde; algerita; JS 18056; KW s.n.; LS 4193

Boraginaceae

- **Buglossoides arvensis* (L.) I.M. Johnst.; heliotrope; KW s.n.
- Heliotropium tenellum* (Nutt.) Torr.; pasture heliotrope; JS 10029; FG 8147; LS 3902
- Lithospermum incisum* Lehm.; narrowleaf gromwell; JS 18057; KW s.n.

Brassicaceae

- **Capsella bursa-pastoris* (L.) Medik.; shepherd's purse; JS 18058; LS 3720
- Draba cuneifolia* Nutt. ex Torr. & A. Gray; wedgeleaf whitlowgrass; JS 18059; KW s.n.; LH 4763
- Draba platycarpa* Torr. & A. Gray; broadpod whitlowgrass; JS 18060; KW s.n.; LH 4758
- Draba reptans* (Lam.) Fernald; Carolina draba; JS & TD 10684; KW s.n.
- Lepidium austrinum* Small; southern pepperweed; LS 3721; 4042
- Lepidium virginicum* L.; Virginia pepperweed; JS & TD 10744; KW s.n.; LH 4772
- **Nasturtium officinale* W.T. Aiton; watercress; LH 4981
- Physaria argyraea* (A. Gray.) O'Kane & Al-Shehbaz; silvery bladderpod; KW s.n.
- Physaria densiflora* (A. Gray) O'Kane & Al-Shehbaz; denseflower bladderpod; JS & TD 10745
- Physaria gracilis* (Hook.) O'Kane & Al-Shehbaz ssp. *gracilis*; white bladderpod; LS 4207
- Physaria recurvata* (A. Gray) O'Kane & Al-Shehbaz; gaslight bladderpod; slender bladderpod; LS 3738; LH 4759
- Rorippa sessiliflora* (Nutt.) Hitchc.; stalkless yellowcress; JS 10664

Cactaceae

- Coryphantha sulcata* (Engelm.) Britt. & Rose; pineapple cactus; LH 5956
- Cylindropuntia imbricata* (Haw.) F.M. Knuth; tree cholla; JS 18061

- Cylindropuntia leptocaulis* (DC.) F.M. Knuth; pencil cactus; JS 10441
- Echinocactus texensis* Hopffer; devil's pincushion cactus; JS 18062; LS 4208
- Echinocereus enneacanthus* Engelm.; pitaya; JS 18063
- Echinocereus reichenbachii* (Terscheck ex Walp.) Haage ssp. *reichenbachii*; lace cactus; JS 18064
- Echinocereus triglochidiatus* Engelm.; claret cup cactus; LS 4216
- Epithelantha micromeris* (Engelm.) A. Weber; button cactus; LS 3946
- Mammillaria heyderi* Muehlenpfordt; little nipple cactus; LH 5626
- Opuntia edwardsii* V.E. Grant & K.A. Grant; Edwards prickly pear; JS 18065
- Opuntia engelmannii* Salm-Dyck ex Engelm. var. *lindheimeri* (Engelm.) Parfitt & Pinkava; Texas prickly pear; JS 18066; LH 5868
- Opuntia macrorhiza* Engelm.; plains prickly pear; LH 5870
- Opuntia phaeacantha* Engelm. var. *major* Engelm.; brown-spine prickly pear; LH 5869
- Sclerocactus brevihamatus* (Engelm.) D.R. Hunt ssp. *tobuschii* (W.T. Marsh.) N.P. Taylor; Tobusch fish-hook cactus; photo only (Listed as Endangered)

Campanulaceae

- Lobelia cardinalis* L. var. *cardinalis*; cardinal flower; JS 18067
- Triodanis coloradoensis* (Buckley) McVaugh; Colorado Venus looking glass; JS 10416; 10580; KW s.n.
- Triodanis lamprosperma* McVaugh; prairie Venus looking glass; KW s.n.
- Triodanis perfoliata* (L.) Neiuwl.; Venus looking glass; JS 10375; KW s.n.

Capparidaceae

- Polanisia dodecandra* (L.) DC.; clammyweed; JS 10615; 10654; LS 4071

Caprifoliaceae

- Lonicera albiflora* Torr. & A. Gray; white honeysuckle; JS & TD 10741; KW s.n.; LS 4204
- Symphoricarpos orbiculatus* Moench; coralberry; JS 18068; LS 4556
- Viburnum rufidulum* Raf.; downy viburnum; JS 10021; 10547; JS & TD 10726; KW s.n.

