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Plants of Mahaska County, Iowa

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PLANTS OF MAHASKA COUNTY, IOWA¹

DANIEL W. AUGUSTINE

During the growing season of 1938 the opportunity to collect plants of the central section of southeastern Iowa was made possible. This flora is of importance because it represents the significant floristic features of the southeastern quarter of the state.

Since its purchase from the Indians 97 years ago, there has been a very definite change in the floristic aspects of this section of Iowa. This change is still taking place and is resulting in the extinction of some of the native plants in the region. However, many of these plants are still to be found in Mahaska County, although they are fewer in number than formerly.

The chief purposes of this work were to ascertain as fully as possible the flora of the county, to bring up to date the names of the plants treated in this survey, and to point out possible floristic changes in the county.

One set of specimens collected in this survey is in the possession of the herbarium at Iowa State College. The other set is in the possession of the author.

Most of the plants cited in this work are those collected during this survey. The remaining plants indicated are citations of other authors or are specimens collected by other workers in Mahaska County. The latter specimens are to be found in the herbarium at Iowa State College.

ANNOTATED SYSTEMATIC LIST

Division I. PTERIDOPHYTA (Fernworts)

POLYPODIACEAE (Fern Family)

- Adiantum pedatum* L. Maiden-hair Fern. Frequent.
Athyrium angustum (Willd.) Presl. Spleenwort. Frequent.
Athyrium thelypteroides (Michx.) Desv. Spleenwort. Frequent.
Dryopteris Goldiana (Hook.) A. Gray. Shield Fern. Frequent.
Filix bulbifera (L.) Underw. Bladder Fern. Frequent.
Filix fragilis (L.) Gilib. Bladder Fern. Occasional.
Woodsia obtusa (Spreng.) Torr. Woods Fern. (*Pammel*), July 18, 1919.

EQUISETACEAE (Horsetail Family)

- Equisetum arvense* L. Horsetail. Common.
Equisetum kansanum J. H. Schaffner. Horsetail. Frequent.

¹ This paper is an abstract of the thesis of the author. The thesis was presented to the Graduate Faculty of Iowa State College for the Degree of Master of Science in July, 1939.

Division II. SPERMATOPHYTA (Seed Plants)

Subdivision I. GYMNOSPERMAE (Naked-seeded Plants)

PINACEAE (Pine Family)

Juniperus virginiana L. Juniper. Infrequent.

Subdivision II. ANGIOSPERMAE (Seed-vesselled Plants)

Class 1. Monocotyledoneae

TYPHACEAE (Cat-tail Family)

Typha latifolia L. Cat-tail. Common.

ALISMACEAE (Water-plantain Family)

Sagittaria latifolia Willd. Arrow-head. Frequent.

Sagittaria rigida Pursh. (*Sagittaria heterophylla* Pursh). See Rh. 38:73. 1936. Locally abundant.

HYDROCHARITACEAE (Frog's Bit Family)

Anacharis occidentalis (Pursh) Victorin. (*Elodea canadensis* Michx. in part). Water-weed. See Rh. 34:114-116. 1932; see also Contr. Lab. Bot. Univ. Montreal. No. 18:40. 1931. Common in Lake Keomah.

GRAMINEAE (Grass Family)

Aegilops cylindrica Host. Goat Grass. Adventive.

Agropyron pauciflorum (Schwein.) Hitchc. Slender Wheat Grass. Infrequent.

Agropyron repens (L.) Beauv. Quack Grass. Frequent.

Agropyron Smithii Rydb. Bluestem. Frequent.

Alopecurus carolinianus Walt. Foxtail. Occasional.

Andropogon furcatus Muhl. Bluejoint Turkey-foot. Common.

Aristida oligantha Michx. Prairie Three-awn. (*Maakstead*), October, 1929.

Avena sativa L. Oats. A frequent escape.

Bouteloua curtipendula (Michx) Torr. Side-oats Grama. Infrequent.

Bouteloua gracilis (H. B. K.) Lag. Blue Grama. Occasional.

Bouteloua hirsuta Lag. Hairy Grama. Infrequent.

Bromus inermis Leyss. Smooth Brome. Frequent.

Bromus japonicus Thunb. Japanese Chess. Occasional.

Bromus purgans L. Canada Brome. Abundant.

Bromus secalinus L. Chess. Common.

