

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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of Pittman-Robertson Project W-107-R**

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Wildlife Division
Texas Parks and Wildlife Department
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THE VEGETATION OF WEST TEXAS

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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). Kùchler (1964) published a potential natural vegetation type map of the conterminous United States. Kùchler'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.

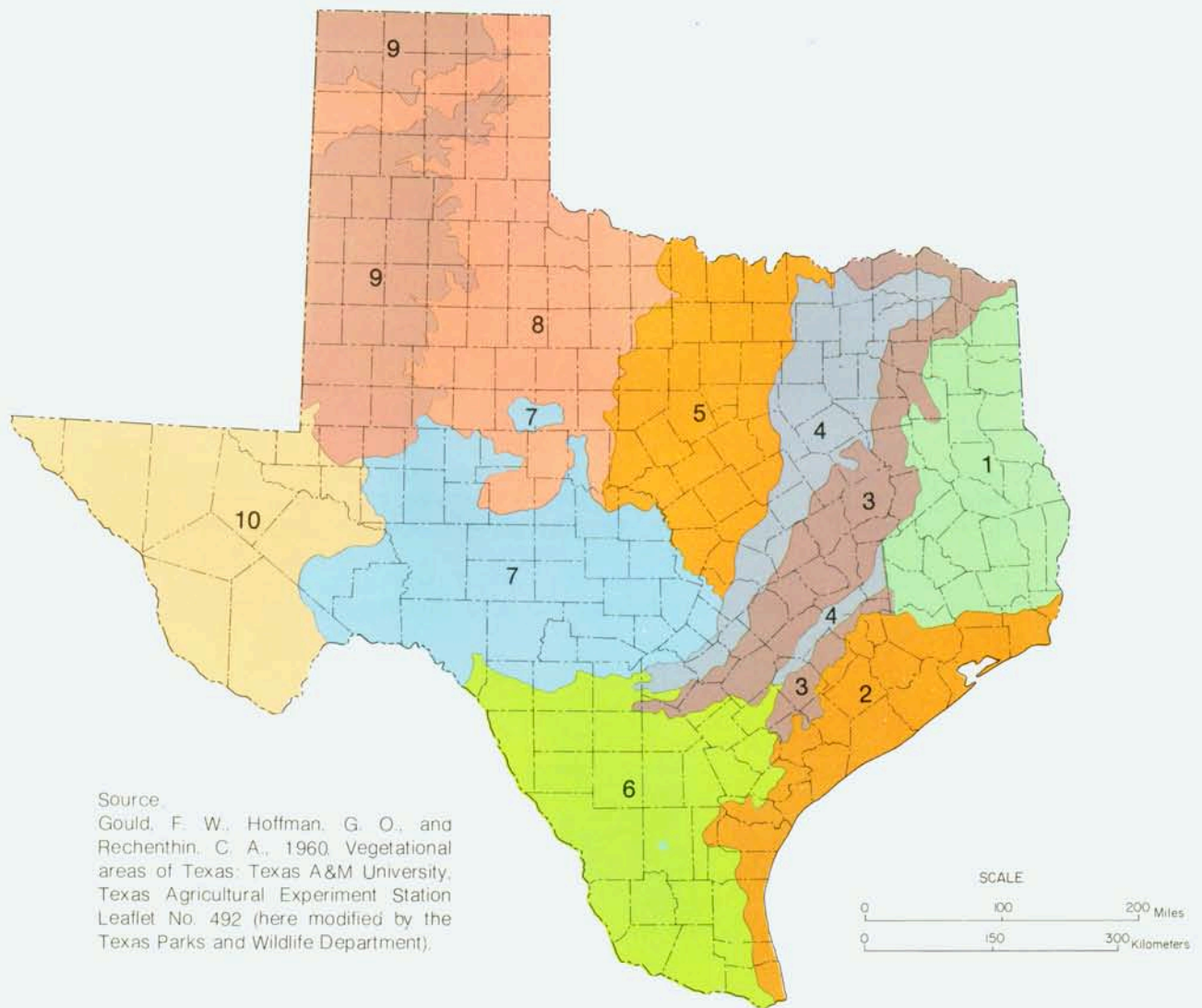
In most cases types have a single physiognomic designation, e.g. (17) Mesquite-Granjeno Woods. However, some types have two physiognomic designations separated by a slash (/), e.g. (25) Live Oak Woods/Parks. This means the type is encountered as either designation.

