THE VEGETATION TYPES OF TEXAS
Including Cropland

An Illustrated Synopsis to
Accompany the Map

by

Craig A. McMahan, Roy G. Frye and Kirby L. Brown
Texas Parks and Wildlife Department

Live Oak – Ashe Juniper Woods
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This Investigation is a Contribution
of Pittman-Robertson Project W-107-R

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Wildlife Division
Texas Parks and Wildlife Department
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# TABLE OF CONTENTS

<table>
<thead>
<tr>
<th>Page</th>
<th>Introduction</th>
<th>1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Page</td>
<td>Physiognomic Criteria</td>
<td>2</td>
</tr>
<tr>
<td>Page</td>
<td>The Ecological Areas</td>
<td>3</td>
</tr>
<tr>
<td>Page</td>
<td>The Vegetation Types</td>
<td>4</td>
</tr>
<tr>
<td>(1)</td>
<td>Tobosa-Black Grama Grassland</td>
<td>4</td>
</tr>
<tr>
<td>(2)</td>
<td>Blue Grama-Buffalograss Grassland</td>
<td>4</td>
</tr>
<tr>
<td>(3)</td>
<td>Bluestem Grassland</td>
<td>5</td>
</tr>
<tr>
<td>(4)</td>
<td>Silver Bluestem-Texas Wintergrass Grassland</td>
<td>5</td>
</tr>
<tr>
<td>(5)</td>
<td>Yucca-Ocotillo Shrub</td>
<td>6</td>
</tr>
<tr>
<td>(6)</td>
<td>Creosotebush-Tarbush Shrub</td>
<td>6</td>
</tr>
<tr>
<td>(7)</td>
<td>Creosotebush-Lichugulla Shrub</td>
<td>7</td>
</tr>
<tr>
<td>(8)</td>
<td>Creosotebush-Mesquite Shrub</td>
<td>7</td>
</tr>
<tr>
<td>(9)</td>
<td>Fourwing Saltbush-Creosotebush Shrub</td>
<td>8</td>
</tr>
<tr>
<td>(10)</td>
<td>Ceniza-Blackbrush-Creosotebush Shrub</td>
<td>8</td>
</tr>
<tr>
<td>(11a)</td>
<td>Mesquite Shrub/Grassland</td>
<td>9</td>
</tr>
<tr>
<td>(11b)</td>
<td>Mesquite Shrub</td>
<td>9</td>
</tr>
<tr>
<td>(12a)</td>
<td>Mesquite-Lotebush Shrub</td>
<td>10</td>
</tr>
<tr>
<td>(12b)</td>
<td>Mesquite-Lotebush Brush</td>
<td>10</td>
</tr>
<tr>
<td>(13a)</td>
<td>Mesquite-Juniper Shrub</td>
<td>10</td>
</tr>
<tr>
<td>(13b)</td>
<td>Mesquite-Juniper Brush</td>
<td>10</td>
</tr>
<tr>
<td>(13c)</td>
<td>Mesquite-Juniper-Live Oak Brush</td>
<td>10</td>
</tr>
<tr>
<td>(14)</td>
<td>Mesquite-Sandsage Shrub</td>
<td>11</td>
</tr>
<tr>
<td>(15)</td>
<td>Mesquite-Blackbrush Brush</td>
<td>11</td>
</tr>
<tr>
<td>(16)</td>
<td>Mesquite-Granjeno Parks</td>
<td>12</td>
</tr>
<tr>
<td>(17)</td>
<td>Mesquite-Granjeno Woods</td>
<td>12</td>
</tr>
<tr>
<td>(18)</td>
<td>Mesquite-Saltcedar Brush/Woods</td>
<td>13</td>
</tr>
<tr>
<td>(19)</td>
<td>Mesquite-Hackberry Brush/Woods</td>
<td>13</td>
</tr>
<tr>
<td>(20)</td>
<td>Mesquite-Live Oak-Bluewood Parks</td>
<td>14</td>
</tr>
<tr>
<td>(21)</td>
<td>Havard Shin Oak-Mesquite Brush</td>
<td>14</td>
</tr>
<tr>
<td>(22)</td>
<td>Sandsage-Mesquite Brush</td>
<td>15</td>
</tr>
<tr>
<td>(23)</td>
<td>Oak-Mesquite Juniper Parks/Woods</td>
<td>15</td>
</tr>
<tr>
<td>(24)</td>
<td>Live Oak-Mesquite Parks</td>
<td>16</td>
</tr>
<tr>
<td>(25)</td>
<td>Live Oak Woods/Parks</td>
<td>16</td>
</tr>
<tr>
<td>(26a)</td>
<td>Live Oak-Ashe Juniper Parks</td>
<td>17</td>
</tr>
<tr>
<td>(26b)</td>
<td>Live Oak-Mesquite-Ashe Juniper Parks</td>
<td>17</td>
</tr>
<tr>
<td>(27)</td>
<td>Live Oak-Ashe Juniper Woods</td>
<td>17</td>
</tr>
<tr>
<td>(28)</td>
<td>Havard Shin Oak Brush</td>
<td>18</td>
</tr>
<tr>
<td>(29)</td>
<td>Gray Oak-Pinyon Pine-Alligator Juniper Parks/Woods</td>
<td>18</td>
</tr>
<tr>
<td>(30a)</td>
<td>Post Oak Parks/Woods</td>
<td>19</td>
</tr>
<tr>
<td>(30b)</td>
<td>Post Oak Woods, Forest and Grassland Mosaic</td>
<td>19</td>
</tr>
<tr>
<td>(30c)</td>
<td>Post Oak Woods/Forest</td>
<td>19</td>
</tr>
<tr>
<td>(31)</td>
<td>Willow Oak-Water Oak-Blackgum Forest</td>
<td>19</td>
</tr>
<tr>
<td>(32)</td>
<td>Sandsage-Havard Shin Oak Brush</td>
<td>20</td>
</tr>
<tr>
<td>(33)</td>
<td>Ashe Juniper Parks/Woods</td>
<td>20</td>
</tr>
<tr>
<td>(34)</td>
<td>Juniper-Mixed Brush</td>
<td>21</td>
</tr>
<tr>
<td>(35)</td>
<td>Elm-Hackberry Parks/Woods</td>
<td>21</td>
</tr>
<tr>
<td>(36)</td>
<td>Water Oak-Elm-Hackberry Forest</td>
<td>22</td>
</tr>
<tr>
<td>(37)</td>
<td>Cottonwood-Hackberry-Saltcedar Brush/Woods</td>
<td>22</td>
</tr>
<tr>
<td>(38)</td>
<td>Pecan-Elm Forest</td>
<td>23</td>
</tr>
<tr>
<td>(39)</td>
<td>Bald Cypress-Water Tupelo Swamp</td>
<td>23</td>
</tr>
<tr>
<td>(40)</td>
<td>Ponderosa Pine-Douglas Fir Parks/Forest</td>
<td>24</td>
</tr>
<tr>
<td>(41)</td>
<td>Young Forest/Grassland</td>
<td>24</td>
</tr>
<tr>
<td>(42)</td>
<td>Pine-Hardwood Forest (Loblolly Pine-Sweetgum)</td>
<td>25</td>
</tr>
<tr>
<td>(42)</td>
<td>Pine-Hardwood Forest (Shortleaf Pine-Post Oak-Southern Red Oak)</td>
<td>25</td>
</tr>
<tr>
<td>(42)</td>
<td>Pine-Hardwood Forest (Loblolly Pine-Post Oak)</td>
<td>26</td>
</tr>
<tr>
<td>(42)</td>
<td>Pine-Hardwood Forest (Longleaf Pine-Sandjack Oak)</td>
<td>26</td>
</tr>
<tr>
<td>(43)</td>
<td>Marsh/Barrier Island (Fresh Marsh)</td>
<td>27</td>
</tr>
<tr>
<td>(43)</td>
<td>Marsh/Barrier Island (Brackish Marsh)</td>
<td>27</td>
</tr>
<tr>
<td>(43)</td>
<td>Marsh/Barrier Island (Saline Marsh)</td>
<td>28</td>
</tr>
<tr>
<td>(43)</td>
<td>Marsh/Barrier Island (Sea Oats-Seacoast Bluestem Grassland)</td>
<td>28</td>
</tr>
<tr>
<td>(44)</td>
<td>Crops</td>
<td>29</td>
</tr>
<tr>
<td>(45)</td>
<td>Other Native or Introduced Grasses</td>
<td>29</td>
</tr>
<tr>
<td></td>
<td>Bibliography</td>
<td>30</td>
</tr>
<tr>
<td></td>
<td>Appendix — Scientific Names of Plants Mentioned</td>
<td>32</td>
</tr>
</tbody>
</table>
INTRODUCTION

