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BOTANICAL DEPARTMENT

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**SIXTH REPORT ON KANSAS WEEDS--DISTRIBUTION
AND OTHER NOTES,**

In June 1896 the Experiment Station issued a Bulletin from the Botanical Department (No. 57), entitled "Third Report on Kansas Weeds — Descriptive List with Distribution." Since then many notes and observations upon weeds have accumulated and it seems best to publish them together with a new series illustrating the distribution of our weeds in the state. In regard to the latter it will be observed that many of the counties are much more fully represented than in the former Bulletin. Many of our correspondents have kindly sent in specimens of the weeds of their localities.

The species of weeds enumerated in this Bulletin are numbered to correspond with the list given in Bulletin 57. The numbers on the map also correspond. The distribution indicated on the maps is based entirely upon specimens in the herbarium of the Kansas State Agricultural College. The black dot in the center of a county indicates that we have in the herbarium a specimen from that county, but the dot does not indicate locality in the county nor the frequency of the plant.

COMMON NAMES OF WEEDS

Many weeds seem not to have received any common name in Kansas. In other cases the same weed is known in different localities by different names. In still other cases the same name is applied in different localities to very different plants. For these reasons it is necessary to use the botanical names for the sake of accuracy. In Bulletin 57 was given all the common names known to be applied to each species. In the present Bulletin only one of these has been retained, the one which seemed the most appropriate or the most generally used. There are several even among the common and troublesome kinds for which we have heard no common name, e. g., *Franseria tomentosa*, No. 77.

EIGHTY BAD WEEDS.

Of the 209 species described only 80 need be included in our list of bad weeds. In the full list of weeds and in some of the notes which follow, these eighty names are printed in bold faced type. It is true that many of the others may, in certain localities, become very troublesome. But from several years' experience and taking into consideration the state as a whole, it seems best to confine the list to the following:

Brassica juncea , Cosson.	No. 11.	Mustard.
Brassica nigra , Koch	No. 12.	Black Mustard.
Capsella Bursa-pastoris , Moench.	No. 13.	Shepherd's Purse.
Lepidium Virginicum , L	No. 14.	Pepper Grass.
Lepidium intermedium , Gray	No. 15.	Pepper Grass.
Portulaca oleracea , L	No. 20.	Purslane.
Sida spinosa , L	No. 22.	Sida.
Abutilon Avicennae , Gaertn.	No. 23.	Velvet Leaf.
Hibiscus Trionum , L	No. 24.	Bladder Ketmia.
Melilotus alba , Lam	No. 34.	White Sweet Clover.
Rosa Arkansana , Porter	No. 40.	Wlid Rose.
Gaura parviflora , Dougl	No. 43.	
Aster tanacetifolius , HBK	No. 66.	Tansy Aster.
Erigeron Canadensis , L	No. 67.	Horse Tail.
Erigeron annuus , Pears	No. 68.	Daisy Fleabane.
Erigeron strigosus , Muhl	No. 69.	Daisy Fleabane.
Ambrosia bidentata , Michx	No. 73.	Ragweed.
Ambrosia trifida , L	No. 74.	Horseweed.
Ambrosia artemisiaefolia , L	No. 75.	Ragweed.
Ambrosia psilostachya , DC	No. 76.	Perennial Ragweed.
Franseria tomentosa , Gray	No. 77	
Xanthium Canadense , Mill	No. 78.	Cocklebur.
Xanthium strumarium , L	No. 79.	Cocklebur.
Helianthus annuus , L	No. 80.	Common Sunflower.

Helianthus petiolaris , Nutt.	No. 81	Sand-hill Sunflower.
Helianthus tuberosus , L.	No. 85	Jerusalem Artichoke.
Bidens frondosa , L.	No. 88	Begger Ticks.
Bidens bipinnata , L.	No. 89	Spanish-needles.
Gaillardia pulchella , Foug.	No. 90	Nigger-toe.
Anthemis Cotula , DC.	No. 92	Dog Fennel.
Chrysanthemum Leucanthemum , L.	No. 93	Ox-eye Daisy.
Arctium Lappa , L.	No. 94	Burdock.
Cnicus lanceolatus , Hoffm.	No. 95	Common Thistle.
Cnicus undulatus , Gray.	No. 96	Pasture Thistle.
Cnicus arvensis , Hoffm.	No. 99	Canada Thistle.
Taraxacum officinale , Weber.	No. 100	Dandelion.
Lactuca Scariola , L.	No. 101	Prickly Lettuce.
Apocynum cannabinum , L.	No. 105	Indian Hemp.
Ensenlia albida , Nutt.	No. 107	Climbing Milkweed.
Cynoglossum officinale , L.	No. 108	Hound's Tongue.
Ipomoea hederacea , Jacq.	No. 113	Morning Glory.
Ipomoea purpurea , Lam.	No. 114	Morning Glory.
Convolvulus sepium , L.	No. 115	White Morning Glory.
Convolvulus sepium repens , Gray	No. 116	White Morning Glory.
Convolvulus arvensis , L.	No. 117	Bindweed.
Solanum nigrum , L.	No. 120	Nightshade.
Solanum Carolinense , L.	No. 121	Horsenettle.
Solanum elaeagnifolium , Cav.	No. 122	Prickly Nightshade.
Solarium rostratum , Dunal.	No. 123	Bull-nettle.
Physalis Virginiana , Mill.	No. 127	Ground Chery.
Physalis lanceolata , Michx.	No. 129	Ground Cherry.
Physalis longifolia , Nutt.	No. 131	Ground Cherry.
Datura Stramonium , L.	No. 132	White Jimson Weed.
Datura Tatula , L.	No. 133	Purple Jimson Weed.
Verbascum Thapsus , L.	No. 134	Mullein.
Martynia proboscidea , Glox.	No. 136	Devil's Claw.
Salvia lanceolata , Willd.	No. 141	Wild Sage.
Plantago major , L.	No. 144	Plantain.
Plantago Rugelli , Decaisne.	No. 145	Plantain.
Plantago lanceolata , L.	No. 146	Rib-grass.
Amarantus retroflexus , L.	No. 149	Red-root.
Amarantus chlorostachys , Willd.	No. 150	Pigweed.
Amarantus albus , L.	No. 151	Tumble-weed.
Amarantus spinosus , L.	No. 153	Spiny Pigweed.
Acnida tuberculata , Moq.	No. 154	Water Hemp.
Cycloloma platyphyllum , Moq.	No. 156	Sand-hill Tumble-weed.
Chenopodium album , L.	No. 157	Lamb's-quarters.
Salsola Kali Tragus, Moq.	No. 161	Russian Thistle.
Rumex Acetosella , L.	No. 167	Sheep Sorrel.
Polygonum Muhlenbergii , Wats.	No. 172	Water Smart Weed.
Polygonum Convolvulus , L.	No. 174	Wild Buckwheat.
Euphorbia marginata , Pursh.	No. 181	Snow-on-the-mountain.
Panicum glabrum , Gaudin.	No. 189	Crab-grass.

Panicum Sanguinale , L	No. 190	Crab-grass.
Panicum capillare , L.	No. 192	Old - witch Grass.
Panicum Curs-galli , L	No. 193	Barnyard Grass.
Setaria glauca , Beauv	No. 194	Yellow Foxtail.
Setaria viridis , Beauv	No. 195	Green Foxtail.
Cenchrus tribuloides , L.	No. 196	Sand - bur.
Eragrostis major , Host	No. 204	Stinking Grass.

Of these, twenty-three are perennial, all but three of which are discussed in Bulletin 76. These three are *Franseriea tomentosa* No. 77, *Cnicus arvensis* No. 99 (Canada Thistle,) and *Solanum elaeagnifolium* No. 122 (Prickly Nightshade). They all propagate from running roots.

Of the remaining number, seven are biennials, the others, annuals. The biennials are *Melilotus alba* No. 34 (White Sweet Clover), *Gaura parviflora* No 43, *Arctium Lappa* No. 94 (Burdock), *Cnicus lanceolatus* No. 95 (Common Thistle), *Lactuca Scarlola* No. 101 (Prickly Lettuce), *Cynoglossum officinale* No. 108 (Hound's Tongue), *Verbascum Thapsus* No. 134 (Mullein). Some of these appear to bear seed the first year.

Several of the annuals are so-called winter annuals. They germinate in the fall, live over winter as a rosette of leaves and flower in the early spring. Many plants of the mustard family do this way, as, for instance, the Shepherd's Purse.

NATIVITY OF OUR WEEDS

Of the total list, 149 species are native to Kansas. A few are native in some other part of the United States but are introduced in Kansas. Most of the foreign species are introduced from Europe. Several come from tropical America.

Of the eighty bad weeds half are native plants and among these are some of the worst, such as Cocklebur, Sandbur, Sunflower and Rag weeds.

Almost all of our introduced weeds have come from the east and are spreading westward. A few of our plants are spreading eastward, as, Bull-nettle, Rocky Mountain Bee Plant, Snow-on-the-Mountain and Prickly Night-shade (comes from south of Kansas). So far as known none of our plants come into Kansas from the west unless it be some of those just mentioned, which, though they appear to be natives may have had an early introduction from the states immediately west of us (e. g. Bull-nettle).

DISTRIBUTION OF OUR COMMON WEEDS

In order to indicate the range of our common weeds, a circular was sent to various correspondents in the different states and territories. The circular enumerated the eighty species of weeds which are printed in our present list in full faced type. The correspondent were asked to check off the weeds which they knew to occur in their respective states or territories. Answers were kindly sent in by most of them. From these answers and from various catalogues of local floras, the distribution of our common weeds has been worked out.

The distribution is indicated on the outline maps of the United States, appended to this bulletin. These illustrate graphically the relation of Kansas to the range of the weed in each case. It will be observed that Kansas lies in the western portion of the range of many eastern plants and the eastern portion of the range of several western weeds. This gives our state an unusual number of species of weedy plants.

The following persons answered the circulars:

- Anderson, A. P., South Carolina.
- Arthur, J. C., Indiana.
- Beal W. J., Michigan.
- Bessey, C. E., Nebraska.
- Bogue E. E., Oklahoma.
- Bolley, H. L., North Dakota.
- Bush, B. F., Missouri.
- Chester, F. D., Delaware.
- Crandall C. S., Colorado.
- Dudley, W. R., California.
- Earle F. S., Mississippi.
- Earle F. S., Alabama.
- Garman, H, Kentucky.
- Halsted B. D., New Jersey.
- Harvey, F. L., Maine.
- Henderson, L. F., Idaho.
- Hillman, F. H., Nevada.
- Holm, Theo., Maryland.
- Jones, L, R., Vermont.
- MacMillan, Conway, Minnesota.
- Massey, W. F., North Carolina.
- Tinsley, J. D., New Mexico.
- Nelson, Aven, Wyoming.

Pammel, L. H. Iowa.
Peck, C. H., New York.
Piper, C. V., Washington.
Pollock, W. M., West Virginia.
Porter, T. C., Pennsylvania.
Price, R. H., Texas.
Rolfs, P. H., Florida.
Saunders, D. L., South Dakota.
Selby, A. D., Ohio.
Sturgis, W. C., Connecticut.
Terry, Mrs. E. H., Massachusetts.
Toumey, J. W., Arizona.
Wilcox, E. V., Montana.

The following catalogues and floras were consulted:

- Beal and Wheeler, *Michigan* Flora.
Beardsley, Catalogue of plants of *Ohio*. (Agr. Rept., 1877).
Beckwith and MacCauley, Plants of Monroe Co., *New York*.
Bessey, C. E., Papers on *Nebraska* Flora.
Bishop, J. M., Wild plants in *Connecticut*. (Rept. Conn. Bd. Agr., 1895.)
Brendel, F., Flora Peoriana, *Illinois*.
Brewer and Watson, Botany of *California*.
Britton, N. L., Catalogue of plants found in *New Jersey*.
Britton, N. L., List of Plants collected in the Mogallon and San Francisco Mts., *Arizona*. (Contr. Col. College 9).
Britton and Brown, Illustrated Flora of the Northern States.
Britton and Kearney, Enum. Plants collected by Thomas E. Wilcox and others in *Arizona*. (Contr. Col. College 71).
Britton and Vail, An Enumeration of the Plants collected by M. E. Penard in *Colorado* during the summer of 1892. (Contr. Col. College 75).
Chapman, A. W., Flora of the Southern States.
Claypole, E. W., Catalogue of plants of Perry county, *Pennsylvania*, (2d Geol. Surv. Pa. F2).
Coulter, J. M., *Rocky Mountain* Flora.
Coulter, J. M., Flora of western *Texas*.
Crandall, C. S., *Colorado* weeds. (Colo. Exp. Sta., Bull. 23).
Craig, M., Some *Oregon* weeds. (Ore. Exp. Sta. Bull. 19).
Day, D. F., Buffalo Flora *New York*.
Dudley, W. R., The Cayuga Flora, *New York*.
Garrison, E. O., Geol. and Nat. Hist. Survey, *Minnesota*.

