A FLORISTIC SURVEY OF THE SUMMER AND FALL VASCULAR FLORA OF MONTGOMERY COUNTY, TENNESSEE

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A FLORISTIC SURVEY OF THE SUMMER AND FALL VASCULAR FLORA OF MONTGOMERY COUNTY, TENNESSEE

An Abstract

Presented to

The Committee on Graduate Studies

Austin Peay State College

In Partial Fulfillment

of the Requirements for the Degree

Master of Arts

in Education

by

David Lloyd Scott

August 1967

A floristic survey was conducted to determine the species composition of the summer and fall vascular flora of Montgomery County, Tennessee. Data were obtained from published records, from the author's collections, and from an inventory of the herbaria of Austin Peay State College, Vanderbilt University, and The University of Tennessee.

The results of the investigation reveal the presence of at least 742 species of summer and fall vascular plants within Montgomery County. These represent 473 genera belonging to 110 families. Of these totals, four families, eight genera, and thirty-two species were reported from Montgomery County for the first time.

Keys were constructed for identification of the families, genera, and species. An annotated check list was also compiled including citation data for each specimen used in the study.

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by
David Lloyd Scott
August 1967

August 8, 1967

To the Committee on Graduate Studies:

I am submitting herewith a thesis written by David Lloyd Scott entitled "A Floristic Survey of the Summer and Fall Vascular Flora of Montgomery County, Tennessee." I recommend that it be accepted in partial fulfillment of the requirements for the degree of Master of Arts in Education, with a major in Biology.

William H. Ellis
Major Professor

We have read this thesis and recommend its acceptance:

Fred A. Bunger
Minor Professor

Floyd R. Brown
Third Committee Member

Accepted for the Committee:

William H. Ellis
Director of Graduate Studies

ACKNOWLEDGMENT

The author wishes to thank Dr. William H. Ellis, Department of Biology, for suggesting the problem and for his helpful guidance throughout the study. Appreciation is extended to Floyd L. Brown, Department of Biology, and Dr. Fred A. Bunger, Department of Education for their suggestions and constructive criticism of the manuscript.

Credit is due Mr. Alfred E. Clebsch, naturalist, Clarksville, Tennessee; the late Dr. Royal E. Shanks, Department of Botany, University of Tennessee; and Floyd L. Brown, Department of Biology, Austin Peay State College, for the tremendous amount of field work conducted within Montgomery County over the past thirty years. Without their interest and dedicated service much of the undertaking would not have been possible.

The author wishes to thank the curators of the following herbaria for permitting the use of Montgomery County specimens in this study: Austin Peay State College; Vanderbilt University; and The University of Tennessee.

Further appreciation is extended to the following students and friends who gave of their time and interest in behalf of this research: Miss Peggy Wallen, for her valuable assistance in much of the field work; Miss Cindy

Scherer, for her encouragement and help in every way; and Mrs. Floyd M. Ford, for the valuable assistance rendered in typing much of the rough draft.

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CHAPTER I

INTRODUCTION

Interest in the floristic composition of Montgomery County has led to considerable collecting, particularly of the higher plants. These efforts have been directed toward the completion of a comprehensive survey of the vascular flora of the county. Until recently, however, no attempt had been made toward the compilation of an annotated check list of the species encountered and construction of a key for their identification.

Review of the Literature

As partial fulfillment of the requirements for a masters degree at Austin Peay State College, Yarbrough (1966) conducted a floristic survey of the spring and early summer vascular plants of Montgomery County. His work was directed toward only those species that flower or fruit during the period from January 1 to June 30. The results of his investigation indicate the occurrence of 107 families, 365 genera, and 642 species within the study area.

Prior to Yarbrough (1966), many botanists have been instrumental in building up the distribution records of the species that occur throughout the study area. Among these,

Mr. Alfred E. Clebsch is by far the most notable. For more than two decades he has contributed vast amounts of information to the floristic record. During the summers of 1946-47-48 Clebsch and his field companion, Floyd L. Brown, now Associate Professor of Biology at Austin Peay State College, conducted a series of collecting trips that represent the most extensive ever attempted within the study area. At the present time Clebsch's collections comprise well over half of all the specimens that have been collected in the county. From these and other data Clebsch (1957) published a check list of the woody plants occuring in Montgomery and Stewart Counties, in which 150 species were recognized.

Following Clebsch (1957), Duncan (1965) conducted an ecological analysis of the woody vegetation of the study area. This investigation involved recording the tree species that occur, determination of the relative density, frequency and abundance of each species encountered, and description of certain ecological relationships that exist between the species and their environment. Although six forest communities were recognized, no additional county records were obtained.

Among other literary sources that are applicable to the flora of Montgomery County are several regional and state publications. Gleason (1963), Fernald (1950), and Small (1933) include the general area of Montgomery County

and are often used for identification of the species that occur in this area. However, they are of limited value in that each is of a regional nature and not particularly designed for the study area. Also somewhat limited, but nevertheless important, are several publications that concern the flora of Tennessee. Among the earliest are those contributed by Augustin Gattinger (1887,1901). Since that time many subsequent investigations have been conducted on specific taxa and particular groups. The following are those which include specimens from Montgomery County in their report: Lewis (1930); Anderson (1930); Underwood (1932, 1945); Jennison (1935); Rucker (1938); Street (1939); Svenson (1941); Shanks and Sharp (1950); Hardin (1952); Shanks (1952, 1953); Shaver (1954); Sharp (1955); Gillespie (1956, 1959); Shanks and Robinson (1959); Robinson (1960); and Beatley (1963).

Statement of the Problem

The purpose of this investigation was to determine the extent of the summer and fall vascular flora of Montgomery County, including all species that flower or fruit between June 1 and December 31. The procedure followed in attaining this goal involved (1) an inventory of previously collected plants; (2) additional collecting by the author; (3) the compilation of an annotated check list of the species

encountered; (4) and the construction of a key for identification of the families, genera and species obtained.

Importance of the Study

Considerable work has been done at the University of Tennessee concerning a survey of the vascular plants of Tennessee. The results of this investigation will contribute to the completion of this effort.

This research is important to the future botanist who may choose to pursue a problem of taxonomic nature in Montgomery County. A better understanding of the floristic composition of this area should be of value in helping him select one of the many problems which merits additional investigation.

Equally important is the contribution this research should make to both high school nature and field courses. Both a check list and key to the species of summer and fall vascular plants will be made available for teaching use.

Finally, this research has contributed to the strength of the present plant collection housed in the herbarium of Austin Peay State College.

Limitations of the Study

The investigation included only those vascular plants that flower or fruit between June 1 and December 31. The study area was confined to the political boundaries of

Montgomery County, Tennessee.

Collecting methods were restricted to random sampling of habitats most likely to support summer and fall growth. Field work was confined primarily to one growing season, although supplemental collecting was carried on until completion of the final draft of this thesis.

Supporting data from investigations were analyzed for validity unless already annotated by competent authorities.

Definition of Terms

The terminology used in this report follows the conventional meaning as found in standard references of descriptive plant morphology and plant taxonomy.

Organization of the Study

Chapter I contains a review of the literature, a statement of the problem, the importance of the study, the limitations of the study, and a definition of terms.

Chapter II contains a brief description of the study area, including its physiography, climate, geology, and soils.

Chapter III contains the methods and procedures followed throughout this investigation. It includes a discussion of the preliminary study, a discussion of collecting, identifying, and preserving specimens, the procedure followed in construction of the keys, and an explanation of

the nature and use of the keys.

Chapter IV contains the key to 110 families of summer and fall vascular plants found within the study area.

Chapter V contains the key to the genera and species representing the 110 families found in Chapter IV.

Chapter VI contains an annotated check list of the species obtained in this study. Citation data for each species include the location and date of collection, collector's name, herbarium and/or specimen number, and a designation of the herbarium in which the specimen is housed.

Chapter VII contains a discussion of the data, and Chapter VIII contains the summary.

CHAPTER II

THE STUDY AREA

Location and Area

Montgomery County, located in the northwestern portion of Middle Tennessee, occupies approximately 350,210 acres or 500 square miles (Killebrew, 1874). It is bordered by Todd and Trigg Counties, Kentucky, and by Robertson, Cheatham, Dickson, Houston, and Stewart Counties, Tennessee.

Physiography and Climate

Physiographically, Montgomery County is located on the Western Highland Rim section of the Interior Low Plateau (Fenneman, 1938). According to Killebrew (1870) the county is underlain by the upper, or Lithostrotion, bed of the siliceous group of the lower Carboniferous formation. The Lithostrotion bed, often referred to as St. Louis limestone is the principal rock, most of which is covered with a bed of red clay interstratified with white chert. Killebrew (1874) describes much of the limestone as oolitic, and of splendid building quality, while other layers contain masses of flint and chert. The color varies from blue to dingy white, with much of the stone gray and containing shining particles resembling mica.

Montgomery County is well drained and watered by its two rivers and numerous streams. Flowing east to west the Cumberland River enters the county from the southeast. It winds northwest to a point at Clarksville where it bends sharply southwest. Following this course the river exits near the southwest corner into Stewart County. Entering from the northeast and Robertson County is the smaller Red River. Winding southwest, Red River empties into the Cumberland at Clarksville.

The general surface feature of Montgomery County is undulation, varying from rolling on the north side to hilly south of the Cumberland River. The highest point is approximately 660 feet above sea level (Duncan, 1965), with the average being 500 feet (Killebrew, 1874).

The following climatic information for Montgomery County is based on data derived over a forty year period at the Clarksville Weather Station (USDA, 1941). The mean annual precipitation is 48.92 inches. Monthly averages vary from the wettest in January (5.62 inches) to the driest in September (3.02 inches). The first killing frost occurs around October 26 with the last coming about April 3, allowing for an average growing season of 206 days. Temperature ranges from a January average of 39.3° F. to 79.7° F. in July. A maximum of 112° F. and a minimum of -14° F. have been recorded.

CHAPTER III

METHODS AND PROCEDURES

Preliminary Study

The initial phase of this research began with an inventory of four herbaria which the author assumed would yield a sufficient summary of the collections made within Montgomery County prior to 1966. These herbaria are housed in the Botany or Biology Departments of the following institutions: Austin Peay State College, Clarksville, Tennessee; Vanderbilt University, Nashville, Tennessee; University of Tennessee, Knoxville; and Murray State University, Murray, Kentucky.

The same procedure was employed in the inventory of each herbarium. Only those specimens from Montgomery County that flower or fruit between June 1 and December 31 were included. The following data were recorded from the herbarium sheets of each specimen: the scientific name; the herbarium or field number; the location and date of the collection; the collector; and the herbarium in which the specimen is housed. From these data a preliminary list of the number of families, genera, and species cited from the study area prior to 1966 was compiled.

(1) C. rotundifolia Michx. Mountain-Watercress. May-June.
(2) C. pennsylvanica Muhl. Mar.-Aug.
(3) C. parviflora L. Apr.-Aug.

8. ARABIS L. Rock-Cress

1. Base of cauline leaves sagittate; leaves sessile... .....(1) A. laevigata

1a. Base of cauline leaves tapering to base, not sagittate; leaves short petioled.....(2) A. canadensis

(1) A. laevigata (Muhl.) Poir. Mar.-Sept.
(2) A. canadensis L. Sicklepod. Apr.-Sept.

48. CRASSULACEAE (Opine Family)

1. SEDUM L. Stonecrop. Opine

(1) S. pulchellum Michx. Rock-Moss, Widow's-Cross. May-July

49. SAXIFRAGACEAE (Saxifrage Family)

1. Plants woody shrubs..... 2

1a. Plants herbaceous..... 4

2. Leaves opposite..... 3

2a. Leaves alternate.....1. RIBES

3. Stamens many, 10-20.....2. PHILADELPHUS

3a. Stamens 8-10.....3. HYDRANGEA

4. Stamens 5; pistils 2.....4. HEUCHERA

4a. Stamens 10; pistils 5.....5. PENTHORUM

1. RIBES L. Currant

(1) R. odaratum Wendland. Missouri or Buffalo-Currant. May-Aug.

2. PHILADELPHUS L. Mock-Orange

(1) P. pubescens Loisel. May-June.

Collecting, Identifying, and Preserving

Collecting of plant specimens by the author began June 1, 1966 and was continued through September 1, 1966. Supplemental collections were also made during July of 1967. Specimens were identified according to Fernald (1950), Gleason (1963), and Radford et al. (1964). The plants were prepared for mounting on herbarium sheets in the usual manner for deposit in the herbarium of Austin Peay State College.

Construction of the Keys

Keys were constructed for identification of the families, genera, and species detected during this investigation. Diagnostic characteristics used to separate individual taxa were derived from personal observation of herbarium and fresh material, and from examination of the following keys or manuals: Gleason (1963); Fernald (1950); Small (1933); Steyermark (1962); Bloomquist and Oosting (1959); Radford et al. (1964); and Kucera (1961). Both the nomenclature and the arrangement of families follow that used in Gray's Manual of Botany, Eighth Edition.

Explanation and Use of the Keys

The keys are arranged in two chapters. Chapter IV contains the key to the families, and Chapter V contains the key to the genera and species. They are of the

dichotomous type, consisting of a series of couplets bearing a pair of alternative choices, the two choices each with the same number. The couplets are constructed so that the plant being considered fits one of the two categories. Each category may be subdivided, ultimately leading to the taxonomic level desired.

The proper identification procedure begins with the general section of the key to the families. Reading first the two alternatives of the first couplet, the investigator must decide which most closely describes the plant. If the plant fits under the first alternative, advance as directed; if under the second, advance to the couplet bearing the number found at the end of that choice. Proceed in this fashion until the family name is reached, then refer as directed to chapter V for the identification of the genus and species.

CHAPTER IV

KEY TO FAMILIES

General Section

1. Plants rush-like, fern-like, moss-like, or grass-like; reproduction chiefly by spores..... .....Pteridophyta, p. 46

1a. Plants not as above..... 2

2. Plants with seeds borne on scales of a cone; trees or shrubs with needle-like leaves, mostly evergreen.....Gymnospermae, p.50

2a. Plants with true flowers; seeds enclosed in an ovary which at maturity becomes the fruit..... 3

3. Flower parts in 3's or multiples of 3; leaves mostly parallel-veined and entire..... .....Monocotyledoneae, p.50

3a. Flower parts usually in 4's or 5's; leaves usually net-veined, entire, toothed, or lobed..... .....Dicotyledoneae, p. 77

DIVISION I. Pteridophyta. Ferns and fern-allies

Bushlike, fern-like, moss-like, or grass-like. Reproduction chiefly by spores

1. Leaves more than 1 cm. wide, variously lobed or dissected, usually with distinct petioles, not moss-like or rush-like; stems underground..... 2

1a. Leaves 1 cm. wide or less, entire or finely toothed, but not lobed, always sessile, moss-like or rush-like; stems aerial, prostrate or erect..... 3

2. Sporangia microscopic, forming a definite cluster (sorus) usually on the lower surface of typical leaves, sometimes on nonfoliaceous reproductive leaves.....5. POLYPODIACEAE, p.47

2a. Sporangia relatively large, not microscopic, not borne in clusters, but borne more or less evenly on distinctly modified fertile branches arising from the common stipe of the sterile foliaceous leaves .....4. OPHIOGLOSSACEAE, p. 47

3. Stems conspicuously jointed, grooved, internodes hollow; branches when present, usually in whorls; leaves reduced to toothed sheaths at the nodes; sporangia borne in a strobilus.....1. EQUISETACEAE, p. 46

3a. Stems not conspicuously jointed; leaves not reduced to toothed sheaths..... 4

4. Spores uniform in size; plants 5-50 cm. tall, the stem usually 5-20 mm. thick..... .....2. LYCOPODIACEAE, p.46

4a. Spores not uniform in size, of two kinds; plants low and sprawling, usually less than 5 cm. tall; stems 2-6 mm. thick.....3. SELAGINELLACEAE, p.46

DIVISION II. Spermatophyta. Seed Plants

Subdivision I. Gymnospermae. Conifers

Trees or shrubs with needle- or scale-like leaves, mostly evergreen; seeds borne on scales of a cone which is large and dry or small and berry-like..6. PINACEAE, p. 50

Subdivision II. Angiospermae. Flowering Plants

Plants with true flowers, with ovules in a closed ovary which at maturity becomes the fruit.

Class I. Monocotyledoneae

Flower parts in 3's or multiples of 3; leaves parallel-veined, margins almost always entire; stems with vascular bundles scattered throughout but not arranged in a single cylinder; only one cptyledon per seed embryo; plants woody or more commonly herbaceous.

1. Plants free floating, minute (less than 8 mm. long), adhering in mats or colonies; plant body reduced to a flat oblong or globose thallus, leafless, often

purplish beneath; reproduction often by budding....
.....14. Lemnaceae, p. 72

1a. Plants without the combination of the above specialized characteristics..... 2

2. Plants submerged aquatics with numerous whorls of 3-6 small linear, entire, sessile leaves....
.....10. HYDROCHARITACEAE, p.51

2a. Plants not submerged aquatics or, if submerged, leaves not in numerous whorls..... 3

3. Perianth present, usually showy, not represented by bristles or scales (somewhat bristle-like in Juncaceae)..... 4

3a. Perianth absent, or if present, of bristles, bristle-like scales or scales..... 13

4. Ovary or ovaries superior..... 5

4a. Ovary inferior..... 10

5. Pistils numerous, simple.....9. ALISMATACEAE, p. 51

5a. Pistils 1, compound, usually composed of 3 carpels.. 6

6. Perianth regular; stamens all perfect and equal..... 7

6a. Perianth more or less irregular; stamens of two kinds..... 9

7. Perianth small and scale-like, parts never united, leaves reduced to sheaths only.....
.....17. JUNCACEAE, p. 74

7a. Perianth not scale-like; flowers conspicuous and showy; parts separate or united into a tube..... 8

8. Perianth consisting of distinct calyx and corolla, differing in form and color.....
..... 15. COMMELINACEAE, p. 72

8a. Perianth essentially undifferentiated into calyx and corolla, not differing in form and color...
.....18. LILIACEAE, p. 75

9. Petals separate from each other.....
.....15. COMMELINACEAE, p. 72

9a. Petals united into a tube.....
.....16. PONTEDERIACEAE, p. 73

10. Corolla radial or nearly so; stamens 3 or more..... 11

10a. Corolla distinctly bilateral; stamens 1 or 2.....22. ORCHIDACEAE, p. 76

11. Flowers unisexual; leaves relatively large, net-veined, and petioled.....19. DIOSCOREACEAE, p. 76

11a. Flowers bisexual; leaves usually without petioles and parallel-veined..... 12

12. Stamens 6, always exposed.....
.....20. AMARYLLIDACEAE, p. 76

12a. Stamens 3, sometimes hidden under the stigma lobes.....21. IRIDACEAE, p. 76

13. Flowers minute and inconspicuous, in axils of closely imbricated bracts, or pistillate enclosed in a membraneous sac; leaves with linear blades and basal sheaths partly enclosing jointed stems..... 14

13a. Flowers sometimes small, but not inconspicuous, not in axils of closely imbricated bracts, sometimes surrounded by capillary bristles..... 15

14. Stems usually rounded or flattened, usually hollow or with the pith easily removable, but the nodes (joints) solid, closed, hard, and prominent; sheath at base of leaf usually split open or overlapping on one side.....
.....11. GRAMINEAE, p. 51

14a. Stems usually 3-angled, usually solid with pith, sometimes hollow, but the nodes (joints) soft and not conspicuous; sheaths at base of leaf usually closed....12. CYPERACEAE, p. 66

15. Flowers bisexual; stamens 4; plants aquatic; leaves sometimes of two kinds, submerged and floating.....
.....8. ZOSTERACEAE, p. 50

15a. Flowers unisexual; plants monoecious or dioecious....16

16. Flowers densely crowded in a terminal spike, the lower half pistillate, the summit staminate.....7. TYPHACEAE, p. 50

16a. Flowers crowded upon a fleshy or spongy axis (spadix), this often subtended by a spathe; leaves narrow to broad, parallel- or net-veined.....13. ARACEAE, p. 72

CLASS II. Dicotyledonese

Flower parts usually in 4's or 5's, rarely 3's; leaves usually net-veined; stems with vascular tissue arranged in ã circle surrounding a pith; 2 cotyledons per seed leaf.

Key to Sections

1. Plants epiphytes or parasites.....Section I

1a. Plants not epiphytes or parasites..... 2

2. Plants woody (trees, shrubs, or woody vines)... 4

2a. Plants herbaceous..... 3

3. Plants with small flowers closely aggragated on a common receptacle into a head subtended by an involucre; flowers gamopetalous, either tubular and regular or tubular at base only; ovary inferior.....110. COMPOSITAE, p.150

3a. Plants without above combination of specialized characteristics..... 5

4. Leaves opposite or whorled.....Section II

4a. Leaves alternate.....Section III

5. Flowers unisexual.....Section IV

5a. Flowers bisexual (perfect)..... 6

6. Calyx and corolla absent, or perianth in one circle.....Section V

6a. Calyx and corolla both present..... 7

7. Ovaries 2 or more in each flower.....Section VI

7a. Ovary 1..... 8

8. Ovary inferior.....Section VII

8a. Ovary superior..... 9

9. Stamens more numerous than the petals or lobes of the corolla..... 10

9a. Stamens just as many as the petals of the corolla or fewer..... 11

10. Flowers irregular.....Section VIII

10a. Flowers regular.....Section IX

11. Petals separate.....Section X

11a. Petals fused (gamopetalous)..... 12

12. Corolla regular; stamens same number as the lobes of the corolla.....Section XI

12a. Corolla either distinctly irregular or the stamens fewer than the lobes of the corolla .....Section XII

SECTION I

1. Plants twining, essentially without chlorophyll; leaves reduced to minute scales..... .....93. CONVOLVULACEAE, p.126

1a. Plants not twining; parasitic evergreen shrubs on the branches or trunks of deciduous trees..... .....31. LORANTHACEAE, p. 85

SECTION II

1. Leaves compound..... 2

1a. Leaves simple..... 8

2. Plants climbing or trailing..... 3

2a. Plants not climbing or trailing..... 4

3. Corolla absent; calyx regular; sepals 4, petaloid; stamens numerous.....42. RANUNCULACEAE, p.90

3a. Corolla well developed, irregular, 5 lobed; stamens 4.....101. BIGNONIACEAE, p.143

4. Petals well developed and conspicuous..... 5

4a. Petals none, or flowers absent..... 7

5. Petals fused (gamopetalous); shrubs..... .....106. CAPRIFOLIACEAE, p.147

5a. Petals separate; shrubs or trees..... 6

6. Leaflets 3; flowers in drooping racemes; stamens 5.....64. STAPHYLEACEAE, p. 113

6a. Leaflets 5-7; flowers in erect racemes or panicles; stamens 6-8...66. HIPPOCASTANACEAE, p.114

7. Leaflets 3-5; stamens commonly 8..... .....65. ACERACEAE, p.113

7a. Leaflets 7-11; stamens 2-4..... .....88. OLEACEAE, p.124

8. Trees..... 9

8a. Shrubs or undershrubs..... 15

9. Leaves whorled (characteristically 3 at a node), broadly cordate.....101. BIGNONIACEAE, p.143

9a. Leaves opposite..... 10

10. Leaves entire or toothed, but not lobed..... 11

10a. Leaves both toothed and lobed..... 14

11. Leaves obscurely to strongly serrate..... 12

11a. Leaves strictly entire; lateral veins strongly incurving toward leaf tip..... .....83. CORNACEAE, p.122

12. Twigs velvety.....29. MORACEAE, p. 84

12a. Twigs not velvety..... 13

13. Leaves broadly ovate to crenulate; primary veins arising from the lower two-thirds of the midvein, strongly incurving; trees of uplands..... .....83. CORNACEAE, p. 122

13a. Leaves oblong-ovate or ovate-lanceolate, obscurely serrate; veins pinnate throughout; shrubby trees of river swamps.....88. OLEACEAE, p. 124

14. Twigs velvety.....29. MORACEAE, p. 84

14a. Twigs not velvety.....65. ACERACEAE, p. 113

15. Stamens more numerous than the lobes of the corolla..... 16

15a. Stamens as many as the petals or corolla lobes, or fewer..... 18

16. Stamens 10 or fewer, overy superior..... .....76. LYTHRACEAE, p. 118

16a. Stamens more than 10..... 17

17. Flowers white, ovary 1,.....49. SAXIFRAGACEAE, p. 95

17a. Flowers yellow, leaves punctate with translucent dots.....72. GUTTIFERAE, p. 116

18. Petals separate..... 19

18a. Petals fused..... 20

19. Style short, not lobed; stamens alternate with petals.....63. CELASTRACEAE, p.113

19a. Style lobed or cleft; stamens opposite the petals.....68. RHAMNACEAE, p.114

20. Ovary inferior..... 21

20a. Ovary superior, stamens 2; corolla lobes 4.....88. OLEACEAE, p.124

21. Flowers numerous in dense spherical heads; leaves

entire.....105. RUBIACEAE, p. 145

21a. Flowers not in dense globose heads; leaves entire, toothed, or lobed.....106. CAPRIFOLEACEAE, p. 147

SECTION III

1. Plants with numerous flowers closely aggregated in involucrate heads, ovary inferior.....110. COMPOSITAE, p. 150

1a. Plants not as above..... 2

2. Leaves compound..... 3

2a. Leaves simple, entire to deeply lobed, but not compound..... 11

3. Leaves palmately compound or trifoliate..... 4

3a. Leaves pinnately or bipinnately compound..... 5

4. Plants climbing by tendrils, or in the absence of support sometimes trailing.....69. VITACEAE, p. 115

4a. Plants not climbing, shrubs or small trees.....57. RUTACEAE, p. 109

5. Leaves bipinnately compound..... 6

5a. Leaves pinnately compound..... 7

6. Plants high climbing vines.....69. VITACEAE, p. 115

6a. Plants erect, not climbing.....53. LEGUMINOSAE, p. 100

7. Leaves, when crushed, producing an odor of green walnuts.....26. JUGLANDACEAE, p. 78

7a. Leaves not producing an odor of green walnuts when crushed..... 8

8. Trees.....

8a. Shrubs or undershrubs.....

9. Lateral buds partially or wholly concealed by petioles; fruit a small dry drupe; pith large..... .....61. ANACARDIACEAE, p.112

9a. Lateral buds not concealed by petioles; fruit a nut, husk splitting along 4 lines; pith small, angled.....25. JUGLANDACEAE, p.78

10. Stamens 10, exert from gamapetalous flower; ovary 1; petals usually blue..... .....53. LEGUMINOSAE, p. 100

10a. Stamens more than 10, very numerous; petals separate, white, yellow, or red; ovaries numerous.....52. ROSACEAE, p. 96

11. Plants climbing or twining vines..... 12

11a. Plants not climbing or twining vines..... 15

12. Plants climbing by tendrils..... 13

12a. Plants climbing by twining..... 14

13. Pistil raised on a gynophore, styles 3; ovary 1-celled, with 3-5 parietal placentae and numerous ovules.....74. PASSIFLORACEAE, p.117

13a. Pistil not raised on a gynophore, styles1; ovary 2-celled, with 2 erect anatropus ovules in each cell.....69. VITACEAE, p.115

14. Stamens 12; pistils 3; leaves palmately veined.....43. MENISPERMACEAE, p.92

14a. Stamens 6; pistil 1; calyx tubular, s-shaped or pipe shaped.....32. ARISTOLOCHIACEAE, p.85

15. Leaves lobed..... 16

15a. Leaves entire to variously toothed but not lobed... 27

16. Flowers present..... 17

16a. Flowers absent (perennials flowering in spring)..... 19

17. Ovary or ovaries inferior..... 18

17a. Ovary superior; 5-many celled.....
.....71. MALVACEAE, p.115

18. Ovary simple; leaves palmately veined.....
.....49. SAXIFRAGACEAE, p.95

18a. Ovary compound; leaves pinnately veined.....
.....52. ROSACEAE, p. 96

19. Leaf-blade usually about as broad as long..... 20

19a. Leaf-blade usually averaging at least 1.5 times as long as broad..... 25

20. Leaves bilaterally and symmetrically lobed... 21

20a. Some leaves unlobed, others asymmetrically lobed..... 23

21. Leaf-tip truncate or broadly notched; leaves with one pair of broad, acute, lateral lobes.....
.....44. MAGNOLIACEAE, p. 92

21a. Leaf-tip acuminate; leaves with main veins and lobes essentially palmate..... 22

22. Leaves star-shaped with deep notches between lobes, margins with fine, regular serrations.
.....50. HAMMELIDACEAE, p. 96

22a. Leaves not star-shaped, with shallow sinuses; margins entire except for a few sinuate teeth.....51. PLANTANACEAE, p.96

23. Leaves coarsely serrate; fruit a multiple "berry". 24

23a. Leaves not serrate; fruit a drupe.....
.....45. LAURACEAE, p. 92

24. Leaves velvety on lower surface, bases oblique, petioles 5-10 cm. long; twigs velvety.....
.....29. MORACEAE, p.84

24a. Leaves not velvety, usually not oblique, petioles 2-4 cm. long; twigs not velvety.....
.....29. MORACEAE, p. 84

25. Leaves characteristically clustered at tips of twigs,

with very short internodes; prominantly lobed or coarsely and regularly toothed; pith 5-angled; fruit an acorn.....27. FAGACEAE, p.80

25a. Leaves not characteristically clustered at tips except on spur branches; if somewhat clustered, with glandular petioles; lobes of leaves less than 8 cm. long..... 26

26. Trees with some irregularly lobed leaves, harsh above; sap milky; fruit multiple and fleshy.. .....29. MORACEAE, p.84

26a. Sap not milky; fruit not multiple or fleshy; tall shrubs or low trees with thorny branches. .....52. ROSACEAE, p.96

27. Trees or shrubs whose branches and sometimes trunks bear various kinds of thorns..... 28

27a. Trees or shrubs without thorns..... 30

28. Leaves strictly entire..... 29

28a. Leaves variously toothed, sometimes lobed..... .....52. ROSACEAE, p. 96

29. Petioles 2-5 cm. long; leaves acuminate, usually rounded at the base; fruit multiple spherical; 10-15 cm. in diameter.....29. MORACEAE p. 84

29a. Petioles 1-2 cm. long; leaves acute to rounded at the apex, tapering at the base; fruit a cherry-like drupe.....86. SAPOTACEAE, p. 124

30. Trees or shrubs with hard, leathery, evergreen leaves..... 31

30a. Plant with leaves not as above.....32

31. Leaf margins undulate, all with a few stout spinose teeth.....62. AQUIFOLIACEAE, p.112

31a. Leaf margins entire or with small teeth; leaves less than 4 cm. in length; fruit a berry..... .....84. ERICACEAE, p.123

32. Corolla funnelform, the tube constricted above the ovary; stamens exert, the filaments hairy

at base; fruit a red berry.....
.....99. SOLANACEAE, p. 137

32a. Corolla not funnelform or flowers absent (perennials flowering spring)..... 33

33. Leaves strictly entire..... 34

33a. Leaves variously toothed..... 38

34. Leaves heart-shaped; fruit a legume.....
.....53. LEGUMINOSAE, p. 100

34a. Leaves not heart-shaped..... 35

35. Leaves characteristically clustered at tips of branches, fruit an acorn....27. FAGACEAE, p. 80

35a. Leaves not characteristically clustered at tips of branches, only one leaf at tip of each elongate branch; fruit a drupe or berry..... 36

36. Twigs and leaves spicy-aromatic.....
.....44. LAURACEAE, p. 92

36a. Twigs and leaves not spicy-aromatic..... 37

37. Pith solid, vein-scars 3....77. NYSSACEAE, p. 118

37a. Pith sometimes chambered, vain-scar 1.....
.....87. EBENACEAE, p. 124

38. Leaves about as long as broad..... 39

38a. Leaves about 1.5 times as long as broad..... 40

39. Leaves in 2 rows; pith cylindrical.....
.....70. TILIACEAE, p. 115

39a. Leaves in more than 2 rows; pith 5-angled.....
.....24. SALICACEAE, p. 77

40. Teeth of leaf-margins bristle-tipped.....
.....27. FAGACEAE, p. 80

40a. Teeth of leaf-margins not bristle-tipped..... 41

41. Leaves in 2 rows, more or less in one plane..... 42

41a. Leaves in more than two rows..... 45

42. Leaves with 2 prominent lateral veins from base of blade; lateral buds appressed; pith typically chambered....28. ULMACEAE, p. 82

42a. Leaves otherwise, pith continuous..... 43

43. Terminal bud long and tapering, at least 4 times as long as broad; leaves coarsely serrate; fruit a bur with two triangular nuts....27. FAGACEAE, p.80

43a. Terminal bud less than 4 times as long as broad, leaves finely or double serrate..... 44

44. Most leaves bilaterally symmetrical or nearly so.....26. CORYLACEAE, p. 79

44a. Most leaves decidedly lop-sided, especially at base; leaves doubly serrate..... .....28. ULMACEAE, p. 82

45. Leaf-blades at least as long as broad..... 46

45a. Leaf-blades less than 4 times as long as broad.... 47

46. Bud with one exposed scale..... .....24. SALICACEAE, p.77

46a. Bud with about 6 exposed scales..... .....52. ROSACEAE, p.96

47. Buds distinctly stalked; fruit a woody cone-like structure.....26. CORYLACEAE, p.79

47a. Buds not stalked; fruit otherwise..... 48

48. Petioles with one or more glands near the blade; fruit a drupe...52. ROSACEAE, p. 96

48a. Petioles without glands..... 49

49. Wood of twigs yellowish and ill-smelling; leaves obscurely toothed, with main veins ending in margins.....68. RHAMNACEAE, p.114

49a. Wood of twigs neither yellowish nor ill-smelling; leaves distinctly toothed with main lateral veins not extending to leaf margin..... 50

50. Vein-scars one.....62. AQUIFOLIACEAE, p. 112

50a. Vein-scars two or more.52. ROSACEAE, p. 96

SECTION IV

1. Leaves finely dissected into narrow thread-like or filiform segments, or leaves absent or reduced to minute scales; plants aquatic or sometimes on shores..... 2

1a. Leaves neither dissected or reduced to scales..... 3

2. Leaves palmately dissected, thread-like, divisions having one side minutely toothed.... .....40. CERATOPHYLLACEAE, p. 89

2a. Leaves pinnately-dissected..... .....80. HALORAGACEAE, p. 119

3. Leaves compound..... 4

3a. Leaves simple..... 7

4. Leaves tri-foliate or palmately compound..... 5

4a. Leaves pinnately compound, or ternately or pinnately decompound..... 6

5. Flowers in umbels or compound umbels; leaves alternate or basal.....82. UMBELLIFERAE, p. 119

5a. Flowers in spikes or panicles; leaves opposite.... .....42. RANUNCULACEAE, p. 90

6. Stem-leaves opposite; stamens numerous; pistils several to many.....42. RANUNCULACEAE, p. 90

6a. Stem-leaves alternate, flowers with calyx or corolla but not both, or perianth absent..... .....42. RANUNCULACEAE, p. 90

7. Leaves basal..... 8

7a. Leaves all or principally cauline..... 9

8. Flowers in short or elongate spikes..... .....104. PLANTAGINACEAE, p. 145

8a. Flowers in small open panicles.....
.....33. POLYGONACEAE, p. 85

9. Leaves opposite or whorled..... 10

9a. Leaves alternate..... 14

10. Foliage densely stellate-pubescent or lepidote
.....59. EUPHORBIACEAE, p. 110

10a. Foliage glabrous to pubescent..... 11

11. Flowers solitary; plants of mud, swamps, or shallow water, stamen 1; styles 2...60. CALLITRICHACEAE, p. 112

11a. Flowers in axillary or terminal clusters..... 12

12. Inflorescence axillary..... 13

12a. Inflorescence terminal; petals lacking.....
.....35. AMARANTHACEAE, p. 87

13. Leaves entire or nearly so.....
.....104. PLANTAGINACEAE, p.145

13a. Leaves distinctly serrate; style 1, stamens 4 or 5.....30. UTRICACEAE, p. 84

14. Foliage densely stellate-tomentose or lepidote.....59. EUPHORBIACEAE, p. 110

14a. Foliage glabrous or pubescent, not stellate-tomentose..... 15

15. Calyx and corolla both present..... 16

15a. Calyx present or absent; corolla always lacking (calyx petal-like in one species)..... 19

16. Plants climbing or twining vines; stamens 3 or 6..... 17

16a. Plants erect or spreading or creeping but not climbing or twining; stamens more than 6..... 18

17. Plants twining; sepals, petals, and stamens 6; pistils 3 or 6.....43. MENISPERMACEAE, p. 92

17a. Plants climbing by tendrils; stamens 3; pistil 1;

ovary inferior.....108. CURCURBITACEAE, p.149

18. Leaves sessile or nearly so, fleshy; stamens 8 or 10; pistils 4 or 5.....48. CRASSULACEAE, p. 95

18a. Leaves distinctly petioled; pistils and stamens more than 5; flowers solitary.....52. ROSACEAE, p. 96

19. Flowers in small axillary clusters, always individually very small..... 20

19a. Flowers in spikes, racemes, or panicles, usually terminal..... 26

20. Key for pistillate flowers..... 21

20a. Key for staminate flowers..... 23

21. Style 1, unbranched.....30. URTRICACEAE, p. 84

21a. Styles 2 or 3..... 22

22. Styles 2 or 3, unbranched; sepals and bracts acute, scarious.....35. AMARANTHACEAE, p. 87

22a. Styles 3, each 2-lobed or branched.....59. EUPHORBIACEAE, p. 110

23. Flowers or flower-clusters subtended and often exceeded by bracts..... 24

23a. Flower or flower-clusters not bracted; leaves with stipules.....59. EUPHORBIACEAE, p.110

24. Bracts foliaceous, lobed or cleft.....59. EUPHORBIACEAE, p.110

24a. Bracts entire..... 25

25. Sepals and bracts scarious, acute.....35. AMARANTHACEAE, p.87

25a. Sepals and bracts herbaceous.....30. URTRICACEAE, p.84

26. Sepals petal-like in their size and color; leaves entire, stems glabrous.....37. PHYTOLACCACEAE, p.88

26a. Sepals minute or none, or green or pale, not petal-like in character..... 27

27. Divisions of the perianth 6, in two circles..... .....33. POLYGONACEAE, p. 85

27a. Divisions of the perianth 5, or fewer, or perianth lacking..... 28

28. Sepals acute, scarious, mingled with similar acute scarious bracts..... .....35. AMARANTHACEAE, p.87

28a. Sepals not acute, or not scarious, or not subtended by scarious bracts..... 29

29. Key for pistillate flowers or fruit..... 30

29a. Key for staminate flowers..... 31

30. Ovary 3-celled; fruit a 3-celled capsule with 3 or 6 seeds.....59. EUPHORBIACEAE, p.110

30a. Ovary 1-celled; fruit a one-seeded utricle... .....34. CHENOPODIACEAE, p. 87

31. Sepals more or less united into a 2-5 lobed calyx.....59. EUPHORBIACEAE, p. 110

31a. Sepals separate.....34. CHENOPODIACEAE, p. 87

SECTION V

1. Perianth absent..... 2

1a. Perianth present, in one circle..... 4

2. Aquatic plants, either submersed or growing on wet shores after recession of the water; stamens 4-8.....80. HALORAGIDACEAE, p. 119

2a. Plants of land or shallow water; if in water, the stems erect and rising above the surface.. 3

3. Leaves entire, cordate.....23. SAURURACEAE, p. 77

3a. Leaves deeply lobed or compound..... .....42. RANUNCULACEAE, p. 90

4. Ovary inferior..... 5

4a. Ovary superior..... 11

5. Stamens more numerous than the lobes or divisions of the perianth; plants of muddy shores, or wet soil.....80. HALORAGIDACEAE, p. 119

5a. Stamens as many as or fewer than the lobes or divisions of the perianth..... 6

6. Leaves opposite or whorled..... 7

6a. Leaves alternate or basal..... 9

7. Flowers in dense terminal heads, subtended by green bracts.....107. DIPSACACEAE, p. 149

7a. Flowers not in dense terminal heads..... 8

8. Leaves whorled.....105. RUBIACEAE, p. 145

8a. Leaves opposite; flowers axillary, few or solitary; stamens 4; style 1.....79. ONAGRACEAE, p. 118

9. Stamens 4 or fewer; divisions of the perianth 3 or 4; styles 1 or 3..... 10

9a. Stamens 5; divisions or lobes of the perianth 5; styles 2.....82. UMBELLIFERAE, p. 119

10. Divisions of perianth 3; stamens 3; styles 3.....80. HALORAGIDACEAE, p.119

10a. Divisions of perianth 4; stamens 4; style 1.....79. ONAGRACEAE, p. 118

11. Ovaries more than one in each flower, each with its own style and stigma..... 12

11a. Ovary 1 on each flower (the styles or stigmas may be plural)..... 15

12. Plants aquatic, the leaves submersed and dissected or floating, or emersed and centrally peltate.....41. NYMPHACEAE, p. 90

12a. Plants of land or marshes, the leaves not

submersed or floating or peltate..... 13

13. Pistils separate and distinct from each other.... .....42. RANUNCULACEAE, p. 90

13a. Pistils united nearly or quite to their middle... 14

14. Leaves entire; flowers in simple racemes.... .....37. PHYTOLACCACEAE, p.88

14a. Leaves serrate; flowers in forked cymes..... .....48. CRASSULACEAE, p. 95

15. Stamens more than twice as many as the parts or lobes of the perianth..... 16

15a. Stamens twice as many as the parts or lobes of the perianth, or fewer..... 18

16. Perianth well developed, brightly colored; leaves entire, large, deeply cordate at base; aquatic or mud plants..41. NYMPHAEACEAE, p. 90

16a. Perianth small and inconspicuous, pale or greenish..... 17

17. Leaves compound, alternate; flowers in terminal racemes.....42. RANUNCULACEAE, p. 90

17a. Leaves simple, opposite or whorled; flowers axillary.....38. AIZOACEAE, p. 88

18. Styles two or more..... 19

18a. Style one or none..... 25

19. Leaves basal or crowded near the base, broad, palmately veined and lobed..49. SAXIFRAGACEAE, p. 95

19a. Leaves all or chiefly cauline..... 20

20. Leaves opposite or whorled..... 21

20a. Leaves alternate..... 22

21. Ovary and capsule one-celled..... .....39. CARYOPHYLLACEAE, p. 88

21a. Ovary and capsule 3-5 celled..... .....38. AIZOACEAE, p. 88

22. Stamens 10; styles 5 or 10..... 23

22a. Stamens fewer than 10; styles 2-5..... 24

23. Flowers in simple racemes; leaves entire.....
.....37. PHYTOLACCACEAE, p.88

23a. Flowers in forked racemes; leaves serrate.....
.....48. CRASSULACEAE, p. 95

24. Stipules sheathing the stem above the base of each leaf; fruit an achene.....
.....33. POLYGONACEAE, p. 85

24a. Stipules none; stamens as many as the sepals or fewer.....34. CHENOPODIACEAE, p.87

25. Stamens more numerous than the lobes or divisions of the perianth..... 26

25a. Stamens as many as the lobes or parts of the perianth, or fewer..... 29

26. Divisions of the perianth 5..... 27

26a. Divisions of the perianth 4..... 28

27. Leaves compound, tri-foliate.....
.....53. LEGUMINOSAE, p. 100

27a. Leaves simple, flowers axillary or nearly so.....
.....38. AIZOACEAE, p.88

28. Leaves alternate or basal, plants apetalous..
.....47. CRUCIFERAE, p. 93

28a. Leaves opposite.....76. LYTHRACEAE, p.118

29. Leaves alternate, simple; parts of perianth 4; stamens 4.....30. UTRICACEAE, p.84

29a. Leaves opposite or rarely whorled..... 30

30. Flowers or flower-clusters axillary, sessile or nearly so; perianth 4-lobed.....
.....76. LYTHRACEAE, p.118

30a. Flowers terminal or in terminal inflorescences 31

31. Flowers in capitate or umbellate clusters subtended by a conspicuous 5-lobed or 5-parted involucre.... .....36. NYCTAGINACEAE, p. 87

31a. Flowers in loose open cymes or panicles; leaves linear to narrowly elleptic, sessile..... .....39. CARYOPHYLLACEAE, p.88

SECTION VI

1. Style one for each flower, often divided above into two or more branches..... 2

1a. Styles as many as the ovaries, or in some plants not or scarcely developed at all..... 4

2. Ovaries 2; stamens 5....91. APOSYNACEAE, p.125

2a. Ovaries 4; stamens 2-5..... 3

3. Leaves alternate; corolla usually regular; stamens 5.....96. BORAGINACEAE, p.128

3a. Leaves opposite; corolla usually irregular; stamens 2 or 4.....97. LABIATAE, p.130

4. Flower irregular; stamens 5; leaves serrate or lobed.....49. SAXIFRAGACEAE, p.95

4a. Flowers regular..... 5

5. Petals united for a part of their length into a tubular or salverform corolla..... 6

5a. Petals separate..... 7

6. Leaves opposite.....91. APOCYNACEAE, p.125

6a. Leaves alternate; plants erect..... .....91. APOCYNACEAE, p.125

7. Leaves rotund, centrally peltate; flowers solitary, 12-25 cm. wide.....41. NYMPHAEACEAE, p.90

7a. Leaves not centrally peltate; flowers of smaller size..... 8

8. Cauline leaves opposite or whorled; ovaries 3-5.....48. CRASSULACEAE, p.95

8a. Cauline leaves alternate or all leaves basal.. 9

9. Hypanthium none; sepals separate to the base..... .....42. RANUNCULACEAE, p. 90

9a. Hypanthium present, appearing like a calyx-tube, saucer-shaped or cup-shaped, bearing the sepals and petals at its margin..... 10

10. Pistils as many as the petals or more numerous..... 11

10a. Pistils fewer than the petals..... 12

11. Leaves compound or distinctly lobed..... .....52. ROSACEAE, p. 96

11a. Leaves simple, entire or serrate..... .....48. CRASSULACEAE, p. 95

12. Leaves simple or shallowly lobed..... .....49. SAXIFRAGACEAE, p. 95

12a. Leaves tri-foliate or once-pinnately compound; flowers yellow.....52. ROSACEAE, p.96

SECTION VII

1. Stamens more numerous than the petals..... 2

1a. Stamens as many as the petals or corolla-lobes, or fewer..... 5

2. Stamens twice as many as the petal or the sepals, commonly 8 or 10, rarely 12..... 3

2a. Stamens more than twice as many as the sepals or petals, 20 or more; leaves absent; stems thick and fleshy, spiny..... .....75. CACTACEAE, p. 118

3. Style 1, sometimes elongate, sometimes short or almost lacking..... 4

3a. Styles 2.....49. SAXIFRAGACEAE, p.95

4. Land plants; corolla evident, white, yellow, pink, or purple.....79. ONAGRACEAE, p.118

4a. Water or mud plants, petals bright yellow, 1 cm. or longer.....79. ONAGRACEAE, p. 118

5. Petals separate..... 6

5a. Petals united into a gamopetalous corolla..... 9

6. Petals 4 or 2; stamens 4 or 2.....79. ONAGRACEAE, p.118

6a. Petals 5..... 7

7. Flowers in umbels; leaves alternate or basal, simple or compound.....82. UMBELLIFERAE, p. 119

7a. Flowers not in umbels..... 8

8. Flowers in panicles or cymes, or solitary on a scape; leaves simple....49. SAXIFRAGACEAE, p.95

8a. Flowers in slender, terminal, spike-like racemes; petals yellow; leaves pinnately compound.....52. ROSACEAE, p. 96

9. Stem-leaves alternate..... 10

9a. Stem-leaves opposite or whorled, or leaves all basal..... 12

10. Corolla irregular, split along the upper side, the syngenesious stamens protruding.....109. CAMPANULACEAE, p. 149

10a. Corolla regular..... 11

11. Corolla 2-3 mm. wide; flowers in terminal racemes.....85. PRIMULACEAE, p. 123

11a. Corolla much larger, or flowers in dense terminal heads.....109. CAMPANULACEAE, p. 149

12. Leaves in whorls of 4-8.....105. RUBIACEAE, p. 145

12a. Leaves opposite or basal..... 13

13. Stipules present; leaves entire to roughly ciliate.....105. RUBIACEAE, p. 145

13a. Stipules none..... 14

14. Flowers axillary and sessile.....
.....106. CAPRIFOLIACEAE, p. 147

14a. Flowers in dense heads.....
.....107. DIPSACACEAE, p. 149

SECTION VIII

1. Sepals, or a part of them, petal-like in size or consistency or color, or prolonged into a spur... 2

1a. Sepals not petal-like in form or color, often green..... 3

2. None of the sepals prolonged into a spur; stamens 6 or 8; leaves nearly or quite entire.....58. POLYGALACEAE, p.109

2a. One of the sepals prolonged into a spur or sac; stamens 5; leaves crenate or serrate.....
.....67. BALSAMINACEAE, p. 114

3. Lower two petals connivent or united along their lower margin, appressed to each other and enclosing the 10 (rarely 9) stamens; leaves simple or once-compound.....53. LEGUMINOSAE, p.100

3a. Lower two petals separate, not enclosing the stamens..... 4

4. Leaves compound..... 5

4a. Leaves simple, entire to deeply lobed..... 6

5. Leaves pinnately compound or bipinnately compound.....53. LEGUMINOSAE, p.100

5a. Leaves palmately compound...56. GERANIACEAE, p.109

6. Leaves palmately lobed or cleft.....
.....56. GERANIACEAE, p.109

6a. Leaves entire or nearly so.....
.....76. LYTHRACEAE, p.118

SECTION IX

1. Leaves reduced to scales, opposite; flowers bright yellow.....72. GUTTIFERAE, p. 116

1a. Leaves not reduced to scales..... 2

2. Stamens more than twice as many as the petals. 3

2a. Stamens twice as many as the petals, or fewer. 7

3. Aquatic plants with large basal leaves..... .....41. NYPHAEACEAE, p. 90

3a. Land plant with opposite or alternate leaves (basal leaves may also be present)..... 4

4. Leaves simple..... 5

4a. Leaves compound..... 6

5. Style one.....73. CISTACEAE, p. 117

5a. Styles 2 to several; leaves opposite; flowers yellow.....72. GUTTIFERAE, p. 116

6. Leaves once-palmately compound..... .....46. CAPPARIDACEAE, p. 93

6a. Leaves twice or thrice compound; flowers in slender open racemes....42. RANUNCULACEAE, p. 90

7. Stamens just twice as many as the petals..... 8

7a. Stamens more than the petals, but fewer than twice as many..... 19

8. Sepals 6 or more; petals 6 or more; style 1... .....76. LYTHRACEAE, p. 118

8a. Sepals 4 or 5; petals 4 or 5..... 9

9. Leaves compound, or divided nearly or quite to the base..... 10

9a. Leaves simple, entire or merely serrate, or shallowly lobed..... 13

10. Leaves opposite; flowers pink to red or

purple, or nearly white; leaves palmately divided or dissected....56. GERANIACEAE, p.109

10a. Leaves alternate..... 11

11. Styles 5, leaves tri-foliate.....
.....55. OXALIDACEAE, p.109

11a. Style 1..... 12

12. Leaves palmately compound.....
.....46. CAPPARIDACEAE, p. 93

12a. Leaves pinnately or bipinnately compound.....
.....53. LEGUMINOSAE, p. 100

13. Style one..... 14

13a. Styles two or more..... 16

14. Hypanthium cup-shaped or tubular, bearing the sepals and petals at or near its margins..... 15

14a. Hypanthium none; sepals dissimilar in width..
.....73. CISTACEAE, p. 117

15. Anthers opening longitudinally.....
.....76. LYTHRACEAE, p. 118

15a. Anthers opening by terminal pores.....
.....78. MELASTOMACEAE, p. 118

16. Ovary lobed, each lobe bearing a style..... 17

16a. Ovary not lobed, the styles arising together from its summit; leaves always opposite..... 18

17. Styles 2; leaves all or chiefly basal, the cauline none, or few and small, or a single pair only.....
.....49. SAXIFRAGACEAE, p. 95

17a. Styles 4 or 5; leaves all or chiefly cauline.....
.....48. CRASSULACEAE, p. 95

18. Flowers yellow.....72. GUTTIFERAE, p. 116

18a. Flowers white to red or purple, never yellow.....39. CARYOPHYLLACEAE, p. 88

19. Styles 2-5; leaves entire, opposite or whorled.... 20

19a. Style 1; leaves alternate in almost all species... 21

20. Flowers yellow.....72. GUTTIFERAE, p.116

20a. Flowers not yellow.....39. CARYOPHYLLACEAE, p.88

21. Sepals 4; petals 4; stamens 6, 4 long and 2 short. .....47. CRUCIFERAE, p.93

21a. Sepals and petals not as above..... 22

22. Sepals 6; petals 6; stamens 11..... .....76. LYTHRACEAE, p.118

22a. Sepals or lobes or the calyx 5; petals 3 or 5..... 23

23. Leaves simple; petals 3; stamens 6-9..... .....73. CISTACEAE, p.117

23a. Leaves compound.....53. LEGUMINOSAE, p.100

SECTION X

1. Leaves compound; flowers sessile or nearly so, yellow.....53. LEGUMINOSAE, p.100

1a. Leaves entire to deeply lobed..... 2

2. Leaves opposite..... 2

2a. Leaves alternate or basal..... 10

3. Leaves deeply palmately lobed..... .....56. GERANIACEAE, p.109

3a. Leaves entire to serrate..... 4

4. Style 1..... 5

4a. Styles 2-5..... 7

5. Hypanthium well developed, cup-shaped to tubular, bearing the sepals and petals at or near its margin.....76. LYTHRACEAE, p.118

5a. Hypanthium none..... 6

6. Stamens alternate with the divisions of the corolla.....90. GENTIANACEAE, p.125

6a. Stamens opposite the divisions of the corolla.....85. PRIMULACEAE, p. 123

7. Ovary and capsule 4-5 celled..... .....54. LINACEAE, p. 108

7a. Ovary and capsule 1-celled..... 8

8. Flowers yellow.....72. GUTTIFERAE, p. 116

8a. Flowers white to pink, red, or lilac..... 9

9. Petals separate to base.....39. CARYOPHYLLACEAE, p. 88

9a. Petals united at base.....90. GENTIANACEAE, p. 125

10. Leaves shallowly to deeply palmately lobed... 11

10a. Leaves entire, serrate, crenate, or pinnately lobed..... 12

11. Flowers containing a conspicuous fringed corona, climbing or trailing vines..74. PASSIFLORACEAE, p. 117

11a. Flowers without corona; styles 2 (rarely 3); petals 5.....49. SAXIFRAGACEAE, p. 95

12. Styles 2 or more; leaves cauline..... .....54. LINACEAE, p. 108

12a. Style 1 or none..... 13

13. Petals and sepals each 5; leaves entire or serrate; flowers in a terminal umbel or raceme..... .....85. PRIMULACEAE, p. 123

13a. Petals and sepals each 4....47. CRUCIFERAE, p. 93

SECTION XI

1. Leaves regularly bipinnately compound; flowers in dense peduncled axillary heads; stamens exert far beyond the corolla.....53. LEGUMINOSAE, p. 100

1a. Leaves or inflorescence not as above..... 2

2. Leaves basal; inflorescence terminating a scape; flowers 4-merous.....104 PLANIAGINACEAE, p. 145

2a. Leaves all or chiefly cauline..... 3

3. Ovary deeply lobed, appearing like 2 or 4 separate ovaries..... 4

3a. Ovary 1, not conspicuously lobed or divided..... 5

4. Leaves opposite.....98. LABIATAE, p. 130

4a. Leaves alternate; style 1; ovary 4 lobed..... .....96. BORAGINACEAE, p.128

5. Leaves opposite or whorled, never compound, dissected, or deeply lobed..... 6

5a. Leaves alternate..... 13

6. Flowers in dense heads or short spikes; corolla 4-lobed or 4-divided..... 7

6a. Flowers not in dense heads, but in some plants on short crowded racemes; corolla 4-12 lobed or divided..... 8

7. Corolla scarious; leaves linear..... .....104. PLANTAGINACEAE, p.145

7a. Corolla herbaceous, white or colored; leaves broad to linear.....97. VERBENACEAE, p.129

8. Stamens distinctly opposite the corolla lobes. .....85. PRIMULACEAE, p.123

8a. Stamens alternate the corolla lobes..... 9

9. Leaves connected at base by a stipular line..... .....89. LOGANIACEAE, p.124

9a. Leaves with no trace of stipules..... 10

10. Lobes of the corolla 5..... 11

10a. Lobes of the corolla 4 or 6-12..... .....90. GENTIANACEAE, p.125

11. Stigmas 3.....94. POLEMONIACEAE, p.127

11a. Stigmas 1, either capitate or 2-lobed..... 12

12. Ovary 1-celled; leaves entire.....
.....90. GENTIANACEAE, p.125

12a. Ovary 2-celled or rarely 4-celled; leaves almost always more or less dentate or angled.....
.....99. SOLANACEAE, p.137

13. Leaves conspicuously lobed, dissected or compound.. 14

13a. Leaves entire or serrate, or even shallowly lobed.. 19

14. Twining vines, or sometimes merely trailing if a support is lacking..... 15

14a. Erect or spreading or prostrate plants, never twining..... 16

15. Corolla funnelform.....93. CONVOLVULACEAE, p.126

15a. Corolla rotate.....99. SOLANACEAE, p.137

16. Corolla rotate or saucer-shaped..... 17

16a. Corolla campanulate to funnelform, tubular, or salverform..... 18

17. Anthers all, or all but one, connivent around the style; petals entire.....99. SOLANACEAE, p.137

17a. Anthers separate; petals fringed.....
.....95. HYDROPHYLLACEAE, p.128

18. Ovary 3-celled; style-branches or stigmas 3...
.....94. POLMONIACEAE, p.127

18a. Ovary 1-celled; style-branches or stigmas 2...
.....95. HYDROPHYLLACEAE, p.128

19. Flowers or flower clusters axillary or lateral..... 20

19a. Flower or flower clusters terminal..... 23

20. Stigmas 2-4.....93. CONVOLVULACEAE, p.126

20a. Stigmas 1..... 21

21. Plants twining vines..... 22

21a. Plants not twining; stems spreading or prostrate to erect.....99. SOLANACEAE, p. 137

22. Corolla large, funnelform or salverform..... .....93. CONVOLVULACEAE, p. 126

22a. Corolla rotate; stamens connivent..... .....99. SOLANACEAE, p.137

23. Flowers solitary and terminal..... 24

23a. Flowers several to many in terminal clusters..... 25

24. Corolla 15 mm. long or less..... .....96. BORAGINACEAE, p.128

24a. Corolla 7 cm. long or longer..... .....99. SOLANACEAE, p.137

25. Corolla rotate or saucer-shaped..... 26

25a. Corolla companulate to funnelform or salverform... 27

26. Anthers separate; filaments, or some of them, hairy.....100. SCROPULARACEAE, p.139

26a. Anther connivent; filaments short or smooth.. .....99. SOLANACEAE, p.137

27. Flowers about 2 mm. wide, white, in an open raceme.....85. PRIMULACEAE, p.123

27a. Flowers 3-6 mm. wide, white to blue, in a bractless scorpoid spike.....96. BORAGINACEAE, p.128

SECTION XII

1. Anther bearing stamens 5; ovary deeply 4-lobed around the base of the central style..... .....96. BORAGINACEAE, p.128

1a. Anther bearing stamens 2 or 4 or rarely 3..... 2

2. Corolla prolonged at base into a spur or sac; calyx deeply 5 parted; leaves all or mostly cauline.....100. SCROPHULARACEAE, p.139

2a. Corolla not spurred or saccate at base..... 3

3. Leaves alternate or basal..... 4

3a. Leaves opposite or whorled..... 6

4. Stamens 2..... 5

4a. Stamens 4.....100. SCROPHULARACEAE, p.139

5. Plants with leafy stems or bracteate scape.....
.....100. SCROPHULARACEAE, p.139

5a. Plants with leafless scape bearing a slender or stout or interrupted spike..104. PLANTAGINACEAE, p.145

6. Ovary ddeply 4-lobed; stems usually square.....
.....98. LABIATAE, p. 130

6a. Ovary not conspicuously 4-lobed..... 7

7. Stamens 2..... 8

7a. Stamens 4..... 11

8. Corolla scarious.....104. PLANTAGINACEAE, p.145

8a. Corolla herbaceous in texture..... 9

9. Flowers in terminal racemes or spikes, or solitary or paired in the axils of the leaves.....
.....100. SCROPHULARACEAE, p.139

9a. Flowers in axillary racemes or spikes..... 10

10. Corolla almost regular, the 4-lobed limb longer than the tube...100. SCROPHULARACEAE, p.139

10a. Corolla distinctly bilateral.....
.....102. ACANTHACEAE, p.144

11. Corolla distinctly bilabiate or very irregular..... 12

11a. Corolla nearly regular and about equally lobed, the upper lip sometimes slightly smaller than the lower, or the corolla more or less oblique across the limb..... 15

12. Flowers in dense, peduncled, axillary heads or short-cylindric axillary spikes.....
.....97. VERBENACEAE, p.129

12a. Flowers racemose, or paniculate, or in terminal spikes, or solitary in the axils..... 13

13. Upper lip of the corolla very small or apparently lacking or apparently composed of 4 lobes.....98. LABIATAE, p. 130

13a. Upper lip of the corolla well developed, composed of 2 lobes..... 14

14. Calyx very regular, the 3 upper lobe subulate, the 2 lower short and broad.....103. PHYMACEAE, p. 145

14a. Calyx regular or irregular, 2-lobed, 4-lobed, or 5-lobed, but never with subulate upper lobes.....
.....100. SCROPHULARACEAE, p. 139

15. Corolla salverform; stamens inserted near the middle of the corolla-tube.....
.....97. VERBENACEAE, p. 129

15a. Corolla funnelform or campanlate, with a broad tube widened upward..... 16

16. Calyx 5-lobed; much exceeding the short tube; flowers blue or purple.....
.....102. ACANTHACEAE, p. 144

16a. Calyx 4-lobed; or short and relatively broad; flowers yellow.....100. SCROPHULARACEAE, p. 139

CHAPTER V

KEY TO GENERA AND SPECIES

DIVISION I. PTERIDOPHYTA

1. EQUISETACEAE (Horsetail Family)

1. EQUISETUM L.

1. Aerial stems soft and flexible, profusely branched; plants decumbent or erect, aerial part 1.5-6 dm. long.....(1) E. arvense

1a. Aerial stems hard and rigid, simple or sparsely branched; plants erect, 2-15 dm. tall or more.....
.....(2) E. hyemale

(1) E. arvense L. Field Horsetail.
(2) E. hyemale L. Scouring Rush.

