

Proceedings of the Iowa Academy of Science

Volume 1 | Part 3, 1892; (1887) -

Article 20

1892

Notes on the Flora of Texas

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Recommended Citation

Pammel, L. H. (1892) "Notes on the Flora of Texas," *Proceedings of the Iowa Academy of Science*, 1(Pt. 3), 62-76.

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NOTES ON THE FLORA OF TEXAS.

 BY PROF. L. H. PAMMEL, AMES.

In 1888 and 1889 the writer had the pleasure of spending a few months of two summers in studying a disease of cotton commonly known as Root-Rot of Cotton. Incidentally some attention was given to the phanogamic flora of the State.

The territory embraced is Central Texas, along the Houston & Texas Central R. R. from Denison south to Hempstead, as far west as San Marcos, in Hays county, and Marble Falls, in Burnet county. Soil and climate vary greatly, which is well shown by the character of the vegetation. The most important feature in the northern part is what is known as the Central Black Prairie region, which extends south through Ellis, and the northern part of Navarro counties. The soil of this region is mostly what is termed "black waxy"—an extremely tenacious soil, but in dry weather it becomes hard and cracks, sandy soil only occurring along streams. The character of the vegetation of the former is quite uniform. *Grindelia inuloides*, *Aplopappus ciliatus*, *Eryngium leavenworthii*, *Audropogon saccharoides*, *Xanthium canadense*, *Centaurea americana*, *Sabbatia campestris* are abundant everywhere. A white rotten limestone underlies the region. Frequent outcrops occur. Near river courses *Quercus durandii* is common. On the sandy soils *Quercus nigra*, *Juniperus virginiana*, *Gilia coronopifolia*. In the Central Black Prairie Region further west in Williamson, Travis and Hays counties *Prosopis juliflora* is common, becoming more so further west. Along the river bottoms of the Red and Brazos rivers the alluvium is very deep. The soil has a red color and is covered with magnificent trees of *Hicoria pccan*, *Juglans nigra*, *Platanus occidentalis* and *Populus monilifera*.

Along the Trinity river the soil has an entirely different aspect. The alluvium is of a grayish color owing to the source of the river which is a little west of the central black prairie region. *Celtis mississippiensis*, *Populus monilifera*, *Juglans nigra*, *Sapindus marginatus* are abundant. South of Navarro county the surface of the country is quite uniform; in many places there is scarcely any drainage. The soil is sandy or loamy, with a hard pan underlying it. Here and there are prairies with good and more or less black, sandy soil. *Quercus obtusiloba* is abundant. *Quercus virens* occurs in gulf prairie region in Washington county. This is also a tenacious soil. *Sabbatia campestris*, *Eustoma russellianum*, are common in this region along

streams or partially open prairies. *Quercus obtusiloba*, *Croton texensis*, *Solanum eleagnifolium* abound. *Ilex cassine* occurs on sandy ridges near the streams. The climate¹ varies greatly. Along the Red river in December the mean is 41 degrees. The minimum for the same month was 2°; the maximum, 76°. At Corsicana the extremes are 6° and 80°, with a mean of 47.4°. The amount of precipitation also varies greatly; there being much more dryness in the region about Austin, than Dallas and Denison; at the latter place it was 46.3 inches in 1880; at San Antonio, about fifty miles west of San Marcos, the rainfall for the same year was 40 inches, distributed somewhat more evenly than in Denison. The amount of drouth some plants can stand is somewhat surprising. Notwithstanding the fact that in 1889 when I visited Texas, there had been a drouth of seven weeks, common plants like *Sabbatia campestris*, *Croton capitatum*, var., *linheimeri*, *Castilleja indivisa*, *Eryngium leavenworthii* and many others looked fresh and bright in the morning. This is partly owing to the fact that the heavier soils are poorly drained and the hard pan contains considerable moisture even during very dry weather. In "black waxy" soils the water was so abundant in some cases that drops could be found on the roots of some plants when growing close to the rotten limestone. Annuals usually suffer much more from long standing drouths than perennials. They flower early and mature their seeds, and after the August or September rains it is not an unusual thing to see cotton and corn fields covered with various grasses like *Panicum sanguinale* and *P. glabrum*, *Elusine indica*, and *Leptochloa mucronata*, affording good forage. Weeds of various kinds become surprisingly numerous at such times.

In the arrangement of orders and genera Gray's systematic works have been followed. Some use has also been made of Coulter's contributions, U. S. Nat. Museum, Vol. II, Nos. 1 and 2. The nomenclature of these authors has been followed in the main. Where the specimens have been preserved they are marked (P.). The grasses were identified by Dr. Vasey some four years ago. *Rhamnus* and *Ilicineæ* by Prof. Trelease.

DICOTYLEDENOUS PLANTS.

RANUNCULACEÆ.

(1) *Clematis pilcheri*, Torr. & Gray. (Leather Flower) Clay Station, Burleson county. Rocky woods. (P.)

MAGNOLIACEÆ.

(2) *Magnolia grandiflora*. (Large Magnolia.) Only as a cultivated tree. Yarborough, Grimes county. (P.)

ANONACCEÆ.