There has never been a very detailed map of existing vegetation types of Texas statewide on a plant association level. Important broad and/or regional studies include those by Bray (1906); Tharp (1926, 1939); Cottle (1931); Dyksterhuis (1946, 1948); Allred, et al. (1954); Gould et al. (1960) and a map by Telfair (1983). Küchler (1964) published a potential natural vegetation type map of the conterminous United States. Küchler's map is a valuable contribution from both the standpoint of existing and potential vegetation of Texas, however, the scale is too small for many planning purposes. The authors did not consider potential vegetation, only plant communities existing at the time of the survey, including delineations of cropland areas.

The map derives from the Texas Parks and Wildlife Department effort to categorize and map existing vegetation (habitat) types statewide using organized ground-truthing procedures and recent technology involving Landsat (earth satellite) data and computer classification analyses. Classified Landsat scenes for the eastern two-thirds of the state were published from the period 1975 to 1981. The data were acquired from cloud-free overflights between 1972 and 1976. In the western one-third of the state, including the Trans-Pecos, western High Plains, and Panhandle portions, the computer classification was abandoned in favor of classifying the vegetation on previously delineated land resource units from a survey conducted by the Bureau of Economic Geology (BEG), the University of Texas (Kier, et al., 1977). The relative paucity of overstory vegetation in West Texas caused the computer classifier to map signatures of geologic features rather than vegetation, thus the change in methodology. Classification of BEG land resource units, which more often than not supported different vegetation, was accomplished by using ancillary vegetation maps, consulting with field biologists, inspecting sites, and plotting the types on the BEG unit boundaries overlying Landsat color-composite imagery, geometrically corrected at a scale of 1:250,000. Where vegetation types were the same on different resource units, the common boundary between the units was erased. BEG boundaries were further modified by the occurrence of cropland areas as shown by Landsat imagery and verified by using additional supplemental information. Landsat data used for this purpose were acquired during 1979 and 1980 overflights.

The present map portrays information extracted from an assembled mosaic of photographically reduced vegetation maps classified according to the methods previously described. Such information represents a composite statewide summary of vegetation delineated from larger-scale maps. Limitations in delineating vegetation boundaries occurred as a direct result of reduced size and resulting decreased resolution. Areas having inclusions of various mixed types were generalized to the prevailing type. In other areas, vegetation types did not comprise adequate acreage to warrant portrayal without significant misrepresentation. Thus, streamside vegetation is mapped separately from upland vegetation where the occurrence is large enough to allow portrayal. For example, the riparian vegetation remaining within historically significant flood plains was frequently too small to map.

Designation of map legend names conforms with the vegetation summary and may deviate slightly from legend names listed on the larger-scale maps. The vegetation types are depicted as associations of two or three plant dominants listed according to a physiognomic designation. The criteria for physiognomic classification are presented in Table 1 and on the map. In this accompanying bulletin are: (1) color photographs of each vegetation type depicted on the map, (2) commonly associated plants, (3) remarks on distribution, and (4) an appendix of plants mentioned and their scientific names.

In most cases types have a single physiognomic designation, e.g. (17) Mesquite-Granjeno Woods. However, some types have two physiognomic designations separated by a slash (/), e.g. (25) Live Oak Woods/Parks. This means the type is encountered as either designation.

It should be noted that the existing vegetation in Texas derives largely from land-use disturbance, and as such is heterogenous with regard to composition. One of the most difficult tasks in conducting the entire vegetation mapping effort was to sufficiently define the floristic components which best represented the occurring vegetation types. Indeed, there are but few very distinct and easily definable pristine communities to be found. Thus, this work attempts to show the general picture; the legend name and/or associated species as indicated may not hold for any one area within a type, particularly in a type having widespread distribution with varying conditions of climate, soil type, topography or land use, the principal factors governing the distribution of plants. Beyond these limitations the map should serve for bench-mark information and also satisfy general planning purposes.

Finally, reference is made to the Vegetational Areas of Texas as formulated by Gould et al. (1960), and here modified by the Texas Parks and Wildlife Department. These areas shown in Figure 1 and on the map, are often referenced in the remarks on the distribution of each type.
<table>
<thead>
<tr>
<th>Class</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grassland</td>
<td>Herbs (grasses, forbs, and grasslike plants) dominant; woody vegetation lacking or nearly so (generally 10 percent or less woody canopy coverage).</td>
</tr>
<tr>
<td>Shrub</td>
<td>Individual woody plants generally less than nine feet tall scattered throughout arid or semi-arid regions (less than 30 percent woody canopy coverage).</td>
</tr>
<tr>
<td>Brush</td>
<td>Woody plants mostly less than nine feet tall dominant and growing as closely spaced individuals, clusters or closed canopied stands (greater than 10 percent canopy cover).</td>
</tr>
<tr>
<td>Parks</td>
<td>Woody plants mostly equal to or greater than nine feet tall generally dominant and growing as clusters, or as scattered individuals within continuous grass or forbs (11 to 70 percent woody canopy cover overall).</td>
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<tr>
<td>Woods</td>
<td>Woody plants mostly nine to 30 feet tall with closed crowns or nearly so (71 to 100 percent canopy cover); midstory usually lacking.</td>
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<td>Forest</td>
<td>Deciduous or evergreen trees dominant; mostly greater than 30 feet tall with closed crowns or nearly so (71 to 100 percent canopy cover); midstory generally apparent except in managed monoculture.</td>
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<tr>
<td>Young Forest</td>
<td>Various combinations and age classes of pine and hardwood regrowth resulting from the recent harvest of pine or mixed hardwood and pine forests.</td>
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<tr>
<td>Marsh</td>
<td>Emergent herbaceous plants dominant in inundated or periodically inundated areas; woody vegetation lacking or nearly so (generally 10 percent or less woody canopy coverage).</td>
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<tr>
<td>Swamp</td>
<td>Deciduous or evergreen trees with varying heights (canopy cover generally greater than 10 percent) within frequently or constantly inundated sites.</td>
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<tr>
<td>Crops</td>
<td>Includes cultivated cover crops or row crops used for the purpose of producing food and/or fiber for either man or domestic animals.</td>
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<tr>
<td>Barrier Island</td>
<td>Smooth sloping accumulations of sand, shell and gravel along sea and bay shores; periodically exposed unvegetated or sparsely vegetated wetlands and sand dunes.</td>
</tr>
</tbody>
</table>
Source:

