

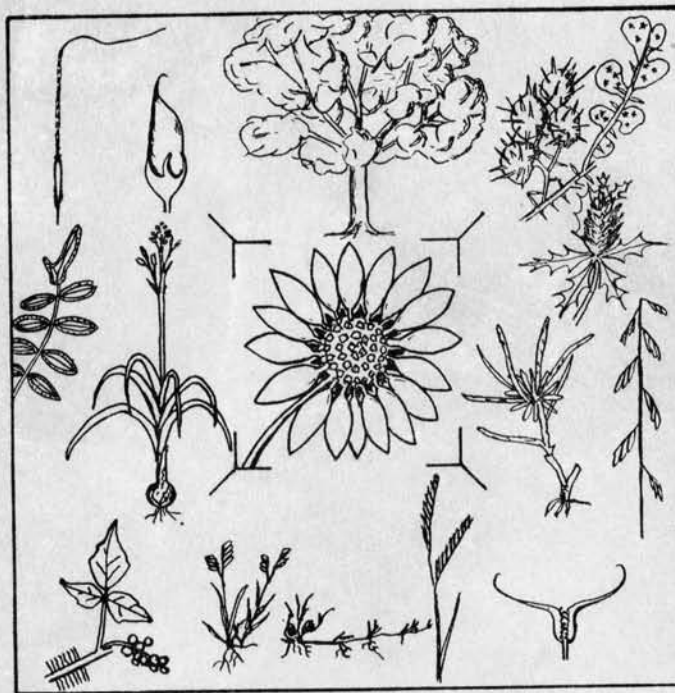
AGRICULTURAL EXPERIMENT STATION

KANSAS STATE COLLEGE OF AGRICULTURE
AND APPLIED SCIENCE

MANHATTAN, KANSAS

FLORA OF KANSAS

By FRANK C. GATES



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Theodore Barkley

Annotated List of the Plants of Kansas:
Ferns and Flowering Plants¹

With maps showing distribution of species

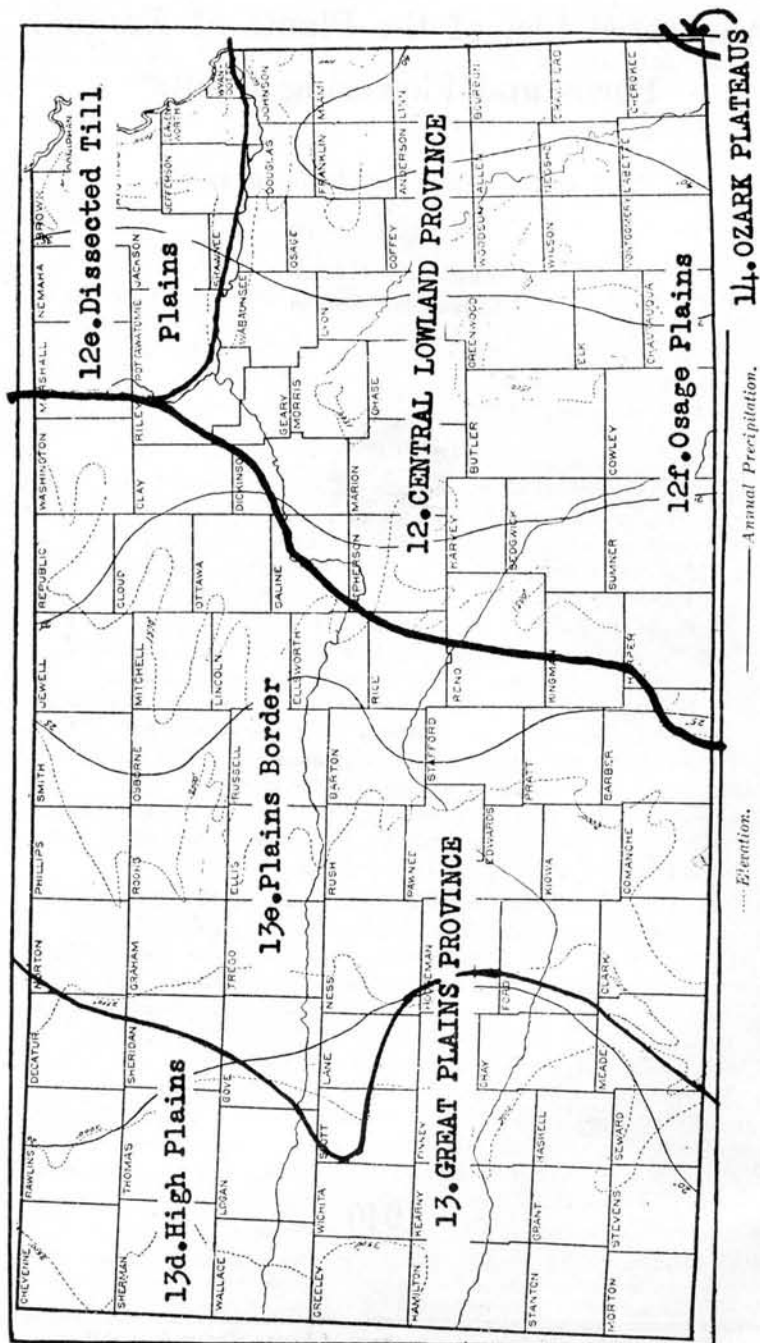
BY
FRANK C. GATES
Kansas State College



1940

Harold M. Barkley - gift of Dr. F. C. Gates

1. Contribution No. 391 from the Department of Botany, Kansas State College.



MAP 1. Physiographic Divisions of United States applying to Kansas. (After N. M. Fennemam.)

Annotated List of the Plants of Kansas: Ferns and Flowering Plants¹

FRANK C. GATES

INTRODUCTION

The purpose of this publication is to enumerate the ferns and flowering plants that occur in Kansas. This is especially desirable as no list has been available for many years; the most recent is a series of maps showing distribution of Kansas specimens in the Kansas State Herbarium, published by Prof. A. S. Hitchcock some 40-odd years ago. Some years later B. B. Smyth projected a complete list, but lived to assemble but a third of it.

HISTORY

Early History. Perusal of the journals of some of the early travelers and surveyors discloses incidental mention of a number of plants, largely without definite information as to localities. With definite settlement and the establishment of schools, more attention was given to the state flora. Most Kansas plant collections were distributed to eastern herbaria, and a few plants collected by F. H. Snow were the nucleus of a herbarium at Kansas University. These and other collections and various lists were the basis of a list of some 1,082 plants of the Kansas flora by J. A. Carruth (Centennial Catalogue of the Plants of Kansas, in Transactions of the Kansas Academy of Science 5:40-59, 1877). About this time small collections by M. A. Carleton and W. A. Kellerman established the state herbarium at Manhattan. The fine Rooks county collection by Elam Bartholomew was made in this period.

The results of some of these collections were expressed in lists published in the Transactions of the Kansas Academy of Science. They reflect the considerable nomenclatorial difficulties of the period.

Hitchcock Period. During the 1890's, the years in which A. S. Hitchcock was head of the Botany Department at Kansas State Agricultural College, very active collecting was carried on throughout the state with the ultimate goal of a complete collection from every county. A really remarkable volume of collecting was done by Hitchcock and his associates. These included, particularly, G. L. Clothier, H. N. Whitford and J. B. Norton. An important collection of Wyandotte county plants was made by K. K. Mackenzie, of Kansas City, Mo. These collections served as the basis of the set of maps of Kansas plants mentioned previously: Flora of Kansas, by A. S. Hitchcock, Manhattan, Kansas, 1899. (A series of maps illustrating the distribution of flowering plants by counties. Determinations by the author and various specialists. Maps prepared by J. B. Norton and J. M. Westgate.)

Smyth Period. Following the transfer of Professor Hitchcock to the National Herbarium at Washington, D. C., further work towards a flora of Kansas

1. Contribution No. 391, from the Department of Botany, Kansas State College. Assisted by a grant from the Kansas Academy of Science.

was carried on by B. B. Smyth, curator of the State Museum of Natural History in Topeka. He had published lists of Kansas plants, the fourth, entitled "Plants and Flowers of Kansas," published in 1900, by Crane & Co., of Topeka. With his wife, Lumina C. Riddle Smyth, he had in prospect a fifth and more complete catalogue of Kansas plants, but lived to complete only about a third of the task. This was published in the Transactions of the Kansas Academy of Science, 24:273-295, 1911, and 25:63-128, 1912.

Smyth's own herbarium contained in addition to about 4,000 sheets of mounted Kansas plants, many bundles of plants without labels. This herbarium was donated to Kansas State College by gift of his widow (Lumina C. R. Smyth) in 1926. Unfortunately, specimen evidence for many of the plants included in his lists was not forthcoming.

Gates Period. With the coming of the author to Kansas State in 1919, an active state flora program was set up. During the past twenty years more than 15,000 Kansas specimens have been added to the state herbarium. Comprehensive collections were made in Ellsworth, Clay and Sheridan counties by Clement Weber, in Saline county by John Hancin, Cloud county by S. V. Fraser, Wabaunsee county by Pearl Maus, Sedgwick county by Sister Aquinas, and Geary county by the author. Less complete collections were made in Washington county by T. C. Dodd, Jr., Linn county by B. F. Bush, Cherokee county by Anna and Nellie Jacobs, and Cheyenne county by Anna Jacobs Steller, besides miscellaneous collections by Ben Osborn, E. J. Palmer, H. C. Benke, Bennington Ross, Mrs. H. L. Brownlee, Mrs. Oscar Olson, P. A. Rydberg, P. R. Edwards, W. Wahl, T. E. Brooks, Dale Good, Mrs. Fred Muck, and Ralph H. Imler, together with many others who have occasionally sent in a few plants. To all of these we are greatly indebted for their interest in furthering a knowledge of the state flora.

LOCATION AND AREA

Kansas lies in the center of the United States. The general shape of the state is rectangular. The north and south boundaries are the parallels of 40° N. and 37° N., respectively, the western boundary is 102° 1' 34" W., and the eastern boundary is the Missouri river and 94° 38' W. This area, about 210 miles north-south and 410 miles east-west, encloses an area of about 82,000 square miles, of which about 380 are water surface.

PHYSIOGRAPHIC REGIONS (Map 1)

The following table, containing the pertinent items from "Physiographic Divisions of the United States," by Nevim M. Fenneman,² shows that Kansas is largely within two of the great physiographic provinces and contains an almost insignificant part of a third province. It is of great interest to note here that from a vegetational standpoint, the insignificant six odd square miles of Ozark Plateaus contain more species of plants which occur nowhere else in the state, than any other area considerably larger.

MAJOR DIVISION.	Province.	Section.
Interior Plains.....	12. Central Lowland.....	12e. Dissected Till Plains.
		12f. Osage Plains.
	13. Great Plains.....	13d. High Plains. 13e. Plains Border.
Interior Highlands..... (Ozarkian Highlands).	14. Ozark Plateaus.....	14a. Springfield-Salem Plateaus.

These sections are characterized by Fenneman as follows:

- 12e. Submature to maturely eroded till plains.
- 12f. Old scarped plains beveling faintly inclined strata.
- 13d. Broad intervalley remnants of smooth fluvial plains.
- 13e. Maturely dissected plateau.
- 14a. Submature to mature plateaus.

The entire state is essentially an undulating plain, gently sloping from west to east with an average drop of about seven feet per mile. There is a secondary slope in the eastern part of the state from north to south, which the course of the rivers south of the Kansas river makes quite evident. The greatest elevation is 4,135 feet in Wallace county adjoining the Colorado state line. The lowest point is about 700 feet in the southeast, where the Verdigris river crosses the Oklahoma boundary from Montgomery county.

DRAINAGE

In the north half of the state the Republican-Smoky Hill-Kansas river system flows the full length of the state, west to east. In the south half of the state the Cimarron and Arkansas rivers flow east and south, in the southeast sixth the shorter Verdigris and Neosho rivers drain southward, while the Osage river drains eastward. These are perennial streams, but irregular in amount of flow and are subject to overflow in times of heavy rainfall.

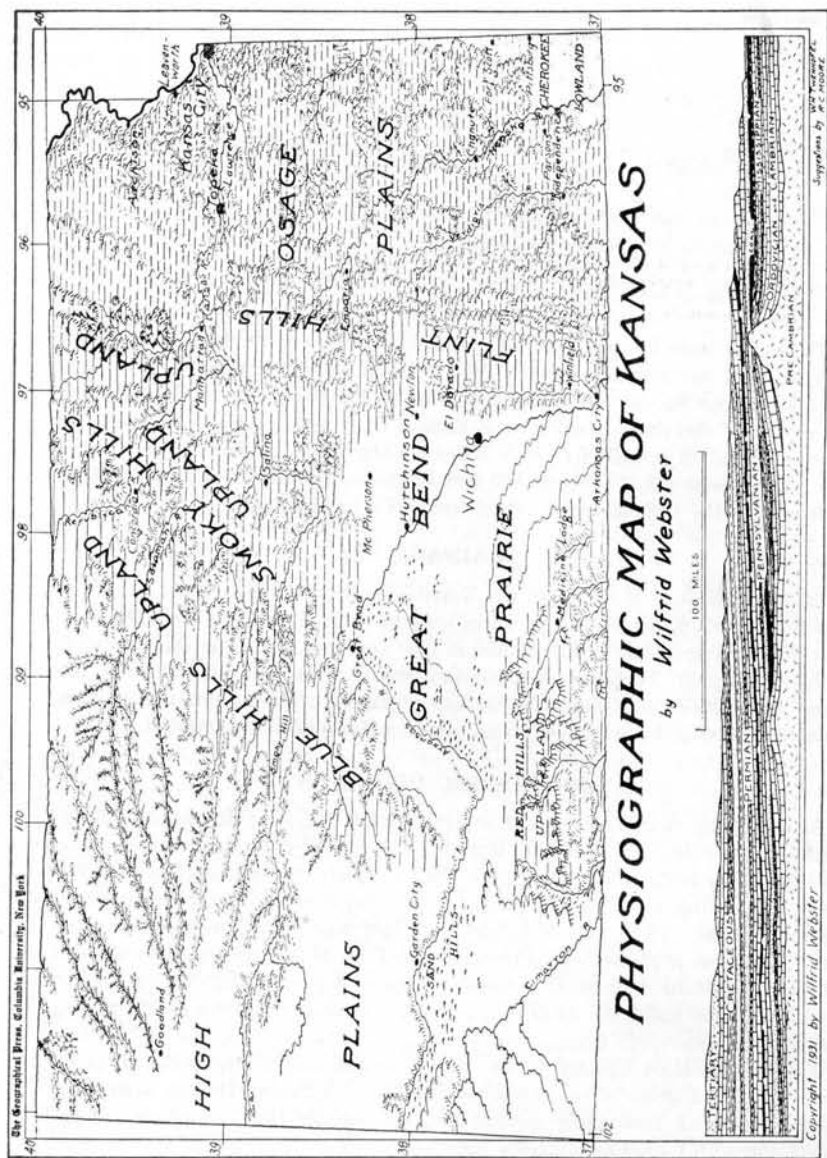
TOPOGRAPHIC DIVISIONS

As shown by map 2, there are several natural topographic regions, distinguished by peculiarities which are largely explainable by the surface rock. The east third has been called the Osage Plains. They are distinguished by the many east-facing escarpments, which trend irregularly from north to south across the state. They vary in height from less than 50 feet to more than 400 feet. The most prominent are known as the Flint Hills, particularly well seen southeast of Manhattan to Cottonwood Falls and west of Eureka. Edges of hard limestones make the escarpments, while between them the gently rolling plains have been made from softer rocks.

The Smoky Hills Upland, in the north central part of the state, owes its origin to the exposure of the moderately hard, thick, brown Dakota sandstone. It also forms an east-facing escarpment, less regular than limestone escarpments and with numerous outlying hills.

The Blue Hills Upland, a short distance farther west, is produced by hard limestone in the Cretaceous. Many spurs eastward form divides between the east-flowing streams.

2. Annals of the Assoc. Amer. Geographers 6:19-98. 1917.



MAP 2. Physiographic map of Kansas.
(Used with permission.)

South of the Blue and Smoky Hill uplands is a large, flat area known as the Great Bend Prairie, lying largely in the great bend of the Arkansas river, but reaching northeastward to McPherson. Parts of this region are sand dunes or are covered by small hummocky hills that were once sand dunes.

South of the Great Bend Prairie are the Cimarron Breaks, in which the higher country to the north and west is suddenly interrupted by a prominent escarpment carved by steep southward-flowing streams, most of which are tributaries of the Cimarron and Medicine Lodge rivers. Much of the rock of this area is red shale or fine, red sandstone, giving rise to red soils and exposures.

The remaining, or western third of the state, is called the High Plains. The land surface rises gradually westward to the flanks of the Rockies in central Colorado. In northwestern Kansas the High Plains have been carved by east and northeast flowing streams so as to form long uplands between the streams with many rounded hills formed by the tributary drainage. In central western and in southwestern Kansas, on the other hand, the country is almost undissected. Low bluffs border the Arkansas river on the north and in part on the south. East of Lakin there is a belt of prominent sand hills on the south side of the Arkansas river.

The soil of the upland prairies is generally a deep, rich silt loam of dark color. The bottom lands near the streams are brown to grayish brown sandy loams, while the portions of the valleys most distant from the streams are rich, deep, dark-brown loams with but little sand. These soils are easily cultivated, free of stones and are productive. Exceptional spots are of a stiffer clay less easily worked. The extreme southwest section is predominantly sandy.

CLIMATE

The climate of Kansas is, as one would expect from its midcontinental position, one of great extremes and sudden changes in temperature, precipitation and wind. Temperature extremes vary from 121° to -34° F., and the averages are relatively moderate. The average precipitation varies from about 40 inches a year in the southeast to about 15 inches a year in the extreme west. The rainfall at any point may vary widely from year to year, the extremes in western Kansas being from less than 10 inches to more than 30 inches and in eastern Kansas from less than 20 inches to more than 55 inches. In addition, its distribution is often unsatisfactory to vegetation. Rain often comes in torrential storms between which are long periods of drought. In general, however, the time of greatest average rainfall is the late spring and early summer months when it is most needed by the prevailing grass type of vegetation. A second but smaller peak is expected in the autumn. Blizzards with snow or sleet and tornadoes with their funnel clouds are not unknown. Occasionally ice storms may severely damage trees. Snow is seldom experienced in generous amounts nor does it usually remain long on the ground, however, it may afford considerable protection against cold and drought.

In a period of 52 years the annual means of precipitation in the west part of the state have varied from 11.93 to 29.21 inches (average 19.21), in the central part from 18.58 to 34.30 (average 26.68), in the east from 26.00 to 45.71 (average 34.78); while the mean for the state ranges from 20.12 to 35.50 (average 27.12).

Over a period of 52 years the January mean temperatures in the west part of the state have varied from 37.8° F. in 1914 to 17.9° in 1930 (average 29.6°); in the central part from 39.7° in 1933 to 18.0° in 1930 (average 29.8°); in the eastern part from 41.5° in 1933 to 17.7° in 1930 (average 30.2°); while the July mean temperatures in the western part of the state have varied from 85.6° in 1934 to 72.5° in 1906 and 1915 (average 78.2°); in the central part from 88.5° in 1934 to 73.8° in 1891 and 1906 (average 80.0°); and in the eastern part from 87.5° in 1934 to 73.8° in 1891 (average 79.1°). The annual mean for the state ranges from 87.2° in July, 1934 to 17.9° in January, 1930 (average 54.9°).

While averages are used in expressing meteorological features of climate, it is the extremes that usually play the most important rôle in affecting plants. This fact has been effectively demonstrated by the recent severe droughts, which not only set back the forest vegetation in the eastern part of the state, but also the grass which was killed back or even completely killed out over large areas in the Flint Hills and elsewhere, such as had never before happened during white man's occupation of the region.

(Complete meteorological data for the state are to be found in publications of the U. S. Weather Bureau. The data used above were kindly furnished by S. D. Flora, Meteorologist, U. S. Weather Bureau, Topeka, Kan.)

GEOLOGY³

The rock formations of Kansas which crop out, or which are merely concealed by a covering of soil, consist chiefly of shale, limestone and sandstone. These are consolidated rocks, but in central and western Kansas there are large areas of unconsolidated or only partially solidified sediments. Most of the rock layers were originally deposited in sea water, which at several periods during geological history covered this part of the continent. Some formations, including especially the unconsolidated materials, are deposits made by streams or by the wind. In northeastern Kansas there are deposits made by glaciers.

The oldest rocks known in the Kansas region are granites and similar crystalline rocks, encountered in deep borings. They are known as pre-Cambrian. A feature of special importance is the "buried mountains" which the crystalline rocks make from near Arkansas City to Seneca and beyond. In northern Kansas the top of the granite rises to within about 500 feet of the surface. The slight arching of the strata above this ridge has controlled accumulation of oil and gas in some of the largest pools of the state, notably in the El Dorado district. Similar but less prominent ridges with like trend have been discovered in exploration for oil in other parts of the state.

The granitic rocks of pre-Cambrian age are overlain by Cambrian and Ordovician marine strata consisting mainly of limestone and some sandstone. These rocks are known only from wells. The Ordovician is one of the most important oil-bearing zones in central Kansas.

The next younger group of rocks, also marine limestones, is known as Silurian. It has been penetrated by many wells in north central Kansas and is probably present in northeastern Kansas, but is not known elsewhere. Devonian rocks, which normally occur above the Silurian, may be present locally, but have not been definitely identified.

3. Largely from a summary by R. C. Moore, State Geologist.

The Mississippian rocks consist mainly of limestone, but have at the base a persistent shale. These strata underlie most of eastern and central Kansas and are exposed at the surface in the extreme southeast corner of the state. They contain lead and zinc ore which is mined in Cherokee county, and in places underground there is much oil and gas.

The Pennsylvanian rocks, sometimes called the Coal Measures because of their great deposits of coal, overlie the Mississippian and compose the surface of the eastern fourth of Kansas. They consist of alternating layers of shale, limestone, sandstone and coal, in part marine and in part nonmarine. These rocks are divided into seven groups, the oldest (Cherokee) being exposed in the east. Proceeding westward we come successively to the Marmaton, the Kansas City, the Lansing, the Douglas, the Shawnee, ending in the youngest (Wabausee) farthest west. Hard rock layers form prominent escarpments which trend northeast and southwest across the state. In this region the strata slope gently downward toward the northwest at an average rate of about 25 feet per mile.

The Permian rocks occupy a belt that crosses east central Kansas and the south central part of the state. The lower part of this system consists of alternating shale and limestone beds and in places underground there are immense deposits of rock salt. The higher part consists largely of red sandstone and shale. Locally there are important beds of gypsum.

After deposition of the Permian rocks there was an interval of some millions of years during which there is no record of deposition of rock sediments in Kansas. Eventually, however, a great series of strata was formed which covers all of western Kansas and which now shows at the surface in a large part of north central Kansas and in stream valleys in the western part of the state. These rocks are called the Cretaceous. At the base of the Cretaceous is the prominent brownish sandstone called Dakota, which forms the Smoky Hill uplands. Next higher are marine shales, limestones and chalk beds which form the Blue Hills upland.

During Tertiary time western Kansas, at least, was covered by sand, clay and gravel deposited by streams flowing eastward from the Rocky Mountains. This deposit now occupies all of the divides between the streams and constitutes the so-called High Plains, a pasture and wheat-growing country.

Deposits younger than the Tertiary consist of alluvium along the larger stream valleys and of loose sand that in places is shifted by wind to form dunes. Northeastern Kansas contains deposits of glacial till and boulders.

Flora of Kansas: General

Although in ancient geological periods the area included in Kansas was under the ocean at times and at others was covered with forests in which spruce was represented, at the present time the state is located nearly completely within the prairie vegetational province. The central or deciduous hardwood forest province is meagerly represented on uplands along the eastern edge of the state in parts of the counties along the Missouri boundary. This province extends a little farther westward in the counties north of the Kansas river. From the main area, however, fingers or tongues extend up all the principal streams and many of the branches much farther west, but hardly across the state. A small representation of the Ozarkian element is present

in the approximately six square miles at the extreme southeastern corner of the state.

In the western, particularly the southwestern part of Kansas, there is a scanty representation of Sonoran Province elements.

The plant population is not static, as the following considerations will bring out. By far the greatest change that has taken place in the ecological botany of Kansas has been the transfer of immense tracts of land from native prairie and plains to cultivation—a cultivation of grasses, however, for the most part. Also there has been a marked change in native grass pastures and meadows caused by intensive grazing and persistent mowing. The native flora has thus been forced to out-of-the-way places, as railroad rights of way, rocky hillsides, erodible land, waste land, areas subject to many floods, stream banks, etc. Even in such conditions grazing has been a disturbing factor.

The forest situation recently has been ameliorated, however, with the passing of the days of great prairie fires. Investigation has shown that the obvious westward movement of eastern forest species in at least the eastern third of Kansas has been back to land that, in the absence of prairie fires, should have been covered with forest—in other words, a reoccupation rather than a migration. Present-day attention to soil conservation and the checking of erosion on certain types of land will greatly enhance this reoccupation and may indeed further actual invasion of prairie land. Actual invasion of prairie land by forest from Manhattan westward is an exceedingly slow process. What little progress had been made in the vicinity of Manhattan in the past fifty years was more than wiped out by the recent series of severe drought years, particularly 1932-1936.

There is no evidence to indicate a tendency of the Rocky Mountain coniferous forest to proceed eastward into Kansas, unless the plants of *Cercocarpus montanus*, which have sprung up in places in the Republican river drainage system following the great floods of 1935, are accepted as exceedingly meager evidence. A few northwestern grasses enter the northwestern county (Cheyenne) and recently (1938) a northwestern variety, *Festuca octoflora hirtella* has been found in Ellis county.

The pushing northeastward of southwestern elements is quite obvious, on the other hand. This lends support to the present tendency towards a warmer and drier climate, although actual measurements of amount are hardly possible. By breaking up the land it may also be true that a chance to enter grassland is made more possible and such invasion and ecesis is now more frequent. The mitigation of prairie fires has assisted such establishment. In spite of the many strong winds to blow seeds in from the southwest, one must remain impressed, however, with the slowness of such migrations.

Movement from the south (Oklahoma and Texas) is shown in a few cases, particularly by *Prosopis glandulosa*, but is not proceeding any faster than that from the southwest.

The introduction of new plants from various parts of the world goes on continually. Many such plants cannot persist except under cultivation. *Ulmus pumila*, a Chinese elm, which has been planted in great numbers, is, however, an example of one such introduction that is showing signs of ability to persist after escape.

New weeds put in appearance with alarming frequency. Seldom can the

exact occasion be put on record. Introductions in packing material, or in seeds to plant, or by wind, or by water are the commonest means. The failure to recognize the importance of control of weeds either at the time of first appearance or subsequently is commonplace.

Among recent more serious weeds may be enumerated: puncture vine (*Tribulus terrestris*) and summer cypress or burning bush (*Kochia scoparia* and *trichophylla*) both of which have had a phenomenal spread nearly throughout the state. The first is quite annoying and the latter is in some degree a poisonous plant. Less abundant, but more disastrous, are the white weed (*Lepidium draba*), and Russian knapweed (*Centaurea picris*) with root systems against which no adequate attack has been organized. They vie with the field bindweed (*Convolvulus arvensis*) introduced many years ago, as serious pests. Among others are shepherd's purse (*Capsella bursa-pastoris*) and penny cress (*Thlaspi arvense*), whose abundance in the last few drought springs has led to tainted milk in several dairy herds.

ECOLOGICAL CLASSIFICATION

In the following table is given a brief and incomplete outline of the major ecological groupings of plants found more commonly in Kansas.

DECIDUOUS HARDWOOD FOREST PROVINCE

Xeric-mesic

- Acer saccharum association
- Quercus-Carya associations
- Sapindus association
- Ozarkian Quercus-Carya association
- Thicket associations

Hydric

- Ulmus-Acer saccharinum association.
- Populus-Salix association
- Margin associations
- Submerged-Potamogeton association

PRAIRIE PROVINCE

Xeric-mesic

- Prairie Andropogon furcatus-Stipa association
- Andropogon scoparius association
- Sand prairie-Eragrostis trichodes association
- Panicum virgatum association
- Sand dune associations
- Plains Buchloe-Bouteloua association

Hydric

- Marsh associations
- Paspalum floridanum glabratum association
- Spartina pectinata association
- Salt marsh associations
- Distichlis association
- Alkali flat associations
- River bank associations

NATIVE HABITATS

In the extreme eastern part of Kansas wooded uplands are found on a comparatively small scale. Lowlands, stream sides and rocky banks generally are wooded unless the trees have been removed by man. The Ozarkian plateau in the extreme southeast corner of the state, with largely acid upland soil, is also wooded. Nonwooded habitats include a few marshes, streams, lakes and tall-grass prairies.

In central Kansas the prevailing habitats are the prairie, with transition from the tall-grass prairie at the east to the short-grass prairie farther west. The total effect is that of transition although the actual occurrence is in irregular patches. Along the larger streams are forests—the tongues or fingers extending westward from the forest body east of Kansas. Salt marshes are present in south central Kansas with some sandhill and eroded canyons in Meade and adjoining counties.

In the western third of the state the prevailing habitat is the short-grass plains, relieved in locally wetter spots by patches of taller grass prairie; sandhills in the part south of the Arkansas river and some alkali flats. Along the larger streams of the northeastern part of the western third, the tongues of forest land are still present, but farther west the streams flow through grassland.

ARTIFICIAL OR ANTHROPEIC HABITATS

The operation of the anthropic or human factor upon the native habitats has resulted in part in the modification, often great, of the native habitats and the development of some more or less new habitats such as railroad ballast, rights of way of roads and railroads, wasteland, marginal land of towns and cities, parkings, cultivated land, coal-mine strip land (in the southeast where overburden is piled on one side to permit the removal of coal), parks, recreational centers, artificial lakes, and stock watering ponds.

GROWTH FORMS

At the end of the statement regarding each plant the growth form is given according to the Raunkiaer system. This system is based on the position of the overwintering buds with reference to the ground. This includes five principal classes: phanerophytes, chamaephytes, hemicytrophytes, cryptophytes, and therophytes. The phanerophytes are divided into megaphanerophytes, higher than 30 meters, mesophanerophytes from 7.5 to 30 meters, microphanerophytes 2-7.5 meters, and nanophanerophytes 0.25-2 meters. The chamaephytes are those with buds visible throughout the winter from the ground up to 0.25 meter. The hemicytrophytes have their buds located just below the surface of the ground, either at the base of the current year's stem, or on offshoots which angle toward the surface of the ground.

Cryptophytes include those whose overwintering buds are distinctly below the surface of the ground. They are subdivided into geophytes and helophytes. In the latter case, the buds are beneath the ground, beneath water. If the plants project above the water during the growing season they are known as helophytes and if they remain below the surface of the water, as hydrophytes. The last group is the therophytes, which are annual plants overwintering as seeds. In this group are also included winter annuals and biennials, principally because of their short life, although, properly speaking, they are usually hemicytrophytes during their only winter.

LIST OF KANSAS PLANTS

With the appearance in 1932 of Rydberg's "Flora of the Prairies and Plains of Central North America" it was possible to begin active work in assembling this list.

An endeavor has been made to bring the nomenclature up to date in accord with the international rules. In this the catalogue of Missouri plants published for E. J. Palmer and J. A. Steyermark by the Missouri Botanical Garden (Annals of the Missouri Botanical Garden 22:375-758, 1935, and 25:775-794, 1938) has been a great aid.

No attempt is made to go into the synonymy of the various plants. It will be sufficient to indicate the names in Rydberg's "Flora of the Prairies and Plains" (R), the second edition of Britton and Brown's "Illustrated Flora" (B&B), or in the seventh edition of Gray's "Manual" (G)—the books mostly used in naming plants in Kansas at the present time—when they differ from those used in this list.

Popular names given are those largely in actual use, insofar as the author is acquainted with them. Encouragement is made in using the name of the genus for popular name when no regular English name is in actual use.

The sources of information upon which this list has been made are primarily the collection of plants in the Herbarium of Kansas State College, a collection in which each of the 105 counties in the state is represented by more than 100 species. With but perhaps two or three exceptions, it is estimated that at least 35 percent of the flora of each county is now represented in the state herbarium and in several counties the representation is well above 95 percent. These extensive collections have been supplemented by those at the State University in Lawrence, the Fort Hays Kansas State College at Hays, which is particularly rich in Ellis county plants, Kansas State Teachers College at Emporia, particularly rich in Lyon county plants, and that of the Sacred Heart Academy of Wichita, rich in Sedgwick county plants. A few private collections were examined, including that of Mr. Clyde W. Miller, of Mahaska, Washington county; that of Mr. T. C. Dodd, Jr., of near Linn, Washington county, and that of Mr. Bennington Ross, of Crawford county.

In as far as available, citations of Kansas plants in recently appearing monographs were taken into account.

Efforts to locate specimens of several plants definitely credited to Kansas in various manuals, but which are not in the Kansas State Herbarium, were on the whole unsuccessful. Entry for such plants is provisional in the list.

LIST OF PLANTS WITHOUT SPECIMEN EVIDENCE

The following list includes those plants, specimens of which have not been seen by the author and have not been located in any of the larger herbaria of the United States, but which have been definitely credited to Kansas in the most recent systematic works, particularly Rydberg's "Flora of the Prairies and Plains of Central North America," 1932. A list of those plants is included so that if specimens do exist they may come to light.

LIST OF PLANTS DEFINITELY CREDITED TO KANSAS IN RECENT MANUALS (RYD-
BERG'S "FLORA OF THE PRAIRIES AND PLAINS" UNLESS OTHERWISE STATED)
BUT WITHOUT KNOWN SPECIMEN EVIDENCE

Polypodiaceae

- Athyrium acrostichoides* (Sw.) Diels.
Cheilanthes lanosa (Michx.) Watt.
Pellaea mucronata D. C. Eaton and *Pellaea pumila* Rydb. (Mistakes of identification, according to the National Museum.)
Polypodium polypodioides (L.) Watt.

Alismataceae

- Sagittaria rigida* Pursh.

Liliaceae

- Trillium viride* Beck.
Veratrum woodii Robbins.
Yucca baccata Torr.

Commelinaceae

- Tradescantia hirsutiflora* Bush.

Cyperaceae

- Cyperus rotundus* L.

Poaceae

- Aristida desmantha* Trin. & Rupr. fide Smyth.
Aristida ramosissima Engelm. fide Smyth.
Aristida wrightii Nash.
Bromus anomalus Rupr. fide Smyth.
Calamagrostis inexpansa A. Gray. fide Smyth.
Glyceria canadensis (Michx.) Trin.
Panicum gattingeri Nash.
Panicum scoparium Lam.
Panicum wernerii Scribn.
Sporobolus gracilis Merr. as *S. ejuncidus* Nash.

Orchidaceae

- Cypripedium reginae* Walt as *C. hirsutum*.
Pogonia ophioglossoides (L.) Ker.
Triphora trianthophora (Sw.) Rydb.

Ranunculaceae

- Delphinium exaltatum* Ait.
Ranunculus pusillus Poir.

Malvaceae

- Callirhoe papaver* (Cav.) A. Gray

Moraceae

- Humulus japonicus* Sieb & Zucc.

Hypericaceae

- Hypericum pseudomaculatum* Bush.

Fumariaceae

- Adlumia fungosa* (Ait.) Greene.

Brassicaceae

- Arabidopsis thaliana* (L.) Heynh.
Lesquerella globosa (Desv.) S. Wats.
Stanleya glauca Rydb.

Illecebraceae (Corrigioloceae)

- Paronychia diffusa* A. Nels.

Caryophyllaceae

- Arenaria fendleri* A. Gray
Arenaria stricta Michx.

Portulacaceae

- Portulaca neglecta* Mack. & Bush.

Polygonaceae

- Eriogonum corymbosum* Benth.
Polygonum setaceum Baldw.

Primulaceae

- Dodecatheon radicans* Greene.

Plantaginaceae

- Plantago heterophylla* Nutt.

Ericaceae

- Vaccinium canadense* Kalm.

Sapotaceae

- Bumelia lycioides* (L.) Pers.

Polemoniaceae

- ? *Navarretia breweri* (A. Gray) Greene.

Convolvulaceae

- Cuscuta curta* (Engelm.) Rydb.

Boraginaceae

- Cynoglossum virginianum* L.
Heliotropium indicum L.
Lithospermum officinale L.

Solanaceae

- Chamaesaracha coronopus* (Dunal) A. Gray.
Solanum citrullifolium A. Br.
Solanum triquetrum Cav.

Gentianaceae

- Centaurium texense* (Griseb.) Fern.

Asclepiadaceae

- Asclepias brachystephana* Engelm.
Asclepias variegata L.

Scrophulariaceae

- Aureolaria grandiflora* (Benth.) Pennell.
Castilleja indivisa Engelm.
Chelone glabra L.

Lamiaceae

- Monarda bradburiana* Beck.
Physostegia speciosa Sweet.

Rosaceae

- Potentilla argentea* L.
Rubus hispidus L.
Spiraea salicifolia L.
Spiraea tomentosa L.

Malaceae

- Malus angustifolia* Ait.

Fabaceae

- Astragalus leptocarpus* T. & G.

- Astragalus mexicanus trichocalyx* (Nutt.)
Fernald.

- Desmodium nudiflorum* (L.) DC.

- Desmodium pauciflorum* (Nutt.) DC.

- Lathyrus venosus* Muhl.

- Lupinus plattensis* S. Wats.

- Petalostemum pulcherrimum* A. Heller.

- Petalostemum tenue* (Coul.) A. Heller.

- Thermopsis rhombifolia* (Nutt.) Richards.

- Trifolium aureum* Poll.

- Vicia caroliniana* Walt.

- Vicia ludoviciana* Nutt.

Lythraceae

- Decodon verticillatus* (L.) Ell.

- Lythrum lineare* L.

Oenotheraceae

- Epilobium strictum* Muhl.

- Gaura michauxii* Spach.

- Gaura sinuata* Nutt.

- Oenothera perennis* L.

- Oenothera spachiana* A. & G.

Cactaceae

- Echinocereus caespitosus* Engelm. & Gray.

- Pediocactus simpsoni* (Engelm.) Britton &

Rose.

Rhamnaceae

- Rhamnus caroliniana* Walt.

Vitaceae

- Vitis rotundifolia* Michx.

Juglandaceae

- Juglans cinerea* L.

Ammiaceae

- Erigenia bulbosa* (Michx.) Nutt.

- Spermolepis echinata* (Nutt.) Heller.

Campanulaceae

- Lobelia puberula* Michx.

"Composites"

- Bidens aristosa* (Michx.) Britton.

- Bidens laevis* (L.) BSP.

- Coreopsis lanceolata villosa* Michx.

- Coreopsis verticillata* L.

- Marshallia caespitosa* Nutt.

- Polymnia uvedalia* L. Ks?

- Rudbeckia grandiflora* C. C. Gmelin.

- Franseria discolor* Nutt.

- Anaphalis margaritacea* (L.) Benth. & Hook.

- Gutierrezia linearis* Rydb.

- Solidago altissima* L.

- Solidago procera* Ait.

- Artemisia serrata* Nutt.

- Centaurea maculosa* Lam.

- Malacothrix sonchoides* (Nutt.) T. & G.

- Prenanthes crepidineus* Michx.

Earlier lists of plants contain numerous names which are not repeated in the present list. These names were based on misidentifications, unavoidable when the study of taxonomy in Kansas was new. When specimens of these early collections were preserved, reidentification has made it possible to include them under the proper name.

Plotting the ranges of many plants as given in current manuals would infer presence in Kansas. While such plants might in time be found in Kansas, or even may have been found, in the absence of specimens, they are not included in this list.

ACKNOWLEDGMENTS

For special favors in looking up specimens and furnishing special information, thanks are extended especially to the late A. S. Hitchcock, Mrs. Agnes Chase, Wm. R. Maxon, S. F. Blake, C. V. Morton, and J. R. Swallen of the National Herbarium; to H. A. Gleason and Wm. H. Camp of the New York Botanical Garden; to C. A. Weatherby and M. L. Fernald of the Gray Herbarium; to Paul Standley and J. A. Steyermark of the Field Museum; to H. K. Svenson of the Brooklyn Botanic Garden; to J. M. Greenman of the Missouri Botanical Garden; to Carl Epling of the University of California, Los Angeles; to F. J. Hermann of the University of Michigan; to the late B. F. Bush; to W. H. Horr of Kansas University; to F. U. G. Agrelius of Kansas State Teachers College of Emporia; to F. W. Albertson of Fort Hays Kansas State College; to Nellie B. Jacobs for the many hours of stenographic work; to Laura Herr, an NYA student, for the making of the maps of distribution; and to Prof. L. E. Melchers for his interest and support of the work.

The author realizes that such a piece of work is actually the joint product of many persons, known and unknown, to whom grateful acknowledgment should be made.

The author also realizes that where so many points are under consideration, lack of knowledge may bring about errors. He hopes that they are few, but knows that subsequent study and changes of ideas of species limitation and names will come. If this work be a milestone towards more complete knowledge—a foundation upon which others may build—the author will feel he has done his part.

To continue to increase our knowledge of the flora of Kansas, continuation of coöperation is necessary. To that end additional specimens are welcome, especially when they represent additions to those now in the state herbarium from counties where they have not been collected. Specimens should be collected in duplicate, numbered alike and one of the pair sent in for identification. In due time a list of identifications will be returned. Packages should be addressed to the Department of Botany and Plant Pathology, Kansas State College, Manhattan, Kan.

STATISTICS OF THE KANSAS FLORA

In the following table is given the number of genera and species by families and orders of the native and introduced plants. Wherever a species is present as a single-named trinomial, it is counted under the species column. If, however, there are additional trinomials for a given species, the additional varieties, forms, or hybrids are added in parentheses after the number of species. Species which are present only in cultivation are not counted in the tabulation and species for which no specimens have been seen are not counted unless they are known to occur on at least three sides of the state. If a genus has both native and introduced species, the genus is entered only under the native column.

Family:	Genera		Species	
	Native	Intro-duced	Native	Intro-duced
PHYLUM PTERIDOPHYTA				
Ophioglossaceae	2	..	2	..
Isoetaceae	1	..	1	..
Osmundaceae	1	..	1	..
Polypodiaceae	12	..	17(+1)	..
Marsileaceae	1	..	1	..
PHYLUM CALAMOPHYTA				
Equisetaceae	1	..	4	..
PHYLUM CYCADOPHYTA				
Ginkgoaceae	..	1	..	1
Ephedraceae	..	1	..	1
PHYLUM STROBILOPHYTA				
Pinaceae	1	1	1	3
PHYLUM ANTHOPHYTA				
Class MONOCOTYLEDONEAE				
Order Alismatales				
Alismataceae	4	..	12	..
Typhaceae	1	..	2	..
Sparganiaceae	1	..	1	..
Potamogetonaceae	3	..	9	..

Family:	Genera		Species	
	Native	Intro-duced	Native	Intro-duced
Order Liliales				
Liliaceae	12	3	25(+2)	6
Pontederiaceae	2	1	4	1
Commelinaceae	2	..	7(+3)	1
Junaceae	2	..	16(+2)	..
Najasaceae	1	..	1	..
Order Arales				
Araceae	2	..	3	..
Lemnaceae	3	..	6	..
Order Poales				
Cyperaceae	11	..	92(+7)	..
Poaceae	57	16	173(+26)	50(+2)
Order Hydrales				
Hydrocharitaceae	1	..	1	..
Order Iridales				
Amaryllidaceae	2	..	3	..
Iridaceae	3	1	6	2
Dioscoreaceae	1	..	1	1
Order Orchidales				
Orchidaceae	6	..	9(+1)	..
Class DICOTYLEDONEAE				
Subclass DICOTYLEDONEAE—AXIFLORAE				
Order Ranales				
Magnoliaceae	..	1	..	1
Calycanthaceae	..	1	..	1
Anonaceae	1	..	1	..
Saururaceae	1	..	1	..
Ranunculaceae	10	1	25(+4)	4
Berberidaceae	1	1	1	2
Menispermaceae	3	..	3	..
Lauraceae	2	..	2	..
Nelumbonaceae	1	..	1	..
Nymphaeaceae	2	..	2	..
Ceratophyllaceae	1	..	1	..
Order Malvales				
Malvaceae	6	4	9	7
Tiliaceae	1	..	2	..
Ulmaceae	2	..	8(+3)	3
Moraceae	2	2	2	4
Urticaceae	5	..	5(+1)	..
Order Geraniales				
Geraniaceae	1	1	2	2
Oxalidaceae	1	..	2	1(+1)
Balsaminaceae	1	..	3	..
Linaceae	1	..	6	2
Zygophyllaceae	1	2	2	2
Rutaceae	2	..	2(+1)	..
Simarubaceae	..	1	..	1
Polygalaceae	1	..	4	..
Euphorbiaceae	8	1	38	3
Callitrichaceae	1	..	1	..

Family:	Genera		Species	
	Native	Intro-duced	Native	Intro-duced
Order Hypericales				
Cistaceae	2	..	3	..
Hypericaceae	2	..	7(+1)	1
Violaceae	3	..	13(+4)	2
Passifloraceae	1	..	1	..
Order Brassicales				
Papaveraceae	2	1	4	2
Fumariaceae	3	..	7(+1)	..
Resedaceae	..	1	..	1
Capparidaceae	4	..	4	1
Brassicaceae	12	14(17)	31(+3)	29(+1)
Order Caryophyllales				
Illecebraceae	2	..	3	..
Caryophyllaceae	3	8	7(+1)	11
Elatinaceae	2	..	2	..
Portulacaceae	3	..	5	2
Aizoaceae	2	..	2	..
Tamaricaceae	..	1	..	1
Salicaceae	2	..	10(+4)	9(+1)
Phytolaccaceae	1	..	1	..
Amaranthaceae	5	1	9	3(+1)
Chenopodiaceae	9	2	22(+3)	11
Polygonaceae	3	2	37(+2)	11
Nyctaginaceae	2	..	8(+1)	..
Order Primulales				
Primulaceae	4	1	5	2
Plantaginaceae	1	..	9	2
Order Ericales				
Ericaceae	1	..	3(+1)	..
Order Ebenales				
Sapotaceae	1	..	1	..
Ebenaceae	1	..	1	..
Order Polemoniales				
Polemoniaceae	3	..	13	1
Convolvulaceae	5	..	15(+1)	7(+1)
Hydrophyllaceae	3	..	5	1
Boraginaceae	8	2	18	4
Solanaceae	4	5	23(+1)	10(+1)
Order Gentianales				
Oleaceae	2	2	4(+2)	2
Gentianaceae	3	..	4	..
Apocynaceae	2	1	4(+4)	1
Asclepiadaceae	4	1	23(+2)	1
Order Scrophulariales				
Scrophulariaceae	18	3	40(+3)	7
Bignoniaceae	1	1	1	2
Martyniaceae	1	..	1	..
Orobanchaceae	1	..	2	..
Lentibulariaceae	1	..	1	..
Acanthaceae	3	..	4	..

Family:	Genera		Species	
	Native	Intro-duced	Native	Intro-duced
Order Lamiales				
Phrymaceae	1	..	1	..
Verbenaceae	2	..	9(+9)	..
Lamiaceae	14	6	39(+1)	14
Subclass DICOTYLEDONEAE—CALYCIFLORAE				
Order Rosales				
Rosaceae	9	..	27(+4)	7(+2)
Malaceae	3	2	19(+4)	3
Prunaceae	1	..	10(+5)	5
Mimosaceae	4	..	5	..
Cassiaceae	6	..	9(+1)	2
Krameriaceae	1	..	1	..
Fabaceae	24	7	89(+15)	20
Saxifragaceae	1	..	1	..
Grossulariaceae	1	..	2	..
Crassulaceae	2	..	3	1
Platanaceae	1	..	1	..
Order Myrtales				
Lythraceae	5	..	6	..
Melastomaceae	1	..	1	..
Oenotheraceae	7	..	33(+7)	..
Haloragidaceae	1	..	3	1
Aristolochiaceae	2	..	3(+1)	..
Order Cactales				
Cactaceae	3	..	12	..
Order Loasales				
Loasaceae	1	..	4	..
Cucurbitaceae	4	..	4	..
Order Celastrales				
Rhamnaceae	2	..	3(+1)	..
Vitaceae	4	..	10(+1)	..
Celastraceae	2	..	3	..
Ilicaceae	1	..	1	..
Staphyleaceae	1	..	1	..
Elaeagnaceae	1	..	1	1
Santalaceae	1	..	2	..
Loranthaceae	1	..	1	..
Order Sapindales				
Sapindaceae	1	2	1	2
Aesculaceae	1	..	1(+1)	..
Aceraceae	1	..	4(+1)	..
Anacardiaceae	1	..	5(+3)	..
Juglandaceae	2	..	9(+1)	..
Betulaceae	3	..	4	..
Fagaceae	1	..	12(+5)	..
Order Umbellales				
Araliaceae	1	..	1	..
Ammiaceae	23	6	35(+1)	7
Cornaceae	1	..	5	..

Family:	Genera		Species	
	Native	Intro-duced	Native	Intro-duced
Order Rubiaceae				
Rubiaceae	5	1	11(+1)	3
Caprifoliaceae	5	..	9(+1)	1
Valerianaceae	1	..	3	..
Dipsacaceae	..	1	..	1
Order Campanulales				
Campanulaceae	3	..	10(+1)	..
Order Asterales				
Helianthaceae	20	2	63(+5)	4
Ambrosiaceae	4	..	16(+3)	..
Heleniaceae	12	..	22	1
Inulaceae	4	..	9	..
Asteraceae	21	..	85(+10)	1
Vernoniaceae	2	..	6(+3)	..
Eupatoriaceae	4	..	16(+2)	..
Anthemidaceae	2	4	7(+5)	10
Senecionidaceae	4	..	9(+1)	..
Carduaceae	2	4	6(+1)	10
Lactucaceae	10	4	19(+1)	9(+1)

SUMMARY

Phylum	Genera		Species	
	Native	Intro-duced	Native	Intro-duced
Pteridophyta	17	..	22(+1)	..
Calamophyta	1	..	4	..
Cycadophyta	..	2	..	2
Strobilophyta	1	1	1	3
Anthophyta	540	121	1519(178)	321(+11)
(Monocotyledoneae)	(114)	(21)	(371[+41])	(61[+2])
(Dicotyledoneae—Axiflorae)	(202)	(67)	(525[+53])	(171[+6])
(Dicotyledoneae—Calyciflorae)	(224)	(33)	(623[+85])	(89[+3])
Total	559	124	1546(+180)	326(+11)
	683		1872(+191)	
	2063			

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MAPS OF DISTRIBUTION

In the following maps a solid dot (●) indicates the presence of a specimen in the Kansas State Herbarium at Manhattan, Kansas, a ring (○) indicates presence at another herbarium, an (×) indicates a recent authoritative record, and a (C) indicates that the specimen is in cultivation. The families represented on each plate are given below each plate. The numbers are inclusive for the whole family, although often spread over two or more plates.

EXPLANATION OF PLATES

The numbers following each family indicate the maps of species in that family.



PLATE 1. Ophioglossaceae (1-2), Isoetaceae (3), Osmundaceae (4), Polypodiaceae (5-21), Marsileaceae (22), and Equisetaceae (23-26).

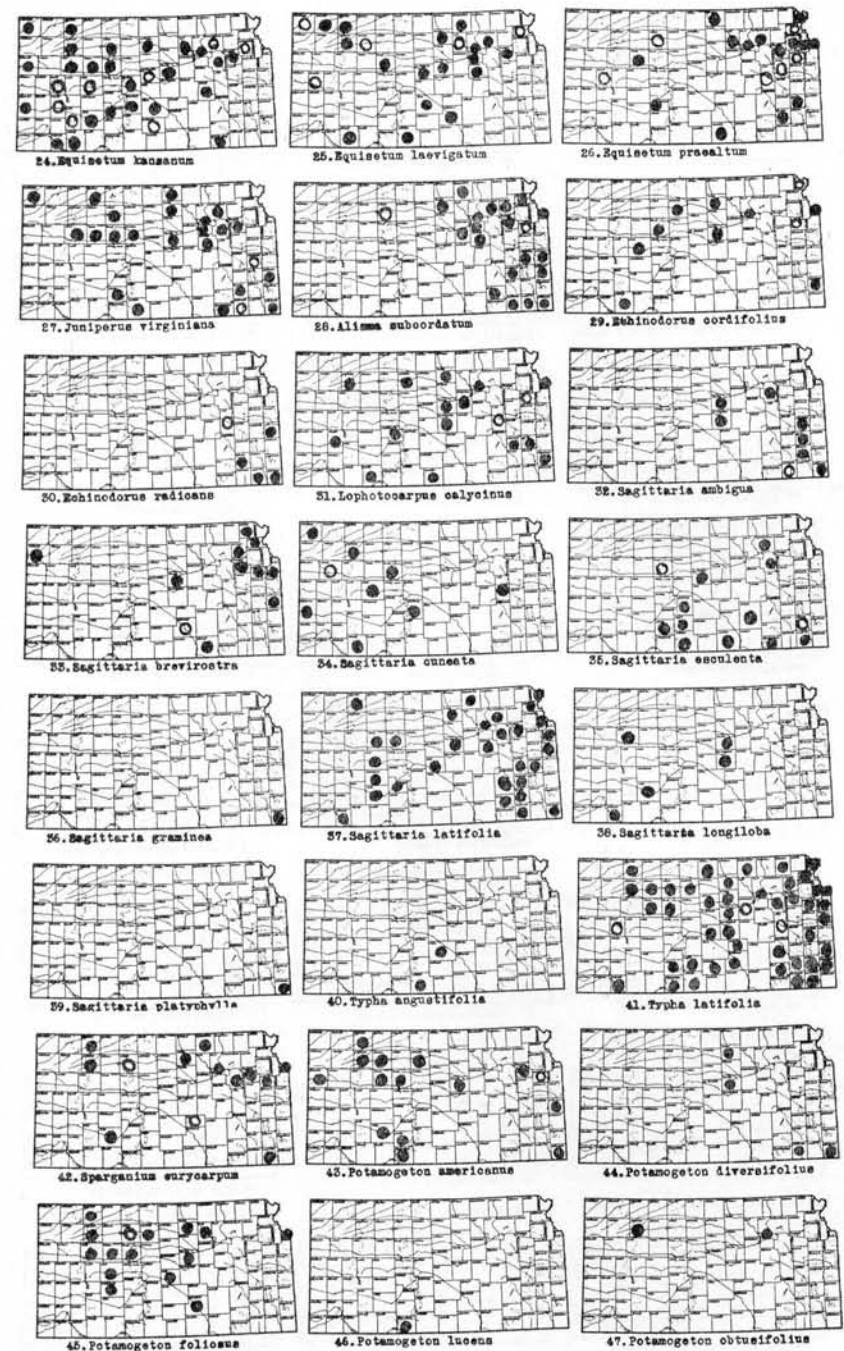


PLATE 2. Equisetaceae (23-26), Pinaceae (27), Alismataceae (28-39), Typhaceae (40-41), Sparganiaceae (42), Potamogetonaceae (43-51).

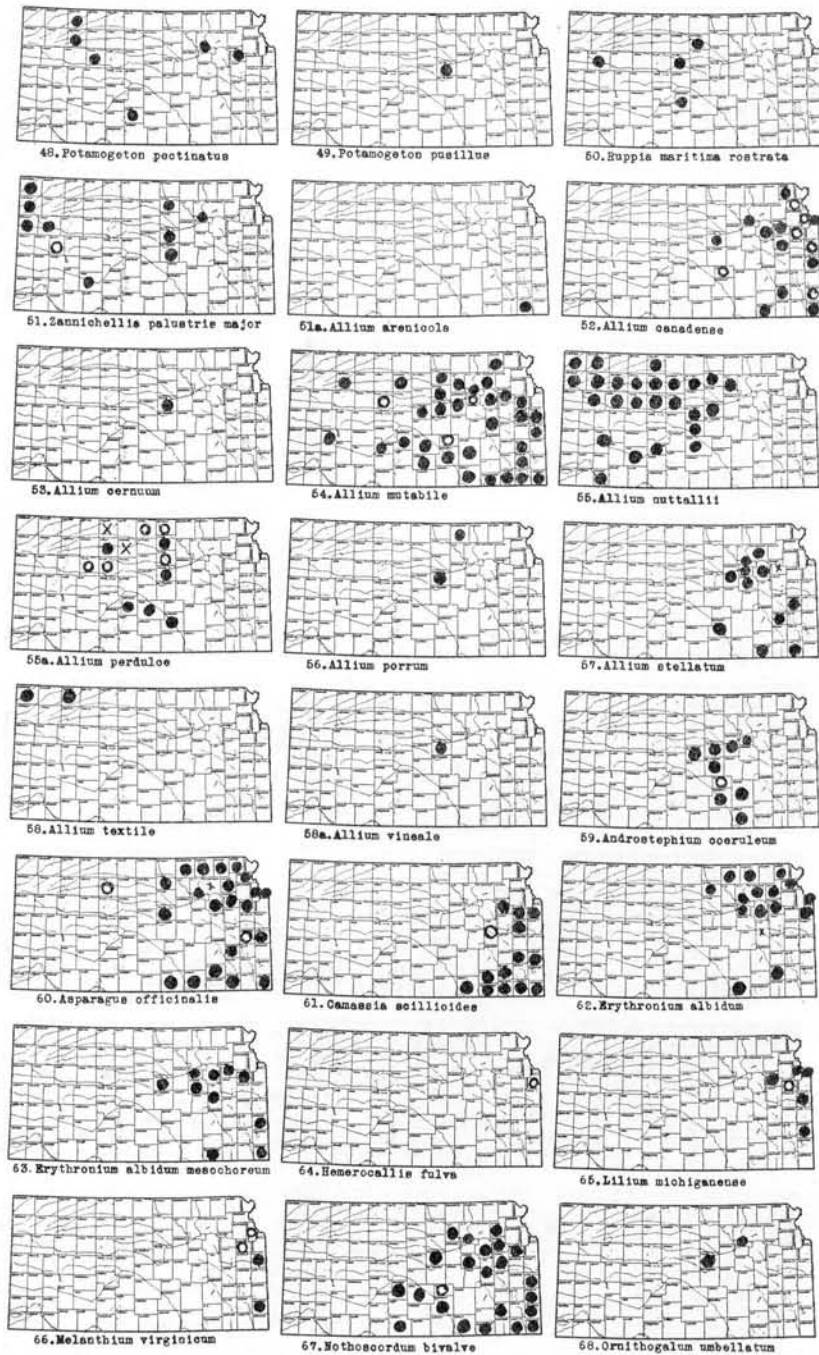


PLATE 3. Potamogetonaceae (43-51), Liliaceae (51a-82).

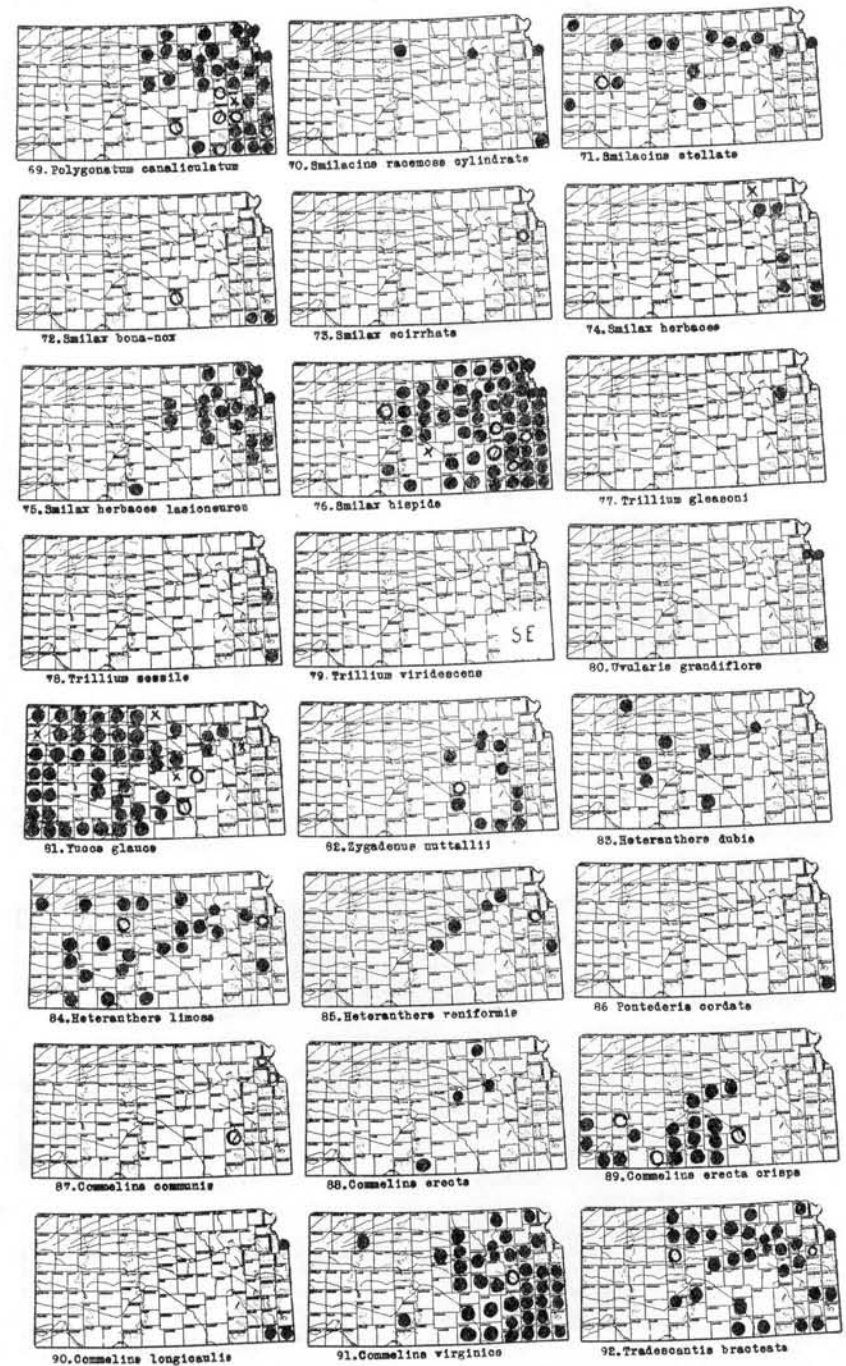


PLATE 4. Liliaceae (51a-82), Pontederiaceae (83-86), Commelinaceae (87-95).

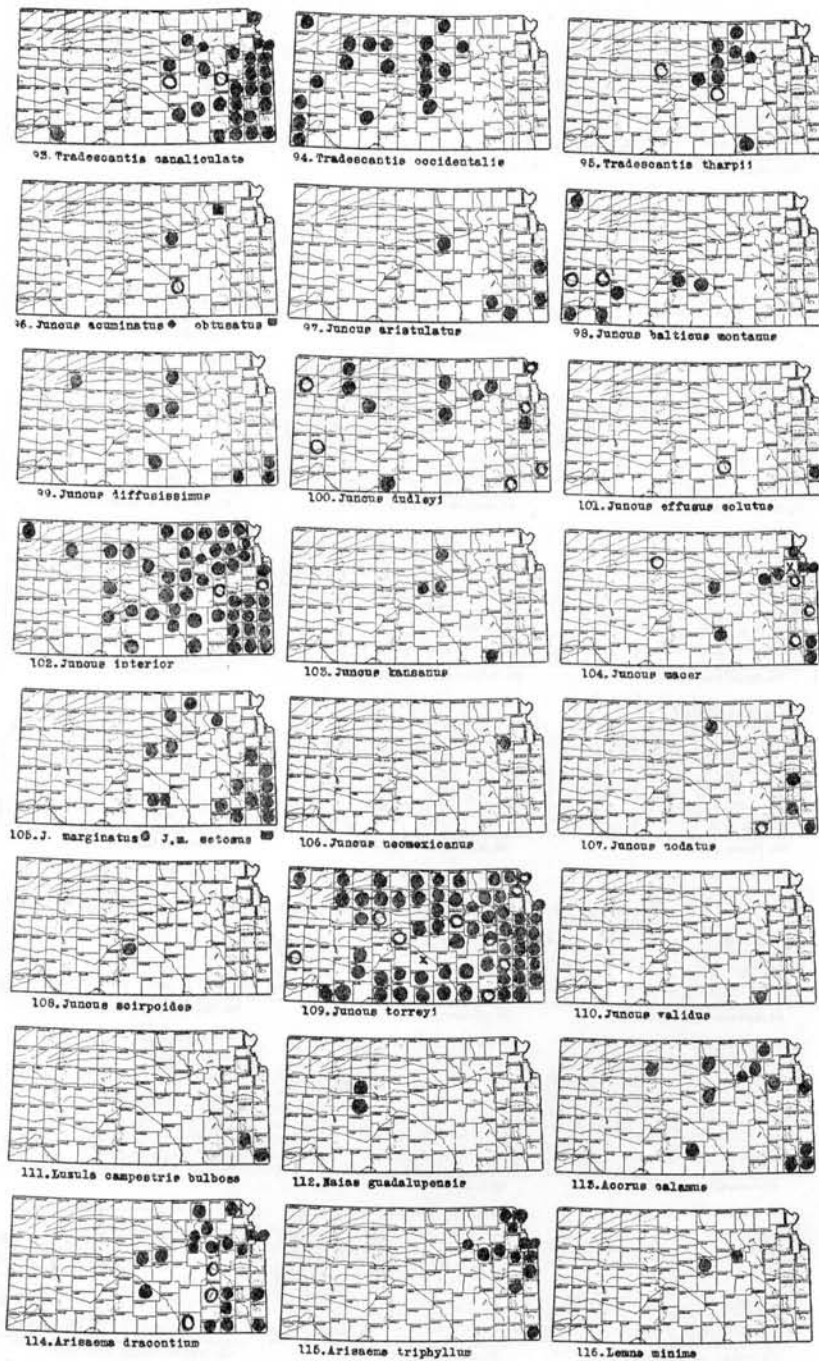


PLATE 5. Commelinaceae (87-95), Juncaceae (96-111), Naidaceae (112), Araceae (113-115), Lemnaceae (116-121).

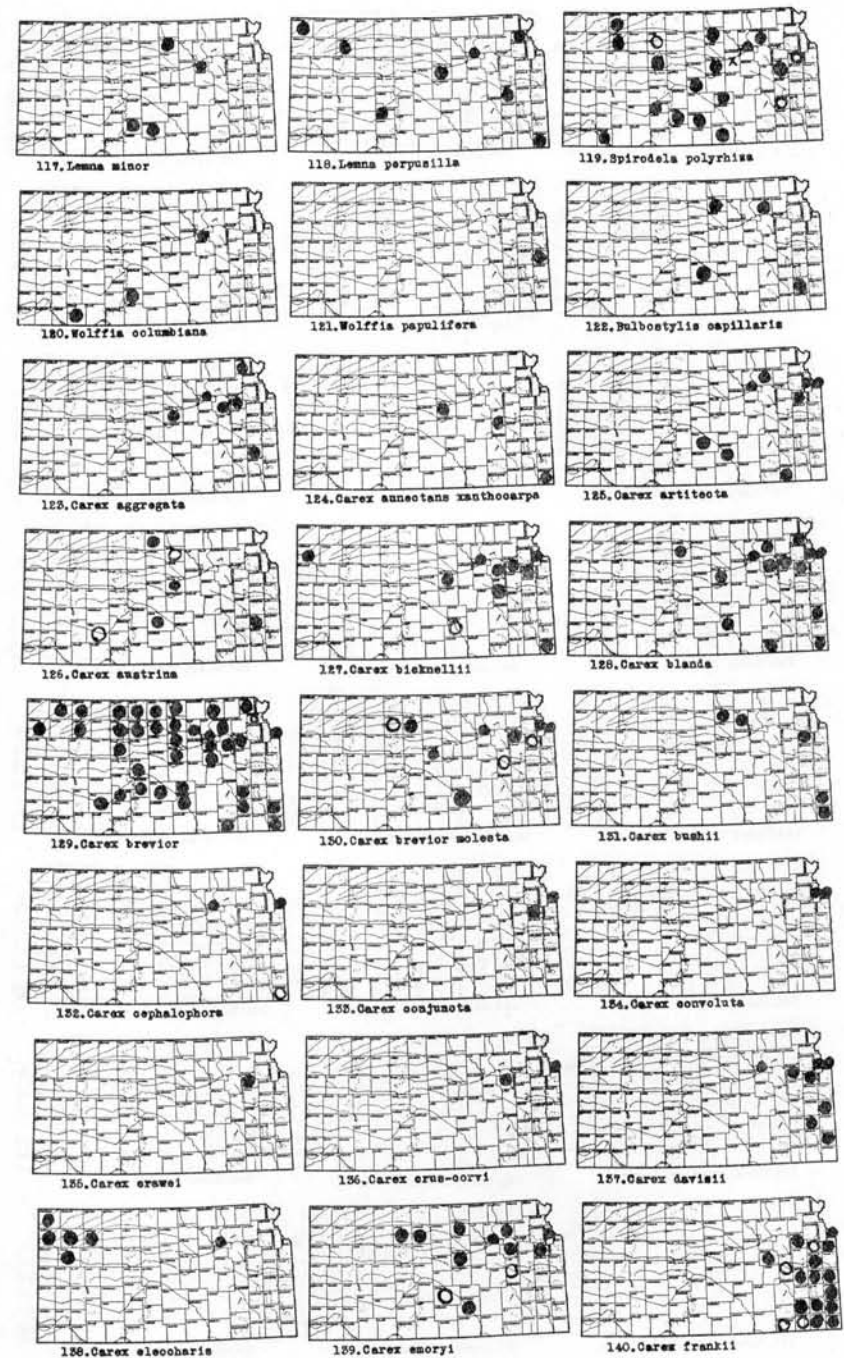


PLATE 6. Lemnaceae (116-121), Cyperaceae (122-218).

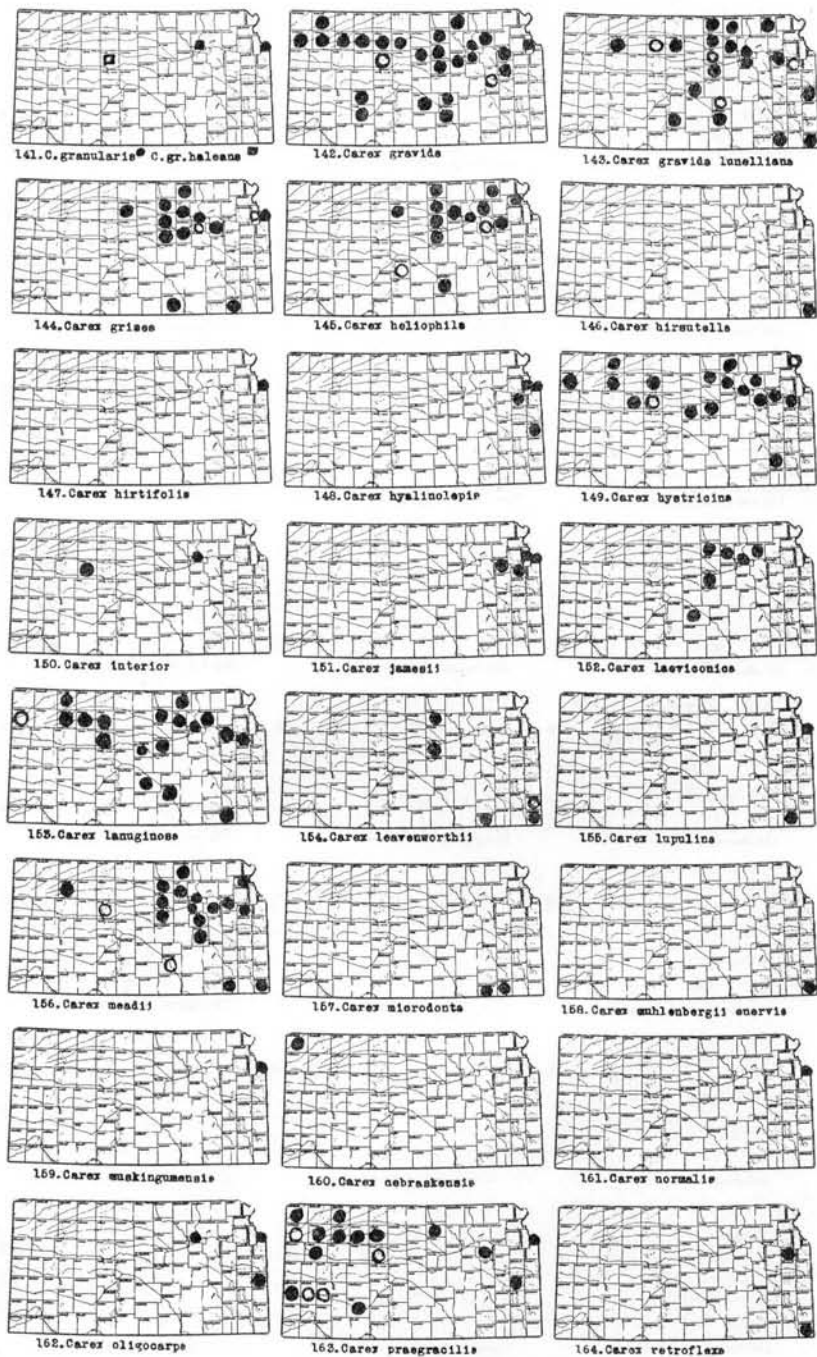


PLATE 7. Cyperaceae (122-218).

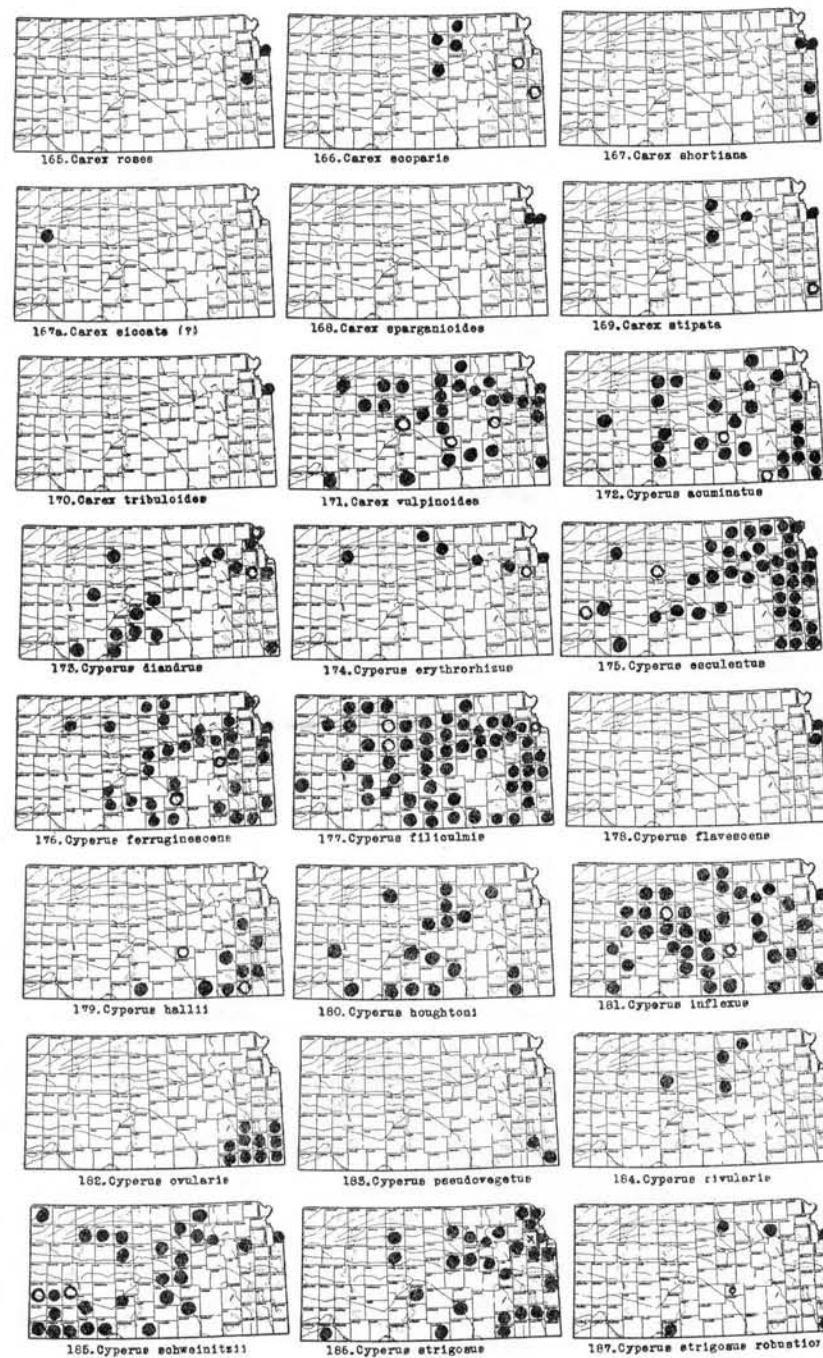


PLATE 8. Cyperaceae (122-218).

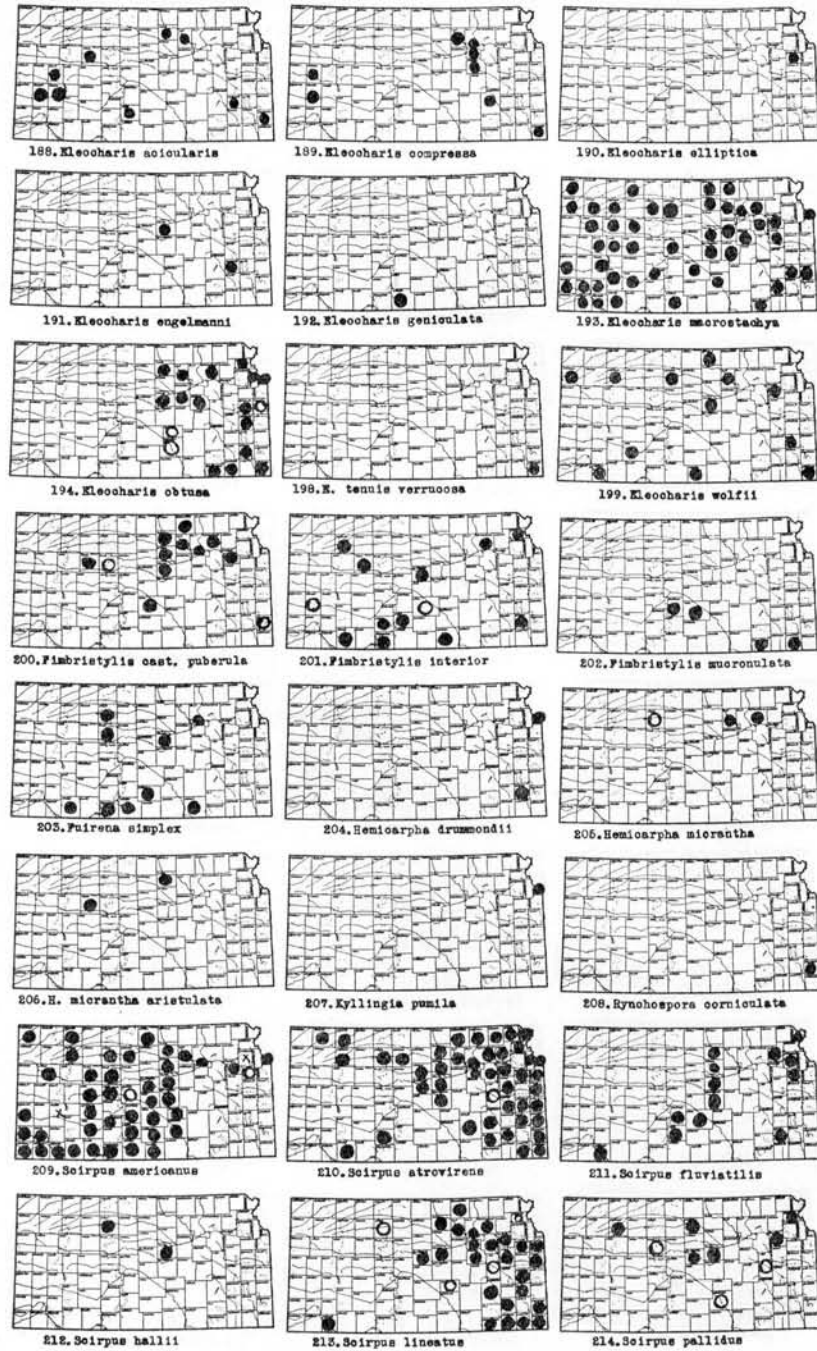


PLATE 9. Cyperaceae (122-218).

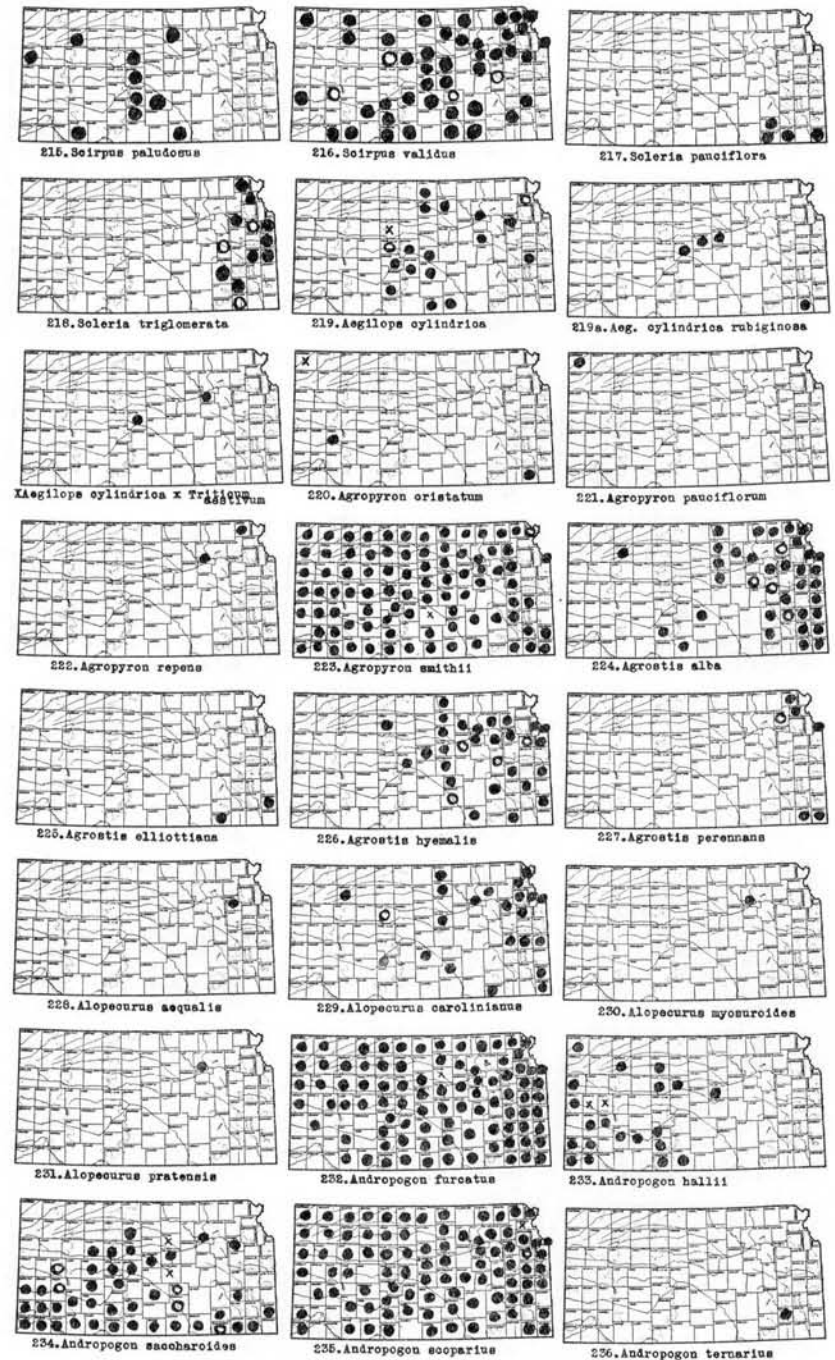


PLATE 10. Cyperaceae (122-218), Poaceae (219-444).

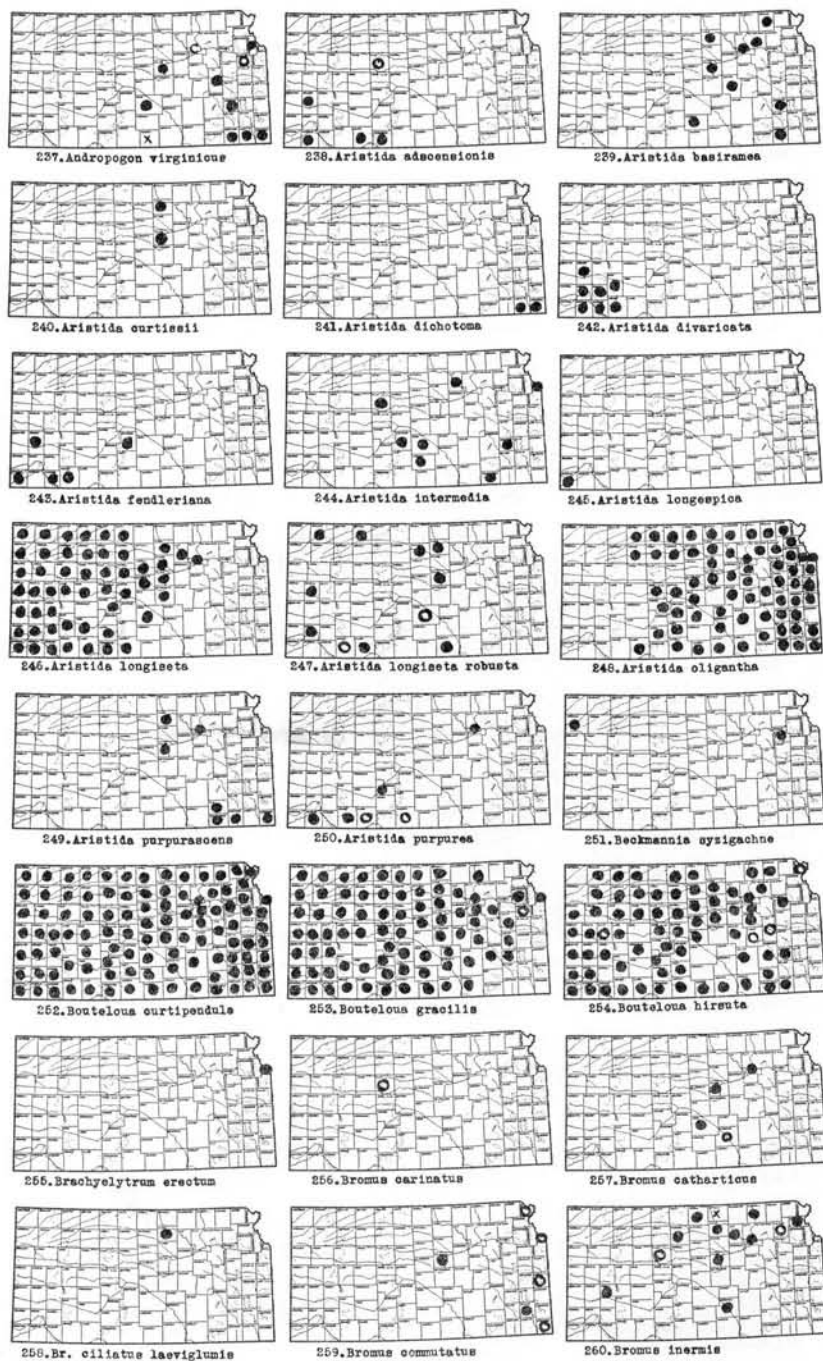


PLATE 11. Poaceae (219-444).