2. LYCOPODIACEAE (Club-Moss Family)

1. LYCOPODIUM L. Club-Moss

(1) L. lucidulum Michx. Shining Club-Moss. July-Sept.

3. SELAGINELLACEAE (Selaginella Family)

1. SELAGINELLA Beauv. Spikemoss

(1) S. apoda (L.) Fern. Meadow Spikemoss. May-Nov.

4. OPHIOGLOSSACEAE (Adder's-Tongue Family)

1. Sterile segment of leaf divided, veins free; fertile segment branched and bearing more or less stalked sporangia.....1. BOTRYCHIUM

1a. Sterile segment simple, veins netted; fertile segment simple and bearing sunken sporangia in two rows at apex.....2. OPHIOGLOSSUM

1. BOTRYCHIUM Sw. Grape Fern

1. Common petiole of sterile and fertile leaf segments raised well above ground; sterile blades deciduous.....(1) B. virginianum

1a. Common petiole of sterile and fertile leaf segments terminating at ground level; sterile blades evergreen.....(2) B. dissectum

(1) B. virginianum (L.) Sw. Rattlesnake Fern April-July.
(2) B. dissectum Spreng. Common Grape Fern. Aug.-Nov.

2. OPHIOGLOSSUM L. Adder's Tongue

(1) O. engelmanni Prantl. Adder's Tongue. March-Oct.

5. POLYPODIACEAE (Fern Family)

1. Fronds of two kinds, the fertile not leaf-like; sporangia borne inside of rolled-up, much contracted leaflet segments; sterile blades deeply pinnatifid, net veined.....5. ONOCLEA

1a. Fronds similar, fertile ones not differing essentially from the sterile; veins free..... 2

2. Sporangia borne at the edge of the lobes or segments, either in definite sort or as a continuous marginal line, covered by a reflexed portion of the edge of the leaf blade..... 3

2a. Sporangia not borne at the edge of the lobes, or, if apparently at the edge not covered by a reflexed portion of the edge of the blade, usually borne in definite sori distinctly apart from the margin..... 6

3. Ultimate segments usually 1-4 mm. long, stipe long, the lobes and rachis usually conspicuously hairy beneath.....4. CHEILANTHES

3a. Ultimate segments usually 8 mm. or more long, stipe and rachis usually smooth or only slightly hairy... 4

4. Sporangia borne in a continuous marginal line; ultimate lobes or segments not wedge-shaped at base..... 5

4a. Sporangia not borne in a continuous marginal line; segments wedge shaped at base.....2. ADIANTUM

5. Frond axes greenish or straw-colored; blades bipinnate-pinnatifid to tripinnate-pinnatifid, more or less horizontal; rhizome relatively deep, long, and producing leaves at wide intervals.....1. PTERIDIUM

5a. Frond axes dark-brown or purplish; blades pinnate or bipinnate at base and ascending; rhizome emergent, short (2-5 cm.), producing leaves in a cluster..... .....3. PELLAE

6. Indusium with a linear attachment; sori elongated, often curved..... 7

6a. Indusium attached at a point; sori more or less circular, covered by indusia..... 8

7. Fronds relatively small, 5-30 cm. long, evergreen; sori straight to only slightly curved.....6. ASPLENIUM

7a. Fronds relatively large, 30-100 cm. long, deciduous; sori straight to conspicuously curved.....7. ANTHYRIUM

8. Indusia circular, attached by the center or slightly to one side, hence covering the sorus on top..... 9

8a. Indusia attached on the side toward the midvein, hood-like, but early pressed back by the expanding sporangia.....8. CYSTOPTERIS

9. Indusia without a groove on one side...10. POLYSTICHUM

9a. Indusia with a groove on one side.....9. DRYOPTERIS

1. PTERIDIUM Gled. Bracken

(1) P. aquilinum (L.) Kuhn. Bracken Fern. July-Sept.

2. ADIANTUM L. Maidenhair

(1) A. pedatum L. Maidenhair Fern. May-Aug.

3. PELLAEA Link. Cliff-Brake

(1) P. atopurpurea (L.) Link. Purple Cliff-Brake. May-Sept.

4. CHEILANTHES Sw. Lip-Fern

1. Blades glabrous or nearly so on lower surface.....(1) C. alabamensis

1a. Blades conspicuously pubescent on lower surface.....(2) C. vestita

(1) C. alabamensis (Buckl.) Kunze. Alabama Lip-Fern. Aug.-Oct.
(2) C. vestita (Spreng.) Sw. Hairy Lip-Fern. June-Sept.

5. ONOCLEA L. Sensitive Fern

(1) O. sensibilis L. Sensitive Fern. June-Nov.

6. ASPLENIUM L. Spleenwort

1. Stipe at least brown, purple-brown, or black at base or completely green. Blades 2 divided, at least at base, the lower leaflets divided into two distinct pinnules.....(1) A. crytolepis

1a. Stipe as well as main axis (rachis) of blade completely green; blades only 1 divided, the leaflets not divided into segments.....(2) A. platyneuron

(1) A. crytolepis Fern. Wall-Rue Spleenwort. May-Sept.
(2) A. platyneuron (L.) Oakes. Ebony Spleenwort. April-Sept.

7. ANTHYRIUM Roth

(1) A. pycnocarpon (Spreng.) Tidestr. Glade Fern. July-Sept.

8. CYSTOPTERIS Bernh. Bladder Fern

1. Bulblets on underside of frond well developed, spherical and smooth, borne on both rachises of blade and upon leaflets, 2-3 mm. in diameter.....(1) C. bulbifera

1a. Bulblets on underside of frond deformed and scaly, borne very sparsely on rachises of blade only; .1-1.5 mm. long.....(2) C. tennesseensis

(1) C. bulbifern (L.) Bernh. Bulblet Fern. June-Sept.

(2) C. tennesseensis Shaver. Tennessee Bladder Fern. April-June.

9. DRYOPTERIS Adans. Shield Fern

(1) D. hexagonoptera (Michx.) Christens. Broad Beech Fern. June-

10. POLYSTICHUM Roth. Holly Fern

(1) P. acrostichoises (Michx.) Schott. Christmas Fern. May-

DIVISION II. SPERMATOPHYTA

Subdivision I. Gymnospermae. Conifers

6. PINACEAE (Pine Family)

1. Leaves in groups of two or more, 3-7 cm. long..... ..... 1. PINUS

1a. Leaves short (less than 1 cm. long), scale-like or needle-like, not in groups..... 2. JUNIPERUS

1. PINUS L. Pine

(1) P. virginiana Mill. Virginia Pine

2. JUNIPERUS L. Cedar

(1) J. virginiana L. Red Cedar.

Subdivision II. Angiospermae. Flowering Plants

Class I. Monocotyledonae

7. TYPHACEAE (Cat-tail Family)

1. TYPHA L. Cat-tail. May-July.

(1) T. latifolia L. Common Cat-tail. May-July.

8. ZOSTERACEAE (Pondweed Family)

1. Some or all of the leaves over 5 mm. broad, broadly oblong or ovate, chiefly alternate (upper-most sometimes opposite)..... 1. POTAMAGETON

1a. All the leaves thread-like or very narrow, less than 3 mm. broad, and opposite..... 2. ZANNICHELLIA

1. POTAMAGETON L. Pondweed

(1) P. diversifolius Raf. Pondweed. June-Sept.

2. ZANNICHELLIA L. Horned Pondweed

(1) Z. palustris L. Horned Pondweed. June-Oct.

9. ALISMATACEAE (Water-Plantain Family)

1. ALISMA L. Water Plantain

(1) A. subcordatum Raf. Water Plantain. June-Sept.

10. HYDROCHARITACEAE (Frog's-Bit Family)

1. ELODEA Michx. Waterweed.

(1) E. canadensis Michx. Waterweed. July-Sept.

11. GRAMINEAE (Grass Family)

1. Spikelets laterally compressed, as if from the side, articulating or separating above the persistent glumes; florets 1-many flowered, rarely unisexual; species herbaceous, woody or bamboo-like..... 2

1a. Spikelets dorsally compressed, articulated below the glumes; florets 1; sometimes spikelets paired, one usually sessile, the other pedicellate and mostly sterile; or all spikelets unisexual; plants herbaceous.. 27

2. Plants tall, woody, leafy, with overlapping sheaths..... 1. ARUNDINARIA

2a. Plants herbaceous..... 3

3. Spikelets sessile, arranged either on 1 side or opposite sides of the rachis or central axis; spikes solitary, terminal, or if several, racemose or digitate..... 4

3a. Spikelets pedicellate, in racemes or panicles, or clustered on short branches in dense, spike-like racemes or panicles..... 10

4. Spikelets in rows on opposite sides of the central, jointed axis..... 5

4a. Spikelets on 1 side of the continuous rachis; spikes 1-several..... 7

5. Spikelets 1 at each joint of the rachis.... 13. LOLIUM

5a. Spikelets 2 at each joint of the rachis, 2-6 flowered..... 6

6. Spike dense, the rachis concealed by the numerous overlapping, appressed or ascending spikelets; glumes well developed..... 11. ELYMUS

6a. Spike loose, the rachis plainly visible between the divaricate or horizontally divergent spikelets; glumes reduced or obsolete..... 12. HYSTRIX

7. Inflorescence consisting of spikes, digitate or digitate-like, or spikes in whorls..... 8

7a. Inflorescence consisting of spikes, these racemose or paniculate, not digitate..... 9

8. Spikelets awnless, 1-flowered; stoloniferous, sod-forming plant..... 24. CYNODON

8a. Spikelets awnless, several-flowered; annual plants with wide, flattened culms near base, forming isolated tufts..... 23. ELEUSINE

9. Spikes dense, thick, with crowded spikelets; perfect flowers 1; tall coarse plants exceeding 1 m..... ..... 25. SPARTINA

9a. Spikes slender, diffuse, with distant spikelets containing several perfect flowers..... 22. LEPTOCHLOA

10. Spikelets with 2 or 3 to many perfect flowers...11

10a. Spikelets with 1 perfect flower, sterile bracts sometimes present, or unisexual.....20

11. Glumes long, usually reaching the uppermost floret (1st glume sometimes shorter); awns of lemmas attached dorsally when present..... 14. DANTHONIA

11a. Glumes shorter, not exceeding the lowermost floret; awns

attached apically or near tip when present..... 12

12. Spikelets with the lowermost floret empty; open, drooping panicles with wide conspicuous flattened spikelets..... 8. UNIOLA

12a. Spikelets without empty floret below the fertile lemmas..... 13

13. Lemmas with 3 conspicuous nerves..... 14

13a. Lemmas with 5 or more nerves, sometimes intermediate nerves faint or indistinct..... 16

14. Nerves of the lemmas hairy; lemmas with a minute awn or awns from notched or lobed apex..... 10. TRIDENS

14a. Nerves of the lemmas smooth; lemmas awnless or with merely acuminate tip..... 15

15. Spikelets closely overlapping, laterally flattened; grains not protruding..... 6. ERAGROSTIS

15a. Spikelets distant, in narrow panicles; florets distinded, with protruding grains..... 7. DIARRHENA

16. Lemmas usually with a bidentate apex; sheaths closed..... 17

16a. Lemmas with an entire apex; sheath open..... 18

17. Spikelets with 2 or 3 florets, awnless, with several empty lemma above fertile florets..... 9. MELICA

17a. Spikelets with 4 or more florets, mostly awned, no empty lemmas above..... 2. BROMUS

18. Nerves of lemma all conspicuous, parallel near tip; palea sometimes exceeding the lemma; perennial species of damp or aquatic habitats.. ..... 4. GLYCERIA

18a. Nerves of lemma obscure, or not all conspicuous, converging at tip of lemma; palea nearly equal to or shorter than the lemma; species of general habitat conditions..... 19

19. Lemmas awnless, keeled along the back, with mostly

cobwebby hairs at the base, or with pubescent nerves..... 5. POA

19a. Lemmas acuminate, aristate, or awned, rounded on back, lacking cobwebby hairs at the base..... 3. FESTUCA

20. Glumes minute or lacking, spikelets strongly compressed, distinctly keeled; florets perfect..... 26. LEERSIA

20a. Glumes present and conspicuous..... 21

21. Inflorescence cylindrical, compact, a spike-like panicle; plants lacking rhizomes; glumes awned, equal, much overlapping the floret..... 17. PHLEUM

21a. Inflorescence not cylindrical, with more diffuse or open branching of the panicles; sometimes compact or congested..... 22

22. Articulation below the glumes, spikelets falling entire; floret with a short stipe..... 16. CINNA

22a. Articulation above the glumes; the glumes persistent, only the florets falling..... 23

23. Lemmas rather thick, rigid, with hardened, obtuse to mostly sharp-pointed bases; lemmas with 3 awns..... ..... 21. ARISTIDA

23a. Lemmas mostly thin, not extending into hard, pointed bases..... 24

24. Lemmas awned from the tip..... 25

24a. Lemmas awnless, or awned dorsally, or below the tip..... 26

25. Rachilla extended as a short joint behind the palea..... 20. BRACHYELYTRUM

25a. Rachilla not extended..... 18. MUHLENBERGIA

26. Lemmas 1-nerved, awnless; 1st glume usually shorter than floret..... 19. SPOROBOLUS

26a. Lemmas 2-3-nerved, awned or awnless; 1st glume about equal to or exceeding the floret..... ..... 15. AGROSTIS

27. Glumes of thinner texture than the fertile floret; sterile lemmas also thin, about equal to and opposite the 2nd glume; 1st glume smaller or lacking..... 28

27a. Glumes thick, hardened; sterile lemma and fertile floret thin; spikelets in pairs, the lower sessile and perfect, the upper pedicellate, mostly sterile and reduced... 32

28. Spikelets subtended by several bristles; the inflorescence compact, somewhat cylindric and spike-like.....31. SETARIA

28a. Spikelets not subtended by bristles; the inflorescence an open panicle, or consisting of several ascending or spreading spike-like racemes..... 29

29. Spikelets nearly sessile or short-stalked, in spike-like racemes..... 30

29a. Spikelets stalked, in panicles; 1st glume at least one-fourth as long as the 2nd glume..... 29. PANICUM

30. Glumes and sterile lemma usually awned, sometimes merely apiculate, usually crowded in numerous, dense racemes; 1st glume conspicuous.....
.....30. ECHINOCHLOA

30a. Glumes and sterile lemma awnless, arranged in 2 rows on 1 side of the raceme; 1st glume reduced or absent..... 31

31. Spikelets ovate to orbicular, convex on 1 side, with other side flat and away from rachis..... 28. PASPALUM

31a. Spikelets elliptic to lanceolate, not flattened on 1 side..... 27. DIGITARIA

32. Spikelets of each pair similar, and perfect; spikelets long tufted at the base, if not, then with a slender, straight awn 1 cm. or more long..... 32. ERIANTHUS

32a. Spikelets dissimilar, the sessile one perfect, the pedicellate reduced, or sterile, sometimes staminate..... 33

33. Pedicellate spikelet absent; rachis and pedicles bearded; inflorescence a light-brown panicle.....
..... 36. SORGHASTRUM

33a. Pedicellate spikelet present..... 34

34. Inflorescence a smooth-branching, terminal open panicle..... 35. SORGHUM

34a. Inflorescence consisting of pubescent or feathery spike-like racemes, solitary, digitate, or paniculate..... 35

35. Racemes jointed, separating into paired spikelets; leaves elongate..... 34. ANDROPOGON

35a. Racemes not jointed; leaves short, ovate with cordate bases..... 33. ARTHRAXON

1. ARUNDINARIA Michx. Cane

(1) A. gigantea (Walt.) Chapm. Giant Cane.

2. BROMUS L. Brome-Grass

1. 1st glume 1-nerved, 2nd glume 3-nerved; perennials, usually in demp, shaded habitats.....(1) B. purgans

1a. 1st glume 3-nerved, 2nd glume 5-nerved; annuals, occuring in dry, open ground or waste areas..... .....(2) B. japonicus

(1) B. purgans L. Canada Brome-Grass. May-July.
(2) B. japonicus Thumb. Japanese Chess. May-July.

3. FESTUCA L. Fescue-Grass

1. Plants annual; clums slender, erect, 1-4 cm. tall; spikelets 6-12 flowered.....(1) F. octoflora

1a. Plants perennial..... 2

2. Spikelets usually more than 5 flowered; the lower sheaths of culm characteristically reddish..... .....(2) F. rubra

2a. Spikelets usually 3 flowered; lower sheaths not reddish.....(3) F. obtusa

(1) F. octoflora Walt. Six-weeks Fescue. May-June.
(2) F. rubra L. Red Fescue. May-July.
(3) F. obtusa Biehler. Nodding Fescue. May-July

4. GLYCERIA R. Br. Manna-Grass

(1) G. striata (Lam.) Hitchi. Fowl Manna-Grass. June-July.

5. POA L. Bluegrass

1. Clums strongly flattened, forming loose sod; lemmas mostly glabrous, only slightly cobwebby at base..... .....(1) P. compressa

1a. Clums rounded, forming dense sod; lemmas with distinct cobwebby pubescence at base.....(2) P. pratensis

(1) P. compressa L. Canada Bluegrass. May-July.
(2) P. pratensis L. Kentucky Bluegrass. May-June.

6. ERAGROSTIS Beau. Love-Grass

1. Plants perennial; panicles conspicuously purple..... .....(1) E. spectablis

1a. Plants annual; panicles not purple..... 2

2. Plants creeping and rooting at the nodes; florets bisexual; lemmas glabrous.....(2) E. hypnoides

2a. Plants not creeping, not rooting at the nodes.... 3

3. Spikelets few-flowered, mostly less than 5; lemmas obscurely nerved, scarcely deeled; panicles open to diffuse..... 4

3a. Spikelets many-flowered, mostly more than 5; panicles usually rather dense..... 5

4. Panicles more than one-half the length of entire plant.....(3) E. frankii

4a. Panicles less than one-half the length of entire plant.....(4) E. capillaris

5. Lemmas glandular on the keel; spikelets 3 mm. wide, usually more than 10 flowered.....(5) E. megastachya

5a. Lemmas not glandular on the keel; spikelets 1 mm. wide, 5-10 flowered.....(6) E. pilosa

(1) E. spectablis (Pursh.) Steud. Purple Love-Grass July-Sept.
(2) E. hypnoides (Lam.) BSP. Creeping Love-Grass. July-Aug.
(3) E. frankii C.A. Meyer. June-Sept.
(4) E. capillaris (L.) Nees. Lace-Grass. July-Aug.
(5) E. megastachya (Koel.) Link. Stink-Grass. June-July.
(6) E. pilosa (L.) Beauv. July-Sept.

7. DIARRHENA Beauv.

(1) D. americana Beauv. July-Aug.

8. UNIOLA

(1) U. latifolia Michx. Wide-leaf Uniola. June-Sept.

9. MELICA L. Melic-Grass

(1) M. mutica Walt. Club-flowered Melic. April-June.

10. TRIODIA R.Br.

(1) T. flava (L.) Smyth. Purple-Top. July-Sept.

11. ELYMUS L. Wild Rye

1. Lemmas awnless or with short awns less than half as long as the body; spikes generally erect.....
.....(1) E. virginicus

1a. Lemmas conspicuously awned; spikes generally nodding.....(2) E. villosus

(1) E. virginicus L. Virginia Wild Rye. June-July.
(2) E. villosus Muhl. Slender Wild Rye. June-Aug.

12. HYSTRIX Moench. Bottle-Brush Grass

(1) H. patula Moench. Bottle-Brush Grass. June-July.

13. LOLIUM L. Rye-Grass

1. Lemmas usually awned; rachis of spike rough on the side opposite the spikelets.....(1) L. multiflorum

1a. Lemmas awnless; rachis glabrous on back.(2) L. perenne

(1) L. multiflorum Lam. Italian Rye-Grass. May-June.

(2) L. perenne L. English Rye-Grass. June-July.

14. Danthonia Lam. & D.C. Wild Oat-Grass

(1) D. spicata (L.) Beauv. Poverty Oat-Grass. May-June.

15. AGROSTIS L. Bentgrass

1. Palea present, 2 nerved, at least helf as long as the lemma; panicle erect.....(1) A. alba

1a. Palea absent or minute; panicle diffuse..... ..... (2) A. perennans

(1) A. alba L. Redtop. June-July.
(2) A. perennans (Walt.) Tuckerm. Upland Bent. July-Oct.

16. CINNA L. Wood Reedgrass

(1) C. arundinacea L. Woodreed. July-Sept.

17. PHLEUM L. Timothy

(1) P. pratens L. Timothy. June-July.

18. MUH LENBERGIA Schreb.

1. Rhizomes present..... 2

1a. Rhizomes absent.....(1) M. schreberi

2. Glumes profusely branched, especially from upper nodes; leaf-blades numerous.....(2) M. frondosa

2a. Glumes sparsely branched; leaf blades few..... .....(3) M. sobolifera

(1) M. schreberi Gmel. Sept.-Oct.
(2) M. frondosa (Poir.) Fern. Sept.-Oct.
(3) M. sobolifera (Muhl.) Trin. July-Sept.

19. SPOROBOLUS R.Br. Drop-Seed. Rush-Grass.

1. Plants annuals; glumes nearly equal...(1) S. neglectus

1a. Plants perennial; glumes dissimilar.....(2) S. asper

(1) S. neglectus Nash. Baldgrass. Aug.-Oct.

(2) S. asper (Michx.) Kunth. Aug.-Oct.

20. BRACHYELYTRUM Beauv.

(1) B. erectum (Schreb.) Beauv. June-July.

21. ARISTIDA L. Triple-Awned Grass, Needle-Grass

1. Central awn of lemma coiled at base into a half to 3 full turns and therefore sharply differentiated from the straight or nearly straight, much shorter lateral awns.....(1) A. dichotoma

1a. Central awn of lemma not coiled at base, merely bent or curved outward and differentiated from the lateral awns only in length or position or not at all..... 2

2. Central awn bent at base into about a quarter-circle, hence strongly deflexed in comparison with the erect or ascending lateral awns..... .....(2) A. longespica

2a. Central and lateral awns ascending, about equally divergent..... 3

3. Central awn 40-70 mm. long, the lateral awns two-thirds to fully as long.....(3) A. oligantha

3a. Central awn 8-33 mm. long.....(4) A. purpusescens

(1) A. dichotoma Michx. Poverty-Grass. Aug.-Oct.
(2) A. longespica Poir. Sept.-
(3) A. oligantha Michx. Aug.-Oct.
(4) A. purpurescens Poir. Aug.-Oct.

22. LEPTOCHLOA Beauv. Feathergrass

(1) L. filiformis (Lam.) Beauv. Sprangletop. July-Oct.

23. ELESUINE Gaertn. Goose-Grass. Yard-Grass

(1) E. indica (L.) Gaertn. Wiregrass. July-Oct.

24. CYNODON Richard. Bermuda Grass. Scutch-Grass

(1) C. dactylon Pers. Bermuda Grass. July-Oct.

25. SPARTINA Schreb. Cord-Grass

(1) S. pectinata Link. Fresh-Water Cord-Grass. July-Oct.

26. LEERSIA Sw. Cutgrass. Whitegrass

1. Plants stiff, with coarse, rough leaf blades and sheaths; panicles with numerous branches, some of these whorled.....(1) L. oryzoides

1a. Plants slender, weak; panicles sparsely flowered, with few distant branches.....(2) L. virginica

(1) L. oryzoides (L.) Sw. Rice Cutgrass. June-Oct.
(2) L. virginica Willd. Whitegrass. July-Oct.

27. DIGITARIA Heist. Finger-Grass. Crab-Grass

1. Rachis flat; fertile lemma dark, blackish; foliage glabrous.....(1) D. ischaemum

1a. Rachis flat; fertile lemma greenish-yellow or straw-colored; foliage pubescent.....(2) D. sanguinalis

(1) D. ischaemum (Schreb.) Muhl. Smooth Crab-Grass. July-Oct.
(2) D. sanguinalis (L.) Scop. June-Oct.

28. PASPALUM L.

1. Rachis distinctly winged or leaf-like, as wide or wider than the individual spikelets; spikelets solitary, arranged in 2 rows along the rachis; racemes many, 15-20 per flowering stalk.....(1) P. fluitans

1a. Rachis not winged or leaf-like, not as wide as an individual spikelet except in P. pubiflorum in which the spikelets are paired and form 4 rows along the rachis..... 2

2. Spikelets 4 rowed, elliptic-oblong, about 3 mm. long.....(2) P. pubiflorum

2a. Spikelets 2 rowed, circular to oblong, 1.5-4 mm. long..... 3

3. Spikelets rounded to broadly elliptic, 2.5-3 mm. long, solitary.....(3) P. laeve

3a. Spikelets 1.5-2.5 mm. long, in pairs; spikelets roundish.....(4) P. ciliatifolium

(1) P. fluitans (Ell.) Kunth. Aug.-Oct.
(2) P. pubiflorum Rupr. Aug.-Oct.
(3) P. laeve Michx. July-Oct.
(4) P. ciliatifolium Michx. June-Oct.

29. PANICUM L. Panic-Grass

1. Spikelets produced in expanded terminal panicles occurring in spring, and also in contracted clusters from basal or lower sheaths later in the season; perennials with rosettes of basal leaves..... 2

1a. Spikelets produced in open panicles, or rarely racemes, annuals or perennials, without basal rosettes..... 15

2. Ligule a conspicuous tuft of hair, 2 mm. or longer; spikelets 1.5-2.5 mm. long..... 3

2a. Ligule shorter and obsolete..... 5

3. Sheaths and leaf blades glabrous or nearly so; spikelets about 1.5 mm. long.....(1) P. lanuginosum

3a. Sheaths and leaf blades sparsely pubescent to conspicuously soft pilose or blades essentially glabrous above with few scattered cilia toward base and along margins; spikelets 1.5-2.5 mm. long..... 4

4. Leaf blades glabrous, short pubescent, or sparsely long pilose on upper surface, mostly short appressed-pubescent below.....(1) P. lanuginosum

4a. Leaf blades long pilose on both surfaces, the hairs 2-5 mm. long; sheaths also pilose, with horizontally spreading hairs; spikelets 2-2.5 mm. long.. .....(2). P. villosissimum

5. Some of the leaf blades at least 2 cm. wide, not over 5 times as long; spikelets about 3 mm. or longer... 6

5a. None of the leaf blades as much as 2 cm. wide; spikelets 1.5-4 mm. long..... 7

6. Sheaths papillose-hispid; coarse leafy plants of low ground and creek banks.....(3) P. clandestinum

6a. Sheaths glabrous or pubscent, not hispid; plants of upland wood and slopes; nodes conspicuously bearded.....(4) P. boscii

7. Spikelets numerous, spherical or nearly so, averaging about 1.5 mm. long; leaf blades cordate at base..... .....(5) P. polyanthes

7a. Spikelets oblong-elliptic, mostly exceeding 2 mm. in length, if shorter, about 1.5 mm., then leaf blades tapering to base, not cordate..... 8

8. Widest leaf blades mostly exceeding 1.5 cm..... 9

8a. Widest leaf blades 1.5 cm. or less..... 11

9. Sheaths glabrous; spikelets 3 mm. or longer..... .....(4) P. boscii

9a. Sheaths glabrous, or harsh, hispid-pubescent; spikelets less than 3 mm. long..... 10

10. Sheaths hispid; spikelets from slightly less than 3 mm. long to mostly longer; culms freely branching.....(3) P. clandestinum

10a. Sheaths glabrous; culms more or less simple, only sparsely branched.....(6) P. commutatum

11. Leaf blades stiff, cordate at base, often with purplish color.....(6) P. commutatum

11a. Leaf blades tapering to base, not cordate..... 12

12. Spikelets 1.5-2 mm. long; glabrous; autumnal foliage bushy, top-heavy, reclining or spreading, with numerous, short, acuminate leaves..... 13

12a. Spikelets 2-3 mm. long, glabrous or pubescent; autumnal foliage not bushy, or top-heavy..... 14

13. Spikelets about 1.5 mm. long; nodes bearded; plants sprawling, occurring in damp ground and swales..... .....(7) P. microcarpon

13a. Spikelets averaging about 2 mm. in length; nodes glabrous or bearded; plants bushy, but not sprawling, occurring in dry rocky ground.....(8) P. dichotomum

14. Spikelets less than 2 mm. long; basal foliage soft, lax, forming spreading clumps; culm leaves about same width as lower or basal leaves..... .....(9) P. laxiflorum

14a. Spikelets less than 2 mm. long; basal foliage stiffer, not lax; culm leaves mostly narrow than basal leaves.....(8) P. dichotomum

15. Sheaths and culms mostly glabrous; native perennials of wet ground or prairies, except the course annual P. dichotomiflorum occurring in waste ground and fields.16

15a. Sheaths and culms hairy, mostly conspicuously so; all annuals usually in dry waste ground, prairies, or sandy areas..... 19

16. Coarse, smooth annual, somewhat decumbent-spreading at base; leaf blades frequently 1.5 cm. wide.. .....(10) P. dichotomiflorum

16a. Perennials mostly erect; leaf blades much narrower..... 17

17. Plants lacking rhizomes; spikelets 2-2.5 mm. long.. .....(11) P. agrostoides

17a. Plants rhizomatous; spikelets larger, usually exceeding 3 mm. in length..... 18

18. Individual spikelets sessile or nearly so, crowded along the panicle branches..... .....(12) P. anceps

18a. Individual spikelets pedicellate, not crowded. .....(13) P. virgatum

19. Spikelets elongate, lanceolate-acuminate, 3-3.5 mm. long; panicles narrow, at least twice as long as wide, with slender flexous branches.....(14) P. flexile

19a. Spikelets ovate-acute or acuminate, 2-2.5 mm. long; panicles broadly ovate..... 20

20. Panicles from one-third to one half or more as long as entire plant, somewhat inserted at base, or becoming exserted; leaf blades to 1 cm. or wider; culms erect to geniculate, sometimes rooting at lower nodes.....(15) P. capillare

20a. Panicles mostly one-third or less as long as entire plant, well-exserted; leaf blades 3-8 mm. wide; culms mostly erect...(16) P. philadelphicum

(1) P. lanuginosum Ell. May-Sept.

(2) P. villosissium Nash. May-Oct.
(3) P. clandestinum L. May-Nov.
(4) P. boscii Poir. May-Oct.
(5) P. polyanthes Schultes. June-Nov.
(6) P. commutatum Schultes. May-Nov.
(7) P. microcarpon Muhl. May-Oct.
(8) P. dichotomum L. May-Nov.
(9) P. laxiflorum Lam. April-Sept.
(10) P. dichotomuflorum Michx. June-Oct.
(11) P. agrostoides Spreng. July-Oct.
(12) P. anceps Michx. June-Oct.
(13) P. virgatum L. Switchgrass. July-Oct.
(14) P. flexile (Gattinger) Scribn. July-Oct.
(15) P. capillare L. Old-Witch Grass. July-Oct.
(16) P. philadelphicum Bernh. June-Oct.

30. ECHINOCHLOA Beauv.

(1) E. crus-galli (L.) Beauv. Barnyard-Grass. June-Nov.

31. SETARIA Beauv. Bristly Foxtail

1. Each spikelet subtended by 5 or more bristles; fertile lemma distinctly cross-wrinkled..... 2

1a. Each spikelet subtended by less than 5 bristles, usually 1-3; fertile lemma smooth to rugose, but not cross-wrinkled.....(1) S. viridis

2. Perennial, with short knotty rhizomes; sterile lemma with reduced palea; spikelets 2-2.5 mm. long.....(2) S. geniculata

2a. Annuals, fibrous-rooted; sterile lemma with well-developed palea; spikelets 3 mm. long..... .....(3) S. glauca

(1) S. viridis (L.) Beauv. Green Foxtail. June-Oct.
(2) S. ganiculata (Lam.) Beauv. Prairie Foxtail. July-Oct.
(3) S. glauca (L.) Beauv. Yellow Foxtail. June-Sept.

32. ERIANTHUS Michx. Wooly Beardgrass

(1) E. alopecuroides (L.) Ell. Silver Plumegrass. Sept.-Oct.

33. ARTHRAXON Beauv.

(1) A. hispidus (Thunb.) Makino. Sept.-Oct.

34. ANDROPOGON L. Broomsedge. Beardgrass

1. Racemes 1 at the summit of each peduncle (stalk)... .....(1) A. scoparius

1a. Racemes 2 or more at the summit of each peduncle (stalk)..... 2

2. Racemes digitately arranged at summit of flowering stalk, not feathery pubescent; paired spikelets similar in size.....(2) A. gerardi

2a. Racemes digitate or paniculate, sometimes included in fascicled sheaths, feathery pubescent; spikelets dissimilar, the pedicellate one reduced or absent..... 3

3. Racemes partly or mostly included in the crowded spathe-like sheaths..... 4

3a. Racemes exserted on elongate stalks; racemes digitate, usually 2, forming a V-shaped inflorescence..... .....(3) A. ternarius

4. Peduncles densely villous at junction with sheaths.....(4) A. elliottii

4a. Peduncles glabrous or only sparsely villous at junction with sheaths; common old field species.. .....(5) A. virginicus

(1) A. scoparius Michx. Little Bluestem. Sept.-Oct.
(2) A. gerardi Vitman. Big Bluestem. June-Sept.
(3) A. tenarius Michx. Silverbeard. July-Oct.
(4) A. elliottii Chapm. Sept.-Nov.
(5) A. virginicus L. Broomsedge. Aug.-Nov.

35. SORGHUM Moench. Sorghum

(1) S. halepense (L.) Pers. Johnson Grass. July-Sept.

36. SORGHASTRUM Nash.

(1) S. nutans (L.) Nash. Indian Grass. Aug.-Oct.

12. CYPERACEAE (Sedge Family)

1. Pistil and achene enclosed in a membraneous sac

(perigynium); flowers unisexual; plants monoecious, perennial.....7. CAREX

1a. Pistil and achene not enclosed in a perigynium..... 2

2. Flowers unisexual, the pistillate and staminate spikelets crowded in the same inflorescence; achenes white, bony.....6. SCLERIA

2a. Flowers bisexual (perfect); achenes not as above..... 3

3. Spikelets usually flat, the flowers 2-ranked; inflorescence terminal.....1. CYPERUS

3a. Spikelets terete, the flowers spirally imbricated.. 4

4. Spikelets with 1-2 beaded achenes; bristles usually present.....5. RHYNCHOSPORA

4a. Spikelets with several achenes; bristles present or absent..... 5

5. Culms leafless, except for basal sheaths; spike terminal, solitary.....2. ELEOCHARIS

5a. Culms usually leafy; spikelets few to many, if solitary, then lateral..... 6

6. Achenes without bristles; inflorescence umbellate.....3. FIMBRISTYLIS

6a. Achenes usually with bristles; inflorescence not umbellate.....4. SCIRPUS

1. CYPERUS L. Galingale. Umbrella-Sedge

1. Spikelet with 1 achene enclosed by 2 scales..... .....(1) C. tenuifolius

1a. Spikelet with more than 1 achene, each enclosed by 1 scale..... 2

2. Style split into 2 thread-like divisions; achene lenticular (somewhat flattened with two convex surfaces)..... 3

2a. Style split into 3 thread-like divisions; achene trigonous (3-sided)..... 4

3. Achene at maturity marked (under high magnification) with elongate superficial cells and pale, irregular, transverse lines; achene black (at maturity)..... .....(2) C. flavescens

3a. Achene at maturity not marked as above, not black; scale reddish-purple at maturity.....(3) C. vivularis

4. Scales of spikelet purple-red, reddish-tinged, brown-purple, or reddish brown..... 5

4a. Scales of spikelet mainly brown, yellow, green, straw-colored, golden-brown, gray-brown, greenish-white, or combinations of these shades..... 6

5. Scales of spikelet overlapping, 1-1.5 mm. long, reddish-brown; mature achene 0.8-1 mm. long, grayish-white.. .....(5) C. erythrorhizos

5a. Scales of spikelet overlapping, 2-3 mm. long, dark reddish- or mohogany-brown; mature achene 1-2 mm. long, golden or orange-brown.....(6) C. ferruginescens

6. Inflorescence spherical; spikelets 2-3 flowered, 80-120 or more, crowded together into a dense globe-shaped head about as long as wide or slightly longer than wide; scales of spikelet 3.5-4.2 mm. long.....(4) C. ovularis

6a. Inflorescence of a broadly cylindrical, obovoid, or ellipsoid shape..... 7

7. Scales of spikelets chiefly yellow, greenish-yellow, golden-brown, or straw-color; in age the joints of the rachilla do not break up into separate segments, but remain as a whole intact, in place; perennial plants either with a hard enlarged corm-like base or sending out slender or stout stolons..... 8

7a. Scales of spikelets dull or dark brown; in age each joint of the rachilla breaks up into separate segments between the scales; annual plants with fibrous roots, the base of culm without stolons or without a hardened corm-like enlargement..... 9

8. Scales of spikelets mainly 3-4.5 mm. long, conspicuously keeled; base of culm with a hardened corm-like enlarged development.....(7) C. strigosus

8a. Scales of spikelets mainly 2-2.9 mm. long, faintly

or not strongly keeled; base of culm sending out slender underground scaly stolons, sometimes a tuber at the end.....(8) C. esculentus

9. Scales of spikelet 2-3.5 mm. long, firm or leather-like; achene 1.5-2 mm. long.....(9) C. odoratus

9a. Scales of spikelet 1.5-2.3 mm. long, soft membranaceous; achene 1-1.5 mm. long.....(6) C. ferruginescens

(1) C. tenuifolius (Steud.) Dandy. July-Oct.
(2) C. flavescens L. July-Oct.
(3) C. rivularis Kunth. July-Oct.
(4) C. ovularis (Michx.) Torr. July-Sept.
(5) C. erythrorhizos Muhl. Aug.-Oct.
(6) C. ferruginescens Boeckl. Aug.-Oct.
(7) C. strigosus L. Aug.-Oct.
(8) C. esculentus L. Yellow Nut-Grass. Aug.-Oct.
(9) C. odoratus L. Aug.-Oct.

2. ELEOCHARIS R. Br. Spike-Rush

1. Achenes lenticular or biconvex; stigmas 2..... 2

1a. Achenes trigonous (3-angled); stigmas 3; spikelets 3-9 flowered.....(1) E. acicularis

2. Bristles either scarcely reaching to the beginning of the crowning tubercle on the achene or very much shorter; tubercle less than one-fourth as long as the achene and noticeably depressed-triangular.....(2) E. engelmanni

2a. Bristles usually longer than the combined length of achene and tubercle; tubercle one-third to one-half the length of achene, broadly triangular... .....(3) E. obtusa

(1) E. acicularis (L.) R. & S. July-Oct.
(2) E. engelmanni Steud. May-Oct.
(3) E. obtusa (Willd.) Schultes. May-Oct.

3. FIMBRISTYLIS Vahl

(1) F. autumnalis (L.) R. & S. Aug.-Oct.

4. SCIRPUS L. Bulrush

(1) S. rubicosus Fern. Aug.-Oct.

5. RHYNCHOSPORA Vahl Beak-Rush

(1) R. corniculata (Lam.) Gray. Horned-Ruch. June-Sept.

6. SCLERIA Bergius. Nut-Rush

(1) S. oligantha Michx. May-July.

7. CAREX L. Sedge

1. Spikes mostly uniform, sessile; achenes lenticular; styles 2..... 2

1a. Spikes not uniform, 1 or more peduncled; achene trigonous or lenticular; styles 3 or 2..... 8

2. Staminate flowers at apex of spikes (androgynous)..... 3

2a. Staminate flowers at base of spikes (gynecandrous); margins of perigynia winged..... 7

3. Perigynia spreading or reflexed, bases spongy-thickened..... 4

3a. Perigynia ascending; bases not spongy-thickened.... 5

4. Beak of perigynium smooth.....(1) C. retroflexa

4a. Beak of perigynium serrulate.....(2) C. convoluta

5. Inflorescence densely capitate, spikes not separated..6

5a. Inflorescence elongate, spikes separated.....(3) C. muhelenbergii

6. Base of pergynium truncate or cordate, body broadest at base.....(4) C. leavenworthii

6a. Base of pergynium cuneate or obtuse, body broadest near middle.....(5) C. cephalophora

7. Perigynia 7-10 mm. long.....(6) C. muskingumensis

7a. Perigynia 3-5 mm. long.....(7) C. tribuloides

8. Achenes trigonous..... 9

8a. Achenes lenticular; beak of perigynium

twisted.....(8) C. torta

9. Style jointed at base, not persistent, withering in time..... 10

9a. Style not jointed at base, persistent, hardened.... 14

10. Pistillate bracts with tubular sheaths..... 11

10a. Pistillate bracts sheathless; perigynia flat in cross section.....(9) C. hirsutella

11. Body of perigynium with impressed nerves..... 12

11a. Body of perigynium with raised nerves, or nerves absent..... 13

12. Perigynia lustrous; lowest pistillate scale awn longer than body of scale; leaf blades less than 4 mm. wide.....(10) C. amphibola

12a. Perigynia dull; lowest pistillate scale awn shorter than body of scale; leaves, at least basal ones, often 15 mm. wide(11) C. flaccosperma

13. Perigynia with plane or concave faces; pistillate scales ovate.....(12) C. laxiculmis

13a. Perigynia with convex faces; pistillate scales truncate.....(13) C. albursina

14. Body of perigynia obovoid..... 15

14a. Body of perigynia ovoid or subglobose..... 16

15. Terminal spike staminate; pistillate scale longer than body of perigynium.....(14) C. frankii

15a. Terminal spike gynecandrous; pistillate scale shorter than body of perigynium, acuminate or awned..... .....(15) C. squarrosa

16. Pistillate spike subglobose..... 17

16a. Pistillate spike cylindric or subcylindric.... 18

17. Body of perigynium dull, base cuneate....(16) C. graii

17a. Body of perigynium lustrous, base rounded..... .....(17) C. intumescens

18. Body of achene longer than broad.....
.....(18) C. lupulina

18a. Body of achene broader than long or as broad as long.....(19) C. lupuliformis

(1) C. retroflexa Muhl. May-June.
(2) C. convoluta Mackenzie. May-June.
(3) C. muhelenbergii Schkuhr. June-July.
(4) C. leavenworthii Dewey. May-June.
(5) C. cephalophora Muhl. May-July.
(6) C. muskingumensis Schwein. July-Aug.
(7) C. tribuloides Wahlenb. June-Sept.
(8) C. torta Boott. May-July.
(9) C. hirsutella Mackenzie. May-July.
(10) C. amphibola Steud. May-June.
(11) C. flaccosperma Dew. May-June.
(12) C. laxiculmis Schwein. May-July.
(13) C. albursina Sheldon. April-June.
(14) C. frankii Dunthe. July-Sept.
(15) C. squarrosa L. June-Sept.
(16) C. grayii Garey. June-Oct.
(17) C. intumescens Rudge. May-Sept.
(18) C. lupulina Muhl. June-Oct.
(19) C. lupuliformis Sartwell. July-Oct.

13. ARACEAE (Arum Family)

1. ACORUS L. Sweetflag. Flagroot

(1) A. calamus L. Sweetflag. May-June.

14. LEMNACEAE (Duckweed Family)

1. Frond (main plant body) several rooted, 4-15 nerved.....1. SPIRODELA

1a. Frond with 1 root, 1-5 nerved.....2. LEMNA

1. SPIRODELA Schleid.

(1) S. polyrhiza (L.) Schleid. Water-Flaxseed.

2. LEMNA L. Duckweed. Duck's-Meat

(1) L. minor L. Lesser Duckweed.

15. COMMELINACEAE (Spiderwort Family)

1. Inflorescence borne in folded spathiform bracts;

fertile stamens 3; 2 petals larger than 3rd.....
.....1. COMMELINA

1a. Inflorescence not borne in spathiform bracts; petal more or less equal; fertile stamens 5-6.....
.....2. TRADESCANTIA

1. COMMELINA L. Dayflower

1. Margins of spathe fused at base..... 2

1a. Margins of spathe free..... 3

2. Leaf-sheaths ciliate; petals all blue.....
.....(1) C. virginica

2a. Leaf-sheaths not ciliate; 2 petals blue, much larger than the 3rd, white one.....(2) C. erecta

3. Petals all blue, anterior one slightly smaller.....
.....(3) C. diffusa

3a. Two petals blue, much larger than the paler third one.....(4) C. communis

(1) C. virginica L. July-Oct.
(2) C. erecta L. June-Oct.
(3) C. diffusa Burm. F. July-Oct.
(4) C. communis June-Oct.

2. TRADESCANTIA L. Spiderwort

1. Upper leaves 2-4 cm. wide; sepals thinly to densely pubescent.....(1) T. subaspera

1a. Upper leaves usually less than 1 cm. wide; sepals glabrous.....(2) T. ohioensis

(1) T. subaspera Ker. June-July.
(2) T. ohioensis Raf. April-June.

16. PONTEDERIACEAE (Pickerelweed Family)

1. HETERANTHERA R.&P. Mud-Plantain

1. Stamens all alike; flowers small, pale yellow.....
.....(1) H. dubia

1a. Stamens unequal; 2 yellow anthered, 1 with larger greenish anther; flowers blue or white...(2) H. limosa

(1) H. dubia (Jacq.) MacM. June-Sept.
(2) H. limosa (SW.) Willd. July-Sept.

17. JUNCACEAE (Rush Family)

1. Juncus L. Rush. Bog-Rush

1. Inflorescence terminal, leave blades not septate (without partitions)..... 2

1a. Inflorescence terminal, leave blades septate (cross partitioned..... 5

2. Flowers borne singly on the branches of the inflorescence, each flower subtended by two bracteole at the base of the pedicel..... 3

2a. Flowers borne in glomerules of 2-12, individual flowers not subtended by a pair of bracteoles... 4

3. Lowest involcural leaf or bract longer than the inflorescence; auricle oblong, prolonged 1-3 cm. beyond the base of blade.....(1) J. tenuis

3a. Lowest involcural leaf or bract shorter than the inflorescence; auricle gradually rounded, at summit not prolonged as above.....(2) J. secundus

4. Glomerules usually less then 30; 5-10 flowered.....(3) J. marginatus

4a. Glomerules usually more than 30, 2-5 flowered.....(4) J. biflorus

5. Capsule distinctly shorter than the sepals and petals, only one-half to two-thirds their length..... .....(5) J. brachycarpus

5a. Capsule equal to or longer than the sepals and petals..... 6

6. Capsule longer than the sepals and petals..... .....(6) J. scipoides

6a. Capsule about equal to the petals and sepals, not conspicuously longer.....(7) J. acuminatus

(1) J. tenuis Willd. June-Sept.
(2) J. secundus Beauv. June-Oct.
(3) J. marginatus Rostk June-Sept.

(4) J. **biflorus** Ell. May-Sept.
(5) J. brachycarpus Engelm. June-Sept.
(6) J. scipoides Lam. June-Oct.
(7) J. acuminatus Michx. July-Aug.

18. LILIACEAE (Lily Family)

1. Flowers or flower-clusters (inflorescence) produced laterally on the stem or its branches..... 2

1a. Flowers or flower-clusters terminal..... 3

2. Flowers unisexual; leaves broad, flat and green.....5. SMILAX

2a. Flowers bisexual; leaves reduced to minute scales,.....4. ASPARAGUS

3. Stems woody; leaves rigidly sword-shaped, evergreen.....3. YUCCA

3a. Stems herbaceous; leaves not rigidly sword-shaped, deciduous..... 4

4. Inflorescence an umbel; petals less than 4 cm. long, white.....1. ALLIUM

4a. Inflorescence a pair of lelicoid cymes; petals more than 5 cm. long, orange or yellow.....
.....2. HEMEROCALLIS

1. ALLIUM L. Wild Onion. Garlic.

(1) A. vineale L. Field-Garlic. May-July.

2. HEMEROCALLIS L. Day-Lily

(1) H. fulva L. Common Orange Day-Lily. May-July.

3. YUCCA L. Beargrass. Spanish-Bayonet.

(1) Y. filamentosa L. Spoonleaf-Yucca. June-Sept. Escaped.

4. SMILAX L. Greenbrier.

(1) S. bona-nox L. June-

5. ASPARAGUS L. Asparagus

(1) A. officinales L. Asparagus. June-

19. DIOSCOREACEAE (Yam Family)

1. DIOSCOREA L. Wild Yam

(1) D. villosa L. May-Aug.

20. AMARYLLIDACEAE (Amaryllis Family)

1. AGAVE L. American Aloe

(1) A. virginica L. False Aloe, Rattlesnake-Master. July-Aug.

21. IRIDACEAE (Iris Family)

1. BELAMCANDA Adams. Blackberry-Lily

(1) B. chinenesis (L.) DC. June-July.

22. ORCHIDACEAE (Orchis Family)

1. No leaves present at time of flowering..... 2

1a. Leaves present at flowering time..... 3

2. Lip 3-lobed, prolonged at base into a slender, elongate, horizontal spur.....3. TIPULARIA

2a. Lip not 3-lobed, not prolonged into a spur..... .....2. SPIRANTHES

3. Lip prolonged at base into a distinct, elongate spur, 2 mm. or more long.....1. HABENARIA

3a. Lip not prolonged into a spur.....2. SPIRANTHES

1. HABENARIA Willd. Fringed Orchis

(1) H. peramoena Gray. Purple Fringeless Orchis, Pride-Of-The-Peak. June-Aug.

2. SPIRANTHES Richard. Ladies' Tresses

1. Leaves usually absent, dried, or wilted at time of flowering, when present all from the base, only 1-5 cm. long; lip white or with green center..... .....(1) S. gracilis

1a. Leaves present at time of flowering, occurring at the base and on the lower part of stem, the larger ones 6-20 cm. long; lip yellow.....(2) S. vernalis

(1) S. gracilis (Bigel.) Beck. July-Oct.
(2) S. vernalis Engelm. & Gray May-Sept.

3. TIPULARIS Nutt. Cranefly Orchis

(1) T. discolor (Pursh.) Nutt. July-Aug.

Class II. Dicotyledonae

23. SAURURACEAE (Lizard's-Tail Family)

1. SAURURUS L. Lizard's-Tail

(1) S. cernuus L. Water-dragon, Swamp-Lily. June-Sept.

24. SALICACEAE (Willow Family)

1. Bud scale 1; leaves lanceolate to narrowly obovate, much longer than broad.....1. SALIX

1a. Bud scales several; leaves ovate to deltoid, often as broad as long.....2. POPULUS

1. SALIX L. Willow

1. Lower surface of leaves more or less hairy; plants shrubs attaining 4 meter in height.....(1) S. humilis

1a. Lower surface of leaves not hairy, plants reaching tree size..... 2

2. Leaves glaucous beneath.....(2) S. caroliniana

2a. Leaves green on both upper and lower surfaces.....(3) S. nigra

(1) S. humilis Marsh. Small Pussy-Willow.
(2) S. caroliniana Michx. Ward's Willow.
(3) S. nigra Marsh. Black Willow.

2. POPULUS L. Poplar

1. Petioles flattened; each leaf blade margin with 15 or more teeth.....(1) P. deltoides

1a. Petioles terete or grooved..... 2

2. Leaves white-tomentose; teeth more than 15 on each margin of leaf blade.....(2) P. alba

2a. Leaves not white-tomentose; teeth less than 15 on each margin of leaf blade.....(3) P. heterophylla

(1) P. deltoides Marsh. Cottonwood.
(2) P. alba L. White or Silver-leaved Poplar.
(3) P. heterophylla L. Swamp or Black Cottonwood.

25. JUGLANDACEAE (Walnut Family)

1. Pith of young branches chambered; leaflets 11-25.... .....1. JUGLANS

1a. Pith of young branches continuous; leaflets usually 5-9.....2. CARYA

1. JUGLANS L. Walnut.

(1) J. nigra L. Black Walnut

2. CARYA Nutt. Hickory

1. Buds with more than 6 overlapping scales; leaflets 3-9, the uppermost largest..... 2

1a. Bud scales 4-6, in pairs; leaflets 7-9; shell of nut smooth and thin.....(1) C. cordiformis

2. Larger terminal buds over 12 mm. in length..... 3

2a. Terminal buds smaller (less than 10 mm.)..... 5

3. Twigs buff or orange-colored, glabrous; nut at least 3 cm. long, shell thick; bark splitting off in long strips; leaflets 7-9; typically in bottomlands or along streams.....(2) C. laciniosa

3a. Twigs brown or gray, often somewhat pubescent; nut and bark various; typically on uplands..... 4

4. Twigs red-brown to gray with age; leaflets typically 5, terminal leaflet stalked; bark splitting off in long strips.....(3) C. ovata

4a. Twigs bright-brown to gray; leaflets typically 7-9, stellate-pubescent; terminal leaflet sessile or

nearly so; bark tight.....(4) C. tomentosa

5. Leaflets typically 7.....(5) C. ovalis

5a. Leaflets typically 5.....(6) C. glabra

(1) C. cordiformis (Wang.) K. Koch. Bitternut Hickory.
(2) C. laciniosa (Michx) Loud. Big Shellbark Hickory.
(3) C. ovata (Mill.) K. Koch. Shagbark Hickory
(4) C. tomentosa Nutt. Mockernut Hickory
(5) C. ovalis (Wang.) Sarg. Red Hickory
(6) C. glabra (Mill.) Sweet. Pignut Hickory.

26. CORYLACEAE (Hazel Family)

1. Buds distinctly stalked.....1. ALNUS

1a. Buds sessile..... 2

2. Shrubs; fruit 1 cm. or more long.....2. CORYLUS

2a. Trees; fruit less than 1 cm. long..... 3

3. Trunk and larger branches smooth, ridged, "muscular" in appearance.....3. CARPRINUS

3a. Trunk and larger branches without ridges..... 4

4. Fruit winged; lateral veins unforked and continuous to leaf margin.....4. BETULA

4a. Fruit not winged, enclosed in a papery sac; some lateral veins forked.....5. OSTYRA

1. ALNUS B. Ehrh. Alder

(1) A. serrulata (Ait.) Willd. Common Alder.

2. CORYLUS L. Hazel-Nut

(1) C. americana Walt. American Hazel-Nut.

3. CARPINUS L. Ironwood.

(1) C. caroliniana Walt. Blue Beech.

4. OSTYRA Scop. Hop-Hornbeam.

(1) O. virginiana (Mill) K. Koch. American Hop-Hornbeam.

5. BETULA L. Birch

(1) B. nigra L. River-Birch.

27. FAGACEAE (Beech Family)

1. Involucre covering the nut; leaves unlobed..... 2

1a. Involucre cup-shaped, not completely covering the nut; leaves lobed or unlobed.....3. QUERCUS

2. Bark smooth; nut triangular.....1. FAGUS

2a. Bark rough; nut lenticular or compressed, not triangular.....2. CASTANEA

1. FAGUS L. Beech

(1) F. grandifolia Ehrh. Beech.

2. CASTANEA Mill. Chestnut.

(1) C. dentata (Marsh) Borkh. Chestnut.