Caryophyllaceae

- Arenaria benthamii* Fenzl. ex Torr. & A. Gray; hilly sandwort; JS 18069; LS 3730
- **Cerastium glomeratum* Thuillier; chickweed; JS 18070
- Paronychia lindheimeri* Engelm. ex A. Gray; Lindheimer's nailwort; LS 4567
- Paronychia virginica* Spreng.; bristle nailwort; JS 18071
- **Polycarpon tetraphyllum* (L.) L.; fourleaf manyseed; JS 18072
- Silene antirrhina* L.; sleepy catchfly; JS 10417; LS 3732
- **Stellaria media* (L.) Vill.; chickweed; JS & TD 10702

Chenopodiaceae

- Chenopodium album* L. var. *album*; pigweed; JS 18073; LH 4976
- Chenopodium berlandieri* Moq.; pitseed goosefoot; KW s.n.

Chenopodium simplex (Torr.) Raf.; maple-leaf goosefoot; JS 4088

Clusiaceae

Hypericum drummondii (Grev. & Hook.) Torr. & A. Gray; Drummond St. John's wort; JS 18074

Hypericum mutilum L.; dwarf St. John's wort; JS 18075

Convolvulaceae

**Convolvulus arvensis* L.; field bindweed; JS 10384

Convolvulus equitans Benth.; gray bindweed; JS 10673; LS 3778

Dichondra carolinensis Michx.; grass pony weed; JS 10390; LS 4210

Evolvulus sericeus Sw.; silver dwarf morning glory; JS 18076; LS 3916

Ipomoea cordatotriloba Dennst. var. *cordatotriloba*; sharp-pod morning glory; LS 3958

Ipomoea hederacea Jacq.; ivy-leaf morning glory; JS 8489

Ipomoea lindheimeri A. Gray; Lindheimer's morning glory; LS 4060

Ipomoea purpurea (L.) Roth; Mexican morning glory; JS 10411

Cornaceae

Cornus drummondii C.A. Mey.; roughleaf dogwood; JS 10589; KW s.n.; LH 5867

Crassulaceae

Crassula aquatica (L.) Schoenl.; crassula; JS 18077

Sedum nuttallianum Raf.; Nuttall's stonecrop; JS 10463; LS 3794

Cucurbitaceae

Cucurbita foetidissima Kunth. in H.B.K.; buffalo gourd; JS 10462; LS 3752

Ibervillea lindheimeri (A. Gray) Greene; Lindheimer globeberry; JS 18078

Cuscutaceae

Cuscuta sp.; dodder; JS 18079; LH 6256

Ebenaceae

Diospyros texana Scheele; Texas persimmon; JS 18080; KW s.n.; LS 4201

Ericaceae

Arbutus xalapensis Kunth; madrone; KW s.n.

Euphorbiaceae

Acalypha ostryifolia Riddell; hop-hornbeam copperleaf; LS 3770

Acalypha phleoides Cav.; Lindheimer copperleaf; JS 10625; FG 8214; LS 3788

Acalypha radians Torr.; round copperleaf; JS 10060

Argythamnia humilis (Engelm. & A. Gray) Muell. Arg. var. *humilis*; low wild mercury; KW s.n.; LS 3750

Argythamnia simulans J.W. Ingram; Plateau wild mercury; JS 10614; LH 4973

Bernardia myricifolia (Scheele) S. Wats.; brush myrtlecroton; JS 18081

Chamaesyce angusta (Engelm.) Small; blackfoot euphorbia; JS 10662; KW s.n.; LS 3809; 4093

Chamaesyce fendleri (Torr. & A. Gray) Small; spurge; JS 10395
Chamaesyce glyptosperma (Engelm.) Small; ridgeseed euphorbia; JS 10619

Chamaesyce maculata (L.) Small; spotted spurge; JS 10037; 10653

Chamaesyce missurica (Raf.) Shinnery; spurge; JS 9963b

Chamaesyce nutans (Lag.) Small; eyebane; JS 9976; LS 3772; 4089

Chamaesyce prostrata (Aiton) Small; prostrate euphorbia; JS 9978; LS 4070; 4535; 4563; LH 5309

