

THE SPERMATOPHYTA OF CHEROKEE COUNTY,
OKLAHOMA (EXCLUSIVE OF THE GRAMINEAE,
CYPERACEAE AND JUNCACEAE)

By

CHARLES S. WALLIS

Bachelor of Science

Northeastern State College

Tahlequah, Oklahoma

1933

Submitted to the faculty of the Graduate School of
the Oklahoma Agricultural and Mechanical College
in partial fulfillment of the requirements
for the degree of
MASTER OF SCIENCE
August, 1953

Thes 13
1983
W. H. H. H.
20/12

OKLAHOMA
AGRICULTURAL & MECHANICAL COLLEGE
LIBRARY
NOV 16 1953

THE SPERMATOPHYTA OF CHEROKEE COUNTY,
OKLAHOMA (EXCLUSIVE OF THE GRAMINEAE,
CYPERACEAE AND JUNCACEAE)

Thesis Approved:

U.T. Waterfall
Thesis Adviser

H.S. Featherly
Walter W. Hamner

A.L. McIntosh
Dean of the Graduate School

308288

PREFACE

An interest in the great variety of wild plants and the pleasures of field work caused the author to decide upon this type of thesis for a Master's degree. Also he desired to become acquainted with critical taxonomic studies such as monographs, revisions, and other recent taxonomic literature.

The author's collections, consisting of 1400 sheets are deposited in the Herbarium of Oklahoma A. & M. College at Stillwater. Duplicates of many of these are in the author's private museum at Fort Gibson, Oklahoma. In addition the author studied 34 sheets of plants collected by others in Cherokee County and now found in the Oklahoma A. & M. herbarium. These are cited in the list by collector and number.

The collections of plant specimens were started in August 1950 and terminated in June 1953. Collection trips were made every two to four weeks depending upon the seasonal and weather conditions.

Regular stations were established in order to study the seasonal changes of herbaceous plant societies. Other stops were made whenever a new species was seen or growth conditions indicated a possibility of something new. Some of these stops became favorite stations whenever they produced rare species or unusual habitat combinations.

Two of these latter stations for rarities are near the Adair County line. One is 21.3 miles northeast of Tahlequah on State 10 highway and then 2 miles north of this highway, and another is 22.1 miles northeast of Tahlequah on State 10 highway and then .5 miles south of this highway. At the Keyough Bluffs of Grand River, 2 miles north of Fort Gibson, is a third station for rarities, while a fourth is a narrow wooded creek valley station 3.6 miles northeast of Tahlequah on State 10 highway.

The Swannanoa Ranch station was an unusually small area with a large variety of habitats. Here one can collect from steep wooded hillsides of flint or slate, open and wooded fields of the Illinois River bottoms, and an open swampy waste field with a spring creek running through it.

Most collecting was restricted to areas easily reached by State 10, State 51, U. S. 62 highways and the few side roads from these going back into the major farming areas and larger valleys.

The author wishes to express his deep appreciation for the encouragement and guidance given by Prof. U. T. Waterfall, not only as major adviser but also as a teacher in the classroom and in the field.

TABLE OF CONTENTS

Chapter	Page
I. HISTORY	1
II. PHYSICAL FEATURES	3
Location and Size	3
Topography	3
Geology and Soils	4
III. CLIMATE	6
IV. ECOLOGY	7
General Distribution	7
Prevernal Species	10
Vernal Species	10
Astival Species	12
Serotinal Species	12
V. LIST OF SPECIES	13
VI. TABULAR VIEW OF THE FAMILIES	50
VII. SUMMARY	55
BIBLIOGRAPHY	56

CHAPTER I

HISTORY

One of the earliest botanists to see Cherokee County was T. Nuttall.¹ His record of July 17, 1819, mentions passing by the calcareous ridges along the borders of Grand River three to seven miles above its mouth. Also mentioned were the shallows, gravel and islands in the river. He records no plant collections for Cherokee County. However in his Collections Toward a Flora of the Territory of Arkansas² were recorded Amaranthus tamariscinus and Betula populifolia as collected from the banks of Grand River.

Washington Irving,³ in the fall of 1832, camped at Ft. Gibson which is within one half mile of Cherokee County. It is possible that he or some of his men made an unrecorded hunting or exploration trip northeast of Ft. Gibson into the county.

Plant lists of Indian Territory, which may indirectly include Cherokee County, were made by G. D. Butler⁴ in 1878

¹T. Nuttall, A Journey of Travels into the Arkansa Territory During the Year 1819, Early Western Travels, V. 13: 214. 1905.

²T. Nuttall, Collections Toward a Flora of the Territory of Arkansas, American Philosophical Transactions, Philad., V. (n.s.): 165, 168. 1837.

³Washington Irving, Tour on the Prairies, Harlow Publishing Co., Okla. City: 8-10; 222. 1926.

⁴G. D. Butler, A List of Some of the Most Interesting Species of Plants Collected in the Indian Territory, Bot. Gaz., 3: 65-68; 74-78. 1878.

and by J. M. Holzinger⁵ in 1892.

M. A. Carleton,⁶ upon whose collection part of Holzinger's list was based, mentions the fact that he visited the Cherokee and Creek Nations only once and then early in the spring.

C. H. Fitch⁷ in 1900 reported on woodland distribution which included several sections in Cherokee County.

C. N. Gould⁸ in 1903 made a list of trees, shrubs and vines of the Cherokee Nation.

C. W. Prier, from 1917 to 1927, made a small collection of plants from Cherokee County while teaching at Northeastern State College, Tahlequah. His collection was purchased by Oklahoma A. & M. College and added to its herbarium.

⁵J. M. Holzinger, List of Plants Collected by C. S. Sheldon and M. A. Carleton in Indian Territory, in 1819, Contr. U. S. Nat. Herb., I: 189-219. 1892.

⁶M. A. Carleton, Observations on the Natural Plants of Oklahoma Territory and Adjacent Districts, Contr. U. S. Nat. Herb., I: 220-221. 1892.

⁷C. H. Fitch, Woodland of Indian Territory, U. S. Geol. Surv. Rep. 21: 643-644; 648-649. 1900.

⁸C. N. Gould, Notes on Trees, Shrubs and Vines in the Cherokee Nation, Trans. Kansas Acad. Sci., 18: 145-146. 1903.

CHAPTER II

PHYSICAL FEATURES

Location and Size

Cherokee County is in the northeastern part of Oklahoma in what was formerly known as the Cherokee Nation. The county is bounded on the entire east side by Adair County, on the north by Delaware and Mayes Counties, on the west by Mayes, Wagoner and Muskogee Counties and on the south by Muskogee and Sequoyah Counties.

The shape of the county is a rectangle 36 miles long (north and south) by 18 miles wide with a westward projection to the Grand River. This westward irregularity is from 5 to 18 miles long (north and south) by 5 to 8 miles wide. The area of the entire county is 760 square miles.

Tahlequah, with a population of 4,960, is the county seat and is near the geographical center of the county. Hulbert, with a population of 500, is the second town of any size. The total county population is 18,872.

Topography

The drainage of the west half of the county goes westward into the Grand and Arkansas Rivers while the east half drains into the Illinois River. All of the larger creeks of these drainages have running water most of the year.

The county is in the Ozark Hill region which is the eroded remains of a former plain. This plain is still

indicated by the flat tops of the larger hills. Elevations vary from a minimum of 527 feet¹ to a maximum of about 1,550 feet.² Streams have cut narrow, steep-sided valleys to a maximum depth of 400 feet, thus producing a mountain topography. Even the largest river valleys are less than one mile in width.

Geology and Soils

The surface rock of the greater part is the Boone Chert³ which underlies more than one half of the county. The hills in the south and west parts of the county are capped by the Upper Mississippian and Lower Pennsylvanian rocks,⁴ while in the northeast part, the deeper valleys cut into the rocks beneath the Boone.

River valleys constitute only a small part of the area and they have the deep rich alluvial soil. The tributary valleys are of a thinner and somewhat rocky alluvial soil. On most of the level uplands, the residual soils are moderately deep and fertile while on other places it is thinner and rocky. Over the area as a whole it consists of a fine textured, light colored, fertile, calcareous loam. The hill slopes are very rocky with little or no surface soil

¹Muskogee Quadrangle, Topographic Map, U. S. Geol. Survey. Surveyed 1896-98. Ed. of 3/1901, Reprint 1945.

²Tahlequah Quadrangle, Topographic Map, U. S. Geol. Survey. Surveyed 1896-98. Ed. of 4/1901, Reprint 1944.

³L. C. Snider, Oklahoma Geological Survey, Bul. 27: 259-260. 1917.

⁴Ibid.

except that which remains in the rock crevices. However, this soil is fertile enough to support a good growth of trees.

CHAPTER III

CLIMATE

The climate of Cherokee County is of the continental type with its marked variation in temperature and precipitation. Summer droughts sometimes cause severe damage if they come early and are of several weeks duration. Normally only the southeastern part of the state gets more rainfall than this area.

Temperature records for 26 years¹ at the Tahlequah station give the January average of 38.5 degrees F., the July average of 81.4 degrees, a maximum of 118 degrees, and a minimum of -23 degrees. Killing frost average dates for 30 years² at Tahlequah have April 6 as the last in the spring and October 30 as the first in the fall. This makes an average growing season of 207 days.