3. QUERCUS L. Oak

1. Leaves entire, not lobed or toothed..... 2

1a. Leaves lobed, toothed, or both..... 3

2. Leaves over 2.5 cm. wide, 3 times as long as broad, often hairy below.....(1) Q. imbricaria

2a. Leaves less than 2.5 cm. wide; leaves narrowly lanceolate.....(2) Q. phellos

3. Leaves broadest near the tip; not conspicuously lobed or toothed.....(3) Q. marilandica

3a. Leaves broadest near the middle, with conspicuous teeth or less..... 4

4. Leaves distinctly lobed..... 5

4a. Leaves with coarse teeth or scalloped but not distinctly lobed..... 14

5. Lobes of leaves with bristle-tips..... 81 6

5a. Lobes of leaves without bristle-tips..... 11

6. Mature leaves smooth beneath except for tufts of hair in the vein axils..... 7

6a. Mature leaves more or less pubescent on the whole under surface..... 10

7. Lateral lobes of leaves not decidely longer than the width of the undivided portion of the blade; leaves dull, 7-11 lobed; acorn cup saucerlike....(4) Q. rubra

7a. Lateral lobes of leaves decidely longer than the width of the undivided portion of the blade; leaves lustrous, 5-9 lobed..... 8

8. Acorn cup saucerlike, seldom enclosing more than one fourth of the acorn..... 9

8a. Acorn cup bowl-shaped, enclosing almost half of the acorn; Acorn concentrically ringed..... .....(5) Q. coccinea

9. Acorn oblong-ovoid, 2-3 cm. long; limestone sites.....(6) Q. shumardii

9a. Acorn hemispherical, 1-1.5 cm. long; branches like pins driven into trunk, frequently drooping, bottom-lands or upland swamps..... (7) Q. palustris

10. Leaves brownish or rusty pubescent beneath, lobes not curved, frequently wider toward the end.... .....(8) Q. velutina

10a. Leaves grayish or yellowish pubescent beneath, lobes generally curved and widest at base..... .....(9) Q. falcata

11. Leaves glaucous and glabrous beneath at maturity.... .....(10) Q. alba

11a. Leaves densely gray-pubescent beneath..... 12

12. Twigs pubescent; leaves generally with 5 principal lobes; acorns small, 1-1.5 cm. long, less than half covered by the unfringed cup..... .....(11) Q. stellata

12a. Twigs glabrous or nearly so; acorns more than half covered by the cup..... 13

13. Acorn cup conspicuously fringed along margins; acorns 2-5 cm. long; leaves nearly cut into by long sinuses.....(12) Q. macrocarpa

13a. Acorn cup not fringed, nearly covering the acorn, which is 1.5-2.5 cm. long; leaves irregularly lobed.....(13) Q. lyrata

14. Teeth acute.....(14) Q. muehlenbergii

14a. Teeth rounded or margins scalloped..... 15

15. Petioles yellowish; leaves yellow-green above, pubescent but not tomentose beneath; trees of dry uplands.....(15) Q. prinus

15a. Petioles green; leaves dark-green above, commonly tomentose beneath; trees of lowlands and wet soils.....(16) Q. michauxii

(1) Q. imbricaria Michx. Laurel Oak.
(2) Q. phellos L. Willow Oak.
(3) Q. marilandica Muench. Blackjack Oak.
(4) Q. rubra L. Northern Red-Oak.
(5) Q. coccina Muench. Scarlet Oak.
(6) Q. schumardii Buckl. Shumard Red-Oak.
(7) Q. palustris Muench. Pin Oak.
(8) Q. velutina Lam. Black Oak.
(9) Q. falcata Michx. Southern Red-Oak.
(10) Q. alba L. White Oak.
(11) Q. stellata Wang. Post Oak.
(12) Q. macrocarpa Michx. Bur Oak.
(13) Q. lyrata Walt. Overcup Oak.
(14) Q. muehlenbergii Engelm. Chinquapin Oak.
(15) Q. prinus L. Chestnut-Oak.
(16) Q. michaux Nutt. Swamp Chestnut-Oak.

28. ULMACEAE (Elm Family)

1. Leaves with 2 principal lateral veins from base of blade; pith chambered.....1. CELTIS

1a. Leaves with only one principal vein from base of blade; pith continuous.....2. ULMUS

1. CELTIS L. Hackberry

1. Leaf-blades seldom more than 5 cm. in length; fruit dark orange-red, on stalk about as long as petioles; small trees.....(1) C. tenuifolia

1a. Leaf-blades usually more than 5 cm. in length; fruit on stalks longer than the petioles; becoming large trees..... 2

2. Leaf-blades lanceolate.....(2) C. laevigata

2a. Leaf-blades ovate, rounded, or subcordate at base, not lanceolate.....(3) C. occidentalis

(1) C. tenuifolia Nutt. Georgia Hackberry.
(2) C. laevigata Willd. Southern Hackberry.
(3) C. occidentalis L. Hackberry.

2. ULMUS L. Elm

1. Leaves usually more than 7 cm. long..... 2

1a. Leaves usually less than 7 cm. long..... 5

2. Buds with corky ridges..... 3

2a. Buds without corky ridges..... 4

3. Bud-scales puberlent; spring-flowering.....(1) U. thomasi

3a. Bud-scales glabrous; fall-flowering....(2) U. serotina

4. Bud-scales coated with rusty hairs; leaves very rough above; pedicels short; fruit not ciliate; inner bark mucilaginous.....(3) U. rubra

4a. Bud-scales without rusty hairs; leaves relatively smooth above; pedicels slender, drooping; fruit ciliate; inner bark not muscilaginous.....(4) U. americana

5. Trees usually small; twigs wingless, dark gray; leaves singly serrate or nearly so.....(5) U. pumila

5a. Trees often large; twigs two winged; leaves coarsely doubly toothed.....(6) U. altata

(1) U. thomasi Sarg. Cork Elm.
(2) U. serotina Sarg. September Elm.
(3) U. rubra Muhl. Slippery Elm.

(4) U. americana L. American Elm.
(5) U. pumila L. Chinese Elm. Introd. from Asia.
(6) U. alata Michx. Winged Elm.

29. MORACEAE (Mulberry Family)

1. Leaves entire.....1. MACLURA

1a. Leaves toothed and often lobed..... 2

2. Bud-scales 3-6; leaves not velvety on lower surface; twigs velvety.....2. BROUSSONETIA

2a. Bud-scales 2-3; leaves velvety on lower surface; twigs not velvety.....3. MORUS

1. MACLURA Nutt. Osage Orange

(1) M. pumifera (Raf.) Schneid. Osage Orange.

2. BROUSSONETIA L'Her.

(1) B. papyrifera (L.) Vent. Paper Mulberry. Introd. from Asia.

3. MORUS

(1) M. rubra L. Red Mulberry.

30. URTICACEAE (Nettle Family)

1. Plants with stinging hairs.....1. URTICA

1a. Plants without stinging hairs..... 2

2. Leaves opposite..... 3

2a. Leaves alternate.....2. PARIENTARIA

3. Flowers in axillary spikes; calyx completely enclosing achene.....3. BOEHMERIA

3a. Flowers in axillary panicles or glomerlus; achenes exceed the calyx.....4. PILEA

1. URTICA L. Nettle

(1) U. chamaedryoides Pursh. June-Oct.

2. PARIENTARIA L. Pellitory

(1) P. pennsylvanica Muhl. May-Sept.

3. BOEHMERIA Jacq. False Nettle

(1) B. cylindrica (L.) Sw. Bog-Hemp. July-Oct.

4. PILEA Lindl. Clearweed

(1) P. pumila (L.) Gray. Clearweed. July-Oct.

31. LORANTHACEAE (Mistletoe Family)

1. PHORADENDRON Nutt. False Mistletoe

(1) P. flavescens Nutt. American Mistletow. Sept-Oct.

32. ARISTOLOCHIACEAE (Birthwort Family)

1. ARISTOLOCHIA L. Birthwort

(1) A. tomentosa Sims. Pipe-Vine. June.

33. POLYGONACEAE (Buckwheat Family)

1. Sepals 6, the outer 3 unchanged in fruit, the inner 3 mostly winged.....1. RUMEX

1a. Sepals 4 or 5; outer sepals in fruit as large or larger than the inner ones, often concealing them.....2. POLYGONUM

1. RUMEX L. Dock. Sorrel

1. Flowers unisexual; some leaves hastate or sagitate.....(1) R. acetosella

1a. Flowers perfect; leaves not hastate or sagitate.... 2

2. Leaves with crisp margins grains turgid and obtuse, two-thirds as wide as long..(2) R. crispus

2a. Leaves flat; grains half as wide as long or very narrow.....(3) R. altissimus

(1) R. acetosella L. Common Sorrel. June-Oct.
(2) R. crispus L. Yellow Dock. June-Sept.
(3) R. altissimum Wood. Pale Dock. May-Aug.

2. POLYGONUM L. Smartweed.

1. Flowers in small axillary clusters; leaves jointed at base.....(1) P. erectum

1a. Flowers in terminal or axillary racemes or clusters. 2

2. Outer sepals keeled or winged at maturity; stems trailing or twining.....(2) P. scandens

2a. Outer sepals not keeled or whinged at maturity.. 3

3. Styles elongate, exert, persistent in fruit..... .....(3) P. virginianum

3a. Styles short, not persistent in fruit; stems glabrous or pubescent..... 4

4. Ocreae entire or only lacerate..... 5

4a. Ocreae fringed with bristles..... 6

5. Racemes nodding; outer sepals in fruit strongly 3-nerved.....(4) P. lapathifolium

5a. Racemes erect; outer sepals inconspicuously nerved.....(5) P. pennsylvanicum

6. Ocreae pubescent.....(6) P. hydropereroides

6a. Ocreae stringate or glabrous; when strigose, the hairs adnate at base..... 7

7. Calyx glandular-punelate..... 8

7a. Calyx not glandular..... 9

8. Glands distributed on the tube and lobes of the calyx, often most abundent toward its base; leaves 2 cm. wide or less.....(7) P. punctatum

8a. Glands whitish, confined to the inner lobes of the calyx.....(6) P. hydropeperoides

9. Ocreolae strongly overlapping, the raceme comparatively short and dense.....(8) P. persicaria

9a. Ocreolae separate or reaching to the base of the one next above, the raceme comparatively long and loose or interrupted.....(6) P. hydropeperoides

(1) P. erectum L. Knotweed. Aug-Oct.

(2) P. scandens L. Climbing False Buckwheat. Aug.-Nov.
(3) P. virginianum L. Aug-Sept.
(4) P. lapathifolium L. Smartweed. July-Nov.
(5) P. pennsylvanicum L. Pinkweed May-Oct.
(6) P. hydropeperoides Michx. Mild Water Pepper. June-Nov.
(7) P. punctatum Ell. Water-Smartweed. July-Oct.
(8) P. persicaria L. Lady's Thumb. Heart's-Ease. June-Oct.

34. CHENOPODIACEAE (Goosefoot Family)

1. CHENOPODIUM L. Goosefoot. Pigweed.

1. Foliage glandular and aromatic or strong-scented.....(1) C. ambrosoides

1a. Foliage not glandular, nor strong-scented.....(2) C. album

(1) C. ambrosoides L. Mexican-Tea. Aug-Nov.
(2) C. album L. Pigweed. Lamb's Quarters. July-Oct.

35. AMARANTHACEAE (Amaranth Family)

1. Leaves alternate.....1. AMARANTHUS

1a. Leaves opposite.....2. IRESINE

1. AMARANTHUS L. Amaranth

1. Stems with a pair of spines at the base of most leaves.....(1) A. spinosus

1a. Stems without spines.....(2) A. hybridus

(1) A. spinosus L. Thorny Amaranthus. July-Oct.
(2) A. hybridus L. Green Amaranthus. Pigweed. Wild Beet. Aug.-Oct.

2. IRESINE P.Br. Bloodleaf

(1) I. rhizomatosa Standl. Aug.-Oct.

36. NYCTAGINACEAE (Four-O'clock Family)

1. MIRABILIS L. Four-O'clock

(1) M. nyctaginea (Michx) MacM. June-Oct.

37. PHYTOLACCACEAE (Pokeweed Family)

1. PHYTOLACCA L. Pokeweed

(1) P. americana L. Poke. July-Oct.

38. AIZOACEAE

1. MOLLUGO L. Indian chickweed

(1) M. verticillata L. Carpetweed. June-Nov.

39. CARYOPHYLLACEAE (Pink Family)

1. Flowers gamosepalous..... 2

1a. Flowers not gamosepalous (sepals separate)..... 6

2. Styles 3-5..... 3

2a. Styles 2..... 5

3. Styles 5..... 4

3a. Styles 3.....1. SILENE

4. Calyx tube much exceeding calyx lobes in length. .....2. LYCHNIS

4a. Calyx tube much shorter than calyx lobes..... .....3. AGROSTEMMA

5. Calyx subtended by 1-3 pairs of bracts.....4. DIANTHUS

5a. Calyx ebracteate; flowers 2 cm. or more long..... .....5. SAPONARIA

6. Petals deeply cleft or two-parted.....6. CERASTIUM

6a. Petals entire..... 7

7. Styles 4-5, alternate with sepals.....7. SAGINA

7a. Styles 3.....8. ARENARIA

1. SILENE L. Catchfly. Campion

1. Flowers white; calyx inflated.....(1) S. cucubalus

1a. Flowers pink or red; calyx not inflated, expanded

only by ripening fruit.....(2) S. antirrhina

(1) S. cucubalus Wibel. Bladder-Campion, Maiden's-Tears. Apr.-Aug.

(2) S. antirrhina L. Sleepy Catchfly. May-Sept.

2. LYCHNIS L. Campion

(1) L. alba Mill. White Cockle or Campion, Evening-Lychnis. June-Sept.

3. AGROSTEMMA L. Corn-Cockle

(1) A. githago L. Purple Cockle. June-Sept.

4. DIANTHUS L. Pink. Carnation

(1) D. armeria L. Deptford Pink. May-July.

5. SAPONARIA L.

(1) S. officinalis L. Soapwort, Bouncing-Bet. July-Sept.

6. CERASTIUM L. Mouse-ear Chickweed

1. Pedicels much longer than the sepals; margins of bracts scarious; plants perennial.....(1) C. vulgatum

1a. Pedicels equal to or shorter than the sepals; margins of bracts not scarious; plants annual..(2) C. viscosum

(1) C. vulgatum L. Common Mouse-ear Chickweed. Apr.-Nov.

(2) C. viscosum L. Mar.-July.

7. SAGINA L. Pearlwort

(1) S. decumbens (Ell.) T.&G. Mar.-Aug.

8. ARENARIA L. Sandwort

(1) A. serpyllifolia L. Thyme-leaved Sandwort. Apr.-Aug.

40. CERATOPHYLLACEAE (Hornwort Family)

1. CERATOPHYLLUM L. Hornwort

(1) C. demersum L. Coontail. July-Sept.

41. NYPHAEACEAE (Water-lily Family)

1. Leaves entire, not split on one side; petiole joining the leaf approximately at the middle.....1. NELUMBO

1a. Leaves with a split or sinus on one side, petiole joining the leaf at the base of the sinus....2. NUPHAR

1. NELUMBO Adans.

(1) N. lutea (Willd.) Pers. Lotus Lily. June-Sept.

2. NUPHAR Sm. Yellow Pond-lily

(1) N. advena (Ait.) Ait. f. May-Oct.

42. RANUNCULACEAE (Crowfoot Family)

1. Petals absent (sepals often petaloid)..... 2

1a. Petals present..... 5

2. Leaves opposite or whorled on flowering stem... 3

2a. Leaves alternate, deeply lobed or compound..... 4

3. Leaves whorled.....3. ANEMONE

3a. Leaves opposite.....4. CLEMATIS

4. Flowers in large branched panicles, mostly unisexual.....2. THALICTRUM

4a. Flowers are long terminal spike-like racemes, bisexual.....6. CIMICIFUGA

5. Flowers irregular; upper sepal prolonged backward into a spur.....5. DELPHINIUM

5a. Flowers regular..... 6

6. Ovary with many ovules; petals without a gland scale on upper side at base.....7. ACTAEA

6a. Ovary with 1 ovule; petals with a gland scale on upper side at base.....1. RANUNCULUS

1. RANUNCULUS L. Crowfoot. Buttercup

1. Petals white; plants aquatic; leaves submersed..... 2

1a. Petals yellow..... 3

2. Beak of achene 0.7-1.5 mm. long.....(1) R. longirostris

2a. Beak of achene 0.2-0.5 mm. long.....(2) R. trichophyllus

3. Achenes flattened, with a sharp, winged boarder; stems bulbous at base.....(3) R. bulbosus

3a. Achenes turgid, without a winged boarder, base of stem not bulbose.....(4) R. micranthus

(1) R. longirostris Godr. White Water-Crowfoot. June-Sept.
(2) R. trichophyllus Chaix. White Water-Crowfoot. July-Sept.
(3) R. bulbosus L. Bulbous Crowfoot or Buttercup. Mar.-June.

(4) R. micranthus Nutt. Mar.-June.

2. THALICTRUM L. Meadow-Rue

(1) T. revolutum DC. Purple, Skunk- or Wax-leaved Meadow Rue. May-July.

3. ANEMONE L. Anemone

(1) A. virginiana L. Thimbleweed. June-July.

4. CLEMATIS L. Clematis

1. Flowers paniculate; sepals thin; flowers white.....(1) C. virginiana

1a. Flowers solitary or long peduncled; sepals thick and leather-like.....(2) C. viorna

(1) C. virginiana L. Virgin's-bower, Devil's-darning-needle. July-Sept.
(2) C. viorna L. Leather-flower. June-Aug.

5. DELPHINIUM L. Larkspur

(1) D. ajacis L. Rocket-Larkspur. June-Sept.

6. CIMICIFUGA L. Bugbane. Rattletop

(1) C. racemosa (L.) Nutt. Black Snakeroot, Black Cohosh. June-Sept.

7. ACTAEA L. Banberry. Necklaceweed. Cohosh

(1) A. pachypoda Ell. White Baneberry. White Cohosh. Doll's Eye. May-June.

43. MENISPERMACEAE (Moonseed Family)

1. Petals present; seed incurved or crescent shaped... 2

1a. Petals absent; seed saucer-shaped.....3. CALYCOCARPUM

2. Stamens 6.....1. COCCULUS

2a. Stamens 12-24.....12. MENISPERMUM

1. COCCULUS DC. Coralbeads

(1) C. carolinus (L.) DC. Red-berried Moonseed, Snailseed. July-Aug.

2. MENISPERMUM L. Moonseed

(1) M. canadense L. Yellow Parilla.

3. CALYCOCARPUM Nutt. Cupseed

(1) C. lyoni (Pursh) Gray. May-June.

44. MAGNOLIACEAE (Magnolia Family)

1. LIRIODENDRON L. Tulip-Tree

(1) L. tulipifera L. Tulip-Poplar

45. LAURACEAE (Laurel Family)

1. Leaves, at least some of them lobed; branchlets green.....1. SASSAFRAS

1a. Leaves entire; branchlets not green.....2. LINDERA

1. SASSAFRAS Nees. Sassafras

(1) S. albidum (Nutt.) Nees. White Sassafras.

2. LINDERA Thunb. Wild Allspice. Feverbush.

(1) L. bensoin (L.) Blume. Spicebush.

46. CAPPARIDACEAE (Caper Family)

1. POLANTSIA Raf. Clammyweed

(1) P. trachysperma T.&Q. June-Sept.

47. CRUCIFERAE (Mustard Family)

1. Flowers yellow..... 2

1a. Flowers white, pink, blue, or purple..... 4

2. Fruit short, 3 times as long as broad or less.....1. RORIPPA

2a. Fruit elongate, much more than 3 times as long as broad..... 3

3. Lower leaves grouped in a distinct winter rosette; mature fruit sometimes 4-angled.....2. BARBAREA

3a. Lower leaves not grouped in a distinct winter rosette; fruit not 4-angled.....3. SISYMBRIUM

4. Fruit short, less than 3 times as long as wide. 5

4a. Fruit elongate, 4 times or more longer than wide..... 6

5. Two or more seeds in each cell.....4. THLASPI

5a. One seed per cell..... .....5. LEPIDUM

6. Leaves simple, entire or toothed, or only shallowly lobed..... 7

6a. Leaves palmately or pinnately divided or pinnatifid.....6. NASTURTIUM

7. Leaves various toothed..... 8

7a. Leaves only shallowly lobed, or with 1 or 2 lateral lobes on petiole.....7. CARDIMINE

8. Petals white.....8. ARABIS

8a. Petals pink to purple.....7. CARDIMINE

1. RORIPPA Scop. Yellow Cress

(1) R. sessiliflora (Nutt.) H itchc. Apr.-Oct.

2. BARBAREA R. Br. Winter-Cress

(1) B. vulgaris R. Br. Common Winter-Cress, Yellow Rocket. Apr.-Aug.

3. SISYMBRIUM L.

(1) S. officinale (L.) Scop. Hedge-Mustard. May-Oct.

4. THLASPI L. Penny-Cress

(1) T. arvense L. Field Penny-Cress. Apr.-Aug.

5. LEPIDIUM L. Peppergrass

1. Petals equaling the sepals; silicles 2.5-4 mm. long.....(1) L. virginicum

1a. Petals wanting or shorter than the sepals; silicles 2-3 mm. long, broadly curved at summit..... .....(2) L. densiflorum

(1) L. virginicum L. Poor-Man's Pepper. June-Nov.

(2) L. densiflorum Schrad. May-Sept.

6. NASTURTIUM R. Br. Watercress

(1) N. officinale R. Br. True Watercress. Apr.-Oct.

7. CARDAMINE L. Bitter Cress

1. Leaves shallowly lobed with sometimes 1 or 2 small lateral lobes on petiole.....(1) C. rotundifolia

1a. Leaves pinnate or deeply pinnatifid..... 2

2. Rachis of stem leaves winged; flowers about 4 mm. broad; plants of damp or wet soils..... .....(2) C. pennsylvanica

2a. Rachis of stem not winged; flowers about 2 mm. broad; plants of dry soils.....(3) C. parviflora

3. HYDRANGEA L. Hydrangea

(1) H. arborescens L. Wild Hydrangea, Seven-bark. June-July.

4. HEUCHERA L. Alumroot

(1) H. villosa Michx. June-Aug.

5. PENTHORUM L. Ditch-Stonecrop

(1) P. sedoides L. July-Oct.

50. HAMAMELIDACEAE (Witch-hazel Family)

1. LIQUIDAMBAR L. Sweet Gum

(1) L. styraciflua L. Sweet Gum.

51. PLANTANACEAE (Plane-tree Family)

1. PLANTANUS L. Sycamore. Buttonwood. Plane-tree.

(1) P. occidentalis L. Sycamore.

52. ROSACEAE (Rose Family)

1. Plants woody (trees, shrubs, or woody vines..... 2

1a. Plants herbaceous..... 9

2. Ovary or ovaries inferior or appearing so, only the styles or the summit of the ovary protruding above the hypanthium..... 3

2a. Ovary or ovaries superior..... 6

3. Styles 2-5..... 4

3a. Styles many.....9. ROSA

4. Stems and branches thorny..... 5

4a. Stems and branches not thorny.....11. PYRUS

5. Styles distinct; 1 ovule in each cell....12. CRATAEGUS

5a. Styles connate at base; 2 ovules in each cell..... .....11. PYRUS

6. Ovary 1; leaves simple.....10. PRUNUS

6a. Ovary 2-many; leaves simple or compound..... 7

7. Leaves compound; bractlets 5.....6. POTENTILLA

7a. Leaves simple..... 8

8. Stipules or stipule scars present; leaves more or less lobed.....1. PHYSOCARPUS

8a. Stipules none; leaves entire to merely serrate.....2. SPIRAEA

9. Leaves palmately compound or tri-foliate..... 10

9a. Leaves pinnately or ternately compound, or dissected..... 14

10. Ovaries 2-10, petals, white or pink...3. GILLENIA

10a. Ovaries numerous, more than 10..... 11

11. Bractlets entire, or obscurely toothed on lateral margins only..... 12

11a. Bractlets 3-toothed at summit.....5. DUCHESNEA

12. Petals yellow.....6. POTENTILLA

12a. Petals white..... 13

13. Leaves with numerous teeth.....4. FRAGARIA

13a. Leaves 3-toothed at summit.....6. POTENTILLA

14. Hypanthium bearing hooked princkles around the summit.....8. AGRIMONIA

14a. Hypanthium not bearing hooked prickles around the summit..... 15

15. Styles short and inconspicuous.....6. POTENTILLA

15a. Styles long, plumose or jointed.....7. GEUM

1. PHYSOCARPUS Maxim. Ninebark

(1) P. opulifolius (L.) Maxim. Ninebark. May-July.

2. SPIRAEA L. Spiraea

(1) S. tomentosa L. Hardbark, Steeple-bush. July-Sept.

3. GILLENIA Moench. Indian-Physic

(1) G. stipulata (Muhl.) Baill. American-ipecac. May-July.

4. FRAGARIA L. Strawberry.

(1) F. virginiana Duchesne. Apr.-July.

5. DUCHESNEA Sm. Indian Strawberry

(1) D. indica (Andr.) Focke. Apr.-June.

6. POTENTILLA L. Five-finger

1. Leaves 3-parted.....(1) P. norvegica

1a. Leaves 5-7 parted.....(2) P. recta

(1) P. norvegica L. June-Oct.
(2) P. recta L. June-Aug.

7. GEUM L. Avens

1. Petals yellow; head of achenes conspicuously stiptate above the calyx.....(1) G. vernum

1a. Petals white; head of achene sessile..(2) G. canadense

(1) G. vernum (Raf.) T. & G. May-June.
(2) G. canadense Jacq. June-Aug.

8. AGRIMONIA L. Agrimony. Cocklebur

1. Lower surface of leaves subglabrous or merely hirsute.....(1) A. rostellata

1a. Lower surface of leaves pubescent.....(2) A. pubescens

(1) A. rostellata Wallr. July-Sept.
(2) A. pubescens Wallr. July-Sept.

9. ROSA L. Rose

1. Styles united into a protruding column longer than

the stamens..... .....(1) R. setigera

1a. Styles free, shorter than the stamens..... 2

2. Leaves finely toothed; internodal thorns none or very few.....(2) R. palustris

2a. Leaves coarsely toothed; internodal thorns none or many..... 3

3. Leaves commonly lustrous above; stipules thin; internodal thorns commonly none.....(3) R. virginiana

3a. Leaves dull to only slightly lustrous above; stipules thick; internodal thorns many.....(4) R. carolina

(1) R. setigera Michx. Climbing Rose, Prairie-Rose. June-July.
(2) R. palustris Marsh. June-July.
(3) R. virginiana Mill. June-July.
(4) R. carolina Carolina Rose. June.

10. PRUNUS L. Plum. Cherry

1. Fruit a black cherry; 8-10 mm. in diameter..... .....(1) P. serotina

1a. Fruit a red plum; 12 mm. in diameter(2) P. angustifolia

(1) P. serotina Ehrh. Black Cherry.
(2) P. angustifolia Marsh. Chickasaw Plum.

11. PYRUS L.

1. Leaves lanceolate to broadly ovate, sharply acute or acuminate.....(1) P. coronaria

1a. Leaves lanceolate to elliptic, obtuse or subacute.....(2) P. angustifolia

(1) P. coronaria L. Wild Crab-Apple.
(2) P. angustifolia Ait. Southern Wild Crab-Apple

12. CRATAEGUS L. Hawthorn. Red Haw

1. Veins of leaves running to sinuses as well as to the points of the lobes..... (1) C. phaenopyrum

1a. Veins running only to the lobes or teeth..... 2

2. Floral leaves narrowed or attenuate at base.... 3

2a. Floral leaves broad at the rounded or truncate base, lobed or incised.....(2) C. mollis

3. Leaves glossy above.....(3) C. crus-galli

3a. Leaves dull above.....(4) C. virides

(1) C. phaenopyrum L. Washington Thorn. June-Oct.
(2) C. mollis T. & G. Schelle. May-Oct.
(3) C. crus-galli L. Cockspur-Thorn. May-June.
(4) C. virides L. May-Oct.

53. LEGUMINOSAE (Pulse-Family)

1. Plants woody (trees, shrub, or woody vines)..... 2

1a. Plants herbaceous, or only slightly woody at base.. 7

2. Leaves simple..... 5. CERCIS

2a. Leaves compound..... 3

3. Leaves bipinnately compound..... 4

3a. Leaves pinnately compound..... 5

4. Stems usually thorny; leaflets 1 cm. wide or less.....3. GLEDITSIA

4a. Stems thornless; leaflets 2-3 cm. wide..... .....2. GYMNOCLADUS

5. Petal 1; leaves glandular-dotted.....10. AMORPHA

5a. Petals 3-5; leaves without glandular dots..... 6

6. Leaves, at least some of them, bipinnately compound.....3. GLEDITSIA

6a. Leaves all pinnately compound.....12. ROBINIA

7. Leaves simple..... 8

7a. Leaves compound..... 9

8. Inflorescence terminal or arising opposite the leaves.....6. BAPTISIA

8a. Inflorescence axillary; only the lower leaves simple.....24. RHYNCHOSIA

9. Leaves bipinnately compound.....1. DESMANTHUS

9a. Leaves pinnately compound..... 10

10. Leaves even pinnate, or terminal leaflet represented by a tendril.....17. VICIA

10a. Leaves odd pinnate, palmate, or trifoliate.... 11

11. Leaflets more than 3.....18. APOIS

11a. Leaflets 3..... 12

12. Leaflets surrulate..... 13

12a. Leaflets entire..... 18

13. Terminal leaflet sessile or nearly so.....7. TRIFOLIUM

13a. Terminal leaflet distinctly stalked..... 15

14. Flowers blue or white..... 15

14a. Flowers yellow..... 16

15. Flowers blue.....9. MEDICAGO

15a. Flowers white.....8. MELILOTUS

16. Inflorescence a long slender raceme..8. MELILOTUS

16a. Inflorescence a short or head-like raceme..... 17

17. Corolla persistent after flowering.....7. TRIFOLIUM

17a. Corolla deciduous.....8. MELILOTUS

18. Flowers yellow or cream colored..... 19

18a. Flowers blue, purple, to pink or white..... 22

19. Inflorescence an open peduncled raceme..... 20

19a. Inflorescence head-like umbels, spikes or heads.... 21

20. Racemes terminal; terminal leaflet sessile.....6. BAPTISIA

20a. Racemes axillary; terminal leaflet stalked.... .....24. RHYNICHOSIA

21. Flowers cream-colored; calyx lobes equal in..... size.....15. LESPEDEZA

21a. Flowers bright yellow; calyx lobes distinctly unequal..... 20. STYLOSANTHES

22. Stems twining or trailing..... 23

22a. Stems erect..... 27

23. Calyx-lobes 5..... 24

23a. Calyx-lobes 4..... 25

24. Flowers pale blue, 2-5 cm. long, in clusters of 1-4.....21. CLITORIA

24a. Flowers purple, 10-12 mm. long, numerous, in slender raceme.....19. PHASEOLUS

25. Keel-petals strongly curved upward; flowers in long peduncled heads.....20. STROPHOSTYLES

25a. Keel-petals nearly straight..... 26

26. Flowers subtended by a pair of minute bracteoles; terminal leaflet 2-5 cm. long.....23. GALACTIA

26a. Flowers not subtended by a pair of bracteoles .....22. AMPHICARPA

27. Inflorescence a terminal raceme or spike..... 28

27a. Inflorescence axillary..... 29

28. Terminal leaflet distinctly stalked.14. DESMOSIUM

28a. Terminal leaflet sessile.....6. BAPTISIA

29. Stems prostrate; leaves stipulate.....14. DESMODIUM

29a. Stems erect; leaves without stipules.....15. LESPEDEZA

1. DESMANTHUS Willd.

(1) D. illinoensis (Michx.) MacM. Prairie-Mimosa, Prickleweed. June-Aug.

2. GYMNOCLADUS Lam. Kentucky Coffee-Tree

(1) G. dioica (L.) L. Koch. May-June.

3. GLEDITSIA L. H oney-Locust

(1) G. triacanthos L. Honey-Shuck. May-June.

4. CASSIA L. Senna

1. Leaves large, not sensitive to touch.....
.....(1) C. marilandica

1a. Leaves small, sensitive to touch..... 3

2. Stamens 10.....(2) C. fasciculata

2a. Stamens 5.....(3) C. nicititans

(1) C. marlandica L. Wild Senna. July-Aug.
(2) C. fasciculata Michx. Pariridge-Pea, Prairie-Senna, Golden Cassia. July-Sept.
(3) C. nicititans L. Wild Sensitive Plant. July-Sept.

5. CERCIS L. Redbud

(1) C. canadensis L. Redbud. Mar.-June.

6. BAPTISIZ Vent. False Indigo

(1) B. leucantha T. & G. White or Prairie False-Indigo. May-July.

7. TRIFOLIUM L. Clover, Trefoil

1. Flowers yellow, or turning brown with age.....
.....(1) T. procumbens

1a. Flowers white to pink, purple, or red, but not yellow..... 2

2. Flowers sessile in the heads..... 3

2a. Flowers distinctly peduncled in the heads..... 5

3. Individual flowers 12-20 mm. long..... 4

3a. Individual flowers 5-7 mm. long; heads peduncled; calyx exceeding corolla.....(2) T. arvense

4. Heads sessile or nearly so; median and lower leaves alternate.....(3) T. pratense

4a. Heads distinctly stalked; all leaves opposite.. .....(4) T. incarnatum

5. Stems creeping.....(5) T. repens

5a. Stems erect or ascending.....(6) T. hybridum

(1) T. procumbens L. Low H op-Clover. May-Sept.
(2) T. arvense L. Rabbit-foot-, Old-field, or Stone-Clover. May-Sept.
(3) T. pratense L. Red Clover. May-Sept.
(4) T. incarnatum L. Crimson or Italian Clover. May-Sept.
(5) T. repens L.
(6) T. hybridum L. Alsike Clover. June-Oct.

8. MELILOTUS Mill. Melilot. Sweet Clover

1. Flowers white.....(1) M. alba

1a. Flowers yellow; 5-7 mm. long; pods glabrous..... .....(2) M. officinalis

(1) M. alba Desr. White Sweet Clover. June-Oct.
(2) M. officinalis (L.) Pers. Yellow Sweet Clover. June-Oct.

9. MEDICAGO L. Medick

(1) M. sativa L. Alfalfa. May-Oct

10. AMORPHA L.

(1) A. fruticosa L. False or Bastard Indigo, Indigo-bush. May-June.

11. TEPHROSIA Pers. Hoary Pea

(1) T. virginiana (L.) Pers. Goat's-Rue, Catgut, Rabbit's Pea. May-Aug.

12. ROBINIA L. Locust

(1) R. pseudo-acacia L. Black Locust. May-June

13. ASTRAGALUS L. Milk-Vetch

(1) A. canadensis L. June-Aug.

14. DESMODIUM Desv. Beggar's-Ticks

1. Stipe of fruit distinctly longer than the remains of the stamens; calyx scarcely bilabiate..... 2

1a. Stipe of fruit not exceeding the remains of the stamens; calyx distinctly bilabiate..... 3

2. Flowers 6-8 mm. long; stipe of fruit glabrous; flowers usually borne on a leaf-less branch arising from base of plant.....(1) D. nudiflorum

2a. Flowers 4-6 mm. long; stipe of fruit finely pubescent; panicle terminal..... (2) D. pauciflorum

3. Stems prostrate or trailing..... 4

3a. Stems erect or ascending..... 5

4. Leaflets ovate; fruit twisted, joints glabrous. .....(3) D. ochroleucum

4a. Leaflets rotund or broadly obovate; fruit not twisted, joints pubescent.....(4) D. rotundifolium

5. Terminal leaflets linear to narrowly lanceolate, not more than $\frac{1}{4}$ as wide as long; leaves thin..... .....(5) D. paniculatum

5a. Terminal leaflets lanceolate to ovate or broadly elliptic; more than a fourth as wide as long..... 6

6. Lower surface of leaves pubescent with hooked hairs; petiole longer than stalk of terminal leaflet.....(6) D. canescens

6a. Leaves glabrous to pubescent, but without hooked hairs..... 7

7. Lower margin of the joints of the fruit gradually curved, nearly semicircular in outline..... 8

7a. Lower margin of the joints of the fruit abruptly curved near the middle.....(5) D. paniculatum

8. Flowers 8-13 mm. long; stipe of fruit 2-6 mm... .....(7) D. canadense

8a. Flowers 4-6 mm. long; stipe of fruit 1-3 mm. ... .(8) P. ciliare

(1) D. nudiflorum (L.) DC. July-Aug.
(2) D. pauciflorum (Nutt.) DC. June-Aug.
(3) D. ochroleucum M.A. Curtis. Summer.
(4) D. rotundifolium DC. July-Sept.
(5) D. paniculatum (L.) DC. June-Sept.
(6) D. canescens (L.) DC. Summer.
(7) D. canadense (L.) DC. July-Aug.
(8) D. ciliare (Muhl.) DC. Summer.

15. LESPEDEZA Michx. Bush-Clover

1. Stipules subulate or setaceous, deciduous; calyx-lobes acuminate..... 2

1a. Stipules brown, ovate-lanceolate, persistent; calyx lobes blunt..... 9

2. Flowers in axillary racemes, petals violet or purple..... 3

2a. Flowers yellowish-white, sometimes with a purple spot..... 7

3. Peduncles of racemes longer than the leaves that subtend them..... 4

3a. Peduncles of racemes shorter than the leaves that subtend them..... 6

4. Wings equaling or exceeding the keel-petals; plants trailing or procumbent..... 5

4a. Wings shorter than the keel-petals; stems erect or strongly ascending.....(1) L. violaceae

5. Pubescence of stem and petiole appressed.(2) L. repens

5a. Pubescence of stem and petioles spreading..... .....(3) L. procumbens

6. Leaves oblong or linear-oblong, 3-7 mm. wide, usually 4-6 times as long.....(4) L. virginica

6a. Leaves elliptic, 6-20 mm. wide, 1.5-3 times as long.....(5) L. intermedia

7. Flowers in spikes or heads; calyx lobes essentially

equal in length, separate.....

7a. Flowers axillary, solitary or in clusters of 2 or 3; upper calyx lobes connate half to over half their length..... (6) L. cuneata

8. Calyx-lobes 6-10 mm. long, greatly exceeding the fruit..... (7) L. capitata

8a. Calyx-lobes 3-7 mm. long, slightly shorter than the fruit to somewhat exceeding it.....(8) L. hirta

9. Stems retrosely appressed-pubescent.....(9) L. striata

9a. Stem antrorsely appressed-pubescent..... .....(10) L. stipulaceae

(1) L. violaceae (L.) Pers. July-Sept.
(2) L. repens (L.) Bart. June-Sept.
(3) L. procumbens Michx. Aug-Oct.
(4) L. virginica (L.) Britt. July-Sept.
(5) L. intermedia (S. Wats.) Britt. July-Sept.
(6) L. cuneata (Dumont) G. Don. Sept-Oct.
(7) L. capitata Michx. July-Sept.
(8) L. hirta (L.) Hornem. July-Oct.
(9) L. striata (Thumb.) H. & A. Japanese Clover. July-Oct.
(10) L. spipulacea Maxim. Korean Clover. July-Oct.

16. STYLOSANTHES Sw. Pencil-flower

(1) S. biflora (L.) BSP. June-July.

17. VICIA L. Vetch. Tare

1. Inflorescence of solitary or paired, sessile or subsessile axillary flowers.....(1) V. angustifolia

1a. Inflorescence of distinctly peduncled racemes..... .....(2) V. dasycarpa

(1) V. angustifolia Reichard. Common Vetch. June-Oct.
(2) V. dasycarpa Ten. May-Oct.

18. APIOS Medic. Groundnut. Wild Bean

1. Standard brown-purple.....(1) A. americana

1a. Standard greenish white.....(2) A. priceana

(1) A. americana Medic. July-Sept.
(2) A. priceana Robins. July-Sept.

19. PHASEOLUS L. Kidney-Bean

(1) P. polystachios (L.) BSP. Wild Bean. July-Sept.

20. STROPHOSTYLES Ell. Wild Bean

1. Calyx-tube (excluding lobes) and bracteoles glabrous or sparsely pubescent with a few appressed hairs, flowers 8-10 mm. long..... 2

1a. Calyx-tube and bracteoles densely hirsute; flowers 5-8 mm. long.....(1) S. leiosperma

2. Bracteoles lanceolate, acute, extending above sinuses between calyx lobes; leaves more or less lobed.....(2) S. helvoa

2a. Bracteoles ovate or oblong, blunt, half or less than half as long as calyx tube; leaves only rarely lobes.....(3) S. umbellata

(1) S. leiosperma (T. & G.) Piper. July-Oct.
(2) S. helvoa (L.) Ell. June-Oct.
(3) S. umbellata (Muhl.) Britt. July-Oct.

21. CLITORIA L. Butterfly Pea

(1) C. mariana L. June-Aug.

22. AMPHICARPA Ell. Hog-Peanut.

(1) A. bracteata (L.) Fern. Aug-Sept.

23. GALACTIA P. Br. Milk-Pea

(1) G. volubilis (L.) Britt. July-Aug.

24. RHYNCHOSIA Lour.

(1) R. tomentosa (L.) H. & A. July-Sept.

54. LINACEAE (Flax Family)

1. LINUM

1. Inner sepals glandular-toothed at maturity.....
.....(1) L. medium

1a. Inner sepals entire.....(2) L. virginianum

(1) L. medium (Planch.) Britt. July-Aug.
(2) L. virginianum L. July-Aug.

55. OXALIDACEAE (Wood-Sorrel Family)

1. OXALIS L. Wood-Sorrel. Lady's Sorrel

1. Flowers rose-purple or sometimes white; leaves..... .....(1) O. violacea

1a. Flowers yellow; leaves cauling..... 2

2. Petals 5-11 mm. long.....(2) O. stricta

2a. Petals 12-20 mm. long.....(3) O. grandis

(1) O. violacea L. Violet Wood-Sorrel. Apr.-July.
(2) O. stricta L. Yellow Wood-Sorrel. May-Oct.
(3) O. grandis Small. June-Sept.

56. GERANIACEAE (Geranium Family)

1. GERANIUM L. Crane's-bill

1. Petals 12-17 mm. long; plants from a short rhizome; fruiting pedicel much longer than calyx..... .....(1) G. maculatum

1a. Petals usually less than 8 mm. long; plants from a tap root; fruiting pedical shorter or only slightly longer than calyx.....(2) G. carolinianum

(1) G. maculatum L. Wild or Spotted Geranium. Apr.-June.
(2) G. carolinianum L. May-July.

57. RUTACEAE (Rue Family)

1. PTELEA L. Shrubby Trefoil. Hop-Tree

(1) P. trifoliata L. Stinking Ash, Wafer Ash. May-July.

58. POLYGALACEAE (Milkwort Family)

1. POLYGALA L. Polygala. Milkwort

1. Corolla 7-10 mm. long, nearly 3 times as long as the

wings, spike dense.....(1) P. incarnata

1a. Corolla 5 mm. long or less, equal to or shorter than the wings..... 2

2. Plants perennial arising from a thick knotty root or several stems arising from the same base.... .....(2) P. senega

2a. Plants annual arising from a small taproot..... 3

3. Leaves all alternate; racemes dense, head-like, rounded or short-cylindric.....(3) P. sanguinea

3a. Leaves, at least the lower ones, whorled; racemes slender.....(4) P. verticillata

(1) P. incarnata L. June-Nov.
(2) P. senega L. Seneca-Snakeroot. May-July.
(3) P. sanguinea L. June-Oct.
(4) P. verticillata L. June-Oct.

59. EUPHORBIACEAE (Spurge Family)

1. Juice milky, perianth absent.....5. EUPHORBIA

1a. Juice not milky, perianth present, either in staminate or pistilate flowers or both..... 2

2. Ovules 2 in each cell..... 4. PHYLLANTHOS

2a. Ovules 1 in each cell..... 3

3. Plants armed with stinging hairs.....3. TRAGIA

3a. Plants without stinging hairs..... 4

4. Pistillate flowers subtended by a leafy bract.....2. ACALYPHA

4a. Pistillate flowers not subtended by a leafy bract; leaves pubescent beneath.....1. CROTON

1. CROTON L. Croton

1. Leaves toothed; summit of petiole glandular..... .....(1) C. glandulosus

1a. Leaves entire to merely undulate, not glandular.... 2

2. Ovary 2-celled; styles 2, each bifid, stigmas therefore 4.....(2) C. monothogynus

2a. Ovary 3-celled; styles 3, each 2-3 times divided, stigmas therefore 12-24.....(3) C. capitatus

(1) C. glandulosus L. July-Oct.
(2) C. monanthogynus Michx. Prairie-Tea. June-Sept.
(3) C. capitatus Michx. Hogwort, Woolly Croton. June-Oct.

2. ACALYPHA L. Three-seeded Mercury

1. Pistillate flowers in terminal spikes.....
.....(1) A. ostryaefolia

1a. Pistillate flowers axillary..... 2

2. Lobes of bracts 5-7; leaf blades rhombic-ovate.
.....(2) A. rhomboidea

2a. Lobes of bracts 9-15; leaf blades ovate-lanceolate to linear..... 3

3. Primary leaves lanceolate; tapering to tip; petioles one-third to one-half the length of blade.....
.....(3) A. virginica

3a. Primary leaves lance-oblong to linear, mostly obtuse or abruptly contracted at apex; petioles rarely more than one-fourth length of blade.....(4) A. gracilens

(1) A. ostryaefolia Riddell. July-Oct.
(2) A. rhomboidea Raf. July-Oct.
(3) A. virginica L. Aug-Oct.
(4) A. gracilens Gray. Aug-Oct.

3. TRAGIA L.

(1) T. cordata Michx. July-Sept.

4. PHYLLANTHUS

(1) P. carolinensis Walt. June-Sept.

5. EUPHORBIA L. Spruge

1. Glands of involucre with conspicuous petal-like appendages..... 2

1a. Glands of involucre without petal-like appendages.. .....(1) E. dentata

2. Petal-like appendages 4; leaves all opposite... 3

2a. Petal-like appendages 5; cauline leaves alternate.....(2) E. corollata

3. Leaves usually oblong, 2-3 times as long as broad.....(3) E. maculata

3a. Leaves usually obovate-oblong or obovate, less than twice as long as broad.....(4) E. humistrata

(1) E. dentata Michx. July-Sept.
(2) E. corollata L. Flowering Spurge, Tranp's Spurge, Wild Hippo. June-Oct
(3) E. maculata L. June-Oct.
(4) E. humistrata Engelm. Aug.-Oct.

60. CALLITRICHACEAE (Water-Starwort Family)

1. CALLITRICHE L. Water-Starwort

(1) C. heterophylla Pursh. Apr.-Dec.

61. ANACARDIACEAE (Cashew Family)

1. RHUS L. Sumac. Poison Ivy

1. Leaflets 3..... 2

1a. Leaflets 7-21.....(1) R. copallina

2. Fruit grayish-white.....(2) R. radicans

2a. Fruit red.....(3) R. aromatica

(1) R. copallina L. Dwarf or Shining Sumac. July-Sept.
(2) R. radicans L. Poison Ivy. May-July.
(3) R. aromatica Ait. May-July.

62. AQUIFOLIACEAE (Holly Family)

1. ILEX L. Holly

1. Leaves leathery, evergreen, spine-tipped..(1) I. opaca

1a. Leaves thin, deciduous, not spine-tipped..... .....(2) I. decidua

(1) I. opaca Ait. American Holly. May-June.
(2) I. decidua Walt. Possum Haw.

63. CELASTRACEAE (Staff-tree Family)

1. EUONYMUS L. Spindle-Tree

1. Petals and calyx-lobes 4; fruit smooth externally.. .....(1) E. autopurpureus

1a. Petals and calyx-lobes 5; fruit strongly tuberculate. 2

2. Erect loosely branching shrubs; uppermost leaves lanceolate.....(2) E. americanus

2a. Trailing or procumbent shrubs; uppermost leaves obovate.....(3) E. obovatus

(1) E. autopurpureus Jacq. Burning-Bush, Wahoo. June-July.
(2) E. americanus L. Strawberry-Bush, Busting-Heart. May-June
(3) E. obovatus Nutt. Running Strawberry-Bush. May-June.

64. STAPHYLEACEAE (Bladdernut Family)

1. STAPHYLEA L. Bladdernut

(1) S. trifolia L. Apr.-June.

65. ACERACEAE

1. ACER L.

1. Leaves compound.....(1) A. negundo

1a. Leaves simple..... 2

2. Veins of leaf 7.....(2) A. platanoides

2a. Veins of leaf 3-5..... 3

3. Buds ovoid, 4 bud scales usually showing..... 4

3a. Buds conical; 6 scales usually showing..... 5

4. Leaves deeply lobed to beyond the middle, narrowed at base; twigs ill-smelling, bark flaking.....(3) A. saccharinum

4a. Lobes not reaching the middle, not narrowed at base; twigs not ill-smelling, bark tight, not flaking.....(4) A. rubrum

5. Leaves yellowish-green beneath, drooping at margins, buds hairy.....(5) A. nigrum

5a. Leaves not yellowish-green beneath, not drooping at margins, buds smooth.....(6) A. saccharum

(1) A. negundo L. Boxelder.
(2) A. platanoides L. Norway Maple. Escaped.
(3) A. saccharinum L. Silvermaple, Watermaple.
(4) A. rubrum L. Red Maple.
(5) A. nigrum Michx.f. Black Maple.
(6) A. saccharnum Marsh. Sugar Maple.

66. HIPPOCASTANACEAE (Buckeye Family)

1. AESCULUS L. Horse-Chestnut. Buckeye

(1) A. glabra Willd. Ohio Buckeye.

67. BALSAMINACEAE (Touch-Me-Not Family)

1. IMPATIENS L. Touch-Me-Not

1. Spur 5 mm. long or less, at right angle to corolla; corolla light yellow to cream.....(1) I. pallida

1a. Spur 6 mm. or more long, reflexed and parallel to the orange corolla.....(2) I. capensis

(1) I. pallida Nutt. Pale Touch-Me-Not or Snapweed. July-Sept.
(2) I. capensis Meerb. Spotted Touch-Me-Not. June-Sept.

68. RHAMNACEAE (Buckthorn Family)

1. Veins of leaves 3 from base.....1. CEANOTHUS

1a. Veins not 3 from base; leaves pinnately veined.....2. RHAMNUS

1. CEANOTHUS L. Redroot

(1) C. americanus L. New Jersey Tea. May-Sept.

2. RHAMNUS L. Buckthorn

(1) R. caroliniana Walt. Carolina Buckthorn.

69. VITACEAE (Vine Family)

1. Leaves palmately compound.....1. PARTHENOCISSUS

1a. Leaves simple or ternately compound..... 2

2. Petals united at summit.....2. VITIS

2a. Petals not united at summit.....3. AMPELOPSIS

1. PARTHENOCISSUS Planch. Virginia Creeper

(1) P. quinquefolia (L.) Planch. June-Aug.

2. VITIS L. Grape. Wild Grape

(1) V. aestivalis Michx. Summer or Pigeon-Grape. June-Sept.

3. AMPELOPSIS Michx.

1. Leaves simple.....(1) A. cordata

1a. Leaves bipinnately compound.....(2) A. arborea

(1) A. cordata Michx. May-July.
(2) A. arborea (L.) Koehne. Pepper-Vine. June-Aug.

70. TILIACEAE (Linden Family)

1. TILIA L.

1. Mature leaves pubescent or felt-tomentose beneath... .....(1) T. heterophylla

1a. Mature leaves glabrous except for axillary tufts of hair.....(2) T. americana

(1) T. heterophylla Vent. White Basswood. June-July.
(2) T. americana L. American Basswood. June-Aug.

71. MALVACEAE (Mallow Family)

1. Flowers pale yellow.....1. SIDA

1a. Flowers pink to white with a darker red to purple center.....2. HIBISCUS

(1) S. spinosa L. Prickly Mallow. June-Oct

2. HIBISCUS L. Rose-Mallow

1. Calyx and under-surface of leaf glabrous or nearly so.....(1) H. militaris

1a. Calyx and under-surface of leaf densely but finely stellate.....(2) H. moscheutos

(1) H. militaris Cav. Halberd-leaved Rose-Mallow. July-Sept.

(2) H. moscheutos L. Swamp-Rose-Mallow. July-Sept.

72. GUTTIFERAE (St. Jone's-wort Family)

1. Flowers 4-merous.....1. ASCYRUM

1a. Flowers 5-merous.....2. HYPERICUM

1. ASCYRUM L. St. Peter's Wort

(1) A. hypericoides L. St. Andrew's Cross. July-Sept.

2. HYPERICUM L. St. John's Wort

1. Flowers pink, flesh-colored, or greenish .....(1) H. tubulosum

1a. Flowers yellow..... 2

2. Styles united..... 3

2a. Styles distinctly separate, often divergent..... 4

3. Plants herbaceous, or only slightly woody at base.....(2) H. sphaerocarpum

3a. Plants distinctly woody shrubs.....(3) H. frondosum

4. Capsule 3-celled; stamens connate at base into 3-5 fascicles..... 5

4a. Capsule 1-celled; stamens not connate at base... 6

5. Branches sharply ridged below the base of each leaf.....(4) H. perforatum

5a. Branches terete or nearly so.....(5) H. punctatum

6. Leaves 3-7 veined; inflorescence cymose.....(6) H. multilum

6a. Leaves distinctly 1-veined; inflorescence racemose..... 7

7. Leaves 1-3 mm. long, subulate, appressed.....(7) H. gentianoides

7a. Leaves 5-15 mm. long, linear.....(8) H. drummondi

(1) H. tubulosum Walt. Marsh St. John's Wort.
(2) H. sphaerocarpum Michx. July-Sept.
(3) H. frondosum Michx. June-Aug.
(4) H. perforatum L. Common St. John's Wort. June-Sept.
(5) H. punctatum Lam. June-Sept.
(6) H. multilum L. July-Sept.
(7) H. gentianoides (L.) BSP. Orange-grass, Pineweed. July-Oct.
(8) H. drummondi (Grev. & Hook) T. & G. Nits-and-lice. July-Sept.

73. CISTACEAE (Rockrose Family)

1. LECHEA L. Pinweed

1. Pubescence of stem spreading; inner sepal glabrous.....(1) L. villosa

1a. Pubescence of stem appressed; inner sepals more or less villose throughout.....(2) L. minor

(1) L. villosa Ell. June-July.
(2) L. minor L. July-Aug.

74. PASSIFLORACEAE (Passion-flower Family)

1. PASSIFLORA L. Passion-flower

1. Leaves deeply 3 lobed; flowers 4-6 cm. wide; sepals and petals white, outer corona purple or pink.....(1) P. incarnata

1a. Leaves shallowly lobed; flowers 2-2.5 cm. wide; sepals and petals greenish-yellow, outer corona yellow.....(2) P. lutea

(1) P. incarnata L. Apricot-vine, Maypops. June-Aug.

(2) P. lutea L. June-Sept.

75. CACTACEAE (Cactus Family)

1. OPUNTIA Mill. Prickly Pear. Indian Fig

(1) O. humifusa Raf. June-July.

76. LYTHRACEAE (Loosestrife Family)

1. Flowers in small axillary clusters of 3-5, sessile; leaves sessile.....1. AMMANNIA

1a. Flowers solitary or paired in upper axils, short-pedicled; leaves long-petioled.....2. CUPHEA

1. AMMANNIA L.

(1) A. coccinea Rothb. Aug.-Oct.

2. CUPHEA P. Br. Cuphea

(1) C. petiolata (L.) Koehne. Clammy Cuphea, Blue Wasweed. July-Oct.

77. NYSSACEAE (Sour Gum Family)

1. NYSSA L. Tupelo. Sour Gum

(1) N. sylvantica Marsh. Black Gum.

78. MELASTOMATACEAE (Melastoma Family)

1. RHEXIA L. Deergrass. Meadow-beauty

(1) R. mariana L. June-Sept.

79. ONAGRACEAE (Evening-Primrose Family)

1. Petals absent.....2. LUDWIGIA

1a. Petals present..... 2

2. Petals 4 or 5..... 3

2a. Petals 2..... 4. CIRCAEA

3. Hypanthium prolonged beyone ovary.....3. OENOTHERA

3a. Hypanthium not prolonged beyond ovary.....1. JUSSIAEA

1. JUSSIAEA L. Primrose-willow

(1) J. decurrens (Walt.) DC. May-Oct.

2. LUDWIGIA L. False Loosestrife

1. Leaves opposite.....(1) L. palustris

1a. Leaves alternate.....(2) L. alternifolia

(1) L. palustris (L.) Ell. Water-purslane.
(2) L. alternifolia L. Seedbox. June-Aug.

3. OENOTHERA L. Evaning-Primrose

1. Ovary distinctly 4-angled; capsule sharply 4-angled or 4-winged.....(1) O. fruticosa

1a. Ovary more or less terete..... 2

2. Ovules ascending in locule; plants usually less than 5 dm. tall.....(2) O. laciniata

2a. Ovules horizontal in locule; plants usually 10 dm. tall or more.....(3) O. biennis

(1) O. fruticosa L. May-Aug.
(2) O. laciniata Hill. May-Oct.
(3) O. biennis L. Evening Primrose. July-Oct.

4. CIRCAEA L. Enchanter's Nightshade

(1) C. quadrisulcata (Maxim.) Franch. July-Aug.

80. HALORAGACEAE (Water-milfoil Family)

1. PROSERPINACA L. Mermaid-weed

(1) P. palustris L. June-Oct.

81. ARALIACEAE (Genseng Family)

(1) A. spinosa L. Hercules' Club. June-July.

82. UMBELLIFERAE (Parsley Family)

1. Inflorescence not a true or compound umbel..... 2

1a. Inflorescence a true or compound umbel..... 4

2. Flower-clusters and leaves arising from the nodes of a creeping or prostate or ascending stem.....1. ERYNGIUM

2a. Flower-clusters terminal, or terminal and lateral, or lateral..... 3

3. Inflorescence densely capitate; each flower subtended by a spine-tipped bractlet.....1. ERYNGIUM

3a. Inflorescence not capitate; bractlets none or only minute; leaves palmately divided.....2. SANICULA

4. Leaves simple, more or less serrate.....3. SIUM

4a. Leaves compound, dissected, or deeply divided... 5

5. Fruit and hypanthium of pistillate flower pubescent, tuberculate, or bristly..... 6

5a. Fruit and hypanthium glabrous..... 9

6. Leaves once palmately compound.....2. SANICULA

6a. Leaves twice compound or decompound..... 7

7. Leaves divided into distinct separate leaflets, essentially uniform in shape; leaflets 1 cm. wide or wider..... 8

7a. Leaves pinnately decompound; leaflets less than 1 cm. wide.....4. DAUCUS

8. Primary rays of the umbel 2-8.....5. OSMORHIZA

8a. Primary rays of the umbel 20-35.....6. ANGELICA

9. Leaves divided into distinct separate leaflets of essentially uniform shape; leaflets often more than 2 cm. wide..... 10

9a. Leaflets much dissected or decompound.....7. THASPIUM

10. Leaves tri-foliate, once palmate, or once pinnate..... 11

10a. Leaves twice or thrice compound..... 13

11. Leaflets 3..... 12

11a. Leaflets 7-17.....3. SIUM

12. Flowers white; fruit pointed at both ends.....8. CRYPTOTAENIA

12a. Flowers yellow or purple; fruit rounded or notched at each end.....7. THASPIUM

13. Leaves entire..... 14

13a. Leaves serrate or lobed..... 15

14. Flowers yellow; leaves without bulblets in the axils.....9. TAENIDIA

14a. Flowers white; leaves with bulblets in the axils.....10. CICUTA

15. Flowers yellow; central flowers of each umbellet pediceled.....7. THASPIUM

15a. Flowers white..... 16

16. Sheaths of upper leaves greatly dilated, 1 cm. or more wide when flattened.....6. ANGELICA

16a. Sheaths of upper leaves less than 1 cm. wide.....10. CICUTA

1. ERYNGIUM L. Eryngo

(1) E. prostratum Nutt. June-Nov.