Chamaesyce serpens (Kunth) Small; mat spurge; JS 10761; KW s.n.; LS 3771; 4045

Chamaesyce serpyllifolia (Pers.) Small; thymeleaf euphorbia; JS 10653

Chamaesyce villifera (Scheele) Small; hairy euphorbia; JS 10661; LS 3949; 4064

Croton capitatus Michx.; woolly croton; JS 10016

Croton fruticosus Engelm. ex Torr.; bush croton; JS 10660; LS 3840

Croton lindheimerianus Scheele; three-seed croton; JS 10017

Croton monanthogynus Michx.; one-seed croton; JS 10052; FG 8293; LS 3937

Croton texensis (Klotzsch) Muell. Arg.; Texas croton; JS 10047; 10660; LS 4067

Euphorbia cyathophora Murray; wild poinsettia; KW s.n.; LS 4063

Euphorbia dentata Michx.; toothed spurge; JS 10609; LH 4978

Euphorbia marginata Pursh; snow-on-the-mountain; JS 10025; LS 4102

Euphorbia roemeriana Scheele; Roemer euphorbia; JS 8477; LS 3791

Euphorbia spathulata Lam.; warty euphorbia; KW s.n.; LH 4775

Leptopus phyllanthoides (Nutt.) G.L. Webster; maidenbush; JS 10570

Phyllanthus abnormis Baill. var. *abnormis*; Drummond's leaf flower; JS 10419

Phyllanthus polygonoides Nutt. ex Spreng.; knotweed leaf flower; JS & TD 10746; FG 8250; LS 3758

Stillingia texana I.M. Johnston; Texas stillingia; JS 10036; 10467; 10564; LS 3805

Tragia amblyodonta (Muell. Arg.) Pax. & K. Hoffm.; dogtooth noseburn; JS 10659

Tragia bentoniciifolia Nutt.; betony noseburn; JS 10376

Tragia nigricans Bush; dark noseburn; JS 10382

Tragia ramosa Torr.; catnip noseburn; JS 10634; FG 8254; LS 3795

Fabaceae

Acacia greggii A. Gray; catclaw acacia; KW s.n.

Acacia roemeriana Scheele; roundflower catclaw; JS 18082; LH 4784

Amorpha fruticosa L.; indigo bush amorpha; JS 18083

Astragalus distortus Torr. & A. Gray var. *engelmannii* (Sheldon) M.E. Jones; bent pod milk vetch; JS & TD 10742

Astragalus nuttallianus DC.; small-flowered milk vetch; JS & TD 10748; KW s.n.; LH 4761

Astragalus plattensis Nutt.; Platte River milk vetch; JS 10432
Astragalus wrightii A. Gray; Wright's milk vetch; LH 4764
Cercis canadensis L. var. *texensis* (S. Wats.) M. Hopk.; Texas red-bud; JS 8763; JS & TD 10734; KW s.n.; LS 3804; 4195
Dalea aurea Nutt. ex Pursh; golden dalea; JS 10571; LS 3922
Dalea frutescens A. Gray; black dalea; KW s.n.
Dalea lasiathera A. Gray; purple prairie clover; JS 18084; LS 4078
Dalea nana Torr. & A. Gray; dwarf dalea; JS 10645; LS 4542
Desmanthus acuminatus Benth.; sharp-pod bundleflower; LS 3903
Desmanthus velutinus Scheele; velvet bundleflower; JS 10650; KW s.n.; FG 8251; LS 3904
Desmodium paniculatum (L.) DC; panicked tickclover; JS 10657; LH 5314
Desmodium sessilifolium (Torr.) Torr. & A. Gray; sessileleaf tickclover; JS 10628; KW s.n.
Eysenhardtia texana Scheele; Texas kidneywood; JS 10027; 10620; KW s.n.; LS 3852
Galactia texana (Scheele) A. Gray; Texas milkpea; JS 10040; 10657
Indigofera miniata Ortega; scarlet pea; JS 18085
Lathyrus pusillus Ell.; low peavine; LH 4780
Lespedeza texana Britt.; Texas bush clover; LS 3926
Lespedeza virginica (L.) Britt.; slender lespedeza; JS 10429
Leucaena retusa Benth. in A. Gray; little-leaf leadtree; JS 10049; DH s.n.; LS 3925
Lotus unifoliolatus (Hook.) Benth. var. *helleri* (Britton) Kartesz & Gandhi; Heller's bird's-foot trefoil; JS 10410
Lupinus texensis Hook.; Texas bluebonnet; JS & TD 10737; LS 3792
 **Medicago lupulina* L.; black medic; LS 3734
 **Medicago minima* (L.) Bartalina; small medicago; JS & TD 10747; LS 3725
 **Melilotus officinalis* (L.) Lam.; yellow sweetclover; JS 10605; 10623
Mimosa aculeaticarpa Ortega var. *biuncifera* (Benth.) Barneby; wait a bit; JS 10046
Mimosa borealis A. Gray; fragrant mimosa; JS 10222; LH 4782
Mimosa nuttallii (DC. ex Britton & Rose) B.L. Turner; catclaw sensitive brier; JS 18086
Pediomelum hypogaeum (Nutt. ex Torr. & A. Gray) Rydb. var. *scaposum* (A. Gray) Mahler; subterranean Indian breadroot; LH 4783
Prosopis glandulosa Torr.; mesquite; JS 10472; KW s.n.; LS 3919
Rhynchosia senna Gillies ex Hook. var. *texana* (Torr. & A. Gray) M.C. Johnst.; Texas snoutbean; JS 18087; KW s.n.; LS 3781
Senna roemeriana (Scheele) Irwin & Barneby; two-leaf senna; JS 10028; 10381; FG 8291; LS 3754
Styphnolobium affine (Torr. & A. Gray) Walp.; Eve's necklacepod; JS 18088; KW s.n.; LS 4043
Vicia carolinianum Walt.; Carolina vetch; JS 10430
Vicia ludoviciana Nutt.; deer pea vetch; JS & TD 10749; KW s.n.; LS 4211