A precipitation record of 30 years³ at Tahlequah has 41.17 inches as the average annual total. February is the driest month with an average of 1.97 inches and June the wettest month with an average of 4.46 inches. Most of the precipitation comes during the spring months and the least during the winter months.

¹U. S. D. A. Yearbook of Agriculture, Climate and Man, 1065. 1941.

²Ibid.

³Ibid.

CHAPTER IV

ECOLOGY

General Distribution

Cherokee County is in the oak-hickory climax forest of northeastern Oklahoma which is a continuation of the deciduous forest extending from the eastern states. This oak-hickory association is bordered by a narrow zone on the western and southwestern part of the county which is transitional to the prairie.¹ These are modified in two general ways: one, by such natural factors as flood plains of rivers and smaller streams, by moisture, slopes and depth of the soil; two, by the disruptive activities of man due to cultivation, lumbering, grazing and burning of the woods.

The large valley of the Grand River, on the west-central border of the county, is characterized by such trees as: Ulmus americana, U. rubra, Quercus rubra, Q. velutina, Q. macrocarpa, Platanus occidentalis, Populus deltoides, Carya illinoensis, C. cordiformis, Salix nigra and Acer saccharinum. In many places a number of lianas such as: Ampelopsis cordata, A. arborea, Aristolochia tomentosa and Vitis vulpina extend into the tops of the tallest trees. Many other tree trunks are covered with Rhus radicans.

¹W. E. Bruner, The Vegetation of Oklahoma, Ecological Monograph, I, No. 2: 131. April, 1931.

Some prominent undershrubs are Viburnum rufidulum, Cornus Drummondii, Ilex decidua, Lindera Benzoin and Cercis canadensis with the latter at times becoming small trees.

The Illinois River valley, through the eastern half of the county, is of lesser width. It has very few lianas in the trees and Populus deltoides, Carya illinoensis and Acer saccharinum are less abundant. To the Quercus spp. previously listed is added Q. falcata. Another prominent addition is Betula nigra, which takes its place along the river banks with Salix nigra and Platanus occidentalis.

The original forests of these valleys have been almost completely cleared because of the prized farm land. All of the original forest that now remains is along the river banks, islands, and out-of-the-way corners. Recently nearly all of the Grand River Valley of Cherokee County has been inundated by the lake formed by the Fort Gibson Dam. Another large lake formed by the Tenkiller Dam occupies the southern valley of the Illinois River.

Transition areas are south of Tahlequah and are most numerous in the area adjacent to Muskogee County. Here Quercus stellata, Q. marilandica and Ulmus alata are the dominant trees in the wooded parts. There are openings of tall prairie grass from ten to forty acres in size which support typical prairie vegetation. Man has probably enlarged them somewhat by removal of scattered trees and shrubs. About the only place this native grass now remains is as hay fields on hillsides too steep for cultivation.

The other areas have been changed by farming, clearing, and grazing. Except where soil tillage and periodic clearing of pastures occur, the second growth woods consist of Ulmus and Quercus spp. previously listed with Crataegus spp. and Diospyros virginiana. Bramble patches of blackberries and dewberries (Rubus spp.) with Rhus copallina and Symphoricarpos orbiculatus are quite frequent.

Farther north, between this transition area and Tahlequah are a series of hills covered by the oak-hickory woods in which Quercus marilandica and Q. stellata are the dominants with the less important Carya tomentosa. Scattered among these are such trees as: Celtis laevigata, C. tenuifolia, Ulmus alata, U. americana, Juglans nigra, Gleditsia triacanthos, Crataegus spp. and Bumelia lanuginosa var. oblongifolia.

Immediately north of Tahlequah the steep, flinty hills have less Quercus marilandica and Q. stellata with the more numerous species, Q. velutina, Q. alba and Q. Muhlenbergii varying in dominance according to the wetness and depth of the hillside soils. The dampest slopes have considerable Acer saccharum in with the oaks while the dry slopes have Pinus echinata becoming quite abundant. It is on these northern hills that Cornus florida becomes most abundant on moist slopes, while Amelanchier arborea extends to the dry slopes. Four prominent undershrubs are Vaccinium stamineum and V. arboreum, and Ceanothus herbaceus var. pubescens, and C. americanus. At the Adair County line Castanea ozarkensis

is found abundantly on the dry slopes, while extensive patches of Corylus americana occur in the cut-over and burned-off creek valleys.

Prevernal Species

The prevernal aspect is characterized by the very early flowering Ulmus alata, U. americana, U. rubra and Acer saccharinum. Later comes Acer saccharum, Cercis canadensis, Amelanchier arborea, Prunus mexicana and P. hortulana. Some typical societies are Erythronium americanum, E. albidum var. albidum and Viola papilionacea of the valley woods; Claytonia virginica, Ranunculus fascicularis var. apricus, Draba brachycarpa and Antennaria plantaginifolia of the wooded hilltops; Sanguinaria canadensis and Anemone thalictroides of the damp hillsides and valleys; Lamium amplexicaule, Houstonia patens, Stellaria media, Viola Kitaibeliana var. Rafinesquii and Capsella Bursa-pastoris of the open waste fields; and Nothoscordum bivalve and Anemone caroliniana of the open grass areas. Many other vernal species will be found locally on sunny southwestern slopes of many hills and bluffs. Since this latter condition does not represent their general distribution, it seems best to place them entirely among the true vernal species.

Vernal Species

The vernal societies are most numerous and will be considered under five habitats.

In the valley woods of the rivers and streams are such characteristic species as: Viola sororia, V. pensylvanica, Ranunculus abortivus, Fragaria virginiana, Geum vernum, Allium canadense var. canadense, Phryma Leptostachya and Podophyllum peltatum.

On the moist hillsides, especially in crevices with much humus, are such species as: Cornus florida, Geranium maculatum, Trillium viride, Tradescantia Ernestiana, Phlox divaricata, Ranunculus hispidus, Silene virginica and Aquilegia canadensis var. latiuscula.

On the drier hillsides are such species as: Viola pedata, Oxalis violacea, Monarda virgata, Asclepias verticillata; with Opuntia macrorhiza, Sedum Nuttallianum, S. pulchellum, Talinum calycinium and T. parviflorum being found on the soil of a few inches thickness.

In the prairie openings are commonly found: Baptisia leucophaea var. leucophaea, B. australis var. minor, Psoralea psoralioides var. eglandulosa, Schrankia Nuttallii, Ruellia caroliniensis, Phlox pilosa, Asclepias hirtella, Callirhoe digitata var. digitata, Coreopsis grandiflora and Polygala incarnata.

In the open waste places the following occur: Lobelia spicata, Plantago virginica, Solanum carolinense, Verbena stricta, V. urticifolia, Oenothera laciniata, Geranium carolinianum, Valerianella radiata var. radiata and Lepidium densiflorum.

Aestival Species

In the moist woods where the shade has not become too dense, we find such species as: Elephantopus carolinianus, Desmodium pauciflorum, Rivina humilis, Perilla frutescens and Impatiens capensis.

Characteristic species in the hillside woods are: Lactuca canadensis var. latifolia, Liatris squarrosa, Cli-
toria mariana and Desmodium marilandicum.

Common species in the prairie openings are: Gaillardia fastigiata, Silphium laciniatum, S. speciosum, Liatris as-
pera, L. pycnostachya, Sabatia campestris, Euphorbia corol-
lata and Salvia azurea.

The waste places are characterized by: Anthemis Cotula, Boltonia latisquama, Vernonia Baldwinii, V. missurica, Lac-
tuca Scariola, Gaura biennis var. Pitcheri, Amaranthus spinosus and A. retroflexus.

Serotinal Species

In the moist shaded woods Eupatorium coelestinum, and E. perfoliatum are commonly found. Characteristic species in the dry woods are Eupatorium rugosum, Solidago hispida, S. nemoralis, Aster patens and A. sagittifolius var. Drum-
mondii. Common in the prairie openings are Solidago nemor-
alis and S. rigida. The waste places are represented by Ambrosia trifida var. texana, A. bidentata, Iva ciliata, Bidens polylepsis and Aster ericoides.

CHAPTER V
LIST OF SPECIES

GYMNOSPERMAE

Pinaceae

Juniperus virginiana L.

Pinus echinata Mill.

ANGIOSPERMAE

Monocotyledoneae

Typhaceae

Typha latifolia L.

Zosteraceae

Potamogeton crispus L.

Potamogeton diversifolius Raf.

Alismataceae

Alisma subcordatum Raf.

Echinodorus cordifolius (L.) Griseb.

Sagittaria latifolia Willd., var. obtusa (Muhl.) Wieg.

Araceae

Arisaema atrorubens (Ait.) Blume, forma zebrinum (Sims) Fern.

Arisaema Dracontium (L.) Schott

Lemnaceae

Lemna minor L.

Spirodela polyrhiza (L.) Schleid.

Commelinaceae

Commelina diffusa Burm. f.

Commelina erecta L., var. erecta

Commelina erecta L., var. angustifolia (Michx.) Fern.