2. SANICULA L. Black Snakeroot

1. Styles conspicuously longer than the bristles of the fruit.....(1) S. gregaria

1a. Styles shorter than the bristles of the fruit and concealed by them.....(2) S. canadensis

(1) S. gregaria Bickn. May-July.
(2) S. canadensis L. May-July.

3. SIUM L. Water-Parsnip

(1) S. suave Walt. July-Sept.

4. DAUCUS L. Carrot

(1) D. carota L. Wild Carrot, Queen Ann's-lace. May-Oct.

5. OSMORHIZA Raf. Sweet Cicely

1. Styles always less than 1.5 mm. long....(1) O. claytoni

1a. Styles 2-3.5 mm. long (the later in the fruit)..... .....(2) O. longistylis

(1) O. claytoni (Michx) C.B. Clarks. June-Aug.
(2) O. longistyles (Torr.) DC. Anise-root. June-Aug.

6. ANGELICA L. Angelica

(1) A. vennosa (Greenway) Fern. July-Oct.

7. THASPIUM Nutt. Meadow-parsnip

1. Ultimate leaf-segments ovate to lanceolate; ovary and fruit glabrous.....(1) T. barbinode

1a. Ultimate leaf-segments linear to oblong; ovary and fruit pubescent.....(2) T. pinnatifidum

(1) T. barbinode (Michx.) Nutt. Gray.
(2) T. pinnatifidum (Buckl.)

8. CRYPTOTAENIA DC. Hornewort. Wild Chervil

(1) C. canadensis (L.) DC. June-Sept.

9. TAENIDIA Drude. Yellow Pimpernel

(1) T. integerrina (L.) Drude. May-July.

10. CICUTA L. Water-hemlock

(1) C. maculata L. Spotted Cowbane, Musquashroot, Beaver-poison. June-Sept.

83. CORNACEAE (Dogwood Family)

1. CORNUS L. Dogwood

1. Mature fruit bright red, ellipsoid.....(1) C. florida

1a. Mature fruit blue to white..... 2

2. Fruit blue or blueish..... 3

2a. Fruit white.....(2) C. drummondi

3. Pith of young branches brown; stone of drupe longitudinally ridged.....(3) C. obliqua

3a. Pith of young branches white.....(4) C. formina

(1) C. florida L. Flowering Dogwood. Mar-Sept.
(2) C. drummondi Meyer. June-Oct.
(3) C. obliqua Raf. Silky Dogwood. June-Sept.
(4) C. formina Mill. June-Sept.

84. ERICACEAE (Heath Family)

1. Fruit a berry with numerous small seeds; ovary inferior.....1. VACCINIUM

1a. Fruit a capsule; ovary superior.....2. OXYDENDRUM

1. VACCINIUM L. Blueberry Cranberry

(1) V. arboreum Marsh. Farkleberry, Sparkleberry.

2. OXYDENDRUM DC. Sourwood

(1) O. arboreum (L.) DC. Titi. June-July.

85. PRIMULACEAE (Primrose Family)

1. Leaves alternate..... 2

1a. Leaves opposite or whorled.....1. LYSIMACHIA

2. Calyx lobes much shorter than calyx tube.....2. SAMOLUS

2a. Calyx deeply divided, connate only at base.....1. LYSIMACHIA

1. LYSIMACHIA L. Loosestrife

1. Principal leaves ovate or ovate-lanceolate, distinctly petioled; base of leaf-blade and petiole distinctly ciliate.....(1) L. ciliata

1a. Principal leaves narrowly lanceolate to linear tapering at base and lacking sharply differentiated petiole.....(2) L. lanceolata

(1) L. ciliata L. June-Aug.

(2) L. lanceolata Walt. June-Aug.

2. SAMOLUS L. Water-Pinpernel. Brookweed

(1) S. parviflorus Raf. May-Sept.

86. SAPOTACEAE (Sapodilla Family)

1. BUMILIA Sw. Ironwood

(1) B. lycoides (L.) Gaertn.f. Southern Buckthorn. June-July.

87. EBENACEAE (Ebony Family)

1. DIOSPYROS L. Persimmon

(1) D. virginiana L. Common Persimmon. May-June.

88. OLEACEAE (Olive Family)

1. Trees, leaves pinnately compound.....1. FRAXINUS

1a. Shrubs, leaves simple.....2. FORESTIERA

1. FRAXINUS L. Ash

1. Twigs sharply 4-angled, or 4-winged; buds gray..... .....(1) F. quadrangulata

1a. Twigs terete..... 2

2. Wing of samara decurrent to one-third or less the body.....(2) F. americana

2a. Wing of samara decurrent to or below the middle of the body.....(3) F. pennsylvanica

(1) F. quadrangulata Michx. Blue Ash.
(2) F. americana L. White Ash.
(3) F. pennsylvanica Marsh. Red Ash.

2. FORESTIERA Poir.

(1) F. acuminata (Michx.) Poir. Swamp-Privet.

89. LOGANIACEAE (Logania Family)

1. SPIGELIA L. Pinkroot. Wormgrass

(1) S. marilandica L. Indian-pink. May-June.

1. Corolla rotate, tube much shorter than the lobes or calyx lobes.....1. SABATIA

1a. Corolla tubular, lobes much shorter than tube.....2. GENTIANA

1. SABATIA Adans. Sabatia

(1) S. angularis (L.) Pursh. Rose-pink, Bitter-bloom. July-Sept.

2. GENTIANA L. Gentian

(1) G. saponaria L. Soapwort-Gentian. Sept-Oct.

91. APOCYNACEAE (Dogbane Family)

1. Leaves alternate or irregularly scattered....1. AMSONIA

1a. Leaves opposite.....2. APOCYNUM

1. AMSONIA Walt.

(1) A. tabernaemontana Walt. May-June.

2. APOCYNUM L. Dogbane. Indian Hemp

(1) A. cannabinum L. Indian Hemp. June-Aug.

92. ASCLEPIADACEAE (Milkweed Family)

1. Stems erect.....1. ASCLEPIAS

1a. Stems climbing.....2. GONOLOBUS

1. ASCLEPIAS L. Milkweed

1. Hoods with horns..... 2

1a. Horns absent, flowers greenish.....(1) A. hirtella

2. Juice not milky; flowers bright orange.....(2) A. tuberosa

2a. Juice milky; flowers white to purple..... 3

3. Horns erect, surpassing hoods; hoods about equal to gynostegium..... 4

3a. Horns not surpassing hoods; hoods conspicuously surpassing gynostegium..... 5

4. Leaves linear, mostly in whorls of 3-6..... .....(3) A. verticillata

4a. Leaves lanceolate, linear-oblong, or wider, opposite, petals pink.....(4) A. incarnata

5. Leaves pubescent or tomentose beneath..... 6

5a. Leaves glabrous beneath (some pubescence may occur on midveins or leaf margins): hoods saccate; corolla white or tinged with pink.....(5) A. variegata

6. Hoods bearing a sharp, triangular, ascending or inflexed lateral lobe at or near the middle of the margin; corolla greenish purple to nearly white.....(6) A. syriaca

6a. Hoods without lateral lobes, or merely widened at or near the middle; corolla commonly purple..... .....(7) A. purpurascens

(1) A. hirtella (Pennell) Woodson.
(2) A. tuberosa L. Butterfly-weed. Chigger-weed. June-Sept.
(3) A. verticillata L. June-Sept.
(4) A. incarnata L. Swamp-Milkweed. June-Aug.
(5) A. variegata L. May-July.
(6) A. syriaca L. Common Milkweed. June-Aug.
(7) A. purpurascens L. Purple Milkweed. May-July.

2. GONOBOLUS Michx. Angle-pod

(1) G. gonocarpos (Walt.) Perry. Aug.-Sept.

93. CONVOLVULACEAE (Convolvulus Family)

1. Plants parasitic; leaves reduced to minute scales.....1. CUSCUTA

1a. Plants not parasitic; leaves well developed..... 2

2. Stigma 1, sometimes capitate or 2-3-lobed..... .....2. IPOMOEA

2a. Stigmas 2, linear of fusiform.....3. CONVOLVULUS

1. CUSCUTA L. Love-vine. Strangle-weed

(1) C. gronovii Willd. July-Oct.

2. IPOMOEA L. Morning-glory

1. Corolla salverform; stamens and style exert.....(1) I. coccinea

1a. Corolla funnelform; stamens and style included..... 2

2. Ovary 3-celled; stigma 3-lobed; sepals hirsute on basal half..... 3

2a. Ovary 2-celled; stigma 2-lobed or entire; sepals not pubescent on basal half..... 4

3. Leaves usually 3-lobed; sepals 15-25 mm. long, narrowed to a slender, linear, recurved tip.....(2) I. hederacea

3a. Leaves usually entire; sepals 10-15 mm. long, acute to acuminate.....(3) I. purpurea

4. Sepals glabrous, 13-20 mm. long, obtuse or rounded; corolla 5-8 cm. long.....(4) I. pandurata

4a. Sepals ciliate, 10-15 mm. long, sharp-pointed; corolla 1-2 cm. long.....(5) I. lacunosa

(1) I. coccinea L. Red Morning-glory. Aug.-Oct.
(2) I. hederacea (L.) Jacq. July-Oct.
(3) I. purpurea (L.) Roth. Common Morning-glory. July-Oct.
(4) I. pandurata (L.) G.F.W. Mey. Wild Potato-vine, Man-of-the-earth. June-Sept.
(5) I. lacunosa L. Aug.-Oct.

3. CONVOLVULUS L. Bindweed

1. Bracts minute, inserted well below the calyx and not concealing it.....(1) C. arvensis

1a. Bracts foliaceous, inserted immediately below the calyx and more or less concealing it.....(2) C. sapium

(1) C. arvensis L. Field-Bindweed, Wild Morning-glory. June-Sept.
(2) C. sapium L. Hedge-Bindweed, Wild Morning-glory. May-Sept.

94. POLEMONIACEAE (Polemonium Family)

1. Lateral veins of leaves curved forward to meet the vein immediately above, forming a distinct, submarginal, connective vein.....(1) P. paniculata

1a. Lateral veins obsolete or obscure, never forming a distinct, submarginal, connective vein..... 2

2. Cymes usually several, one terminal, the other axillary but on peduncles of about uniform length.....(2) P. maculata

2a. Cymes solitary or few, if few the lower ones on elongate peduncles, forming a flattened or rounded, corymbiform cyme..... 3

3. Lobes and calyx tube 5-8 mm. long.....(3) P. glaberrima

3a. Lobes and calyx tube 9-12 mm. long.....(4) P. carolina

(1) P. paniculata L. Fall-Phlox, Perennial Phlox. July-Oct.
(2) P. maculata L. Wild Sweet William. June-Aug.
(3) P. glaberrima L. May-June.
(4) P. carolina L. May-June.

95. HYDROPHYLLIACEAE (Waterleaf Family)

1. HYDROPHYLLUM L. Waterleaf

1. Leaves pinnately divided, dividions 9-13.....(1) H. macrophyllum

1a. Leaves palmately lobed..... 2

2. Sepals densely hirsute, alternating with small but conspicuous reflexed appendages; stamens only slightly exert.....(2) H. appendiculatum

2a. Sepals glabrous or sparsely hispidous; calyx very rarely bearing appendages in sinues; stamens long exert.....(3) H. canadense

(1) H. macrophyllum Nutt. May-June.
(2) H. appendiculatum Michx. May-June.
(3) H. canadense L. June-July

96. BORAGINACEAE (Borage Family)

1. Ovary shallowly 4-lobed; style terminal, arising from the apex of the ovary.....1. HELIOTROPIUM

1a. Ovary deeply 4-lobed; style arising between the lobes. 2

2. Attachment of nutlet basal; fruit smooth or ragose.....2. LITHOSPERMUM

2a. Attachment of nutlet lateral; fruit armed with prickles.....3. HACKELIA

1. HELIOTROPIUM L. Turnsole. Heliotrope

(1) H. indicum L. Turningsole. July-Nov.

2. LITHOSPERMUM L. Cromwell. Puccoon

(1) L. latifolium Michx. May-June.

3. HACKELIA Opiz. Sticksee. Beggar's-lice.

(1) H. virginiana (L.) I.M. Johnston. June-Sept.

97. VERBENACEAE (Vervain Family)

1. Fruit at maturity separating into 4 nutlets; calyx tubular, corolla salverform, 5-lobed, only slightly irregular.....1. VERBENA

1a. Fruit at maturity separating into 2 nutlets; calyx campanulate or compressed and 2-keeled, corolla 4-lobed, distinctly 2-lipped (irregular).....2. LIPPIA

1. VERBENA L. Vervain

1. Corolla blue or blue-violet.....(1) V. hastata

1a. Corolla white.....(2) V. urticifolia

(1) V. hastata L. Blue Vervain, Simpler's Joy. July-Sept.

(2) V. urticifolia L. White Vervain. June-Sept.

2. LIPPIA L.

1. Calyx-tube longer than the lobes; leaves broadest toward the tip, spatulate to oblanceolate or ovate.....(1) L. nodifera

1a. Calyx-tube shorter than the lobes; leaves broadest

toward the base, oblong or oblong-lanceolate to ovate.....(2) L. lanceolata

(1) L. nodifera (L.) Michx. June-Oct.
(2) L. lanceolata Michx. Frog-fruit. May-Sept.

98. LABIATAE (Mint Family)

1. Calyx strongly 2-lipped, the upper lip bearing a distinct cap.....3. SCUTELLARIA

1a. Upper lip of calyx not bearing a distinct cap..... 2

2. Upper lip of corolla absent or only slightly discernible, lower lip apparently 5-lobed.....1. TEUCRIUM

2a. Upper lip of corolla well developed..... 3

3. Stamens 2..... 4

3a. Stamens 4..... 10

4. Calyx distinctly 2-lipped, the lobes of the upper lip differing in size and shape or both from those of the lower lip..... 5

4a. Calyx regular or nearly so, its lobes essentially alike in size and shape..... 9

5. Flowers in loose few flowered verticils in the axils of ordinary foliage leaves, or in terminal panicles. 6

5a. Flowers in terminal racemes or spikes or in terminal or subterminal heads..... 7

6. Flowers blue, 3-4 mm. long.....14. HEDEOMA

6a. Flowers yellow, 12-15 mm. long; lower corolla lip fringed.....19. COLLINSONIA

7. Flowers borne single or in pairs at each node of the slender, terminal, spike-like raceme.....11. SALVIA

7a. Flowers 3 or more at each flower-bearing node..... 8

8. Verticils numerous and loosely flowered.....11. SALVIA

8a. Verticils 1-5, dense and head-like, densely

flowered.....13. BLEPHILIA

9. Corolla 15-50 mm. long, very regular.....12. MONARDA

9a. Corolla 5 mm. long or less, nearly irregular.....17. LYCOPUS

10. Inflorescence axillary in general appearance, verticils subtended by ordinary foliage leaves. 11

10a. Inflorescence essentially terminal in general appearance, verticles subtended by bracteal leaves conspicuously different from the foliage leaves..... 16

11. Calyx regular or nearly so, its lobes essentially alike in size and shape..... 12

11a. Calyx distinctly 2-lipped, the lobes of the upper lip differing in size and shape or both from those of the lower..... 15

12. Corolla almost equally 4-lobed or 5-lobed; flowers very numerous.....18. MENTHA

12a. Corolla distinctly irregular, strongly 2-lipped. 13

13. Flowers distinctly pedicled forming loose cymules; stems prostrate or creeping.....6. GLECOMA

13a. Flowers sessile in the cymules..... 14

14. Calyx-lobes prolonged into short, stiff spines.....9. LEONURUS

14a. Calyx-lobes slender axuminate but not spiny.....8. LAMIUM

15. Stamens projecting beyond the corolla.....18. MENTHA

15a. Stamens ascending under the upper corolla lip and not surpassing it.....15. SATUREJA

16. Inflorescence forming a loose, irregularly branched panicle; calyx 2-lipped; corolla blue; stamens long exert.....2. TRICHOSTEMA

16a. Inflorescence of one or more terminal racemes, spikes, or heads..... 17

17. Flowers single in the axils of each bracteal leaf... 132

17a. Flowers 2-many in the axils of each bracteal leaf... 18

18. Lower corolla-lip yellow, fringed..19. COLLINSONIA

18a. Lower corolla-lip blue to white, not fringed.....20. PERILLA

19. Stamens ascending under the upper corolla-lip and not surpassing it..... 19

19a. Stamens, at least some of them, protruding from the corolla..... 20

20. Calyx distinctly 2-lipped and irregular..... 21

20a. Calyx nearly or very regular, not distinctly 2-lipped..... 22

21. Bracts broadly rounded, apiculate.....7. PRUNELLA

21a. Bracts setaceous, hirsute.....15. SATUREJA

22. Leaves linear, entire, sessile..... 23

22a. Leaves broader than linear, or serrate, or petioled..... 24

23. Stem finely pubescent.....15. SATUREJA

23a. Stem glabrous, or minutely pubescent on the angles only.....10. STACHYS

24. Lower verticils distinctly peduncled.....5. NEPETA

24a. Lower verticils sessile.....10. STACHYS

25. Inflorescence a dense or loose raceme in which the component verticils are plainly discernible; flowers distinctly but shortly pediceled..... 26

25a. Inflorescence not as above..... 27

26. Flowers blue to lavender, varying to white..... .....18. MENTHA

26a. Flowers yellow.....19. COLLINSONIA

27. Inflorescence a number of terminal heads or cymes... .....16. PYCNANTHEMUM

27a. Inflorescence a dense terete spike; flowers sessilr or subsessile.....4. AGASTACHE

1. TEUCRIUM L. Germander

(1) T. canadense L. American Germander, Wood-Sage. July-Sept.

2. TRICHOSTEMA L. Bluecurls

(1) T. dichotomum L. Bastard Pennyroyal. Aug.-Oct.

3. SCUTELLARIA L. Skullcap

1. Flowers in axillary or terminal racemes, each flower subtended by bracteal leaves more or less reduced in size in comparison to the foliage leaves..... 2

1a. Flowers solitary in the axils of ordinary foliage leaves..... 4

2. Racemes chiefly terminal, but also in accessory lateral racemes arising from the upper axils, accessory racemes regularly subordinate to the terminal..... 3

2a. Racemes chiefly or all lateral arising from the axils of ordinary foliage leaves.(1) S. laterifolia

3. Pubescence of calyx appressed glandular hairs..... .....(2) S. incana

3a. Pubescence of calyx spreading glandular hairs..... .....(3) S. elliptica

4. Uppermost leaves 1-2 cm. long, entire or with a few low teeth; those subtending flowers similar in shape and but little reduced in size..... .....(4) S. parvula

4a. Uppermost sterile leaves 2-4.5 cm. long, conspicuously serate, those subtending flowers progressively shorter, proportionately narrow, and entire..... .....(5) S. nervosa

(1) S. laterifolia L. Mad-dog Scutellaria. June-Sept.
(2) S. incana Biehler. June-Sept.
(3) S. elliptica Muhl. Hairy Scutellaria. May-July.
(4) S. parvula Michx. May-July.
(5) S. nervosa Pursh. May-June.

4. AGASTACHE Clayt. Giant Hyssop

(1) A. nepetoides (L.) Dtze. Yellow Giant-Hyssop. July-Sept.

5. NEPETA L. Catmint

(1) N. cataria L. Catnip. June-Sept.

6. GLECOMA L. Ground-Ivy

(1) G. hederacea L. Gill-over-the-ground, Run-away-Robin. Apr.-July.

7. PRUNELIA L. Selfheal

(1) P. vulgaris L. Heal-all, Carpenter-weed. May-Sept.

8. LAMIUM L. Dead-Nettle

1. Upper bracteal leaves sessile; flowers 6-10 or more in a whorl.....(1) L. amplexicaule

1a. Upper bracteal leaves distinctly petioled; flowers 3-7 in a whorl.....(2) L. purpureum

(1) L. amplexicaule L. Henbit. Mar.-Nov.
(2) L. purpureum L. Purple Dead-Nettle. Apr.-Oct.

9. LEONURUS L. Motherwort

(1) L. cardiaca L. Common Motherwort. June-Aug.

10. STACHYS L. Hedge-Nettle

1. Calyx lobes two-thirds to fully as long as the calyx tube; stem and calyx lobes glabrous or stems only slightly pubescent.....(1) S. tenuifolia

1a. Calyx lobes one-half or less as long as the calyx tube; stems and calyx lobes hirsute....(2) S. riddellii

(1) S. tenuifolia Willd. June-Sept.
(2) S. riddellii House. June-July.

11. SALVIA L. Sedge

(1) S. lyrata L. Lyre-leaved Sedge, Cancer-weed. Apr.-June.

12. MONARDA L. Monarda. Horsemint

(1) M. fistulosa L. Wild Bergamot. July-Aug.

13. BLEPHILIA Raf.

1. Lobes of the lower calyx-lip extending beyond the sinuses of the upper-lip.....(1) B. ciliata

1a. Lobes of the lower calyx-lip not extending beyond the sinuses of the upper-lip.....(2) B. hirsuta

(1) B. ciliata (L.) Benth. June-Aug.
(2) B. hirsuta (Pursh) Benth. Wood-Mint. June-Sept

14. HEDEOMA Pers. Mock Pennyroyal

1. Leaves lanceolate or broader, often serrate; upper calyx-lobes entire.....(1) H. pulegioides

1a. Leaves linear, entire; calyx-lobes ciliate..... .....(2) H. hispida

(1) H. pulegioides (L.) Pers. Pennyroyal of America, Pudding-Grass. July-Sept.
(2) H. hispida Pursh. May-July.

15. SATUREJA L. Savory. Calamint

1. Inflorescence compact, 10 or more flowered, terminating the branches and often in the upper axils; calyx 12-15 mm. long.....(1) S. vulgaris

1a. Inflorescence loosely 3-7 flowered, axillary; calyx usually less than 9 mm. long.....(2) S. calamintha

(1) S. vulgaris (L.) Fritsch. Dogmint. June-Sept
(2) S. calamintha (L.) Scheele. Basil-Thyme. July-Oct.

16. PYCNATHEMUM Michx. Mountain-Mint.

1. Calyx regular or nearly so, its lobes essentially uniform in length..... 2

1a. Calyx distinctly irregular, its upper and lower lobes distinctly unequal..... 4

2. Calyx lobes 1-5 mm. long, lanceolate to subulate, with sharp or pointed tips..... 3

2a. Calyx-lobes 0.7-1 mm. long, deltoid, not sharp-tipped.....(1) P. pilosum

3. Leaves narrowly oblong to oblong-lanceolate or oblong-linear, blunt, petioles 1-2 mm. long; calyx-lobes 2.3-5 mm. long, rigidly awned.....(2) P. flexosum

3a. Leaves linear, sessile, tapering to tip; calyx-lobes 1-2 mm. long; not awned.....(3) P. tenuifolium

4. Longest lip of the calyx less than half as long as the calyx-tube; calyx-lobes merely acute or sub-acuminate, the longest commonly 1.3 mm. long.... .....(4) P. incanum

4a. Longest lip of the calyx more than half as long as the calyx-tube; calyx-lobes distinctly acuminate to almost subulate, the longest commonly 2 mm. long. .....(5) P. pycanthemoides

(1) P. pilosum Nutt. July-Sept.
(2) P. flexosum (Walt.) BSP. July-Sept
(3) P. tenuifolium Schrad. June-Sept.
(4) P. incanum (L.) Michx. July-Sept.
(5) P. pycanthemoides (Laevenw.) Fern. July-Aug.

17. LYCOPUS L. Water-Horehound. Bugle-weed

1. Calyx-lobes broadly triangular, without a prominent midnerve, less than 1 mm. long..... 2

1a. Calyx-lobes narrowly, with a prominent midnerve, usually 1-2 mm. long..... 3

2. Filaments exert beyond the throat of the corolla; cunate base of lower leaves short and wide..... .....(1) L. uniflorus

2a. Filaments not exert beyond the throat of the corolla; cunsate bases of lower leaves long and narrow.....(2) L. virginicus

3. Corolla exceeding the calyx-lobes by no more than 1 mm.; leaves commonly deeply serrate, laciniate, or pinnatifid.....(3) L. americanus

3a. Corolla exceeding the calyx-lobes by 2-3 mm.; leaves shallowly serrate.....(4) L. rubellus

(1) L. uniflorus Michx. June-Sept.

(2) P. flexosum (Walt.) BSP. July-Sept.
(3) P. tenuifolium Schrad. June-Sept.
(4) P. incanum (L.) Michx. July-Sept.
(5) P. pycanthemoides (Laevenw.) Fern. July-Aug.

17. LYCOPUS L. Water-Horehound. Bugle-weed.

1. Calyx-lobes broadly triangular, without a prominent midnerve, less than 1 mm. long..... 2

1a. Calyx-lobes narrowly, with a prominent midnerve, usually 1-2 mm. long..... 3

2. Filaments exert beyond the throat of the corolla; cunate base of lower leaves short and wide..... .....(1) L. uniflorus

2a. Filaments not exert beyond the throat of the corolla; cuneate bases of lower leaves long and narrow.....(2) L. virginicus

3. Corolla exceeding the calyx-lobes by no more than 1 mm.; leaves commonly deeply serrate, laciniate, or pinnatifid.....(3) L. americanus

3a. Corolla exceeding the calyx-lobes by 2-3 mm.; leaves shallowly serrate.....(4) L. rubellus

(1) L. uniflorus Michx. June-Sept.
(2) L. virginicus L. July-Oct.
(3) L. americanus Muhl. June-Sept.
(4) L. rubellus Moench. July-Oct.

18. MENTHA L. Mint

(1) M. piperita L. Peppermint. June-Oct.

19. COLLINSONIA L. Horse-Balm

(1) C. canadensis L. Richweed, Stonewort. July-Sept.

20. PERILLA L.

(1) P. frutescens (L.) Britt. Aug.-Oct.

99. SOLANACEAE (Nightshade Family)

1. Plants woody, corolla purple.....4. LYCIUM

1a. Plants herbaceous..... 2

2. Corolla rotate, anthers opening terminally.....1. SOLANIUM

2a. Corolla campanulate, tubular, or funnel-form.... 3

3. Calyx tubular, 4-10 cm. long.....5. DATURA

3a. Calyx of separate sepals or only short tubular..... 4

4. Flowers white, yellow, or greenish-yellow.....2. PHYSALIS

4a. Flowers blue.....3. NICANDRA

1. SOLANIUM L. Nightshade

1. Stems and leaves not spiny; lower leaf-surface pubescence simple or lacking.....(1) S. americanum

1a. Stems and leaves spiny; lower leaf-surface pubescence stellate.....(2) S. carolinense

(1) S. americanum Mill. June-Nov.
(2) S. carolinense L. Horse Nettle, Ball-Nettle. May-Oct.

2. PHYSALIS L. Ground-Cherry

1. Filaments slender and of about uniform width throughout; plants annual with small flowers, the corolla very rarely as much as 1 cm. long..... 2

1a. Filaments flat and expanded, often as broad as long; corolla commonly 12-18 mm. long; plants perennial... 3

2. Calyx-lobes deltoid, about as wide as long; leaves not cordate at base.....(1) P. missouriensis

2a. Calyx-lobes distinctly longer than wide, tapering to the tip; principle leaves cordate at base.....(2) P. pubescens

3. Pubescence of the upper part of the stem villous, composed of soft, slender, widely spreading hairs; filaments expanded.....(3) P. heterophylla

3a. Pubescence of the upper part of the stem composed of short stiffish hairs; pubescence of leaves restricted to the veins.....(4) P. subglabrata

(1) P. missouriensis Mackenz. & Bush. June-Sept.
(2) P. pubescens L. July-Oct.
(3) P. heterophylla Nees. July-Sept.
(4) P. subglabrata Mackenz. & Bush. June-Aug.

3. NICANDRA Adans. Apple-of-Peru

(1) N. physalodes (L.) Pers. July-Sept.

4. LYCIUM L. Matrimony-vine

(1) L. chinense Mill. Chinese Matrimony-vine. June-Oct.

5. DATURA L. Jimsonweed. Thorn-apple

(1) D. stramonium L. Stramonium. July-Oct.

100. SCROPHULARIACEAE (Figwort Family)

1. Leaves alternate (applies to foliage leaves, not bracteal leaves..... 2

1a. Leaves opposite or whorled..... 4

2. Stamens 5.....1. VERBASCUM

2a. Stamens 4..... 3

3. Corolla spurred.....2. KICKXIA

3a. Corolla not spurred; calyx lobes 2; leaves pinnatifid.....15. PEDICULARIS

4. Stamens 2..... 5

4a. Stamens 4..... 10

5. Calyx 4-merous..... 6

5a. Calyx 5-merous..... 7

6. Corolla-lobes exceeding in length the distinctly shorter corolla-tube.....12. VERONICA

6a. Corolla-lobes distinctly shorter than the corolla-tube; leaves whorled.....11. VERONICASTRUM

7. Leaves whorled.....11. VERONICASTRUM

7a. Leaves opposite..... 140

8. Corolla regular..... 8

8a. Corolla irregular or bilabiate.....9. BACOPA

9. Sterile stamens absent or minute..... 9

9a. Sterile stamens 2, conspicuous.....7. GRATIOLA

10. Upper lip of the corolla strongly arched, enclosing and concealing the stamens; leaves pinnatifid. .....10. LINDERNIA

10a. Upper lip of the corolla not enclosing and concealing the stamens.....15. PEDICULARIS

11. Flowers yellow or greenish-brown..... 11

11a. Flowers white to pink, purple, red, or blue..... 12

12. Flowers greenish-brown.....3. SCROPHULARIA

12a. Flowers yellow..... 14

13. Anthers glabrous.....14. GERARDIA

13a. Anthers pubescent.....13. SEYMERIA

14. Bracteal leaves greatly and abruptly reduced in comparison with the foliage leaves below them, producing a definite terminal inflorescence which may be a spike, a raceme, or a panicle..... 15

14a. Bracteal leaves gradually reduced, the flowers therefore appearing axillary or in a lateral raceme..... 16

15. Flowers subtended very closely by 2 or 3 large sepal-like bracts.....4. CHELONE

15a. Flowers not bracteolate, 12 mm. long or longer, sterile stamens bearded.....5. PENSTEMON

16. Sepals separate or nearly so; corolla 12 mm. long or shorter..... 17

16a. Sepals united into a distinct tube

17. Corolla closed or nearly so by the elevated palate

of the lower lip.....

17a. Corolla distinctly open; leaves entire.....14. GERARDIA

1. VERBASCUM L. Mullein

1. Plants tomentose, wooly or scurfy.....(1) V. thapsus

1a. Plants glabrous and green or with glandular simple hairs.....(2) V. blattaria

(1) V. thapsus L. Common Mullein. Flannel-Plant. June-Sept.

(2) V. blattaria L. Moth-Mullein. June-Sept.

2. KICKIA Dumort. Fluellin

(1) K. elatine (L.) Dumort. Canker-root. June-Oct.

3. SCROPHULARIA L. Figwort

(1) S. marilandica L. Carpenter's-square. June-Oct.

4. CHELONE L. Turtlehead. Shakehead

(1) C. glabra L. Balmony. July-Oct.

5. PENSTEMON Mitchell. Beard-Tongue

1. Calyx 8.5-15 mm. long; corolla 3-3.5 cm. long.....(1) P. grandiflorus

1a. Calyx 3-10 mm. long; corolla 1.5-3 cm. long..... 2

2. Throat of corolla closed or nearly so by the upward arching of the base of the lower lip..... 3

2a. Throat of corolla open; base of lower lip not arched upward..... 4

3. Corolla violet externally, calyx at maturity commonly 5-6 mm. long.....(2) P. hirsutus

3a. Corolla white externally; calyx at maturity commonly 3-4 mm. long.....(3) P. tenuiflorus

4. Corolla white externally, 23-30 mm. long; stem glabrous, often glaucous.....(4) P. digitalis

4a. Corolla pale violet or pale purple externally,

15-22 mm. long; calyx at maturity 3.5-mm. long.....(5) P. laevigatus

(1) P. grandiflorus Nutt. May-June.
(2) P. hirsutus (L.) Willd. June-July.
(3) P. tenuiflorus Pennell. Apr.-June.
(4) P. digitalis Nutt. May-July.
(5) P. laevigatus Ait. May-June.

6. MIMULUS L. Monkey-flower

(1) M. alatus Ait. June-Sept.

7. GRATIOLA L. Hedge-hyssop

(1) G. neglecta Torr. May-Oct.

8. GONOBEA Aubl.

(1) G. multifida (Michx.) Benth. June-Oct.

9. BACOPA Aubl. Water-hyssop

1. Plants erect; leaves pinnately veined; leaves subtended by a pair of slender bracts.....(1) B. acuminata

1a. Plants creeping; leaves palmately veined; leaves not subtended by a pair of slender bracts..... .....(2) B. rotundifolia

(1) B. acuminata (Walt.) Robins. July-Sept.
(2) B. rotundifolia (Michx.) Wettst. July-Sept.

10. LINDERNIA All. False Pimpernel

1. Lower leaves narrowed at base.....(1) L. anagallidea

1a. Lower leaves round-clasping at base.....(2) L. dubia

(1) L. anagallidea (Michx.) Pennell. June-Oct.
(2) L. dubia (L.) Pennell. June-Oct.

11. VERONICASTRUM Fabricius. Culver's-physic

(1) V. virginicum (L.) Farw. Culver's-root. June-Sept.

12. VERONICA L. Speedwell

1. Bracteal leaves greatly reduced in comparison with the opposite foliage leaves below them; leaves entire or obscurely toothed, lower ones petioled..... .....(1) V. serpyllifolia

1a. Bracteal leaves differing but little if any from the foliage leaves (some gradual reduction in size may be apparent).....

2. Petioles shorter than the sepals; flowers white.....(2) V. peregrina

2a. Petioles longer than the sepals; flower blue, or white with blue veins.....(3) V. agrestis

(1) V. serpyllifolia L. Thyme-leaved Speedwell. Apr.-July.
(2) V. peregrina L. Neckweed, Purslane-Speedwell. Mar.-Aug.
(3) V. agrestis L. Field-Speedwell. May-Sept.

13. SEYMERIA Pursh.

(1) S. macrophylla Nutt. Mullein-Foxglove. June-Sept.

14. GERARDIA L. Gerardia

1. Corolla yellow; corolla pubescent within above bases of filaments.....(1) G. flava

1a. Corolla purple or pink.....

2. Upper lobes of corolla reflexed-spreading; corolla pubescent externally and internally; stigma 3-4 mm. long.....(2) G. fasciculata

2a. Upper lobes of corolla arching forward over stamens and style, much longer than lower lobes; corolla glabrous within; stigmas 1-1.5 mm. long.....(3) G. tenuifolia

(1) G. flava L. July-Sept.
(2) G. fasciculata Ell. Aug.-Sept.
(3) G. tenuifolia Vahl. Aug.-Oct.

15. PEDICULARIS L. Lousewort or Woody-Betony

(1) P. canadensis L. Common Lousewort, Woody-Betony. Apr.-June.

101. BIGNONIACEAE (Bignonia Family)

1. Plants climbing or trailing vines; leaves compound..

1a. Trees; leaves simple.....3. CATALPA

2. Leaflets 5-13, serrate; tendrils none....1. CAMPSIS

2a. Leaflets 2, entire; leaves with a terminal tendril.....2. BIGNONIA

1. CAMPSIS Lour. Trumpet-flower

(1) C. radicans (L.) Seem. Trumpet-creeper. Cow-itch. June-Sept.

2. BIGNONIA L.

(1) B. capreolata L. Cross-vine. Apr-June.

3. CATALPA Scop. Indian-bean

(1) C. speciosa Warder. Catawba-tree. Cigar-tree. May-June.

102. ACANTHACEAE (Acanthus Family)

1. Stamens 4; corolla regular.....1. RUELLIA

1a. Stamens 2; corolla irregular, strongly 2-lipped..... 2

2. Petioles shorter than subtending petiole; bracts foliaceous.....3. DICLIPTERA

2a. Petioles longer than subtending petioles; bracts not foliaceous.....2. JUSTICA

1. RUELLIA L. Ruellia

1. Calyx-lobes distinctly lanceolate, 2 mm. wide or wider.....(1) R. strepens

1a. Calyx-lobes linear, subulate, or setaceous, 1 mm. wide or less.....(2) R. caroliniensis

(1) R. strepens L. May-July.
(2) R. caroliniensis (Walt.) Steud. June-Sept.

2. JUSTICIA L. Water-willow

(1) J. americana (L.) Vahl. June-Oct.

3. DICLIPTERA Juss.

(1) D. brachiata (Pursh.) Spreng. Sept.

103. PHRYMACEAE (Lopseed Family)

1. PHRYMA L. Lopseed

(1) P. leptostachya L. July-Sept.

104. PLANTAGINACEAE (Plantain Family)

1. PLANTAGO L. Plantain. Ribwort

1. Leaves broadly elliptic to oval, 5-20 cm. long and half to two-thirds as wide..... 2

1a. Leaves linear, narrowly lanceolate to oblanceolate, 18-30 cm. long and less than sixth as wide..... 3

2. Capsule circumscissile near the middle.(1) P. major

2a. Capsule circumscissile below the middle, upper portion about two times as long as the lower.... .....(2) P. rugelii

3. Bracts and sepals glabrous or inconspicuously ciliate. .....(3) P. lanceolata

3a. Bracts and sepals or both distinctly pubescent to long-villous.....(4) P. aristata

(1) P. major L. Common Plantain, Whiteman's-foot. June-Oct.
(2) P. rugelii Deene. July-Oct.
(3) P. lanceolata L. Ribgrass, Ripplegrass, English Plantain, Buckhorn. May-Oct.
(4) P. aristata Michx. Bracted Plantain. June-Nov.

105. RUBIACEAE (Madder Family)

1. Plants woody (shrubs or small trees)....3. CEPHALANTHUS

1a. Plants herbaceous..... 2

2. Leaves opposite..... 3

2a. Leaves whorled..... 6

3. Flowers sessile or subsessile in dense axillary or terminal glomerlus or solitary in the axils..... 4

3a. Flowers peduncled and solitary or few, or in open terminal cymes..... 5

4. Corolla 2-3 mm. long, leaves glabrous.5. SPERMACOCE

4a. Corolla 4 mm. long or more; leaves scabrous or pubescent.....4. DIODIA

5. Flowers twin, united by their hypanthia....2. MITCHELLA

5a. Flowers separate.....1. HOUSTONIA

6. Sepals triangular; flowers in involucred heads.....6. SHERARDIA

6a. Sepals obsolete; corolla rotate.....7. GALUIM

1. HOUSTONIA L.

1. Flowers pediceled; capsule half inferior..... 2

1a. Flowers, at least some of them, sessile; capsule two-thirds inferior.....(1) H. nigricans

2. Leaves linear, 15-40 mm. long, 1-3 mm. wide, tapering to the base.....(2) H. tenuifolia

2a. Leaves ovate to lance-oblong, 20-50 mm. long, 5-30 mm. wide, rounded to subcordate at base..... .....(3) H. purpurea

(1) H. nigricans (Lam.) Fern. June-Oct.
(2) H. tenuifolia Nutt. June-Sept.
(3) H. purpurea L. May-June.

2. MITCHELLA L. Partridge-berry

(1) M. repens L. Two-eyed-berry, Running Box. June-July.

3. CEPHALANTHUS L. Buttonbush

(1) C. occidentalis L. July-Aug.

4. DIODIA L. Buttonweed

1. Sepals 2 (rarely 4), 4-6 mm. long; style cleft..... .....(1) D. virginiana

1a. Sepals 4, less than 4 mm. long; style entire..... .....(2) D. teres

(1) D. virginiana L. June-Sept.

(2) D. teres Walt. June-Oct.

5. SPERMACOCE L. Buttonweed

(1) S. glabra Michx. June-Oct.

6. SHERARDIA L. Field-Madder

(1) S. arvensis L. May-Sept.

7. GALIUM L. Bedstraw. Cleavers

1. Stems erect or ascending; leaves in whorls of 4..... 2

1a. Stems spreading or prostrate; leaves in whorls of 6-8..... 3

2. Inflorescences occurring at upper 2 or 3, rarely 4, nodes; leaves 2.5 cm. long or longer..... .....(1) G. circaezans

2a. Inflorescence occurring at upper 6 to 12 nodes; leaves usually less than 2.5 cm. long..... .....(2) G. pilosum

3. Leaves usually 8 per whorl, linear to narrowly oblanceolate.....(3) G. aparine

3a. Leaves usually 6 per whorl, narrowly elliptic..... .....(4) G. triflorum

(1) G. circaezans Michx. Wild Licorice. June.
(2) G. pilosum Ait. June-Aug.
(3) G. aparine L. Cleavers, Spring-Cleaver, Goose-grass. May-July.
(4) G. triflorum Michx. Sweet-scented Bedstraw. May-Sept.

106. CAPRIFOLIACEAE (Honeysuckle Family)

1. Style short or absent, stigmas sessile or nearly so; corolla rotate to broadly campanulate, small, white. 2

1a. Style elongate, corolla campanulate, funnel-form, or tubular, white to pink or yellow..... 3

2. Leaves simple.....1. VIBURNUM

2a. Leaves pinnately compound.....2. SAMBUCUS

3. Plants woody (shrubs of climbing or trailing habit). 4

3a. Plants herbaceous, flowers axillary and sessile..... .....5. TRIOSTEUM

4. Ovary 2-3 celled, each cell with many ovules; corolla 10 mm. long or longer.....3. LONICERA

4a. Ovary 4-celled, 2 of which contain several abortive ovules; corolla 4-7 mm. long..... .....4. SYMPHORIOCARPOS

1. VIBURNUM L. Viburnum. Arrow-wood

1. Petioles winged, densely red-tomentose, at least when young.....(1) V. rufidulum

1a. Petioles weakly winged or wings absent, glabrous or minutely scurfy.....(2) V. prunifolium

(1) V. rufidulum Raf. Southern Black-haw, Rusty Nannyberry. Apr.-Oct.
(2) V. prunifolium L. Black- or Sweet-haw, Stagbush. Apr.- Oct.

2. SAMBUCUS L. Elder

(1) S. canadensis L. Common Elder. June-July.

3. LONICERA L. Honeysuckle

1. Flowers paired, at the tips of axillary peduncles... .....(1) L. japonica

1a. Flowers in opposite sessile 3-flowered cymules, producing a 6-flowered whorl.....(2) L. sempervirens

(1) L. japonica Thunb. Japanese Honeysuckle. Apr.-July.
(2) L. sempervirens L. Trumpet-or Coral-Honeysuckle. Mar.-July.

4. SYMPHORICARPUS Duham. Snowberry

(1) S. orbiculatus Moench. Coralberry, Indian-currant. July-Aug.

5. TRIOSTEUM L. Feverwort. Horse-gentian

(1) T. angustifolium L. Apr-June.

107. DIPSACACEAE (Teasel Family)

1. DIPSACUS L. Teasel

(1) D. sylvestris Huds. Wild Teasel. July-Oct.

108. CUCURBITACEAE (Gourd Family)

1. Filaments distinct, at least above; fruit smooth; anthers straight.....1. MELOTHRIA

1a. Filaments united into a column; fruit prickly or spiny; corolla of staminate flowers, 5-lobed.....2. SICYOS

1. MELOTHRIA L. Melonette

(1) M. pendula L. July-Sept.

2. SICYOS L. Bur-Cucumber

(1) S. angularis L. July-Sept.

109. CAMPANULACEAE (Bluebell Family)

1. Corolla irregular.....3. LOBELIA

1a. Corolla regular..... 2

2. Flowers axillary, solitary, sessile; capsule slender.....2. SPECULARIA

2a. Flowers in a terminal inflorescence; capsule plump.....1. CAMPANULA

1. CAMPANULA L. Bellflower

(1) C. americana L. Tall Bellflower. June-Aug.

2. SPECULARIA Fabricius. Venus's Looking-glass

1. Pores of capsule opening at or below the middle; sepals 5 in all flowers.....(1) S. perfoliata

1a. Pores of capsule opening near the summit; sepal 3-4 in lower flowers.....(2) S. biflora

(1) S. perfoliata (L.) A. DC. May-Aug.
(2) S. biflora (R. & P.) Fisch. & May. Apr.-June.

1. Flowers red.....(1) L. cardinalis

1a. Flowers blue, purple, lavender, or white..... 2

2. Lips of the corolla separating longitudinally on each side near the base of the tube..... 3

2a. Lips of the corolla united at the base of the tube.4

3. Pedicels bracteolate above the middle.....(2) L. siphilitica

3a. Pedicels bracteolate near the base.....(3) L. puberula

4. Stem glabrous or appressed-pubescent; flowers in distinct bracteate racemes.....(4) L. spicata

4a. Stem spreading-pubescent; flowers in leafy racemes.....(5) L. inflata

(1) L. cardinalis L. Cardinal-flower. July-Sept.
(2) L. siphilitica L. Aug.-Sept.
(3) L. puberula Michx. Aug.-Oct.
(4) L. spicata Lam. Highbelia, Pale-spike Lobelia. June-Aug.
(5) L. inflata L. Indian-tobacco. June-Oct.

110. COMPOSITAE (Composite Family)

1. Ligulate flowers present..... 2

1a. Ligulate flowers absent; heads discoid..... 5

2. Heads ligulate; flowers all ligulate and perfect; juice milky or colored.....Key 1

2a. Heads radiate; ligulate flowers restricted to the periphery of the heads; juice watery..... 3

3. Rays yellow or orange..... 4

3a. Rays some other color than yellow or orange.....Key 2

4. Receptacle chaffy; pappus chaffy, or of awns, or none.....Key 3

4a. Receptacles naked; pappus various.....Key 4

5. Receptacle bristly or chaffy; plants often spiny...Key 5

5a. Receptacle naked; plants not spiny.....Key 6

KEY 1

1. Pappus of simple capillary bristles only..... 2

1a. Pappus of minute narrow scales.....34. SCICHORIUM

2. Achenes terete or prismatic, scarcely flattened..... 3

2a. Achenes more or less strongly flattened..... 6

3. Achenes smooth, not spine tipped..... 4

3a. Achenes spine tipped, heads numerous, terminal and solitary.....40. TARAXACUM

4. Flowers pink or purple to sometimes white or creamy.....38. PRENANTHES

4a. Flowers bright yellow to orange or orange-red... 4

5. Perennial from an elongate or very short rhizome, with numerous fibrous roots; taproot wanting; achenes truncate or sometimes narrowed upwards, beakless.... .....39. HIERACIUM

5a. Annual, biennial, or perennial, from a taproot or several strong roots, without rhizomes; achenes beaked.....37. PYRRHOPAPPUS

6. Achenes beakless, without any enlarged pappiferous disk at the summit; heads many-flowered (85-250).....35. SONCHUS

6a. Achenes beaked or beakless, in either case somewhat enlarged at the summit where the pappus is attached; heads relatively few-flowered (5-56).....36. LACTUCA

KEY 2

1. Disk-flowers sterile, with undivided styles, their ovaries much smaller than those of the fertile ray-flowers..... 2

1a. Disk-flowers fertile, with divided styles, their

ovaries as large or larger than those of the ray-flowers, which may be either fertile or sterile..... 152

2. Ray-achenes in 2-3 series, even at flowering time; leaves variously-toothed.....13. SILPHIUM 3

2a. Ray-achenes in one series; leaves more or less lobed, well over 1 cm.....12. POLYMNIA

3. Leaves, at least some of them, opposite..... 4

3a. Leaves alternate..... 8

4. Rays persistent on the rays and becoming papery.....15. HELIOPSIS

4a. Rays deciduous from the achenes at maturity..... 5

5. Achenes of the disk not obviously flattened, or if so, then flattened at right angles to the involucral bracts; receptcaular bracts mostly concave and clasping; involucral bracts not obviously dimorphic and biseriate..... 6

5a. Achenes flattened parallel to the involucral bracts; receptacular bracts flat or only slightly concave; involucre double, the bracts dimorphic..... 7

6. Achenes of the disk-flowers flattened, usually also winged; pappus-awns not paleous-dilated at base.....19. VERBSINA

6a. Achenes neither strongly flattened nor winged; pappus-awns paleous-dilated at base..18. HELIANTHUS

7. Pappus of 2-6 awns or teeth, barbed or hispid, usually retrorsely; achenes not wing-margines.....21. BIDENS

7a. Pappus of 2 short teeth or awns, barbed upwardly or not at all, or a mere border, or none; achenes wing-margined.....20. COREOPSIS

8. Involucral bracts dry, scarious-margined..... .....25. ANTHEMIS

8a. Involucral bracts more or less herbaceous, without scarious margins..... 9

9. Receptacle merely convex or low-conic..... 10

9a. Receptacle strongly conic or columar.....17. RUDBECKIA

10. Involucral bracts subequal or slightly imbricate, all about alike.....19. VERBESINA

10a. Involucral bracts biseriate, dimorphic, the outer much narrower and shorter than the inner.....20. COREOPSIS

KEY 3

1. Pappus of scales, or of awns, or a crown, or none.... 2

1a. Pappus of capillary bristles, sometimes also with some short outer scales..... 3

2. Pappus none, or a short crown.....26. CHRYSANTHEMUM

2a. Pappus of distinct scales, sometimes awn-tipped.....23. HELENIUM

3. Involucral bracts uniseriate, equal, commonly with a few very much shorter ones at the base....29. SENECIO

3a. Involucral bracts more or less imbricate in several series..... 4

4. Larger pappus-bristles clavellate at the tip; rays merely yellowish.....6. ASTER

4a. Pappus simple; rays yellow.....4. SOLIDAGO

KEY 4

1. Receptacle chaffy; pappus chaffy, or of awns or a crown or none..... 2

1a. Receptacle naked; pappus various..... 8

2. Leaves, at least some of them, opposite..... 3

2a. Leaves alternate..... 5

3. Disk-flowers sterile, with undivided styles; pappus none.....12. POLYMNIA

3a. Disk-flowers fertile, with divided styles; pappus present or lacking..... 4

4. Pappus of numerous scales; heads small, rather

numerous in leafy cymes, the disk 3-6 mm. wide.....22. GALINSOGA

4a. Pappus none or an obscure toothed crown; heads about 1-3 in terminal or axillary clusters on the numerous branches, the disk 4-6 mm. wide.... .....16. ECLIPTA

5. Involucral bracts dry, scarious-margined..... 6

5a. Involucral bracts more or less herbaceous, not scarious-margined..... 7

6. Heads large, terminating the branches; rays elongate, 5-13 mm. long; achenes terete, 4-13 mm. long; achenes terete, 4-5 angled, or compressed-quadrangular, not callous-margined.....25. ANTHEMIS

6a. Heads small, the rays short and broad, 1-5 mm, long; inflorescence corymbiform; achenes strongly flattened, callous-margined.....24. ACHILLA

7. Disk-flowers sterile with undivided styles..... .....14. PARTHENIUM

7a. Disk-flowers fertile, with divided styles.19. VERBESINA

8. Pappus chaffy, or of awns, or none..... 9

8a. Pappus of capillary bristles..... 10

9. Leaves dentate to pinnatifid, with broad lobes; pappus a short crown or none.....26. CHRYSANTHEMUM

9a. Leaves entire; pappus of several minute bristles and 2 or sometimes 4 longer awns.....5. BOLTONIA

10. Plants flowering in spring and early summer, occasionally continuing until fall; involucral bracts neither definitely leafy nor with chartaceous base and herbaceous tip....7. ERIGERON

10a. Plants flowering in mid- or late summer and fall, involucral bracts often leafy or with chartaceous base and herbaceous tip..... 11

11. Inflorescence chiefly a terminal narrow thyrse, with numerous small heads and short white rays less than 4 mm. long.....4. SOLIDAGO

11a. Inflorescence various, but scarcely as above; rays various but in most species larger than above..6. ASTER

KEY 5

1. Pappus of scales or awns, or none..... 2

1a. Pappus of capillary bristles..... 10

2. Pappus present..... 3

2a. Pappus none..... 7

3. Leaves, at least some of them, opposite; bracts of involucre separate or nearly so.....21. BIDENS

3a. Leaves alternate or all basal..... 4

4. Involucral bracts distinctly hooked at the tip.....30. ARCTIUM

4a. Involucral bracts not hooked..... 5

5. Involucral bracts fimbrillate, dentate, or spiny, evidently imbricate.....33. CENTAUREA

5a. Involucral bracts entire, not much imbricate..... .....14. PARTHENIUM

6. Flowers either all perfect and fertile with divided styles, or the central ones thus and the marginal ones pistillate or neutral..... 7

6a. Flowers of two kinds, some pistillate and fertile, others hermaphrodite and sterile with undivided styles..... 8

7. Leaves alternate.....33. CENTAUREA

7a. Leaves opposite.....16. ECLIPTA

8. Staminate and pistillate flowers in same head; involucre not tuberculate or prickly...12. POLYMNIA

8a. Staminate and pistillate flowers in separate heads; the staminate generally uppermost; involucre of the pistillate heads nut-like or bur-like..... 9

9. Involucre of the pistillate heads a bur with numerous hooked prickles.....11. XANTHIUM

9a. Involucre of the pistillate heads with one row of tubercles or straight spines.....10. AMBROSIA

10. Achenes distinctly obliquely attached to the receptacle; leaves not prickly or spiny.....33. CENTAUREA

10a. Achenes attached essentially at the base; leaves prickly or spiny..... 11

11. Pappus-bristles merely barbellate, not plumose.....31. CARDUS

11a. Pappus-bristles plumose.....32. CIRSIUM

KEY 6

1. Pappus a short crown, or none.....26. CHRYSANTHEMUM

1a. Pappus of capillary bristles..... 2

2. Outer flowers, or all the flowers of same head, pistillate..... 3

2a. Flowers all perfect..... 7

3. Plants more or less white-wooly, at least on the lower surface of the leaves..... 4

3a. Plants not at all white-wooly, though sometimes otherwise pubescent.....9. GNAPALIUM

4. Outer pistillate flowers essentially epappose.....7. ERIGERON

4a. Flowers all with well developed pappus..... 5

5. Principal involucral bracts in one series, sometimes with some much smaller outer ones at the base.....27. ERECHTITES

5a. Bracts in more than one series, more or less imbricate..... 6

6. Leaves ample, chiefly lanceolate to ovate.....8. PLUCHEA

6a. Leaves narrow, chiefly linear or linear-oblanceolate; involucral bracts herbaceous or herbaceous tipped.....6. ASTER

7. Flowers bright yellow-orange.....29. SENECIO

7a. Flowers white, pink, purple, or pale creamy..... 8

8. Heads few flowered, aggregated into secondary heads.....2. ELEPHANTOPUS

8a. Heads separate..... 9

9. Pappus double, the inner of long bristles, the outer of very short bristles.....1. VERNONIA

9a. Pappus simple, of similar bristles..... 10

10. Achenes 3-5 angled; leaves opposite or whorled, or if alternate, then dissected into filiform lobes.....3. EUPATORIUM

10a. Achenes 6-10 ribbed, not angled; leaves alternate, entire, toothed, or broadly lobed.....28. CACALIA

1. VERNONIA Schreb. Ironweed

1. Leaves pubescence with short straight hairs; heads 18-29 flowered.....(1) V. altissima

1a. Leaves pubescence with long crooked hairs; heads 34-55 flowered.....(2) V. missurica

(1) V. altissima Nutt. Aug.-Oct.
(2) V. missurica Raf. July-Sept.

2. ELEPHANTOPUS L. Elephant's-foot

(1) E. carolinianus Willd. Aug.-Oct.

3. EUPATORIUM L. Thoroughwort

1. Leaves mainly whorled, mostly 2-15 cm. wide; flowers purplish, sometimes very pale, or rarely white..... 2

1a. Leaves opposite or alternate, or leaves not over 1 cm. wide; flowers mostly white, sometimes blue or violet, or pink-purple..... 7

2. Stem purplish only at the nodes, usually solid.. .....(1) E. purpureum

2a. Stem more or less purple throughout, hollow..... .....(2) E. fistulosum

3. Flowers mostly 5 in each head, rarely 3-7..... 4

3a. Flowers mostly 9-20 in each head.....

4. Involucral bracts acuminate to attenuate; leaves usually less than 1 cm. wide.....(3) E. leucolepis

4a. Involucral broadly rounded to acute, not acuminate; leaves 1-5 cm. wide, or leaves more or less regularly whorled..... 5

5. Leaves broadly cuneate or subtruncate to broadly rounded or subcordate at the base..(4) E. sessilifolium

5a. Leaves tapering to base..... 6

6. Leaves 4-7 times as long as broad; the larger ones seldom less than 2 cm. wide; plants very hairy.....(5) E. altissimum

6a. Leaves 6-40 times as long as wide, seldom as much as 1 cm. wide, their axillary fascicles generally dense and conspicuous; plants inconspicuously hairy.....(6) E. hyssopifolium

7. Flowers white..... 8

7a. Flowers blue or violet to pink or purple..... 9

8. Leaves relatively thick and firm, mostly crenate or crenate-serrate, acute or abtuse, the larger ones commonly 3-10 cm. long and 2-5 cm. wide; corollas mostly 4-6 mm. long.....(7) E. aromaticum

8a. Leaves relatively thin, mostly sharply serrate, acuminate, the larger ones mostly 6-18 cm. long and 3-12 cm. wide, corollas mostly 3-4 mm. long.....(8) E. rugosum

9. Flowers pink or purplish, mostly 13-24 in each head; receptacle flat; rhizomes wanting.....(9) E. incarnatum

9a. Flowers generally blue or violet, mostly 35-70 in each head; receptacle conic; rhizomatous..... .....(10) E. coelestinum

(1) E. purpureum L. Sweet or Green-stemmed Joe-pye-weed. July-Sept.

(2) E. fistulosum Barratt. Joe-pye-weed, Trumpet-weed. July-Sept.