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 1. Listing of Major Physiognomic Classes Used to Standardize Map Nomenclature

Grassland	Herbs (grasses, forbs, and grasslike plants) dominant; woody vegetation lacking or nearly so (generally 10 percent or less woody canopy coverage).
Shrub	Individual woody plants generally less than nine feet tall scattered throughout arid or semi-arid regions (less than 30 percent woody canopy coverage).
Brush	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).
Parks	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).
Woods	Woody plants mostly nine to 30 feet tall with closed crowns or nearly so (71 to 100 percent canopy cover); midstory usually lacking.
Forest	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.
Young Forest	Various combinations and age classes of pine and hardwood regrowth resulting from the recent harvest of pine or mixed hardwood and pine forests.
Marsh	Emergent herbaceous plants dominant in inundated or periodically inundated areas; woody vegetation lacking or nearly so (generally 10 percent or less woody canopy coverage).
Swamp	Deciduous or evergreen trees with varying heights (canopy cover generally greater than 10 percent) within frequently or constantly inundated sites.
Crops	Includes cultivated cover crops or row crops used for the purpose of producing food and/or fiber for either man or domestic animals.
Barrier Island	Smooth sloping accumulations of sand, shell and gravel along sea and bay shores; periodically exposed unvegetated or sparsely vegetated wetlands and sand dunes.



Source:
 Gould, F. W., Hoffman, G. O., and
 Rechenthin, C. A., 1960. Vegetational
 areas of Texas: Texas A&M University,
 Texas Agricultural Experiment Station
 Leaflet No. 492 (here modified by the
 Texas Parks and Wildlife Department).

ECOLOGICAL AREAS OF TEXAS

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

Figure 1

THE VEGETATION TYPES



Tim Bone

(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.



Chris Wheaton

(2) Blue Grama-Buffalograss Grassland

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

Distribution: Principally in the northwestern High Plains.



Craig McMahan

(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.



Roy Frye

(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, tumblegrass, western ragweed, broom snakeweed, Texas bluebonnet, live oak, post oak, mesquite.

Distribution: Primarily in the Cross Timbers and Prairies.



Tim Bone

(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.



Tim Bone

(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.



Craig McMahan

(7) Creosotebush-Lechuguilla Shrub

Commonly Associated Plants: Mesquite, yucca, lotebush, ocotillo, javelina bush, catclaw, whitethorn acacia, whitebrush, ceniza, allthorn, 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.



Tim Bone

(8) Creosotebush-Mesquite Shrub

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.



Tim Bone

(9) Fourwing Saltbush-Creosotebush Shrub

Commonly Associated Plants: Mesquite, saltcedar, tarbush, grassland pricklypear, tasajillo, alkali sacaton, Wright's sacaton, tobosa, black grama, mesa dropseed, purple three-awn, two-flowered trichloris, jimmyweed, broom snake-weed, James rushpea.

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



Mike Hobson

(10) Ceniza-Blackbrush-Creosotebush Brush

Commonly Associated Plants: Guajillo, lotebush, mesquite, guayacan, Texas pricklypear, 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.



Roy Frye

(11a) Mesquite Shrub/Grassland

Mesquite Shrub

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 beebalm, scarlet gaura, yellow evening primrose, sandsage, wild buckwheat.

Distribution: High Plains, Rolling Plains and northwestern Edwards Plateau.



David Rideout

(11b) Mesquite Brush

Commonly Associated Plants: Narrow-leaf yucca, grassland pricklypear, juniper, red grama, Texas grama, sideoats 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.



David Rideout

(12a) Mesquite-Lotebush Shrub
(12b) Mesquite-Lotebush Brush

Mesquite-Lotebush Brush

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.