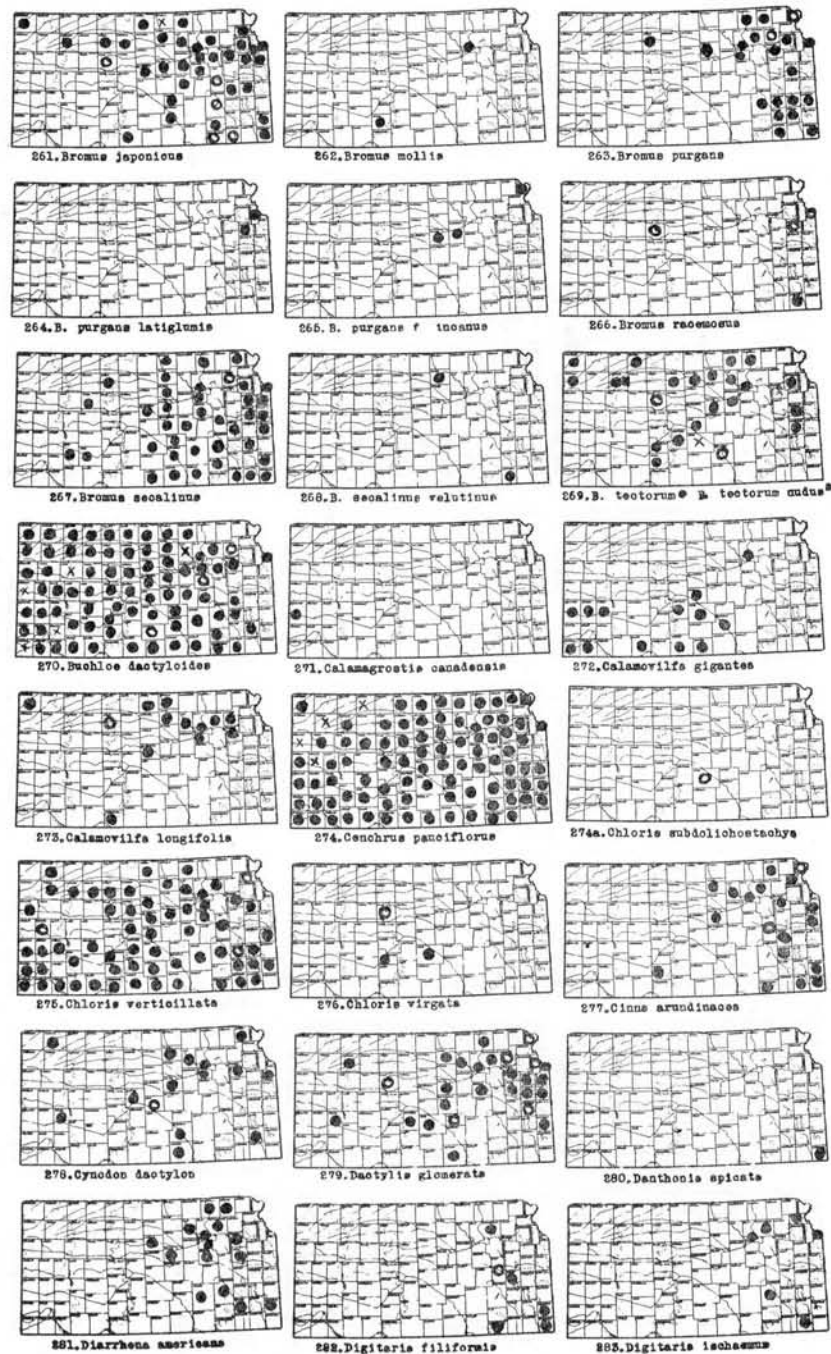


PLATE 12. Poaceae (219-444).

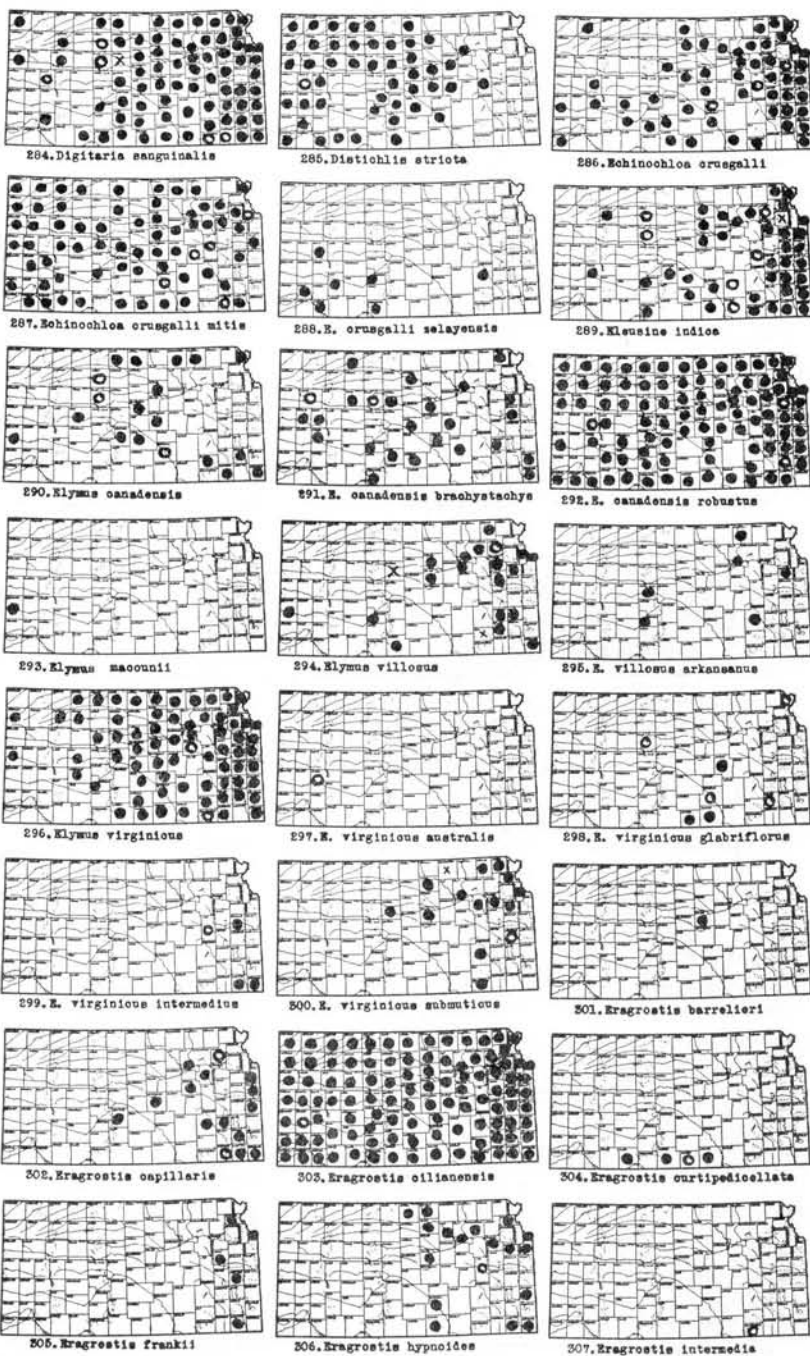


PLATE 13. Poaceae (219-444).

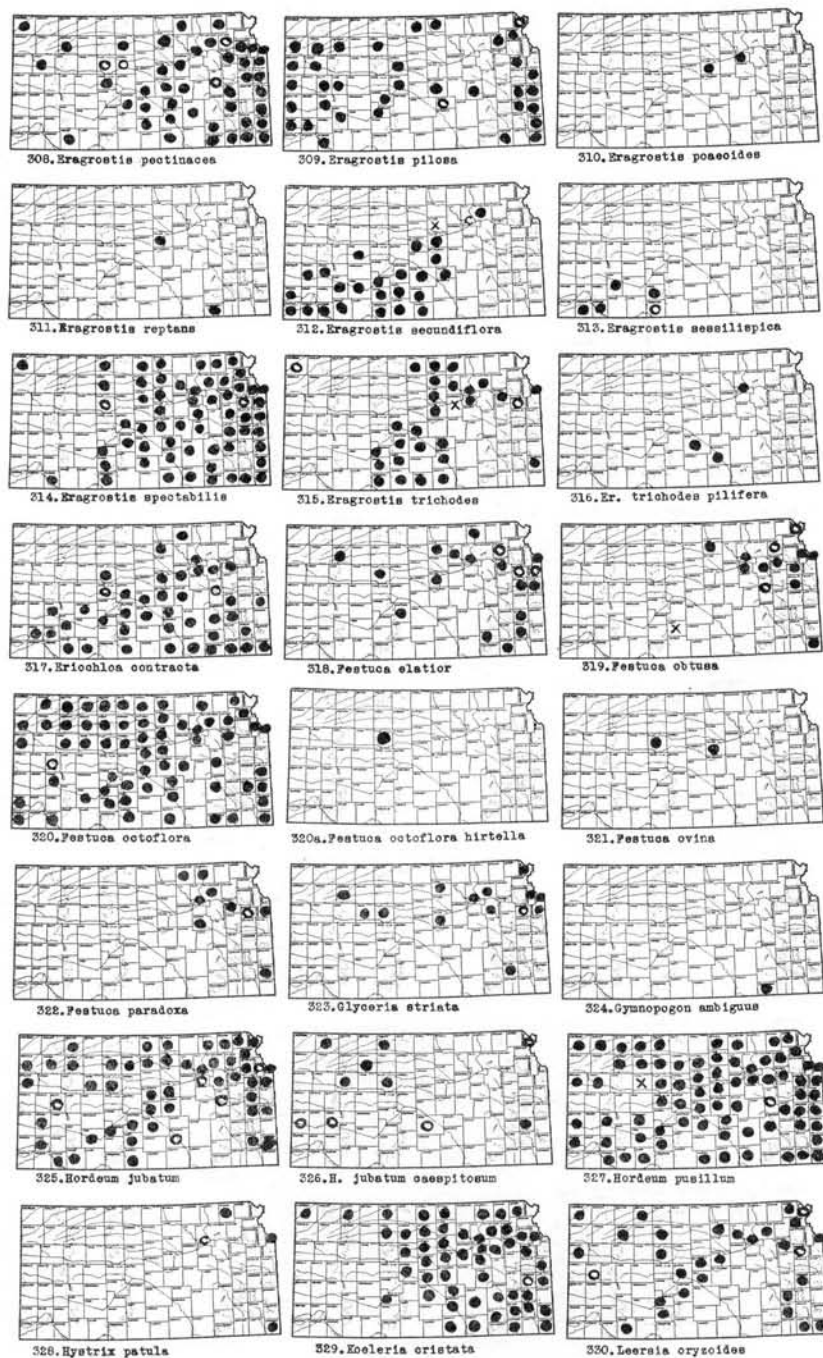


PLATE 14. Poaceae (219-444).

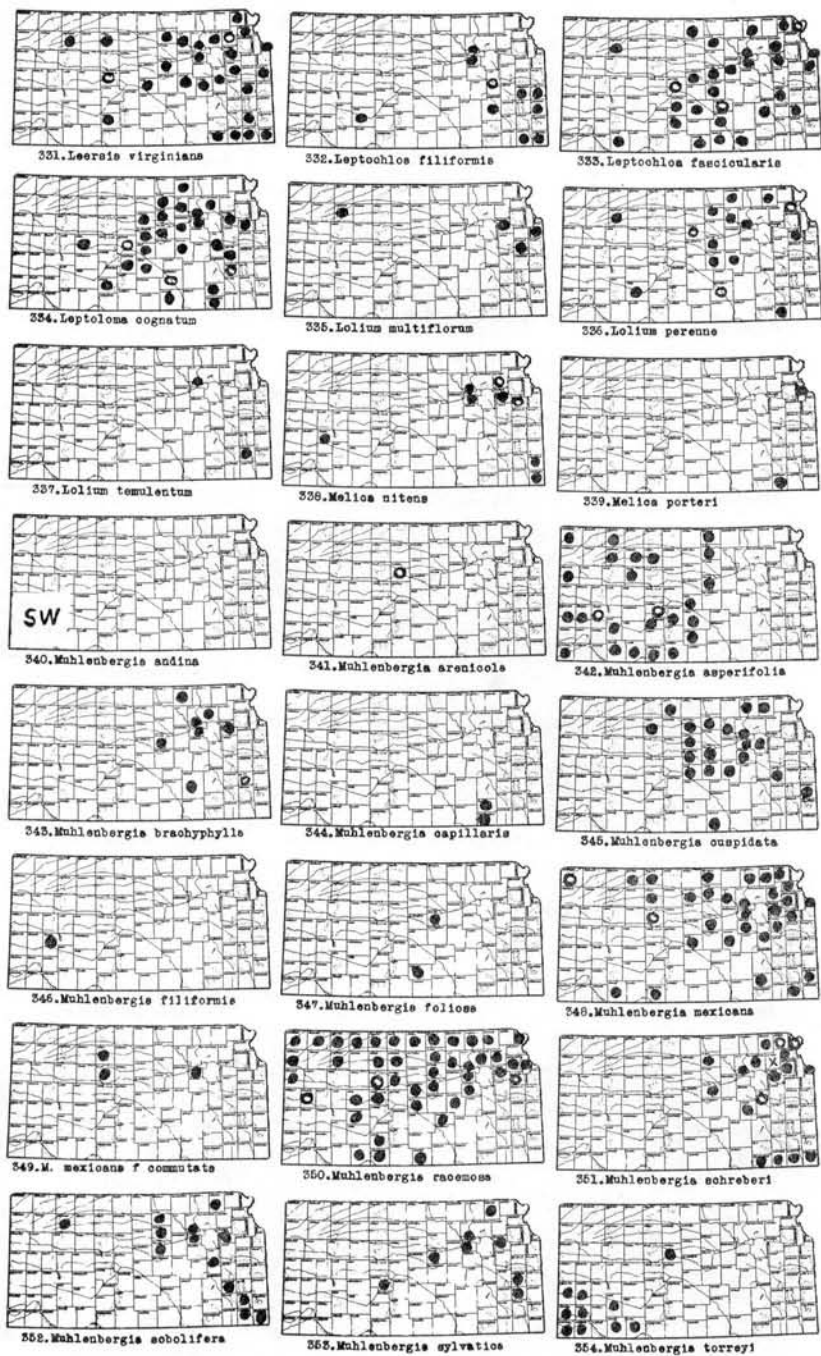


PLATE 15. Poaceae (219-444).

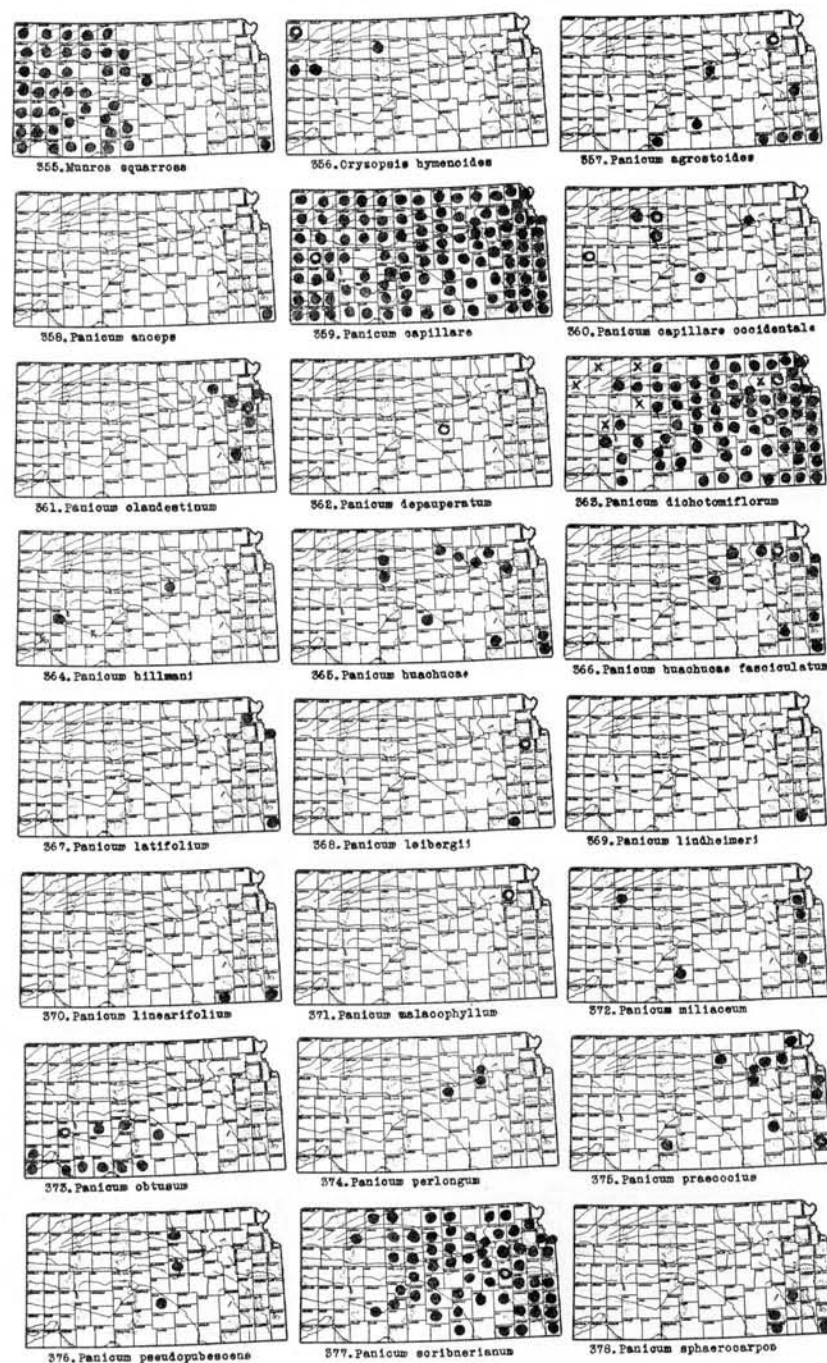


PLATE 16. Poaceae (219-444).

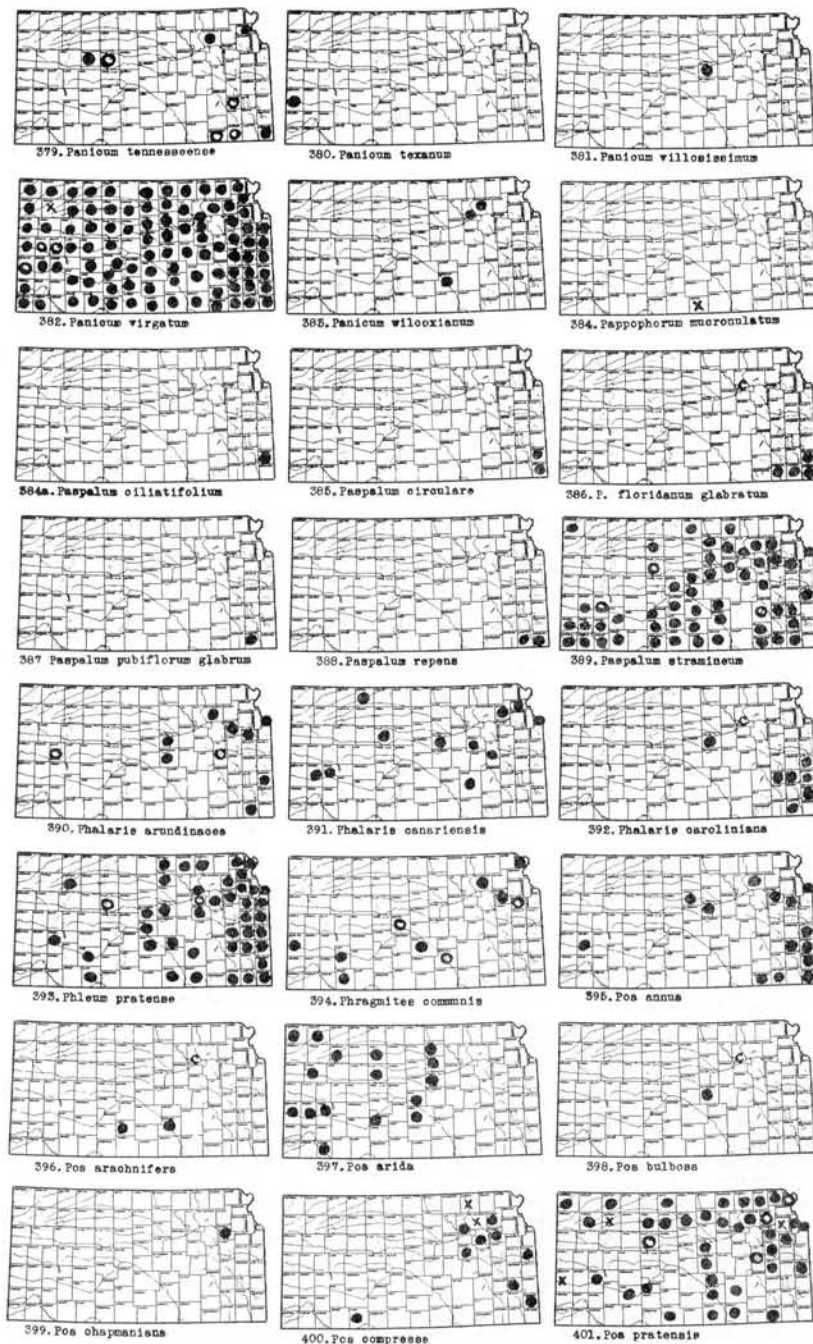


PLATE 17. Poaceae (219-444).

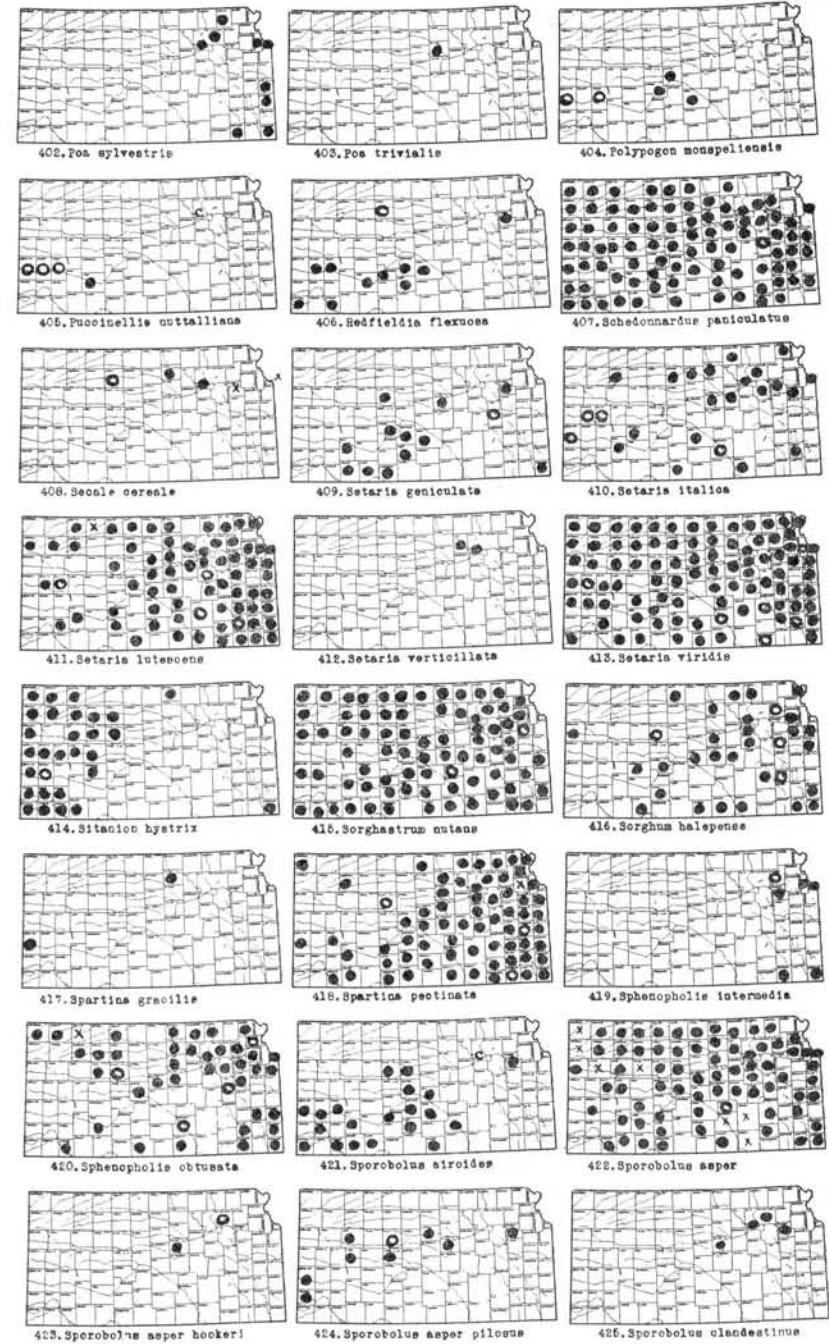


PLATE 18. Poaceae (219-444).

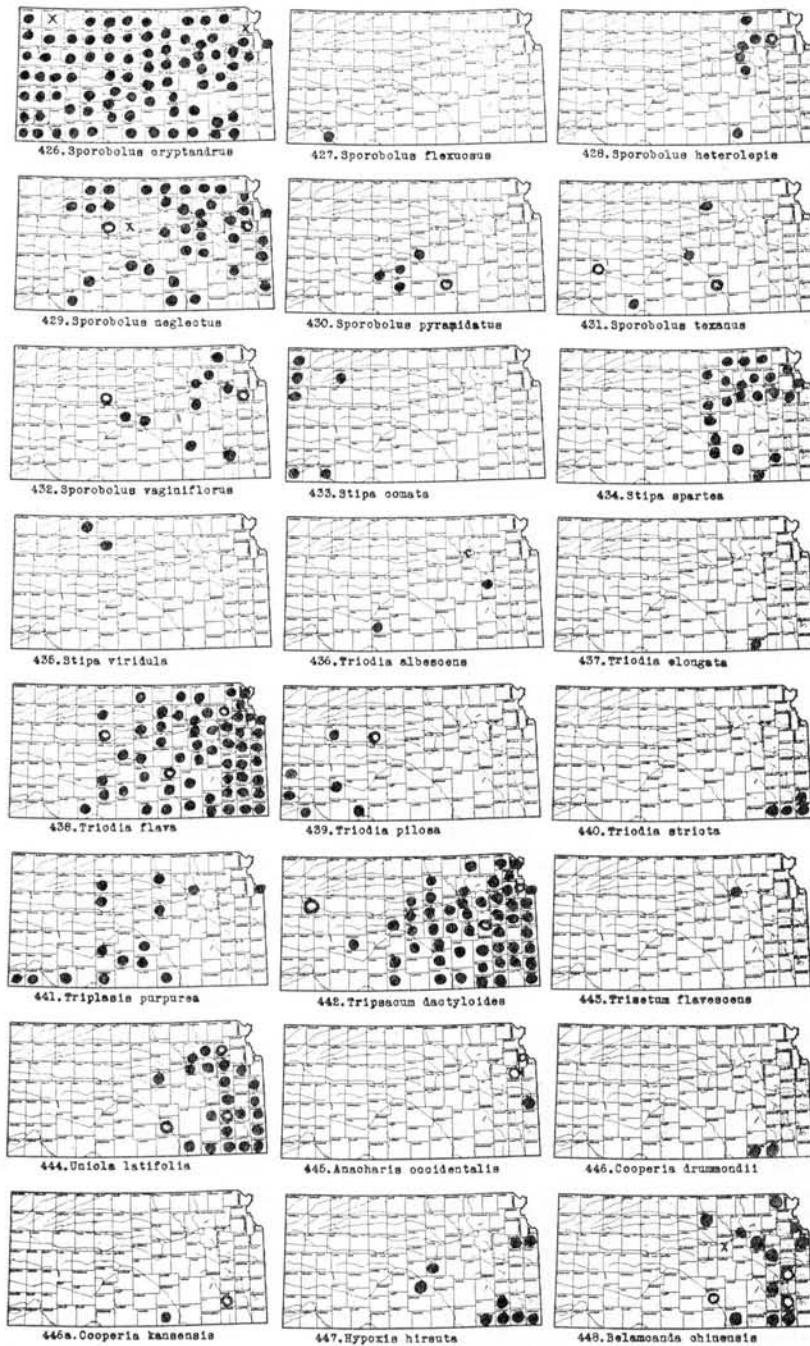


PLATE 19. Poaceae (219-444), Hydrocharitaceae (445), Amaryllidaceae (446-447), Iridaceae (448-454).

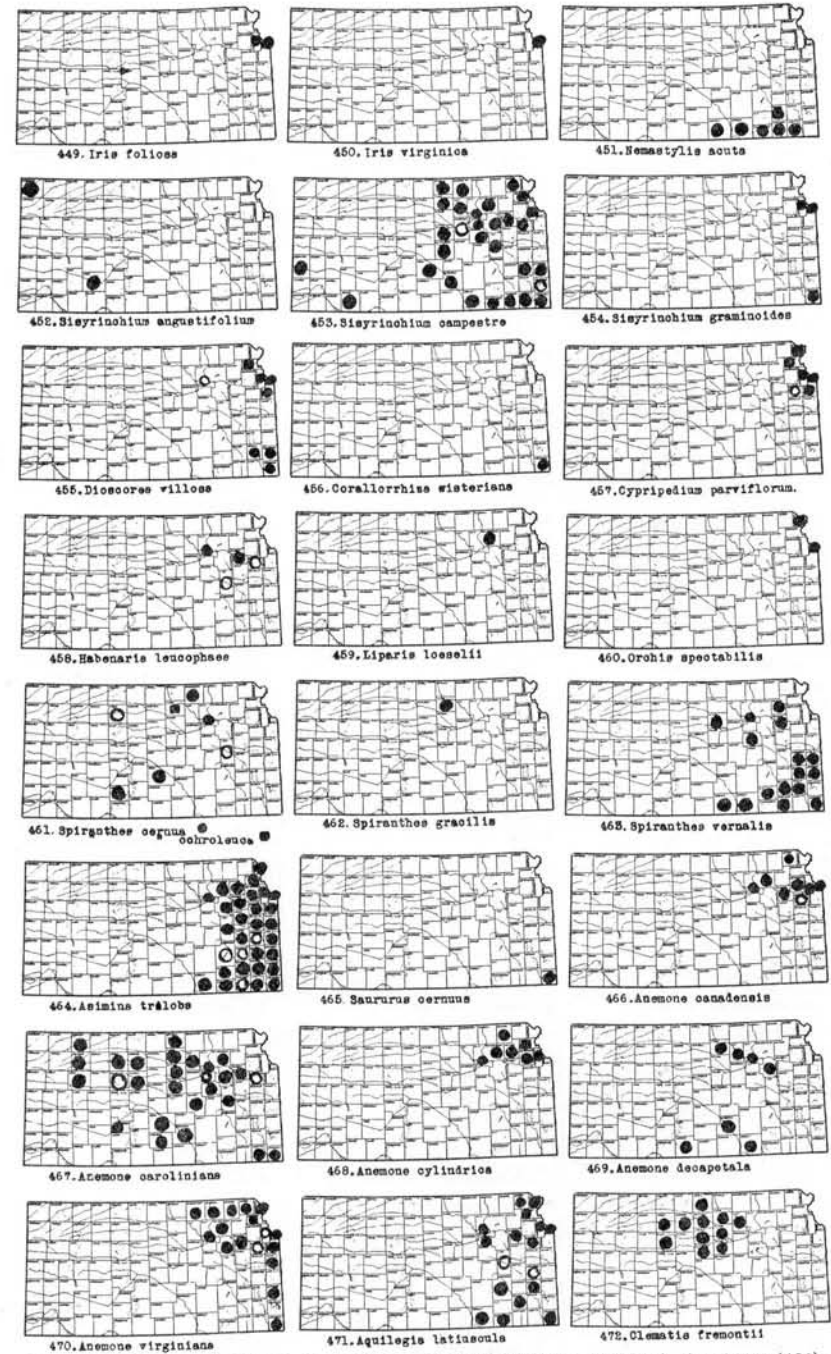


PLATE 20. Iridaceae (448-454), Dioscoreaceae (455), Orchidaceae (456-463), Anonaceae (464), Saururaceae (465), Ranunculaceae (466-494).

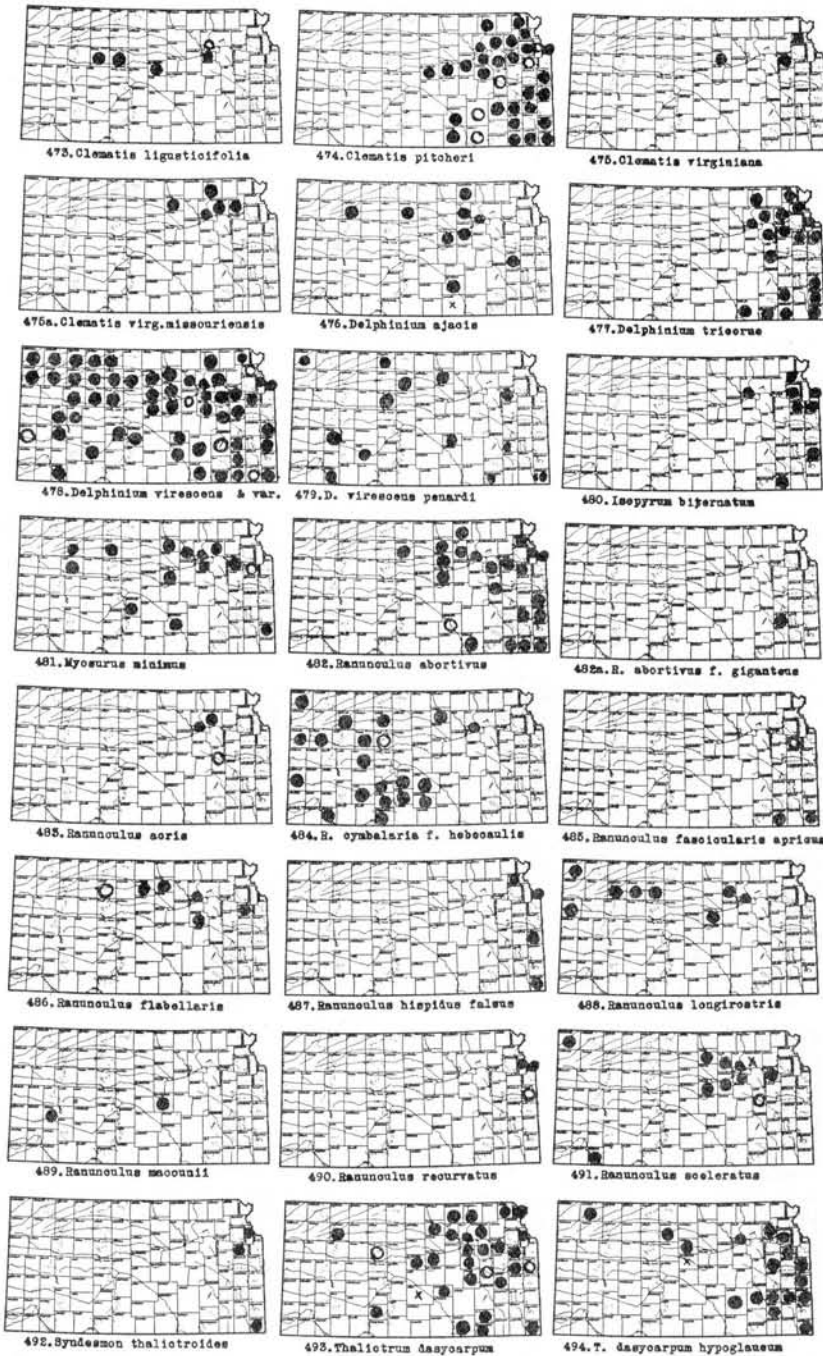


PLATE 21. Ranunculaceae (466-494).

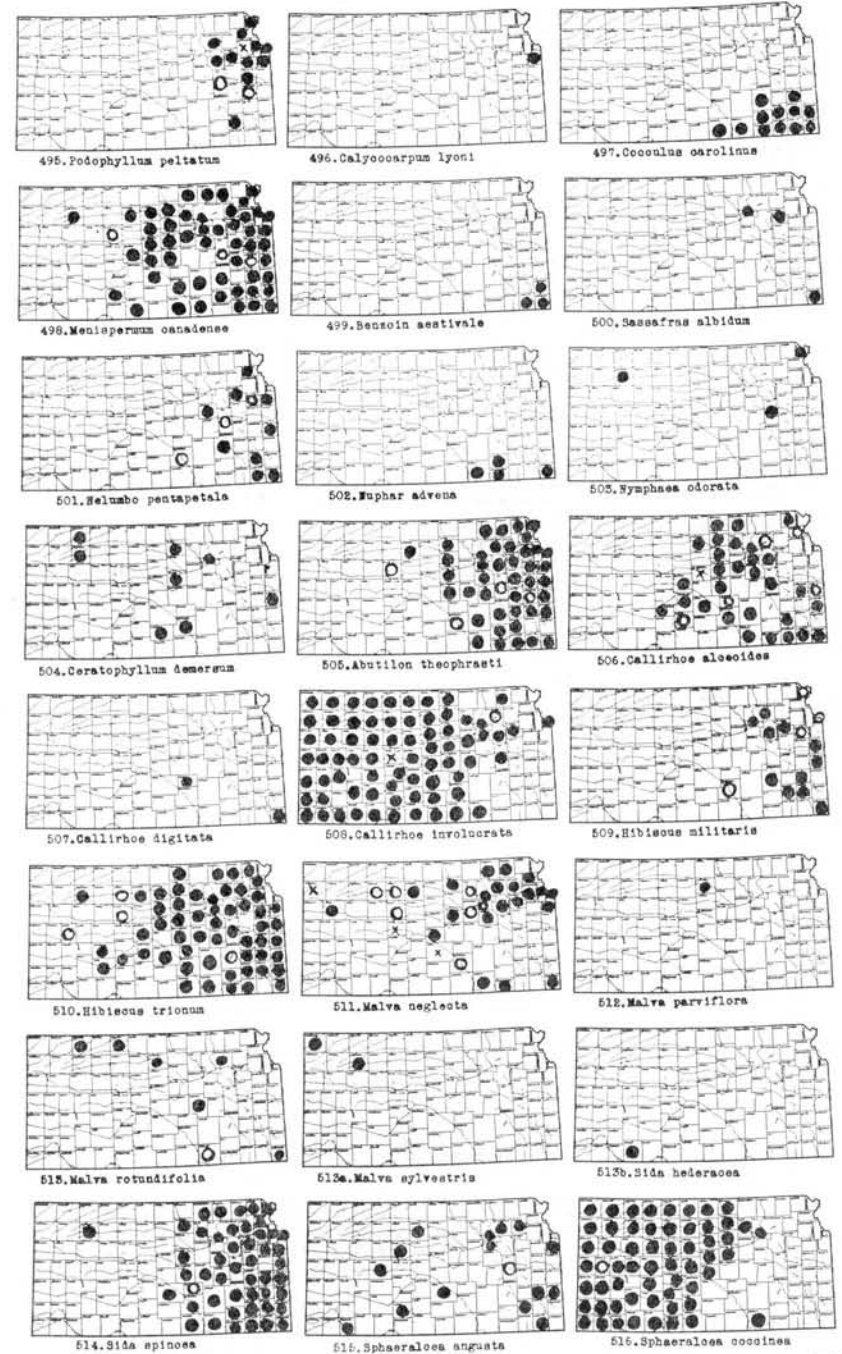


PLATE 22. Berberidaceae (495), Menispermaceae (496-498), Lauraceae (499-500), Nelumbonaceae (501), Nymphaeaceae (502-503), Ceratophyllaceae (504), Malvaceae (505-517).

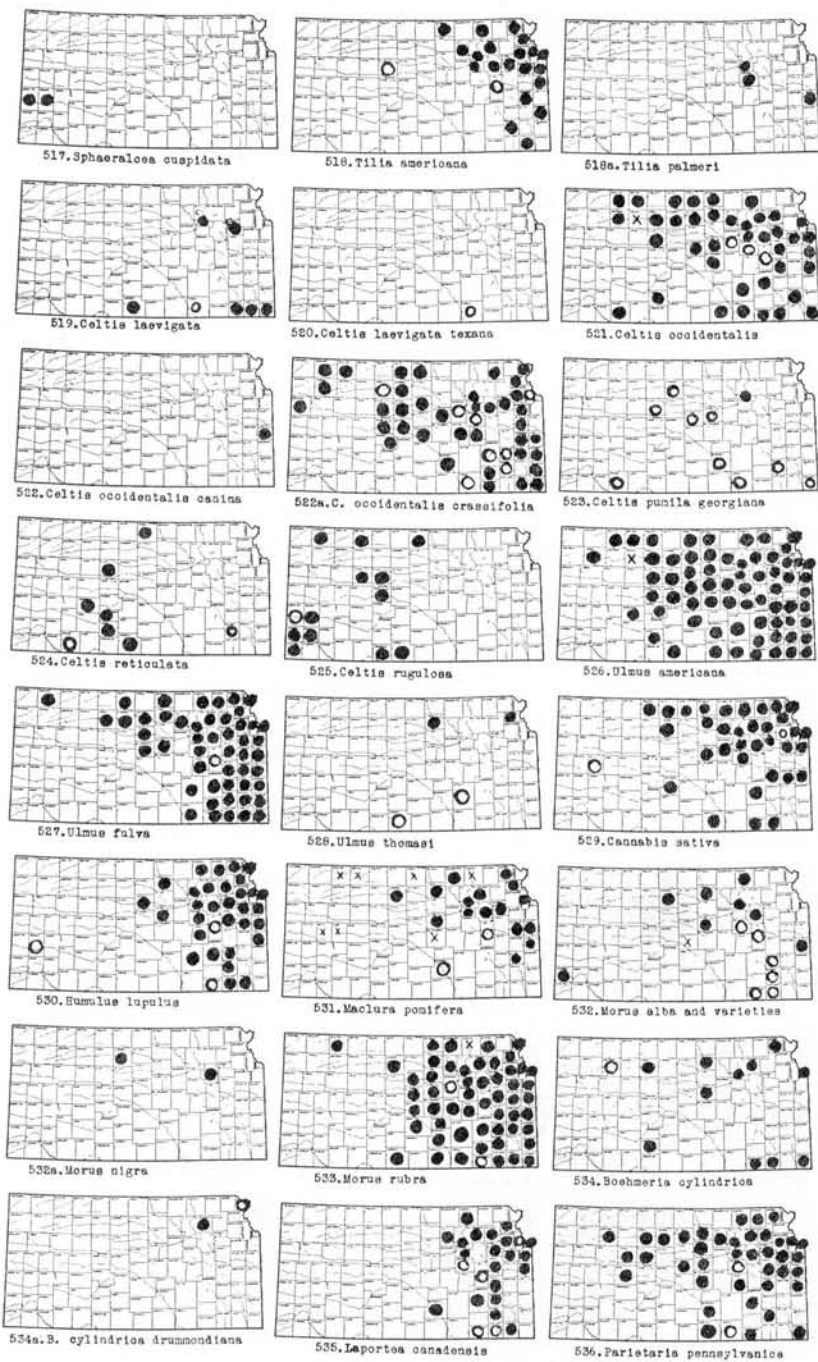


PLATE 23. Malvaceae (505-517), Tiliaceae (518), Ulmaceae (519-528), Moraceae (529-533), Urticaceae (534-538).

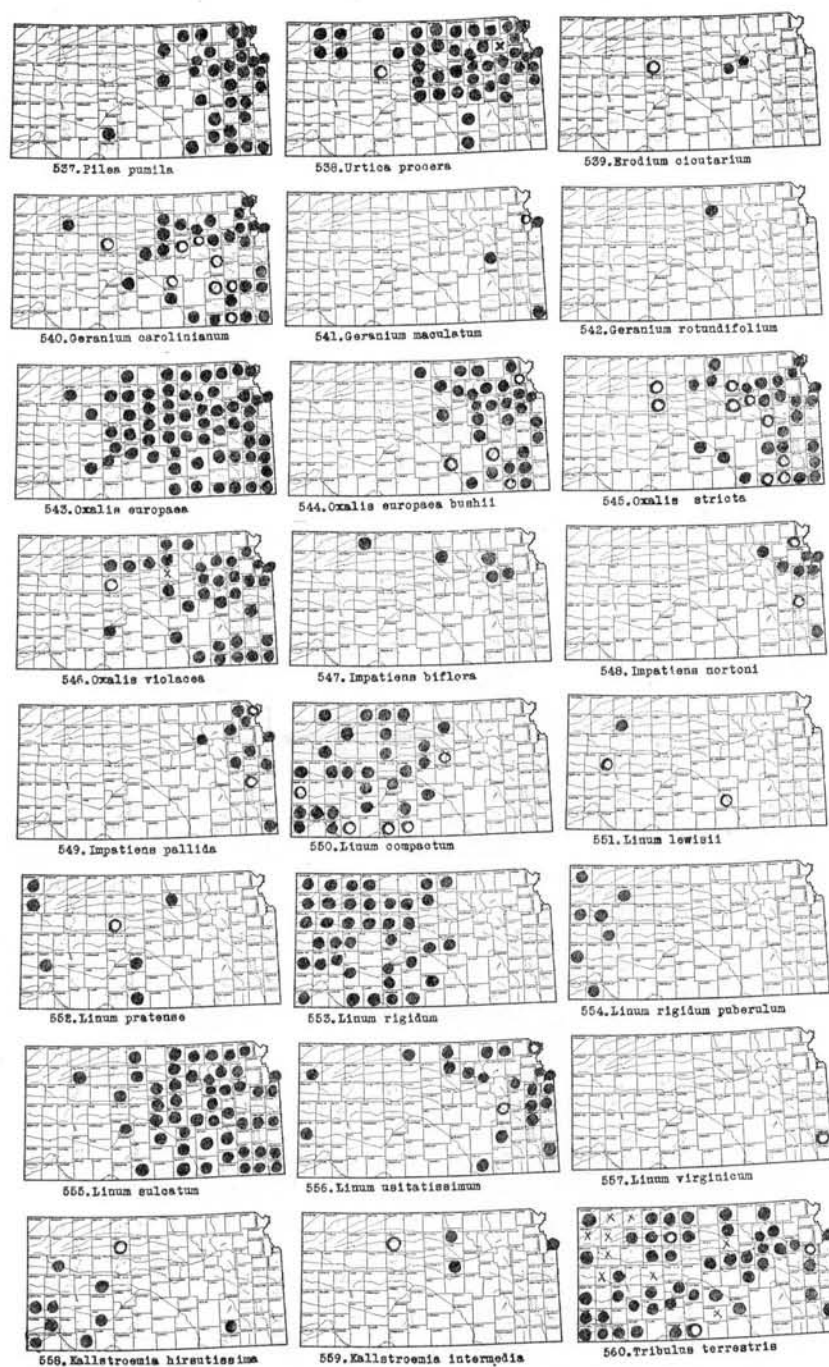


PLATE 24. Urticaceae (534-538), Geraniaceae (539-542), Oxalidaceae (543-546), Balsaminaceae (547-549), Linaceae (550-557), Zygophyllaceae (558-561).

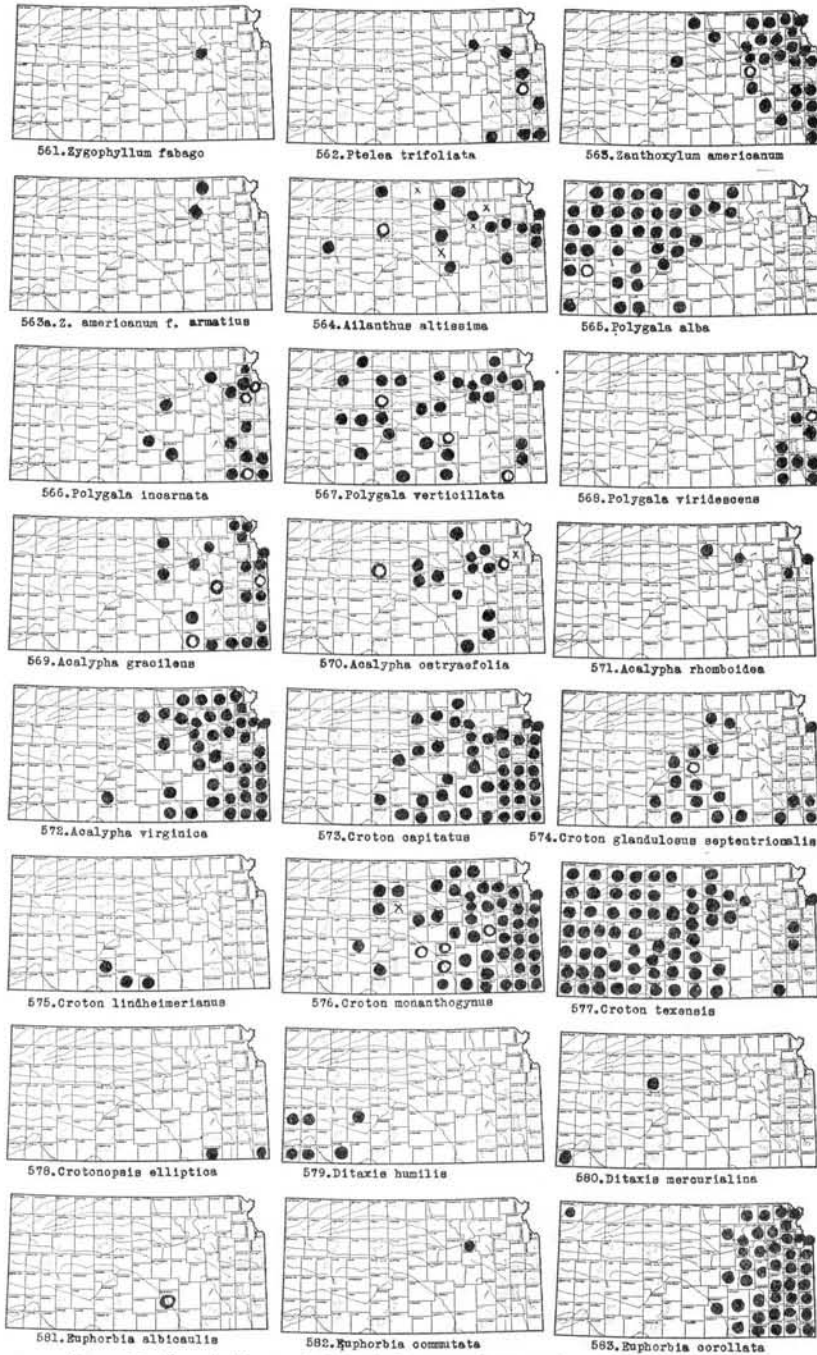


PLATE 25. Zygophyllaceae (558-561), Rutaceae (562-563a), Simarubaceae (564), Polygalaceae (565-568), Euphorbiaceae (569-608).

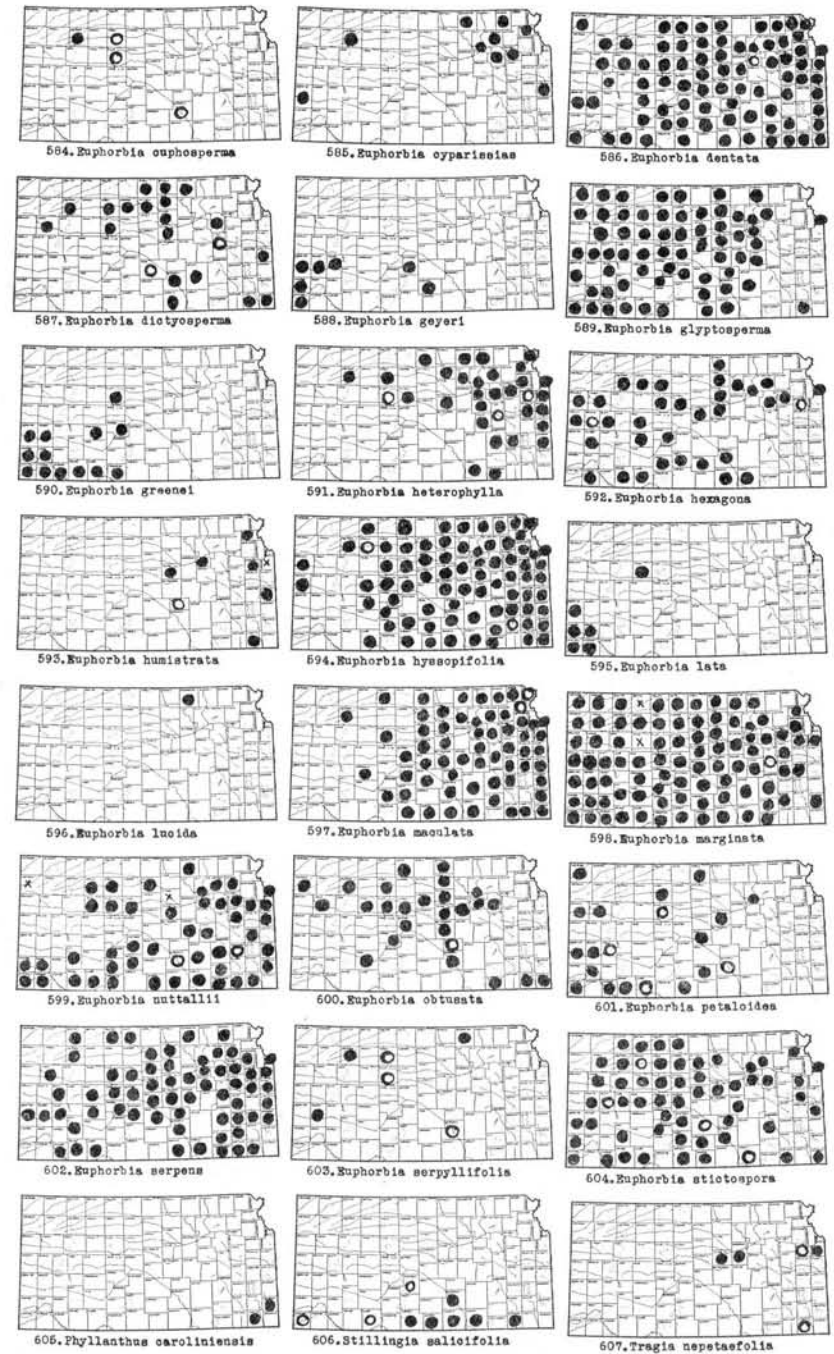


PLATE 26. Euphorbiaceae (589-608).

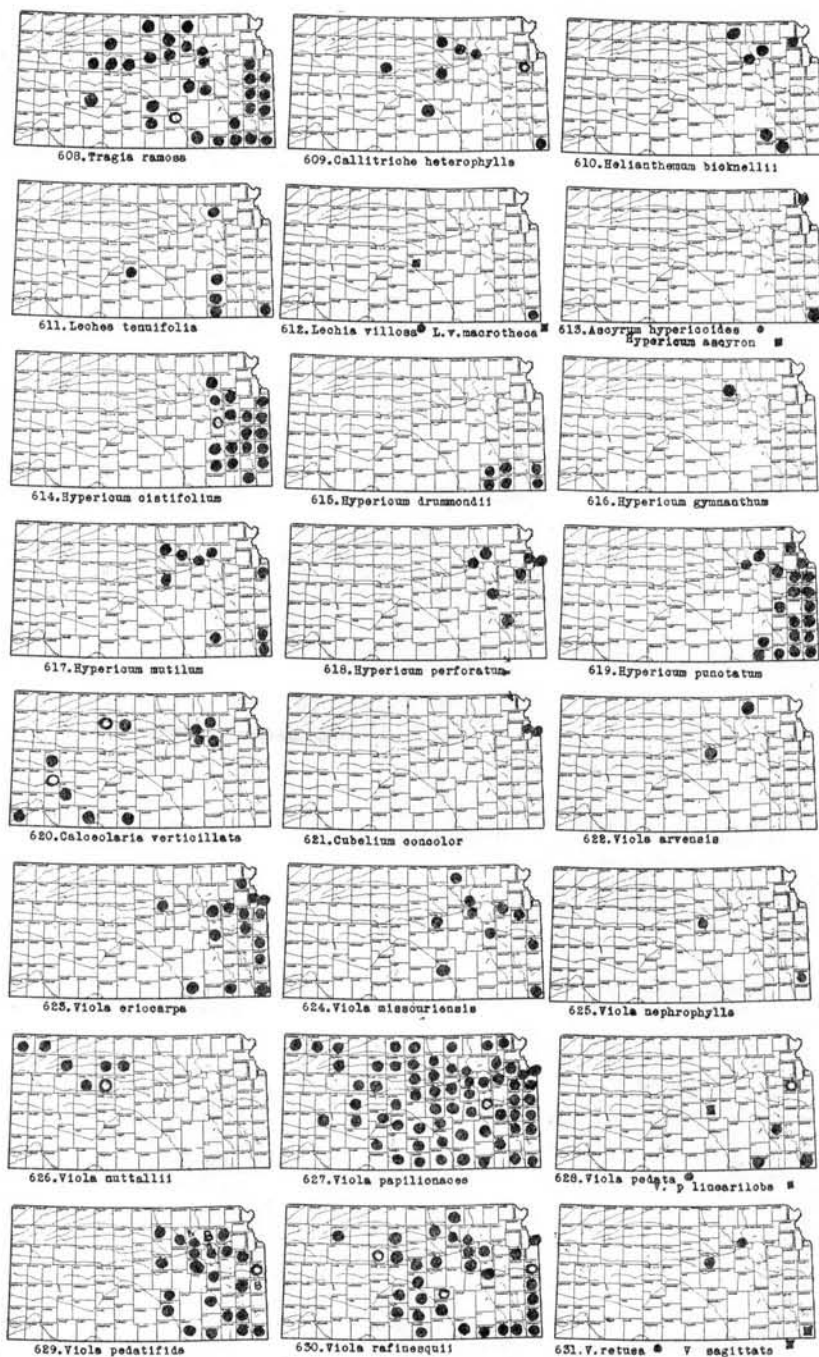


PLATE 27. Euphorbiaceae (569-608), Callitrichaceae (609), Cistaceae (610-612), Hypericaceae (613-619), Violaceae (620-632). (Map 614 should read *Hypericum sphaerocarpum*.)

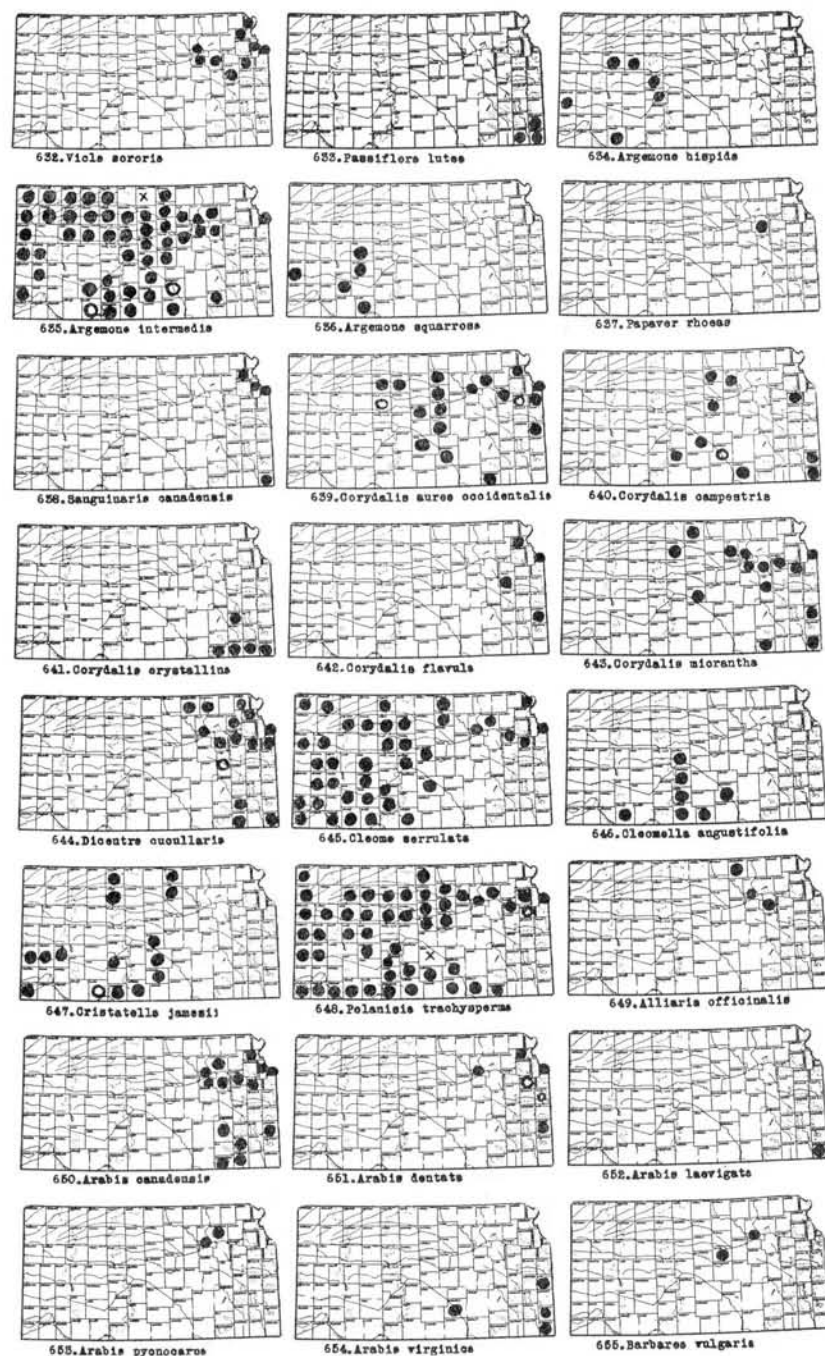


PLATE 28. Violaceae (620-632), Passifloraceae (633), Papaveraceae (634-638), Fumariaceae (639-644), Capparidaceae (645-648), Brassicaceae (649-705).

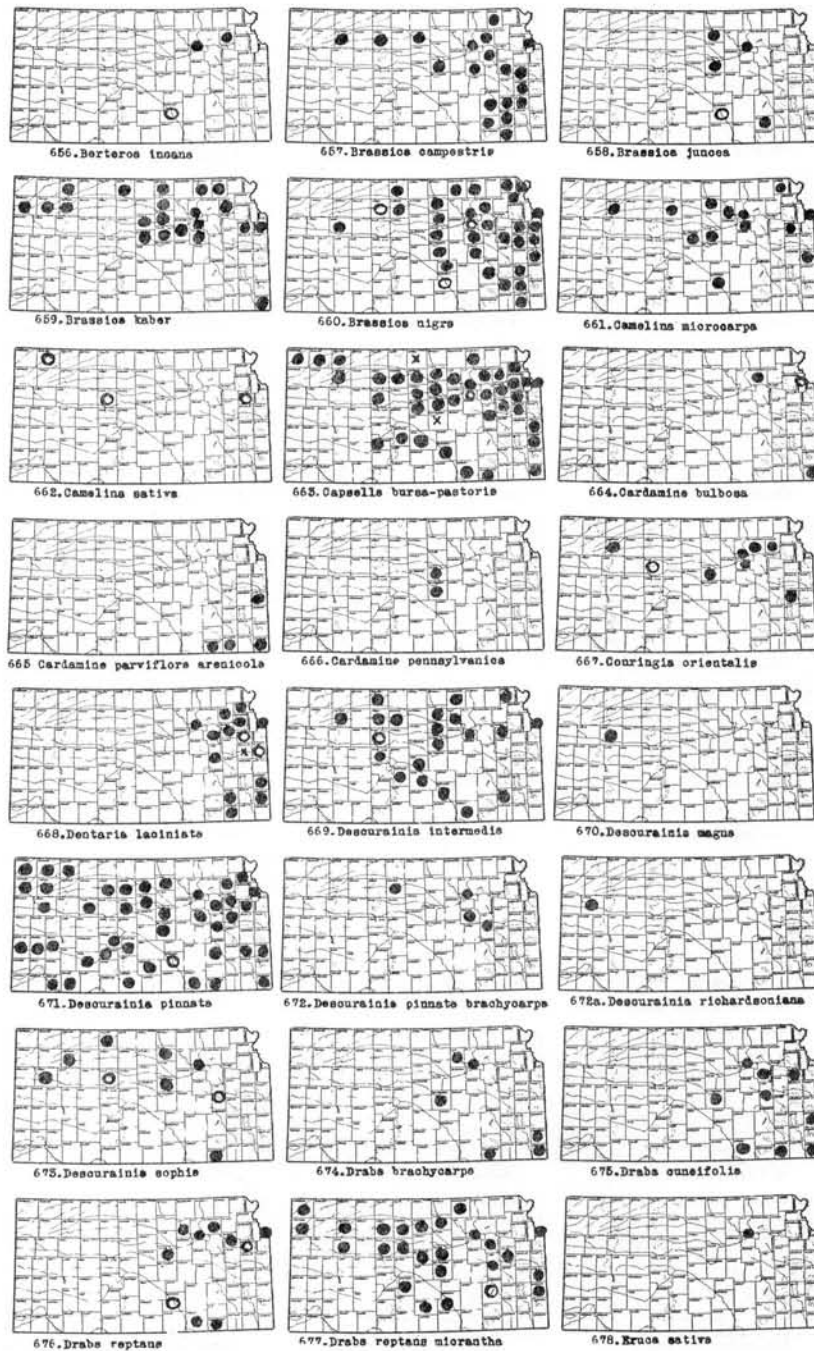
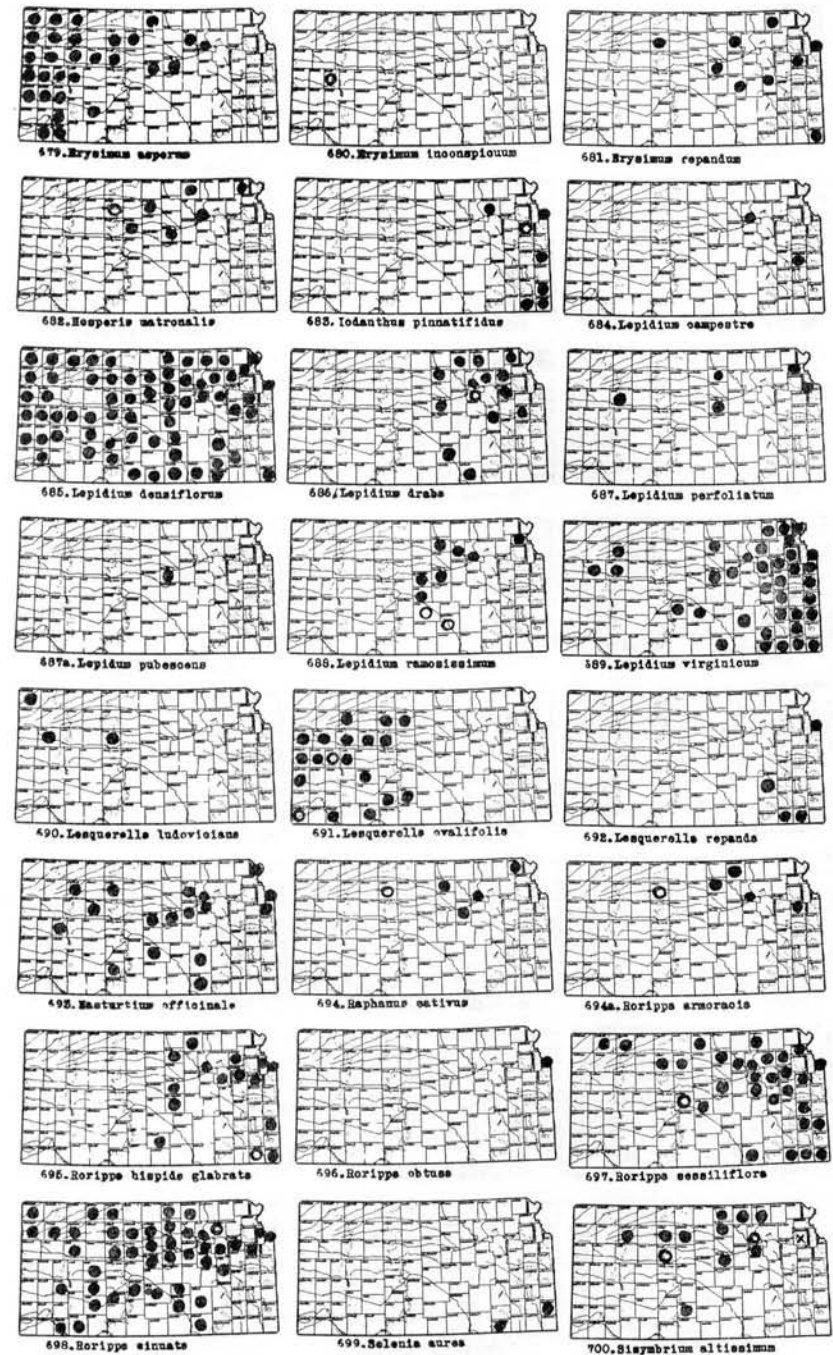


PLATE 29. Brassicaceae (649-705).

PLATE 30. Brassicaceae (649-705). (Map 687a should read *Lepidium oblongum*.)

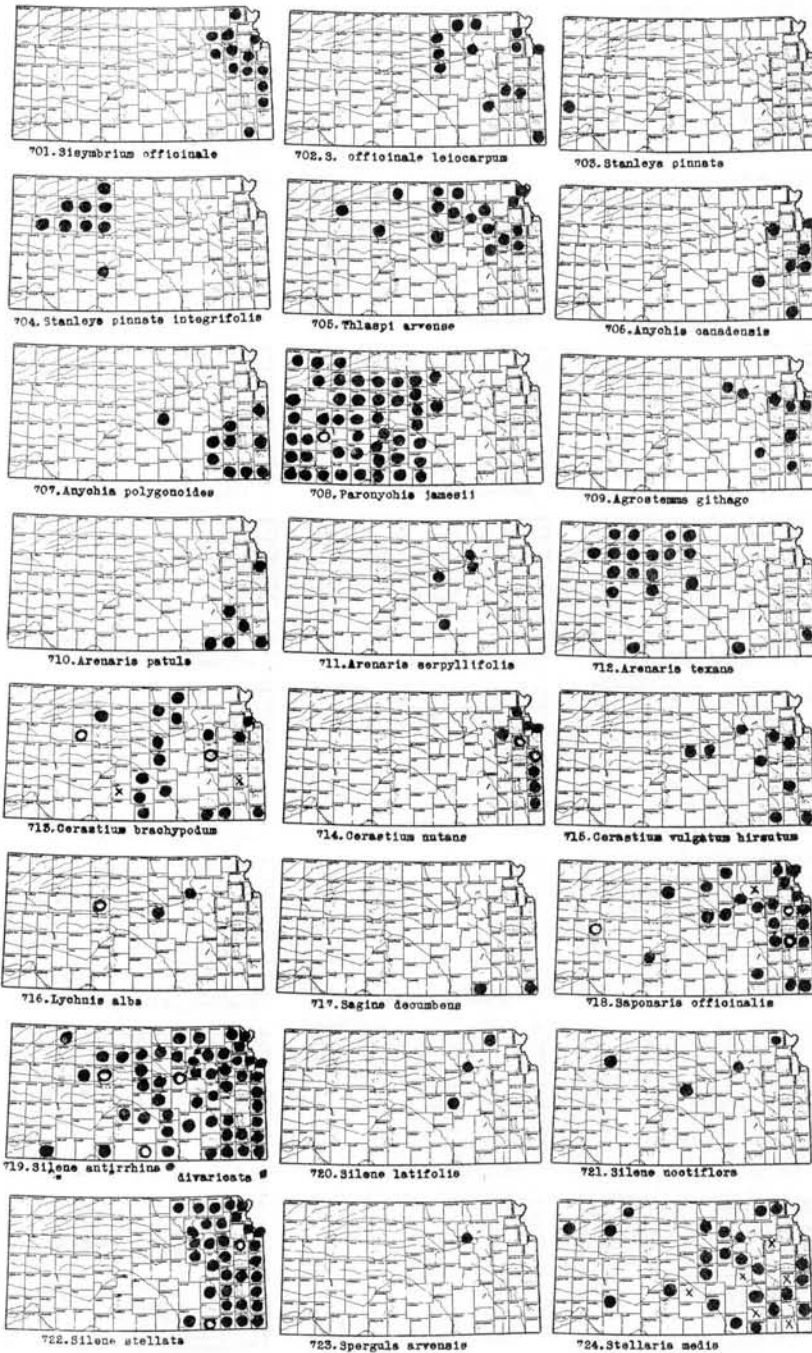


PLATE 31. Brassicaceae (649-705), Illecebraceae (706-708), Caryophyllaceae (709-725).

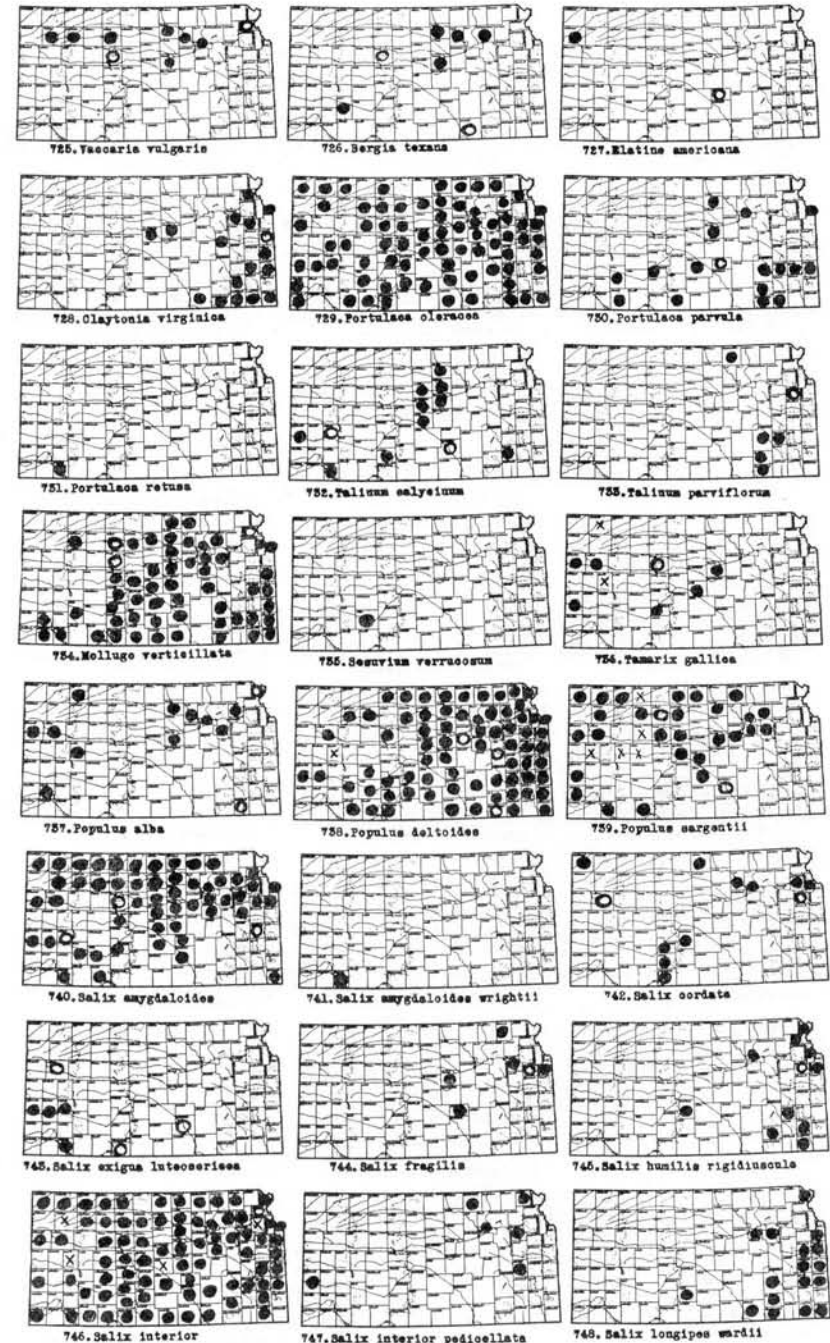


PLATE 32. Caryophyllaceae (709-725), Elatinaceae (726-727), Portulacaceae (728-733), Aizoaceae (734-735), Tamaricaceae (736), Salicaceae (737-751).

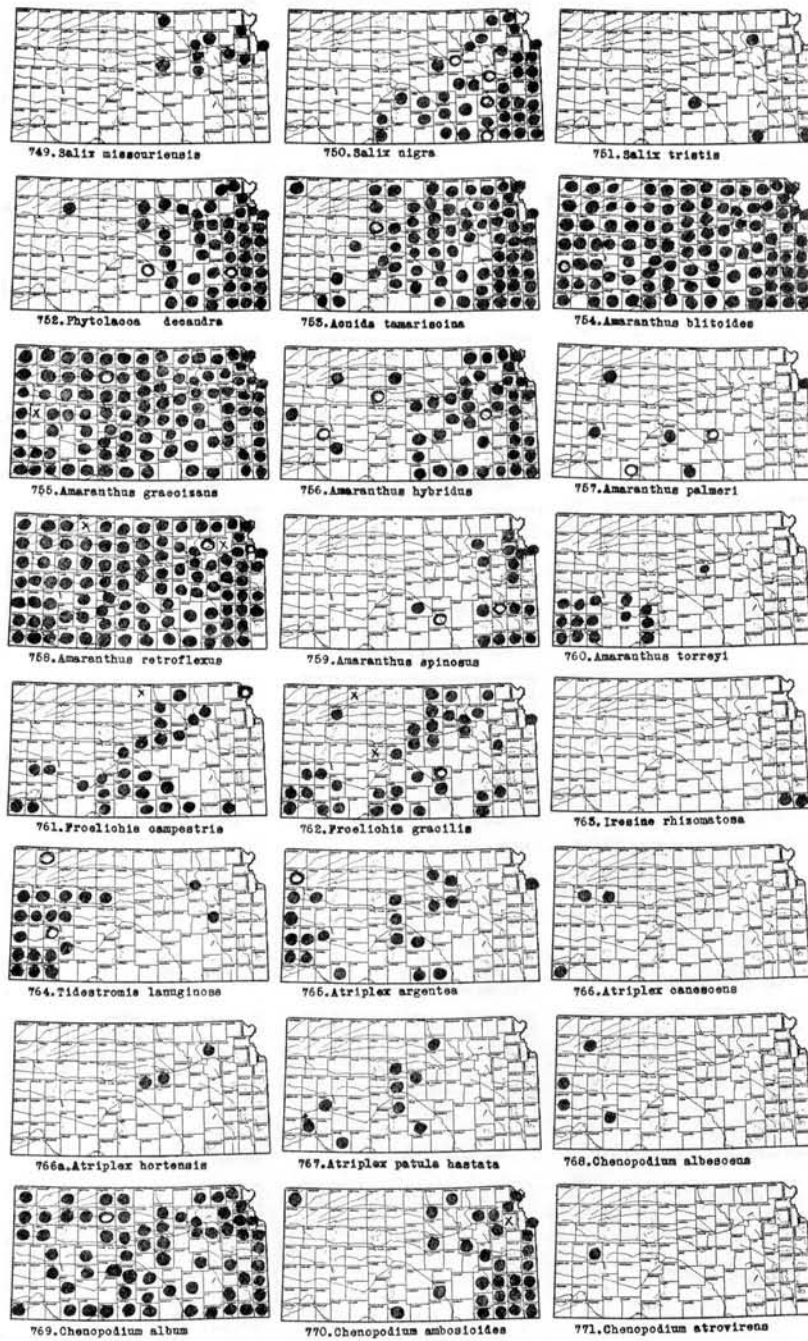


PLATE 33. Salicaceae (747-751), Phytolaccaceae (752), Amaranthaceae (753-764),
Chenopodiaceae (765-795).

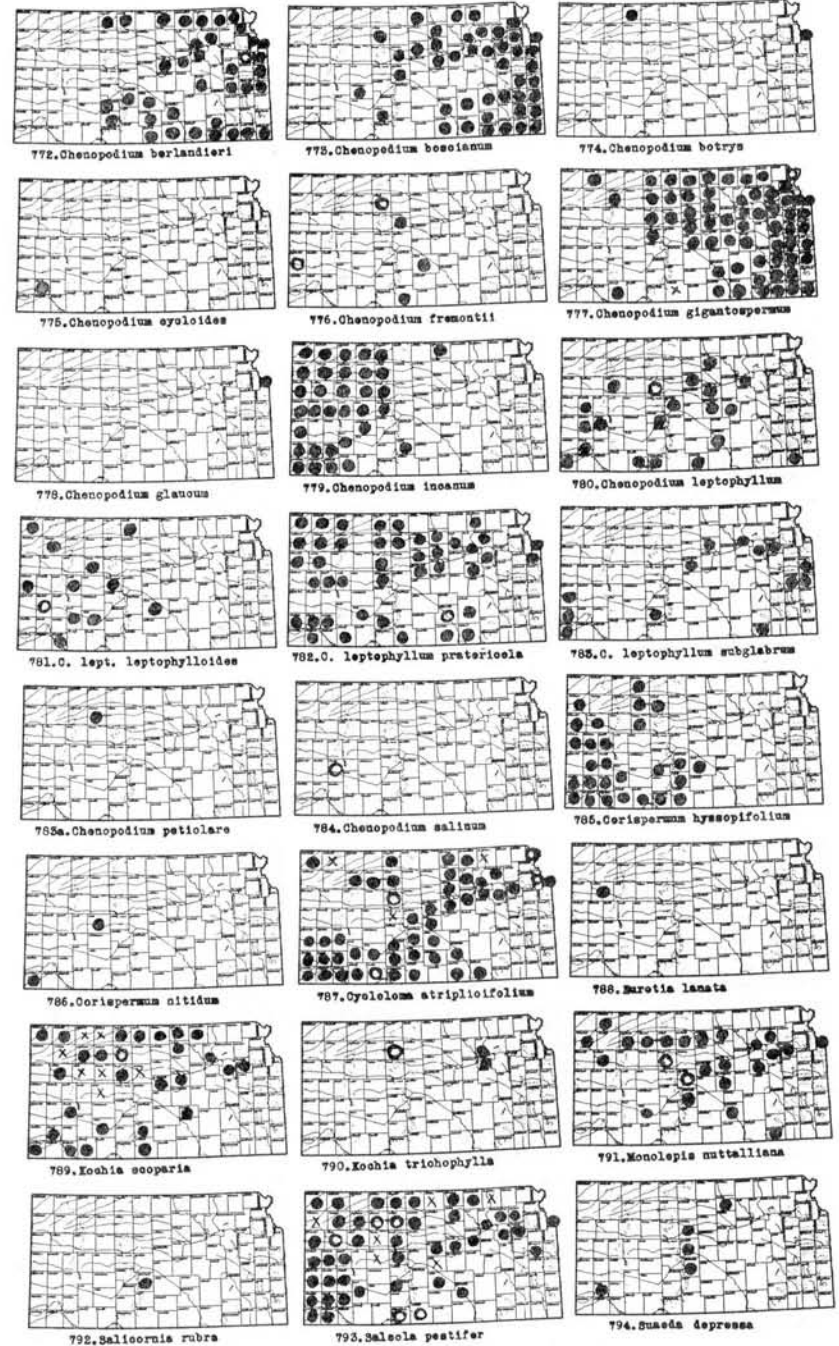


PLATE 34. Chenopodiaceae (765-795).

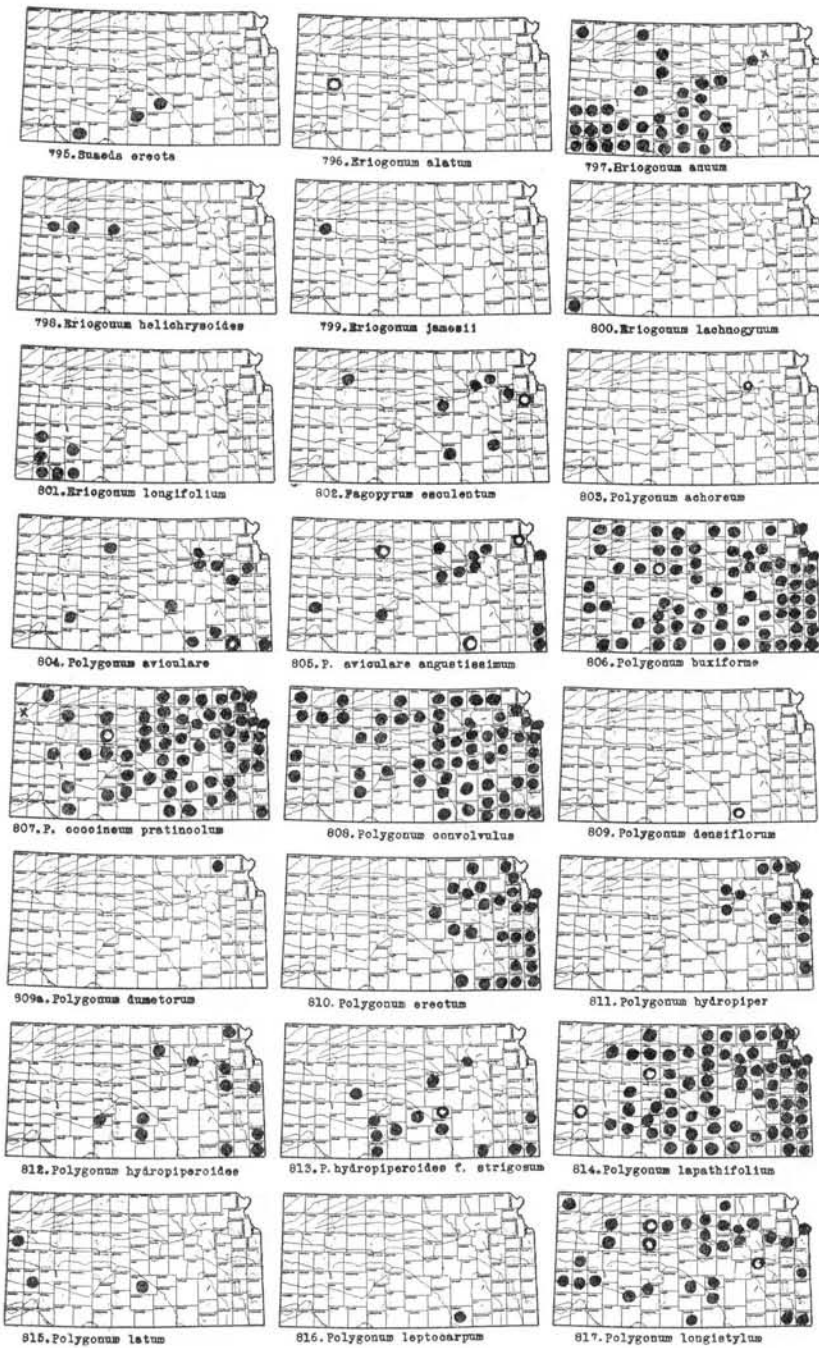


PLATE 35. Chenopodiaceae (765-795), Polygonaceae (796-840).

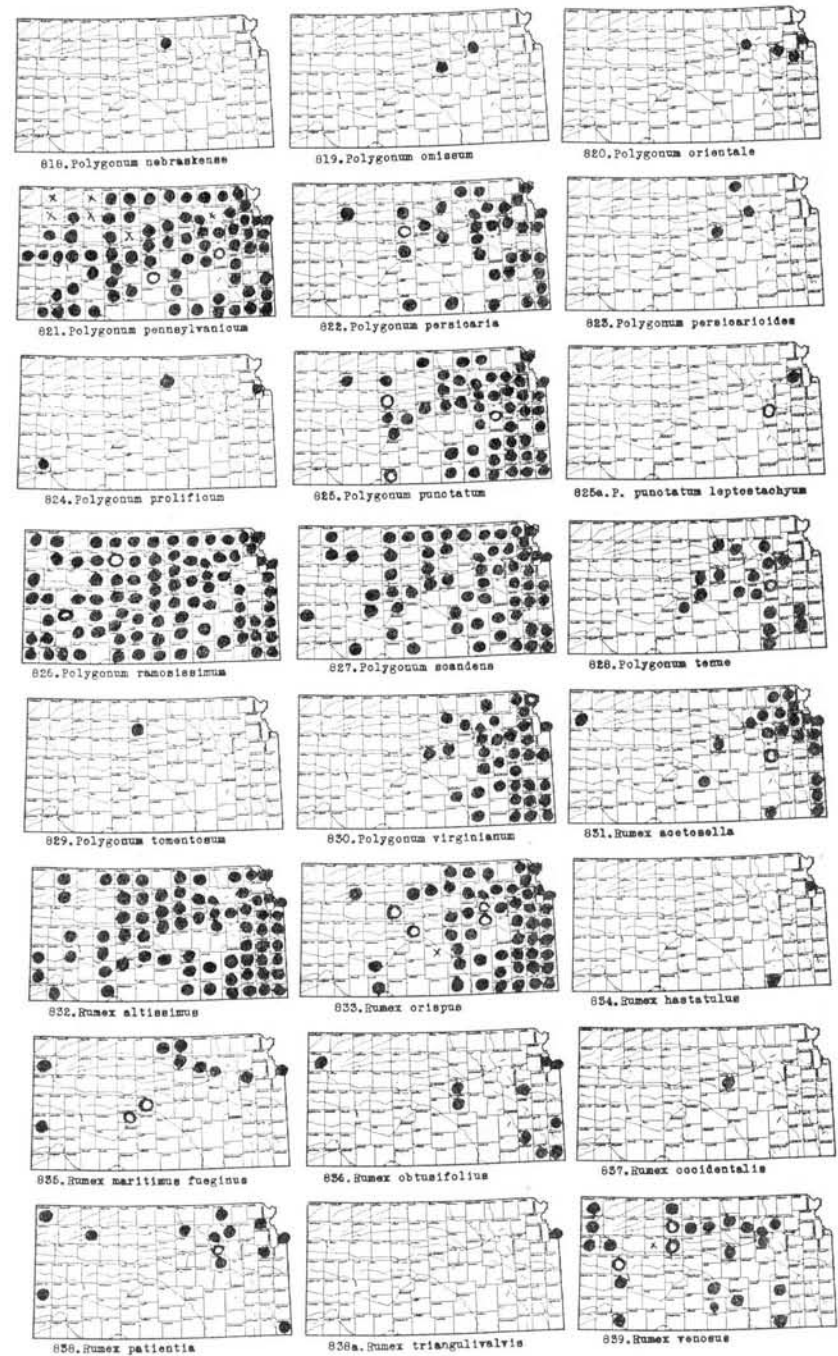


PLATE 36. Polygonaceae (796-840).