(3) E. leucolepis (DC.) T.& G. Aug.-Oct.
(4) E. sessilifolium L. Upland Boneset. July-Sept.
(5) E. altissimum L. Aug.-Oct.
(6) E. hyssopicolium L. Aug.-Oct.
(7) E. aromaticum L. Aug.-Oct.
(8) E. rugosum Houtt. White Snakeroot. July-Oct.
(9) E. incarnatum Walt. Aug.-Oct.
(10) E. coelestinum L. Mistflower, Blue Boneset. July-Oct.

4. SOLIDAGO L. Goldenrod

1. Inflorescence various, from axillary to thyrsoid or paniculiform, but not corymbiform or subcapitate.... 2

1a. Inflorescence corymbiform or subcapitate.....(1) S. graminifolia

2. Inflorescence either of reduced axillary clusters, or a terminal, simple or branched thyrse, neither nodding at the summit nor with recurved-secund bundles..... 3

2a. Inflorescence terminal and paniculiform, either nodding at the summit, or with at least the lower branches more or less strongly recurved-secund, or both..... 8

3. Basal and lower cauline leaves the largest, generally persistent; cauline leaves progressively reduced upwards and ordinarily differently shaped from the lowest ones, often few..... 4

3a. Basal and lower cauline leaves mostly smaller than the well developed and usually more crowded middle and upper ones, short petioled, soon deciduous..... 6

4. Rays silvery white, rarely creamy....(2) S. bicolor

4a. Rays yellow..... 5

5. Leaves and stem more or less strongly hirsute.....(3) S. hispida

5a. Leaves below the inflorescence essentially glabrous (occasional scabrous margins and ciliolate petioles).....(4) S. erecta

6. Leaves about 1-2.5 times as long as broad, abruptly contracted to the definite, though usually winged

petioles.....(5) S. flexicaulis

6a. Leaves mostly 3-10 times as long as broad, tapering to the sessile or only obscurely short-petioled base..... 7

7. Stem striate-angled, grooved.....(6) S. curtisii

7a. Stem terete, glaucous.....(7) S. caesia

8. Pappus of well developed capillary bristles, usually equaling or exceeding the achene; leaves not distinctly cordate, at most subcordate..... 9

8a. Pappus-bristles very short and firm, much shorter than the achene; basal and lowermost cauline leaves evidently cordate.....(8) S. sphacelata

9. Basal and lower cauline leaves the largest, generally persistent; cauline leaves progressively reduced upwards and ordinarily differently shaped from the lowest ones, often few..... 10

9a. Basal and lowermost cauline leaves mostly smaller than the well developed and usually more crowded middle and upper ones, short-petiolate, soon deciduous.....

10. Herbage minutely spreading-hirtellous throughout.....(9) S. nemoralis

10a. Stems and frequently also the leaves usually glabrous below the inflorescence, or the stem occasionally with long scattered hairs; leaves, at least the lower ones, strongly triple-nerved; plants with well developed creeping rhizomes... .....(10) S. missouriensis

11. Leaves not triple-nerved..... 12

11a. Leaves more or less strongly triple-nerved..... 13

12. Perennial from a branched caudex, without creeping rhizomes.....(11) S. ulmifolia

12a. Perennial from creeping rhizomes, without any well developed caudex; stems hairy above middle; leaves subsessile; strongly rugose-veiny and toothed.. .....(12) S. rugosa

13. Stems glabrous below the inflorescence..... 14

13a. Stems more or less short-hairy or scabous, at least above the middle; rays 9-16; leaves firm, densely puberlent beneath.....(13) S. altissima

14. Plant glabrous even in the inflorescence; leaves thick and firm.....(10) S. missouriensis

14a. Plant puberlent in the inflorescence; leaves thinish, not especially firm.....(14) S. gigantea

(1) S. graminifolia (L.) Salisb. July-Oct.
(2) S. bicolor L. White Goldenrod, Silverrod. July-Oct.
(3) S. hispida Muhl. July-Oct.
(4) S. erecta Prush. Aug.-Oct.
(5) S. flexicaulis L. July-Oct.
(6) S. curtisii T. & G. Aug.-Oct.
(7) S. caesia L. Blue-stem Goldenrod. Aug.-Oct.
(8) S. sphacelata Raf. Aug.-Oct.
(9) S. nemoralis Ait. June-Dec.
(10) S. missouriensis Nutt. July-Sept.
(11) S. ulmifolia Muhl. Aug.-Nov.
(12) S. rugosa Ait. Aug.-Oct.
(13) S. altissima L. Aug.-Nov.
(14) S. gigantea Ait. July-Sept.

5. BOLTONIA L'Her. Boltonia

(1) B. asteroides (L.) L'Her. July-Sept.

6. ASTER L. Aster

1. Leaves, at least some of them, cordate or subcordate, conspicuously petioled..... 2

1a. None of the leaves cordate and conspicuously petioled..... 3

2. Plants with nearly all the leaves below the inflorescence cordate or subcordate; involucral bracts minutely pubescent on the back; leaves glabrous or scaberulous above.....(1) A. shortii

2a. Plants with only the lower leaves cordate or subcordate; involucral bracts glabrous except for the sometimes ciliolate margins; leaves densely scabrous-hispid or scabrous-hispidulous above.....(2) A. azureus

3. Leaves sessile and conspicuously cordate-clasping;

involucral bracts well imbricate in several series, glandular or hairy.....(3) A. patens

3a. Leaves sessile or petiolate, sometimes becoming strongly auriculate-clasping, but not cordate..... 4

4. Plants with either the involucre or the achene distinctly glandular..... 5

4a. Plants not glandular..... 6

5. Leaves strongly auriculate-clasping; rays commonly 45-100, bright reddish-purple or rosy, rarely blue or white; nerves of achenes obscure...(4) A. novae-angliae

5a. Leaves only slightly or scarcely auriculate-clasping; rays commonly 20-40, blue or purple, rarely rose; achenes several nerved.....(5) A. oblongifolius

6. Rays 3-8; achenes densely sericeous..... .....(6) A. solidagineus

6a. Rays 8-50; achenes glabrous or more or less hairy but not densely sericeous..... 7

7. Involucral bracts, or some of them, with subulate, marginally inrolled green tips; perennial from a caudex or very short and stout rhizome, with numerous fibrous roots.....(7) A. pilosus

7a. Involucral bracts flate, not with subulate, marginally inrolled tips; plants often but not always with creeping rhizomes..... 8

8. Lobes of the disk corolla comprising fifty to seventy-five per cent of the limb; leaves usually hairy along the mid-rib beneath.(8) A. lateriflorus

8a. Lobes of the disk corolla comprising seventeen to forty-five per cent of the limb; leaves glabrous beneath..... 9

9. Peduncles conspicuously long, some of them 2 cm. long or longer; tips of involucral bracts short and broad.....(9) A. dumosus

9a. Peduncles short; tips of involucral bracts elongate. .....(10) A. simplex

(1) A. shortii Lindl. Aug.-Oct.

(2) A. azureus Lindl. Aug.-Oct.
(3) A. patens Ait. Aug.-Oct.
(4) A. novae-angliae L. New England Aster. Aug.-Oct.
(5) A. oblongifolius Nutt. Sept.-Oct.
(6) A. solidagineus Michx. June-Sept.
(7) A. pilosus Willd. Aug.-Oct.
(8) A. lateriflorus (L.) Britt. Aug.-Oct.
(9) A. dumosus L. Aug.-Oct.
(10) A. simplex Willd. Aug.-Oct.

7. ERIGERON L. Fleabane

1. Rays less than 3 mm. long; stem leaves crowded, usually less than 1 cm. apart.....(1) E. canadensis

1a. Rays more than 5 mm. long; stem leaves not crowded, usually more than 1 cm. apart..... 2

2. Stem leaves clasping, rays usually 150 or more.....(2) E. philadelphicus

2a. Stem leaves sessile, not clasping; rays 125 or less..... 3

3. Stems glabrous or appressed-pubescent below; leaves usually less than 1 cm. wide.....(3) E. strigosus

3a. Stems spreading-pubescent below; leaves usually more than 1 cm. wide.....(4) E. annuus

(1) E. canadensis L. Horseweed, Hogweed, Butterweed. July-Nov.
(2) E. philadelphicus L. Apr.-Aug.
(3) E. strigosus Muhl. May-Aug.
(4) E. annuus (L.) Pers. Daisy Fleabane, Sweet-scabious, White-top. June-Oct.

8. PLUCHEA Cass. Marsh-Fleabane. Stink-weed

(1) P. camphorata (L.) Huds. Herba Impia. June-Oct.

9. GNAPHALIUM L. Cudweed. Everlasting

1. Bristles of pappus separate at base.(1) G. obtusifolium

1a. Bristles of pappus united in a ring at base; falling together.....(2) G. purpureum

(1) G. obtusifolium L. Catfoot. Aug.-Nov.
(2) G. purpureum L. Purple Cudweed. Apr.-July.

10. AMBROSIA L. Ragweed

1. Leaves 3- to rarely 5-lobed, or unlobed..(1) A. trifida

1a. Leaves twice pinnate, sunues acute.....
.....(2) A. artemisiifolia

(1) A. trifida L. Great Ragweed, Buffalo-weed. June-Sept.
(2) A. artemisiifolia L. Common Ragweed. July-Oct.

11. XANTHIUM L. Cocklebur. Clotbur

(1) X. chinense Mill. Aug.-Oct.

12. POLYMNIA L. Leafcup

1. Rays yellow.....(1) P. uvedalia

1a. Rays white or absent.....(2) P. canadensis

(1) P. uvedalia L. Bearsfoot. July-Sept.
(2) P. canadensis L. June-Oct.

13. SILPHIUM L. Rosinweed

1. Stems conspicuously 4-angled.....(1) S. perfoliatum

1a. Stems subterete or only obscurely 4-angled..... 2

2. Herbage finely velvety to glabrous, not hispid.. 3

2a. Herbage coarsely spreading-hispid; leaves alternate or opposite.....(2) S. asteriscus

3. Leaves sessile by broad bases, commonly verticillate in 3's or 4's, sometimes opposite, even alternate...
.....(3) S. trifoliatum

3a. Leaves short perioled by narrowed bases, commonly opposite, or the upper alternate.....(4) S. speciosum

(1) S. perfoliatum L. Cup-plant. July-Sept.
(2) S. asteriscus L. June-Sept.
(3) S. trifoliatum L. June-Sept.
(4) S. speciosum Nutt. July-Sept.

14. PARTHENIUM L.

(1) P. integrifolium L. Wild-quinine. June-Sept.

15. HELIOPSIS Pers. Ox-eye

(1) H. helianthoides (L.) Sweet. July-Sept.

16. ECLIPTA L.

(1) E. alba (L.) Hassk. Aug.-Oct.

17. RUDBECKIA L. Coneflower

1. Pappus absent; style appendages elongate; herbage coarsely hirsute.....(1) R. hirta

1a. Pappus present; style appendages short and blunt; herbage pubescent or glabrous..... 2

2. Receptacular bracts glabrous, or ciliolate on the margins, rarely with a few strigose hairs on the back, but not canescent..... 3

2a. Receptacular bracts canescent near the tip with short viscidulous hairs..... 4

3. Leaves merely toothed or entire; bracts not awn-pointed.....(2) R. fulgida

3a. Leaves, at least some of them, deeply tri-lobed or even pinnatifid; bracts awn-pointed.....(3) R. triloba

4. Disk purple or brown; stem densely short-hairy, at least above the middle.....(4) R. subtomentosa

4a. Disk yellow or gray; stem essentially glabrous.. .....(5) R. laciniata

(1) R. hirta L. June-Oct.
(2) R. fulgida Ait. Aug.-Oct.
(3) R. triloba L. June-Oct.
(4) R. subtomentosa Pursh. Aug.-Sept.
(5) R. laciniata L. Aug.-Oct.

18. HELIANTHUS L. Sunflower

1. Leaves mostly triangular in outline; petioles 4 cm. long or longer; plants annual.....(1) H. annuus

1a. Leaves variously shaped, or triangular and sessile or petioles less than 4 cm. long; plants perennial.. 2

2. Leaves sessile or petioles less than 5 mm. long

and leaf bases not truncate or widely cuneate... 166

2a. Petioles more than 5 mm. long or shorter and leaf bases truncate or broadly cuneate..... 3

3. Leaves with wide clasping bases, densely soft-pubescent.....(2) H. mollis

3a. Leaves without clasping bases, not densely soft-pubescent..... 4

4. Leaves truncate at base or very widely cuneate, more than 2 cm. wide..... 5

4a. Leaves cuneate at base, when widely so the leaves less than 1.5 cm. wide..... 6

5. Stems smooth.....(3) H. divaricatus

5a. Stems scabrous.....(4) H. hirsutus

6. Terminal involucre 4 cm. or more broad; upper leaf surface with papillose trichomes.....(5) H. maximiliani

6a. Terminal involucre 3 cm. or less broad or broader and the upper leaf surface papillose only; disc corollas reddish-purple.....(6) H. angustifolius

7. Heads 4 cm. or more broad.....(5) H. maximiliani

7a. Heads less than 3.5 cm. broad..... 8

8. Bracts acute, not long acuminate, erect.....(7) H. lactiflorus

8a. Bracts long-acuminate, spreading..... 9

9. Stem smooth; leaves pubescent beneath.....(8) H. microcephalus

9a. Stems rough or pubescent..... 10

10. Leaf bases rounded, blade bearly decurrent on petiole.....(4) H. hirsutus

10a. Leaf bases cuneate, blade decurrent on petiole; stem rough pubescent near base....(9) H. tuberosus

(1) H. annuus L. Common Sunflower. June-Oct.

(2) H. mollis Lam. Aug.-Oct.
(3) H. divaricatus L. July-Oct.
(4) H. hirsutus Raf. July-Oct.
(5) H. maximiliani Schrad. July-Oct.
(6) H. angustifolius L. Aug.-Oct.
(7) H. laetiflorus Pers. Aug.-Oct.
(8) H. microecephalus T. & G. Small Wood-Sunflower. Aug.-Sept.
(9) H. tuberosus L. Jerusalem Artichoke. Aug.-Oct.

19. VERBESINA L. Crown-beard

1. Involucral bracts reflexed.....(1) V. alternifolia

1a. Involucral bracts erect..... 2

2. Heads numbering 20-100..... 3

2a. Heads 1-10.....(2) V. helianthoides

3. Rays white; leaves alternate.....(3) V. virginica

3a. Rays yellow; leaves opposite.....(4) V. occidentalis

(1) V. alternifolia (L.) Britt. Aug.-Oct.
(2) V. helianthoides Michx. June-Oct.
(3) V. virginica L. Tickweed, Frostweed. Aug.-Oct.
(4) V. occidentalis (L.) Walt. Aug.-Oct.

20. COREOPSIS L. Coreopsis. Tickseed

1. Leaves sessile, whorled.....(1) C. major

1a. Leaves petioled, opposite, with 3 leaflets..... .....(2) C. tripteris

(1) C. major Walt. June-July.
(2) C. tripteris L. Tall Coreopsis. Aug.-Sept.

21. BIDENS L. Bur-Marigold. Cuckfold

1. Leaves simple, entire to deeply incised..... 2

1a. Leaves compound..... 3

2. Leaves entire, sessile.....(1) B. laevis

2a. Leaves tripartite, distinctly petioled..... .....(2) B. cosmosa

3. Ray wanting, or less than 5 mm. long; outer involucral bracts 5-10, typically 8.....(3) B. frondosa

3a. Rays well developed, about 1 cm. long or more; outer involucral bracts 8-20..... 4

4. Outer involucral bracts 8-10; glabrous or nearly so, shorter than the inner ones.....(4) B. cristosa

4a. Outer involucral bracts 12-20, strongly ciliate or hispid; usually longer than the inner ones... .....(5) B. polyepis

(1) B. laevis (L.) BSP. Aug.-Oct.
(2) B. cosmosa (Gray.) Wieg. Beggar-ticks. Aug.-Oct.
(3) B. frondosa L. Aug.-Oct.
(4) B. aristosa (Michx.) Britt. Tickseed-Sunflower. Aug.-Oct.
(5) B. polyepis Blake. Aug.-Oct.

22. GALINSOGA R. & P.

1. Pappus of rays wanting or nearly so; pappus scales of the disk awnless.....(1) G. parviflora

1a. Pappus of rays well developed; pappus-scales of the disk awn-tipped.....(2) G. ciliata

(1) G. parviflora Cav. June-Nov.
(2) G. ciliata (Raf.) Blake. June-Nov.

23. HELENIUM L. Sneezeweed

1. Leaves numerous, linear-filiform, rarely over 2 mm. wide; plants annual.....(1) H. tenuifolium

1a. Leaves lance-linear to elliptic or ovate, the larger rarely less than 5 mm. wide..... 2

2. Disk yellow.....(2) H. autumnale

2a. Disk purple or brownish-purple....(3) H. nudiflorum

(1) H. tenuifolium Nutt. June-Nov.
(2) H. autumnale L. Aug.-Nov.
(3) H. nudiflorum Nutt. June-Oct.

24. ACHELLEA L. Yarrow

(1) A. millefolium L. Common Yarrow, Milfoil. June-Sept.

25. ANTHEMIS L. Dogfennel Chamomile

(1) A. cotula L. Mayweed, Stinking Chamomile, Dogfennel. June-Oct.

26. CHRYSANTHEMUM L. Chrysanthemum

(1) C. leucanthemum L. Ox-eye- or White Daisy. June-Aug.

27. ERECHTITES Raf. Fireweed

(1) E. hieracifolia (L.) Raf. Pilewort. July-Oct.

28. CACALIA L. Indian-Plantain

(1) C. atriplicifolia L. Pale Indian-plantain. June-Sept.

29. SENECIO L. Groundsel. Ragwort. Squaw-weed

1. Plants annual; terminal lobe of leaves essentially same size and shape as the lateral ones, all rounded.....(1) S. glabellus

1a. Plants perennial; leaves un-lobed..... 2

2. Plants with well developed stolons..(2) S. obovatus

2a. Plants without stolons.....(3) S. pauperculus

(1) S. glabellus Poir. Butterweed. Apr.-June.
(2) S. obovatus Muhl. Apr.-June.
(3) S. pauperculus Michx. May-Aug.

30. ARCTIUM L. Burdock. Coltbur

(1) A. mimus (Hill.) Bernh. Common Burdock. July-Oct.

31. CARDUUS L. Plumeless Thistle

(1) C. nutans L. Nodding-Thistle, Musk-Thistle. June-Oct.

32. CIRSIUM Mill. Common or Plumed Thistle

1. Stem winged by decurrent leaf-bases.....(1) C. vulgare

1a. Stem wingless..... 2

2. Leaves deeply pinnatifid.....(2) C. discolor

2a. Leaves toothed or shallowly lobed.(3) C. altissimum

(1) C. vulgare (Savi.) Tenore. Bull or Common Thistle. June-Sept.
(2) C. discolor (Muhl.) Spreng. July-Oct.
(3) C. altissimum (L.) Spreng. July-Oct.

33. CENTAUREA L. Star-Thistle

(1) C. cyanus L. July-Sept.

34. CICHORIUM L. Succory or Chicory

(1) C. intybus L. Common Chicory, Blue Sailors. June-Oct.

35. SONCHUS L. Sow-Thistle, Milk-Thistle

(1) S. asper (L.) Hill. Spiny-leaved Sonchus.

36. LACTUCA L. Lettuce. Milkweed

1. Achenes with only a median nerve on each face.....
.....(1) L. canadensis

1a. Achenes evidently to very prominently several-nerved on each face..... 2

2. Beak of achene filiform, nearly as long to twice as long as the body.....(2) L. serriola

2a. Beak of achene short, less than half as long as the body; pappus white.....(3) L. floridana

(1) L. canadensis L. July-Sept.
(2) L. serriola L. Prickly Lettuce. July-Sept.
(3) L. floridana (L.) Gaertn. Aug.-Oct.

37. PYRRHOPAPPUS DC. False Dandelion

(1) P. carolinianum (Walt.) DC. June-Oct.

38. PRENANTHES L. Rattlesnake-root

1. Involucre evidently pubescent with long coarse hairs; stems and lower surface of the leaves rough-hairy; flowers cream-color.....(1) P. aspera

a. Involucre glabrous or nearly so; stems often spreading-hirsute toward the base, but not rough-hairy; leaves sometimes hirsute along mid-rib beneath, but not rough-hairy; flowers whitish to bright yellow-brown.....(2) P. altissima

(1) P. aspera Michx. Aug.-Oct.
(2) P. altissima L. July-Oct.

39. HIERACUIM L. Hawkweed

(1) H. gronovii L. July-Oct.

40. TARAXACUM Wiggers. Dandelion

(1) T. officinale Wiggers. Feb.-Aug.

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CHAPTER VI

ANNOTATED CHECK LIST

The following is a list of the summer and fall vascular plants which have been collected within the political boundaries of Montgomery County, Tennessee. The list is based upon specimens found in the herbaria of Austin Peay State College, Clarksville, Tennessee, Vanderbilt University, Nashville, Tennessee, and The University of Tennessee, Knoxville, upon published records (see p. 3) and upon the author's collections. The nomenclature follows that used in Gray's Manual of Botany, Eighth Edition.

Citation data for each specimen include location and date of collection, collector, field or herbarium number, and designation of herbarium in which each specimen is housed. The designations APSC, VAND, and/or TENN in each citation denote the herbaria of Austin Peay State College, Vanderbilt University, and the University of Tennessee, respectively.

DIVISION PTERIDOPHYTA

EQUISETACEAE

Equisetum arvense L. Field Horsetail. Coke's Creek, 14 May 1949, F. Brown et al. 618 (APSC).

Equisetum hyemale L. Scouring Rush. Foster's Cave, 15 July 1949, H. Silva and A. Clebsch 396 (APSC); Parson's Creek, 24 Oct 1949, A. Clebsch 682 (APSC).

Selaginella apoda (L.) Fern. Meadow Spike Moss. Ravine e of Greenwood Cemetery, 29 Oct 1949, F. Brown and A. Clebsch 683 (APSC); Durham's Cave, 9 Nov 1947, A. Clebsch 1014 (APSC).

OPHIOGLOSSACEAE

Botrychium virginianum (L.) Sw. Rattlesnake Fern. Cave on F. Brown's farm nr Lock B, 15 July 1948, A. Clebsch 91 (APSC); n arm of Coke's Creek, 14 May 1949, F. Brown and A. Clebsch 678 (APSC).

Botrychium dissectum Spreng. Common Grape Fern. M. P. Brothers' farm on Spring Creek, 28 Oct 1945, A. Clebsch and E. Clebsch 313 (APSC); w of Oakwood, 17 Sept 1949, F. Brown and A. Clebsch 390 (APSC); e of Warfield, 10 Sept 1949, F. Brown and A. Clebsch 677 (APSC); s of highway 112 at Brown's Filling Station, Sango, 30 July 1949, F. Brown and A. Clebsch 675 (APSC); Cunningham Lake, 10 Apr 1949, C. F. Pickering et al. 676 (APSC).

Ophioglossum engelmanni Prantl. Adder's-Tongue. Foster's Cave, 18 June 1949, F. Brown and A. Clebsch 389 (APSC).

POLYPODIACEAE

Pteridium aquilinum (L.) Kuhn. Bracken Fern. Along highway 41E 2 mi se of Guthrie, Kentucky, 2 July 1949. F. Brown and A. Clebsch 395A (APSC).

Adiantum pedatum L. Maidenhair Fern. Off highway 13 nr Montgomery-Stewart County line, 23 July 1949, F. Brown and A. Clebsch 394 (APSC).

Pellaea atropurpurea (L.) Link. Purple Cliff-Brake. King and Queen bluff, 23 Nov 1945, A. Clebsch and E. Clebsch 315 (APSC); same location, 24 July 1948, A. Clebsch s.n. (APSC).

Cheilanthes alabamensis (Buckl.) Hunze. Alabama Lip Fern. Red Rocks bluff on Cumberland River, 9 June 1948, A. Clebsch and E. Clebsch 680 (APSC); Cumberland River bluff below Lynnwood's Landing, 9 June 1948, A. Clebsch 53 (APSC); King and Queen bluff on Cumberland River, 30 March 1946, A. Clebsch 316 (APSC).

Cheilanthes vestita (Spreng.) Sw. Hairy Lip-Fern. Bluff under old fort at confluence of Cumberland and Red Rivers, 1 Dec 1945, A. Clebsch 318 (APSC).

Woodsia obtusa (Spreng.) Torr. Shelton's Branch e of Clarksville, date not available, Shaver 10548 (TENN).

Onoclea sensibilis L. Sensitive Fern. Bank of West Fork Creek, 16 Sept 1948, A. Clebsch and E. Clebsch 173 (APSC).

Asplenium cryptolepis Fern. Wall-Rue Spleenwort. Red Rocks bluff on Cumberland River, 9 June 1948, A. Clebsch 52 (APSC).

Asplenium platyneuron (L.) Oakes. Ebony Spleenwort. e arm of Shelton's Branch, 25 July 1948, A. Clebsch 52 (APSC)

Athyrium pycnocarpon (Spreng.) Tidestr. Glade Fern. Red River bluff below mouth of Rudolph's Branch, 21 Oct 1947, A. Clebsch 1013 (APSC); Foster's Cave, 18 June 1949, F. Brown and A. Clebsch 393 (APSC).

Cystopteris fragilis (L.) Bernh. Lowland Brittle Bladderfern. Sheldon's Branch, date not available, Shaver 9248 (TENN).

Cystopteris bulbifera (L.) Bernh. Bulblet Fern. Shelton's Branch, 25 July 1948, A. Clebsch 172 (APSC); Bellamy's Cave, 15 July 1949, A. Clebsch and H. Silva 985 (APSC); Boy Scout camp on Big West Fork Creek, 27 May 1948, A. Clebsch 93 (APSC).

Cystopteris tennesseensis Shaver. Tennessee Bladder Fern. Shelton's Branch, 11 Oct 1947. A. Clebsch 1012 (APSC); Red Rocks bluff on Cumberland River, 9 June 1948. A. Clebsch 92 (APSC).

Dryopteris hexagonoptera (Michx.) Christens. Broad Beech Fern. Along rd to Lynnwood's Landing, 17 July 1949, F. Brown and A. Clebsch 391 (APSC); s of highway 112 at Brown's Filling Station, Sango, 30 July 1949, A. Clebsch and F. Brown 679 (APSC).

Camptosorus rhizophyllus (L.) Link. Walking Fern. Shelton's Branch e of Clarksville, date not available, Shaver 8156 (TENN).

Polystichum acrostichoides Schott. Bank of West Fork Creek at Peachers Mill, 19 Sept 1948, A. Clebsch s.n. (APSC).

SPERMATOPHYTA

GYMNOSPERMAE

PINACEAE

Pinus taeda L. Loblolly Pine. Off highway 41-A e of Clarksville, July 8 1967, L. Scott 04004 (APSC).

Juniperus virginiana L. Red Cedar. Lynwood's Landing, 28 Oct 1949, A. Clebsch and E. Clebsch 684 (APSC); Greenwood Cemetery, 20 Feb 1949, A. Clebsch 397 (APSC); Boy Scout camp, Peachers Mill, 2 Apr, R. E. Shanks 1754 (TENN).

ANGIOSPERMAE

MONOCOTYLEDONEAE

TYPHACEAE

Typha latifolia L. Common Cat-tail. Marks' slough, July 8 1967, L. Scott 04005 (APSC).

ZOSTERACEAE

Potamogeton diversifolius Raf. Pondweed. Pond nr Dotsonville rd on highway 76, 17 June 1950, A. Clebsch et al. 12993 (TENN); pond e of Sango rd, 3 June 1950, F. Brown 12999 (TENN); pond on Mt. Carmel rd, 29 July 1950, A. Clebsch and F. Brown 13023 (TENN).

Zannichellia palustris L. Horned Pondweed. M. P. Brothers' farm, 11 Sept 1949, F. Brown and A. Clebsch 400 (APSC).

ALISMATACEAE

Alisma subcordatum Raf. Water Plantain. Brown's Filling Station, Sango, 30 July 1949, F. Brown and A. Clebsch 401 (APSC).

HYDROCHARITACEAE

Elodea canadensis Michx. Waterweed. Marks' slough, 23 Sept 1949, A. Clebsch 685 (APSC).

GRAMINAE

Arundinaria gigantea (Walt.) Chapm. Giant Cane. s of Henrietta nr Cumberland River, 3 July 1965, W. Chester 888 (TENN); Cumberland River bank, 30 June 1966, H. L. Yarbrough 249 (APSC); Spring Creek, 14 Sept 1956, A. Clebsch and F. Brown 21566 (TENN).

Bromus purgans L. Canada Brome-Grass. Cumberland river bluff above Seven Mile Ferry, 5 June 1949, A. Clebsch 653 (APSC). bluff ese of Clarksville, 18 May 1946. A. Clebsch 327 (APSC); Parson's Creek, 29 May 1949, A. Clebsch 652 (APSC).

Bromus japonica Thunb. Japanese Chess. Gracey Avenue, 23 June 1949, A. Clebsch 655 (APSC).

Festuca octaflora Walt. Six-weeks Fescue. King and Queen bluff, 27 Apr 1946, A. Clebsch 324 (APSC); King and Queen bluff, 18 May 1946, A. Clebsch and E. Clebsch 328 (APSC); no arm of Coke's Creek, 14 May 1949, F. Brown and A. Clebsch 648 (APSC); nr Springtown s of Cumberland River, 14 May 1942, R. E. Shanks 1277 (APSC); barrens nr Woodlawn, 25 June 1944, R. E. Shanks and A. Clebsch 1284 (APSC); Oak Ridge near Yellow Creek, 23 May 1942, R. E. Shanks 2057 (TENN).

Festuca rubra L. Red Fescue. King and Queen bluff on Cumberland River, 11 June 1950, A. Clebsch 12908 (VAND).

Festuca obtusa Riehler. Nodding Fescue. Head waters of Coke's Creek, 2 July 1944, R. E. Shanks 1278 (APSC); Coke's Creek, 29 May 1949, A. Clebsch 650 (APSC); Parson's Creek, 29 May 1949, F. Brown and A. Clebsch 649 (APSC); 3 mi w of Clarksville, 30 Apr 1949, F. Brown and A. Clebsch 651 (APSC); Coke's Creek s of Nashville rd, 2 July 1944, R. E. Shanks 2801 (TENN).

Glyceria striata (Lum.) Hitch. Fowl Manna-Grass. n arm of Coke's Creek, 14 May 1949, F. Brown and A. Clebsch 647 (APSC); ravine e of Greenwood Cemetery, 11 June 1949, F. Brown and A. Clebsch 646 (APSC); Spring Creek, 4 June 1944, R. E. Shanks 2761 (TENN).

Poa compressa L. Canada Blue Grass. ravine e of Greenwood Cemetery, 11 June 1949, F. Brown and A. Clebsch 639 (APSC).

Poa pratensis L. Kentucky Blue Grass. King and Queen bluff on Cumberland River, 7 May 1949, F. Brown and A. Clebsch 640 (APSC); along Tennessee Central RR tracks nr Hiett's Garden, 14 May 1949, F. Brown and A. Clebsch 641 (APSC); Woodard and Central Avenue, 1 June 1949, A. Clebsch 642 (APSC); Lyle Woods along Cumberland River, 7 May 1942, R. E. Shanks 1273 (APSC).

Eragrostis spectablis (Purch) Steud. Purple Love-Grass. King and Queen bluff, 24 Aug 1948, A. Clebsch 333 (APSC); CCC pine planting on highway 112, 2 Sept 1949, F. Brown and A. Clebsch 634 (APSC); 2 mi se of Guthrie, Kentucky in Mont. County, 8 Oct 1949, F. Woods et al. 635 (APSC); Barrens nr Woodlawn, 13 Oct 1941, R. E. Shanks 1270 (APSC).

Eragrostis hypnoides (Lam.) BSP. Creeping Love-Grass. Kessee's Pond, 14 Sept 1946, A. Clebsch and E. Clebsch 330 (APSC).

Eragrostis frankii C. A. Meyer. Along Red River nr New Providence bridge, 4 Sept 1948, A. Clebsch and E. Clebsch 345 (APSC).

Eragrostis capillaris (L.) Nees. Lace-Grass. Woods n of highway 112, Sango community, 30 July 1949, F. Brown and A. Clebsch 632 (APSC); same location, 9 July 1949, F. Brown and A. Clebsch 633 (APSC); bluff along Cumberland River, 9 Oct 1941, D. Eakin and R. E. Shanks 1268 (APSC).

Eragrostis megastachya (Koeler.) Link. Stink-Grass. nr Cumberland River 2½ mi ese of Clarksville, 24 Aug 1947, A. Clebsch 332 (APSC).

Eragrostis pilosa (L.) Beauv. APNS campus, 2 Oct 1941, R. E. Shanks 1269 (APSC).

Diarrhena americana Beauv. Bluff nr Cumberland River between Edmondson and Seven Mile Ferries, 1 Aug 1948, A. Clebsch 169 (APSC); King and Queen bluff, 24 Aug 1947, A. Clebsch 331 (APSC).

Uniola latifolia Michx. Wide-leaf Uniola. King and Queen bluff, 24 July 1948, A. Clebsch 168 (APSC); Red River nr mouth of Shelton's Branch, 30 Aug 1947, A. Clebsch 336 (APSC); Riggins' bridge crossing Yellow Creek, 20 July 1966, L. Scott and P. Wallen 02137 (APSC); Porter's bluff, 13 Sept 1944, R. E. Shanks 820 (TENN).

Melica mutica Walt. Club-flowered Melie. Cumberland

River valley between Cumberland City and Clarksville, 17 Apr 1954, E. Quarterman and R. Stauffer 3293 (VAND).

Triodia flava (L.) Smyth. Purple-Top. Shady Grove, 3 Sept 1949, F. Brown and A. Clebsch 631 (APSC); barrens nr Woodlawn, 10 Oct 1941, R. E. Shanks 1267 (APSC).

Elymus virginious L. Virginia Wild Rye. Barrens at Oakwood, 18 June 1949, F. Brown and A. Clebsch 659 (APSC); nr King and Queen bluff, 11 June 1949, F. Brown and A. Clebsch 660 (APSC); Lyle Woods nr Cumberland River, 6 June 1942, W. Oliver 1283 (APSC); Yellow Creek, 22 June 1966, H. L. Yarbrough 161 (APSC).

Elymus villosus Muhl. Slender Wild Rye. Shelton's Branch, 25 June 1949, F. Brown and A. Clebsch 670 (APSC); Cumberland River bluff above Seven Mile Ferry, 5 June 1949, A. Clebsch 672 (APSC).

Hystrix patula Moench. Bottle-Brush Grass. Shelton's Branch, 25 June 1949, F. Brown and A. Clebsch 674 (APSC); King and Queen bluff, 11 June 1949, F. Brown and A. Clebsch 673 (APSC).

Lolium multiflorum Lam. Italian Rye-Grass. Gracey Avenue, Clarksville, 22 June 1949, A. Clebsch 657 (APSC).

Lolium perenne L. English Rye-Grass. Along Tennessee Central RR tracks, 12 June 1949, A. Clebsch 656 (APSC).

Danthonia spicata (L.) Beauv. Poverty Oat-Grass. West Fork Creek, 4 June 1949, F. Brown and A. Clebsch 626 (APSC); barrens nr Woodlawn, 25 June 1944, R. E. Shanks 1264 (APSC); nr Yellow Creek, 23 May 1942, W. Oliver and R. E. Shanks 1265 (APSC); Woodlawn, 25 June 1944, R. E. Shanks 2772 (TENN); rd to Marks' slough from Ashland City, 20 May 1950, A. Clebsch and F. Brown 12899 (TENN).

Agrostis alba L. Redtop. Barrens at Oakwood, 18 June 1949, F. Brown and A. Clebsch 619 (APSC); Woodard and Central Avenue, Clarksville, 12 June 1949, A. Clebsch 620 (APSC); nr King and Queen bluff, 11 June 1949, F. Brown and A. Clebsch 621 (APSC).

Agrostis perennans (Walt.) Tuckerm. Upland Bent. n of Greenwood Cemetery, 14 Sept 1947, A. Clebsch 341 (APSC); along Fletcher's Creek, 17 Sept 1949, F. Brown and A. Clebsch 623 (APSC); Shady Grove, 3 Sept 1949, F. Brown and A. Clebsch 624 (APSC); w of Oakwood, 9 Oct 1949, R. E. Shanks

et al. 625 (APSC).

Cinna arundinacea L. Woodreed. Along Red River, 30 Aug 1947, A. Clebsch 335 (APSC); Yellow Creek, 23 July 1949, F. Brown and A. Clebsch 616 (APSC); bluff on Cumberland River, 5 Sept 1949, A. Clebsch 617 (APSC); e of Warfield, 10 Sept 1949, F. Brown and A. Clebsch 618 (APSC).

Phleum pratens L. Timothy. nr King and Queen bluff on Cumberland River, 11 June 1949, F. Brown and A. Clebsch 612 (APSC).

Muhlenbergia schreberi Gmel. w of Oakwood, 9 Oct 1949, R. E. Shanks et al. 606 (APSC).

Muhlenbergia frondosa (Poir) Fern. Cumberland River bottom between Seven Mile Island and Seven Mile Ferry, 6 Sept 1947, A. Clebsch 320 (APSC); Cumberland River below Clarksville, 25 Sept 1948, 349 (APSC); opposite Woodlawn school, 9 Oct 1949, R. E. Shanks et al. 608 (APSC); w of Oakwood, 9 Oct 1949, R. E. Shanks et al. 609 (APSC); Cumberland River below Clarksville, 25 Sept 1948, A. Clebsch 347 (APSC).

Muhlenbergia sobolifera (Muhl.) Trin. Cumberland River bluff nr Lynnwood's Landing, 17 July 1949, F. Brown and A. Clebsch 607 (APSC).

Sporobolus neglectus Nash. Baldgrass. Bluffs along Cumberland River nr New Providence, 10 Oct 1943, H. C. Phillips and R. E. Shanks 1259 (APSC); APNS campus, 26 Sept 1941, anon 1258 (APSC).

Sporobolus asper (Michx.) Kunth. King and Queen bluff, 10 Sept 1947, A. Clebsch 339 (APSC); bluff along Cumberland River nr New Providence, 10 Oct 1943, H. C. Phillips and R. E. Shanks 1260 (APSC).

Brachyelytrum erectum (Schreb.) Beauv. Shelton's Branch, 25 June 1949, F. Brown and A. Clebsch 611 (APSC).

Aristida dichotoma Mich. Poverty Grass. Barrens nr Woodlawn, 1 Oct 1942, R. E. Shanks 1250 (APSC).

Aristida longespica Poir. nr Warfield, 10 Sept 1949, A. Clebsch and F. Brown 604 (APSC); CCC pine planting on highway 112, 3 Sept 1949, F. Brown and A. Clebsch 605 (APSC); campus APNS, 30 Sept 1941, R. E. Shanks 1252 (APSC).

Aristida oligantha Michx. n of Greenwood Cemetery,

24 Aug 1947, A. Clebsch 334 (APSC); CCC pine planting on highway 112, 3 Sept 1949, F. Brown and A. Clebsch 603 (APSC); campus APSC, 16 Oct 1942, G. Denning 1251 (APSC).

Aristida purpurascens Poir. Barrens nr Woodlawn, 10 Oct 1941, R. E. Shanks 1250 (APSC); bluffs along Cumberland River nr New Providence, 10 Oct 1943, H. C. Phillips and R. E. Shanks 1254 (APSC).

Leptochloa filiformis (Lam.) Beauv. Sprangletop. Cumberland River bank between Seven Mile Ferry and Seven Mile Island, 6 Sept 1947, A. Clebsch 338 (APSC); Lock B, 23 Sept 1949, A. Clebsch 629 (APSC); nr Lock B, 23 Sept 1949, A. Clebsch 630 (APSC).

Eleusine indica (L.) Gaertn. Wiregrass. Cumberland River bank facing New Providence, 1 Oct 1949, F. Brown and A. Clebsch 628 (APSC).

Cynodon dactylon Pers. Bermuda Grass. APSN campus, 16 Oct 1942, G. Denning 1266 (APSC).

Spartina pectinata Link. Fresh-water Cord-grass. se of Guthrie, Kentucky in Mont. Co., 8 Oct 1949, R. E. Shanks 627 (APSC); se of Guthrie, Kentucky, 8 Oct 1949, R. E. Shanks and E. Cooley 14334 (TENN).

Leersia oryzoides (L.) Sw. Rice cutgrass. Pond at Oakwood, 17 Sept 1949, F. Brown and A. Clebsch 601 (APSC).

Leersia virginica Willd. Whitegrass. Yellow Creek, 23 July 1949, F. Brown and A. Clebsch 599 (APSC); e of Warfield, 10 Sept 1949, F. Brown and A. Clebsch 600 (APSC).

Digitaria ischaemum (Schreb.) Muhl. Smooth Crab-Grass. APSC campus, 2 Oct 1941, R. E. Shanks 1219 (APSC).

Digitaria sanguinalis (L.) Scop. Oakwood, 17 Sept 1949, F. Brown and A. Clebsch 555 (APSC); n of Greenwood Cemetery, 18 Sept 1949, A. Clebsch s.n. (APSC).

Paspalum fluitans (Ell.) Kunth. Red River nr New Providence, 4 Sept 1948, A. Clebsch and E. Clebsch 176 (APSC).

Paspalum pubiflorum Rupr. APSC campus, 16 Oct 1942, G. Denning 1226 (APSC); Porter's bluff, 13 Sept 1941, B. Spafford 1227 (APSC); Lock B, 23 Sept 1949, A. Clebsch 561 (APSC); APSC campus, 2 Oct 1941, R. E. Shanks 1228 (APSC).

Paspalum laeve Michx. Barrens nr Woodlawn, 1 Oct 1942,

R. E. Shanks 1222 (APSC); pond nr Mt. Carmel on highway 112, 9 July 1949, F. Brown and A. Clebsch 557 (APSC); Sango community, 9 July 1949, F. Brown and A. Clebsch 560 (APSC); campus APSC, 5 Oct 1942, R. E. Shanks 1223 (APSC); nr Warfield, 10 Sept 1949, F. Brown and A. Clebsch 562 (APSC).

Paspalum ciliatifolium Michx. Oakwood, 18 June 1949, F. Brown and A. Clebsch 559 (APSC); campus APSC, 5 Oct 1942, R. E. Shanks 1221 (APSC); along Cumberland River s of Clarksville, 9 Oct 1941, R. E. Shanks 1008 (TENN); APNS campus, 5 Oct 1942, R. E. Shanks 2230 (TENN).

Panicum lanuginosum Ell. Sango community, 9 July 1949, F. Brown and A. Clebsch 589 (APSC); barrens nr Woodlawn, 12 Sept 1942, R. E. Shanks 1239 (APSC); Woodard St. and Central Ave., Clarksville, 1 June 1949, A. Clebsch 587 (APSC); e of Greenwood Cemetery, 11 June 1949, F. Brown and A. Clebsch 586 (APSC); nr Stringtown, 14 May 1942, R. E. Shanks 1241 (APSC); barrens nr Woodlawn, 25 June 1942, R. E. Shanks 1244 (APSC); Shelton's Branch, 25 June 1949, F. Brown and A. Clebsch 585 (APSC); Greenwood Cemetery, 11 June 1949, F. Brown and A. Clebsch 332 (APSC).

Panicum villosissimum Nash. Along L&N RR se of Guthrie, Kentucky, 4 Oct 1941, R. E. Shanks 1242 (APSC).

Panicum clandestinum L. Between Greenwood Cemetery and King and Queen bluff, 11 June 1949, F. Brown and A. Clebsch 596 (APSC); Oakwood, 18 June 1949, F. Brown and A. Clebsch 595 (APSC).

Panicum boscii Poir. West Fork Creek bluff, 4 June 1949, F. Brown and A. Clebsch 593 (APSC); 3 mi se of Clarksville, 27 Apr 1946, A. Clebsch 323 (APSC); King and Queen bluff, 25 May 1966, H. L. Yarbrough 199 (APSC).

Panicum polyanthes Schultes. Mt. Carmel along highway 112, 9 July 1949, F. Brown and A. Clebsch 577 (APSC); Shelton's Branch, 25 June 1949, F. Brown and A. Clebsch 578 (APSC); King and Queen bluff, 11 June 1949, F. Brown and A. Clebsch 579 (APSC); Woodlawn, 25 June 1944, R. E. Shanks 1235 (APSC); prairie w of Oakwood, 20 June 1948, A. Clebsch et al. 7624 (TENN).

Panicum commutatum Schultes. Coke's Creek, 14 May 1949, F. Brown and A. Clebsch 591 (APSC); Sango community, 9 July 1949, F. Brown et al. 592 (APSC).

Panicum microcarpon Muhl. Oakwood, 18 June 1949, F. Brown and A. Clebsch 580 (APSC); Sango community, 30 July

1949, F. Brown and A. Clebsch 581 (APSC).

Panicum dichotomum L. e of Shiloh, 23 May 1942, R. E. Shanks 1236 (APSC); Fletcher's Fork, 6 Oct 1941, R. E. Shanks s.n. (APSC); King and Queen bluff, 27 Apr 1946, A. Clebsch 322 (APSC).

Panicum laxiflorum Lam. Shelton's Branch, 25 June 1949, F. Brown and A. Clebsch 574 (APSC); nr Hiett's Garden, 14 May 1949, F. Brown and A. Clebsch 575 (APSC); Coke's Creek, 2 July 1944, R. E. Shanks 1234 (APSC).

Panicum dichotomiflorum Michx. nr Warfield, 10 Sept 1949, F. Brown and A. Clebsch 566 (APSC); APNS campus, 16 Oct 1942, G. Denning 1230 (APSC).

Panicum agrostoides Spreg. Oakwood, 17 Sept 1949, F. Brown and A. Clebsch 572 (APSC).

Panicum anceps Michx. n of Greenwood Cemetery, 5 Sept 1948, A. Clebsch 346 (APSC); nr Mt. Carmel, 9 July 1949, F. Brown and A. Clebsch 570 (APSC); Foster's Cave, 15 July 1949, H. Silva and A. Clebsch 571 (APSC); Woodlawn, 10 Oct 1941, R. E. Shanks 1023 (TENN).

Panicum virgatum L. Switchgrass. Above King and Queen bluff, 1 Sept 1947, A. Clebsch 337 (APSC).

Panicum flexile (Gattinger) Scribn. Fletcher's Creek, 6 Oct 1941, R. E. Shanks 1231 (APSC).

Panicum capillare Old-Witch Grass. e of Warfield, 10 Sept 1949, F. Brown and A. Clebsch 568 (APSC).

Panicum philadelphicum Bernh. nr Warfield, 10 Sept 1949, F. Brown and A. Clebsch 569 (APSC).

Echinochloa crus-galli (L.) Beauv. Barnyard Grass. Between New Providence and Cumberland River, 17 July 1949, F. Brown and A. Clebsch 563 (APSC); bank of Cumberland River, 25 Sept 1948, A. Clebsch 177 (APSC).

Setaria viridis (L.) Beauv. Green Foxtail. Seven Mile Ferry rd, 1 Aug 1948, A. Clebsch 343 (APSC); Gracey Avenue, Clarksville, 23 June 1949, A. Clebsch 598 (APSC).

Setaria geniculata (Lam.) Beauv. Prairie Foxtail. APSC campus, 16 Oct 1942, G. Denning 1246 (APSC).

Setaria glauca (L.) Beauv. Yellow Foxtail. APSC

campus, 2 Oct 1941, R. E. Shanks 1245 (APSC).

Erianthus alopecuroides (L.) Ell. Silver Plumegrass. CCC pine planting on highway 112, 3 Sept 1949, F. Brown and A. Clebsch 546-A (APSC); nr Pisgah School, 17 Sept 1941, R. E. Shanks 1213 (APSC).

Arthraxon hispidus (Thunb.) Makino. Cumberland River bank, 25 Sept 1948, A. Clebsch 348 (APSC).

Andropogon scoparius Michx. Little Bluestem. King and Queen bluff, 15 Oct 1949, F. Brown and A. Clebsch 547 (APSC); Woodlawn, 1 Oct 1942, R. E. Shanks 1214 (APSC); Cumberland River bluff, 5 Sept 1949, 548 (APSC); Lock B, 23 Sept 1949, A. Clebsch 550 (APSC).

Andropogon gerardi Vitman. Big Bluestem. King and Queen bluff, 10 Sept 1947, A. Clebsch 340 (APSC).

Andropogon ternarius Michx. Silverbeard. Woodlawn, 1 Oct 1942, R. E. Shanks 1217 (APSC).

Andropogon elliottii Chapm. Woodlawn, 14 Oct 1941, R. E. Shanks 1215 (APSC).

Andropogon virginicus L. Broomsedge. nr Pisgah School, 17 Sept 1941, R. E. Shanks 1216 (APSC).

Sorgum halepense (L.) Pers. Johnson Grass. APSC campus, 30 Sept 1941, D. Eakin 1218 (APSC); between Marks' slough and Lock B, 23 Sept 1949, A. Clebsch 554 (APSC).

Sorghastrum nutans (L.) Nash. Indian Grass. King and Queen bluff, 15 Oct 1949, F. Brown and A. Clebsch 551 (APSC); se of Guthrie, Ky., in Mont. Co., 10 Sept 1949, F. Brown and A. Clebsch 552 (APSC); se of Guthrie, Ky., in Mont. Co., 8 Oct 1949, R. E. Shanks et al. 553 (APSC).

CYPERACEAE

Cyperus tenuifolius (Steud.) Dandy. Bank of Cumberland River, 4 Sept 1948, A. Clebsch and E. Clebsch 178 (APSC); Robin's swamp, 6 Sept 1948, A. Clebsch and E. Clebsch 179 (APSC).

Cyperus flavescens L. Cumberland River bank below Clarksville, 4 Sept 1948, A. Clebsch and E. Clebsch 350 (APSC); nw of New Providence, 17 July 1949, F. Brown and A. Clebsch 882 (APSC).

Cyperus rivularis Kunth. Hiett's Garden, 22 July 1947, A. Clebsch 351 (APSC).

Cyperus ovalaris (Michx) Torr. Oakwood, 18 June 1949, F. Brown and A. Clebsch 895 (APSC); Nicholson's farm, 27 Aug 1966, L. Scott 02187 (APSC).

Cyperus erythrorhizos Muhl. Cumberland River bank below Clarksville, 4 Sept 1948, A. Clebsch and E. Clebsch 353 (APSC); swamp between L&N RR tracks and Cumberland River, 1 Oct 1949, F. Brown and A. Clebsch 886 (APSC); Lock B, 10 Nov 1949, A. Clebsch 887 (APSC).

Cyperus ferruginescens Boeckl. Bank of Cumberland River below Clarksville, 25 Sept 1948, A. Clebsch 180 (APSC).

Cyperus strigosus L. Lock B, 10 Nov 1949, A. Clebsch 888 (APSC); Oakwood, 15 July 1949, H. Silva and A. Clebsch 889 (APSC); Cunningham bridge, 22 Oct 1949, A. Clebsch 892 (APSC); sse of Guthrie, Ky., in Montgomery Co., 2 July 1949, A. Clebsch et al. 893 (APSC).

Cyperus esculentus L. Yellow Nut-Grass. Between Greenwood Cemetery and King and Queen bluff, 30 Sept 1945, A. Clebsch and E. Clebsch 352 (APSC); between Seven Mile Ferry and Seven Mile Island, 6 Sept 1947, A. Clebsch 354 (APSC).

Cyperus odoratus L. Nicholson's farm, 27 Aug 1966, L. Scott and P. A. Wallen 02197 (APSC); Murphy's farm, 17 June 1966, H. L. Yarbrough and N. Branson 152 (APSC).

Eleocharis acicularis (L.) R. & S. Between New Providence and Cumberland River, 17 July 1949, F. Brown and A. Clebsch 899 (APSC).

Eleocharis engelmanni Steud. Corner of Daniel St., 11 June 1949, F. Brown and A. Clebsch 897 (APSC); 2½ mi se of Clarksville, 18 May 1946, A. Clebsch 356 (APSC).

Eleocharis obtusa (Willd) Schultes. Corner of Daniel St., 11 June 1949, F. Brown and A. Clebsch 896 (APSC).

Fimbristylis autumnalis (L.) R. & S. Lock B, 16 Oct 1948, A. Clebsch 357 (APSC); between New Providence and Cumberland River, 17 July 1949, A. Clebsch 899 (APSC); 20 Sept 1949, F. Brown between Warfield and Guthrie, Ky., 22 Oct 1949, and A. Clebsch 900 (APSC); nr Cunningham bridge, A. Clebsch 901 (APSC).

Scirpus rubricosus Fern. nr Mt. Carmel, 3 Sept 1949,

Rynchospora corniculata (Lam.) Gray. Horned-Rush. Along highway 76 w of Clarksville, 18 June 1949, F. Brown and A. Clebsch 905 (APSC); e of Warfield, 10 Sept 1949, F. Brown and A. Clebsch 906 (APSC).

Scleria oligantha Michx. Sango community, 9 July 1949, F. Brown and A. Clebsch 908 (APSC, TENN).

Carex retroflexa Muhl. Greenwood Ave., Clarksville, 3 June 1945, A. Clebsch 367 (APSC); King and Queen bluff, 27 Apr 1946, A. Clebsch 374 (APSC); Red Rocks bluff, 30 Apr 1949, F. Brown and A. Clebsch 369 (APSC).

Carex convoluta Mackenzie. nr Heitt's Garden, 16 May 1948, A. Clebsch 383 (APSC,TENN); Red River banks 25 June 1949, A. Clebsch and F. Brown 911 (TENN); Coke's Creek, 14 May 1949, F. Brown and A. Clebsch 912 (APSC,TENN); Red River banks ene of Clarksville, 25 June 1949, F. Brown and A. Clebsch 911 (APSC).

Carex nuhlenbergii Schkuhr. King and Queen bluff, 11 June 1949, F. Brown and A. Clebsch 917 (APSC).

Carex leavenworthii Dewey. Brothers farm, 4 June 1944, R. E. Shanks s.n. (TENN).

Carex caphalophora Muhl. West Fork Creek, 4 June 1949, F. Brown and A. Clebsch 916 (APSC,TENN); nr Greenwood Cemetery, 24 Apr 1948, A. Clebsch and F. Brown 380 (APSC,TENN); Coke's Creek, 14 May 1949, F. Brown and A. Clebsch s.n. (APSC).

Carex muskingumensis Schwein. Between L&N RR and Cumberland River, A. Clebsch and E. Clebsch 358 (APSC).

Carex tribuloides Wahlenb. sse of Guthrie, Ky., in Montgomery Co., 2 July 1949, F. Brown and A. Clebsch 924 (APSC).

Carex torta Boott. Foster's Cave, 18 June 1949, F. Brown and A. Clebsch 940 (APSC).

Carex hirsutella Mackenzie. e of Greenwood Cemetery, 11 June 1949, A. Clebsch and F. Brown 939 (APSC); Lynnwood's Landing, 11 May 1946, A. Clebsch 375 (APSC); Coke's Creek, 14 May 1949, F. Brown and A. Clebsch 938 (APSC).

Carex amphibola Steud. Foster's Cave, 18 June 1949, F. Brown and A. Clebsch 935 (APSC,TENN); Coke's Creek, 14 May

1949, 934 (TENN); Marks' slough, 14 May 1944, A. Clebsch, s.n. (TENN); nr Lock B, 13 May 1950, A. Clebsch 12951 (TENN); Cumberland River bluff below Cunningham bridge, 12 May 1946, A. Clebsch and E. Clebsch 376 (APSC).

Carex flaccosperma Dew. Oakwood, 18 June 1949, F. Brown and A. Clebsch 953 (APSC).

Carex laxiculmis Schwein. West Fork Creek, 4 June 1949, F. Brown and A. Clebsch 931 (APSC).

Carex albursina Sheldon. Foster's Cave, 5 Aug 1945, A. Clebsch 369 (APSC).

Carex frankii Kunthe. Corner of Daniel St., Clarksville, 11 June 1949, F. Brown and A. Clebsch 942 (APSC); e of Greenwood Cemetery, 15 July 1945, A. Clebsch 368 (APSC).

Carex squarrosa L. Oakwood, 18 June 1949, F. Brown and A. Clebsch 945 (APSC); Sango community, s of highway 112, 30 July 1949, F. Brown and A. Clebsch 943 (APSC); nr Needmore at edge of pond, 18 June 1949, F. Brown and A. Clebsch 944 (APSC).

Carex grayii Garey. nr Seven Mile Island, 8 May 1948, A. Clebsch 22 (APSC); nr Hiett's Garden, 1 Sept 1947, A. Clebsch s.n. (APSC).

Carex intumescens Rudge. Fletcher's Creek, 17 Sept 1949, F. Brown and A. Clebsch 946 (APSC).

Carex lupulina Muhl. nr Needmore, 18 June 1949, F. Brown and A. Clebsch 948 (APSC).

Carex lupuliformis Sartwell. se of Guthrie, Ky., in Montgomery Co., 2 July 1949, F. Brown and A. Clebsch 947 (APSC).

ARACEAE

Acorus calamus L. Sweetflag. Oakwood, 18 June 1949, F. Brown and A. Clebsch 406 (APSC).

LEMNACEAE

Spirodela polyrhiza (L.) Schleid. Water-Flaxseed. Red River n of Clarksville, 4 Sept 1948, A. Clebsch and E. Clebsch 181 (APSC).

Lemna minor L. Lesser Duckweed. Cumberland River channel behind Seven Mile Island, 1 Aug 1948, A. Clebsch 167 (APSC); Marks' slough, 15 Oct 1947, A. Clebsch 1016 (APSC).

COMMELINACEAE

Commelina virginica L. Bank of Cumberland River, 4 Sept 1948, A. Clebsch and E. Clebsch 182 (APSC); Marks' slough, 23 Sept 1948, A. Clebsch and E. Clebsch s.n. (APSC); Shelton's Branch, 11 Oct 1947, s.n. (APSC); ne of Rossview, 20 July 1966, L. Scott and P. A. Wallen 02133 (APSC).

Commelina erecta L. Dayflower. s of McAdoo Creek, 15 Oct 1947, A. Clebsch 1018 (APSC); King and Queen bluff, 31 Aug 1966, L. Scott and P. A. Wallen 02198 (APSC); Yellow Creek, 23 July 1949, F. Brown and A. Clebsch 967 (APSC).

Commelina diffusa Burm F. Nicholson's farm, 27 Aug 1966, L. Scott and P. A. Wallen 02196 (APSC).

Commelina communis L. Dayflower. w Commerce St., Clarksville, 9 Oct 1947, A. Clebsch 1017 (APSC); Little Barton's Creek, 24 Aug 1966, L. Scott 02165 (APSC).