Fagaceae

Quercus buckleyi Nixon & Dorr; Buckley oak; JS 9956; KW s.n.; LS 4194
Quercus fusiformis Small; Plateau live oak; JS & TD 10714; KW s.n.; LS 4202
Quercus laceyi Small; Lacey oak; JS 10631; DH s.n.; KW s.n.; LS 4111
Quercus marilandica Muenchh.; blackjack oak; JS 10671; KW s.n.; LS 4044; 4197
Quercus muehlenbergii Engelm.; chinquapin oak; JS 10039; KW s.n.; LS 4222
Quercus pungens Liebm. var. *vaseyana* (Buckley) C.H. Mull.; Vasey shin oak; JS 9992
Quercus sinuata Walter var. *breviloba* (Torr.) C.H. Mull.; bastard oak; JS 9957; 10618; JS & TD 10713; KW s.n.; LS 4199
Quercus stellata Wang. var. *stellata*; post oak; JS 10670; KW s.n.; LS 4196

Fumariaceae

Corydalis curvisiliqua Engelm. ssp. *curvisiliqua*; scrambled eggs; LH 4765
Corydalis micrantha (Engelm.) A. Gray; scrambled eggs; JS & TD 10687; KW s.n.

Garryaceae

Garrya ovata Benth. ssp. *lindheimeri* (Torr.) Dahling; silktassel; JS 8765; KW s.n.

Gentianaceae

Centaurium beyrichii (Torr. & A. Gray) B.L. Rob.; mountain pink; JS 10393; 10026a; 10632; FG 8259; LS 4415
Centaurium calycosum (Buckley) Fernald; Buckley centaury; JS 10581; LH 5022
Eustoma exaltatum (L.) Salisb. ex G. Don ssp. *russellianum* (Hook.) Kartesz; showy prairie gentian; JS 18132; LS 4413

Geraniaceae

**Erodium cicutarium* (L.) L'Her. ex Aiton; alfilaria; JS & TD 10705; KW s.n.; LS 3733
Erodium texanum A. Gray; Texas filaree; JS & TD 10704; JS 10453; LH 5861
Geranium carolinianum L.; Carolina geranium; JS 10457
Geranium texanum (Trel.) A. Heller; Texas geranium; LS 4209

Hippocastanaceae

Aesculus pavia (Sarg.) Correll var. *pavia*; red buckeye; JS & TD 10717

Hydrophyllaceae

Nama jamaicense L.; Jamaican weed; JS 10659; LH 4757
Nemophila phacelioides Nutt.; large-flower nemophila; JS & TD 10694
Phacelia congesta Hook.; spike phacelia; JS 10552; KW s.n.; LH 4975

Juglandaceae

Carya illinoensis (Wang.) Koch; pecan; JS 9988; KW s.n.; LS 4224
Juglans major (Torr.) A. Heller; Arizona walnut; LS 4087
Juglans microcarpa Berland.; little walnut; JS 9962; 10612; DH s.n.; LS 3830
Juglans nigra L.; black walnut; JS 10562; KW s.n.

Krameriaceae

Krameria lanceolata Torr.; trailing krameria; JS 18089

Lamiaceae

Hedeoma acinoides Scheele; slender hedeoma; JS 10399; LH 4766

Hedeoma drummondii Benth.; Drummond hedeoma; JS 10396; FG 8254; LS 4046

Hedeoma nana (Torr.) Briq.; low hedeoma; JS 9977

Hedeoma reverchonii (A. Gray) A. Gray var. *reverchonii*; rock hedeoma; JS 10565; 10575

Hedeoma reverchonii (A. Gray) A. Gray var. *serpyllifolia* (Small) Irving; thymeleaf hedeoma; LS 3808; 3917

**Lamium amplexicaule* L.; henbit; JS & TD 10685; LH 5579

**Marrubium vulgare* L.; common horehound; JS 10560; FG 8271; LS 3740

**Mentha spicata* L.; spearmint; JS 10018

Monarda citriodora Cerv. ex Lag.; lemon beebalm; FG 8276; LS 4417

Monarda punctata L. ssp. *punctata* var. *intermedia* (E.M. McClint. & Epling) Waterf.; spotted beebalm; JS 10434