(3) *Asimina triloba*, Dunal. Denison, Grayson county.

MENISPERMACEÆ.

(4) *Cocculus carolinus*, DC. Navasota, Grimes county; College Station, Brazos county. Common in low places along streams climbing over bushes. (P.)

¹Hilgard Cotton Production. Tenth annual report. Pt. I. p. 673.

BERBERIDACEÆ.

(5) *Berberis trifolialata*, Moric. (Three-leaved Barberry.) Marble Falls, Burnet county, near Colorado river. On granite soils. Common in thickets. (P.)

NYMPHÆACEÆ.

(6) *Nymphaea advena*, Aiton. (Yellow Pond Lily.) Independence, Washington county. In prairie ponds not uncommon. (P.)

PAPAVERACEÆ.

(7) *Argemone mexicana*, L. (Mexican Poppy.) College Station, Brazos county; Denison, Grayson county. Flowers uniformly white. A common weed in light soil everywhere in central Texas. (P.)

CAPPARIDACEÆ.

(8) *Cristatella jamesii*, Torr. & Gray. Along near Clay Station, Burleson county. In gravelly soil. Not common. (P.)

CISTACEÆ.

(9) *Lechea drummondii*, Torr. & Gray. (Pinweed.) College Station, Brazos county. Dry sandy soil. Common. (P.)

POLY GALACEÆ.

(10) *Polygala incarnata*, L. (?) College Station, Brazos county.

(11) *Krameria secundiflora*, D. C. College Station, Brazos county. Open prairies. Not common. (P.)

HYPERICACEÆ.

(12) *Ascyrum hypericoides*, L. (St. Andrew's Cross.) College Station, Brazos county. Grassy prairies. Still in flower July 20th. (P.)

MALVACEÆ.

(13) *SIDA SPINOSA*, L. (Common Sida). Navasota, Grimes county. (P.) R. D. Blackshear. College Station, Brazos county. A weed in cotton and corn fields throughout central Texas. Melissa, Collin county. Dallas, etc.

(14) *ABUTILON AVICENNÆ*, Gert. Dallas, Dallas county. Common.

(15) *HIBISCUS TRIONUM*, L. (Bladder Ketmia.) Melissa, Collin county. A weed in grain fields.

TILIACEÆ.

(16) *Tilia americana*, L. Basswood. Central Texas.

LINACEÆ.

(17) *Linum virginianum*, L. (Flax.) College Station, Brazos county. Still in flower July 18. Grassy prairies. (P.)

GERANIACEÆ.

(18) *Oxalis corniculata*, L. (Yellow Wood Sorrel.) College Station, Brazos county. Prairies, common.

RUTACEÆ.

- (19) *Xanthoxylum clava-herculis*, L. (Prickly Ash.) Independence, Washington county. Common along fences.
 (20) *AILANTHUS GLANDULOSUS* Desf. (Tree of Heaven.) Frequent escape.

ILICINEÆ.

- (21) *Ilex opaca*, Ait. (American Holly.) Calvert, Robertson county. Along streams.
 (22) *Ilex cassine*, L. (Cassena Yaupon). Brenham, Washington county. Sandy oak openings forming thickets; common.
 (23) *I. decidua*, Walt. Melissa, Collin county. Common along streams in low grounds.

PIRAMNACEÆ.

- (24) *Berchemia scandens*, Trelease. (Supple Jack). College Station, Brazos county (P.); Calvert, Robertson county. (P.) Common climbing trees forty to sixty feet high. In low grounds.
 (25) *Rhamnus caroliniana*, Walt. San Marcos, Hays county. (P.) In rocky places along San Marcos River. Clay station, Washington county (P). Sandy rocky ledges.

VITACEÆ.

- (26) *Vitis candidans*, Engelm. Everywhere in woods.
 (27) *V. æstivans*, Miln. Post Oak Grape. Denison, Grayson county. Fruit ripe in July and August. Denison, Grayson county.
 (28) *V. cinerea*, Engelm. Denison.
 (29) *V. cordifolia*, Michx. (Frost or Chicken Grape.) Denison, Grayson county.
 (30) *V. riparia*, Michx. Denison, Grayson county.
 (31) *V. rotundifolia*, Michx. College Station, Brazos county. In deep, rich woods.
 (32) *Cissus stans*, Pers. College Station, Brazos county; Navasota, Grimes county; Calvert, Robertson county. A common species, and on the deep, rich soils of the Brazos a troublesome weed in cotton and cornfields.
 (33) *Ampelopsis quinquefolia*, Michx. College Station, Brazos county; Denison, Grayson county. Common.

SAPINDACEÆ.

- (34) *Cardiospermum halicacabum*, L. (Common Balloon Vine.) Melissa, Collin county. A weed in fields.
 (35) *Æsculus flava*, Ait., var. *purpurascens*, Gray (?). San Marcos, Hays county. Low shrub in rocky woods. August 10th seed nearly ripe. Leaves all gone.
 (36) *Ungnadia speciosa*, Endl. (Mexican Buckeye.) Clay Station, Washington county. Shrub in rocky woods. Shiny black seeds ripe July 15th. (P.)
 (37) *Sapindus marginatus*, Willd. Soapberry tree. (Native China tree.) Melissa, Collin county. (P.) Dallas. Common in Trinity river bottom. Rich alluvial soil.
 (38) *Acer saccharinum*, L. Denison, Grayson county.
 (39) *Negundo aceroides*, Moench. Denison, Grayson county.