Commelina erecta L., var. Deamiana Fern.

Commelina virginica L.; Prier sin. num.

Tradescantia Ernestiana Anders. & Woodson

Tradescantia ohiensis Raf.

Tradescantia ozarkana Anders. & Woodson; Boyd 55

Pontederiaceae

Heteranthera limosa (Sw.) Willd.; Waterfall 10,063

Pontederia cordata L.

Liliaceae

Allium canadense L., var. canadense

Allium canadense L., var. mobile (Regel) Ownbey

Asparagus officinalis L.

Camassia scilloides (Raf.) Cory

Erythronium albidum Nutt., var. albidum

Erythronium albidum Nutt., var. mesochoreum (Knerr) Rickett

Erythronium americanum Ker

Hemerocallis fulva L.

Nothoscordum bivalve (L.) Britt.

Polygonatum biflorum (Walt.) Ell.

Polygonatum canaliculatum (Muhl.) Pursh

Smilacina racemosa (L.) Desf., var. cylindrata Fern.

Smilax Bona-nox L., var. hastata (Willd.) A. DC.; Prier
sin. num.

Smilax Bona-nox L., var. hederaefolia (Beyrich) Fern.

Smilax lasioneura Hook.

Smilax pulverulenta Michx.

Smilax tamnoides L., var. hispida (Muhl.) Fern.

Trillium recurvatum Beck; Prier sin. num.

Trillium viride Beck

Uvularia grandiflora Sm.

Yucca glauca Nutt., var. mollis Engelm.

Zigadenus Nuttallii Gray

Dioscoreaceae

Dioscorea Batatas Dcne.

Dioscorea villosa L., forma villosa

Dioscorea villosa L., forma glabrifolia (Bartlett) Fern.;

Waterfall 10,028

Amaryllidaceae

Agave lata Shinnars

Cooperia Drummondii Herb.

Hypoxis hirsuta (L.) Coville

Iridaceae

Belamcanda chinensis (L.) DC.

Sisyrinchium angustifolium Mill.

Sisyrinchium campestre Bickn.

Sisyrinchium varians Bickn.

Orchidaceae

Corallorhiza wisteriana ConradSpiranthes gracilis (Bigel.) BeckSpiranthes vernalis Engelm. & Gray

Dicotyledoneae

Saururaceae

Saururus cernuus L.

Salicaceae

Populus deltoides Marsh.Salix caroliniana Michx.Salix interior RowleeSalix nigra Marsh.

Juglandaceae

Carya cordiformis (Wang.) K. KochCarya illinoensis (Wang.) K. KochCarya ovalis (Wang.) Sarg., var. obovalis Sarg.Carya tomentosa Nutt.Juglans nigra L.

Corylaceae

Betula nigra L.Corylus americana Walt., var. americanaOstrya virginiana (Mill.) K. Koch, var. lasia Fern.

Fagaceae

Castanea ozarkensis AsheCastanea pumila (L.) Mill., var. Margaretta Ashe

- Quercus alba L., forma alba
- Quercus alba L., forma latiloba (Sarg.) Palmer & Steyerl.
- Quercus alba L., forma viridis Trel.
- Quercus coccinea Muench.
- Quercus falcata Michx., var. falcata
- Quercus macrocarpa Michx.
- Quercus marilandica Muenchh.
- Quercus Muehlenbergii Engelm., forma Muehlenbergii
- Quercus Muehlenbergii Engelm., forma Alexanderi (Britt.)
Trel.
- Quercus palustris Muenchh.
- Quercus prinus L.
- Quercus rubra L., var. rubra
- Quercus rubra L., var. borealis (Michx. f.) Farw.
- Quercus Shumardii Buckl.
- Quercus stellata Wang., var. stellata
- Quercus velutina Lam., forma velutina
- Quercus velutina Lam., forma dilaniata Trel.
- Quercus velutina Lam., forma macrophylla (Dippel) Trel.
- Quercus velutina Lam., forma missouriensis (Sarg.) Trel.

Ulmaceae

- Celtis laevigata Willd., var. laevigata
- Celtis occidentalis L., var. pumila (Pursh) Gray
- Celtis tenuifolia Nutt., var. tenuifolia
- Ulmus alata Michx.
- Ulmus americana L.

Ulmus rubra Muhl.

Ulmus serotina Sarg.

Moraceae

Maclura pomifera (Raf.) Schneider

Morus alba L.

Morus rubra L.

Urticaceae

Boehmeria cylindrica (L.) Sw.

Laportea canadensis (L.) Wedd.

Parietaria pennsylvanica Muhl.

Pilea pumila (L.) Gray, var. Deamii (Lunell) Fern.

Urtica chamaedryoides Pursh

Loranthaceae

Phoradendron flavescens (Pursh) Nutt.

Aristolochiaceae

Aristolochia tomentosa Sims

Asarum canadense L., var. acuminatum Ashe

Polygonaceae

Eriogonum longifolium Nutt.

Polygonum aviculare L., var. aviculare

Polygonum Convolvulus L.

Polygonum cristatum Engelm. & Gray

Polygonum Hydropiper L.; Waterfall 9666

Polygonum pensylvanicum L., var. laevigatum Fern.

Polygonum Persicaria L.

Polygonum punctatum Ell., var. punctatum

Polygonum sagittatum L.

Rumex altissimus Wood

Rumex crispus L.

Rumex hastatulus Baldw.

Rumex obtusifolius L.

Rumex pulcher L.

Tovara virginiana (L.) Raf.

Chenopodiaceae

Chenopodium album L.

Chenopodium ambrosiodes L., var. ambrosiodes; Prier sin. num.

Amaranthaceae

Acnida tamariscina (Nutt.) Wood

Amaranthus retroflexus L.

Amaranthus spinosus L.

Froelichia gracilis (Hook.) Moq.

Iresine rhizomatosa Standl.

Nyctaginaceae

Mirabilis Jalapa L.

Mirabilis nyctaginea (Michx.) MacM.

Phytolaccaceae

Phytolacca americana L.

Rivina humilis L.

Aizoaceae

Mollugo verticillata L.

Portulacaceae

- Claytonia virginica L.
Portulaca oleracea L.
Portulaca parvula Gray
Talinum calycinum Engelm.
Talinum parviflorum Nutt.

Caryophyllaceae

- Arenaria patula Michx.
Arenaria serpyllifolia L.
Cerastium brachypodum (Engelm.) Robinson
Cerastium nutans Raf.
Cerastium viscosum L.
Dianthus Armeria L.
Dianthus prolifer L.
Sagina decumbens (Ell.) T. & G.
Saponaria officinalis L.
Silene antirrhina L.
Silene Nuttallii T. & G.
Silene stellata (L.) Ait. f., var. scabrella (Niewl.) Palm.
 & Steyerm.
Stellaria media (L.) Cyrillo
Stellaria Nuttallii T. & G.

Nymphaeaceae

- Nelumbo lutea (Willd.) Pers.
Nuphar advena (Ait.) Ait. f.

Ranunculaceae

- Anemone caroliniana Walt.
- Anemone virginiana L.
- Anemonella thalictroides (L.) Spach
- Aquilegia canadensis L., var. latiuscula (Greene) Munz
- Clematis ligusticifolia Nutt.
- Clematis Pitcheri T. & G.
- Clematis versicolor Small
- Clematis virginiana L.
- Delphinium Ajacis L.
- Delphinium carolinianum Walt., var. crispum Perry
- Delphinium tricornis Michx.
- Delphinium virescens Nutt., var. virescens
- Delphinium virescens Nutt., var. Penardi (Huth) Perry
- Myosurus minimus L.; Hageman 48
- Ranunculus abortivus L., var. abortivus
- Ranunculus fascicularis Muhl., var. apricus (Greene) Fern.
- Ranunculus Harveyi (Gray) Britt.
- Ranunculus hispidus Michx.
- Ranunculus laxicaulis (T. & G.) Darby
- Ranunculus micranthus Nutt.
- Ranunculus septentrionalis Poir.
- Thalictrum dasycarpum Fisch. & Lall., var. hypoglaucum
(Rydb.) Boivin

Berberidaceae

- Podophyllum peltatum L.

Menispermaceae

Calyccarpum Lyoni (Pursh) Gray

Cocculus carolinus (L.) DC.

Menispermum canadense L.

Lauraceae

Lindera Benzoin (L.) Blume, var. Benzoin

Sassafras albidum (Nutt.) Nees., var. molle (Raf.) Fern.

Papaveraceae

Corydalis crystallina Engelm.

Corydalis flavula (Raf.) DC.

Corydalis micrantha (Engelm.) Gray, var. micrantha

Dicentra Cucullaria (L.) Bernh.

Sanguinaria canadensis L., var. rotundifolia (Greene) Fedde

Capparidaceae

Polanisia trachysperma T. & G.

Cruciferae

Amoracia aquatica (Eat.) Wieg.

Arabis canadensis L.

Arabis laevigata (Muhl.) Poir.

Arabis missouriensis Greene

Arabis perstellata E. L. Braun, var. Shortii Fern.

Arabis virginica (L.) Trel

Brassica Kaber (DC.) L. C. Wheeler, var. pinnatifida

(Stokes) L. C. Wheeler

Capsella Bursa-pastoris (L.) Medic.