**Nepeta cataria* L.; catnip; JS 10629

Physostegia angustifolia Fernald; Edward's lionsheart; JS 10569; 10663; LS 4412; LH 4983

Salvia farinacea Benth.; mealy cup sage; JS 10383; FG 8257; LS 3739

Salvia reflexa Hornem.; lanceleaf sage; FG 8215

Salvia roemeriana Scheele; cedar sage; JS 8480; LS 3867

Scutellaria drummondii Benth.; Drummond skullcap; JS 10401; JS & TD 10710; KW s.n.; LS 3782

Scutellaria ovata Hill. ssp. *ovata*; eggleaf skullcap; JS 10035

Stachys crenata Raf.; shade betony; LH 5862

Teucrium canadense L. var. *canadense*; American germander; JS 10597; LS 3930

Trichostema brachiatum L.; flux weed; JS 18090; LS 4074; 4080; LH 6254

Warnockia scutellarioides (Engelm. & A. Gray) M.W. Turner; prairie brazoria; JS 10426; KW s.n.; LH 4990

Lauraceae

Lindera benzoin (L.) Blume; spicebush; JS 10583

Lentibulariaceae

Utricularia gibba L.; cone-spur bladderwort; JS 10001

Linaceae

Linum berlandieri Hook. var. *berlandieri*; flax; JS 9982

Linum rupestre (A. Gray) Engelm. ex A. Gray; rock flax; JS 10377; LS 4059

Loasaceae

Eucnide bartonioides Zucc.; yellow rocknettle; JS 8768; 10554; LH 5555

Mentzelia oligosperma Nutt. ex Sims.; chicken-thief; JS 10452; LS 4408

Mentzelia reverchonii (Urb. & Gilg) H.J. Thomp. & Zavort.; mentzelia; JS 10572

Loganiaceae

Buddleja racemosa Torr. ssp. *incana* (Torr.) Norman; wand butterfly-bush; JS 8474

Mitreola petiolata (J.F. Gmel.) Torr. & A. Gray; lax hornpod; JS 18091; LS 4099

Lythraceae

Ammannia coccinea Rottb.; Valley redstem; JS 18092

Lythrum ovalifolium Koechn.; low loosestrife; JS 10063

Malpighiaceae

Galphimia angustifolia Benth.; narrowleaf thryallis; JS 18093; FG 8211; LS 3860

Malvaceae

Abutilon fruticosum Guill. & Perrottet; Texas Indian mallow; JS 10658; FG 8256a; LS 3799; 4538

Callirhoe pedata (Nutt. ex Hook.) A. Gray; finger poppy mallow; JS 10438

Rhynchosida physocalyx (A. Gray) Fryxell; buff petal; LS 3776

Sida abutifolia Mill.; spreading sida; JS 10038; 10647; 10800; FG 8247; LS 3789

Sida lindheimeri Engelm. & A. Gray; showy sida; JS 10061; 10658

Sphaeralcea angustifolia (Cav.) G. Don. var. *angustifolia*; leaf globe mallow; KW s.n.

Meliaceae

**Melia azedarach* L.; chinaberry; KW s.n.; LH 4786

Menispermaceae

Cocculus carolinus (L.) DC.; Carolina snailseed vine; JS 8491; 10012; KW s.n.; LS 3953

Molluginaceae

Glinus radiatus (Ruiz & Pavon) Rohrb.; spreading sweetjuice; JS 18094

Mollugo verticillata L.; green carpetweed; JS 18095

Moraceae

Morus microphylla Buckley; Texas mulberry; JS 9990; 10551; KW s.n.; LS 4219

Morus rubra L.; red mulberry; JS 10593

Nyctaginaceae

Boerhavia diffusa L.; scarlet spiderling; JS 18096

Mirabilis albida (Walt.) Heimerl; four-o'clock; KW s.n.; LS 3796; 4066; 4545; 4559

Mirabilis nyctaginea (Michx.) MacMill; heartleaf four-o'clock; JS 10557

**Mirabilis jalapa* L.; marvel of Peru; LS 4530

Mirabilis linearis (Pursh.) Heimerl; linearleaf four-o'clock; JS 10373; JS & TD 10731; LH 6258

Oleaceae

Forestiera pubescens Nutt.; elbowbush; JS 8766; 10636; KW s.n.; LS 4200

Forestiera reticulata Torr.; netleaf forestiera; JS 18097

Fraxinus texensis (A. Gray) Sarg.; Texas ash; JS 18098

Menodora longiflora A. Gray; showy menodora; LS 4054

Onagraceae

Calylophus berlandieri Spach ssp. *berlandieri*; halfshrub sun-drops; JS 18099

Ludwigia peploides (Kunth. in H.B. K.) P.H. Raven; floating primrose-willow; JS 18100

Ludwigia repens J.R. Forst.; roundleaf seedbox; JS 18101

Oenothera grandis (Britt.) Smyth; grand evening primrose; JS 10435

Oenothera speciosa Nutt.; showy primrose; KW s.n.