ANACARDIACEÆ.

- (40) *Rhus copallina*, L. (Dwarf Sumach.) Melissa, Collin county. In woods. July 10 in flower. Burnet, Burnet county.
- (41) *R. copallina*, L. var. *lanceolata*. Gray. Burnet, Burnet county. Collected with the species. Comes into flower later. Rocky, granitic soils, forming thickets.
- (42) *R. toxicodendron*, L. (Poison Ivy.) Calvert, Robertson county. Climbing on trees in low ground. Common.
- (43) *R. canadensis*, Marsh, var. *trilobata*, Gray. Burnet county. Granitic soils in woods. Common.

LEGUMINOSÆ.

- (44) *Sophora affinis*, Torr. & Gray. Clay Station; College Station, Brazos county. Sandy woods.
- (45) *Crotalaria sagittalis*, L. (Rattle-box.) Denison, Grayson county. Sandy soils; common.
- (46) *MEDICAGO SATIVA*, L. (Alfalfa.) College Station, Brazos county. Prairies; common.
- (47) *Dalea laxiflora*, Pursh. Ennis, Ellis county. Open prairies; common. (P.)
- (48) *Petalostemon candidus*, Michx. Ennis, Ellis county. Prairies.
- (49) *Sesbania vesicaria*, Ell. College Station, Brazos county. In low grounds along streams.
- (50) *Glycyrrhiza lepidota*, Nutt. (Wild Liquorice.) Southern Texas. J. C. Watkins.
- (51) *LESPEDEZA STRIATA*. Hook. and Arn. Calvert, Robertson county.
- (52) *L. reticulata*, Pers., var. *angustifolia*, Maxim. Ennis, Ellis county. Prairies.
- (52) *Centrosema virginiana*, Betham. College Station, Brazos county.
- (53) *Clitoria mariana*, L. College Station, Brazos county.
- (54) *Rhynchosia tomentosa*, Hook. & Arnot. Clay Station, Burleson county.
- (55) *Cercis canadensis*, L. Ennis, Ellis county.
- (56) *Cassia occidentalis*, L. White Hall, Grimes county.
- (57) *C. chamæchrista*, L. Denison, Grayson county, Sherman.
- (58) *C. marylandica*, L. Melissa, Collin county; Sherman, Grayson county.
- (59) *C. tora*, L. Navasota, Grimes county. Weed in streets.
- (60) *Prosopis juliflora*, D. C. (Mezquit, Screw-bean.) College Station, Brazos county. Prairies. (P.) Not common. Abundant in Williams county. Abundant about Austin, Hays county, forming groves on prairies or sandy hillsides. From a distance trees resemble peach orchards.
- (61) *Gleditschia triacanthos*, L. Robertson, Grimes, Grayson and Collin counties. Common in low grounds along streams.
- (62) *Desmanthus brachylobus*, Bentham, Sherman, Grayson county.
- (63) *D. leptolobus*, Torr. & Gray. Sherman, Grayson county; Melissa, Collin county.
- (64) *Schrankia uncinata*, Willd. Northern Texas.

ROSACEÆ.

- (65) *Prunus americana*, Marshall. Denison, Grayson county.
- (66) *P. angustifolia*, Marshall. Independence, Washington county.
- (67) *Rubus trivialis*, Michx. College Station, Brazos county.
- (68) *Rosa laevigata*, Michx. Navasota, Grimes county. Escaped.
- (69) *Crataegus spathulata*, Michx. Clay Station, Yarborough, Grimes county.
- (70) *C. coccinea*, var. *mollis*, Torr. & Gray. Melissa, Collin county. Fruit ripe August 25th.

ONAGRACEÆ.

- (71) *Oenothera biennis*, L. Central Texas.
- (72) *O. speciosa*, Nutt. College Station, Brazos county. Prairies. Common.
- (73) *Gaura parviflora*, Dougl. Navasota, Grimes county.
- (74) *G. lindheimeri*, Engel. & Gray. Navasota, Grimes county. On sandy rocks. Dry soil.

PASSIFLORACEÆ.

- (75) *Passiflora incarnata*, L. Independence, Washington county. Black soil, in orchards and waste places.

UMBELLIFERÆ.

- (76) *Daucus pusillus*, Michx. College Station, Brazos county.
- (77) *Eryngium yuccaefolium*, Michx. Ennis, Ellis county.
- (78) *E. leavenworthii*, Torr. & Gray. Ennis, Ellis county. Melissa, Collin county. Rich prairie soils.
- (79) *Discopleura capillacea*, DC. College Station, Brazos county.
- (80) *Hydrocotyle umbellata*, L. Yarborough. In wet sandy soil.

CORNACEÆ.

- (81) *Cornus canadensis*, Marsh. (?) Sherman, Grayson county. In woods.