Tradescantia subaspera Ker. Spiderwort. nr Palmyra, 17 June 1966, L. Scott and P. A. Wallen 02077 (APSC); West Fork Creek bluff, 4 June 1949, A. Clebsch et al. 971 (APSC); between Edmondson and Seven Mile Ferry, 1 Aug 1948, A. Clebsch 972 (APSC); nr New Providence nw of Clarksville, 25 June 1942, W. Oliver 1290 (APSC).

Tradescantia ohioensis Raf. Between Trice's and Lynnwood's Landings, 9 June 1948, W. Perry et al. 970 (APSC); between McAdoo Creek and Marks' slough, 15 Oct 1947, A. Clebsch 1020 (APSC); nr Lynnwood's Landing, 30 Apr 1949, F. Brown et al. 968 (APSC).

PONTEDERIACEAE

Heteranthera dubia (Jacq.) MacM. Water-stargrass. River front on Cumberland River, Clarksville, 4 Sept 1948, A. Clebsch and E. Clebsch 183 (APSC).

Heteranthera limosa (Sw.) Willd. Mud-Plantain. Greenhill's pasture, 16 July 1949, F. Brown and A. Clebsch 408 (APSC).

Juncus tenuis Willd. Pollard's place on Spring Creek, 26 May 1946, A. Clebsch and E. Clebsch 385 (APSC); 2 mi se of Clarksville, 11 June 1949, F. Brown and A. Clebsch 955 (APSC); Cumberland River bank below Clarksville, 4 Sept 1948, A. Clebsch 257 (APSC); between New Providence and Cumberland River, 17 July 1949, F. Brown and A. Clebsch 956 (APSC); nr Greenwood Cemetery, 15 July 1945, A. Clebsch and E. Clebsch 386 (APSC); between New Providence and Cumberland River, 17 July 1949, F. Brown and A. Clebsch 596 (APSC); APSC campus, 2 Oct 1941, R. E. Shanks 920 (APSC).

Juncus secundus Beauv. nr Woodlawn, 20 Nov 1943, R. E. Shanks 1291 (APSC).

Juncus marginatus Rostk. e of Greenwood Cemetery, 11 June 1949, anon. 959 (APSC).

Juncus biflorus Ell. nr Mt. Carmel, 9 July 1949, F. Brown and A. Clebsch 958 (TENN, APSC); Oakwood, 18 June 1949, F. Brown and A. Clebsch 957 (TENN, APSC).

Juncus brachycarpus Engelm. nr Woodlawn, 9 Oct 1949, R. E. Shanks et al. 14374 (TENN); Oakwood, 18 June 1949, F. Brown and A. Clebsch 960 (APSC).

Juncus scripoides Lam. e of Greenwood Cemetery, 29 May 1949, A. Clebsch 963 (TENN, APSC).

Juncus acuminatus Michx. nr Mt. Carmel, 9 July 1949, F. Brown and A. Clebsch 962 (APSC); Oakwood, 18 June 1949, F. Brown and A. Clebsch 964 (APSC).

LILIACEAE

Allium vinale L. Field-Garlic. nr Antioch Church, 14 June 1966, L. Scott and C. Scherer 02046 (APSC).

Hemerocallis fulva L. Common Orange Day Lily. Rossview, 13 June 1942, W. Oliver 1294 (APSC), 58 (TENN).

Yucca filamentosa L. ne of Palmyra, 17 June 1966, L. Scott and P. A. Wallen 02083 (APSC); Yellow Creek, 22 June 1966, H. L. Yarbrough and N. Branson 169 (APSC).

Smilax bona-nox L. Trice's Landing, 3 June 1948, E. Hutchinson 301 (APSC).

Asparagus officinalis L. Asparagus. APSC campus, 30 Sept 1941, D. Eakin 867 (TENN).

DIOSCOREACEAE

Dioscorea villosa L. Oakwood, 21 June 1948, A. J. Sharp et al. 165 (APSC).

AMARYLLIDACEAE

Agave virginica L. American Aloe. King and Queen bluff, 24 July 1948, A. Clebsch 166 (APSC); Vernon Creek rd, 20 July 1966, L. Scott and P. A. Wallen 02139 (APSC); King and Queen bluff, 29 June 1966, H. L. Yarbrough 91 (APSC).

IRIDACEAE

Belamcanda chinesis (L.) DC. Shady Grove, 3 Sept 1949, F. Brown and A. Clebsch 425 (APSC).

ORCHIDACEAE

Habenaria peramoena Gray. Purple Fringeless Orchis. Pride-of-the-Peak. s of highway 112, 9 July 1949, F. Brown and A. Clebsch 426 (APSC); se of Guthrie, Ky., 2 July 1949, F. Brown and A. Clebsch 427 (APSC).

Spiranthes gracilis (Bigel) Beck. Woodlawn, 25 June 1944, R. E. Shanks 2169 (TENN); Happy Hollow, 31 Aug 1946, R. E. Shanks 1396 (TENN); Oakwood, 20 June 1948, A. Clebsch et al. 7615 (TENN); Woodlawn, 25 June 1944, R. E. Shanks 2769 (TENN); nr Oakwood, 19 Aug 1951, A. Clebsch et al. 16314 (APSC).

Spiranthes vernalis Engelm. and Gray. Ladies' Tresses. nr Oakwood, 25 June 1944, R. E. Shanks 1309 (APSC).

Tipularis discolor (Pursh) Nutt. Cranefly Orchis. nr Houston Co. line off highway 13, 23 July 1949, F. Brown and A. Clebsch 428 (APSC).

DICOTYLEDONEAE

SAURURACEAE

Saururus cernuus L. Lizard's-teil. Swamp 1 mi sse of Guthrie, Ky., 2 July 1949, A. Clebsch and F. Brown 430 (APSC); flood plain of Cumberland River at Neblitt's slough nr Lock B, 29 June 1958, F. Brown s.n. (TENN); slough nr Dotsonville, 14 June 1958, F. Brown s.n. (TENN).

SALICACEAE

Salix humilis Marsh. Small Pussy-Willow. Woodlawn, 13 Oct 1941, R. E. Shanks 1312 (APSC); se of Guthrie, Ky., in Montgomery Co., 10 Sept 1949, F. Brown and A. Clebsch 437 (APSC); nr Jordan Springs, 30 Apr 1942, R. E. Shanks 1313 (APSC); nr Woodlawn School, 9 Oct 1949, R. E. Shanks 14427 (TENN).

Salix caroliniana Michx. Ward's Willow. Below Lynnwood's Landing, 9 June 1949, A. Clebsch and E. Clebsch 691 (APSC); Cumberland River bank opposite Red River, 30 Apr 1949, F. Brown and A. Clebsch 436 (APSC).

Salix nigra Marsh. Black Willow. nr Dotsonville, 28 June 1958, F. Brown s.n. (TENN); nr Neblitt's slough at Lock B, 29 June 1958, F. Brown et al. s.n. (TENN); Cumberland River bank opposite Red River, 30 Apr 1949, F. Brown and A. Clebsch 435 (APSC).

Populus deltoides L. Marsh. Cottonwood. nr Dotsonville, 28 May 1958, F. Brown s.n. (TENN); at Neblitt's slough nr Lock B, F. Brown s.n. (TENN); nr quarry on highway 76, e of Clarksville, 23 Mar 1966, H. L. Yarbrough 141 (APSC).

Populus alba L. Silver-leaved Poplar. Paradise Hill Road, ese of Clarksville, 24 Sept 1949, F. Brown and A. Clebsch 690 (APSC).

Populus heterophylla L. Swamp or Black Cottonwood. se of Guthrie, Ky., in Montgomery Co., 2 July 1949, F. Brown and A. Clebsch 432 (APSC); same location, 10 Sept 1949, A. Clebsch and F. Brown 689 (APSC).

JUGLANDACEAE

Juglans nigra L. Black Walnut. At Neblitt's slough, 29 June 1958, F. Brown et al. s.n. (TENN); nr Red River at New Providence, 30 Apr 1942, R. E. Shanks 1886 (TENN); Stringtown, 20 June 1966, H. L. Yarbrough 90 (APSC).

Carya cordiformis (Wang.) K. Koch. Bitternut Hickory.

B. A. Hughes property off Paradise Hill rd., 24 Sept 1949, F. Brown and A. Clebsch 12908 (TENN); nr Dotsonville, 28 June 1958, F. Brown s.n. (TENN); e of Greenwood Cemetery, 14 Sept 1947, A. Clebsch and E. Clebsch 1024 (APSC,TENN).

Carya laciniosa (Michx) Loud. Big Shellbark Hickory. West Fork Creek, 16 Sept 1948, A. Clebsch and E. Clebsch 185 (APSC); at Neblitt's slough nr Lock B, 28 June 1958, F. Brown et al. s.n. (TENN).

Carya ovata (Mill) K. Koch. Shagbark Hickory. B. A. Hughes property, off Paradise Hill rd., 10 Sept 1947, A. Clebsch 1025 (APSC); at Neblitt's slough nr Lock B, 26 June 1958, F. Brown s.n. (TENN); nr Dotsonville, 28 June 1958, F. Brown s.n. (TENN); B. A. Hughes property off Paradise Hill rd., 24 Sept 1949, F. Brown and A. Clebsch 781 (TENN); e of Greenwood Cemetery, A. Clebsch and E. Clebsch 1026 (TENN); along creek s of Clarksville, 9 Oct 1942, anon. s.n. (TENN).

Carya tomentosa Nutt. Mockernut Hickory. Hills e of Greenwood Cemetery, 31 Aug 1947, A. Clebsch 1027 (TENN,APSC); ravine e of Greenwood Cemetery, 10 Sept 1947, A. Clebsch and E. Clebsch 1028 (APSC); toward King and Queen bluff, 24 Sept 1949, F. Brown and A. Clebsch 780 (APSC); ravine ne of Greenwood Cemetery, 5 Sept 1948, A. Clebsch 186 (APSC); nr Dotsonville, 28 June 1958, F. Brown s.n. (TENN); ravine e of Greenwood Cemetery, 18 Sept 1949, A. Clebsch and E. Clebsch s.n. (TENN); barrens w of Oakwood, 9 Oct 1949, R. E. Shanks et al. 14404 (TENN); along creek s of Clarksville, 9 Sept 1941, R. E. Shanks 999 (TENN); nr Jordan Springs, 30 Apr 1942, R. E. Shanks 1910 (TENN); hills e of Greenwood Cemetery, 31 Aug 1947, A. Clebsch 1027 (TENN).

Carya ovalis (Wang) Sarg. Red Hickory. B. F. Hughes property off Paradise Hill rd., 24 Sept 1949, F. Brown and A. Clebsch 781 (APSC); ravine e of Greenwood Cemetery, 14 Sept 1947, A. Clebsch and E. Clebsch 1026 (APSC).

Carya glabra (Mill.) Sweet. Pignut Hickory. Fletcher's Creek n of Oakwood, 17 Sept 1949, F. Brown and A. Clebsch 431 (APSC).

CORYLACEAE

Alnus serrulata (Ait.) Willd. Common Alder. Riggins' Mill, Yellow Creek, 21 Aug 1948, H. Silva and A. Clebsch 444 (APSC); Marks' slough, 15 Oct 1947, A. Clebsch 1314 (APSC). Marks' slough, 12 Feb 1949, A. Clebsch 443 (APSC).

Corylus americanus Walt. American Hazel-Nut. n of Oakwood, 17 Sept 1949, F. Brown and A. Clebsch 442 (APSC); sw of Clarksville in Montgomery Co., 13 May 1949, H. C. Phillips and A. Clebsch 441 (APSC).

Carprinus caroliniana Walt. Blue Beech. nr Dotsonville, 28 June 1958, F. Brown s.n. (TENN); at Neblitt's slough nr Lock B, 29 June 1958, F. Brown et al. s.n. (TENN).

Ostrya virginiana (Mill.) K. Koch. American Hop-Hornbeam. Along highway 112 se of Clarksville, 9 July 1949, F. Brown and A. Clebsch 440 (APSC); Cumberland River bluffs below Greenhill's pasture, 15 Oct 1955, R. E. Shanks et al. s.n. (TENN); Scout Camp, Peacher's Mill, 2 Apr 1942, R. E. Shanks 1752 (TENN); Cumberland River near Tobacco Point, 12 Sept 1958, F. Brown s.n. (TENN); Shelton's Branch, 2 Apr 1949, A. Clebsch 439 (APSC).

Betula nigra L. River-Birch. Along Spring Creek, 14 Sept 1956, A. Clebsch and F. Brown 21571 (TENN).

FAGACEAE

Fagus grandifolia Ehrh. Beech. n of Greenwood Cemetery, 1 Aug 1948, A. Clebsch 164 (APSC); Glenwood, 19 Sept 1942, R. E. Shanks 1315 (APSC); Happy Hollow, 24 Aug 1947, A. Clebsch 6984 (TENN).

Castanea dentata (Marsh.) Borkh. Chestnut. Between Cumberland River and Paradise Hill rd., 15 Oct 1949, F. Brown and A. Clebsch 693 (APSC).

Quercus imbricaria Michx. Laurel Oak. Off Paradise Hill rd., 15 Oct 1949, F. Brown and A. Clebsch 695 (APSC); F. Brown's farm, 11 Aug 1956, F. Brown 20965 (TENN); Boy Scout camp nr Peacher's Mill, 26 Oct 1941, R. E. Shanks 1155 (TENN).

Quercus phellos L. Willow Oak. Sango, 30 July 1949, F. Brown and A. Clebsch 447 (APSC); sw of Woodlawn, 10 Oct 1941, R. E. Shanks 1327 (APSC); same location, 10 Oct 1941, R. E. Shanks 937 (TENN).

Quercus marilandica Muench. Blackjack Oak. nr Red River ne of Clarksville, 2 Nov 1941, R. E. Shanks 1323 (APSC); sw of Woodlawn, 11 Oct 1941, R. E. Shanks 1325 (APSC); ne of Clarksville nr Red River, 12 Nov 1941, R. E. Shanks 1161 (TENN).

Quercus rubra L. Northern Red Oak. nr Dotsonville, 18 June 1958, F. Brown s.n. (TENN); bluffs along Cumberland River, 18 Sept 1941, R. E. Shanks 1319 (APSC).

Quercus coccina Muench. Scarlet Oak. w of Oakwood, 9 Oct 1949, R. E. Shanks et al. 694 (APSC); Fletcher's Fork w of Ringgold, 6 Oct 1941, R. E. Shanks 1320 (APSC); nr Red River ne of Clarksville, 2 Nov 1941, R. E. Shanks 1321 (APSC); Fletcher's Fork, 6 Oct 1941, R. E. Shanks 943 (TENN); nr Red River ne of Clarksville, 11 Nov 1941, R. E. Shanks (TENN).

Quercus shumardii Buckl. Shumard Red-Oak. Lynnwood's Landing on Cumberland River, 4 Sept 1948, A. Clebsch and E. Clebsch 260 (APSC); same location, 13 Sept 1947, A. Clebsch and E. Clebsch 1029 (APSC); nr Yellow Creek, 22 Oct 1941, R. E. Shanks 1153 (TENN); nr Dotsonville, 28 June 1958, F. Brown s.n. (TENN).

Quercus palustris Muench. Pin Oak. n from highway 112 se of Clarksville, 3 Sept 1949, F. Brown and A. Clebsch 445 (APSC); barrens nr Woodlawn, 13 Oct 1941, R. E. Shanks 1317 (APSC); same location 13 Oct 1941, R. E. Shanks 1045 (TENN); nr Lock B, 13 Oct 1958, F. Brown s.n. (TENN).

Quercus velutina Lam. Black Oak. Shady Grove, 3 Sept 1949, F. Brown and A. Clebsch 446 (APSC); APNS campus, 10 Oct 1941, D. Eakin 1041 (TENN).

Quercus falcata Michx. Southern Red-Oak. Seven Mile Ferry rd., 1 Aug 1948, A. Clebsch 163 (APSC); Porter's bluff nr Clarksville, 24 Sept 1941, R. E. Shanks s.n. (TENN).

Quercus alba L. White Oak. Ravine ne of Greenwood Cemetery, 5 Sept 1948, A. Clebsch 187 (APSC); nr Oakwood, 19 Aug 1951, A. J. Sharp et al. 16304 (TENN); nr Lock B, 29 June 1958, F. Brown s.n. (TENN).

Quercus stellata Wang. Post Oak. Shady Grove, 3 Sept 1949, F. Brown and A. Clebsch 448 (APSC); between Paradise Hill rd and Cumberland River, 24 Sept 1949, F. Brown and A. Clebsch 696 (APSC); ravine ne of Greenwood Cemetery 5 Sept 1948, A. Clebsch 188 (APSC).

Quercus macrocarpa Michx. Bur Oak. nr Lynnwood's Landing, 28 Oct 1949, A. Clebsch and E. Clebsch 698 (APSC); ravine separating Seven Mile Ferry bluff and King and Queen bluff, 18 Sept 1948, A. Clebsch and E. Clebsch 189 (APSC); nr Seven Mile Island, 1 Aug 1948, A. Clebsch 162 (APSC); slough nr Dotsonville, 14 June 1958, A. Clebsch and F. Brown

s.n. (TENN); nr Dotsonville, 28 June 1958, F. Brown s.n. (TENN); nr Lock B, 29 June 1958, F. Brown s.n. (TENN).

Quercus lyrata Walt. Overcup Oak. Between L&N RR and Cumberland River, 1 Oct 1949, F. Brown and A. Clebsch 697 (APSC); nr se corner of Ft. Campbell Reservation, 11 Aug 1964, A. Clebsch and E. Clebsch 32879 (TENN).

Quercus muhlenbergii Engel M. Chinquapin Oak. Peacher's Mill on Big West Fork, 19 Sept 1948, A. Clebsch and E. Clebsch 191 (APSC); bluffs along Cumberland River s of Clarksville, 16 Apr 1942, R. E. Shanks 1793 (TENN); King and Queen bluff, 27 July 1946, A. Clebsch and E. Clebsch s.n. (TENN); 1 mi n of Dover, 13 Sept 1958, F. Brown s.n. (TENN).

Quercus prinus L. Chestnut Oak. King and Queen bluff, 16 Feb 1960, A. Clebsch 28451 (TENN); e of Shiloh, 23 May 1942, R. E. Shanks 2073 (TENN); West Fork Creek, 16 Sept 1948, A. Clebsch and E. Clebsch 190 (APSC); Spring Creek, 11 Sept 1949, A. Clebsch et al. 449 (APSC).

Quercus michauxii Nutt. Swamp Chestnut-Oak. nr Lock B at Neblitt's slough, 29 June 1958, F. Brown s.n. (TENN); nr Dotsonville, 28 June 1958, F. Brown s.n. (TENN); bank of Cumberland River opposite Palmyra, 12 Jan 1958, F. Brown s.n. (TENN).

ULMACEAE

Celtis tenuifolia Nutt. Georgia Hackberry. Bluff above King and Queen bluff, 1 Sept 1947, A. Clebsch 1030 (APSC).

Celtis laevigata Willd. Southern Hackberry. Spring Creek, 11 Sept 1949, F. Brown and A. Clebsch 699 (APSC); Lyle woods on Cumberland River, 7 May 1942, R. E. Shanks 1948 (TENN); nr Dotsonville, 14 June 1958, F. Brown and A. Clebsch 1918 (TENN); Long's slough nr Dotsonville, 14 June 1958, A. Clebsch and F. Brown 1898 (TENN); pond nr Dotsonville, 28 June 1958, F. Brown 1898 (TENN).

Celtis occidentalis L. Hackberry. Field nr Clarksville, 19 May 1954, E. B. Harger 7863 (TENN); Lyle woods, 7 May 1942, R. E. Shanks 1947 (TENN); nr Dotsonville, 14 June 1958, A. Clebsch and F. Brown 1898 (TENN).

Ulmus thomasii Sarg. Cork Elm. ne of Greenwood Cemetery, 20 Feb 1949, A. Clebsch 450 (APSC); Sheldon's Springs, 15 Mar 1942, R. E. Shanks 1709 (TENN).

Ulmus serotina Sarg. September Elm. Along Cumberland River s of Clarksville, 9 Oct 1941, D. Eakin and R. E. Shanks 1333 (APSC); bluffs of Cumberland River s of Clarksville, 9 Oct 1941, D. Eakin and R. E. Shanks 994 (TENN); Cumberland River bluffs nr New Providence, 15 Oct 1955, R. E. Shanks and A. Clebsch 20113 (TENN); Sheldon's Springs, 15 Mar 1942, R. E. Shanks 1709 (TENN).

Ulmus rubra Muhl. Slippery Elm. Dry ridge along Cumberland River s of Clarksville, 9 Oct 1941, D. Eakin 1001 (TENN).

Ulmus americana L. American Elm. Long Pond nr Dotsonville, 28 June 1958, F. Brown s.n. (TENN); at Neblitt's slough nr Lock B, 29 June 1958, F. Brown s.n. (TENN); APNS campus, 10 Oct 1941, D. Eakin 1027 (TENN); flood plain nr Lock B, 29 June 1958, anon 1896 (TENN); 300 yds n of New High School at Richview, 21 Mar 1966, H. L. Yarbrough 117 (APSC); APSC campus, 7 Apr 1942, R. E. Shanks 1332 (APSC).

Ulmus pumila L. Chinese Elm. Lawn in Cumberland Heights, 19 July 1966, H. L. Yarbrough 266 (APSC).

Ulmus alata Michx. Winged Elm. Shelton's Springs, 15 Mar 1942, R. E. Shanks 1710 (TENN); nr Lock B, 29 June 1958, F. Brown 1896 (TENN).

MORACEAE

Maclura pomifera (Raf.) Schneid. Osage Orange. APNS campus, 10 Oct 1941, D. Eakin and R. E. Shanks 1335 (APSC); nr Lock B, 29 June 1958, F. Brown 1918 (TENN).

Broussonetia papyrifera (L.) Vent. Paper Mulberry. F. Brown far m nr Clarksville, 11 Aug 1956, F. Brown 20962 (TENN); College St., Clarksville, 27 Sept 1941, Mrs. A. P. Jobe 855 (TENN).

Morus rubra L. Red Mulberry. Porter's bluff, 23 Sept 1942, R. E. Shanks 2227 (TENN); F. Brown farm, 11 Aug 1956, F. Brown 20960 (TENN); nr City Cemetery ½ mi n of Clarksville, 4 May 1948, E. Hutchison 303 (APSC).

URTICACEAE

Urtica chamaedryoides Pursh. Lynnwood's Landing, 9 June 1948, A. Clebsch and E. Clebsch 1034 (APSC); 3 mi w

of Clarksville, 30 Apr 1949, F. Brown et al. 700 (APSC); 2½ mi ssw of Clarksville, 7 Mar 1948, A. Clebsch 1032 (APSC); 3 mi ssw of Clarksville, 5 May 1947, A. Clebsch 1033 (APSC).

Parietaria pennsylvanica Muhl. w end of Commerce St., 8 June 1948, A. Clebsch 55 (APSC); nr Palmyra, 14 May 1942, R. E. Shanks I336 (APSC).

Boehmeria cylindrica (L.) Sw. Bog-Hemp. Ravine e of Greenwood Cemetery, 28 Aug 1948, A. Clebsch 261 (APSC).

Pilea pumila (L.) A. Gray. Clearweed. Cumberland River bank facing New Providence, 1 Oct 1949, F. Brown and A. Clebsch 661 (APSC); nr Foster's Cave, 19 Aug 1951, A. Clebsch 16301 (TENN).

LORANTHACEAE

Phoradendron flavescens Nutt. America Mistletoe. On elm nr Port Royal, 17 Sept 1941, R. E. Shanks 826 (TENN); barrens nr Oakwood, 9 Oct 1949, R. E. Shanks and A. Clebsch 14469 (TENN); nr Hemitite abandoned RR section yds., 30 June 1966, H. L. Yarbrough and N. J. Branson 261 (APSC).

ARISTOLOCHIACEAE

Aristolochia tomentosa Sims. Pipe-vine. Red River valley nr Trahern's Branch, 30 Aug 1947, A. Clebsch 1035B (APSC); Cumberland River bank nr Clarksville, 12 May 1948, A. Clebsch 26 (APSC).

POLYGONACEAE

Rumex acetosella L. Common Sorrel. APNS campus, 30 Sept 1941, D. Eakin 890 (TENN); 3 mi se of Clarksville, 7 May 1949, F. Brown and A. Clebsch 454 (APSC); Lyle woods, 7 May 1942, R. E. Shanks I339 (APSC); 3 mi sse of Clarksville, 22 May 1948, A. Clebsch 1036 (APSC).

Rumex crispus L. Yellow Dock. Lyle woods, 7 May 1942, R. E. Shanks I341 (APSC).

Rumex altissimus Wood. Pale Dock. nr Stringtown, 14 May 1942, R. E. Shanks 1340 (APSC).

Polygonum erectum L. Knotweed. Cumberland River bottom facing mouth of Red River, 13 Sept 1947, A. Clebsch

and E. Clebsch 1037 (APSC); Porter's bluff, 20 Sept 1941, R. E. Shanks 1342 (APSC).

Polygonum scandens L. Climbing False Buckweat. Boy Scout camp on Big West Fork Creek, 19 Sept 1948, A. Clebsch and E. Clebsch 194 (APSC); between Seven Mile Ferry and Seven Mile Island, 6 Sept 1947, A. Clebsch 1045 (APSC); Porter's bluff, 4 Sept 1942, R. E. Shanks s.n. (APSC).

Polygonum virginianum L. Porter's Cave, 14 July 1948, A. Clebsch 96 (APSC); ravine e of Greenwood Cemetery, 24 Aug 1947, A. Clebsch 1038 (APSC).

Polygonum lapathifolium L. Smartweed. Red River bank nr New Providence 4 Sept 1948, A. Clebsch and E. Clebsch 192 (APSC); Seven Mile Island, 6 Sept 1947, A. Clebsch s.n. (APSC).

Polygonum pennsylvanicum L. Pinkweed. Red River banks nr New Providence, 4 Sept 1948, A. Clebsch and E. Clebsch 193 (APSC); Red River bank nr Trahern's Branch, 30 Aug 1947, A. Clebsch 1040 (APSC); island in Red River at mouth of Rudolph's Branch, 21 Oct 1947, A. Clebsch 1041 (APSC); APNS campus, 21 Sept 1942, W. Oliver 1345 (APSC); Little Barton's Creek, 24 Aug 1966, L. Scott 02167 (APSC).

Polygonum hydropiperoides Michx. Mild Water. Marks' slough, 6 Sept 1948, A. Clebsch and E. Clebsch 262 (APSC); between L&N RR and Cumberland River, 1 Oct 1949, F. Brown and A. Clebsch s.n. (APSC); w of Dotsonville Rd., 9 Oct 1949, A. Clebsch 14412 (TENN); Yellow Creek, 22 June 1966, H. L. Yarbrough 154 (APSC); w of Oakwood, 20 June 1948, A. Clebsch et al. 7617 (TENN).

Polygonum punctatum Ell. Water-Smartweed. Budd's Creek, 1 Aug 1942, W. Oliver 1346 (APSC); ravine e of Greenwood Cemetery, 5 Sept 1948, A. Clebsch 263 (APSC); island in Red River at mouth of Rudolf's branch, 21 Oct 1947, A. Clebsch 1043 (APSC); nr L&N overhead bridge, Commerce St., 18 Sept 1947, A. Clebsch 1044 (APSC).

Polygonum persicaria L. Lady's Thumb, Heart's-Ease. Porter's bluff, 13 Sept 1941, B. Spafford 1344 (APSC).

CHENOPODIACEAE

Chenopodium ambrosioides L. Mexican-Tea. APNS campus, 2 Oct 1941, R. E. Shanks 1350 (APSC); APNS campus, 30 Sept 1941, D. Eakin and R. E. Shanks 1351 (APSC); APNS campus, Oct 1941, L. Denning s.n. (TENN); APSC campus, 2 Oct 1941,

R. E. Shanks 923 (TENN).

Chenopodium album L. Pigweed, Lamb's Quarters. APSC campus, 7 Oct 1941, L. Denning 1349 (APSC); Lock B, 18 Nov 1949, A. Clebsch 877 (APSC); creek bottom se of Greenwood Cemetery, 25 Oct 1947, A. Clebsch 1047 (APSC); APNS campus, 2 Oct 1941, R. E. Shanks s.n. (TENN).

AMARANTHACEAE

Amaranthus spinosus L. Thorny Amaranthus. Barrens nr Woodlawn, 12 Sept 1942, R. E. Shanks 1348 (APSC).

Amaranthus hybridus L. Green Amaranthus, Pigweed, Wild Beet. Cumberland River bottom facing mouth of Red River, 1 Oct 1949, F. Brown and A. Clebsch 663 (APSC).

Iresine rhizomatosa Standl. Bank of Red River nr New Providence bridge, 4 Sept 1948, A. Clebsch and E. Clebsch 195 (TENN,APSC); Seven Mile Island, 6 Sept 1947, A. Clebsch 1046 (APSC).

NYCTAGINACEAE

Mirabilis nyctaginea (Michx) MacM. s of McAdoo Creek, 15 Oct 1947, A. Clebsch 1048 (APSC); nr Marks' slough, 15 Oct 1947, A. Clebsch s.n. (APSC).

PHYTOLACCACEAE

Phytolacca americana L. Poke. w of Palmyra, 17 June 1966, P. A. Wallen and L. Scott 02079 (APSC); between Marks' slough and Lock B, 23 Sept 1949, A. Clebsch 665 (APSC); nr Rossview, 13 June 1942, W. Oliver 1352 (APSC); Rossview, 13 June 1942, R. E. Shanks 54 (TENN).

AIZOACEAE

Mollugo veticillata L. Carpetweed. Between Edmondson and Seven Mile Ferries, 1 Aug 1948, A. Clebsch 161 (APSC); se of Greenwood Cemetery, 25 Oct 1947, A. Clebsch 1050 (APSC); APNS campus, 17 Aug 1943, R. E. Shanks 2326 (TENN); APNS campus, 17 Aug 1943, R. E. Shanks 1353 (APSC); lawn nr Greenwood Ave., 21 May 1948, A. Clebsch 57 (APSC).

Silene cucubalus Wibel. Bladder-campion, Maiden's-Tears. 10 mi se of Clarksville, 9 July 1949, F. Brown and A. Clebsch 457 (APSC); same location, 9 July 1949, F. Brown and A. Clebsch 2490 (TENN).

Silene antirrhina L. Sleepy catchfly. nr Shelton's Springs, 8 May 1942, R. E. Shanks 1363 (APSC).

Lychnis alba Mill. White cockle or campion, Evening-Lychnis. Lawn in Glenwood, 15 May 1942, R. E. Shanks 1364 (APSC).

Agrostemma githago L. Purple cockle. nr Lock B, 20 May 1965, K. Foust s.n. (APSC).

Dianthus armerica L. Deptford Pink. New Providence, 28 June 1942, W. Oliver 75 (TENN); same location, 28 June 1942, W. Oliver 1366 (APSC); nr Shelton's Branch, 17 June 1947, A. Clebsch et al. 1052 (APSC); King and Queen bluff, 11 Apr 1949, F. Brown and A. Clebsch 459 (APSC); Yellow Creek, 22 June 1966, H. L. Yarbrough and N. Branson 177 (APSC); Briarwood, 13 June 1966, C. Scherer and L. Scott 02016 (APSC); s of Palmyra, 17 June 1966, P. A. Wallen and L. Scott 02072 (APSC).

Saponaria officinalis L. Soapwort, Bouncing-Bet. nr Budd's Creek, 1 Aug 1942, W. Oliver 99 (TENN); L&N RR tracks nw of Palmyra, 17 June 1966, A. Phillips and L. Scott 02086 (APSC).

Cerastium vulgatum L. Common mouse-ear Chickweed. nr Stringtown, 14 May 1942, R. E. Shanks et al. 1356 (APSC).

Cerastium viscosum L. APSC campus, 16 Apr 1942, R. E. Shanks 1355 (APSC); King and Queen bluff, 30 Mar 1946, A. Clebsch 1764 (TENN); same location, 25 Mar 1966, H. L. Yarbrough 89 (APSC).

Sagina decumbens (Ell.) T. & G. King and Queen bluff, 24 Apr 1948, A. Clebsch 5 (APSC); same location, 7 May 1949, F. Brown and A. Clebsch 666 (APSC); nr Stringtown, 14 May 1942, W. Oliver et al. 1357 (APSC); APNS campus, 17 Apr 1942, R. E. Shanks 1358 (APSC).

Arenaria serpyllifolia L. Thyme-leaved Sandwort. nr Red River nr New Providence, 30 Apr 1942, R. E. Shanks 1359 (APSC).

Ceratophyllum demersum L. Coontail. Marks' slough, 6 Sept 1948, A. Clebsch 220 (APSC).

Nuphar advena (Ait.) Ait. f. Long Pond nr Dotsonville, 28 June 1958, F. Brown s.n. (TENN).

Nelumbo lutea (Willd.) Pers. Yellow Nelumbo, Water-Chinquapin, Pond-nuts, Wonkapin. Marks' slough, 8 July 1967, L. Scott 04006 (APSC).

RANUNCULACEAE

Ranunculus longirostris Godr. White Water-crowfoot. Spring pond, 11 Sept 1949, C. F. Pickering et al. 465 (APSC).

Ranunculus trichophyllus Chaix. White Water-crowfoot. Spring pond, 11 Sept 1949, C. F. Pickering et al. 465 (TENN).

Ranunculus bulbosus L. Bulbous Crowfoot or Buttercup. Off Ussery rd nr Cumberland Heights, 13 June 1966, C. Scherer and Lloyd Scott 02036 (APSC).

Ranunculus micranthus Nutt. nr Walnut Grove, 12 June 1942, R. E. Shanks 1777 (TENN); 2 mi se of Clarksville, 24 Apr 1948, A. Clebsch 11 (APSC).

Thalictrum revolutum DC. Purple Skunk or Wax-leaved Meadow Rue. Between Edmondson and Seven Mile Ferries, 1 Aug 1948, A. Clebsch 160A (APSC); nr Lone Oak, 23 May 1942, R. E. Shanks 2088 (TENN).

Anemone virginiana L. Thimbleweed. Along Cumberland River s of Clarksville, 9 Oct 1941, D. Eakin and R. E. Shanks 1369 (APSC; ravine e of Greenwood Cemetery, 10 Sept 1947, A. Clebsch and E. Clebsch 1055 (APSC); along Cumberland River s of Clarksville, 9 Oct 1941, D. Eakin and R. E. Shanks 992 (TENN).

Clematis virginiana L. Virgin's-bower. Lock C rd w of Woodlawn, 22 Aug 1943, R. E. Shanks 1376 (APSC); se of Guthrie, Ky. in Montgomery Co., 8 Oct 1949, F. Woods et al. 669 (APSC); 10 mi e of Clarksville, 13 June 1958, W. H. Ellis 24561 (TENN); bank of Sorghum Creek, 5 July 1958, W. H. Ellis 0197-E (TENN); Porter's Cave, 7 Sept 1946, R. E. Shanks 1942 (TENN); between Needmore and Peacher's Mill rd, 24 Aug 1966, P. A. Wallen and L. Scott 02142 (APSC).

Clematis viorna L. Leather-Flower. Lock B, 12 June 1958, W. H. Ellis 24555 (TENN); Yellow Creek, 14 June 1966, H. L. Yarbrough 170 (TENN); bluff on Red River w of rock quarry, 6 June 1942, W. Oliver 1377 (APSC); bluff above Boy Scout Camp, 27 May 1948, A. Clebsch 60 (APSC); between Hilltop and Palmyra, 14 June 1966, C. Scherer and L. Scott 02041 (APSC); on Vernon Creek rd 8 mi ssw of Clarksville, 15 June 1966, C. Scherer and L. Scott 02049 (APSC).

Delphinium ajacis L. Rocket-Larkspur. Moore rd sw of Dotsonville, 12 July 1966, P. A. Wallen and L. Scott 02123 (APSC).

Cimicifuga racemosa (L.) Nutt. Black Snakeroot. Trahern's Spring 1½ mi e of Clarksville, 11 Oct 1947, A. Clebsch 1054A (APSC).

Actaea pachypoda Ell. White Baneberry, White Cohosh, Doll's Eye. s of Henrietta nr Cumberland River, 3 July 1965, W. Chester 895 (TENN); Cunningham's Lake, 1 May 1948, A. Clebsch 7 (APSC); APSC Farm, 24 Aug 1966, P. A. Wallen and L. Scott 02171 (APSC).

MENISPERMACEAE

Cocculus carolinus (L.) DC Red-berried Moonseed, Snailseed. Bluffs nr Cumberland River between Edmondson and Seven Mile Ferries, 1 Aug 1948, A. Clebsch 159 (APSC); King and Queen bluff, 24 Aug 1947, A. Clebsch 1059 (APSC).

Menispermum canadense L. Yellow Parilla. Trahern's Spring, 14 July 1948, A. Clebsch 158 (APSC); Red River valley 1½ mi e of Clarksville, 30 Aug 1947, A. Clebsch s.n. (APSC); Budd' Creek, 23 May 1942, R. E. Shanks 1382 (APSC).

Calycocarpum lyoni (Pursh) Gray. rd to Porter's Creek, 30 Aug 1947, A. Clebsch 1058 (APSC).

MAGNOLIACEAE

Lirlodendron tulipifera L. Tulip Poplar. Paradise Hill rd. 16 May 1948, A. Clebsch 58 (APSC); APNS campus, 26 Sept 1944, R. E. Shanks 1367 (APSC); APSC Farm, 15 Apr 1966, H. L. Yarbrough 126 (APSC); Long Pond nr Dotsonville, 26 June 1958, F. Brown s.n. (TENN); APNS campus, 26 Sept 1941, R. E. Shanks 849 (TENN).

LAURACEAE

Sassafras albidum (Nutt.) Nees. White Sassafras. Along Tennessee Central RR .2 mi se of Clarksville, 2 Apr 1949, A. Clebsch 468 (APSC); King and Queen bluff, 13 Aug 1949, F. Brown and A. Clebsch 469 (APSC); 1 mi e of Shiloh, 15 Apr 1966, H. L. Yarbrough 133 (APSC); location not available, 17 Apr 1954, E. Quarterman et al. 4928 (VAND).

Lindera benzoin (L.) Blume. Spicebush. Porter's bluff, 20 Sept 1941, R. E. Shanks 841 (TENN); McAdoo Creek 6 mi se of Clarksville, 20 Mar 1949, H. C. Phillips and A. Clebsch 470 (APSC); above mouth of Sheldon's Branch, 21 Aug 1948, A. Clebsch 157 (APSC); McAdoo Creek bank, 21 Mar 1966, H. L. Yarbrough 116 (APSC).

CAPPARIDACEAE

Polanisia **trachysperma** T. & G. Shiloh bridge crossing Yellow Creek, 14 July 1966, P. A. Wallen and L. Scott 021241 (APSC).

CRUCIFERAE

Rorippa sessiliflora (Nutt.) Hitche. Cumberland River bank 1 mi below Clarksville, 1 Oct 1949, F. Brown and A. Clebsch 671 (APSC); King and Queen bluff, 17 Apr 1949, A. Clebsch 479 (APSC); nr Yellow Creek, 30 Apr 1944, R. E. Shanks 1388 (APSC).

Barbarea vulgaris R. Br. Common Winter-Cress. Red River rd s of Clarksville, 16 Apr 1942, R. E. Shanks 1805 (TENN); at Bower's Superette on Budd's Creek rd, 17 June 1966, P. A. Wallen and L. Scott 02082 (APSC); Shiloh, 20 June 1966, P. A. Wallen and L. Scott 02097 (APSC).

Sisymbrium officinale (L.) Scop. Hedge-Mustard. Boy Scout camp, 9 May 1948, A. Clebsch et al. 27 (APSC); APNS campus, 23 Mar 1942, R. E. Shanks 2021 (TENN).

Thlaspi arvense L. Field Penny-Cress. se of Greenwood Cemetery, 25 Oct 1947, A. Clebsch 1062 (APSC).

Lepidium virginicum L. Poor-Man's Pepper. APSC campus, 23 Apr 1942, R. E. Shanks 1828 (TENN).

Lepidium densiflorum Schrad. Shank's lawn, 24 Apr 1942, R. E. Shanks 1857 (TENN); King and Queen bluff, 24 Apr

1948, A. Clebsch 264 (APSC); APSC campus, 30 Sept 1941, D. Eakin et al. 1390 (APSC).

Nasturtium officinale R. Br. True Watercress. nr Hiett's Garden, 16 May 1948, A. Clebsch 61 (APSC); slough nr Cumberland River w of Clarksville, 14 May 1942, R. E. Shanks 1389 (APSC).

Cardamine rotundifolia Mich. Mountain Watercress. Goldenham Branch, 9 mi sw of Clarksville, 17 June 1966, P. A. Wallen and L. Scott 02080 (APSC).

Cardamine pensylvanica Muhl. nr Hiett's Garden, 14 May 1949, F. Brown and A. Clebsch 484 (APSC).

Cardamine parviflora L. nr Budd's Creek, 3 Mar 1946, A. Clebsch s.n. (TENN).

Arabis laevigata (Muhl.) Poir. Marks' slough, 5 Mar 1949, A. Clebsch 483 (APSC); Parson's Creek, 2 Apr 1942, R. E. Shanks 1767 (TENN).

Arabis canadensis L. Sicklepod. Hiett's Garden 3½ mi ese of Clarksville, 14 May 1949, F. Brown and A. Clebsch 701 (APSC).

CRASSULACEAE

Sedum pulchellum Michx. Rock-Moss, Widow's-Cross. Boy Scout camp, 27 May 1948, A. Clebsch 62 (APSC).

SAXIFRAGACEAE

Ribes odoratum Wendland. Missouri or Buffalo-Current. Red Rocks bluff on Cumberland River, 9 June 1948, A. Clebsch 99 (APSC).

Philadelphus pubescens Loisel. Below Trice's Landing, 13 Sept 1947, A. Clebsch and E. Clebsch 1064 (APSC); Cumberland River bluff behind Seven Mile Island, date not available, A. Canton s.n. (TENN.

Hydrangea arborescens L. Wild Hydrangea, Seven-bark. Porter's bluff, 28 June 1942, W. Oliver 1398 (APSC); same location, 28 June 1942, R. E. Shanks 81 (TENN); Blue Rock Spring rd, 13 June 1966, H. L. Yarbrough and N. Branson 95 (APSC); off highway 48 13 mi s of Clarksville, 12 June 1966,

C. Scherer and L. Scott 02025 (APSC).

Heuchera villosa Michx. Bluffs above Ashland City bridge, 5 July 1951, R. E. Shanks 15823 (TENN); Porter's Cave nr Red River, 17 July 1948, A. Clebsch s.n. (TENN); King and Queen bluff, 24 Apr 1948, A. Clebsch 16 (APSC); same location, 24 June 1966, P. A. Wallen and L. Scott 02105 (APSC).

Penthorum sedoides L. e arm of Shelton's Branch, 11 Oct 1947, A. Clebsch 1063 (APSC); Red River bank nr Shelton's Branch, 24 Aug 1966, R. E. Shanks 2144 (TENN); pond w of Dotsonville rd, 9 Oct 1949, R. E. Shanks et al. 14447 (TENN).

HAMAMELIDACEAE

Liquidamber styraciflua L. Sweet Gum. At Neblitt's slough nr Lock B, 29 June 1958, F. Brown et al. s.n. (TENN); Long Pond nr Dotsonville, 28 June 1958, F. Brown s.n. (TENN); APSC campus, 30 June 1966, H. L. Yarbrough 267 (APSC).

PLANTANACEAE

Plantus occidentalis L. Sycamore. At Neblitt's slough, 29 June 1958, F. Brown s.n. (TENN); Long Pond nr Dotsonville, 28 June 1958, F. Brown (TENN); APSC farm, 30 June 1966, H. L. Yarbrough 268 (APSC).

ROSACEAE

Physocarpus opulifolius (L.) Maxim. Ninebark. King and Queen bluff, 24 June 1966, P. A. Wallen and L. Scott 02107 (APSC).

Spiraea tomentosa L. Hardhack, Steeple-bush. 1½ mi w of Oakwood, 9 Oct 1949, R. E. Shanks and F. Woods 703 (APSC); barrens nr Woodlawn, 13 Oct 1941, R. E. Shanks and D. Eakin 1067 (TENN).

Gillenia stipulata (Muhl.) Bail. American-ipecac. King and Queen bluff, 24 July 1948, A. Clebsch 156 (APSC); barrens nr Woodlawn, 13 Oct 1941, R. E. Shanks and D. Eakin 1060 (TENN); nr Yellow Creek, 23 May 1942, R. E. Shanks 2059 (TENN); King and Queen bluff, 22 May 1948, A. Clebsch 63 (APSC); Blue Rock Spring rd, 13 June 1966, H. L. Yarbrough and N. Branson 222 (APSC); on Vernon Creek rd, 15 June 1966, P. A. Wallen and L. Scott 02054 (APSC).

Fragaria virginiana Duchense. nr Shelton's Branch 2¼ mi e of Clarksville, 9 Apr 1949, F. Brown and A. Clebsch 497 (APSC).

Duchesnea indica (Andr.) Focke. Behind Protection Warehouse w Commerce St., 22 Aug 1947, A. Clebsch 1065 (APSC); APNS campus, 2 Oct 1941, R. E. Shanks 924 (TENN).

Potentilla norvegica L. Between Marks' slough and Lock B, 31 July 1947, A. Clebsch 1066 (APSC); Red River bank ne of Clarksville, 6 June 1942, W. Oliver 1402, (APSC).

Potentilla recta L. Between New Providence and Cumberland River, 17 July 1949, F. Brown and A. Clebsch 496 (APSC); Pollard place, 26 May 1946, A. Clebsch s.n. (TENN); Front St., Clarksville, 11 May 1948, A. Clebsch 28 (APSC); Porter's bluff rd, 14 June 1966, H. L. Yarbrough and N. Branson 193 (APSC); junction of Ussery rd and highway 149, 14 June 1966, C. Scherer and L. Scott 02039 (APSC).

Geum vernum (Raf.) T. & G. nr stone quarry ne of Clarksville, 24 Apr 1942, R. E. Shanks 1839 (TENN).

Geum canadense Jacq. Shelton's Branch nr Red River, 25 July 1948, A. Clebsch 155 (APSC); Red Rocks bluff, 9 June 1948, A. Clebsch and E. Clebsch s.n. (APSC); s of Lock B on Cumberland River, 15 July 1948, A. Clebsch 705 (APSC); Lyle woods, 20 June 1942, R. E. Shanks s.n. (TENN); Shiloh, 21 June 1966, P. A. Wallen and L. Scott 02095 (APSC).

Agrimonia rostella Wallr. King and Queen bluff, 27 July 1946, A. Clebsch and E. Clebsch s.n. (TENN).

Agrimonia pubescens Wallr. F. Brown farm, 15 July 1948, A. Clebsch 267 (APSC); ravine ne of Greenwood Cemetery, 5 Oct 1947, A. Clebsch 1067 (APSC); same location, 24 Aug 1947, A. Clebsch 1068 (APSC).

Rosa setigera Michx. Climbing Rose, Prairie-Rose. Paradise Hill rd, 3 mi se of Clarksville, 5 June 1948, A. Clebsch 268 (APSC).

Rosa palustris Marsh. Oakwood, 12½ mi w of Clarksville, 17 Sept 1949, F. Brown and A. Clebsch 978 (APSC).

Rosa virginiana Mill. King and Queen bluff, 24 Aug 1947, A. Clebsch 6985 (TENN); 1 mi sse of Guthrie, Ky., in Mont. Co., 2 July 1949, F. Brown and A. Clebsch 979 (APSC); 1 mi sse of Guthrie in Mont. Co., 14 May 1942, R. E. Shanks

1403 (APSC); off highway 48, 10 mi s of Clarksville, 12 June 1966, C. Scherer and L. Scott 02009 (APSC); Briarwood, 1 mi wsw of Clarksville, 13 June 1966, C. Scherer and L. Scott 02024 (APSC).

Rosa carolina L. Carolina Rose. King and Queen bluff, 15 Oct 1949, F. Brown and A. Clebsch 981 (APSC); Fletcher's Creek n of Oakwood, 12 mi w of Clarksville, 17 Sept 1949, F. Brown and A. Clebsch 980 (APSC); opposite Woodlawn School, 9 Oct 1949, R. E. Shanks et al. 982 (APSC); prairie w of Oakwood, 20 June 1948, A. Clebsch and E. Clebsch 7629 (TENN); Hughes' farm 3 mi se of Clarksville, 22 May 1948, A. Clebsch 269 (APSC); nr Gum Springs Church, 13 June 1966, H. L. Yarbrough and N. Branson 213 (APSC).

Prunus serotina Ehrh. Black Cherry. APNS campus, 10 Oct 1941, D. Eakin 1035 (TENN); barrens w of Oakwood, 9 Oct 1949, R. E. Shanks and A. Clebsch 14468 (TENN); Long Pond nr Dotsonville, 28 June 1958, F. Brown 3396 (TENN).

Prunus angustifolia Marsh. Cickasaw Plum. Pond w of Dotsonville rd, 9 Oct 1949, A. Clebsch 14439 (TENN); nr tunnel at Palmyra, 30 Apr 1944, R. E. Shanks 1411 (APSC).

Pyrus coronaria L. Wild Crab-Apple. Prairie remnant w of Oakwood, 20 June 1948, A. Clebsch et al. 7614 (TENN); nr Warfield in ne corner of county, 10 Sept 1949, F. Brown et al. 983 (APSC); w of Oakwood, 29 June 1948, A. Clebsch s.n. (TENN).

Pyrus angustifolia Ait. Southern Wild Crab-Apple. sw of Woodlawn, 10 Oct 1941, R. E. Shanks 936 (TENN); nr Warfield, 9 Oct 1949, A. Clebsch and F. Brown s.n. (TENN).

Crataegus phaenopyrum L. Washington Thorn. nr Greenwood Cemetery, 5 Sept 1948, A. Clebsch 296 (APSC); same location, 5 Sept 1948, A. Clebsch 19 (TENN); nr Dotsonville, 14 June 1948, F. Brown and A. Clebsch s.n. (TENN).

Crataegus mollis (T. & G.) Schelle. Long Pond nr Dotsonville, 28 June 1958, F. Brown s.n. (TENN).

Crataegus crus-galli L. Spring Creek, 14 Sept 1956, A. Clebsch and F. Brown 21570 (TENN).

Crataegus viridis L. n of Greenwood Cemetery, 18 Sept 1948, A. Clebsch and E. Clebsch 707 (APSC); same location, 3 May 1948, A. Clebsch 706 (APSC).

Desmanthus illinoensis (Michx.) MacM. Prairie-Mimosa, Prickleweed. Tennessee Central RR nr Golf Links, 6 Sept 1948, A. Clebsch and E. Clebsch 197 (APSC); nr Clarksville Country Club, 6 Sept 1948, A. Clebsch and E. Clebsch 197 (TENN).

Gymnocladus dioica L. Koch. Red River bluff nr Porter's bluff, 13 Sept 1941, R. E. Shanks 823 (APSC).

Gleditsia triacanthos L. Brown farm nr Lock B, 11 Aug 1956, F. Brown 20959 (APSC); Long Pond nr Dotsonville, 28 June 1958, F. Brown 3544 (APSC); nr Lock B, 29 June 1958, F. Brown 3544 (APSC).

Cassia marilandica L. Wild Senna. Barton's Creek, 15 Aug 1948, A. Clebsch 198 (APSC); between Seven Mile Island and Seven Mile Ferry on Cumberland River, 6 Sept 1947, A. Clebsch 1070 (APSC); rd between Needmore and Peacher's Mill rd, 24 Aug 1966, P. A. Wallen and L. Scott 02144 (APSC).

Cassia fasciculata Michx. Partridge-Pea, Prairie-Senna, Golden Cassia. Barton's Creek, 15 Aug 1948, A. Clebsch 200 (APSC); barrens nr Woodlawn, 3 Sept 1942, R. E. Shanks 1413 (APSC); Palmyra rd, 1 Aug 1942, W. Oliver 92 (TENN); barrens nr Woodlawn, 13 Oct 1941, D. Eakin and R. E. Shanks 1068 (TENN); APSC farm, 24 Aug 1966, P. A. Wallen and L. Scott 02176 (APSC); nr Port Royal 14 mi ewe of Clarksville, 20 July 1966, P. A. Wallen and L. Scott 02135 (APSC).

Cassia nictitans L. Wild Sensitive Plant. Tennessee Central RR bed nr Golf Links, 6 Sept 1948, A. Clebsch and E. Clebsch 199 (APSC); King and Queen bluff, 24 Aug 1947, A. Clebsch 1071 (APSC); e of Greenwood Cemetery, 31 Aug 1947, A. Clebsch 1074 (APSC).

Cercis canadensis L. Redbus. Flood plain nr Lock B, 29 June 1958, F. Brown and J. Brown 3526 (TENN); Long Pond nr Dotsonville, 28 June 1958, F. Brown 3526 (TENN); nr mouth of Red River 1 mi n of Clarksville, 4 May 1948, E. Hutchinson 304 (APSC); 1627 Eastern Hills, 1 Apr 1966, N. Branson and H. L. Yarbrough 109 (APSC); nr rock quarry on highway 76, 23 Mar 1966, H. L. Yarbrough and N. Branson 110 (APSC).

Baptisia leucantha T. & G. White or Prairie False-Indigo. Oakwood 12.5 mi w of Clarksville, 18 June 1949, F. Brown and A. Clebsch 501 (APSC).

Trifolium procumbens L. Low Hop-Clover. nr City

Cemetery, 4 May 1948, E. Hutchison 305 (APSC); Lyle woods, 7 May 1942, R. E. Shanks 1415 (APSC); nr Billy Dunlop Memorial Park, 2 Apr 1966, H. L. Yarbrough and N. Branson 183 (APSC); nr Red River nr New Providence, 30 Apr 1942, R. E. Shanks 1416 (TENN); off highway 48, 14 mi s of Clarksville, 12 June 1966, C. Scherer and L. Scott 02008 (APSC).

Trifolium arvense L. Rabbit-foot, Old-field, or Stone-Clover. Boy Scout camp, 27 May 1948, A. Clebsch 65 (APSC).

Trifolium pratense L. Red Clover. n of Greenwood Cemetery, 2 mi se of Clarksville, 18 July 1949, A. Clebsch 502 (APSC); nr Stringtown, 14 May 1942, R. E. Shanks 2006 (TENN); APSC campus, 30 Sept 1941, D. Eakin 887 (TENN); off highway 48, 14 mi s of Clarksville, 12 June 1966, C. Scherer and L. Scott 02005 (APSC).

Trifolium incarnatum L. Crimson or Italian Clover. Peacher's Mill rd, 5 Apr 1966, H. L. Yarbrough and N. Branson 124 (APSC); nr Oak Ridge, 23 May 1942, R. E. Shanks 1417 (APSC).

Trifolium repens L. Cumberland River bank nr mouth of Red River, 1 mi below Clarksville, 25 Sept 1948, A. Clebsch 201 (APSC); off highway 48, 14 mi s of Clarksville, 12 June 1966, C. Scherer and L. Scott 02006 (APSC).

Trifolium hybridum L. Alsike Clover. Lyle woods, 7 May 1942, R. E. Shanks 1418 (APSC).

Meliotus alba Desv. Woodlawn, 17 June 1966, H. L. Yarbrough and N. Branson 91 (APSC); off highway 48, 14 mi s of Clarksville, 12 June 1966, C. Scherer and L. Scott 02014 (APSC).

Meliotus officinalis (L.) Lam. Paradise Hill rd, 16 May 1948, A. Clebsch 64 (APSC); nr Woodlawn, 17 June 1966, H. L. Yarbrough and N. Branson 90 (APSC); 1 mi from Baggett Store on Marion rd, 13 June 1966, H. L. Yarbrough et al. 215 (APSC); APNS campus, 15 May 1942, R. E. Shanks 2018 (TENN).

Medicago sativa L. Alfalfa. Field nr Paradise Hill rd, 3 mi ese of Clarksville, 24 July 1948, A. Clebsch 154 (APSC); Lyle Woods nr Cumberland River, 20 June 1942, W. Oliver 1414 (APSC); Dotsonville rd, 12 July 1966, P. A. Wallen and L. Scott 02121 (APSC); off highway 149 nr Palmyra, 17 June 1966, P. A. Wallen and L. Scott 01075 (APSC).

Amorpha fruticosa L. False or Bastard Indigo, Indigo-

bush. King and Queen bluff, 24 Aug 1947, A. Clebsch 1072 (APSC); same location, 22 May 1948, A. Clebsch 6722 (APSC).

Tephrosia virginiana (L.) Pers. Goat's-Rue, Catgut, Rabbit's Pea. King and Queen bluff, 11 June 1949, F. Brown and A. Clebsch 503 (APSC); same location, 18 May 1946, A. Clebsch et al. 3718 (TENN); dry ridge above Yellow Creek, 22 June 1966, H. L. Yarbrough 178 (APSC).

Robinia psuedo-acacia L. Black Locust. Dotsonville, 28 June 1958, F. Brown 3733 (TENN); Cumberland Heights on lawn, 24 June 1966, H. L. Yarbrough 269 (APSC).

Astragalus canadensis L. Lynnwood's Landing, 17 July 1949, F. Brown and A. Clebsch 504 (APSC).

Desmodium nudiflorum (L.) DC. Barrens w of Clarksville, 1½ mi from county line, 9 Oct 1949, R. E. Shanks and A. Clebsch 14464 (TENN).

Desmodium pauciflorum (Nutt.) DC. Shelton's Branch nr Red River, 25 July 1948, A. Clebsch 152 (APSC); branch nr Hiett's Garden, 1 Sept 1947, A. Clebsch 1073 (APSC); APSC farm, 24 Aug 1966, P. A. Wallen and L. Scott 02172 (APSC).

Desmodium ochroleucum M. A. Curtis. Dry cedar plain nr Port Royal, 17 Sept 1941, R. E. Shanks 1423 (APSC).

Desmodium rotundifolium DC. Fletcher's Creek w of Ringgold, 6 Oct 1941, D. Eakin and R. E. Shanks 1421 (APSC); dry ridge along Cumberland River s of Clarksville, 9 Oct 1941, D. Eakin and R. E. Shanks 1422 (APSC).

Desmodium paniculatum (L.) DC. Porter's bluff, 13 Sept 1941, B. Spafford 1424 (APSC); Fletcher's Creek w of Ringgold, 6 Oct 1941, D. Eakin 1426 (APSC); pond w of Dotsonville, 9 Oct 1949, R. E. Shanks and A. Clebsch 14437 (TENN).

Desmodium canescens (L.) DC. Barton's Creek, 15 Aug 1948, A. Clebsch 151 (APSC); Blooming Grove Creek, 12 Aug 1948, A. Clebsch s.n. (APSC); gravel rd between Needmore and Peacher's Mill rd, 24 Aug 1966, P. A. Wallen and L. Scott 02147 (APSC).