Bromus tectorum L. Downy Chess. Frequent.

Calamagrostis canadensis (Michx.) Beauv. Blue-joint. Occasional.

Cenchrus pauciflorus Benth. Field Sandbur. Common.

Cinna arundinacea L. Stout Woodreed. Frequent.

Dactylis glomerata L. Orchard Grass. Occasional.

Digitaria sanguinalis (L.) Scop. Crab Grass. Common.

Echinochloa crusgalli (L.) Beauv. Barnyard Grass. Frequent.

Echinochloa Walteri (Pursh) Heller. Salt-marsh Cockspur-grass. Locally abundant.

Eleusine indica (L.) Gaertn. Goose Grass. Occasional.

Elymus canadensis L. Canada Wild-rye. Common.

Elymus villosus Muhl. Wild-rye. Occasional.

Elymus virginicus L. Virginia Wild-rye. Common.

Elymus virginicus var. *glabriflorus* (Vasey) Bush. Infrequent.

- Eragrostis cilianensis* (All.) Link. Stink Grass. Frequent.
Eragrostis pectinacea (Michx.) Nees. Love Grass. Occasional.
Festuca obtusa Spreng. Nodding Fescue. Frequent.
Festuca octoflora Walt. Six-weeks Fescue. Frequent.
Festuca rubra L. Red Fescue. (*H. L. McCracken*), June 21, 1919.
Glyceria striata (Lam.) Hitchc. (*Glyceria nervata* Trin.) See Hitchc. Manual Grasses of the U. S., U. S. Dept. Agric. Misc. Pub. 200:866. 1935. Infrequent.
Hordeum jubatum L. Foxtail Barley. Common.
Hordeum pusillum Nutt. Little Barley. Common.
Hystrix patula Moench. Bottlebrush. Occasional.
Lolium perenne L. Perennial Rye-grass. Frequent in lawns.
Muhlenbergia mexicana (L.) Trin. Wire Stem Muhly. Frequent.
Muhlenbergia racemosa (Michx.) B. S. P. Marsh Muhly. Frequent.
Panicum capillare L. Witch Grass. Common.
Panicum dichotomum L. Panic Grass. (*Maakestad*), Sept. 28, 1928.
Panicum huachucae Ashe. (Hitchc. M.) (*Panicum lanuginosum* var. *fasciculatum* (Torr.) Fernald). Rh. 23:228. 1921. Frequent.
Panicum praecocius Hitchc. & Chase. Locally abundant.
Panicum Scribnerianum Nash. (Hitchc. M.) (*Panicum oligoanthos* Schultes var. *Scribnerianum* (Nash) Fernald). Rh. 36:80. 1934. Locally abundant.
Panicum virgatum L. Switch Grass. Frequent.
Paspalum stramineum Nash. (Hitchc. M.) (*Paspalum ciliatifolium* var. *stramineum* (Nash) Fernald). Rh. 36:20. 1934. Infrequent.
Phleum pratense L. Timothy. Frequent.
Poa compressa L. Canada Blue Grass. Frequent.
Poa interior Rydb. Inland Blue Grass. Locally abundant.
Poa pratensis L. Kentucky Blue Grass. Common.
Poa sylvestris A. Gray. Locally abundant.
Secale cereale L. Rye. A frequent escape.
Setaria lutescens (Weigel) F. T. Hubb. Yellow Bristle Grass. Common.
Setaria verticillata (L.) Beauv. Bur Bristle Grass. Occasional.
Setaria viridis (L.) Beauv. Green Bristle Grass. Ia. Geol. Surv. Bull. 4:22. 1913.
Sorghum halepense (L.) Pers. Johnson Grass. Recently introduced.
Sorghum vulgare Pers. Sorghum. An occasional escape.
Spartina pectinata Link. Prairie Cord Grass. Frequent.
Sphenopholis intermedia (Rydb.) Rydb. Slender Wedge Grass. (*Pammel*), 1928.
Sporobolus asper (Michx.) Kunth. Bush Grass. Locally abundant.
Sporobolus neglectus Nash. Ia. Geol. Surv. Bull. 4:26. 1926.
Triticum aestivum L. Wheat. An occasional escape.