- Goff, E. S., Noxious weeds of *Wisconsin*. (Wis. Exp. Sta. Bull 39).
- Gray, A., Manual of Northern United States.
- Gray, A., Synoptical Flora.
- Green, E. L., Flora Franciscan, *California*.
- Green, E. L., Manual of the Bay Region, *California*.
- Halstead, B. D., Preliminary List of Weeds of *Iowa*. [Bull Dept. Bot. Ia. Ag. Coll. 1888).
- Hilgard, E. W., Weeds of *California*. (Agr. Exp. Sta, Rep. 1890).
- Heller, A. A., Botanical Explorations in southern Texas.
- Hillman, F. H., Early Flora of Truckee Valley, *Nevada*. (Nev. Exp. Sta Bull 24.
- Hillman, F. H., Nevada Weeds- (Nev. Exp. Sta. Bull. 21, 22).
- Hitchcock, A. S., Flora of Ames, *Iowa*. (St. Louis Trans. Ac. Sci. St. L. V).
- Holzinger, J. M., List of Plants collected by C. S. Sheldon and M. A. Carleton in the *Indian Territory* in 1891. [Contr Nat. Herb. I).
- Holzinger, J. M., Report of collection of Plants made by J. H. Sandberg in *Idaho*. (Contr. Nat. Herb. III).
- Jordan, D., S., Flora of Penikese Is., *Massachusetts*. [Am. Nat. 1874).
- Jones, L. R., *Vermont* weeds. (Rept. Agr. Exp. Sat. 1891).
- Kearney, T. H., Notes on the Flora of S. E. *Kentucky*. (Contr. Col. College 43).
- MacMillan, C., Metaspermae of the *Minnesota* Valley.
- McCarthy, G., Weed pests of the farm, *North Carolina*. (Exp. Sta. Bull. 70).
- Mell, P. H., Flora of *Alabama*. (Ala. Exp. Sat. Bull. 70).
- Millspaugh, C. F., Flora of *West Virginia*. (W. Va. Exp. Sta. Bull. 24).
- Millspaugh and Nuttall, Flora of *West Virginia*.
- Mohr, Chas H., Geological Survey of *Alabama*.
- Neal, J. C., *Oklahoma* weeds. (Okl. Exp. Sta. Bull. 17).
- Neal, J. C., Weeds of *Florida*. (Fla. Exp. Sta. Bull. 8).
- Nelson, L., First Rept. on the Flora of *Wyoming*. (Wyo. Exp. Sta. Bull. 28).
- Nelson, L., Worst weeds of *Wyoming*. (Wyo. Exp. Sta. Bull. 31.)
- Pammel, L. H., Notes on Flora of Western *Iowa* (Proc. Iowa Ac. Sci. 1895).

- Perkins, G. H., Flora of *Vermont*. (10th Ann. Rept. Rd. Agr.)
Phenney, A. J., Flora of Central-Eastern *Indiana* (12th Geol. Rept. Ind.)
Porter, T. C., Flora of *Colorado*.
Rives and Bailey, Native plants of the island of *Rhode Island*. (Proc. Newport Nat., Hist. Soc. 1886-7).
Rydberg, P. A., Flora of the Black Hills of *South Dakota*. (Contr. Nat. Herb. III).
Rydberg, P. A. flora of the Sandhills of *Nebraska*. (Contr. Nat. Herb. III)
Scribner, F. L., Weeds of *Maine*. (Rept. Bd. Agr. 1869)
Scribner and Newman, Report on weeds of the farm—*Tennessee*. (Exp. Sta. Bull- I. 3).
Shimek, B., Notes on the Flora of *Iowa*. (Bull. Lab. Nat. Hist. Iowa, III)
Swezey, G. D., *Nebraska* Flowering Plants.
Tracy, S. M., (Catalogue of *Missouri* plants. (18th Ann. Rept. Mo. Bd. Ag.)
Ward, L. F., Flora of Washington, *D. C.* (Bull. Nat. Mus. 22).
Wooton, E. O., *New Mexico* weeds. (N. Mex. Exp. Sta Bull-. 13).
Wright, A. A., Plants of Loraine Co., *Ohio*.

METHODS BY WHICH WEED SEEDS ARE SCATTERED .

Seeds are scattered by wind, by animals, by water, by spontaneous bursting of fruit and by man. It will be observed that weedy plants usually possess excellent methods for scattering the seeds. The species included in our list may be grouped as follows:

WIND.

(1) *Tumble weeds:* The plant breaks off just above the ground and is rolled along by the wind, dropping seeds as it goes. The plants are bushy in their build, light, and especially adapted to the prairie regions.

Solanum rostratum No. 123, Bull nettle.

Amarantus retroflexus No. 149, Red-root--occasionally only.

Amarantus albus No. 151, Tumble-weed.

Cycloloma platyphyllum No. 156, Sand hill Tumble-weed.

Corispermum hyssopifolium No. 160, Brig-seed.

Salsola Kali Tragus No. 161, Russian Thistle.

(2) *Tumbling fruiting portions:* Several plants, mostly

grasses, allow the seed bearing portion to fall off at maturity and roll before the wind.

Erysimum asperum No. 8 Western Wall Flower.

Physalis Nos. 125 to 131. Ground Cherries.

Panicum capillare No. 192, Old-witch Grass—whole inflorescence.

Aristida oligantha No. 197, Wire Grass Separate fruits.

Aristida purpurea No. 198, Spear Grass

Schedonnardus Texanus No. 201. Whole inflorescence.

Eragrostis pectinacea No. 206, Tickle Grass. Whole inflorescence.

Hordeum jubatum No. 208, Squirrel-tail Grass. Portions of inflorescence.

Elymus Sitanion No. 209, Wild Barley. Whole inflorescence which often breaks up.

(3) *Seeds or fruits with tufts of hairs:* These may float in the air for long distances.

Vernonia Arkansana No. 55, Ironweed.

Vernonia fasciculata No. 56, Ironweed.

Vernonia Baldwinii No. 57, Ironweed.

Aplopappus ciliatus No. 61.

Heterotheca Lamarckii No. 62

Solidago serotina No. 63, Golden-rod.

Solidago Canadensis No. 64, Golden-rod

Solidago rigida No. 65, Golden-rod.

Aster tanacetifolius No. 66, Tansy Aster.

Erigeron Canadensis No. 67, Horse Tail

Erigeron annuus No. 68, Daisy Fleabane.

Erigeron strigosus No. 69, Daisy Fleabane

Gnaphalium polycephalum No. 70, Life Everlasting.

Gaillardia pulchella No. 90, Nigger-toe.

Dysodia chrysanthemoides No. 91 Stink-weed

Cnicus lanceolatus No. 95, Common Thistle.

Cnicus undulatus No. 96, Pasture Thistle.

Cnicus oclurocentrus No. 97, Western Thistle

Cnicus altissimus No. 93, Tall Thistle.

Cnicus arvensis No. 99, Canada Thistle.

Taraxacum officinale No. 100, Dandelion-

Lactuca Scariola No. 101, Prickly Lettuce.

Lactuca Canadensis No. 102 Wild Lettuce

Lactuca pulchella No. 103, Wild Lettuce.

Sonchus asper No. 104. Sow Thistle.

Apocynum cannabinum No 105, Indian Hemp.

Asclepias Cornuti No. 106., Milkweed.

Ensenia albida No. 107, Climbing Milkweed.

(4) *Seeds or fruits with wings.*

Verbesina encelioides No. 86, Dog-weed.

Cycloloma platyphyllum No. 156, Sand-hill Tumble-weed

Corispermum hyssopifolium No. 160, Bug Seed.

Salsola Kali Tragus No. 161, Russian Thistle.

(5) *Seed coat mucilaginous:* When wet thus sticking the seeds to dead leaves which in turn are blown about by the wind.

Plantago Nos. 144 to 147. Plantains

ANIMALS.

(1) *Fruits or seeds provided with hooks, barbs or other appendages:* With these they become attached to animals.

Sanicula Marylandica No. 51, Black Snake-root.

Franseria tomentosa No. 77.

Xanthium Canadense No. 78, Cocklebur.

Xanthium strumarium No. 79, Cocklebur.

Bidens frondosa No. 88, Beggarticks.

Bidens bipinnata No. 89, Spanish-needles.

Arctium Lappa No. 94, Burdock.

Cynoglossum officinale No. 108, Hound's Tongue.

Echinosperrum Redowskii occidentale No. 110.

Echinosperrum Redowskii cupulatum No. 111.

Martynia proboscidea No. 136, Devil's Claw.

Cenchrus tribuloides No. 196, Sandbur.

Aristida oligantha No. 197, Wire Grass.

Aristida purpurea No. 198, Spear Grass.

(2) **Fruit fleshy:** The flesh is eaten by animals especially birds, but the seeds escape digestion, or are discarded

Corydalis aurea No. 4, Golden Corydalis. The fleshy appendage of the seed is eaten by ants.

Rhus glabra No. 30, Smooth Sumac.

Rhus copallina No. 31, Downy Sumac.

Rosa Arkansana No. 40, Wild Rose.

Mamillaria vivipara No. 44, Globe Cactus.

Mamillaria Missouriensis No. 45, Bird's Nest Cactus.

Opuntia Rafinesquii No. 46, Prickly Pear.

Sambucus Canadensis No. 52, Elderberry.

Symphoricarpos vulgaris No. 53, Buck Bush.

Solanum triflorum No. 119, Spreading Nightshade.

Solanum nigrum No. 120, Nightshade

Chamaesaracha sordida No. 124.

Physalis Nos. 125 to 131. Ground Cherries.

Phytolacca decandra No. 162, Poke-weed.

(8) *Seed pod upright on a slender, elastic stalk:* When animals brush against this, the pod or top of the plant is bent to one side and when released springs back suddenly, throwing the seeds a short distance. The pod is sometimes provided with projections which aid in catching animals as they pass. e.g., *Jimson Weed*.

Argemone Mexicana albiflora No. 2, Mexican Poppy.

Argemone platyceras No. 32, Mexican Poppy.

Abutilon Avicennae No. 23, Velvet Leaf.

Hibiscus Trionum No. 24, Bladder Ketmia.

Oenothera biennis No. 41, Evening Primrose

Datura Stramonium No. 132, White Jimson Weed

Datura Tatula No. 133, Purple Jimson Weed.

Verbascum Thapsus No. 134, Mullein.

Verbena stricta No. 138, Blue Vervain

(9) *Seeds small and smooth:* Persistent on plants until winter. They are then eaten by birds, especially when there is snow upon the ground. The plants sticking up through the snow are visited by birds who devour the seeds but scatter large quantities upon the surface. These wasted seeds are blown long distances upon the crust of the snow. This is undoubtedly an important means of scattering such seeds as *Sunflower*, *Red-root*, *Lamb's-quarter* and *Smart Weed*.

AUTOMATIC MOVEMENTS.

(10) *Seeds scattered by explosion:* Or some sudden movement on the part of the pod. For description of process in each case, see Bulletin 66.

Geranium Carolinianum No. 25, Wild Geranium.

Oxalis violacea No. 26, Wood Sorrel.

Oxalis corniculata No. 27, Yellow Wood Sorrel.

Oxalis corniculata stricta No. 28, Yellow Wood Sorrel.

Ceanothus ovatus No. 29, Red Root.

Hosackia Purshiana No. 35.

Strophostyles angulosa No. 36, Wild Bean.

Strophostyles pauciflora No. 37, Wild Bean.

Euphorbia Nos. 175 to 182. Spurges.

Acalypha Caroliniana No. 183, Three-seeded Mercury.

OTHER METHODS.

Small seeds are blown great distances along with the dust by the high winds in dry weather. Rains wash them from place to place. They stick to the muddy feet of various animals. Many are eaten but escape digestion.

The methods detailed above serve to scatter the seeds a greater or less distance from the mother plant; but, for the transportation from one country to another, often across the ocean, man is the usual agent. Seeds are present in grass, grain and vegetable seed, are imported with these and planted. This method of introduction of noxious weed seeds is probably the most serious.

Railroads are great carriers of weed seed. Strange weeds often make their first appearance along the railroad track, probably scattered from the bedding in stock cars.

Care should be taken to buy seed of responsible parties who will guarantee it to be free from noxious weed seed. All ground planted to imported seed should be carefully watched and any noxious weeds eradicated the first season before they have had time to produce seed.

DWARF WEEDS.

While ordinary weed specimens may attain considerable size, under adverse circumstances the same species may develop only dwarf plants. The ability to produce dwarf plants is no doubt an important factor in the successful competition of weeds. These dwarfs may be only an inch or two high and bear less than half a dozen leaves and yet produce flowers and afterwards perfect seeds. These dwarfs mature quickly. In many cases plants have been observed in which ripe seeds were produced before the cotyledons had fallen. So far as observed only annuals occur as dwarfs.

HOW WEEDS OCCUPY NEW OR BARE SOIL.

To determine the tendency of different plants to occupy open ground, a plat ten feet square was marked off in 1893. The soil had been under cultivation for several years. From time to time the seedlings were removed and recorded. The following table gives the record for the years 1893-97. In 1894 another, similar plat was laid off near the first. The record of this plat is also given. The difference in the grand total for the two plats is due

largely to the immense number of seedlings of Bull Nettle (*Solanum rostratum*) in the second plat. The following plants were particular abundant: Purslane (*Portulaca oleracea*), Bladder Ketmia (*Hibiscus Trionum*), Evening Primrose (*Oenothera biennis*), Bull Nettle (*Solanum rostratum*), Red-root (*Amarantus retroflexus*), Water Hemp (*Acnida tuberculata*), Smartweed (*Polygonum Pennsylvanicum*), Crab-grass (*Panicum sanguinale*), Stinking-grass (*Eragrostis major*).

It is interesting to note that none of these last are provided with contrivances for wind distribution. They are all small seeds and are presumably carried along with the dust during strong winds. Since animals were not allowed access to the field, it is obvious that plants depending upon animals for their distribution would not be present in large numbers. Of the total number, over 100,000, only about forty are plants not included in the list of weeds.

To save space only those species which aggregate at least ten for the series of years are included.

Record of East Weed Bed--Ten Feet Square.