Cardamine bulbosa (Schreb.) BSP.

Cardamine parviflora L., var. arenicola (Britt.) O. E. Schulz

Dentaria laciniata Muhl.

Descurainia pinnata (Walt.) Britt.

Draba brachycarpa Nutt.

Draba cuneifolia Nutt., var. cuneifolia

Erysimum repandum L.; Rhoades 126

Iodanthus pinnatifidus (Michx.) Steud.

Lepidium densiflorum Schrad.

Nasturtium officinale R. Br.

Rorippa islandica (Oeder) Borbas, var. Fernaldiana Butt. &

Abbe

Rorippa sessiliflora (Nutt.) Hitchc.

Selenia aurea Nutt.

Sisymbrium officinale (L.) Scop., var. leiocarpum DC.

Crassulaceae

Sedum Nuttallianum Raf.

Sedum pulchellum Michx.

Saxifragaceae

Heuchera americana L., var. hirsuticaulis (Wheelock) Rosend.,

Butt. & Lak.

Hydrangea arborescens L., var. Deamii St. John

Penthorum sedoides L.

Saxifraga virginensis Michx., var. subintegra Goodman

Hamamelidaceae

Hamamelis vernalis Sarg., var. tomentella (Rehd.) Palmer

Platanaceae

Platanus occidentalis L.

Rosaceae

Agrimonia microcarpa Wallr.

Agrimonia parviflora Ait.

Agrimonia rostellata Wallr.

Amelanchier arborea (Michx. f.) Fern.

Aruncus dioicus (Walt.) Fern., var. pubescens (Rydb.) Fern.

Crataegus crus-galli L., var. crus-galli

Crataegus Mackenzii Sarg., var. bracteata (Sarg.) Palmer

Crataegus Reverchoni Sarg., var. discolor (Sarg.) Palmer

Crataegus spathulata Michx.

Crataegus viridis L., var. viridis

Crataegus viridis L., var. lutensis (Sarg.) Palmer

Fragaria virginiana Duchesne

Geum canadense Jacq., var. camporum (Rydb.) Fern. & Weath.

Geum vernum (Raf.) T. & G.

Gillenia stipulata (Muhl.) Baill.

Physocarpus opulifolius (L.) Maxim., var. intermedius (Rydb.)

Robins.

Potentilla recta L.

Potentilla simplex Michx., var. simplex

Prunus americana Marsh., var. lanata Sudw.

Prunus hortulana Bailey

Prunus mexicana S. Wats.

Prunus Munsoniana Wight & Hedrick

Prunus Persica (L.) Batsch

Prunus Reverchonii Sarg.

Prunus serotina Ehrh.

Pyrus Malus L.

Rosa carolina L., var. carolina

Rosa carolina L., var. villosa (Best) Rehd.

Rosa setigera Michx., var. tomentosa T. & G.

Rubus aboriginum Rydb.

Rubus flagellaris Willd.; Simmons sin. num.

Rubus fructifer Bailey

Rubus occidentalis L.

Rubus pensilvanicus Poir.; Waterfall 10,186

Rubus pubifolius Bailey

Rubus scibilis Bailey

Rubus trivialis Michx., var. seorsus Bailey

Sanguisorba annua Nutt.

Leguminosae

Acacia angustissima (Mill.) Ktze., var. hirta (Nutt.)

Robinson

Amorpha canescens Pursh, var. canescens

Amorpha fruticosa L., var. angustifolia Pursh

Amorpha glabra Desf.; Pass 30

Amphicarpa bracteata (L.) Fern., var. comosa (L.) Fern.

Apios americana Medic., var. turrigera Fern.

Astragalus canadensis L.

Astragalus caryocarpus Ker; Goodman & Waterfall 4713

Astragalus mexicanus A. DC., var. trichocalyx. (Nutt.) Fern.

- Baptisia australis (L.) R. Br., var. minor (Lehm.) Fern.
Baptisia leucantha T. & G.
Baptisia leucophaea Nutt., var. leucophaea
Cassia fasciculata Michx., var. fasciculata
Cassia fasciculata Michx., var. robusta (Pollard) Macbr.
Cassia marilandica L.
Cassia nictitans L.
Cercis canadensis L., var. canadensis
Cercis canadensis L., var. canadensis, forma glabrifolia
Fern.
Cladrastis lutea (Michx. f.) Koch
Clitoria mariana L.
Crotalaria sagittalis L.
Dalea candida Willd.
Dalea purpurea Vent.
Desmanthus illinoensis (Michx.) MacM.
Desmodium canadense (L.) DC.
Desmodium canescens (L.) DC.
Desmodium ciliare (Muhl.) DC.
Desmodium glutinosum (Muhl.) Wood
Desmodium marilandicum (L.) DC.
Desmodium nudiflorum (L.) DC.
Desmodium paniculatum (L.) DC.
Desmodium pauciflorum (Nutt.) DC.
Desmodium rotundifolium DC.
Desmodium sessilifolium (Torr.) T. & G.
Galactia volubilis (L.) Britt., var. mississippiensis Vail

- Gleditsia triacanthos L.
- Gymnocladus dioica (L.) Koch
- Lathyrus pusillus Ell.; Hageman 145
- Lespedeza capitata Michx., var. capitata
- Lespedeza hirta (L.) Hornem.
- Lespedeza Nuttallii Darl.
- Lespedeza procumbens Michx.
- Lespedeza repens (L.) Bart.
- Lespedeza Stuevei Nutt., var. Stuevei
- Lespedeza virginica (L.) Britt.
- Medicago sativa L.
- Melilotus alba Desr.
- Melilotus officinalis (L.) Lam.
- Neptunia lutea (Leavenw.) Benth.
- Phaseolus polystachios (L.) BSP.
- Psoralea psoralioides (Walt.) Cory, var. eglandulosa (Ell.)
F. L. Freeman
- Psoralea tenuiflora Pursh, var. floribunda (Nutt.) Rydb.
- Rhynchosia latifolia Nutt.
- Robinia Pseudo-Acacia L.
- Schrankia Nuttallii (DC.) Standl.
- Sesbania exaltata (Raf.) Cory
- Strophostyles helvola (L.) Ell.
- Strophostyles leiosperma (T. & G.) Piper
- Stylosanthes biflora (L.) BSP., var. hispidissima (Michx.)
Pollard & Ball
- Tephrosia virginiana (L.) Pers., var. holosericea (Nutt.)
T. & G.

Trifolium arvense L.

Trifolium carolinianum Michx.; Frier sin. num.

Trifolium dubium Sibth.

Trifolium hybridum L.

Trifolium pratense L.

Trifolium procumbens L.

Trifolium reflexum L., var. reflexum

Trifolium repens L.

Vicia angustifolia Reichard

Vicia caroliniana Walt.

Vicia minutiflora Dietr.

Vicia villosa Roth

Linaceae

Linum medium (Planch.) Britt., var. texanum (Planch.) Fern.

Linum sulcatum Riddell

Oxalidaceae

Oxalis corniculata L., var. Langloisii (Small) Wieg.;

Hopkins 3881

Oxalis europaea Jord., var. europaea

Oxalis stricta L.

Oxalis violacea L., var. violacea

Geraniaceae

Erodium cicutarium (L.) L'Her.

Geranium carolinianum L.

Geranium maculatum L.

Zygophyllaceae

Tribulus terrestris L.

Rutaceae

Ptelea trifoliata L., var. trifoliata

Polygalaceae

Polygala incarnata L.Polygala sanguinea L.

Euphorbiaceae

Acalypha gracilens Gray, var. monococca Engelm.Acalypha ostryaefolia RiddellAcalypha rhomboidea Raf.Croton capitatus Michx.Croton glandulosus L., var. septentrionalis Muell. Arg.Crotonopsis linearis Michx.Ditaxis mercurialina (Wutt.) Coult.Euphorbia corollata L., var. paniculata (Ell.) Boiss.Euphorbia dentata Michx.Euphorbia dictyosperma Fisch. & Mey.Euphorbia heterophylla L., var. heterophyllaEuphorbia heterophylla L., var. graminifolia (Michx.) Engelm.Euphorbia maculata L.Euphorbia marginata PurshEuphorbia missurica Raf.; Bebb 5832Euphorbia serpens HBK.Phyllanthus caroliniensis Walt.Tragia urticifolia Michx.

Callitrichaceae

Callitriche heterophylla Pursh

Anacardiaceae

Cotinus obovatus Raf.Rhus aromatica Ait., var. aromaticaRhus aromatica Ait., var. serotina (Greene) Rehd.Rhus copallina L., var. latifolia EnglerRhus glabra L.Rhus radicans L., var. vulgaris (Michx.) DC.Rhus Toxicodendron L., forma leiocarpa Fern.

Aquifoliaceae

Ilex decidua Walt.

Celastraceae

Euonymus atropurpureus Jacq.

Staphyleaceae

Staphylea trifolia L.

Aceraceae

Acer Negundo L., var. texanum PaxAcer rubrum L., var. trilobum K. KochAcer saccharinum L.Acer saccharum Marsh., var. saccharum

Hippocastanaceae

Aesculus glabra Willd., var. Sargentii Rehd.