CYPERACEAE (Sedge Family)

- Carex aenea* Fernald. (Rydb. M.) (*Carex foenea* Willd.) (Gray's M.). Occasional.
Carex arcta Boott. Sedge. Locally abundant.
Carex Asa-Grayi Bailey. Gray's Sedge. Occasional.
Carex Bicknellii Britton. Bicknell's Sedge. Occasional.
Carex brevior (Dewey) Mack. (*Carex festucacea* var. *brevior* (Dewey)

- Fernald) See Am. Midl. Nat. 4: 235. 1915. Frequent.
Carex gravida Bailey. Heavy Sedge. Abundant.
Carex grisea Wahlenb. Gray Sedge. Abundant.
Carex hystricina Muhl. Porcupine Sedge. Common.
Carex laeviconica Dewey. Hairy-fruited Sedge. Frequent.
Carex laxiflora Lam. Loose-flowered Sedge. Frequent.
Carex lupulina Muhl. Hop Sedge. Occasional.
Carex normalis Mack. (*Carex mirabilis* Dewey, not Host) See Bull. Torr. Bot. Club 37: 244. 1910. Frequent.
Carex scoparia Schkuhr. Pointed Broom Sedge. Locally abundant.
Carex sparganioides Muhl. Bur-reed Sedge. Locally abundant.
Carex straminea Willd. Straw Sedge. Frequent.
Carex stricta Lam. Tussock Sedge. Common.
Carex vulpinoidea Michx. Fox Sedge. Frequent.
Cyperus esculentus L. Yellow Nut-grass. Ia. Geol. Surv. Bull. 4: 64. 1913.
Cyperus filiculmis Vahl. Galingale. Occasional.
Cyperus Schweinitzii Torr. Nut-grass. Locally abundant.
Cyperus strigosus L. Straw-colored Cyperus. Occasional.
Eleocharis capitata (L.) R. Br. var. *verrucosa* Svenson. (*Eleocharis tenuis* of auth. in part (Gray's M.) See Rh. 34: 202. 1932.
Eleocharis obtusa (Willd.) Schultes. Spike Rush. Locally abundant.
Eleocharis palustris (L.) R. & S. Creeping Spikerush.
Scirpus atrovirens Muhl. Common Bulrush. Common.
Scirpus validus Vahl. Great Bulrush. Common.

ARACEAE (Arum Family)

- Arisaema Dracontium* (L.) Schott. Green Dragon. Occasional.
Arisaema triphyllum (L.) Schott. Jack-in-the-pulpit. Frequent.

COMMELINACEAE (Spiderwort Family)

- Tradescantia bracteata* Small. Spiderwort. Frequent.
Tradescantia canaliculata Raf. (*Tradescantia reflexa* Raf.) Reflexed Spiderwort. See Contr. Arn. Arb. 9: 74. 1933. Locally frequent.
Tradescantia virginiana L. Spiderwort.

JUNCACEAE (Rush Family)

- Juncus effusus* L. Common Rush. Common.
Juncus macer S. F. Gray. (*Juncus tenuis* of auth., not Willd.) Slender Rush. See Jour. Bot. 68: 366. 1930. Frequent.

LILIACEAE (Lily Family)

- Allium canadense* L. Wild Garlic. Common.
Asparagus officinalis L. Asparagus. A frequent escape.
Erythronium albidum Nutt. White Dog-tooth Violet. Frequent.
Melanthium virginicum L. Bunch-flower. Ia. Geol. Surv. Bull. 4: 67. 1913.
Smilacina racemosa (L.) Desf. False Spikenard. Frequent.
Smilacina stellata (L.) Desf. False Solomon's Seal. Occasional.
Smilax ecirrhata (Engelm.) Wats. Green-brier. Occasional.
Smilax herbacea L. Carrion-flower. Frequent.
Smilax hispida Muhl. Bristly Green-brier. Occasional.
Smilax rotundifolia L. Cat-brier. Occasional.

Trillium nivale Riddell. Snowy Wake-Robin. Locally Abundant.
Uvularia grandiflora Smith. Bellwort. Infrequent.

AMARYLLIDACEAE (Amaryllis Family)

Hypoxis hirsuta (L.) Coville. Star-grass. Infrequent.

IRIDACEAE (Iris Family)

Iris flavescens DC. Yellow Iris. An occasional escape.
Iris pallida Lam. Blue Flag. An occasional escape.
Iris Virginica L. (*Iris versicolor* of auth., not L.) Larger Blue Flag.
 See Ann. Mo. Bot. Gard. 22: 507. 1935. Frequent.
Sisyrinchium campestre Bicknell. Blue-eyed Grass. Frequent.