	1895.							1896.					1897.							Totals for 5 yrs.						
	3-30	5-4	6-1	6-22	7-15	7-30	9-15	To-tal.	5-14	6-12	7-13	8-3	8-22	To-tal.	3-27	5-17	6-2	6-11	6-25		7-20	8-30	To-tal.			
1																								21	21	
2																									1	47
3	31							31																	1	21835
4		113	1088	1091	123	727	221	3363																	9	12
5			4	3				7																	2	715
6			3	8	13	5	5	40																2	218	
7					2			2																1	150	
8																										167
9																										18
10	32			4	9		8	53							205	6									211	211
11																9	11	6		1					27	98
12																										31
13																										54
14																										160
15		7	7		1			15																		17
16																										89
17																										443
18																										115
19	3	22						25																		13
20																										267
21																										171
22																										15
23																										4
24																										101
25																										55
26																										9
27																										48
28																										65
29																										14
30																										14
31																										655
32																										2
33																										95
34																										49
35																										34
36																										19
37																										10
38																										14
39																										130
40																										58
41																										19
42																										197
43																										11
44																										32
45																										30
46																										211
47																										75
48																										78
49																										2715
																										189
																										17
																										20
																										343
																										2837
																										80

Grand Total ... 37639

Record of West Weed Bed--Ten Feet Square.

	1894.								1895.								1896.					1897.					Totals for 4 yrs.					
	4-26	5-16	6-4	6-20	7-6	7-25	9-18	To-tal.	3-30	4-15	5-4	6-1	6-22	7-15	7-30	9-5	To-tal.	5-14	6-12	7-13	8-3	8-22	To-tal.	3-28	5-17	6-11		6-25	7-20	8-30	To-tal.	
Nasturtium sinuatum, Nutt.									98								98													42	42	
Lepidium species.																															98	
Lepidium intermedium, Gray																															13	
Polanisia trachysperma, T & G.																															20	
Portulaca oleracea, L.	975	883	860	700	41	111	1475	5045		69	788		1108	200	786	333	3284		7	895	6830	137	1	7840					1823	17792		
Hibiscus Trionum, L.	1115	569	210	40	51	45	130	2141		232	46	350	459	308	103	244	1762		285	184	911	59	13	1452					814	6169		
Oxalis corniculata, L.		9	4				13					7					7													97	117	
Oenothera biennis, L.														1			5													1738	1739	
Gaura parviflora, Dougl.			3			2	5		5																					3	13	
Ambrosia artemisiacifolia, L.																														11	11	
Helianthus annuus, L.																				2										66	68	
Helianthus grosse-serratus, Mart.																														11	11	
Solanum rostratum, Dunal	9300	30	50	10	3		9393	379	10601	2519	2504	9	2			16014	1990		4	3			1097						899	28303		
Physalis lanceolata, Michx.											8	8			1		17													22	30	
Datura Stramonium, L.																														2	818	
Verbena stricta, Vent.			8					8				10			3		13				16			16					82	119		
Unknown, probably Leonurus Cardiaea																														45	45	
Leonurus Cardiaea, L.												2					2						2							53	57	
Acnida tuberculata and Amarantus retroflexus, L.	913	62	125	113	28	10	48	1863				19	26	29	8	4	87	14	20	8	2	1	45						142	1863		
Amarantus retroflexus, L.												17	15	3	5	2	42													2	112	
Amarantus albus, L.												135	15	1			151	52	20		2		74						57	282		
Amarantus blitoides, Wats												125	3	3	3	1	136	37	25		2		64						1	807	1007	
Acnida tuberculata, Moq.																														9	116	
Rumex altissimus, Wood																														6	122	
Polygonum Pennsylvanicum, L.	2700	96	6	2	1		2805	977	556	133	6			1		1673	145	10					155						488	5121		
Euphorbia serpens, H B K																														62	64	
Euphorbia maculata, L.			9	98	35	37	31	5	305				21	21	21	24	128		48	10	33	8	99					6	239	771		
Euphorbia marginata, Pursh																														2	54	
Euphorbia dentata, Michx			9					9					1				20		2				2						3	32	54	
Gramineae	523	575	325	198		14	3	1621																					10	20	1621	
Panicum species																														17	17	
Panicum sanguinale, L.												56					62													843	940	
Panicum capillare, Host													30	5		2	37													1	403	499
Setaria viridis, Beauv.																														1	160	163
Eragrostis major, Host.						101	11	10	122				40	185	103	78	146	569		266	43	104	49	462					40	1185	2338	
26 other species.																															83	83

Grand Total.....70825

NUMBERS OF SEEDS PRODUCED BY SOME WEEDS.

In order to determine approximately the number of seeds produced by a single plant of some of our common weeds, a well developed individual was chosen and a portion of the seeds counted. From this number the total number was estimated. The following are the results:

Portulaca oleracea No. 20, Purslane	69,000
Abutilon Avicennae No. 23, Velvet Leaf	31,900
Hibiscus Trionum No. 24, Bladder Ketmia	43,300
Ambrosia artemisiaefolia No. 75, Rag weed	23,100
Xanthium Canadense No. 78, Cocklebur.	9,700
Bidens frondosa No. 88, Beggar-ticks.	10,500
Martynia proboscidea No. 136, Devil's Claw.	8,000
<i>Salvia lanceolata</i> No. 141, Wild Sage	1,900
Amarantus retroflexus No. 149, Red-root.	85,000
Amarantus albus No. 151, Tumble-weed	14,000
Amarantus blitoides No. 152, Pigweed Purslane	155,000
Acnida tuberculata No. 154, Water Hemp.	945,000
Cycloloma platyphyllum No. 156, Sand-hill Tumble-weed.	357,600
Euphorbia marginata No. 181, Snow-on-the-mountain	21,900
Panicum sanguinale No. 190, Crab-grass	89,600
Setaria glauca No. 194, Yellow Foxtail.	113,600
Cenchrus tribuloides No. 196, Sand-bur	42,700
Eragrostis major No. 204, Stinking Grass	140,000

SELF FERTILIZATION OF FLOWERS.

The flowers of several kinds of weeds were enclosed in paper sacks before any of the buds had opened. The sacks remained on until the maturity of the plant. The following failed to produce seed, from which it can be inferred that insects are necessary for the production of perfect seeds. They visit the flowers for nectar and thereby carry pollen from one flower to another.

- Portulaca oleracea** No. 20, Purslane.
- Ipomoea hederacea** No. 113, Morning Glory.
- Ipomoea purpurea** No. 114, Morning Glory.
- Solarium rostratum** No. 123, Bull-nettle.
- Euphorbia maculata** No. 177, Spurge.

The following produced good seed and consequently are independent of help from insects or other external agencies:

- Abutilon Avicennae** No. 23. Velvet Leaf.

Hibiscus Trionum No. 24, Bladder Ketmia.

Iva ciliata No. 71.

Bidens frondosa No. 88, Beggar-ticks.

Amarantus retroflexus No. 1-10, Red-root.

Acnida tuberculata No. 154, Water Hemp.

Chenopodium album No. 157, Lamb's-quarters.

Phytolacca decandra No. 162, Pokeweed.

Polygonum Pennsylvanicum No. 171, Smart-weed. Seed smaller than average.

Euphorbia marginata No. 181, Snow-on-the-mountain,

Panicum sanguinale No. 190, Crab-grass.

Setaria glauca No. 194, Yellow Foxtail.

Eragrostis major No. 204, Stinking Grass.

ERADICATION OF WEEDS.

The method of eradication depends upon the nature of the plant. Annuals can be eradicated by clean cultivation of a crop like corn or potatoes. Proper rotation of crops will prevent annuals from getting the upper hand in grain fields. Annuals under such treatment need not give trouble in fields or gardens. In meadows, pastures and lawns they must be choked out by a vigorous growth of grass. They can be held in check by mowing before the seed is ripe. It may be necessary to keep stock off a pasture a season or even more to give the grass a chance. This is especially true of native pastures. Close feeding reduces the grass, and the weeds, not being eaten by the stock, flourish vigorously.

Biennials will usually yield to the same treatment. Stray plants in neglected spots can be cut with a spud or other instrument which will cut the plant below the crown.

For eradication of perennial weeds see Bulletin 76, p. 3. As shown there, many weeds will produce buds from their cut roots. So cutting off below the crown of perennial weeds like the dandelion or pasture thistle does not necessarily kill them.

There is, however, no royal road to freedom from weeds. But it is much easier to keep a farm reasonably free from weeds than it is to eradicate them after they have overrun the land. It is useless to hope for complete absence of weeds. They will obtain a foothold in neglected spots, often out of control, and then propagate. The wind or animals will carry seed from a neighboring farm. An examination of our plats from which we periodically

remove all the weeds, will show how quickly new plants come to take the place of the old.

Vigilance may, however, keep a small farm free from some of the worst weeds as Cocklebur and Sandbur. But such weeds as Red-root and Lamb's-quarters will be always with us. They can propagate by dwarf plants under adverse circumstances, and can obtain a lodgment, in such out-of-the way places that they escape detection.

LIST OF WEEDS.

1. RANUNCULUS ACRIS, L. (Tall Buttercup.)

This plant which is such a bad weed in eastern United States, is established sparingly in but a few localities in Kansas, and has shown no tendency to spread.

2. ARGEMONE MEXICANA ALBIFLORA, DC. (Mexican Poppy.)

Although troublesome on account of its prickles, this plant cannot be considered as a bad weed. The large, white flowers are attractive. Acts more like an introduced plant than the next.

3. ARGEMONE PLATYCERAS, Link & Otto. (Mexican Poppy.)

A native of the plains and nothing worse than a pasture weed.

4. CORYDALIS AUREA, Willd. (Golden Corydalis.)

Becomes quite abundant in cultivated ground in eastern Kansas, but easy to eradicate.

5. CAMELINA SATIVA, Crantz. (False Flax.)

Troublesome in fields, especially flax fields in eastern United States, but rare in Kansas.

6. NASTURTIUM SINUATUM, Nutt. (Yellow Cress.)

A harmless wayside plant, common in moist places.

7. NASTURTIUM SESSILIFLORUM, Nutt. (Yellow Cress.)

Similar to the preceding but more weedy.

8. ERYSIMUM ASPERUM, DC. (Western Wall Flower.)

Common only in western Kansas. Not particularly troublesome except for the tumbling clusters of pods which break off at maturity and roll before the wind.

9. SISYMBRIUM CANESCENS, Nutt. (Tansy Mustard.)

A common wayside weed in the spring; not troublesome.

10. SISYMBRIUM OFFICINALE, Scop. (Hedge Mustard.)

A homely weed but confined chiefly to waste places through eastern Kansas.

11. **Brassica juncea**, Cosson. (Mustard.)

Becoming troublesome in grain fields in eastern Kansas, This plant was described in Bulletin 57 under Brassica Sinapistrum but a more careful study shows that apparently all our specimens belong to *B. juncea*. The plants are not difficult to eradicate, but from their tendency to mature early they become noxious in grain fields. The same is true of the two following.

12. **Brassica nigra**, Koch. (Black Mustard.)

In its weedy characters similar to the preceding.

12a. **BRASSICA CAMPESTRIS**, L. (Turnip.)

Cultivated more or less throughout the state. It often escapes from cultivation and becomes a weed, sometimes, locally, a bad weed.

13. **Capsella Bursa-pastoris**, Moench. (Shepherd's purse.)

A very common weed in gardens, lawns, door-yards and waste places, but not difficult to eradicate nor troublesome in cultivated grounds. These remarks apply also to the following.

14. **Lepidium Virginicum**, L. (Pepper Grass.)

Very common in eastern Kansas.

15. **Lepidium intermedium**, Gray. (Pepper Grass.)

Very common in central and western Kansas.

16. **POLANISIA TRACHYSPERMA**, Torr. & Gray.

A common plant in sand hills, and becomes a weed in or near these regions.

17. **CLEOME INTEGRIFOLIA**, Torr. & Gray. (Rocky Mountain Bee Plant.)

Common in western Kansas, especially along irrigation ditches in the Arkansas Valley, sometimes locally abundant farther east.

18. **CERASTIUM VULGATUM** L. (Mouse-ear Chickweed.)

Common in old fields and waste places in eastern Kansas. Sometimes in lawns.

19. **CERASTIUM NUTANS**, Raf. (Chickweed.)

Similar to the preceding but not so weedy.

20. **Portulaca oleracea**, L. (Purslane.)

One of our commonest weeds, growing in cultivated ground and especially troublesome in gardens. Not difficult to eradicate.

21. **MALVA ROTUNDIFOLIA**, L. (Common Mallow.)

Common in eastern Kansas but mostly confined to waste places, door yards and roadsides.

22. **Sida spinosa**, L. (Sida.)

Common in eastern and southeastern Kansas, but being an annual is not difficult to eradicate

23. **Abutilon Avicennae**, Gertn. (Velvet Leaf.)

A common weed in eastern Kansas. It becomes particularly abundant in old fields, old stock yards, manured soil and other neglected places,

24. **Hibiscus Trionum**, L. (Bladder Ketmia.)

Locally abundant in eastern Kansas and then quite troublesome in cultivated fields.

25. **GERANIUM CAROLINIANUM**, L. (Wild Geranium.)

Becomes common in sandy or barren fields in eastern Kansas but is not troublesome.

26. **OXALIS VIOLACEA**, L. (Wood Sorrel.)

Frequent in fields and tame grass meadows in eastern Kansas.

27. **OXALIS CORNICULATA**, L. (Yellow Wood Sorrel.)

Common in fields and waste places but not troublesome.

A form of this occurs commonly in greenhouses as a weed. This form is *Oxalis corniculata*, L. While the outdoor plant is var. *Dillenii* Trelease.

28. **OXALIS CORNICULATA**, STRICTA, Sav. (Yellow Wood Sorrel.)

Similar to the preceding but apparently not so weedy.

29. **CEANOTHUS OVATUS**, Desf. (Red Root.)

A pasture weed becoming abundant on sterile or stony hills. Not found in western Kansas.