CAPRIFOLIACEÆ.

- (82) *Sambucus canadensis*, L. (Common Elder.) Dallas county. Rich soils, low grounds.
- (83) *Viburnum molle*, Michx. Hempstead, Waller county. (P.) Sandy barrens.
- (84) *V. prunifolium*, L. (Black Haw). Melissa, Collin county. (P.) In low grounds, rich woods.
- (85) *Symphoricarpos vulgaris*, Michx. (Coral-berry, Indian Currant.) College Station, Brazos county. (P.) Melissa, Collin county. In dry, open woods.

RUBIACEÆ.

- (86) *Houstonia angustifolia*, Michx. College Station, Brazos county. (P.) Dry grounds in woods.
- (87) *Cephalanthus occidentalis*, L. (Button-bush). Brazos county. Common in low grounds.
- (88) *Diodia teres*, Walt. (Button-weed). College Station, Brazos county (P.) A common weed on the dry sandy prairies.

COMPOSITÆ.

- (89) *Vernonia altissima*, Nutt. College Station, Brazos county.
- (90) *V. angustifolia*, Michx. (Iron-weed.) College Station, Brazos county. (P.) Common on sandy soils in woods.
- (91) *Eupatorium serotinum*, Michx. (Boneset, or Thoroughwort.) Calvert, Robertson county. (P.) On clay hills along roadsides.
- (92) *E. semiserratulm*, DC. Hempstead, Waller county. (P.) Sandy barrens.
- (93) *E. rotundifolium*, L. Hempstead, Waller county. Sandy*barrens. In flower July 20. (P.)
- (94) *E. perfoliatum*, L. (Boneset). Hempstead, Waller county. Sandy barrens. In flower July 20. (P.)
- (95) *E. incarnatum*, Walt. College Station, Brazos county. In rich woods, low grounds. First flowers August 7. (P.)
- (96) *Liatrus squarrosa*, Willd. (Blazing Star.) College Station, Brazos county. Post oak openings and prairies; common. (P.)
- (97) *Grindelia inuloides*, Willd. Calvert, Robertson county. Black soil and prairies; common. (P.) Fruit mature August 15. (P.)
- (98) *Aplopappus cilatus*, DC. Ennis, Ellis county. (P.) Black prairie soil and common along fences throughout north central Texas. In flower July 20.
- (99) *Solidago serotina*, Ait. Sherman; Grayson. Common in woods. (P.)
- (100) *Silphium asperrimum*, Hook. (Rosinweed) College Station, Brazos county. Post oak openings and prairies.
- (101) *S. laciniatum*, L. (Compass Plant.) Common, prairies of north central Texas.
- (102) *Berlandiera tomentosa*, Nutt. var. *dealbata*. Torr. & Gray. Independence, Washington county. (P.) July 7, in full flower.
- (103) *Engelmannia pinnatifida*, Torr. & Gray. Independence, Washington county. (P.) Post oak openings and sandy prairies. July 7, in full flower.
- (104) *Ambrosia trifida*, L. (Great Ragweed.) Independence, Washington county; Navasota, Grimes county. Throughtout central Texas a common weed in low grounds.
- (105) *A. psilostachya*, D. C. (Ragweed.) College Station, Brazos county, (P.); Sherman. (P.) In flower Aug. 20. Common throughout central Texas prairies and post oak soils.
- (106) *Xanthium canadense*, Mill. (Cocklebur.) A common weed in black, cultivated prairie soils. Along roadsides. Where this weed grows the soil is considered excellent.
- (107) *Rudbeckia bicolor*, Nutt. (Cone Flower.) College Station, Brazos county. (P.) Post oak openings. Nearly past flowering July 15th. Form with brown purple spots at base.
- (108) *R. hirta*, L. College Station, Brazos county. Prairies.
- (109) *R. alismæfolia*, Torr & Gray.(?). College Station, Brazos county. (P.) Prairies of central Texas; common. July 15th.
- (110) *Lepachys columnaris*, T. & G. (?). Central Texas.
- (111) *Helianthus annuus*, L. (Common Sunflower.) College Station, Brazos county. (P.) A common weed throughout central Texas, especially

in the black cretaceous soils of north central Texas. August 15th still in flower.

(112) *H. debilis*, Nutt., var. *cucumerifolius*, Gray. Grimes county, along Gulf Col. & St. Fe R. R. On black soil, July 15th, in full flower.

(113) *H. hirsutus*, Raf. Denison, Grayson county. In dry woods, July 20th, just coming in flower.

(114) *Coreopsis tinctoria*, Nutt. Melissa, Collin county.

(115) *C. palmata*, Nutt. Denison, Grayson county.

(116) *Thelesperma filifolium*, Gray. Denison, Grayson county. (P.) Dry hills in sandy soils; common.

(117) *Polypteris texana*, Gray. College Station, Brazos county. (P.) July 15 in full flower. Common in lower places, dry open prairies.

(118) *Helianthemum tenuifolium*, Nutt. College Station, Brazos county. (P.) A common weed in dry, open prairies. Has largely been extended since the cultivation of soils. Occurring with this weed is *Croton capitatus* var.