Class 2. Dicotyledoneae

SALICACEAE (Willow Family)

Salix cordata Muhl. Heart-leaved Willow. Locally abundant.
Salix fragilis L. Brittle Willow. Frequent.
Salix humilis Marsh. Prairie Willow. (*Pammel*), July 13, 1919.
Salix interior Rowlee. Sand-bar Willow. Frequent.
Salix nigra Marsh. Black Willow. (*Pammel*), 1928.
Populus alba L. Silver-leaved Poplar. Locally abundant.
Populus deltoides Marsh. Cottonwood. Common.

JUGLANDACEAE (Walnut Family)

Juglans cinerea L. Butternut. Occasional.
Juglans nigra L. Black Walnut. Frequent.
Carya cordiformis (Wang.) K. Koch. Bitternut Hickory. Common.
Carya laciniosa (Michx. f.) Loud. Kingnut. (*Pammel*), Sept. 5, 1930.
Carya ovata (Mill.) K. Koch. Shell-bark Hickory. Common.

BETULACEAE (Birch Family)

Betula nigra L. River Birch. Frequent.
Corylus americana Walt. Hazelnut. Frequent.
Ostrya virginiana (Mill.) K. Koch. Ironwood. Frequent.

FAGACEAE (Beech Family)

Quercus alba L. White Oak. Frequent.
Quercus bicolor Willd. Swamp White Oak. (*Pammel*). July 13, 1919.
Quercus borealis var. *maxima* (Marsh.) Ashe. (*Quercus rubra* of auth., not L.) See Proc. Am. Foresters 11: 90. 1916 and Rh. 18: 48. 1916. Frequent.
Quercus imbricaria Michx. Shingle Oak. Occasional.
Quercus macrocarpa Michx. Bur Oak. Common.
Quercus velutina Lam. Black Oak. Frequent.

ULMACEAE (Elm Family)

Celtis occidentalis var. *crassifolia* (Lam.) Gray. Hackberry. Occasional.
Ulmus americana L. American Elm. Common.
Ulmus fulva Michx. Red Elm. Occasional.
Ulmus Thomasi Sarg. Cork Elm. (*Pammel*), 1928.

MORACEAE (Mulberry Family)

Cannabis sativa L. Hemp. Frequent.
Humulus Lupulus L. Hop. Infrequent.

Maclura pomifera (Raf.) Schneider. Osage Orange. Frequent in hedges.
Morus alba L. White Mulberry. An occasional escapee from cultivation.
Morus rubra L. Red Mulberry. Occasional.

URTICACEAE (Nettle Family)

Laportea canadensis (L.) Gaud. Wood Nettle. Common.
Parietaria pennsylvanica Muhl. Pellitory. Locally abundant.
Pilea pumila (L.) Gray. Clearweed. Common.
Urtica procera Muhl. (*Urtica gracilis* of most Am. auth., not Ait.) See
 Rh. 28: 192-195. 1926. Common in moist open ground.

ARISTOLOCHIACEAE (Birthwort Family)

Asarum canadense L. Wild Ginger. Frequent.
Asarum canadense var. *acuminatum* Ashe. Frequent.

POLYGONACEAE (Buckwheat Family)

Polygonum aviculare L. Knotweed. Common.
Polygonum coccineum Muhl. (*Polygonum Muhlenbergii* (Meisn.) Wats.)
 See Rh. 27: 162. 1925. (*Pammel*), Sept. 10, 1912.
Polygonum Convolvulus L. Black Bindweed. Occasional.
Polygonum erectum L. Erect Knotweed. Ia. Geol. Surv. Bull. 4: 83. 1913.
Polygonum lapathiifolium L. Smartweed. Common.
Polygonum longistylum Small. Smartweed. Frequent.
Polygonum pennsylvanicum L. Smartweed. Locally abundant.
Polygonum Persicaria L. Lady's Thumb. Common.
Polygonum punctatum Ell. (*Polygonum acre* H. B. K., not Lam.) Water
 Pepper. See Ann. Mo. Bot. Gard. 22: 527. 1935. Occasional.
Polygonum scandens L. Climbing False Buckwheat. Frequent.
Polygonum sagittatum L. Arrow-leaved Tear-thumb. Occasional.
Polygonum tomentosum Schrank. Infrequent.
Rumex Acetosella L. Sour Dock. Occasional.
Rumex altissimus Wood. Pale Dock.
Rumex crispus L. Curled Dock. Common.
Rumex mexicanus Meisn. Common.