The map showing distribution includes the variety pubescens T. & G.

30. **RHUS GLABRA**, L. (Smooth Sumac.)

A pasture weed spreading over rocky hills.

31. **RHUS COPALLINA**, L. (Downy Sumac.)

Similar to the preceding but not extending so far west.

32. **RHUS TOXICODENDRON**, L. (Poison Ivy.)

Troublesome chiefly on account of its poisonous properties. The low, bushy form is common all over the state in shaded places.

Often abundant around dwellings in neglected corners, fence rows, orchards and hedges, where it may remain unnoticed until a case of poisoning occurs.

33. *MELILOTUS OFFICINALIS*, Willd. (Yellow Sweet Clover.)

Has been found chiefly along streets in town. Has not become abundant.

34. **Melilotus alba**, Lam. (White Sweet Clover.)

This plant is spreading rapidly and promises to be a serious pest. However, it is thus far found chiefly along roadsides and other occupied land. It shows a preference for clay soil.

35. *HOSACKIA PURSHIANA*, Benth.

Quite abundant in places, but difficult to eradicate. We have been unable to find that any common name has been applied to this.

36. *STROPHOSTYLES ANGULOSA*, Ell. (Wild Bean.)

Common only in sandy soil where it is troublesome on account of its trailing or climbing habit.

37. *STROPHOSTYLES PAUCIFLORA*, Wats. (Wild Bean).

Not so common in cultivated fields.

38. *CASSIA MARILANDICA*, L. (Wild Senna.)

Scarcely to be considered as a weed in Kansas.

39. *CASSIA CHAMAECRISTA* L. (Partridge Pea.)

Becomes very abundant on sterile or sandy soil but not often troublesome.

40. **Rosa Arkansana**, Porter. (Wild Rose.)

This deep rooted perennial often persists for several years in grain fields after the sod has been broken. It is difficult to eradicate on account of its running rootstock.

41. *OENOTHERA BIENNIS* L. (Evening Primrose.)

Often abundant in old fields and waste places but not troublesome in cultivated soil.

42. *GAURA BIENNIS*, L.

Waste places and sometimes in pastures.

44 to 49. *CACTUSES*

The six species of cactus mentioned in Bulletin 57 are not bad weeds except as they are troublesome on grazing land on account of their spines.

50. *MOLLUGO VERTICILLATA*, L. (Carpet Weed.)

Frequent in cultivated ground in summer but not a bad weed.

51. *SANICULA MARYLANDICA*, L. (Black Snake-root.)

Scarcely a weed with us.

52. SAMBUCUS CANADENSIS, L. (Elder-berry.)

This shrub sometimes becomes a serious pest in cultivated ground. It is difficult to eradicate when once well established for it multiplies by creeping underground stems.

53. SYMPHORICARPOS VULGARIS, Michx. (Buck Bush.)

A common shrub, propagating by prostrate stems not troublesome in cultivated ground but often so in pastures.

54. DIODIA TERES, Walt. (Button Weed.)

Found only in the southeastern counties, common in sandy or sterile soil but not often harmful.

55. VERNONIA ARKANSANA, DC.

56. VERNONIA FASCICULATA, Michx.

57. VERNONIA BALDWINII, Torr.

58. GUTIERREZIA, EUTHAMIAE, T. & G

59. AMPHIACHYRIS DRACUNCULOIDES, Nutt.

60. GRINDELIA SQUARROSA, Dunal.

These six plants are all pasture weeds and not often troublesome otherwise. The first three are known as Iron weeds and are found only in the eastern part of the state as weeds. They extend west along the water courses. No 58 is a Western Plant abundant in the valleys No. 59. is very abundant on the stony hills of southeastern Kansas. No. 60, sometimes called Gum weed, is found chiefly in the northern part of the state.

61. APLOPAPPUS CILIATUS, DC.

Common in the valley lands in southeastern Kansas. This is described in Bulletin 57 under *Grindelia squarrosa grandiflora*.

62. HETEROTHECA LAMARCKII, Cass.

Abundant in sandy soil in southwestern Kansas.

63. SOLIDAGO SEROTINA, Ait.

64. SOLIDAGO CANADENSIS, L.

65. SOLIDAGO RIGIDA, L.

These are all known as Golden-rods. The first two are roadside weeds, common along fences, and, more or less, in waste places. The last is a common pasture weed in eastern Kansas.

66. *Aster tanacetifolius*, HBK. (Tansy Aster.)

A common weed in cultivated ground in western Kansas. Prefers sandy soil.

67. **Erigeron Canadensis**, L. (Horse Tail.)

One of the most common and wide spread weeds in the state, but not often troublesome in cultivated soil. Found chiefly in neglected fields and waste places.

68. **Erigeron annuus**, Pers. (Daisy Fleabane.)

69. **Erigeron strigosus**, Muhl. (Daisy Fleabane)

These are both common in cultivated soil and grain fields, the first only in eastern Kansas. Easily eradicated.

70. **GNAPHALIUM POLYCEPHALUM**, Michx. (Life Everlasting.)

Chiefly in old, sandy fields. Not very troublesome in Kansas

71. **IVA CILIATA**, Willd.

Common in moist cultivated ground but easily eradicated.

72. **IVA XANTHIFOLIA**, Nutt. (False Sunflower.)

Common in western Kansas in waste places and sometimes in cultivated ground.

73. **Ambrosia bidentata**, Michx. (Ragweed.)

A common and troublesome weed in southeastern Kansas.

74. **Ambrosia trifida**, L. (Horse Weed.)

A very common weed in cultivated soil. Most abundant in low ground.

75. **Ambrosia artemisiaefolia**, L. (Ragweed.)

One of our commonest weeds. An annual and hence not so difficult to eradicate as the next.

76. **Ambrosia psilostachya** DC. (Perennial Ragweed.)

Common especially in central and western Kansas. This is one of our worst weeds. Its running roots are difficult to eradicate and it often persists for several years in well cultivated soil.

77. **Franseria tomentosa**, Gray.

Locally very troublesome but fortunately not very wide spread. Found mostly in the black, sticky soil of west central Kansas, such as the basin of Scott county.

78. **Xanthium Canadense**, Mill. (Cocklebur.)

79. **Xanthium strumarium**, L. (Cocklebur.)

These two species resemble each other closely, differing only

in the appearance of the bur, and for all practical purposes may be considered together. The cocklebur is not common in western Kansas. Although often found in sloughs and other moist places it does not invade cultivated fields to any great extent. But in eastern Kansas it is considered by many to be our worst weed. This is not so much from the difficulty of eradication as it is an annual, but rather from its great abundance and the presence of the burs. It is a common supposition that only one of the two seeds of the bur germinates in a given season, the other not germinating till succeeding year. This is often true because when the bur lies on the moist ground the seed on the under side will germinate first, while the other may not receive the proper amount of moisture to cause germination. However, even if both seeds are under suitable conditions, they may not both germinate the season following their formation.

80. **Helianthus annuus**, L. (Common Sunflower.)

Common all over the state but proportionately a much worse weed in the western part. The plant thrives on the uplands as well as in the bottom land though it does not produce as vigorous a growth.

81. **Helianthus petiolaris**, Nutt. (Sand-hill Sunflower.)

This takes the place of the common sunflower where the soil is sandy. It usually does not grow so large.

82. **HELIANTHUS ORGYALIS**, DC. (Narrow leaved Sunflower.)

A common pasture weed on stony hills in southeastern Kansas.

83. **HELIANTHUS GROSSE-SERRATUS**, Martens.

84. **HELIANTHUS MAXIMILIANI**, Schrad.

These two plants are sometimes known as Iron weeds. They become weedy only in moist fields along sloughs.

85. **Helianthus tuberosus**, L. (Jerusalem Artichoke.)

Rather abundant through eastern Kansas. Perennial by tubers.

86. **VERBESINA ENCELIODES**, B. & H. (Dog-weed.)

Common in the Arkansas Valley in the western part of the state.

87. **COREOPSIS TINCTORIA**, Nutt.

Common in central Kansas in stubble fields but not often troublesome.

88. **Bidens frondosa**, L. (Beggar-ticks.)

A common weed in bottom land fields, troublesome chiefly on account of its two-pronged fruit.

89. **Bidens bipinnata**, L. (Spanish-needles.)

A more dangerous weed than the preceding, but confined to the southeast corner of the state.

90. **GAILLARDIA PULCHELLA**, Foug. (Niggertoe.)

A common weed in western Kansas in sandy soil.

91. **DYSODIA CHRYSANTHEMOIDES**, Lag. (Stink-weed.)

Common along roadsides and similar places Not troublesome except for its disagreeable odor.

93. **Anthemis Cotula**, DC. (Dog Fennel.)

A common weed in eastern states but confined to the eastern counties in Kansas. Not often troublesome with us in cultivated soil.

93. **Chrysanthemum Leucanthemum**, L. (Ox-eye Daisy.)

A very troublesome weed in the eastern states but fortunately not yet common in Kansas. However, in some localities where it has been introduced it is already a great pest. It is especially troublesome in tame grass pastures as it is a perennial.

94. **Arctium Lappa**, L. (Burdock.)

Quite troublesome in some parts of eastern Kansas. Found mostly in neglected spots.

95. **Cnicus lanceolatus**, Hoffm. (Common Thistle.)

This is one of the most common of thistles eastward but is not as common in Kansas as some other species, for example the tall thistle, No. 98. It is, however, common in many localities in the eastern counties, and is very troublesome in tame pastures. A biennial.

96. **Cnicus undulatus**, Gray. (Pasture Thistle.)

This is common in central Kansas and is especially troublesome in pastures. Unlike most thistles it is a perennial and consequently difficult to eradicate.

97. **CNICUS OCHROCENTRUS**, Gray. (Western Thistle.)

The western representative of the preceding species.

98. **CNICUS ALTISSIMUS**, Willd. (Tall Thistle.)

Common along roadsides and other neglected spots.

99. **Cnicus arvensis**, Hoffm. (Canada Thistle.)

An exceedingly noxious weed in the eastern states but rare in Kansas and fortunately seems to show no tendency to spread.

100. **Taraxacum officinale**, Weber. (Dandelion.)

Rather common in eastern Kansas. Very troublesome in lawns. Since cutting off below the crown does not kill the plant it is difficult to eradicate. (See Bulletin 76, p. 14.)

101. **Lactuca Scariola**, L. (Prickly Lettuce.)

This plant was rather recently introduced into the United States, but it has spread rapidly and is now quite common in eastern Kansas but does not intrude on cultivated ground extensively. It rather prefers neglected spots and old fields.

102. **LACTUCA CANADENSIS**, L. (Wild Lettuce)

An unsightly biennial common in waste places, and sometimes in grain fields.

103. **LACTUCA PULCHELLA**, DC. (Wild Lettuce.)

confined to western Kansas. In waste places but not very troublesome.

104. **SONCHUS ASPER**, Vill. (Sow Thistle)

Not common in Kansas. Waste places.

105. **Apocynum cannabinum**, L. (Indian Hemp.)

Common in moist places throughout Kansas and often very troublesome in cultivated fields through the eastern part of the state. The roots creep extensively.

106. **ASCLEPIAS CORNUTI**, Decaisne. (Milkweed.)

Occasionally troublesome in cultivated fields on account of its deep seated perennial roots.

107. **ENSLERIA ALBIDA**, Nutt. (Climbing Milkweed.)

Not wide spread in Kansas but locally very abundant. Quite a pest in cornfields in certain localities.

108. **CYNOGLOSSUM OFFICINALE**, L. (Hound's Tongue.)

A frequent weed in eastern Kansas. Most abundant in waste ground but often in pastures where it may become a pest.

109. **ECHINOSPERMUM VIRGINICUM**, Lehm. (Beggar-lice.)

Common in eastern Kansas but mostly in woods, sometimes in pastures.

110. **ECHINOSPERMUM REDOWSKII OCCIDENTALE**, Wats.

111. *ECHINOSPERMUM REDOWSKII CUPULATUM*, Gray.

112. *KRYNITZKIA CRASSISEPELA*, Gray.

These three are all western plants common in cultivated soil, along fire guards and other new ground but not particularly noxious.

113. *Ipomoea hederacea*, Jacq. (Morning Glory.)

114. *Ipomoea purpurea*, Lam. (Morning Glory.)

These two plants are quite similar but the first is by far the more troublesome. The second seems to be common only where it has escaped from cultivation. They both are annual.

115. *Convolvulus sepium*, L. (White Morning Glory.)

116. *Convolvulus sepium repens*, Gray. (White Morning Glory.)

These two are also quite similar and differ from the two preceding in having white flowers and perennial roots. All four are troublesome in cultivated fields.

117. *Convolvulus arvensis*, L. (Bindweed.)

This is one of the worst weeds we have, but fortunately is as yet restricted in its range. But where it has obtained a foothold it has been next to impossible to eradicate.

118. *CUSCUTA ARVENSIS*, Beyrich. (Dodder.)

Occurs as a parasite upon alfalfa and may do considerable damage. An orange colored, leafless, twining vine.

119. *SOLANUM TRIFLORUM*, Nutt. (Spreading Nightshade.)

Common in western Kansas on new ground.

120. *Solarium nigrum*, L. (Nightshade.)

Common in waste and cultivated soil. Easy to eradicate.

121. *Solanum Carolinense*, L. (Horse-nettle)

A perennial from a deepseated root which will produce new plants when cut off. Not very wide spread in its distribution but locally abundant and difficult to eradicate.

122. *Solarium elaeagnifolium*, Cav. (Prickly Nightshade.)

Somewhat similar to the preceding but promises to be a more noxious weed. Becoming abundant in the southern part of the state.

123. *Solarium rostratum*, Dunal. (Bull-nettle.)