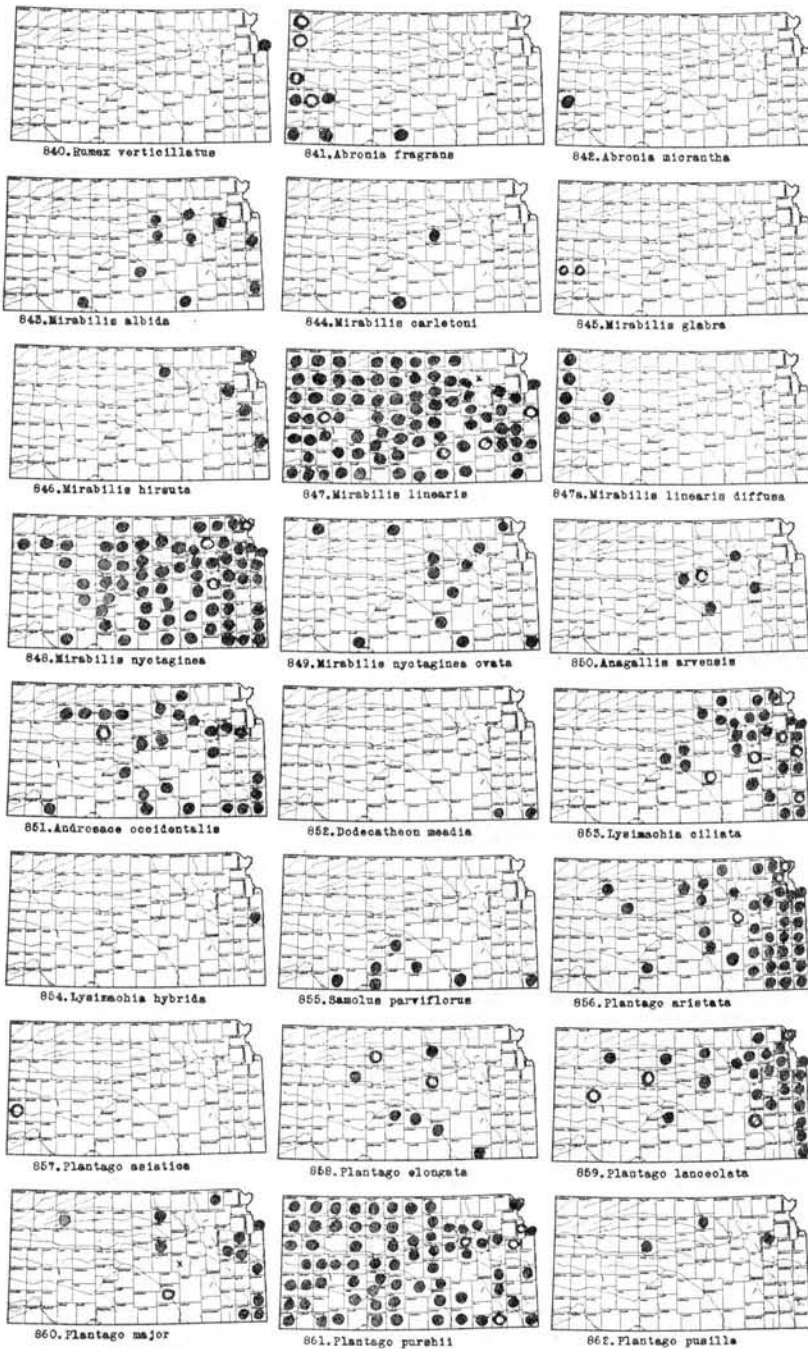


PLATE 37. Polygonaceae (796-840), Nyctaginaceae (841-849), Primulaceae (850-855), Plantaginaceae (856-866).

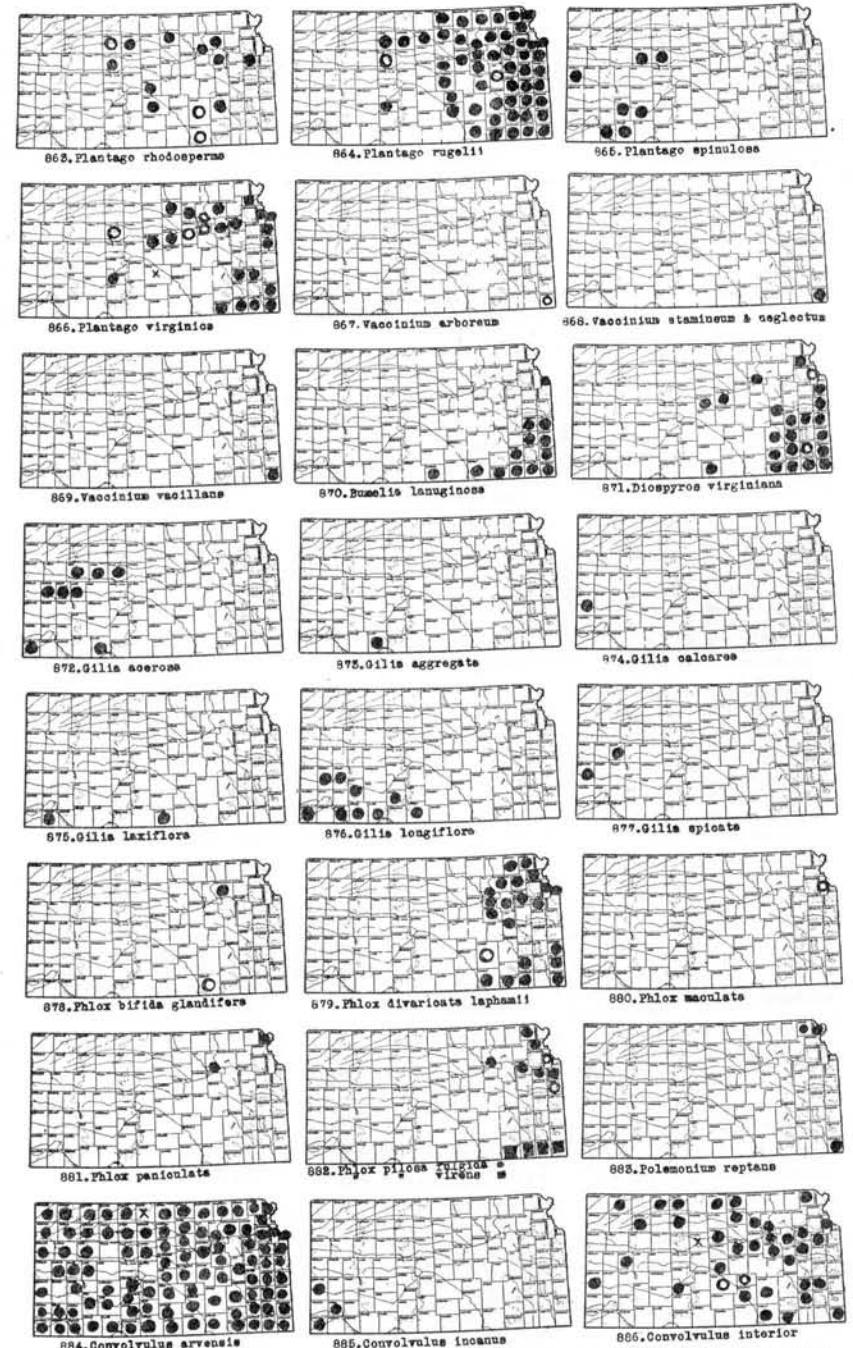


PLATE 38. Plantaginaceae (856-866), Ericaceae (867-869), Sapotaceae (870), Ebenaceae (871), Polemoniaceae (872-883), Convolvulaceae (884-903).

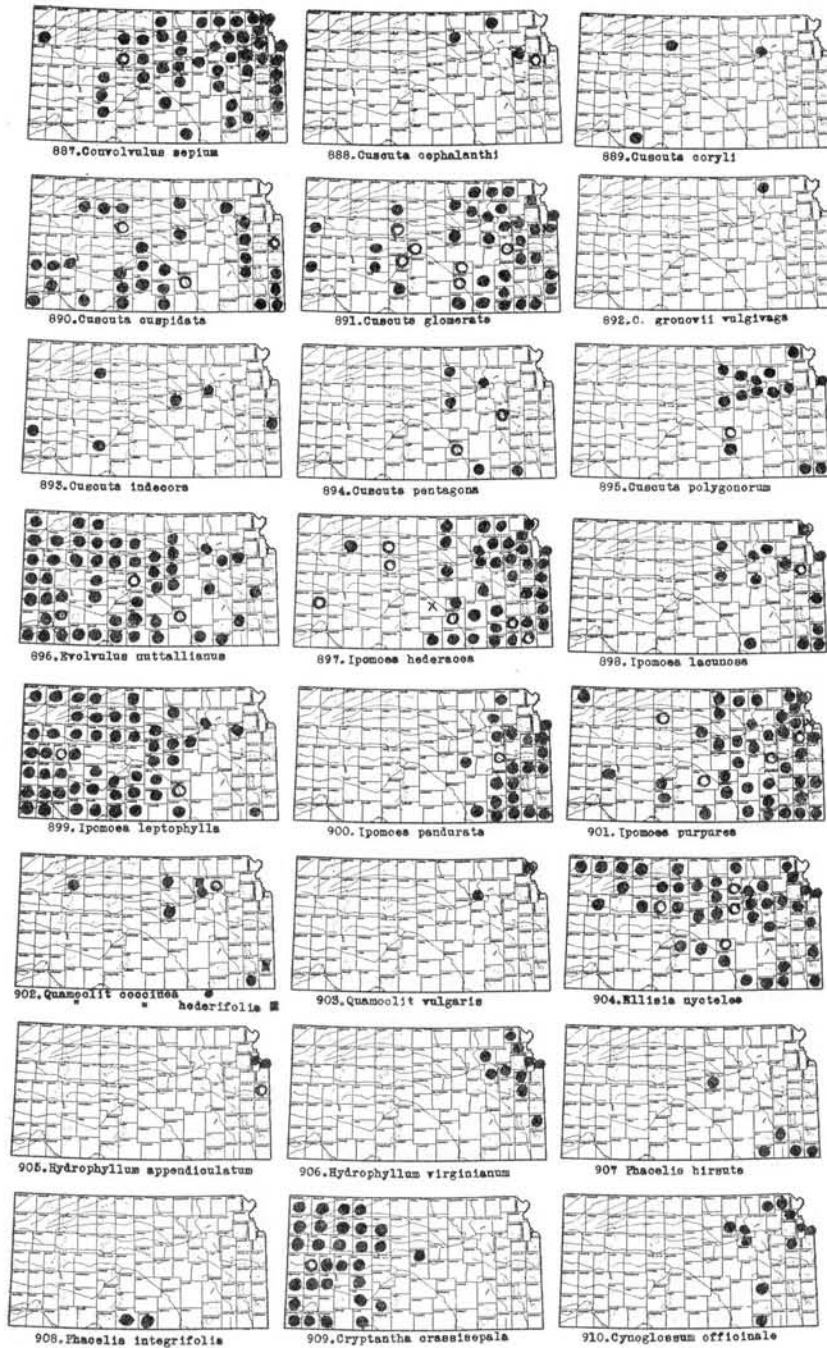


PLATE 39. Convolvulaceae (884-903), Hydrophyllaceae (904-908), Boraginaceae (909-929).

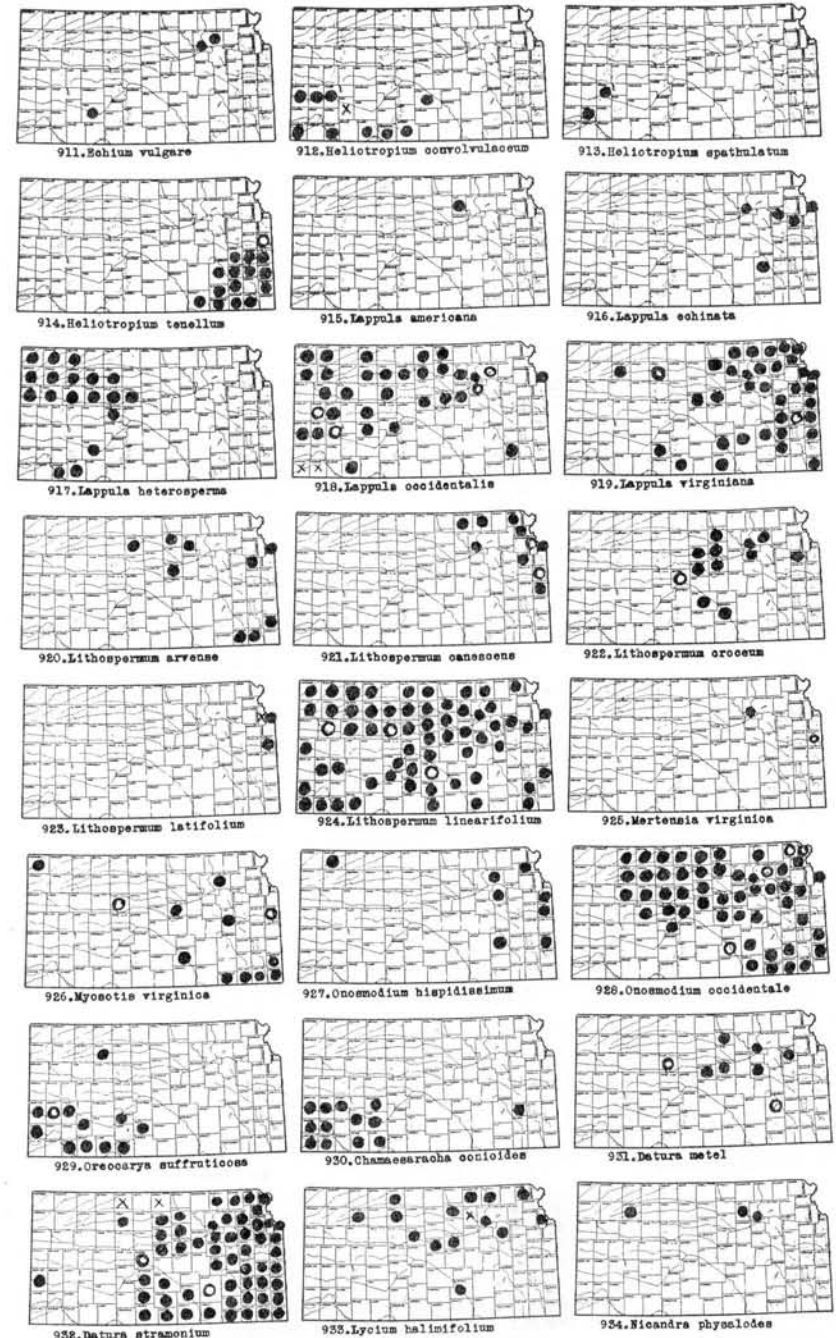


PLATE 40. Boraginaceae (909-929), Solanaceae (930-959).

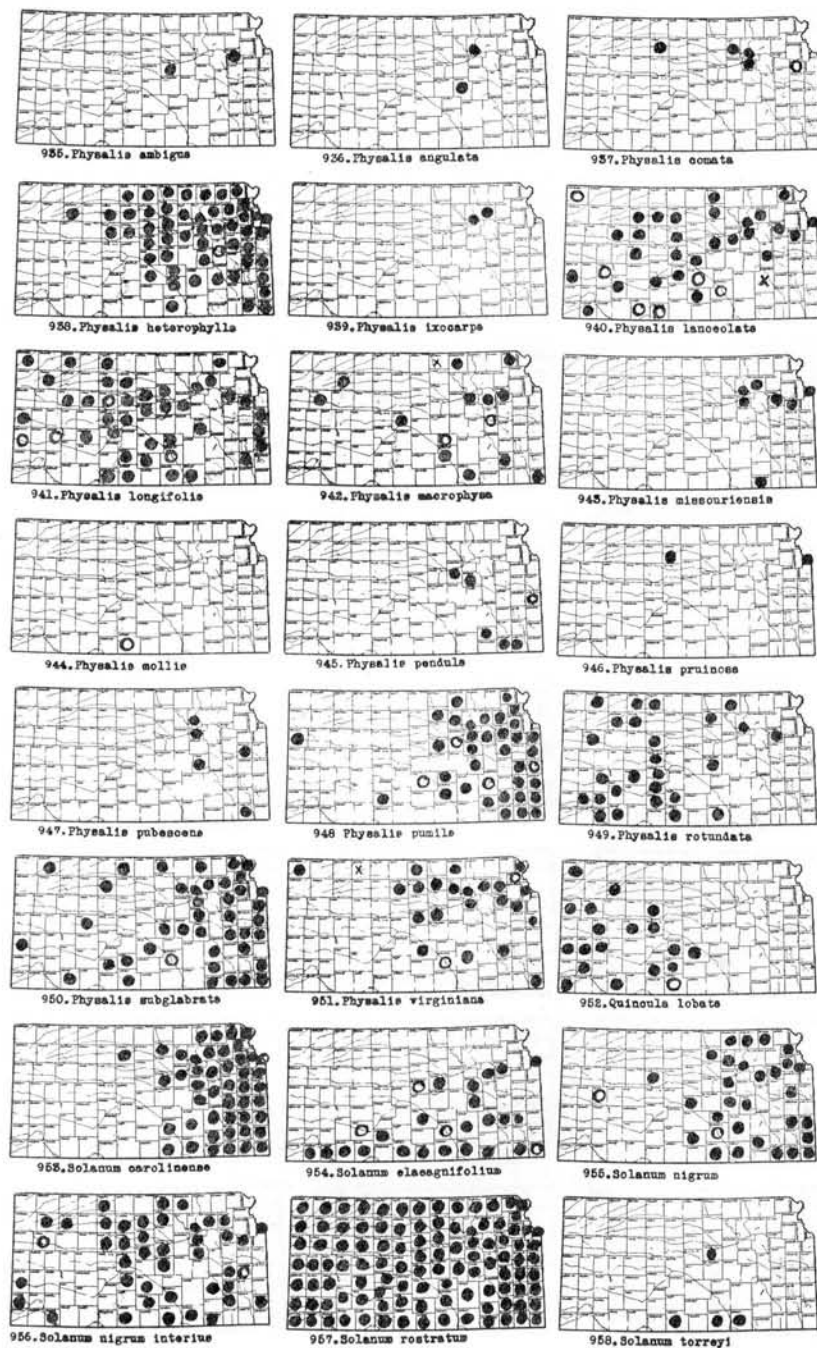


PLATE 41. Solanaceae (930-959).

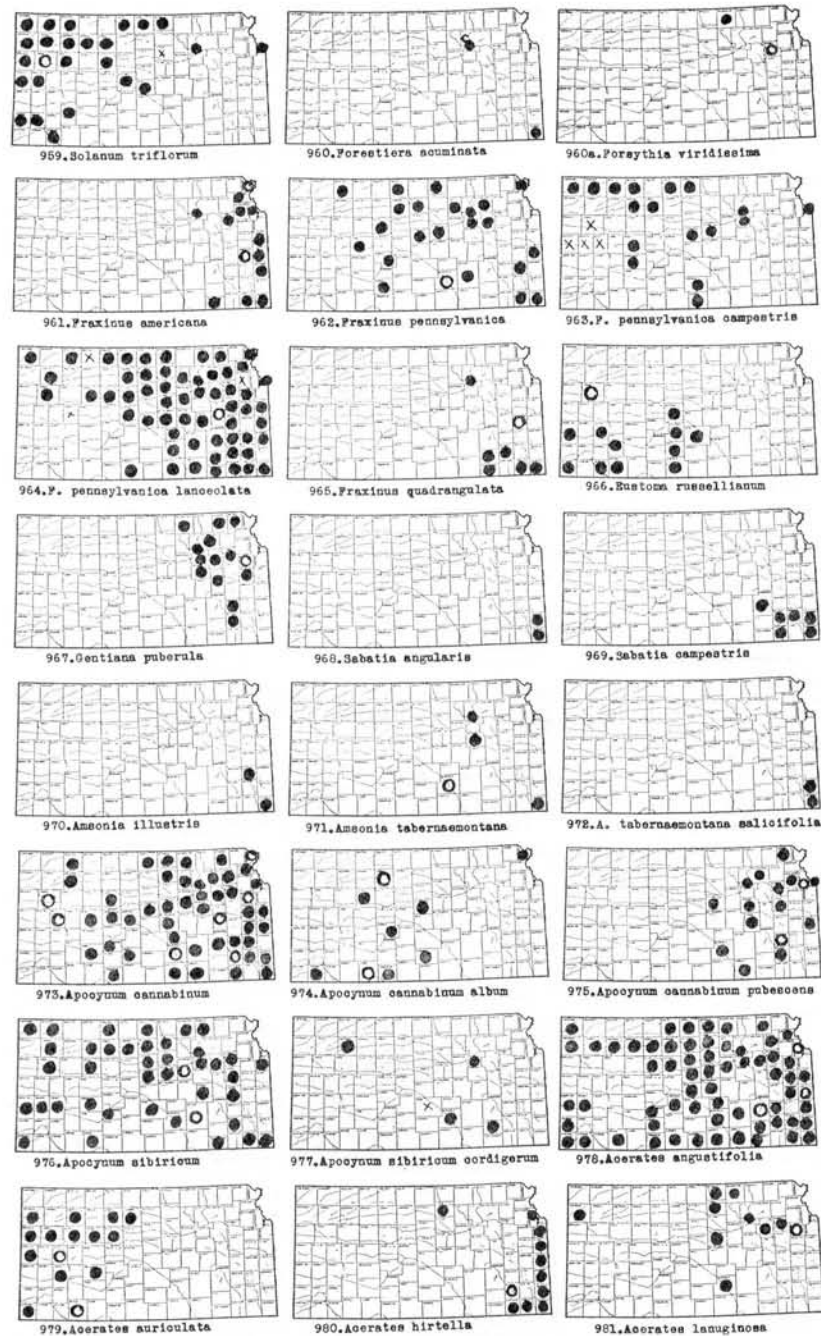


PLATE 42. Solanaceae (930-959), Oleaceae (960-965), Gentianaceae (966-969), Apocynaceae (970-977), Asclepiadaceae (978-1003).

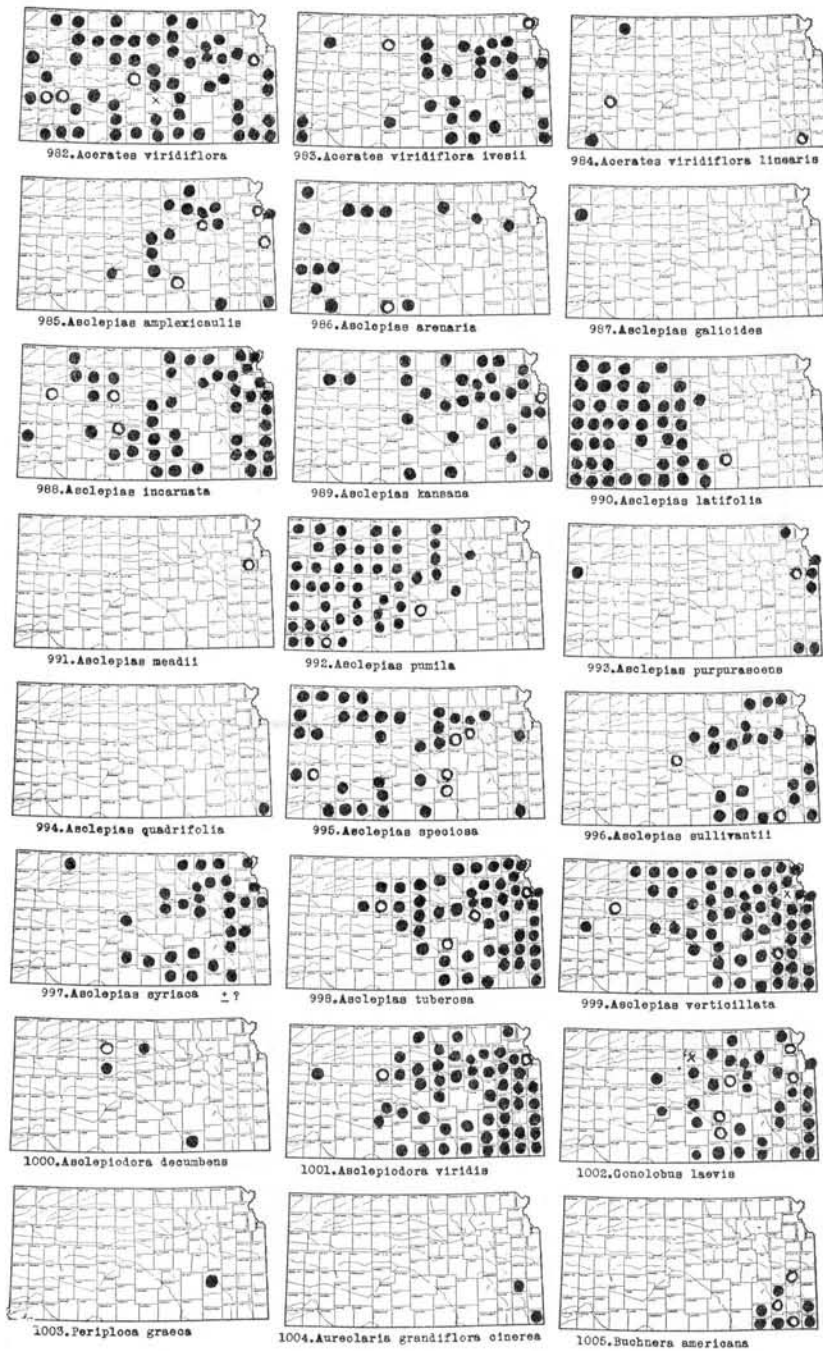


PLATE 43. Asclepiadaceae (978-1003), Scrophulariaceae (1004-1052).

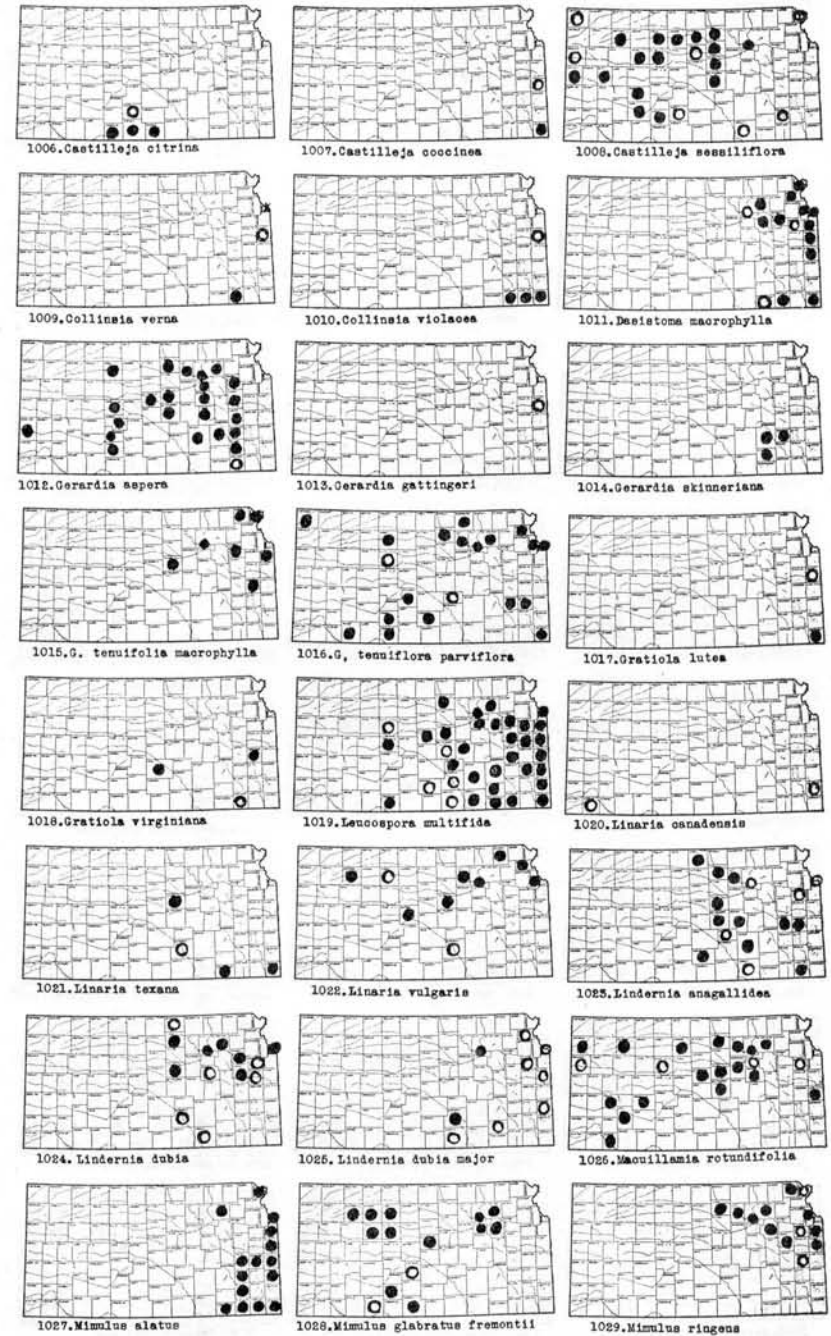


PLATE 44. Scrophulariaceae (1004-1052).

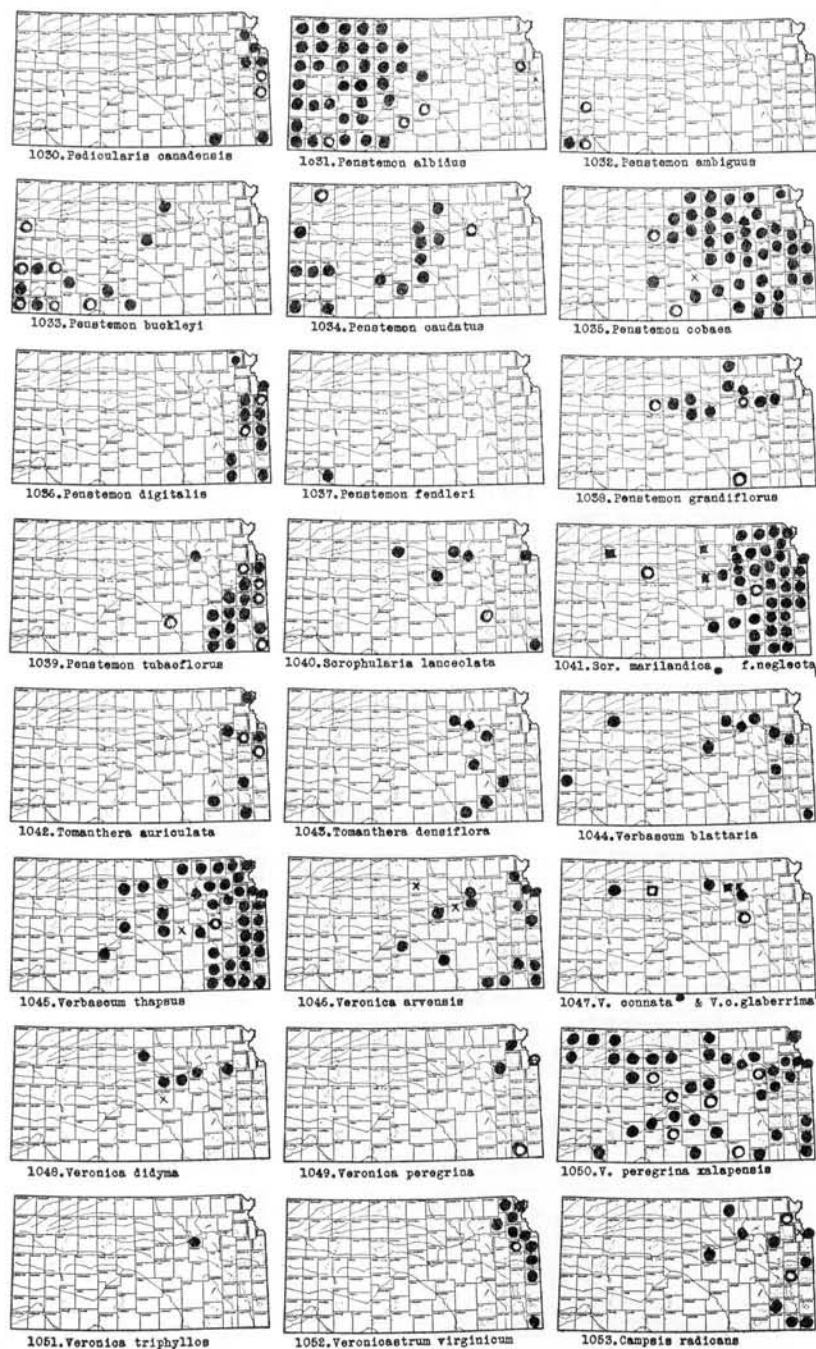


PLATE 45. Scrophulariaceae (1004-1052), Bignoniaceae (1053-1054).

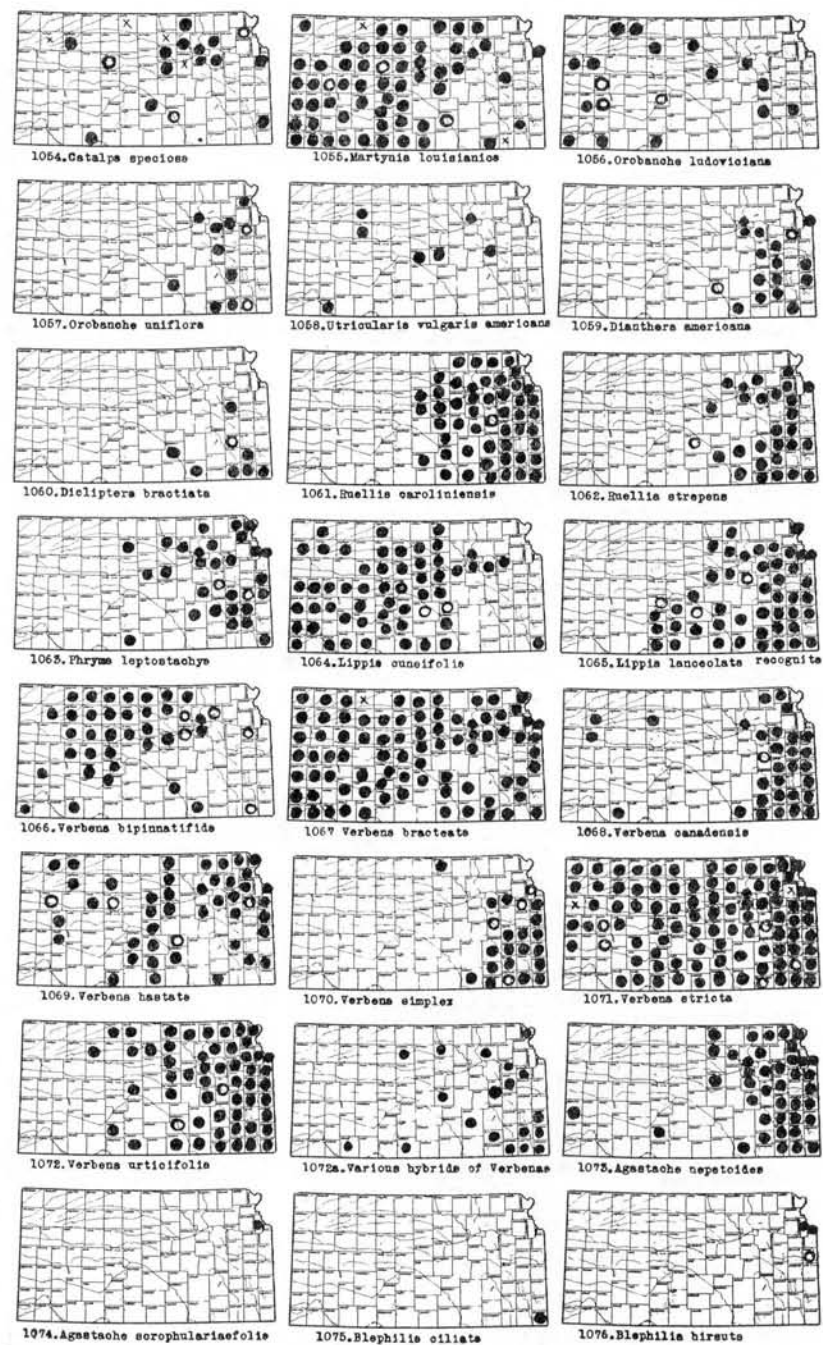


PLATE 46. Bignoniaceae (1053-1054), Martyniaceae (1055), Orobanchaceae (1056-1057), Lentibulariaceae (1058), Acanthaceae (1059-1062), Phrymaceae (1063), Verbenaceae (1064-1072a), Lamiales (1073-1121).

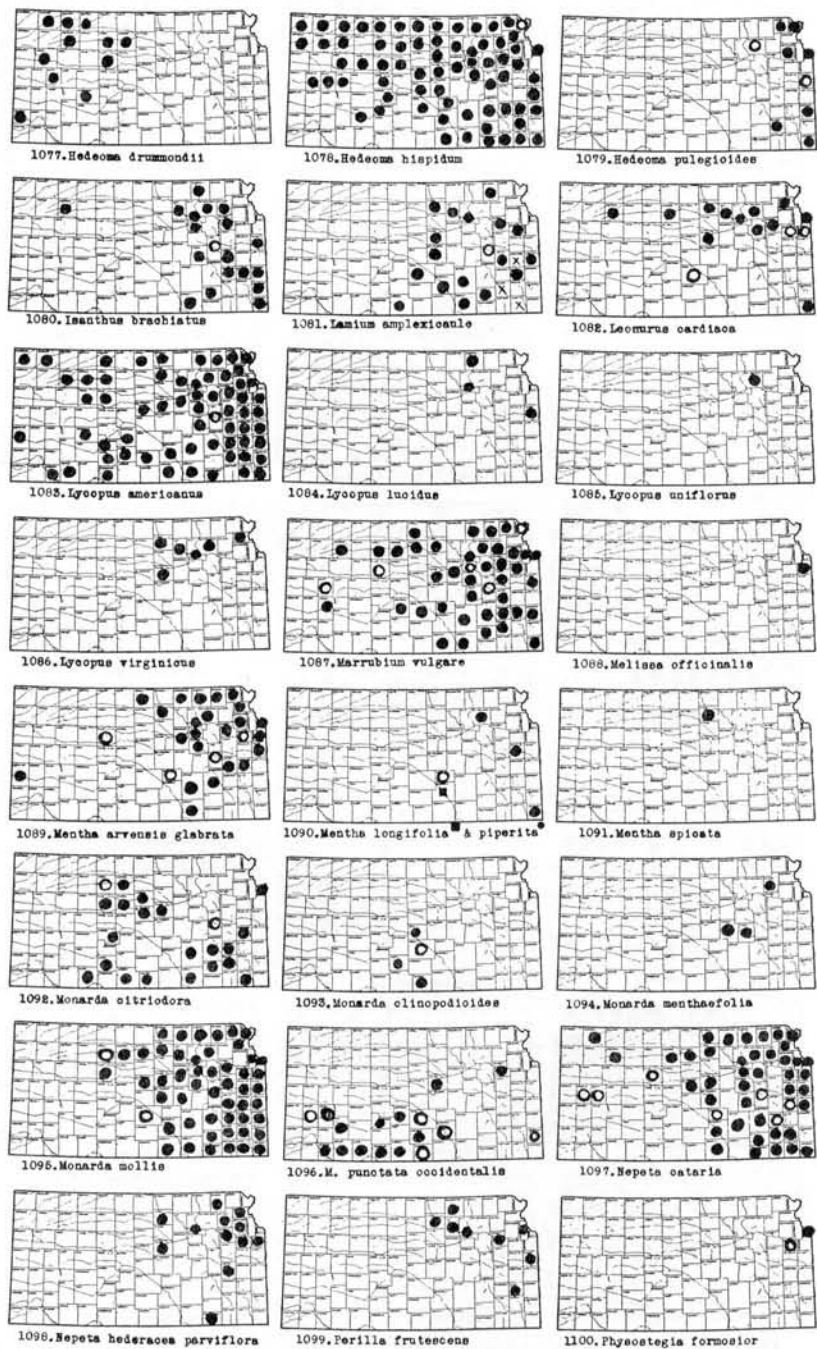


PLATE 47. Lamiaceae (1073-1121).

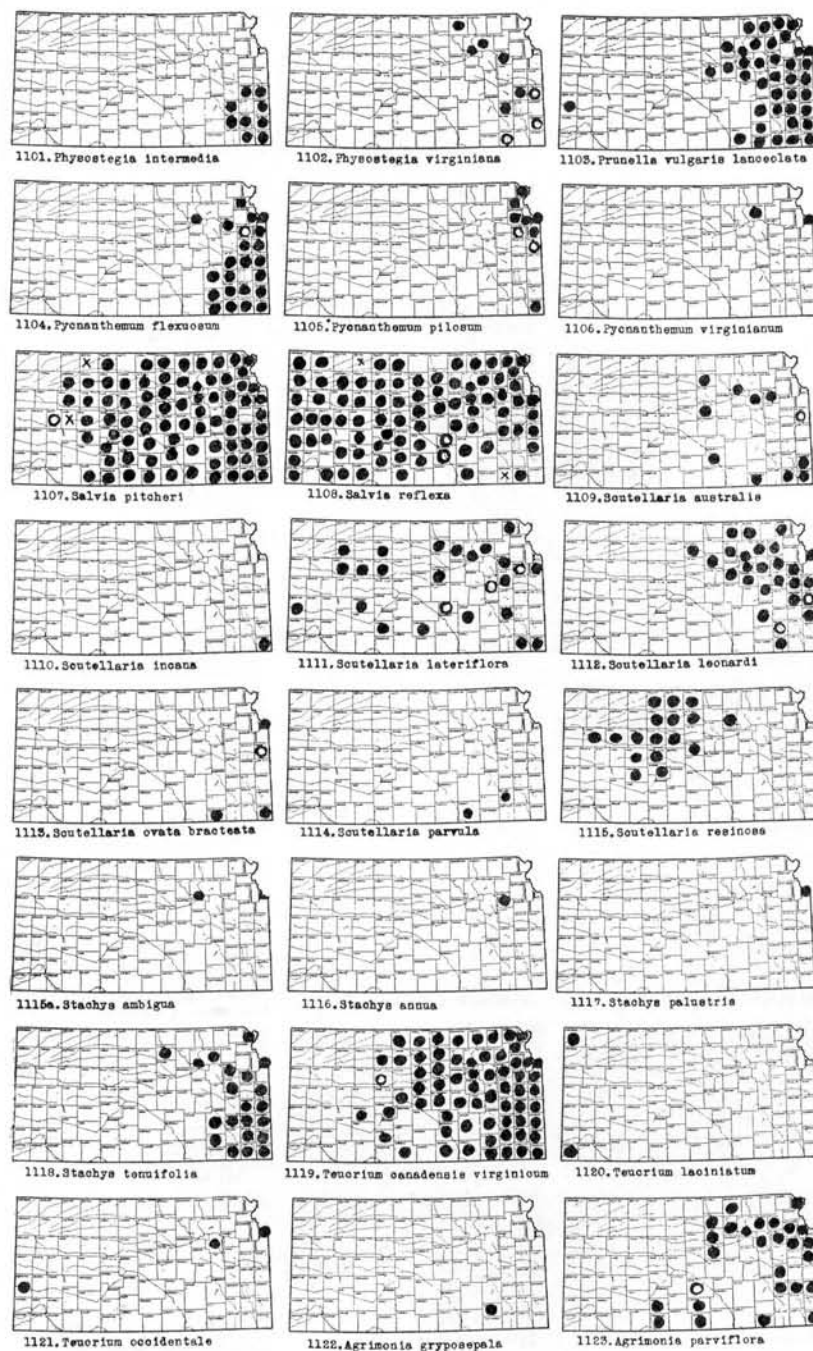


PLATE 48. Lamiaceae (1122-1159), Rosaceae (1122-1159).

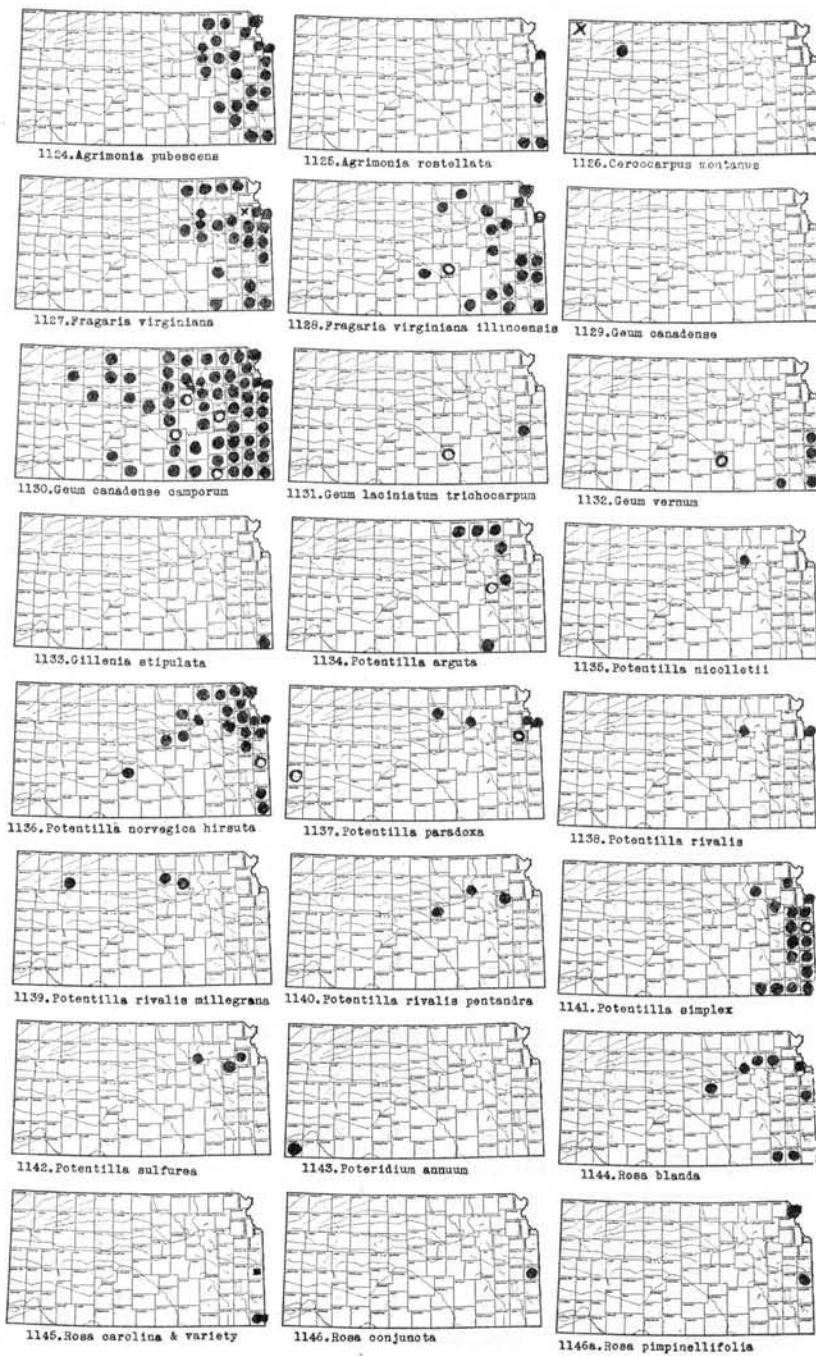


PLATE 49. Rosaceae (1122-1159).

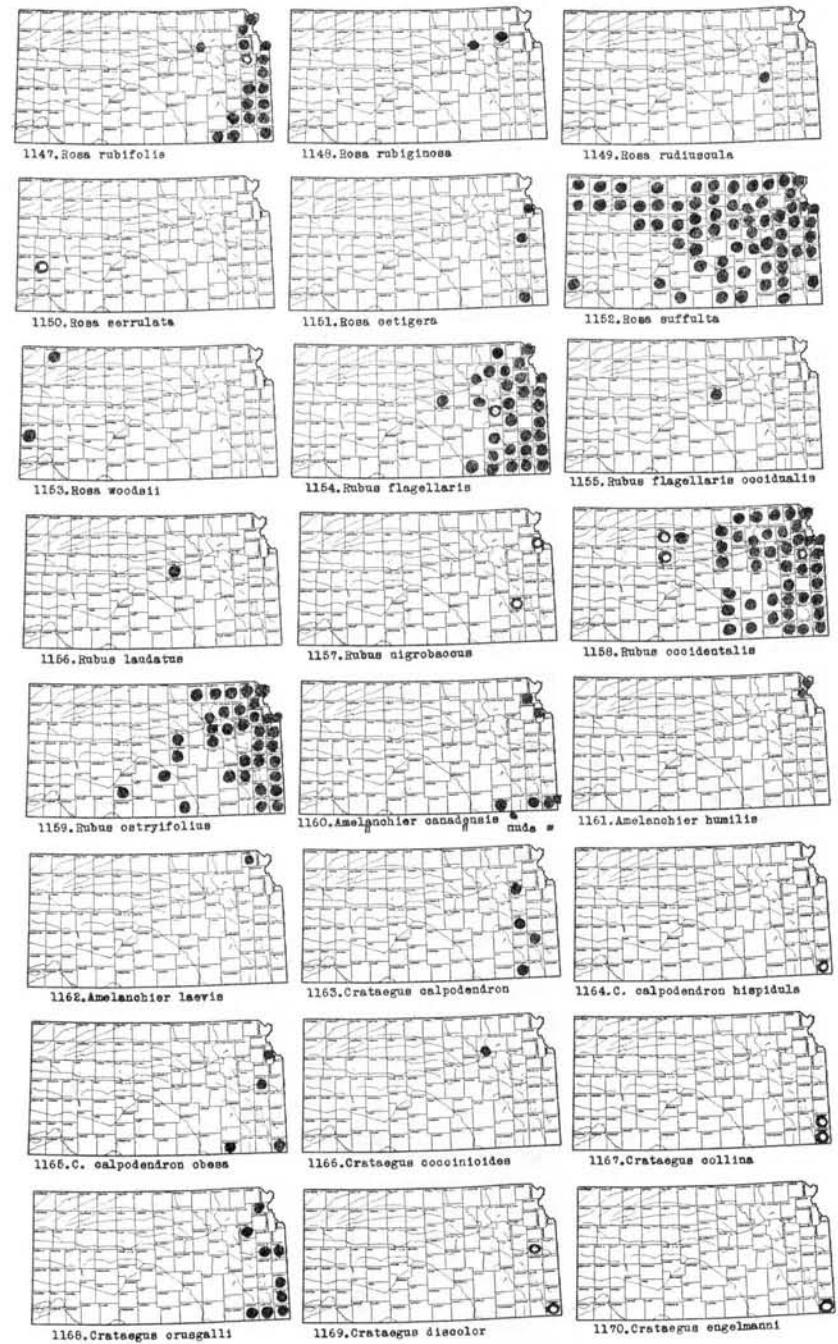


PLATE 50. Rosaceae (1122-1159), Malaceae (1160-1181).

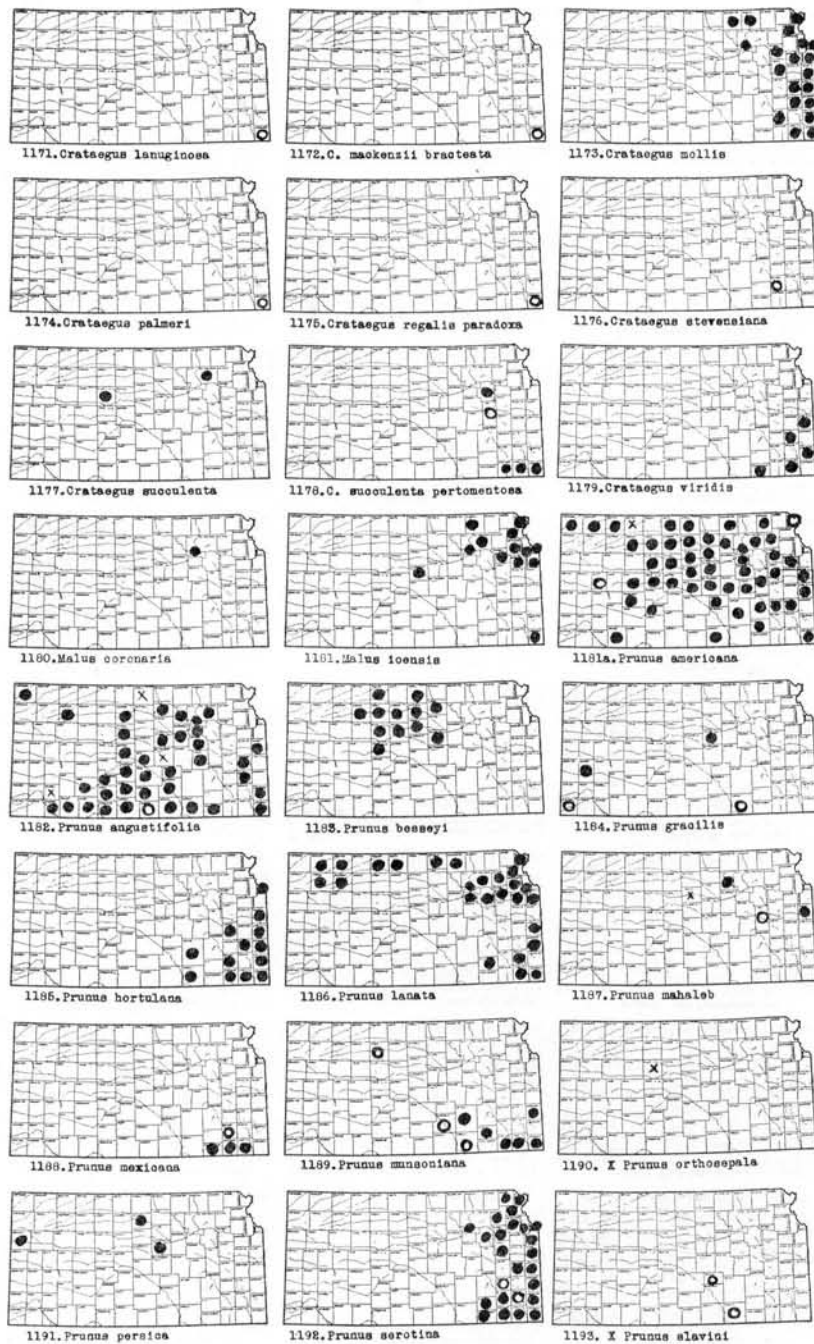


PLATE 51. Malaceae (1160-1181), Prunaceae (1181a-1195).

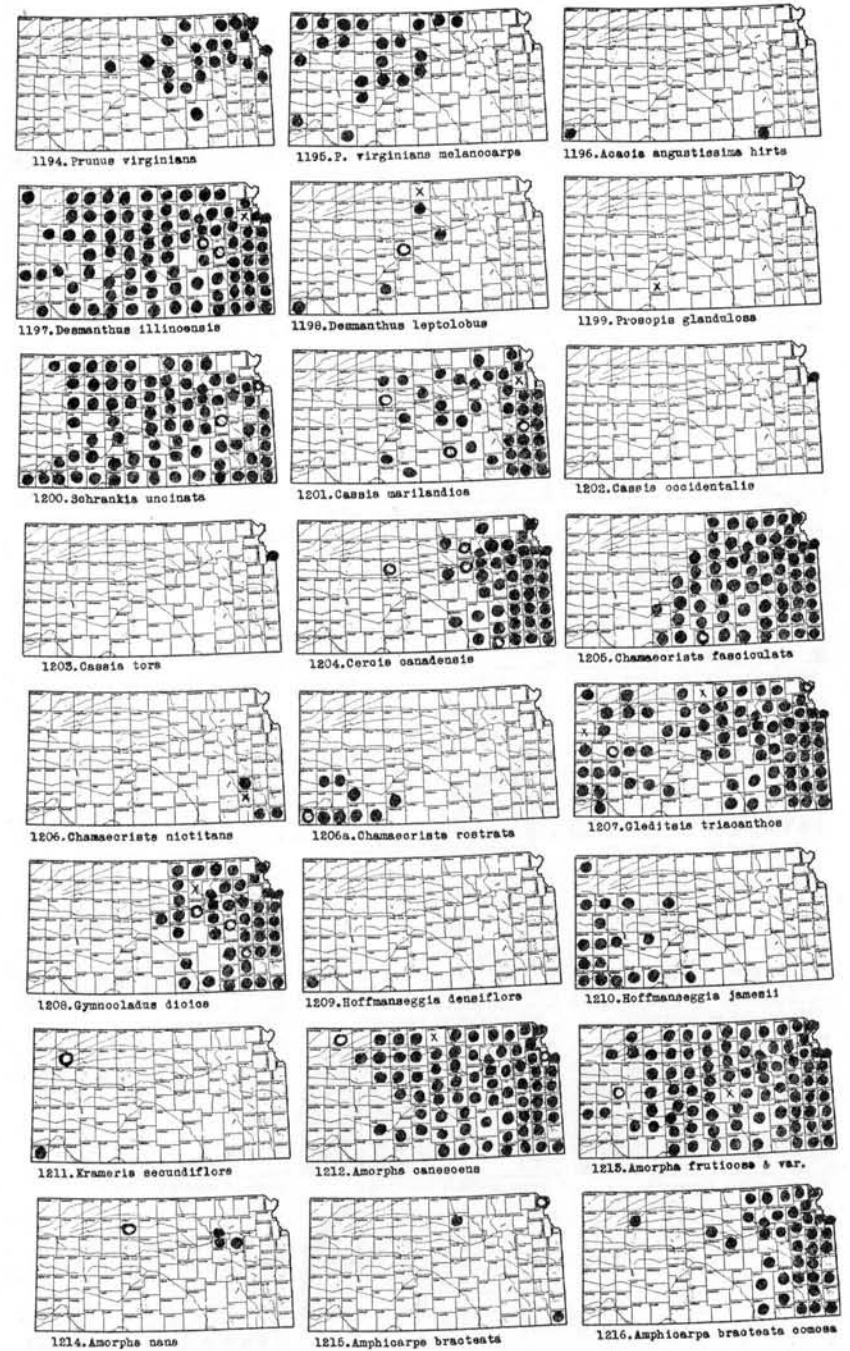


PLATE 52. Prunaceae (1181a-1195), Mimosaceae (1196-1200), Cassiaceae (1201-1210), Krameriaceae (1211), Fabaceae (1212-1319).

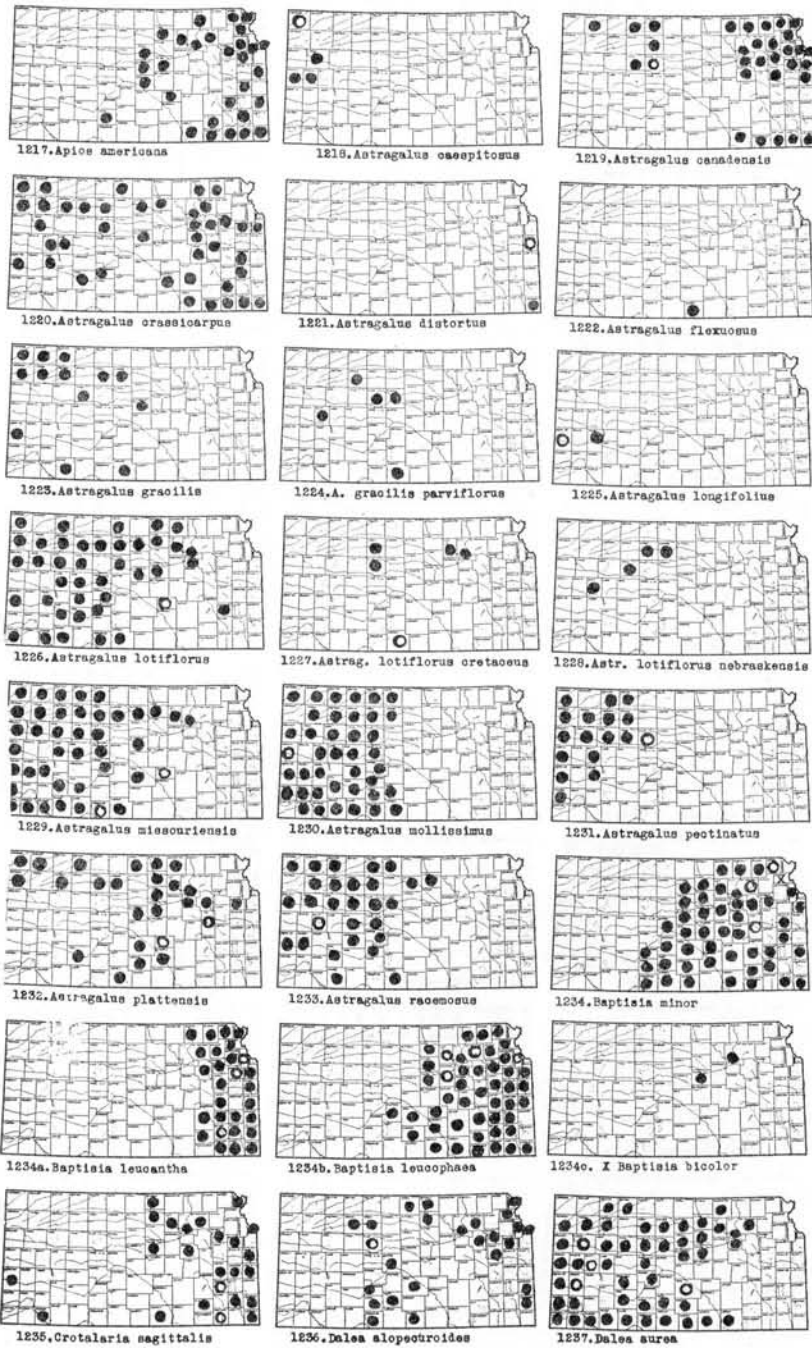


PLATE 53. Fabaceae (1212-1319).

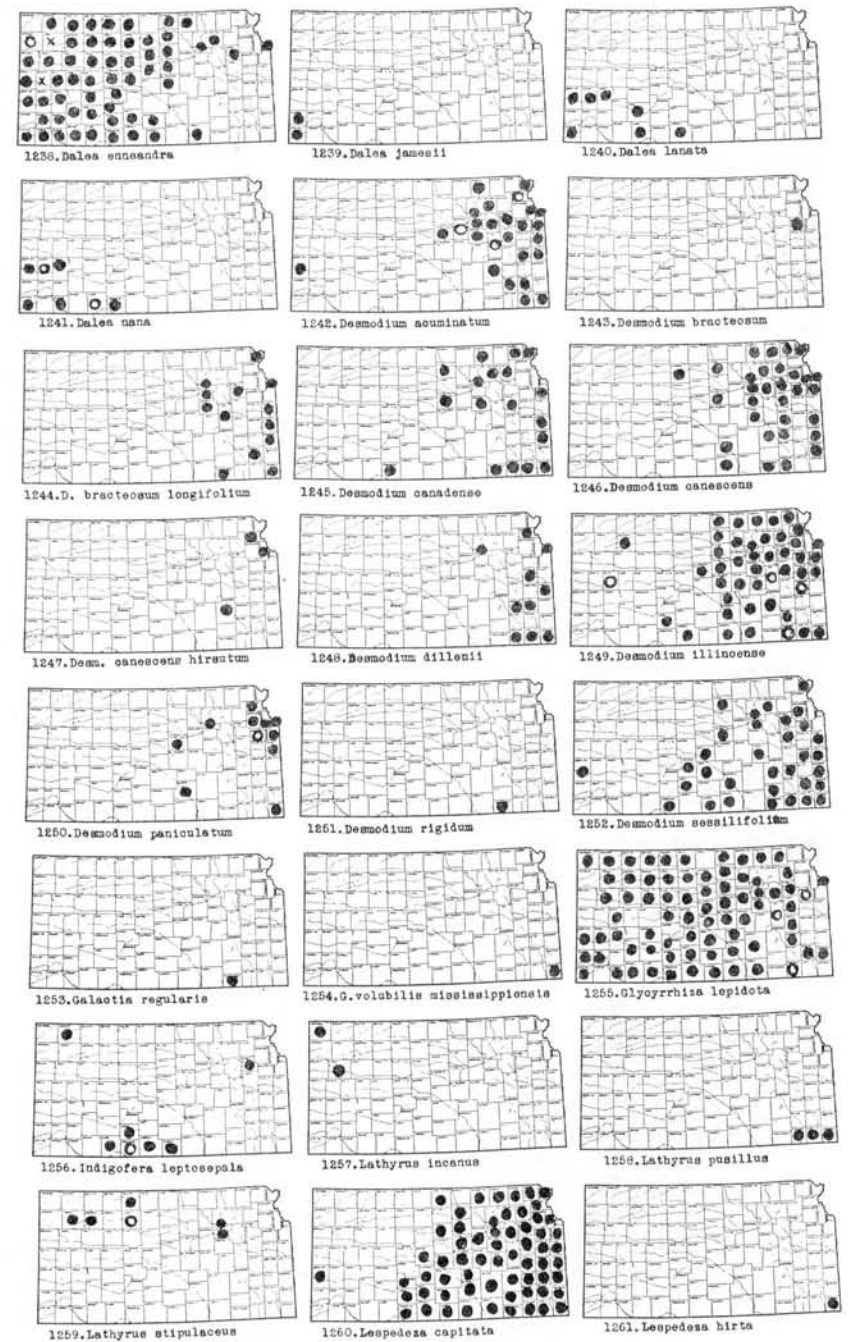


PLATE 54. Fabaceae (1212-1319).

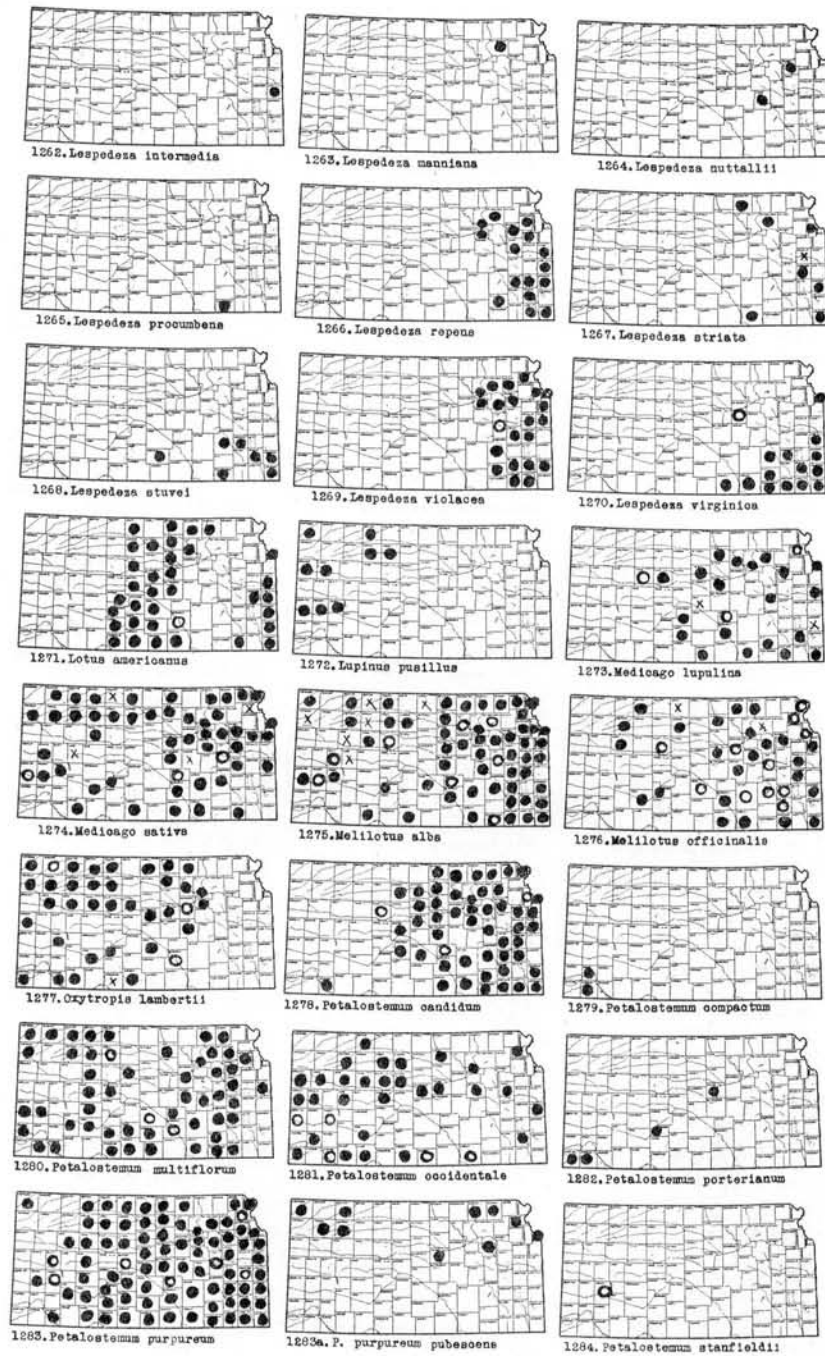


PLATE 55. Fabaceae (1212-1319).

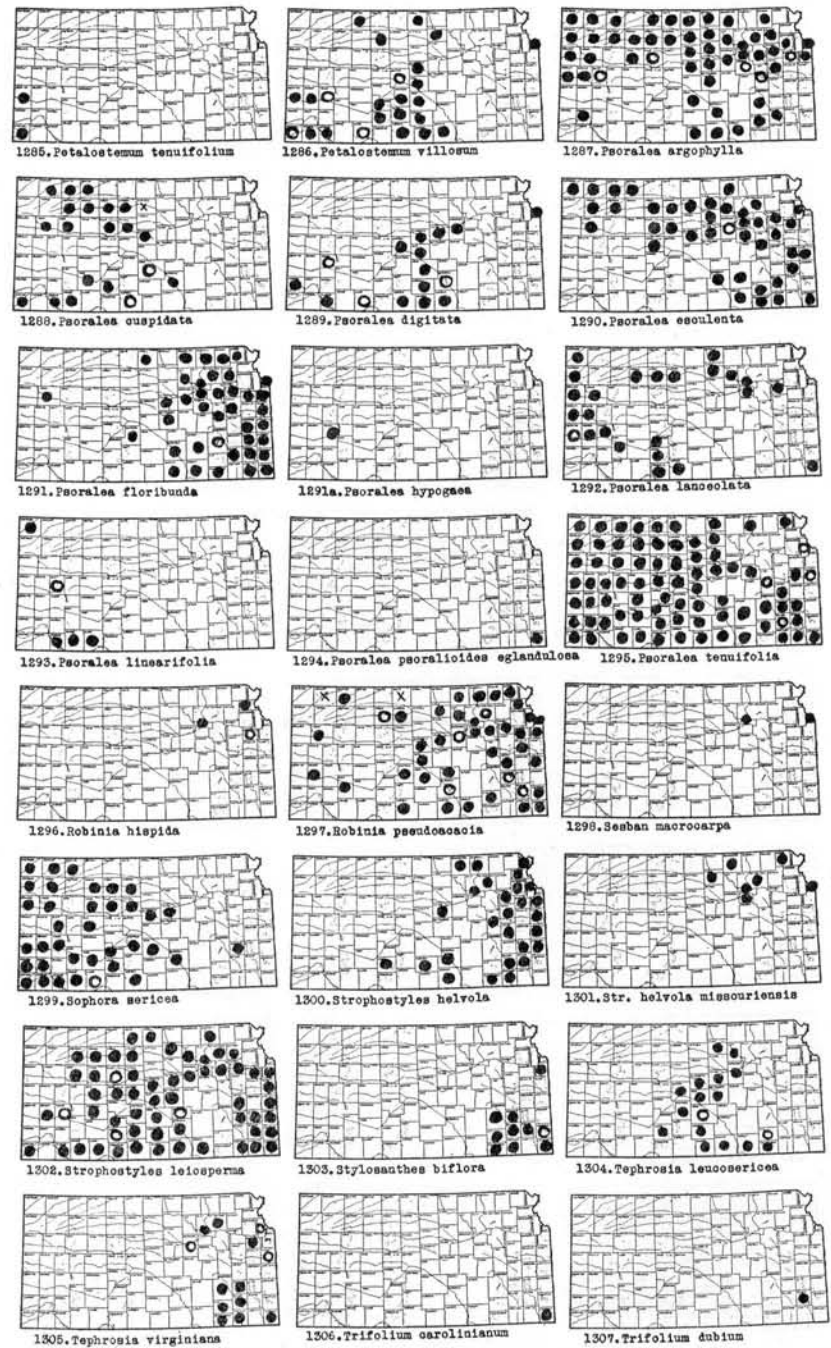


PLATE 56. Fabaceae (1212-1319).

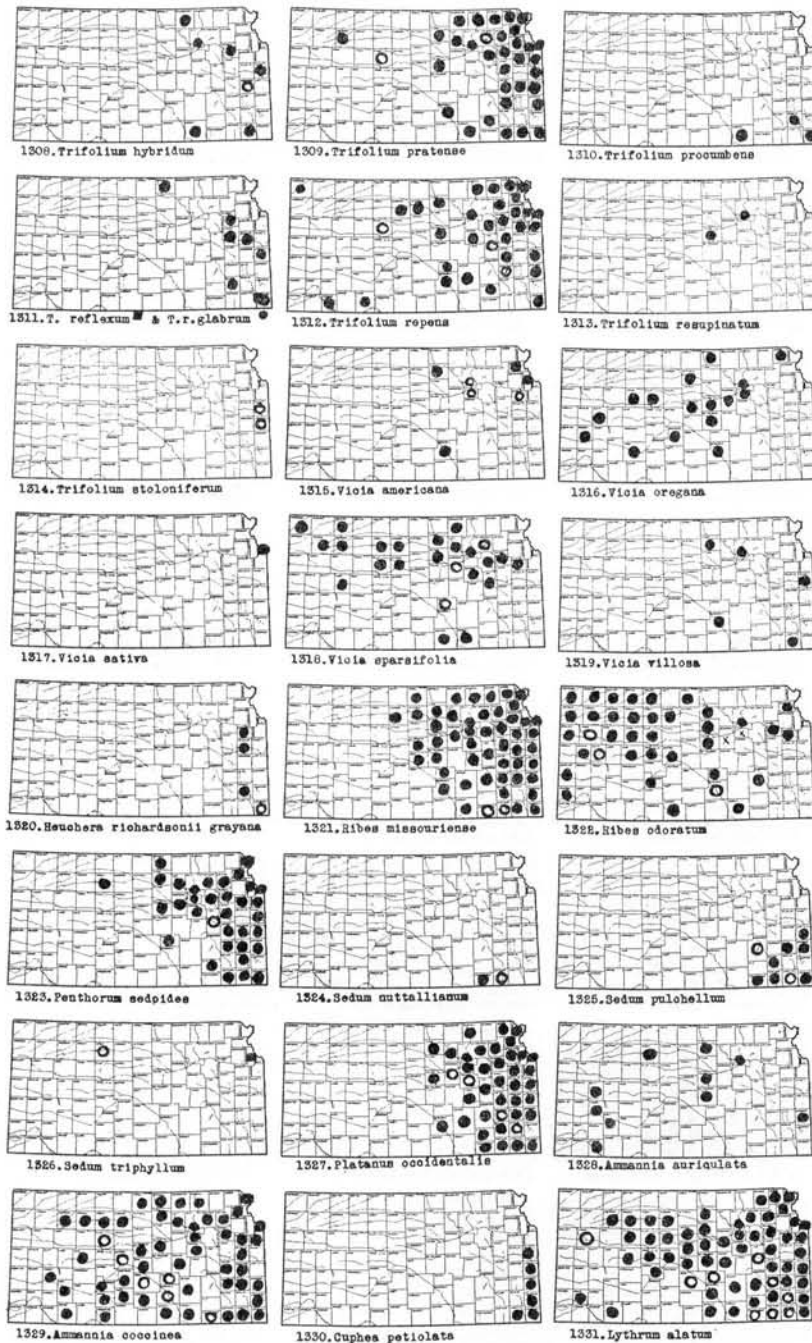


PLATE 57. Fabaceae (1212-1319), Saxifragaceae (1320), Grossulariaceae (1321-1322), Crassulaceae (1323-1326), Platanaceae (1327), Lythraceae (1328-1333).

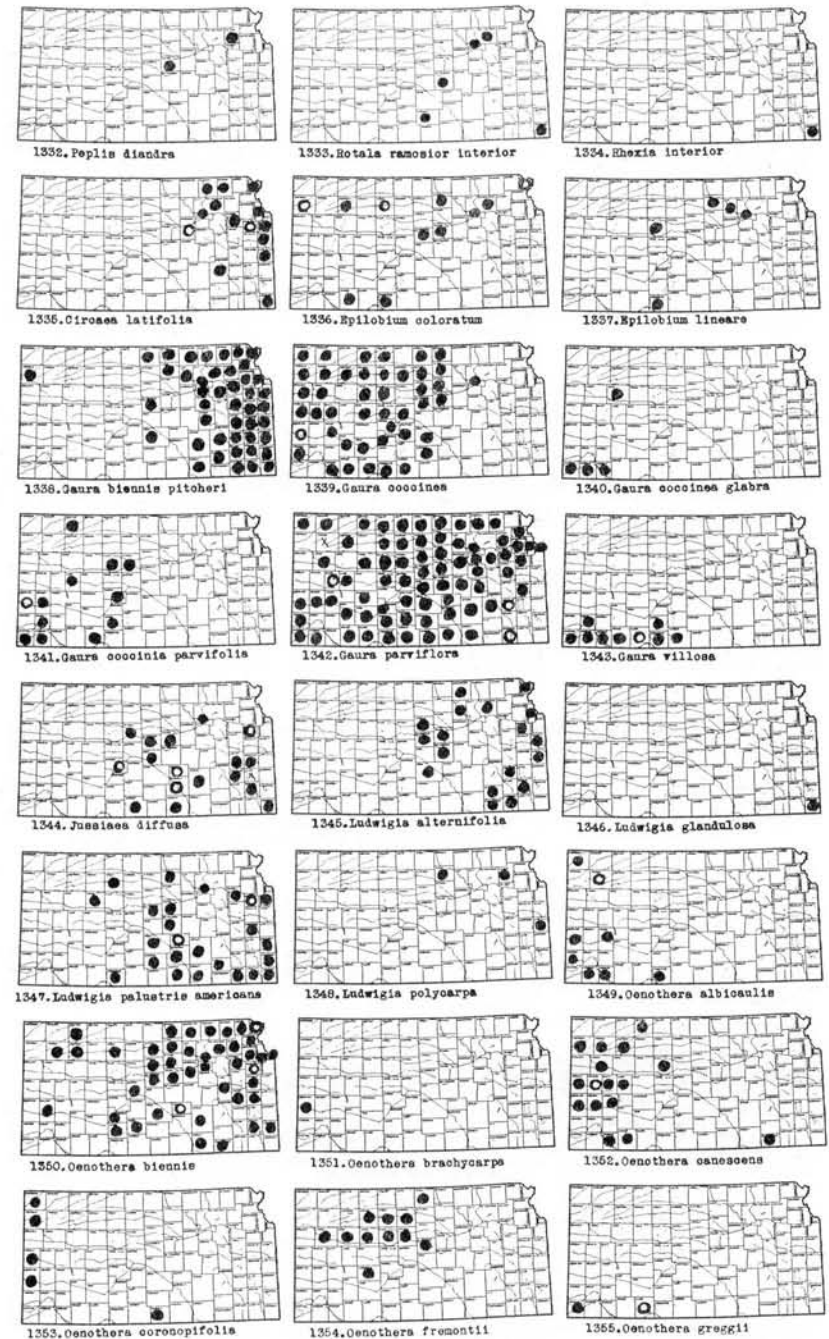


PLATE 58. Lythraceae (1328-1333), Melastomataceae (1334), Oenotheraceae (1335-1373). (Map 1346a is on Plate 50.)

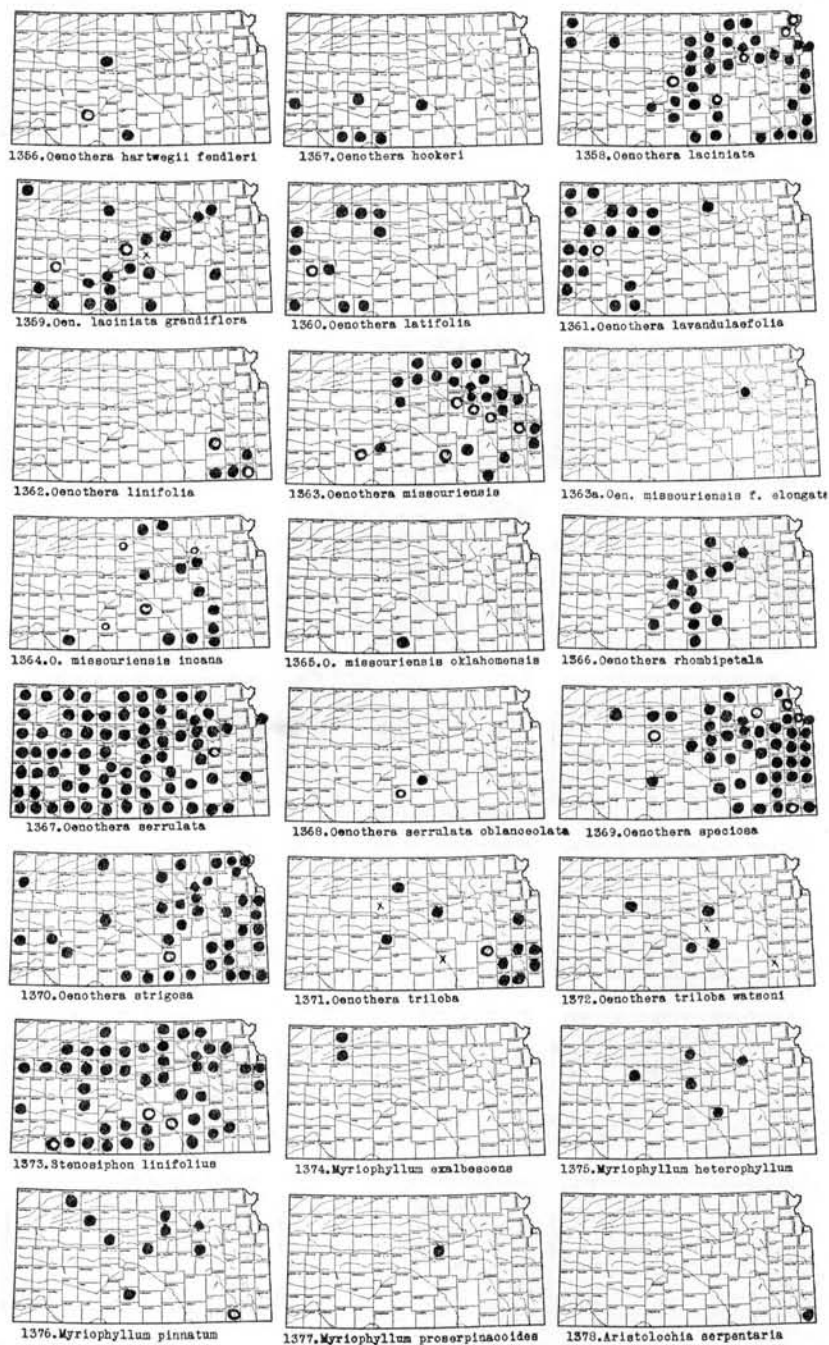


PLATE 59. Oenotheraceae (1335-1373), Halorrhagidaceae (1374-1377), Aristolochiaceae (1378-1381).

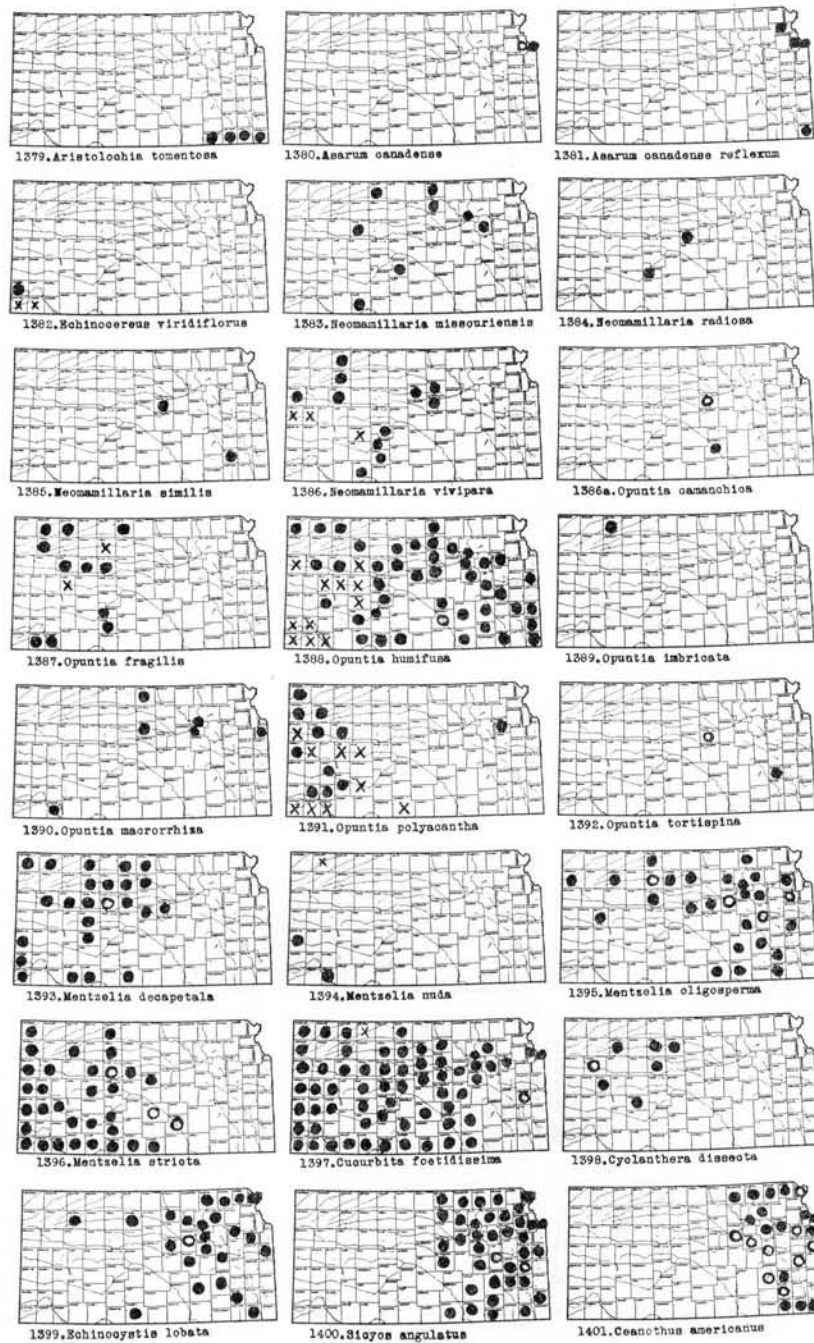


PLATE 60. Aristolochiaceae (1378-1381), Cactaceae (1382-1392), Loasaceae (1393-1396), Cucurbitaceae (1397-1400), Rhamnaceae (1401-1404).