ECOLOGICAL AREAS OF TEXAS

1. PINEYWOODS
2. GULF PRAIRIES AND MARSHES
3. POST OAK SAVANNAH
4. BLACKLAND PRAIRIES
5. CROSS TIMBERS AND PRAIRIES
6. SOUTH TEXAS PLAINS
7. EDWARDS PLATEAU
8. ROLLING PLAINS
9. HIGH PLAINS
10. TRANS-PECOS, MOUNTAINS AND BASINS

Figure 1
THE VEGETATION TYPES

(1) Tobosa-Black Grama Grassland

Commonly Associated Plants: Blue grama, sideoats grama, hairy grama, burrograss, bush muhly, Arizona cotton-top, javelina bush, creosotebush, butterflybush, palmella, whitethorn acacia, cholla, broom snakeweed, rough menodora.

Distribution: Principally in low-lying plains in Jeff Davis, Presidio, Brewster, Culberson and Hudspeth Counties in the Trans-Pecos.

(2) Blue Grama-Buffalograss Grassland

Commonly Associated Plants: Sideoats grama, hairy grama, sand dropseed, cholla, grassland pricklypear, narrowleaf yucca, western ragweed, broom snakeweed, zinnia, rushpea, scurfpea, catclaw sensitive briar, wild buckwheat, woollywhite.

Distribution: Principally in the northwestern High Plains.
(3) Bluestem Grassland

**Commonly Associated Plants:** Bushy bluestem, slender bluestem, little bluestem, silver bluestem, three-awn, buffalograss, bermudagrass, brownseed paspalum, single-spike paspalum, smutgrass, sacahuista, windmillgrass, southern dewberry, live oak, mesquite, huisache, baccharis, Macartney rose.

**Distribution:** Evident over much of the Gulf Prairies and Marshes; particularly manifest in the grassland area of Goliad, Victoria and Refugio Counties and between Refugio and Victoria.

(4) Silver Bluestem-Texas Wintergrass Grassland

**Commonly Associated Plants:** Little bluestem, sideoats grama, Texas grama, three-awn, hairy grama, tall dropseed, buffalograss, windmillgrass, hairy tridens, tumbled grass, western ragweed, broom snakeweed, Texas bluebonnet, live oak, post oak, mesquite.

**Distribution:** Primarily in the Cross Timbers and Prairies.
(5) Yucca-Ocotillo Shrub

**Commonly Associated Plants:** Catclaw, whitethorn acacia, sotol, cholla, Torrey yucca, palmella, brickellbush, mesquite, javelina bush, beargrass, black grama, chino grama, fluffgrass, broom snakeweed, jimmyweed.

**Distribution:** Principally in the vicinity of the Chinati Mountains and surrounding the Solitario, Presidio and Brewster Counties, Trans-Pecos.

(6) Creosotebush-Tarbush Shrub

**Commonly Associated Plants:** Range ratany, cholla, fourwing saltbush, sotol, mesquite, whitethorn acacia, catclaw, lechuguilla, chino grama, gyp grama, alkali sacaton, false nightshade, false broomweed, jimmyweed.

**Distribution:** Principally in Pecos and Reeves Counties, Trans-Pecos.
Commonly Associated Plants: Mesquite, yucca, lotebush, ocotillo, javelina bush, catclaw, whitethorn acacia, whitebrush, ceniza, althorn, guayacan, pricklypear, pitaya, tasajillo, chino grama, black grama, fluffgrass, range ratany, skeletonleaf goldeneye, tarbush, mariola.

Distribution: Lower slopes and intermountain valleys of the Trans-Pecos, principally in Jeff Davis, Presidio and Brewster Counties.

Commonly Associated Plants: Sotol, lechuguilla, catclaw, cholla, plains pricklypear, mormon tea, range ratany, desert sumac, plains bristlegrass, bush muhly, black grama, chino grama, fluffgrass, burrograss, mesa dropseed, purple three-awn, rough menodora, coldenia, mariola, grassland croton, sickle-pod rushpea.

Distribution: Principally east of the Delaware Mountains in Culberson County, Trans-Pecos.
(9) Fourwing Saltbush-Creosotebush Shrub

Commonly Associated Plants: Mesquite, saltcedar, tarbush, grassland prickley pear, tasajillo, alkali sacaton, Wright’s sacaton, tobosa, black grama, mesa dropseed, purple three-awn, two-flowered trichloris, jimmyweed, broom snakeweed, James rushpea.

Distribution: Principally in washes and alluvium of the Pecos River, Reeves, Ward and Crane Counties, Trans-Pecos.

(10) Ceniza-Blackbrush-Creosotebush Brush

Commonly Associated Plants: Guajillo, lotebush, mesquite, guayacan, Texas prickly pear, paloverde, goatbush, yucca, sotol, desert yaupon, catclaw, kidneywood, allthorn, curly mesquite, Texas grama, hairy tridens, slim tridens, pink pappusgrass, two-leaved senna.

Distribution: Slopes of the Rio Grande River Basin, from near Langtry in Val Verde County to near San Ygnacio in Zapata County.
Commonly Associated Plants: Narrow-leaf yucca, tasajillo, juniper, grassland pricklypear, cholla, blue grama, hairy grama, purple three-awn, Roemer three-awn, buffalograss, little bluestem, western wheatgrass, Indiangrass, switchgrass, James rushpea, scurfpea, lemon scurfpea, sandlily, plains bee balm, scarlet gaura, yellow evening primrose, sandsage, wild buckwheat.


Commonly Associated Plants: Narrow-leaf yucca, grassland pricklypear, juniper, red grama, Texas grama, side oats grama, hairy grama, purple three-awn, Roemer three-awn, buffalograss, red lovegrass, gummy lovegrass, sand dropseed, tobosa, western ragweed, James rushpea, scurfpea, wild buckwheat.