A common, prickly annual found throughout the state and abundant in most parts. Waste places, stock yards and cultivated soil.

124. *CHAMAESARACHA SORDIDA*, Gray.

A wayside weed of western Kansas.

125. *PHYSALIS LOBATA*, Torr.

126. *PHYSALIS PUBESCENS*, L.

127. ***Physalis Virginiana***, Mill.

128. *PHYSALIS HEDERAEFOLIA*, Gray.

129. *PHYSALIS LANCEOLATA*, Michx.

130. *PHYSALIS LANCEOLATA PUMILA*, Gray.

131. ***Physalis longifolia***, Nutt.

These seven kinds are usually known as ground cherries. Nos. 127, 129 and 131 are the most common and troublesome. All except the second are perennial by deep roots. Will send up new shoots from the roots when the tops are cut off.

132. ***Datura Stramonium***, L. (White Jimson Weed.)

133. ***Datura Tatula***, L. (Purple Jim son Weed.)

These two common weeds are very similar and are included on the map under one name. Eastern Kansas. Mostly in stock yards, old fields and waste places, but sometimes abundant in cultivated fields.

134. ***Verbascum Thapsus***, L. (Mullein.)

Not yet very widely spread in Kansas. Sterile fields and pastures through the eastern counties.

135. *VERONICA PEREGRINA*, L. (Neckweed)

A small weed in gardens and orchards. Not very troublesome.

136. ***Martynia proboscidea***, Glox. (Devil's Claw.)

A very noxious weed in western Kansas. The two horned pods are a great pest among stock.

137. *VERBENA URTICAEFOLIA*, L. (White Vervain.)

138. *VERBENA STRICTA*, VENT. (Blue Vervain.)

139. *VERBENA BRACTEOSA*, Michx. (Spreading Vervain.)

140. *VERBENA BIPINNATIFIDA*, Nutt. (Western Vervain.)

The first two, especially the second, are common pasture weeds. The last two wayside weeds and not troublesome.

141. *SALVIA LANCEOLATA*, Willd. (Wild Sage.)

Throughout the state in cultivated soil. Not troublesome.

142. *NEPETA CATARIA*, L. (Catnip.)

143. *LEONURUS CARDIACA*, L. (Motherwort.)
 Neglected spots. Neither are troublesome.

144. **Plantago major**, L. (Plantain.)

145. **Plantago Rugelii**, Dec (Plantain.)

The first of these is introduced more or less in the eastern counties, while the second is native and much more abundant, Troublesome in dooryards and lawns.

146. **Plantago lanceolata**, L. (Ribgrass.)

This is a bad weed in eastern states and is becoming each year more common in eastern Kansas. Very noxious in tame grass meadows and lawns.

147. *PLANTAGO PATAGONICA ARISTATA*, Gray. (Bracted Plantain.)

Locally a troublesome weed in tame grass meadows. Quite wide spread but not usually noxious.

148. *OXYBAPHUS NYCTAGINEUS*, Sweet. (Wild Four-o'clock.)

Locally noxious in cultivated soil.

149. **Amarantus retroflexus**, L. (Red-root.)

150. **Amarantus chlorostachys**, Willd. (Pig weed.)

These two are generally included under either of the above common names. The first is more common west and on upland fields may grow to the exclusion of almost everything else. The second is more common eastward.

151. *Amarantus albus*, L. (Tumble-weed.)

This is the common tumble-weed of the uplands. Occurs throughout the state but is not abundant in the eastern counties.

152. *AMARANTUS BLITOIDES*, Wats. (Pigweed Purslane.)

A common roadside weed but infrequent in cultivated soil.

153. **Amarantus spinosus**, L. (Spiny Pigweed.)

Abundant in southeastern Kansas. Very troublesome on account of its spines.

154. **Acnida tuberculata**, Moq. (Water Hemp.)

Resembling the red-root and nearly as common in eastern Kansas, but not extending as far west. A weed found in sandy hills of the extreme southwest counties, and much resembling this is *Amarantus Torreyi*, Benth

155. *GLUDTOTHRIX LANUGINOSA*, Nutt.

A wayside weed of western Kansas and found more or less in cultivated soil.

156. **Cycloloma Platyphyllum, Moq.** (sand-hill Tumble-weed.)

The common tumble-weed of sandy regions where it is usually very abundant.

157. **Chenopodium album, L.** (Lamb's quarters.)

Very common throughout the state.

158. **CHENOPODIUM HYBRIDUM L.** (Maple-leaved Goosefoot.)

A weed of waste places. Not common in cultivated soil. Eastern Kansas.

159. **ATRIPLEX ARGENTEUM Nutt.** (Salt weed.)

Frequent in the Arkansas Valley, in the western counties. another species, *Atriplex expansa* S. Wats is also frequent in the same region.

160. **CORISPERMUM HYSSOPIFOLIUM, L.** (Bug-seed.)

Common in western Kansas and often mistaken for Russian Thistle.

161. **Salsola Kali Tragus, Moq.** (Russian Thistle.)

Recently introduced in Kansas and very abundant in some western counties. Occasionally met with in eastern counties but shows no tendency to spread and is not likely to become troublesome in that region.

162. **PHYTOLACCA DECANDRA, L.** (Poke weed.)

A weed of wastelaces, especially stock yards. Eastern Kansas.

163. **RUMEX PATIENTIA, L.** (Patience Dock.)

164. **RUMEX ALTISSIMUS, Wood.** (Pale Dock.)

165. **RUMEX CRISPUS, L.** (Curled Dock.)

166. **RUMEX OBTUSIFOLIUS, L.** (Bitter Dock.)

These various docks are common roadside weeds in eastern Kansas but do not often intrude in cultivated soil.

167. **Rumex Acetosella, L.** (Sheep Sorrel)

An eastern weed which has established itself in several localities. It is difficult to eradicate on account of its running roots. Chiefly noxious in meadows and pastures.

168. **POLYGONUM AVICULARE, L.** (Door-weed.)

Common in dooryards and along roadsides. The map show-

ing distribution includes a nearly related species, *Polygonum littorale*.

169. *POLYGONUM RAMOSISSIMUM*, Michx. (Knot-weed.)

Common along roadsides.

170. *POLYGONUM LAPATHIFOLIUM*, L. (Smart-weed.)

171. *POLYGONUM PENNSYLVANICUM*, L. (Smart-weed.)

These two smart weeds are common in moist fields especially in eastern Kansas.

172. ***Polygonum Muhlenbergii*, Wats.** (Water Smart-weed.)

Very troublesome in moist ground through eastern Kansas on account of its running rootstalks.

173. *POLYGONUM PERSICARIA*, L. (Ladies Thumb.)

Common in moist ground; not troublesome.

174. ***Polygonum Convolvulus*, L.** (Wild Buckwheat.)

Common throughout Kansas. Troublesome in grain fields and cultivated soil.

175. *EUPHORBIA SERPENS*, HBK.

176. *EUPHORBIA GLYPTOSPERMA*, Engelm.

177. *EUPHORBIA MACULATA* L.,

178. *EUPHORBIA STICTOSPERA*, Engelm.

179. *EUPHORBIA PRESILII*, Guss.

180. *EUPHORBIA HEXAGONA*, Nutt.

All these species are known as spurges. They are abundant during summer and autumn in cultivated soil but are not particularly noxious.

181. ***Euphorbia marginata*, L.** (Snow-on-the-mountain.)

Common all over the state. Often becomes very abundant in close fed pastures.

182. *EUPHORBIA DENTATA*, Michx.

Rather common in cultivated soil but not troublesome.

183. *ACALYPHA CAROLINIANA*, Ell. (Three-seeded Mercury.)

Abundant in cultivated soil in some localities in the state.

184. *CANNABIS SATIVA*, L. (Hemp.)

Waste places.

185. *URTICA GRACILIS*, Ait. (Nettle.)

Moist fields and waste places, Not troublesome except for its stinging hairs.

186. *CYPERUS ESCULENTUS*, L. (Nut Grass.)

Common in moist fields. Not troublesome. This is probably not the true Linnean species.

187. *PASPALUM SETACEUM*, Michx.

Common in sandy fields throughout the state.

188. *ERIOCHLOA, POLYSTACHYA*, HBK.

Bottomland fields of the Arkansas Valley. Abundant but not noxious.

189. ***Panicum glabrum***, Gaud. (Crab-grass.)

190. ***Panicum sanguinale***, L. (Crab -grass.)

The first species is common only in the eastern counties, while the second extends well westward. Both are very troublesome in cultivated fields.

191. *PANICUM PROLIFERUM*, Lam. (Knee-grass.)

A common, roadside grass.

192. ***Panicum capillare***, L. (Old-witch Grass.)

Common in cultivated, especially sandy, soil. The seed bearing portion breaks away and tumbles before the wind.

193. ***Panicum Crus-galli***, L. (Barnyard Grass.)

Common in cultivated soil.

194. ***Setaria glauca***, Beauv. (Yellow Foxtail.)

195. ***Setaria viridis***, Beauv. (Green Foxtail.)

Common in cultivated soil. Easily eradicated in cornfields, but often gets a vigorous start in stubble fields and thus abundantly seeds the land for the following year.

196. ***Cenchrus tribuloides***, L. (Sand-bur.)

A common and troublesome pest throughout the state especially in sandy soil.

197. *ARISTIDA OLIGANTHA*, Michx. (Wire Grass.)

198. *ARISTIDA PURPUREA*, Nutt. (Spear Grass.)

The first is found in the eastern counties, in cultivated soil and the second on the plains of the western part of the state. Both are troublesome on account of the spear-like seeds.

199. *SPOROBOLUS VAGINAEFLORUS*, Vasey.
A wayside grass of late summer. Another, similar species, *S. neglectus*, Nash., is also common and is included in the same map of distribution.
200. *SPOROBOLUS CRYPTANDRUS*, Gray. (Drop-seed Grass.)
Common in sandy soil late in summer.
201. *SCHEDONNARDUS, TEXANUS*, Steud.
A roadside grass, common westward. Abundant in new ground.
202. *ELEUSINE INDICA*, Gaertn. (Dog's-tail Grass.)
Common in southeastern Kansas in yards and along roadsides.
203. *MUNROA SQUARROSA*, Torr. (False Buffalo-grass)
A western grass common in new soil.
204. ***Eragrostis Major*, Host.** (Stinking Grass.)
A very common grass all over the state.
205. *ERAGROSTIS PURSHII*, Schrad.
A wayside grass of eastern Kansas.
206. *ERAGROSTIS PECTINACEA*, Nees. (Tickle Grass.)
Common in sandy soil, chiefly eastward.
207. *BROMUS SECALINUS*, L. (Cheat.)
A bad weed in eastern states but not yet abundant in Kansas.
208. *HORDEUM JUBATUM*, L. (Squirrel-tail Grass.)
More or less throughout the state but troublesome only in a few localities.
209. *ELYMUS SITANION*, Schultes. (Wild Barley.)
A plant of the plains of western Kansas. Troublesome on account of the fruiting portion which breaks away at maturity.

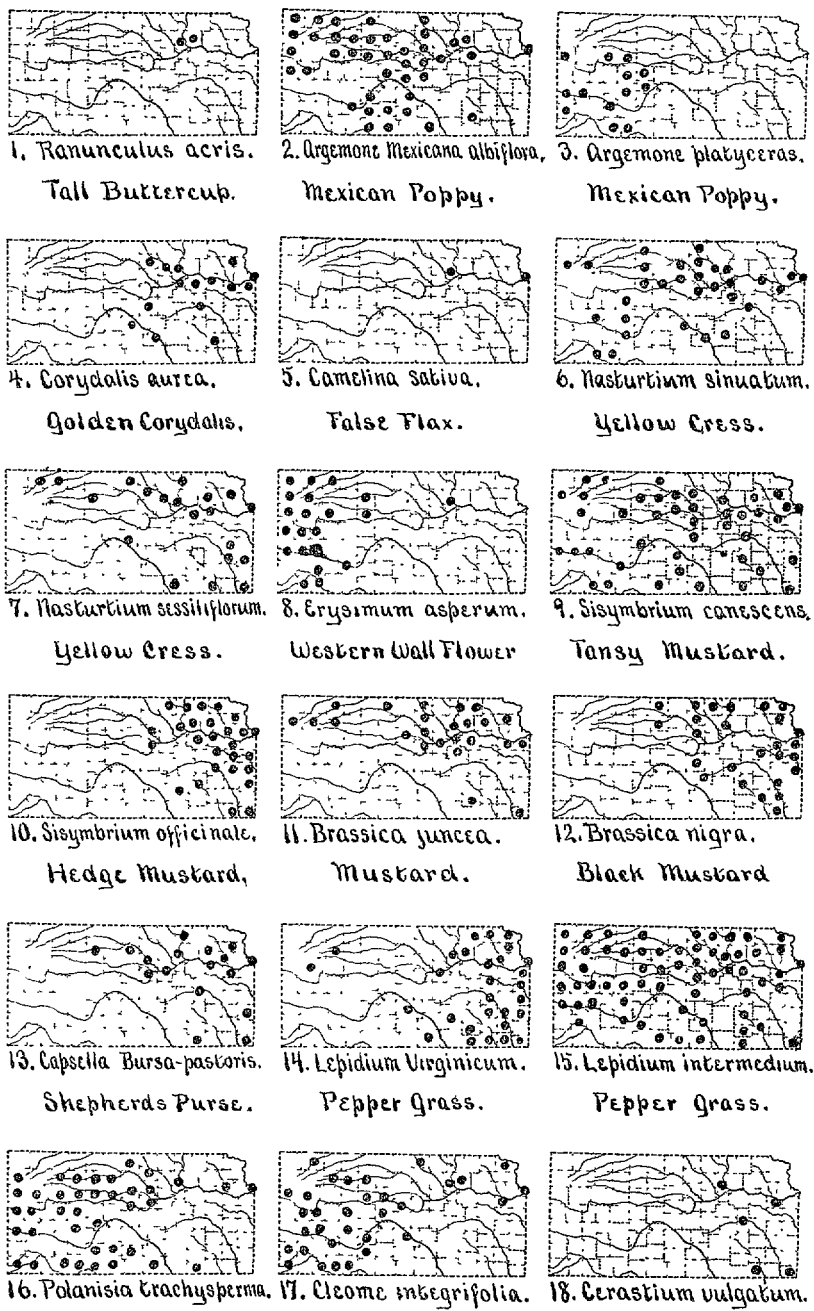
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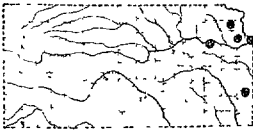
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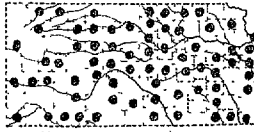
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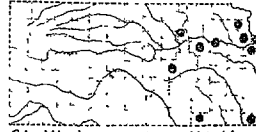
Rocky Mountain Bee Plant. Mouse-Ear Chickweed.
PLATE XIII. DISTRIBUTION BY COUNTIES.