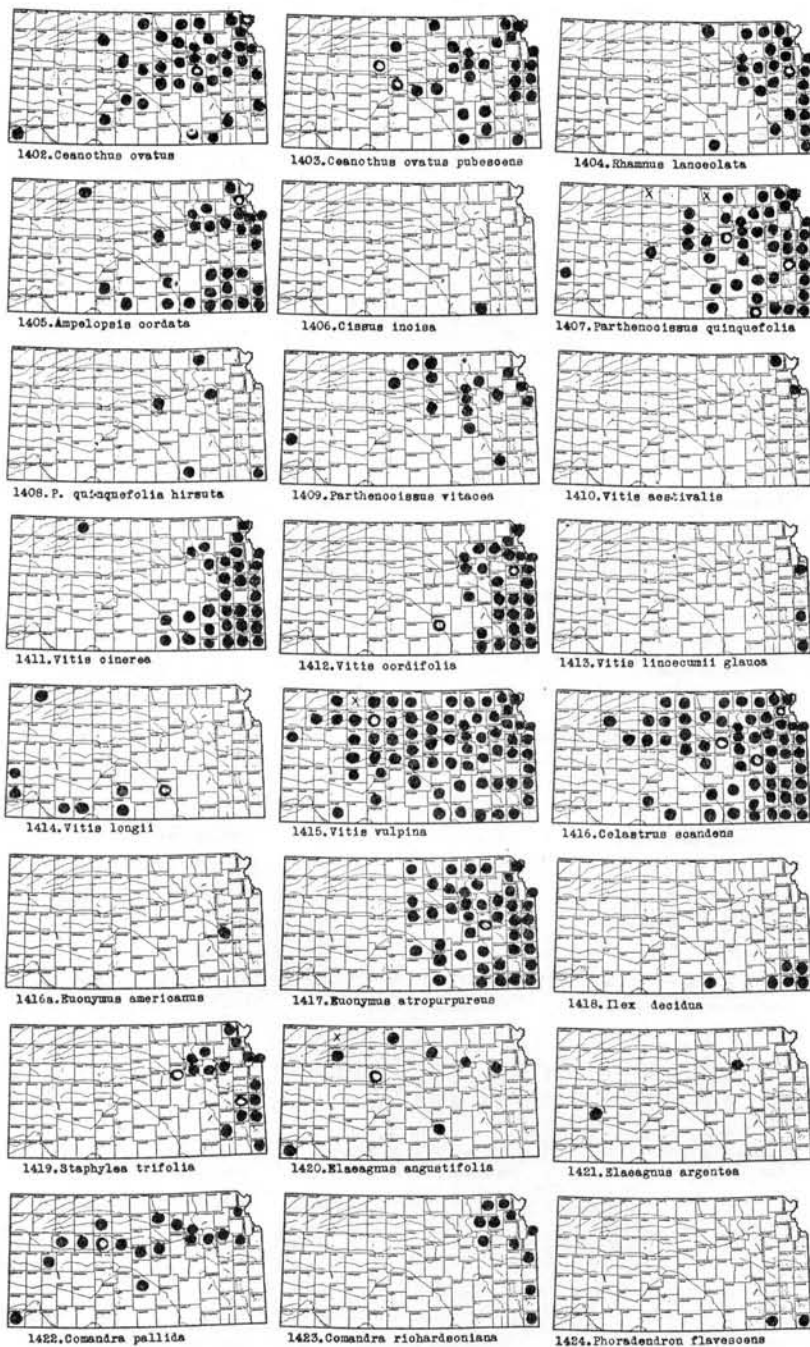


PLATE 61. Rhamnaceae (1401-1404), Vitaceae (1405-1415), Celastraceae (1416-1417), Ilicaceae (1418), Staphyleaceae (1419), Elaeagnaceae (1420-1421), Santalaceae (1422-1423), Loranthaceae (1424).

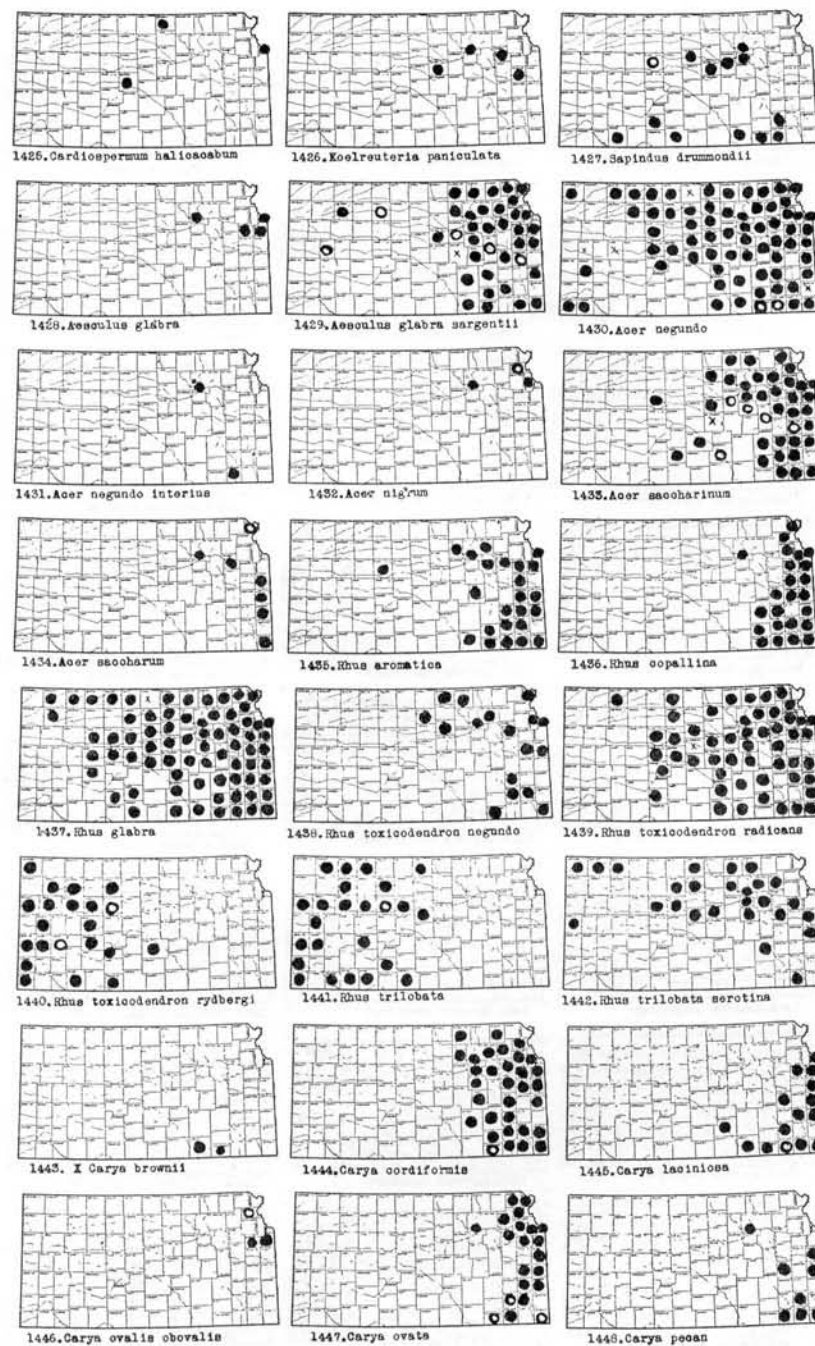


PLATE 62. Sapindaceae (1425-1427), Aesculaceae (1428-1429), Aceraceae (1430-1434), Anacardiaceae (1435-1442), Juglandaceae (1443-1451).

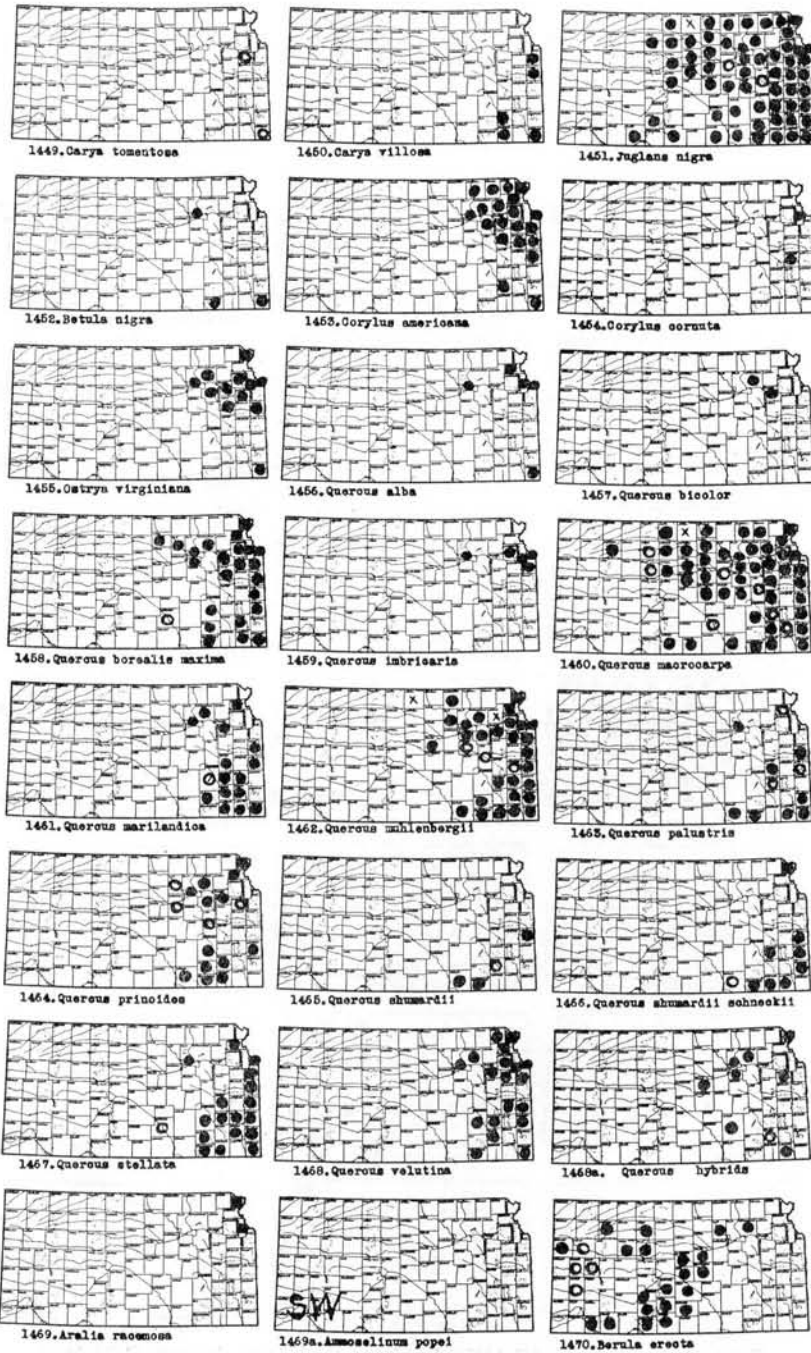


PLATE 63. Juglandaceae (1443-1451), Betulaceae (1452-1455), Fagaceae (1456-1463a),
Araliaceae (1464), Ammiaceae (1465-1505).

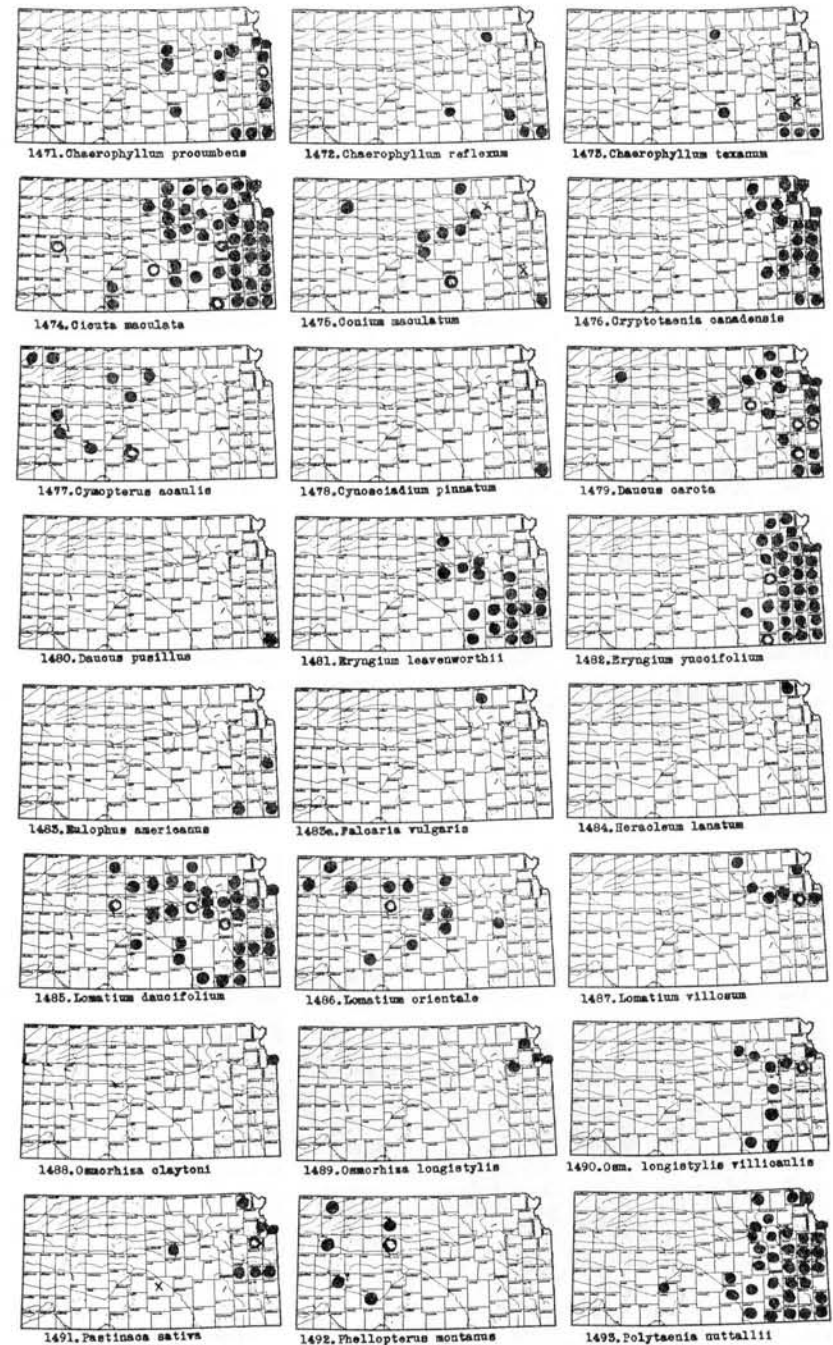


PLATE 64. Ammiaceae (1469a-1505).

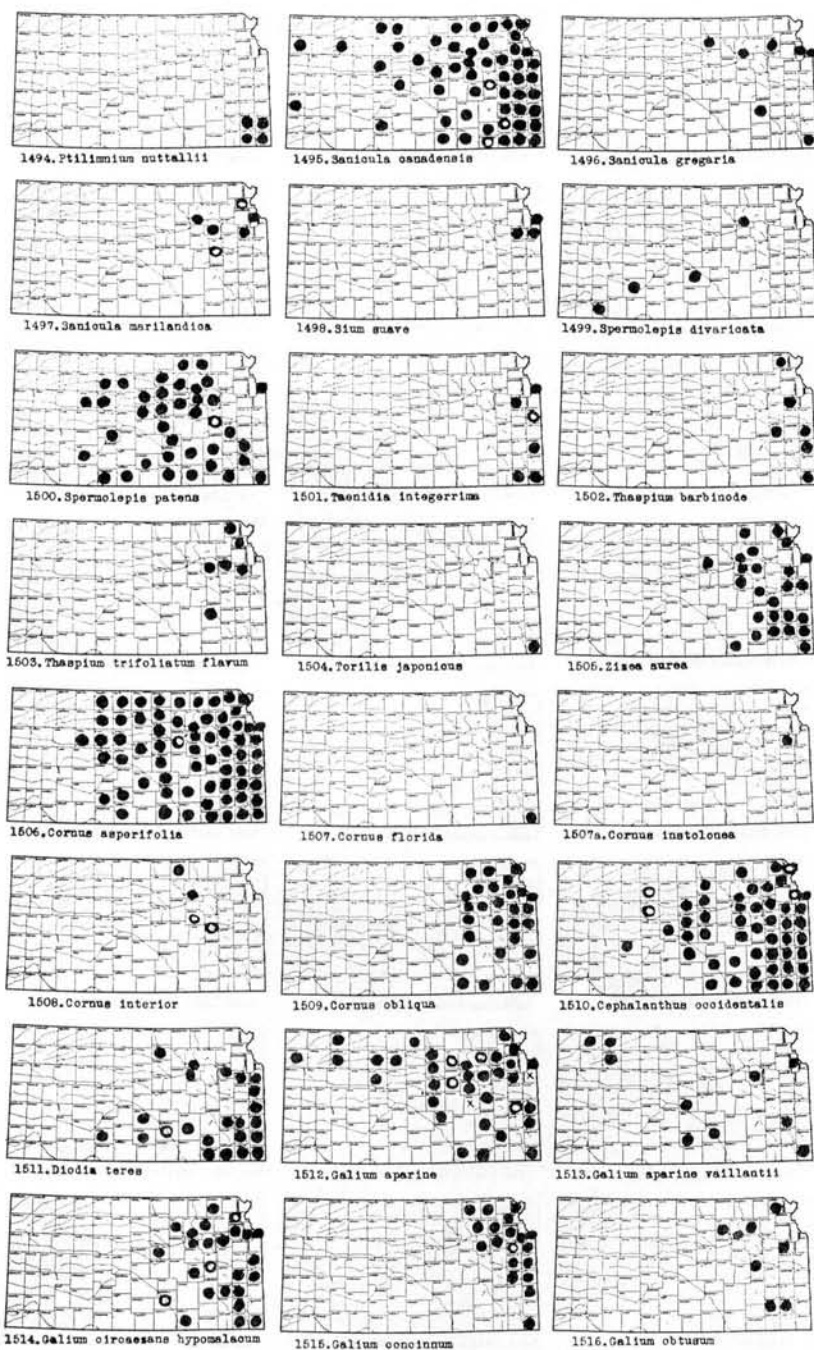


PLATE 65. Ammiaceae (1469a-1505), Cornaceae (1506-1509), Rubiaceae (1510-1523).

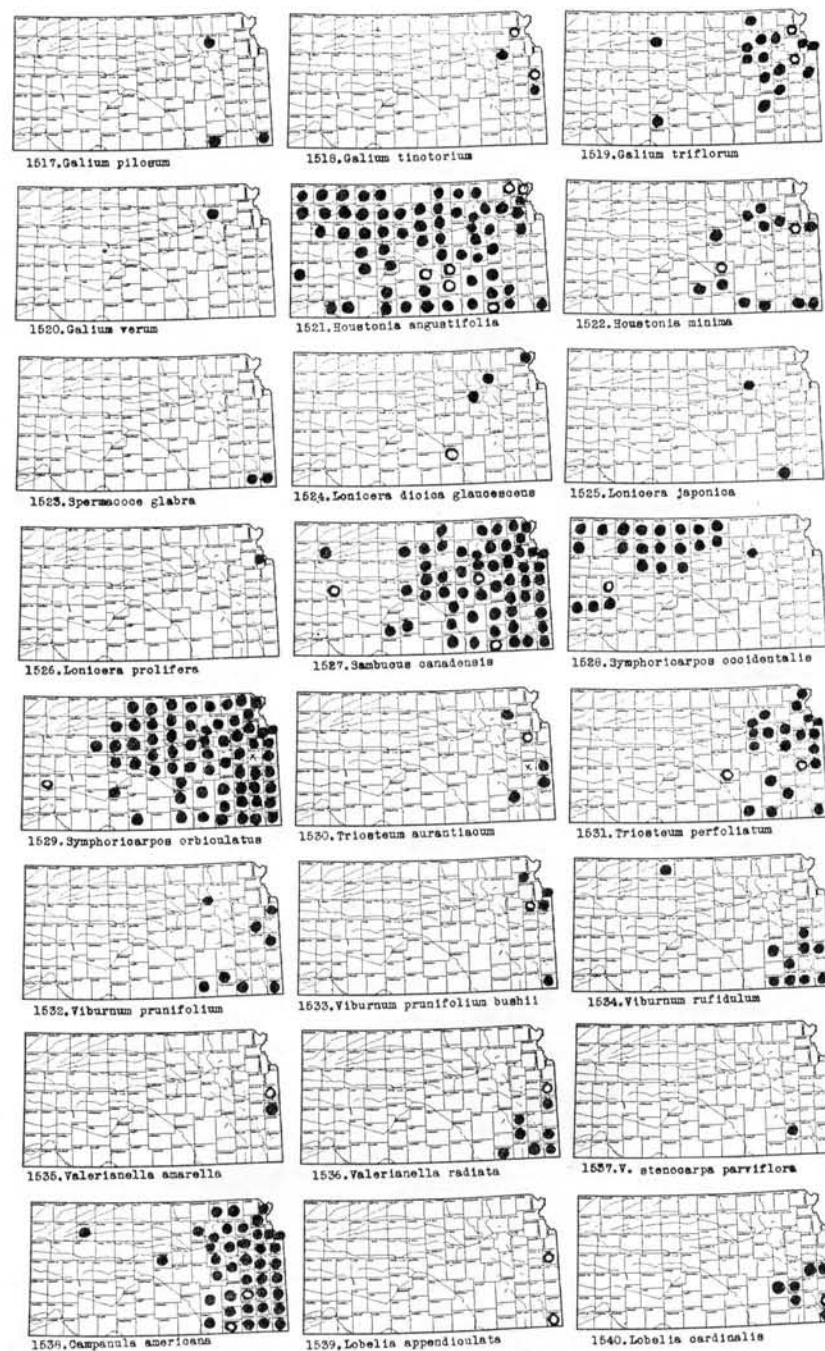


PLATE 66. Rubiaceae (1510-1523), Caprifoliaceae (1524-1534), Valerianaceae (1535-1537), Campanulaceae (1538-1548).

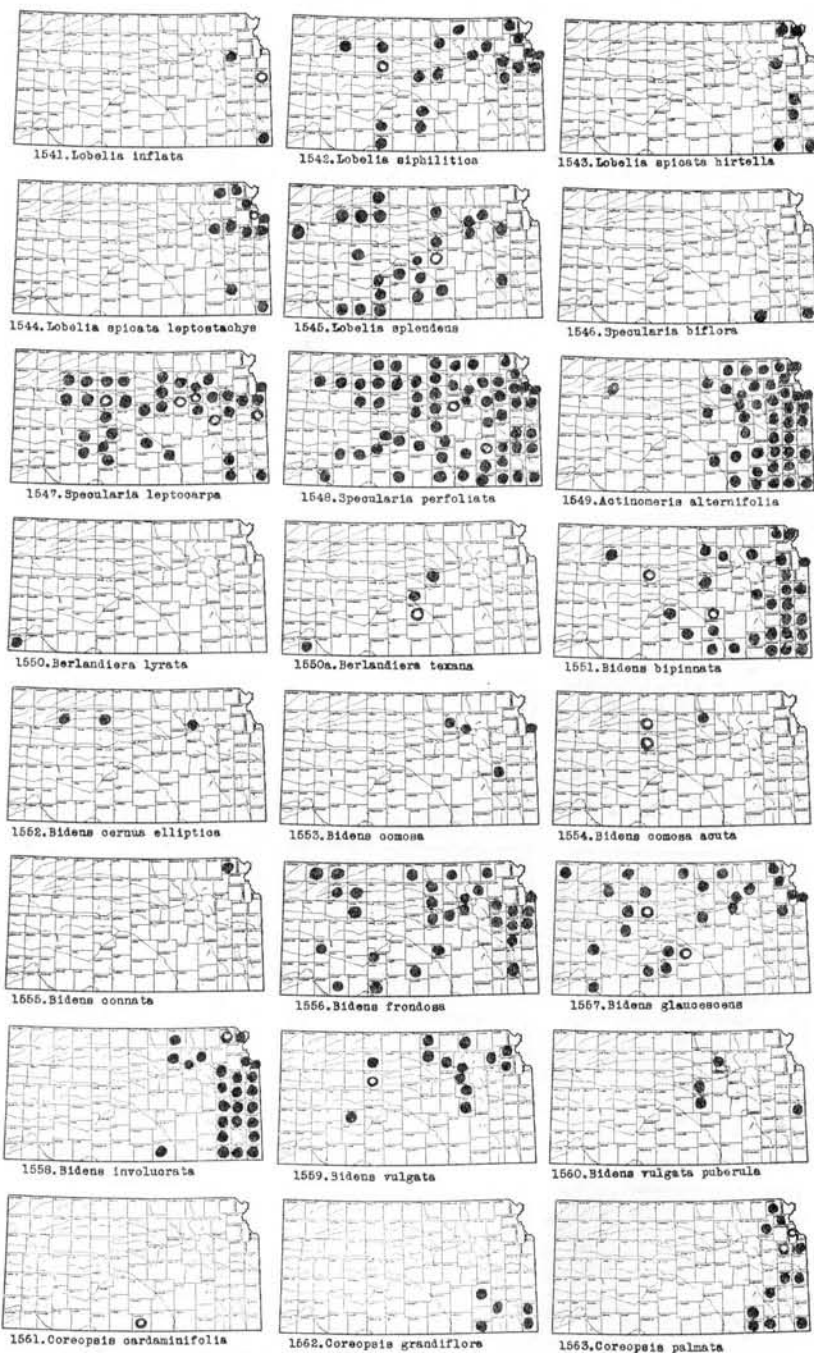


PLATE 67. Campanulaceae (1538-1548), Compositae: Helianthaceae (1549-1612).

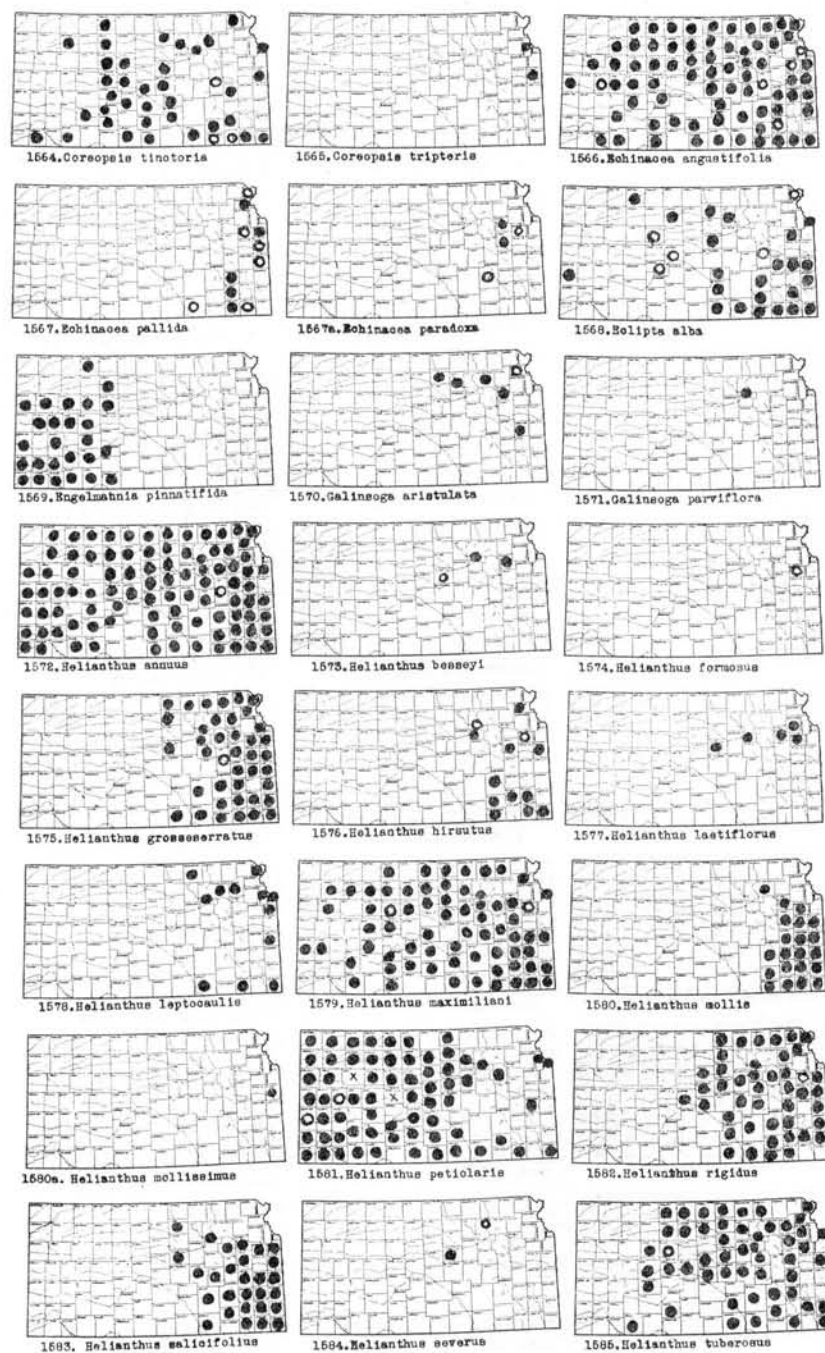


PLATE 68. Compositae: Helianthaceae (1549-1612).

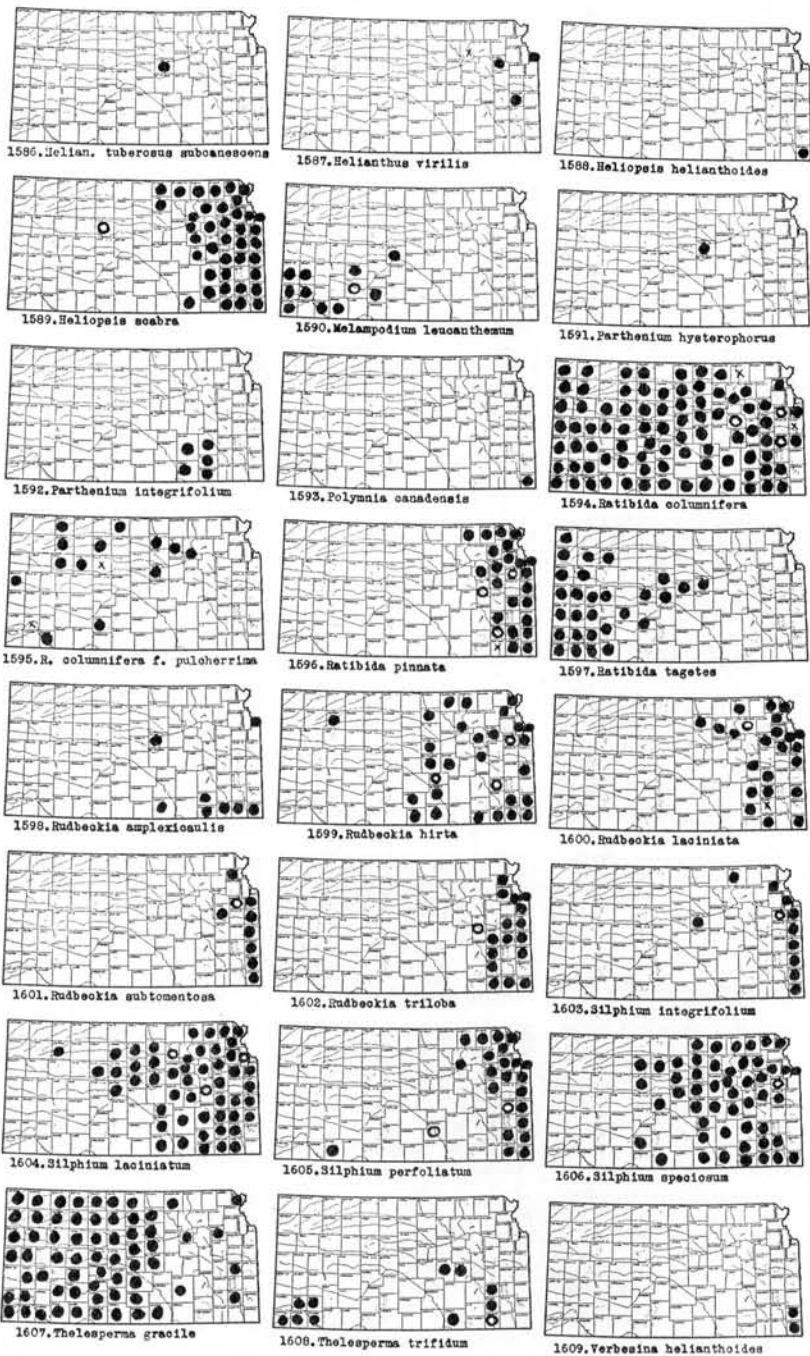


PLATE 69. Compositae: Helianthaceae (1549-1612).

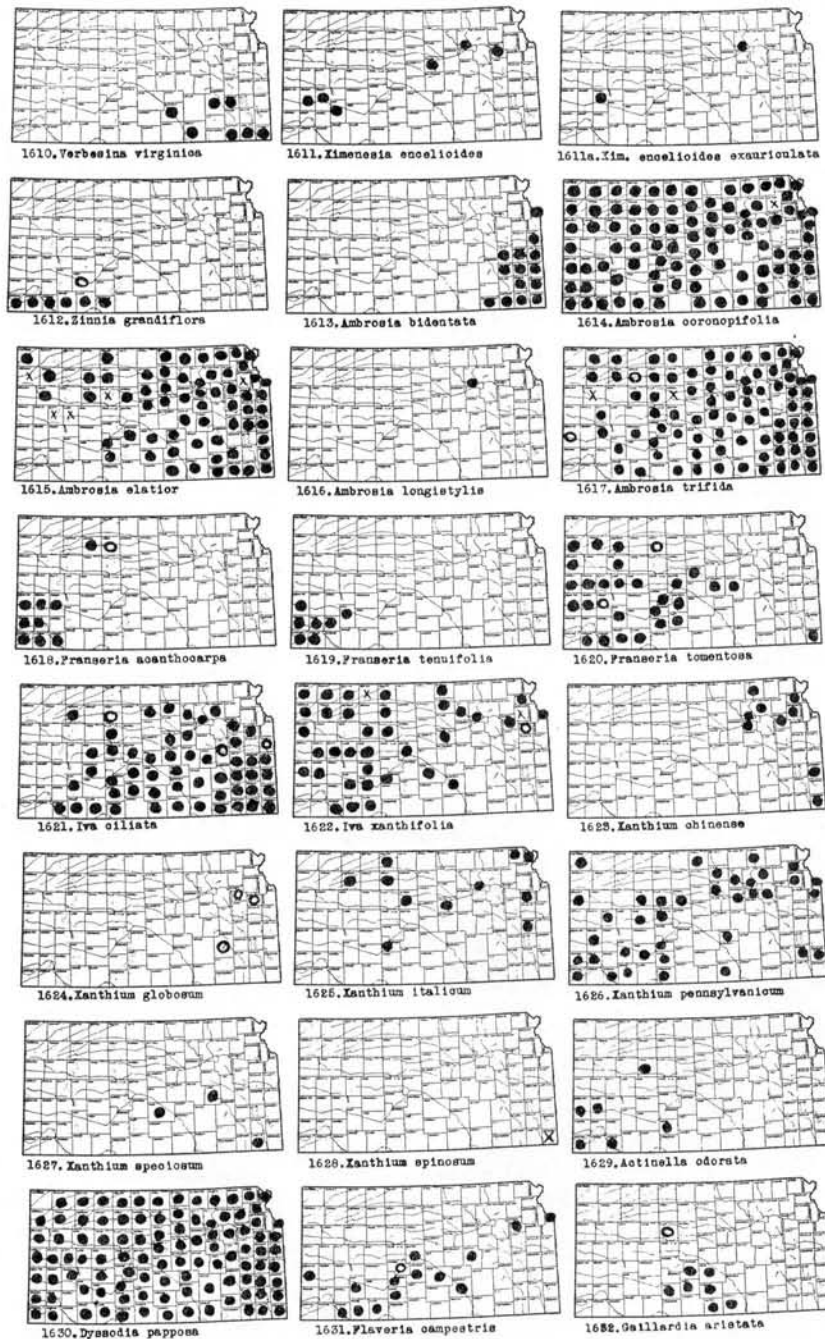


PLATE 70. Compositae: Helianthaceae (1613-1612), Ambrosiaceae (1613-1628), Heleniaceae (1629-1650).

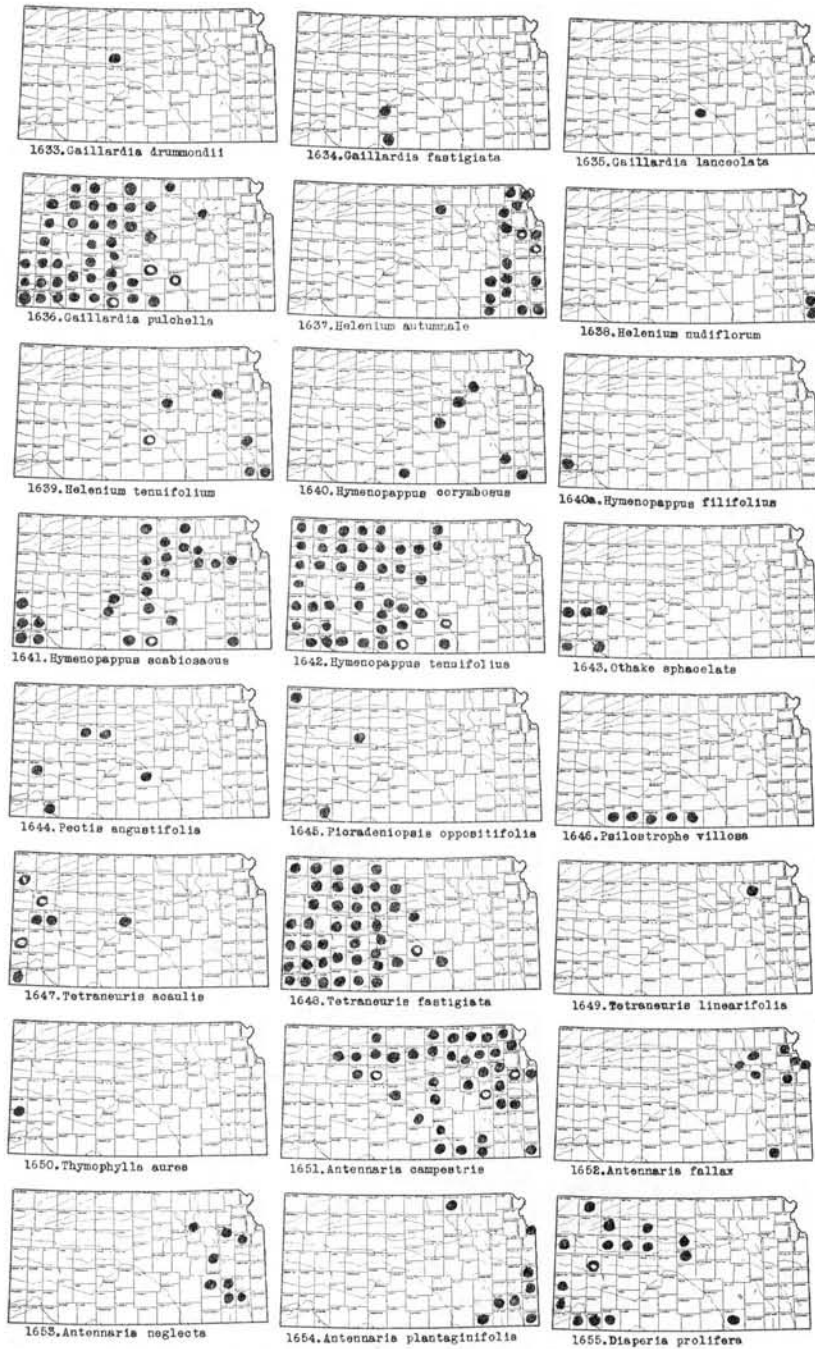


PLATE 71. Compositae: Heliaceae (1629-1650), Inulaeae (1651-1659).

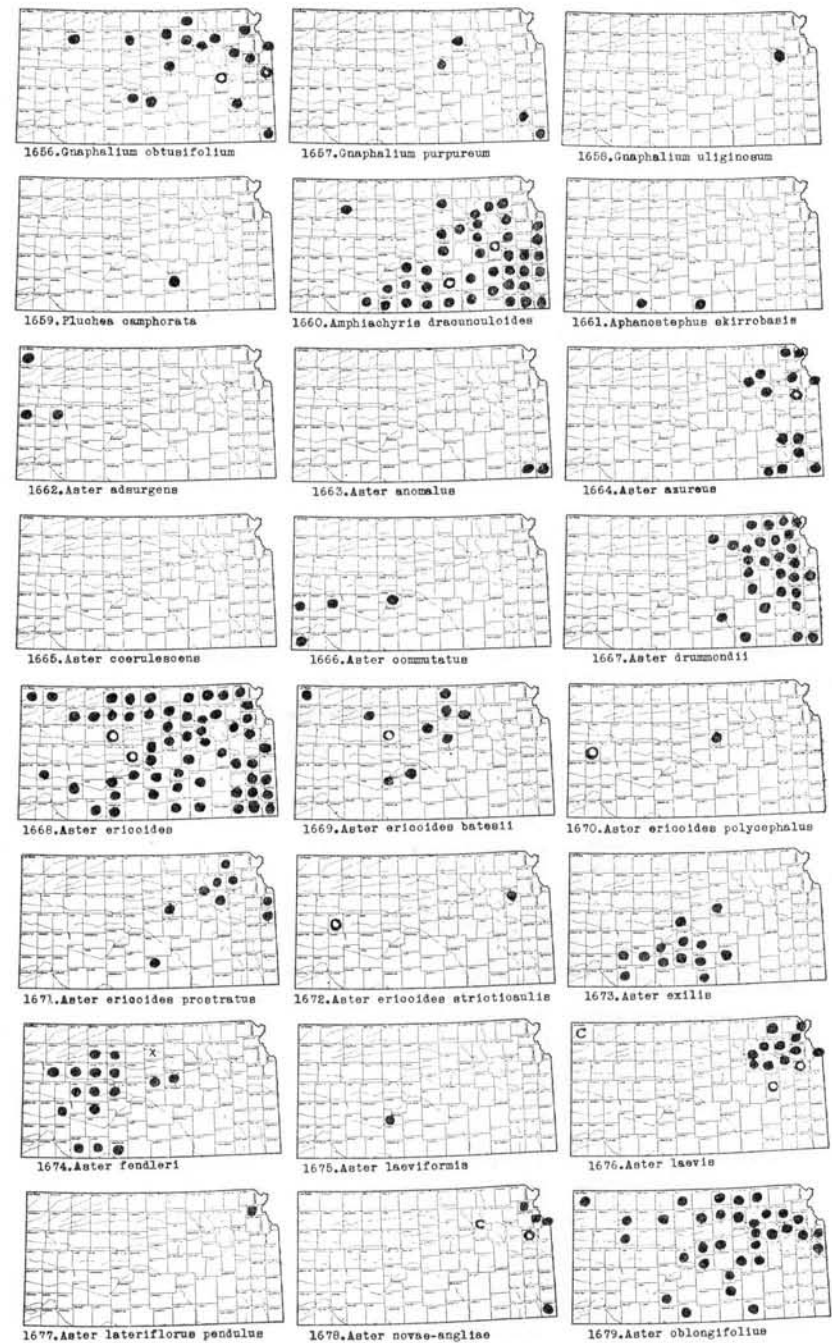


PLATE 72. Compositae: Inulaeae (1651-1659), Asteraceae (1660-1752).

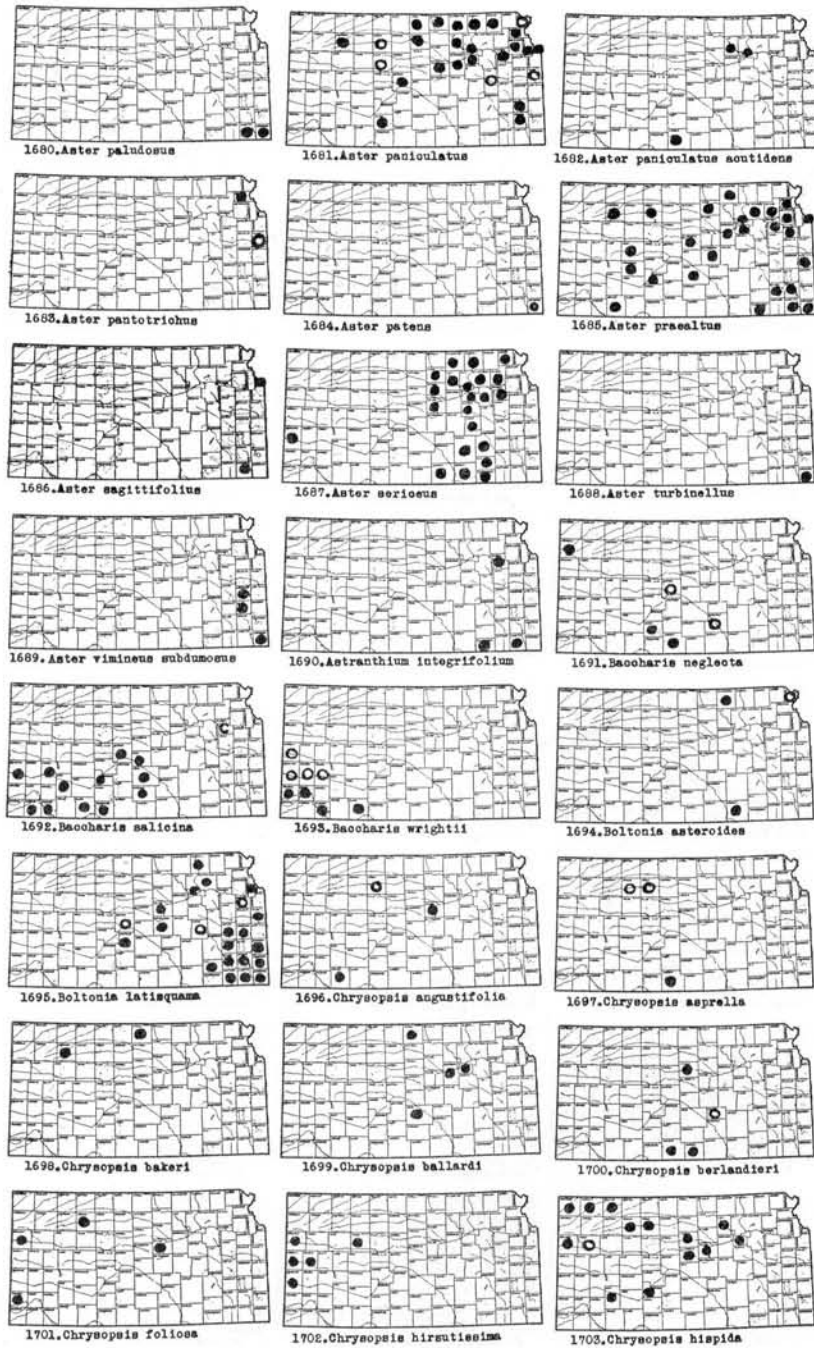


PLATE 73. Compositae: Asteraceae (1660-1752).

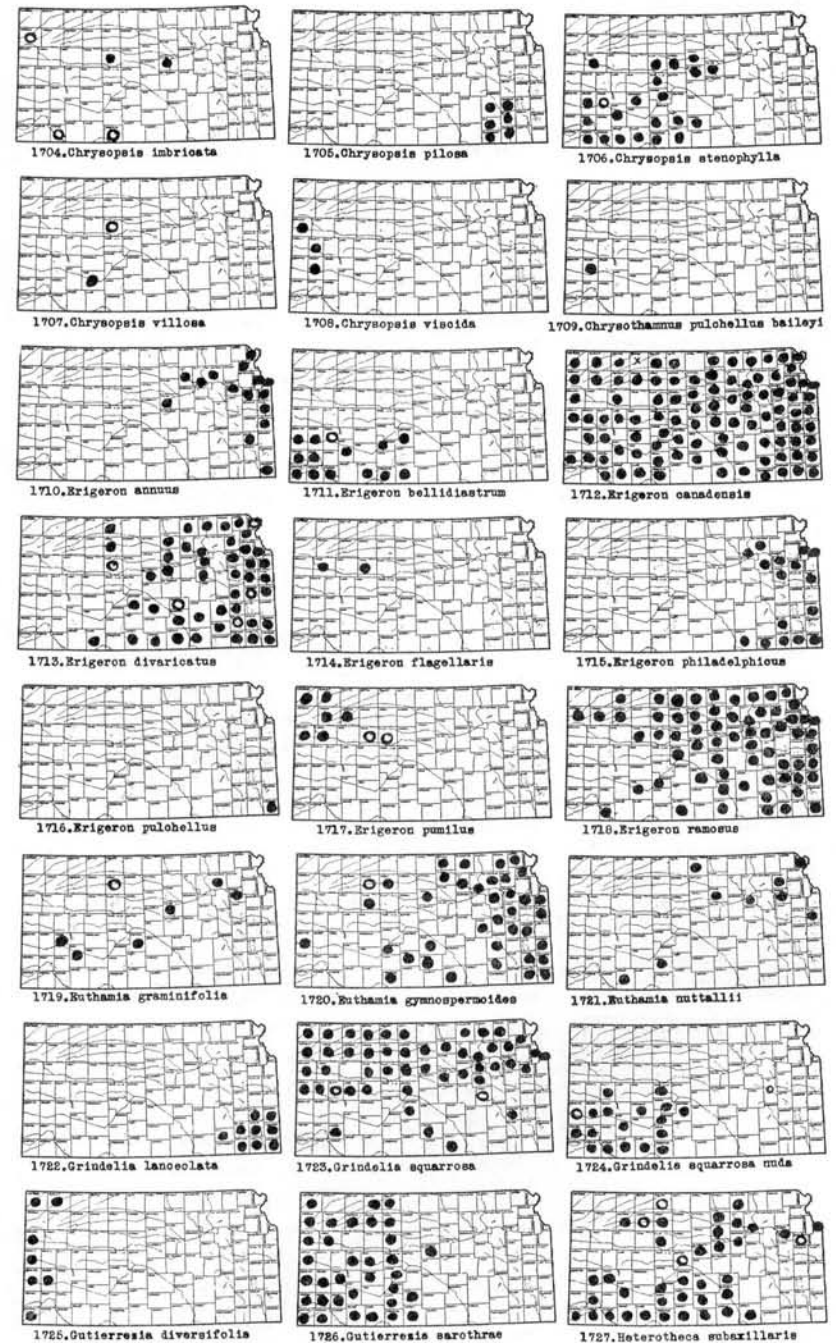


PLATE 74. Compositae: Asteraceae (1660-1752).

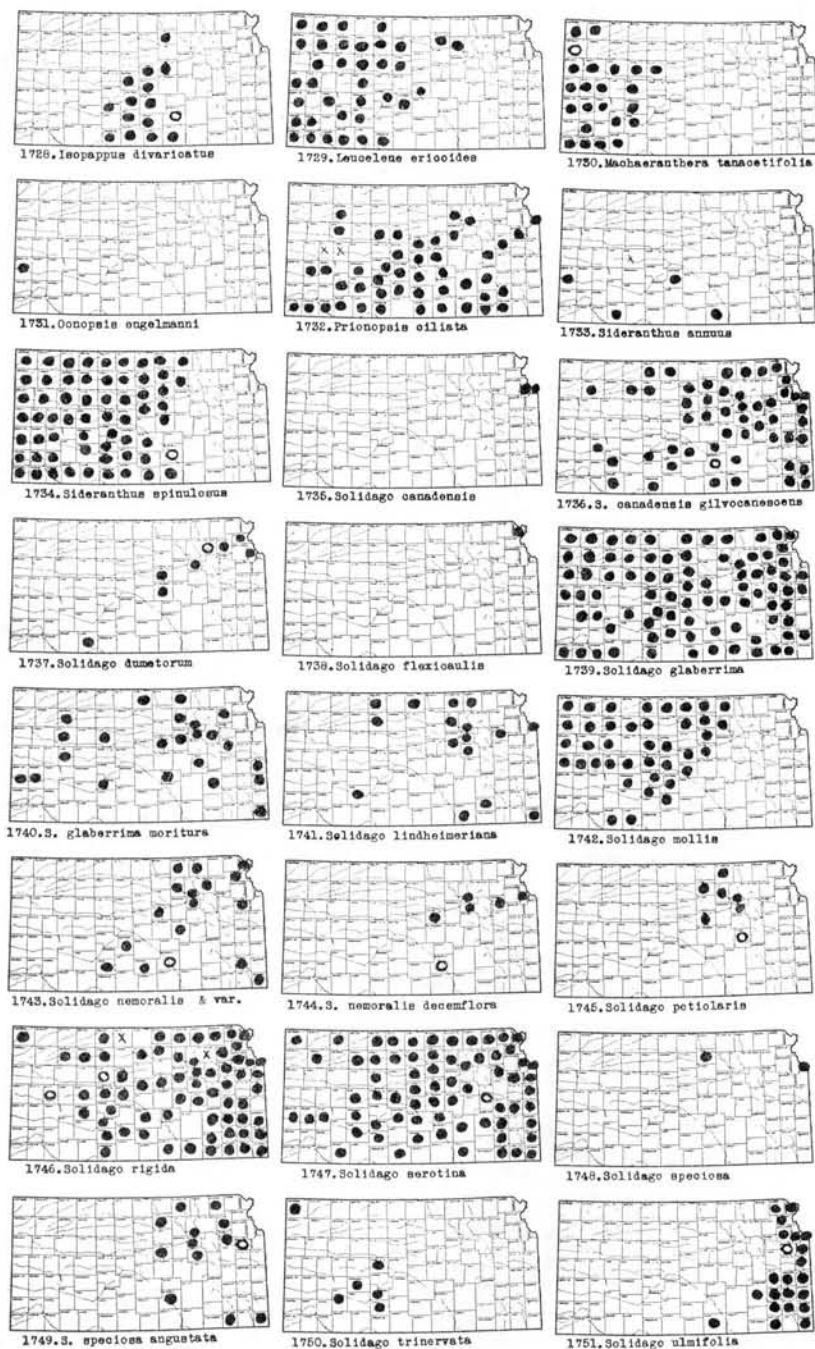


PLATE 75. Compositae: Asteraceae (1660-1752).

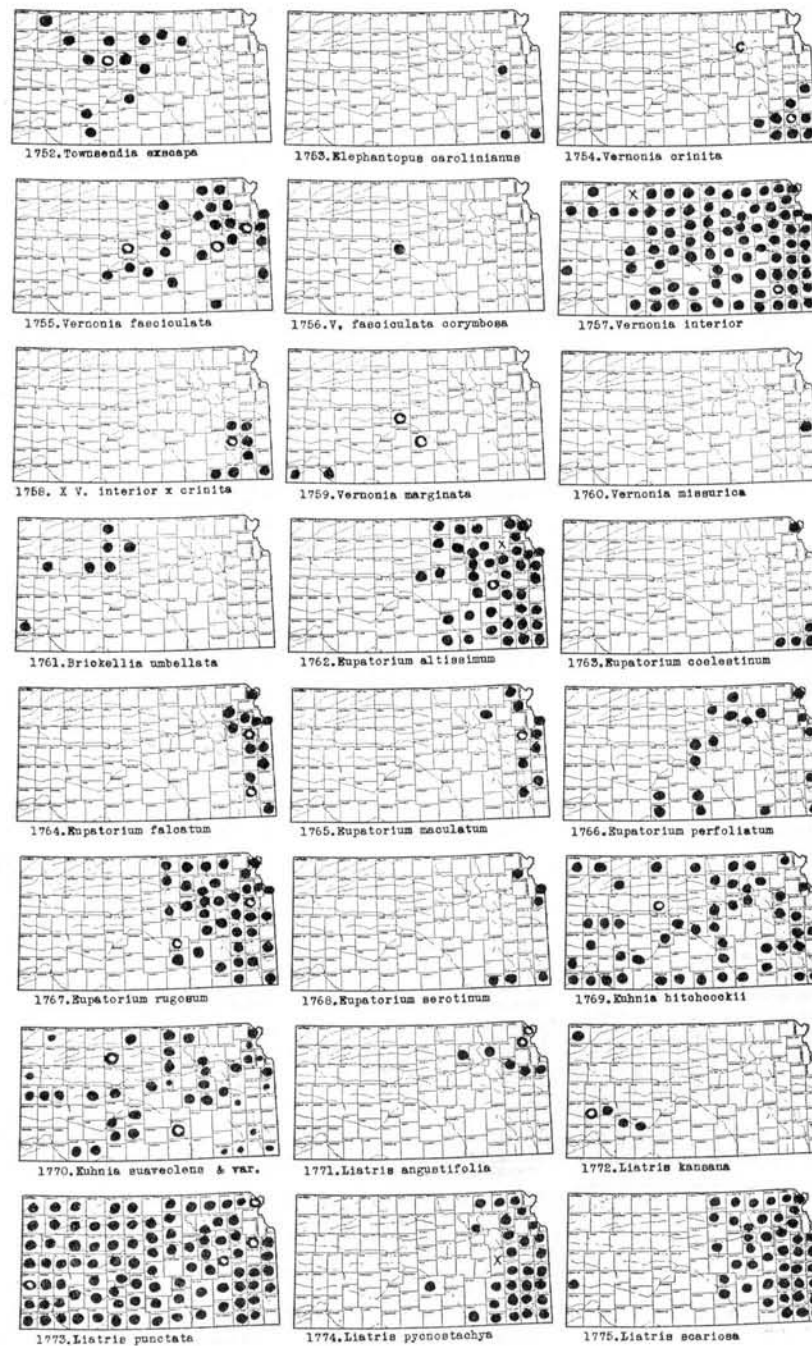


PLATE 76. Compositae: Asteraceae (1660-1752), Vernoniaceae (1753-1760), Eupatoriaceae (1761-1778).

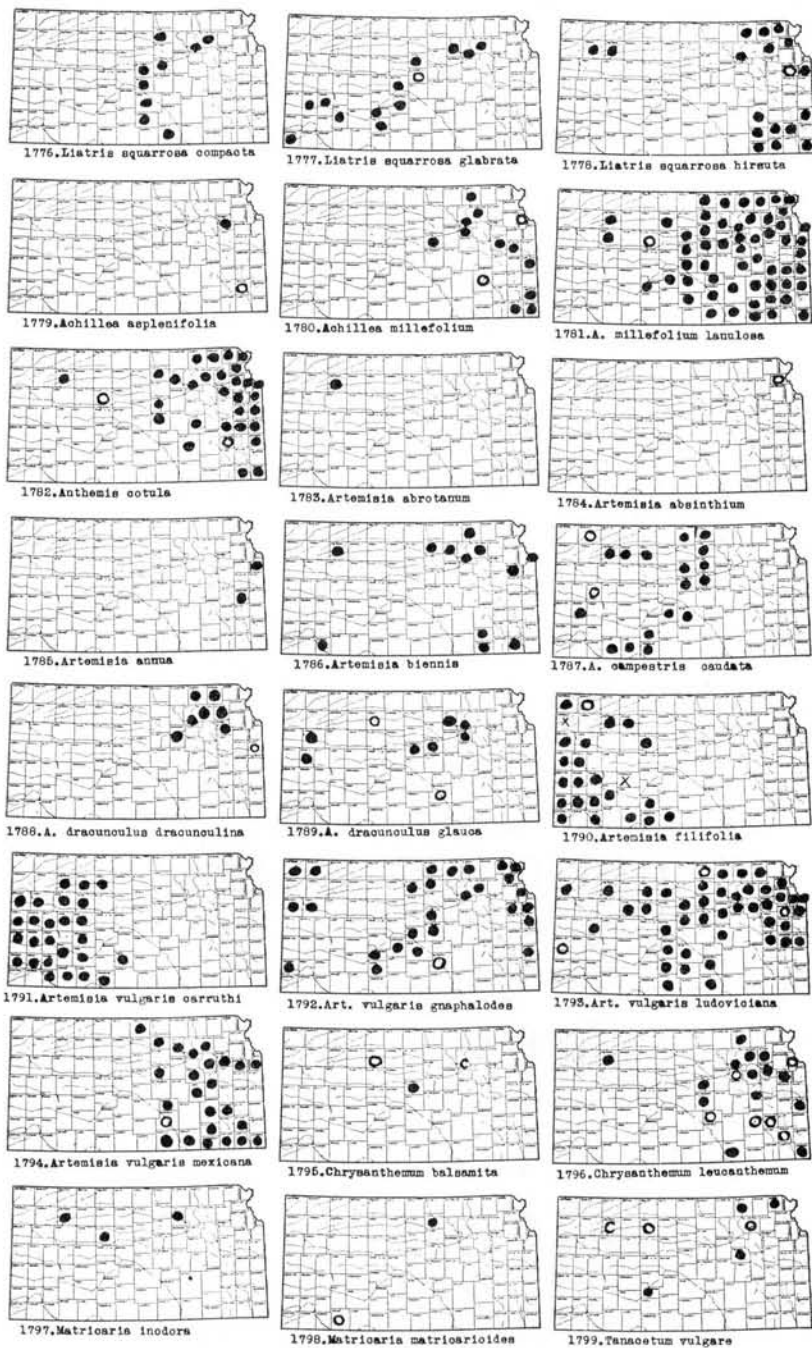


PLATE 77. Compositae: Eupatoriaceae (1761-1778), Anthemidaceae (1779-1799).

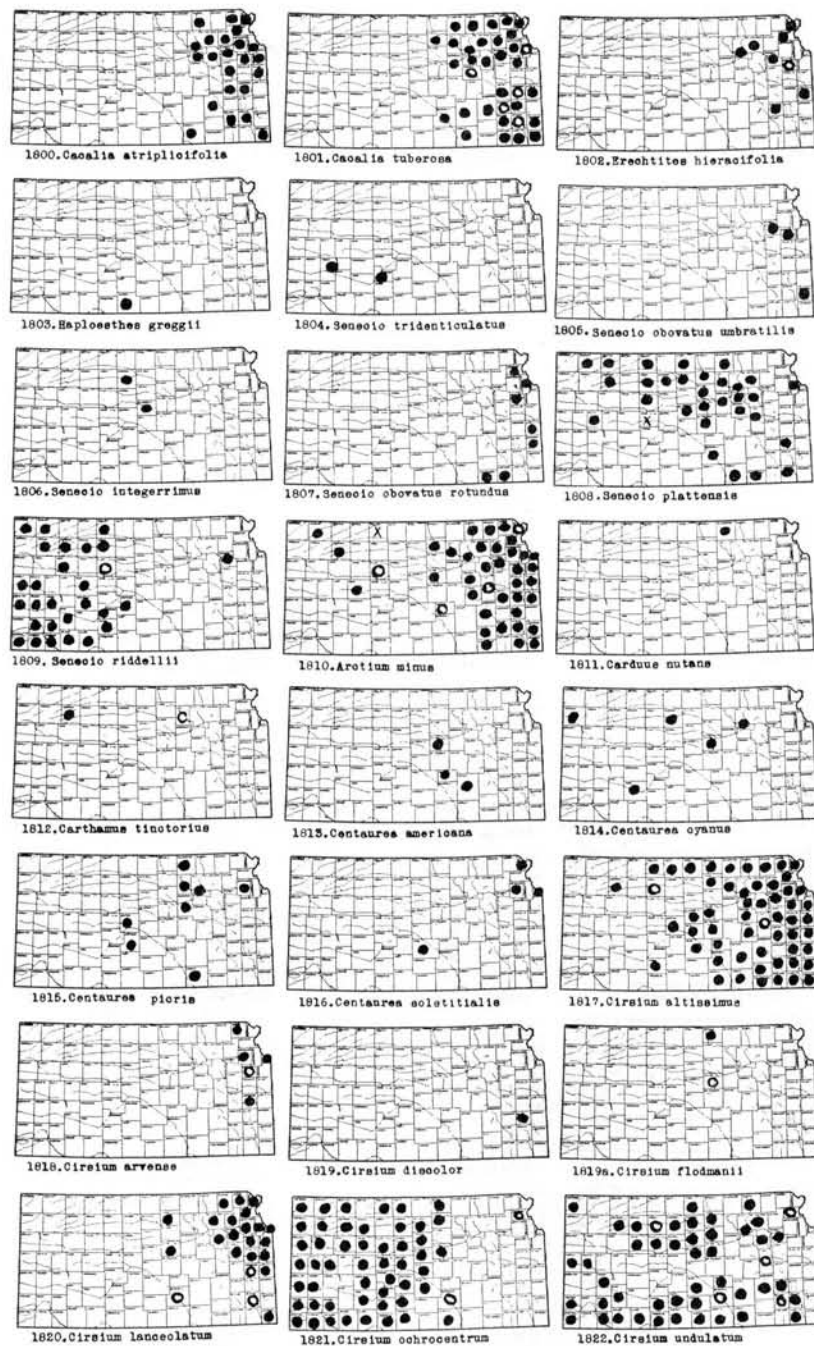


PLATE 78. Compositae: Senecionidaceae (1800-1809), Carduaceae (1810-1823).

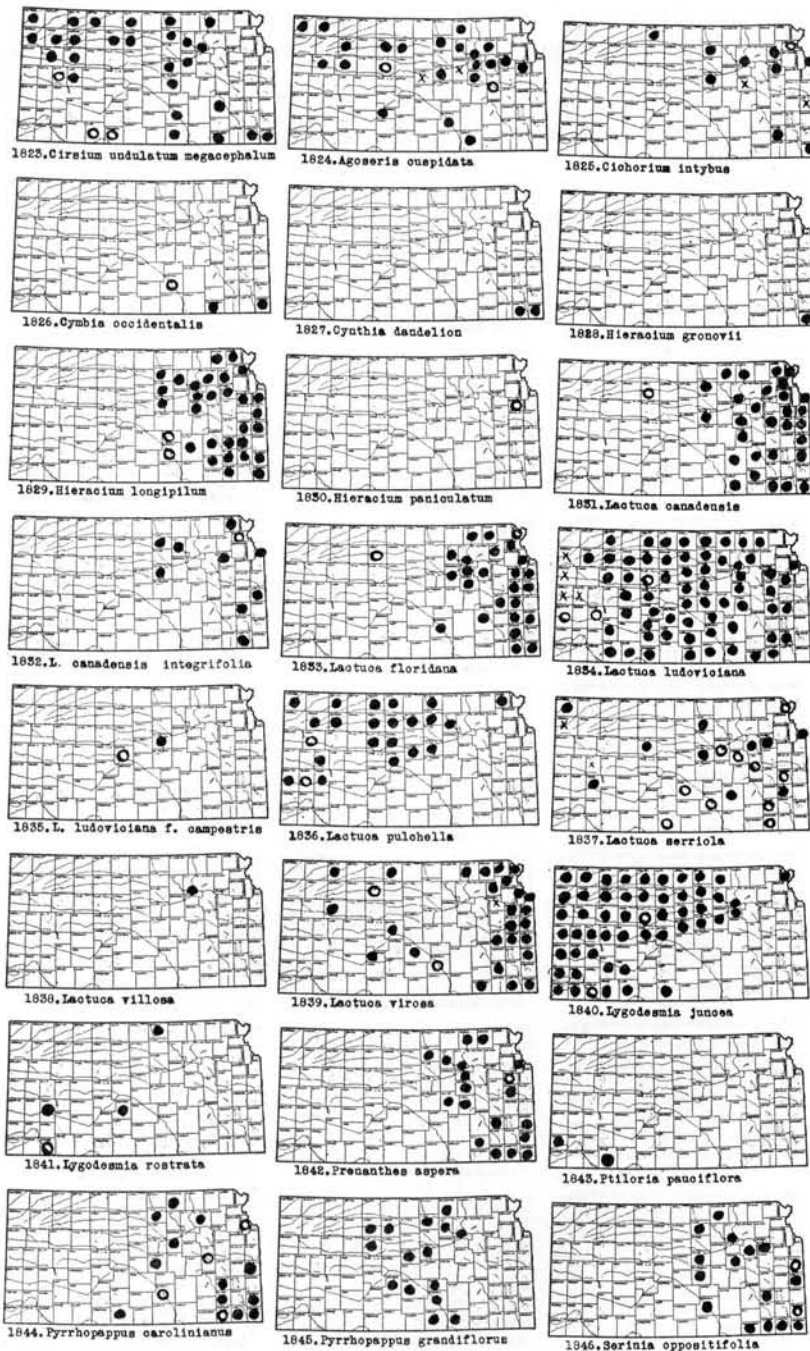


PLATE 79. Compositae: Carduaceae (1810-1823), Lactuceae (1824-1853).

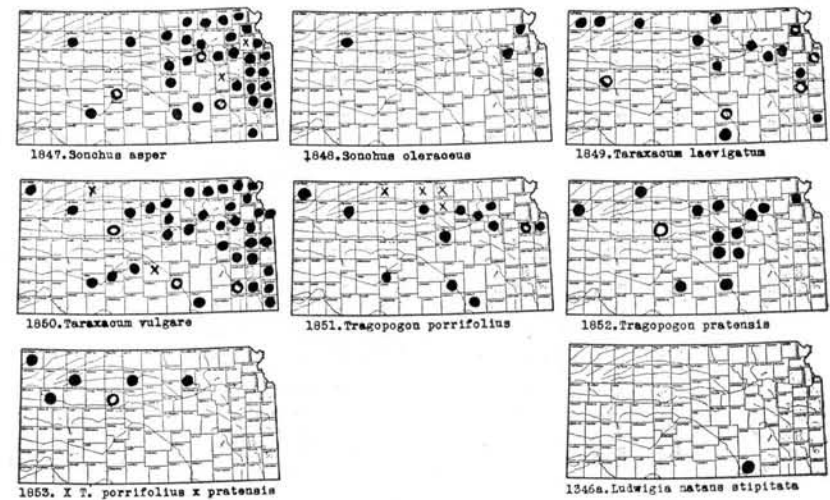


PLATE 80. Compositae: Lactuceae (1824-1853).

ADDENDA TO MAPS

The following plants, collected in 1939 or earlier, were received after the maps had been made by the engraver. Solid dots should be added to the maps as indicated. This will bring the record of the Kansas State Herbarium up to December 31, 1939.

Map No.	County.	Map No.	County.
52.	<i>Allium canadense</i> Harvey, Crawford counties	358.	<i>Panicum anceps</i> Wilson county
60.	<i>Asparagus officinalis</i> Crawford county	387.	<i>Paspalum pubiflorum glabrum</i> Montgomery county
63.	<i>Erythronium albidum mesachoreum</i> Crawford county	388.	<i>Paspalum repens</i> Montgomery county
88.	<i>Commelina erecta</i> Crawford county	416.	<i>Sorghum halepense</i> Gray county
89.	<i>Commelina erecta crispata</i> Cheyenne county	447.	<i>Hypoxis hirsuta</i> Crawford county
94.	<i>Tradescantia occidentalis</i> Harvey county	451.	<i>Nemastylis acuta</i> Crawford county
131.	<i>Carex bushii</i> Saline county	453.	<i>Sisyrinchium campestre</i> Crawford county
137.	<i>Carex davisi</i> Saline county	467.	<i>Anemone caroliniana</i> Marshall county
143.	<i>Carex graviora lunelliana</i> Morris county	482.	<i>Ranunculus abortivus</i> Crawford county
171.	<i>Carex vulpinoidea</i> Morris county	505.	<i>Abutilon theophrasti</i> Harvey county
—	<i>Andropogon ischaemum</i> Elk county	508.	<i>Callirhoe involucrata</i> Marshall, Morris counties
278.	<i>Cynodon dactylon</i> Lyon county	531.	<i>Maclura pomifera</i> Crawford county
287.	<i>Echinochloa crusgalli mitis</i> Morris, Montgomery counties	532.	<i>Morus alba</i> Crawford county
327.	<i>Hordeum pusillum</i> Marshall county	534.	<i>Boehmeria cylindrica</i> Crawford county
332.	<i>Leptochloa filiformis</i> Montgomery county	534a.	<i>Boehmeria cylindrica scabra</i> Crawford, Pottawatomie counties

Map No.	County.	Map No.	County.
536.	Parietaria pennsylvanica Morris county	817.	Polygonum longistylum Crawford, Montgomery counties
540.	Geranium carolinianum Crawford, Harvey, Morris counties	841.	Abronia fragrans Cheyenne county
544.	Oxalis europaea bushii Harvey county	856.	Plantago aristata Morris county
545.	Oxalis stricta Saline county	861.	Plantago purshii Marshall county
563.	Zanthoxylum americanum Saline county	884.	Convolvulus arvensis Trego county
564.	Ailanthus altissima Geary county	904.	Ellisia nyctelea Harvey county
586.	Euphorbia dentata Morris county	951.	Physalis virginiana Harvey county
587.	Euphorbia dictyosperma Morris county	956.	Solanum nigrum interius Harvey county
594.	Euphorbia hyssopifolia Montgomery county	961.	Fraxinus americana Crawford county
624.	Viola missouriensis Harvey county	976.	Apocynum sibiricum Crawford, Harvey counties
632.	Viola sororia Crawford county	978.	Acerates angustifolia Morris county
—.	Viola tricolor Reno county	980.	Acerates hirtella Atchison county
635.	Argemone intermedia Harvey county	989.	Aselepias kansana Crawford county
663.	Capsella bursapastoris Harvey, Morris counties	998.	Aselepias tuberosa Morris county
673.	Descurainia sophia Harvey county	1001.	Aselepiodora viridis Harvey, Marshall counties
686.	Lepidium draba Dickinson, Nemaha counties	1002.	Gonolobus laevis Harvey county
688.	Lepidium ramosissimum Reno county	1014.	Gerardia skinneriana Crawford county
—.	Mathiola bicornis Saline county	1031.	Penstemon albidus Reno county
700.	Sisymbrium altissimum Harvey county	1036.	Penstemon digitalis Crawford, Leavenworth counties
703.	Stanleya pinnata typica Trego county	1039.	Penstemon tubaeiflorus Morris county
705.	Thlaspi arvense Morris county	1041.	Scrophularia marilandica Crawford county
728.	Claytonia virginica Crawford county	1053.	Campsis radicans Crawford county
734.	Mollugo verticillata Montgomery county	1062.	Ruellia strepens Crawford county
737.	Populus alba Crawford county	1065.	Lippia lanceolata Crawford county
—.	Populus nigra italica Crawford county	1068.	Verbena canadensis Morris county
—.	Salix nigra lindheimeri Neosho county	1081.	Lamium amplexicaule Harvey, Morris counties
—.	Amaranthus powellii Saline county	1094.	Remove Jackson county from Monarda menthaefolia
758.	Amaranthus retroflexus Crawford county	1095.	Monarda mollis Chase, Jackson, Jefferson, Reno counties
761.	Froelichia campestris Morris county	1096.	Monarda punctata occidentalis Crawford county
763.	Iresine rhizomatosa Montgomery county	1106.	Pycnanthemum virginianum Cherokee county
769.	Chenopodium album Harvey county	1212.	Amorpha canescens Crawford county
804.	Polygonum aviculare Cheyenne county	1217.	Apios americana Crawford county
806.	Polygonum buxiforme Morris county	1219.	Astragalus canadensis Crawford county

Map No.	County.	Map No.	County.
1234b.	Baptisia leucophaea Crawford county	1566.	Echinacea angustifolia Crawford county
1259.	Lathyrus stipulaceus Clay county	—.	Helianthus ciliaris Osborne county
1270.	Lespedeza virginica Wilson county	1586.	Helianthus tuberosus subcanescens Geary county
1274.	Medicago sativa Crawford county	1598.	Rudbeckia amplexicaulis Crawford county
1275.	Melilotus alba Harvey county	1599.	Rudbeckia hirta Morris county
1276.	Melilotus officinalis Crawford, Harvey counties	1600.	Rudbeckia laciniata Crawford county
1280.	Petalostemum multiflorum Morris county	1604.	Silphium laciniatum Crawford county
1286.	Petalostemum villosum Saline county	1625.	Xanthium italicum Montgomery county
1287.	Psoralea argophylla Morris county	1630.	Dyssodia papposa (Boebera p.) Cheyenne county
1290.	Psoralea esculenta Marshall county	1637.	Helenium autumnale Crawford county
1300.	Strophostyles helvola Crawford county	1647.	Tetranneuris aculis Reno county
1301.	Strophostyles helvola missouriensis Crawford county	1656.	Gnaphalium obtusifolium Crawford county
1309.	Trifolium pratense Crawford county	1657.	Gnaphalium purpureum Crawford county
1311.	Trifolium reflexum Crawford county	1660.	Amphichrysis dracunculoides Crawford county
1312.	Trifolium repens Crawford county	1680.	Aster paludosus Crawford county
1331.	Lythrum alatum Harvey county	1710.	Erigeron annuus Crawford county
1344.	Jussiaea diffusa Crawford county	1740.	Solidago glaberrima moritura Crawford county
1345.	Ludwigia alternifolia Crawford county	1749.	Solidago speciosa angustata Crawford county
1352.	Oenothera canescens Cheyenne county	1760.	Vernonia missourica Crawford county
1369.	Oenothera speciosa Harvey county	1767.	Eupatorium rugosum (E. urticaefolium) Crawford county
1370.	Oenothera strigosa Crawford county	1770.	Kuhnia suaveolens Jackson county
1433.	Acer saccharinum Crawford county	1793.	Artemisia vulgaris ludoviciana Morris county
1438.	Rhus toxicodendron negundo Morris county	1815.	Centaurea pieris Atchison, Wabaunsee counties
1458.	Quercus borealis maxima Crawford county	1816.	Centaurea solstitialis Johnson county
1473.	Chaerophyllum texanum Wilson county	1832.	Lactuca canadensis integrifolia Crawford county
1494.	Ptilimnium nuttallii Wilson county	1833.	Lactuca floridana Crawford county
1502.	Thaspium barbinode Morris county	1837.	Lactuca serriola Morris county
1531.	Triosteum perfoliatum Jackson county	1847.	Sonchus asper Crawford, Harvey, Montgomery counties
1540.	Lobelia cardinalis Crawford county	1850.	Taraxacum vulgare Harvey county
1547.	Specularia leptocarpa Marshall county	1851.	Tragopogon norrifolius Harvey county
1549.	Actinomeris alternifolia Harvey county	1852.	Tragopogon pratensis Harvey county
1564.	Coreopsis tinctoria Crawford county		

The Arnold Arboretum has 562, *Ptelea trifoliata* from Wilson county; 1427, *Sapindus drummondii* from Cherokee county, and 1467, *Quercus stellata* from Douglas and Wilson counties.

Annotated List

PHYLUM PTERIDOPHYTA

FAMILY OPHIOGLOSSACEAE (Addertung Family)

Botrychium virginianum (L.) Sw. Grape Fern.

Woods. East half (map 1).

Ophioglossum vulgatum L. Adder's tung.

Meadow. Douglas county, a single station (K.U.) (map 2).

FAMILY ISOETACEAE (Quillwort Family)

Isoetes butleri Engelm. Quillwort.

Moist hillsides. Extreme southeast (Cherokee county) (map 3).

FAMILY OSMUNDACEAE (Royal Fern Family)

Osmunda regalis L. Royal Fern.

Moist places. Woodson county (K.U.) (map 4).

FAMILY POLYPODIACEAE (Fern Family)

Adiantum pedatum L. Maidenhair Fern.

Damp woods or shaded moist ground in thickets. East fourth (map 5).

Asplenium platyneuron (L.) Oakes. Spleenwort.

Among rocks. Southeast (Woodson, Labette and Cherokee counties) (map 6).

Asplenium resiliens Kunze.

Limestone rocks. Southeast ninth (map 7).

Asplenium trichomanes L.

Limestone rocks. Wilson county (map 8).

Athyrium acrostichoides (Sw.) Diels. Lady Fern.

Rich woods. "Kans.," fide Rydberg.

Athyrium "filix femina."

Woods. Osage county (map 8a).

Athyrium pycnocarpon (Spreng.) Tidestrom.

Moist woods. Leavenworth and Wyandotte counties (map 9).

Camptosorus rhizophyllus (L.) Link. Walking Fern.

Shaded calcareous rocks. East third (map 10).

Cheilanthes feei Moore. Lip Fern.

On or among rocks. Uncommon (map 11).

Cheilanthes lanosa (Michx.) Watt. Lip Fern.

Rocks. "Kans.," fide Rydberg.

Cystopteris fragilis (L.) Bernh.

Filix fragilis (R).

Rocky ravines. East third, but mostly its north half (map 12).

Dryopteris goldiana (Hook.) A. Gray. Goldie's Shield Fern.

Woods. Northeast (Leavenworth county) (K.U.) (map 13).

Dryopteris marginalis (L.) A. Gray.

Rocky places. Saline, Wilson and Leavenworth counties (map 14).

Dryopteris thelypteris (L.) A. Gray. Marsh Shield Fern.

Marshes. Northeast fourth (map 15).

Notholaena dealbata (Pursh) Kunze.

Limestone rocks. Scattered in east half (map 16).

Onoclea sensibilis L. Sensitive Fern.

Damp places. Scattered in east half (map 17).

Pellaea atropurpurea Link.

Dry rocks, especially in ravines. Scattered in east half (map 18).

Pellaea atropurpurea bushii Mackenzie.

Pellaea glabella (R).

Dry rocks, especially limestone. East two-thirds (map 19).

Pellaea mucronata D. C. Eat. and *Pellaea pumila* Rydb. credited to Kansas in Rydberg must be mistaken identifications.

Polypodium polypodioides (L.) Watt. Polypody.

On trees or rarely rocks. "Kans.," fide Rydberg.

Polystichum acrostichoides (Michx.) Schott. Holly Fern, Christmas Fern.

Rocky places. Extreme southeast (Cherokee county) (map 20).

Woodsia obtusa (Spreng.) Torr.

Rocks in ravines. East three-fifths (map 21).

FAMILY MARSILEACEAE. (Marsilea Family)

Marsilea vestita Hook. & Grev. Marsilea.

Marshes or shallow water. West three-fourths (map 22).

PHYLUM CALAMOPHYTA

(FAMILY EQUISETACEAE. (Horsetail Family¹))

Equisetum arvense L. Horsetail.

River banks, moist bluffs and westward perennial springs. Northeast fourth, plus Rooks county (map 23).

Equisetum kansanum Schaffn. Scouring Rush.

Ravines, moist slopes, especially north facing, even prairies and plains. Throughout, less frequent in southeast (map 24).

Equisetum laevigatum A. Br. Smooth Scouring Rush.

River bottoms and wet prairies. Scattered, presumably throughout (map 25).

Equisetum praealtum Raf. Scouring Rush.

E. robustum (R).

River and creek banks, abandoned river beds. Scattered, possibly throughout (map 26).

PHYLUM CYCADOPHYTA

FAMILY GINKGOACEAE

Ginkgo biloba L. Ginkgo.

Tree, only and rarely in cultivation. Mesophanerophyte.

FAMILY EPHEDRACEAE

Ephedra sp. (probably *E. sinica* Stapf.)

Low, branched shrub, only in cultivation in experimental plots at Manhattan, but apparently promising in soil-erosion work. Chemical analyses show a relatively high percentage of ephedrin from these Kansas-grown specimens.

1. Contributed by John H. Schaffner in 1934.

PHYLUM STROBILOPHYTA

FAMILY PINACEAE. (Pine Family)

Juniperus virginiana L. Red Cedar.

Sabina virginiana (R).

Woods, banks, ravines and also freely in cultivation. Throughout except the southwest (map 27). Mesophanerophyte.

Pinus echinata Mill. Southern Yellow Pine.

Old records credit this pine to extreme southeastern Kansas, but neither authenticating herbarium specimens nor trees have been found within the past seventy years. Mesophanerophyte.

Of the several conifers planted, especially in eastern Kansas, occasional local escapes have been found of *Pinus banksiana* Lamb., Jack-pine, *Pinus nigra* Arnold, Austrian pine (Saline, Riley and Geary counties), and *Pinus sylvestris* L., Scotch pine. Escapes of *Pinus ponderosa*, western yellow pine, are now to be expected as the many trees planted are coming into bearing. For the first time in recorded Kansas history, *Pinus sylvestris* was severely injured by drought in the great droughts of 1934-'35.

Many other conifers are planted, especially in eastern Kansas, but have shown no tendency to escape.

PHYLUM ANTHOPHYTA

CLASS MONOCOTYLEDONEAE

FAMILY ALISMATACEAE (Water Plantain Family)

Alisma subcordatum Raf. Water Plantain.

Water and muddy shores. East half plus Rooks county (map 28). Helophyte.

Echinodorus cordifolius (L.) Griseb. Burhead.

Swamps and muddy shores. Scattered mostly along streams in the east three-fourths (map 29). Helophyte.

Echinodorus radicans (Nutt.) Engelm. Creeping Burhead.

Bordering ponds. Southeast sixth (map 30). Helophyte.

Lophotocarpus calycinus (Engelm.) J. G. Smith.

Shallow water and muddy shores. Scattered in east four-fifths (map 31). Helophyte.

Sagittaria ambigua J. G. Smith. Lance-leaved Arrowhead.

Shallow water and muddy shores. Scattered in east half (map 32). Helophyte. The type specimen from McPherson county (Kansas State Herbarium).

Sagittaria brevirostra Mack. and Bush. Short-beaked Arrowhead.

Shallow water and muddy shores. Scattered, mostly in east half; Sherman county (map 33). Helophyte.

Sagittaria cuneata Sheldon. Arrowhead.

Mud and shallow water. Scattered in the west three-fourths (map 34). Helophyte.

Sagittaria esculenta Howell. Arrowhead.

Shallow water. Scattered in east two-thirds (map 35). Helophyte.

Sagittaria graminea Michx. Grass-leaved Arrowhead.

Shallow ponds and marshes. Extreme southeast (Cherokee county) (map 36). Helophyte.

Sagittaria latifolia Willd. Arrowhead.

Shallow water. Throughout (map 37). Helophyte.

Sagittaria longiloba Engelm. Arrowhead.

Shallow ponds. Scattered in west two-thirds (map 38). Helophyte.

Sagittaria platyphylla (Engelm.) J. G. Smith. Arrowhead.

Shallow water. Extreme southeast (Cherokee county) (map 39). Helophyte.

Sagittaria rigida Pursh. Arrowhead.

Shallow water. "Kans.," fide Rydberg. Helophyte.

FAMILY TYPHACEAE (Cattail Family)

Typha angustifolia L. Narrow-leaved Cattail.

Marshes, especially saline. South central (map 40). Helophyte.

Typha latifolia L. Cattail.

Marshes and muddy shores of lakes and streams. At least east five-sixths (map 41). Helophyte.

FAMILY SPARGANIACEAE (Butreed Family)

Sparganium eurycarpum Engelm. Butreed.

Swamps, shallow lakes and along streams. Scattered, at least east five-sixths (map 42). Helophyte.

FAMILY POTAMOGETONACEAE (Pondweed Family)

Potamogeton americanus Cham. and Schlecht. Long-leaved Pondweed.

Ponds and streams. Scattered throughout (map 43). Hydrophyte.

Potamogeton diversifolius Raf. Pondweed.

Including *Potamogeton dimorphus* Raf.

Ponds and streams. Scattered in east half (map 44). Hydrophyte.

Potamogeton foliosus Raf. Pondweed.

Ponds and streams. Scattered, mostly central (map 45). Hydrophyte.

Potamogeton lucens L. Shining Pondweed.

Ponds. Comanche county (map 46). Hydrophyte.

Potamogeton obtusifolius Mert. and Koch. Pondweed.

Still water. Sheridan and Riley counties (map 47). Hydrophyte.

Potamogeton pectinatus L. Fennel-leaved Pondweed.

Fresh, salt, or alkali water. Scattered (map 48). Hydrophyte.

Potamogeton pusillus L. Pondweed.

Ponds and slow streams. Saline county. (Sheridan county?) (map 49). Hydrophyte.

Ruppia maritima rostrata Agardh. (Rh. 16:125. 1914.) Ditchgrass.

Salt or brackish water. Scattered in west half (map 50). Hydrophyte.

- Zannichellia palustris major* (Boenningh.) Koch. Horned Pondweed.
Fresh and brackish ponds and ditches. Scattered (map 51).
Hydrophyte.
- FAMILY LILIACEAE (Lily Family)
- Allium arenicola* Small. Wild Onion.
Sandy woods. Labette county (map 51a). Bulb geophyte.
- Allium canadense* L. Wild Garlic, Wild Onion.
In fields and prairies. East half (map 52). Bulb geophyte.
- Allium cepa* L. Onion.
Cultivated and occasionally escaped. Bulb geophyte.
- Allium cernuum* Roth. Nodding Wild Onion.
Prairies. Saline county (map 53). Bulb geophyte.
- Allium helleri* Small is given in Small as ranging north to Nebraska. No Kansas specimens at hand fit the description, however.
- Allium mutabile* Michx. Wild Onion.
Woods, thickets and prairies. Scattered in east four-fifths (map 54).
Bulb geophyte.
- Allium nuttallii* S. Wats. Wild Onion.
Plains and prairies. West three-fifths and Labette county (map 55).
Bulb geophyte.
- Allium perdulce* S. V. Fraser. Trans. Kan. Acad. Sci. 42:123-126. 1939 (1940).
Sweet smelling bulbous prairie herb. Central (map 55a). Bulb
geophyte.
- Allium porrum* L.
Escaped from cultivation. Saline and Washington counties (map 56).
Bulb geophyte.
- Allium stellatum* Ker. Wild Onion.
Rockyland prairies. East third (map 57). Bulb geophyte.
- Allium textile* Nels. and Macbride. Wild Onion.
Hills in high plains. Northwest (Cheyenne and Decatur counties.)
(map 58). Bulb geophyte.
- Allium vineale* L. Crow Garlic.
Saline county (map 58a). Introduced.
- Androstephium caeruleum* (Scheele) Greene.
Prairies. Central, west of Flint Hills (map 59). Bulb geophyte.
- Asparagus officinalis* L. Asparagus.
Frequently escaped from cultivation. East half (map 60). Rhizome
geophyte.
- Camassia scilloides* (Raf.) Cory. (Rhod. 38:405. 1936.) Blue Camas, Wild
Hyacinth, Swamp Segoe.
Camassia esculenta (R.).
Thickets and meadows. East third (map 61). Bulb geophyte.
- Erythronium albidum* Nutt. White Adder's-tongue, White Dogtooth Violet.
Rich woods along streams and bluffs. East half (map 62). Bulb
geophyte.