Distribution: Principally in the Rolling Plains.
Commonly Associated Plants (Rolling Plains): Yucca, skunkbush sumac, agarito, elbowbush, juniper, tasajillo, cane bluestem, silver bluestem, little bluestem, sand dropseed, Texas grama, sideoats grama, hairy grama, red grama, tobosa, buffalograss, Texas wintergrass, purple three-awn, Roemer three-awn, Engelmann daisy, broom snakeweed, bitterweed.

Distribution: Northeastern Trans-Pecos, northwestern Edwards Plateau, Rolling Plains and western Cross Timbers and Prairies.


Distribution: Chiefly on mesas and hillsides of the western Edwards Plateau.
(14) Mesquite-Sandsage Shrub

Commonly Associated Plants: Fourwing saltbush, palmella, mormon tea, sotol, sand dropseed, mesa dropseed, spike dropseed, blue grama, black grama, chino grama, broom snakeweeds, devil's claw.

Distribution: Sandy soils of the western Trans-Pecos; principally in El Paso and Hudspeth Counties.

(15) Mesquite-Blackbrush Brush

Commonly Associated Plants: Lotebush, ceniza, guajillo, desert olive, allthorn, whitebrush, bluewood, granjeno, guayacan, leatherstem, Texas pricklypear, tasajillo, kidneywood, yucca, desert yaupon, goatbrush, purple three-awn, pink pappusgrass, hairy tridens, slim tridens, hairy grama, mat euphorbia, coldenia, dogweed, knotweed leafflower, two-leaved senna.

Distribution: Principally on shallow, gravelly or loamy soils in the South Texas Plains.
(16) Mesquite-Granjeno Parks

Commonly Associated Plants: Bluewood, lotebush, coyotillo, guayacan, Texas colubrina, tasajillo, Texas prickly-pear, Pan American balsamscale, single-spike paspalum, hooded windmillgrass, tanglehead, Roemer three-awn, purple three-awn, tumble lovegrass, Lindheimer tephrosia, bullnettle, croton, slender evolvulus, Texas lantana, silver-leaf nightshade, firewheel.

Distribution: Principally on sandy or loamy upland soils in the South Texas Plains.

(17) Mesquite-Granjeno Woods

Commonly Associated Plants: Whitebrush, virgin's bower, desert olive, retama, Texas pricklypear, bluewood, lotebush, desert yaupon, tasajillo, guayacan, woollybucket bumelia, Berlandier wolfberry, catclaw, Halls panicum, pink pappusgrass, purple three-awn, woodsorrel, field ragweed.

Distribution: Chiefly in Kleberg and Jim Wells Counties, South Texas Plains.
Commonly Associated Plants (Trans-Pecos): Creosotebush, cottonwood, desert willow, giant reed, seepwillow, common buttonbush, burrobrush, whitethorn acacia, Australian saltbush, fourwing saltbush, lotebush, wolfberry, tasajillo, guayacan, alkali sacaton, Johnsongrass, saltgrass, cattail, bushy bluestem, chino grama, Mexican devil-weed.

Distribution: Ephemeral drainages in the southern High Plains, Rolling Plains and portions of the Pecos and Rio Grande River drainages in the Trans-Pecos.

Commonly Associated Plants: Walnut, live oak, juniper, lotebush, catclaw, woollybucket bumelia, tasajillo, agarito, whitebrush, switchgrass, vine-mesquite, silver bluestem, Johnsongrass, Lindheimer muhly, western ragweed, silver-leaf nightshade.

Distribution: Canyon bottoms, creeks and drainageways in the Rolling Plains and western Edwards Plateau.
Commonly Associated Plants: Huisache, huisachillo, whitebrush, granjeno, lotebush, Berlandier wolfberry, blackbrush, desert yaupon, Texas pricklypear, woollybucket bumelia, tasajillo, agarito, Mexican persimmon, purple three-awn, Roemer three-awn, pink pappusgrass, Halls panicum, slimlobe poppmallow, sensitive briar, two-leaved senna, mat euphorbia.

Distribution: Primarily in Uvalde, Medina and Bee Counties, South Texas Plains.

Commonly Associated Plants: Sandsage, catclaw, yucca, giant dropseed, sand dropseed, Indiangrass, silver bluestem, sand bluestem, little bluestem, feather plume, Illinois bundleflower, fox glove, yellow evening primose.

Distribution: Occurs primarily on sandy soils in the western Rolling Plains and southwestern High Plains.
Commonly Associated Plants: Skunkbush sumac, Chickasaw plum, catclaw, little bluestem, sand bluestem, silver bluestem, sand dropseed, red three-awn, slickseed bean, sensitive briar, wild blue indigo, sandlily, spearleaf ground cherry, wild buckwheat, spinytooth gumweed, common sunflower, spectacle pod, hierba del pollo.

Distribution: Principally on sandy uplands, Donley and Collingsworth Counties, Rolling Plains.

Commonly Associated Plants: Post oak, Ashe juniper, shin oak, Texas oak, blackjack oak, live oak, cedar elm, agarito, soapberry, sumac, hackberry, Texas pricklypear, Mexican persimmon, purple three-awn, hairy grama, Texas grama, sideoats grama, curly mesquite, Texas wintergrass.

Distribution: This type occurs as associations or as a mixture of individual (woody) species stands on uplands in the Cross Timbers and Prairies.
(24) Live Oak-Mesquite Parks

Commonly Associated Plants: Post oak, blackjack oak, cedar elm, black hickory, whitebrush, agarito, Mexican persimmon, woollybucket bumelia, elbowbush, buffalograss, curly mesquite, Texas grama, sideoats grama, hairy grama, little bluestem, Texas wintergrass, purple three-awn, Indian mallow, Texas bluebonnet, firewheel.

Distribution: Primarily on granitic soils of the Edwards Plateau (Central Mineral Region).

(25) Live Oak Woods/Parks

Commonly Associated Plants: Texas pricklypear, lime pricklyash, greenbriar, bushsunflower, tanglehead, crinkleawn, single-spike paspalum, fringed signalgrass, Lindheimer tephrosia, croton, silverleaf nightshade, bull nettle, Texas lantana, dayflower, silverleaf sunflower, shrubby oxalis.

Distribution: Principally on sandy soils in Kenedy and Brooks Counties, South Texas Plains.
Commonly Associated Plants (Edwards Plateau): Texas oak, shin oak, cedar elm, netleaf hackberry, flameleaf sumac, agarito, Mexican persimmon, Texas pricklypear, kidneywood, saw greenbrier, Texas wintergrass, little bluestem, curly mesquite, Texas grama, Halls panicum, purple three-awn, hairy tridens, cedar sedge, two-leaved senna, mat euphorbia, rabbit tobacco.

Distribution: Chiefly on level to gently rolling uplands and ridge tops, Edwards Plateau.

Commonly Associated Plants: Texas oak, shin oak, cedar elm, evergreen sumac, escarpment cherry, saw greenbrier, mescal bean, poison oak, twill leaf yucca, elbowbush, cedar sedge, little bluestem, Neally grama, Texas grama, meadow dropseed, Texas wintergrass, curly mesquite, pellitory, noseburn, spreading sida, woodsorrel, mat euphorbia.