Roy Frye

(13a) Mesquite-Juniper Shrub
(13b) Mesquite-Juniper Brush
(13c) Mesquite-Juniper-Live Oak Brush

Mesquite-Juniper Brush

Commonly Associated Plants (Edwards Plateau): Lotebush, shin oak, sumac, Texas pricklypear, tasajillo, kidneywood, agarito, redbud, yucca, Lindheimer silktassel, sotol, catclaw, Mexican persimmon, sideoats grama, three-awn, Texas grama, hairy grama, curly mesquite, buffalograss, hairy tridens.

Distribution: Chiefly on mesas and hillsides of the western Edwards Plateau.



Mike Pittman

(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 snakeweed, devil's claw.

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



Carl Frentress

(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, goatbush, 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.



Carl Frentress

(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.



Craig McMahan

(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.



Roy Frye

(18) Mesquite-Saltcedar Brush/Woods Mesquite-Saltcedar Brush

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.



Herbert Kothmann

(19) Mesquite-Hackberry Brush/Woods Mesquite-Hackberry Brush

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.



Craig McMahan

(20) Mesquite-Live Oak-Bluewood Parks

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 poppymallow, sensitive briar, two-leaved senna, mat euphorbia.

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



Roy Frye

(21) Havard Shin Oak-Mesquite Brush

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 primrose.

Distribution: Occurs primarily on sandy soils in the western Rolling Plains and southwestern High Plains.



Roy Frye

(22) Sandsage-Mesquite Brush

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.



Craig McMahan

(23) Oak-Mesquite-Juniper Parks/Woods Oak-Mesquite-Juniper Parks

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.



Craig McMahan

(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).



Craig McMahan

(25) Live Oak Woods/Parks

Live Oak Woods

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.



Craig McMahan

(26a) Live Oak-Ashe Juniper Parks

Live Oak-Ashe Juniper Parks

(26b) Live Oak-Mesquite-Ashe Juniper Parks

Commonly Associated Plants (Edwards Plateau): Texas oak, shin oak, cedar elm, netleaf hackberry, flameleaf sumac, agarito, Mexican persimmon, Texas pricklypear, kidneywood, saw greenbriar, 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.



Roy Frye

(27) Live Oak-Ashe Juniper Woods

Commonly Associated Plants: Texas oak, shin oak, cedar elm, evergreen sumac, escarpment cherry, saw greenbriar, mesquite, poison oak, twistleaf 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.



Roy Frye

(28) Havard Shin Oak Brush

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.



Craig McMahan

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

Gray Oak-Pinyon Pine-Alligator Juniper Parks

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 groundcherry, Torrey anthericum.

Distribution: From about 5,500 to 7,500 feet elevation in the mountains of the Trans-Pecos; principally the Davis Mountains.



Craig McMahan

(30a) Post Oak Parks/Woods

(30b) Post Oak Woods, Forest and Grassland Mosaic

(30c) Post Oak Woods/Forest

Post Oak Forest

Commonly Associated Plants (Post Oak Savannah): Blackjack oak, eastern redcedar, 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.



Glen Mills

(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.



Roy Frye

(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.



Roy Frye

(33) Ashe Juniper Parks/Woods

Ashe Juniper 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.



David Riskind

(34) Juniper-Mixed Brush

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.

Distribution: Occurs on the Cap Rock Escarpment of the High Plains.



Craig McMahan

(35) Elm-Hackberry Parks/Woods Elm-Hackberry Parks

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.



Carl Frentress

(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.



Roy Frye

(37) Cottonwood-Hackberry-Saltcedar Brush/Woods

Cottonwood-Hackberry-Saltcedar Brush

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.



Craig McMahan

(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, greenbriar, mustang grape, poison oak, Johnson-grass, Virginia wildrye, Canada wildrye, rescuegrass, frostweed, western ragweed.

Distribution: Bottomlands in the Brazos, Colorado, Guadalupe, San Antonio and Frio River basins and Gulf Coast Prairie reaches of the San Bernard, Navidad and Lavaca Rivers.



Leroy Williamson

(39) Bald Cypress-Water Tupelo Swamp

Commonly Associated Plants: Water oak, water hickory, swamp blackgum, red maple, swamp privet, 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.