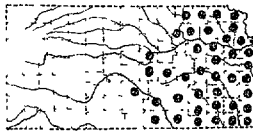
19. *Cerastium nutans*,
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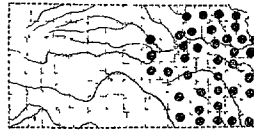
20. *Portulaca oleracea*,
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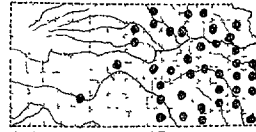
21. *Malva rotundifolia*,
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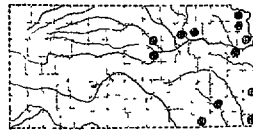
22. *Sida spinosa*,
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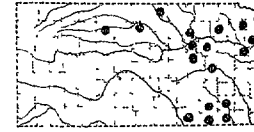
23. *Abutilon Avicennae*,
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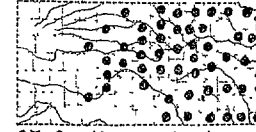
24. *Hibiscus Trionum*,
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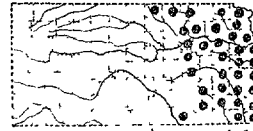
25. *Geranium Carolinianum*,
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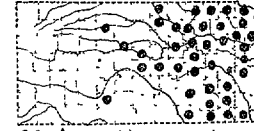
26. *Oxalis violacea*,
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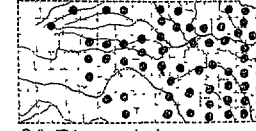
27. *Oxalis corniculata*,
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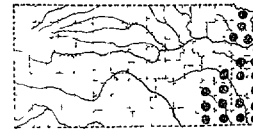
28. *O. corniculata stricta*,
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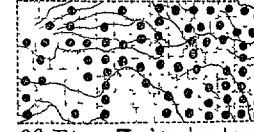
29. *Ceanothus ovatus*,
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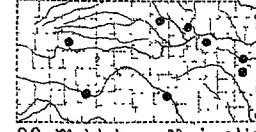
30. *Rhus glabra*,
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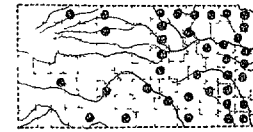
31. *Rhus copallina*,
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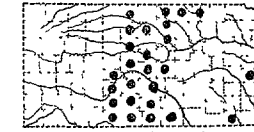
32. *Rhus Toxicodendron*,
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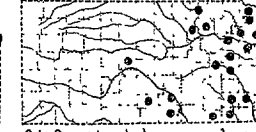
33. *Melilotus officinalis*,
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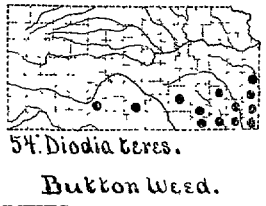
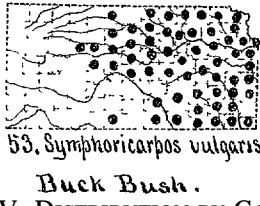
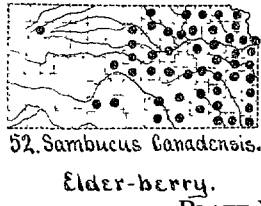
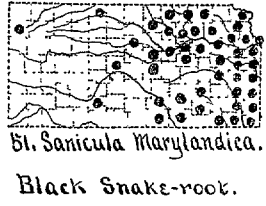
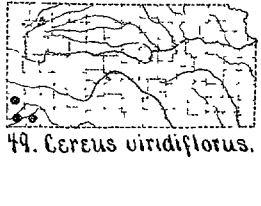
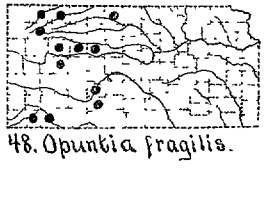
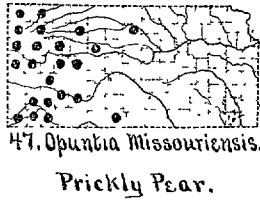
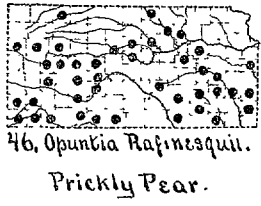
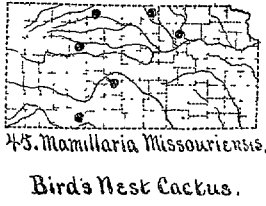
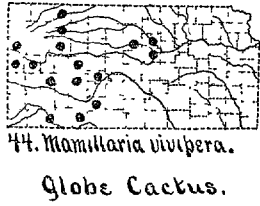
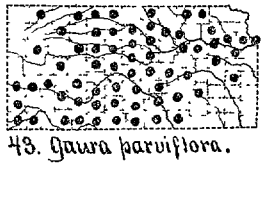
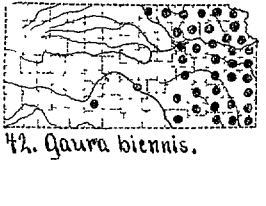
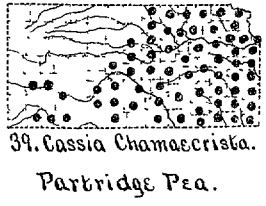
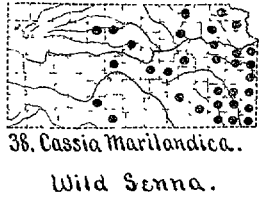
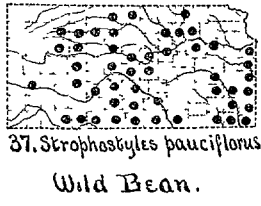
34. *Melilotus alba*,
 White Sweet Clover.

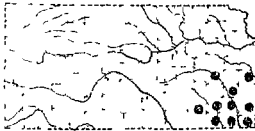


35. *Hosackia Purshiana*,
 Wild Bean.

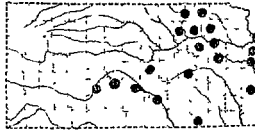


36. *Strophostyles angulosa*,
 Wild Bean.

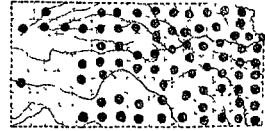




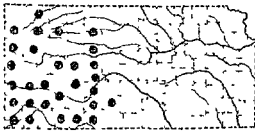
55. *Vernonia Arkansasana*.
 Ironweed.



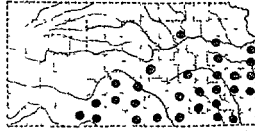
56. *Vernonia fasciculata*,
 Ironweed.



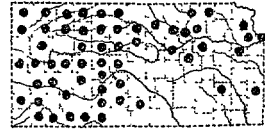
57. *Vernonia Baldwinii*.
 Ironweed.



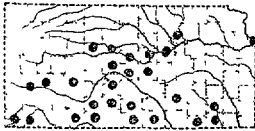
58. *Gutierrezia Euthamiae*.



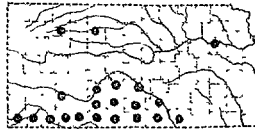
59. *Amphiachyris dracunculoides*.



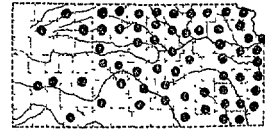
60. *Grindelia squarrosa*.
 Gum Weed.



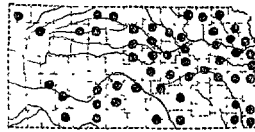
61. *Axiopappus ciliatus*.



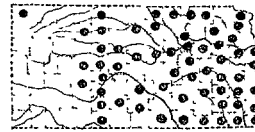
62. *Heterotheca Lamarkii*.



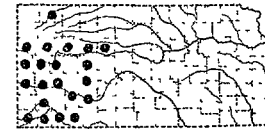
63. *Solidago serotina*.
 Golden-rod.



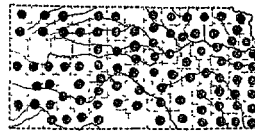
64. *Solidago Canadensis*.
 Golden-rod.



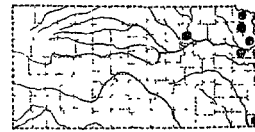
65. *Solidago rigida*.
 Golden-rod.



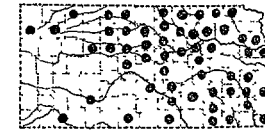
66. *Aster tanacetifolius*.
 Tansy Aster.



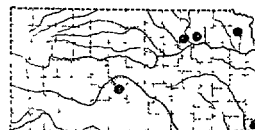
67. *Erigeron Canadensis*.
 Horse Tail.



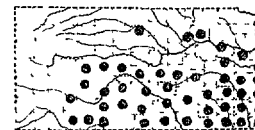
68. *Erigeron annuus*.
 Daisy Fleabane.



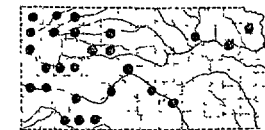
69. *Erigeron strigosus*.
 Daisy Fleabane.



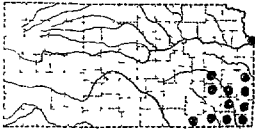
70. *Gnaphalium polycephalum*.
 Life Everlasting.



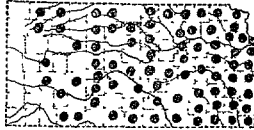
71. *Iva ciliata*.



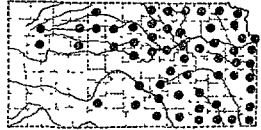
72. *Iva xanthifolia*.
 False Sunflower.



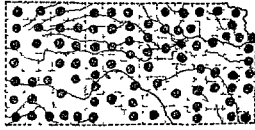
73. *Ambrosia bidentata*.
Ragweed.



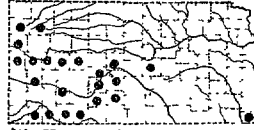
74. *Ambrosia trifida*.
Horse Weed.



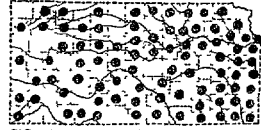
75. *Ambrosia artemisiifolia*.
Ragweed.



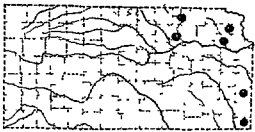
76. *Ambrosia psilostachya*.
Perennial Ragweed.



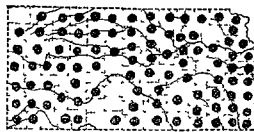
77. *Franseria tomentosa*.



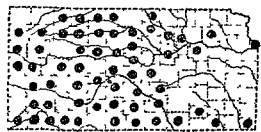
78. *Xanthium Canadense*.
Cocklebur.



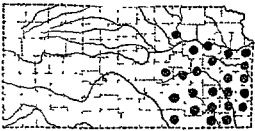
79. *Xanthium strumarium*.
Cocklebur.



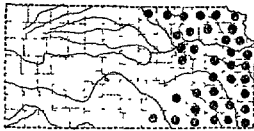
80. *Helianthus annuus*.
Common Sunflower.



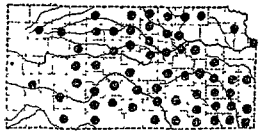
81. *Helianthus petiolaris*.
Sand-hill Sunflower.



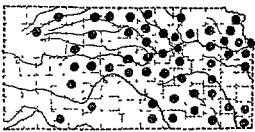
82. *Helianthus orgyalis*.
Narrow Leaved Sunflower.



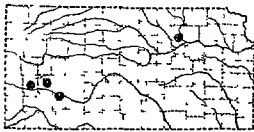
83. *Helianthus grosse-serratus*.



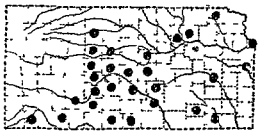
84. *Helianthus Maximiliani*.



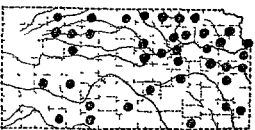
85. *Helianthus tuberosus*.
Jerusalem Artichoke.



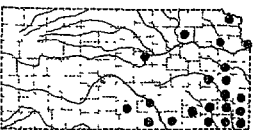
86. *Verbena encelioides*.
Dog-weed.



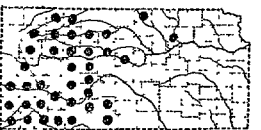
87. *Coreopsis tinctoria*.



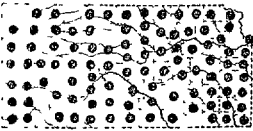
88. *Bidens frondosa*.
Beqqar-ticks.