Sapindaceae

Sapindus Drummondii H. & A.

Balsaminaceae

Impatiens capensis Meerb.

Impatiens pallida Nutt.; Waterfall 10,051

Rhamnaceae

Ceanothus americanus L., var. Pitcheri T. & G.

Ceanothus herbaceus Raf., var. pubescens (T. & G.) Shinnars

Rhamnus caroliniana Walt., var. caroliniana

Rhamnus caroliniana Walt., var. mollis Fern.

Rhamnus lanceolata Pursh

Vitaceae

Ampelopsis arborea (L.) Koehne

Ampelopsis cordata Michx.

Cissus incisa (Nutt.) Des Moulins

Parthenocissus quinquefolia (L.) Planch., var. hirsuta
(Donn.) Fern.

Vitis aestivalis Michx., var. argentifolia (Munson) Fern.

Vitis Lincecumii Buckl., var. glauca Munson

Vitis vulpina L.

Tiliaceae

Tilia neglecta Spach; Harper 38

Malvaceae

Abutilon Theophrasti Medic.

Callirhoe alcaecoides (Michx.) Gray

Callirhoe digitata Nutt., var. digitata

Callirhoe involucrata (Nutt. ex Torr.) Gray, var. involucrata

Callirhoe Papaver (Cav.) Gray

Hibiscus lasiocarpus Cav.

Hibiscus militaris Cav.

Sida spinosa L.; Prier sin. num.

Guttiferae

Ascyrum Hypericoides L., var. multicaule (Michx.) Fern.

Hypericum Drummondii (Grev. & Hook.) T. & G.

Hypericum mutilum L., var. parviflorum (Willd.) Fern.

Hypericum punctatum Lam., var. punctatum

Hypericum punctatum Lam., var. pseudomaculatum (Bush) Fern.

Hypericum spathulatum (Spach) Steud.

Hypericum sphaerocarpum Michx.; Prier sin. num.

Cistaceae

Lechia tenuifolia Michx.; Waterfall 10,058

Tamaricaceae

Tamarix gallica L.

Violaceae

Hybanthus concolor (T. E. Forst.) Spreng.

Viola Kitaibeliana R. & S., var. Rafinesquii (Greene) Fern.

Viola papilionaceae Pursh

Viola pedata L., var. lineariloba DC.

Viola pensylvanica Michx., var. pensylvanica

Viola sororia Willd.

Viola triloba Schwein., var. dilatata (Ell.) Brainerd

Passifloraceae

Passiflora incarnata L.

Passiflora lutea L., var. glabriflora Fern.

Loasaceae

Mentzelia oligosperma Nutt.

Cactaceae

Opuntia macrorhiza Engelm.

Lythraceae

Ammannia auriculata Willd.

Cuphea petiolata (L.) Koehne

Lythrum alatum Pursh

Lythrum lanceolatum Ell.

Rotala ramosior L. Koehne, var. interior Fern. & Griseb.

Nyssaceae

Nyssa sylvatica Marsh.

Melastomataceae

Rhexia mariana L.

Onagraceae

Circaea quadrisulcata (Maxm.) Franchet & Sava., var.

canadensis (L.) Hara

Gaura biennis L., var. Pitcheri Pickering

Jussiaea repens L., var. glabrescens Ktze.

Ludwigia alternifolia L.

Oenothera biennis L., var. canescens T. & G.

Oenothera biennis L., var. hirsutissima Gray

Oenothera laciniata Hill, var. laciniata

Oenothera linifolia Nutt.

Oenothera speciosa Nutt.

Oenothera triloba Nutt.

Umbelliferae

Angelica venenosa (Greenway) Fern.

Chaerophyllum procumbens (L.) Crantz; Prier sin. num.

Cicuta maculata L.

Cryptotaenia canadensis (L.) DC.

Daucus Carota L.

Daucus Carota L., forma epurpuratus Farw.

Daucus pusillus Michx.

Eryngium Leavenworthii T. & G.

Eryngium yuccifolium Michx., var. synchaetum Gray ex Coult.

& Rose

Hydrocotyle verticillata Thunb.

Limnoscium pinnatum (DC.) Mathias & Constance

Osmorhiza longistylis (Torr.) DC., var. villicaulis Fern.

Oxyopolis rigidior (L.) C. & R.

Polytaenia Nuttallii DC., var. Nuttallii

Ptilimnium capillaceum (Michx.) Raf.

Ptilimnium Nuttallii (DC.) Britt.

Sanicula canadensis L., var. canadensis

Spermolepis divaricata (Walt.) Britt.

Taenidia integerrima (L.) Drude

Thaspium barbinode (Michx.) Nutt.

Torilis japonica (Houtt.) DC.

Trepocarpus Aethusae Nutt.

Zizia aptera (Gray) Fern.

Zizia aurea (L.) W. D. J. Koch

Cornaceae

Cornus Drummondii Meyer

Cornus florida L.

Cornus obliqua Raf.

Ericaceae

Rhododendron canescens Sweet; Bedwell & Hageman 129

Vaccinium arboreum Marsh; var. arboreum

Vaccinium stamineum L., var. interius (Ashe) Palmer &
Steyerm.

Vaccinium stamineum L., var. neglectum (Small) Deam

Primulaceae

Androsace occidentalis Pursh

Centunculus minimus L.

Dodecatheon Media L., forma alba Macbr.

Lysimachia ciliata L.

Lysimachia lanceolata Walt.

Samolus parviflorus Raf.

Sapotaceae

Bumelia lanuginosa (Michx.) Pers., var. oblongifolia (Nutt.)

R. B. Clark.

Ebenaceae

Diospyros virginiana L., var. virginiana

Diospyros virginiana L., var. pubescens (Pursh) Dippel

Oleaceae

Fraxinus pennsylvanica Marsh.

Fraxinus quadrangulata Michx.

Gentianaceae

Sabatia angularis (L.) Pursh

Sabatia campestris Nutt., forma campestris

Sabatia campestris Nutt., forma albiflora D. M. Moore

Apocynaceae

Amsonia Tabernaemontana Walt., var. Gattingeri Woodson

Apocynum cannabinum L. var. cannabinum

Asclepiadaceae

Asclepias amplexicaulis J. E. Smith

Asclepias hirtella (Pennell) Woodson

Asclepias incarnata L.

Asclepias quadrifolia Jacq.

Asclepias tuberosa L.

Asclepias verticillata L.

Asclepias viridiflora Raf., var. linearis (Gray) Fern.

Asclepias viridis Walt.

Cynanchum laeve (Michx.) Pers.

Matelea Baldwyniana (Sweet) Woodson

Matelea decipiens (Alex.) Woodson

Matelea gonocarpa (Walt.) Shinnars

Convolvulaceae

Convolvulus arvensis L.

Convolvulus sepium L.

Cuscuta cuspidata Engelm.

Cuscuta glabrior (Engelm.) Yuncker

Cuscuta glomerata Choisy

Cuscuta Gronovii Willd.

Ipomea hederacea (L.) Jacq.

Ipomea lacunosa L.

Ipomea pandurata (L.) G. F. W. Mey.

Polemoniaceae

Phlox divaricata L., var. Laphamii Wood

Phlox pilosa L., var. pilosa

Phlox pilosa L., var. fulgida Wherry

Phlox pilosa L., var. ozarkana Wherry

Polemonium reptans L.

Hydrophyllaceae

Ellisia Nyctelea L.

Hydrolea ovata Nutt.

Hydrophyllum virginianum L.

Phacelia hirsuta Nutt.

Boraginaceae

Hackelia virginiana (L.) I. M. Jtn.

Heliotropium indicum L.

Heliotropium tenellum (Nutt.) Torr.

Lithospermum canescens (Michx.) Lehm.

Lithospermum incisum Lehm.

Myosotis verna Nutt.

Onosmodium subsetosum Mackenz. & Bush

Verbenaceae

Lippia lanceolata Michx., var. recognita Fern. & Griseb.

Verbena bracteata Lang. & Rodr.

Verbena canadensis (L.) Britt.

Verbena hastata L.

Verbena simplex Lehm.

Verbena stricta Vent., forma albiflora Wadmond

Verbena stricta Vent., forma roseiflora Benke

Verbena urticifolia L., var. urticifolia

Labiatae

Agastache nepetoides (L.) Kuntze

Cunila origanoides (L.) Britt.

Hedeoma hispidum Pursh

Lamium amplexicaule L.

Lamium purpureum L.; Prier sin. num.

Leonurus Cardiaca L.

Lycopus americanus Muhl., var. scabrifolius Fern.

Lycopus uniflorus Michx.

Marrubium vulgare L.

Mentha piperita L.

Mentha spicata L.