CHENOPODIACEAE (Goosefoot Family)

Atriplex patula L. Spear Scale. (*Pammel*), Sept. 6, 1930.
Chenopodium album L. Lamb's Quarter. Common.
Chenopodium Berlandieri subsp. *Boscianum* (Moq.) Allen. (*Chenopodium
 Boscianum* Moq.) (Gray's M.) See Ann. Mo. Bot. Gard. 22: 530. 1935.
 Occasional.
Kochia Scoparia (L.) Schrad. Standing Cypress. (*Pammel*), Sept. 10,
 1912.
Salsola Kali var. *tenuifolia* G. F. W. Mey. Russian Thistle. Frequent.

AMARANTHACEAE (Amaranth Family)

Acnida tuberculata Moq. Water Hemp. Occasional.
Amaranthus blitoides Wats. Spreading Pig-weed. Frequent.
Amaranthus graecizans L. Tumble-weed. Common.
Amaranthus hybridus L. Green Amaranth. Common.
Amaranthus retroflexus L. Pig-weed. Common.

PHYTOLACCACEAE (Pokeweed Family)

Phytolacca americana L. (*Phytolacca decandra* L.) Pokeweed. See Rh. 17: 180. 1915. (*Pammel*), Sept. 5, 1930.

NYCTAGINACEAE (Four-O'clock Family)

Mirabilis nyctaginea (Michx.) Mac M. (*Oxybaphus nyctagineus* (Michx.) Sweet). Wild Four-O'clock. See Field Mus. Publ. Bot. 8: 305. 1931. Occasional.

ILLECEBRACEAE (Knotwort Family)

Anchytia canadensis (L.) B. S. P. Forked Chickweed. (*Pammel*), 1928.

AIZOACEAE (Carpet-weed Family)

Mollugo verticillata L. Carpet-weed. Occasional.

CARYOPHYLLACEAE (Pink Family)

Cerastium nutans Raf. Nodding Chickweed. Frequent.

Cerastium vulgatum var. *hirsutum* Fries. (*Cerastium vulgatum* of auth., not L.) Mouse-ear Chickweed. See Rh. 22: 178. 1920. Common.

Lychnis alba Mill. White Champion. Frequent.

Saponaria officinalis L. Bouncing Bet. Frequent.

Saponaria Vaccaria L. Cow-herb. Infrequent.

Silene antirrhina L. Sleepy Catchfly. Frequent.

Silene stellata (L.) Ait. f. Starry Champion. Occasional.

PORTULACACEAE (Purslane Family)

Claytonia virginica L. Spring Beauty. Common.

Portulaca oleracea L. Purslane. Common.

RANUNCULACEAE (Crowfoot Family)

Actaea brachypoda Ell. (*Actea alba* (L.) Mill. (Gray's M.) White Baneberry. See Ann. Mo. Bot. Gard. 22: 543. 1935.

Anemone canadensis L. White Anemone. Common.

Anemone virginiana L. Thimbleweed. Frequent.

Anemonella thalictroides (L.) Spach. Rue Anemone. Frequent.

Aquilegia latiuscula Greene. (Rydb. M.) (*Aquilegia canadensis* L. (Gray's M.)) Wild Columbine. Common.

Clematis Pitcheri T. & G. Leather Flower. Frequent.

Clematis virginiana L. Virgin's Bower. Occasional.

Delphinium carolinianum Walt. (*Delphinium azureum* Michx.). Larkspur. See Rh. 39: 20. 1937. Frequent.

Delphinium tricorne Michx. Dwarf Larkspur. Frequent.

Hepatica acutiloba DC. Hepatica. Frequent.

Isopyrum biternatum (Raf.) T. & G. False Rue Anemone. Frequent.

Ranunculus abortivus L. Small-flowered Crowfoot. Common.

Ranunculus fascicularis var. *apricus* (Greene) Fernald. (*Ranunculus fascicularis* Muhl.) See Rh. 38: 178. 1936. Frequent.