(119) *Lindheimerii*. "It is said that when cows feed on this weed milk takes on a bitter taste."—Gulley.

(120) *H. nudiflorum*, Nutt. Melissa, Collin county. (P.) In low grounds.

(121) *H. autumnale*, L. Melissa, Collin county. A weed in low grounds.

(122) *Gaillardia pulchella*, Fong. (Gaillardia.) Denison, Grayson county. (P.) July 15 still in flower. Achenia also mature. On sandy soil. Common on the black waxy prairies of central Texas. Along Houston & Texas Central Railroad.

(123) *Dysodia chrysanthemoides*, Lag. (Fetid Marigold.) Navasota, Grimes county.

(124) *Cnicus undulatus*, Gray, var. *megacephalus*, Gray. Ennis, Ellis county. (P.) In woods.

(125) *Centaurea americana*, Nutt. (Star Thistle.) Ellis county. (P.) Common in black waxy soil throughout central northern Texas, also in Indian Territory south of McAllister, along M., K. & T. R. R. In full flower, July 1.

(126) *Pyrrhopappus carolinianus*, D. C. College Station, Brazos county. (P.) Still in flower July 15; achenes of early flowers have fallen. Common on the dry prairies and post oak openings.

ERICACEÆ.

(127) *Vaccinium arboreum*, Marshall. Clay Station, Burleson county. (P.) On the sides of a rocky bluff.

SAPATOCEÆ.

(128) *Bumelia lanuginosa*, Pers. Robertson and Collin counties. (P.) Low grounds; common.

EBENACEÆ.

(129) *Diospyrus virginiana*, L. (Common Persimmon). Grimes, Robertson, Denison, Collin counties.

(130) *D. texana*, Scheele. (Mexican Persimmon). Burnet county. (P.) In rocky soils.

OLEACEÆ.

(131) *Fraxinus viridis*, Michx. (Green Ash). College Station, Brazos county.

ASCLEPIADACEÆ.

- (132) *Asclepiadolora viridis*, Gray. Central Texas.
 (133) *Asclepias verticillata*, L., var. *subverticillata*, Gray. College Station, Brazos county.
 (134) *Gonolobus lewis*, Michx., var. *macrophyllus*. College Station, Brazos county; Gray, College Station, Brazos county. In woods.
 (135) *Acerates viridiflora*, Ell. Central Texas. (P.)

GENTIANACEÆ.

- (136) *Sabbatia campestris*, Ell. College Station, Brazos county (P). Prairies abundant.
 (137) *Eustoma russellianum*, Griseb. (Prairie Lily.) Independence, Washington county. (P.) In low places; prairies.

POLEMONIACEÆ.

- (138) *Phlox drummondii*, Hook. Hempstead, Waller county. (P.) Sandy barrens; common.
 (139) *Gilia coronopifolia*, Pers. (Standing Cypress.) Common everywhere along post oak timbers and dry places. College Station, Brazos county (P). Corsicana, Ellis county; Dallas, Dallas county.

HYDROPHYLLACEÆ.

- (144) *Hydrolea ovala*, Nutt. Hempstead, Waller county. Sandy barrens near pond; common.

CONVOLVULACEÆ.

- (141) *Dichondra repens*, Forst. College Station, Brazos county. Common in prairies and woods.
 (142) *Ipomœa purpurea*, Lam. Calvert, Robertson county.

SOLANACEÆ.

- (143) *Solanum elaeagnifolium*, Cav. College Station, Brazos county (P.); Independence, Washington county. Common weed everywhere along roadsides and in fields. Clay or black soil. Prairies.
 (144) *S. torreyi*, Gray. White Hall, Grimes county. A weed in rich prairie soil.
 (145) *S. carolinense*, L. (Horse Nettle.) Sherman, Grayson county. A weed in rich soil.
 (146) *S. rostratum*, Dunal. (Spiny Nightshade.) Common throughout central Texas. College Station, Brazos county; Ennis, Ellis county; Sherman, Grayson county; White Hall, Grimes county; Dallas, Dallas county. It grows on sandy as well as "black waxy soils." In many places door yards and roadsides are covered with it. I am informed that this weed became generally diffused after the war.
 (147) *CAPSIUM FRUTESCEUS*, L. San Marcos, Hays county. (P.) Fruit ripe Aug. 15, 1888.
 (148) *Physalis mollis*, Nutt., var., *cinerascens*, Gray. College Station, Brazos county. (P.)
 (149) *P. philadelphica*, Lam. College Station, Brazos county. (P.)
 (150) *LYCIUM VULGARE*, Dunal. Dallas, Dallas county. Escaped from cultivation.

- (160) *Datura stramonium*. Ennis, Ellis county. A weed in streets.
 (161) *D. meteloides*, D. C. Ennis, Ellis county. Escaped from cultivation.
 (162) *Lycopersicon esculentum*. Independence, Washington county. Volunteer tomatoes are not uncommon along the Brazos River.

SCROPHULARIACEÆ.

- (163) *Castilleja indivisa*, Engelm. College Station, Brazos county. Common on prairies.

BIGNONIACEÆ.