Desmodium canadense (L.) DC. Porter's bluff rd, 13 Sept 1941, B. Spafford 3807 (TENN).

Desmodium ciliare (Muhl.) DC. Highway 112, Mt. Carmel - Shady Grove crossing, 12 mi ese of Clarksville, 3 Sept 1949, F. Brown and A. Clebsch 505 (APSC); barrens nr

Woodlawn, 10 Oct 1941, R. E. Shanks 1428 (APSC).

Lespedeza violacea (L.) Pers. Left bank of Cumberland River, 3 mi s of Clarksville, 5 Sept 1949, A. Clebsch 507 (APSC); nr Oak Ridge, 23 May 1942, R. E. Shanks 1430 (APSC).

Lespedeza repens (L.) Bart. Along Fletcher's Creek, 6 Oct 1941, D. Eakin and R. E. Shanks 1429 (APSC); same location, 6 Oct 1941, D. Eakin 951 (TENN).

Lespedeza procumbens Michx. Opposite Woodlawn School, 9 Oct 1949, R. E. Shanks et al. 709 (APSC); barrens nr Woodlawn, 14 Oct 1941, R. E. Shanks 1082 (TENN).

Lespedeza virginica (L.) Britt. Mt. Carmel and Shady Grove crossing, 3 Sept 1949, F. Brown and A. Clebsch 506 (APSC); along Palmyra rd, 1 Aug 1942, W. Oliver 1434 (APSC); sw of Woodlawn, 10 Oct 1941, R. E. Shanks 1431 (APSC); Palmyra rd, 1 Aug 1942, W. Oliver 89 (APSC).

Lespedeza intermedia (S. Wats.) Britt. w of Oakwood, 9 Oct 1949, R. E. Shanks et al. 708 (APSC).

Lespedeza cuneata (Dumont.) G. Don. Gravel rd between Needmore and Peacher's Mill rd, 24 Aug 1966, P. A. Wallen and L. Scott 02148 (APSC).

Lespedeza capitata Michx. Barrens nr Woodlawn, 14 Oct 1941, R. E. Shanks 1435 (APSC); same location, 14 Oct 1941, R. E. Shanks 1080 (TENN).

Lespedeza hirta (L.) Hornem. Mt. Carmel and Shady Grove crossing, 3 Sept 1949, F. Brown and A. Clebsch 509 (APSC); King and Queen bluff, 31 Aug 1946, R. E. Shanks 2608 (TENN).

Lespedeza striata (Thumb.) H. & A. Japanese Clover. Little Barton's Creek, P. A. Wallen and L. Scott 02163 (APSC).

Lespedeza stipulaceae Maxim. Korean Clover. Tennessee Central RR bed nr Golf Links, 6 Sept 1948, A. Clebsch and E. Clebsch 204 (APSC).

Stylosanthes biflora (L.) BSP. Woodlawn, 25 June 1944, R. E. Shanks 2783 (TENN); King and Queen bluff, 24 June 1966, P. A. Wallen and L. Scott 02102 (APSC).

Vicia angustifolia Reichard. Common Vetch. nr Palmyra, 13 May 1942, R. E. Shanks 1437 (APSC); w end of

King and Queen bluff, 17 Apr 1949, anon s.n. (TENN).

Vicia dasycarpa Ten. nr Yellow Creek, 22 June 1966, H. L. Yarbrough et al. 88 (APSC); nr Budd's Creek rd, 17 June 1966, P. A. Wallen and L. Scott 02068 (APSC).

Apios americana Medic. Blooming Grove Creek, 12 Aug 1948, A. Clebsch 271 (APSC); w of Oakwood, 20 June 1948, A. Clebsch and E. Clebsch 7618 (TENN).

Apios priceane Robins. Foster's Cave nw of Clarksville, 19 Aug 1951, A. Clebsch et al. 16303 (TENN); opposite Foster's Cave, 15 July 1949, H. Silva and A. Clebsch 510 (APSC).

Phaseolus polystachios (L.) BSP. Wild Bean. APSC farm, 24 Aug 1966, L. Scott and P. A. Wallen 02178 (APSC).

Strophostyles leiosperma (T. & G.) Piper. Tennessee Central RR bed, 2 mi se of Clarksville, 25 July 1948, A. Clebsch 149 (APSC); Woodlawn, 12 Aug 1948, A. Clebsch and E. Clebsch 150 (APSC); CCC pine planting nr Woodlawn, 12 Aug 1948, W. Perry et al. 712 (APSC).

Strophostyles helvola (L.) Ell. rd into Ft. Campbell from Oakwood, 17 Sept 1949, F. Brown and A. Clebsch 512 (APSC).

Strophostyles umbellata (Muhl.) Britt. Woodlawn, 12 Aug 1948, W. Perry et al. 988 (APSC); along Palmyra rd, 1 Aug 1942, W. Oliver 1440 (APSC); barrens nr Woodlawn, 3 Sept 1942, R. E. Shanks 1441 (APSC); Palmyra rd, 1 Aug 1942, W. Oliver 94 (TENN).

Clitoria mariana L. King and Queen bluff, 27 July 1946, A. Clebsch and E. Clebsch 3857 (TENN).

Amphicarpa bracteata (L.) Fern. Barrens w of Oakwood, 9 Oct 1949, R. E. Shanks and A. Clebsch 14403 (TENN); Blooming Grove Creek, 12 Aug 1948, A. Clebsch 272 (APSC); Fletcher's Creek, 17 Sept 1949, F. Brown and A. Clebsch 511 (TENN,APSC); Seven Mile Island, 6 Sept 1947, A. Clebsch 1075 (APSC).

Galactia volubilis (L.) Britt. King and Queen bluff, 27 July 1946, E. Clebsch s.n. (APSC); dry ridge along Cumberland River s of Clarksville, 9 Oct 1941, D. Eakin and R. E. Shanks 1438 (APSC); Yellow Creek, 20 July 1966, P. A. Wallen and L. Scott 02138 (APSC).

Rhynchosia tomentosa (L.) H. & A. Rock slope in New

Providence nw of Clarksville, W. Oliver 1439 (APSC).

LINACEAE

Linum medium (Planch.) Britt. e of Shelton's Branch, 25 June 1949, F. Brown and A. Clebsch 516 (APSC); King and Queen bluff, 24 July 1948, A. Clebsch 714 (APSC); CCC pine planting, 12 Aug 1948, W. Perry et al. s.n. (APSC); Woodlawn, 25 June 1944, R. E. Shanks 1451 (APSC); same location, 12 Aug 1948, A. Clebsch et al. 1078 (APSC); King and Queen bluff, 30 May 1946, A. Clebsch et al. 3945 (TENN).

Linum virginianum L. King and Queen bluff, 24 July 1949, A. Clebsch 715 (APSC); Sango neighborhood n of highway 112, 30 July 1949, F. Brown and A. Clebsch 515 (APSC).

OXALIDACEAE

Oxalis violacea L. Violet Wood-Sorrel. King and Queen bluff, 17 Apr 1949, A. Clebsch 513 (APSC); nr Yellow Creek, 20 May 1934, E. B. Harger 7835 (TENN); Cumberland River Valley, 17 Apr 1954, E. Quarterman et al. 5294 (VAND).

Oxalis stricta L. Yellow Wood-Sorrel. APNS campus, 30 Sept 1941, D. Eakin 888 (TENN); nr City Cemetery, 4 May 1948, E. Hutchison 307 (APSC); Lyle Woods, 7 May 1942, R. E. Shanks 1446 (APSC); Porter's bluff, 27 Apr 1942, R. E. Shanks 1449 (APSC); Billy Dunlop Memorial Park, 5 May 1966, H. L. Yarbrough et al. 186 (APSC); 1 mi s of Palmyra on gravel rd, 17 June 1966, L. Scott 02071 (APSC).

Oxalis grandis Small. nr Shelton's Branch, 25 Apr 1948, A. Clebsch 19 (APSC); Yellow Creek, 30 Apr 1944, R. E. Shanks 1450 (APSC); along L&N RR tracks nw of Clarksville, 17 June 1966, L. Scott and A. Phillips 02089 (APSC).

GERANIACEAE

Geranium maculatum L. Wild or Spotted Geranium. West Fork Creek bluff, 4 June 1949, F. Brown and A. Clebsch 713 (APSC); Cunningham Lake, 1 May 1948, A. Clebsch 18 (APSC). Porter's bluff, 23 May 1942, R. E. Shanks 1443 (APSC).

Geranium carolinianum L. APSC campus, 28 May 1942, W. Oliver 1 (TENN); nr City Cemetery, 4 May 1948, E. Hutchison 306 (APSC); APNS campus, 29 Apr 1942, R. E. Shanks 1445 (APSC); 1 mi s of Palmyra on gravel rd, 17 June 1966, L. Scott et al. 02073 (APSC).

RUTACEAE

Ptelea trifoliata L. Stinking Ash. Wafer Ash. Lynnwood's Landing, 9 June 1948, A. Clebsch 273 (APSC); Riggins' Mill on Yellow Creek, 21 Aug 1949, H. Silva and A. Clebsch 517 (APSC); roadside route 76 nr Robertson Co. Line, 20 July 1954, R. E. Shanks 18467 (TENN); nr Palmyra, 14 May 1942, R. E. Shanks 1453 (APSC).

POLYGALACEAE

Polygala incarnata L. nr Oakwood nw of Clarksville, 19 Aug 1951, A. Clebsch 16315 (TENN); prairie remnant w of Oakwood, 20 June 1948, A. Clebsch and E. Clebsch 7623 (TENN).

Polygala senega L. Senece-snakeroot. Branch nr Hiett's Garden, 22 July 1947, A. Clebsch 1080 (APSC); Central Ave., 17 July 1948, A. Clebsch 101 (APSC).

Polygala sanguinea L. Central Ave., se suburbs of Clarksville, 17 July 1948, A. Clebsch 101 (APSC); se of Guthrie, Ky., in Montgomery Co., 7 Sept 1947, H. C. Phillips and A. Clebsch 1079 (APSC); Oakwood neighborhood, 18 June 1949, F. Brown and A. Clebsch 519 (APSC); n of highway 112, Sango Community, 30 July 1949, F. Brown and A. Clebsch 992 (APSC).

Polygala verticillata L. Sango Community along highway 112, 9 July 1949, F. Brown and A. Clebsch 518 (APSC); barrens nr Woodlawn, 31 July 1943, R. E. Shanks 1454 (APSC); north woods on 112, 9¼ mi e of Clarksville, 10 Aug 1952, A. D. Heuser 518 (TENN); prairie w of Oakwood, 20 June 1948, A. Clebsch and E. Clebsch 7626 (TENN).

EUPHORBIACEAE

Croton glandulosus L. Field n of Greenwood Cemetery, 28 Aug 1948, A. Clebsch 207 (APSC).

Croton monanthogynus Michx. Prairie-Tea. Tennessee Central RR tracks nr Mark's slough, 23 Sept 1949, A. Clebsch 719 (APSC); APNC campus, 30 Sept 1941, D. Eakin 1456 (APSC); APSC campus, 2 Oct 1941, R. E. Shanks 921 (TENN).

Croton capitatus Michx. Hogwort, Wolly Croton. 2 mi s of Guthrie, Ky., in Montgomery Co., 8 Oct 1949, R. E. Shanks et al. 716 (APSC); s of Paradise Hill rd, 15 Oct 1949, F. Brown and A. Clebsch 717 (APSC).

Acalypha ostryaefolia Riddell. APNS campus, 30 Sept 1941, D. Eakin 865 (TENN).

Acalypha rhomboides Raf. Barton's Creek, 15 Aug 1948, A. Clebsch 148 (APSC); bluff on Red River below mouth of Shelton's Branch, 21 Oct 1947, A. Clebsch 1082 (APSC); ravine n of Greenwood Cemetery, 28 Aug 1948, A. Clebsch 208 (APSC); Lock B, 10 Sept 1949, A. Clebsch 878 (APSC); APNS campus, 30 Sept 1941, D. Eakin 864 (TENN).

Acalypha virginica L. Sango Community, 30 July 1949, F. Brown and A. Clebsch 994 (APSC); ravine e of Greenwood Cemetery, 24 Aug 1947, A. Clebsch 1083 (APSC); barrens nr Woodlawn, 31 July 1943, R. E. Shanks and A. Clebsch 1457 (APSC); barrens nr Woodlawn School, 9 Oct 1949, R. E. Shanks et al. 14423 (TENN); same location, 30 June 1943, R. E. Shanks 2320 (TENN); King and Queen bluff, 8 Aug 1946, A. Clebsch s.n. (TENN).

Acalypha gracilens Gray. Highway 112, Sango Community, 9 July 1949, F. Brown and A. Clebsch 993 (APSC).

Tragia cordata Michx. Ravine ne of Greenwood Cemetery, 26 Sept 1948, A. Clebsch 255 (APSC); nr Marks' slough, 15 Oct 1947, A. Clebsch 1084 (APSC).

Phyllanthus carolinesis Walt. Cumberland River bank below mouth of Red River, 25 Sept 1948, A. Clebsch 206 (APSC); n of highway 112, Sango Community, 30 July 1949, F. Brown and A. Clebsch 521 (APSC); ravine e of Greenwood Cemetery, 25 Oct 1947, A. Clebsch 1081 (APSC).

Euphorbia dentata Michx. Ravine ne of Greenwood Cemetery, 26 Sept 1948, A. Clebsch 211 (APSC); location not available, 7 Oct 1941, L. Denning s.n. (TENN); ravine e of Greenwood Cemetery, 25 Oct 1947, A. Clebsch 1090 (APSC); APSC campus, 30 Sept 1941, D. Eakin 1463 (APSC).

Euphorbia corollata L. Flowering Spurge, Tramp's Spurge, Wild Hippo. Tennessee Central RR tracks nr Marks' slough, 23 Sept 1949, A. Clebsch 721 (APSC); Palmyra rd, 1 Aug 1942, W. Oliver 1462 (APSC); same location, W. Oliver 91 (TENN); Bud's Creek, 1 Aug 1942, W. Oliver 100 (TENN); barrens nr Woodlawn, 31 July 1943, R. E. Shanks 2317 (TENN); King and Queen bluff, 8 May 1946, A. Clebsch and E. Clebsch s.n. (TENN); off highway 48, 13 mi s of Clarksville, 12 June 1966, C. Scherer and L. Scott 02026 (APSC); APSC farm, 24 Aug 1966, P. A. Wallen and L. Scott 02169 (APSC).

Euphorbia maculata L. nr mouth of Red River, 1 mi below Clarksville, 25 Sept 1948, A. Clebsch 210 (APSC); Tennessee Central RR Tracks nr Marks' slough, 23 Sept 1949, A. Clebsch 720 (APSC); ravine e of Greenwood Cemetery, 25 Oct 1947, A. Clebsch 1087 (APSC); King and Queen bluff, 24 Aug 1947, A. Clebsch 1088 (APSC); APSC campus, 30 Sept 1941, D. Eakin 1461 (APSC); Little Barton's Creek, 24 Aug 1966, P. A. Wallen and L. Scott 02164 (APSC).

Euphorbia humistrata Engelm. Ravine e of Greenwood Cemetery, 25 Oct 1947, A. Clebsch 1086 (APSC).

CALLITRICHACEAE

Callitriche heterophylla Pursh. Spring Creek, 11 mi nw of Clarksville, 11 Sept 1949, C. F. Pickering et al. 523 (APSC).

ANACARDIACEAE

Rhus copallina L. Dwarf or Shining Sumac. Bluff between Edmondson and Seven Mile Ferries, 1 Aug 1948, A. Clebsch 147 (APSC); Porter's bluff, 20 Sept 1941, R. E. Shanks 842 (TENN).

Rhus radicans L. Poison Ivy. APSC campus, 20 June 1966, H. L. Yarbrough 248 (APSC).

Rhus aromatica Ait. King and Queen bluff, 24 Apr 1948, A. Clebsch 20 (APSC).

AQUIFOLIACEAE

Ilex opaca Ait. American Holly. APSC campus, 28 June 1966, H. L. Yarbrough 238 (APSC).

Ilex decidua Walt. Possum Haw. nr Greenwood Cemetery, 29 Oct 1949, F. Brown and A. Clebsch 722 (APSC); nr Oakwood, 19 Aug 1951, A. J. Sharp et al. 16312 (TENN); n of Greenwood Cemetery, 29 Oct 1949, A. Clebsch and F. Brown s.n. (TENN); 2 mi e of Clarksville, 9 Sept 1949, A. Clebsch et al. 14473 (TENN).

CELASTRACEAE

Euonymus atropurpureus Jacq. Burning-Bush, Wahoo.

King and Queen bluff, 24 July 1948, A. Clebsch 146 (APSC); same location, 30 June 1946, A. Clebsch and E. Clebsch s.n. (TENN); nr Parson's Creek, 29 May 1949, A. Clebsch 723 (APSC).

Euonymus americanus L. Strawberry-Bush, Busting-Heart. Ravine ne of Greenwood Cemetery, 28 Aug 1948, A. Clebsch 212 (APSC); B. A. Hughes' farm, 16 May 1948, A. Clebsch 70 (APSC); nr Yellow Creek, 23 May 1942, R. E. Shanks 2048 (TENN).

Euonymus obovatus Nutt. Running Strawberry-Bush. Boy Scout camp on Big West Fork Creek, 9 May 1948, A. Clebsch 274 (APSC).

STAPHYLEACEAE

Staphylea trifolia L. Porter's Cave, 17 June 1948, A. Clebsch 102 (APSC); Porter's bluff, 17 Apr 1942, R. E. Shanks 1815 (TENN); Lyle woods, 7 May 1942, R. E. Shanks 1946 (TENN); Shelton's Branch, 9 Apr 1949, F. Brown and A. Clebsch 524 (APSC).

ACERACEAE

Acer negundo L. Boxelder. Richardson St., Clarksville, 2 Apr 1949, A. Clebsch 525 (APSC); between Marks' slough and Lock B, 23 Sept 1949, A. Clebsch 724 (APSC); F. Brown farm, 11 Aug 1956, F. Brown 20957 (TENN); Long Pond nr Dotsonville, 28 June 1958, F. Brown s.n. (TENN); Lyle farm, 14 Apr 1942, R. E. Shanks 1803 (TENN).

Acer saccharinum L. Silver Maple, Watermaple. APNS campus, 10 Oct 1941, R. E. Shanks 1040 (TENN); Neblitt's slough nr Lock B, 29 June 1958, F. Brown s.n. (TENN); Long Pond nr Dotsonville, 28 June 1958, F. Brown s.n. (TENN); Long Pond nr Dotsonville, 28 June 1958, A. Clebsch and F. Brown s.n. (TENN).

Acer rubrum L. Red Maple. Neblitt's slough nr Lock B, 29 June 1958, F. Brown s.n. (TENN); sw of Woodlawn, 10 Oct 1941, R. E. Shanks 940 (TENN); Boy Scout camp, 11 Oct 1941, R. E. Shanks 1469 (APSC); nr Woodlawn, 12 Apr 1942, R. E. Shanks 1470 (APSC); Baggett farm, 23 Mar 1966, H. L. Yarbrough and N. Branson 103 (APSC); nr Sango School, 21 Mar 1966, H. L. Yarbrough 118 (APSC).

Acer nigrum Michx. f. Black Maple. nr Foster's Cave, 19 Aug 1951, A. Clebsch et al. 16297 (TENN); Porter's bluff, 28 Sept 1943, R. E. Shanks 2348 (TENN).

Acer saccharum Marsh. Sugar Maple. King and Queen bluff. 24 Apr 1942, R. E. Shanks 1473 (APSC); APNS campus, 10 Oct 1941, R. E. Shanks 1475 (APSC); e suburb of Clarksville, 17 July 1948, A. Clebsch 103 (APSC); Port Royal in Montgomery Co., 23 Mar 1966, H. L. Yarbrough 107 (APSC).

HIPPOCASTANACEAE

Aesculus glabra Willd. Ohio Buckeye. nr mouth of Spring Creek, 10 Apr 1948, A. Clebsch 21 (APSC); nr Asbury Church, 30 Apr 1942, R. E. Shanks 1909 (TENN); nr Palmyra, 14 May 1942, R. E. Shanks 1988 (TENN); nr Walnut Grove, 12 Apr 1942, R. E. Shanks 1775 (TENN).

BALSAMIENACEAE

Impatiens pallida Nutt. Pale Touch-Me-Not or Snapweed. Porter's Cave, 14 July 1948, A. Clebsch et al. 100 (APSC); Porter's bluff, 28 June 1942, W. Oliver 1452 (APSC); Little Barton's Creek, 12 June 1966, L. Scott and C. Scherer 02001 (APSC).

Impatiens capensis Meerb. Spotted Touch-Me-Not. Robin's swamp, 6 Sept 1948, A. Clebsch and E. Clebsch 205 (APSC); Porter's bluff, 28 June 1942, W. Oliver 82 (TENN); L&N RR tracks nw of Palmyra, L. Scott et al. 02090 (APSC); gravel rd between Needmore and Peacher's Mill rd, L. Scott, 24 Aug 1966, 02146 (APSC); nr Yellow Creek, 22 June 1966, H. L. Yarbrough 159 (APSC).

RHAMNACEAE

Ceanothus americanus L. New Jersey Tea. Rossview, 13 June 1942, W. Oliver 1477 (APSC); Woodlawn School, 9 Oct 1949, F. Wood et al. 725 (APSC); barrens nr Woodlawn, 31 July 1943, R. E. Shanks 2318 (TENN); King and Queen bluff 18 May 1946, A. Clebsch s.n. (TENN); e of Oakwood, 20 June 1948, A. Clebsch et al. 7621 (TENN); barrens nr Woodlawn, 9 Oct 1949, R. E. Shanks et al. 14422 (TENN); Blue Rock Spring, 13 June 1966, H. L. Yarbrough 98 (APSC); off highway 48, 10 mi s of Clarksville, 12 June 1966, C. Scherer and L. Scott 02027 (APSC).

Rhamnus caroliniana Walt. Carolina Buckthorn. Edmondson Ferry rd., 1 Aug 1948, A. Clebsch 144 (APSC); Trice's Landing, 3 June 1948, E. Hutchinson 308 (APSC); King and Queen bluff, 24 Aug 1947, A. Clebsch 1089 (APSC); nr Yellow Creek, 22 Oct 1941, R. E. Shanks 1152 (TENN).

Parthonocissus quinquefolia (L.) Planch. Between McAdoo Creek and Marks' slough, 6 Sept 1948, A. Clebsch and E. Clebsch 214 (APSC).

Vitis aestivalis Michx. Summer or Pigeon-Grape. Blue Rock Spring rd, nr Gum Spring Church, 13 June 1966, H. L. Yarbrough and N. Branson 99 (APSC).

Ampelopsis cordata Michx. Bluff along Cumberland River, 9 Oct 1941, R. E. Shanks 997 (TENN).

Ampelopsis arborea (L.) Koehne. Pepper-Vine. West Fork Creek, 16 Sept 1948, A. Clebsch 213 (APSC).

TILIACEAE

Tilia heterophylla Vent. White Basswood. King and Queen bluff, 24 Aug 1947, A. Clebsch 6986 (TENN); w of mouth of Shelton's Branch, 2 June 1956, A. Canton s.n. (TENN); Porter's bluff, 21 May 1942, R. E. Shanks 2034 (TENN); nr Seven Mile Ferry, 1 Aug 1948, A. Clebsch 143 (APSC).

Tilia americana L. American Basswood. APSC campus, 11 June 1943, W. Oliver 1479 (APSC); nr Mericourt ese of Clarksville, 7 June 1948, A. Clebsch 71 (APSC); APNS campus, 22 May 1942, R. E. Shanks 1480 (APSC).

MALVACEAE

Sida spinosa L. Prickly Mallow. Cumberland River bank below Clarksville, 4 Sept 1948, A. Clebsch and E. Clebsch 215 (APSC); Nicholson's farm, 27 Aug 1966, L. Scott 02185 (APSC); APSC campus, 17 Aug 1943, R. E. Shanks 2323 (TENN); location not available, 14 Oct 1941, R. E. Shanks 1108 (TENN).

Hibiscus militaris Cav. Halbred-leaved Rose-Mallow. King and Queen bluff, 24 Sept 1949, F. Brown and A. Clebsch 728 (APSC); Seven Mile Island, 6 Sept 1947, A. Clebsch 1094 (APSC).

Hibiscus moscheutos L. Swamp-Rose-Mallow. Fletcher's Branch n of Oakwood, 17 Sept 1949, F. Brown and A. Clebsch 529 (APSC); between L&N RR tracks and Cumberland River, 1 Oct 1949, F. Brown and A. Clebsch 727 (APSC).

Ascyrum hpyericoides L. St. Andrew's Cross. In ne corner of Montgomery Co., 2 July 1949, F. Brown and A. Clebsch 528 (APSC); Fletcher's Creek w of Ringgold, 6 Oct 1941, D. Eakin and R. E. Shanks 1481 (APSC); pond w of Dotsonville rd, 9 Oct 1949, R. E. Shanks et al. 14435 (TENN); w of Oakwood, 20 June 1948, A. Clebsch et al. 7630 (TENN); Fletcher's Fork, 6 Oct 1941, R. E. Shanks 960 (TENN); dry ridge along Cumberland River s of Clarksville, anon, s.n. (TENN).

Hypericum tubulosum Walt. Marsh St. John's Wort. Marks' slough, 15 Oct 1947, A. Clebsch 1099 (APSC); same location, 6 Sept 1948, A. Clebsch et al. 216 (APSC); woods beyond Oakwood, 19 Aug 1951, A. J. Sharp et al. 16309 (TENN); Oakwood, 18 Sept 1954, A. Clebsch and E. Clebsch 18800 (TENN).

Hypericum sphaerocarpum Michs. King and Queen bluff, 24 Aug 1946, A. Clebsch 1095 (APSC); same location, 24 July 1948, A. Clebsch 730 (APSC); same location, 5 June 1948, A. Clebsch 729 (APSC); Yellow Creek, 22 June 1966, H. L. Yarbrough 156 (APSC).

Hypericum frondosum Michx. King and Queen bluff, 5 June 1948, A. Clebsch 72 (APSC); bluff nr New Providence, 10 Oct 1943, H. E. Phillips et al. 1483 (APSC); along L&N RR tracks nw of Palmyra, 17 June 1966, C. Scherer and L. Scott 02085 (APSC); off highway 149, sw of Palmyra, 21 June 1966, P. A. Wallen and L. Scott 02100 (APSC).

Hypericum perforatum L. Common St. John's Wort. Paradise Hill rd, 12 July 1949, A. Clebsch 529 (APSC); nr New Providence, 28 June 1942, W. Oliver 1484 (APSC); dry ridge along Cumberland River s of Clarksville, 9 Oct 1941, D. Eakin and R. E. Shanks 1485 (APSC); 2 mi se of Palmyra, 17 June 1966, P. A. Wallen and L. Scott 02070 (APSC); 4 mi se of Clarksville, 24 June 1966, P. A. Wallen and L. Scott 02108 (APSC).

Hypericum punctatum Lam. New Providence, 28 June 1942, W. Oliver 1484 (APSC); dry ridge along Cumberland River s of Clarksville, 9 Oct 1941, D. Eakin and R. E. Shanks 1485 (APSC); Shelton's Branch, 11 Oct 1947, A. Clebsch 1096 (APSC); Nicholson's farm, 27 Aug 1966, P. Wallen and L. Scott 02183 (APSC); King and Queen bluff, 24 June 1966, P. A. Wallen and L. Scott 02106 (APSC).

Hypericum mutilum L. Barrens w of Oakwood, 9 Oct 1949,

A. Clebsch et al. 14461 (TENN); barrens nr Woodlawn, 13 Oct 1941, R. E. Shanks 1056 (TENN); ravine e of Greenwood Cemetery, 24 Aug 1947, A. Clebsch 1097 (APSC); Nicholson's farm, 27 Aug 1966, L. Scott 02194 (APSC).

Hypericum gentianoides (L.) BSP. Orange-Grass, Pine-weed. Barrens nr Woodlawn, 3 Sept 1942, R. E. Shanks 1484 (APSC); pond w of Dotsonville rd, 9 Oct 1949, R. E. Shanks 14434 (TENN); nr Woodlawn School, 9 Oct 1949, R. E. Shanks et al. 14397 (TENN).

Hypericum drummodii (Grev. & Hook.) T. & G. Nits-and-lice. ne corner of Montgomery Co., 2 July 1949, F. Brown and A. Clebsch 531 (APSC); e of Greenwood Cemetery, 8 Oct 1949, F. Brown and A. Clebsch 731 (APSC); n of Greenwood Cemetery, 25 Oct 1947, A. Clebsch 1098 (APSC); pasture ne of Greenwood Cemetery, 8 Oct 1949, A. Clebsch and F. Brown 731 (APSC).

CISTACEAE

Lechea villosa Ell. Along Fletcher's Creek, 6 Oct 1941, R. E. Shanks s.n. (TENN); barrens nr Woodlawn, 3 Sept 1942, R. E. Shanks 2168 (TENN).

Lechea minor L. Opposite Woodlawn, 9 Oct 1949, F. Woods et al. 733 (APSC).

PASSIFLORACEAE

Passiflora incarnata L. Apricot-Vine, Maypops. Rossview, 13 June 1942, W. Oliver 48 (TENN); between Paradise Hill rd and King and Queen bluff, 24 July 1948, A. Clebsch 138 (APSC); Cunningham Lake, 28 June 1966, H. L. Yarbrough 236 (APSC); off Ussery rd, 5½ mi sw of Clarksville, 13 June 1966, C. Scherer and L. Scott 02033 (APSC).

Passiflora lutea L. Paradise Hill rd, 13 Aug 1949, F. Brown and A. Clebsch 537 (APSC).

CACTACEAE

Opuntia humifusa Raf. Trice's Landing, 30 May 1948, H. C. Phillips and A. Clebsch 106 (APSC); nw of Palmyra, 10 mi sw of Clarksville, 17 June 1966, C. Scherer and L. Scott 02084 (APSC).

LYTHRACEAE

Ammannia coccinea Rothb. Cumberland River bottom facing mouth of Red River, 1½ mi w of Clarksville, 13 Sept 1947, A. Clebsch and E. Clebsch 1100 (APSC); Cumberland River bottom facing New Providence, wnw of Clarksville, 1 Oct 1949, F. Brown and A. Clebsch 735 (APSC); nr mouth of Red River, 1 mi below Clarksville, 25 Sept 1948, A. Clebsch 217 (APSC).

Cuphea petiolata (L.) Koehne. Clammy Cuphea. Blue Waxweed. Barrens nr Woodlawn, 9 Oct 1949, A. Clebsch and R. E. Shanks 14382 (TENN); Lock B, 16 Oct 1948, A. Clebsch 276 (APSC); e of Warfield, ne corner of County, 10 Sept 1949, F. Brown and A. Clebsch 538 (APSC); nr Marks' slough 15 Oct 1947, A. Clebsch 1101 (APSC).

NYSSACEAE

Nyssa sylvatica Marsh. Black Gum. Barrens w of Oakwood, 9 Sept 1949, R. E. Shanks and A. Clebsch 14471 (TENN); same location, 9 Oct 1949, R. E. Shanks et al. 745 (APSC).

MELASTOMATACEAE

Rhexia mariana L. Barrens w of Oakwood, 9 Oct 1949, A. Clebsch 1405 (TENN).

ORNAGRACEAE

Jussiaea decurrens (Walt.) DC. Robin's swamp, 6 Sept 1948, A. Clebsch and E. Clebsch 737 (APSC); Cumberland River bank just below Clarksville, 4 Sept 1948, A. Clebsch and E. Clebsch 219 (APSC).

Ludwigia palustris (L.) Ell. Water-purslane. nr mouth of Red River, 1 mi below Clarksville, 25 Sept 1948, A. Clebsch 218 (APSC); corner highway 76 and Dotsonville rd, 4½ mi wnw of Clarksville, 9 Oct 1949, F. Woods et al. 736 (APSC); Robin's swamp, 6 Sept 1948, A. Clebsch et al. 737 (APSC).

Ludwigia alternifolia L. Seedbox. Barton's Creek, 15 Aug 1948, A. Clebsch 277 (APSC); Nicholson's farm, 27 Aug 1966, P. W. Wallen and L. Scott 02184 (APSC).

Oenothera fruticosa L. Woodlawn, 25 June 1944, R. E. Shanks 1500 (APSC).

Oenothera lacinata Hill. nr Stringtown, 14 May 1942, R. E. Shanks 1499 (APSC); nr Glenwood, 24 Apr 1942, R. E. Shanks 1498 (APSC); 1 mi s of Palmyra on gravel rd, 9 mi sw of Clarksville, 17 June 1966, P. A. Wallen and L. Scott 02074 (APSC).

Oenothera biennis L. Evening Primrose. Woodlawn, 13 Oct 1941, D. Eakin and R. E. Shanks 1497 (APSC); nr Hiett's Garden, 1 Sept 1947, A. Clebsch 1102 (APSC); Trice's Landing, 4 Sept 1948, A. Clebsch and E. Clebsch 4 (APSC); APSC farm, 24 Aug 1966, P. A. Wallen and L. Scott 02175 (APSC).

Circaea guadrisulcata (Maxim.) Franch. Trahern's Spring, 14 July 1948, A. Clebsch 107 (APSC); same location, 15 June 1947, A. Clebsch 1103 (APSC).

HALORAGACEAE

Proserpinaca palustris L. Marks' slough, 23 Sept 1949, A. Clebsch 738 (APSC); same location, 23 Sept 1949, A. Clebsch 3079 (TENN).

ARALIACEAE

Aralia spinosa L. Hercules' Club. APSC farm, 30 June 1966, H. L. Yarbrough and N. Branson 201 (APSC).

UMBELLIFERAE

Erynium prostratum Nutt. Corner highway 76 and Dotsonville rd, 4½ mi wnw of Clarksville, 9 Oct 1949, R. E. Shanks et al. 739 (APSC); barrens nr Woodlawn, 31 July 1943, R. E. Shanks 1501 (APSC).

Sanicula gregarina Bickn. Shelton's Branch, 15 June 1946, J. Shaver 9250 (TENN); Coke's Creek, 14 May 1949, F. Brown et al. 740 (APSC); nr Greenwood Cemetery, 24 Apr 1948, A. Clebsch 741 (APSC); Shelton's Spring, 9 Oct 1949, R. E. Shanks 1104 (APSC); Porter's bluff, 21 May 1942, R. E. Shanks 1501 (APSC).

Sanicula canadensis L. Barrens at Oakwood, 9 Oct 1949, R. E. Shanks 14459 (APSC).

Sium suave Walt. Opposite mouth of Red River, 1¼ mi nw of Clarksville, 1 Oct 1949, F. Brown and A. Clebsch 7431 (APSC); swamp between L&N RR and Cumberland River, 13 Sept 1947, A. Clebsch and E. Clebsch 1107 (APSC).

Daucus carota L. Wild Carrot, Queen Ann's Lace. Cunningham Lane 3 mi sw of Clarksville, 20 June 1966, H. L. Yarbrough 216 (APSC); off highway 48, 14 mi s of Clarksville, C. Scherer and L. Scott 02011 (APSC); Rossview, 8 mi ne of Clarksville, 13 June 1942, W. Oliver 55 (APSC).

Osmorhiza claytoni (Michx.) C. B. Clarke. Red River bluff e of Clarksville, 18 Apr 1948, A. Clebsch 32 (APSC); nr Yellow Creek, 22 June 1966, H. L. Yarbrough 157 (APSC).

Osmorhiza longistylis (Torr.) DC. Anise-root. West Fork Creek, 4 June 1949, F. Brown and A. Clebsch 742 (APSC); Trahern's Spring, 9 Apr 1949, F. Brown and A. Clebsch 542 (APSC); Porter's bluff, 17 Apr 1942, R. E. Shanks 1814 (TENN).

Angelica venenosa (Greenway) Fern. Woodlawn, 25 June 1944, R. E. Shanks 1508 (APSC); same location, 25 June 1944, R. E. Shanks 2788 (TENN).

Thaspium barbinodes (Michx.) Nutt. Porter's bluff, 4 Sept 1942, R. E. Shanks and A. Clebsch 1509 (APSC); below Lynnwood's Landing, 9 June 1948, A. Clebsch 74 (APSC); Cumberland River bluff 1½ mi wnw of Clarksville, 13 Sept 1947, A. Clebsch and E. Clebsch 1108 (APSC).

Thaspium pinnatifidum (Buckl.) Gray. Below Lynnwood's Landing, 9 June 1948, A. Clebsch 74 (APSC); nr Red River at New Providence, 13 May 1942, R. E. Shanks 1510 (APSC); between Hilltop and Palmyra at Antioch Creek bridge, 14 June 1966, C. Scherer and L. Scott 02047 (APSC).

Cryptotaenia canadensis (L.) DC. Ravine e of Greenwood Cemetery, 5 Oct 1947, A. Clebsch 1105 (APSC); same location, 10 Sept 1947, A. Clebsch and E. Clebsch 1106 (APSC); Red River bluff ne of Clarksville nr rock quarry, 6 June 1942, W. Oliver 1505 (APSC); Spring Creek on M. P. Brothers' farm, 4 June 1944, R. E. Shanks 1507 (APSC); Red River bluff, 6 June 1942, W. Oliver 33 (TENN).

Taenidia integerrima (L.) Drude. King and Queen bluff, 24 July 1948, A. Clebsch 141 (APSC); Boy Scout camp, 27 May 1948, A. Clebsch 73 (APSC).

Cicuta maculata L. Spotted Cowbane, Musquashroot.

Woodlawn, 25 June 1944, R. E. Shanks 1512 (APSC); rd leading to Camp Campbell from Oakwood, 18 June 1949, F. Brown and A. Clebsch 544 (APSC); Woodlawn, 25 June 1944, R. E. Shanks 2790 (TENN).

CORNACEAE

Cornus florida L. Flowering Dogwood. Ravine ne of Greenwood Cemetery, 17 Apr 1949, A. Clebsch 545 (APSC); CCC pine planting on highway 112, 3 Sept 1949, F. Brown and A. Clebsch 744 (APSC); APSC campus, 28 June 1966, H. L. Yarbrough 237 (APSC).

Cornus drummondi Meyer. Lynnwood's Landing. 4 Sept 1948, A. Clebsch 221 (APSC); below Trice's Landing, 9 June 1948, A. Clebsch et al. 995 (APSC); Cumberland River bluff 1½ mi wnw of Clarksville, 13 Sept 1947, A. Clebsch and E. Clebsch 1109 (APSC).

Cornus obliqua Raf. Silky Dogwood. Little McAdoo Creek nr Fredonia, 13 Sept 1956, A. Clebsch 14237 (APSC).

Cornus foemina Mill. Marks' slough, 6 Sept 1948, A. Clebsch and E. Clebsch 222 (APSC); Cumberland River bluff 3½ mi sw of Clarksville, A. Clebsch 996 (APSC); Cumberland River bottom facing New Providence, 13 Sept 1947, A. Clebsch and E. Clebsch 1110 (APSC); Marks' slough, 15 Oct 1947, A. Clebsch 1111 (APSC).

ERICACEAE

Vaccinium arboreum Marsh. Sparkleberry. King and Queen bluff, 24 Sept 1949, F. Brown and A. Clebsch 746 (APSC); Cumberland River bluff, 23 May 1948, A. Clebsch 75 (APSC); e of Shiloh, 23 May 1942, R. E. Shanks 7072 (TENN); Cumberland River bluff, 28 Sept 1941, R. E. Shanks 859 (TENN); Fletcher's Creek, 6 Oct 1941, R. E. Shanks and D. Eakin 947 (TENN).

Oxydendrum arboreum (L.) DC. Titi. e of Shiloh, 23 May 1942, R. E. Shanks 1516 (APSC); APSC campus, 28 June 1966, H. L. Yarbrough 239 (APSC).

PRIMULACEAE

Lysimachia ciliata L. Shelton's Branch, 25 June 1949, F. Brown and A. Clebsch 747 (APSC); Yellow Creek, 22 June 1966, H. L. Yarbrough 174 (APSC); between highway 149 and

13 on Vernon Creek rd, 15 June 1966, P. Wallen and L. Scott 02058 (APSC); Yellow Creek, 20 June 1966, L. Scott 02093 (APSC).

Lysimachia lanceolata Walt. Oakwood, 18 June 1949, F. Brown and A. Clebsch 748 (APSC); Woodlawn, 25 June 1944, R. E. Shanks 1520 (APSC); between highway 149 and highway 13 on Vernon Creek rd, 15 June 1966, P. A. Wallen and L. Scott 02064 (APSC).

Samolus parviflorus Raf. Branch nr Hiett's Garden, 22 July 1947, A. Clebsch 1112 (APSC).

SAPOTACEAE

Bumelia lycioides (L.) Gaertn. Southern Buckthorn. Porter's bluff, 5 Nov 1949, A. Clebsch 749 (APSC); e of Warfield, 10 Sept 1949, F. Brown and A. Clebsch 966 (APSC); Cumberland River bluff 3½ mi se of Clarksville, 1 Sept 1947, A. Clebsch 1113 (APSC); Long's slough, 14 June 1958, A. Clebsch and F. Brown 6374 (TENN).

EBENACEAE

Diospyrus virginiana L. Common Persimmon. Porter's bluff, 25 May 1944, A. Clebsch and R. E. Shanks 1523 (APSC); Central Ave., 16 May 1948, A. Clebsch 76 (APSC).

OLEACEAE

Fraxinus quadrangulata Michx. Blue Ash. Porter's bluff, 13 July 1958, W. H. Ellis 24560 (TENN); Big West Fork Creek, 16 June 1958, W. H. Ellis 24565 (TENN); Cumberland River bluff 1½ mi wnw of Clarksville, 13 Sept 1947, A. Clebsch and E. Clebsch 1116 (APSC); Porter's bluff, 20 Sept 1941, R. E. Shanks 840 (TENN).

Fraxinus americana L. White Ash. Shady Grove, 3 Sept 1949, F. Brown et al. 750 (APSC); Greenwood Ave., 4 Apr 1949, A. Clebsch 751 (APSC); Cumberland River bluff, 1 mi w of Clarksville, 12 June 1958, W. H. Ellis 24553 (TENN); McAdoo Creek bank 8 mi se of Clarksville, 17 June 1958, W. H. Ellis 24558, 24574 (TENN); APSC campus, 13 June 1958, W. H. Ellis 24559 (TENN); Shady Grove, 11 mi ese of Clarksville, 3 Sept 1949, F. Brown and A. Clebsch 750 (APSC).

Fraxinus pennsylvanica Marsh. Red Ash. Spring Creek, 10 mi ne of Clarksville, 11 Sept 1949, F. Brown and A. Clebsch 752 (APSC); Cumberland River bluff 1½ mi wnw of Clarksville, 13 Sept 1947, A. Clebsch and E. Clebsch 1114 (APSC); 1 mi n of Dotsonville, 28 June 1958, W. H. Ellis 24631 (TENN); 3 mi e of New Providence, 16 June 1958, W. H. Ellis 24568 (TENN).

Forestiera acuminata (Michx.) Poir. Swamp-Privet. Mouth of West Fork Creek at Red River, 1 mi n by e of Clarksville, 4 June 1949, F. Brown and A. Clebsch 755 (APSC).

LOGANIACEAE

Spigelia marilandica L. Indian-pink. B. A. Hughes' farm, 16 May 1948, A. Clebsch 34 (APSC); Yellow Creek, 22 June 1966, H. L. Yarbrough 116 (APSC); Blue Rock Springs rd nr Marion, 13 June 1966, H. L. Yarbrough and N. Branson 223 (APSC); nr Pleasant View Church, 13 June 1966, C. Scherer and L. Scott 02032 (APSC).

GENTINACEAE

Sabatia angularis (L.) Pursh. Rose-pink. Bitterbloom. Between Woodlawn and Oakwood, 15 June 1949, H. Silva and A. Clebsch 756 (APSC); King and Queen bluff, 22 July 1947, A. Clebsch and E. Clebsch 1117 (APSC); along Palmyra rd, 1 Aug 1942, W. Oliver 1525 (APSC); same location, 1 Aug 1942, W. Oliver 90 (TENN); highway 13, 14 July 1966, P. A. Wallen and L. Scott 02126 (APSC).

Gentiana saponaria L. Soapwort-Gentian. Barrens nr Woodlawn School, 9 Oct 1949, R. E. Shanks et al. 14373 (TENN).

APOCYNACEAE

Amsonia tabernaemontana Walt. nr Lyle woods, 4 Sept 1948, A. Clebsch and E. Clebsch 223 (APSC); King and Queen bluff, 23 May 1948, A. Clebsch 278 (APSC); nr Yellow Creek, 30 Apr 1944, R. E. Shanks et al. 1579 (APSC); Cumberland River Valley, 17 Apr 1954, E. Quarterman 5293 (VAND).

Apocynum cannabinum L. Indian Hemp. Cumberland River bluff, 2½ mi w by n of Clarksville, 9 June 1948, W. Perry et al. 279 (APSC); nr New Providence, 17 July 1949, F. Brown and A. Clebsch 759 (APSC); nr Hadley Farm on West Fork Creek, 4 June 1948, E. Hutchison et al. 282 (APSC); along

L&N RR tracks nw of Palmyra, 17 June 1966, L. Scott et al. 02088 (APSC); Yellow Creek, 22 June 1966, H. L. Yarbrough 160 (APSC).

ASCLEPIADACEAE

Asclepias hirtella (Pennell) Woodson. Along L&N RR tracks, 1½ mi se of Guthrie, Ky., 2 July 1949, F. Brown and A. Clebsch 761 (APSC).

Asclepias tuberosa L. Butterfly-weed, Chigger-Weed. Rossview, 13 June 1942, W. Oliver 56 (TENN); e of Greenwood Cemetery, 5 Sept 1948, A. Clebsch 280 (APSC); nr King and Queen bluff, 11 June 1949, F. Brown and A. Clebsch 760 (APSC); Rossview, 13 June 1942, W. Oliver 1530 (APSC); nr Woodlawn, 12 Sept 1942, R. E. Shanks 1531 (APSC); nr 13 June 1966, H. L. Yarbrough and N. Branson 218 (APSC); off highway 48, 10 mi s of Clarksville, 12 June 1966, C. Scherer and L. Scott 02012 (APSC); Cumberland Hts, 3.2 mi wsw of Clarksville, 13 June 1966, C. Scherer and L. Scott 02028 (APSC).

Asclepias verticillata L. King and Queen bluff, 24 July 1948, A. Clebsch 140 (APSC); same location, 10 Sept 1947, A. Clebsch 1118 (APSC); Lock C rd w of Woodlawn, 22 Aug 1943, R. E. Shanks 1533 (APSC); same location, 22 Aug 1943, R. E. Shanks 2332 (TENN); 3 mi se of Clarksville, 30 June 1966, L. Scott 02115 (APSC).

Asclepias incarnata. Swamp-Milkweed. Nicholson's farm, 27 Aug 1966, P. A. Wallen and L. Scott 02181 (APSC).

Asclepias variegata L. King and Queen bluff, 22 May 1948, A. Clebsch 77 (APSC); Woodlawn, 25 June 1944, R. E. Shanks 1532 (APSC); Yellow Creek, 22 June 1966, H. L. Yarbrough et al. 96 (APSC); Blue Rock Spring nr Marion, 13 June 1966, H. L. Yarbrough 167 (APSC); nr Pleasant View Church, 13 June 1966, C. Scherer and L. Scott 02037 (APSC).

Asclepias syrica L. Common milkweed. Between Oak Plain and Fredonia, 7 July 1966, L. Scott 02154 (APSC).

Asclepias purpurascens L. Purple Milkweed. On Vernon Creek rd, 9 mi ssw of Clarksville, 15 June 1966, P. A. Wallen and L. Scott 02060 (APSC).

Gonobolus gonocarpus (Walt.) Perry. Ravine e of Greenwood Cemetery, 6 Oct 1948, A. Clebsch 1009 (APSC);

Brown farm, 12 July 1966, P. A. Wallen and L. Scott 02132 (APSC).

CONVOLVULACEAE

Cuscuta gronovii Willd. Love-vine. Porter's bluff, 7 Sept 1946, R. E. Shanks 3452 (TENN).

Ipomoea coccinea L. Red Morning-glory. Tennessee Central RR nr Coke's Creek, 6 Sept 1948, A. Clebsch and E. Clebsch 281 (APSC).

Ipomoea hederaceae Jacq. Little Barton's Creek, 14 mi s of Clarksville, 24 Aug 1966, L. Scott 02166 (APSC).

Ipomoea purpurea (L.) Roth. Common Morning-glory. West Commerce St. in Clarksville, 1 Oct 1948, A. Clebsch 762 (APSC).

Ipomoea pandurata (L.) G. F. W. Mey. Wild Potatovine, Man-of-the-earth. Along Palmyra rd, 1 Aug 1942, Woodson Oliver 1534 (APSC); Sulphur Creek rd, 7½ mi sse of Clarksville, 8 July 1966, L. Scott 02161 (APSC); APSC farm, 24 Aug 1966, L. Scott and P. A. Wallen 02173 (APSC).

Ipomoea lacunosa L. Marks' slough, 15 Oct 1947, A. Clebsch 1119 (APSC); Woodlawn, 14 Oct 1941, R. E. Shanks 1535 (APSC); Nicholson's farm, 4 mi se of Clarksville, 27 Aug 1966, P. A. Wallen and L. Scott 02191 (APSC).

Gonvolvulus arvensis L. Field-Bindweed, Wild Morning-glory. Seven Mile Ferry rd, 2½ mi se of Clarksville, 1 Aug 1948, A. Clebsch 138 (APSC); APNS campus, 28 May 1942, Woodson Oliver 1536 (APSC).

Convolvulus sapium L. Hedge-Bindweed, Wild Morning-glory. Along L&N RR tracks nw of Palmyra, 17 June 1966, A. Phillips, C. Scherer and L. Scott 02087 (APSC).

POLEMONIACEAE

Phlox paniculata L. Fall-phlox, Perennial Phlox. Barrens nr Woodlawn School, 9 Oct 1949, R. E. Shanks et al. 14392 (TENN); Yellow Creek, 15 mi wsw of Clarksville, 20 July 1966, L. Scott 02136 (APSC); barrens nr Woodlawn, 14 Oct 1941, R. E. Shanks 1365 (APSC); Shiloh bridge crossing Yellow Creek, 16½ mi sse of Clarksville, 14 July 1966, P. A.

Wallen and L. Scott 02127 (APSC); Ringgold, 7 July 1966, P. A. Wallen and L. Scott 02158 (APSC).

Phlox maculata L. Wild Sweet William. Yellow Creek off highway 13, 16 mi sw of Clarksville, 23 July 1949, F. Brown and A. Clebsch 763 (APSC).

Phlox glaberrima L. Barrens nr Woodlawn, 18 June 1944, R. E. Shanks 1540 (APSC).

Phlox carolina L. Off highway 48 nr Houston Co. line in Montgomery Co. 16½ mi s of Clarksville, A. Clebsch et al. 7014 (TENN).

HYDROPHYLLACEAE

Hydrophyllum macrophyllum Nutt. Trahern's Spring, 23 Apr 1949, F. Brown and A. Clebsch 770 (APSC).

Hydrophyllum appendiculatum Michx. Trahern's Spring, 23 Apr 1949, F. Brown and A. Clebsch 771 (APSC); Porter's bluff, date not available, R. E. Shanks 1546 (APSC); Lyle woods, 7 May 1942, R. E. Shanks 1547 (APSC).

Hydrophyllum canadense L. Trahern's Spring, 15 June 1947, A. Clebsch 1122 (APSC).

BORAGINACEAE

Heliotropium indicum L. Turningsole. Cumberland River bank nr Seven Mile Ferry, 6 Sept 1947, A. Clebsch 1123 (APSC); Boy Scout camp nr Peacher's Mill, 26 Oct 1941, R. E. Shanks 1551 (APSC); roadside w of Ringgold, 13 Oct 1941, R. E. Shanks 1042 (TENN).

Lithospermum latifolium Michx. Cumberland River bluff above Seven Mile Ferry, A. Clebsch 777 (APSC); nr Peacher's Mill, 9 May 1948, A. Clebsch 78 (APSC).

Hackelia virginiana (L.) I. M. Johnston. Ravine n of Greenwood Cemetery, 28 Aug 1948, A. Clebsch 56 (APSC).

VERBENACEAE

Verbena hastata L. Blue vervain, Simpler's Joy. Off highway 48 s of Clarksville, 12 June 1966, C. Scherer and L.

Scott 02003 (APSC); Cumberland Hts., 13 June 1966, C. Scherer and L. Scott 02029 (APSC); Sango community, 30 July 1949, F. Brown and A. Clebsch 779 (APSC).

Verbena urticifolia L. White vervain. W of Oakwood, 9 Oct 1949, R. E. Shanks et al. 778 (APSC); APSC campus, 11 July 1942, Woodson Oliver 1554 (APSC); Lyle Woods s of Clarksville, 20 June 1942, Woodson Oliver 1555 (APSC); barrens nr Woodlawn, 9 Oct 1949, R. E. Shanks et al. 14401 (TENN).

Lippa nodifera (L.) Michx. Nicholson's farm, 4 mi se of Clarksville, 27 Oct 1966, P. A. Wallen and L. Scott 02186 (APSC).

Lippa lanceolata Michx. Frog-fruit. Along Red River nr Trahern's Branch, 21 Aug 1948, A. Clebsch 137 (APSC); APSC campus, 17 Aug 1943, R. E. Shanks 1559 (APSC); Happy Hollow, 11 Aug 1946, R. E. Shanks 3561 (TENN).

LABIATAE

Teucrium canadense L. American Germander, Wood-Sage. Rossview, 13 June 1942, Woodson Oliver 1558 (APSC); Tennessee Central RR tracks nr Coke's Creek, 6 Sept 1948, A. Clebsch and E. Clebsch 284 (APSC); Oakwood, 18 June 1949, F. Brown and A. Clebsch 792 (APSC); Cumberland River bottom facing New Providence, 13 Sept 1947, A. Clebsch and E. Clebsch 1125 (APSC); ravine e of Red River 2½ mi e of Clarksville, 21 Aug 1948, A. Clebsch 136 (APSC); gravel rd se of Palmyra, 17 June 1966, P. A. Wallen and L. Scott 02076 (APSC); gravel rd se of Palmyra, 17 June 1966, P. A. Wallen and L. Scott 02078 (APSC); Rossview, 13 June 1942, R. E. Shanks 53 (TENN); nr Dotsonville, 28 June 1958, W. H. Ellis 24628 (TENN).

Trichostema dichotomum L. Bastard Pennyroyal. Oakwood, 17 Sept 1949, F. Brown and A. Clebsch 782 (APSC); ravine e of Greenwood Cemetery, 14 Sept 1947, A. Clebsch 1127 (APSC); nr King and Queen bluff, 24 Aug 1947, A. Clebsch 1126 (APSC); barrens nr Woodlawn, 3 Sept 1942, R. E. Shanks 1560 (APSC); King and Queen bluff, 31 Aug 1946, R. E. Shanks 3573 (TENN); same location, 31 Aug 1966, P. A. Wallen and L. Scott 02199 (APSC).

Scutellaria lateriflora L. Mad-dog Scutellaria. Marks' slough, 6 Sept 1948, A. Clebsch and E. Clebsch 224 (APSC); Cumberland River bank at inlet below King and Queen bluff, 18 Sept 1948, A. Clebsch and E. Clebsch 225 (APSC);

swamp between L&N RR and Cumberland River, 1½ mi w of Clarksville, 13 Sept 1947, A. Clebsch and E. Clebsch 1128 (APSC); e arm of Shelton's Branch, 11 Oct 1947, A. Clebsch 1129 (APSC); Porter's bluff, 4 Sept 1942, R. E. Shanks 2183 (TENN).

Scutellaris incana Biehler. Barrens w of Woodlawn, 9 Oct 1949, R. E. Shanks et al. 14463 (TENN).

Scutellaria elliptica Muhl. Hairy Scutellaria. nr Pleasant View Church, 4½ mi sw of Clarksville, 13 June 1966, C. Scherer and L. Scott 02031 (APSC); between highway 149 and highway 13 on Vernon Creek rd, 15 June 1966, P. A. Wallen and L. Scott 02061 (APSC); e arm of Shelton's Branch, 17 June 1947, A. Clebsch 1130 (APSC); Porter's bluff, 6 June 1942, Woodson Oliver 1563 (APSC); Boy Scout camp nr bridge crossing Big West Fork Creek, 16 June 1958, W. H. Ellis 24567 (TENN); West Fork Creek bluff 2 mi n of Clarksville, 4 June 1949, A. Clebsch and E. Clebsch 783 (APSC); e arm of Shelton's Branch 2 mi s of Clarksville, 17 June 1947, A. Clebsch 1130 (APSC).

Scutellaria parvula Michx. King and Queen bluff, 22 May 1948, A. Clebsch 80 (APSC); Cumberland River bluff se of Clarksville, 30 June 1966, L. Scott 02117 (APSC).

Scutellaria nervosa Purch. Boy Scout camp, 9 May 1948, A. Clebsch 285 (APSC); nr Coke's Creek, 14 May 1949, F. Brown and A. Clebsch 784 (APSC).

Agastache nepetoides (L.) Dtze. Yellow Giant-Hyssop. Marks' slough, 6 Sept 1948, A. Clebsch 286 (APSC).

Nepeta cataria L. Catnip. Hampton Station, 21 June 1942, Woodson Oliver 69 (TENN).

Glecoma hederaceae L. Run-away-Robin. nr Greenwood Cemetery, 17 Apr 1949, A. Clebsch 785 (APSC).

Prunella vulgaris L. Carpenter-weed. Barrens nr Woodlawn, 9 Oct 1949, R. E. Shanks et al. 14398 (TENN); w of Oakwood, 20 June 1948, A. Clebsch et al. 7622 (TENN); along Budd's Creek, 1 Aug 1942, R. E. Shanks 102 (TENN); Paradise Hill rd ese of Clarksville, 24 July 1948, A. Clebsch 287 (APSC); Gip Manning rd ne of Clarksville, 12 July 1966, P. A. Wallen and L. Scott 02120 (APSC).

Lamium amphexicaule L. Dead-Nettle. nr Lock C, 5 Mar 1949, A. Clebsch 786 (APSC).

Lamium purpureum L. Purple Dead-Nettle. 2½ mi e of Clarksville, 2 Apr 1949, A. Clebsch 787 (APSC).

Leonurus cardiaca L. Common Motherwort. Vernon Creek rd 9 mi ssw of Clarksville 15 June 1966, P. A. Wallen and L. Scott 02059 (APSC); College and First St., 23 May 1942, R. E. Shanks 1565 (APSC).

Stachys tenuifolia Willd. F. Brown's cave nr Lock B, 8 mi ese of Clarksville, 15 July 1948, A. Clebsch 135 (APSC).