Distribution: Chiefly on shallow limestone soils on the hills and escarpment of the Edwards Plateau.
Commonly Associated Plants: Catclaw, bush morningglory, southwest rabbitbrush, sandsage, mesquite, hooded windmillgrass, sand bluestem, big sandreed, false buffalograss, spike dropseed, giant dropseed, mesa dropseed, narrowleaf sandverbena, sweet sandverbena, bull nettle, sand dune spurge, prairie spurge, firewheel, plains sunflower.

Distribution: Chiefly on sandy soil in Andrews, Crane, Ward and Winkler Counties.

(29) Gray Oak-Pinyon Pine-Alligator Juniper Parks/Woods

Commonly Associated Plants: Emory oak, silverleaf oak, Gambel’s oak, mountain mahogany, evergreen sumac, mountain snow-berry, Texas madrone, southwestern chokecherry, bullgrass, Pringle needlegrass, finestem needlegrass, pine dropseed, sideoats grama, blue grama, pine muhly, pinyon ricegrass, largeleaf oxalis, heartleaf ground-cherry, Torrey anthericum.

Distribution: From about 5,500 to 7,500 feet elevation in the mountains of the Trans-Pecos; principally the Davis Mountains.
(30a) Post Oak Parks/Woods
(30b) Post Oak Woods, Forest and Grassland Mosaic
(30c) Post Oak Woods/Forest

Commonly Associated Plants (Post Oak Savannah): Blackjack oak, eastern redecder, mesquite, black hickory, live oak, sandjack oak, cedar elm, hackberry, yaupon, poison oak, American beautyberry, hawthorn, supplejack, trumpet creeper, dewberry, coral-berry, little bluestem, silver bluestem, sand lovegrass, beaked panicum, three-awn, spranglegrass, tickclover.

Distribution: Most apparent on the sandy soils of the Post Oak Savannah.

(31) Willow Oak-Water Oak-Blackgum Forest

Commonly Associated Plants: Beech, overcup oak, chestnut oak, cherrybark oak, elm, sweetgum, sycamore, southern magnolia, white oak, black willow, bald cypress, swamp laurel oak, hawthorn, bush palmetto, common elderberry, southern arrowwood, poison oak, supplejack, trumpet creeper, crossvine, greenbriar, blackberry, rhomboid copperleaf, St. Andrew’s Cross.

Distribution: Principally in the lower flood plains of the Sulphur, Neches, Angelina, Trinity and Sabine Rivers in the Pineywoods.
(32) Sandsage-Havard Shin Oak Brush

**Commonly Associated Plants:** Skunkbush sumac, Chickasaw plum, Indiangrass, switchgrass, sand bluestem, little bluestem, sand lovegrass, big sandreed, sideoats grama, hairy grama, sand dropseed, sand paspalum, lead plant, scurfpea, scarletpea, slickseed bean, wild blue indigo, wild buckwheat, bush morningglory.

**Distribution:** Sandy soils of the northwestern High Plains and (Panhandle) Rolling Plains.

(33) Ashe Juniper Parks/Woods

**Commonly Associated Plants:** Live oak, Texas oak, cedar elm, mesquite, agarito, tasajillo, western ragweed, scurfpea, little bluestem, sideoats grama, Texas wintergrass, silver bluestem, hairy tridens, tumblegrass, red three-awn.

**Distribution:** Principally on slopes of hills in Stephens and Palo Pinto Counties, Cross Timbers and Prairies.
Commonly Associated Plants: Red-berry juniper, one-seeded juniper, tasajillo, catclaw, skunkbush sumac, lotebush, mesquite, Havard shin oak, mountain mahogany, yucca, red grama, sideoats grama, Texas grama, hairy grama, red lovegrass, gummy lovegrass, tumblegrass, buffalograss, curly mesquite, tobosa, western ragweed, bitterweed, wild buckwheat, James rushpea.


Commonly Associated Plants: Mesquite, post oak, woollybucket bumelia, honey locust, coral-berry, pasture haw, elbowbush, Texas pricklypear, tasajillo, dewberry, silver bluestem, buffalograss, western ragweed, giant ragweed, goldenrod, frostweed, ironweed, prairie parsley, broom snakeweed.

Distribution: Occurs within the Blackland Prairie, primarily in Ellis, Navarro and Limestone Counties.
(36) Water Oak-Elm-Hackberry Forest

Commonly Associated Plants: Cedar elm, American elm, willow oak, southern red oak, white oak, black willow, cottonwood, red ash, sycamore, pecan, bois d'arc, flowering dogwood, dewberry, coral-berry, dallisgrass, switchgrass, rescuegrass, bermudagrass, eastern gamagrass, Virginia wildrye, Johnsongrass, giant ragweed, yankeeweed, Leavenworth eryngo.

Distribution: Occurs in the upper flood plains of the Sabine, Neches, Sulphur and Trinity Rivers and tributaries.

(37) Cottonwood-Hackberry-Saltcedar Brush/Woods

Commonly Associated Plants: Lindheimer's black willow, buttonbush, groundsel-tree, rough-leaf dogwood, Panhandle grape, heartleaf ampelopsis, false climbing buckwheat, cattail, switchgrass, prairie cordgrass, salt grass, alkali sacaton, spikesedge, horsetail, bulrush, coarse sumpweed, Maximilian sunflower.

Distribution: Principal drainages within the Canadian and Red River Basins.
(38) Pecan-Elm Forest

Commonly Associated Plants: American elm, cedar elm, cottonwood, sycamore, black willow, live oak, Carolina ash, bald cypress, water oak, hackberry, virgin's bower, yaupon, greenbrier, mustang grape, poison oak, Johnson-grass, Virginia wildrye, Canada wildrye, rescuegrass, frostweed, western ragweed.


(39) Bald Cypress-Water Tupelo Swamp

Commonly Associated Plants: Water oak, water hickory, swamp blackgum, red maple, swamp privit, buttonbush, possum haw, water elm, black willow, eardrop vine, supplejack, trumpet creeper, climbing hempweed, bog hemp, water fern, duckweed, water hyacinth, bladderwort, beggar-ticks, water paspalum, St. John's wort.

Distribution: Swampy flatlands in the Pineywoods.
(40) Ponderosa Pine-Douglas Fir Parks/Forest

Commonly Associated Plants: Southwestern white pine, bigtooth maple, alligator juniper, Gambel’s oak, chinkapin oak, Emory oak, Texas madrone, Apache plum, mountain mahogany, Wright’s silktassel, mountain snow-berry, southwestern chokecherry, Pringle needlegrass, finestem needlegrass, pinyon ricegrass, cliff muhly, pine dropseed, largeleaf oxalis, rock betony, trumpet currant.

Distribution: Elevation above 6,000 feet in the mountains of the Trans-Pecos; principally in Guadalupe Mountains National Park.