- (164) *Tecoma radicans*, Juss. (Trumpet-flower or Trumpet-creeper. Navasota, Grimes county. In bottoms along Brazos river. Calvert, Robertson county. Common.

ACANTHACEÆ.

- (165) *Ruellia tuberosa*, L. College Station, Brazos county. In woods. Along streams.

VERBENACEÆ.

- (166) *Verbena officinalis*, L. Navasota, Grimes county. Blackshear. (P.) College Station, Brazos county. (P.) Common in waste places, in fields and door yards.

- (167) *V. bipinnatifida*, Nutt. College Station, Brazos county. (P.) Common on prairies of central Texas. July 10th, in flower. Seeds ripe.

- (168) *Lippia nodiflora*, Michx. College Station, Brazos county. Common on dry prairies.

- (169) *Lantana camara*, L. (?) San Marcos, Hays county.

- (170) *Callicarpa americana*, L. (Mexican Mulberry.) College Station, Brazos county (P.) July 15, 1888, in flower. Fruit nearly ripe. Common in post oak woods, central Texas.

LABIATÆ.

- (180) *Teucrium canadense*, L. College Station, Brazos county. (P.) In woods.

- (181) *Pycnanthemum albescens*, Torr. & Gray. Hempstead, Waller county. (P.) Sandy barrens. Flowers about ready to open August 10.

- (182) *Hedeoma drummondii*, Benthm. Burnet, Burnet county. (P.) Rocky woods and open grounds. Fruit ripe August 10, 1888.

- (183) *H. ciliata*, Benthm. Hempstead, Waller county. (P.) Sandy barrens.

- (184) *Salvia texana*, Torr. Burnet, Burnet county. (P.) Rocky grounds along railroad.

- (185) *S. farinacea*, Benthm. Ennis, Ellis county. (P.) Rich black soil; common. Also occurs on outcrops of rotten limestone.

- (186) *S. azurea*, Lam. College Station, Brazos county. (P.) Common on prairies. Plant 2 to 3½ feet high.

- (187) *Monarda punctata*, L., var. *lasioronta*, Gray. Clay Station. Sandy soil. In flower July 15, 1888.

- (188) *Scutellaria cardiophylla*, Eng. & Gray. College Station, Brazos county. (P.) In deep, rich woods. In flower August 10, 1888.

- (189) *S. parvula*, Michx. Central Texas. (P.)

- (190) *Physostegia virginiana*, Benthm. Hempstead, Waller county Sandy barrens.

PLANTAGINACEÆ.

(191) *Plantago palagonica*, var. College Station, Brazos county. Common on dry prairies.

NYCTAGINACEÆ.

(192) *Axybaphus hirsutus*, Sweet.(?) Bryan, Brazos county. (P.) Sandy soils along roadsides.

(193) *Rærhavia erecta*, L. Tyler, Smith county; Prof. Brunk, White Hall, Washington county.

ILLECEBRACEÆ.

(194) *Paronychia drummondii*, Torr & Gray. Hempstead, Waller county. (P.) Sandy barrens forming mats on ground.

AMARANTACEÆ.

(195) *AMARANTUS SPINOSUS*, L. Northern Texas.

(196) *Frælichia floridana*, Moquin. (Cotton Plant.) Denison, Grayson county. (P.) A common weed in sandy places. Seeds scattered readily by the woolly down on calyx.

CHENOPODIACEÆ.

(197) *CHENOPODIUM ALBUM*. L.(?) College Station, Brazos county. (P.) This form, if it belongs to this species, has smaller leaves and is much more strict than the type. Occurs along roadsides.

PHYTOLACCACEÆ.

(198) *Phytolacca decandra* L. (Common Poke). Northern Texas.

POLYGONACEÆ.

(199) *Eriogonum longiflorum*, Nutt. Ennis, Ellis county. Limestone rocks.

(200) *Polygonum ramosissimum*, Michx. Navasota, Grimes county. R. D. Blackshear. (P.)

(201) *P. incarnatum*, Ell. College Station, Brazos county (P).

(202) *P. pennsylvanicum*, L. College Station, Brazos county (P).

(203) *P. hydropiperoides*, Michx. College Station, Brazos county (P).

(204) *P. dumetorum*, L. var. *scandens*, Gray. Ennis, Ellis county.

LAURACEÆ.

(205) *Sassafras officinale*, Nees. Tyler, Smith county. Prof. Brunk. (P.)

LORANTHIACEÆ.

(206) *Phoradendron flavescens*, Nutt. College Station, Brazos county. On *Quercus obtusiloba*. *Ulmus crassifolia*. Common.

EUPHORBIACEÆ.

(207) *Euphorbia maculata*, L. College Station, Brazos county.

(208) *E. bicolor*, Engelm & Gray. Ennis, Ellis county. Common on black prairie soil.

(209) *E. corollata*, L. (P.) College Station, Brazos county. (P.) Common on dry prairies.

(210) *E. fendleri*, T. & G. Burnet county (P).

(211) *Jatropha stimulos*, Michx. (Spurge Nettle). College Station, Brazos county (P.); Denison, Grayson county. A common weed occurring in sandy soil in isolated places.