Ranunculus septentrionalis Poir. Swamp Buttercup. Frequent.

Thalictrum dasycarpum Fisch. & Lall. Meadow Rue. Frequent.

BERBERIDACEAE (Barberry Family)

Caulophyllum thalictroides (L.) Michx. Blue Cohosh. Infrequent.

Podophyllum peltatum L. May Apple. Common.

PAPAVERACEAE (Poppy Family)

Sanguinaria canadensis L. Bloodroot. Frequent.

FUMARIACEAE (Fumitory Family)

Dicentra Cucullaria (L.) Bernh. Dutchman's Breeches. Common.

CRUCIFERAE (Mustard Family)

Arabis laevigata (Muhl.) Poir. Rock Cress. (*Pannmel*), July 18, 1919.

Barbarea vulgaris R. Br. Winter Cress. Frequent.

Brassica arvensis (L.) Ktze. Charlock. Common.

Brassica juncea (L.) Cosson. Indian Mustard. Frequent.

Brassica nigra (L.) Koch. Black Mustard. Frequent.

Capsella Bursa-pastoris (L.) Medic. Shepherd's Purse. Common.

Cardamine bulbosa (Schreb.) B. S. P. Spring Cress. Occasional.

Camelina microcarpa Andrz. False Flax. Locally abundant.

Conringia orientalis (L.) Dumort. Hare's-ear Mustard. Infrequent.

Dentaria laciniata Muhl. Pepper-root. Occasional.

Descurainia intermedia (Rhydb.) Daniels. (*Sisymbrium canescens* var. *brachycarpon* (Richards.) Wats. Tansy Mustard. See Ann. Mo. Bot. Gard. 22: 549. 1935. Frequent.

Erysimum cheiranthoides L. Worm-seed Mustard. Occasional.

Iodanthus pinnatifidus (Michx.) Steud. Purple Rocket. Occasional.

Lepidium apetalum Willd. (Probably *Lepidium densiflorum* Schrad.) Small Peppergrass. See Ann. Mo. Bot. Gard. 22: 548. 1935. Ia. Geol. Surv. Bull. 4: 147. 1913.

Lepidium campestre (L.) R. Br. Pepperwort. Occasional.

Lepidium virginicum L. Large Peppergrass. Common.

Rorippa Armoracia (L.) Hitchc. (*Radicula Armoracia* (L.) Robinson). Horseradish. See Ann. Mo. Bot. Gard. 22: 550. 1935. A frequent escape.

Rorippa hispida var. *glabrata* Lunell. (*Radicula palustris* of Am. auth., not Moench.) Marsh Water Cress. See Rh. 30: 133. 1928. Common.

Sisymbrium altissimum L. Tumble Mustard. Frequent.

Sisymbrium incisum Engelm. Hedge Mustard. Locally abundant.

Sisymbrium officinale (L.) Scop. Hedge Mustard. Frequent.

Thlaspi arvense L. Penny Cress. Occasional.

CAPPARIDACEAE (Caper Family)

Polanisia graveolens Raf. Clammy-weed. Locally frequent.

Polanisia trachysperma T. & G. Large-flowered Clammy-weed. Frequent in places.

CRASSULACEAE (Orpine Family)

Penthorum sedoides L. Ditch Stonecrop. Occasional.

SAXIFRAGACEAE (Saxifrage Family)

Huchera Richardsonii var. *Grayana*, *Rosendahl*, *Butters*, & *Lakela*. (*Huchera hispida* of auth., not Pursh.) Alum Root. See Rh. 35: 117. 1933. Occasional.

Mitella diphylla L. Miterwort. Occasional.

Ribes Cynosbati L. Prickly Gooseberry. Frequent.

Ribes missouriense Nutt. (*Ribes gracile* Michx.) Missouri Gooseberry. See Ann. Mo. Bot. Gard. 22: 555. 1935. Frequent.

PLATANACEAE (Plane-tree Family)

Platanus occidentalis L. Sycamore. Frequent.

ROSACEAE (Rose Family)

Agrimonia gryposepala Wallr. Agrimony. Occasional.

Agrimonia parviflora Ait. Frequent.

Agrimonia pubescens Wallr. (*Agrimonia mollis* Wallr.) See N. Am. Fl. 22: 393. 1913. Frequent.

Agrimonia striata Michx. Britton's Agrimony.