Monarda citriodora Cerv. ex Lagasca
Monarda clinopodioides Gray; Waterfall 10,038
Monarda fistulosa L., var. mollis (L.) Benth.
Monarda punctata L., var. villicaulis Pennell
Monarda Russeliana Nutt. ex Sims
Monarda virgata Raf.
Nepeta Cataria L.
Perilla frutescens (L.) Britt.
Physostegia angustifolia Fern.
Prunella caroliniana Mill.
Pycnanthemum albescens T. & G.
Pycnanthemum pilosum Nutt.; Prier sin. num.
Pycnanthemum tenuifolium Schrad.
Salvia azurea Lam., var. grandiflora Benth.
Salvia lyrata L.
Satureja arkansana (Nutt.) Briq.
Scutellaria elliptica Muhl.
Scutellaria ovata Hill
Scutellaria parvula Michx., var. australis Fassett
Teucrium canadense L., var. canadense
Trichostema brachiatum L.

Solanaceae

Datura innoxia Mill.
Datura Stramonium L.
Physalis heterophylla Nees, var. heterophylla
Physalis heterophylla Nees, var. nyctaginea (Dunal) Rydb.
Physalis longifolia Nutt.

Physalis macrophysa Rydb.

Physalis pubescens L.; Waterfall 9661

Physalis pumila Nutt.

Physalis subglabrata Mackenz. & Bush

Physalis virginiana Mill.

Solanum americanum Mill.

Solanum carolinense L.

Solanum elaeagnifolium Cav.

Solanum rostratum Dunal

Scrophulariaceae

Bacopa rotundifolia (Michx.) Wettst.

Buchnera americana L.

Castilleja coccinea (L.) Spreng.; Prier sin. num.

Collinsia violacea Nutt.

Conobea multifida (Michx.) Benth.

Gerardia aspera Dougl.

Gerardia grandiflora Benth., var. cinerea (Pennell) Cory

Gerardia grandiflora Benth., var. serrata (Torr.) Benth.

Gerardia heterophylla Nutt.

Gerardia purpurea L.

Gerardia Skinneriana Wood

Gerardia tenuifolia Vahl., var. parviflora Nutt.

Gratiola neglecta Torr.

Gratiola virginiana L.

Kickxia Elatine (L.) Dumort.; Waterfall 9669

Linaria canadensis (L.) Dumont, var. texana (Scheele) Pennell

Lindernia anagallidea (Michx.) Pennell
Pedicularis canadensis L., var. Dobbsii Fern.
Penstemon arkansanus Pennell
Penstemon Digitalis Nutt.
Penstemon tubaeiflorus Nutt.
Scrophularia marilandica L.
Seymeria macrophylla Nutt.
Verbascum Blattaria L., forma Blattaria
Verbascum Blattaria L., forma albiflora (Don) House
Verbascum Thapsus L.
Veronica arvensis L.
Veronica peregrina L.; Prier sin. num.
Veronicastrum virginicum (L.) Farw.

Bignoniaceae

Campsis radicans (L.) Seem.
Catalpa bignonioides Walt.

Lentibulariaceae

Utricularia biflora Lam.

Acanthaceae

Dicliptera brachiata (Pursh) Spreng.
Justicia americana (L.) Vahl., var. subcoriacea Fern.
Ruellia caroliniensis (Walt.) Steud., var. caroliniensis
Ruellia caroliniensis (Walt.) Steud., var. semicalva Fern.
Ruellia pedunculata Torr.
Ruellia strepens L.

Phrymaceae

Phryma leptostachya L.

Plantaginaceae

Plantago aristata Michx.

Plantago lanceolata L.

Plantago pusilla Nutt.

Plantago virginica L.

Rubiaceae

Cephalanthus occidentalis L., var. occidentalis

Diodia teres Walt., var. setifera Fern. & Griseb.

Galium aparine L.

Galium arkansanum Gray

Galium circaeazans Michx., var. hypomalacum Fern.

Galium concinnum T. & G.

Galium pilosum Ait., var. pilosum

Galium triflorum Michx.

Houstonia lanceolata (Poir.) Britt.

Houstonia longifolia Gaertn.

Houstonia nigricans (Lam.) Fern.

Houstonia patens Ell.

Houstonia purpurea L.

Spermacoce glabra Michx.

Caprifoliaceae

Lonicera flava Sims

Lonicera japonica Thunb.

Sambucus canadensis L., var. canadensis

Sambucus canadensis L., var. submollis Rehd.

Symphoricarpos orbiculatus Moench

Triosteum perfoliatum L., var. aurantiacum (Bicknell) Wiegand

Viburnum rufidulum Raf.

Valerianaceae

Valerianella Bushii Dyal

Valerianella longiflora (T. & G.) Walp.

Valerianella Nuttallii (T. & G.) Walp.

Valerianella ozarkana Dyal

Valerianella radiata (L.) Duf., var. radiata

Valerianella radiata (L.) Duf., var. missouriensis Dyal

Cucurbitaceae

Cucurbita foetidissima HBK.

Melothria pendula L.

Sicyos angulatus L.

Campanulaceae

Campanula americana L., var. illinoensis (Fresn.) Fernald

Lobelia appendiculata A. DC.

Lobelia Cardinalis L.

Lobelia siphilitica L., var. ludoviciana A. DC.

Lobelia spicata Lam., var. spicata

Lobelia spicata Lam., var. leptostachys (A. DC.) Mackenz. &

Bush

Specularia biflora (R. & P.) Fisch. & Mey.

Specularia leptocarpa (Nutt.) Gray

Specularia perfoliata (L.) A. DC.

Compositae

Achillea lanulosa Nutt.

Ambrosia artemisiifolia L., var. elatior (L.) Descourtils,
forma villosa Fern. & Griseb.

Ambrosia bidentata Michx.

Ambrosia trifida L., var. texana Scheele

Antennaria plantaginifolia (L.) Hook.

Anthemis Cotula L.

Arctium minus (Hill) Bernh.

Artemisia annua L.

Aster anomalus Engelm.

Aster ericoides L.

Aster laevis L.

Aster linariifolius L.

Aster patens Ait., var. patens

Aster patens Ait., var. gracilis Hook.

Aster praealtus Poir.

Aster novae-angliae L.

Aster sagittifolius Wedemeyer, var. Drummondii (Lindl.)

Shinners

Aster texanus Burgess

Aster turbinellus Lindl.

Aster vimineus Lam., var. subdumosus Wieg.

Astranthium integrifolium (Michx.) Nutt.

Bidens bipinnata L.

Bidens polylopha Blake

Boltonia latisquama Gray

Cacalia tuberosa Nutt.

Centaurea americana Nutt.

Centaurea Cyanus L.

Chaetopappa asteroides DC.

Chrysanthemum Leucanthemum L., var. pinnatifidum Lecoq &
Lamotte

Cichorium Intybus L.

Cirsium altissimum (L.) Spreng.

Cirsium vulgare (Savi) Tenore

Conyza canadensis (L.) Cronq., var. canadensis

Coreopsis grandiflora Hogg., var. grandiflora

Coreopsis palmata Nutt.

Coreopsis pubescens Ell.

Coreopsis tinctoria Nutt., forma tinctoria

Coreopsis tinctoria Nutt., forma atropurpurea (Hook.) Fern.;

Waterfall 9,527

Coreopsis tripteris L., var. Deamii Standl.

Echinacea pallida Nutt.

Echinacea purpurea (L.) Moench., var. purpurea

Eclipta alba (L.) Hassk.

Elephantopus carolinianus Willd.

Erechtites hieracifolia (L.) Raf., var. intermedia Fern.

Erigeron annuus (L.) Pers.

Erigeron philadelphicus L.

Erigeron pulchellus Michx.

Erigeron strigosus Muhl. ex Willd., var. strigosus

Erigeron strigosus Muhl., var. Beyrichii (Fisch. & Mey.)

T. & G.

- Eupatorium coelestinum L.
Eupatorium perfoliatum L.
Eupatorium purpureum L.
Eupatorium rugosum Houtt., var. rugosum
Gaillardia fastigiata Greene
Gaillardia lutea Greene
Galinsoga parviflora Cav.; Prier sin. num.
Gnaphalium obtusifolium L.
Gnaphalium purpureum L.
Grindelia lanceolata Nutt., var. lanceolata
Gutierrezia dracunculoides (DC.) Blake
Heleastrum hemisphericum (Alexander) Shinnars
Helenium autumnale L.
Helenium nudiflorum Nutt.
Helenium tenuifolium Nutt.
Helianthus annuus L.
Helianthus grosseserratus Martens
Helianthus hirsutus Raf., var. hirsutus
Helianthus hirsutus Raf., var. stenophyllus T. & G.
Helianthus hirsutus Raf., var. trachyphyllus T. & G.
Helianthus Maximiliani Schrad.
Helianthus mollis Lam.
Helianthus tuberosus L.
Heliosis helianthoides (L.) Sweet, var. scabra (Dunal) Fern.
Heterotheca latifolia Buckl.
Heterotheca pilosa (Nutt.) Shinnars
Hieracium Gronovii L., var. Gronovii

- Hieracium longipilum Torr.
- Hieracium venosum L.
- Hymenopappus corymbosus T. & G.
- Hymenopappus scabiosaeus L'Her.
- Iva ciliata Willd.
- Krigia biflora (Walt.) Blake
- Krigia Dandelion (L.) Nutt.
- Kuhnia eupatorioides L., var. ozarkana Shinnars
- Lactuca canadensis L., var. canadensis
- Lactuca canadensis L., var. latifolia Ktze.
- Lactuca canadensis L., var. obovata Wieg. forma stenopoda
Wieg.
- Lactuca floridana (L.) Gaertn.
- Lactuca ludoviciana (Nutt.) Riddell
- Lactuca Scariola L.
- Liatris aspera Michx., forma aspera
- Liatris aspera Michx., forma Benkii (Macbr.) Fern.
- Liatris aspera Michx., var. intermedia (Lunell) Gaiser
- Liatris pycnostachya Michx.
- Liatris squarrosa (L.) Michx., var. hirsuta Rydb.
- Pluchea camphorata (L.) DC.
- Polymnia canadensis L., forma radiata (Gray) Fassett
- Polymnia Uvedalia L., var. densipilis Blake
- Pyrrhopappus carolinianus (Walt.) DC.
- Ratibida columnifera (Nutt.) W. & S.
- Rudbeckia amplexicaulis Vahl
- Rudbeckia bicolor Nutt. sensu Fern.