(212) *Coyton glandulosus*, L. College Station, Brazos county.

(213) *C. capitatus*, Michx. var. *lindheimerii*, Muell. College Station, Brazos county. A common weed on dry prairies throughout southern Texas.

(214) *C. monanthogynous*, Michx. Brenham, Washington county. Dry soil; common.

(215) *C. texensis*, Muell. Brenham, Washington county. Dry upland clay soil along fences.

(216) *Crotonopsis linearis*, Michx. College Station, Brazos county. Common in post oak woods.

(217) *Acalypha virginica* L. var. *gracilens*, Muell. College Station, Brazos county. (P.) Fields sandy.

(218) *Tragia nepetaefolia*, Cav. College Station, Brazos county. Dry soils.

(219) *Stillingia sylvatica*, L. College Station, Brazos county. Dry sandy soils in woods or border of the same; common.

URTICACEÆ.

(220) *Ulmus alata*, Michx. Denison, Grayson county.

(221) *U. crassifolia*, Nutt. Sherman, Grayson county (P). A large and beautiful tree, sometimes called Cedar Elm, because of its resemblance to the Red Cedar, especially so when Spanish moss hangs in long festoons from the tree. This is especially noticeable from a distance. It is abundant in swamps subject to overflow, also on higher black ground. In flower August 29, 1888.

(222) *Cellis Mississippensis*, Bosc. Allen Farm, Brazos county; Dallas, Dallas county. Low grounds along streams.

(223) *Maclura aurantiaca*, Nutt. Melissa, Collin county. Large trees were observed in bottoms near Denison, about two feet in diameter at base. Timber especially durable when in ground; timber largely used for paving in the streets of Dallas; said to outlast Red Cedar several times.

(224) *Morus rubra*, L. Robertson and Collin counties.

(225) *Broussonetia papyrifera*, Vent. Plano, Dallas, Dallas county. Cultivated throughout central Texas and often escapes from cultivation, as in Dallas, Brenham and Sherman.

PLATANACEÆ

(226) *Platanus occidentalis*, L. Ellis, Grayson and Collin counties.

JUGLANDACEÆ,

(227) *Juglans nigra*, L. Denison, Grayson county. Allen Farm, Brazos county. A common tree everywhere in bottoms.

(228) *Hicoria pecan*. Allen farm, Brazos county; Sherman, Grayson county; Navasota, Grimes county. One of the largest trees in the bottoms. Persists for several years, *i. e.* young shoots constantly coming up. A great nuisance to the cotton planter. In Burnet county the trees are not so large. The nuts are largely collected in this place and sold to dealers.

(229) *Hicoria alba*, L. Britt Navasota, Grimes county. Clay uplands; common.

MYRICACEÆ.

(230) *Myrica cerifera*, L. Hempstead, Waller county. Sandy barrens.

CUPULIFERÆ.

(231) *Betula nigra*, L. Northern Texas.

(232) *Quercus obtusiloba*, Michx. (Post Oak.) College Station, Brazos county (P.); Independence, Washington county; Calvert, Robertson county; Sherman, Travis, Burnet, Hays, Grayson, Dallas counties. A common tree through Central Texas. A variable tree, usually growing on uplands. Soil may be sandy or a loam. Hard pan close to the surface, known as post oak soils.

(233) *Q. lyrata*, Walt. (?) Hays county; Collin county.

(234) *Q. prinoides*, Willd. Sherman. (P.) In bottom along streams, in rich soil, a good tree.

(235) *Q. durandii*, Buckley. Melissa, Collin county. Limestone bluffs. (P.)

(236) *Q. virens*, Ait. (Live Oak.) Independence, Washington county. Forming groves in black soil; a large tree.

(237) *Q. rubra*, L., var. *lexana*, Buckley. Calvert, Robertson county. In low grounds.

(238) *Q. nigra*, L. (Black Jack, Jack Oak.) Denison, Grayson county. Red sandy soils. Common. Washington county, Brazos county, Collin county, Dallas county.

(239) *Q. fulcata*, Michx. (Spanish Oak, Red Oak.) Yarborough, Grayson county; Grimes county (F.) A large tree. Common on sandy soil.

(240) *Q. aquatica*, Walter. (Water Oak, Punk Oak.) College Station, Bryan, Brazos county (P.); Washington county. In low grounds along streams. Not uncommon. Young leaves scurfy and sinuate pinnatifid.

(241.) *Q. imbricaria*, Michx. Denison, Grayson county.

(242.) *Q. phellos*, L. (Willow Oak.) Bryan, Brazos county. Common. Sandy, loamy soil; uplands.

(243.) *Q. palustris*, Du Rois. Calvert, Robertson county.

(244) *Q. emoryi*, Torrey (?). Burnet, Burnet county. In sandy, rocky woods. Low shrub.

SALICACEÆ.

(245) *Populus monilifera*, Ait. Denison, Grayson county; Calvert, Robertson county. In low grounds along streams.

CONIFERÆ.

(246) *Pinus taeda*, L. (Loblolly or Old-field Pine.) Yarborough, Grimes county. A few large trees, more common in Montgomery county.