David Riskind

(40) Ponderosa Pine-Douglas Fir Parks/Forest

Ponderosa Pine-Douglas Fir 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.



Bill Reaves

(41) Young Forest/Grassland

Young Forest

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.



Brent Ortego

(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, greenbriar, blackberry.

Distribution: Occurs throughout the Pineywoods.



Joseph Campo

(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, greenbriar, yaupon, wax myrtle, American beautyberry, hawthorn, supplejack, winged elm, beaked panicum, spranglegrass, 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.



Craig McMahan

(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.



Brent Ortego

(42) Pine-Hardwood Forest

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.



Lee Ann Johnson

(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.



Kirby Brown

(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.



Lee Ann Johnson

(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.



Jake Dameron

(43) Marsh/Barrier Island

Subtype 4: Seoats-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.



Roy Frye

(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.



Roy Frye

(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.

BIBLIOGRAPHY

- Allred, B. W. and Homer C. Mitchell. 1954. Major plant types of Arkansas, Louisiana, Oklahoma and Texas. Ft. Worth, Tex. Soil Conservation Service.
- Blackstock, D. A. 1979. Soil survey of Lubbock Co., Texas. USDA, SCS. 105 pp. + maps.
- Blum, E. L. 1977. Soil survey of Sterling Co., Texas. USDA, SCS. 76 pp. + maps.
- Bray, W. L. 1906. Distribution and adaptations of the vegetation of Texas. Univ. Tex. Bull. No. 82, Series No. 10, 108 pp.
- Bynum, O. W. and J. L. Coker. 1974. Soil survey of McCulloch Co., Texas. USDA, SCS. 91 pp. + maps.
- Clower, D. F. 1978. Soil survey of Montague Co., Texas. USDA, SCS. 113 pp. + maps.
- Coffee, D. R. 1967. Soil survey of Menard Co., Texas. USDA, SCS. 51 pp. + maps.
- Connor, N. R. 1976. Soil survey of Taylor Co., Texas. USDA, SCS. 66 pp. + maps.
- Correll, D. S. and M. C. Johnston, 1970. Manual of the vascular plants of Texas. Tex. Research Foundation, Renner, Tex. 1881 pp.
- Cottle, H. J. 1931. Studies in the vegetation of southwestern Texas. *Ecol.* 12:105-155.
- _____. 1932. Vegetation on north and south slopes of mountains in southwest Texas. *Ecol.* 13:121-134.
- Crout, J. D., D. G. Symmank and G. A. Peterson. 1965. Soil survey of Jefferson Co., Texas. USDA, SCS. 73 pp. + maps.
- Crump, J. O. and J. C. Williams. 1975. Soil survey of Wheeler Co., Texas. USDA, SCS. 99 pp. + maps.
- Davis, R. B. and R. L. Spicer. 1965. Status of the practice of brush control in the Rio Grande Plain. *Tex. Parks & Wildl. Dept. Bull.* 46. 40 pp.
- Dittemore, W. H. Jr., and H. W. Hyde. 1964. Soil survey, Yoakum Co., Texas. USDA, SCS, Series 1960, No. 15. 53 pp. + maps.