- Erythronium albidum mesochoreum* (Knerr) Rickett. (Rhod. 39:101-105.
1937.) Prairie Adder's-tongue, Prairie Dogtooth Violet.
Erythronium mesochoreum (R.).
Rocky prairies, ravines and barrens. East half (map 63). Bulb
geophyte.
- Hemerocallis fulva* L. Day Lily.
Meadows and along streams escaped from cultivation. Johnson
county (K. U.) (map 64). Rhizome geophyte.
- Lilium michiganense* Farwell. Turk's-cap Lily.
Lilium canadense (R.).
Meadows and swamps. East fourth (map 65). Rare. Bulb geophyte.
- Melanthium virginicum* L. Bunchflower.
Swamps and meadows. East sixth (map 66). Rhizome geophyte.
- Nothoscordum bivalve* (L.) Britton. False Garlic.
Prairies and barrens. East half (map 67). Bulb geophyte.
- Ornithogalum umbellatum* L. Star-of-Bethlehem.
Rarely escaped from gardens (Riley and Saline counties) (map 68).
Bulb geophyte.
- Polygonatum canaliculatum* (Muhl.) Pursh. Large Solomon's Seal.
Polygonatum commutatum (Schulte) (R.).
Polygonatum giganteum Dietr. (R.).
Moist woods and alluvial thickets. East half (map 69). Rhizome
geophyte.
- Smilacina racemosa cylindrata* Fernald. (Rhod. 40:406. 1938.) False Spike-
nard, False Solomon's Seal.
Rocky woods and thickets. Scattered in east half (map 70). Rhizome
geophyte.
- Smilacina stellata* (L.) Desf. False Solomon's Seal.
Moist rich woods and thickets. Scattered in north two-thirds (map
71). Rhizome geophyte.
- Smilax bona-nox* L. Smilax, Greenbrier.
Thickets. Scattered in east (map 72). Specimens not showing the
fiddle leaves frequently identified as *S. rotundifolia*. Liana.
- Smilax ecirrhata* (Engelm.) Wats.
Nemexia ecirrhata (R.).
Woods. Douglas county (map 73). Vine, Hemicryptophyte.
- Smilax herbacea* L. Carrion Flower, Smilax.
Nemexia herbacea (R.).
Woods and thickets. East fourth (map 74). Root tuber geophyte.
- Smilax herbacea lasioneuron* (Hook.) A. DC. Carrion Flower, Smilax.
Smilax lasioneuron (R.).
Woods and thickets. East half (map 75).
- Smilax hispida* Muhl. Greenbrier, Smilax.
Thickets. East two-thirds (map 76). Liana. A few very long pe-
duncled specimens have been identified as *S. pseudo-china* L.

- Trillium gleasoni Fernald. Trillium, Wake-robin.
Trillium declinatum (R.).
Woods. Shawnee county (map 77). Rhizome geophyte.
- Trillium sessile L. Trillium, Wake-robin.
Woods. Extreme east (Miami and Cherokee counties) (map 78).
Rhizome geophyte.
- Trillium viride Beck. Trillium.
Woods. "Kans.," fide Rydberg. Rhizome geophyte.
- Trillium viridescens Nutt. Trillium.
Rocky or alluvial woods. Southeast (map 79). Rhizome geophyte.
A specimen collected by E. N. Plank in 1898 labeled *T. viride* Beck? from southwestern Kansas certainly with wrong locality.
- Uvularia grandiflora Smith. Bellwort.
Woods and thickets. Extreme east (map 80). Uncommon. Rhizome geophyte.
- Veratrum woodii Robbins. False Hellebore.
Woods and hills. "Kans.," fide Rydberg. Rhizome geophyte.
- Yucca baccata Torr. Spanish Bayonet.
Plants of dry plains. "Kans.," fide Rydberg. Chamaephyte.
- Yucca filamentosa L. Spanish Bayonet, Needle and Thread.
Cultivated, sometimes naturalized. Chamaephyte.
- Yucca glauca Nutt. Yucca, Soapweed, Beargrass.
Plains, hillsides and sanddunes. West three-fourths (map 81).
Chamaephyte.
- Zygadenus nuttallii S. Wats. Death Camas.
Toxicoscordion nuttallii (R.).
Prairie, on dry limestone slopes and rocky ravines. South three-fourths of east two-fifths (map 82). Bulb geophyte.
Many species of the family Liliaceae are in Kansas only in cultivation. Among them are *Convallaria majalis* L., Lily of the Valley; *Hosta* spp.; *Muscari botryoides* (L.) Mill, Grape Hyacinth; *Tulipa* spp., Tulip.

FAMILY PONTEDERIACEAE (Pickerelweed Family)

- Eichhornia crassipes (Mart.) Schlecht. Water Hyacinth.
Cultivated, but not persisting after escaping.
- Heteranthera dubia (Jacq.) MacM. Water Stargrass.
Zosterella dubia (R.).
Streams and still water. Scattered in central (Riley to Decatur counties) (map 83). Hydrophyte.
- Heteranthera limosa (Sw.) Willd. Mud Plantain.
Shallow water. Scattered throughout (map 84). Hydrophyte. A form *albiflora* Benke from great Bend, Barton county, August 10, 1929. Benke 5127 (type) in Field Museum. (Rhod. 34:9. 1932.)
- Heteranthera reniformis R. & P. Mud Plantain.
Heteranthera peduncularis (R.).
Shallow water. Scattered in east half (map 85). Hydrophyte.

- Pontederia cordata L. Pickerelweed.
Bordering shores, ponds and swamps. Extreme southeast (Cherokee county) (map 86). Helophyte.

FAMILY COMMELINACEAE (Day Flower Family)

- Commelina communis L. Creeping Day Flower.
Waste places. Scattered in east fourth (map 87). Hemicyrptophyte.
- Commelina erecta L. Day Flower.
Banks, woods and sand bars. East half (map 88). Hemicyrptophyte.
- Commelina erecta crispa (Wooton) Palmer and Steyermark. Day Flower.
Sandy and rocky places. Southwest fourth to Saline county (map 89). Plus Cheyenne county. Hemicyrptophyte.
- Commelina longicaulis Jacq. Day Flower.
Commelina nudiflora.
Moist sandy or alluvial, open or cultivated ground. East sixth (map 90). Hemicyrptophyte.
- Commelina virginica L. Day Flower.
Perennial in damp soils. East half and Sheridan and Kiowa counties (map 91). Hemicyrptophyte.
- Tradescantia bracteata Small. Spiderwort.
Prairies. East two-thirds (map 92). Hemicyrptophyte.
- Tradescantia canaliculata Raf.
Tradescantia reflexa Raf. (R.).
Especially in sandy soil. East half and Seward county (map 93). Hemicyrptophyte.
- Tradescantia hirsutiflora Bush.
Sandy places. "Kans.," fide Rydberg. Hemicyrptophyte.
- Tradescantia occidentalis (Britton) Smyth. Spiderwort.
Wet prairies and plains. West two-thirds (map 94). Hemicyrptophyte.
- X Tradescantia occidentalis X T. canaliculata.
Sand prairie. Saline county. Hemicyrptophyte.
- Tradescantia pilosa Lehm. (*Tradescantia subaspera* Ker-Gawl).
"Kans.," fide Rydberg but not known west of eastern Missouri. One Riley county specimen, must have been cultivated.
- Tradescantia tharpian Anderson & Woodson.
Tradescantia brevicaulis (R.).
Rocky prairies, hillsides and thickets. Central (map 95). Hemicyrptophyte.
- X Tradescantia tharpian X (T. bracteata).
Sand prairies. Cloud and Saline counties. Hemicyrptophyte.
- Tradescantia virginiana L. Many old collections so labeled, but not known west of eastern Missouri.

FAMILY JUNCACEAE² (Rush Family)

- Juncus acuminatus Michx. Knotty-leaved Rush.
Marshes and low places. Central (Saline county) (map 96). Helophyte.

2. Contributed by F. J. Hermann.

- Juncus acuminatus obtusatus* F. J. Hermann.
Wet places. Pottawatomie county (map 96). Helophyte.
- Juncus aristulatus* Michx.
Juncus biflorus Ell.
Moist sand prairies and meadows. Southeast fourth plus Saline county (map 97). Helo-hemicryptophyte.
- Juncus balticus montanus* Engelm.
Juncus ater (R).
Valleys of the plains and high plains. Southwest fourth and Cheyenne county (map 98). Hemicryptophyte.
- Juncus diffusissimus* Buckley.
Low spots in prairies and plains and borders of streams. Scattered (map 99). Helophyte.
- Juncus dudleyi* Wieg.
Moist prairies and wet places along streams in plains. Scattered throughout (map 100). Helo-hemicryptophyte.
- Juncus effusus solutus* Fern. & Wiegand. Rush.
(Approaching *J. effusus pylaei* [Laharp].)
Swamps, borders of ponds and streams. Southeast (Sedgwick and Crawford counties) (map 101). Helophyte.
- Juncus interior* Wieg.
Prairies and plains. East two-thirds plus northwest ninth (map 102). General. Helo-hemicryptophyte.
- Juncus kansanus* F. J. Hermann.
Prairies. Cloud, Saline and Chautauqua counties (map 103). Hemicryptophyte.
- Juncus macer* S. F. Gray. Slender Rush.
Juncus tenuis Willd. (R).
Scattered in east half (map 104). Hemicryptophyte.
- Juncus marginatus* Rostk.
Low sandy meadows and prairies. East half (map 105). Helo-hemicryptophyte.
- Juncus marginatus setosus* Coville.
Moist thickets. South central (Kingman county) (map 105). Hemicryptophyte.
- Juncus neomexicanus* Wieg.
Prairies. East (Shawnee county) (map 106). Hemicryptophyte.
- Juncus nodatus* Coville.
Wet sand prairies, borders of streams. East half (map 107). Hemicryptophyte.
- Juncus scirpoides* Lam.
Wet sandy soil. Central (Stafford county) (map 108). Helophyte.
- Juncus torreyi* Coville. Rush.
Borders of ponds and streams, and wet sandy areas in prairies and plains. Throughout (map 109). General. Helophyte.
- Juncus validus* Coville.
Wet sandy places. Southeast (Chautauqua county) (map 110). Helophyte.

- Luzula campestris bulbosa* A. Wood. Woodrush.
Luzula bulbosa (R).
Woods and thickets. East fifth (map 111). Hemicryptophyte.

FAMILY NAIADACEAE

- Naias guadalupensis* (Spreng.) Morong. Naiad.
Shallow water in ponds and lakes. Trego, Ness and Riley? counties (map 112). Hydrophyte.

FAMILY ARACEAE (Arum Family)

- Acorus calamus* L. Sweet Flag, Calamus Root.
Swamps and borders of ponds and streams. Scattered in east two-thirds (map 113). Rhizome geophyte.
- Arisaema dracontium* (L.) Schott. Green Dragon.
Muricauda dracontium (R).
Moist rocky ravines. East half (map 114). Corm geophyte.
- Arisaema triphyllum* (L.) Schott. Jack-in-the-Pulpit, Indian Turnip.
Rich or rocky woods and thickets. East third (map 115). Corm geophyte.
- Peltandra virginica* (L.) Kunth. Arrow Arum.
Cultivated in wet soil. Sedgwick county. Corm geophyte.

FAMILY LEMNACEAE (Duckweed Family)

- Lemna minima* Philippe. Duckweed.
Pools. Geary and Saline counties (map 116). Floating hydrophyte.
- Lemna minor* L. Little Duckweed.
Stagnant water and slow streams. Central (map 117). Floating hydrophyte.
- Lemna perpusilla* Torr. Duckweed.
Ponds and streams. Scattered throughout (map 118). Floating hydrophyte.
- Spirodela polyrhiza* (L.) Schleiden. Large Duckweed.
Pools and ponds. Scattered throughout (map 119). Floating hydrophyte.
- Wolffia columbiana* Karst.
Lakes and pools. Scattered in central (map 120). Floating hydrophyte.
- Wolffia papulifera* C. H. Thompson.
Pools. Linn county (map 121). Floating hydrophyte.

FAMILY CYPERACEAE (Sedge Family)

- Bulbostylis capillaris* (L.) C. B. Clarke.
Stenophyllus capillaris (R).
River valleys. Scattered in east two-fifths (map 122). Therophyte.
- Carex*³ *aggregata* Mackenzie. Sedge.
Dry woods and thickets. Northeast fourth (map 123). Hemicryptophyte.

3. *Carex* contributed by F. J. Hermann. The genus *Carex* in Kansas. The American Midland Naturalist 17:849-865. 1936.

- Carex annectens xanthocarpa* (Bickn.) Wiegand. Sedge.
Carex brachyglossa Mack. (R).
Fields and pastures. Scattered in east third (Cherokee, Lyon and Saline counties) (map 124). Hemicryptophyte.
- Carex artitecta* Mackenzie. Sedge.
Carex varia Muhl. (R).
Dry soil. East two-fifths (map 125). Hemicryptophyte.
- Carex austrina* (Small) Mack. Sedge.
Dry soil. Scattered, mostly central (map 126).
- Carex bicknellii* Britton. Sedge.
Dry soil. East third plus Sherman county (map 127).
- Carex blanda* Dewey. Sedge.
Woods and thickets. East two-fifths (map 128). Hemicryptophyte.
- Carex brevior* (Dewey) Mack. Sedge.
Carex festucacea in part.
Dry soil. Throughout except southwest eighth (map 129). Hemicryptophyte.
- Carex brevior molesta* (Mack.) F. C. Gates.
Dry soil. Scattered in east three-fifths (west to Osborne county) (map 130). Hemicryptophyte.
- Carex bushii* Mackenzie. Sedge.
Prairies. Cloud, Clay, Saline and Cherokee counties (map 131). Hemicryptophyte.
- Carex cephalophora* Muhl. Sedge.
Dry soil. Riley, Wyandotte and Cherokee counties (map 132). Hemicryptophyte.
- Carex conjuncta* Boott. Sedge.
Moist meadows and thickets. Extreme eastern (Wyandotte county) (map 133). Hemicryptophyte.
- Carex convoluta* Mack. Sedge.
Dry woods. Leavenworth and Wyandotte counties (map 134). Hemicryptophyte.
- Carex crawei* Dewey. Sedge.
Limestone areas. Shawnee county (map 135). Hemicryptophyte.
- Carex crus-corvi* Shuttlew. Sedge.
Swamps and low wet woods. Wabaunsee and Wyandotte counties (map 136). Hemicryptophyte, helophyte.
- Carex davisii* Schw. & Torr. Sedge.
Thickets, meadows and borders of streams. Northeast sixth (map 137). Hemicryptophyte.
- Carex eleocharis* Bailey. Sedge.
(*C. stenophylla* of old lists.)
Dry soil of plains. Northwest eighth plus Riley county (map 138). Hemicryptophyte.

- Carex emoryi* Dewey. Sedge.
(*C. stricta* of old lists.)
Swamps and on river banks. East two-thirds, but mostly north half (map 139). Hemicryptophyte, helophyte.
- Carex frankii* Knuth. Sedge.
Swamps and borders of streams. South two-thirds of east fourth (map 140). Helophyte.
- Carex granularis* Muhl. Sedge.
Moist meadows. Wyandotte county (and Saline county?) (map 141). Hemicryptophyte.
- Carex granularis haleana* (Olney) Porter. Sedge.
Moist prairie. Riley and Ellis counties (map 141). Hemicryptophyte.
- Carex gravida* Bailey. Sedge.
Plains and prairies. Northwest, central and northeast (map 142). Hemicryptophyte.
- Carex gravida lunelliana* (Mack.) Hermann. Sedge.
Carex lunelliana Mack. (R).
Dry prairies. East half plus Sheridan county (map 143). Hemicryptophyte.
- Carex grisea* Wahl. Sedge.
Woods and thickets. East half plus Osborne county (map 144). Hemicryptophyte.
- Carex heliophila* Mack. Sedge.
Prairies and plains. East half plus Osborne county (map 145). Hemicryptophyte.
- Carex hirsutella* Mack. Sedge.
Dry rocky woods. Cherokee county (map 146). Hemicryptophyte.
- Carex hirtifolia* Mack. Sedge.
(Misspelled *hirtiflora* [R]).
Woods and thickets. Wyandotte county (map 147). Hemicryptophyte.
- Carex hyalinolepis* Steud. Sedge.
Carex riparia (R).
Swamps. East sixth (map 148). Helophyte.
- Carex hystericina* Muhl. Sedge.
Swampy soil. North half, except extreme west, plus Wilson county (map 149). Hemicryptophyte.
- Carex interior* Bailey. Sedge.
Swampy places. Trego and Riley counties (map 150). Hemicryptophyte.
- Carex jamesii* Schw. Sedge.
Dry woods. Kansas river valley east from Shawnee county (map 151). Hemicryptophyte.
- Carex laeviconica* Dewey. Sedge.
Marshes. Cloud to Pottawatomie to Saline counties (map 152). Hemicryptophyte.

- Carex lanuginosa* Michx. Sedge.
Swampy places. Northeast of a line from Decatur to Montgomery counties (map 153). Hemicryptophyte.
- Carex leavenworthii* Dewey. Sedge.
Prairies. Scattered in east third south from Cloud county (map 154). Hemicryptophyte.
- Carex lupulina* Muhl. Sedge.
Swamps. Wyandotte and Labette counties (map 155). Hemicryptophyte, helophyte.
- Carex meadii* Dewey. Sedge.
Meadows and prairies. East two-fifths plus Sheridan county (map 156). Hemicryptophyte.
- Carex microdonta* Torr. & Hook. Sedge.
Chautauqua and Montgomery counties (map 157). Hemicryptophyte.
- Carex muhlenbergii* enervis Boott. Sedge.
Prairie. Cherokee county (map 158). Hemicryptophyte.
- Carex muskingumensis* Schwein. Sedge.
Moist woods and thickets. Wyandotte county (map 159). Hemicryptophyte.
- Carex nebraskensis* Dewey. Sedge.
Meadows and swamps of high plains. Cheyenne county (map 160). Hemicryptophyte (helophyte?).
- Carex normalis* Mack. Sedge.
Woodlands. Wyandotte county (map 161). Hemicryptophyte.
- Carex oligocarpa* Schk. Sedge.
Dry woods. Riley and Wyandotte counties (map 162). Hemicryptophyte.
- Carex praegracilis* W. Boott. Sedge.
(*C. marcida* of old lists.)
Plains and prairies. Scattered but mostly in north half (map 163). Hemicryptophyte.
- Carex retroflexa* Muhl. Sedge.
Woods and thickets. Cherokee county (map 164). Hemicryptophyte.
- Carex rosea* Schk. Sedge.
Woods and thickets. Franklin and Wyandotte counties (map 165). Hemicryptophyte.
- Carex scoparia* Schk. Sedge.
Moist soil. Cloud, Washington, Saline, Clay and Linn counties (map 166). Hemicryptophyte.
- Carex shortiana* Dewey. Sedge.
Moist woods. Leavenworth and Wyandotte counties (map 167). Hemicryptophyte.
- Carex siccata* Dewey. Sedge.
Immature specimens from Logan county in western Kansas seem to be this species (map 167a).

- Carex sparganioides* Muhl. Sedge.
Swampy woods and thickets. Leavenworth and Wyandotte counties (map 168). Hemicryptophyte.
- Carex stipata* Muhl. Sedge.
Wet meadows and swamps. Cloud and Saline counties east plus Crawford county (map 169). Hemicryptophyte.
- Carex tribuloides* Wahl. Sedge.
Prairies. Wyandotte county (map 170). Hemicryptophyte.
- Carex vulpinoidea* Michx. Sedge.
Swampy places. General except less frequent westward and absent in extreme west (map 171). Hemicryptophyte.
- The following are credited definitely to Kansas in Rydberg's Manual, but no specimens have been located to support such distribution:
- Carex mesochorea* Mack.
Carex xerantica Bailey.
Carex tetanica Schk. as specimens are *C. meadii*.
Carex shriveri Britton.
Carex trichocarpa Muhl. but not the specimens.
- The following from Britton, 3d edition:
- Carex lanuginosa kansana* Britton (not now recognized).
Carex castanea Wahl.
Carex filifolia Nutt.
- The following species are listed by Smyth as occurring in Kansas, but are unsupported by specimens and all are more or less doubtful:
- | | |
|-------------------------------------|--------------------------------------|
| 534. <i>Carex gigantea</i> Rudge. | 551. <i>Carex globosa</i> (Bailey). |
| 535. <i>Carex utriculata</i> Boott. | 558. <i>Carex platyphylla</i> Carey. |
| 536. <i>Carex monile</i> Tuckerman. | 559. <i>Carex setifolia</i> Britt. |
| 537. <i>Carex lurida</i> Wahl. | 562. <i>Carex umbellata</i> Schk. |
| 539. <i>Carex squarrosa</i> L. | 565. <i>Carex douglasii</i> Boott. |
| 542. <i>Carex aristata</i> R. Br. | 570. <i>Carex diandra</i> Schrank. |
- Cyperus acuminatus* Torr. & Hook. Sedge.
Wet soil. At least east three-fourths (map 172). Therophyte.
- Cyperus diandrus* Torr. Sedge.
Marshes. East three-fourths (map 173). Therophyte.
- Cyperus erythrorhizus* Muhl. Sedge.
Wet places. Northeast fourth (map 174). Therophyte.
- Cyperus esculentus* L. Yellow Nutgrass.
Moist ground, sand and gravel bars and cultivated ground. Rhizome tuberbearing. Probably throughout (map 175). Geophyte.
- Cyperus ferruginescens* Boeckl. (Rhod. 37:150. 1935.)
Cyperus speciosus Vahl.
Marshes. East two-thirds (map 176). Therophyte.
- Cyperus filiculmis* Vahl. Sedge.
(Including *Cyperus bushii* Britton.)
Dry fields and hillsides. Throughout (map 177). Rhizome geophyte.

- Cyperus flavescens* L.
Low ground. Johnson and Wyandotte counties (map 178). Therophyte.
- Cyperus hallii* Britton.
Wet places. Southeast (west to Barber county, north to Osage county) (map 179). Hemipterophyte.
- Cyperus houghtoni* Torr.
Sandy places. Possibly throughout (map 180). Geophyte?
- Cyperus inflexus* Muhl.
Wet sandy soil of ravines, river bars, and cultivated grounds. East five-sixths (map 181). Therophyte.
- Cyperus ovularis* (Michx.) Torr.
Sandy soil along streams, dry open woods and prairies. Southeast ninth (map 182). Geophyte.
- Cyperus pseudovegetus* Steud.
Wet places in prairies and borders of streams. Southeast (Neosho and Cherokee counties) (map 183).
- Cyperus rivularis* Kunth.
Along streams and in ponds. North central (map 184). Therophyte.
- Cyperus rotundus* L.
Sandy fields. "Kans.," fide Rydberg. Geophyte.
- Cyperus schweinitzii* Torr.
Sandy, low ground along streams and ponds. West two-thirds and northeast sixth (map 185). Hemipterophyte.
- Cyperus strigosus* L.
Low, wet ground, along streams and ponds. East two-thirds and Stevens county (map 186). Hemipterophyte.
A variety, *capitatus* Britton, is in Kingman county; variety, *compositus* Britton, in Riley and Leavenworth counties; variety, *gracilis*, in Riley county and variety, *robustior* Britton, scattered in east two-thirds (map 187). Hemipterophytes.
- Eleocharis*⁴ *acicularis* (L.) R. & S. Spikerush.
Wet places. Throughout (map 188). Hemipterophyte.
- Eleocharis compressa* Sulliv. Spikerush.
Eleocharis acuminata (R.).
Wet places, bordering ponds and ditches. Scattered (map 189). Hemipterophyte.
- Eleocharis elliptica* Kunth.
Eleocharis capitata borealis Svenson.
Wet places, uncommon. Douglas county (map 190).
- Eleocharis engelmanni* Steud.
Wet soil. Woodson and Saline counties (map 191). Therophyte.
- Eleocharis geniculata* (L.) R. & S.
Eleocharis atropurpurea (Retz.) Kunth of old lists.
Moist soil. Barber county (map 192). Therophyte.

- Eleocharis macrostachya* Britton. Spikerush.
A species complex which includes *Eleocharis palustris* and *E. palustris glaucescens* of old lists and *E. calva* Torr., *E. mamillata* Lindb. and *E. xyridiformis* Fernald & Brackett as to Kansas specimens of more recent work.
Wet soil. Throughout (map 193). Hemipterophyte.
- Eleocharis obtusa* (Willd.) Schultes. Spikerush.
Muddy borders of streams and ponds. East half (194). Therophyte.
- Eleocharis tenuis verrucosa* Svenson.
Wet places. Cherokee county (map 198). Hemipterophyte.
- Eleocharis wolfii* A. Gray.
Wet soil. Throughout (map 199).
- Fimbristylis castanea puberula* (Michx.) Britton.
Meadows, sandy prairies. East two-thirds (map 200). Hemipterophyte.
- Fimbristylis interior* Britton.
Meadows. Scattered throughout (map 201). Hemipterophyte.
- Fimbristylis mucronulata* (Michx.) Blake.
Fimbristylis autumnalis (R.).
Sandy moist places. South central and southeast (map 202). Hemipterophyte.
- Fuirena simplex* Vahl. Umbrellagrass.
Moist soil. Scattered mostly in central (map 203). Hemipterophyte.
- Hemicarpha drummondii* Nees.
Damp sand. Wyandotte and Neosho counties (map 204). Therophyte.
- Hemicarpha micrantha* (Vahl.) Pax.
Sandy places. Pottawatomie, Clay and Rooks counties (map 205). Therophyte.
- Hemicarpha micrantha aristulata* Coville.
Sandy banks. Trego and Cloud counties (map 206). Therophyte.
- Kyllingia pumila* Michx.
Cyperus densicaespitosus Hattf. & Kükenth.
Moist or wet soil in prairies or woods. Wyandotte county (map 207). Therophyte.
- Rynchospora corniculata* (Lam.) Gray. Beaked Rush.
Swamps. Crawford county (map 208). Hemipterophyte.
- Scirpus americanus* Pers. Bulrush, Three-square.
Fresh or saline swamps and sandy or alluvial banks of streams. West two-thirds and east through the Kansas river valley (map 209). Helophyte.
- Scirpus americanus longispicatus*.
Trego and Morton counties. Helophyte.
- Scirpus atrovirens* Muhl.
Swampy open ground. East five-sixths (map 210). Helophyte.

4. Plants all checked over by Dr. H. K. Svenson in 1939.

- Scirpus fluviatilis* (Torr.) Gray. River Bulrush.
Wet places along streams and ponds and in ditches. Scattered in east and central and southwest (map 211). Helophyte.
- Scirpus hallii* A. Gray.
Wet places. Rooks county (map 212). Therophyte.
- Scirpus lineatus* Michx.
Swamps and wet prairies. East half and ? Seward county (map 213). Helophyte.
- Scirpus pallidus* (Britton) Fernald.
Wet open ground. Scattered (map 214). Helophyte.
- Scirpus paludosus* A. Nels.
Salt marshes. West two-thirds (map 215). Helophyte.
- Scirpus validus* Vahl. Bulrush.
Water and wet places in prairies. Throughout (map 216). Helophyte.
- Scleria pauciflora* Muhl. Nutgrass.
Barrens and dry places. Southeast twelfth (map 217). Hemicyptophyte. A variety *kansana* Fernald in Cherokee county.
- Scleria triglomerata* Michx. Tall Nutgrass.
Meadows and thickets. East fourth (map 218). Hemicyptophyte.
- FAMILY POACEAE (GRAMINEAE) (Grass Family)
- Aegilops cylindrica* Host. Goat Grass.
Wheat fields and waste places in towns and along railroads. Introduced. Central (map 219). Therophyte. (Winter annual.) Pubescent plants are known as var. *rubiginosa* Popova and have the same range.
- X *Aegilops cylindrica* x *Triticum aestivum* was discovered by C. O. Johnson in Geary county in 1937 and was present in quantity in 1938. Also Barton county.
- Agropyron cristatum* (L.) Beauv. Crested Wheatgrass.
Cultivated fields and vicinity. West (map 220). Hemicyptophyte.
- Agropyron pauciflorum* (Schwein.) Hitchc.
Agropyron tenerum Vasey. (R).
Agropyron trachycaulum typicum Fernald.
Dry soil. Cheyenne county (map 221). Hemicyptophyte.
- Agropyron pseudorepens* Scribn. & Smith.
Plains. fide Smyth. Hemicyptophyte.
- Agropyron repens* (L.) Beauv. Quackgrass, Couch Grass.
Fields and waste places. Introduced. Northeast (map 222). Hemicyptophyte—rhizome geophyte.
- Agropyron smithii* Rydb. Western Wheatgrass, Bluejoint.
Prairies and plains. Throughout, but commoner westward (map 223). Hemicyptophyte—rhizome geophyte.
- Agropyron subsecundum* (Link.) Hitchc.
Agropyron caninum.
Agropyron richardsonii (R).
Meadows and thickets according to Smyth. Hemicyptophyte.

- Agrostis alba* L. Redtop.
Agrostis palustris Huds.
Including *A. vulgaris* of Smyth's List.
A. stolonifera L. and *A. tenuis* Sibth.
Fields, wet meadows and waste places. East three-fourths (map 224). Hemicyptophyte.
- Agrostis elliottiana* Schultes.
Dry soil. Southeast (Chautauqua and Crawford counties) (map 225). Therophyte.
- Agrostis exarata*.
Credited to Kansas but no evidence of its occurrence. The specimens are *Agrostis alba*.
- Agrostis hyemalis* (Walt.) B.S.P. Hairgrass, Ticklegrass.
Open places. East two-thirds (map 226). Hemicyptophyte.
- Agrostis perennans* (Walt.) Tuckerm.
Including *A. schweinitzii* Trin. (*A. perennans aestivalis* Vasey.)
Woods and wooded banks. East fifth (map 227). Hemicyptophyte.
- Alopecurus aequalis* Sobol. Floating Foxtail Grass.
Alopecurus aristulatus Michx. (R).
Wet meadows. Shawnee county (map 228). Hemicyptophyte.
- Alopecurus carolinianus* Walt. Foxtail Grass.
Alopecurus geniculatus L. (R).
Wet meadows, ditches and waste ground. Scattered in east three-fourths (map 229). Therophyte.
- Alopecurus myosuroides* Huds. Foxtail Grass.
Waste places and railway banks. Adventive from Europe.
Riley county (map 230). Hemicyptophyte.
- Alopecurus pratensis* L. Meadow Foxtail Grass.
Meadows and waste places. Riley county (map 231). Hemicyptophyte.
- Andropogon furcatus* Muhl. Big Bluestem, Bluejoint Turkeyfoot.
Andropogon provincialis Lam. (R).
Prairies and open rocky woods. Abundant. Throughout except extreme southwest (map 232). Hemicyptophyte.
- Andropogon hallii* Hack. Turkeyfoot.
Including *A. chrysocomus* Nash. (R).
Plains, sandhills. West half (map 233). Hemicyptophyte.
- Andropogon ischaemum* L.
A patch 30 by 50 feet of this low grass, west of Howard, Elk county was found in 1937 by D. R. Cornelius. Specimens transplanted to Manhattan are flourishing (1939).
- Andropogon saccharoides* Sw. Silver Beardgrass.
Bothriichloa saccharoides (Sw.) (R).
Prairies and plains. Mostly southwest, but to Osborne, Shawnee and Labette counties (map 234). Hemicyptophyte.

- Andropogon scoparius* Michx. Little Bluestem, Prairie Beardgrass.
Prairies, plains, open woods and sand hills. Var. *polyclados* Scribn. & Nash. (Rhod. 19:103 1917.) Abundant. Throughout (map 235).
Hemicryptophyte.
- Andropogon ternarius* Michx. Silvery Beardgrass.
Sandy open woods. Wilson county (map 236). Hemicryptophyte.
First collected in Kansas in 1935 by D. R. Cornelius.
- Andropogon virginicus* L. Beardgrass, Broomsedge.
Old fields and waste ground. Scattered in east half. Spreading rapidly of late (map 237). Hemicryptophyte.
- Anthoxanthum odoratum* L. Sweet Vernalgrass.
Meadows, only in cultivation. Hemicryptophyte.
- Aristida adscensionis* L. Tufted Wiregrass.
Aristida fasciculata Torr. (R).
Dry open ground. Southwest (map 238). Therophyte.
- Aristida basiramea* Engelm. Triple-awn.
Dry prairies. East half (map 239). Hemicryptophyte.
- Aristida curtissii* (A. Gray) Nash.
Dry soil in open ground. Cloud and Saline counties (map 240).
Hemicryptophyte.
- Aristida desmantha* Trin. & Rupr.
Open sandy soil. Credited to southwestern Kansas by Smyth, but no specimens.
- Aristida dichotoma* Michx. Poverty Grass.
Dry open prairies and woods. Labette and Cherokee counties (map 241). Hemicryptophyte.
- Aristida divaricata* Humb. & Bonpl. Poverty Triple-awn.
Dry soil, hills and plains. Southwest sixth (map 242). Hemicryptophyte.
- Aristida fendleriana* Steud. Fendler Triple-awn.
Dry soil, plains and hills. Southwest fourth (map 243). Hemicryptophyte.
- Aristida intermedia* Scribn. & Ball. Triple-awn.
Low sandy soil. Scattered in east two-thirds (map 244). Hemicryptophyte.
- Aristida longespica* Poir.
Aristida gracilis Ell. (R).
Poor or sandy dry soil. Extreme southwest (Morton county) (map 245). Therophyte.
- Aristida longiseta* Steud. Dogtown Grass, Red Triple-awn.
Dry or sandy, plains and foothills. West two-thirds (map 246).
Hemicryptophyte.
- Aristida longiseta robusta* Merr.
Dry or sandy, plains and foothills. Scattered in west two-thirds (map 247). Hemicryptophyte.
- Aristida oligantha* Michx. Prairie Triple-awn.
Open dry sterile soil. East two-thirds (map 248). Therophyte.

- Aristida purpurascens* Poir. Arrowfeather.
Dry sandy soil. East half (map 249). Hemicryptophyte.
- Aristida purpurea* Nutt. Purple Triple-awn.
Dry hills and plains. Southwest and Riley county (map 250). Hemicryptophyte.
- Aristida ramosissima* Engelm. Triple-awn.
Dry prairies. "Kans.," fide Rydberg (288 in Smyth). Hemicryptophyte.
- Aristida wrightii* Nash. Triple-awn.
Dry soils, plains and hills. "Kans.," fide Rydberg, B. & B. Hemicryptophyte.
- Arrhenatherum elatius* (L.) Beauv. Oatgrass.
Fields and waste places. Cultivated, seldom escaping. Eastern. (350 in Smyth). Hemicryptophyte.
- Arundo donax* L. Giant Reed.
Only in cultivation in Kansas. Rare. (371 in Smyth.)
- Avena fatua* L. Wild Oats.
Fields and waste places. Northeast Kansas fide Smyth. Therophyte.
- Avena sativa* L. Oats.
Cultivated, escaping to waste ground along roads and railroads.
Scattered throughout. Therophyte.
- Beckmannia syzigachne* (Steud.) Fernald. American Sloughgrass.
Wet ground. Sherman and Shawnee counties (map 251).
- Bouteloua curtipendula* (Michx.) Torr. Tall or Sideoats Grama.
Prairies, plains, rocky hills and open woods. Throughout (map 252).
Hemicryptophyte.
- Bouteloua gracilis* (H. B. K.) Lag. Blue Gramagrass.
Plains and prairies. West five-sixths (map 253). Hemicryptophyte.
- Bouteloua hirsuta* Lag. Hairy Gramagrass.
Prairies, plains and rocky hills. West five-sixths (map 254). Hemicryptophyte.
- Brachyelytrum erectum* (Schreber) Beauv.
Moist or rocky woods. Wyandotte county (map 255). Hemicryptophyte.
- Briza maxima* L. Big Quaking Grass.
Only in cultivation in gardens. Therophyte.
- Briza media* L. Quaking Grass.
Only in cultivation in gardens. Therophyte.
- Bromus anomalus* Rupr. Nodding Bromegrass.
Bromus porteri (Coul.) (R).
Hillsides. According to Smyth, Norton county, rare. Therophyte.
- Bromus carinatus* Hook. & Arn.
Open ground in Ellis county (map 256).
- Bromus catharticus* Vahl. Rescue Grass.
Bromus unioides (Willd.) (R).
Pastures and waste places. Central (map 257). Therophyte.

- Bromus ciliatus laevigulmis* Scribn. Bromegrass.
Meadows and hillsides. Cloud county (map 258). Hemicryptophyte.
- Bromus commutatus* Schrader. Hairy Chess.
Fields and waste places. Scattered in east third (map 259). Therophyte.
- Bromus inermis* Leyss. Awnless Bromegrass.
Fields and meadows. Northeast fourth (map 260). Hemicryptophyte.
- Bromus japonicus* Thunb. Japanese Chess or Bromo.
Bromus patulus Mert. & Koch. (R).
Waste places. East half, west to Sheridan county in north (map 261). Therophyte (winter annual).
- Bromus mollis* L. Soft Chess.
Bromus hordeaceus L. (R).
Roadsides, fields and waste places. Riley and Kiowa counties (map 262). Therophyte.
- Bromus purgans* L. Canada Bromo, Hairy Woodchess.
Moist rocky woodlands and shady banks. East third and Ottawa and Rooks counties (map 263). Hemicryptophyte.
- Bromus purgans latiglumis* (Scribn.) Shear. Bromo.
Bromus altissimus Pursh. (R).
Meadows. Douglas and Leavenworth counties (map 264). Hemicryptophyte.
A form *incanus* (Shear) Hitchc., on wooded hills, northeast fourth of Kansas (map 265). Hemicryptophyte.
- Bromus racemosus* L. Chess.
Waste places. Labette, Wyandotte, Douglas and Ellis counties (map 266). Therophyte.
- Bromus secalinus* L. Cheat.
Grainfields, roadsides, and waste places. East three-fourths (map 267). Therophyte.
- Bromus secalinus velutinus* (Schrader.) Koch.
Waste places. Cloud and Montgomery counties (map 268). Therophyte.
- Bromus squarrosus* L.
"Kans." fide Rydberg but specimens are *Bromus japonicus*.
- Bromus tectorum* L. Downy Chess.
Waste places, roadsides and sandy soil. Scattered, but mostly west three-fourths (map 269). The variety, *nudus* Klett & Rucht (map 269), has been recently found in Sheridan county. Therophyte.
- Buchloe dactyloides* (Nutt.) Engelm. Buffalo Grass.
High plains, dry hilltops and ledges in the prairie. Throughout, but most abundant westward (map 270). Hemicryptophyte. The most important grass of the high plains.
- Calamagrostis canadensis* (Michx.) Nutt. Reed Grass.
Banks and swamps. Extreme west (Hamilton county) (map 271). Hemicryptophyte or helophyte.
- Calamagrostis inexpansa* A. Gray.
"Kans." fide Smyth and Rydberg, but no authenticating specimens.

- Calamovilfa gigantea* (Nutt.) Scribn. and Merr. Sandgrass.
Sanddunes. Southwest to Sedgwick county and in Riley county (map 272). Hemicryptophyte.
- Calamovilfa longifolia* (Hook.) Hack. Sandgrass.
Sanddunes and sand prairie. Jewell to Shawnee counties and Cheyenne and Comanche counties (map 273). Hemicryptophyte.
- Cenchrus pauciflorus* Benth. Sandbur.
Sandy soil of valleys, floodplains, fields and cultivated ground. Throughout (map 274). Therophyte.
- Chloris subdolichostachya* C. Muell.
Chloris brevispica Nash (R).
A single depauperate specimen, Benke 2142, from Hutchinson, Reno county, October 10, 1918, in the Field Museum, seems to be the only Kansas specimen known (map 274a).
- Chloris gayana* Kunth. Rhodes Grass.
Meadowgrass occasionally cultivated under irrigation.
- Chloris verticillata* Nutt. Windmill Grass.
Prairies and plains. Throughout (map 275). Hemicryptophyte.
- Chloris virgata* Swartz. Feather Fingergrass.
Chloris elegans H. B. K. (R).
Sandy soil. Central (Edwards, Reno and Ellis counties) (map 276). Therophyte.
- Cinna arundinacea* L. Wood Reedgrass.
Moist woods. East two-thirds (map 277). Hemicryptophyte.
- Coix lachryma-jobi* L. Job's-tears.
Only in cultivation as an ornamental.
- Cortaderia selloana* (Schult.) Aschers. and Graebn. Pampasgrass.
Only in cultivation.
- Cynodon dactylon* (L.) Pers. Bermuda Grass.
Cultivated and frequently escaped. East three-fifths (map 278).
- Cynosurus cristatus* L.
Cultivated only.
- Dactylis glomerata* L. Orchard Grass.
Fields and waste places. Scattered but commoner eastward (map 279).
- Danthonia spicata* (L.) Beauv. Wildoatgrass, Poverty Grass.
Woods and hillsides. Extreme southeast (Cherokee county) (map 280). Hemicryptophyte.
- Diarrhena americana* Beauv.
Diarrhena arundinacea (R).
Diarina festucoides Raf.
Rich woods. East half (map 281). Hemicryptophyte.
- Digitaria filiformis* (L.) Koeler. Slender Fingergrass.
Syntherisma filiformis (R).
Sandy soil. East third (map 282). Therophyte.

- Digitaria ischaemum* Schreb. Small Crabgrass.
Syntherisma ischaemum (R).
Waste places and fields. East third (map 283). Therophyte.
- Digitaria sanguinalis* (L.) Scop. Crabgrass.
Syntherisma sanguinalis (R).
Syntherisma sanguinalis marginata (Link).
Cultivated ground and waste places, lawns and roadsides (map 284).
Throughout. Therophyte.
- Distichlis stricta* (Torr.) Rydb. Alkaligrass, Saltgrass.
Salt marshes, alkaline soils and waste places. West three-fourths
(map 285). Rhizome geophyte.
- Echinochloa crusgalli* (L.) Beauv. Barnyard Grass.
Including
Echinochloa occidentalis (Wieg.) (R).
Echinochloa pungens (Poir.) (R).
Moist open places, ditches, river banks, waste places and cultivated
fields. Throughout (map 286). Therophyte.
- Echinochloa crusgalli mitis* (Pursh) Peterm.
Including
Echinochloa occidentalis (Wieg.) (R).
Echinochloa microstachya (Wieg.) (R).
With the species but most frequently westward. Throughout (map
287). Therophyte.
- Echinochloa crusgalli frumentacea* (Roxb.) Wight. Billion-dollar Grass.
Echinochloa frumentacea (Roxb.) (R).
Sometimes cultivated, seldom escaping. Therophyte.
- Echinochloa crusgalli zelayensis* (H. B. K.) Hitchc.
(Specimens are often identified as *E. colona*).
Wet sandy soil. Southwest fourth and Greenwood county (map 288).
Therophyte.
- Echinochloa walteri* (Pursh) Heller.
Recorded by Smyth, but specimens are *E. crusgalli*. Therophyte.
- Eleusine indica* (L.) Gaertn. Goosegrass, Yard Grass.
Waste and cultivated ground, naturalized from Eurasia. East four-
fifths (map 289). Therophyte.
- Elymus canadensis* L. Nodding Wild Rye.
River banks among bushes, prairie, open ground and sandy soil.
Scattered throughout (map 290). Hemipterophyte.
- Elymus canadensis brachystachys* (Scribn. & Ball.) Farwell. Wild Rye.
Moist open or partly shaded ground. Throughout except southwest
(map 291). Hemipterophyte.
- Elymus canadensis robustus* (Scribn. & Smith) Mackenzie & Bush. Wild Rye.
Elymus canadensis f. glaucifolius (Michx.)
Valleys, prairies and plains. Common. Throughout (map 292).
Hemipterophyte.
- Elymus macounii* Vasey. Wild Rye.
Meadows. Hamilton county (map 293). Hemipterophyte.

- Elymus villosus* Muhl. Wild Rye.
Elymus striatus Willd. (R).
Woods and on river banks. Scattered east half and southwest fourth
(map 294). Hemipterophyte.
- Elymus villosus arkansanus* (Scribn. & Ball) Hitchc. Wild Rye.
Elymus striatus arkansanus (R).
Rocky woods. Scattered in east two-thirds (map 295).
Hemipterophyte.
- Elymus virginicus* L. Virginia Wild Rye.
Moist soil, low woods, prairies and along streams (map 296).
Hemipterophyte.
- Elymus virginicus australis* (Scribn. & Ball) Hitchc. Southern Wild Rye.
Prairies, rocky hills and open woods. Finney county (KU) (map 297).
Hemipterophyte.
- Elymus virginicus glabriflorus* (Vasey.) Bush. Wild Rye.
Elymus glabriflorus (R).
Woods and thickets. Doniphan (KU) and Wilson (KU) counties
(map 298). Hemipterophyte.
- Elymus virginicus intermedius* (Vasey.) Bush. Wild Rye.
Elymus hirsutiglumis Scribn. (R).
Thickets, low ground and river banks. Scattered in east fourth (map
299). Hemipterophyte.
- Elymus virginicus submuticus* Hook.
Elymus curvatus Piper (R).
Woods and open ground. East three-fifths (map 300). Hemipterophyte.
- Elymus glaucus* of Smyth's list is possibly *Elymus macounii*.
Elymus condensatus of Smyth's list was certainly misidentified.
- Eragrostis barrelieri* Daveau.
Waste places. Saline county (map 301). Therophyte.
- Eragrostis capillaris* (L.) Nees. Laceygrass, Lovegrass.
Open dry places. East half (map 302). Therophyte.
- Eragrostis cilianensis* (All.) Link. Lovegrass, Stinkgrass.
Waste places and cultivated ground. Throughout (map 303).
Therophyte.
- Eragrostis curtipedicellata* Buckl.
Prairies, plains and open woods. Extreme south central (map 304).
Hemipterophyte.
- Eragrostis frankii* C. A. Meyer. Frank's Lovegrass.
Moist low or sandy ground. East fourth (map 305). Therophyte.
- Eragrostis hypnoides* (Lam.) B. S. P. Smooth Creeping Lovegrass.
Moist sandy or gravelly river banks on wet ground. East half (map
306). Therophyte.
- Eragrostis intermedia* Hitchc. Plains Lovegrass.
Dry, rocky, gravelly or sandy prairies. Extreme south central (map
307). Hemipterophyte.

- Eragrostis pectinacea* (Michx.) Nees. Pursh Lovegrass.
Eragrostis purshii Schrad. (R).
 Waste places, open ground and along streams. At least east three-fourths (map 308). Therophyte.
- Eragrostis pilosa* (L.) Beauv. India Lovegrass.
 Cultivated ground and waste places. Throughout (map 309). Therophyte.
- Eragrostis poaeoides* Beauv. Low Lovegrass.
 Waste places and cultivated ground. Uncommon (map 310). Therophyte.
- Eragrostis reptans* (Michx.) Nees. Hairy Creeping Lovegrass.
 Sandy soil, river banks. Saline and Chautauqua counties (map 311). Therophyte.
- Eragrostis secundiflora* Presl.
 Dry or sandy soil. Southwest fourth northeast to Pottawatomie county (map 312). Hemipterophyte.
- Eragrostis sessilispica* Buckl.
Acamptocladus sessilispica Buckl. (R).
 Plains and sandy prairies. Southwest to Kiowa county (map 313). Hemipterophyte.
- Eragrostis spectabilis* (Pursh). Steud. Purple Lovegrass.
Eragrostis pectinacea (R).
 Dry or sandy soil. Mostly east two-thirds (map 314). Hemipterophyte.
- Eragrostis trichodes* (Nutt.) Nash.
 Sandy soil in barrens, sanddunes, or open sandy woods. Central and northeast sixth (map 315). Hemipterophyte.
- Eragrostis trichodes pilifera* (Scheele) Fernald (Rhod. 40:331. 1938).
Eragrostis pilifera (R).
 Sandy woods. Tufted perennial in shady sandy places. Central (map 316). Hemipterophyte.
- Erianthus ravennae* (L.) Beauv. Ravenna Grass.
 Only in cultivation as an ornamental. Hemipterophyte.
- Eriochloa contracta* Hitchc. Prairie Cupgrass.
 Open moist to wet places, ditches, low fields. South and east of line from Grant to Washington counties (map 317). Therophyte.
- Euchlaena mexicana* Schrad.
 Only in cultivation. Therophyte.
- Festuca elatior* L. Meadow Fescue.
 Meadows, open woods and waste ground. East two-thirds (map 318). Hemipterophyte.
- Festuca obtusa* Spreng.
Festuca nutans Spreng. (G), (B & B).
 Woods. East two-fifths (map 319). Hemipterophyte.
- Festuca octoflora* Walt. Slender Fescue Grass.
 Sandy or rocky soil in prairies and open woods. Throughout (map 320). Therophyte.

- Festuca octoflora hirtella* Piper.
 Prairies, Ellis county (map 320a). A. W. Albertson in 1938.
- Festuca ovina* L. Sheep Fescue.
 Cultivated in lawns and escaped in Ellis and Saline counties (map 321). Hemipterophyte.
- Festuca paradoxa* Desv. Fescue.
Festuca shortii Kunth.
 Wet prairies, thickets and open woods. East third (map 322). Hemipterophyte.
- Glyceria canadensis* (Michx.) Trin.
 "Kans." fide B & B & Rydberg, but no authenticating specimens.
- Glyceria striata* (Lam.) Hitchc. Fowl Meadowgrass, Mannagrass.
Glyceria nervata (R).
 Wet meadows and swamps. North half and east third (map 323). Hemipterophyte.
- Glyceria grandis* (424 in Smyth as *G. americana*) and
Glyceria septentrionalis (425 in Smyth as *G. fruitans*).
 Both without authenticating specimens and improbable.
- Gymnopogon ambiguus* (Michx.) BSP.
 Dry sandy woods. Chautauqua county (map 324). Hemipterophyte.
- Hierochloa odorata* (L.) Beauv. Sweet Grass, Holy Grass.
 Only in cultivation. Hemipterophyte.
- Holcus lanatus* L. Velvet Grass.
 Meadows and waste places. Eastern Kansas. Hemipterophyte.
- Hordeum jubatum* L. Foxtail Barley, Squirreltail Grass.
 Dry sandy soil, prairies and waste places. Probably throughout (map 325). Hemipterophyte.
- Hordeum jubatum caespitosum* (Scribn.) Hitchc.
Hordeum caespitosum Scribn. (R).
 Meadows and springy places. West half and ? Allen county (map 326). Hemipterophyte.
- Hordeum pusillum* Nutt. Little Barley.
 Plains, waste places, and open frequently alkaline ground. Throughout (map 327). Therophyte.
- Hordeum nodosum* L. Meadow Barley.
 Only in cultivation.
- Hordeum vulgare* L. Barley.
 Cultivated; occasionally in waste ground. Therophyte.
- Hordeum vulgare trifurcatum* (Schlecht.) Alefeld. Beardless Barley.
 Cultivated, or in waste ground. Therophyte.
- Hystrix patula* Moench. Bottlebrush Grass.
 Woods. East fourth (map 328). Hemipterophyte.
- Imperata sacchariflora* (206 in Smyth as only in cultivation).
- Koeleria cristata* Pers. Crested Hairgrass, Junegrass.
 Including *Koeleria latifrons*, *Koeleria nitida* and *Koeleria gracilis* (R).
 Prairies. East two-thirds, west in the north to Cheyenne county (map 329). Hemipterophyte.

Leersia lenticularis Michx. Catchfly Grass.

Wet ground, ditches, and swamps. (271 in Smyth.) Hemipterophyte-helophyte. No authenticating specimens known, but quite likely present.

Leersia oryzoides (L.) Swartz. Rice Cutgrass.

Swamps, river banks and lake edges. Scattered throughout (map 330). Hemipterophyte-helophyte.

Leersia virginica Willd. Cutgrass, Whitegrass.

Moist or wet ground along streams and in woods. East three-fourths (map 331). Hemipterophyte-helophyte. Most specimens are clearly the var. *ovata* (Poir.) Fern. except from Miami and Labette counties.

Leptochloa fascicularis (Lam.) Gray. Salt Meadowgrass.

Including *Diplachne acuminata* Nash. (R).

Brackish meadows, ditches, alkali flats or shallow water. Scattered in east three-fifths (map 333). Hemipterophyte.

Leptochloa filiformis (Lam.) Beauv. Red Sprangletop.

Including *Leptochloa mucronata* Kunth.

Open or shady ground, fields and sandy river banks. Scattered in east two-thirds (map 332). Therophyte.

Leptochloa filiformis f. *attenuata* (Steud.).

Scattered in southeast. Therophyte.

Leptoloma cognatum (Schultes) Chase. Fall Witchgrass.

Dry soil, sand hills and sand prairie. East two-thirds (map 334). Hemipterophyte.

Lolium multiflorum Lam. Italian Ryegrass.

Introduced in lawns, fields and waste places. Scattered, mostly east (map 335). Therophyte.

Lolium perenne L. Perennial Ryegrass.

Introduced in lawns, waste places and cultivated ground. Northeast fourth and Sheridan county (map 336). Hemipterophyte.

Lolium temulentum L. Darnel, Poison Darnel.

Introduced in fields and waste ground. Neosho and Riley counties (map 337). Therophyte.

Melica nutica Walt., 400 of Smyth's list is a misidentification.

Melica nitens Nutt. Three-flower Melic.

Rocky woods. East third and Finney county (map 338). Hemipterophyte.

Melica porteri Scribn. Porter Melic.

Ravines, moist open woods. East fourth (map 339). Hemipterophyte.

Miscanthus sinensis Anderss. Plumegrass, Eulalia.

Miscanthus sinensis gracillimus Hitchc.

Miscanthus sinensis variegatus Beal.

Miscanthus sinensis zebrinus Beal.

Only in cultivation as ornamentals.

Muhlenbergia andina (Nutt.) Hitchc. Foxtail Muhly.

Muhlenbergia comata (R).

Plains and river valleys, southwestern, fide Hitchcock (map 340). Hemipterophyte.

Muhlenbergia arenicola Buckl.

Sandy plains, mesas and foothills. Russell county (USNH) (map 341). Hemipterophyte.

Muhlenbergia asperifolia (Nees & Meyen) Parodi. Scratchgrass.

Sporobolus asperifolius (R).

Damp or marshy, often alkaline soils along streams and ditches. West three-fifths (map 342). Hemipterophyte.

Muhlenbergia brachyphylla Bush.

East half, mostly north part (map 343). Hemipterophyte.

Muhlenbergia capillaris (Lam.) Trin.

Dry rocky or sandy soil. Elk and Chautauqua counties (map 344). Hemipterophyte.

Muhlenbergia cuspidata (Torr.) Rydb.

Stony slopes and dry prairies. East three-fifths (map 345). Hemipterophyte.

Muhlenbergia filiformis (Thurb.) Rydb.

Muhlenbergia simplex (Scribn.).

Waste places. Finney county (map 346). Therophyte.

Muhlenbergia foliosa (Roem. & Schult.) Trin.

Moist thickets, woods, swamps. Central (Kingman and Saline counties) (map 347).

Muhlenbergia mexicana (L.) Trin. Satin Grass, Wirestem Muhly.

Wet meadows, thickets and waste places. East three-fourths (map 348). Hemipterophyte. A form, *filiformis*, in Barton, Riley, Osage and Wyandotte counties.

Muhlenbergia mexicana f. *commutata* (Scribn.)

Muhlenbergia commutata (R).

Meadows. Central north (map 349). Hemipterophyte.

Muhlenbergia microsperma (DC.), 305 in Smyth's list is a misidentification.

Muhlenbergia pungens Thurb., 308 in Smyth's list is a misidentification.

Muhlenbergia racemosa (Michx.) BSP. Marsh Muhly.

Moist meadows, thickets and open woods. Except southwest and southeast (map 350). Hemipterophyte.

Muhlenbergia schreberi Gmel. Nimblewill.

Dry hills and woods. East half (map 351). Hemipterophyte.

Muhlenbergia sobolifera (Muhl.) Trin.

Rocky woods and thickets. East half and Sheridan county (map 352). Hemipterophyte.

Muhlenbergia tenuiflora (Willd.) BSP.

Credited to eastern Kansas (304 in Smyth's List), but no authenticating specimens have been found.

Muhlenbergia sylvatica Torr.

Muhlenbergia umbrosa Scribn.

- Muhlenbergia torreyi* (Kunth) (R).
Moist woods and thickets. Scattered in east two-thirds (map 353).
Hemicryptophyte.
- Muhlenbergia torreyi* (Kunth) Hitchc. Ringgrass.
Muhlenbergia gracillima Torr. (R).
Plains. Southwest fourth to Russell county (map 354). Hemicryptophyte.
- Munroa squarrosa* (Nutt.) Torr. False Buffalo Grass.
Dry plains and hills especially in disturbed soil. West half and Cherokee county (map 355). Therophyte.
- Oryza sativa* L.
Occasionally cultivated.
- Oryzopsis hymenoides* Nutt.
Eriocoma hymenoides (R).
Badlands and sandy places. Northwest fourth (map 356). Hemicryptophyte.
- Oryzopsis micrantha* (Trin. & Rupr.), 276 in Smyth's list;
Oryzopsis racemosa (Smith), 278. *O. melanocarpa* in Smyth's list, and
Oryzopsis asperifolia Michx., 277 in Smyth's list, all without specimen evidence, and the latter two certainly misidentifications.
- Panicum agrostoides* Spreng. Redtop Panicgrass.
Wet meadows, ditches and borders of ponds. East half (map 357).
Hemicryptophyte.
- Panicum anceps* Michx.
Moist, sandy soil. Cherokee and Wilson counties (map 358). Hemicryptophyte.
- Panicum capillare* L. Ticklegrass, Witchgrass.
Dry or sandy soil, waste places and cultivated ground. Throughout (map 359). Therophyte.
- Panicum capillare occidentale* Rydb. Western Ticklegrass.
Panicum barbipulvinatum (R).
Sandy soil, open ground. Scattered in north half from Riley county west (map 360). Therophyte.
- Panicum clandestinum* L.
Moist ground. East third (map 361). Hemicryptophyte.
- Panicum depauperatum* Muhl.
Dry soil and open woods. McPherson county fide A. S. Hitchcock in literatur (Plank 18) (map 362). Hemicryptophyte.
- Panicum dichotomiflorum* Michx. Fall Panicum.
Wet soil, fields, waste places and cultivated ground. East five-sixths (map 363). Therophyte. Mostly, if not entirely, the variety *geniculatum* (Wood) Fernald. (Rh. 38:387).
- Panicum gattingeri* Nash.
Open ground and waste places. "Kans.," fide Rydberg. Therophyte.
- Panicum hillmani* Chase.
Open places. Scattered in central and southwestern Kansas (map 364). Therophyte.
- Panicum huachucae* Ashe. Hairy Panicgrass.
Prairies and open ground. East two-thirds (map 365). Hemicryptophyte.
- Panicum huachucae fasciculatum* (Torr.) F. T. Hubb.
Panicum huachucae silvicola Hitchc & Chase.
Dry open woods. East third (map 366). Hemicryptophyte.
- Panicum latifolium* L.
Woods. East sixth (map 367). Probably also 252 in Smyth's list as *Panicum boscii*. Hemicryptophyte.
- Panicum leibergii* (Vasey) Scribn.
Prairies. East fifth (map 368). Hemicryptophyte.
- Panicum lindheimeri* Nash.
Dry sandy or sterile woods or prairies. Labette county (map 369).
Hemicryptophyte.
- Panicum linearifolium* Scribn.
Dry, open woods and prairies. Southeast (Chautauqua and Cherokee counties) (map 370). Hemicryptophyte.
- Panicum malacophyllum* Nash.
Sandy woods. Jackson county (KU) (map 371). Hemicryptophyte.
- Panicum miliaceum* L. Broomcorn Millet.
Waste places, escaped from cultivation. Sheridan and Jefferson counties (map 372). Therophyte.
- Panicum obtusum* H. B. K. Vine Mesquite.
Sandy or gravelly soil. Southwest fourth (map 373). Hemicryptophyte.
- Panicum perlongum* Nash.
Prairies and dry hills. Saline, Riley and Geary counties (map 374).
Hemicryptophyte.
- Panicum praecocius* Hitchc. & Chase.
Dry, open places, prairies. East two-thirds (map 375). Hemicryptophyte.
- Panicum pseudopubescens* Nash.
Sandy open woods. Central (map 376). First identified from wet year specimens as *Panicum ovale* and so recorded in Hitchcock's manual.
Hemicryptophyte.
- Panicum scoparioides* Ashe.
"Kans.," fide Rydberg, but specimens are *P. villosissimum* Nash.
- Panicum scoparium* Lam.
Moist prairies. "Kans.," fide Rydberg.
- Panicum scribnerianum* Nash.
Meadows, prairies, sand prairies. East three-fourths (map 377).
Hemicryptophyte.
- Panicum sphaerocarpon* Ell.
Sandy ground. Southeast twelfth (map 378). Hemicryptophyte.
- Panicum tennesseense* Ashe.
Open, rather moist ground and borders of woods. Scattered in east two-thirds (map 379). Hemicryptophyte.

- Panicum texanum* Buckl. Texas Millet.
Prairies and low open ground along streams and irrigation ditches.
Hamilton county (map 380). Therophyte.
- Panicum villosissimum* Nash.
Sandy or poor soil, open woods and hillsides. Saline county (map 381). Hemipterophyte.
- Panicum virgatum* L. Switchgrass.
Prairies and plains, especially in sandy soil. Throughout (map 382).
Rhizome geophyte.
- Panicum wernerii* Scribn.
Sterile woods and knolls. "Southeast Kansas," fide Rydberg. Hemipterophyte.
- Panicum wilcoxianum* Vasey.
Prairies and plains. Central Kansas (map 383). Hemipterophyte.
- Pappophorum mucronulatum* Nees. Pappusgrass.
Pappophorum vaginatum Buckl. (R).
Low places in gravelly or sandy soil. Fide Smyth and C. O. Johnston
(map 384). Hemipterophyte.
- Paspalum ciliatifolium* Michx.
Prairie. Southeast (map 384a).
- Paspalum circulare* Nash.
Fields, open moist ground. Cherokee county (map 385). (219 in
Smyth's List as *Paspalum laeve* and 220 as *Paspalum angustifolium* are
both this.) Hemipterophyte.
- Paspalum floridanum glabratum* Engelm. Paspalum.
Low ground, marshes. Southeast (Montgomery to Crawford counties)
(map 386). Hemipterophyte. No Kansas specimens of the species
itself are known.
- Paspalum pubiflorum glabrum* Vasey.
Moist ground in woods or on banks. Labette and Montgomery coun-
ties (map 387). Hemipterophyte.
- Paspalum repens* Bergius. Water Paspalum.
(*Paspalum fluitans* [Ell.] Kunth in Rhod. 39:385. 1937.)
Paspalum mucronatum Muhl. (R).
Aquatic, mostly submerged, rarely terrestrial. Southeast (Labette,
Montgomery and Cherokee counties) (map 388). Hydrophyte (hel-
ophyte).
- Paspalum stramineum* Nash.
Including *Paspalum setaceum* and *Paspalum muhlenbergii* in Rydberg
as pertaining to Kansas.
Sandy soil in the open and in woods. Throughout (map 389). Hemi-
cryptophyte.
- Pennisetum alopecuroides* (L.) Spreng.
Only in cultivation. Hemipterophyte.
- Pennisetum glaucum* (L.) R. Br. Pearl Millet.
Only in cultivation. Therophyte.

- Pennisetum ruppelii* Steud. Fountain Grass.
Only in cultivation. Hemipterophyte.
- Pennisetum villosum* R. Br. Feather-top.
Only in cultivation, not persistent upon escaping. Hemipterophyte.
- Phalaris arundinacea* L. Reed Canary Grass.
Wet places, marshes, river banks and ditches. Scattered (map 390).
Hemipterophyte.
- Phalaris arundinacea picta* L. Ribbon Grass.
Only in cultivation. Hemipterophyte.
- Phalaris canariensis* L. Canary Grass.
Waste places. Scattered (map 391). Therophyte.
- Phalaris caroliniana* Walt. Canary Grass.
Wet ground. Southeast twelfth plus Saline county (map 392). Thero-
phyte.
- Phalaris minor* Retz.
Only in cultivation.
- Phleum pratense* L. Timothy.
Meadows, roadsides, lawns and waste ground. East four-fifths (map
393). Hemipterophyte.
- Phragmites communis berlandieri* (Fournier) Fernald. Reed, Canegrass.
Swamps, marshes and in water. Widely scattered (map 394). Heli-
ophyte.
- Poa annua* L. Annual Bluegrass.
Lawns, waste places and cultivated ground. Scattered throughout
(map 395). Therophyte.
- Poa arachnifera* Torr. Texas Bluegrass.
Grassy valleys. South central (map 396). Rhizome geophyte.
- Poa arida* Vasey. Plains Bluegrass.
Including *Poa pratensisiformis* Rydb. (R).
Prairies, plains and alkali meadows. West two-thirds (map 397).
Hemipterophyte.
- Poa bulbosa* L. Bulbous Bluegrass.
Escaped at Lindsborg, McPherson county, 1938 (map 398).
- Poa chapmaniana* Scribn. Chapman Bluegrass.
Dry soil, in open ground or cultivated fields. Shawnee county (map
399). Therophyte.
- Poa compressa* L. Canada or English Bluegrass.
Waste places, cultivated ground and woodlands in dry, mostly sterile,
soil. East third and Clark county (map 400).
- Poa pratensis* L. Kentucky Bluegrass.
Lawns, fields, meadows and woodlands. Throughout, but more suited
to northeast fourth (map 401). Rhizome geophyte.
- Poa sylvestris* A. Gray. Sylvan Speargrass.
Rich woods and thickets. East third (map 402).

- Poa trivialis* L.
Ottawa county (map 403).
Smyth lists the following, 421. *Poa buckleyana*, 417. *Poa alsodes*, 416. *Poa autumnalis*, 412. *Poa palustris*, and 418. *Poa wolfii*, for none of which have authenticating specimens been found.
- Poa languida* Hitchc. credited to Kansas in Rydberg, but Smyth's specimen is *Festuca obtusa*.
- Polygonum monspeliensis* (L.) Desf. Rabbit-foot Grass.
Sandy soil along the Arkansas river from Hamilton county to Cowley county (map 404). Therophyte.
- Puccinellia nuttalliana* (Schultes) Hitchc. Nuttall Alkaligrass.
Moist usually alkaline or saline soil. Southwest fourth (map 405). Hemipterophyte.
- Redfieldia flexuosa* (Thurber) Vasey. Blowout Grass, Sandgrass.
Sandhills. Southwest fourth and Shawnee county (map 406). Hemipterophyte.
- Sasa japonica* Mak. Bamboo.
Only in cultivation. Here a hemipterophyte.
- Schedonnardus paniculatus* (Nutt.) Trel. Tumblegrass.
Prairies and plains especially in sandy soil. Throughout (map 407). Therophyte.
- Secale cereale* L. Rye.
Cultivated and escaping to waste places, roadsides, etc. Scattered, mostly northern (map 408).
- Setaria geniculata* (Lam.) Beauv. Knotroot Bristlegrass.
Meadows, salt marshes and cultivated ground. Scattered in southern two-thirds (map 409). Rhizome geophyte.
- Setaria italica* (L.) Beauv. Foxtail Millet, Italian Millet.
Cultivated and escaping along roadsides, etc. Throughout (map 410). Therophyte.
- Setaria lutescens* (Weigel) Hubbard. Yellow Foxtail, Yellow Bristlegrass.
Waste places, roadsides and cultivated ground. Throughout (map 411). Common. Therophyte.
- Setaria verticillata* (L.) Beauv. Bur Bristlegrass.
Waste places and around dwellings. Clay and Riley counties (map 412). Therophyte.
- Setaria viridis* (L.) Beauv. Green Foxtail, Green Bristlegrass.
Waste places and in cultivated ground. Throughout. Abundant (map 413). Therophyte.
- Sitanion hystrix* (Nutt.) J. G. Smith.
Including *Sitanion elymoides* Raf. (R).
Dry hills and plains. West two-fifths and Republic and Cherokee counties (map 414). Hemipterophyte.
- Sorghastrum nutans* (L.) Nash. Indian Grass.
Prairies, plains and open woods. Throughout (map 415). Hemipterophyte.
- Sorghum halepense* (L.) Pers. Johnson Grass.
Fields and waste places. Scattered throughout (map 416). Rhizome geophyte to therophyte from south to north.

- Sorghum vulgare* L. in many varieties cultivated, frequently escaping, but not persistent. Throughout. Therophyte.
- Sorghum vulgare sudanense* (Piper) Hitchc. Sudan Grass.
Cultivated, frequently escaping, but not persistent. Scattered throughout. Therophyte.
- Spartina gracilis* Trin. Alkali Cordgrass.
Alkaline meadows and plains. Hamilton and Cloud counties (map 417). Hemipterophyte.
- Spartina pectinata* Link. Prairie Cordgrass, Sloughgrass.
Marshes and along streams in both fresh and brackish water. Essentially throughout, but less frequent in the northwest (map 418). Hemipterophyte.
- Spartina juncea* Psh. 355 of Smyth's List is a misidentification.
- Sphenopholis intermedia* Rydb. Slender Wedgegrass.
Including *Sphenopholis pallens* in Rydberg and 343 of Smyth's list, both erroneously determined.
Damp or rocky woods, ravines and meadows. East fourth (map 419). Hemipterophyte.
- Sphenopholis obtusata* (Michx.) Scribn. Wedgegrass.
Prairies, plains and valleys. Throughout (map 420). Hemipterophyte.
- Sporobolus airoides* Torr. Alkali Sacaton.
Dry plains and river valleys. Southwest and Shawnee county (map 421). Hemipterophyte.
- Sporobolus asper* (Michx.) Kunth. Dropseed.
Including *Sporobolus longifolius*, 317 of Smyth's list.
Dry or sandy soil of prairies and plains. Throughout (map 422). Hemipterophyte.
- Sporobolus asper hookeri* (Trin.) Vasey.
Sporobolus attenuatus Nash. and *Sporobolus drummondii* Vasey.
Plains. Saline county (map 423). Hemipterophyte.
- Sporobolus asper pilosus* (Vasey) Hitchc.
Sporobolus pilosus Vasey. (R).
Prairies, plains and rocky hills. Scattered in central part from Stanton to Shawnee county (map 424). Hemipterophyte.
- Sporobolus clandestinus* (Spreng.) Hitchc.
Including *Sporobolus canovirens* Nash (R).
Sandy fields, hills and prairies. Northeast fourth (map 425). Hemipterophyte.
- Sporobolus cryptandrus* (Torr.) Gray. Sand Dropseed.
Sandy open soil. Presumably throughout (map 426). Hemipterophyte.
- Sporobolus flexuosus* (Thurb.) Rydb.
Sandy soil of high plains. Seward county (map 427). Hemipterophyte.
- Sporobolus gracilis* Merr.
Sporobolus ejunoides Nash. (R).
"Kans.," fide Rydberg, but ?.

- Sporobolus heterolepis* A. Gray. Prairie Dropseed.
Prairies. East third, commoner northward (map 428).
Hemicryptophyte.
- Sporobolus neglectus* Nash.
Dry soil, sandy fields and parkings. East four-fifths (map 429).
Therophyte.
- Sporobolus pyramidatus* (Lam.) Hitchc. Pointed Dropseedgrass.
Sporobolus argutus (Nees) Kunth.
Sandy or gravelly soils, alkaline areas. South central (map 430).
Hemicryptophyte.
- Sporobolus texanus* Vasey. Dropseed.
Plains, mesas and salt marshes. Central (map 431). Hemicryptophyte.
- Sporobolus vaginiflorus* (Torr.) Wood.
Sterile fields and open waste places. East half (map 432).
Therophyte.
- Stipa comata* Trin. and Rupr. Needle and Thread.
Prairies, plains and dry hills. West fifth (map 433).
Hemicryptophyte.
- Stipa spartea* Trin. Porcupine Grass.
Prairies. East half (map 434). Hemicryptophyte. (Probably 282
of Smyth's list as *Stipa avenacea* belongs here.)
- Stipa robusta* Scribn. Sleepy Grass.
Stipa vaseyi Scribn. (R). 281 in Smyth's list, but no authenticating specimens.
- Stipa viridula* Trin. Green Needlegrass.
Plains and prairies. Rooks and Norton counties (map 435).
Hemicryptophyte.
- Triodia albescens* Vasey. White Prairiegrass.
Rhombolytrum albescens (R).
Plains, prairies, gravelly soil. Scattered (Kiowa, Lyon counties) (map
436). Hemicryptophyte.
- Triodia elongata* (Buckl.) Scribn.
Tridens elongatus (R).
Sandy prairies and rocky slopes. Chautauqua county (map 437).
Hemicryptophyte.
- Triodia flava* (L.) Smyth. False Redtop.
Tridens flavus (R).
Fields, prairies and open woods. East two-thirds (map 438).
Hemicryptophyte.
- Triodia pilosa* (Buckl.) Merr. Hairy Triodia.
Erioneuron pilosum (R).
Dry gravelly or sandy soil, plains and rocky hills. West third (map
439). Hemicryptophyte.
- Triodia stricta* (Nutt.) Benth.
Tridens strictus (R).
Moist soil and low woods. Southeast twelfth (map 440).
Hemicryptophyte.

- Triplasis purpurea* (Walt.) Chapm. Sandgrass.
Sandy places. Southwest, central and northeast (map 441).
Therophyte.
- Tripsacum dactyloides* L. Gamagrass, Sesame Grass.
Prairies, especially along streams. East half, Hodgeman and Logan
counties (map 442). Hemicryptophyte.
- Trisetum flavescens* (L.) Beauv.
Waste places. Riley county (map 443). Hemicryptophyte.
- Trisetum interruptum* Buckl. No. 347 of Smyth's list, but no authenticating specimens have
been located.
- Trisetum subspicatum* (L.). No. 346 of Smyth's list, but certainly a misidentification.
- Triticum aestivum* L. Wheat.
Cultivated, infrequently escaping and then not persistent. Probably
throughout. Therophyte (winter annual).
- Uniola latifolia* Michx. Broadleaf Uniola, Spikegrass.
Rich woods, shaded slopes and low thickets. East half (map 444).
Hemicryptophyte.
- Zea mays* L. Corn, Maize.
Extensively cultivated, freely escaping but not persisting. Through-
out. Therophyte.
- Zizania aquatica interior* Fassett. Wild Rice, Indian Rice.
In water of marshes and ponds. Occasionally cultivated. Shawnee
county. Therophyte.

FAMILY HYDROCHARITACEAE

- Anacharis occidentalis* (Pursh) Victorin. Waterweed, Elodea.
Elodea canadensis Michx. in part.
Ponds and slow streams. Leavenworth, Linn and Douglas counties
(map 445). Hydrophyte.

FAMILY AMARYLLIDACEAE

- Cooperia drummondii* Herb. Prairie Lily.
Prairie. Chautauqua and Montgomery counties (map 446). Bulb
geophyte.
- Cooperia kansensis* W. C. Stevens (Trans. Kansas Acad. Sci. 40:95-99. 1937).
High rocky prairies. Southeastern Kansas, Sumner to Montgomery
counties (map 446a). Type from Wilson county in University of Kansas
Herbarium. Bulb geophyte.
- Hypoxis hirsuta* (L.) Coville. Yellow Stargrass.
Prairies. Scattered in east third (map 447). Rhizome geophyte.
Species of *Leucojum*, *Galanthus* and *Narcissus* only in cultivation.

FAMILY IRIDACEAE (Iris Family)

- Belamcanda chinensis* (L.) DC. Blackberry Lily.
Cultivated, escaped and established in prairies and along roadsides
(map 448). Rhizome geophyte.
- Iris foliosa* Mack. and Bush. Iris, Blue Flag.
Swamps. Leavenworth and Wyandotte counties (map 449). Rhi-
zome geophyte.

- Iris germanica* L. German Iris, Fleur-de-lis.
Frequently cultivated, but rarely escaping. Saline county, escaped.
Rhizome geophyte.
- Iris virginica* L. Iris, Blue Flag.
Swamps. Wyandotte county (map 450). Rhizome geophyte.
- Nemastylis acuta* (Bart.) Herb.
Prairies. South fourth of east half (map 451). Bulb geophyte.
- Sisyrinchium angustifolium* Mill. Blue-eyed Grass.
Plains, west. (Cheyenne and Ford ? counties) (map 452). Hemicryptophyte.
- Sisyrinchium campestre* Bickn. Blue-eyed Grass.
Prairies. East half and south third of west half (map 453). Hemicryptophyte. A var. *kansanum* Bicknell from its name should be in Kansas, but no specimens are present at Manhattan.
- Sisyrinchium graminoides* Bickn. Blue-eyed Grass.
Prairies. East sixth (map 454). Hemicryptophyte.
Various species of *Crocus*, *Gladiolus*, and *Iris* in cultivation only.

FAMILY DIOSCOREACEAE

- Dioscorea batatas* Decne. Cinnamon vine.
Cultivated, escaped in Kansas river floodplain near Manhattan for several years, but killed in the 1935 flood. Tuber geophyte.
- Dioscorea villosa* L. Wild Yam.
Dioscorea paniculata Michx.
Thickets. East sixth (map 455). Geophyte?

FAMILY ORCHIDACEAE (Orchid Family)

- Coralorrhiza wisteriana* Conrad. Coralroot.
Leafless saprophyte with coralloid roots in woods. Extreme southeast (Cherokee county) (map 456).
- Cypripedium parviflorum* Salisb. Yellow Lady's Slipper.
Woods. Northeast border counties north from Johnson county (map 457). Hemicryptophyte.
- Cypripedium parviflorum pubescens* (Willd.) Knight. Large Yellow Lady's Slipper
Woods. Northeastern (probably Doniphan county).
Hemicryptophyte.
- Cypripedium reginae* Walt. Showy Lady's Slipper.
Cypripedium hirsutum (R).
Swamps and woods. "Kans.," fide Rydberg. Hemicryptophyte.
- Habenaria leucophaea* (Nutt.) Gray. White-flowered Prairie Orchis.
Blephariglotis leucophaea (R).
Wet meadows. Northeast sixth (map 458).
- Liparis loeselii* (L.) Richard. Twayblade.
Woods and thickets. Pottawatomie county (map 459). Corm geophyte.

- Orchis spectabilis* L. Showy Orchid.
Galeorchis spectabilis (R).
Woods. Wyandotte and Doniphan counties (map 460).
Hemicryptophyte.
- Pogonia ophioglossoides* (L.) Ker.
Swamps and meadows. "Kans.," fide Rydberg. Hemicryptophyte.
- Spiranthes cernua* (L.) Richard. Nodding Ladies' Tresses.
Meadows and swamps. East two-thirds (map 461). Hemicryptophyte.
- Spiranthes cernua ochroleuca* (Rydb.) Ames. Ladies' Tresses.
Spiranthes ochroleuca (R).
Hillsides. Cloud county (map 461). Hemicryptophyte.
- Spiranthes gracilis* (Bigel.) Beck. Ladies' Tresses.
Open woods. Cloud county (map 462). Hemicryptophyte.
- Spiranthes vernalis* Engelm. and Gray. Ladies' Tresses.
Sandy woods. East two-fifths (map 463). Hemicryptophyte.
- Triphora trianthophora* (Sw.) Rydb.
Pogonia trianthophora.
Rich woods. "Kans.," fide Rydberg. Hemicryptophyte.

CLASS DICOTYLEDONEAE

Subclass DICOTYLEDONEAE—AXIFLORAE

FAMILY MAGNOLIACEAE (Magnolia Family)

- Liriodendron tulipifera* L. Tuliptree.
Only in cultivation. Mesophanerophyte.

FAMILY CALYCANTHACEAE

- Calycanthus fertilis* Walt. Strawberrybush.
In cultivation. Riley county.

FAMILY ANONACEAE

- Asimina triloba* (L.) Dunal. Papaw.
Rich woods, especially in ravines. East third (map 464).

FAMILY SAURURACEAE

- Saururus cernuus* L. Lizard-tail.
Mostly in swamps. Extreme southeast (Cherokee county) (map 465).
Hemicryptophyte-helophyte.

FAMILY RANUNCULACEAE (Buttercup or Crowfoot Family)

- Anemone canadensis* L. White Anemone.
Low ground. Kansas river valley west to Riley county (map 466).
Hemicryptophyte.
- Anemone caroliniana* Walt. Prairie Anemone.
Prairies. Scattered throughout, except possibly extreme west (map 467). Root tuber geophyte.
- Anemone cylindrica* A. Gray. Anemone.
Prairies, hillsides and river banks. Northeast ninth (map 468).
Hemicryptophyte.

- Anemone decapetala* Ard. Anemone.
Prairies. Scattered in central and east (map 469). Root tuber geophyte.
- Anemone virginiana* L. Anemone.
Woods and river banks. East third (map 470). Hemicryptophyte.
- Aquilegia latiuscula* Greene. Columbine.
Open woods. East third (map 471). Hemicryptophyte.
- Clematis fremontii* S. Watts.
Viorna fremontii (R).
Prairies. North central (map 472). Hemicryptophyte.
- Clematis ligusticifolia* Nutt. Western Virgin's Bower.
Canyons. North central (map 473). Liana.
- Clematis pitcheri* T. and G. Clematis, Leather Flower.
Viorna pitcheri (T. and G.) (R).
Thickets. East half (map 474). Vine.
- Clematis virginiana* L. Virgin's Bower.
Among bushes. Northeast quarter (map 475). Liana. A form *missouriensis* (Rydb.) Fernald in woods of northeast sixth (west to Cloud county) (map 475a).
- Delphinium ajacis* L. Garden Larkspur.
Escaped from cultivation. Scattered (map 476). Therophyte.
- ? *Delphinium exaltatum* Ait. Larkspur.
Woods. Cowley county (Rydb.) but?. Hemicryptophyte.
- Delphinium tricorne* Michx. Dwarf Larkspur.
Woods and prairie borders. East third (map 477). Hemicryptophyte.
- Delphinium virescens* Nutt. Prairie Larkspur.
Prairies and plains. Throughout (map 478). Hemicryptophyte.
Variety *penardi* (Huth) Perry is scattered irregularly from northwestern to southeastern corners (map 479) and 3 southeastern specimens have no glandular pubescence. (Rhod. 39:20. 1937.)
- Hydrastis canadensis* L. Golden Seal.
Said to have been in eastern Kansas.
- Isopyrum bitematum* (Raf.) T. and G. False Rue Anemone.
Moist woods and thickets. East third (map 480). Hemicryptophyte.
- Myosurus minimus* L. Mousetail.
Mud, shallow water and low cultivated ground. East five-sixths, mostly northern part (map 481). Therophyte.
- Nigella damascena* L. Love-in-a-mist.
Waste places, escaped from cultivation. Shawnee county. Therophyte.
- Pulsatilla ludoviciana* (Nutt.) Heller. Pasque Flower.
Prairies. Not collected since 1868.
- Ranunculus abortivus* L. Small-flowered Buttercup or Crowfoot.
Wet places and open woods. East half to Osborne county (map 482).
- Ranunculus abortivus* f. *giganteus* F. C. Gates. (Trans. Kansas Acad. Sci. 33: 28. 1930.)
Woods. Woodson county (map 482a). Therophyte.

- Ranunculus acris* L. Buttercup, Crowfoot.
Meadows and fields. Northeast (Riley, Pottawatomie and Lyon counties) (map 483). Hemicryptophyte.
- Ranunculus cymbalaria* f. *hebecaulis* Fernald.
Halerpestes cymbalaria (Pursh) (R).
Wet sandy or alkaline soils. West two-thirds (map 484). Usually helophyte.
- Ranunculus fascicularis apricus* (Greene) Fernald. Prairie Buttercup.
Hillsides. East fifth (map 485). ± Hemicryptophyte.
- Ranunculus flabellaris* Raf. Yellow Water Crowfoot.
Ranunculus delphinifolius (R).
Shallow water and mud. Northeast fourth + Rooks county (map 486). Hydrophyte.
- Ranunculus hispidus falsus* Fern. (Rhod. 22:30. 1920.)
Moist places. Extreme east (map 487). Hemicryptophyte.
- Ranunculus longirostris* Godron. White Water Crowfoot.
Batrachium divaricatum (R).
Ponds and streams. West two-thirds of north half (map 488). Hydrophyte.
- Ranunculus macounii* Britton. Buttercup.
Wet meadows. McPherson and Finney counties (map 489). Hemicryptophyte.
- Ranunculus pusillus* Poir.
Wet places. "Kans.," fide Rydberg. Therophyte.
- Ranunculus recurvatus* Poir. Hooked Crowfoot.
Woods. Extreme east (Wyandotte, Leavenworth and Miami counties) (map 490). Hemicryptophyte.
- Ranunculus sceleratus* L. Cursed Crowfoot.
Shallow water and mud. Scattered but more frequent in northeast (map 491). Hemicryptophyte.
- Ranunculus septentrionalis* Poir. Swamp Buttercup, Crowfoot.
Specimens formerly identified as this prove to be *R. hispidus falsus*, which takes away proof of the presence of *R. septentrionalis*, although it should be present.
- Syndesmon thalictroides* (L.) Hoffgg. Rue Anemone.
Anemonella thalictroides (L.) Spach. (G).
Woods. East fifth (map 492).
- Thalictrum dasycarpum* Fisch. and Ave-Lall. Meadow Rue.
Thickets and meadows. East four-fifths, especially east half (map 493). Hemicryptophyte.
- Thalictrum dasycarpum* f. *hypoglaucum* (Rydb.) Steyermark. Meadow Rue.
Woods and thickets along rivers. East half and Rawlins county (map 494). Hemicryptophyte.
Species of *Aquilegia*, *Clematis*, *Delphinium*, *Paeonia* are frequently cultivated.
- FAMILY LARDIZABALACEAE
- Akebia quinata* Deene. Akebia.
Only in cultivation. Liana.

FAMILY BERBERIDACEAE

- Berberis thunbergii* DC. Japanese Barberry.
Shrub in cultivation, seldom escaping. Nanophanerophyte.
- Berberis vulgaris* L. European Barberry.
Shrub in cultivation, seldom escaping. Microphanerophyte.
- Mahonia aquifolium* (Pursh) Nutt. Oregon Grape.
Shrub in cultivation.
- Podophyllum peltatum* L. Mayapple.
Wooded areas. East fourth (map 495). Rhizome geophyte.

FAMILY MENISPERMACEAE (Moonseed Family)

- Calyocarpum lyoni* (Pursh) Nutt. Cupseed.
Woods along streams. Extreme east (Johnson county) (map 496).
- Cocculus carolinus* (L.) DC. Coral Bead.
In rocky woods and thickets. Southeast sixth (map 497).
- Menispermum canadense* L. Moonseed.
Woods and thickets. East four-fifths (map 498). Hemicryptophyte vine.

FAMILY LAURACEAE (Laurel Family)

- Benzoin aestivale* (L.) Nees. Spicebush, Benzoin.
Woods along streams. Southeast three counties (map 499). Nanomicrophanerophyte.
- Sassafras albidum* (Nutt.) Nees. Sassafras.
Sassafras variifolium (Salisb.).
Sassafras officinale Nees & Eberm.
Woods and thickets. Extreme southeast (Cherokee county) (map 500). Cultivated elsewhere. Microphanerophyte.

FAMILY NELUMBONACEAE (Lotus Family)

- Nelumbo pentapetala* (Walt.) Fernald. Yellow Lotus.
Nelumbo lutea (Willd.) (R).
Ponds and slow streams. East third (map 501). Helophyte.

FAMILY NYMPHAEACEAE (Waterlily Family)

- Nuphar advena* Ait. Spatter Dock, Yellow Waterlily.
Ponds, slow streams. Southeast sixth (map 502). Helophyte.
- Nymphaea odorata* Ait. White Waterlily.
Lakes, ponds and slow streams. Scattered (map 503). Helophyte.

FAMILY CERATOPHYLLACEAE (Hornwort Family)

- Ceratophyllum demersum* L. Hornwort.
Ponds and still water. Scattered (map 504). Hydrophyte.