89. *Bidens bipinnata*.
Spanish-needles.

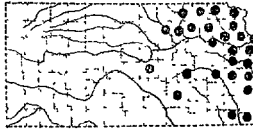


90. *Gaillardia pulchella*.
Nigger-koe.



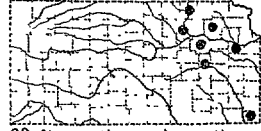
91. *Dysodia chrysanthemoides*.

Stink-weed.



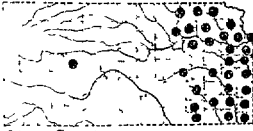
92. *Anthemis Cotula*.

Dog Fennel.



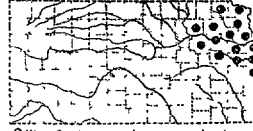
93. *Chrysanthemum Leucanthemum*.

Ox-eye Daisy.



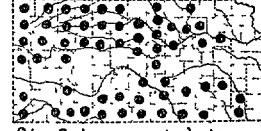
94. *Arctium Lappa*.

Burdock.



95. *Cnicus lanceolatus*.

Common Thistle.



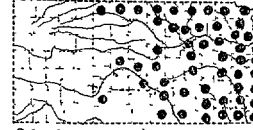
96. *Cnicus undulatus*.

Pasture Thistle.



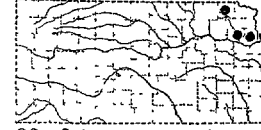
97. *Cnicus ochrocephalus*.

Western Thistle.



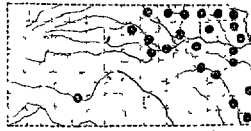
98. *Cnicus altissimus*.

Tall Thistle.



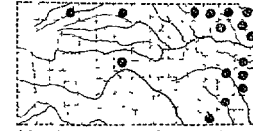
99. *Cnicus arvensis*.

Canada Thistle.



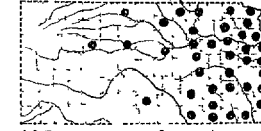
100. *Taraxacum officinale*.

Dandelion.



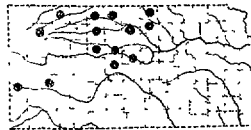
101. *Lactuca Scariola*.

Prickly Lettuce.



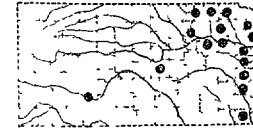
102. *Lactuca Canadensis*.

Wild Lettuce.



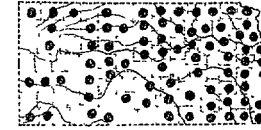
103. *Lactuca pulchella*.

Wild Lettuce.



104. *Sonchus asper*.

Sow Thistle.



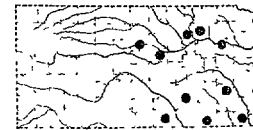
105. *Apocynum cannabinum*.

Indian Hemp.



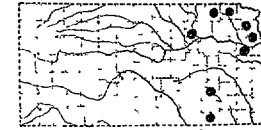
106. *Asclepias Cornuti*.

Milkweed.



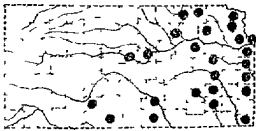
107. *Enslenia albida*.

Climbing Milkweed.

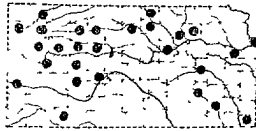


108. *Cynoglossum officinale*.

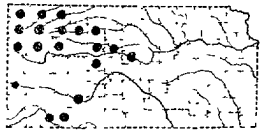
Hound's Tongue.



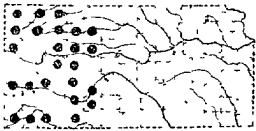
109. *Echinosperrum Virginicum*.
 Beggar's-lice



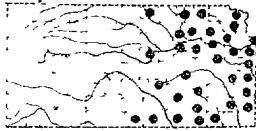
110. *E. Redowskii occidentale*,



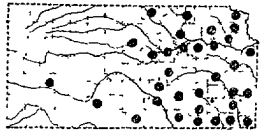
111. *E. Redowskii eupulatum*.



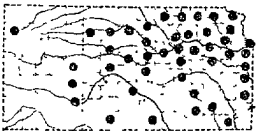
112. *Krynitzkia crassisepala*.



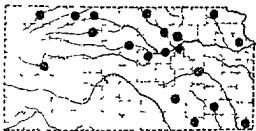
113. *Ipomoea hederacea*.
 Morning Glory



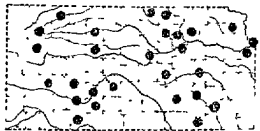
114. *Ipomoea purpurea*.
 Morning Glory



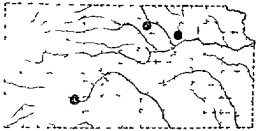
115. *Convolvulus sepium*.
 White Morning Glory.



116. *Convolvulus sepium repens*.
 White Morning Glory.



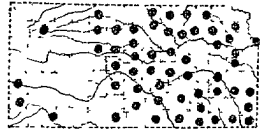
117. *Convolvulus arvensis*.
 Bindweed.



118. *Cuscuta arvensis*.
 Dodder



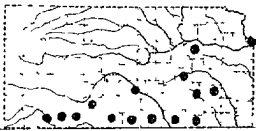
119. *Solanum triflorum*.
 Spreading Nightshade.



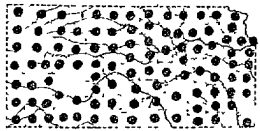
120. *Solanum nigrum*.
 Nightshade.



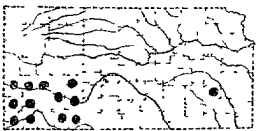
121. *Solanum Carolinense*.
 Horse-nettle



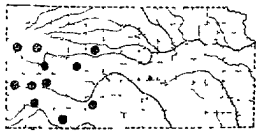
122. *Solanum elaeagnifolium*.
 Prickly nightshade



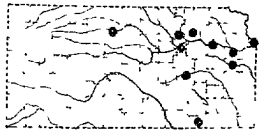
123. *Solanum rostratum*.
 Bull-nettle.



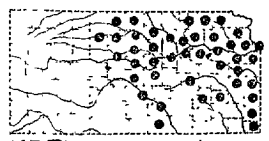
124. *Chamaesaracha sordida*.



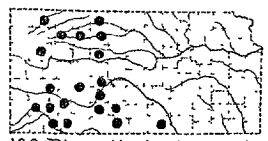
125. *Physalis lobata*.



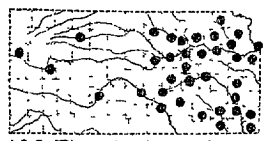
126. *Physalis pubescens*.



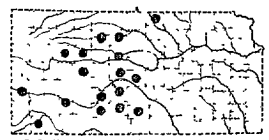
127. *Physalis Virginiana*.
 Ground Cherry



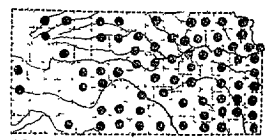
128. *Physalis hederaceaefolia*.
 Ground Cherry



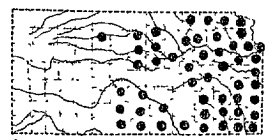
129. *Physalis lanceolata*.
 Ground Cherry



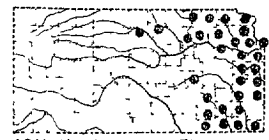
130. *P. lanceolata pumila*.
 Ground Cherry



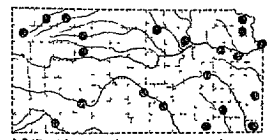
131. *Physalis longifolia*.
 Ground Cherry



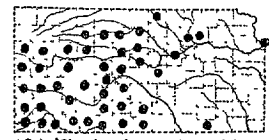
132 and 133: *Datura*,
 Jimson Weed.



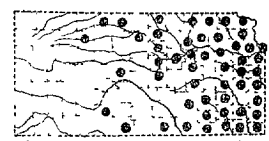
134. *Verbascum Thapsus*.
 Mullein.



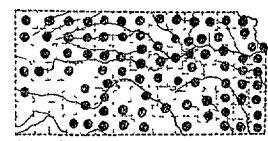
135. *Veronica peregrina*.
 Neckweed.



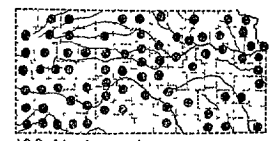
136. *Martynia proboscidea*.
 Devil's Claw.



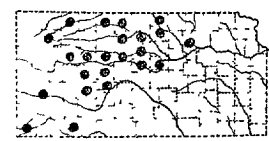
137. *Verbena urticaefolia*.
 White Vervain



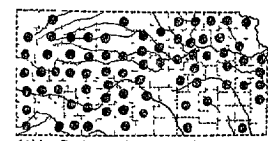
138. *Verbena stricta*.
 Blue Vervain.



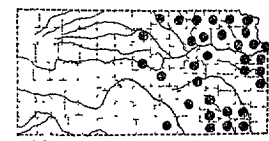
139. *Verbena bracteosa*.
 Spreading Vervain



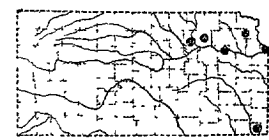
140. *Verbena bipinnatifida*.
 Western Vervain,



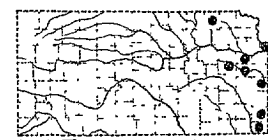
141. *Salvia lanceolata*.
 Wild Sage.



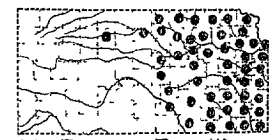
142. *Nepeta Cataria*.
 Catnip.



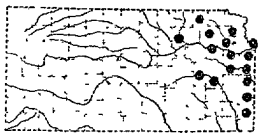
143. *Leonurus Cardiaca*.
 Motherwort.



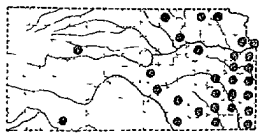
144. *Plantago major*.
 Plantain.



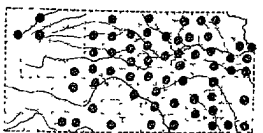
145. *Plantago Rugelii*.
 Plantain.



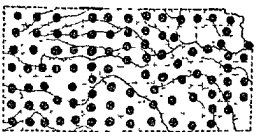
146. *Plantago lanceolata*.
Ribgrass.



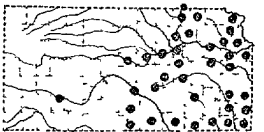
147. *P. Patagonica aristata*.
Bracted Plantain.



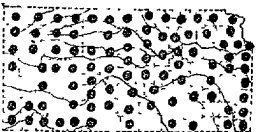
148. *Oxybaphus nycotagineus*.
Wild Four-o'clock.



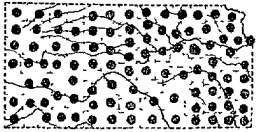
149. *Amaranthus retroflexus*.
Red-root



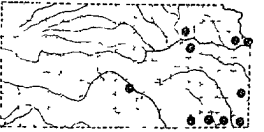
150. *Amaranthus chlorostachys*.
Pigweed.



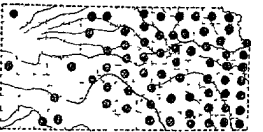
151. *Amaranthus albus*.
Tumble-weed



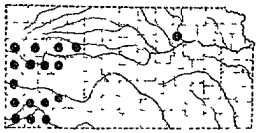
152. *Amaranthus blitoides*.
Pigweed Purslane.



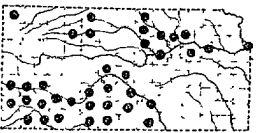
153. *Amaranthus spinosus*.
Spiny Pigweed.



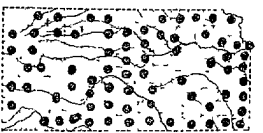
154. *Acnida tuberculata*.
Water Hemp.



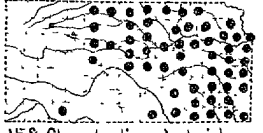
155. *Cladanthus lanuginosa*.



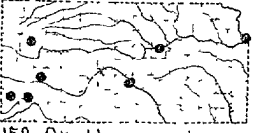
156. *Cyclotoma platyphyllum*.
Sand hill Tumble-weed



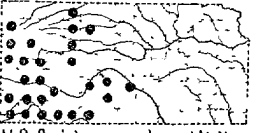
157. *Chenopodium album*.
Lamb's-quarter.



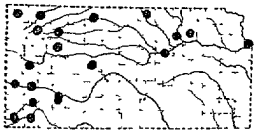
158. *Chenopodium hybridum*.
Maple-leaved Goosefoot.



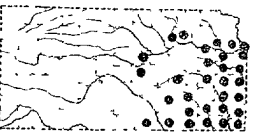
159. *Atriplex argenteum*.
Salt Weed.



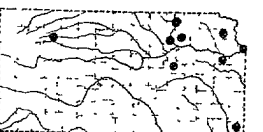
160. *Corispermum hyssopifolium*.
Bug-seed



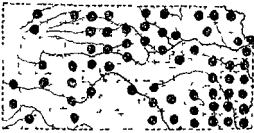
161. *Salsola Kali* Tragus,
Russian Thistle.



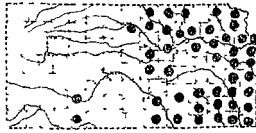
162. *Phytolacca decandra*.
POKEWEE.



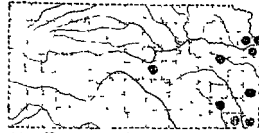
163. *Rumex Patience*.
PATIENCE DOCK.