- _____, Carey May, W. L. DeLozier, D. L. McClennon and H. W. Hyde. 1965. Soil survey of Gaines Co., Texas. USDA, SCS. 55 pp. + maps.
- _____, and E. L. Blum. 1975. Soil survey of Uvalde Co., Texas. USDA, SCS. 101 pp. + maps.
- Dittmar, G. W., M. L. Deike and D. L. Richmond. 1977. Soil survey of Medina Co., Texas. USDA, SCS. 92 pp. + maps.
- Dixon, M. L., W. H. Dittemore, Jr. and H. W. Hyde. 1973. Soil survey of Scurry Co., Texas. USDA, SCS. 56 pp. + maps.
- _____. 1977. Soil survey of Glasscock Co., Texas. USDA, SCS. 84 pp. + maps.
- Dolezel, Raymond. 1975. Soil survey of Panola Co., Texas. USDA, SCS. 55 pp. + maps.
- _____. 1980. Soil survey of Nacogdoches Co., Texas. USDA, SCS. 146 pp. + maps.
- Dyksterhuis, E. H. 1946. The vegetation of the Forth Worth Plains Prairie. *Ecol. Monogr.* 16:1-29.
- _____. 1948. The vegetation of the Western Cross Timbers. *Ecol. Monogr.* 18:326-376.
- Gould, F. W., G. O. Hoffman and C. A. Rechenthin. 1960. Vegetational Areas of Texas. *Tex. A&M Univ., Tex. Agric. Exp. Sta. Leaflet* 492.
- _____. 1969. Texas plants—a checklist and ecological summary. *Tex. A&M Univ., Tex. Agric. Exp. Sta. MP-585/Revised.* 121 pp.
- Grelen, H. E. and W. L. Duvall, 1966. Common plants of longleaf pine-bluestem range. USDA, Forest Service. Res. paper 50-23. 96 pp.
- Guckian, W. J. and R. N. Garcia. 1979. Soil survey of San Patricio and Aransas Cos., Texas. USDA, SCS. 122 pp. + maps.
- Hyde, H. W., N. R. Conner and H. R. Stover. 1973. Soil survey of Midland Co., Texas. USDA, SCS. 43 pp. + maps.
- Jaco, H. B. 1980. Soil survey of Reeves Co., Texas. USDA, SCS. 125 pp. + maps.
- Kier, R. S., L. E. Garner, and L. F. Brown, Jr. 1977. Land resources of Texas—a map of Texas lands classified according to natural suitability and use considerations. Bureau of Economic Geology, Univ. of Tex. at Austin.
- Küchler, A. W. 1964. Manual to accompany the map—potential natural vegetation of the conterminous United States, *Amer. Geol. Soc. Spec. publ. No. 36.* Amer. Geol. Soc., New York, N.Y. 116 pp.
- Lowther, A. C. 1981. Soil survey of Nolan Co., Texas. USDA, SCS. 138 pp. + maps.
- McBryde, James B. 1933. The vegetation and habitat of the Carrizo Sands. *Ecol. Monogr.* 3:247-297.
- McClintock, W. R., T. L. Galloway, B. R. Stringer and L. E. Andrew. 1972. Soil survey of Montgomery Co., Texas. USDA, SCS. 70 pp. + maps.
- McEwen, H. F. and Jack Crout. 1974. Soil survey of Wharton Co., Texas. USDA, SCS. 43 pp. + maps.
- Meade, W. D., W. G. Chervenka and J. M. Greenwade. 1974. Soil survey of Navarro Co., Texas. USDA, SCS. 69 pp. + maps.
- Minzenmayer, F. E. 1979. Soil survey of Jim Wells Co., Texas. USDA, SCS. 111 pp. + maps.
- Mowery, I. C. and G. S. McKee. 1959. Soil survey of Lynn Co., Texas. USDA, SCS. 37 pp. + maps.
- _____, M. T. Turner, D. Gooch, J. C. Williams, R. B. Hailey and T. Robinson, 1961. Soil survey of Haskell Co., Texas. USDA, SCS. 74 pp. + maps.