FAMILY MALVACEAE (Mallow Family)

- Abutilon theophrasti* Medic. Butterprint, Velvetweed.
Waste places and fields. Mainly east half (map 505). Therophyte.
- Althaea rosea* (L.) Cav. Hollyhock.
In common cultivation. Escaped in north central (Osborne and Rooks counties). Hemicryptophyte.

- Callirhoe alceoides* (Michx.) A. Gray. Poppymallow.
Dry soil in prairies. East half to Edwards county (map 506). Hemicryptophyte.
- Callirhoe digitata* Nutt. Poppymallow.
Dry soil. Southeast fourth (Harvey and Cherokee counties) (map 507). Hemicryptophyte.
- Callirhoe involucrata* (T. & G.) A. Gray. Poppymallow.
Plains and prairie. West three-fourths and more east in the north (map 508). Hemicryptophyte.
- Callirhoe papaver* (Cav.) A. Gray.
Sandy soil. "Kan.," fide Rydberg. Hemicryptophyte.
- Gossypium herbaceum* L. Cotton.
Sometimes cultivated in east third, occasionally escaping in southeast. Therophyte.
- Hibiscus esculentus* L. Okra.
Cultivated for food. Therophyte.
- Hibiscus militaris* Cav. Marshmallow.
Along river banks. East third (map 509). Hemicryptophyte.
- Hibiscus syriacus* L. Rose of Sharon.
Cultivated as an ornamental. Nanophanerophyte.
- Hibiscus trionum* L. Flower-of-an-hour.
Waste places and fields. Naturalized from Europe. At least east three-fourths (map 510). Therophyte.
- Malva neglecta* Wallr. Common Mallow, Cheeses.
Malva rotundifolia (R).
Fields, lawns, and waste places. East half, especially northern part (map 511). Therophyte.
- Malva parviflora* L. - See Japan
Waste places. Central (Mitchell county) (map 512). Therophyte.
- Malva rotundifolia* L.
Malva pusilla Smith (R).
Waste places. Scattered (map 513). Therophyte.
- Malva sylvestris* L.
Waste places. Northwest (Cheyenne and Sheridan counties) (map 513a).
- Malva verticillata* v. *crispa* L.
In cultivation escaping? (Dickinson and Osborne counties). Therophyte.
- Sida hederacea* (Dougl.) Torr.
Disella hederacea (R).
Alkali flats. Meade county (map 513b). Hemicryptophyte.
- Sida spinosa* L. Sida.
Waste places and fields. East half and Sheridan county (map 514).

Sphaeralcea angusta (A. Gray) Fern. (Rhodora 41:435. 1939.) Yellow False Mallow.

Malvastrum angustum Gray.

Sidopsis hispida (R).

Prairies and plains. Scattered east and west to Seward county (map 515). Therophyte.

Sphaeralcea coccinea (Nutt.) Rydb. Scarlet Mallow.

Malvastrum coccineum (Nutt.) A. Gray.

Plains and prairies. West two-thirds (map 516). Hemicytophyte.

Sphaeralcea cuspidata Torr.

High plains. Southwest (Hamilton and Kearny counties) (map 517). Hemicytophyte.

FAMILY TILIACEAE (Basswood Family)

Tilia americana L. Basswood.

Tilia glabra Vent.

In woods along streams. Except the southwest quarter of the east half (map 518). Mesophanerophyte.

Tilia palmeri Bush ex F. C. Gates. Basswood. (Trans. Kan. Acad. Sci. 42: 135-136. 1939 (1940).

Woods. Central part of east fourth. Micro-mesophanerophyte.

Tilia platyphyllos Scop. and varieties. Linden.

Only in cultivation. Mesophanerophyte.

FAMILY ULMACEAE (Elm Family)

Celtis laevigata Willd. Southern or Mississippi Hackberry.

River banks. Southeastern Kansas and Barber county, cultivated to Riley county (Map 519). Mesophanerophyte.

Celtis laevigata texana (Scheele) Sarg.

Rocky ledges. Cowley county fide Palmer (map 520). Mesophanerophyte.

Celtis occidentalis L. Hackberry.

Low and upland woods, mostly along streams. East five-sixths (map 521). Mesophanerophyte.

Celtis occidentalis canina (Raf.) Sarg.

Low and upland woods, mostly along streams (map 522). Mesophanerophyte.

Celtis occidentalis crassifolia (Lam.) Gray.

Celtis crassifolia (Gray) (R).

Woods and hillsides. Except the southwest sixth (map 522a). Mesophanerophyte.

Celtis pumila georgiana (Small) Sarg. (Bot. Gaz. 67:227. 1919). Dwarf Hackberry.

Scattered in east three-fourths (map 523). Microphanerophyte.

Celtis reticulata Torr. Hackberry.

Dry rocky places. In the third fourth (Ellis to Barber counties) (map 524). Nano-microphanerophyte.

Celtis rugulosa Rydb. Hackberry.

In valleys in hills in high plains. West half (map 525). Microphanerophyte.

Ulmus alata Michx. Winged or Wahoo Elm.

Along streams. Also planted. "Kans.," fide Rydberg, but specimen is *Ulmus thomasi*. No native specimens known, but cultivated in a few places. Mesophanerophyte.

Ulmus americana L. American Elm.

Woods principally along streams. Except southwest sixth (map 526). Mesophanerophyte.

Ulmus fulva Michx. Slippery Elm, Red Elm.

Rich woods and along streams. North third and east half (map 527). Mesophanerophyte.

Ulmus japonica Sargent. Japanese Elm.

In cultivation, escaped in Logan and Riley counties. Mesophanerophyte.

Ulmus parvifolia Jacq. Chinese Elm.

In cultivation. Mesophanerophyte.

Ulmus procera Salisb. English Elm.

Ulmus campestris.

In cultivation and escaped in Saline county. Mesophanerophyte.

Ulmus pumila L. Chinese Elm.

In cultivation and escaping. Throughout. Micro-mesophanerophyte.

Ulmus pumila arborea Litvin. Chinese Elm.

In cultivation in Shawnee county. Mesophanerophyte.

Ulmus thomasi Sarg. Cork or Rock Elm.

Ulmus racemosa Thomas.

Rich soil. Scattered in east half (map 528). Mesophanerophyte.

FAMILY MORACEAE (Mulberry Family)

Broussonetia papyrifera (L.) Vent. Paper Mulberry.

Only in cultivation.

Cannabis sativa L. Indian Hemp, Marihuana, Cannabis.

Waste places, especially along streams. East three-fourths (map 529). Therophyte.

Humulus japonicus Sieb. and Zucc. Japanese Hops.

Escaped from cultivation. "Kans.," fide Rydberg. Therophytic vine.

Humulus lupulus L. Hops.

Waste ground as an escape. East half and Kearny county (map 530). Hemicytophyte-vine.

Maclura pomifera (Raf.) C. K. Schneid. Osage Orange. Bois d'arc.

Planted in hedges and escaping. Credited as native in southeast Kansas. East three-fifths (map 531). Mostly microphanerophyte.

Morus alba L. and varieties. White Mulberry.

Escaped from cultivation. Presumably scattered throughout (map 532). Microphanerophyte.

Morus nigra L. Black Mulberry.

Escaped from cultivation. At least central (map 532a). Microphanerophyte.

Morus rubra L. Red Mulberry.

Woods and fields. East three-fifths (map 533). Mesophanerophyte.

FAMILY URTICACEAE (Nettle Family)

Boehmeria cylindrica (L.) Sw. False Nettle.

Woods and low ground. Scattered in east two-thirds (map 534).

Boehmeria cylindrica drummondiana Wedd.

Boehmeria drummondiana (R).

Swamps. Pottawatomie and Crawford counties (map 534a).

Laportea canadensis (L.) Gaud. Wood Nettle.

Rich woods. East third (map 535).

Parietaria pennsylvanica Muhl. Pellitory.

Shaded banks, rock or gardens. North half and east fourth (map 536). Slender therophyte.

Pilea pumila (L.) A. Gray. Richweed, Clearweed.

Damp shaded places. East half and Kiowa county (map 537). Therophyte.

Urtica procera Muhl. Nettle.

Including *Urtica viridis* Rydb.

Alluvial soil and waste places. North third and east half (map 538).

FAMILY GERANIACEAE (Geranium Family)

Erodium cicutarium (L.) L'Her. Alfilaria.

Waste places. Scattered in central (map 539). Therophyte.

Geranium carolinianum L.

Fields and waste places. East three-fifths plus Sheridan county (map 540). Therophyte.

Geranium maculatum L. Wild Geranium.

Woods. Extreme east (map 541). Hemicyrptophyte.

Geranium rotundifolium L.

Waste places. Cloud county (map 542). Therophyte.

FAMILY OXALIDACEAE (Oxalis Family)

Oxalis europaea Jord. Oxalis, Wood Sorrel. = *stricta*

Oxalis corniculata of Am. auth., not L.

Xanthoxalis corniculata (R).

Open woods, thickets, fields, gardens and waste places. East five-sixths. Common (map 543). Hemicyrptophyte.

Oxalis europaea bushii (Small) Wiegand. Oxalis, Wood Sorrel. = *stricta*

Oxalis bushii Small.

Xanthoxalis bushii (R).

Open woods and thickets, rocky ravines and waste ground. East half (map 544). Hemicyrptophyte.

Oxalis stricta L. Yellow Wood Sorrel.

Xanthoxalis stricta (R).

Fields, roadsides, ravines, prairies and woods. East two-thirds (map 545).

Oxalis violacea L. Wood Sorrel.

Ionoxalis violacea (R).

Prairies and woods. East two-thirds (map 546).

FAMILY BALSAMINACEAE

Impatiens balsamina L.

In cultivation, seldom escaping, not hardy. Riley and Doniphan counties. Therophyte.

Impatiens biflora Walt. Jewelweed, Touch-me-not.

Wet woods and thickets and springy banks. North half (to Norton county) (map 547). Therophyte.

Impatiens nortonii Rydb. Jewelweed, Touch-me-not.

Wet woods and river banks. East third (map 548). Therophyte.

Impatiens pallida Nutt. Jewelweed, Pale Touch-me-not.

Wet woods and thickets and springy banks. East third (map 549). Therophyte.

FAMILY LINACEAE (Flax Family)

Linum compactum A. Nelson. Yellow Flax.

Cathartolinum compactum (R).

Dry plains. West two-thirds (map 550). Hemicyrptophyte.

Linum lewisii Pursh. Blue Flax.

Plains in hills. Scattered in west half (map 551).

Linum pratense (Norton) Small. Flax.

Dry plains. Extreme west and Cloud and Barber counties (map 552). Hemicyrptophyte. Type, Hitchcock 1078, from Kearny county (Mo. Bot. Gard). Cotype (K. S. C.).

Linum rigidum Pursh. Yellow Flax.

Cathartolinum rigidum (R).

Plains and hills. West two-thirds (map 553). Hemicyrptophyte.

Linum rigidum puberulum Engelm. Yellow Flax.

Cathartolinum puberulum (R).

Dry plains. West fourth (map 554). Hemicyrptophyte.

Linum sulcatum Riddell. Yellow Flax.

Cathartolinum sulcatum (R).

Prairies. East two-thirds (map 555). Therophyte.

Linum usitatissimum L. Flax.

Cultivated and escaping. Possibly throughout, but more frequent in east, north central, and west (map 556). Therophyte.

Linum virginicum L.

Cathartolinum virginianum (R).

Shady places. Crawford county (KU) (map 557). Hemicyrptophyte.

FAMILY ZYGOPHYLLACEAE

Kallstroemia hirsutissima Vail.

Sandy soil. Southwest fourth to Rooks county, plus Elk county (map 558). Therophyte.

Kallstroemia intermedia Rydb.

Sandy soil. Northeast quarter plus Rooks county (map 559). Therophyte.

- Tribulus terrestris* L. Caltrop, Puncturevine.
Waste places and sandy soils. Presumably throughout (less frequent in southeast) (map 560). Therophyte.
- Zygophyllum fabago* L.
Fields. Geary county (map 561).

FAMILY RUTACEAE

- Ptelea trifoliata* L. Hoptree.
Rocky situations. East third (map 562). Nano-microphanerophyte.
- Zanthoxylum americanum* Mill. Pricklyash.
Rocky woods and banks, sometimes in thickets. East half (map 563). Nano-microphanerophyte.
- Zanthoxylum americanum* f. *armatus* F. C. Gates. (Trans. Kan. Acad. Sci. 42:136. 1939 (1940).)
Rocky woods. Northeast. Riley and Marshall counties (map 563a). Nanophanerophyte, with prickles on leaf-rachises and internodes as well as the pair at each node.
- Cultivated species include the shrub, *Dictamnus albus* L., the tree, *Phellodendron amurense* Rupr., and the garden herb, *Ruta graveolens* L.

FAMILY SIMARUBACEAE

- Ailanthus altissima* Swingle. Tree of Heaven.
Ailanthus glandulosa (R).
In cultivation, possibly throughout. Freely escaping (map 564). Mesophanerophyte.

FAMILY POLYGALACEAE (Milkwort Family)

- Polygala alba* Nutt. Milkwort.
Dry plains. West two-thirds (map 565). Hemicyptophyte.
- Polygala incarnata* L. Pink Milkwort.
Sandy soil. East half (map 566). Therophyte.
- Polygala verticillata* L. Milkwort.
Open woods, ravines and thickets. East five-sixths (map 567). Therophyte.
- Polygala viridescens* L. Milkwort.
Moist sandy soil. South half of east fifth (map 568). Therophyte.

FAMILY EUPHORBIACEAE (Spurge Family)

- Acalypha gracilens* A. Gray. Three-seeded Mercury.
Dry woods. East third (map 569). Therophyte. A variety *monococca* Engelm. at least in Anderson county.
- Acalypha ostryaefolia* Riddell. Three-seeded Mercury.
Thickets and moist open and cultivated ground. East two-thirds (map 570). Therophyte.
- Acalypha rhomboidea* Raf. (Rhod. 39:16. 1937.)
Thickets and woods. Northeast fourth (map 571).
- Acalypha virginica* L. Three-seeded Mercury.
Woods, thickets and gardens. East half and Kiowa county (map 572). Therophyte.

- Croton capitatus* Michx. Croton.
Dry soil of prairies and hills. East two-thirds, especially southern two-thirds (map 573). Therophyte.
- Croton glandulosus septentrionalis* Muell. Arg. Croton.
Croton glandulosus L. (R).
Waste places. East two-thirds, especially southern part (map 574). Therophyte.
- Croton lindheimerianus* Scheele. Croton.
Sand prairies. Extreme south central (Kiowa and Harper counties) (map 575). Therophyte.
- Croton monanthogynus* Michx. Croton.
Dry ground of prairies, barrens, rocky hillsides and waste ground. East two-thirds (map 576). Therophyte.
- Croton texensis* (Klotzsch) Muell. Arg. Texas Croton.
Plains and prairies. Mostly west two-thirds and scattered in east third (map 577). Therophyte.
- Crotonopsis elliptica* Willd.
Sandy or rocky soil. Southeast (Cherokee and Chautauqua counties) (map 578). Therophyte.
- Ditaxis humilis* (Engelm. & Gray) Pax.
Prairies. Southwest sixth (map 579). Hemicyptophyte.
- Ditaxis mercurialina* (Nutt.) Coulter.
Dry soil. Southwest fourth (map 580). Hemicyptophyte.
- Euphorbia albicaulis* Rydb.
Chamaesyce albicaulis (R).
Sandy ground. Sedgwick county (KU) (map 581).
- Euphorbia commutata* Engelm.
Galarrhoeus commutatus (R).
Dry ground. Geary county (map 582). Therophyte usually.
- Euphorbia corollata* L. Flowering spurge.
Tithymalopsis corollata (R).
Prairies and dry soil. East third plus Cheyenne county (map 583). Hemicyptophyte.
- Euphorbia cuphosperma* Boiss. Spurge.
Poinsettia cuphosperma (R).
Plains and prairies. Scattered in central third (map 584). Therophyte.
- Euphorbia cyparissias* L. Cypress Spurge.
Galarrhoeus cyparissias (R).
Planted especially in cemeteries and occasionally escaping. Scattered, but mostly east third (map 585).
- Euphorbia dentata* Michx. Spurge.
Poinsettia dentata (R).
Dry soil of woods, roadsides and waste ground. Probably throughout (map 586). Therophyte.

- Euphorbia dictyosperma* Fisch. and Mey.
Euphorbia arkansanus (R).
Euphorbia missouriensis (R).
 Rocky ledges, ravines, open ground, etc. Scattered throughout (map 587). Therophyte.
- Euphorbia geyeri* Engelm.
Chamaesyce geyeri (R).
 Plains and prairies. Southwest fourth (map 588). Therophyte.
- Euphorbia glyptosperma* Engelm.
Chamaesyce glyptosperma (R).
 Sandy and loamy soils of plains, valleys and flood plains. West three-fourths and Wyandotte and Labette counties (map 589). Therophyte.
- Euphorbia greenii* Millsp.
Chamaesyce greenii (R).
 Dry or sandy plains. Southwest fourth (map 590). Hemipterophyte.
- Euphorbia heterophylla* L. Spurge.
Poinsettia heterophylla (R).
 Open rocky woods, thickets, ravines, and alluvial soils. Except southwest (map 591). Therophyte.
- Euphorbia hexagona* Nutt.
Zygophyllum hexagona (R).
 Sandy prairies and river valleys. Except southeast eighth (map 592). Therophyte.
- Euphorbia humistrata* Engelm.
Chamaesyce humistrata (R).
 Sandy and rocky soils. Scattered in east third (map 593). Therophyte.
- Euphorbia hyssopifolia* L. Upright Spurge.
Chamaesyce hyssopifolia (R).
Euphorbia nutans Lag.
Euphorbia prestii Guss.
 Fields, thickets, waste ground. East three-fourths and Greeley and Wallace counties (map 594). Therophyte.
- Euphorbia lata* Engelm.
Chamaesyce lata (R).
 Plains. Southwest ninth plus Trego county (map 595). Hemipterophyte.
- Euphorbia lucida* L.
Galarrhoeus lucidus (R).
 Cultivated ground, roadsides. Washington county (map 596). Hemipterophyte.
- Euphorbia maculata* L. Spotted Spurge.
Chamaesyce maculata (R).
 Dry ground, cultivated and waste places. About east two-thirds (map 597). Therophyte.
- Euphorbia marginata* Pursh. Snow-on-the-mountain.
Lepadena marginata (R).
 Prairies, plains and river bottoms. Possibly throughout, but less frequent in east fifth (map 598). Therophyte.

- Euphorbia nuttallii* (Engelm.) Small.
Chamaesyce nuttallii (R).
 Dry prairies. Except extreme north and northwest (map 599). Therophyte.
- Euphorbia obtusata* Pursh.
Galarrhoeus obtusata (R).
 Dry soil. Scattered, mostly central (map 600). Therophyte.
- Euphorbia petaloidea* Engelm.
Chamaesyce petaloidea (R).
 Sandy plains and prairies. Scattered in west two-thirds (map 601). Therophyte.
- Euphorbia serpens* H. B. K.
Chamaesyce serpens (R).
 Usually in heavy soil on prairies and plains. Throughout (map 602). Therophyte.
- Euphorbia serpyllifolia* Pers.
Chamaesyce serpyllifolia (R).
 Plains. West two-thirds (map 603). Therophyte.
- Euphorbia stictospora* Engelm.
Chamaesyce stictospora (R).
 Dry soil. Throughout, commoner west (map 604). Therophyte.
- Phyllanthus carolinensis* Walt.
 Moist thickets. Southeast (Labette and Crawford counties) (map 605). Therophyte.
- Ricinus communis* L. Castor Oil Plant.
 Cultivated, occasionally escaping, but not persisting. Therophyte.
- Stillingia salicifolia* (Torr.) Raf. Queen's Delight.
 Sandy soil. South third of east half (map 606). Specimens were formerly called *S. sylvatica* L.
- Tragia nepetaefolia* Cav.
 Sandy soil. Scattered in east third (map 607). Hemipterophyte.
- Tragia ramosa* Torr.
 Dry soil, more xeromorphic westward. East three-fourths (map 608). Hemipterophyte.
- FAMILY CALLITRICHACEAE
- Callitriche heterophylla* Pursh. Water Starwort.
 Still water or mud. Scattered in east two-thirds (map 609). Hydrophyte or helophyte.
- FAMILY CISTACEAE
- Helianthemum bicknellii* Fern. Frostweed, Rock Rose.
Crocianthemum bicknellii (R).
 Rocky prairies and dry open woods. East third (map 610). Hemipterophyte.
- ? *Lechea leggettii*.
 Woodson county (KU) ?.
 A specimen in KU from Woodson county, not certainly identifiable, seems to be this.

Lechea tenuifolia Michx. Pinweed.

Rocky open woods and ravines. Scattered in east half (map 611).
Chamaephyte or hemicytopyte (?).

Lechea villosa Ell. Pinweed.

Open rocky woods, ravines. Cherokee county (map 612). Chamaephyte (?), hemicytopyte (?), the variety *macrotheca* Hodgdon in Rice county (map 612).

FAMILY HYPERICACEAE (St. John's-wort Family)

Ascyrum hypericoides multicaule (Michx.) Fernald. St. Andrew's Cross.
(Rhod. 38:433. 1936.)

Rocky open woods. Extreme southeast (Cherokee county) (map 613). Chamaephyte? Hemicytopyte?

Hypericum ascyron L. Great St. John's-wort.

Banks. Extreme northeast (Doniphan county) (map 613).
Nanophanerophyte.

Hypericum sphaerocarpaceum Michx. St. John's-wort.

Rocky prairies, ravines and woods. East fourth, mostly south of Kansas river (map 614). Hemicytopyte.

Hypericum drummondii T. & G. Pinweed, Orange Grass.

Sarothra drummondii (R).

Dry soil, fields, barrens and open woods. Southeast twelfth (map 615). Therophyte.

Hypericum gymnanthum Engelm & Gray. St. John's-wort.

Low ground. Clay county (map 616). Therophyte.

Hypericum mutilum L. St. John's-wort.

Prairie swales and borders of ditches and ponds. Southeast and Kansas river valley to Cloud and Saline counties (map 617).

Hypericum perforatum L. St. John's-wort.

Waste places. Scattered in east third (map 618). Hemicytopyte.

Hypericum punctatum Lam. St. John's-wort.

Moist thickets, woods and prairies. East third (map 619). Hemicytopyte.

Hypericum punctatum pseudomaculatum (Bush.) Fernald. St. John's-wort.

Woods and dry soil. "Kans.," fide Rydberg. Hemicytopyte.

FAMILY VIOLACEAE (Violet Family)

Calceolaria verticillata (Ortega) Kuntze. Green Violet.

Dry prairies and plains. Scattered in west three-fourths (map 620).
Hemicytopyte.

Cubelium concolor (T. F. Forst.) Raf. Green Violet.

Hybanthus concolor (R).

Rich woods. Leavenworth and Wyandotte counties (map 621).
Hemicytopyte.

Viola arvensis Murray. Pansy Violet.

Waste places. Saline county (map 622). Therophyte.

Viola eriocarpa Schw. Smooth Yellow Violet.

Rich or rocky woods. East two-fifths (map 623). Hemicytopyte.

A variety, *leiocarpa* Fernald & Wiegand, with ovaries and capsuls glabrous is found in Linn county. (Rhodora 23:275. 1921.)

Viola missouriensis Greene. Missouri Violet.

Low woods, thickets and river flood plains. Scattered in east two-fifths (map 624). Hemicytopyte.

X *Viola missouriensis* x *sororia*.

Low open ground. "Kans.," fide Rydberg.

Viola nephrophylla Greene.

Wet springy places. Crawford and Saline counties (map 625).

Viola nuttallii Pursh. Nuttall Violet.

Foothills and plains. Northwest fourth (map 626). Hemicytopyte.

Viola papilionacea Pursh. Blue Violet.

Including *Viola pratincola* Greene (R).

Woods, thickets, prairies and river flood plains. Except the southwest (map 627). Hemicytopyte.

X *Viola papilionacea* x *sororia*. (= X *Viola napaea* House)

Moist woods, thickets, and open ground along roads and banks. Crawford county. Hemicytopyte.

Viola pedata L. Birds-foot Violet.

Rocky open woods and prairies. Southeast twelfth (map 628). Hemicytopyte. Var. *lineariloba* DC. in McPherson county (map 628).

Viola pedatifida G. Don. Prairie Violet.

Prairies. East two-fifths (map 629). Hemicytopyte. The leaf form *V. bernardi* Greene is present in at least four counties between Linn and Riley.

Viola rafinesquii Greene. Wild Pansy, Johnny-jump-up.

Viola kitaibeliana rafinesquii (Greene) Fernald. (Rhod. 40:443-446. 1938.)

Fields, gardens and waste places. East three-fifths and Sheridan county (map 630). Therophyte.

Viola retusa Greene.

Borders of streams. Riley and Saline counties (map 631). Hemicytopyte.

Viola sagittata Aiton.

Moist banks. Extreme southeast (map 631). Hemicytopyte.

Viola sororia Willd. Hairy Blue Violet.

Moist meadows, prairies. Northeast fourth plus Crawford county (map 632). Hemicytopyte.

Viola tricolor L. Pansy.

Cultivated frequently, occasionally somewhat naturalized in grass in Reno county.

FAMILY PASSIFLORACEAE (Passionflower Family)

Passiflora incarnata L. Maypops, Passionflower.

Thickets. Cultivated in Crawford county. Vine-hemicytopyte.

Passiflora lutea L. Passionflower.

Thickets and open rocky woods. Southeast two counties (map 633).
Vine-hemicytopyte.

FAMILY PAPAVERACEAE (Poppy Family)

- Argemone hispida* A. Gray. Prickly Poppy.
High plains. West two-fifths (map 634). Therophyte.
- Argemone intermedia* Sweet. White Prickly Poppy.
Plains and prairies and in waste places. West four-fifths and Wyandotte county (map 635). Therophyte.
- Argemone mexicana* L. Prickly Poppy.
Possible escape from cultivation. Douglas county. Therophyte.
- Argemone squarrosa* Greene. Prickly Poppy.
High plains. South half of west two-fifths (map 636). Therophyte.
- Papaver rhoeas* L. Corn Poppy.
Waste places, moist woods, escaped. Wabaunsee county (map 637). Therophyte.
- Sanguinaria canadensis* L. Bloodroot.
Woods. Extreme east (map 638). Rhizome geophyte.

FAMILY FUMARIACEAE (Fumitory Family)

- Adlumia fungosa* (Ait.) Greene. Climbing Fumitory.
Woods. "Kans.," fide B&B, Rydberg. Vine.
- ? *Corydalis aurea* Willd.
River banks, thickets and woods. Wilson county. Therophyte.
- Corydalis aurea occidentalis* Engelm. *Corydalis*.
Corydalis montana (R).
Open or rocky woods, prairies and waste places. East three-fifths (map 639). Therophyte (Biennial).
- Corydalis campestris* (Britton) Buchholz and Palmer. *Corydalis*.
Fields and woods. Scattered in east three-fifths (map 640). Therophyte.
- Corydalis crystallina* Engelm. *Corydalis*.
Fields and open ground. Southeast twelfth (map 641). Therophyte.
- Corydalis flavula* (Raf.) DC. *Corydalis*.
Rocky woods. East fifth (map 642). Therophyte.
- Corydalis micrantha* (Engelm.) Gray. *Corydalis*.
Rich woods, ravines and shaded banks. Scattered in east three-fifths (map 643). Therophyte.
- Dicentra cucullaria* (L.) Bernh. Dutchman's Breeches.
Rich woods or banks. East third (map 644). Bulb geophyte.

FAMILY RESEDACEAE (Mignonette Family)

- Reseda lutea* L.
Escaped from cultivation not persisting. Shawnee county.

FAMILY CAPPARIDACEAE

- Cleome serrulata* Pursh. Bee Flower.
Peritoma serrulata (R).
Sandy areas, plains, prairies, waste places, etc. West three-fifths and northeast sixth (map 645). Therophyte.

- Cleome spinosa* L. Spider flower.
In cultivation. Escaped in Wilson county. Therophyte.
- Cleomella angustifolia* Torr.
River valleys and plains. South central and southwest (map 646). Therophyte.
- Cristatella jamesii* T. & G. *Cristatella*.
Sandy soil. West three-fifths (map 647). Therophyte.
- Polanisia trachysperma* T. & G. Clammyweed.
Sandy and rocky soils. Essentially throughout (except part of southeast) (map 648). Therophyte.

FAMILY BRASSICACEAE (Mustard Family)

- Alliaria officinalis* Andr. Garlic Mustard.
Waste places. Naturalized in northeast sixth (map 649).
- Arabidopsis thaliana* (L.) Heynh. Mouse-ear Cress.
Waste places. "Kans.," fide Rydberg.
- Arabis canadensis* L. Sicklepod.
Rocky woods. East third (map 650). Therophyte (biennial).
- Arabis dentata* (Torr.) T. & G. Rock Cress.
Rich woods, ravines, river banks. Scattered in east third, especially north part (map 651).
- Arabis laevigata* (Muhl.) Poir. Rock Cress.
Dry rocky places. Cherokee and Douglas counties (map 652).
- Arabis pycnocarpa* Hopkins.
Arabis ovata (R).
Among rocks in waste places. Riley and Pottawatomie counties (map 653).
- Arabis virginica* (L.) Poir. Rock Cress.
Open sandy places. Sedgwick, Linn, Crawford and Cherokee counties (map 654).
- Barbarea vulgaris* R. Br. Winter Cress.
Waste places, naturalized from Europe. Riley and Saline counties (map 655).
- Berteroa incana* (L.) DC. Hoary Alyssum.
Waste places. Introduced in Riley, Jackson and Sedgwick counties (map 656).
- Brassica campestris* L. Swedish Turnip, Rutabaga.
Fields and waste places, escaped from cultivation. East third and north third of west half (map 657). Therophyte-biennial.
- Brassica juncea* (L.) Losson. Indian Mustard.
Fields and waste places, adventive or naturalized from Asia. Scattered in east half (map 658). Therophyte.
- Brassica kaber* (DC.) Wheeler. (Rhod. 40:306. 1938). Charlock.
Brassica arvensis (L.) Rab.
Sinapis arvensis (L.) (R).
Fields and waste places, introduced. Scattered in north half and Cherokee county (map 659). Therophyte.

- Brassica nigra* (L.) Koch. Black Mustard.
Waste places and fields, introduced. East half and scattered in west (map 660). Therophyte.
- Brassica oleracea* L. and varieties. Cabbage, etc.
Cultivated, escaping, but not persistent.
- Camelina microcarpa* Andr. False Flax.
Waste places, naturalized. North half and Sedgwick county (map 661). Therophyte.
- Camelina sativa* (L.) Crantz. False Flax.
Waste places, naturalized. Douglas (KU), Rawlins and Ellis counties (map 662). Therophyte.
- Capsella bursapastoris* (L.) Medic. Shepherd's-Purse.
Fields, waste places, roadsides, and gardens, naturalized. Presumably throughout, unless not in southwest (map 663). Therophyte (winter annual).
- Cardamine bulbosa* (Schreber) BSP. Bitter Cress.
Wet woods and prairies. Pottawatomie, Cherokee and Leavenworth counties (map 664). Hemicryptophyte ?.
- Cardamine parviflora arenicola* (Britton) O. E. Schulz. Bitter Cress.
Cardamine parviflora L. (R).
Wet rocky ledges, ravines and open woods. Extreme south in east fourth (map 665). Hemicryptophyte.
- Cardamine pennsylvanica* Muhl. Cress.
Wet springy places. Saline and McPherson counties (map 666). Hemicryptophyte.
- Conringia orientalis* (L.) Dumort. Hare's-ear Mustard.
Waste places, introduced. Scattered in northern half (map 667).
- Dentaria laciniata* Muhl. Toothwort.
Rich woods. East third (map 668). Geophyte.
- Descurainia intermedia* (Rydb.). Daniels. Tansy Mustard.
Sophia intermedia Rydb. (R).
Plains, prairies and waste places. Scattered both in east half and northwest sixth (map 669). Therophyte (or biennial).
- Descurainia magna* (Rydb.). F. C. Gates. Tansy Mustard.
Sophia magna Rydb. (R).
River bluffs. Gove county (map 670).
- Descurainia pinnata* (Walt.) Britton. Tansy Mustard.
Sophia pinnata (Walt.) (R).
Dry or sandy soil. Throughout (map 671).
- Descurainia pinnata brachycarpa* (Richardson). Detlinger. Tansy Mustard.
Sophia pinnata brachycarpa (Richardson).
Waste places. North Central (map 672).
- Descurainia richardsoni* (Sweet). O. E. Schulz. Tansy Mustard.
Sophia richardsoniana (R).
Sandy valleys of high plains. Logan county (map 672a).

- Descurainia sophia* (L.) Webb ex Prantl. Tansy Mustard.
Sophia multifida Gilib. (R).
Waste places, naturalized from Europe. Mostly scattered in north half (map 673).
- Draba brachycarpa* Nutt.
Dry hills and fields. Very scattered in east half (map 674). Therophyte.
- Draba cuneifolia* Nutt.
Rocky open woods and prairies. East half, very scattered (map 675). Therophyte.
- Draba cuneifolia leiocarpa* O. E. Schulz.
Grassy places. Cowley county. Therophyte.
- Draba reptans* (Lam.) Fernald. Draba, Whitlowgrass.
Draba caroliniana Walt. (R).
Ravines, waste ground. Kansas river valley east from Clay county and in Sedgwick, Cowley and Chautauqua counties (map 676). Therophyte.
- Draba reptans micrantha* (Nutt.) Fernald.
Draba micrantha (R).
Including *Draba coloradensis* Rydb. (R).
Sandy soil in plains and prairies. Northwest fourth and east half (map 677). Therophyte.
- Eruca sativa* Lam. Garden Rocket.
Waste places, introduced. Riley county (map 678). Therophyte.
- Erysimum asperum* DC. Prairie Rocket, Western Wallflower.
Cheirinia aspera (R).
High plains coming east on prairies. West third and north central (map 679). Therophyte (biennial).
- Erysimum inconspicuum* S. Watts. Prairie Rocket.
Cheirinia inconspicua (R).
Dry soil. Scott county (KU) (map 680).
- Erysimum repandum* L.
Cheirinia repanda (R).
Waste places, naturalized from Europe. Scattered in north half of east two-thirds (map 681). Therophyte.
- Hesperis matronalis* L. Dame's Rocket.
Fields and roadsides, recently introduced. North central (map 682). Hemicryptophyte or therophyte.
- Iodanthus pinnatifidus* (Michx.) Steud. Purple Rocket.
River banks. East sixth to Pottawatomie county (map 683). Hemicryptophyte.
- Lepidium campestre* (L.) R. Br. Peppergrass.
Fields and waste places, introduced. East third, scattered (map 684). Therophyte.
- Lepidium densiflorum* Schrad. Peppergrass.
Including *Lepidium neglectum* Thellung in (R).
Plains, fields, waste places, prairies. Throughout (map 685). Therophyte.

- Lepidium draba* L. White Top.
Cardaria draba (R).
Waste places and in cultivated ground. East half, increasing (map 686). Hemicryptophyte.
- Lepidium perfoliatum* L. Peppergrass.
In waste places and cultivated fields, introduced. Scattered in north half (map 687). Therophyte.
- Lepidium oblongum* Small.
Waste ground. A southern species, known in limited area in Salina, since 1900, by John Hancin (map 687a as *L. pubescens*).
- Lepidium ramosissimum* A. Nels. Peppergrass.
In waste or cultivated ground. Northeast fourth (map 688). Therophyte.
- Lepidium virginicum* L. Peppergrass.
Including *Lepidium texanum* Buckl. (R).
Fields, roadsides and waste places, naturalized from Europe. East half and scattered in northwest quarter (map 689).
- Lesquerella globosa* (Desv.) S. Wats.
Rocky banks. "Kans.," fide Rydberg. Therophyte.
- Lesquerella ludoviciana* (Nutt.) S. Wats. Bladderpod.
High plains. Logan, Ellis and Cheyenne counties (map 690).
Hemicryptophyte.
- Lesquerella ovalifolia* Rydb. Bladderpod.
High plains. West half (map 691). Hemicryptophyte.
- Lesquerella repanda* (Nutt.) S. Wats. Bladderpod.
Prairies. East fourth (map 692). Therophyte.
- Lobularia maritima* Desv. Sweet Alyssum.
Freely cultivated, seldom escaping. Riley county. Therophyte.
- Mathiola bicornis* DC. Evening Stock.
Roadside near Salina, 1939. John Hancin.
- Nasturtium officinale* R. Br. Watercress.
Rorippa nasturtium-aquaticum (L.) Schinz and Thell.
Streams and mud, naturalized from Europe. Scattered in east three-fourths (map 693). Helophyte.
- Raphanus sativus* L. Radish.
Waste places, escaped from cultivation. Northeast and north central (map 694).
- Rorippa armoracia* (L.) Hitchc. Horseradish.
Armoracia rusticana Gaerth. (R).
Around dwellings. Escaped in northeast fourth (map 694a).
- Rorippa hispida glabrata* Lunell. Yellow Watercress, Marsh Watercress.
Water or wet places. East half (map 695). Seldom a plant with a few hairs on the stem.
- Rorippa obtusa* (Nutt.) Britton. Yellow Watercress.
Wet places. Wyandotte county (map 696). Therophyte.

- Rorippa sessiliflora* (Nutt.) Hitchc. Yellow Watercress.
Wet open woods, borders of ditches and streams. East half and northwest third (map 697). Therophyte (biennial).
- Rorippa sinuata* (Nutt.) Hitchc. Yellow Watercress.
River valleys. Except the southern and the northeast corners (map 698).
- Selenia aurea* Nutt.⁵
Sandy open places. Chautauqua and Crawford counties (map 699).
Therophyte.
- Sisymbrium altissimum* L. Tumble Mustard.
Fields, waste ground and railroad ballast, naturalized from Europe. Scattered mostly north half (map 700). Therophyte.
- Sisymbrium officinale* (L.) Scop. Hedge Mustard.
Erysimum officinale (R).
Fields, waste places, railroad ballast, naturalized from Europe. East fourth (map 701). Therophyte.
- Sisymbrium officinale leiocarpum* DC. Hedge Mustard.
Erysimum officinale leiocarpum (DC.)
Waste places, naturalized from Europe. East half (map 702). Therophyte.
- Stanleya pinnata* (Pursh) Britton. Prince's Plume.
Dry canyons in high plains. Hamilton and Trego counties (map 703). Hemicryptophyte.
- Stanleya pinnata integrifolia* (James) Rollins. (Lloydia 2:119. 1939) Prince's Plume.
Including *S. glauca* (R).
Dry plains and hills. West third, mostly northern half of it (map 704). Hemicryptophyte.
- Thlaspi arvense* L. Pennywort.
Waste places and roadsides, naturalized from Europe. Northeast quarter and scattered in northwest quarter (map 705). Therophyte.

FAMILY ILLECEBRACEAE (Corrigiolaceae)

(Whitlow-wort or Knotwort Family)

- Anychia canadensis* (L.) BSP. Forked Chickweed.
Open woods and hillsides. East fourth (map 706). Therophyte.
- Anychia polygonoides* Raf.
Dry soil. South half of east half (map 707). Therophyte.
- Paronychia diffusa* A. Nels. Whitlow-wort.
High plains. "Kans.," fide Rydberg. Hemicryptophyte.
- Paronychia jamesii* T. & G.
Including *Paronychia wardii* Rydb. (R).
Dry plains and hills. West three-fifths (map 708).

5. Verified by Robert F. Martin in 1939.

FAMILY CARYOPHYLLACEAE (Pink Family)

- Agrostemma githago* L. Corn Cockle.
Cultivated and waste ground. North half of east third (map 709).
Therophyte.
- Arenaria fendleri* A. Gray. Sandwort.
Mountains and dry hills. "Kans.," fide Rydberg.
- Arenaria patula* Michx. Sandwort.
Sabulina stricta Michx. (R).
Rocky woods and open places. South part of east fourth (map 710).
Therophyte.
- Arenaria serpyllifolia* L. Thyme-leaved Sandwort.
Sandy soils, fields and open places, naturalized from Europe. Central (map 711). Therophyte.
- Arenaria stricta* Michx. Sandwort.
Sabulina stricta Michx. (R).
Rocky places. "Kans.," fide Rydberg, probably really the next.
- Arenaria texana* (B. L. Robinson) Britton. Rock Sandwort.
Sabulina texana (Robinson) (R).
Rocky hillsides, ravines, and sandy ground. West half, especially north part, plus Cowley and Crawford counties (map 712).
- Cerastium brachypodium* (Engelm.) Robinson. Mouse-ear Chickweed.
Rich open woods, prairies, waste and cultivated ground. Scattered in east two-thirds (map 713). Therophyte.
- Cerastium nutans* Raf. Nodding Chickweed.
Moist ground, prairies, woods, waste and cultivated ground. East fourth (map 714).
- Cerastium vulgatum hirsutum* Fries. Mouse-ear Chickweed.
Fields and thickets. Scattered in east half (map 715). A form, *glandulosum* (Boenn.) Druce of this variety in Ellsworth and Shawnee counties.
- Gypsophila elegans* Bieb.
Escaped from cultivation. Crawford county.
- Lychnis alba* Mill. White Campion.
Melandrium album (R).
Waste places, adventive from Eurasia. Saline, Riley and Ellis counties (map 716).
- Sagina decumbens* (Ell.) T. & G. Pearlwort.
Not *Sagina procumbens* as stated in (R).
Waste ground, open rocky or sandy ground. Chautauqua and Cherokee counties (map 717).
- Saponaria officinalis* L. Soapwort, Bouncing Bet.
Along roads and in waste places, introduced. Scattered in east three-fourths plus Scott county (map 718). Hemicryptophyte.
- Silene antirrhina* L. Sleepy Catchfly.
Fields, prairies and waste places. East four-fifths (map 719). Therophyte.
- Silene antirrhina divaricata* Robinson.
Waste places. Pottawatomie county (map 719). Therophyte.

- Silene latifolia* (Mill.) Britton and Rendle. Bladder Campion.
Silene vulgaris (Moench) Garcke (R).
Fields and waste places, naturalized from Europe. Scattered in east third (map 720). Hemicryptophyte.
- Silene noctiflora* L. Night-blooming Catchfly.
Fields and waste places, naturalized from Europe. Ellsworth, Riley and Sheridan counties (map 721). Therophyte.
- Silene stellata* (L.) Ait. f. Starry Campion.
Wooded banks. East third (map 722). Hemicryptophyte.
- Spergula arvensis* L. Spurrey.
Fields and waste places, naturalized from Europe. Riley county (map 723). Therophyte.
- Stellaria media* (L.) Cyrill. Chickweed.
Lawns, waste places, and cultivated ground. East half and scattered in west half (map 724). Therophyte.
- Vaccaria vulgaris* Host. Cow Cockle.
Saponaria vulgaris L.
Waste places. Scattered in north third (map 725). Therophyte.

FAMILY ELATINACEAE

- Bergia texana* (Hook.) Seubert.
Sandy or alluvial soil. Scattered, west to Gray county (map 726).
Therophyte.
- Elatine americana* (Pursh) Arn. Waterwort, Mud Purslane.
Shallow water or mud. Sherman and Harvey counties (KSTC) (map 727). Therophyte.

FAMILY PORTULACACEAE (Portulaca Family)

- Claytonia virginica* L. Spring Beauty.
Rich woods or in thickets. East half, but mostly east third (map 728). Corm geophyte.
- Portulaca grandiflora* Hook. Garden Portulaca.
Occasionally escaping from cultivation.
- Portulaca neglecta* Mack. and Bush.
Bottomlands. "Kans.," fide Rydberg, also No. Am. Flora. Therophyte.
- Portulaca oleracea* L. Purslane, Pursley, Pussley.
Fields and waste places, cultivated ground. Throughout (map 729).
Therophyte.
- Portulaca parvula* A. Gray.
Sandy soil. East three-fourths, mostly southern part (map 730).
Therophyte.
- Portulaca retusa* Engelm.
Sandy soil. Seward county (map 731). Therophyte.
- Talinum calycinum* Engelm. Fameflower.
Sandy soil or exposed rocky ledges. Scattered, but mostly central (map 732). Hemicryptophyte.
- Talinum parviflorum* Nutt. Fameflower.
Rocky soil. East third (map 733). Hemicryptophyte.

FAMILY AIZOACEAE (Carpetweed Family)

Mollugo verticillata L. Carpetweed.

Fields and waste places. Probably throughout, except, perhaps, most of the northwest (map 734). Therophyte.

Sesuvium verrucosum Raf. Sea Purslane.

River banks and saline plains. Ford county (map 735). Hemicyptophyte.

FAMILY TAMARICACEAE

Tamarix gallica L. Tamarix, Tamarisk.

River floodplains, roadsides and salt marshes. Cheyenne Bottoms near Great Bend, where a 35,000-acre lake in 1927 has been freely invaded. Scattered in west two-thirds (map 736). Nanophanerophyte-microphanerophyte.

FAMILY SALICACEAE⁶ (Willow Family)

Populus alba L. White or Silver Poplar.

Occasionally planted and escaping along fence rows. Scattered in east and west (map 737). Mesophanerophyte.

Populus canadensis eugenei (Simon-Louis) Schelle. Carolina Poplar.

Frequently planted and occasionally escaping. Mesophanerophyte.

Populus deltoides Marsh. Cottonwood.

Populus virginiana Fourg.

Along streams. Throughout, but less frequent westward (map 738). Mesophanerophyte, rarely megaphanerophyte. A form *pilosa* (Sarg.) Sudw. in lowlands fide Rehder.

Populus nigra italica Dur. Lombardy Poplar.

Frequently planted, seldom escaping. East third, especially north-east. Mesophanerophyte.

Populus sargentii Dode. Plains Cottonwood.

Along streams. West two-thirds, more frequent westward (map 739). Mesophanerophyte to megaphanerophyte.

Populus tremuloides Michx. Quaking Aspen.

Only in cultivation in Kansas. Riley county. Microphanerophyte.

Salix alba L. White Willow.

Seldom escaping from cultivation. Shawnee county. Mesophanerophyte.

Salix alba vitellina (L.) Stokes.

In cultivation, seldom escaping. Riley county. Mesophanerophyte.

Salix amygdaloides Anders. Peach-leaved Willow.

Low woods, lake shores, alluvial banks of streams. Throughout, but commoner northward (map 740). Mesophanerophyte.

Salix amygdaloides wrightii (Anders.) Schn. Wright Willow.

Small tree along stream in southwest (map 741). Microphanerophyte.

X *Salix amygdaloides x nigra* Glatf.

Along streams. Saline, Pratt and Reno counties. Mesophanerophyte.

Salix babylonica L. Weeping Willow.

In cultivation in east third. Mesophanerophyte.

Salix cordata Muhl. Heart-leaved Willow.

Wet open ground along streams, especially near springs. Scattered (map 742). Nano-microphanerophyte.

Salix discolor Muhl. Pussy Willow.

Cultivated.

Salix exigua luteosericea (Rydb.) Schneider. Sandbar Willow.

Sandbars. West fourth to Sedgwick county (map 743). Nano-phanerophyte.

Salix fragilis L. Crack Willow, Brittle Willow.

Cultivated and escaped (map 744). Mesophanerophyte.

Salix humilis rigidiuscula Anders. Prairie Willow.

Prairies. East half (map 745). Nanophanerophyte.

Salix interior Rowlee. Sandbar Willow.

Sandbars. Throughout (map 746). Nano-microphanerophyte. Two plants have leaves 11 mm. wide.

Salix interior pedicellata (Anderson) Ball. Sandbar Willow.

Including *Salix linearifolia* Rydb. (R).

Scrub, scattered (map 747).

Salix longipes wardii (Bebb.) Schneider. Ward Willow.

Salix wardii (R).

Along streams. Scattered in south two-thirds of east two-thirds (map 748). Mesophanerophyte.

Salix missouriensis Bebb. Missouri Willow.

Along larger streams. East two-thirds (map 749). Micro-mesophanerophyte.

Salix nigra Marsh. Black Willow.

Along rivers and other wet places. Southeast diagonal half. East of a line from Nemaha to Comanche counties (map 750). Mesophanerophyte.

Salix nigra lindheimeri Schneider.

Along a stream in Neosho county, July 28, 1939. C. R. Ball.

Salix tristis Ait. Dwarf Gray Willow.

Shrub scattered in east half (map 751). Nanophanerophyte.

FAMILY PHYTOLACCACEAE (Pokeweed Family)

Phytolacca decandra L. Pokeweed.

Phytolacca americana L.

Along streams, in gardens and thickets. East half plus Sheridan county (map 752). Hemicyptophyte.

FAMILY AMARANTHACEAE (Amaranth Family)

?*Acnida altissima* Riddell.

Swamps. Riley and Shawnee counties. Therophyte.

Acnida tamariscina (Nutt.) Wood. Waterhemp.

Swamps and alluvial soils. Possibly throughout, but scattered in west third (map 753). Therophyte.

Amaranthus blitoides S. Wats.

Dry ground, roadsides and waste places. Throughout (map 754). Therophyte.

6. Material of *Salix* checked over by C. R. Ball.

- Amaranthus graecizans* L. Tumbleweed.
Waste places and cultivated ground. Throughout (map 755). Therophyte.
- Amaranthus hybridus* L.
Naturalized from Europe in waste places and fields. East half and scattered in west half (map 756). Therophyte.
- Amaranthus hybridus* f. *hypochondriacus* (L.) Robinson. Prince's Feather.
Cultivated and rarely escaped. Ellis (Hays) and Washington counties. Therophyte.
- Amaranthus palmeri* S. Wats.
Banks and in river valleys. Widely scattered (map 757). Therophyte.
- Amaranthus powellii* Wats.
A recent specimen from Saline county (Hancin 2180).
- Amaranthus retroflexus* L. Green Amaranth, Pigweed, Redroot.
Naturalized from Europe in waste places and fields. Throughout (map 758). Therophyte.
- Amaranthus spinosus* L. Spiny Amaranth.
Waste places. East fourth and Reno county (map 759). Therophyte.
- Amaranthus torreyi* (A. Gray) Benth.
Sandy soil. Southwest sixth and Saline county (map 760). Therophyte.
- Celosia argentea cristata* Kuntze.
In cultivation, not persisting after escape.
- Froelichia campestris* Small.
Dry or sandy soil. Scattered throughout except northwest, more frequent in central (map 761). Therophyte.
- Froelichia gracilis* Moq.
Sandy soils. Scattered, perhaps throughout (map 762). Therophyte.
- Gomphrena globosa* L. Globe Amaranth.
In cultivation, not persistent after escaping.
- Iresine rhizomatosa* Standley.
Dry soil. Extreme southeast (Cherokee, Labette and Montgomery counties) (map 763). Therophyte-hemicryptophyte.
- Tidestromia lanuginosa* (Nutt.) Standl.
Cladotrix lanuginosa (R).
High plains. West third plus Riley and Lyon counties (map 764). Therophyte.

FAMILY CHENOPODIACEAE (Goosefoot Family)

- Atriplex argentea* Nutt. Saltbush, Silverscale.
Alkaline flats and dry open ground. West two-thirds and Wyandotte county (map 765). Therophyte.
- Atriplex canescens* (Pursh) Nutt. Wingscale.
Dry uplands and alkaline flats. West fourth (map 766). ? Chamaephyte.
- Atriplex hortensis* L. Gardenscale.
Waste ground, escaped from cultivation. North central (map 766a).

- Atriplex patula hastata* (L.) Hall & Clements. Saltbush, Silverscale.
Alkaline meadows and flats. West three-fifths (map 767). Therophyte.
- Atriplex rosea* L.
Alkaline soils. Wyandotte county (Standley). Therophyte.
- Chenopodium albescens* Small.
Dry soil. West fourth (map 768). Therophyte.
- Chenopodium album* L. Lamb's-quarters.
Including *Chenopodium paganum* Reichenb. and several "forms."
Fields, waste places, thickets, etc. Throughout (map 769). Therophyte. A form *lanceolatum* (Muhl.) Aellen occurs in Rooks and Ellis counties.
- Chenopodium ambrosioides* L. Mexican Tea.
Waste places and thickets. East half plus Cheyenne county (1934) (map 770). Therophyte.
- Chenopodium atrovirens* Rydb.
Canyons. West (Scott county) (map 771). Therophyte.
- Chenopodium berlandieri* Moq.
Dry soil. East two-thirds (map 772). Therophyte. The quadrimomials and quinquomials of Aellen are left to the future.
- Chenopodium boscianum* Moq.
Woods and waste places. East two-thirds (map 773). Therophyte.
- Chenopodium botrys* L. Feather Geranium, Jerusalem Oak.
Waste places, naturalized from Europe. Wyandotte and Norton counties (map 774). Therophyte.
- Chenopodium cycloides* A. Nels.
Sand hills in Grant county (Type locality) (map 775). Therophyte.
- Chenopodium fremontii* S. Wats.
Valleys and canyons. Central plus Hamilton county (map 776). Therophyte.
- Chenopodium gigantospermum* Aellen.
Chenopodium hybridum (R).
Woods and rich waste places, naturalized from Europe. East two-thirds and scattered in west (map 777). Therophyte.
- Chenopodium glaucum* L. Oak-leaved Goosefoot.
Alluvial soil, introduced Wyandotte county. Introduced (map 778). Therophyte.
- Chenopodium incanum* (S. Wats.) Heller.
Dry ground, especially in prairie dog towns. West half (map 779). Therophyte.
- Chenopodium leptophyllum* Nutt.
Sandy or dry soil. Scattered throughout (map 780). Therophyte.
- Chenopodium leptophyllum leptophylloides* (Murr.) Thellung & Aellen.
Chenopodium desiccatum A. Nels. (R).
Dry soils. West half (map 781). Therophyte.
- Chenopodium leptophyllum pratericola* (Rydb.) F. C. Gates.
Chenopodium pratericola Rydb. (R).
Sandy soils, fields and waste ground. Especially in west four-fifths (map 782). Therophyte.

- Chenopodium leptophyllum subglabrum* S. Wats.
Sandy soil. Scattered throughout (map 783). Therophyte.
- Chenopodium murale* L.
Waste places. Johnson county. Introduced. Therophyte.
- Chenopodium petiolare* H. B. K.
Dry soil. Graham county (map 783a). Therophyte.
- Chenopodium salinum* Standl.
Alkali land. Southwest (map 784). Therophyte.
- Corispermum hyssopifolium* L.
Including *Corispermum marginale* Rydb. (R).
and *Corispermum villosum* Rydb. (R).
Sand hills, sandy valleys and fields. West half (map 785). Therophyte.
- Corispermum nitidum* Kit. Bugseed.
Sand hills and in canyons. Southwest (map 786). Therophyte.
- Cycloloma atriplicifolium* (Spreng.) Coult. Winged Pigweed.
Sandy soil of fields, floodplains, railroad ballast. Scattered throughout except the southeast (map 787). Therophyte.
- Eurotia lanata* (Pursh) Moq. Winter Sage, Winter Fat.
Low pubescent undershrub on high plains. West (Logan county) (map 788). ? Chamaephyte.
- Kochia scoparia* (L.) Schrad. Summer Cypress, Mexican Fireweed.
Waste places, fields and roadsides, introduced recently and spreading rapidly. Scattered, except perhaps in the southeast, most frequent in west two-thirds (map 789).
- Kochia trichophylla* Stapf. Firebush, Summer Cypress.
Fields and roadsides, escaped from cultivation, mostly in Kansas river counties (map 790).
- Monolepis nuttalliana* (R. & S.) Wats. Povertyweed.
Waste places, salin soils. Scattered throughout, except perhaps in the southwest (map 791). Therophyte.
- Salicornia rubra* A. Nels. Glasswort.
Alkaline shores. Stafford county (map 792).
- Salsola pestifer* A. Nels. Russian Thistle.
Fields, waste places, flood plains, etc. Throughout, but more frequent in west (map 793). Therophyte.
- Spinacia oleracea* L. Spinach.
In cultivation, not persisting after an occasional escape.
- Suaeda depressa* (Pursh) S. Wats. Sea Blite.
Saline or alkaline soil. Central and west (map 794). Therophyte.
- Suaeda erecta* (S. Wats.) A. Nels. Sea Blite.
Alkaline or saline soil. South central and southwest (map 795). Therophyte.
- FAMILY POLYGONACEAE (Buckwheat Family)
- Eriogonum alatum* Torr.
High plains. Scott county (map 796). Hemipterophyte.
- Eriogonum annuum* Nutt.
Sand prairies and high plains. West two-thirds, commoner in south part (map 797). Therophyte.

- Eriogonum corymbosum* Benth.
Dry plains. "Kans.," fide Rydberg. Chamaephyte.
- Eriogonum helichrysoides* (Gand.) Rydb.
Badlands. Logan, Gove and Ellis counties (map 798). Hemipterophyte.
- Eriogonum jamesii* Benth.
Hills on high plains. Logan county (map 799). Hemipterophyte.
- Eriogonum lachnogynum* Torr.
High plains. Extreme southwest (Morton county) (map 800). Hemipterophyte.
- Eriogonum longifolium* Nutt.
Sandy soil. Southwest twelfth (map 801). Hemipterophyte.
- Fagopyrum esculentum* Moench. Buckwheat.
Rich cultivated or waste ground, escaped from cultivation (map 802). Scattered. Therophyte.
- Polygonum achoreum* Blake.
Waste places and in sandy soil. Riley county (N. Y. Bot. Gard.) (map 803). Therophyte.
- Polygonum aviculare* L. Knotweed.
Waste places, naturalized from Europe. Scattered (map 804). Therophyte.
- Polygonum aviculare angustissimum* Meisn. Knotweed.
Polygonum neglectum Besser.
Waste places and about dwellings. Scattered (map 805).
- Polygonum buxiforme* Small.
Sandy or alkaline soil. Throughout (map 806). Therophyte.
- Polygonum coccineum pratincolum* (Greene) Stanford. (Rhod. 27:165. 1925.) Smartweed.
Persicaria pratincola (R).
Prairies and open woods or borders of streams and ponds. Throughout, except perhaps extreme west (map 807).
- Polygonum convolvulus* L. Climbing Buckwheat, Black Bindweed.
Bilderdykia convolvulus (R).
Thickets, waste and cultivated ground. Throughout. Introduced (map 808). Therophyte to vine.
- Polygonum cuspidatum* Sieb. & Zucc.
In cultivation. Riley and Shawnee counties. Hemipterophyte.
- Polygonum densiflorum* Meisn. (See Weatherby, Rhod. 38:415, 1936.) Smartweed.
Persicaria portoricensis (Bertero.) (R).
Swamps. Cowley county (U. S. N. M.) (map 809).
- Polygonum dumetorum* L. False Buckwheat.
Bilderdykia dumetorum (R).
Thickets. Nemaha county (map 809a). Vine hemipterophyte.
- Polygonum erectum* L.
Low wet woods and banks of streams and ponds. East half (map 810). Therophyte.

- Polygonum hydropiper* L. Water Pepper.
Persicaria hydropiper (R).
Wet woods and prairies. East third (map 811). Therophyte.
- Polygonum hydropiperoides* Michx. Little Waterpepper.
Persicaria hydropiperoides (R).
Swamps, wet open ground about ponds and streams. Scattered in east two-thirds (map 812). Helophyte.
- Polygonum hydropiperoides* f. *strigosum* (Small) Stanford. Little Waterpepper.
Persicaria hydropiperoides strigosum (R).
Including *Polygonum opelousanum* Riddell.
Swamps. East two-thirds (map 813). Helophyte.
- Polygonum lapathifolium* L. Smartweed.
Persicaria lapathifolium (R).
Including *Polygonum incarnatum*.
Wet open ground, bordering ponds, river floodplains, and waste ground. East three-fourths plus Kearny county (map 814). Therophyte.
- Polygonum latum* Small.
Along roads and rivers. West half (map 815). Therophyte.
- Polygonum leptocarpum* B. L. Robinson.
Sandy places. Cowley county (map 816). Therophyte.
- Polygonum longistylum* Small. Smartweed.
Persicaria longistyla (R).
Wet or moist open ground along streams, in roadside ditches and around ponds (map 817). Therophyte or hemicyptophyte.
- Polygonum nebraskense* Greene. Smartweed.
Persicaria nebraskensis (R).
Water and wet places. Cloud county (map 818).
- Polygonum omissum* Greene. Smartweed.
Persicaria omissa (R).
Wet ground and dried up ponds. Riley and Saline counties (map 819). Therophyte.
- Polygonum orientale* L. Prince's Feather.
Escaped from cultivation. Northeast sixth (map 820). Therophyte.
- Polygonum pennsylvanicum* L. Smartweed.
Persicaria pennsylvanica (R).
Waste and cultivated ground and borders of streams and ponds (map 821). Therophyte.
- Polygonum persicaria* L. Lady's Thumb.
Persicaria maculosa (R).
Waste places and rich soil. Mostly east half. Introduced (map 822). Therophyte.
- Polygonum persicarioides* H. B. K. Smartweed.
Persicaria persicarioides (R).
Plains and prairies. North Central (map 823). Hemicyptophyte.
- Polygonum prolificum* (Small) Robinson.
Sandy places. Grant, Cloud and Leavenworth counties (map 824). Therophyte.

- Polygonum punctatum* Ell. Smartweed, Waterpepper.
Persicaria punctata (R).
Swamps and wet places. At least east two-thirds (map 825).
- Polygonum punctatum leptostachyum* Meisn.
Wet places in woods. Jefferson and Lyon counties (map 825a).
- Polygonum ramosissimum* Michx.
River valleys, prairies, plains, waste ground and sandy soils. Throughout (map 826). Therophyte.
- Polygonum scandens* L. Climbing False Buckwheat.
Bilderdykia scandens (R).
Thickets, fence rows, cultivated ground. Throughout (map 827). Hemicyptophyte.
- Polygonum setaceum* Baldw.
Persicaria setacea (R).
Swamps. "Kans.," fide Rydberg. Helophyte.
- Polygonum tenue* Michx.
Dry or stony soil. East half (map 828). Therophyte.
- Polygonum tomentosum* Schrank. Smartweed.
Persicaria tomentosa (R).
Wet places and swamps. Osborne county (map 829). Therophyte.
- Polygonum virginianum* L.
Tovara virginiana (R).
Woods and thickets. East half (map 830). Hemicyptophyte.
- Rheum rhaponticum* L. Rhubarb, Pieplant.
Cultivated, occasionally escaping or persisting. Geophyte.
- Rumex acetosella* L. Sheep Sorrel.
Waste places and sparingly in cultivated ground. Scattered in east half and Sherman county (map 831). Rhizome geophyte.
- Rumex altissimus* Wood. Pale Dock.
Along streams, thickets, fields and waste places. Throughout (map 832). Hemicyptophyte.
- ? *Rumex brittanica* L.
A specimen from Douglas county in Kansas University herbarium has been thus identified, but is not certainly identifiable.
- Rumex crispus* L. Curled Dock.
Including *Rumex elongatus* Guss.
Fields and waste places, naturalized from Europe. East half, scattered in west half (map 833). Hemicyptophyte.
- Rumex hastatulus* Baldw.
Sandy open ground. Chautauqua and (?) Leavenworth counties (map 834). Hemicyptophyte.
- Rumex maritimus fueginus* (Philippi) Dusén. Golden Dock.
Rumex persicarioides L. (R).
Sandy shores. Scattered, mostly in northern third (map 835). Therophyte.
- Rumex obtusifolius* L. Broad-leaved Dock.
Fields and waste places. Scattered in east half and Sherman county (map 836).

- Rumex occidentalis* S. Wats. Dock.
Wet places. Saline county (map 837). Hemipterophyte.
- Rumex patientia* L. Patience Dock.
Waste places, native of Europe. Scattered in east half, Sheridan and Cheyenne counties (map 838). Hemipterophyte.
- Rumex triangulivalvis* (Dauser) Rech. f.
Rumex mexicanus Meissn. (R).
Along rivers. Wyandotte county (map 838a). Hemipterophyte.
- Rumex venosus* Pursh. Wild Hydrangea.
Sandy soil, cinders, prairies and plains. West two-thirds (map 839).
- Rumex verticillatus* L. Swamp Dock.
Swamps and low wet woods. Wyandotte county (map 840).

FAMILY NYCTAGINACEAE (Four O'clock Family)

- Abronia fragrans* Nutt. Sand Verbena.
Dry soil. Southwest fourth to Cheyenne county on west border (map 841). Hemipterophyte.
- Abronia micrantha* Torr. Sand Puffs.
Tripterocalyx micrantha (R).
Sandy soil on high plains. Hamilton county (map 842). Therophyte.
- Mirabilis albida* (Walt.) Heimerl.
Allionia albida (R).
Dry soils. East half to Clark county (map 843).
- Mirabilis carletoni* Standl.
Allionia carletoni Standl. (R).
Plains. At least Barber and Saline counties (map 844). Hemipterophyte. Type locality Barber county, Kansas.
- Mirabilis glabra* (Wats.) Standl.
Allionia glabra (R).
Dry soil. Southwest (Hamilton and Kearny counties) (map 845). Hemipterophyte.
- Mirabilis hirsuta* (Pursh.) MacM.
Allionia hirsuta (R).
Allionia pilosa
Sandy soil, dry open ground. East half (map 846). Hemipterophyte.
- Mirabilis jalapa* L. Four-o'clock.
Only in cultivation. Rooks county (Hays).
- Mirabilis linearis* (Pursh.) Heimerl.
Allionia linearis (R).
Allionia decumbens (R).
Allionia diffusa (R).
Dry soil of plains and prairies. Throughout, except northeast (glaciated section) (map 847). Hemipterophyte. Prostrate to low bushy branched plants from Cheyenne to Greeley to Scott to Rooks counties have been known as *A. diffusa* Heller (map 847a). Plants from two counties (Wichita and Rooks) are transitions to regular *Mirabilis linearis*.

- Mirabilis nyctaginea* (Michx.) MacM. Wild Four-o'clock.
Allionia nyctaginea (R).
Rich soil. Probably throughout, less frequent in extreme southwest (map 848). Hemipterophyte.
- Mirabilis nyctaginea ovata* (Pursh).
Allionia ovata (R).
Dry soil. Scattered (map 849). Hemipterophyte.

FAMILY PRIMULACEAE (Primrose Family)

- Anagallis arvensis* L. Shepherd's Weatherglass, Pimpernel.
Waste places. Ellsworth, Riley, Harvey, Lyon and Saline counties (map 850). Therophyte.
- Androsace occidentalis* Pursh. Androsace.
Dry or sandy soil, rocky prairies, open woods and ravines. Except extreme west (map 851). Therophyte.
- Dodecatheon meadia* L. Shooting Star.
Rocky bluffs. Southeast (Montgomery and Cherokee counties) (map 852). Hemipterophyte.
- Dodecatheon radicum* Greene.
Wet meadows. "West," fide Rydberg. Hemipterophyte.
- Lysimachia ciliata* L. Fringed Loosestrife.
Steironema ciliatum (R).
Moist thickets, banks of ponds and streams. East half (map 853). Hemipterophyte.
- Lysimachia hybrida* Michx.
Steironema hybridum (R).
Thickets. Miami county. Oyster in 1883 (map 854). Hemipterophyte.
- Lysimachia nummularia* L. Moneywort.
Cultivated, seldom escaping. Atchison and Franklin counties.
- Samolus parviflorus* Raf. Water Pimpernel, Brookweed.
Samolus floribundus H. B. K.
Wet places. Southeast and south central sixth (map 855). Hemipterophyte-helophyte.

FAMILY PLANTAGINACEAE (Plantain Family)

- Plantago aristata* Michx.
Dry soils, prairies and waste ground. At least east half (map 856). Therophyte.
- Plantago asiatica* L.
Arkansas river bottoms. Hamilton county. (KU) (map 857). Therophyte.
- Plantago elongata* Pursh.
Wet places. Central (map 858). Therophyte.
- Plantago heterophylla* Nutt.
Moist soil. "Kans.," fide Rydberg. Therophyte.
- Plantago lanceolata* L.
Lawns, roadsides and waste places. East half, but mostly east fourth, plus Sheridan county (map 859). Naturalized.

- Plantago major* L. Plantain.
Lawns, fields, waste places. Uncommon. East fourth, scattered in west half (map 860). Naturalized. Hemicytophyte.
- Plantago purshii* R. & S.
Dry or sandy soil in valleys, prairies and plains. Throughout (map 861). Therophyte.
- Plantago pusilla* Nutt.
Wet places. Ellis, Cloud and Shawnee counties (map 862). Therophyte.
- Plantago rhodosperma* Dene. Red-seeded Plantain.
Sandy soil. East third (map 863). Therophyte.
- Plantago rugelii* Dene. Rugel's Plantain.
Woods, waste places, dooryards. East two-thirds, but mostly east half (map 864). Hemicytophyte.
- Plantago spinulosa* Dene.
Plains. Scattered in west half (map 865). Therophyte.
- Plantago virginica* L.
Dry soil. East half (map 866). Therophyte.

FAMILY ERICACEAE (Heath Family)

- Vaccinium arboreum* Marsh. Farkleberry.
Batodendron arboreum (R).
Sandy soil in woods. Southeast corner (U. S. N. M.) (map 867).
Nano to microphanerophyte.
- Vaccinium canadense* Kalm. Blueberry.
Cyanococcus canadensis (R).
Moist woods. "Southeast," fide Rydberg. Nanophanerophyte.
- Vaccinium stamineum* L. Squaw Huckleberry.
Polycodium stamineum (R).
Rocky woods. Extreme southeast (Cherokee county) (map 868).
Nanophanerophyte.
- Vaccinium stamineum neglectum* (Small) Dean.
Polycodium neglectum (R).
Rocky open woods. Extreme southeast (Cherokee county) (map 868). Nanophanerophyte.
- Vaccinium vacillans* Kalm. Lowbush Blueberry.
Cyanococcus vacillans (R).
Rocky woods. Extreme southeast (Cherokee county) (map 869).
Chamae- to nanophanerophyte.

FAMILY SAPOTACEAE

- Bumelia lanuginosa* (Michx.) Pers. Chittimwood, Gumelastic, Woolly Buckthorn.
Sandy soil. Southeast, north to Wyandotte county, and west to Harper county (map 870). Microphanerophyte.
- Bumelia lycioides* (L.) Pers. Buckthorn, Shittimwood.
Low ground. "Southeast," fide Rydberg. Microphanerophyte.

FAMILY EBENACEAE (Ebony Family)

- Diospyros virginiana* L. Persimmon.
Borders of woods along small streams, to the northwestward cultivated. Native in south half of east third and cultivated as far as Harper, Ellsworth, Riley and Atchison counties (map 871). Mesophanerophyte.

FAMILY POLEMONIACEAE (Phlox Family)

- Gilia acerosa* (A. Gray.) Britton.
Gilia rigidula acerosa (A. Gray).
Giliastrum acerosum (R).
Sandy plains. South two-thirds of west third (map 872). Chamaephyte (? hemicytophyte).
- Gilia aggregata* (Pursh) Spreng. *Gilia*.
Hills of high plains. Clark and Stevens counties (map 873).
- Gilia calcarea* M. E. Jones. *Gilia*.
Sandy soil of high plains. Hamilton county (map 874).
- Gilia inconspicua* (Smith) Dougl. *Gilia*.
Hillsides of high plains. Hamilton county fide Aller: Thesis (unpublished).
- Gilia laxiflora* (Coul.) Osterhout. *Gilia*.
Plains. Harper and Stevens counties (map 875).
- Gilia longiflora* (Torr.) G. Don. *Gilia*.
Sandhills of high plains. Southwest, east to Harper county (map 876).
- Gilia rubra* (L.) Heller.
Cultivated on sandy soil. Chautauqua and Montgomery counties.
- Gilia spicata* Nutt. *Gilia*.
Hills of high plains. Hamilton and Scott counties (map 877). Therophyte or hemicytophyte.
- Navarretia breweri* (A. Gray) Greene.
"Kans. (?)" fide Rydberg.
- Phlox bifida glandifera* Beck.
Ravines. Pottawatomie and Cowley counties (map 878). Hemicytophyte.
- Phlox divaricata laphami* Wood. Woodland or Blue Phlox.
Woodlands. East third (map 879). Hemicytophyte.
- Phlox maculata* L. Phlox.
Low ground. Leavenworth county (Rare). (KU) (map 880). Hemicytophyte.
- Phlox paniculata* L. Phlox.
Woods. Doniphan county. Cultivated in Riley county (map 881). Hemicytophyte.
- Phlox pilosa* L. Prairie Phlox.
Sandy prairies. East third. The plants in northeastern Kansas, *i. e.*, north of Kansas river basin, are variety *fulgida* Wherry (map 882) and those in southeastern Kansas are variety *virens* (Michx.) (map 882) Hemicytophyte.

Polemonium reptans L. Jacob's Ladder.

Woods and thickets. Brown, Doniphan and Cherokee counties (map 883). (?Therophyte).

FAMILY CONVULVULACEAE (Morning-glory Family)

Convolvulus arvensis L. Bindweed, Field Bindweed.

Including *Convolvulus ambigens* House (R).

Cultivated and waste ground. Throughout (map 884). Rhizome geophyte.

Convolvulus incanus Vahl.

Dry hills and plains. Southwest (3 counties) (map 885). Some specimens formerly identified as *Convolvulus hermannioides* A. Gray.

Convolvulus interior House. Bindweed.

Sandy soil. Probably throughout, or except southwest (map 886).

Convolvulus japonicus Thunb. Japanese Morning-glory.

Escaped from cultivation. East (Bourbon county).

Convolvulus sepium L. Hedge Bindweed.

Including *Convolvulus americanus* (Sims.) Greene (R).

and *Convolvulus fraterniflorus* Mack. & Bush., a short-peduncled plant, the forms present.

Thickets, fields and fence rows. Except perhaps southwest (map 887).

Cuscuta cephalanthi Engelm. Dodder.

Moist ground, thickets; on coarse herbs and shrubs. Northeast fourth (map 888). Therophyte-vine.

Cuscuta coryli Engelm. Hazel Dodder.

Thickets; on hazel and other shrubs. Scattered, Meade, Rooks and Riley counties (map 889). Therophyte-vine.

Cuscuta curta (Engelm.) Rydb.

"Kans.," fide Rydberg.

Cuscuta cuspidata Engelm. Dodder.

Low open woods and thickets along streams: on Ambrosiaceae and rarely legumes. Except northwest (map 890). Therophyte-vine.

Cuscuta glomerata Choisy. Dodder.

Cuscuta paradoxa Raf. (R).

Wet ground, thickets and woods along streams, on Compositae and other tall herbs. Throughout, but mostly east half (map 891). Therophyte-vine.

Cuscuta gronovii vulgivaga Engelm. Dodder.

Moist ground, thickets and prairies: on various coarse herbs and shrubs. Marshall county (map 892). Therophyte-vine.

Cuscuta indecora Choisy. Dodder.

Thickets: on herbs and low shrubs, mostly composites and legumes. Very scattered (map 893). Therophyte-vine.

Cuscuta pentagona Engelm. Dodder.

Thickets and prairies: on herbs especially composites. East half (map 894). Therophyte-vine.

Cuscuta polygonorum Engelm. Smartweed Dodder.

Moist ground along streams, thickets and woods: on species of Polygonum and other herbs. East half (map 895). Therophyte-vine.

Evolvulus nuttallianus R. & S. *Evolvulus*.

Sandy soil on plain and prairie. Except extreme east (map 896). Hemipterophyte.

Ipomoea batatas Lam. Sweet Potato.

Cultivated, not persisting after escape. Therophyte.

Ipomoea hederacea Jacq. Blue Morning-glory.

Cultivated and waste ground, roadsides, etc. East half, scattering westward (map 897). Therophyte-vine. Common.

Ipomoea lacunosa L. Small White Morning-glory.

Fields and low ground. East third (map 898). Therophyte-vine.

Ipomoea leptophylla Torr. Sand Morning-glory, Bush Morning-glory.

Sandy soil, plains and prairies. West four-fifths (map 899). Root tuber geophyte. The large root often weighing 20 to 30 pounds or more.

Ipomoea pandurata (L.) G. F. W. Mey. Man-of-the-Earth.

Prairies, fields and waste ground. East third (map 900). Hemipterophyte (roottuber geophyte).

Ipomoea purpurea (L.) Roth. Common Morning-glory.

Cultivated and waste ground, roadsides, etc. Mostly east half (map 901). Therophyte-vine.

X *Ipomoea hederacea* x *purpurea*.

Hybrids both ways have been collected at Salina by Hancin and doubtless exist at other places in the state.

Quamoclit coccinea (L.) Moench. Cypress Vine, Red Morning-glory.

Thickets. East half, plus Sheridan county (map 902). Therophyte.

Quamoclit coccinea hederifolia House.

Thickets. Riley and Crawford counties (map 902). Therophyte.

Quamoclit vulgaris Choisy. Cypress Vine.

Waste places, naturalized from tropical America. Doniphan and Riley counties (map 903). Therophyte.

FAMILY HYDROPHYLLACEAE (Waterleaf Family)

Ellisia nyctelea L.

Moist woods, thickets, cultivated and waste ground. Dwarfing westward. Throughout, except southwest fourth (map 904). Therophyte.

Hydrophyllum appendiculatum Michx. Waterleaf.

Decemium appendiculatum (R).

Rich woods. Extreme central east (map 905). Hemipterophyte.

Hydrophyllum virginianum L. Waterleaf.

Rich moist woods and thickets along streams. East fourth (map 906). Hemipterophyte.

Phacelia hirsuta Nutt. Scorpionweed.

Dry soil in open woods, ravines, and thickets along streams. Southeast ninth (map 907). Hemipterophyte. Earlier specimens mislabeled *P. dubia* (L.) Small.

Phacelia integrifolia Torr. Scorpionweed.

Gypsum soil. Extreme south central (Barber and Harper counties) (map 908). Hemipterophyte (?).

Phacelia tanacetifolia Benth.

Escaped from cultivation. Geary county.

FAMILY BORAGINACEAE (Borage Family)

Cryptantha crassisejala (T. & G.) Greene.

Loose soil on plains. West two-fifths to Ellsworth county (map 909).

Therophyte.

Cynoglossum officinale L. Hound's-tung.

Fields, pastures, thickets and woods. East third (map 910). Hemi-

cryptophyte.

Cynoglossum virginianum L. Wild Comfrey.

Rich or rocky woods. "Kans.," fide Rydberg.

Echium vulgare L. Viper's Bugloss.

Waste places and roadsides. Ford, Pottawatomie and Riley counties (map 911).

Heliotropium convolvulaceum A. Gray.

Euploca convolvulacea (R).

Sandy high plains. Southwest fourth, east to Reno county (map 912). Therophyte.

Heliotropium indicum L. Indian Heliotrope.

Tiaridium indicum (R).

Waste places. "Kans.," fide Rydberg. Therophyte.

Heliotropium spathulatum Rydb. Heliotrope.

River valleys. Finney and Grant counties (map 913). Hemicypto-

phyte.

Heliotropium tenellum (Nutt.) Torr.

Lithococca tenella (R).

Dry soil. Southeast sixth (map 914). Therophyte.

Lappula americana A. Gray.

Thickets. Clay county (map 915). Therophyte (biennial).

Lappula echinata Gilib. Stickseed.

Waste and cultivated ground. East third (Kansas river valley, plus Greenwood county) (map 916). Therophyte.

Lappula heterosperma Greene.

Valleys. West half, but especially northwest fourth (map 917).

Therophyte.

Lappula occidentalis (S. Wats.) Greene.

Sandy areas and plains. Probably throughout, but more common westward (map 918). Therophyte.

Lappula virginiana (L.) Greene. Stickseed, Beggar's Lice.

Woods and thickets. Northeast half plus southeast two-thirds, plus Sheridan county (map 919).

Lithospermum arvense L. Corn Gromwell.

Railway ballast and waste ground. East third and north central (map 920). Therophyte.

Lithospermum canescens (Michx.) Lehm. Puccoon.

Prairies and open woods. Northeast sixth (? + Reno county) (map 921). Hemicyptophyte.

Lithospermum croceum Fernald. (Rhod. 37:329. 1935.) Puccoon.

Lithospermum carolinense (Walt.) MacM.

Lithospermum gmelini (Michx.) (R).

Prairies, plains and open woods. East half, mostly north quarter (map 922). Hemicyptophyte.

Lithospermum latifolium Michx.

Rich woods and thickets. Extreme central east (map 923). Hemi-

cryptophyte.

Lithospermum officinale L.

Waste places. "Kans.," fide Rydberg. Hemicyptophyte.

Lithospermum linearifolium Goldie. Narrow-leaved Puccoon.

Including *Lithospermum breviflorum* and

Lithospermum mandanense (R).

Dry soil in prairies and plains. Probably throughout (map 924). Variable. A Summer county plant is identified by Rydberg as *L. breviflorum* Engelm. & Gray, and several plains specimens from western Kansas as *L. mandanense* Spreng., but neither seems separable as a species. Hemicyptophyte.

Mertensia virginica L. Mertensia, Lungwort.

Wooded banks in alluvial soil. Miami county (Mo. Bot. Gard.) (map 925). Riley county (cult.). Hemicyptophyte.

Myosotis virginica (L.) B. S. P. Forget-me-not.

Dry and rocky places. East half, plus Ellis and Cheyenne counties (map 926). Therophyte.

Onosmodium hispidissimum Mack. False Gromwell.

River banks. East fourth plus Rawlins county (map 927). Hemi-

cryptophyte.

Onosmodium occidentale Mack. False Gromwell.

Plains, prairies and rocky open woods. Northeast four-fifths, plus southeast third (map 928). Hemicyptophyte.

Oreocarya cana A. Nels.

Hamilton county (Aller's thesis [unpublished]).

Oreocarya suffruticosa (Torr.) Greene.

Plains. Southwest fourth, plus Graham county (map 929). Hemi-

cryptophyte.

FAMILY SOLANACEAE (Potato Family)

Chamaesaracha conioides (Moric.) Britton.

High plains. Southwest sixth and Woodson county (map 930). Hemicyptophyte.

Chamaesaracha coronopus (Dunal) A. Gray.

Dry clayey soil. "Kans.," fide Rydberg. Hemicyptophyte.

Datura metel L.

Cultivated and escaping. Ellis to Cloud to Shawnee to Greenwood counties (map 931). Therophyte.

Datura stramonium L. Jimsonweed.

Including *Datura tatula* L.

Cultivated and waste ground, thickets along streams. East half and Hamilton county (map 932). Therophyte.

- Lycium chinense* Mill. Chinese Matrimony Vine.
Cultivated, seldom escaping. Liana to microphanerophyte.
- Lycium halimifolium* Mill. Matrimony Vine.
Thickets and waste places, escaped. North half (map 933). Mostly nanophanerophytes.
- Lycopersicon esculentum* Mill. Tomato.
Cultivated, occasionally escaping.
- Nicandra physalodes* (L.) Pers. Apple of Peru.
Escaping from cultivation. Clay, Riley and Sheridan counties (map 934). Therophyte.
- Petunia axillaris* B. S. P.
Cultivated. Atchison county (KU).
- Petunia violacea* Lindl. Petunia.
Much cultivated, seldom escaping. Riley county, etc. Therophyte.
- Physalis ambigua* (A. Gray) Rydb.
Prairies. Saline and Shawnee counties (map 935). Hemipterophyte.
- Physalis angulata* L. Ground Cherry.
Rich soil. Marion and Riley counties (map 936). Therophyte.
- Physalis comata* Rydb. Ground Cherry.
Hillsides and plains. Rooks to Douglas counties (map 937). Hemipterophyte.
- Physalis heterophylla* Nees. Ground Cherry.
Roadsides, fields and waste places. East two-thirds, plus Sheridan county (map 938). Hemipterophyte.
- Physalis ixocarpa* Brot. Tomatillo.
Railway ballast. Riley and Pottawatomie counties (map 939). Therophyte.
- Physalis lanceolata* Michx. Ground Cherry.
Prairies and plains. Throughout (possibly except southeast) (map 940). Hemipterophyte.
- Physalis longifolia* Nutt. Ground Cherry.
River valleys and rich soil. Throughout (map 941). Hemipterophyte.
- Physalis macrophysa* Rydb. Ground Cherry.
Rich soil. Sparsely scattered (map 942). Hemipterophyte.
- Physalis missouriensis* Mack. & Bush.
Rich soil along streams. East third (map 943). Therophyte.
- Physalis mollis* Nutt. Ground Cherry.
Thickets along streams. Barber county (KU) (map 944). Hemipterophyte.
- Physalis pendula* Rydb. Ground Cherry.
Rich soil. East third (map 945). Therophyte.
- Physalis pruinosa* L. Strawberry Tomato.
Cultivated ground. Osborne and Wyandotte counties (map 946). Therophyte.
- Physalis pubescens* L. Ground Cherry.
Cultivated and waste sandy soil. East third (map 947). Therophyte.

- Physalis pumila* Nutt. Ground Cherry.
Prairies and valleys. East half, plus Kiowa and Wallace counties (map 948). Hemipterophyte.
- Physalis rotundata* Rydb. Ground Cherry.
Plains and prairies. West three-fourths (map 949). Hemipterophyte.
- Physalis subglabrata* Mack. & Bush. Ground Cherry.
Valleys and cultivated ground. Throughout, but more frequent in east third (map 950). Hemipterophyte.
- Physalis virginiana* Mill. Ground Cherry.
Prairies, valleys, woods, thickets and cultivated grounds. East half, plus Cheyenne county (map 951).
- Quincula lobata* (Torr.) Raf.
Physalis lobata Torr.
High Plains. West two-fifths to Reno county (map 952). Hemipterophyte.
- Solanum carolinense* L. Horse Nettle, Carolina Nightshade.
Sandy soil, rocky prairies, railway ballast, and waste ground. East half (map 953). Hemipterophyte.
- Solanum citrullifolium* A. Br.
Androcerca citrullifolia (R).
Sandy soil. "Kans.," fide Rydberg. Therophyte.
- Solanum dulcamara* L. Bittersweet.
Cultivated. Northeast fourth. Vine.
- Solanum elaeagnifolium* Cav. Nightshade.
Rocky prairies, railway ballast and waste ground. East and south (map 954). Hemipterophyte.
- Solanum nigrum* L. Black or Garden Nightshade.
Waste places and cultivated ground. East two-thirds, the western specimens passing into the next (map 955). Therophyte.
- Solanum nigrum interius* (Rydb.) F. C. Gates.
Solanum interius (R).
Valleys among bushes. Throughout (map 956). Therophyte.
- Solanum rostratum* Dunal. Buffalobur.
Androcerca rostrata (R).
Open situations, plains, roadsides, cultivated land, etc. Throughout (map 957). Therophyte.
- Solanum torreyi* A. Gray. Nightshade.
Rocky or sandy open ground. South central and Saline county (map 958). Hemipterophyte.
- Solanum triflorum* Nutt. Nightshade.
Plains, prairies, cultivated ground. West half plus Riley and Wyandotte (railroad yards) counties (map 959). Therophyte.
- Solanum triquetrum* Cav.
Thickets. "Kans.," fide Rydberg.
- Solanum tuberosum* L. Potato.
Cultivated, seldom escaping and not long persistent. Tuber geophyte.

FAMILY OLEACEAE

- Forestiera acuminata* (Michx.) Poir. Adelia.
Adelia acuminata Michx. (R).
 Swamps and river banks. Extreme southeast, also planted elsewhere (map 960). Microphanerophyte.
- Forsythia viridissima* Lindl. Golden Bell.
 Shrub, escaped in Washington and Shawnee counties (map 960a).
- Fraxinus americana* L. White Ash.
 Rich woods, borders of streams. East fourth (map 961). Mesophanerophyte.
- Fraxinus pennsylvanica* Marsh. Red Ash.
 Woods and along streams. East four-fifths (map 962). Micro-mesophanerophyte.
- Fraxinus pennsylvanica campestris* (Britton) F. C. Gates. Prairie Ash.
Fraxinus campestris (R).
 Along prairie streams, river banks, river bluffs along streams in prairies and plains. Scattered, apparently except southwest and southeast ninth (map 963). Micro-(meso?)-phanerophyte.
- Fraxinus pennsylvanica lanceolata* (Borkh.) Sarg. Green Ash.
Fraxinus lanceolata (R).
 Low woods, swamps and borders of streams. Apparently except southwest (map 964). Micro-mesophanerophyte.
- Fraxinus quadrangulata* Michx. Blue Ash.
 Rich woods. Southeast twelfth and cultivated to the northward (map 965). Micro-mesophanerophyte in rich woods.
- Syringa vulgaris* L. Lilac.
 Cultivated and persisting after abandonment. Microphanerophyte.
 Several additional species are in cultivation. They include species of *Chionanthus*, *Fontanesia*, *Fraxinus*, *Ligustrum*, *Olea* and *Syringa*.