Stachys riddellii House. Shiloh, 21 June 1966, P. A. Wallen and L. Scott 02094 (APSC).

Salvia lyrata L. Lyre-leaved Sedge, Cancer-weed. Britton's Spring in Ringgold community, 12 June 1958, W. H. Ellis 24551 (TENN); nr Red River at New Providence, 30 Apr 1942, R. E. Shanks 1868 (TENN); ravine e of Greenwood Cemetery, 25 Oct 1947, A. Clebsch 1131 (APSC).

Monarda fistulosa L. Wild Bergamot. Blooming Grove Creek, 12 Aug 1948, A. Clebsch 134 (APSC); along Paradise Hill rd 3 mi se of Clarksville, 1 Sept 1947, A. Clebsch 1133 (APSC); Rossview pike, 1 Aug 1942, Woodson Oliver 108 (TENN); 8 mi ssw of Clarksville on highway 13, 14 July 1966, P. A. Wallen and L. Scott 02125 (APSC); 3 mi w of Montgomery Central School, 14 July 1958, W. H. Ellis 24445 (TENN); 4 mi se of Clarksville on Cumberland River bank, 30 June 1966, L. Scott 02114 (APSC).

Blephilia ciliata (L.) Benth. 13 mi ssw of Clarksville on Vernon Creek rd, 15 June 1966, P. A. Wallen and L. Scott 02056 (APSC); 2 mi n of Clarksville on bluff of West Fork Creek, 4 June 1949, F. Brown and A. Clebsch 788 (APSC); Porter's bluff, 13 June 1958, W. H. Ellis 24562 (TENN).

Blephilia hirsuta (Pursh.) Benth. Wood-Mint. 8 mi ssw of Clarksville on Vernon Creek rd, 15 June 1966, L. Scott 02052 (APSC); Yellow Creek, 20 July 1966, P. A. Wallen and L. Scott 02140 (APSC).

Hedeoma pulegioides (L.) pers. Penneyroyal of America, Pudding-grass. Shady Grove, 3 Sept 1949, F. Brown and A. Clebsch 789 (APSC); ravine e of Greenwood Cemetery 2 mi e of Clarksville, 5 Oct 1947, A. Clebsch 1134 (APSC); King and Queen bluff, 24 Aug 1947, A. Clebsch 1135 (APSC); 3 mi ese of Clarksville off highway 76, 21 Oct 1947, A. Clebsch 1136 (APSC); ridge along Cumberland River s of Clarksville, 9 Oct 1941, D. Eakin and R. E. Shanks 1567 (APSC).

Hedeoma hispida Pursh. Beyond Oakwood nw of Clarksville, 19 Aug 1951, F. H. Norris et al. 16308 (TENN).

Satureja vulgaris (L.) Fritsch. Dogmint. 2 mi se of Clarksville, 31 Aug 1947, A. Clebsch 1138 (APSC).

Satureja calamintha (L.) Scheele. Basil-Thyme. 2 mi se of Clarksville, 31 Aug 1947, A. Clebsch 1137 (APSC); Glenwood, 4 Sept 1942, R. E. Shanks 1568 (APSC).

Pycnanthemum pilosum Nutt. Barrens nr Woodlawn, 31 July 1943, R. E. Shanks 1569 (APSC); same location, 14 Oct 1941, R. E. Shanks 1572 (APSC); same location, 9 June 1958, W. H. Ellis 0302-E (TENN).

Pycnanthemum flexosum (Walt.) BSP. w of Oakwood, 20 June 1948, A. Clebsch et al. 7627 (TENN).

Pycnanthemum tenuifolium Schrad. Barrens nr Oakwood, 20 June 1948, A. Clebsch et al. 111 (APSC); barrens nr Woodlawn, 31 July 1943, R. E. Shanks 1570 (APSC).

Pycnanthemum incanum (L.) Michx. Along Budd's Creek, 1 Aug 1942, Woodson Oliver 1574 (APSC); Shiloh bridge crossing Yellow Creek, 14 July 1966, P. A. Wallen and L. Scott 02128 (APSC).

Pycnantheumum pycanthemoides (Leevenw.) Fern. Dry ridge along Cumberland River s of Clarksville, 9 Oct 1941, D. Eakin and R. E. Shanks 1576 (APSC).

Lycopus uniflorus Michx. Pond w of Dotsonville rd, 9 Oct 1949, F. W. Woods et al. 14441 (TENN).

Lycopus virginicus L. e of Warfield, 10 Sept 1949, F. Brown and A. Clebsch 790 (APSC); Oakwood, 17 Sept 1949, F. Brown and A. Clebsch 791 (APSC).

Lycopus americanus Muhl. Swamp between L&N RR and Cumberland River 1½ mi w of Clarksville, 13 Sept 1947, A. Clebsch and E. Clebsch 1141 (APSC).

Lycopus rubellus Moench. Swamp between L&N RR and Cumberland River 1½ mi w of Clarksville, A. Clebsch and E. Clebsch 1140 (APSC).

Mentha piperita L. Peppermint. Ravine e of Greenwood Cemetery, 28 Aug 1948, A. Clebsch 288 (APSC).

Collinsonia canadensis L. Richweed, Stonewort. Ravine n of Greenwood Cemetery, date not available, A. Clebsch 226 (APSC).

Perilla frutescens (L.) Britt. Ravine e of Greenwood Cemetery, 18 Sept 1948, A. Clebsch and E. Clebsch 227 (APSC); 4 mi se of Clarksville, 11 Sept 1958, W. H. Ellis s.n. (TENN); Boy Scout camp nr Peacher's Mill rd, date not available, A. Clebsch s.n. (TENN).

SOLANACEAE

Solanum americanum Mill. APSC campus, 30 Sept 1941, D. Eakin 882 (TENN); Cumberland River bank nr mouth of Red River, 25 Sept 1948, A. Clebsch 229 (APSC); Glenwood, 20 Sept 1941, R. E. Shanks 1579 (APSC).

Solanum carolinensis L. Horse Nettle, Ball-Nettle. APSC campus, 30 Sept 1941, D. Eakin 870 (TENN); APSC campus, 28 May 1942, Woodson Oliver 1580 (APSC); 1 mi wsw of Clarksville at Briarwood, 13 June 1966, C. Scherer and L. Scott 02019 (APSC); between highways 149 and 13 on Vernon Creek rd, 15 June 1966, L. Scott 02053 (APSC).

Physalis missouriensis Mackenz & Bush. Creek bottom e of Greenwood Cemetery, 25 Oct 1947, A. Clebsch 1144 (APSC).

Physalis pubescens L. Porter's bluff, 5 Nov 1949, F. Brown and A. Clebsch 793 (APSC); ravine e of Greenwood Cemetery, 5 Oct 1947, A. Clebsch 1143 (APSC).

Physalis heterophylla Nees. APNS campus, 28 May 1942, Woodson Oliver 4 (APSC).

Physalis subglabrata Mackenz & Bush. Ravine e of Greenwood Cemetery, 10 Sept 1947, A. Clebsch and E. Clebsch 1145 (APSC); Nicholson's farm, 27 Aug 1966, L. Scott 02182 (APSC); Cumberland River bank 2½ mi se of Clarksville, 30 June 1966, L. Scott 02112 (APSC).

Nicandra physalodes (L.) Pers. Lynnwood's Landing 2½ mi w of Clarksville, 4 Sept 1948, A. Clebsch and E. Clebsch 228 (APSC); Lock B on Cumberland River, 16 Oct 1948, A. Clebsch 289 (APSC).

Lycium chinense Mill. Chinese Matrimony-vine. Between Paradise Hill rd and King and Queen bluff, 24 July 1948, A. Clebsch 1008 (APSC).

Datura stramonium L. Stramonium. F. Brown's farm, 11 Aug 1956, F. Brown 20961 (TENN).

SCROPHULARIACEAE

Verbascum thapsus L. Common Mullein. At Bower's Superette on Budd's Creed rd ssw of Clarksville, 17 June 1966, L. Scott 02091 (APSC); Cumberland River bank 2½ mi se of Clarksville, 30 June 1966, L. Scott 02113 (APSC).

Verbascum blattaria L. Moth-Mullein. Porter's bluff, 6 June 1942, Woodson Oliver 1581 (APSC); nr Palmyra, 14 May 1942, R. E. Shanks 1993 (TENN); APNS campus, 30 Sept 1941, D. Eakin 885 (TENN).

Kickia elatine (L.) Dumort. Canker-root. 8½ mi ese of Clarksville, 16 Oct 1948, A. Clebsch 290 (TENN); Lock B on Cumberland River, 16 Oct 1948, A. Clebsch 290 (APSC).

Scrophularia marilandica L. Carpenter's-square. Shelton's Branch, 25 July 1948, A. Clebsch 133 (APSC); along Cumberland River nr Seven Mile Island, 31 Dec 1949, F. Brown and A. Clebsch 965 (APSC); Tennessee Central RR embankment nr Marks' slough, 15 Oct 1947, A. Clebsch 1146 (APSC).

Chelone glabra L. Balmony. Marks' slough, 23 Sept 1949, A. Clebsch 794 (APSC); same location, 15 Oct 1947, A. Clebsch 1147 (APSC).

Penstemon grandiflorus Nutt. nr tunnel at Palmyra, 13 June 1966, H. L. Yarbrough 211 (APSC); King and Queen b bluff, 25 May 1966, H. L. Yarbrough 205 (APSC).

Penstemon hirsutus (L.) Willd. King and Queen bluff, 24 June 1966, P. A. Wallen and L. Scott 02104 (APSC).

Penstemon tenuiflorus Pennell. 6½ mi sw of Clarksville at Antioch Creek bridge, 14 June 1966, C. Scherer and L. Scott 02040 (APSC).

Penstemon digitalis Nutt. 8 mi sw of Clarksville on Vernon Creek rd, 15 June 1966, C. Scherer and L. Scott 02050 (APSC); limestone ledge w of Clarksville, 19 May 1934, E. B. Hargen 7508 (TENN).

Penstemon laevigatus Ait. 6½ mi ssw of Clarksville on Antioch rd, 14 June 1966, C. Scherer and L. Scott 02043 (APSC).

Mimulus alatus Ait. Shelton's Branch, 25 July 1948, A. Clebsch 132 (APSC); Red River bank nr Shelton's Branch, 24 Aug 1946, R. E. Shanks 3776 (APSC); Shiloh bridge crossing Yellow Creek, 14 July 1966, L. Scott 02120 (APSC).

Gratiola neglecta Torr. Lyle Woods, 7 May 1942, R. E. Shanks 1588 (APSC).

Gonobea multifida (Michx.) Benth. Barrens nr Woodlawn, 13 Oct 1941, R. E. Shanks 1064 (TENN); same location, 12 Sept 1942, R. E. Shanks 2188 (TENN); 3½ mi ese of Clarksville at quarry nr Hiett's Garden, 22 July 1947, A. Clebsch 1149 (APSC); Lynnwood's Landing, 4 Sept 1948, A. Clebsch and E. Clebsch 230 (APCS).

Bacopa acuminata (Walt.) Robins. King and Queen bluff, date not available, A. Clebsch 131 (APSC); beyond Oakwood nw of Clarksville, 19 Aug 1951, A. Clebsch et al. 16305 (APSC).

Bacopa rotundifolia (Michx.) Wettst. 9 mi w of Clarksville between Woodlawn and Oakwood, 15 July 1949, H. Silva and A. Clebsch 796 (APSC); roadside pond nr Woodlawn, 18 June 1944, R. E. Shanks 1587 (APSC), 2776 (TENN).

Lindernia anagallidea (Michx.) Pennell. Oakwood, 15 July 1949, H. Silva and A. Clebsch 799 (APSC); pond w of Dotsonville rd along Dover rd, 9 Oct 1949, R. E. Shanks 14450 (TENN).

Lindernia dubia (L.) Pennell. 1 mi sse of Clarksville in Montgomery Co., 2 July 1949, F. Brown and A. Clebsch 798 (APSC); Cumberland River bank opposite mouth of Red River, 13 Sept 1947, A. Clebsch and E. Clebsch 1150 (APSC); Cumberland River bank below Clarksville, 25 Sept 1948, A. Clebsch 231 (APSC).

Veronicastrum virginicum (L.) Farw. Culver's-root. 3½ mi sw of Clarksville on Cumberland River bluff, 5 Sept 1949, A. Clebsch 800 (APSC); barrens nr Woodlawn, 13 Oct 1941, R. E. Shanks 105-D (TENN).

Veronica serpyllifolia L. Thyme-leaved Speedwell. nr Greenwood Cemetery, 24 Apr 1948, A. Clebsch 41 (APSC).

Veronica peregrina L. Neckweed, Purslane-Speedwell. APNS campus, 23 Apr 1942, R. E. Shanks 1829 (TENN).

Veronica agrestis L. Field-Speedwell. nr City Cemetery, 17 May 1948, Ellen Hutchison 311 (APSC).

Seymeria macrophylla Nutt. Mullein-Foxglove. Shiloh bridge crossing Yellow Creek, 14 July 1966, P. A. Wallen and L. Scott 02129 (APSC); between Edmondson and Seven Mile Ferries, 1 Aug 1948, A. Clebsch 801 (APSC); path to Porter's cave, 17 July 1948, A. Clebsch 113 (APSC); Porter's bluff, 4 Oct 1942, R. E. Shanks 2175 (TENN).

Gerardia flava L. King and Queen bluff, 31 Aug 1966, P. A. Wallen 02200 (APSC); 3½ mi sw of Clarksville on Cumberland River bluff, 5 Sept 1949, A. Clebsch 802 A-B (APSC); King and Queen bluff, 31 Aug 1946, R. E. Shanks 3813 (TENN).

Gerardia fasciculata L. Oakwood, 17 Sept 1949, F. Brown and A. Clebsch 803 (TENN).

Gerardia tenuifolia Vahl. Barrens nr Woodlawn School, 9 Oct 1949, E. W. Chester 14375 (TENN); King and Queen bluff, 18 May 1946, A. Clebsch and E. Clebsch s.n. (TENN).

Pedicularis canadensis L. Common housewort, Woody-Betony. Cunningham Lake, 1 May 1948, A. Clebsch 114 (APSC).

BIGNONIACEAE

Campsis radicans (L.) Seem. Trumpet-creeper. Cow-itch. Lylw woods s of Clarksville, 20 June 1942, Woodson Oliver 1595 (APSC); 8 mi ssw of Clarksville on Vernon Creek rd, 15 June 1966, L. Scott 02051 (APSC).

Bignonia capreolata L. Cross-vine. Lyle woods s of Clarksville, 7 May 1942, R. E. Shanks s.n. (TENN); bluff along Cumberland River, 9 Oct 1941, R. E. Shanks 996 (TENN); Cumberland River bluff below mouth of Red River, 30 Apr 1949, F. Brown and A. Clebsch 806 (APSC).

Catalpa speciosa Warder. Cigar-tree, Catawba-tree. 10 mi s of Clarksville on highway 48, 12 June 1966, L. Scott and C. Scherer 02010 (APSC); 8½ mi sw of Clarksville on Budd's Creek rd, 17 June 1966, P. A. Wallen and L. Scott 02066 (APSC); Crossland Avenue in Clarksville, 3 Sept 1949, A. Clebsch 807 (APSC).

ACANTHACEAE

Ruellia strepens L. Cumberland River bottom ½ mi w

of Clarksville, 13 June 1966, C. Scherer and L. Scott 02020 (APSC); 8 mi ssw of Clarksville on Vernon Creek rd, 15 June 1966, C. Scherer and L. Scott 02048 (APSC); Porter's bluff, 5 Sept 1942, R. E. Shanks 1596 (APSC); King and Queen bluff, 24 Aug 1947, A. Clebsch 999 (APSC); Red River bluff ne of Clarksville, 6 June 1942, Woodson Oliver 1597 (APSC); nr Fletcher's Creek w of Ringgold, 6 Oct 1941, R. E. Shanks 956 (TENN); 3½ mi ese of Clarksville, 16 May 1948, A. Clebsch 984 (APSC).

Ruellia caroliniensis (Walt.) Steud. 2 mi s of Clarksville on gravel rd, 8 July 1966, P. A. Wallen and L. Scott 02159 (APSC).

Justicia americana (L.) Vahl. Lynnwood's Landing, 8 June 1948, A. Clebsch and E. Clebsch 82 (APSC); e fork of Yellow Creek ½ mi nw of Shiloh, 21 June 1966, P. A. Wallen and L. Scott 02098 (APSC); West Fork Creek, 29 May 1944, R. E. Shanks 1598 (APSC).

Dicliptera brachiata (Pursh.) Spreng. 5 mi se of Clarksville on McAdoo Creek, 6 Sept 1948, A. Clebsch and E. Clebsch 232 (APSC); Lock B on Cumberland River, 10 Nov 1949, A. Clebsch 879 (APSC); Cumberland River bluff 1½ mi wnw of Clarksville, 13 Sept 1947, A. Clebsch and E. Clebsch 1154 (APSC); flood plain of Red River, 20 Sept 1941, R. E. Shanks (TENN).

PHRYMACEAE

Phryma leptostachya L. F. Brown's cave nr Lock B, 15 July 1948, A. Clebsch 115 (APSC); ravine ne of Greenwood Cemetery, 14 Sept 1947, A. Clebsch and E. Clebsch 1155 (APSC); barrens w of Oakwood ½ mi from county line, 9 Oct 1949, R. E. Shanks 14460 (TENN).

PLANTAGINACEAE

Plantago major L. Common Plantain, Whiteman's-foot. nr New Providence, 28 June 1942, Woodson Oliver 1599 (APSC).

Plantago rugelii Deene. e arm of Shelton's Branch, 2¼ mi e of Clarksville, 11 Oct 1947, A. Clebsch 1156 (APSC); nr New Providence, 28 June 1942, Woodson Oliver 78 (TENN).

Plantago lanceolata L. Ribgrass, Ripple-grass, English Plantain, Buckhorn. APNS campus, 28 May 1942,

Woodson Oliver 3 (TENN); APNS campus, 30 Sept 1941, D. Eakin 880 (TENN).

Plantago aristata Michx. Bracted Plantain. APNS campus, 11 July 1942, Woodson Oliver 1601 (APSC); King and Queen bluff, 22 May 1948, A. Clebsch 83 (APSC); Trice's Landing, 30 May 1948, A. Clebsch et al. (APSC).

RUBIACEAE

Hustonia nigricans (Lam.) Fern. King and Queen bluff, 27 July 1946, A. Clebsch and E. Clebsch s.n. (TENN).

Hustonia tenuifolia Nutt. King and Queen bluff, 24 July 1948, A. Clebsch 130 (APSC); Cumberland River bluff 3½ mi se of Clarksville, 1 Sept 1947, A. Clebsch 1158 (APSC); King and Queen bluff, 24 Aug 1947, A. Clebsch 1159 (APSC).

Hustonia purpurea L. 8 mi ssw of Clarksville on Vernon Creek rd, 15 June 1966, P. A. Wallen and L. Scott 02055 (APSC); King and Queen bluff, 24 June 1966, P. A. Wallen and L. Scott 02101 (APSC); along Spring Creek, 4 June 1944, R. E. Shanks 2753 (TENN).

Mitchella repens L. Two-eyed-berry, Running Box. Woods along Fletcher's Creek, 17 Sept 1949, F. Brown and A. Clebsch 809 (APSC).

Cephalanthus occidentalis L. Buttonbush. Pond nr Dotsonville, 28 June 1958, F. Brown a.n. (TENN); Spring Creek, 14 Sept 1956, A. Clebsch and F. Brown 21567 (TENN); flood plain of Cumberland River at Neblett's slough nr Lock B, 29 June 1958, F. Brown et al. s.n. (TENN); Cumberland River bottom 2 mi s of Clarksville, 8 July 1966, P. A. Wallen and L. Scott 02169 (APSC).

Diodia virginiana L. Pond w of Dotsonville rd along Dover rd, 9 Oct 1949, R. E. Shanks 14444 (TENN); Nicholson's farm 4 mi se of Clarksville, 27 Aug 1966, P. A. Wallen and L. Scott 02189 (APSC); King and Queen bluff, 10 Sept 1947, A. Clebsch 1161 (APSC).

Diodia teres Walt. Between Paradise Hill rd and King and Queen bluff, 24 July 1948, A. Clebsch 129 (APSC); Rossview, 13 June 1942, Woodson Oliver 1613 (APSC); along Palmyra rd, 1 Aug 1942, Woodson Oliver 1614 (APSC); APSC campus, 17 Aug 1943, R. E. Shanks 2324 (TENN); barrens w of Woodlawn, 9 Oct 1949, R. E. Shanks et al. 14456 (TENN); off

Peacher's Mill rd, 3 mi nnw of Clarksville, 7 July 1966, P. A. Wallen and L. Scott 02156 (APSC).

Spermacoce glabra Michx. Cumberland River bank below Clarksville, 4 Sept 1948, A. Clebsch and E. Clebsch 233 (APSC); King and Queen bluff on Cumberland River, 10 Sept 1947, A. Clebsch 1160 (APSC).

Sherandia arvensis L. Trice's Landing, 30 May 1948, A. Clebsch et al. 86 (APSC, TENN).

Galium circaezans Michx. Wild Licorice. King and Queen bluff, 24 July 1948, A. Clebsch 292 (APSC); nr Yellow Creek, 23 May 1942, R. E. Shanks 1019 (APSC).

Galium pilosum Ait. King and Queen bluff, 24 July 1948, A. Clebsch 291 (APSC); Rossview, 13 June 1942, Woodson Oliver 1616 (APSC); barrens nr Woodlawn, 31 July 1943, R. E. Shanks 1617 (APSC); same location, 10 Oct 1941, R. E. Shanks 1618 (APSC); along Fletcher's Fork w of Ringgold, 6 Oct 1941, R. E. Shanks 974 (TENN).

Galium aparine L. Cleavers, Spring-Cleaver, Goose-grass. Lyle woods, 15 Apr 1942, R. E. Shanks 1615 (APSC); Billy Dunlop Memorial Park, 2 Apr 1966, H. L. Yarbrough et al. 187 (APSC).

Galium trifolium Michx. Sweet-scented Bedstraw. Yellow Creek, 20 June 1966, L. Scott and P. A. Wallen 02092 (APSC); barrens w of Oakwood, 9 Oct 1949, R. E. Shanks et al. 14462 (TENN).

CAPRIFOLIACEAE

Viburnum rufidulum Raf. Southern Blackhaw, Rusty Nannyberry. nr Yellow Creek, 30 Apr 1944, A. Clebsch et al. 1620 (APSC); ravine ne of Greenwood Cemetery, 14 Sept 1947, A. Clebsch and E. Clebsch 1162 (APSC); Red Rocks bluff on Cumberland River, 30 Apr 1949, F. Brown and A. Clebsch 811 (APSC); nr Foster's cave, 19 Aug 1951, A. Clebsch et al. 16298 (TENN); Porter's bluff, 24 Sept 1941, R. E. Shanks 847 (TENN); nr Yellow Creek, 30 Apr 1944, R. E. Shanks 2731 (TENN).

Viburnum prunifolium L. Black- or Sweet-haw, Stagbush. se corner of Montgomery Co. at Big Barton's Creek, 20 Aug 1949, F. Brown 810 (APSC); King and Queen bluff, 24 July 1948, A. Clebsch 293 (APSC).

Sambucus canadensis L. Common Elder. ½ mi w of Clarksville in Cumberland River bottom, 13 June 1966, C. Scherer and L. Scott 02022 (APSC); Greenwood Avenue, 15 June 1948, A. Clebsch 116 (APSC); Rossview, 13 June 1942, Woodson Oliver 46 (TENN).

Lonicera japonica Thunb. Japanese Honeysuckle. Off highway 48 14 mi s of Clarksville, 12 June 1966, C. Scherer and L. Scott 02002 (APSC); Long Pond nr Dotsonville, 28 June 1958, F. Brown s.n. (TENN); ne of Woodlawn, 14 Oct 1941, R. E. Shanks 1076 (TENN); King and Queen bluff, 27 Apr 1946, A. Clebsch and E. Clebsch s.n. (TENN).

Lonicera sempervirens L. Trumpet- or Coral-Honeysuckle. nr mouth of McAdoo Creek, 9 May 1948, John Y. Hutchison 45 (APSC).

Symphoricarpus orbiculatus Moencl. Coralberry, Indian-currant. King and Queen bluff, 24 July 1948, A. Clebsch 128 (APSC); se of Guthrie, 8 Oct 1949, R. E. Shanks et al. 814 (APSC), 14342 (TENN); F. Brown's farm nr Clarksville, 11 Aug 1956, F. Brown 20958 (TENN); along Fletcher's Fork w of Ringgold, 6 Oct 1944, R. E. Shanks 977 (TENN).

Triosteum angustifolium L. King and Queen bluff, 13 Aug 1949, F. Brown and A. Clebsch 813 (APSC).

DIPSACACEAE

Dipsacus sylvestris Huds. Wild Teasel. Edge of open field on Gip Manning rd ne of Dotsonville, 12 July 1966, L. Scott 02119 (APSC).

CUCURBITACEAE

Melothria pendula L. Ravine e of Greenwood Cemetery, 6 Oct 1948, A. Clebsch 294 (APSC).

Sicyos angularis L. Cumberland River bank nr mouth of Red River, 25 Sept 1948, A. Clebsch 234 (APSC); Cumberland River bank opposite mouth of Red River, 4 Sept 1948, A. Clebsch and E. Clebsch 236 (APSC).

CAMPANULACEAE

Campanula americana L. Tall Bellflower. King and Queen bluff, 24 July 1948, A. Clebsch 127 (APSC); Cumberland

River bluff 2 mi s of Clarksville, 30 June 1960, L. Scott 02110 (APSC); nr New Providence, 28 June 1942, Woodson Oliver 71 (TENN).

Specularia perifoliata (L.) A. DC. Venus's Looking-Glass. Cumberland River bottom ½ mi w of Clarksville, 13 June 1966, C. Scherer and L. Scott 02021 (APSC).

Specularia biflora (R. & P.) Fisch. & Mey. Venus's Looking-Glass. 6 mi sw of Clarksville on Ussery rd, 13 June 1966, C. Scherer and L. Scott 02035 (APSC).

Lobelia cardinalis L. Cardinal-flower. Marks' slough, 6 Sept 1948, A. Clebsch and E. Clebsch 235 (APSC); Cumberland River bottom facing Red River, date not available, A. Clebsch 1166 (APSC); Nicholson's farm 4 mi se of Clarksville, 27 Aug 1966, P. A. Wallen and L. Scott 02195 (APSC); Roadside nr Oakwood, 22 Aug 1943, R. E. Shanks 2336 (TENN); along Spring Creek, 14 Sept 1956, A. Clebsch and F. Brown 21569 (TENN).

Lobelia siphilitica L. Ravine e of Greenwood Cemetery, 28 Aug 1948, A. Clebsch 237 (APSC); Happy Hollow, 31 Aug 1946, R. E. Shanks 4031 (TENN); Sheldon Springs, 31 Sept 1942, R. E. Shanks 2243 (TENN); ravine e of Greenwood Cemetery, 31 Aug 1947, A. Clebsch s.n. (TENN).

Lobelia puberula Michx. Opposite Woodlawn School, 9 Oct 1949, R. E. Shanks et al. 815 (APSC); 1½ mi w of Oakwood, 9 Oct 1949, R. E. Shanks 816 (APSC); e of Warfield, 10 Sept 1949, F. Brown and A. Clebsch 817 (APSC); barrens nr Woodlawn School, 9 Oct 1949, R. E. Shanks et al. 14426 (TENN); barrens nr Woodlawn, date not available, R. E. Shanks 2146 (TENN).

Lobelia spicata Lam. Cumberland River bluff 3½ mi se of Clarksville, 30 June 1966, L. Scott 02116 (APSC).

Lobelia inflata L. Indian-tobacco. Gracey Avenue, 2 Aug 1948, A. Clebsch 126 (APSC); Nicholson's farm 4 mi se of Clarksville, 27 Aug 1966, L. Scott and P. A. Wallen 02192 (APSC); barrens nr Woodlawn, 13 Oct 1941, R. E. Shanks 1065 (TENN); APNS campus, 30 Sept 1941, D. Eakin 892 (TENN).

COMPOSITAE

Vernonia altissinia Nutt. Palmyra rd, 1 Oct 1942, Woodson Oliver 97 (TENN); APSC campus, 21 Oct 1942, Woodson Oliver 112 (TENN); along Red River nr Trahern's Branch, 21

Aug 1948, A. Clebsch 825 (APSC); APSC farm, 24 Aug 1966, P. A. Wallen and L. Scott 02170 (APSC).

Vernonia missurica Raf. e of Warfield, 10 Sept 1949, F. Brown and A. Clebsch 826 (APSC); Lock C rd w of Woodlawn, 22 Aug 1943, R. E. Shanks 1630 (APSC); barrens nr Woodlawn, 31 July 1943, R. E. Shanks 1631 (APSC); nr Woodlawn School, 9 Oct 1949, R. E. Shanks et al. 14384 (TENN); woods beyond Oakwood, 19 Oct 1941, A. Clebsch et al. 16306 (TENN).

Elephantopus carolinianus Willd. Elephant's-foot. Ravine e of Greenwood Cemetery, 28 Aug 1948, A. Clebsch 239 (APSC); at Milam Springs, 11 Aug 1956, F. Brown 20954 (TENN); barrens w of Oakwood, 9 Oct 1949, R. E. Shanks 14466 (TENN); APSC campus, 30 Sept 1941, D. Eakin 891 (TENN); APSC farm, 24 Aug 1966, P. A. Wallen and L. Scott 02177 (APSC).

Eupatorium purpureum L. Sweet or Green-stemmed Joe-pye-weed. Trahern's Branch, 14 July 1948, A. Clebsch 118 (APSC); e of Warfield, 10 Sept 1949, F. Brown and A. Clebsch 827 (APSC); F. Brown's farm, 12 July 1966, P. A. Wallen and L. Scott 02131 (APSC).

Eupatanium fistulosum Barratt. Joe-pye-weed. Roadside nr Oakwood, date not available, R. E. Shanks 2340 (TENN); Nicholson's farm about 4 mi se of Clarksville, 27 Aug 1966, P. A. Wallen and L. Scott 02180 (APSC).

Eupatorium leucolepis (DC.) T. & G. King and Queen bluff, 28 Sept 1946, R. E. Shanks 4157 (TENN).

Eupatorium sessilifolium L. Upland Boneset. w of Oakwood, 9 Oct 1949, R. E. Shanks et al. s.n. (APSC).

Eupatorium altissimum L. Opposite Woodlawn School, 9 Oct 1949, R. E. Shanks et al. 829 (APSC); King and Queen bluff, 15 Oct 1949, F. Brown and A. Clebsch 830 (APSC).

Eupatorium hyssopicolium L. CCC pine planting area on highway 112 nr Mt. Carmel-Shady Grove crossing, 3 Sept 1949, F. Brown and A. Clebsch 828 (APSC).

Eupatorium aromaticum L. Opposite Woodlawn School, 9 Oct 1949, R. E. Shanks et al. 833 (APSC).

Eupatorium rugosum Houtt. White Snakeroot. Spring Creek bridge between Needmore and Peacher's Mill rd, 24 Aug 1966, P. A. Wallen and L. Scott 02150 (APSC); Red River bank nr mouth of Shelton's Branch, 21 Aug 1948, A. Clebsch 124

(APSC); Marks' slough, 23 Sept 1949, A. Clebsch 832 (APSC); nr Trahern's Spring, 30 Aug 1947, A. Clebsch 1174 (APSC).

Eupatorium incarnatum Walt. Ravine ne of Greenwood Cemetery, 5 Sept 1948, A. Clebsch 240 (APSC); Tennessee Central RR tracks at Meek's slough, 23 Sept 1949, A. Clebsch 834 (APSC).

Eupatorium coelestinum L. Mistflower, Blue Boneset. Ravine e of Greenwood Cemetery, 28 Aug 1948, A. Clebsch 241 (APSC); on gravel rd between Needmore and Peacher's Mill rd, 24 Aug 1966, P. A. Wallen and L. Scott 02141 (APSC); barrens w of Oakwood, 9 Oct 1949, R. E. Shanks and A. Clebsch 14458 (TENN); Happy Hollow Branch, 31 Aug 1946, R. E. Shanks 4172 (TENN).

Solidago graminifolia (L.) Salisb. Pond on highway 112 nr Mt. Carmel, 3 Sept 1949, A. Clebsch et al. 841 (TENN).

Solidago bicolor L. White Goldenrod, Silverrod. Dry slope along Cedar Lake, 10 Oct 1949, R. E. Shanks s.n. (TENN).

Solidago hispida Muhl. w of Oakwood, 9 Oct 1949, A. Clebsch s.n. (TENN); King and Queen bluff, 15 Oct 1949, F. Brown and A. Clebsch 837 (TENN).

Solidago erecta Prush. King and Queen bluff, 15 Oct 1949, F. Brown and A. Clebsch s.n. (TENN).

Solidago flexicaulis L. Porter's bluff, 5 Nov 1949, F. Brown and A. Clebsch 880 (TENN); King and Queen bluff, 15 Oct 1949, F. Brown and A. Clebsch 842 (TENN).

Solidago curtisii T. & G. 12 mi w of Clarksville, 17 Sept 1949, F. Brown and A. Clebsch s.n. (TENN).

Solidago caesia L. Blue-stem Goldenrod. Along highway 76 e of Clarksville, 21 Oct 1947, A. Clebsch 1177 (TENN).

Solidago sphacelata Raf. Bluffs along Cumberland River at New Providence, 10 Oct 1943, R. E. Shanks 2354 (TENN).

Solidago numoralis Ait. Edge of woods on Excell rd, 1 mi from junction with U.S. 41-A, 26 Aug 1958, W. H. Ellis 8849 (TENN); barrens nr Woodlawn, 9 Oct 1949, A. Clebsch 14394 (TENN).

Solidago missouiensis Nutt. Palmyra rd, 1 Aug 1942,

Solidago ulmifolia Muhl. King and Queen bluff, 10 Sept 1947, A. Clebsch 8849 (TENN); Fletcher's Fork w of Ringgold, 6 Oct 1941, R. E. Shanks 946 (TENN).

Solidago rugosa Ait. APSC farm, 24 Aug 1966, P. A. Wallen and L. Scott 02174 (APSC); barrens nr Woodlawn, 13 Oct 1941, R. E. Shanks and D. Eakin 1047 (TENN); barrens w of Oakwood, 9 Oct 1949, A. Clebsch and R. E. Shanks 14408 (TENN).

Solidago altissima L. 11 mi e of Clarksville on Lock C rd, 11 Sept 1958, W. H. Ellis 8849 (TENN); barrens nr Woodlawn, 13 Oct 1941, R. E. Shanks and D. Eakin 1053 (TENN).

Solidago gigantea Ait. Cumberland River bank between Seven Mile Ferry and Seven Mile Island, 6 Sept 1947, A. Clebsch s.n. (TENN); barrens nr Woodlawn, 13 Oct 1949, R. E. Shanks 1048 (TENN).

Boltonia asteroides (L.) L'Her. Oakwood, 17 Sept 1949, F. Brown and A. Clebsch 843 (APSC); barrens nr Woodlawn, 3 Sept 1942, R. E. Shanks 1692 (APSC); same location, 13 Oct 1941, D. Eakin and R. E. Shanks 1693 (APSC).

Aster shortii Lindl. Flood plain of Red River opposite Porter's bluff, 20 Sept 1941, R. E. Shanks 838 (TENN); King and Queen bluff, 28 Sept 1946, R. E. Shanks 4297 (TENN); along Fletcher's Fork w of Ringgold, 6 Oct 1941, R. E. Shanks and D. Eakin 1642 (APSC, TENN); King and Queen bluff, 28 Sept 1946, R. E. Shanks 4296 (TENN); Boy Scout camp on Big West Fork Creek, 19 Sept 1948, A. Clebsch 845 (APSC); ravine n of Greenwood Cemetery, 5 Oct 1947, A. Clebsch 1189 (APSC); Porter's bluff, 4 Sept 1942, R. E. Shanks 1643 (APSC).

Aster azureus Bindl. Ravine ne of Greenwood Cemetery, 5 Oct 1947, A. Clebsch 1188 (APSC).

Aster patens Ait. Shelton's Spring e of Clarksville, 29 Sept 1942, R. E. Shanks 1647 (APSC); Pettus pasture (park), 21 Sept 1946, R. E. Shanks 4305 (TENN).

Aster novae-angliae L. New England Aster. nr Woodlawn School, 9 Oct 1949, R. E. Shanks et al. 846 (APSC); barrens nr Woodlawn, 9 Oct 1949, R. E. Shanks et al. 1437 (TENN); same location, 13 Oct 1941, R. E. Shanks 1073 (TENN).

Aster oblongifolius Nutt. Bluff along Cumberland

River, 9 Oct 1941, R. E. Shanks 1645 (APSC); same location, 28 Sept 1941, R. E. Shanks 860 (TENN).

Aster solidagineus Michx. Oakwood barrens, 20 June 1948, A. Clebsch et al. 120 (APSC); 7625 (TENN); Woodlawn, 25 June 1944, R. E. Shanks 1641 (APSC); 2784 (TENN).

Aster pilosus Willd. Ravine e of Greenwood Cemetery, 25 Oct 1947, A. Clebsch 1191 (APSC); dry ridge along Cumberland River, 9 Oct 1941, D. Eakin and R. E. Shanks 1651 (APSC), 981 (TENN); Porter's bluff, 6 Oct 1941, B. Spafford s.n. (TENN); APNS campus, 30 Sept 1941, D. Eakin 866 (TENN); same location, 2 Oct 1941, R. E. Shanks 908 (TENN).

Aster lateriflorus (L.) Britt. Lock B, 23 Sept 1949, A. Clebsch 1004 (APSC).

Aster dumosus L. Cedars plains nr Port Royal, 17 Sept 1941, R. E. Shanks 1650 (APSC); barrens nr Woodlawn, 12 Sept 1942, R. E. Shanks 1649 (APSC); bluff along Cumberland River, 28 Sept 1941, R. E. Shanks 860 (TENN); Fletcher's Fork w of Ringgold, 6 Oct 1941, R. E. Shanks 944 (TENN); barrens nr Woodlawn School, 9 Oct 1949, R. E. Shanks and A. Clebsch 14396 (TENN); same location, 14 Oct 1941, R. E. Shanks 1084 (TENN); same location, 17 Sept 1941, R. E. Shanks 1087 (TENN).

Aster simplex Willd. Nicholson's farm 4 mi se of Clarksville, 27 Aug 1966, P. A. Wallen and L. Scott 02193 (APSC).

Erigeron canadensis L. Horseweed, Hogweed, Butterweed. n of Greenwood Cemetery, 28 Aug 1948, A. Clebsch 298 (APSC); Nicholson's farm 4 mi se of Clarksville, 27 Aug 1966, P. A. Wallen and L. Scott 02188 (APSC).

Erigeron philadelphicus L. Porter's bluff, 6 June 1942, Woodson Oliver 38 (TENN).

Erigeron strigosus Muhl. Porter's bluff, 6 June 1942, Woodson Oliver 36, 37 (TENN).

Erigeron annuus (L.) Pers. Daisy Fleabane, Sweet-scabious, Whitetop. Roadside bank off highway 48 14 mi s of Clarksville, 12 June 1966, L. Scott 02004 (APSC); Cumberland Heights, 13 June 1966, C. Scherer and L. Scott 02030 (APSC).

Pluchea camphorata (L.) Huds. Herbia Impia. Along Dover rd w of Dotsonville, 9 Sept 1949, R. E. Shanks et al.

14410 (TENN); 1½ mi se of Guthrie, 8 Oct 1949, R. E. Shanks et al. 850 (APSC); Cumberland River bank opposite mouth of Red River, 25 Sept 1948, A. Clebsch 299 (APSC).

Gnaphalium obtusifolium L. Catfoot. Field n of Greenwood Cemetery, 5 Sept 1948, A. Clebsch 245 (APSC); same location, 14 Sept 1947, A. Clebsch and E. Clebsch 1194 (APSC); APSC campus, 7 Oct 1941, Lloyd Denning s.n. (TENN); same location, 30 Sept 1941, R. E. Shanks and D. Eakin 874 (TENN); same location, 21 Aug 1942, Woodson Oliver 111 (TENN); along Fletcher's Fork w of Ringgold, 6 Oct 1941, R. E. Shanks and D. Eakin 961 (TENN); barrens nr Woodlawn, 14 Oct 1941, R. E. Shanks 1113 (TENN).

Gnaphalium purpureum L. Purple Cudweed. nr Red River at New Providence, date not available, Woodson Oliver and R. E. Shanks 1654 (APSC).

Ambrosia trifida L. Great Ragweed, Buffalo-weed. 10½ mi ese of Clarksville, 3 Sept 1949, F. Brown and A. Clebsch 823 (APSC); APSC campus, 30 Sept 1941, D. Eakin 873 (TENN).

Ambrosia artemisiifolia L. Common Ragweed. APSC campus, 30 Sept 1941, D. Eakin 368 (TENN).

Xanthium chinense Mill. Pond w of Dotsonville rd, 9 Sept 1949, R. E. Shanks et al. s.n. (TENN).

Polymnia uvedalia L. Bearsfoot. Tennessee Central RR nr Marks' slough, 6 Sept 1948, A. Clebsch and E. Clebsch 246 (APSC); highway 112 nr Shelton's Spring, 30 Aug 1947, A. Clebsch 1196 (APSC);

Polymnia candensis L. Porter's bluff, 5 Nov 1949, F. Brown and A. Clebsch 881 A-B (APSC); Red River bluff below mouth of Rudolph's Branch, 21 Oct 1947, A. Clebsch 1197 (APSC).

Silphium perfoliatum L. Cup-plant. Yellow Creek, 23 July 1949, F. Brown and A. Clebsch 854 (APSC).

Silphium asteriscus L. Barrens nr Woodlawn, 10 Oct 1941, R. E. Shanks 1656 (APSC); along Budd's Creek, 1 July 1942, Woodson Oliver 1659 (APSC).

Silphium trifoliatum L. Ravine e of Greenwood Cemetery, 28 Aug 1948, A. Clebsch 249 (APSC); ravine dividing King and Queen bluff, 13 Aug 1949, F. Brown and A. Clebsch

855 (APSC); APSC campus, 11 July 1942, Woodson Oliver 1660 (APSC).

Silphium speciosum Nutt. King and Queen bluff, 24 June 1966, P. A. Wallen and L. Scott 02103 (APSC).

Parthenium integrifolium L. Wild-quinine. Barrens nr Woodlawn, 25 June 1944, R. E. Shanks 1661 A-B (APSC).

Heliopsis helianthoides (L.) Sweet. 6½ mi wsw of Clarksville on Dotsonville rd, 12 July 1966, P. A. Wallen and L. Scott 02122 (APSC).

Eclipta alba (L.) Hassk. Barrens w of Oakwood, 9 Oct 1949, R. E. Shanks et al. 14455 (TENN); Cumberland River bank below Clarksville, 4 Sept 1948, A. Clebsch and E. Clebsch 248 (APSC); Sango community n of highway 112, 30 July 1949, A. Clebsch and F. Brown 856 (APSC); ravine e of Greenwood Cemetery, 24 Aug 1947, A. Clebsch 1199 (APSC).

Rudbeckia hirta L. 10 mi ssw of Clarksville on Vernon Creek rd, 15 June 1966, P. A. Wallen and L. Scott 02062 (APSC); Rossview, 13 June 1942, Woodson Oliver 50 (TENN); bluff along Cumberland River, 9 Oct 1941, R. E. Shanks 998 (TENN); between Shelton's Branch and highway 76, 25 June 1949, F. Brown and A. Clebsch 857 (APSC).

Rudbeckia fulgida Ait. Nicholson's farm 4 mi se of Clarksville, 27 Aug 1966, P. A. Wallen and L. Scott 02190 (APSC).

Rudbeckia triloba L. Along Budd's Creek, 1 July 1942, Woodson Oliver s.n. (APSC).

Rudbeckia subtomentosa Pursh. Roadside nr Oakwood, 22 Aug 1943, R. E. Shanks 2338 (TENN); barrens nr Woodlawn School, 9 Oct 1949, R. E. Shanks et al. 14415 (TENN); same location, 9 Sept 1949, R. E. Shanks et al. s.n. (TENN).

Rudbeckia laciniata L. Barrens nr Woodlawn, 13 Oct 1941, R. E. Shanks and D. Eakin 1063 (TENN); 1667 (APSC); King and Queen bluff, 24 July 1948, A. Clebsch s.n. (APSC); barrens nr Woodlawn, 31 July 1943, R. E. Shanks 1663 (APSC); roadside nr Oakwood, 22 Aug 1943, R. E. Shanks 1664 (APSC); same location, 3 Sept 1942, R. E. Shanks 1665 (APSC).

Helianthus annuus L. Common Sunflower. Kraft Street, 29 July 1966, L. Scott 02145 (APSC).

Helianthus mollis Lam. Opposite Woodlawn School, 9 Oct 1949, R. E. Shanks et al. 860 (APSC); sw of Woodlawn, 10 Oct 1941, R. E. Shanks 938 (TENN); barrens nr Woodlawn, 13 Oct 1941, D. Eakin 1059 (TENN).

Helianthus divaricatus L. Lock C rd w of Woodlawn, 22 Aug 1943, R. E. Shanks 2330 (TENN).

Helianthus hirsutus Raf. Barrens nr Woodlawn School, 9 Oct 1949, R. E. Shanks et al. 14425 (TENN).

Helianthus maximilian. Schrad. Intersection of highway 76 and rd to Fletcher's Lake in Fort Campbell, 9 Oct 1949, R. E. Shanks et al. 859 (APSC); Greenhill's pasture between New Providence and Cumberland River, 15 Oct 1955, R. E. Shanks et al. 20111 (TENN).

Helianthus angustifolius L. Oakwood, 17 Sept 1949, F. Brown and A. Clebsch 858 (APSC); barrens nr Woodlawn, 13 Oct 1941, R. E. Shanks and D. Eakin 1070 (TENN).

Helianthus laetiflorus Pers. Shelton's Branch 2 mi e of Clarksville, 30 Aug 1947, A. Clebsch 1202 (APSC).

Helianthus microcephalus T. & G. Small Wood Sunflower. Tennessee Central RR nr Golf Club, 6 Sept 1948, A. Clebsch 861 (APSC); Shady Grove, 3 Sept 1949, F. Brown and A. Clebsch 862 (APSC); Tennessee Central RR nr Marks' slough, 23 Sept 1949, A. Clebsch 863 (APSC); CCC pine planting area se of Clarksville, 3 Sept 1949, A. Clebsch 1010 (APSC); opposite Woodlawn School, 9 Oct 1949, R. E. Shanks et al. 1011 (APSC); Tennessee Central RR tracks nr Marks' slough, 15 Oct 1947, A. Clebsch 1200 (APSC); King and Queen bluff, 24 Aug 1947, A. Clebsch 1201 (APSC); Lock C rd w of Woodlawn, 22 Aug 1943, R. E. Shanks 2331 (TENN); barrens nr Woodlawn, 12 Sept 1942, R. E. Shanks 2187 (TENN).

Helianthus tuberosus L. Old Seven Mile Ferry rd 3 mi sse of Clarksville, 6 Sept 1947, A. Clebsch 1203 A-B (APSC).

Verbesina alternifolia (L.) Britt. Rossview, 13 June 1942, Woodson Oliver 51 (TENN); Cumberland River bank nr Seven Mile Ferry, 6 Sept 1947, A. Clebsch 1207 (APSC); Red River bluff nr Porter's cave, 11 Oct 1947, A. Clebsch 206 (APSC).

Verbesinia helianthoides Michx. w of Oakwood, 20 June 1948, A. Clebsch et al. 7631 (TENN); abandoned homestead sw of Oakwood, 21 June 1948, A. J. Sharp et al. 7710

(TENN); Rossview, 13 June 1941, Woodson Oliver 1673 (APSC).

Verbesinia virginica L. Tickweed, Frostweed. Tennessee Central RR tracks between McAdoo Creek and Marks' slough, 6 Sept 1948, A. Clebsch and E. Clebsch 251 (APSC); nr Hadley farm on West Fork Creek, 4 June 1948, A. Clebsch and E. Clebsch 300 (APSC); Spring Creek bridge between Needmore and Peacher's Mill rd, P. A. Wallen and L. Scott 021403 (APSC); Porter's bluff, 4 Sept 1942, R. E. Shanks 2178 (TENN); King and Queen bluff, 28 Sept 1947, R. E. Shanks 4488 (TENN).

Verbesina occidentalis (L.) Walt. Dry ridge along Cumberland River s of Clarksville, 9 Oct 1941, R. E. Shanks and D. Eakin 986 (TENN); King and Queen bluff, 28 Sept 1946 R. E. Shanks 4489 (TENN).

Coreopsis major Walt. Oak Ridge, nr Yellow Creek, 23 May 1942, R. E. Shanks 1677 (APSC); King and Queen bluff, 18 May 1946, A. Clebsch 122 (APSC); nr Cumberland Heights on Ussery rd, 6 mi sw of Clarksville, 14 June 1966, C. Scherer and L. Scott 02038 (APSC).

Coreopsis tripteris L. Tall Coreopsis. CCC pine planting area se of Clarksville, 3 Sept 1949, A. Clebsch 866 (APSC); barrens nr Woodlawn, 14 Oct 1941, R. E. Shanks 1674 (APSC).

Bidens laevis (L.) BSP. Cumberland River bank opposite mouth of Red River, 1 Oct 1949, F. Brown and A. Clebsch 867 (APSC).

Bidens cosmosa (Gray) Wreg. Beggar-ticks. Cumberland River bank just below mouth of Red River, 1 Oct 1949, F. Brown and A. Clebsch 868 (APSC); Cumberland River bottom facing New Providence, 13 Sept 1947, A. Clebsch and E. 1208 (APSC).

Bidens frondosa L. Barrens nr Woodlawn School, 9 Oct 1949, R. E. Shanks et al. 14414 (TENN); Cumberland River bank nr Clarksville, 25 Sept 1948, A. Clebsch 252 (APSC); ravine e of Greenwood Cemetery, 5 Oct 1947, A. Clebsch 1209 (APSC).

Bidens aristosa (Michx.) Britt. Tick-seed. Sunflower. Roadside nr Oakwood, 22 Aug 1943, R. E. Shanks 2339 (TENN); pond w of Dotsonville rd, 9 Oct 1949, R. E. Shanks et al. 14449 (TENN).

Bidens polyepis Blake. Cumberland River bank below Clarksville nr mouth of Red River, 4 Sept 1948, A. Clebsch and E. Clebsch 253 (APSC, TENN).

Galinsoga parviflora Cav. w Commerce Street, 17 July 1948, A. Clebsch 121 (TENN).

Galinsoga ciliata (Raf.) Blake. w Commerce Street, 17 July 1948, A. Clebsch 121 (APSC).

Helenium tenuifolium Nutt. Field n of Greenwood Cemetery, 28 Aug 1948, A. Clebsch 254 (APSC); Briarwood, 1 mi w of Clarksville, 13 June 1966, C. Scherer and L. Scott 02018 (APSC); dry ridge along Cumberland River s of Clarksville, 9 Oct 1941, R. E. Shanks and D. Eakin 982 (TENN); pond w of Dotsonville on Dover rd, 9 Oct 1949, R. E. Shanks et al. 14438 (TENN); APSC campus, 21 Sept 1942, Woodson Oliver 110 (TENN); same location, 2 Oct 1941, R. E. Shanks 926 (TENN); F. Brown farm, 11 Aug 1956, F. Brown 20955 (TENN); Rossview Pike, 13 June 1942, Woodson Oliver 44 (TENN); rocky slope along Red River nr New Providence, 28 June 1942, Woodson Oliver 76 (TENN).

Helenium autumnale L. Barrens nr Woodlawn, 13 Oct 1949, R. E. Shanks et al. 1074 (TENN), 1678 (APSC).

Helenium nudiflorum Nutt. Sango community se of Clarksville, 30 July 1949, A. Clebsch and F. Brown 869 (APSC); pond w of Dotsonville on Dover rd, 9 Oct 1944, R. E. Shanks et al. 14446 (TENN); APSC campus, 30 Sept 1941, Woodson Oliver 862 (TENN); Briarwood, 1 mi wsw of Clarksville, 13 June 1966, C. Scherer and L. Scott 02015 (APSC).

Anthemis cotula L. Mayweed, Stinking Chamomile, Dogfennel. Briarwood, 1 mi wsw of Clarksville, 13 June 1966, C. Scherer and L. Scott 02023 (APSC); between Greenwood Cemetery and King and Queen bluff, 11 June 1949, F. Brown and A. Clebsch 871 (APSC).

Chrysanthemum leucanthemum L. Ox-eye or White Daisy. Off highway 48, 14 mi s of Clarksville, 12 June 1966, C. Scherer and L. Scott 02007 (APSC); nr Paradise Hill rd, 7 May 1949, F. Brown and A. Clebsch 872 (APSC); King and Queen bluff, 25 May 1966, H. L. Yarbrough 201 (APSC).

Erechtites hieracifolia (L.) Raf. Pilewort. Ravine e of Greenwood Cemetery, 8 Oct 1949, F. Brown and A. Clebsch s.n. (APSC).

Cacalia atriplicifolia L. Pale Indian-plantain. Yellow Creek, 23 July 1949, F. Brown and A. Clebsch 874 (APSC).

Senecio glabellus Poir. Butterweed. Yellow Creek, 20 June 1966, P. A. Wallen and L. Scott 02091 (APSC).

Senecio obovatus Muhl. Shelton's Branch, 2 Apr 1949, A. Clebsch 876 (APSC); Red River bluff nr Shelton's Branch, F. Brown and A. Clebsch 875 (APSC).

Senecio pruperculus Michx. King and Queen bluff, 26 Apr 1947, A. Clebsch and E. Clebsch 1212 (APSC).

Arctium mimus (Hill.) Bernh. Common Burdock. APSC campus, 30 Sept 1941, D. Eakin 883 (APSC).

Cardus nutans L. Nodding-thistle, Musk-thistle. First right turn off Peacher's Mill rd, 3 mi nnw of Clarksville, 7 July 1966, L. Scott 02155 (APSC).

Cirsium vulgare (Savi.) Tenore. Bull or Common Thistle. Palmyra rd, 1 Aug 1942, Woodson Oliver 1681 (APSC).

Cirsium discolor (Muhl.) Spreng. Porter's bluff, 13 Sept 1941, Billy Spafford s.n. (TENN); barrens nr Woodlawn, 9 Oct 1949, R. E. Shanks et al. 14416 (TENN); barrens w of Woodlawn, 9 Oct 1949, R. E. Shanks 14467 (TENN); APSC farm, 24 Aug 1966, L. Scott and P. A. Wallen 02168 (APSC).

Cirsium altissimum (L.) Spreng. Budd's Creek rd, 9 mi sw of Clarksville, 26 Aug 1966, P. A. Wallen and L. Scott 02179 (APSC).

Centaurea cyanus L. Briarwood, 1 mi wsw of Clarksville, 13 June 1966, C. Scherer and L. Scott 02017 (APSC).

Chichorium intybus L. Common Chicory, Blue Sailors. Edmondson Ferry rd 3 mi s of Clarksville, 1 Aug 1948, A. Clebsch 295 (APSC).

Sonchus aspen (L.) Hill. Spiny-leaved Sonchus. Rossview, 13 June 1942, Woodson Oliver 1625 (APSC).

Lactuca canadensis L. Rocky slope at New Providence, 28 June 1942, Woodson Oliver 79 (TENN), 1626 (APSC).

Lactuca serriola L. Prickly Lettuce. Intersection of Salem Road and Edmondson's Landing rd, 8 July 1966, P. A. Wallen and L. Scott 02162 (APSC).

Lactuca floridana (L.) Gaertn. se corner of Montgomery Co. on Big Barton's Creek, 20 Aug 1949, F. Brown 819 (APSC); APSC farm, 24 Aug 1966, P. A. Wallen and L. Scott 02149 (APSC); barrens nr Woodlawn, 3 Sept 1942, R. E. Shanks 1627 (APSC).

Pyrrhoppus carolinianum (Walt.) DC. Budd's Creek rd, 8 mi sw of Clarksville, 17 June 1966, P. A. Wallen and L. Scott 02065 (APSC).

Prenanthes aspera Michx. Opposite Woodlawn School, 9 Oct 1949, R. E. Shanks et al. 822 (APSC).

Prenanthes altissima L. Ravine e of Greenwood Cemetery, 15 Oct 1949, F. Brown and A. Clebsch 821 (APSC).

Hieracium gronovii L. Barrens nr Woodlawn, 3 Sept 1942, R. E. Shanks 2169 (TENN); King and Queen bluff, 24 July 1948, A. Clebsch 125 (APSC); CCC pine planting se of Clarksville, 3 Sept 1949, F. Brown and A. Clebsch s.n. (APSC); ravine e of Greenwood Cemetery, 5 Oct 1947, A. Clebsch s.n. (APSC).

CHAPTER VII

DISCUSSION

Based upon an inventory of four herbaria, upon published records, and upon the author's personal collections, a total of 742 species of summer and fall vascular plants have been collected within the study area. These represent 473 genera belonging to 110 families.

Three of the 110 families were reported from Montgomery County for the first time by the author. These include Typhaceae, represented by Typha latifolia, Capparidaceae, represented by Polanisia trachysperma, and Dipsacaceae, represented by Dipsacus sylvestris. Also representing new county records are the following genera, all of the family Compositae: Heliopsis; Carduus; Centaurea; and Pyrrhopappus. In addition, twenty-nine species belonging to these and previously reported genera, bring the total number of taxa cited from Montgomery County for the first time to thirty-nine.

Yarbrough (1966) lists 642 species of spring and early summer vascular plants from Montgomery County, 168 of which were not included in the present report. This brings the total number of vascular plants cited from the county to nine hundred and ten.

The results of this study indicate the occurrence of a rich and widely varied flora. It is the opinion of the author that this is due to the following conditions: the presence of all stages of secondary succession; the diversity of soils; and the diverse topography ranging from xeric uplands to flood plain bottomlands and slought. Many woodlands also exist in the area. Duncan (1965), in a study of the woody vegetation of Montgomery County, recognized at least six distinct forest communities, four of which represent upland habitats and two of which represent lowland habitats.

CHAPTER VIII

SUMMARY

A survey was conducted to determine the species composition of the summer and fall fascular flora of Montgomery County, Tennessee. Data were obtained from (1) an inventory of four herbaria, (2) from published records, and (3) from field collections made by the author during the summers of 1966 and 1967.

From the results of the study it was concluded that 742 species of summer and fall vascular plants have been collected within the study area. These represent 473 genera belonging to one hundred and ten families. Of these totals, four families, eight genera, and thirty-two species are considered to be new county records.

Keys were constructed for the identification of the families, genera, and species included in the report. An annotated check list was compiled including citation data for each specimen used in the investigation.

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