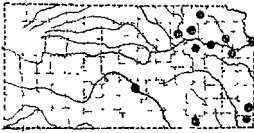
164. *Rumex albisimus*.
Pale Dock.



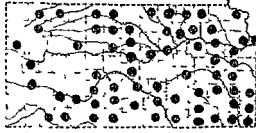
165. *Rumex crispus*.
Curled Dock.



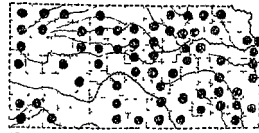
166. *Rumex obtusifolius*.
Bitter Dock.



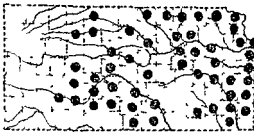
167. *Rumex acetosella*.
Sheep Sorrel.



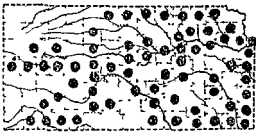
168. *Polygonum aviculare*.
Door-weed.



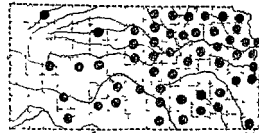
169. *Polygonum ramosissimum*.
Knot-weed.



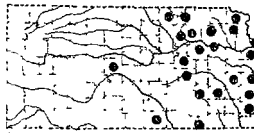
170. *Polygonum lapathifolium*.
Smart-weed.



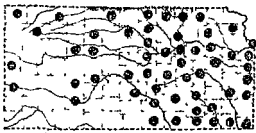
171. *Polygonum pennsylvanicum*.
Smart-weed.



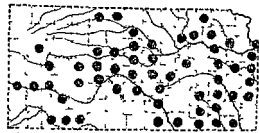
172. *Polygonum muhlenbergii*.
Water-Smart-weed.



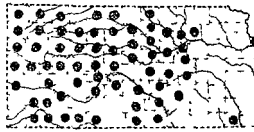
173. *Polygonum persicaria*.
Ladies' Thumb.



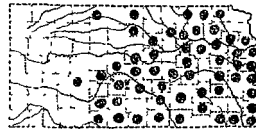
174. *Polygonum convolvulus*.
Wild Buckwheat.



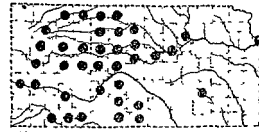
175. *Euphorbia serpens*.
Spurge.



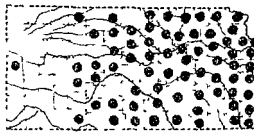
176. *Euphorbia glyptosperma*.
Spurge.



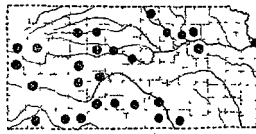
177. *Euphorbia maculata*.
Spurge.



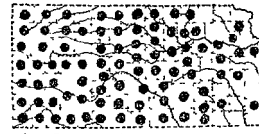
178. *Euphorbia stictospora*.
Spurge.



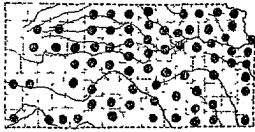
179. *Euphorbia preslii*.
Spurge.



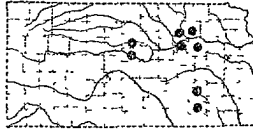
180. *Euphorbia hexagona*.
Spurge.



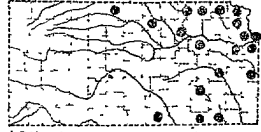
181. *Euphorbia marginata*.
Snow-on-the-Mountain.



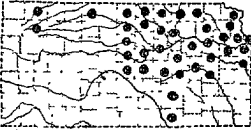
182. *Euphorbia dentata*.
 Spurge.



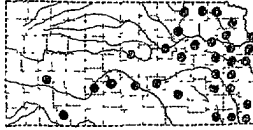
183. *Acalypha Caroliniana*.
 Three-seeded Mercury



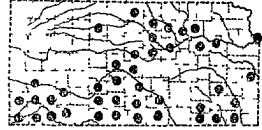
184. *Cannabis sativa*.
 Hemp.



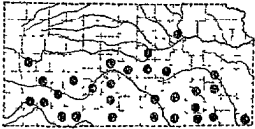
185. *Urtica gracilis*.
 Nettle.



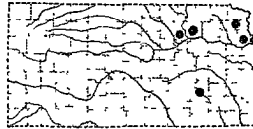
186. *Cyperus esculentus*.
 Nut Grass.



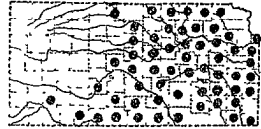
187. *Paspalum setaceum*.
 Crab-grass.



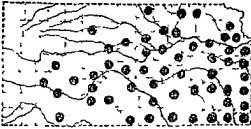
188. *Eriochloa polystachya*



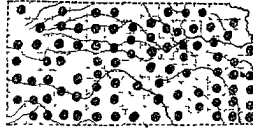
189. *Panicum glabrum*.
 Crab-grass.



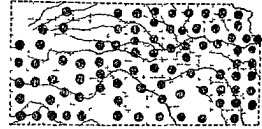
190. *Panicum sanguinale*.
 Crab-grass.



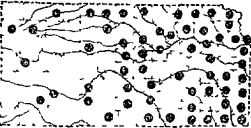
191. *Panicum proliferum*.
 Knee-grass.



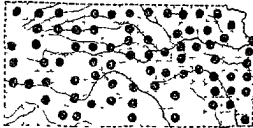
192. *Panicum capillare*.
 Old-witch Grass.



193. *Panicum Crus-galli*.
 Barnyard Grass.



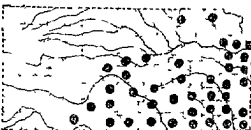
194. *Setaria glauca*.
 Yellow Foxtail.



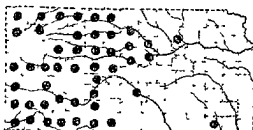
195. *Setaria viridis*.
 Green Foxtail.



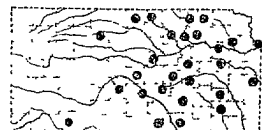
196. *Cenchrus tribuloides*.
 Sand-bur.



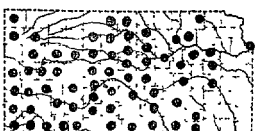
197. *Aristida oligantha*.
 Wire Grass.



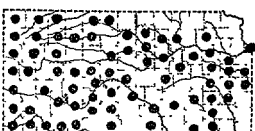
198. *Aristida purpurea*.
 Spear Grass.



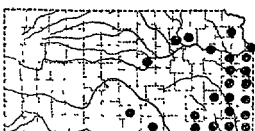
199. *Sporobolus vaginatiflorus*.



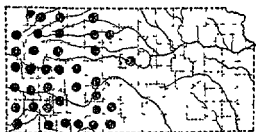
200. *Sporobolus cryptandrus*.
Drop-seed Grass.



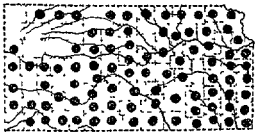
201. *Schedonnardus texanus*



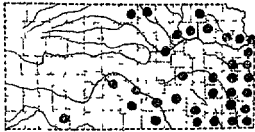
202. *Eleusine indica*.
Dog's-tail Grass.



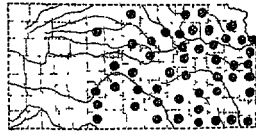
203. *Munroa squarrosa*.
False Buffalo Grass.



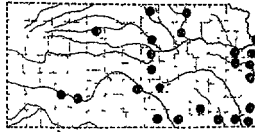
204. *Eragrostis major*.
Stinking Grass.



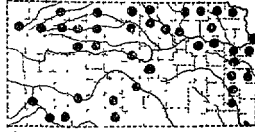
205. *Eragrostis purshii*.



206. *Eragrostis pectinacea*.
Tickle Grass.



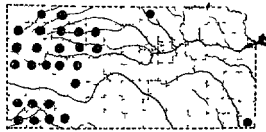
207. *Bromus secalinus*.
Bheat.



208. *Hordeum jubatum*.
Squirrel-tail Grass.



11. *Brassica juncea*.
Mustard



209. *Elymus sitanion*.
Wild Barley.



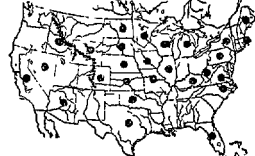
12. *Brassica nigra*.
Black Mustard.



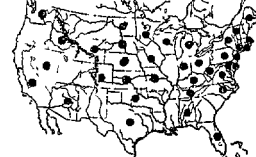
13. *Capsella bursa-pastoris*.
Shepherds Purse



14. *Lepidium virginicum*.
Pepper Grass.



15. *Lepidium intermedium*.
Pepper Grass.



20. *Portulaca oleracea*.
Purslane.



22. *Sida spinosa*.
Sida.



23. *Abutilon quicennat*.
Velvet Leaf.



24. *Hibiscus Trionum*.
 Bladder Ketmia.



34. *Melilotus alba*.
 White Sweet Clover.



40. *Rosa Arkansana*.
 Wild Rose.



43. *Gaura parviflora*.



66. *Aster tanacetifolius*.
 Tansy Aster.



67. *Erigeron Canadensis*.
 Horse Tail



68. *Erigeron annuus*.
 Daisy Fleabane.



69. *Erigeron strigosus*.
 Daisy Fleabane.



73. *Ambrosia bidentata*.
 Ragweed



74. *Ambrosia trifida*.
 Horse Weed.



75. *Ambrosia artemisiifolia*.
 Ragweed



76. *Ambrosia psilostachya*.
 Perennial Ragweed.



77. *Franseria tomentosa*.



78. *Xanthium Canadense*.
 Cocklebur.



79. *Xanthium strumarium*.
 Cocklebur.



80. *Helianthus annuus*.
 Common Sunflower.



81. *Helianthus petiolaris*.
 Sand-hill Sunflower.



85. *Helianthus tuberosus*.
 Jerusalem Artichoke.



88. *Bidens frondosa*.
Beggarticks.



89. *Bidens bipinnata*.
Spanish-needles.



90. *Gaillardia pulchella*.
Nigger toe.



92. *Anthemis Cotula*.
Dog Fennel.



93. *Chrysanthemum Leucanthemum*.
Ox-Eye Daisy.



94. *Arctium Lappa*.
Burdock.



95. *Cnicus lanceolatus*.
Common Thistle.



96. *Cnicus undulatus*.
Pasture Thistle.



99. *Cnicus arvensis*.
Canada Thistle.



100. *Taraxacum officinale*.
Dandelion.



101. *Lactuca Scariola*.
Prickly Lettuce.



105. *Apocynum cannabinum*.
Indian Hemp.



107. *Enslenia albida*.
Climbing Milkweed.



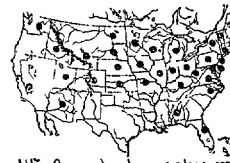
108. *Cynoglossum officinale*.
Hounds Tongue.



113. *Ipomoea hederacea*.
Morning Glory.



114. *Ipomoea purpurea*.
Morning Glory.



115. *Convolvulus sepium*.
White Morning Glory.



116. *C. sepium repens*.
White Morning Glory.



117. *Convolvulus arvensis*.
 Bindweed



120. *Solanum nigrum*.
 Nightshade



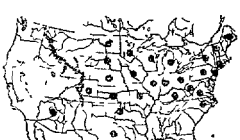
121. *Solanum Carolinense*.
 Horse nettle



122. *Solanum elaeagnifolium*.
 Prickly Nightshade.



123. *Solanum rostratum*.
 Bull-nettle.



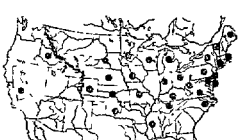
127. *Physalis Virginiana*.
 Ground Cherry.



129. *Physalis lanecolata*.
 Ground Cherry



131. *Physalis longifolia*.
 Ground Cherry



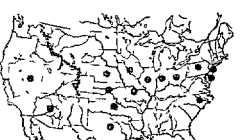
132. *Datura Stramonium*.
 White Jimson Weed.



133. *Datura Tatula*.
 Purple Jimson Weed



134. *Urticacum Thiapsus*.
 Mullein.



136. *Martynia proboscidea*.
 Devil's Claw.



141. *Salvia lanceolata*.
 Wild Sage.



144. *Plantago major*.
 Plantain



145. *Plantago Rugelii*.
 Plantain.



146. *Plantago lanceolata*.
 Rib Grass.



149. *Amarantus retroflexus*.
 Red root.



150. *Amarantus chlorostachys*.
 Pigweed.



151. *Amarantus albus*.
Tumble-weed.



153. *Amarantus spinosus*.
Spiny Pigweed.



157. *Aenidá tuberculata*.
Water Hemp.



156. *Cytoloma platyphyllum*.
Sand hill Tumble weed.



157. *Chenopodium album*.
Lambs-quarters.



161. *Salsola Kali Tragus*.
Russian Thistle.



161. *Rumex Acetosella*.
Sheep Sorrel.



172. *Polygonum Muhlenbergii*.
Water Smartweed.



174. *Polygonum Convolvulus*.
Wild Buckwheat.



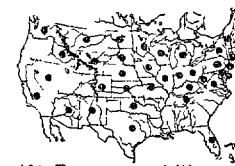
181. *Euphorbia marginata*.
Snow on-the Mountain.



189. *Panicum glabrum*.
Crab grass.



190. *Panicum sanguinale*.
Crab-grass.



192. *Panicum capillare*.
Old-Witch Grass.



193. *Panicum Crus galli*.
Barnyard Grass.



194. *Setaria glauca*.
Yellow Foxtail.



195. *Setaria viridis*.
Green Foxtail.



196. *Cenchrus tribuloides*.
Sand-bur.



204. *Eragrostis major*.
Stinking Grass.