FAMILY LOGANIACEAE

The shrubs, *Buddleia davidi* Franch. and *B. japonica* Hernsl. are only in cultivation.

FAMILY GENTIANACEAE (Gentian Family)

- Centaurium texense* (Griseb.) Fern. Centaury.
 Rocky places. "Kans.," fide Rydberg. No authenticating specimens are known.
- Eustoma russellianum* (L.) Griseb. Eustoma.
 Grassland on high plains and prairies. Southwest fourth, including Reno county (map 966). Therophyte to hemipterophyte.
- Gentiana puberula* Michx. Purple Gentian.
Dasystephana puberula (R).
 Prairies. East third (map 967). Hemipterophyte (at least often biennial).
- Sabatia angularis* (L.) Pursh. Rose Pink, *Sabatia*.
 Rocky open woods and thickets. Extreme southeast (Cherokee county) (map 968).

- Sabatia campestris* Nutt. Prairie Pink.
 Prairies, fields and ravines. Southeast ninth (map 969).

FAMILY APOCYNACEAE (Dogbane Family)

- Amsonia illustris* Woodson.
 Rocky open ground and gravel bars of streams. Allen and Cherokee counties (map 970). Hemipterophyte.
- Amsonia tabernaemontana* Walt. *Amsonia*.
 Woods and thickets. Cherokee county. Cultivated in Riley, Sedgwick and Morris counties (map 971). Hemipterophyte.
- Amsonia tabernaemontana salicifolia* (Pursh) Woodson.
Amsonia salicifolia (R).
 River banks. Cherokee county (map 972). Hemipterophyte.
- Apocynum cannabinum* L. Indian Hemp, Dogbane.
 Fields, prairies and thickets. At least east three-fourths (probably throughout) (map 973). Hemipterophyte.
- Apocynum cannabinum glaberrimum* DC. *A. album* (R).
 Fields and thickets. Scattered, northeast to southwest (map 974). Hemipterophyte.
- Apocynum cannabinum pubescens* (Mitchell) DC.
Apocynum pubescens (R).
 Rocky open weeds, thickets and waste ground. East two-fifths (map 975). Hemipterophyte.
- Apocynum sibiricum* Jacq. Dogbane.
 Fields, valleys and hillsides. Throughout (map 976). Hemipterophyte.
- Apocynum sibiricum cordigerum* (Greene) Fernald.
Apocynum cordigerum Greene (R).
Apocynum hypericifolium cordigerum (Greene) Beg. & Bel.
 Prairies. Eastern (Geary, Elk, Sedgwick, Reno and Sheridan counties) (map 977). Hemipterophyte.
- Vinca minor* L. Periwinkle, Myrtle.
 Cultivated and sometimes escaping. Doniphan and Harvey counties. Chamaephyte.

FAMILY ASCLEPIADACEAE (Milkweed Family)

- Acerates angustifolia* (Nutt.) Dec. Green Milkweed.
 Plains and prairies. Throughout (map 978). Hemipterophyte.
- Acerates auriculata* Engelm. Green Milkweed.
 Plains and prairies. West half (map 979). Hemipterophyte.
- Acerates hirtella* Pennell. Green Milkweed.
 Rocky prairies. Extreme east and southeast, plus Cloud county (map 980). Hemipterophyte.
- Acerates lanuginosa* (Nutt.) DC. Green Milkweed.
 Prairies. East half, scattered plus Sherman county (map 981). Hemipterophyte.
- Acerates viridiflora* (Raf.) Eaton. Green Milkweed.
 Dry or sandy soil. Throughout (map 982). Hemipterophyte.

- Acerates viridiflora ivesii* Britton.
Sandy soil. Throughout, but more frequent in east half (map 983).
Hemicryptophyte.
- Acerates viridiflora linearis* A. Gray.
Dry soil. Decatur, Stevens, Finney, and Labette counties (map 984).
Hemicryptophyte.
- Asclepias amplexicaulis* Smith.
Sandy soil. East three-fifths (map 985). Hemicryptophyte.
- Asclepias arenaria* Torr.
Sandy soil. West half, plus Riley and Shawnee counties (map 986).
Hemicryptophyte.
- Asclepias brachystephana* Engelm.
Dry soil. "Kans.," fide Rydberg, reported by Smyth. Hemicryptophyte.
- Asclepias galioides* H. B. K. Bedstraw Milkweed, Whorled Milkweed.
High plains. Sherman county (map 987). Hemicryptophyte.
- Asclepias incarnata* L. Swamp Milkweed.
Swamps and along streams. Throughout (map 988). Helophyte.
- Asclepias kansana* Vail. Kansas Milkweed.
Prairies and open woods. East three-fifths + Thomas and Sheridan counties (map 989). Hemicryptophyte.
- Asclepias latifolia* (Torr.) Raf.
Dry plains. West half to Sedgwick county (map 990). Hemicryptophyte.
- Asclepias meadii* Torr.
Prairies. Douglas county (KU) (map 991).
- Asclepias pumila* (A. Gray) Vail. Low Milkweed.
Dry plains. West three-fourths, mostly west half (map 992). Hemicryptophyte.
- Asclepias purpurascens* L. Purple Milkweed.
Rocky open woods and thickets. East seventh and Wallace county (map 993). Hemicryptophyte.
- Asclepias quadrifolia* Jacq.
Rocky open woods and thickets. Extreme southeast (Cherokee county) (map 994). Hemicryptophyte.
- Asclepias speciosa* Torr. Showy Milkweed.
Valleys of prairie and plain. Throughout, but less frequent in southeast (map 995). Hemicryptophyte.
- Asclepias sullivantii* Engelm.
Prairies and thickets. East half (map 996). Hemicryptophyte.
- Asclepias syriaca* L. Milkweed.
Fields and waste places. East two-thirds, plus Decatur county (map 997). Hemicryptophyte. Confused with *A. kansana*, if specimens are not in fruit. As *A. kansana* was not named when most of the milkweeds were collected, recollecting of fruiting specimens is much to be desired. However, by no means all the pods have numerous processes, characteristic of *A. kansana*.

- Asclepias tuberosa* L. Butterflyweed, Orange Milkweed.
Dry fields, meadows and prairies. East three-fourths (map 998).
Hemicryptophyte.
- Asclepias variegata* L.
Woods and thickets. "Kans.," fide Rydberg. Hemicryptophyte.
- Asclepias verticillata* L. Whorled Milkweed.
Dry prairies, valleys and rocky hillsides. Mostly east three-fourths (map 999). Hemicryptophyte.
- Asclepiodora decumbens* (Nutt.) A. Gray. Spider Milkweed.
Dry, sandy soil. Central (map 1000). Hemicryptophyte.
- Asclepiodora viridis* (Walt.) A. Gray. Spider Milkweed.
Dry and rocky prairies. East two-thirds and Logan county (map 1001). Hemicryptophyte.
- Cynanchum nigrum* (L.) Pers.
Escaping from cultivation. Riley county. Vine hemicryptophyte.
- Gonolobus laevis* Michx. Sandvine, Climbing Milkweed.
Moist alluvial woods, thickets and cultivated fields. East two-thirds (map 1002). Root tuber geophyte.
- Periploca graeca* L. Silkvine.
Escaped from cultivation in woods along streams. Greenwood county (map 1003). Liana.
- FAMILY SCROPHULARIACEAE⁷ (Figwort Family)
- Antirrhinum majus* L. Snapdragon.
Frequently cultivated, but not persisting after an escape. Gardens throughout. Therophyte.
- Aureolaria grandiflora* (Benth.) Pennell. False Foxglove.
Woods. "Kans.," fide Rydberg. Hemicryptophyte.
- Aureolaria grandiflora cinerea* Pennell. False Foxglove.
Dry soil. Southeast ninth (map 1004). Hemicryptophyte.
- Buchnera americana* L. Blue Hearts.
Upland prairies and ravines. Southeast twelfth (map 1005). Hemicryptophyte-therophyte (biennial).
- Castilleja citrina* Pennell.
Bluffs at edge of high plains region. Comanche to Harper counties (map 1006). Hemicryptophyte.
- Castilleja coccinea* (L.) Spreng. Indian Blanket, Painted Cup.
Prairie. Extreme east (map 1007). Hemicryptophyte (biennial or therophyte).
- Castilleja indivisa* Engelm.
Sandy soil. "Kans.," fide Rydberg, but no specimen discovered.
- Castilleja sessiliflora* Pursh. Indian Paintbrush.
Prairies and plains. West four-fifths (map 1008). Hemicryptophyte.
- Chelone glabra* L. Turtlehead.
"Kans.," fide B&B, Rydberg, but no specimens discovered.
- Collinsia verna* Nutt. Blue-eyed Mary.
Woods. East fifth (map 1009). Therophyte.

7. Specimens of Scrophulariaceae checked over by F. W. Pennell.

- Collinsia violacea* Nutt. Blue-eyed Mary.
Rocky woods. Southeast, north to Miami county (map 1010). Therophyte.
- Dasistoma macrophylla* (Nutt.) Raf. Mullen Foxglove.
Open woods and thickets. East third (map 1011). Hemicryptophyte.
- Gerardia aspera* Dougl. *Gerardia*.
Agalinis aspera (Dougl.) Britton.
Prairies and moist ground along small streams. East two-thirds, plus Hamilton county (map 1012). Therophyte.
- Gerardia gattereri* Small.
Miami county (Mo. Bot. Gard.) (map 1013).
- Gerardia skinneriana* Wood. *Gerardia*.
Agalinis skimmeriana (Wood) Britton.
Dry open woods and thickets. Southeast sixth (map 1014). Therophyte (?).
- Gerardia tenuifolia macrophylla* Benth. *Gerardia*.
Agalinis tenuifolia macrophylla (Benth.) Blake.
Prairies, moist ground along rivers. East third (map 1015). Hemicryptophyte (?).
- Gerardia tenuifolia parviflora* Nutt. *Gerardia*.
Agalinis tenuifolia parviflora (Nutt.) Pennell.
Prairies and thickets, moist banks. Scattered throughout (map 1016). Hemicryptophyte.
- Gratiola lutea* Raf. Hedge Hyssop.
Gratiola neglecta Torr. (R).
Mud and shallow water. Cherokee county. Extreme east (map 1017). Helophyte-hydrophyte.
- Gratiola virginiana* L.
In pools between sand dunes. Reno and Anderson counties (map 1018). Helophyte.
- Leucospora multifida* (Michx.) Nutt.
Conobea multifida (Michx.) Benth.
River floodplains, banks and fields. East two-thirds (map 1019). Therophyte.
- Linaria canadensis* (L.) Dumort.
Open places. Crawford county (KU) and Stevens county (Mo. Bot. Gard.) (map 1020).
- Linaria texana* Scheele. Blue Toadflax.
Rocky prairies and sandy open ground. East half (map 1021). Therophyte or hemicryptophyte.
- Linaria vulgaris* Hill. Butter and Eggs.
Waste ground and along roads. Scattered, mostly northern (northwest, central, and northeast) (map 1022). Hemicryptophyte.
- Lindernia anagallidea* (Michx.) Pennell. False Pimpernel.
Ilysanthes inaequalis (Walt.) (R).
Borders of ponds and streams. Scattered in east half (map 1023). Therophyte (?).

- Lindernia dubia typica* (L.) Pennell. False Pimpernel.
Ilysanthes dubia (R).
Low wet woods and borders of streams and ponds. Scattered in east half (map 1024). Therophyte (?).
- Lindernia dubia major* (Pursh) Pennell. False Pimpernel.
Ilysanthes dubia (R).
Wet places. Scattered in east half (map 1025). Therophyte (?).
- Macuillamia rotundifolia* (Michx.) Raf. Water Hyssop.
Borders of ponds and streams. Throughout, but scattered (map 1026). Succulent helophyte.
- Mimulus alatus* Solander in Ait. Monkeyflower.
Swamps and borders of streams. East fourth (map 1027). ?Hemicryptophyte.
- Mimulus glabratus fremontii* (Benth.) Grant.
Mimulus geyeri Torr. (R).
Springs. Scattered (northwest, central, northeast) (map 1028). Helophyte-hydrophyte.
- Mimulus ringens* L. Monkeyflower.
Marshes and river banks. Northeast sixth (map 1029). Hemicryptophyte and helophyte.
- Paulownia tomentosa* (Thumb.) Steud. Paulownia.
In cultivation, winterkilling to a greater or less extent each year. East third. Microphanerophyte.
- Pedicularis canadensis* L. Lousewort.
Woods and thickets. East third (map 1030). Hemicryptophyte, more or less hemiparasitic.
- Penstemon albidus* Nutt. Beardtung.
High plains. West half (map 1031). Hemicryptophyte.
- Penstemon ambiguus* Torr. Beardtung.
High plains. Extreme southwest (map 1032). Hemicryptophyte.
- Penstemon buckleyi* Pennell. Beardtung.
Sand hills on high plains. Southwest sixth and Ellsworth and Cloud counties (map 1033). Hemicryptophyte.
- Penstemon caudatus* Heller. Beardtung.
Penstemon acuminatus.
Penstemon angustifolius Pursh. (R).
Prairies and high plains. Scattered in west two-thirds (14 counties) (map 1034). Hemicryptophyte.
- Penstemon cobaea* Nutt. Beardtung.
Rocky prairies. East six-tenths (map 1035). Hemicryptophyte.
- Penstemon digitalis* (Sweet) Nutt. Beardtung.
Fields and thickets. East fifth (map 1036). Hemicryptophyte.
- Penstemon fendleri* A. Gray. Beardtung.
High plains. Seward county, in southwest (map 1037). Hemicryptophyte.
- Penstemon grandiflorus* Nutt. Beardtung.
Sandy and rocky prairies. Smoky Hill-Kansas river valley region in east two-thirds (map 1038). Hemicryptophyte.

- Penstemon pallidus* Small. Beardtung.
Only in cultivation. Shawnee county.
- Penstemon tubaeiflorus* Nutt. Beardtung.
Moist prairies and thickets. East third, mostly southeast sixth (map 1039). Hemicytophyte.
- Scrophularia lanceolata* Pursh. Figwort.
Including *Scrophularia occidentalis* Rydb.
Woods. Scattered in east half (map 1040). Hemicytophyte.
- Scrophularia marilandica* L. Figwort.
Including *Scrophularia neglecta* Rydb. (*S. m. f. neglecta* [Rydb.] Pennell.) The type specimen from Riley county (Norton 779 in N. Y. Bot. Gard.).
Woods. East third (map 1041). Hemicytophyte.
- Tomanthera auriculata* (Michx.) Raf. Gerardia.
Otophylla auriculata (R).
Low ground in prairies and thickets. East fourth (map 1042). Therophyte.
- Tomanthera densiflora* (Benth.) Pennell. Gerardia.
Otophylla densiflora (Benth.) (R).
Prairies. East third (map 1043). Therophyte.
- Verbascum blattaria* L. Moth Mullen.
Fields and waste places. Scattered (8 counties) in east half and Sheridan and Hamilton counties (map 1044). Hemicytophyte (biennial).
- Verbascum thapsus* L. Mullen.
Fields and waste places. East three-fifths, but especially east fourth (map 1045). Hemicytophyte (biennial).
- Veronica arvensis* L. Speedwell.
Cultivated and waste ground, overcut lawns, naturalized from Europe. East half (map 1046). Therophyte.
- Veronica connata* Raf. Brooklime.
Veronica catenata Pennell.
Wet places and in water. Scattered in north third (map 1047). Helophyte, hydrophyte. Variety *glaberrima* Pennell in the same territory (map 1047).
- Veronica didyma* Tenore. Speedwell.
Scattered in northeast fourth (map 1048). Therophyte.
- Veronica peregrina* L. Speedwell.
Cultivated and waste ground. East fifth (map 1049). Therophyte.
- Veronica peregrina xalapensis* (H. B. K.) Pennell. Speedwell.
Fields, cultivated and waste ground, more common than the species. Scattered throughout, on the increase (map 1050). Therophyte.
- Veronica triphylos* L.
Waste ground, Junction City, Geary county (map 1051). T. E. Brooks in 1935. First time in United States.
- Veronicastrum virginicum* (L.) Farwell. Culver's Root.
Meadows and thickets. East fourth (map 1052). Hemicytophyte.
The form *villosum* (Raf.) Pennell in Jackson county.

FAMILY BIGNONIACEAE (Bignonia Family)

- Campsis radicans* (L.) Seem. Trumpet Creeper.
Tecoma radicans (L.) Juss. (R).
Woods and thickets, probably native in extreme southeast and escaped elsewhere in southeast Kansas (map 1053). Cultivated in east third, often as the variety *speciosa*. Liana.
- Catalpa bignonioides* Walt. Catalpa.
Only in cultivation. East. Tree.
- Catalpa speciosa* Warder. Catalpa.
Introduced along streams and into waste ground, also cultivated, occasionally escaping (map 1054). Tree.

FAMILY MARTYNIACEAE (Unicorn-plant Family)

- Martynia louisianica* Mill. Devil's Claw.
Proboscidea louisiana (R).
Plains and in cultivated and waste ground eastward. Frequent in west two-thirds, occasionally more eastward (map 1055). Therophyte.

FAMILY OROBANCHACEAE (Broomrape Family)

- Orobanche ludoviciana* Nutt.
Myzorrhiza ludoviciana (R).
Parasite on roots of *Xanthium*, *Artemisia* and other composites, etc., in sandy soil in river flood plains. Scattered, mostly western, Geary and Allen counties in eastern Kansas (map 1056).
- Orobanche uniflora* L. Cancerroot.
Anoplangthus uniflorus (R).
In woods, parasites on tree roots. Sparing in east half (map 1057).

FAMILY LENTIBULARIACEAE (Bladderwort Family)

- Utricularia vulgaris americana* A. Gray. Bladderwort.
Utricularia macrorrhiza LeConte (R).
Pond and shallow streams. Scattered, if suitable habitats, presumably throughout (map 1058). Hydrophyte.

FAMILY ACANTHACEAE (Acanthus Family)

- Dianthera americana* L. Waterwillow.
Marshes and streams. In Kansas river valley and south in east third (map 1059). Helophyte or hemicytophyte.
- Dicliptera brachiata* (Pursh) Spreng.
Low alluvial soil in woods and thickets. Southeast corner counties and Sedgwick and Osage counties (map 1060).
- Ruellia caroliniensis* (Walt.) Steud. Ruellia.
Ruellia ciliosa Pursh (R).
Rocky prairies and thickets (map 1061). Hemicytophyte.
- Ruellia strepens* L. Ruellia.
Rocky open woods and prairies. East third, except north tier (map 1062). Hemicytophyte. A variety *cleistantha* A. Gray in Saline county.

FAMILY PHRYMACEAE (Lopseed Family)

Phryma leptostachya L. Lopseed.
Rocky or alluvial woods and thickets. East half (map 1063). Hemicryptophyte.

FAMILY VERBENACEAE (Verbena Family)

- Callicarpa purpurea* Juss.
Cultivated, seldom spreading. Riley county. Nanophanerophyte.
- Lippia cuneifolia* (Torr.) Steud.
Phylla cuneifolia (R).
Damp places in prairies and plains. West two-thirds, Kansas river to Shawnee county and Cherokee county (map 1064). Hemicryptophyte.
- Lippia lanceolata* recognita Fernald & Griscom.
Phylla lanceolata (R).
Damp or wet places in valleys or prairies. East two-thirds (map 1065). Hemicryptophyte.
- Verbena bipinnatifida* Nutt. Wild Verbena.
Rocky prairies and dry soil on the plains. West three-fourths (map 1066). Hemicryptophyte.
- Verbena bracteata* Lag. & Rodr. Vervain, Verbena.
Verbena bracteosa Michx. (R).
Dry places along roads and on prairie and plains. Throughout (map 1067). Therophyte or hemicryptophyte.
- X *Verbena bracteata* x *hastata*.
McPherson county.
- X *Verbena bracteata* x *stricta*.
McPherson county.
- X *Verbena bracteata* x *urticifolia*.
Open ground. Pottawatomie county.
- Verbena canadensis* (L.) Britton. Wild Verbena.
Including *Verbena drummondii* (Lind.) (R).
Prairies, fields and rocky hillsides. Mostly in east third, but scattering locations in the west (map 1068). Hemicryptophyte.
- Verbena hastata* L. Vervain or Verbena.
Low open woods and thickets, wet prairies, and waste ground. Throughout, except the westernmost counties (map 1069). Hemicryptophyte.
- X *Verbena hastata* x *stricta*.
Barber, Cloud, Elk, Shawnee, Cherokee and Osborne counties.
- X *Verbena hastata* x *urticifolia*.
Scattered, Meade, Crawford and Bourbon counties.
- Verbena simplex* Lehm. Vervain or Verbena.
Verbena angustifolia Michx. (R).
Dry soil. Mostly in southern two-thirds of east third (map 1070). Hemicryptophyte.
- X *Verbena simplex* x *hastata*.
Eastern Kansas (Neosho, Osage, Cherokee, Butler, Lyon, Montgomery and Douglas counties).

- X *Verbena simplex* x *stricta*.
Montgomery county.
- Verbena stricta* Vent. Vervain or Verbena.
Dry soils, valleys, thickets and waste places. Throughout, except southwest corner (map 1071). Hemicryptophyte. Forma *roseiflora* Benke, Concordia, Cloud county, in 1929. Benke 5176 (type in Field Museum). Rhod. 34:10. 1932.
- Verbena urticifolia* L. Nettleleaved Verbena.
Thickets, waste places, and roadsides. East two-thirds (map 1072). Therophyte or hemicryptophyte.
- X *Verbena stricta* x *urticifolia*.
Pottawatomie, Doniphan and Labette counties.
- X *Verbena urticifolia* x *simplex*.
Crawford county (Ross Herbarium).
The shrubs *Vitex agnus castus* L. (Chaste Tree), and *Vitex negundo incisa* Clarke are found only in cultivation.

FAMILY LAMIACEAE⁸ (Mint Family)

- Agastache nepetoides* (L) Ktze. Giant Hyssop.
Woods and thickets. East half and Kiowa and Hamilton counties (map 1073). Hemicryptophyte.
- Agastache scrophulariaefolia* (Willd.) Ktze. Giant Hyssop.
Hillside thickets. Leavenworth county (map 1074). Hemicryptophyte.
- Blephilia ciliata* (L.) Raf.
Woods and thickets. Extreme southeast (Cherokee county) (map 1075). Hemicryptophyte.
- Blephilia hirsuta* (Pursh) Benth.
Rich woods and thickets. Extreme east. Wyandotte, Miami and Leavenworth counties (map 1076). Hemicryptophyte.
- Hedeoma drummondii* Benth.
Hedeoma camporum Rydb. (R).
Arroyos in high plains and ravines, etc. West half (map 1077). Hemicryptophyte.
- Hedeoma hispidum* Pursh.
Rocky and sandy prairies. Throughout, except southwest (map 1078). Therophyte.
- Hedeoma pulegioides* (L.) Pers. American Pennyroyal.
Rocky open woods and thickets. East fourth (map 1079). Therophyte.
- Isanthus brachiatus* (L.) B. S. P. False Pennyroyal.
Rocky prairies and plains. East third, plus Sheridan county (map 1080). Therophyte.
- Lamium amplexicaule* L. Dead Nettle, Henbit.
Waste places and cultivated ground, recently introduced and spreading rapidly in lawns. East half (map 1081). Therophyte.

8. In part checked by Carl Epling.

- Leonurus cardiaca* L. Motherwort.
Fields, roadsides and about dwellings. North half east from Sheridan county and Cherokee county (map 1082). Hemicryptophyte.
- Leonurus sibiricus* L. Motherwort.
Only in cultivation. Clay and Sheridan counties. Hemicryptophyte.
- Lycopus americanus* Muhl. Water Horehound.
Low wet woods and margins of ponds and streams. Throughout (map 1083). Hemicryptophyte or helophyte.
- Lycopus lucidus* Turcz. Water Horehound.
Wet soil, especially in thickets. Marshall, Riley and Miami counties (map 1084). Hemicryptophyte or helophyte.
- Lycopus uniflorus* Michx.
Moist soil. Pottawatomie county (map 1085). Hemicryptophyte.
- Lycopus virginicus* L. Water Horehound, Bugleweed.
Low wet woods and open ground. Northeast fourth (map 1086). Hemicryptophyte.
- Marrubium vulgare* L. Horehound.
Hillsides and waste ground, especially about old dwellings. East four-fifths (map 1087). Hemicryptophyte.
- Melissa officinalis* L. Bee Balm, Lemon Balm.
Waste places, adventive from Europe. Johnson county (map 1088). Hemicryptophyte.
- Mentha arvensis glabrata* (Benth.) Fernald. Horse Mint.
Mentha glabrior (Hook.) Rydb. (R).
Swamps, marshes, along streams and in springy places. East half, plus a xerofitic plant in Hamilton county (map 1089). Hemicryptophyte or helophyte.
- Mentha longifolia* Huds. (See Rhod. 26:175. 1924.)
Mentha sylvestris L.
Escaped from cultivation in Sedgwick county (map 1090).
- Mentha piperita* L. Peppermint.
Probably only in cultivation. Scattered in east third (map 1090). Hemicryptophyte.
- Mentha spicata* L. Spearmint.
Fields and waste places, naturalized from Europe. Cloud county (map 1091). Hemicryptophyte.
- Monarda bradburiana* Beck.
Open rocky woods and thickets. "Kans.," fide Rydberg. Hemicryptophyte.
- Monarda citriodora* Cerv.
Monarda dispersa Small. (R).
Plains and prairies. East three-fourths (map 1092). Therophyte.
- Monarda clinopodioides* A. Gray.
Plains and prairies. South central (map 1093). Therophyte.
- Monarda fistulosa* L. Bergamot.
Dry hillsides and thickets. "Kans.," fide Rydberg. Hemicryptophyte. Herbarium specimens seen are all *Monarda mollis*.

- Monarda menthaefolia* Benth.
Hillsides. Chase, Marion and Jackson counties (map 1094). Hemicryptophyte.
- Monarda mollis* L. Wild Bergamot.
Monarda fistulosa mollis (L.) Benth.
Rocky prairies and thickets. East two-thirds (map 1095). Hemicryptophyte.
- Monarda punctata occidentalis* Epling. (Madrono 3:25. 1935.)
Often identified as *Monarda pectinata* Nutt. from (R). Sandy open ground. Scattered mostly in south central; Shawnee county (map 1096). Hemicryptophyte.
- Nepeta cataria* L. Catnip, Catnep, Cat Mint.
Fields, roadsides, ravines and waste ground, especially about old dwellings. East half, plus northwest fourth (map 1097). Hemicryptophyte.
- Nepeta hederacea parviflora* Benth. Ground Ivy, Gill-over-the-ground.
Glechoma hederacea L.
Waste places, thickets, etc., naturalized from Europe. East third (map 1098). Hemicryptophyte-chamaephyte.
- Perilla frutescens* (L.) Britton. Beefsteak Plant.
Escaped from cultivation along roads, in fields, waste ground and along streams. Eastern, mostly northeast fourth (map 1099). Hemicryptophyte.
- Physostegia formosior* Lunell. False Dragonhead.
Dracocephalum formosius (R).
Lowlands. Wyandotte and Douglas counties (map 1100). Hemicryptophyte.
- Physostegia intermedia* (Nutt.) Engelm. & Gray. False Dragonhead.
Dracocephalum intermedium (R).
Dracocephalum denticulatum Ait. (R) (?).
Prairies. Southeast twelfth (map 1101). Hemicryptophyte.
- Physostegia virginiana* (L.) Benth. False Dragonhead.
Dracocephalum virginianum (R).
Moist soil. East third (map 1102). Hemicryptophyte.
- Physostegia virginiana speciosa* (Sweet) A. Gray. False Dragonhead.
Dracocephalum speciosum (R).
Low ground. "Kans.," fide Rydberg. Hemicryptophyte.
- Prunella vulgaris lanceolata* (Barton) Fernald. Self-heal.
Woods and thickets in wet places. East half, plus Hamilton county (map 1103). Hemicryptophyte.
- Pycnanthemum*⁹ *flexuosum* (Walt.) BSP. Mountain Mint.
Rocky open woods, fields and thickets. East third (map 1104). Hemicryptophyte.
- Pycnanthemum pilosum* Nutt. Mountain Mint.
Prairies and open woods. East fifth (map 1105). Hemicryptophyte.

9. Specimens of *Pycnanthemum* verified by E. Grant, during 1939.

- Pycnanthemum virginianum* (L.) Durand & Jackson. Mountain Mint.
Rocky woods and thickets. Scattered in east fourth (Pottawatomie, Cherokee and Wyandotte counties) (map 1106). Hemicryptophyte.
- Salvia pitcheri* Torr. Pitcher's Sage.
Salvia azurea grandiflora Benth.
Dry prairies and plains. East four-fifths (map 1107). Hemicryptophyte.
- Salvia reflexa* Hornem. Sage.
Salvia lanceolata Willd.
Prairies, plains and waste ground. Throughout (map 1108). Hemicryptophyte.
- Salvia pratensis* L.
In pasture (station now destroyed, Hancin). Saline county. Hemicryptophyte.
- Scutellaria australis* (Fassett) Epl.
Rocky prairies and sandy soil. East half (map 1109).
- Scutellaria drummondii* Benth. Skullcap.
Prairies. "Kans.," fide Rydberg, but not the specimen. Therophyte.
- Scutellaria incana* Spreng. Skullcap.
Scutellaria canescens Nutt.
Woods and thickets. Extreme southeast (Cherokee county) (map 1110). Hemicryptophyte.
- Scutellaria lateriflora* L. Mad-dog Skullcap.
Swamps or along streams. Throughout (map 1111). Hemicryptophyte or helophyte.
- Scutellaria leonardi* Epling. Skullcap.
Scutellaria ambigua (R).
Dry, sandy soil. Northeast fourth and southeast ninth (map 1112). Hemicryptophyte.
- Scutellaria ovata* Hill.
Scutellaria ovata bracteata (Benth.) Epl.
Moist banks. East border and Chautauqua county (map 1113). Hemicryptophyte.
- Scutellaria parvula* Michx. Skullcap.
Rocky prairies. Southeast (Cowley and Wilson counties) (map 1114). Hemicryptophyte.
- Scutellaria resinosa* Torr. Skullcap.
Prairies and plains. North and central part of western half, plus Clay county (map 1115). Hemicryptophyte with a woody caudex.
- Stachys ambigua* Sm.
Swamps. Riley county (map 1115a). Hemicryptophyte. Specimens key to *Stachys pustulosa* in R.
- Stachys annua* L.
Waste places, naturalized from Europe. Shawnee county (map 1116). Therophyte.
- Stachys palustris* L.
Extreme east (Wyandotte county) (map 1117).

- Stachys tenuifolia* Willd. Hedge Nettle.
Moist ground in rich woods, thickets and roadsides. East third, plus Cloud county (map 1118). Hemicryptophyte.
- Teucrium canadense virginicum* (L.) Eaton. (Rhod. 35:395. 1933) Germander, Wood Sage.
Teucrium canadense (R).
Woods, thickets, along streams, etc. East three-fourths (map 1119). Hemicryptophyte.
- Teucrium laciniatum* Torr.
Melosmon laciniatum (R).
Plains. Extreme northwest and southwest. (Cheyenne and Morton counties) (map 1120). Hemicryptophyte.
- Teucrium occidentale* A. Gray. Wood Sage.
Woods and thickets, etc. Wyandotte, Wabaunsee and Hamilton counties (map 1121). Hemicryptophyte.
- Many mints are in cultivation but have not been found as escapes. They include *Coleus blumei* Benth., *Mentha citrata* Ehrh., *Molucella laevis* L., *Ocimum basilicum* L., *Ocimum minimum* L., *Salvia splendens* Ker., and *Satureja hortensis* L. (Molucella, a waif near Salina, in 1939. John Hancin.)

Subclass DICOTYLEDONEAE—CALYCIFLORAE

FAMILY ROSACEAE (Rose Family)

- Agrimonia gryposepala* Wallr. Agrimony.
Rocky open woods and thickets. Elk county (map 1122). Hemicryptophyte.
- Agrimonia parviflora* Ait.
Low open woods, moist thickets, along streams. At least east two-thirds, not so far west in north as south (map 1123). Hemicryptophyte.
- Agrimonia pubescens* Wallr.
Rocky open woods and thickets. East third (map 1124). Hemicryptophyte.
- Agrimonia rostellata* Wallr.
Rocky slopes in woods and thickets. East seventh (map 1125). Hemicryptophyte.
- Cercocarpus montanus* Raf. Mountain Mahogany.
Hills in high plains (map 1126). The flood waters of 1935 spread seeds along the flooding Republican river. Nanophanerophyte.
- Fragaria virginiana* Duchesne. Wild Strawberry.
Prairies. East third (map 1127). Hemicryptophyte.
- Fragaria virginiana illinoensis* (Prince) Gray. Wild Strawberry.
Fragaria grayana Vilmorin (R).
Open places. East half (map 1128). Hemicryptophyte.
- Geum canadense* Jacq.
Rich woods. ?Miami and Washington counties (map 1129). Hemicryptophyte.

- Geum canadense* camporum (Rydb.) Fernald & Weatherby.
Woods and prairies. East four-fifths (map 1130). Hemicryptophyte.
- Geum laciniatum* trichocarpum Fernald. Avens.
Geum virginianum L. (R).
Thickets. East (Anderson and Sedgwick counties) (map 1131).
Hemicryptophyte.
- Geum vernum* (Raf.) T. & G. Early Water Avens.
Moist woods and thickets. Southeast sixth (map 1132). Hemicryptophyte.
- Gillenia stipulata* (Muhl.) Trelease. American Ipecac.
Porteranthus stipulatus (R)
Rocky woods. Extreme southeast (Cherokee county) (map 1133).
Hemicryptophyte.
- Potentilla argentea* L.
Roadsides and waste places. "Kans.," fide Rydberg. Hemicryptophyte.
- Potentilla arguta* Pursh.
Drymocallis agrimonioides (Pursh.) (R).
Prairies and rocky places. East fourth (map 1134). Hemicryptophyte.
- Potentilla nicolletii* (S. Wats.) Sheldon.
Low ground. Riley county (map 1135).
- Potentilla norvegica* hirsuta (Michx.) Lehm.
Potentilla monspeliensis L. (R).
Rich soil and waste places. East half, mostly northern part (map 1136).
- Potentilla paradoxa* Nutt.
Low ground. Northeast (Cloud to Wyandotte counties), plus Hamilton county (map 1137).
- Potentilla rivalis* Nutt.
River valleys. Riley and Wyandotte counties (map 1138).
- Potentilla rivalis* millegrana (Engelm.) Wats.
Potentilla millegrana (R).
Waste places. Sheridan, Cloud and Clay counties (map 1139).
- Potentilla rivalis* pentandra (Engelm.) Wats.
Potentilla pentandra (R).
Bottomland. Riley, Shawnee and Saline counties (map 1140).
Therophyte.
- Potentilla simplex* Michx. Cinquefoil, Five-finger.
Potentilla canadensis L. (R).
Rocky open woods and waste ground. East fourth (map 1141).
- Potentilla sulfurea* Lam.
Waste places. Northeast sixth (map 1142).
- Poteridium annuum* (Nutt.) Spach.
Moist places. Extreme southwest (Morton county) (map 1143).
Therophyte.
- Rosa arkansana* Porter, as now understood is a Rocky Mountain species. A Comanche county specimen, however, somewhat resembles it.

- Rosa blanda* Ait.
Prairies. Scattered in east half (map 1144). Nanophanerophyte.
- Rosa carolina* L. Pasture Rose. ^{EAST}
Hillsides. Extreme southwest (Cherokee county) (map 1145). Nanophanerophyte.
- Rosa carolina* villosa (Best) Rehder.
Rosa lyoni Pursh. (R).
Hillsides. Southeast (Linn and Cherokee counties) (map 1145).
Nanophanerophyte.
- Rosa conjuncta* Rydb.
Hillsides. Extreme east (Linn county) (map 1146). Nanophanerophyte.
- Rosa pimpinellifolia* L.
Escaped from cultivation. Doniphan and Linn counties (map 1146a).
Nanophanerophyte.
- Rosa rubifolia* R. Br.
Thickets. East third (map 1147). Nanophanerophyte.
- Rosa rubiginosa* L. Sweetbrier.
Thickets. Riley and Jackson counties (map 1148).
- Rosa rudiusscula* Greene.
Thickets. Lyon county (map 1149).
- Rosa serrulata* Raf.
Hills. Kearny county (KU) (map 1150). Nanophanerophyte.
- Rosa setigera* Michx. Prairie Rose, Climbing Rose.
Thickets. East seventh (map 1151). Nanophanerophyte.
- Rosa subserulata* according to E. J. Palmer is "common in cherty woods in Jasper county, Missouri, and undoubtedly extends into Cherokee county," Kansas, but no herbarium specimens are known.
- Rosa suffulta* Greene. Prairie Rose.
Prairies and plains. Throughout, but less frequent in southwest (map 1152). Nanophanerophyte. (Most specimens formerly known as *R. arkansana*.)
- Rosa woodsii* Lindl.
Plains. Western (Rawlins and Hamilton counties) (map 1153). Nanophanerophyte.
- Rubus flagellaris* Willd.
Rubus baileyanus Britton.
Rubus plicatifolius Blanchard.
Rubus aboriginum Rydb.
Open woods and thickets. East third (map 1154). Chamaephyte to hemicryptophyte.
- Rubus flagellaris* occidentalis Bailey.
Thickets. Saline county (map 1155).
- Rubus hispida* L.
Damp woods. "Kans.," fide Rydberg. Chamaephyte.
- Rubus laciniatus* Willd.
Cultivated in Cherokee county. Hemicryptophyte.

- Rubus laudatus* Berger. (Probably better considered under *Rubus ostryifolius*.)
Thickets. Saline county (map 1156).
- Rubus nigrobaccus* Bailey.
Thickets. Woodson and Leavenworth counties (map 1157).
- Rubus occidentalis* L. Black Raspberry.
Thickets, etc. East two-thirds (map 1158). Nanophanerophyte.
- Rubus odoratus* L. Flowering Raspberry.
Cultivated, sometimes escaping (Rydb.). Nanophanerophyte.
- Rubus ostryifolius* Rydb. Blackberry.
Rubus argutus Link (R).
Open places. East two-thirds, but mostly east third (map 1159).
Nanophanerophyte.
- Spiraea salicifolia* L. Meadowsweet.
Escaped from cultivation. "Kans.," fide Rydberg but no specimens.
- Spiraea tomentosa* L.
Wet places. "Kans.," fide Rydberg but no specimens.
- Many species of this family are cultivated in Kansas, but have shown no signs of escaping. They include the shrubs *Exochorda racemosa* Kerria japonica, *Physocarpus opulifolius*, *Potentilla fruticosa*, *Rhodotypos kerrioides*, *Rosa* spp., *Rubus* spp., *Sorbaria* spp., and *Spiraea* spp., and the garden strawberry, *Fragaria chiloensis*.

FAMILY MALACEAE (Apple Family)

- Amelanchier canadensis* (L.) Medic. Service Berry, Juneberry.
Rocky woods and thickets. East fourth (map 1160). Microphanerophyte.
- Amelanchier canadensis nuda* Palmer & Steyermark.
Cherokee county (map 1160).
- Amelanchier humilis* Wieg.
Open ground. Rare in east fifth (map 1161). Nanophanerophyte.
- Amelanchier laevis* Wieg.
Damp soil. Northeast (map 1162). Microphanerophyte.
- Crataegus*¹⁰ *calpodendron* (Ehrh.) Medic.
Thickets. East fifth (map 1163). Microphanerophyte.
- Crataegus calpodendron hispidula* (Sarg.) Palmer.
Crataegus hispidula Sarg.
Crataegus spinulosa Sarg.
Thickets. Southeast (map 1164).
- Crataegus calpodendron obesa* (Ashe.) Palmer.
Crataegus globosa Sarg. (R).
Thickets. East fourth, especially southeast (map 1165). Microphanerophyte.
- Crataegus coccinoides* Ashe.
Crataegus disjuncta.
Thickets. Riley and Cherokee counties (map 1166). Microphanerophyte.

- Crataegus collina* Ell.
Crataegus macropoda Sarg.
Crataegus vicina Sarg.
Thickets. Southeastern (map 1167).
- Crataegus crusgalli* L. Cockspur Thorn.
Thickets. East fourth (map 1168). Microphanerophyte.
- Crataegus discolor* Sarg.
Crataegus rubrifolia Sarg.
Thickets. Eastern (Franklin and Cherokee counties) (map 1169).
- Crataegus engelmannii* Sarg.
Crataegus munita Sarg. (R).
Thickets and open woods (map 1170).
- Crataegus lanuginosa* Sarg.
Crataegus dasyphylla Sarg. (R).
Open woods and thickets (map 1171). Microphanerophyte.
- Crataegus mackenzii bracteata* (Sarg.) Palmer.
Crataegus bracteata Sarg. (R).
Rocky open woods. Southeast (map 1172). Microphanerophyte.
- Crataegus mollis* (T. & G.) Scheele.
Crataegus lasiantha Sarg.
Open woods and thickets along streams. East third (map 1173).
Microphanerophyte.
- Crataegus palmeri* Sarg.
Cherokee county (map 1174).
- Crataegus regalis paradoxa* (Sarg.) Palmer.
Prairies and thickets along small streams (map 1175).
- Crataegus stevensiana* Sarg.
Wilson county (map 1176).
- Crataegus succulenta* Schrad. Thornapple.
Crataegus neofluviatilis Ashe.
Thickets. Ellis and Pottawatomie counties (map 1177). Microphanerophyte.
- Crataegus succulenta pertomentosa* (Ashe) Palmer.
Thickets. East third (map 1178).
- Crataegus viridis* L.
Crataegus furcata Sarg.
Thickets. Southeast (map 1179).
- Malus angustifolia* Ait. Crabapple.
Thickets. "Kans.," fide Rydberg.
- Malus coronaria* (L.) Mill. American Crabapple.
Thickets. Eastern (Riley, plus two counties) (map 1180). Microphanerophyte.
- Malus ioensis* (Wood) Bailey. Iowa Crabapple.
Thickets and woods. Northeast sixth, plus Cherokee and Ellsworth counties (map 1181). Microphanerophyte.
- Malus pumila* Mill. Apple.
Malus sylvestris (L.) Mill.
Extensively cultivated. Microphanerophyte.

10. *Crataegus* with the assistance of E. J. Palmer of the Arnold Arboretum.

Pyrus communis L. Pear.

Cultivated, escaping. Saline county.

Sorbus aucuparia L.

Cultivated and escaping in Bourbon county. Phanerophyte.

Among the several cultivated are species of the following genera: Amelanchier, Aronia, Chaenomeles, Crataegus, Cydonia, Malus, Pyrus and Sorbus.

FAMILY PRUNACEAE (Plum Family)

Prunus americana Marsh. Wild Plum.

Thickets, prairies and river banks. East two-thirds and north part of west third (map 1181a). Nano-microphanerophyte.

A few leafy twigs of what seems to be this species but with leaves whose margins suggest elm leaves have been collected in Washington, Ellis and Butler counties. Whether they are a hybrid, diseased plants, or a new form is not now known.

Prunus angustifolia Marsh. Chickasaw Plum.

Including a variety *watsoni* Waugh (*P. watsoni* Sarg.), apparently the common plant in Kansas, and a variety, *varians* Wight & Hedr., a stouter plant with broader leaves, less inclined to be conduplicate, most frequent in the southeastern part of the state.

Thickets, prairies, especially on sandy soils. Triangle between Seward, Jewell and Cherokee counties, plus Sheridan and Cheyenne counties (map 1182). Nanophanerophyte.

Prunus armeniaca L. Apricot.

Cultivated, seedlings occasionally found wild. Saline county.

Prunus besseyi Bailey. Sand Cherry.

Sandhills and prairies. North central sixth (map 1183). Nanophanerophyte.

Prunus cerasus L. Sour Cherry.

Cultivated, infrequently escaping.

Prunus domestica L. Garden Plum.

Cultivated, sometimes persisting after abandonment. The variety *insititia* occurs as seedlings in a ravine near Salina.

Prunus gracilis Engelm. & Gray.

Including *Prunus rugosa* Rydb.

Sandy soil. Kearny, Morton, Saline, and Cowley counties (map 1184). Nanophanerophyte.

Prunus hortulana Bailey. Plum.

Thickets. Southeast sixth to Wyandotte county (map 1185). Microphanerophyte.

Prunus lanata Mack. & Bush. Plum.

Thickets. North half and southeast sixth (map 1186). Microphanerophyte.

Prunus mahaleb L. Mahaleb Cherry.

Cultivated and escaping. Lincoln, Miami, Clay and Lyon counties (map 1187). Microphanerophyte.

Prunus mexicana S. Wats. Bigtree Plum.

Rocky open woods and thickets. Southeast (Wilson, Chautauqua, Montgomery and Labette counties) (map 1188). Microphanerophyte.

Prunus munsoniana Wight & Hedr. Wild Goose Plum.

Thickets and borders of streams. Southeast ninth, plus Rooks county (map 1189). Microphanerophyte.

Prunus orthosepala Koehne. Plum.

X *Prunus angustifolia watsoni* x *Prunus americana*.

Thickets, originating in Ellis county, Kansas. Ellis county (map 1190). Nanophanerophyte.

Prunus persica Batsch. Peach.

Cultivated, escaping in Wallace, Mitchell and Saline counties (map 1191).

Prunus serotina Ehrh. Black Cherry.

Prunus virginiana (R)

Woods. Eastern third (map 1192). Phanerophyte.

X *Prunus slavini* Palmer (*P. gracilis* x *P. angustifolia*).

Hybrid. Harvey and Cowley counties, fide E. J. Palmer (map 1193).

Prunus virginiana L. Chokecherry.

Prunus nana DuRoi. (R).

River banks and rocky woods. East half, especially north half of it (map 1194). Nano-microphanerophyte.

Prunus virginiana melanocarpa (A. Nels.) Sarg. Chokecherry.

Prunus melanocarpa (R).

Hills and river banks. West two-thirds (map 1195). Nano-microphanerophyte.

Species of *Prunus* frequently albeit exclusively in cultivation include: *P. avium* L. (Mazzard), *P. padus* L. (European bird cherry), and *P. triloba* Lindl. (Flowering Almond).

FAMILY MIMOSACEAE (Mimosa Family)

Acacia angustissima hirta (Nutt.) Robinson. Prairie Acacia.

Acaciella hirta (R).

Sandy prairies and plains. Southern border. Chautauqua and Morton counties (map 1196).

Desmanthus illinoensis (Michx.) MacM. Prairie Mimosa, Acuan.

Rocky open ground, thickets and prairies. Throughout, except riverless high plains (map 1197). Hemicyptophyte.

Desmanthus leptolobus T. & G.

Moist prairies. Extreme southwest and scattered in the central (map 1198). Hemicyptophyte.

Prosopis chilensis glandulosa (Torr.) Standley. Mesquite.

Neltuma glandulosa (R).

Plains. Extreme south central (Kiowa county) (map 1199). Nano-microphanerophyte.

Schrankia uncinata Willd. Sensitive Brier.

Leptoglottis nuttallii DC. (R).

Prairies and dry soils. Probably throughout (no specimens from central west and extreme northeastern counties) (map 1200). Hemicyptophyte.

FAMILY CASSIACEAE (Cassia Family)

- Cassia marilandica* L. Senna.
Cassia medsegeri of Shafer, but not Linnaean type (R).
 Thickets and open woods. East two-thirds (map 1201). Therophyte (biennial).
- Cassia occidentalis* L. Coffee Weed.
 Alluvial waste ground. Wyandotte county (map 1202).
- Cassia tora* L.
 Waste ground. Wyandotte county in 1896 (map 1203). Therophyte.
- Cercis canadensis* L. Redbud, Judastree.
 Woods, thickets, hills and along streams. East two-fifths, cultivated farther west (map 1204). Microphanerophyte.
- Chamaecrista fasciculata* (Michx.) Greene. Partridge Pea.
Cassia fasciculata Michx.
 Thickets, rocky hillsides, roadsides and prairies. East two-thirds (map 1205).
- Chamaecrista nictitans* (L.) Moench. Sensitive Pea.
Cassia nictitans L.
 Rocky woods and thickets, fields. Southeast twelfth (map 1206). Therophyte.
- Chamaecrista rostrata* Wooton & Standley.
 Sandy soil. Southwest sixth (map 1206a).
- Gleditsia triacanthos* L. Honey Locust.
 Woods especially along streams and ravines. More and more freely planted. Originally native in the east half, but planted throughout and freely escaping throughout (map 1207). Mesophanerophyte.
- Gleditsia triacanthos* f. *inermis* (Pursh) Fassett. Thornless Honey Locust.
 Woods occasional, but most frequently in cultivation. Throughout. Mesophanerophyte.
- Gymnocladus dioica* (L.) K. Koch. Kentucky Coffeetree.
 Woods, especially along streams. East half (map 1208). Mesophanerophyte.
- Hoffmanseggia densiflora* Benth.
Larrea densiflora (R).
 Plains. Extreme southwest (Morton county) (map 1209). Hemipterophyte.
- Hoffmanseggia jamesii* T. & G.
Larrea jamesii (R).
 Plains. West third, east to Barber county (map 1210). Hemipterophyte.

FAMILY KRAMERIACEAE (Krameria Family)

- Krameria secundiflora* DC.
 Sandy soil. West (Morton and Thomas counties) (map 1211). Hemipterophyte.

FAMILY FABACEAE (Pea or Bean Family)

- Amorpha canescens* Pursh. Lead Plant.
 Rocky open woods, prairies, and plains. East three-fourths to Rawlins county (map 1212). Nanophanerophyte.
- Amorpha fruticosa* L. False Indigo.
 Including the inconstant varieties *angustifolia* Pursh (*A. fragrans* Sweet), its form *latior* Fassett, and *tennesseensis* (Shuttlew.) Palmer.
 Wet ground along streams and about ponds. Very valuable in soil erosion projects. Presumably throughout (map 1213) mostly as the variety *angustifolia*. Nano-microphanerophyte.
- Amorpha nana* Nutt.
 Prairie hillsides. Riley, Wabaunsee, Geary and Rooks counties (map 1214). Nanophanerophyte.
- Amphicarpa bracteata* (L.) Fernald. Hog Peanut.
Amphicarpa comosa (L.) (R).
 Thickets. Cherokee county, plus Cloud and Doniphan counties (map 1215). Hemipterophyte.
- Amphicarpa bracteata comosa* (L.) Fernald. Hog Peanut.
Amphicarpa pitcheri T. & G. (R).
 Moist woods and thickets. East half, plus Sheridan county (map 1216). Hemipterophyte.
- Apios americana* Medic. Groundnut.
Apios tuberosa Moench. (R).
 Thickets along streams. East half, plus Kiowa county (map 1217). Root tuber geophyte. At least some specimens from Pottawatomie, Riley, Saline and Cherokee counties are the variety, *turrigera* Fernald.
- Arachis hypogaea* L. Peanut.
 Escaped from cultivation. Douglas county (KU). Therophyte.
- Astragalus caespitosus* (Nutt.).
Orophaca caespitosa (R).
Astragalus triphyllus Pursh.
 Dry gravelly hills. Extreme central west (map 1218). Hemipterophyte.
- Astragalus canadensis* L. Rattleweed, Milk Vetch.
 Open woods, thickets, prairies and plains. East third, plus northwest fourth (map 1219).
- Astragalus crassicaarpus* Nutt. Ground Plum.
Geoprimum crassicaarpus (R).
 Prairie and plain. Throughout (map 1220). Hemipterophyte.
- Astragalus distortus* T. & G. Milk Vetch.
Holcophacos distortus (R).
 Rocky prairies. Extreme east (Cherokee and Miami counties) (map 1221). Hemipterophyte.
- Astragalus flexuosus* Dougl.
Pisophaca flexuosa (R).
 Dry plains. South central (Harper county) (map 1222). Hemipterophyte.

- Astragalus gracilis* Nutt. Milk Vetch.
Microphacos gracilis (R).
Plains. West half (map 1223). Hemicryptophyte.
- Astragalus gracilis parviflorus* (Pursh) F. C. Gates. Milk Vetch.
Microphacos parviflorus (R).
Plains. Third fourth west, or Graham to Barber counties (map 1224).
Hemicryptophyte.
- Astragalus leptocarpus* T. & G.
Hamosa leptocarpus (R).
Dry soil. "Kans. (?)," fide Rydberg. Therophyte.
- Astragalus longifolius* (Pursh.) Rydb. Rattlepod.
Phaca longifolia (R).
Sandhills. West (Finney and Hamilton counties) (map 1225). Hemicryptophyte.
- Astragalus lotiflorus* Hook.
Batidophaca lotiflorus (R).
Plains and prairies. West three-fourths, plus Woodson county (map 1226). Hemicryptophyte.
- Astragalus lotiflorus cretaceus* (Buckl.) F. C. Gates.
Batidophaca cretacea (R).
Prairies. Central (map 1227).
- Astragalus lotiflorus nebraskensis* Bates.
Batidophaca nebraskensis (R).
Plains. Trego, Rooks and Osborne counties to Scott county (map 1228). Hemicryptophyte.
- Astragalus missouriensis* Nutt. Speedpod.
Xylophacos missouriensis (R).
Plains and prairie hills. Mostly west half, but east to Riley county (map 1229). Hemicryptophyte.
- Astragalus mollissimus* Torr. Woolly Locoweed.
Prairies and plains. West half (map 1230). Hemicryptophyte.
- Astragalus pectinatus* Hook. Milk Vetch.
Cnemidophacos pectinatus (R).
Dry plains. West third (map 1231). Hemicryptophyte.
- Astragalus plattensis* Nutt. Ground Plum.
Geoprimum plattensis (R).
Prairies and plains. Scattered, but more northward (map 1232).
Hemicryptophyte.
- Astragalus racemosus* Pursh.
Tium racemosum (R).
Plains and hills. West half to Cloud county (map 1233). Hemicryptophyte.
- Astragalus mexicanus trichocalyx* (Nutt.) Fernald. (Rhod. 39:317. 1937.)
Ground Plum.
Geoprimum trichocalyx (R).
Prairies. "Kans.," fide Rydberg. Southeastern. Hemicryptophyte.

- X *Baptisia*¹¹ *bicolor* Greenman & Larisey (*B. minor* x *B. leucophaea*.) Hybrid Wild Indigo.
Rocky prairies. At least Riley and Saline counties (map 1234c).
Hemicryptophyte.
- Baptisia leucantha* T. & G. Wild Indigo.
Rich prairies. East fourth (map 1234a). Hemicryptophyte.
- Baptisia leucophaea* Nutt. Wild Indigo.
Baptisia bracteata (G.), (B. & B.).
Rocky prairies and open woods. East half, except northwest corner of half (map 1234b). Hemicryptophyte.
- Baptisia minor* Lehm. Wild Indigo.
Baptisia australis minor (Lehm.) Fernald.
Baptisia vespertina Small in R.
Rocky prairies. East two-thirds, except northwestwards (map 1234).
- Cicer arietinum* L. Chick Pea.
In cultivation, occasionally escaping. Riley and Sheridan counties.
- Crotalaria sagittalis* L. Rattlebox.
Dry or sandy soil. East half, plus Hamilton and Seward counties (map 1235). Therophyte.
- Dalea alopecuroides* Willd.
Parosela alopecuroides (Willd.) Rydb. (R).
Parosela dalea (L.) Britton.
Prairies in sandy ground and along rivers. Scattered in east two-thirds (map 1236). Therophyte.
- Dalea aurea* Nutt.
Parosela aurea (R).
Plains and hills. West four-fifths (map 1237). ?Hemicryptophyte.
- Dalea enneandra* Nutt.
Parosela enneandra (Nutt.) Britton.
Prairies and plains, often abundant. West two-thirds, seldom more eastward (map 1238). Hemicryptophyte.
- Dalea jamesii* T. & G.
Parosela jamesii (R).
Dry plains. Southwest (Stanton and Morton counties) (map 1239).
?Hemicryptophyte.
- Dalea lanata* Spreng.
Parosela lanata (R).
Dry soil of high plains. Southwest (Hamilton to Barber counties) (map 1240). ?Hemicryptophyte.
- Dalea nana* Torr.
Parosela nana (R).
Dry soil in plains. Southwest (Hamilton, Finney to Comanche counties) (map 1241). Hemicryptophyte.
- Desmodium acuminatum* (Michx.) DC. Beggar's Lice, Beggar's Ticks.
Desmodium grandiflorum (G).
Meibomia acuminata (R).
Rocky woods, and hillsides. East half and ? Hamilton county (map 1242). Hemicryptophyte.

11. Specimens of *Baptisia* checked by Maxine Larisey in 1938.

- Desmodium bracteosum (Michx.) DC.
Meibomia bracteosa (R).
Dry open woods and thickets. Douglas county (map 1243). Hemipterophyte.
- Desmodium bracteosum longifolium (T. & G.) Robinson.
Meibomia longifolia (R).
Dry open woods and thickets. East third (map 1244). Hemipterophyte.
- Desmodium canadense (L.) DC. Ticktrefoil.
Meibomia canadensis (R).
Prairies, rocky hillsides and woods. East third, plus Comanche county (map 1245). Hemipterophyte.
- Desmodium canescens (L.) DC.
Meibomia canescens (R).
Moist ground in thickets and borders of woods. East half (map 1246). Hemipterophyte.
- Desmodium canescens hirsutum (Hook.) Robinson.
Rocky thickets and woods. Atchison, Leavenworth and Greenwood counties (map 1247). Hemipterophyte.
- Desmodium dillenii Darl.
Meibomia dillenii (R).
Rocky open woods and thickets. East third (map 1248). Hemipterophyte.
- Desmodium illinoense Gray. Ticktrefoil.
Meibomia illinoensis (R).
Prairies and rocky open woods. About east four-fifths (map 1249). Hemipterophyte.
- Desmodium nudiflorum (L.) DC. Ticktrefoil.
Meibomia nudiflora (R). Ticktrefoil.
Rocky woods. "Kans.," fide Rydberg.
- Desmodium paniculatum (L.) DC.
Meibomia paniculata (R).
Including v. *pubens* (T. & G.) (*M. pubens* [T. & G.] Rydb.).
Woods and thickets. East half (map 1250). Hemipterophyte.
- Desmodium pauciflorum (Nutt.) DC.
Meibomia pauciflora (R).
Rich woods or thickets. "Kans.," fide Rydberg. Hemipterophyte.
- Desmodium rigidum (Ell.) DC.
Meibomia rigida (R).
Rocky and sandy woods and prairies. Chautauqua county (map 1251). Hemipterophyte.
- Desmodium sessilifolium (Torr.) T. & G.
Meibomia sessilifolia (R).
Rocky open woods, thickets and prairies. East half, plus Hamilton county (map 1252). Hemipterophyte.
- Galactia regularis (L.) BSP. Milk Pea.
Woods and thickets along streams. Chautauqua county (map 1253).

- Galactia volubilis mississippiensis Vail. Milk Pea.
Galactia mississippiensis (R).
Rocky or sandy woods and hillsides. Extreme southeast (Cherokee county) (map 1254).
- Galega officinalis L.
"Escaped from cultivation—Kans.," fide Rydberg.
- Glycyrrhiza lepidota (Nutt.) Pursh. Liquorice.
River valleys, prairies, waste ground. Presumably throughout (map 1255).
- Indigofera leptosepala Nutt. Indigo Plant.
Dry soil. Extreme southern (Harper to Clark counties) and Rawlins and Shawnee counties (map 1256).
- Lathyrus incanus (Smith and Rydb.) Rydb. Vetchling.
Dry sandy plains. Northwest (Cheyenne and Logan counties) (map 1257).
- Lathyrus latifolius L.
Recently escaped along fence row in Leavenworth county.
- Lathyrus pusillus Ell. Vetchling.
Rocky open woods and ravines. Southeast (Montgomery to Cherokee counties) (map 1258). Therophyte.
- Lathyrus stipulaceus (Pursh) Butters & St. John. Vetchling.
Prairies and plains. Northwest, plus Riley and Geary counties (map 1259).
- Lathyrus venosus Muhl. presumably the var. *intonus* Butters and St. John.
Bushy Vetch.
"Kans.," fide Rydberg, no specimens seen.
- Lespedeza capitata Michx.
Rocky and sandy prairies and open woods. West two-thirds, plus Hamilton county (map 1260). Hemipterophyte.
- Lespedeza hirta (L.) Hornem. Hairy Bush Clover.
Rocky open woods and thickets. Extreme southeast (Cherokee county) (map 1261). Hemipterophyte.
- Lespedeza intermedia (Wats.) Britton. (Rhod. 26:29. 1924.)
Lespedeza frutescens (L.) (R).
Rocky open woods and thickets. Linn and Wyandotte counties (map 1262). Hemipterophyte.
- Lespedeza manniana Mack. & Bush.
Barrens or open rocky woods. Pottawatomie county (map 1263). Hemipterophyte.
- Lespedeza nuttallii Darl.
Rocky thickets. Chase and Shawnee counties (map 1264). Hemipterophyte.
- Lespedeza procumbens Michx. Bush Clover.
Dry rocky woods. Chautauqua county (map 1265).
- Lespedeza repens (L.) Bart. Bush Clover.
Rocky or sandy open woods. East third (map 1266). Hemipterophyte.

- Lespedeza striata* (Thunb.) H. & A. Japan Clover.
Cultivated and escaped along roads and in rocky open woods. East third (map 1267). Therophyte.
- Lespedeza stuvei* Nutt.
Dry open woods, thickets and prairies. Southeast fourth (map 1268). Hemipterophyte.
- Lespedeza violacea* (L.) Pers. Bush Clover.
Rocky or dry open woods, thickets, and rocky prairies. East third (map 1269).
- Lespedeza virginica* (L.) Britton. Bush Clover.
Rocky or dry open woods, thickets and prairies. Southeast fourth, plus Wyandotte and Dickinson counties (map 1270).
- Lotus americanus* (Nutt.) Bisch.
Acmispon americanus (R).
Hosackia americanus (Nutt.) Piper (G), (B. & B.).
Prairies, especially in sandy soil. Central and eastern Kansas, east and west of the flint hills region, south of glaciated area (map 1271). Therophyte.
- Lupinus plattensis* S. Wats. Lupine.
Plains and hills. "Kans.," fide Rydberg. Hemipterophyte.
- Lupinus pusillus* Pursh. Low Lupine.
Plains, especially in sandy places. West third (map 1272). Therophyte.
- Medicago lupulina* L. Nonesuch, Black Medick.
Lawns, fields and waste places. East three-fourths, spreading in recent years (map 1273). Therophyte.
- Medicago sativa* L. Alfalfa.
Commonly cultivated and escaping. Throughout (map 1274). Hemipterophyte.
- Melilotus alba* Desf. White Sweetclover.
Roadsides, railways, fields, and waste places. Presumably throughout (map 1275). Therophyte (biennial).
- Melilotus officinalis* (L.) Lam. Yellow Sweetclover.
Roadsides, fields and waste places. At least east four-fifths (map 1276). Therophyte (biennial).
- Oxytropis lambertii* Pursh. Stemless Loco, Locoweed.
Including *Oxytropis involuta* (A. Nelson). (R.) and Kansas specimens labeled *Oxytropis dispar* (A. Nels.) and *Oxytropis pinetorum* (Heller).
Oxytropis plattensis Nutt.
Plains and prairies. West three-fourths (map 1277). Hemipterophyte.
- Petalostemum candidum* Michx. White Prairie Clover.
Prairies and rocky hillsides. Just over east half plus Seward county (map 1278). Hemipterophyte.
- Petalostemum compactum* (Spreng.) Swezey. Prairie Clover.
Sand hills on the plains. Southwest (Grant and Stevens counties) (map 1279). Hemipterophyte.
- Petalostemum multiflorum* Nutt. Prairie Clover.
Rocky prairies and plains. Essentially throughout (map 1280). Hemipterophyte.

- Petalostemum occidentale* (Gray) Fernald. (Rhodora 39:28. 1937.) Prairie Clover.
Petalostemum oligophyllum (Torr.) Rydb.
Prairies, plains and canyons. Essentially throughout (map 1281). Hemipterophyte.
- Petalostemum porterianum* Small. Prairie Clover.
Plains. Morton and Stevens counties in southwest and apparently also Edwards and Saline counties (map 1282). Hemipterophyte.
- Petalostemum pulcherrimum* A. Heller. Prairie Clover.
"Kans.," fide Rydberg, but specimen is from northeastern Oklahoma.
- Petalostemum purpureum* (Vent.) Rydb. Prairie Clover.
Prairies, plains and hills. Probably throughout, but infrequent in west fifth (map 1283). Hemipterophyte. A few northwestern specimens (Cheyenne, Decatur, Thomas and Sheridan counties) suggest *P. molle* Rydb. and several eastern specimens (Saline to Marshall to Wyandotte counties) (map 1283a) are f. *pubescens* (Gray) Fassett.
- Petalostemum stansfieldii* Small. Prairie Clover.
Plains. (Finney county) (map 1284). Hemipterophyte.
- Petalostemum tenuifolium* A. Gray. Prairie Clover.
Plains. Southwest (Hamilton and Morton counties) (map 1285). Hemipterophyte.
- Petalostemum tenue* (Coul.) A. Heller. Prairie Clover.
Dry soil. "Kans.," fide Rydberg. Hemipterophyte.
- Petalostemum villosum* Nutt. Prairie Clover.
Sandy hills, railway ballast eastward. North central and southwest and south central, plus Wyandotte county (RR) (map 1286). Hemipterophyte.
- Psoralea argophylla* Pursh. Psoralea.
Psoralidium argophyllum (R).
Prairies and plains. Essentially throughout, less frequent in southwest and extreme southeast (map 1287). Hemipterophyte.
- Psoralea cuspidata* Pursh.
Pediomelum cuspidatum (R).
Sandy soil. West half (map 1288). ?Hemipterophyte.
- Psoralea digitata* Nutt.
Psoralidium digitatum (R).
Sandy prairies and plains. Southwest and south central sixths plus Wyandotte county (RR) (map 1289). Hemipterophyte.
- Psoralea esculenta* Pursh. Pomme de Prairie, Pomme Blanche, Indian Breadroot.
Pediomelum esculentum (R).
Prairies and plains. Throughout, except southwest and northeast glaciated area (map 1290). Geophyte.
- Psoralea floribunda* Nutt.
Psoralidium floribundum (R).
Prairies and valleys. East half, plus Logan county (map 1291). Hemipterophyte.
- Psoralea hypogaea* Nutt. Small Indian Breadroot.
Pediomelum hypogaeum (R).
High plains. Finney county (map 1291a). Geophyte.

- Psoralea lanceolata* Pursh.
Including *Psoralea micranthum* A. Gray.
Psoralidium lanceolatum and *Psoralidium micranthum* (R).
Sandy plains. Irregularly nearly throughout (map 1292). Hemipterophyte.
- Psoralea linearifolia* T. & G.
Psoralidium linearifolium (R).
Plains and hills. West third (map 1293). Hemipterophyte.
- Psoralea psoraloides eglandulosa* (Ell.) Freeman. (Rhod. 39:426. 1937.)
Psoralea pedunculata (Mill.) Vail.
Orbevilum pedunculatum (R).
Open rocky woods and prairies. Extreme southeast (Cherokee county) (map 1294).
- Psoralea tenuiflora* Pursh.
Psoralidium tenuiflorum (R).
Prairies and plains. Throughout, but commoner in west two-thirds (map 1295). Hemipterophyte.
- Robinia hispida* L. Rose or Bristly Acacia or Locust.
In cultivation, seldom escaping. Riley county (cult.), Atchison and Douglas counties (escaped) (map 1296). Nanophanerophyte.
- Robinia pseudoacacia* L. Black Locust.
Naturalized and frequently planted. Throughout, but less frequent westward (map 1297). Mesophanerophyte.
- Sesban macrocarpa* Muhl.
Escaped from cultivation. Riley and Wyandotte counties (map 1298). Therophyte.
- Sophora sericea* Nutt. Silky Sophora.
Dry prairies and plains. Mostly west half, but east to Saline and Woodson counties (map 1299). Hemipterophyte.
- Strophostyles helvola* (L.) Britton. Wild Bean.
Sandy and rocky woods and thickets. East half approximately and west to Kiowa county in the south (map 1300). Vine.
- Strophostyles helvola missouriensis* (Wats.) Britton. Wild Bean.
Strophostyles missouriensis (R).
Moist alluvial and sandy woods and thickets. Northeast sixth (map 1301). Also Crawford county. Vine.
- Strophostyles leiosperma* (T. & G.) Piper. Wild Bean.
Sandy soil and on river banks. Throughout, except perhaps the north-west corner (map 1302). Vine.
- Stylosanthes biflora* (L.) BSP. Pencil Flower.
Rocky open woods or sandy soil. Southeast twelfth (map 1303). Hemipterophyte.
- Tephrosia leucosericea* (Rydb.) Cory.
Cracca leucosericea Rydb.
Sandy or rocky open woods and prairies. Central third (Clay to Kiowa to Chautauqua counties) (map 1304).
- Tephrosia virginiana* (L.) Pers. Catgut, Goat's Rue.
Cracca virginiana L. (R).
Rocky open woods and prairies. East third (map 1305).

- Thermopsis rhombifolia* (Nutt.) Richards.
Sandy places. "Kans.," (NW) fide B. & B. 2d. Hemipterophyte.
- Trifolium aureum* Poll. Yello Clover.
Fields and waste places, naturalized from Europe. "Kans.," fide Rydberg.
- Trifolium carolinianum* Michx.
Rocky ravines and waste places. Extreme southeast (Cherokee county) (map 1306). Hemipterophyte.
- Trifolium dubium* Sibth. Little Hop Clover.
Waste places, naturalized from Europe. Neosho county (map 1307).
- Trifolium hybridum* L. Alsike Clover.
Roadsides and waste ground. Escaped from cultivation. East third (map 1308).
- Trifolium incarnatum* L. Crimson Clover.
Fields and waste ground. In cultivation, rare. Therophyte.
(*Trifolium medium* L. Zigzag Clover.
Adventive from Europe. Credited to Kansas in Rydberg, but specimens seen all *Trifolium pratense*. Hemipterophyte.)
- Trifolium pratense* L. Red Clover.
Fields, meadows, roadsides and waste ground. East half, plus Ellis and Sheridan counties (map 1309). Introduced. Hemipterophyte.
- Trifolium procumbens* L. Low Hop Clover.
Fields and waste places, naturalized from Europe. Cowley and Cherokee counties (map 1310).
- Trifolium reflexum* L. Buffalo Clover.
Waste rocky ground. Extreme southeast (Cherokee county) (map 1311). Therophyte.
- Trifolium reflexum glabrum* Lojacono.
Waste rocky ground. East fourth, plus Republic county (map 1311).
- Trifolium repens* L. White or Dutch Clover.
Lawns, fields and waste places. Mostly east half (map 1312). Introduced. Hemipterophyte.
- Trifolium resupinatum* L.
Introduced in Riley and Saline counties (map 1313).
- Trifolium stoloniferum* Muhl. Running Buffalo Clover.
Open woods and prairies. Miami county Oyster 1513, Linn county (map 1314).
- Vicia americana* Muhl. Vetch.
Open woods and thickets. East half (map 1315). Hemipterophyte.
- Vicia caroliniana* Walt. Vetch.
Open woods and river banks. "Kans.," fide Rydberg. Vine.
- Vicia ludoviciana* Nutt. Vetch.
Open rocky woods and along rivers. "Kans.," fide Rydberg. Vine.
- Vicia oregana* Nutt. Vetch.
Meadows. Except the southeast sixth (map 1316). Vine.
- Vicia sativa* L. Spring Vetch.
Escaped from cultivation. Wyandotte county (map 1317). Therophyte.

Vicia sparsifolia Nutt. Vetch.

Prairies and plains. Scattered (map 1318). Hemipterophyte

Vicia trifida Dietr. (? really *V. oregana* form?) Vetch.

Wet meadows. Cloud, Rooks and Logan counties. Hemipterophyte.

Vicia villosa Roth. Winter Vetch.

Fields and waste places, escaped from cultivation. Scattered in east third (map 1319). Therophyte. (Sometimes mistaken for *V. cracca* L.)

Among the many legumes most frequently in cultivation in Kansas are:

TREES: *Cladrastis lutea* (Michx. f.) Koch, American Yellowwood; *Sophora japonica* L., Pagodatree.

SHRUBS: *Caragana arborescens* Lam., Siberian Pea; *Colutea arborescens* L., Bladder Senna; *Cytisus capitatus*, Scotch Broom; *Lespedeza formosa* Koehne; *Lespedeza japonica* Bailey; *Robinia viscosa* Vent. Clammy Locust.

LIANAS: *Pueraria thunbergiana* Benth., Kudzu Vine; *Wisteria frutescens* (L.) Poir and *Wisteria macrostachya* Nutt., Wisteria.

VINES: *Canavalia ensiformis* DC., Jack Bean; *Dolichos lablab* L., Hyacinth Bean; *Glycine max* (L.) Merr., Soy Bean; *Mucuna* sp.; *Phaseolus vulgaris* and other species, Beans; *Pisum sativum* L., Garden Pea; *Vicia* spp., Vetch; *Vigna sesquipedalis* W. F. Wight, Asparagus or Yardlong Bean; *Vigna sinensis* (L.) Endl., Cowpea.

HERBS: *Hedysarum boreale* Nutt.

FAMILY SAXIFRAGACEAE (Saxifrage Family)

Heuchera richardsonii grayana Rosendahl, Butters & Lakela. Alumroot.

Heuchera hispida Pursh. (R).

Rocky open woods. East fifth (map 1320). Hemipterophyte.

FAMILY HYDRANGEACEAE (Hydrangea Family)

Shrubs including *Itea virginica* L. and various species of *Hydrangea* and *Philadelphus* (mock orange) are found only in cultivation.

FAMILY GROSSULARIACEAE (Gooseberry Family)

Ribes missouriense Nutt. Missouri Gooseberry.

Grossularia missouriensis (R).

Woodlands along streams. East half to Osborne county (map 1321). Nanophanerophyte.

Ribes odoratum Wendl. Flowering Currant.

Chryso botrya odorata (R).

At least west four-fifths, introduced eastwards (map 1322). Nanophanerophyte.

Additional species of *Ribes* in cultivation include *Ribes americanum* Mill., *Ribes grossularia* L., *Ribes nigrum* L., and *Ribes sativum* Syme.

FAMILY CRASSULACEAE (Orpine Family)

Penthorum sedoides L. Ditch Stonecrop.

Ditches and swamps and low wet woods. East half and Rooks county (map 1323). Hemipterophyte. A peculiar form in Geary county.

Sedum nuttallianum Raf. Stonecrop.

Dry ground. Southeast (Chautauqua and Montgomery counties) (map 1324). Therophyte.

Sedum pulchellum Michx. Stonecrop.

Rocky soil. Southeast triangle Linn to Chautauqua counties (map 1325). Therophyte.

Sedum triphyllum (Haw.) S. F. Gray. Stonecrop.

Fields and roadsides. Escaped in Leavenworth and Rooks counties, cultivated elsewhere (map 1326). Hemipterophyte.

FAMILY HAMAMELIDACEAE (Witch Hazel Family)

Occasionally cultivated are the shrub, *Hamamelis virginiana* L., (Witch Hazel) and *Liquidambar styraciflua* L. Sweetgum.

FAMILY PLATANACEAE (Sycamore Family)

Platanus acerifolia Willd. London Planetree.

Occasionally planted as a shade tree. Mesophanerophyte.

Platanus occidentalis L. Sycamore.

Woods and along streams and planted as a shade tree in towns. East half (map 1327). Mesophanerophyte. A Douglas and a Leavenworth county specimen are f. *attenuata* Sarg.

FAMILY LYTHRACEAE (Loosestrife Family)

Ammannia auriculata Willd. Ammania.

Ditches, muddy margins of ponds and slow streams. Scattered in east six-sevenths (map 1328). Therophyte.

Ammannia coccinea Rottb. Toothcup.

Ditches, muddy margins of ponds and slow streams. East six-sevenths (map 1329). Therophyte.

Cuphea petiolata (L.) Koehne. Blue Waxweed.

Hillsides or on dry soil. Southeast (Miami to Labette counties) (map 1330). Therophyte.

Decodon verticillatus (L.) Ell. Swamp Loosestrife.

Swamps. "Kans.," fide Rydberg. Helophyte.

Lythrum alatum Pursh. Winged Loosestrife.

Wet prairies and alluvial margins of ponds and small streams. Probably throughout, except perhaps the northwest (map 1331). Hemipterophyte.

Lythrum lineare L.

Salt meadows. "Kans.," fide Rydberg. Hemipterophyte.

Pepelis diandra Nutt. Water Purslane.

Didiplis diandra (R).

Borders of ponds and ditches or in shallow water. Jackson and Saline counties (map 1332).

Rotala ramosior interior Fernald & Griscom. Toothcup, Rotala.

Wet places. Scattered in east half (map 1333). Therophyte.

FAMILY MELASTOMACEAE (Meadow Beauty Family)

Rhexia interior Pennell. Meadow Beauty.

Moist sandy soil. Extreme southeast (Cherokee county) (map 1334) Hemipterophyte.

FAMILY OENOTHERACEAE (Evening Primrose Family)

- Circaea latifolia* Hill. Enchanter's Nightshade.
Circaea lutetiana L. (R).
Rich woods. East third (map 1335). Hemicyptophyte.
- Epilobium coloratum* Muhl. Willowherb.
Wet ground along streams. Scattered (Northwest, central and north-east) (map 1336). Includes specimens previously recorded as *Epilobium adenocaulon*. Hemicyptophyte.
- Epilobium lineare* Muhl.
Swamps. Scattered, central (map 1337). Hemicyptophyte.
- Epilobium strictum* Muhl.
Wet meadows. "Kans.," fide Rydberg. Hemicyptophyte.
- Gaura biennis* pitcheri T. & G. Butterflyweed.
Prairies. East half and Sherman county (map 1338). Therophyte (biennial). The species is credited to Kansas in Rydb., but all the specimens seen are easily referable to the variety.
- Gaura coccinea* Nutt. Butterflyweed.
Plains and prairie. West two-thirds (map 1339). Therophyte (biennial).
- Gaura coccinea* glabra (Lehm.) Munz.
Gaura glabra (R).
Dry plains and prairies. West fourth (map 1340).
- Gaura coccinea* parvifolia (Torr.) Rickett.
Gaura parvifolia (R).
Dry hills and plains. West half (map 1341). Hemicyptophyte.
- Gaura michauxii* Spach.
Dry fields. "Kans.," fide Rydberg.
- Gaura parviflora* Dougl. Butterflyweed.
Dry plains and prairies. Probably throughout, except perhaps south-east (map 1342). Therophyte (biennial).
- Gaura sinuata* Nutt.
Dry soil. "Kans.," fide Rydberg.
- Gaura villosa* Torr.
Plains and prairies. Southwest sixth (map 1343).
- Jussiaea diffusa* Forsk. Floating Primrosewillow.
Shallow water and on muddy banks. South two-thirds of east half (map 1344). Usually helophyte.
- Ludwigia alternifolia* L. False Loosestrife, Seedbox.
Swamps and shallow water. East half (map 1345). Helophyte (or hemicyptophyte).
- Ludwigia glandulosa* Walt.
Swamps. Extreme southeast (Cherokee county) (map 1346). Helophyte (or hemicyptophyte).
- Ludwigia natans stipitata* Fern.
Swamps. Southern (Cowley county) (map 1346a on Plate 80).
- Ludwigia palustris americana* (DC.) Fernald & Griscom. Marsh Purslane.
Isardia palustris (R).
Borders of slow streams, ponds and ditches. East two-thirds (map 1347).

- Ludwigia polycarpa* Short & Peter. False Loosestrife.
Swamps. Eastern (Jackson, Cloud and Linn counties) (map 1348). Helophyte (or hemicyptophyte).
- Oenothera albicaulis* Pursh. White Evening Primrose.
Anogra albicaulis (R). Including *Anogra perplexa* Rydb.
Hillsides, plains and in sandy soil. West fourth (map 1349). Therophyte (biennial).
- Oenothera biennis* L. Evening Primrose.
Fields, thickets and waste ground. Throughout (map 1350).
- Oenothera brachycarpa* A. Gray. Evening Primrose.
Megapterium brachycarpum (R).
High plains. Extreme west, Hamilton county (map 1351). Hemicyptophyte.
- Oenothera canescens* Torr.
Gaurella canescens (R).
Plains and prairies. West third and Chautauqua county (map 1352). Hemicyptophyte.
- Oenothera coronopifolia* T. & G. White Evening Primrose.
Anogra coronopifolia (R).
Prairies and plains. Extreme western tier of counties and Harper county (map 1353). Hemicyptophyte.
- Oenothera fremontii* S. Wats. Evening Primrose.
Megapterium fremontii (R).
Plains and prairies. West half (map 1354). Hemicyptophyte.
- Oenothera greggii* A. Gray.
(Flowers like var. *typica* while leaves are var. *lampasana* = *Galpisia interior* Small.)
Plains. Extreme southwest (Morton county) (map 1355). Hemicyptophyte.
- Oenothera hartwegii fendleri* A. Gray.
Galpisia fendleri (R).
Rocky soil. Central (Ellis, Barber and Ford counties) (map 1356). Hemicyptophyte.
- Oenothera hookeri* T. & G. Evening Primrose.
Valleys. Southwest fourth (map 1357).
- Oenothera laciniata* Hill. Evening Primrose.
Fields, prairies, roadsides and waste ground. East two-thirds and northwest (map 1358). Therophyte.
- Oenothera laciniata grandiflora* (Wats.) Robinson. Evening Primrose.
Oenothera grandis (Britton) (R).
Sandy soils of prairies, roadsides and waste ground. West three-fourths (map 1359). Therophyte (biennial).
- Oenothera latifolia* (Rydb.) Munz. White Evening Primrose.
Anogra latifolia (R).
Sandy soil. West two-fifths (map 1360). Hemicyptophyte.
- Oenothera lavandulaefolia* T. & G.
Galpisia lavandulaefolia (R).
Plains and prairies. West half (map 1361). Hemicyptophyte.

- Oenothera linifolia* Nutt. Sundrops.
Peniophyllum linifolium (R).
Prairies, dry soils. Southeast twelfth (map 1362). Therophyte.
- Oenothera missouriensis* Sims. Missouri Evening Primrose.
Megapterium missouriense (R).
Rocky prairies. East two-thirds (map 1363). Hemipterophyte.
- Oenothera missouriensis* f. *elongata* F. C. Gates. (Trans. Kan. Acad. Sci. 42: 137. 1939 (1940)).
Rocky prairie. Geary county (map 1363a). Type (F. C. Gates 18668, Oct. 3, 1935) from Geary county in the herbarium of Kansas State College.
- Oenothera missouriensis incana* Torr.
Megapterium argophyllum R. R. Gates (R).
Dry gravelly hills. Central, especially east central (map 1364). Hemipterophyte.
- Oenothera missouriensis oklahomensis* (Norton) Munz. (Amer. Jour. Bot. 17.)
Megapterium oklahomense (R).
Hillsides and plains. South central (Barber county) (map 1365). Hemipterophyte.
- Oenothera perennis* L. Sundrops.
Kneiffia perennis (R).
Mostly alluvial ground. "Kans.," fide Rydberg.
- Oenothera rhombipetala* Nutt. Evening Primrose.
Sandy prairies. Central (map 1366).
- Oenothera serrulata* Nutt.
Meriolix serrulata (R).
Meriolix intermedia Rydb. (R). (The irregularly larger flowered and/or leaved more eastern plant in Kansas.)
Fields, prairies and plains. Probably throughout, but infrequent in extreme east (map 1367).
- Oenothera serrulata drummondii* T. & G.
Meriolix melanoglottis Rydb. (R).
Dry soil. "Kans.," fide Rydberg, but not north of Texas fide Munz.
- Oenothera serrulata oblanceolata* (Rydb.) F. C. Gates.
Meriolix oblanceolata (R).
Pratt, Kan. (J. N. Rose & Wm. R. Fitch 17156 in U. S. N. M.) and Reno county (map 1368).
- Oenothera spachiana* T. & G. Sundrops.
Kneiffia spachiana (R).
Sandy soil. "Kans.," fide Rydberg.
- Oenothera speciosa* Nutt. White Evening Primrose.
Hartmannia speciosa (R).
Plains and prairies. East two-thirds, plus Sheridan county (map 1369). Therophyte (biennial).
- Oenothera strigosa* (Rydb.) Mack. & Bush. Evening Primrose.
Fields, prairies, waste grounds. Possibly throughout, less frequent towards northwest (map 1370). Therophyte (biennial).

- Oenothera triloba* Nutt.
Lavauxia triloba (R).
Limestone ravines, prairies and waste ground. Scattered in east two-thirds (map 1371). Hemipterophyte.
- Oenothera triloba watsoni* (Britton) F. C. Gates.
Lavauxia watsonii (R).
Plains. Scattered in central (Trego to Wilson counties) (map 1372). Therophyte.
- Stenosiphon linifolius* (Nutt.) Britton.
Dry prairies and plains. Probably throughout (map 1373). Hemipterophyte.

FAMILY HALORAGIDACEAE

- Myriophyllum exalbescens* Fernald. Water Milfoil.
Ponds and slow streams. Northwest (Decatur and Sheridan counties) (map 1374). Hydrophyte. Specimens usually identified as *M. spicatum* L.
- Myriophyllum heterophyllum* Michx. Water Milfoil.
Ponds and slow streams. North central (Trego, Mitchell and Riley counties) (map 1375). Hydrophyte.
- Myriophyllum pinnatum* (Walt.) BSP. Water Milfoil.
Ponds, ditches and muddy shores. Central, scattered (map 1376). Hydrophyte.
- Myriophyllum proserpinacoides* Gill. Water Feather.
In an abandoned spring in Saline county (map 1377). Hydrophyte.
A Chilean species often cultivated in pools and aquaria.

FAMILY ARISTOLOCHIACEAE

- Aristolochia macrophylla* Lam. Dutchman's Pipe.
"Kans.," fide Rydberg. Specimens are all *Aristolochia tomentosa*, however.
- Aristolochia serpentaria* L.
Rich woods. Extreme southeast (Cherokee county) (map 1378). Hemipterophyte.
- Aristolochia tomentosa* Sims. Pipe Vine, Dutchman's Pipe.
Woods. Southeast (Chautauqua to Cherokee counties) (map 1379).
Liana.
- Asarum canadense* L. Wild Ginger.
Rich woods. Wyandotte and Leavenworth counties (map 1380). Hemipterophyte.
- Asarum canadense reflexum* (Bicknell.) Robinson. Wild Ginger.
Rich woods. Extreme east (map 1381). Hemipterophyte.

FAMILY CACTACEAE (Cactus Family)

- Echinocereus caespitosus* Engelm. & Gray. Hedgehog Cactus.
Plains. "Kans.," fide Rydberg. Stem succulent.
- Echinocereus viridiflorus* Engelm. Hedgehog Cactus.
Plains and hills. Southwest three counties (map 1382). Stem succulent.
- Neomamillaria missouriensis* (Sweet) Britton & Rose. Ball or Nipple Cactus.
Plains and hills. Scattered in central to Wabaunsee county (map 1383). Stem succulent.

- Neomamillaria radiosa* (Engelm.) Rydb.
Plains. Edwards and Ellsworth counties (map 1384). Stem succulent.
- Neomamillaria similis* (Engelm.) Britton & Rose.
Plains. Saline and Wilson counties (map 1385). Stem succulent.
- Neomamillaria vivipara* (Nutt.) Britton & Rose.
Plains. West three-fifths (map 1386). Stem succulent.
- Opuntia camanchica* Engelm.
Plains and hillsides. Saline and Sedgwick counties (map 1386a).
Stem succulent.
- Opuntia fragilis* (Nutt.) Haw.
Plains and hills. West half (map 1387). Stem succulent.
- Opuntia humifusa* Raf. Prickly Pear.
Sandy soil. Throughout except the glaciated northeast (map 1388).
Stem succulent.
- Opuntia imbricata* (Haw.) Engelm. Tree Cactus.
Opuntia arborescens Engelm. (B. & B.).
Foothills and plains. Native in Decatur county and often cultivated
in western Kansas (map 1389). Stem succulent.
- Opuntia macrorrhiza* Engelm. Prickly Pear.
Plains and prairies. Scattered (map 1390). Stem succulent.
- Opuntia polyacantha* Haw.
Plains and prairies. West third (and Shawnee county [cult.]) (map
1391). Stem succulent.
- Opuntia tortispina* Engelm.
Hills. Woodson and Saline counties (map 1392). Stem succulent.
- Pediocactus simpsoni* (Engelm.) Britton & Rose.
Mesas and plains. "W. Kans.," fide Rydberg. Stem succulent.