Oenothera triloba Nutt.; stemless evening primrose; KW s.n.; LH 4787

Stenosiphon linifolius (Nutt. ex James) Heynh.; false gaura; JS 18102

Oxalidaceae

Oxalis dillenii Jacq.; Dillen's oxalis; JS 18133; FG 8314

Oxalis drummondii A. Gray; purple wood sorrel; LS 4083

Oxalis stricta L.; yellow wood sorrel; KW s.n.; LS 3775

Papaveraceae

Argemone albiflora Hornem. ssp. *texana* G.B. Ownbey; white prickly poppy; JS 18103

Argemone aurantiaca G.B. Ownbey; Texas prickly poppy; LS 3786

Passifloraceae

Passiflora affinis Engelm.; bracted passionflower; JS 9987

Passiflora lutea L.; yellow passionflower; JS 10555; KW s.n.

Passiflora tenuiloba Engelm.; spread-lobe passionflower; JS 10009; LS 4094

Pedaliaceae

Proboscidea louisianica (Mill.) Thell. ssp. *louisianica*; common devil's claw; JS 10018

Phytolaccaceae

Phytolacca americana L.; pokeweed; JS 8502; LH 5322

Rivina humilis L.; rougeplant; JS 18104

Plantaginaceae

Plantago helleri Small; cedar plantain; LS 3761

Plantago patagonica Jacq.; bristle bract plantain; JS & TD 10750; KW s.n.

Plantago rhodosperma Decne.; redseed plantain; JS 10413; JS & TD 10751; LH 4980

Plantago virginica L.; paleseed plantain; JS 10402

Platanaceae

Platanus occidentalis L.; sycamore; JS 18105; KW s.n.; LS 3829

Polemoniaceae

Giliastrum rigidulum (Benth.) Rydb.; pricklyleaf gilia; JS & TD 10738; LS 3938

Phlox drummondii Hook.; Drummond phlox; JS 10439

Phlox roemeriana Scheele; Roemer phlox; JS & TD 10736; LH 4768

Polygalaceae

Polygala alba Nutt.; white milkwort; JS 18106

Polygala lindheimeri A. Gray; shrubby milkwort; JS 18107; LH 6053

Polygonaceae

Polygonum hydropiperoides Michx.; swamp smartweed; JS 18109

Polygonum lapathifolium L.; curltop smartweed; JS 18110

**Rumex crispus* L.; curly dock; JS 18111

**Rumex pulcher* L.; fiddle dock; LS 3743

Portulacaceae

**Portulaca oleracea* L.; common purslane; KW s.n.; JS 18112

Portulaca pilosa L.; shaggy purslane; JS 18113; KW s.n.; LS 3954

Phemeranthus aurantiacus (Engelm.) Kiger; orange flame-flower; KW s.n.; FG 8258

Primulaceae

Samolus ebracteatus Kunth.; limerock brookweed; JS 8478; 10024; LS 3853

Samolus valerandi L. ssp. *parviflorus* (Raf.) Hulten; thin-leaf brookweed; LS 3837; 3866

Ranunculaceae

Anemone berlandieri Pritz.; tenpetal anemone; JS & TD 10686

Anemone caroliniana Walt.; Carolina anemone; JS & TD 10689; KW s.n.

Aquilegia canadensis L.; American columbine; JS 10587

Clematis drummondii Torr. & A. Gray; Texas virginsbower; JS & TD 10697; KW s.n.; LS 4069

Clematis pitcheri Torr. & A. Gray; purple leather flower; JS 10559; 10823; LS 3861

Clematis texensis Buckley; scarlet clematis; JS 18114

Delphinium carolinianum Walter ssp. *virescens* (Nutt.) R.E. Brooks; Carolina larkspur; JS 10440; KW s.n.

Rhamnaceae

Berchemia scandens (Hill) K. Koch; Alabama supplejack; JS 18115

Ceanothus herbaceus Raf.; redroot; JS 10567

Colubrina texensis (Torr. & A. Gray) A. Gray; Texas colubrina; JS 10622

Condalia ericoides (A. Gray) M.C. Johnst.; javelina bush; JS 8769

Condalia hookeri M.C. Johnst.; brasil; JS 10470; KW s.n.