- Rudbeckia grandiflora (D. Don) DC.
- Rudbeckia serotina Nutt., var. sericea (T. V. Moore) Fern.
& Schub.
- Rudbeckia serotina Nutt., forma pulcherrima (Farw.) Fern.
& Schub.
- Rudbeckia subtomentosa Pursh
- Rudbeckia triloba L., var. triloba
- Senecio glabellus Poir.
- Senecio obovatus Muhl., var. rotundus Britt.
- Serinia oppositifolia (Raf.) Kuntze
- Silphium integrifolium Michx.; Prier sin. num.
- Silphium laciniatum L., var. laciniatum
- Silphium perfoliatum L.
- Silphium speciosum Nutt.
- Solidago canadensis L., var. gilvocanescens Rydb.
- Solidago gigantea Ait., var. leiophylla Fern.
- Solidago gymnospermoides (Greene) Fern.
- Solidago hispida Muhl.
- Solidago Lindheimeriana Scheele
- Solidago missouriensis Nutt., var. missouriensis
- Solidago nemoralis Ait., var. decemflora (DC.) Fern.
- Solidago petiolaris Ait., var. Wardii (Britt.) Fern.
- Solidago radula Nutt.
- Solidago rigida L.
- Solidago ulmifolia Muhl.
- Sonchus asper (L.) Hill
- Taraxacum officinale Weber

Verbesina helianthoides Michx.

Verbesina virginica L.

Vernonia altissima Nutt.

Vernonia Baldwinii Torr., var. interior (Small) Schub.

Vernonia crinita Raf.

Vernonia missurica Raf.

Xanthium chinense Mill.

Xanthium pennsylvanicum Wallr.

CHAPTER VI

TABULAR VIEW OF THE FAMILIES

Classes, Families, Etc.	Genera	Species	Varieties and Forms
GYMNOSPERMAE			
Pinaceae	2	2	
ANGIOSPERMAE			
Monocotyledoneae			
Typhaceae	1	1	
Zosteraceae	2	2	
Alismataceae	3	3	1
Araceae	2	2	1
Lemnaceae	2	2	
Commelinaceae	2	6	3
Pontederiaceae	2	2	
Liliaceae	13	19	9
Dioscoreaceae	1	3	2
Amaryllidaceae	3	3	
Iridaceae	2	3	
Orchidaceae	2	3	
Dicotyledoneae			
Saururaceae	1	1	
Salicaceae	2	4	
Juglandaceae	2	5	1
Corylaceae	3	3	2

Fagaceae	2	14	14
Ulmaceae	2	7	3
Moraceae	2	3	
Urticaceae	5	5	1
Loranthaceae	1	1	
Aristolochiaceae	2	2	1
Polygonaceae	4	15	3
Chenopodiaceae	2	2	1
Amaranthaceae	4	5	
Nyctaginaceae	1	2	
Phytolaccaceae	2	2	
Aizoaceae	1	1	
Portulacaceae	3	5	
Caryophyllaceae	7	15	1
Nymphaeaceae	2	2	
Ranunculaceae	8	21	7
Berberidaceae	1	1	
Menispermaceae	3	3	
Lauraceae	2	2	2
Papaveraceae	3	5	2
Capparidaceae	1	1	
Cruciferae	15	22	6
Crassulaceae	1	2	
Saxifragaceae	4	4	3
Hamamelidaceae	1	1	1
Platanaceae	1	1	
Rosaceae	14	36	13

Leguminosae	33	70	19
Linaceae	1	2	1
Oxalidaceae	1	4	3
Geraniaceae	2	3	
Zygophyllaceae	1	1	
Rutaceae	1	1	
Polygalaceae	1	2	
Euphorbiaceae	7	17	5
Callitrichaceae	1	1	
Anacardiaceae	2	6	5
Aquifoliaceae	1	1	
Celastraceae	1	1	
Staphyleaceae	1	1	
Aceraceae	1	4	3
Hippocastanaceae	1	1	1
Sapindaceae	1	1	
Balsaminaceae	1	2	
Rhamnaceae	2	4	4
Vitaceae	4	7	3
Tiliaceae	1	1	
Malvaceae	4	8	2
Guttiferae	2	6	4
Cistaceae	1	1	
Tamaricaceae	1	1	
Violaceae	2	7	4
Passifloraceae	1	2	1
Loasaceae	1	1	

Cactaceae	1	1	
Lythraceae	4	5	1
Nyssaceae	1	1	
Melastomataceae	1	1	
Onagraceae	5	9	6
Umbelliferae	19	23	5
Cornaceae	1	3	
Ericaceae	2	3	3
Primulaceae	5	6	1
Sapotaceae	1	1	1
Ebenaceae	1	1	2
Oleaceae	1	2	1
Gentianaceae	1	2	2
Apocynaceae	2	2	2
Asclepiadaceae	3	12	1
Convolvulaceae	3	9	
Polemoniaceae	2	3	4
Hydrophyllaceae	4	4	
Boraginaceae	5	7	
Verbenaceae	2	7	4
Labiatae	19	32	6
Solanaceae	3	13	2
Scrophulariaceae	17	27	7
Bignoniaceae	2	2	
Lentibulariaceae	1	1	
Acanthaceae	3	5	3
Phrymaceae	1	1	

Plantaginaceae	1	4	
Rubiaceae	5	14	4
Caprifoliaceae	5	6	3
Valerianaceae	1	5	2
Cucurbitaceae	3	3	
Campanulaceae	3	8	3
Compositae	56	126	46
GYMNOSPERMAE	2	2	
Monocotyledoneae	35	49	16
Dicotyledoneae	362	698	225
ANGIOSPERMAE	397	747	241
Total SPERMATOPHYTA	399	749	241

CHAPTER VII

SUMMARY

A study of the Spermatophyta (exclusive of Gramineae, Cyperaceae and Juncaceae) of Cherokee County was selected in order to satisfy a personal curiosity concerning the kinds of flowering plants and to gain some degree of skill in the critical classification of them.

The flora of this county was thoroughly sampled during the growing seasons between August 1950 through June 1953 by concentrating on collecting in areas easily reached by State Highways 10 and 51 and U. S. Highway 62.

A total of 1400 sheets were collected and deposited in the Oklahoma A. & M. Herbarium. Their classification involved the use of 72 monographs, books, periodicals and other taxonomic literature. Critical study of 34 sheets in the A. & M. Herbarium, collected by other workers, was made by the author. These were added to the list and acknowledged by collector and number citation.

The list of plants totals as follows: 105 families represented by 399 genera and 990 species and taxons of lower rank. The largest families by species totals are: Compositae with 121 species, Leguminosae 70, Rosaceae 36, Labiateae 32, Scrophulariaceae 27, Umbelliferae 22, Ranunculaceae 21, Cruciferae 21 and Liliaceae 19.

BIBLIOGRAPHY

- Bailey, L. H. The Genus Rubus in North America. Gentes Herb. 5(9): 591-856. 1945.
- Baird, Viola Brainerd. Wild Violets of North America. University of California Press, Berkley, Calif. 1942
- Benson, Lyman. A Treatise on the North American Ranunculi. Am. Mid. Nat. 40: 1-164. 1948.
- Britton, Nathaniel, L. and Addison Brown. An Illustrated Flora of the Northern United States and Canada. 2nd. ed. N. Y. Bot. Gard. 1936.
- Constance, Lincoln. A Revision of Phacelia Subgenus Cosmanthus. Contr. from the Gray Herb. CLXVIII. February 21, 1949.
- Cronquist, Arthur. Revision of the North American Species of Erigeron, North of Mexico. Brittonia 6: 121-268. 1947.
- Dyal, Sarah C. Key to the Species of Oaks of Eastern North America based on Foliage and Twig Characteristics. Rhod. 38: 53-63. 1936.
- _____. Valerianella in North America. Rhod. 40: 185-212. 1938.
- Erickson, Ralph O. Taxonomy of Clematis Section Viorna. Ann. Mo. Bot. Gard. 30: 1-30. 1943.
- Ewan, Joseph. A Synopsis of North American Species of Delphinium. U. of Colo. Studies. Series D. Physical and Biol. Sciences. 2(2): 55-244. 1945.
- Fassett, Norman C. Callitriche in the New World. Rhod. 53: 137-146; 172-182. 1951.
- _____. The Variations of Polygonum punctatum. Brittonia 6: 369-382. 1948.
- Ferguson, A. M. Crotons of the United States. Rept. Mo. Bot. Gard. 12: 33-74. 1901.
- Fernald, M. L. A Century of Additions to the Flora of Virginia. Rhod. 42: 491. 1940.