FAMILY LOASACEAE (Loasa Family)

- Mentzelia decapetala* (Pursh) Urban & Gilg. Sand Lily, Nuttallia.
Nuttallia decapetala (R).
Plains and hills. West half (map 1393). ?Therophyte (biennial).
- Mentzelia nuda* (Pursh) T. & G.
Nuttallia nuda (R).
Gravelly hillsides. Southwest (Hamilton and Seward counties) (map
1394).
- Mentzelia oligosperma* Nutt. Stickleaf.
Rocky hillsides. Several counties in east half and a few in west half
(map 1395). Hemicyptophyte.
- Mentzelia stricta* (Osterhout) Stevens ex Jeff. & Little. Sand Lily, Nuttallia.
Nuttallia stricta (R).
Plains and hills. West half (map 1396). Hemicyptophyte.

FAMILY CUCURBITACEAE (Gourd Family)

- Cucurbita foetidissima* H. B. K. Missouri Gourd.
Pepo foetidissima (R).
Plains, prairies, waste ground and along roads and railways. West
four-fifths, plus Leavenworth and Wyandotte counties (map 1397).
Hemicyptophyte with large taproot.

- Cyclanthera dissecta* (T. & W.) Arn.
Woods and thickets. West half (map 1398). Therophytic climber.
- Echinocystis lobata* (Michx.) T. & G. Balsam Apple.
Micrampelis lobata (R).
Alluvial soil. East two-thirds, plus Sheridan county (map 1399).
Therophytic vine.
- Sicyos angulatus* L. Bur or Star Cucumber.
Alluvial woods and thickets. East half (map 1400). Therophytic
vine.
The watermelon (*Citrullus vulgaris* Schrad.), muskmelon (*Cucumis
melo* L.), cucumber (*Cucumis sativus* L.), pumpkin (*Cucurbita pepo* L.),
and the gourd (*Lagenaria vulgaris* Ser.), are often found growing for a
season on dumps, waste ground, along roads and in picnic spots.

FAMILY RHAMNACEAE (Buckthorn Family)

- Ceanothus americanus* L. New Jersey Tea.
Rocky hillside prairies and woods. East third (map 1401). Nano-
phanerophyte.
- Ceanothus ovatus* Desf. New Jersey Tea.
Sandy or rocky hillside prairies and plains. East two-thirds, plus
Morton county (map 1402). Chamae-nanophanerophyte.
- Ceanothus ovatus pubescens* T. & G. New Jersey Tea.
Sandy or rocky hillside prairies. East two-thirds (map 1403).
Chamae-nanophanerophyte.
- Rhamnus caroliniana* Walt. Carolina Buckthorn.
Woods and thickets along streams. "Kans.," fide Rydberg. Nano-
microphanerophyte.
- Rhamnus lanceolata* Pursh. Buckthorn.
Rocky open woods or thickets usually along streams. East half (map
1404). Microphanerophyte.
Cultivated species belonging to this family include the following
shrubs or small trees: *Rhamnus cathartica* L. and *R. frangula*, buck-
thorns, and *Ziziphus jujuba*, the jujube.

FAMILY VITACEAE (Grape Family)

- Ampelopsis cordata* Michx. False Grape.
Open woods, thickets and river banks. East half with scattered
counties in west half (map 1405). High liana.
- Cissus incisa* (Nutt.) Des Moulins.
Rocky ledges and sandy shores. Southeast (Chautauqua county)
(map 1406). ?Therophyte.
- Parthenocissus quinquefolia* (L.) Planch. Virginia Creeper.
Psedera quinquefolia (R).
Open woods, thickets, and rocky hillsides. East half, plus Rush and
Hamilton counties (map 1407). Liana.
- Parthenocissus quinquefolia hirsuta* (Donn.) Planch.
Psedera hirsuta (R).
Rocky open woods and thickets. Scattered in east two-fifths (map
1408). Liana.

- Parthenocissus vitacea* (Knerr) Hitchc.
Psedera vitacea (R).
 Open woods and thickets along streams. Scattered, but mostly east half (map 1409). Liana.
- Vitis aestivalis* Michx. Summer Grape, Wild Grape.
 Thickets and rocky places. Northeast (Brown to Leavenworth counties) (map 1410). Liana.
- Vitis cinerea* Engelm. Winter Grape.
 Alluvial woods and thickets. East two-fifths plus (?) Norton county (map 1411). Liana.
- Vitis cordifolia* Michx. Frost Grape.
 Along streams in woods and thickets. East third (map 1412). Liana.
 A form, some or most of whose leaves are 5-lobed has been collected in Riley and Pottawatomie counties.
- Vitis lincecumii glauca* Munson. Wild Grape.
Vitis bicolor Le Conte.
 Woods and on river banks. Extreme east (map 1413). Liana.
- Vitis longii* Prince. Wild Grape.
 Sandy soil. Southwest fourth, plus Rawlins county (map 1414).
 Nanophanerophyte.
- Vitis rotundifolia* Michx. Muscadin Grape.
Muscadinia rotundifolia (Michx.) (R).
 "Kans.," fide Rydberg, but no Kansas specimens known.
- Vitis vulpina* L. Riverbank Grape.
 Alluvial woods and thickets along streams. Throughout, except probably southwest (map 1415). Liana.

FAMILY CELASTRACEAE (Stafftree Family)

- Celastrus scandens* L. Climbing Bittersweet.
 Woods, thickets and fencerows. East two-thirds (map 1416). Liana.
- Euonymus americanus* L. Strawberrybush.
 Low woods along streams. Coffey county (map 1416a).
- Euonymus atropurpureus* Jacq. Wahoo, Burningbush.
 Woods and thickets along streams. East half (map 1417). Nano-microphanerophyte.
 Species of *Euonymus* in cultivation include: *E. alatus* Reg. (winged spindletree), *E. europaeus* L. (European spindletree), and *E. radicans vegetus* Rehd.

FAMILY ILLICACEAE (Holly Family)

- Ilex decidua* Walt. Holly, Winterberry.
 Low wood and thickets. Southeast twelfth, west to Sumner county (map 1418). Nano-microphanerophyte.

FAMILY STAPHYLEACEAE (Bladdernut Family)

- Staphylea trifolia* L. Bladdernut.
Staphylea trifoliata (R).
 Woods and thickets along streams. East third (map 1419). Nano-microphanerophyte.

FAMILY ELAEAGNACEAE (Oleaster Family)

- Elaeagnus angustifolia* L. Russian Olive.
 Cultivated throughout, but sometimes escaping. Scattered, mostly northern (map 1420). Microphanerophyte.
- Elaeagnus argentea* (Nutt.) A. Nelson. Buffaloberry.
Shepherdia argentea (R).
 River banks. Finney county, cultivated formerly in Riley county (map 1421). Nano-microphanerophyte.

FAMILY SANTALACEAE (Sandalwood Family)

- Comandra pallida* A. DC. Bastard Toadflax.
 Prairies, rocky hillsides and plains. Scattered in northern half, plus Reno and Morton counties (map 1422). Hemicyptophyte, often hemiparasitic (see paper by T. E. Brooks, Trans. Kan. Acad. Sci. 40:65-66. 1937).
- Comandra richardsoniana* Fernald. Bastard Toadflax.
 Dry rocky woods. Northeast twelfth and east sixth (map 1423). Hemicyptophyte, often hemiparasitic.

FAMILY LORANTHACEAE (Mistletoe Family)

- Phoradendron flavescens* (Pursh) Nutt. Mistletoe.
 Parasitic on various trees, especially *Populus* and *Quercus*. Southeast (Montgomery and Cherokee counties) (map 1424). Epiphyte.

FAMILY SAPINDACEAE (Soapberry Family)

- Cardiospermum halicacabum* L. Balloonvine Heartseed.
 Escaped from cultivation. Wyandotte, Republic and Barton counties (map 1425).
- Koelreuteria paniculata* Laxm. Chinese Varnish Tree.
 In cultivation, escaped in Saline county (map 1426). Microphanerophyte.
- Sapindus drummondii* H. & A. Soapberry, Chinaberry.
 Rocky hillsides. Scattered, Riley to Lincoln and Meade to Wilson counties (map 1427). Microphanerophyte.
 Only in cultivation are *Xanthoceras sorbifolia* Bge. and *Koelreuteria bipinnata* Franch. The latter is winter hardy in Geary county only in mild winters.

FAMILY AESCULACEAE (Buckeye Family)

- Aesculus glabra* Willd. Ohio Buckeye.
 Rich woods. Central east (Kansas river valley from Douglas county east) (map 1428). Mesophanerophyte. A tree transplanted from Ohio to near Salina is now giving rise to seedlings along Dry Creek (J. Hancin).
- Aesculus glabra sargentii* Rehder. Western Buckeye.
Aesculus arguta Robinson (R).
 Alluvial soil in woods along streams. Barely east half (map 1429). Nano-microphanerophyte.
 In cultivation only, *Aesculus hippocastanum* L., the Horse Chestnut and *Aesculus octandra* Marsh, a southern buckeye, may seldom be found.

FAMILY ACERACEAE (Maple Family)

- Acer negundo* L. Ashleaved Maple, Boxelder.
Including the inconstant variety *violaceum* Kirch.
Negundo nuttallii (Nieuwl.) (R).
River valleys. Northeast of line between Cheyenne and Sumner counties and cultivated in the southwest (map 1430). Usually microphanerophyte, sometimes mesophanerophyte, very variable in color of twigs and in number of leaflets.
- Acer negundo interius* Sarg. Boxelder.
Negundo interius (Britton) (R).
Along streams. Montgomery and Riley counties (map 1431). Usually microphanerophyte.
- Acer nigrum* Michx. f. Black Maple.
Woods. Extreme east north of Kansas river and cultivated farther west (map 1432). Mesophanerophyte.
- Acer saccharinum* L. Soft Maple, Silver Maple.
Low wet floodland woods and alluvial banks of streams. At least east third and cultivated farther west (map 1433). Mesophanerophyte.
- Acer saccharum* Marsh. Sugar Maple, Hard Maple.
Woods. Extreme east, south of Kansas river (map 1434). Mesophanerophyte.
In cultivation only *Acer ginnala* Maxim (Ginnala maple), *Acer platanooides* L. (Norway maple), *Acer rubrum* L. (Red maple) and *Acer tataricum* L. (Tatarian maple) may be found.

FAMILY ANACARDIACEAE (Sumac Family)

- Rhus aromatica* Ait. Aromatic Sumac.
Rhus crenata (Mill.) Rydb. (R).
Rhus nortoni Greene in part (R).
Sandy soil and rocky woods. Southeast from Wyandotte county to Labette county (map 1435). Nanophanerophyte.
- Rhus copallina* L. Sumac.
Prairies, thickets and open woods. Northeast sixth, plus southeast fourth (map 1436). Nanophanerophyte.
- Rhus glabra* L. Smooth Sumac.
Including *Rhus cismontana* Greene (R).
Dry soil. Except southwest sixth (map 1437). Nanophanerophyte.
- Rhus toxicodendron negundo* (Greene) F. C. Gates. Poison Ivy.
Toxicodendron negundo (R).
Lowland woods and thickets. East half (map 1438). Nanophanerophyte or liana.
- Rhus toxicodendron radicans* (L.) Torr. Poison Ivy.
Toxicodendron radicans (R).
Woods, thickets and river banks. At least east two-thirds (map 1439). Liana.
- Rhus toxicodendron rydbergi* (Small) Garrett. Poison Ivy.
Toxicodendron rydbergi (R).
Rocky hillsides and open woods along streams. West half (map 1440). Nanophanerophyte.

- Rhus trilobata* Nutt. Aromatic Sumac.
Including *Rhus osterhoutii* Rydb. in Ellis and Morton counties.
Hills and plains. West half (map 1441).
- Rhus trilobata serotina* (Greene) Barkley. Aromatic Sumac.
Rocky hillsides. North half and southeast (map 1442). Many specimens of this, together with the one above, have been identified as *Rhus nortoni* (Greene) Rydb.
- Rhus typhina laciniata* wood. Hairy Sumac.
Escaped from cultivation in Sedgwick county (SHC).
Found only in cultivation are *Cotinus coggygria* Scop. (Smoketree) and *Rhus typhina* Torner (Hairy sumac).

FAMILY JUGLANDACEAE (Walnut Family)

- X *Carya brownii* Sarg. (*Carya pecan* x *cordiformis*).
Lowland woods. Chautauqua and Cowley counties (map 1443). Mesophanerophyte.
- Carya cordiformis* (Wang.) K. Koch. Pignut Hickory, Bitternut Hickory, Yellowbud Hickory.
Hicoria cordiformis (Wang.) (B. & B.).
Woods, in moist ground along streams. East third (map 1444). Mesophanerophyte.
- Carya laciniosa* (Michx. f.) Loud. Kingnut, Big Shellbark Hickory.
Rich woods along streams. Southeast of line from Wyandotte to Cowley counties (map 1445). Mesophanerophyte.
- Carya ovalis obovalis* (Marsh.) Sarg. Pignut Hickory.
Carya glabra (Mill.) Spach. (R).
Upland woods. Northeast twelfth (map 1446). Mesophanerophyte.
- Carya ovata* (Mill.) K. Koch. Shagbark Hickory.
Rich woods along streams. East third, but mostly east fourth (map 1447). Mesophanerophyte.
- Carya pecan* (Marsh.) Engel. & Graebn. Pecan.
Along streams and increasingly cultivated. Southeast, cultivated to the north and west (map 1448). Mesophanerophyte.
- Carya tomentosa* Nutt. Mocker Nut, White Hickory.
Carya alba (L.) K. Koch. (R).
Douglas and Cherokee counties (map 1449).
- Carya villosa* Ashe.
Carya buckleyi villosa Sarg.
Dry and rocky upland woods. East fourth south of Kansas river (map 1450). Mesophanerophyte.
- Juglans cinerea* L. Butternut.
Rich woods. "Kans.," fide Rydberg and several others but no specimens. Mesophanerophyte.
- Juglans nigra* L. Black Walnut.
Rich woods and lowlands pushing westward. East two-thirds (map 1451). Mesophanerophyte.

FAMILY BETULACEAE (Birch Family)

- Betula nigra* L. River Birch.
Banks of streams and in swamps. Southeast (Chautauqua and Cherokee counties, cultivated to northwest) (map 1452). Mesophanerophyte.
- Corylus americana* Walt. American Hazelnut.
Woods and thickets. East third (map 1453). Microphanerophyte. Most of the specimens come within the limits of *f. missouriensis* (A. DC.) Fern.
- Corylus cornuta* Marsh. Beaked Hazelnut.
Corylus rostrata Ait.
Thickets. Eastern (Leavenworth and Anderson counties) (map 1454). Microphanerophyte.
- Ostrya virginiana* (Mill.) K. Koch. Ironwood, Hop-hornbeam.
Borders of upland woods to the east and westward in rocky ravines and hillsides. East third (map 1455). Mesophanerophyte. A few glandular hairs on some specimens from Wabaunsee, Pottawatomie and Riley counties suggest *f. glandulosa* (Spach.) Macbr.
- The following are known only in cultivation: *Alnus* spp. (alders), *Betula pendula* Roth. (Weeping birch), *Carpinus caroliniana* Walt. (Bluebeech), *Corylus avellana* L. (Hazel).

FAMILY FAGACEAE (Beech or Oak Family)

- Quercus alba* L. White Oak.
Chiefly upland woods. East sixth, cultivated westward (map 1456). Mesophanerophyte.
- Quercus bicolor* Willd. White Swamp Oak.
Alluvial ground along streams. East (Pottawatomie and Shawnee counties) (map 1457). Mesophanerophyte.
- Quercus borealis maxima* (Marsh.) Ashe. Red Oak.
Quercus maxima (R).
Upland woods and rocky hillsides. At least east third, west to Cloud county (map 1458). Mesophanerophyte.
- X *Quercus bushii* Sarg. (*Quercus marilandica* x *velutina*).
Upland rocky woods. Doniphan county. Mesophanerophyte.
- X *Quercus hillii* Trelease. (*Quercus macrocarpa* x *Quercus muhlenbergii*).
Upland woods. East third (Butler, Douglas, Geary, Pottawatomie, Riley and Saline counties.) Mesophanerophyte.
- Quercus imbricaria* Michx. Shingle Oak.
Upland woods. Kansas river drainage west to Jefferson county, cultivated farther west (map 1459). Mesophanerophyte.
- Quercus macrocarpa* Michx. Bur Oak.
Upland woods and woods along streams. East three-fifths, plus Sheridan county (map 1460). Micro-mesophanerophyte.
- Quercus marilandica* Münch. Blackjack Oak.
Dry or rocky upland woods. East third (map 1461). Microphanerophyte-mesophanerophyte. Var. *ashei* in Riley county.

- Quercus muhlenbergii* Engelm. Muhlenberg Oak, Chinquapin Oak, Yellow Oak.
Upland woods, rocky hillsides, ravines, abundant. East half (map 1462). Mesophanerophyte.
- Quercus palustris* Münch. Pin Oak.
Swampy woods and freely planted as a street tree. Southeastern, but freely cultivated to north and west (map 1463). Mesophanerophyte.
- Quercus prinoides* Willd. Chinquapin or Scrub Chestnut Oak.
Borders of woods and rocky hillsides. East third (map 1464). Nano-microphanerophyte.
- Quercus shumardii* Buckl. Shumard's Oak, Red Oak.
Low or upland woods. Southeast (Linn to Cowley counties) (map 1465). Mesophanerophyte.
- Quercus shumardii schneckii* (Britton) Sarg. Schneck's Oak, Red Oak.
Quercus schneckii Britton (R).
Quercus texana of auth., not Buckl. (R).
Upland woods, bluffs and alluvial soil along streams. Southeast, plus Doniphan county (map 1466). Mesophanerophyte.
- Quercus stellata* Wang. Post Oak.
Upland woods and along small streams. East third, mostly southern half (map 1467). Mesophanerophyte.
- X *Quercus stelloides* Palmer. (Jour. Arnold Arb. 18:140. 1937.)
Quercus prinoides x *Quercus stellata*.
Wilson county. Mesophanerophyte.
- Quercus velutina* Lam. Black Oak.
Upland woods, ravines. East third (map 1468). Mesophanerophyte.
Only in cultivation may be found *Castanea dentata* and *Castanea crenata* (chestnuts), and the following oaks: *Quercus prinus* L., specimens of which for the most part succumbed in the great drought of 1936, and the English oaks, *Quercus robur* L. and *Q. robur pedunculata* A. DC.

FAMILY ARALIACEAE (Ginseng Family)

- Aralia racemosa* L. Sarsaparilla, Spikenard.
Rich wooded hillsides. Northeast (Doniphan and Leavenworth counties) (map 1469). Hemicryptophyte.
Acanthopanax sieboldianus Mak. (*Acanthopanax*) and *Aralia spinosa* L. (Hercules' Club) are in cultivation only.

FAMILY AMMIACEAE (Carrot Family)

- Ammoselinum popei* T. & G. Sand Parsley.
Sandy soil. A specimen collected by Plank in southwest Kansas is in the U. S. Nat. Museum (map 1469a). Therophyte.
- Anethum graveolens* L. Dill.
Cultivated, seldom escaping. Saline and Cloud counties. Therophyte.
- Apium petroselinum* L. Parsley.
Possibly only in cultivation.
- Berula erecta* (Huds.) Coville. Water Parsnip.
Swamps and streams. Mostly central, scattered in western and east thirds (map 1470). Helophyte.

- Bupleurum rotundifolium* L. Thurowax.
Roadside. Escaped in Wilson county in 1890. Therophyte.
- Chaerophyllum procumbens* (L.) Crantz. Wild Chervil.
Including *Chaerophyllum procumbens shortii* T. & G.
Rich or rocky open woods, thickets and open alluvial ground. East half (map 1471). Therophyte.
- Chaerophyllum reflexum* Bush.
Open woods and thickets. Southeast plus Pottawatomie county (map 1472). Therophyte.
- Chaerophyllum texanum* C. & R. Chervil.
Ravines and waste rocky ground. East two-fifths, mostly southeast (map 1473). Therophyte. (Often formerly identified as *C. teinturieri* Hook.)
- Cicuta maculata* L. Cicuta, Cowbane or Water Hemlock.
Swamp, springs and rocky hillsides. East two-thirds and Scott county (map 1474). With root tubers.
- Conium maculatum* L. Poison Hemlock.
Frequently cultivated and freely escaping to waste ground, along roads and even to the prairie. Scattered (map 1475). Therophyte (biennial).
- Cryptotaenia canadensis* (L.) DC. Honeywort, Honewort.
Rocky woods. East third (map 1476). Hemipterophyte.
- Cymopterus acaulis* (Pursh) Rydb.
Arid plains. West half (map 1477). Hemipterophyte.
- Cynosciadium pinnatum* DC.
Wet places. Extreme southeast (Cherokee county) (map 1478). Therophyte.
- Daucus carota* L. Carrot, Queen Anne's Lace.
Much cultivated, escaping to waste places. East third, plus Saline and Sheridan counties (map 1479). Therophyte (biennial).
- Daucus pusillus* Michx.
Rocky prairies. Extreme southeast (Cherokee county) (map 1480). Therophyte.
- Eriogenia bulbosa* (Michx.) Nutt. Harbinger-of-spring.
Rich woods. "Kans.," fide Rydberg. Root tuber geophyte.
- Eryngium leavenworthii* T. & G.
Rocky prairies and hillsides. The flint hill region, spread to north-west in railway ballast (map 1481). Hemipterophyte.
- Eryngium yuccifolium* (yuccaefolium) Michx. Rattlesnakemaster.
Rocky open woods and prairies. East third (map 1482). Hemipterophyte.
- Eryngium planum* L.
Only in cultivation. Riley, Clay and Sheridan counties.
- Eulophus americanus* Nutt.
Rocky open woods. Southeast (Linn to Montgomery counties) (map 1483). Hemipterophyte.
- Falcaria vulgaris* Bernh.
A weed new to Kansas collected by Rudolph Cumro in 1936 in Marshall county (map 1483a).
- Foeniculum vulgare* Gaertn. Fennel.
Probably only in cultivation.
- Heracleum lanatum* Michx. Cow Parsnip.
Moist rich woods and thickets. Northeast (Brown county) (map 1484).
- Lomatium daucifolium* (Nutt.) Coulter & Rose. Whiskbroom Parsley.
Cogswellia daucifolia (Nutt.) M. E. Jones.
Rocky prairies. East two-thirds (map 1485). Hemipterophyte.
- Lomatium orientale* Coulter & Rose. Whiskbroom Parsley.
Cogswellia orientalis (Coulter & Rose) M. E. Jones.
Prairies and plains. West four-fifths, especially northern half of it (map 1486). Hemipterophyte.
- Lomatium villosum* Raf.
Cogswellia villosa (Raf.) Schultes.
Prairies. Northeast sixth (map 1487). Hemipterophyte.
- Osmorhiza claytoni* (Michx.) Clarke. Woolly Sweet Cicely.
Wooded hillsides. Extreme east (Wyandotte county) (map 1488). Hemipterophyte.
- Osmorhiza longistylis* (Torr.) DC. Smooth Sweet Cicely.
Rich woods and thickets. Northeast eighth (map 1489). Hemipterophyte.
- Osmorhiza longistylis villicaulis* Fernald.
Osmorhiza villicaulis (Fernald) (R).
Rich woods and thickets. East third (map 1490). Hemipterophyte.
- Pastinaca sativa* L. Parsnip.
Meadows and waste places, escaped from cultivation. Scattered in east half (map 1491). Therophyte (biennial).
- Phellopteris montanus* Nutt.
Plains. West third (map 1492). Hemipterophyte.
- Pimpinella anisum* L. Anise.
Only in cultivation.
- Polytaenia nuttallii* DC. Prairie Parsley.
Pleiotaenia nuttallii (DC.).
Rocky prairies and open woods. East third, plus Edwards county (map 1493).
- Ptilimnium capillaceum* (Michx.) Raf.
"Kans.," fide Gray's Manual 7th ed., but specimens are the next.
- Ptilimnium nuttallii* (DC.) Britton.
Swamps and depressions in prairie. Southeast five counties (map 1494). Therophyte.
- Sanicula canadensis* L.
Rocky open woods and thickets. Scattered throughout, but mostly east half (map 1495). Hemipterophyte.

- Sanicula gregaria* Bickn. Black Snakeroot.
Rocky open woods and thickets. Scattered in east half (map 1496).
Hemicryptophyte.
- Sanicula marilandica* L. Sanicle, Snakeroot.
Rocky open woods and thickets. Northeast sixth (map 1497). Hemicryptophyte.
- Sium suave* Walt. Water Parsley, Water Parsnip.
Sium cicutaefolium Gmel. (R).
In water or very wet places. Extreme central east (Douglas to Wyandotte counties) (map 1498). Helophyte.
- Spermolepis divaricata* (Walt.) Britton.
Sandy or gravelly prairies. Scattered (Riley to Seward counties) (map 1499). Therophyte.
- Spermolepis echinata* (Nutt.) Heller.
Rocky prairies and gravelly or sandy soil along streams. "Kans.," fide Rydberg. Therophyte.
- Spermolepis patens* (Nutt.) Robinson.
Rocky or sandy prairies. East three-fourths (map 1500). Therophyte.
- Taenidia integerrima* (L.) Drude. Yellow Pimpernel.
Rocky or sandy woods or thickets. East fifth (map 1501). Hemicryptophyte.
- Thaspium barbinode* (Michx.) Nutt.
Rocky open woods along streams. East fourth (map 1502). Hemicryptophyte.
- Thaspium trifoliatum flavum* Blake. Meadow Parsnip.
Thaspium trifoliatum (L.) Gray.
Thickets and rocky prairies. East fourth (map 1503).
- Torilis japonicus* (Houtt.) DC. Hedge Parsley, Hemlock Chervil.
Torilis anthriscus Gmel. (R).
Roadsides and waste ground. Cherokee county (map 1504). Therophyte.
- Zizia aurea* (L.) Kock. Alexanders, Meadow Parsnip.
Rocky woods and thickets. East half (map 1505). Hemicryptophyte.
- FAMILY CORNACEAE (Dogwood Family)
- Cornus asperifolia* Michx. Ruffleaved Dogwood.
Svida asperifolia (R).
Dry rocky hillsides, thickets, open woods and alluvial ground of stream beds. East two-thirds (map 1506). Nano-microphanerophyte.
- Cornus florida* L. Flowering Dogwood.
Cynoxylon floridum (R).
Rocky open woods. Extreme southeast (Cherokee county) (map 1507). Microphanerophyte.
- Cornus instolonea* A. Nels. Dogwood.
Svida instolonea (R).
River banks. At least Douglas county (map 1507a). Nanophanerophyte.

- Cornus interior* Rydb. Dogwood.
Svida interior (R).
River banks. Northeast sixth (map 1508). Nanophanerophyte.
- Cornus obliqua* Raf. Dogwood, Kinnikinnick.
Svida amonum (Mill.) (R).
Thickets, wet prairies along streams. East third (map 1509).
Only in cultivation are the dogwoods: *Cornus alba* and varieties, *C. mas* L., *C. stolonifera* Michx., and *C. stolonifera flaviramea* Rehd.

FAMILY RUBIACEAE (Madder Family)

- Cephalanthus occidentalis* L. Buttonbush.
Borders of streams and ponds and in swamps. East half, plus Barton and Hodgeman counties (map 1510). Nano-microphanerophyte.
- Diodia teres* Walt. Buttonweed.
Sand prairies. East half, especially southern third (map 1511).
Therophyte.
- Galium aparine* L. Bedstraw, Cleavers.
Rich woods, thickets, alluvial and waste ground. Naturalized in east half, plus Rooks, Sheridan and Sherman counties (map 1512). Therophyte.
- Galium aparine vaillantii* (DC.) Koch.
Galium vaillantii (R).
Low ground in thickets. Scattered east and west (map 1513). Therophyte.
- Galium circaezans hypomalacum* Fernald. (Rhod. 30:450. 1937.) Bedstraw, Wild Licorice.
Rocky woods and thickets. East half (map 1514). Hemicryptophyte.
- Galium concinnum* T. & G. Shining Bedstraw.
Hillsides and moist open woods. East of Marshall to Cherokee counties (map 1515). Hemicryptophyte.
- Galium obtusum* Bigelow. Bedstraw.
Galium tinctorium L. (R).
Swamps and low wet woods and thickets. East third (map 1516).
Hemicryptophyte.
- Galium pilosum* Ait. Bedstraw.
Rocky woods and thickets. East third (map 1517). Hemicryptophyte.
- Galium tinctorium* L. Bedstraw.
Galium claytoni Michx. (R).
Marshes and open wet thickets. East fourth (map 1518). Hemicryptophyte.
- Galium triflorum* Michx. Bedstraw.
Moist open woods and thickets (map 1519).
- Galium verum* L. Yellow Bedstraw.
Fields, introduced. Pottawatomie county (map 1520). Hemicryptophyte.

Houstonia angustifolia Michx.

Rocky ledges and prairies. Throughout (map 1521). Hemicryptophyte.

Houstonia minima Beck. Small Bluets.

Prairies, rocky ledges and dry, open woods. Some years in great abundance. East half, scattered (map 1522). Therophyte.

Sherardia arvensis L. Field Madder.

Cultivated and escaping but not established. Ellsworth and Sheridan counties.

Spermacoce glabra Michx. Smooth Buttonweed.

Borders of ponds and streams. Southeast (Labette and Cherokee counties) (map 1523). Hemicryptophyte.

FAMILY CAPRIFOLIACEAE (Honeysuckle Family)

Lonicera dioica glaucescens (Rydb.) Butters.

Lonicera glaucescens (R). Honeysuckle.

Thicket-covered hillsides. Northeastern sixth, plus Sedgwick county (map 1524).

Lonicera japonica Thunb. Japanese Honeysuckle.

Thickets and roadsides sparingly escaped from cultivation. East third (Montgomery and Riley counties) (map 1525). Vine to liana.

Lonicera prolifera (Kirchner) Rehder. Honeysuckle.

Lonicera sullivantii Gray. (G), (B & B).

Wooded bluffs. East (Leavenworth county) (map 1526). Vine.

Sambucus canadensis L. Elder, Elderberry.

Damp soil in woods and thickets. East three-fifths, plus Thomas and Scott counties (map 1527). Nano-microphanerophyte.

Symphoricarpos occidentalis Hook. Wolfberry.

Hillsides, open woods and river banks. West two-thirds of north half and west fourth of south half (map 1528).

Symphoricarpos orbiculatus Moench. Coralberry, Buckbrush.

River banks, prairies bordering woods. East three-fourths (map 1529). Nanophanerophyte.

Triosteum aurantiacum Bicknell. Horse Gentian.

Rich or rocky woods and bluffs. East fourth (map 1530). Hemicryptophyte.

Triosteum perfoliatum L. Horse Gentian.

Thickets. East third (map 1531). Hemicryptophyte.

Viburnum prunifolium L. Black Haw, Viburnum.

Woods, thickets and banks of streams. Southeastern, north to Johnson county, west to Cowley county, cultivated to northwest (map 1532). Microphanerophyte.

Viburnum prunifolium bushii (Ashe) Palmer & Steyermark. Viburnum, Black Haw, Nannyberry.

Woods and along streams. Extreme east (map 1533). Microphanerophyte. Specimens have previously been identified as *V. lentago* which is more eastern.

Viburnum rufidulum Raf. Viburnum, Black Haw.

Rocky woods, thickets and banks of streams. Southeast sixth (plus Phillips county Cult. ?) (map 1534). Microphanerophyte.

The following among those only in cultivation: *Abelia grandiflora*, *Diervilla florida*, *D. japonica*, *Lonicera caprifolium*, *L. flava*, *L. morrowi*, *L. occidentalis*, *L. sempervirens*, *L. siberica*, *L. tatarica* and varieties, *Symphoricarpos albus* and varieties, *S. orbiculatus variegatus*, *Viburnum lantana*, and *V. opulus*.

FAMILY VALERIANACEAE (Valerian Family)

Valerianella amarella (Lindh.) Krok.

Low ground. Extreme central east (map 1535).

Valerianella radiata (L.) DuRoi.

Low ground. Southeast (map 1536). A Chautauqua county specimen suggests *V. missouriensis* Dyal.

Valerianella stenocarpa parviflora Dyal.

Low ground. Southeastern (Wilson county) (map 1537). Therophyte.

FAMILY DIPSACEAE (Teasel Family)

Scabiosa atropurpurea L. Sweet Scabious.

Once escaped from cultivation. Clark county.

FAMILY CAMPANULACEAE

Campanula americana L. Tall Bellflower.

Campanulastrum americanum in (R).

Woods and thickets, especially along streams. East third, plus Ellsworth county (map 1538). Therophyte.

Lobelia appendiculata A. DC.

Cited by Rogers McVaugh from Cherokee county (Melrose, by Rydberg and Imler 242) and Miami county (Paola, by Oyster, July, 1883), *Rhodora* 38:329. 1936. No specimens at Manhattan (map 1539).

Lobelia cardinalis L. Cardinal Flower.

Wet ground along streams. Southeast twelfth (map 1540).

Lobelia halei Small.

A specimen of this species in Mo. Bot. Garden, said to be from Parsons, Labette county, is doubtful as to locality according to McVaugh (*Rhod.* 38:349. 1936).

Lobelia inflata L. Indian Tobacco.

Rocky open woods. East (Shawnee, Miami and Cherokee counties) (map 1541). Therophyte.

Lobelia puberula Michx. = what? in R.

"Kans.," fide Rydberg but not according to McVaugh.

Lobelia siphilitica L. Blue Lobelia.

Borders of ponds and small streams and wet ledges under springs. East four-fifths (map 1542). At least several of those in most parts of central Kansas could be considered var. *ludoviciana* A. DC., but very many specimens are intermediate.

Lobelia spicata hirtella A. Gray. Lobelia.

Prairies and hills. East fourth (map 1543).

- Lobelia spicata leptostachys* (A. DC.) Mackenzie & Bush. *Lobelia*.
Lobelia leptostachys (R).
Prairies. East third (map 1544). Therophyte (biennial).
- Lobelia splendens* Willd. Western Cardinal Flower.
Wet ground along streams, etc. Except extreme east and southwest (map 1545).
- Platycodon grandiflorum* A. DC.
Only in cultivation.
- Specularia biflora* (R. & P.) Fisch. & Mey.
Fields, roadsides and waste ground. Southeast (Chautauqua, Cherokee counties) (map 1546). Therophyte.
- Specularia leptocarpa* (Nutt.) A. Gray. Venus'-Looking-Glass.
Rocky or gravelly prairies and waste ground. East four-fifths (map 1547). Therophyte.
- Specularia perfoliata* (L.) A. DC. Venus'-Looking-Glass.
Hillsides, prairies, dry woods, thickets and waste ground. Throughout (except extreme west) (map 1548). Therophyte.

"SUPERFAMILY COMPOSITAE"

FAMILY HELIANTHACEAE

- Actinomeris alternifolia* (L.) DC.
Lowland woods and thickets. East half and Sheridan county (map 1549). Hemicryptophyte.
- Berlandiera lyrata* Benth.
Dry plains and hills. Extreme southwest (Morton county) (map 1550).
- Berlandiera texana* DC.
Hillsides, plains and prairies. Scattered (Stevens, Rice, Reno and Saline counties) (map 1550a).
- Bidens aristosa* (Michx.) Britton. Beggarticks.
Prairies and swamps. "Kans.," fide Rydberg. Therophyte (biennial).
- Bidens bipinnata* L. Spanish Needles.
Open woods, thickets and waste ground. East half and Sheridan county (map 1551). Therophyte.
- Bidens cernua elliptica* Wiegand.
Bidens elliptica (R).
Swamps and muddy borders of streams and ponds. North third (map 1552). Therophyte.
- Bidens comosa* (A. Gray) Wiegand. Beggarticks.
Wet ground bordering ponds and streams. East third (map 1553). Therophyte.
- Bidens comosa acuta* Wiegand. Beggarticks.
Bidens acuta (R).
Wet ground bordering ponds and streams. North central (map 1554). Therophyte.
- Bidens connata* Muhl. Beggarticks.
Swamps and wet borders of streams and ponds. Brown county (map 1555). Therophyte.

- Bidens frondosa* L. Beggarticks.
Moist woods, thickets and waste ground. Scattered (map 1556). Therophyte.
- Bidens glaucescens* Greene. Beggarticks.
Water and wet ground. Scattered, except perhaps the southeast (map 1557). Therophyte.
- Bidens involucrata* (Nutt.) Britton. Beggarticks.
Swamps, wet prairies, cultivated fields and waste ground (map 1558). Therophyte (biennial).
- Bidens laevis* (L.) BSP.
Wet ground. "Reported from Kans. and Iowa" in Rydberg. No specimens.
- Bidens vulgata* Greene. Beggarticks.
Wet to moist ground along streams and about ponds, fields, thickets and waste ground. North two-thirds of east two-thirds (map 1559). Therophyte.
- Bidens vulgata puberula* (Wiegand) Greene.
Bidens puberula (R).
Wet ground. Scattered in east half (map 1560). Therophyte.
- Coreopsis cardaminifolia* (DC.) T. & G.
Low ground. Harper county (map 1561). Therophyte.
- Coreopsis grandiflora* Hogg. Coreopsis.
Prairies, ravines and thickets. Southeast ninth (map 1562). Hemicryptophyte.
- Coreopsis lanceolata villosa* Michx. Coreopsis.
Coreopsis crassifolia Aiton. (R).
Dry soil. "Kans.," fide B & B, Rydberg. Hemicryptophyte.
- Coreopsis palmata* Nutt. Coreopsis.
Prairies, thickets and open woods. East fourth (map 1563). Hemicryptophyte.
- Coreopsis tinctoria* Nutt. Coreopsis.
Sandy or rocky open ground, plains and prairies. Southwest, central and east (map 1564). Therophyte.
- Coreopsis tripteris* L. Tall Tickseed.
Dry to moist thickets and woods. Extreme east (Leavenworth and Miami counties) (map 1565). Hemicryptophyte.
- Coreopsis verticillata* L. Coreopsis.
Dry soil. "Kans.," fide Rydberg.
- Cosmos bipinnatus* Cav. Cosmos.
Roadsides, at least once escaped from cultivation. Seward county Therophyte.
- Echinacea angustifolia* DC. Purple Coneflower.
Upland and rocky prairies and plains. Throughout (probably) (map 1566). Hemicryptophyte.
- Echinacea pallida* Nutt. Purple Coneflower.
Rocky prairies. East fifth (map 1567). Hemicryptophyte.
- Echinacea paradoxa* (Norton) Britton.
Rocky prairies. East fourth south of Kansas river (map 1567a). Rays present in these herbarium specimens have changed color in drying, from yellow to purplish-yellow.

- Eclipta alba* (L.) Hassk. Yerba de Tajo.
Moist fields, borders of ponds, and river floodplains. East half and scattered in west (map 1568). Therophyte.
- Engelmannia pinnatifida* T. & G. Engelmannia.
High plains. West two-fifths (map 1569).
- Galinsoga aristulata* Bucknell.
Galinsoga ciliata (Raf.) Blake.
Waste places, introduced from Mexico. Scattered in east two-fifths (map 1570). Therophyte.
- Galinsoga parviflora* Cav.
Waste places, naturalized from South America. Riley county (map 1571). Therophyte.
- Helianthus annuus* L. Sunflower.
In part *Helianthus lenticularis* Dougl. (R).
Throughout (map 1572). Therophyte.
- Helianthus besseyi* J. M. Bates. Sunflower.
Rocky open hillsides. Riley, Saline and Shawnee counties (map 1573).
- Helianthus ciliaris* DC. Blueweed.
Cultivated field, Osborne County. New in 1939. Geophyte.
- Helianthus formosus* E. E. Wats.
Douglas county (KU) (map 1574). By F. H. Snow years ago.
- Helianthus grosseserratus* Martens. Sunflower.
Prairies of borders of small streams. East two-fifths (map 1575).
Hemicryptophyte.
- Helianthus hirsutus* Raf. Sunflower.
Prairies. East third (map 1576). Hemicryptophyte.
- Helianthus laetiflorus* Pers. Sunflower.
Prairies. Northeast fourth (map 1577). Hemicryptophyte.
- Helianthus leptocaulis* (S. Wats.) Blake. Sunflower.
Prairies. East third (map 1578). Hemicryptophyte.
- Helianthus maximiliani* Schrad. Sunflower.
Rocky prairies, hillsides and plains. Throughout (map 1579).
Hemicryptophyte.
- Helianthus mollis* Lam. Sunflower.
Prairies, thickets in dry, barren ground. East fourth (map 1580).
Hemicryptophyte.
- Helianthus mollissimus* E. Wats.
Miami county (map 1580a).
- Helianthus petiolaris* Nutt. Prairie or Kansas Sunflower.
Fields, roadsides, plains, prairies and waste ground. Throughout, but scattered in east fourth (map 1581). Therophyte.
- Helianthus rigidus* (Cass.) Desf. Sunflower.
Rocky open woods, thickets, and prairies. East half (map 1582).
Hemicryptophyte.
- Helianthus salicifolius* A. Dietr. Sunflower.
Helianthus orgyalis DC. (G), (B & B).
Upland prairies, limestone ravine, spreading north and westward in railroad ballast. South of Kansas river in east third, plus R. R. ballast in Cloud and Saline counties (map 1583). Hemicryptophyte.

- Helianthus severus* E. E. Wats.
Rocky hillside prairies. North central (map 1584).
- Helianthus tuberosus* L. Jerusalem Artichoke.
Moist woods and thicket, wet prairies, roadsides and waste ground.
At least east three-fourths (map 1585).
- Helianthus tuberosus subcanescens* Gray.
Saline county (map 1586).
- Helianthus vernalis* E. E. Wats. (?)
Shawnee county.
- Helianthus virilis* E. E. Wats. Sunflower.
Open woods and prairies. Scattered in east third (map 1587).
- Heliopsis helianthoides* (L.) Sweet. Oxeye.
Rocky woods or thickets. Southeast (map 1588).
- Heliopsis scabra* Dunal. Ruff Oxeye.
Rocky woods and thickets; roadsides. East two-fifths, plus Ellis county (map 1589). Hemicryptophyte.
- Marshallia caespitosa* Nutt.
Rocky or upland prairies. "Kans.," fide Rydberg. Hemicryptophyte.
- Melampodium leucanthemum* T. & G.
Dry high plains. Southwest fourth (map 1590).
- Parthenium hysterophorus* L. Santa Maria.
In vacant lot, recent appearance (1932). Saline county (map 1591).
- Parthenium integrifolium* L. Feverfew.
Prairies. West half of southwest ninth (map 1592).
- Polymnia canadensis* L.
Rich rocky woods. Extreme southeast (Cherokee county) (map 1593). Hemicryptophyte.
- Polymnia uvedalia* L. Leafcup.
Moist thickets. "Kans.?" fide Rydberg.
- Ratibida columnifera* Nutt. Coneflower.
Lepachys columnifera (R).
Lepachys columnaris.
Plains, prairies, and waste ground. Throughout, except northeast (map 1594). Hemicryptophyte.
- Ratibida columnifera* f. *pulcherrima* (DC.) Fernald.
Lepachys columnifera f. *pulcherrima* (DC.).
Plains and prairies. Scattered in west three-fourths (map 1595).
Hemicryptophyte.
- Ratibida pinnata* (Vent.) Barnhart. Coneflower.
Lepachys pinnata (Vent.) T. & G. (R).
Rocky prairies and thickets. East fourth (map 1596). Hemicryptophyte.
- Ratibida tagetes* (James) Barnhart. Coneflower.
Lepachys tagetes (R).
Plains. Mainly west fourth, but east in central part to Saline county (map 1597). Hemicryptophyte.

- Rudbeckia amplexicaulis* Vahl.
Dracopsis amplexicaulis (R).
Moist prairies, roadside ditches. Scattered in south two-thirds of east half (map 1598). Therophyte.
- Rudbeckia grandiflora* C. C. Gmelin.
Dry prairies. "Kans.?" fide Rydberg.
- Rudbeckia hirta* L. Black-eyed Susan, Niggerheads.
Open woods, thickets, rocky prairies and waste ground. East half and Sheridan county (map 1599). Hemipterophyte.
- Rudbeckia laciniata* L. Goldenglow.
Low open woods and thickets along small streams. Moist thickets. East third (map 1600). Hemipterophyte.
- Rudbeckia subtomentosa* Pursh.
Moist open woods, thickets, and borders of prairie streams. East fourth (map 1601). Hemipterophyte.
- Rudbeckia triloba* L. Brown-eyed Susan.
Rocky woods and thickets. East fifth (map 1602).
- Silphium integrifolium* Michx. Rosinweed.
Rocky prairies. Mostly extreme east tier of counties (map 1603). Hemipterophyte.
- Silphium laciniatum* L. Compass Plant.
Prairies and rocky open hillsides. East two-thirds to Sheridan county (map 1604). Hemipterophyte.
- Silphium perfoliatum* L. Cupplant.
Moist prairies and thickets. East third, plus Sedgwick and Meade counties (map 1605). Hemipterophyte.
- Silphium speciosum* Nutt. Rosinweed.
Includes *S. integrifolium mesochorum* Benke. (Benke 5176 from Barton county [Field Museum]).
Prairies. East two-thirds (map 1606). Hemipterophyte.
- Thelesperma gracile* (Torr.) Gray.
Plains and prairies. West two-thirds and scattered in east third (map 1607). Hemipterophyte.
- Thelesperma trifidum* (Poir.) Britton.
Rocky prairies and plains. Southwest and southeast (map 1608). Therophyte (biennial).
- Verbesina helianthoides* Michx.
Rocky open woods and thickets. Extreme southeast (map 1609).
- Verbesina virginica* L. White Crownbeard.
Rocky open woods and thickets. Southeast sixth (map 1610).
- Ximenesia encelioides* Cav.
Valleys, not common. Scattered in east and west (map 1611). Therophyte.
- Ximenesia encelioides exauriculata* (Robinson & Greenm.) F. C. Gates.
Verbesina encelioides exauriculata Robinson & Greenm.
Ravines and valleys. Finney and Riley counties (map 1611a). Therophyte.

- Zinnia grandiflora* Nutt.
High plains. Southern tier of counties from Comanche county west (map 1612). Hemipterophyte.
- FAMILY AMBROSIACEAE (Ragweed Family)
- Ambrosia bidentata* Michx. Ragweed.
Rocky prairies, fields and waste ground. South half of east fourth and Wyandotte county (map 1613). Therophyte.
- Ambrosia coronopifolia* T. & G. Western Ragweed.
Ambrosia psilostachya DC.
Plains and prairies, fields and pastures. Throughout (map 1614). Root geophyte.
- Ambrosia elatior* L. Ragweed.
Ambrosia artemisiaefolia elatior.
Including *Ambrosia media* Rydb. (R).
Prairies, fields, pastures, waste places and cultivated ground. East two-thirds and northwest sixth (map 1615). Therophyte.
- Ambrosia longistylis* Nutt. Ragweed.
Prairie. Riley county (map 1616). Therophyte.
- Ambrosia trifida* L. Giant Ragweed.
Including *Ambrosia striata* Rydb. (R) to which most Kansas specimens belong.
Moist places, bottomlands and waste places. Throughout (map 1617). Therophyte. Plants with entire leaves occasionally occur (f. *integrifolia*), Riley county.
- Franseria acanthocarpa* (Hook.) Coville.
Plains and sandy valleys. West third, mostly southern part (map 1618). Therophyte.
- Franseria discolor* Nutt.
Dry soil. "Kans.," fide Rydberg, but no specimens.
- Franseria tenuifolia* Harv. & Gray.
Valleys in high plains. Southwest ninth and ?Osborne county (map 1619).
- Franseria tomentosa* A. Gray.
River bottoms. West half and scattered in east (map 1620).
- Iva ciliata* Willd. Marsh Elder.
Alluvial soils, prairies and waste ground. Except northwest and north tier (map 1621). Therophyte.
- Iva xanthifolia* Nutt. Careless Weed.
Cyclachaena xanthifolia (R).
Waste places and along streams. West three-fifths and northeast fourth (map 1622). Therophyte.
- Xanthium chinense* Mill. Cocklebur.
Fields, roadsides, alluvial ground, waste places, moist sandy flood plains. East third (map 1623). Therophyte. Forma *globuliforme* Crevecoeur, a mutant with 20-30 ovaries.
- Xanthium globosum* Shull.
Low alluvial fields and waste places. East Douglas, Shawnee and Greenwood counties (map 1624). Type from Lawrence. Therophyte.

- Xanthium italicum* Mor. Cocklebur.
Xanthium commune Britton. (R).
 Fields, roadsides, and waste places. At least east two-thirds to Sheridan county (map 1625). Therophyte.
- Xanthium pennsylvanicum* Wallr. Cocklebur.
 Cultivated fields, roadsides and waste ground. Probably throughout (map 1626). Therophyte.
- Xanthium pennsylvanicum laciniatum* Sherff & Shull.
 Waste places. Pottawatomie county. Therophyte.
- Xanthium speciosum* Kearney. Cocklebur.
 Cultivated fields and waste ground. Reno, Chase and Labette counties (map 1627). Therophyte.
- Xanthium spinosum* L. Spiny Cocklebur.
 Fields and waste ground. East fourth according to reports; a specimen has been seen from Cherokee county (map 1628), but no specimens are in the Kansas State Herbarium. Therophyte.

FAMILY HELENIACEAE

- Actinella odorata* Gray. Bitterweed, Colorado Rubber Plant.
Hymenoxys odorata (R).
 Dry plains. Southwest fourth to Trego and Kiowa counties (map 1629).
- Dyssodia papposa* (Vent.) Hitchc. Fetid Marigold.
Boebera papposa (R).
 Plains, prairies, waste ground, along roads, etc. Throughout (map 1630). Therophyte.
- Flaveria campestris* J. R. Johnston.
 Alkali land. Southwestern and along R. R. to Wyandotte county (map 1631). Therophyte.
- Gaillardia aristata* Pursh. Gaillardia, Blanket Flower.
 Plains. South central (map 1632). Hemicryptophyte.
- Gaillardia drummondii* (Hook.) DC. Gaillardia.
 Plains, cultivated and escaped in Ellis county (map 1633). Therophyte.
- Gaillardia fastigiata* Greene.
 Waste or sandy places. South central (Edwards and Comanche counties) (map 1634). Therophyte (biennial).
- Gaillardia lanceolata* Michx. Gaillardia.
 Sandy soil. Reno county (map 1635).
- Gaillardia pulchella* Foug. Gaillardia, Blanket Flower.
 Plains. West three-fifths (map 1636). Therophyte.
- Helenium autumnale* L. Sneezeweed.
Helenium altissimum Link. (R).
Helenium montanum Nutt. (R) to which most Kansas specimens would belong.
 Moist prairies and borders of ponds and streams. Mostly east fourth (map 1637). Hemicryptophyte.

- Helenium nudiflorum* Nutt.
Helenium polyphyllum Small. (R).
 Moist prairies, fields, borders of bodies of water. Southeast (Crawford and Cherokee counties) (map 1638). Hemicryptophyte.
- Helenium tenuifolium* Nutt. Sneezeweed.
 Fields and waste places. Scattered in east half (map 1639). Therophyte.
- Hymenopappus corymbosus* T. & G.
 Plains and prairies. Scattered in east two-thirds (map 1640). Therophyte (biennial).
- Hymenopappus filifolius* Hook.
 Plains. Stanton county (map 1640a).
- Hymenopappus scabiosaeus* L'Her. Hymenopappus.
 Including *H. sulfureus* Rydb.
 Prairie and plain. Southwest fourth and east half (map 1641). Therophyte (biennial).
- Hymenopappus tenuifolius* Pursh.
 Plains and dry prairies. West three-fifths (map 1642).
- Othake sphacelata* (Nutt.) Rydb.
 Including *Othake macrolepis* Rydb. at least as to Kansas specimens. (R).
 Sandhills on high plains. Southwest twelfth (map 1643). Therophyte.
- Pectis angustifolia* Torr. Lemonscent.
 Sandy soils of plains. West half, scattered (map 1644). Therophyte.
- Pieradeniopsis oppositifolia* (Nutt.) Rydb.
 Alkaline soil on dry plains. Western third (map 1645). Hemicryptophyte.
- Psilostrophe villosa* Rydb. Paper Flower.
 Sandy soil. Extreme south between Meade and Harper counties (map 1646). Hemicryptophyte.
- Tetranneuris acaulis* (Pursh) Greene.
 Including *Tetranneuris simplex* A. Nels. (R).
 Dry plains. Scattered in west half (map 1647).
- Tetranneuris fastigiata* Greene.
 Dry plains. West half (map 1648).
- Tetranneuris linearifolia* (Hook) Greene.
 Dry plains. Pottawatomie county (map 1649).
- Thymophylla aurea* (A. Gray) Greene. Tiny Tim.
 Dry plains. West (Hamilton county) (map 1650). Therophyte.

FAMILY ARCTOTIDACEAE

- Arctotis stoechadifolia* Berg. Arctotis.
Arctotis grandis Thunb.
 Only in cultivation.

FAMILY CALENDULACEAE

- Calendula* sp. Calendula.
 Only in cultivation.

FAMILY INULACEAE

- Anaphalis margaritacea* (L.) Benth. & Hook. Pearly Everlasting.
Waste ground. "Kans.," fide B&B2nd, Rydberg. Hemicyptophyte.
- Antennaria campestris* Rydb.
Prairies and plains. East three-fourths to Sheridan county (map 1651).
- Antennaria fallax* Greene. Indian Tobacco.
Rocky open woods and prairies. East third (map 1652).
- Antennaria longifolia* Greene.
Antennaria neglecta Greene.
Open woods and prairies. East third (map 1653).
- Antennaria plantaginifolia* (L.) Richards. Ladies' Tobacco, Pussy's Tobacco.
Rocky open woods and thickets. East third (map 1654).
- Diaperia prolifera* Nutt.
Evax prolifera Nutt.
Filago prolifera Britton.
Plains and prairies. Scattered in west half and Cowley county (map 1655). Therophyte.
- Gnaphalium obtusifolium* L. Cudweed, Everlasting.
Open rocky woods and thickets and waste places. Scattered in east three-fourths (map 1656). Therophyte.
- Gnaphalium purpureum* L. Cudweed.
Wet soils, prairies and thickets. Scattered in east half (map 1657). Hemicyptophyte.
- Gnaphalium uliginosum* L.
Wet places. Shawnee county (map 1658). Therophyte.
- Pluchea camphorata* (L.) DC. Marsh Fleabane.
Salt marshes. Sedgwick county (map 1659). Therophyte.

FAMILY ASTERACEAE

- Amphiachyris dracunculoides* (DC.) Nutt. Broomweed.
Gutierrezia dracunculoides (DC.) Blake.
Rocky upland prairies and pastures and hillsides, spreading rapidly.
East half and farther west in the south (map 1660). Therophyte.
- Aphanostephus skirrobasis* (DC.) Trel.
Dry soil. South (Clark and Harper counties) (map 1661). Therophyte (biennial).
- Aster adsurgens* Greene (Pittonia 4:211. 1900), (Rhod. 35:325. 1933). Aster.
Aster crassulus Rydb.
High plains. West fourth (map 1662). Hemicyptophyte.
- Aster anomalus* Engelm. Aster.
Rocky open woods and thickets. Southeast (Labette, Crawford and Cherokee counties) (map 1663). Hemicyptophyte.
- Aster azureus* Lindl. Blue Aster.
Prairies and thickets. East third (map 1664). Hemicyptophyte.
- Aster coerulescens* DC. Rhodora 35:27. 1933. Aster.
Aster fluviatilis Osterhout (R).
Riley county. Hitchcock No. 726 (map 1665).

- Aster commutatus* (T. & G.) Gray. Aster.
Plains and river banks. Southwest fourth (map 1666). Hemicyptophyte.
- Aster drummondii* Lindl. Aster.
Woods, thickets and prairie border. East two-fifths (map 1667). Hemicyptophyte.
- Aster ericoides* L. Aster.
Aster multiflorus Ait.
Plains, prairies and rocky open woods. Abundant. Probably throughout (map 1668). Hemicyptophyte.
- Aster ericoides batesii* (Rydb.) F. C. Gates. Aster.
Aster batesii (R).
Prairies. Central and northwest (map 1669). Hemicyptophyte.
- Aster ericoides f. polycephalus* (Rydb.). Aster.
Aster polycephalus Rydb. (R).
Prairie hills. Saline county (map 1670). Hemicyptophyte.
- Aster ericoides prostratus* (Ktze.) Blake. Aster.
Aster exiguus (Fernald) (R).
Prairies and sandy or gravelly ground along streams. East half (map 1671). Hemicyptophyte.
- Aster ericoides f. stricticaulis* (T. & G.) Aster.
Aster stricticaulis (T. & G.) (R).
Moist ground along streams. Shawnee county at least (map 1672). Hemicyptophyte.
- Aster exilis* Ell. Aster.
Wet, especially saline soil. South central, west to Meade county (map 1673). Therophyte.
- Aster fendleri* A. Gray. Aster.
Plains and sandhills. West three-fifths (map 1674). Hemicyptophyte.
- Aster laeviformis* Rydb. Aster.
Wet prairies. Edwards county (map 1675). Hemicyptophyte.
- Aster laevis* L. Aster.
Rocky open woods and thickets. Northeast sixth (map 1676). Hemicyptophyte.
- Aster lateriflorus pendulus* (Ait.) Burgess. Aster.
Low wet woods or stream borders. Northeast (Atchison county) (map 1677). Hemicyptophyte.
- Aster novae-angliae* L. New England Aster.
Low ground along streams in prairies and thickets. East sixth (map 1678). Hemicyptophyte.
- Aster oblongifolius* Nutt. Aster.
Including *Aster kumleini* Fries (R) (*Aster oblongifolius rigidulus*).
Rocky prairies and open slopes. East two-thirds, plus northwest (map 1679). Hemicyptophyte.
- Aster paludosus* Ait. Aster.
Wet prairies. Southeast (Labette, Crawford and Cherokee counties) (map 1680). Hemicyptophyte.

- Aster paniculatus* Lam. Aster.
Low wet woods and moist prairies. Scattered in east four-fifths (map 1681). Hemipterophyte.
- Aster paniculatus acutidens* Burgess. Aster.
Low wet woods and moist prairies. Riley, Clay and Barber counties (map 1682). Hemipterophyte.
- Aster pantotrichus* Blake. (J. Wash, Acad. Sci. 21:327. 1931.) Aster.
Aster missouriensis Britton.
Moist places. Northeast (Atchison county) (map 1683). Hemipterophyte.
- Aster patens* Ait. Purple Aster.
Aster patentissimus Lindl. (R).
Aster tenuicaulis Mohr. (R).
Rocky open woods and thickets. Southeast to Sumner county (map 1684). Hemipterophyte.
- Aster praealtus* Poir. Aster.
Aster salicifolius Lam.
Wet prairies, thickets and borders of streams. Scattered in east four-fifths (map 1685). Hemipterophyte. A specimen of M. A. Barber from Lawrence in 1902 seems to be the var. *taxicola* Wieg. Rhod. 35:25. 1933.
- Aster sagittifolius* Willd. Wedemeyer.
Rocky woods and ravines. Extreme east (Wyandotte and Labette counties) (map 1686). Hemipterophyte.
- Aster sericeus* Vent. Silky Aster.
Rocky prairies and hills. East half and Hamilton county (map 1687). Hemipterophyte.
- Aster tataricus* L. f.
In cultivation. Riley county, where escaped for three years. Hemipterophyte.
- Aster turbinellus* Lindl. Aster.
Rocky open woods and thickets. Extreme southeast (map 1688). Hemipterophyte.
- Aster vimineus subdumosus* Wiegand. Aster.
Moist soil. Southeast (map 1689). Hemipterophyte.
- Astranthium integrifolium* (Michx.) Nutt. (Ann. Mo. Bot. Gard. 20:23. 1933). Daisy.
Bellis integrifolia Michx.
Moist ground. East fourth (map 1690). Therophyte (biennial).
- Baccharis neglecta* Britton.
Saline soil. South central and Sherman county (map 1691). Nanophanerophyte.
- Baccharis salicina* T. & G. Groundsel Tree.
Saline soil. Southwest fourth (map 1692). Nanophanerophyte.
- Baccharis wrightii* A. Gray.
Saline soil. Southwest sixth (map 1693). Hemipterophyte.

- Boltonia asteroides* (L.) L'Her.
Moist open woods and thickets. Cowley, Doniphan (KU), and Washington counties (map 1694). Hemipterophyte.
- Boltonia latiquama* A. Gray.
Wet prairies and borders of streams. East half (map 1695). Hemipterophyte.
- Chrysopsis*¹² *angustifolia* Rydb. Golden Aster.
Sandy places. Saline, Meade and Rooks counties (map 1696). Hemipterophyte.
- Chrysopsis asprella* Greene.
Dry hills. Barber, Graham and Rooks counties (map 1697). Hemipterophyte.
- Chrysopsis bakeri* Greene.
Plains. Sheridan and Jewell counties (map 1698). Hemipterophyte.
- Chrysopsis ballardi* Rydb. Golden Aster.
Rocky prairie hillsides. Jewell, Dickinson and Geary counties (map 1699). Hemipterophyte.
- Chrysopsis berlandieri* Greene.
Sandy and rocky soils. Central (map 1700). Hemipterophyte.
- Chrysopsis foliosa* Nutt.
Sandy soil. Scattered in west half (map 1701). Hemipterophyte.
- Chrysopsis hirsutissima* Greene.
Sandy soil. West third (map 1702). Hemipterophyte.
- Chrysopsis hispida* (Hook) DC. Golden Aster.
Sandy river valleys. West two-thirds (map 1703). Hemipterophyte.
- Chrysopsis imbricata* A. Nels.
Plains and mountains. Scattered in west half (map 1704). Hemipterophyte.
- Chrysopsis pilosa* Nutt. Golden Aster.
Rocky or sandy prairies. Southeast (map 1705). Therophyte.
- Chrysopsis stenophylla* (A. Gray) Greene.
Dry plains and prairies. South two-thirds of west two-thirds (map 1706). Hemipterophyte.
- Chrysopsis villosa* (Pursh) Nutt.
Dry hills. Ford and Ellis counties (map 1707). Hemipterophyte.
- Chrysopsis viscida* (A. Gray) Greene.
Mountains and dry ledges. West sixth (map 1708). Hemipterophyte.
- Chrysothamnus pulchellus baileyi* (Woot. and Standl.) Hall & Clements. Rabbit Brush.
Arid areas of high plains. Kearny county (map 1709). Nanophanerophyte. The species is recorded from Kansas in Rydberg, but the specimens are the variety or subspecies.
- Erigeron annuus* (L.) Pers. Fleabane.
Fields, prairies and waste ground. East half (map 1710). Therophyte (biennial).

12. Specimens of *Chrysopsis* checked over by B. F. Bush.

- Erigeron bellidiastrum* Nutt. Fleabane.
Low ground on high plains. Southwest fourth (map 1711). Therophyte.
- Erigeron canadensis* L. Horseweed, Canada Fleabane.
Leptilon canadensis (R).
Plains, prairies, fields, roadsides, cultivated land and waste places. Abundant. Throughout (map 1712). Therophyte.
- Erigeron divaricatus* Michx. Fleabane.
Leptilon divaricatum (R).
Prairies, fields, lawns, and waste ground. East two-thirds (map 1713). Therophyte.
- Erigeron flagellaris* A. Gray. Fleabane.
Banks of streams. Logan and Trego counties (map 1714). ± Chamæphyte.
- Erigeron philadelphicus* L. Fleabane.
Wet fields, meadows and woodlands. East third (map 1715). Hemipterophyte.
- Erigeron pulchellus* Michx. Robin's Plantain.
Rocky open woods and thickets. Extreme southeast (Cherokee county) (map 1716). Hemipterophyte.
- Erigeron pumilus* Nutt. Fleabane.
Dry plains. Northwest sixth (map 1717). Hemipterophyte.
- Erigeron ramosus* (Walt.) BSP. Fleabane.
Dry prairies and thickets. Throughout (map 1718). Therophyte.
- Euthamia graminifolia* (L.) Nutt. Bushy Goldenrod.
Euthamia camporum Greene (R). (Pittonia 5:74. 1902.)
Solidago graminifolia (L.) Salisb.
Low ground, fields and prairies. Scattered (map 1719). Hemipterophyte.
- Euthamia gymnospermoides* Greene. Bushy Goldenrod.
Solidago gymnospermoides (Greene) Fernald.
Dry soils, rocky or upland prairies. East two-thirds and Hamilton county (map 1720). Hemipterophyte.
- Euthamia nuttallii* Greene. Bushy Goldenrod.
Including *E. glutinosa* Rydb.
Meadows. Doniphan county (map 1721). Hemipterophyte.
(*Grindelia decumbens* Greene, credited to Kansas in Rydberg, based on misidentifications, ranges from Colorado to Arizona, fide Steyermark.)
- Grindelia lanceolata* Nutt.
Rocky prairies. Southeast twelfth (map 1722). Therophyte (biennial).
- Grindelia squarrosa* (Pursh) Dunal. Gum Plant.
Plains and prairies, rocky and alluvial ground. Northern half and scattered in south half (map 1723).
- Grindelia squarrosa nuda* (Wood) Gray. Gum Plant.
Grindelia nuda Wood (R).
High plains. Southwest fourth, plus Lyon county (map 1724). Therophyte (biennial).
- Gutierrezia diversifolia* Greene.
High plains. West fifth (map 1725). Hemipterophyte.
- Gutierrezia linearis* Rydb.
High plains. "Kans.," fide Rydberg. Nanophanerophyte (?).
- Gutierrezia sarothrae* (Pursh) Britton & Rusby.
Plains and high plains. West half (map 1726). Hemipterophyte.
- Heterotheca subaxillaris* (Lam.) Britton & Rusby.
Sandy floodplains, valleys and waste ground. Scattered in north half and west two-thirds of south half (map 1727). Therophyte (biennial).
- Isopappus divaricatus* (Nutt.) T. & G.
Including *Isopappus validus* Rydb. (R). Brittonia 1:100. 1931.
Sandy hills and valleys. Central, especially south central (map 1728). Therophyte.
- ? *Leucelene alsinoides* Greene. ?
Dry hills. Scattered in west half (Hamilton, Kearny & Ellsworth counties). Hemipterophyte. It is questionable whether this is different from the next.
- Leucelene ericoides* (Torr.) Greene.
Plains and dry prairies. West three-fifths (map 1729). Hemipterophyte.
- Machaeranthera tanacetifolia* (H. B. K.) Nees. Tansy Aster.
Plains and sandy hills. West two-fifths (map 1730). Therophyte.
- Oenopsis engelmanni* (A. Gray) Greene.
Dry plains. Hamilton county (map 1731). Hemipterophyte.
- Prionopsis ciliata* Nutt.
Aplopappus ciliatus (Nutt.) DC.
Plains, prairies, river banks and waste places. Possibly throughout (map 1732). Therophyte (biennial).
- Sideranthus annuus* Rydb. Iron Plant.
Sandy soils of plains. South half of west half (map 1733). Therophyte.
- Sideranthus spinulosus* (Pursh) Sweet.
Including *Sideranthus glaberrimus* Rydb. (R).
Plains and prairies. West two-thirds (map 1734). Hemipterophyte.
- Solidago altissima* L. Goldenrod.
Rich open ground. "Kans.," fide Rydberg. Hemipterophyte.
- Solidago canadensis* L. Goldenrod.
Fields, prairies and thickets. Probably only extreme east (Leavenworth and Wyandotte counties) (map 1735). Hemipterophyte.
- Solidago canadensis gilvocanescens* Rydb. Goldenrod.
Prairies, fields and thickets. Probably throughout (map 1736). Hemipterophyte.
- Solidago dumetorum* Lunell. Goldenrod.
Dry prairies and thickets. Scattered in northeast fourth (map 1737). Hemipterophyte.
- Solidago flexicaulis* L. Goldenrod.
Rich woods and shaded banks. Doniphan county (map 1738). Hemipterophyte.

- Solidago glaberrima* Martens. Goldenrod.
Plains and hills and prairies. Throughout (map 1739). Hemipterophyte.
- Solidago glaberrima moritura* (Steele) Palmer & Steyermark.
Solidago moritura Steele.
Plains and prairies. Throughout (map 1740).
- Solidago lindheimeriana* Scheele. Goldenrod.
Limestone bluffs and rocky woods. Scattered in east two-thirds (map 1741). Hemipterophyte.
- Solidago mollis* Bartl. Goldenrod.
Dry plains. West two-thirds (map 1742). Hemipterophyte.
- Solidago nemoralis* Ait. Gray Goldenrod.
Open woods, thickets, prairies, fields and waste ground. Scattered in east three-fifths (map 1743). Hemipterophyte.
- Solidago nemoralis decemflora* (DC) Fernald. (Rhod. 38:226. 1936.) Goldenrod.
Solidago longipetiolata Mack. & Bush. (R).
Rocky open woods, thickets and prairies. East third (map 1744). Hemipterophyte.
- Solidago petiolaris* Ait. Goldenrod.
Dry open woods and thickets. North half of second fifth east (map 1745). Hemipterophyte.
- Solidago procera* Ait. Goldenrod.
Solidago altissima procera (Ait.).
Rich ground. "Kans.," fide Rydberg. Hemipterophyte.
- Solidago rigida* L. Goldenrod.
Oligoneuron rigidum (R).
Prairies, thickets and rocky open ground. Mostly east two-thirds (map 1746). Hemipterophyte.
- Solidago serotina* Ait. Goldenrod.
Meadows, prairies, plains, valleys and banks. Throughout (map 1747). Hemipterophyte.
- Solidago speciosa* Nutt. Goldenrod.
Rocky open woods, thickets and prairies. Wyandotte and Cloud counties (map 1748). Hemipterophyte.
- Solidago speciosa angustata* T. & G. Goldenrod.
Solidago rigidiuscula (R).
Rocky open thickets and prairies. East third (map 1749). Hemipterophyte.
- Solidago trinervata* Greene. Goldenrod.
Plains and hills. Scattered in west half (map 1750). Hemipterophyte.
- Solidago ulmifolia* Muhl. Goldenrod.
Including *Solidago microphylla* Engelm. (R).
Rich woods and thickets. East fourth and Sumner county (map 1751). Hemipterophyte.
- Townsendia exscapa* (Richards) Porter. *Townsendia*.
Dry prairies and plains. Scattered in west two-thirds (map 1752). Hemipterophyte.

FAMILY VERNONIACEAE¹³

- Elephantopus carolinianus* Willd. Elephant's Foot.
Open woods. East fifth north to Osage county (map 1753).
- Vernonia baldwini* Torr. Ironweed.
Credited to Kansas in various manuals, but apparently not west of Missouri.
- Vernonia crinita* Raf. Ironweed.
River banks, valleys, open woods and thickets. Southeast (north to Linn and west to Elk county) (map 1754). Hemipterophyte.
- Vernonia fasciculata* Michx. Ironweed.
Prairies, meadows, alluvial soils along streams, rich moist soil. East two-thirds (map 1755). Hemipterophyte.
- Vernonia fasciculata corymbosa* (Schwein) Schubert. (Rhod. 40:220. 1938.)
Vernonia corymbosa Schwein. (R).
Barton county (map 1756).
- Vernonia interior* Small. Ironweed.
Vernonia baldwini interior (Small) Schubert.
Prairies, dry prairies, pastures and waste ground. Probably throughout (map 1757). Hemipterophyte.
- X *Vernonia interior* x *crinita*.
Prairies and thickets. Southeast eighth (map 1758). Many southeastern specimens are fertile hybrids. Hemipterophyte.
- Vernonia marginata* (Torr.) Raf. Ironweed.
High plains. Seward and Morton to Saline county (map 1759). Hemipterophyte.
- Vernonia missurica* Raf. Ironweed.
Low ground and moist prairies and waste places. Extreme east (map 1760). Hemipterophyte.
- X *Vernonia missurica* x *crinita*.
Low ground and moist thickets. Cherokee county. Hemipterophyte.

FAMILY EUPATORIACEAE

- Brickellia umbellata* (Greene) Rydb. Thurowort.
Hillsides and canyons. West half (map 1761). Hemipterophyte.
- Eupatorium altissimum* L. Thurowort.
Prairies, rocky hills and thickets. East half (map 1762). Hemipterophyte.
- Eupatorium coelestinum* L. Mistflower.
Wet stream banks in woods. East seventh (map 1763).
- Eupatorium falcatum* Michx. Joe-Pye Weed.
Moist ground in woods and thickets. East fourth (map 1764). Hemipterophyte.
- Eupatorium maculatum* L. Joe-Pye Weed.
Moist ground in woods and thickets. East third (map 1765). Hemipterophyte.

13. Critical specimens checked by H. A. Gleason.

- Eupatorium perfoliatum* L. Boneset.
Wet places along streams and in woods. East three-fifths (map 1766).
Hemicryptophyte.
- Eupatorium rugosum* Houtt. White Snakeroot.
Eupatorium urticaefolium Reichard. (R).
Rich woods. East two-fifths (map 1767). Hemicryptophyte.
- Eupatorium serotinum* Michx.
Prairies, fields, and thickets. East fourth (map 1768). Hemicryptophyte.
- Kuhnia hitchcockii* A. Nels.
Dry prairies and plains. Throughout (map 1769). Hemicryptophyte.
- Kuhnia suaveolens* Fresen. Kuhnia.
? *Kuhnia eupatorioides corymbulosa* T. & G.
Dry prairies, plains and open woods. Probably throughout (map 1770). Hemicryptophyte.
- Liatris angustifolia* Bush. Blazing Star.
Prairies. Northeast fourth (map 1771). Corm geophyte.
- Liatris kansana* (Britton) Rydb. Kansas Gayfeather.
High Plains. Southwest sixth and Cheyenne county (map 1772).
Corm geophyte.
- Liatris punctata* Hook. Blazing Star.
Dry plains, hills and prairies. Throughout (map 1773). Corm geophyte.
- Liatris pycnostachya* Michx. Gayfeather.
Prairies and rocky open ground. Mostly east third, but to Reno county (map 1774). Corm geophyte.
- Liatris scariosa* Willd. Gayfeather.
Liatris aspera (Michx.) Greene (R).
Rocky prairies and open rocky woods. East half (map 1775). Corm geophyte.
- Liatris squarrosa compacta* T. & G. Blazing Star.
Liatris compacta (R).
Prairies and open woods. West half of east half (map 1776). Corm geophyte.
- Liatris squarrosa glabrata* (Rydb.) F. C. Gates. Blazing Star.
Liatris glabrata Rydb.
Sandhills and bluffs. Scattered on the northeast-southwest diagonal (map 1777). Corm geophyte.
- Liatris squarrosa hirsuta* (Rydb.) F. C. Gates. Blazing Star.
Liatris hirsuta Rydb. (R).
Prairies and rocky open woods. East third and Sheridan and Thomas counties (map 1778). Corm geophyte.

FAMILY ANTHEMIDACEAE

- Achillea asplenifolia* Vent.
Along roads. Shawnee and Neosho counties (map 1779). Hemicryptophyte.
- Achillea millefolium* L. Yarrow.
Prairies, thickets and waste ground. Scattered in east half (map 1780). Flowers occasionally rose-colored. Hemicryptophyte.

- Achillea millefolium lanulosa* (Nutt.) Piper. Western Yarrow.
Achillea lanulosa Nutt. (R).
Plains and prairies. At least east three-fourths (map 1781). Hemicryptophyte.
- Anthemis cotula* L. Mayweed, Dogfennel.
Maruta cotula (R).
Field and waste places. East half and Sheridan and Ellis counties (map 1782). Therophyte.
- Anthemis tinctoria* L. Yellow Chamomile.
Cota tinctoria (R).
Cultivated, doubtfully escaping. Ellsworth and Clay counties.
- Artemisia abrotanum* L.
Escaped from cultivation. Sheridan county (map 1783). Nanophanerophyte.
- Artemisia absinthium* L.
Escaped from cultivation. Atchison county (KU) (map 1784).
- Artemisia annua* L. Cudweed, Wormwood.
Waste places, naturalized from Europe. East third (map 1785).
Therophyte.
- Artemisia biennis* Willd. Wormwood.
Floodplain woods. Scattered (map 1786). Therophyte (biennial).
- Artemisia campestris caudata* (Michx.) Hall & Clements. Wormwood.
Artemisia caudata Michx. (R).
Sandy soil. West three-fifths (map 1787). Therophyte (biennial).
- Artemisia dracunculus dracunculina* (Watson) Hall & Clements.
Prairies. Northeast sixth (map 1788). Hemicryptophyte.
- Artemisia dracunculus glauca* (Pallas) Hall & Clements. Wormwood.
Artemisia dracunculoides Pursh.
Including *Artemisia cernua* Nutt.
Prairies and plains. Northeast fourth and Rooks, Logan, and Wichita counties (map 1789). This and the preceding in *A. dracunculoides* in (R).
- Artemisia filifolia* Torr. Sandhill Sage.
High plains. West half, especially southwest (map 1790).
- Artemisia vulgaris carruthi* (Wood) F. C. Gates. Kansas Sage.
Artemisia carruthi Wood.
Artemisia kansana Britton with type from Lane county.
Artemisia vulgaris wrightii (A. Gray) Hall & Clements.
Dry plains and prairies. West half (map 1791). Hemicryptophyte.
- Artemisia vulgaris gnaphalodes* (Nutt.) Ktze. Wild Sage.
Artemisia gnaphalodes (R).
Including *Artemisia brittonii* "Kans.," fide Rydb., no specimens.
Including *Artemisia diversifolia* Rydb. Decatur and Trego counties.
Prairies and plains, river banks. Scattered throughout (map 1792).
Hemicryptophyte.
- Artemisia vulgaris ludoviciana* (Nutt.) Ktze. Wild Sage.
Artemisia ludoviciana (R).
Prairies and plains, canyons, etc. East half and northwest fourth (map 1793). Hemicryptophyte.

- Artemisia vulgaris mexicana* (Willd.) Hall & Clements.
Artemisia lindheimeriana Scheele. (R).
Rocky prairies and hillsides. East half (map 1794).
- Artemisia vulgaris serrata* (Nutt.) Hall & Clements.
Artemisia serrata in (R).
"Kans.," fide Rydberg, but no specimens.
- Chrysanthemum balsamita* L. Mint Geranium, Costmary.
Balsamita major Desf. (R).
Escaping from cultivation. Ellsworth, Riley and Rooks counties (map 1795). Hemicryptophyte.
- Chrysanthemum leucanthemum* L. Oxeye Daisy.
Leucanthemum vulgare Lam. (R).
Meadows, pastures and roadsides. East half and Sheridan county (map 1796). Hemicryptophyte.
- Matricaria inodora* L. Chamomile.
Chamomilla inodora (R).
In waste places, escaped from cultivation. Sheridan, Ellis and Clay counties (map 1797). Therophyte.
- Matricaria matricarioides* (Less.) Porter. Chamomile.
Chamomilla suaveolens (Pursh) (R).
Sandy places. Cultivated and escaping. Cloud and Meade counties (map 1798). Therophyte.
- Tanacetum vulgare* L. Tansy.
Escaped from cultivation. Scattered (map 1799). Hemicryptophyte.

FAMILY SENECEIONIDACEAE

- Cacalia atriplicifolia* L. Indian Plantain, Cacalia.
Mesadenia atriplicifolia (R).
Open woods and thickets. East third (map 1800). Hemicryptophyte.
- Cacalia tuberosa* Nutt. Indian Plantain, Cacalia.
Mesadenia tuberosa (R).
Wet prairies and rocky ravines. East two-fifths (map 1801). Hemicryptophyte.
- Erechtites hieracifolia* (L.) Raf. Fireweed.
River banks, thickets, open woods and waste places. East third (map 1802). Therophyte. Most specimens come within the limits of var. *intermedia*, but FCG. 17289, with narrowly winged petiols, may be *v. praealta* (Raf.) Fern. and a few are intermediate between the species and *intermedia*.
- Haploesthes greggii* A. Gray.
Saline soil. Barber county (map 1803). Hemicryptophyte.
4. *Senecio*¹⁴ *integerrimus* Nutt. Groundsel.
Wet prairies and plains. Osborne and Ellsworth counties (map 1806). Hemicryptophyte.
2. *Senecio obovatus rotundus* Britton. Ragwort.
Senecio rotundus (R).
Banks and moist places. East fourth (map 1807). Hemicryptophyte.

3. *Senecio obovatus umbratilis* Greenm. Ragwort.
Moist ground. East fourth (Crawford, Douglas and Shawnee counties) (map 1805).
4. *Senecio plattensis* Nutt. Ragwort.
Upland prairies, plains, rocky woods. East half and northwest fourth (map 1808). Hemicryptophyte.
5. *Senecio riddellii* T. & G. Ragwort, Groundsel.
High plains. West half, plus Cloud and Shawnee (cultivated) counties (map 1809). Hemicryptophyte.
6. *Senecio tridenticulatus* Rydb. Ragwort.
High plains. Southwest (Finney and Edwards counties) (map 1804).

FAMILY CARDUACEAE

- Arcetium minus* (Hill) Bernh. Burdock.
Including *Arcetium nemorosum* Lejeune.
Waste places. East half, a few in west half (map 1810). Therophyte (biennial).
- Carduus nutans* L. Plumeless Thistle.
Roadsides and cultivated ground. Washington county (map 1811).
- Carthamus tinctorius* L. False Saffron.
Waste places, escaped from cultivation. Sheridan county, cultivated in Clay county (map 1812).
- Centaurea americana* Nutt.
Prairies and plains. Butler, Harvey and Saline counties (map 1813).
- Centaurea cyanus* L. Bachelor's Button, Cornflower.
Waste ground, escaped from cultivation. Scattered widely throughout (map 1814). Therophyte-hemicryptophyte.
- Centaurea maculosa* Lam.
Waste ground. "Kans.," fide Rydberg. Therophyte (biennial).
- Centaurea melitensis* L.
In cultivation, escaping to waste places. Riley county (cultivated). Therophyte.
- Centaurea pteris* Pall. (*C. repens* L. ?). Star Thistle, Russian Knapweed.
Waste places and cultivated ground, spreading too rapidly. Scattered in east two-thirds (map 1815).
- Centaurea solstitialis* L. Barnaby's Thistle.
Waste places and cultivated ground, alfalfa fields. Northeast and Reno county (map 1816). Therophyte.
- Cirsium altissimum* (L.) Spreng. Pasture Thistle.
Including *Cirsium iowense* (Pammel). (R).
Thickets, open rocky slopes, low alluvial woods and waste ground. East two-thirds or more (map 1817).
- Cirsium arvense* (L.) Scop. Canada Thistle.
Fields, roadsides and waste places. North two-thirds of east sixth (map 1818).
- Cirsium discolor* (Muhl.) Spreng.
Allen county (map 1819).

14. Critical specimens identified by J. M. Greenman.

- ?*Cirsium flodmanii* (Rydb.) Arthur.
Meadows and river valleys. ?Republic and Saline counties (map 1819a).
- Cirsium lanceolatum* (L.) Hill. Bull thistle.
Fields, pastures, waste places, and roadsides. Naturalized in east half, mostly north half (map 1820).
- Cirsium ochrocentrum* A. Gray. Thistle.
Plains. West three-fifths (map 1821).
- Cirsium undulatum* (Nutt.) Spreng. Thistle.
Dry prairies and plains. Scattered throughout (map 1822).
- Cirsium undulatum megacephalum* (A. Gray) Fernald.
Cirsium megacephalum (R).
Prairies and plains. Mostly north and southeast (map 1823).
- X *Cirsium undulatum megacephalum* x *ochrocentrum*.
"Kans.," fide Rydberg.
- Onopordum acanthium* L. Scotch Thistle.
In cultivation, seldom escaping. McPherson county.

FAMILY LACTUCACEAE

- Agoseris cuspidata* (Pursh) Steud.
Nothocalais cuspidata (R).
Prairies and plains. Northwest sixth, central and northeast sixth (map 1824). Hemicryptophyte.
- Cichorium endivia* L. Endive.
Only in cultivation. Doniphan county. Therophyte (biennial).
- Cichorium intybus* L. Chicory.
Fields, roadsides and waste places. Introduced. Scattered in the north and Cherokee county (map 1825).
- Cymbia occidentalis* (Nutt.) Standley.
Krigia occidentalis (Nutt.).
Rocky open woods and prairies. Southeast (Chautauqua, Cherokee and Sedgwick counties) (map 1826). Therophyte.
- Cynthia dandelion* (L.) DC.
Krigia dandelion (L.) Nutt.
Prairies and open sandy woods. Extreme southeast (Labette and Cherokee counties) (map 1827).
- Hieracium gronovii* L. Hawkweed.
Rocky or sandy open woods. At least southeast (Cherokee county) (map 1828). Hemicryptophyte.
- Hieracium longipilum* Torr. Hawkweed.
Rocky open woods and prairies. East two-fifths (map 1829). Hemicryptophyte.
- Hieracium paniculatum* L.
Rocky open woods. Douglas county (KU) (map 1830).
- ? *Hieracium scabrum* Michx.
"Kans.," fide Rydberg, but specimen seen is *H. gronovii*.
- Lactuca canadensis* L. Wild Lettuce.
Fields, thickets and waste ground. East two-fifths and Rooks county (map 1831). Therophyte (biennial).

- Lactuca canadensis integrifolia* (Bigel.) T. & G. Wild Lettuce.
Lactuca sagittifolia Ell.
Along rivers. Scattered in east two-fifths (map 1832). Therophyte (biennial).
- Lactuca floridana* (L.) Gaertn. Wild Lettuce.
Open woods, thickets and hillsides. East third and Rooks county (map 1833). Therophyte.
- Lactuca ludoviciana* (Nutt.) Riddell. Wild Lettuce.
River banks and wet places. Throughout (map 1834). Therophyte (biennial). A blue-flowered form *campestris* (Greene) Fernald (*L. campestris* Greene) is present in central Kansas (map 1835).
- Lactuca pulchella* (Pursh.) DC. Wild Lettuce.
Wet meadows, prairies and plains. North of southwest-northeast diagonal (map 1836).
- Lactuca sativa* L. Garden Lettuce.
Much cultivated, occasionally escaping, but not persisting.
- Lactuca serriola* L. Prickly Wild Lettuce.
Lactuca scariola L. (R).
Fields and waste places. Scattered mostly in east two-thirds (map 1837). Therophyte (biennial).
- Lactuca villosa* Jacq. Wild Lettuce.
Open woods, banks and thickets. Riley county (map 1838). Therophyte.
- Lactuca virosa* L. Wild Lettuce.
Waste places and fields. Scattered probably throughout, but more frequently eastward (map 1839). Therophyte (biennial).
- Lygodesmia juncea* (Pursh.) D. Don. Skeletonweed.
Plains and prairies. West two-thirds and Doniphan county (map 1840).
- Lygodesmia rostrata* A. Gray.
Canyons and sandy plains. Scattered in west two-thirds (map 1841). Therophyte.
- Malacothrix sonchoides* (Nutt.) T. & G. Desert Dandelion.
Plains. "Kans.," fide Rydberg. Therophyte.
- Prenanthes aspera* Michx. Rattlesnakeroot.
Nabalus asper (R).
Rocky open woods and prairies. East two-fifths (map 1842).
- Prenanthes crepidinea* Michx.
Nabalus crepidineus (R).
Open woods and thickets. "Kans.," fide Rydberg.
- Ptiloria pauciflora* (Torr.) Raf.
Dry high plains. Southwest ninth (map 1843).
- Pyrrhopappus carolinianus* (Walt.) DC. False Dandelion.
Dry soil. East half, more frequent southward (map 1844).
- Pyrrhopappus grandiflorus* Nutt. False Dandelion.
Prairies. Central third, plus Miami and Crawford counties (map 1845).

- Serinia oppositifolia* (Raf.) Ktze.
Prairies, thickets or sandy open ground. East half (map 1846).
Therophyte.
- Sonchus asper* (L.) Hill. Sowthistle.
Fields and waste places. East half and scattered in west half (map 1847). Therophyte.
- Sonchus oleraceus* L. Sowthistle.
Fields and waste places. Northeast eighth and Sheridan county (map 1848). Therophyte.
- Taraxacum laevigatum* (Willd.) DC. Redseeded Dandelion.
Taraxacum erythrospermum Andr. (R).
Naturalized from Europe. Scattered, but more frequent northwards (map 1849).
- Taraxacum vulgare* Lam. Dandelion.
Taraxacum palustre vulgare (Lam.) Fernald. (Rhod. 35:380.)
Taraxacum officinale Weber. (R).
Fields, lawns, roadsides and waste places. Scattered throughout, but less frequent southward (map 1850).
- Tragopogon porrifolius* L. Salsify, Oysterplant.
Fields and waste places. Scattered throughout, except possibly the southwest (map 1851).
- Tragopogon pratensis* L. Salsify, Oysterplant.
Fields, roadsides and waste places. North half and Sedgwick county (map 1852).
- X *Tragopogon porrifolius* x *pratensis*.
Fields and waste places. North (Cheyenne to Clay counties) (map 1853).

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