- National Park Service. 1979. Biological investigation in Guadalupe Mountains Park, Texas. National Park Service Proc. and Trans. Series No. 4, 442 pp.
- Newman, A. L., J. W. Stevens, T. J. Holder, and D. Arriaga. 1967. Soil survey of Kinney Co., Texas. USDA, SCS. 60 pp. + maps.
- Pessin, L. J. 1933. Forest associations on the uplands of the lower Gulf Coastal Plain. *Ecol.* 14:1-14.
- Ramsey, R. N. and N. P. Bade. 1977. Soil survey of Guadalupe Co., Texas. USDA, SCS. 80 pp. + maps.
- Richardson, W. E., D. G. Grice and L. A. Putnam. 1965. Soil survey of Garza Co., Texas. USDA, SCS. 84 pp. + maps.
- _____ and C. L. Girdner. 1973. Soil survey of Kent Co., Texas. USDA, SCS. 67 pp. + maps.
- _____, J. Hajek and C. Neitsch. 1977. Soil survey of Motley Co., Texas. USDA, SCS. 77 pp. + maps.
- Rivers, J. L. 1980. Soil survey of Pecos Co., Texas. USDA, SCS. 97 pp. + maps.
- Rogers, C. A., A. R. Goerdel and H. D. Gooch. 1972. Soil survey of Jones Co., Texas. USDA, SCS. 51 pp. + maps.
- Rowell, C. 1949. Vascular plants of the Texas Panhandle and South Plains. PhD. Thesis, Okla. State Univ.
- Sanders, Dupree. 1962. Soil survey of Terry Co., Texas. USDA, SCS. 57 pp. + maps.
- Stevens, J. W. and D. L. Richmond. 1969. Soil survey of Uvalde Co., Texas. USDA, SCS. 101 pp. + maps.
- _____ and D. Arriaga. 1977. Soil survey of Maverick Co., Texas. USDA, SCS. 62 pp. + maps.
- Stoner, H. R., W. D. Mitchell, G. K. Brock, and H. E. Mitchell. 1969. Soil survey of Howard Co., Texas. USDA, SCS. 68 pp. + maps.
- _____, T. J. Holder, D. L. McClennan and K. M. Templeton. 1969. Soil survey of Mitchell Co., Texas. USDA, SCS. 47 pp. + maps.
- _____ and M. L. Dixon. 1974. Soil survey of Martin Co., Texas. USDA, SCS. 54 pp. + maps.
- Taylor, F. B. 1977. Soil survey of Wilson Co., Texas. USDA, SCS. 99 pp. + maps.
- Telfair, R. C. II. 1983. The Cattle Egret: A Texas Focus and World View. The Kleberg Studies in Natural Resources. Tex. Agric. Expt. Sta., Tex. A&M Univ., College Station. 144 pp.
- Templin, E. H., A. L. Nabors, T. R. Atkins, A. W. Crain, I. C. Mowery, D. T. Horton, J. S. Williams and R. M. Voigtel. 1958. Soil survey of McLennan Co., Texas. USDA, SCS. Series 1942, No. 17, 124 pp. + maps.
- Tharp, B. C. 1926. Structure of Texas vegetation east of the 98th meridian. *Univ. of Tex. Bull.* No. 2606.
- _____. 1939. The vegetation of Texas. *Tex. Acad. Sci.* 74 pp.
- _____. 1943. The mesa region of Texas. *Tex. Acad. Sci. Proc. and Trans.* 27:81-91.
- _____. 1952. Texas range grasses. Univ. Tex. Press. 125 pp.
- Thomas, J. R., Jr. 1977. Soil survey of Red River Co., Texas. USDA, SCS. 92 pp. + maps.
- Turner, A. J. and R. E. Fox. 1974. Soil survey of Terrell Co., Texas. USDA, SCS. 35 pp. + maps.
- _____. 1977. Soil survey of Jeff Davis Co., Texas. USDA, SCS. 93 pp. + maps.
- U.S. Forest Service. 1965. Silvics of forest trees of the United States. USDA Agric. Handbook No. 271.
- Warnock, B. H. 1970. Wildflowers of the Big Bend country, Texas. Sul Ross State Univ., Alpine Tex. 157 pp.
- Wheeler, F. F. 1976. Soil survey of Harris Co., Texas. USDA, SCS. 140 pp. + maps.
- Wiedenfeld, C. C., L. J. Barnhill and C. J. Novosad. 1970. Soil survey of Runnels Co., Texas. USDA, SCS. 60 pp. + maps.
- _____ and P. H. Flores. 1976. Soil survey of Tom Green Co., Texas. USDA, SCS. 58 pp. + maps.
- _____. 1980. Soil survey of Schleicher Co., Texas. USDA, SCS. 64 pp. + maps.
- Williams, J. C., A. J. Welker, F. F. Wheeler and H. F. McEwen. 1974. Soil survey of Hemphill Co., Texas. USDA, SCS. 55 pp. + maps.
- Wyrick, J. C. 1981. Soil survey of Roberts Co., Texas. USDA, SCS. 120 pp. + maps.