(41) Young Forest/Grassland

Commonly Associated Plants: Various combinations and age classes of pine and regrowth southern red oak, sweetgum, post oak, white oak, black hickory, blackgum, elm, hackberry, and water oak resulting from recent harvesting of pine or pine-hardwood forest and subsequent establishment of young pine plantation or young pine-hardwood forest. Shrubs include hawthorn, poison oak, sumac, holly, wax myrtle, blueberry, blackberry and red bay. This type may also portray grasslands resulting from clearing of forests.

Distribution: Pineywoods.
(42) Pine-Hardwood Forest

Subtype 1: Loblolly Pine-Sweetgum

**Commonly Associated Plants:** Shortleaf pine, water oak, white oak, southern red oak, winged elm, beech, blackgum, magnolia, American beautyberry, American hornbeam, flowering dogwood, yaupon, hawthorn, supplejack, Virginia creeper, wax myrtle, red bay, sassafras, southern arrowwood, poison oak, greenbrier, blackberry.

**Distribution:** Occurs throughout the Pineywoods.

(42) Pine-Hardwood Forest

Subtype 2: Shortleaf Pine-Post Oak-Southern Red Oak

**Commonly Associated Plants:** Loblolly pine, black hickory, sandjack oak, flowering dogwood, common persimmon, sweetgum, sassafras, greenbrier, yaupon, wax myrtle, American beautyberry, hawthorn, supplejack, winged elm, beaked panicum, sprangleggrass, Indiangrass, switchgrass, three-awn, bushclover, tickclover.

**Distribution:** Northeast Texas counties of Bowie, Red River, Lamar, Cass, Camp, Titus, Franklin, Marion, Harrison, Upshur, Gregg, Smith, Wood, and Morris. Extends into southeastern Pineywoods along deep sand ridges.
(42) Pine-Hardwood Forest

Subtype 3: Loblolly Pine-Post Oak

**Commonly Associated Plants:** Black hickory, blackjack oak, eastern redcedar, cedar elm, hackberry, greenbriar, yaupon, elbowbush, purpletop, sand lovegrass, broomsedge bluestem, little bluestem, brownseed paspalum, bushclover, tickclover, gay feather, yellow neptunia, bitter sneezeweed, velvet bundleflower.

**Distribution:** The “Lost Pines” in Bastrop County and westward of the pine producing region of East Texas.

Subtype 4: Longleaf Pine-Sandjack Oak

**Commonly Associated Plants:** Loblolly pine, shortleaf pine, blackjack oak, sand post oak, southern red oak, flowering dogwood, sweetgum, sassafras, American beautyberry, wax myrtle, yaupon, hawthorn, yellow jessamine, slender bluestem, broomsedge bluestem, little bluestem.

**Distribution:** Southeastern Pineywoods.
(43) Marsh/Barrier Island

Subtype 1: Maidencane-Alligator Weed (fresh) Marsh

Commonly Associated Plants: Water hyacinth, cattail, water-pennywort, pickerelweed, arrowhead, white waterlily, cabomba, coontail, duckweed.

Distribution: Hydric lowlands landward of brackish marsh, Coastal Prairies and Marshes.

(43) Marsh/Barrier Island

Subtype 2: Marshay Cordgrass-Olneyi Three-Square-Leafy Three-Square (brackish) Marsh

Commonly Associated Plants: Big cordgrass, widgeongrass, California bulrush, seashore paspalum, sacahuista, common reed.

Distribution: Generally landward of normal tidelands to storm tide, Coastal Prairies and Marshes.
(43) Marsh/Barrier Island

Subtype 3: Smooth Cordgrass-Marsh Saltgrass-Sea Ox-eye (saline) Marsh

Commonly Associated Plants: Black rush, vidrillos, black mangrove, glasswort, seashore paspalum, shoalgrass.

Distribution: Tidally-inundated shores of bays, Gulf Coast.

(43) Marsh/Barrier Island

Subtype 4: Seaoats-Seacoast Bluestem Grassland

Commonly Associated Plants: Croton, single-spike paspalum, Pan American balsamscale, flat sedge, sea purslane, cenicilla, bulrush, beach morningglory, goatfoot morningglory, sea rocket, lime pricklyash.

Distribution: Sandy coastal barrier islands from high tide mark to leeward marshes.
(44) Crops

Commonly Associated Plants: Cultivated cover crops or row crops providing food and/or fiber for either man or domestic animals. This type may also portray grassland associated with crop rotations.

Distribution: Statewide.

(45) Other Native or Introduced Grasses

Commonly Associated Plants: Mixed native or introduced grasses and forbs on grassland sites or mixed herbaceous communities resulting from the clearing of woody vegetation. This type is associated with the clearing of forests in northeast and east-central Texas and may portray early stages of Type 41, Young Forest. Also occurs in the South Texas Plains where brush has been cleared. Such areas are particularly subject to change due to regrowth brush.

Distribution: Principally northeast, east-central and south Texas.
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APPENDIX
Scientific Names of Plants Mentioned

A

Acacia, whitethorn
Agarito
Alligator weed
Allthorn
Ampelopsis, heartleaf
American beautyberry
Anthericum, Torry
Arrowhead
Arrowwood, southern
Ash, Carolina
_____ , red

Baccharis
Balsamscale, Pan American
Bay, red
Bean, mescal
Bean, slickseed
Beargrass
Beebalm, plains
Beech
Beggar-ticks
Bermudagrass
Betony, rock
Bitterweed
Blackberry
Blackbrush
Blackgum
_____ , swamp
Bladderwort
Blueberry
Bluebonnet, Texas
Bluestem, broomedge
_____ , bushy
_____ , cane
_____ , little
_____ , sand
_____ , seacoast
_____ , silver
_____ , slender
Bluewood
Bois d’arc
Brickellbush
Bristlegrass, plains
Broomweed, false
Buckwheat, false climbing
Buckwheat, wild
Buffalograss
Buffalograss, false
Bullgrass
Bulrush
_____ , California

Acacia constricta
Berberis trifoliolata
Althenanthera phloxeroideis
Koebelinia spinosa
Ampelopsis cordata
Callicarpa americana
Anthericum torreyi
Sagittaria spp.
Viburnum dentatum
Fraxinus caroliniana
F. pensylvanica

Baccharis spp.
Elyonurus tripasacoides
Persea borbonia
Sophora secundiflora
Strophostyles leiosperma
Nolina erumpens
Monarda pectinata
Fagus grandifolia
Bidens discoidea
Cynodon dactylon
Stachys bigelovii
Hymenoxys spp.
Rubus louisianus
Acacia rigidula
Nyssa sylvatica
N. sylvatica var. biflora
Utricularia spp.
Vaccinium spp.
Lupinus texensis
Andropogon virginicus
Andropogon glomeratus
Bothriochloa barbinodis var. barbinodis
Schizachyrium scoparium var. frequens
Andropogon hallii
Schizachyrium scoparium var. littoralis
Bothriochloa saccharoides
Schizachyrium tenerum
Condalia hookeri
Maclura pomifera
Brickellia spp.
Setaria macrostachya
Haploesthes reggius
Polygonum cristatum
Eriogonum spp.
Buchloë dactyloides
Munroa squarrosa
Muhlenbergia emersleyi
Scirpus spp.
S. californicus
Bumelia, woollybucket
Bundleflower, Illinois