(247) *Juniperus virginiana*, L. (Red Cedar.) Dallas, Dallas county; Austin, Travis county. Usually on sandy or light soils. Trees, large near Dallas. The species is abundant everywhere on the hills about Austin.

MONOCOTYLEDONOUS PLANTS.

BROMELIACEÆ.

(248) *Tillandsia usneoides*, L. (Spanish Moss.) A common species everywhere in southern Texas. It hangs in long festoons from various trees. Sometimes injurious to trees, as it prevents the growth of young branches and leaves.

COMMELIACÆ.

(249) *Commelina virginica*, L. College Station, Brazos county. Sandy soil. Common throughout central Texas. Denison south to Hempstead.

PALMÆ.

(250) *Sabal adansonii*, Guerns. Brenham, Washington county. Low grounds. Not common.

ARACEÆ.

(251) *Pistia stratiotes*, L., var. *spathulata*, Engelm. San Marcos, Hays county. Running water.

CYPERACEÆ.

- (252) *Cyperus diandrus*, Torr. College Station, Brazos county.
- (253) *C. rotundus*, L. (Nut Grass.) College Station, Brazos county.
- (254) *C. ovularis*, Torr. College Station, Brazos county.
- (255) *Dichromena leucoccephala*, Michx. College Station, Brazos county.

GRAMINEÆ.

- (256) *Paspalum floridanum*, Michx., var. *glabra*. College Station, Brazos county. (P.)
- (257) *P. platicaulis*. College Station, Brazos county. (P.)
- (258) *P. leve*, Michx. College Station, Brazos county. (P.)
- (259) *P. plicatulum*. College Station, Brazos county. (P.)
- (260) *P. distichum*, L. College Station, Brazos county. (P.)
- (261) *Panicum filiforme*, L. College Station, Brazos county. (P.)
- (262) *P. glabrum*, Gaudin. Calvert, Robertson county.
- (263) *P. sanguinale*, L. Calvert, Robertson county.
- (264) *P. anceps*, Michx. College Station, Brazos county. (P.)
- (265) *P. virgatum*, L. College Station, Brazos county (P.); Melissa, Col- lin county; Denison, Grayson county. Sandy soils.
- (266) *P. dichotomum*, L. College Station, Brazos county. In woods com- mon. (P.) Also a form with leaves 4 to 6 inches long and small spikelets— slender habit.
- (267) *P. commutatum*, Schultes, var. *minor*. College Station, Brazos county.
- (268) *P. murantherum*. College Station, Brazos county. In woods.
- (269) *P. texanum*, Buckley. Calvert, Robertson county. Introduced.
- (270) *P. crus. galli*, L. form. College Station, Brazos county. Along roadsides in moist places.
- (271) *Setaria glauca*, var. *levigata*. College Station, Brazos county. Waste places.

- (272) *Cenchrus echinatus*. College Station, Brazos county. Waste places.
- (273) *Rottbœllia cylindrica*. College Station, Brazos county. Dry, sandy soils.
- (274) *Andropogon furcatus*, Muhl. College Station, Brazos county; Melissa, Collin county. Common.
- (275) *A. saccharoides*. College Station, Brazos county. Common in central Texas.
- (276) *SPOROBOLUS INDICUS*, R. Br. College Station. Common.
- (277) *CYNODON DACTYLON*, Pers. College Station, Brazos county; Calvert, Robertson county; Independence, Washington county; Dallas, Dallas county. Naturalized in many places, but always fails to produce seed.
- (278) *Bouteloua racemosa*, Lag. Northern Texas.
- (279) *Eleusine indica*, Gaertn. (Crow-foot grass.) College Station, Brazos county; Calvert, Robertson county. (P.) Common in cultivated fields in central Texas. Coming up in cornfields, where it yields abundant good forage.
- (280) *Leptochloa mucronata*, Kunth. College Station, Brazos county; Calvert, Robertson county (P.); Sherman, Grayson county. Common in cultivated fields, yielding some forage.
- (281) *Buchloë dactyloides*, Engelm. Melissa, Collin county. Escaped from cultivation. Grimes county.
- (282) *Eragratis major*, Host. Slender form. College Station, Brazos county. (P.)
- (283) *E. oxylepis*. Yarborough, Grimes county (P.); College Station, Brazos county. Common on dry prairies in waste places.
- (284) *E. tenuis*, Gray. College Station, Brazos county. (P.) Prairies common.
- (285) *Chloris verticillata*, Nutt. College Station, Brazos county. (P.) Dry places.
- (286) *C. swartziana*, Doell. Central Texas. (P.)
- (287) *Uniola gracilis*, Michx. College Station, Brazos county. In woods common.
- (288) *Poa arachnifera*, Torr. Ennis, Ellis county. A valuable grass.

CRYPTOGAMOUS PLANTS.

FILICES.

- (289) *Polypodium incanum*, Swartz. College Station, Brazos county; Montgomery county.
- (290) *Adiantum capillus—veneris*, L. Denison, Grayson county.

MARSILIACEÆ.

- (291) *Marsilia vestita*. Hook. & Grev. Clay Station. Dry soil.