APPENDIX

Scientific Names of Plants Mentioned

A

Acacia, whitethorn	<i>Acacia constricta</i>
Agarito	<i>Berberis trifoliolata</i>
Alligator weed	<i>Alternanthera philoxeroides</i>
Allthorn	<i>Koeberlinia spinosa</i>
Ampelopsis, heartleaf	<i>Ampelopsis cordata</i>
American beautyberry	<i>Callicarpa americana</i>
Anthericum, Torrey	<i>Anthericum torreyi</i>
Arrowhead	<i>Sagittaria</i> spp.
Arrowwood, southern	<i>Viburnum dentatum</i>
Ash, Carolina	<i>Fraxinus caroliniana</i>
_____, red	<i>F. pensylvanica</i>

B

Baccharis	<i>Baccharis</i> spp.
Balsamscale, Pan American	<i>Elyonurus tripsacoides</i>
Bay, red	<i>Persea borbonia</i>
Bean, mescal	<i>Sophora secundiflora</i>
Bean, slickseed	<i>Strophostyles leiosperma</i>
Beargrass	<i>Nolina erumpens</i>
Beebalm, plains	<i>Monarda pectinata</i>
Beech	<i>Fagus grandifolia</i>
Beggar-ticks	<i>Bidens discoidea</i>
Bermudagrass	<i>Cynodon dactylon</i>
Betony, rock	<i>Stachys bigelovii</i>
Bitterweed	<i>Hymenoxys</i> spp.
Blackberry	<i>Rubus louisianus</i>
Blackbrush	<i>Acacia rigidula</i>
Blackgum	<i>Nyssa sylvatica</i>
_____, swamp	<i>N. sylvatica</i> var. <i>biflora</i>
Bladderwort	<i>Utricularia</i> spp.
Blueberry	<i>Vaccinium</i> spp.
Bluebonnet, Texas	<i>Lupinus texensis</i>
Bluestem, broomsedge	<i>Andropogon virginicus</i>
_____, bushy	<i>Andropogon glomeratus</i>
_____, cane	<i>Bothriochloa barbinodis</i> var. <i>barbinodis</i>
_____, little	<i>Schizachyrium scoparium</i> var. <i>frequens</i>
_____, sand	<i>Andropogon hallii</i>
_____, seacoast	<i>Schizachyrium scoparium</i> var. <i>littoralis</i>
_____, silver	<i>Bothriochloa saccharoides</i>
_____, slender	<i>Schizachyrium tenerum</i>
Bluewood	<i>Condalia hookeri</i>
Bois d'arc	<i>Maclura pomifera</i>
Brickellbush	<i>Brickellia</i> spp.
Bristlegrass, plains	<i>Setaria macrostachya</i>
Broomweed, false	<i>Haploesthes greggii</i>
Buckwheat, false climbing	<i>Polygonum cristatum</i>
Buckwheat, wild	<i>Eriogonum</i> spp.
Buffalograss	<i>Buchloë dactyloides</i>
Buffalograss, false	<i>Munroa squarrosa</i>
Bullgrass	<i>Muhlenbergia emersleyi</i>
Bulrush	<i>Scirpus</i> spp.
_____, California	<i>S. californicus</i>

Bumelia, woollybucket
Bundlemflower, Illinois
_____, velvet
Burrobrush
Burrograss
Bushclover
Bushsunflower
Butterflybush
Buttonbush

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
_____, marshay
_____, prairie
_____, smooth
Cottontop, Arizona
Cottonwood
Coyotillo
Creosotebush
Crinkleawn
Crossvine
Croton
_____, grassland
_____, one-seed
Cypress, bald

Daisy, Engelmann
Dallisgrass
Dayflower
Devilweed, Mexican
Devil's claw
Dewberry
_____, southern
Dogweed
Dogwood, flowering
_____, rough leaf
Dropseed, giant
_____, meadow
_____, mesa

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

C

Cabomba caroliniana
Arundinaria gigantea
Acacia greggii
Typha spp.
Sesuvium portulacastrum
Leucophyllum frutescens
Agave spp.
Prunus serotina var. *eximia*
P. serotina var. *virens*
Opuntia imbricata var. *imbricata*
Petalostemum spp.
Coldenia spp.
Colubrina texensis
Baccharis halimifolia
Ceratophyllum demersum
Symphoricarpos orbiculatus
Spartina cynosuroides
S. patens
S. pectinata
S. alterniflora
Trichachne californica
Populus deltoides
Karwinskia humboldtiana
Larrea tridentata
Trachypogon secundus
Bignonia capreolata
Croton spp.
C. dioicus
C. monanthogynus
Taxodium distichum

D

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 tricholepsis
Sporobolus cryptandrus
S. contractus
S. asper
Lemna spp.