Burrobrush
Burrograss
Bushclover
Bushsunflower
Butterflybush
Buttonbush

Bumelia lanuginosa
Desmanthus illinoensis
D. velutinus
Hymenoclea monogyna
Scleropogon brevifolius
Lespedeza spp.
Simsia calva
Buddleja scordioides
Cephalanthus occidentalis

C

Cabomba
Cane, giant
Catclaw
Cattail
Cenicilla
Ceniza
Century plant
Cherry, escarpment
Chokecherry, southwestern
Cholla
Clover, prairie
Coldenia
Colubrina, Texas
Consumption weed
Coontail
Coral-berry
Cordgrass, big

Cottontop, Arizona
Cottonwood
Coyotillo
Creosotebush
Crinkleawn
Crossvine
Croton

Cypress, bald

Daisy, Engelmann
Dallisgrass
Dayflower
Devilweed, Mexican
Devil's claw
Dewberry

Deweed, meadow

Engelmannia pinnatifida
Paspalum dilatatum
Commelina spp.
Aster spinosus
Proboscidea spp.
Rubus spp.
R. trivialis
Dyssodia pentachaeta var. pentachaeta
Cornus florida
C. drummondii
Sporobolus giganteus
S. asper var. hookeri
S. flexuosus
pine
sand
spike
tall
Duckweed
Eardrop vine
Elbowbush
Elderberry, common
Elm
American
cedar
water
winged
Eryngo, Leavenworth
Euphorbia, mat
Evening primrose, yellow
Evolvulus, slender
Featherplume
Fern, water
Fir, Douglas
Firewheel
Flatsedge
Fluffgrass
Foxglove
Frostweed
Gamagrass, eastern
Gaura, scarlet
Gayfeather
Glasswort
Goatbush
Goldenrod
Grama, black
blue
chino
gyp
hairy
Neally
red
sideoats
Texas
Granjeno
Grape, mustang
Panhandle
Greenbriar
saw
Groundcherry, heartleaf
spearleaf
Groundsel tree
Guajillo
Blepharoneuron tricholepis
Sporobolus cryptandrus
S. contractus
S. asper
Lemna spp.
Brunnichia ovata
Forestiera pubescens
Sambucus canadensis
Ulmus spp.
U. americana
U. crassifolia
Planera aquatica
Ulmus alata
Eryngium leavenworthii
Euphorbia serpens
Calylophus serrulatus
Evolvulus alnoides
Dalea formosa
Azolla caroliniana
Pseudotsuga menziesii
Gaillardia spp.
Cyperus spp.
Erioneuron pulchellum
Penstemon cobaea
Verbesina virginica
Tripsacum dactyloides
Gaura coccinea
Liatris spp.
Salicornia spp.
Castela texana
Solidago spp.
Bouteloua eriopoda
B. gracilis
B. ramosa
B. breviseta
B. hirsuta
B. uniflora
B. trifida
B. curtipendula
B. rigidiseta
Celtis pallida
Vitis mustangensis
V. acerifolia
Smilax spp.
S. bona-nox
Physalis hederaeofolia
P. virginiana var. sonora
Baccharis salicina
Acacia berlandieri
Guayacan  
Gumweed, spinytooth

Porlieria angustifolia  
Grindelia lanceolata

H

Celtis spp.  
C. reticulata  
Crataegus spathulata  
Crataegus spp.  
Boehmeria cylindrica  
Mikania scandens  
Carya texana  
C. aquatica  
Commelina erecta var. angustifolia  
Ilex spp.  
Carpinus caroliniana  
Equisetum kansanum  
Acacia farnesiana  
A. tortuosa  
Eichornia crassipes

I

Sorghastrum avenaceum  
Abutilon incanum  
Baptisia australis  
Vernonia spp.

J

Condalia ericoides  
Gelsemium sempervirens  
Isocoma wrightii  
Sorghum halepense  
Juniperus spp.  
J. deppeana  
J. ashei  
J. monosperma  
J. pinchotii

K

Eysenhardtia texana

L

Lantana, Texas  
Lead plant  
Leafflower, knotweed  
Leatherstem  
Lechuguilla  
Locust, honey  
Lotethush  
Lovegrass, gummy  
________, red  
________, sand  
________, tumble

Lantana horrida  
Amorpha canescens  
Phyllanthus polygonoides  
Jatropha dioica  
Agave lecheguilla  
Gleditsia triacanthos  
Ziziphus obtusifolia  
Eragrostis curtipedicellata  
E. oxylepis  
E. trichodes  
E. sessilisspica
Madrone, Texas
Magnolia
Mahogany, mountain
Maidencane
Mangrove, black
Maple, bigtooth
———, red
Mariola
Menodora, rough
Mesquite
———, curly
Mormon tea
Morningglory, beach
———, bush
———, goatfoot
Muhly, bush
———, cliff
———, Lindheimer
———, pine
Myrtle, wax

Needlegrass, finestem
———, Pringle
Neptunia, yellow
Nettle, bull
Nightshade, false
———, silverleaf
Noseburn

Oak
———, blackjack
———, cherrybark
———, chestnut
———, chinkapin
———, Emory
———, Gambel’s
———, gray
———, Havard shin
———, live
———, overcup
———, post
———, sandjack
———, sand post
———, shin
———, silverleaf
———, southern red
———, swamp laurel
———, Texas
———, water
———, white
———, willow
Ocotillo

Arbutus xalapensis
Magnolia grandiflora
Cercocarpus montanus
Panicum hemitomon
Avicennia germinans
Acer grandidentatum
A. rubrum
Parthenium incanum
Menodora scabra
Prosopis glandulosa
Hilaria belangeri
Ephedra spp.
Ipomoea stolonifera
I. leptophylla
I. pes-caprae
Muhlenbergia porteri
M. polycaulis
M. lindheimeri
M. dubia
Myrica cerifera

Stipa tenuissima
S. pringlei
Neptunia lutea
Cnidoscolus texanus
Chamaesaracha sordida
Solanum elaeagnifolium
Tragia ramosa

Quercus spp.
Q. marilandica
Q. falcata var. pogodaefolia
Q. prinus
Q. muhlenbergii
Q. emoryi
Q. gambelii
Q. grisea
Q. havardii
Q. virginiana
Q. lyrata
Q. stellata
Q. incana
Q. margareta
Q. sinuata var. breviloba
Q. hypoleucoides
Q. falcata
Q. laurifolia
Q. texana
Q. nigra
Q. alba
Q. phellos
Fouquieria splendens
Olive, desert
Oxalis, largeleaf
______, shrubby