Amelanchier canadensis (L.) Medic. June Berry. Occasional.

Amelanchier laevis Wieg. Service Berry.

Crataegus Margaretta Ashe. Mrs. Ashe's Thorn.

Crataegus mollis (T. & G.) Scheele. Summer Haw. Frequent.

Crataegus punctata Jacq. (*Pammel, Pratt, & Johnson*). 1927.

Fragaria virginiana Duchesne. Wild Strawberry. Frequent.

Geum canadense Jacq. Avens. Frequent.

Malus ioensis (Wood) Bailey. (*Pyrus ioensis* (Wood) Britton) Wild Crab-apple. See Ann. Mo. Bot. Gard. 22: 556. 1935. Common.

Malus pumila Mill. (*Pyrus Malus* L.). Apple. See Ann. Mo. Bot. Gard. 22: 556. 1935.

Potentilla arguta Pursh. Cinquefoil. Occasional.

Potentilla norvegica var. *hirsuta* (Michx.) Lehm. (*Potentilla monspeliensis* L.) See Rh. 28: 213-214. 1926. Common.

Potentilla recta L. Five-finger. Locally abundant.

Potentilla simplex Michx. (*Potentilla canadensis* of auth., not L.) See Rh. 33: 188. 1931. Common.

Prunus americana Marsh. Wild Plum. Frequent.

Prunus Persica (L.) Stokes. Peach. An escape from cultivation.

Prunus serotina Ehrh. Wild Cherry. Frequent.

Prunus virginiana L. Choke Cherry. Frequent.

Rosa blanda Ait. Meadow Rose. Frequent.

Rosa carolina L. (*Rosa humilis* Marsh.). Pasture Rose. See Rh. 20: 91. 1918. Locally frequent.

Rosa palustris Marsh. (*Rosa carolina* of auth., not L.). See Rh. 20: 91. 1918.

Rosa spinosissima L. Scotch Rose. An escape from cultivation.

Rosa suffulta Greene. (*Rosa pratincola* Greene, in the Weed Flora of Iowa) See N. Am. Fl. 22: 504. 1913; also Bull. Torr. Bot. Club 50: 65. 1923. Ia. Geol. Surv. Bull. 4: 179. 1913.

Rubus flagellaris Willd. (*Rubus villosus* Ait.) Dewberry. See Ann. Mo. Bot. Gard. 22: 568. 1935. Occasional.

Rubus heterophyllus Willd. (*Rubus recurvans* Blanchard). Blackberry. See Ann. Mo. Bot. Gard. 22: 568. 1935. Frequent.

Rubus idaeus L. Red Raspberry. Infrequent.

Rubus occidentalis L. Black Raspberry. Occasional.

Spiraea alba Du Roi. (*Spiraea salicifolia* of auth. in part, not L.) Meadow-sweet. See Ann. Mo. Bot. Gard. 22: 556. 1935. Occasional.

LEGUMINOSAE (Pulse Family)

Amphicarpa bracteata (L.) Fernald (*Amphicarpa monoica* (L.) Ell.). Hog Peanut. See Rh. 35: 276. 1933. Frequent.

- Amphicarpa bracteata* var. *cosmosa* Fernald (*Amphicarpa comosa* (L.) G. Don.). See Rh. 39: 318. 1937. Locally frequent.
- Amorpha canescens* Pursh. Lead Plant. Frequent.
- Amorpha fruticosa* L. False Indigo. Occasional.
- Baptisia leucantha* T. & G. White Wild Indigo. Frequent.
- Baptisia leucophaea* Nutt. (*Baptisia bracteata* of auth., not Muhl.) Ell.). See Ann. Mo. Bot. Gard. 22: 575. 1935. Infrequent.
- Cassia fasciculata* Michx. (*Cassia Chamacrista* of auth., not L.). Partridge Pea. See Ann. Mo. Bot. Gard. 22: 574. 1935. Common.
- Cercis canadensis* L. Redbud. Occasional.
- Desmodium acuminatum* (Michx.) DC. (*Desmodium grandiflorum* (Walt.) DC.). See Ann. Mo. Bot. Gard. 22: 579. 1935. Frequent.
- Desmodium canadense* (L.) DC. Tick Trefoil. Frequent.
- Desmodium canescens* (L.) DC. Beggar's Lice. Frequent.
- Gleditsia triacanthos* L. Honey Locust. Occasional.
- Glycine hispida* Maxim. Soy Bean. An escape from cultivation.
- Gymnocladus dioica* (L.) K. Koch. Kentucky Coffee-tree. Occasional.
- Lathyrus latifolius* L. Perennial Pea. (*Pammel*), July 25, 1927.
- Lathyrus palustris* L. Marsh Pea. Locally frequent.
- Lespedeza capitata* Michx. Bush Clover. Occasional.
- Medicago lupulina* L. Black Medick. Occasional.
- Medicago sativa* L. Alfalfa. An occasional escape.
- Melilotus alba* Deaf. White Sweet Clover. Frequent.
- Melilotus officinalis* (L.) Lam. Yellow Sweet Clover. Common.
- Robinia Pseudo-Acacia* L. Black Locust. Frequent.
- Strophostyles helvola* (L.) Britton. Wild Bean. Occasional.
- Strophostyles pauciflora* (Benth.) Wats. Frequent.
- Trifolium hybridum* L. Alsike Clover. Common.
- Trifolium pratense* L. Red Clover. Frequent.
- Trifolium repens* L. White Clover. Common.