Condalia spathulata A. Gray; knifeleaf condalia; LS 4205

Frangula caroliniana (Walter) A. Gray; Carolina buckthorn; JS 18116; DH s.n.

Ziziphus obtusifolia (Hook. ex Torr. & A. Gray) A. Gray var. *obtusifolia*; lotebush; JS 10621

Rosaceae

Cercocarpus montanus Raf.; true mountain mohogany; JS 8497

Crataegus sp.; hawthorn; KW s.n.

Geum canadense Jacq.; white avens; JS 18117; LS 3850

Petrophytum caespitosum (Nutt.) Rydb.; rock spirea; JS 8767; LS 4121

Prunus angustifolia Marsh.; chickasaw plum; JS 10648

Prunus serotina Ehrh. var. *eximia* (Small) Little; Escarpment black cherry; JS 10020; JS & TD 10715; KW s.n.; LS 4203

Prunus texana D. Dietr.; Texas peach; JS 8481

Rubus trivialis Michx.; southern dewberry; JS 18118

Rubiaceae

Cephalanthus occidentalis L.; common button bush; JS 10637; KW s.n.; LS 3933

Galium aparine L.; catchweed bedstraw; JS & TD 10752; KW s.n.; LS 3759

Galium texense A. Gray; Texas bedstraw; JS 10409; KW s.n.; LS 3745

Galium virgatum Nutt.; southwest bedstraw; LS 4213

Houstonia pusilla Schoepf.; tiny bluet; JS 18119

**Sherardia arvensis* L.; spurwort; JS & TD 10690

Stenaria nigricans (Lam.) Terrell var. *nigricans*; fineleaf bluets; JS 8488; 10374; FG 8263; KW s.n.; LS 3807

Rutaceae

Ptelea trifoliata L.; hoptree; JS 10820

Thamnosma texana (A. Gray) Torr.; dutchman's breeches; JS 18120; LS 3810

Zanthoxylum hirsutum Buckley; pricklyash; JS 18121; KW s.n.

Salicaceae

Populus deltoides Bartram ex Marsh. ssp. *deltoides*; cottonwood; JS 18122

Salix nigra Marsh.; black willow; JS 18123; LS 4223

Sapindaceae

Sapindus saponaria L. var. *drummondii* (Hook. & Arn.) L.D. Benson; western soapberry; JS 10011; 10591

Ungnadia speciosa Endl.; Mexican buckeye; JS & TD 10167; KW s.n.; LS 4215

Sapotaceae

Sideroxylon lanuginosum Michx. ssp. *albicans* (Sarg.) Kartesz & Gandhi; gum bully; JS 9993; 10633; KW s.n.; LS 3944

Scrophulariaceae

Agalinis edwardsiana Pennell; Plateau gerardia; JS 18124

Agalinis homalanthia Pennell; San Antonio false foxglove; JS 18125

Bacopa monnieri (L.) Pennell; coastal water hyssop; JS 18126

Buchnera americana L.; American bluehearts; JS 9966; 10616; LS 3862

Leucospora multifida (Michx.) Nutt.; narrow leaf conobea; JS 10061, 10221, 10599, 15967; LS 3857

Lindernia dubia (L.) Pennell var. *anagallidea* (Michx.) Cooperr.; clasping false pimpernel; JS 10465

Maurandella antirrhiniflora (Humb. & Bonpl. ex Willd.) Rothm.; snapdragon vine; JS 8492; LS 3827

Mecardonia procumbens (Mill.) Small; prostrate water hyssop; JS 10666; LS 3856

Nuttallanthus canadensis (L.) D.A. Sutton; Texas toadflax; JS & TD 10709; KW s.n.

Penstemon cobaea Nutt.; foxglove; JS 10550

Penstemon triflorus A. Heller ssp. *triflorus*; Heller penstemon; JS 18127

**Verbascum thapsus* L.; flannel mullein; JS 10608; FG 8256; LH 5025

**Veronica agrestis* L.; wayside purslane; JS 10607

**Veronica arvensis* L.; common speedwell; LS 3718

Veronica peregrina L.; purslane speedwell; JS & TD 10692; LS 3744

Solanaceae

Chamaesaracha coronopus (Dunal) A. Gray; green false nightshade; KW s.n.

Chamaesaracha edwardsiana Averett; Plateau false nightshade; LS 4547

Chamaesaracha sordida (Dunal) A. Gray; hairy false nightshade; JS 10474

**Datura stramonium* L.; jimsonweed; JS 8484

Nicotiana repanda Willd. ex Lehm.; fiddle leaf tobacco; JS 8764

Nicotiana trigonophylla Dunal; desert tobacco; LS 3868

Physalis cinerascens (Dunal) Hitchc. var. *cinerascens*; small-flower groundcherry; JS 8503; LS 3777; 3950; 4065

Physalis mollis Nutt. var. *mollis*; field groundcherry; KW s.n.