Palmella
Palmetto, bush
Paloverde
Panic, Halls
Panicum, beaked
Pappusgrass, pink
Parsley, prairie
Paspalum, brownseed
______, sand
______, seashore
______, single-spike
______, water
Pecan
Pellitory
Pennywort, water
Pepperweed
Persimmon, common
______, Mexican
Pickerelweed
Pine, lobolly
______, longleaf
______, pinyon
______, ponderosa
______, shortleaf
______, southwestern white
Pitaya
Plum, Apache
______, Chickasaw
Poison oak
Poppymallow, slim lobe
Possumhaw
Pricklyash, lime
Pricklypear
______, grassland
______, plains
______, Texas
Purpletop
Purslane, sea

Rabbitbrush, southwest
Rabbit tobacco
Ragweed, field
______, giant
______, western
Ratany, range
Redbud
Redcedar, eastern
Reed, common
______, giant
Rescuegrass

Forestiera angustifolia
Oxalis amplifolia
O. berlandieri

P

Yucca elata
Sabal minor
Cercidium texanum
Panicum hallii
P. anceps
Pappophorum bicolor
Polytaenia nutallii
Paspalum plicatulum
P. setaceum
P. vaginatum
P. monostachyum
P. fluitans
Carya illinoinensis
Parietaria pensylvanica
Hydrocotyle spp.
Lepidium spp.
Diospyros virginiana
D. texana
Pontederia cordata
Pinus taeda
P. palustris
P. cembroides
P. ponderosa
P. echinata
P. strobiformis
Echinocereus enneacanthus
Fallugia paradoxa
Prunus angustifolia
Rhus toxicodendron
Callirhoe involucrata var. lineariloba
Ilex decidua
Zanthoxylum fagara
Opuntia spp.
O. macrorhiza
O. polyacantha
O. lindheimeri
Tridens flavus
Sesuvium maritimum

R

Chrysothamnus pulchellus
Evax prolifera
Ambrosia confertiflora
A. trifida
A. psilostachya
Krameria glandulosa
Cercis canadensis
Juniperus virginiana
Phragmites communis
Arundo donax
Bromus unioloides
Retama
Rhomboid copperleaf
Ricegrass, pinyon
Rose, macartney
Rush, black
Rushpea
______, James
______, sickle pod

Sacahuista
Sacaton, alkali
______, Wright’s
St. Andrew’s cross
St. John’s-wort
Saltbush, Australian
__________, fourwing
Salt grass
__________, marsh
Sandlily
Saltcedar
Sandreed, big
Sandsage
Sandverbena, narrowleaf
__________, sweet
Sassafras
Scarletpea
Scurfpea
______, lemon
Sea oats
Sea ox-eye
Sea rocket
Sedge, cedar
Seepwillow
Senna, two-leaved
Sensitive briar
__________, catelaw
Shoalgrass
Signalgrass, fringed
Silktassel, Lindheimer
__________, Wright’s
Sida
______, spreading
Skeletonleaf golden eye
Smuggrass
Snakeweeds, broom
Sneeze weed, bitter
Snowberry, mountain
Soapberry
Sotol
Spectacle pod
Spikesedge
Spranglegrass
Spurge, prairie
__________, sand dune
Sumac
______, desert
______, evergreen

Parkinsonia aculeata
Acalypha rhomboidea
Piptochaetium fimbriatum
Rosa bracteata
Juncus roemerianus
Hoffmanseggia spp.
Caesalpinia jamesii
Hoffmanseggia drepanocarpa

S

Spartina spartinae
Sporobolus airoides
S. wrightii
Ascyrum hypericoides
Hypericum walteri
Atriplex semibaccata
A. canescens
Distichlis spicata var. stricta
D. spicata var. spicata
Mentzelia nuda
Tamarix spp.
Calamovilfa gigantea
Artemisia filifolia
Abronia angustifolia
A. fragrans
Sassafras albidum
Indigofera miniata
Psoralea spp.
P. lanceolata
Uniola paniculata
Borreria frutescens
Cakile fusiformis
Carex planostachys
Baccharis glutinosa
Cassia roemeriana
Schrankia spp.
S. uncinata
Halodule beaudeettai
Brachiaria ciliatissima
Garrya lindeimeri
G. wrightii
Sida spp.
S. filicaulis
Viguiera stenoloba
Sporobolus indicus
Xanthocephalum spp.
Helenium amarum
Symphoricarpos oreophilus
Sapindus saponaria
Dasylirion spp.
Dithyrea wizlenii
Eleocharis macrostachya
Chasmanthium sessiliflorum
Euphorbia missurica
E. carunculata
Rhus spp.
R. microphylla
R. virens
Americanblocked, flameleaf
_______, skunkbush
Sumpweed, coarse
Sunflower
________, common
________, Maximilian
________, plains
________, silverleaf
Supplejack
Sweetgum
Switchgrass
Sycamore

Tanglehead
Tarbush
Tasajillo
Tephrosia, Lindheimer
Three-awn
________, purple
________, red
________, Roemer
Three-square, leafy
________, Olneyi
Tickelover
Tobosa
Trichloris, two-flowered
Tridens, slim
Trumpet creeper
Trumpet currant
Tumblegrass
Tupelo, water

Vidrillos
Vine mesquite
Virginia creeper
Virgin's bower

Walnut
Waterlily, white
Water pennywort
Wheatgrass, western
Whitebrush
Widgeongrass
Wildrye, Canada
________, Virginia
Willow, black
________, desert
________, Lindheimer's black
Windmillgrass
________, hooded
Wintergrass, Texas
Wolfberry
________, Berlandier

R. lanceolata
R. aromatic
Iva xanthifolia
Helianthus spp.
H. annuus
H. maximilian
H. petiolaris
H. argophyllus
Berchemia scandens
Liquidambar styraciflua
Panicum virgatum
Platanus occidentalis

Heteropogon contortus
Flourensia cernua
Opuntia leptocaulis
Tephrosia lindheimeri
Aristida spp.
A. purpurea
A. longiseta
A. roemeriana
Scirpus robustus
S. olneyi
Desmodium spp.
Hilaria mutica
Trichloris crinita
Tridens muticus var. muticus
Campsis radicans
Ribes leptanthum
Schedonardus paniculatus
Nyssa aquatica

Batis maritima
Panicum obtusum
Parthenocissus quinquefolia
Clematis virginiana

Juglans spp.
Nymphaea odorata
Hydrocotyle spp.
Agropyron smithii
Aloysia gratissima
Ruppia maritima
Elymus canadensis
E. virginicus
Salix nigra
Chilopsis linearis
Salix nigra var. lindheimeri
Chloris spp.
C. culcullata
Stipa leucotricha
Lycium spp.
L. berlandieri var. berlandieri
Woodsorrel
Woollywhite

Yankeeweed
Yaupon
______, desert
Yucca
______, narrow leaf
______, Torrey
______, twist-leaf

Zinnia

Oxalis spp.
Hymenopappus spp.

Y

Eupatorium compositifolium
Ilex vomitoria
Schaefferia cuneifolia
Yucca spp.
Y. angustifolia
Y. torreyi
Y. rupicola

Z

Zinnia grandiflora