E

Brunnichia ovata
Forestiera pubescens
Sambucus canadensis
Ulmus spp.
U. americana
U. crassifolia
Planera aquatica
Ulmus alata
Eryngium leavenworthii
Euphorbia serpens
Calylophus serrulatus
Evolvulus alsinoides

F

Dalea formosa
Azolla caroliniana
Pseudotsuga menziesii
Gaillardia spp.
Cyperus spp.
Erioneuron pulchellum
Penstemon cobaea
Verbesina virginica

G

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. curtispindula
B. rigidiseta
Celtis pallida
Vitis mustangensis
V. acerifolia
Smilax spp.
S. bona-nox
Physalis hederifolia
P. virginiana var. *sonorae*
Baccharis salicina
Acacia berlandieri

Guayacan
Gumweed, spinytooth

Porlieria angustifolia
Grindelia lanceolata

H

Hackberry
Hackberry, netleaf
Haw, pasture
Hawthorn
Hemp, bog
Hempweed, climbing
Hickory, black
_____, water
Hierba del pollo
Holly
Hornbeam, American
Horsetail
Huisache
Huisachillo
Hyacinth, water

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

Indiangrass
Indian mallow
Indigo, wild blue
Ironweed

Sorghastrum avenaceum
Abutilon incanum
Baptisia australis
Vernonia spp.

J

Javelina bush
Jessamine, yellow
Jimmyweed
Johnsongrass
Juniper
_____, alligator
_____, Ashe
_____, one-seed
_____, red-berry

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

K

Kidneywood

Eysenhardtia texana

L

Lantana, Texas
Lead plant
Leafflower, knotweed
Leatherstem
Lechuguilla
Locust, honey
Lotebush
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. sessilispica

M

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

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

N

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

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

O

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

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. margaretta
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, loblolly
_____, 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 nuttallii
Paspalum plicatulum
P. setaceum
P. vaginatum
P. monostachyum
P. fluitans
Carya illinoensis
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
Callirhoë 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
_____, catclaw
Shoalgrass
Signalgrass, fringed
Silktassel, Lindheimer
_____, Wright's
Sida
_____, spreading
Skeletonleaf golden eye
Smutgrass
Snakeweed, broom
Sneezeweed, 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
Borrichia frutescens
Cakile fusiformis
Carex planostachys
Baccharis glutinosa
Cassia roemeriana
Schrankia spp.
S. uncinata
Halodule beaudettei
Brachiaria ciliatissima
Garrya lindheimeri
G. wrightii
Sida spp.
S. filicaulis
Viguiera stenoloba
Sporobolus indicus
Xanthocephalum spp.
Helenium amarum
Symphoricarpos oreophilus
Sapindus saponaria
Dasyllirion spp.
Dithyrea wizlizenii
Eleocharis macrostachya
Chasmanthium sessiliflorum
Euphorbia missurica
E. carunculata
Rhus spp.
R. microphylla
R. virens

_____, 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
Tickclover
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. aromatica
Iva xanthifolia
Helianthus spp.
H. annuus
H. maximiliani
H. petiolaris
H. argophyllus
Berchemia scandens
Liquidambar styraciflua
Panicum virgatum
Platanus occidentalis

T

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
Schedonnardus paniculatus
Nyssa aquatica

V

Batis maritima
Panicum obtusum
Parthenocissus quinquefolia
Clematis virginiana

W

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

Oxalis spp.
Hymenopappus spp.

Y

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

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

Z

Zinnia

Zinnia grandiflora