- _____. Another Century of Additions to the Flora of Virginia. Rhod. 43: 589-602. 1941.
- _____. Gray's Manual of Botany. 8th ed., American Book Company. 1950.
- _____. Pensylvanicus or pennsylvanicus? Rhod. 42: 94-95. 1940.
- _____. Potentilla canadensis and P. simplex. Rhod. 33: 188-189. 1931.
- _____. Some Variations in Oenothera. Rhod. 51: 61-64. 1949.
- Fernald, M. L. and Ludlow Griscom. Three Days of Botanizing in Southeastern Virginia. Rhod. 37: 168. 1935.
- _____. Notes on Diodia. Rhod. 39: 306-308. 1937.
- Gaiser, L. O. The Genus Liatris. Rhod. 48: 163-177; 237-246; 293-318; 393-410. 1946.
- Gleason, Henry Allan. Vernonieae. N. Am. Flora 33(1): 52-95. 1922.
- Goodman, George J. A New Variety in Saxifraga. Rhod. 52: 183. 1950.
- Hennen, Joe F. The True Clovers (Trifolium) of Texas. Field and Lab. 18: 159-164. 1950.
- Hermann, Frederick J. Diagnostic Characteristics in Lycopus. Rhod. 38: 373-375. 1936.
- Hitchcock, C. Lec. The Genus Lepidium in the United States. Madrono 3: 265-320. 1936.
- Hopkins, Milton. Arabis in Eastern and Central North America. Rhod. 39: 63-76; 155-167; 175-179. 1937.
- Jones, George Neville. A Monograph of the Genus Symphoricarpos. Ann. Arb. Journ. 21: 201-232. 1940.
- Larisey, Mary Maxine. A Monograph on the Genus Baptisia. Ann. Mo. Bot. Gard. 27: 119-244. 1940.
- Lewis, Harlan. A Revision of the Genus Trichostema. Brittonia 5: 289-291. 1945.
- Mathias, Mildred E. and Lincoln Constance. Umbelliferae. N. Am. Flora 28B: 43-295. 1945.

- McVaugh, Rogers. The Genus Triodanis Raf., and its Relationship to Specularia and Campanula. *Wrightia* 1(1): 13-53. 1945.
- _____. Studies in the Taxonomy and Distribution of the Eastern North American Species of Lobelia. *Rhod.* 38: 241-263; 276-282; 305-310; 327-329. 1936.
- Nelson, Ruth A. The Genus Vitis in Oklahoma. *Proc. Okla. Acad. Sci.* 31: 20-23. 1950.
- Ownbey, Gerald B. Monograph of the North American Species of Corydalis. *Ann. Mo. Bot. Gard.* 34: 187-198; 209-211; 215-226. 1947.
- Ownbey, Marion. Alium, the Genus in Texas. *Research Studies of State College of Washington.* XVIII (4): 181-222. 1950.
- Palmer, Ernest J. Conspectus of the Genus Amorpha. *Journ. Arn. Arb.* 12: 157-196. 1931.
- Pennell, Francis W. Scrophulariaceae of Eastern Temperate North America. *Acad. of Nat. Sciences of Philadelphia, Monograph* 1. 1935.
- Perry, Lily M. Notes on Silphium. *Rhod.* 39: 281-286; 296. 1937.
- _____. A Revision of the North American Species of Verbena. *Ann. Mo. Bot. Gard.* 20: 239-362. 1933.
- _____. Variants in Two Species of Delphinium. (D. carolinianum, D. virescens). *Rhod.* 39: 20-22. 1937.
- Rehder, Alfred. Manual of Cultivated Trees and Shrubs. Macmillan Company, 2nd. ed. 1940.
- Rydberg, Per Axel. Agrimonia. *N. Am. Flora* 22(5): 931-936. 1913.
- _____. Gaillardia. *N. Am. Flora* 34(2): 131-138. 1915.
- _____. The North American Species of Physalis and Related Genera. *Mem. Torr. Bot. Cl.* 4: 297-372. 1893.
- _____. Rosa. *N. Am. Flora* 22(6): 482-532. 1918.
- _____. Rubus. *N. Am. Flora* 22(5). 1933.
- Shinners, Lloyd H. The North American Species of Heterotheca, Including Chrysopsis. *Field and Lab.* 19: 66-70. 1951.

- _____. Notes on Texas Compositae-V. Field and Lab. 18:
32-33. 1950.
- _____. Transfer of Texas Species of Petalostemon to Dalea
(Leguminosae). Field and Lab. 17: 80-85. 1949.
- _____. The Vetches and Pea Vines (Vicia and Lathyrus) of
Texas. Field and Lab. 16: 21. 1948.
- _____. Ceanothus herbaceus Raf. for C. ovatus: a Correction
of Name. Field and Lab. 19: 33-34. 1951.
- _____. The Texas Species of Cacalia. Field and Lab. 18:
79-83. 1950.
- _____. The Species of Matelea (Including Gonolobus) in
North Central Texas. Field and Lab. 18: 73-75. 1950.
- _____. Revision of the Genus Kuhnia. Wrightia 1: 122-
144. 1946.
- _____. Agave lata, a New Species from North Texas and
Oklahoma. Field and Lab. 19: 171-173. 1951.
- Small, John Kunkel. Flora of the Southeastern United States.
Pub. by J. K. Small. New York. 2nd ed. 1913.
- Stemen, Thomas R. and W. Stanley Meyers. Oklahoma Flora.
Harlow Pub. Corp., Okla. City, Okla. 1937.
- Steyermark, Julian A. A Study of Arenaria patula. Rhod.
43: 325-333. 1941.
- _____. Spring Flora of Missouri. Mo. Bot. Gard. St. Louis
and Field Mus. Nat. History, Chicago. 1940.
- Svenson, H. K. Quercus rubra once more. Rhod. 41: 521-
524. 1939.
- Turner, B. L. Revision of the United States Species of
Neptunia. Am. Mid. Nat. 46: 82-92. 1951.
- Waterfall, U. T. A Catalogue of the Flora of Oklahoma. Pub.
by the Research Foundation, Okla. A. & M. College,
Stillwater, Okla. 1952.
- _____. The Genus Callirhoe in Texas. Field and Lab. 19:
107-118. 1951.
- _____. Keys to the Flora of Oklahoma, Part I. Pteridophyta
and Angiospermae Through the Monocotyledoneae. Unpub-
lished Manuscript. Okla. A. & M. College, Stillwater,
Okla. 1953.

- . More Additions to the Oklahoma Flora. Rhod. 53:
133. 1951.
- Weigand, K. M. Eupatorium purpureum and Its Allies. Rhod.
22: 57-69. 1920.
- . Variations in Lactuca canadensis. Rhod. 22: 9-
11. 1920.
- . Notes on Triosteum perfoliatum and Related Species.
Rhod. 25: 199-203. 1923.
- Weigand, K. M. and C. A. Weatherby. The Nomenclature of
the Verticillate Eupatoria. Rhod. 39: 298-306. 1937.
- Yuncker, Truman G. The Genus Cuscuta. Mem. Torr. Bot. Cl.
18: 113-331. 1932.

VITA

Charles Sparkman Wallis
Candidate for the degree of
Master of Science

Thesis: THE SPERMATOPHYTA OF CHEROKEE COUNTY, OKLAHOMA
(EXCLUSIVE OF THE GRAMINEAE, CYPERACEAE AND
JUNCACEAE)

Major: Botany

Biographical and Other Items:

Born: April 20, 1911 at St. Louis, Missouri

Undergraduate Study: Northeastern State College
at Tahlequah, Oklahoma, 1929-1933

Graduate Study: Oklahoma Agricultural and Mechanical
College, 1949-1953

Experiences: Teaching 9 years in Oklahoma secondary
schools (Braggs 1933-1934, Ft. Gibson 1934-1937
and Checotah 1937-1942); U. S. Army Air Forces
1942-1946; College teaching 5 1/2 years in
Connors State Agricultural College at Warner,
Oklahoma 1946-1953; Pecan farming; Owner and
curator of private museum at Ft. Gibson, Okla.

Member of Oklahoma Educational Association, Oklahoma
Academy of Science, Associate Member of The Society
of Sigma Xi, and Member of the Southwestern Associa-
tion of Naturalists.

Date of Final Examination: July, 1953

THESIS TITLE: THE SPERMATOPHYTA OF CHEROKEE COUNTY,
OKLAHOMA (EXCLUSIVE OF THE GRAMINEAE,
CYPERACEAE AND JUNCACEAE)

AUTHOR: Charles S. Wallis

THESIS ADVISER: U. T. Waterfall

The content and form have been checked and approved by the author and thesis adviser. The Graduate School Office assumes no responsibility for errors either in form or content. The copies are sent to the bindery just as they are approved by the author and faculty adviser.

TYPIST: Lorraine Loffredo