Solanum citrullifolium A. Braun var. *citrullifolium*; melon nightshade; JS 10412

Solanum dimidiatum Raf.; western horse nettle; JS 9955

Solanum elaeagnifolium Cav.; silver leaf nightshade; JS 10051; FG 8293; LS 3736

Solanum ptycanthum Dunal; American nightshade; KW s.n.; LS 4553

Solanum rostratum Dunal; buffalo bur; JS 9954; LS 4075

Sterculiaceae

Hermannia texana A. Gray; Mexican mallow; LS 3939

Ulmaceae

Celtis laevigata Willd. var. *laevigata*; sugar hackberry; JS 18128; KW s.n.

Celtis laevigata Willd. var. *reticulata* (Torr.) L.D. Benson; netleaf hackberry; JS 9994; DH s.n.; LS 4198

Celtis laevigata Willd. var. *texana* Sarg.; Texas hackberry; LH 5625

Celtis ehrenbergiana (Klotzsch) Liebm.; spiny hackberry; JS 10041

Ulmus americana L.; American elm; JS 9989

Ulmus crassifolia Nutt.; cedar elm; JS & TD 10735; DH s.n.; KW s.n.; LS 4092

Ulmus rubra Muhl.; slippery elm; JS 10003; KW s.n.

Urticaceae

Boehmeria cylindrica (L.) Sw.; false nettle; JS 10019; LS 4103

Parietaria pensylvanica Muhl. ex Willd.; Pennsylvania pelitory; JS & TD 10691; KW s.n.; LS 3719

Urtica chamaedryoides Pursh; heart-leaf nettle; JS & TD 10699; LH 4760

Valerianaceae

Valerianella amarella (Lindh. ex Engelm.) Krok; hairy corn salad; JS 10427; KW s.n.; LH 4781

Valerianella stenocarpa (Engelm. ex A. Gray) Krok; bigflower cornsalad; JS & TD 10721; KW s.n.

Verbenaceae

Aloysia gratissima (Gillies & Hook.) Troncoso; whitebrush; JS 10002; LS 3913

Glandularia bipinnatifida (Nutt.) Nutt. var. *bipinnatifida*; Dakota vervain; FG 8255; KW s.n.; LS 3747; 4061

Glandularia pumila (Rydb.) Umber; pink vervain; JS & TD 10754; KW s.n.; LH 4756

Phyla nodiflora (L.) Greene; frogfruit; JS 18129; LS 3849

**Verbena brasiliensis* Vell.; Brazilian vervain; LS 3865; 4098

Verbena canescens Kunth; gray vervain; JS & TD 10753; FG 8260; KW s.n.; LS 3726; 3905; 3951; 3955

Verbena halei Small; slender vervain; JS 10451; LS 3915

Verbena scabra Vahl; harsh vervain; JS 9999; 15968; JS & TD 10688; LS 4097

Verbena xutha Lehm.; coarse verbena; JS 10415

Violaceae

Hybanthus verticillatus (Ortega) Baill. var. *verticillatus*; whorled nod violet; JS 10378; KW s.n.; LS 3811; LH 4767; 6054; 6055; 6056; 6057

Viola bicolor Pursh; field pansy; JS 10015

Viscaceae

Phoradendron tomentosum (DC.) Engelm. ex A. Gray; Christmas mistletoe; LS 3920

Vitaceae

Ampelopsis cordata Michx.; heartleaf ampelopsis; LS 3834; LH 5864

Cissus trifoliata (L.) L.; treebine; JS 10059

Parthenocissus heptaphylla (Buckley) Britton ex Small; seven-leaf creeper; KW s.n.; LS 3828

Parthenocissus quinquefolia (L.) Planch.; Virginia creeper; JS 9967

Vitis cinerea (Engelm.) Engelm. ex Millardet var. *helleri* (L.H. Bailey) M.O. Moore; Spanish grape; LH 4774

Vitis monticola Buckley; sweet mountain grape; JS 10548; KW s.n.; LS 3835

Vitis mustangensis Buckley; mustang grape; JS 9959

Vitis riparia Michx.; riverbank grape; JS 10056

Vitis rupestris Scheele; sand grape; KW s.n.

Zygophyllaceae

Kallstroemia parviflora J.B.S. Norton; warty caltrop; LS 4533

**Tribulus terrestris* L.; puncturevine; JS 9980; FG 8301

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