OXALIDACEAE (Wood Sorrel Family)

- Oxalis corniculata* L. Lady's Sorrel. Common.
- Oxalis stricta* L. Sheep Sorrel. Common.
- Oxalis violacea* L. Wood Sorrel. Frequent.

GERANIACEAE (Geranium Family)

- Geranium carolinianum* L. Carolina Crane's-bill. Frequent.
- Geranium maculatum* L. Wild Geranium. Common.

RUTACEAE (Rue Family)

- Zanthoxylum americanum* Mill. Prickly Ash. Occasional.

SIMARUBACEAE (Quassia Family)

- Ailanthus altissima* (Mill.) Swingle. Tree of Heaven. Infrequent.

POLYGALACEAE (Milkwort Family)

- Polygala sanguinea* L. Field Milkwort. Frequent.

EUPHORBIACEAE (Spurge Family)

- Acalypha rhomboidea* Raf. (*Acalypha virginica* L. of Gray's M.). See Rh. 39: 16. 1937. Occasional.
- Euphorbia corollata* L. Flowering Spurge. Frequent.

- Euphorbia Cyparissias* L. Cypress Spurge. Infrequent.
Euphorbia dentata Michx. Spurge. Occasional.
Euphorbia maculata L. Milk Purslane. (*Pammel*), Sept. 5, 1930.
Euphorbia marginata Pursh. Snow-on-the-mountain. (*Pammel*), Sept. 5, 1930.
Euphorbia nutans Lag. (*Euphorbia Preslii* Guss.) Nodding Spurge. See Ann. Mo. Bot. Gard. 22: 589. 1935. Frequent.
Euphorbia obtusata Pursh. Warty Spurge. Locally frequent.

ANACARDIACEAE (Sumach Family)

- Rhus glabra* L. Smooth Sumach. Common.
Toxicodendron radicans (L.) Kuntze. (*Rhus toxicodendron* L.) Poison Ivy. See Ann. Mo. Bot. Gard. 24: 425. 1937. Common.

CELASTRACEAE (Staff Tree Family)

- Celastrus scandens* L. Bitter-sweet. Infrequent.
Evonymus atropurpureus Jacq. Burning Bush. Infrequent.

STAPHYLEACEAE (Bladder-Nut Family)

- Staphylea trifolia* L. Bladder-Nut. Infrequent.

ACERACEAE (Maple Family)

- Acer Negundo* L. Box Elder. Common.
Acer nigrum Michx. f. Black Maple. Locally frequent.
Acer saccharinum L. Soft Maple. Common.
Acer saccharum Marsh. Sugar Maple. Infrequent.

HIPPOCASTANACEAE (Buckeye Family)

- Aesculus glabra* Willd. Ohio Buckeye. Locally frequent.

BALSAMINACEAE (Touch-me-not Family)

- Impatiens biflora* Walt. Spotted-flowered Touch-me-not. Occasional.
Impatiens pallida Nutt. Pale-flowered Touch-me-not. Common.

RHAMNACEAE (Buckthorn Family)

- Ceanothus americanus* L. New Jersey Tea. Occasional.
Rhamnus lanceolata Pursh. Lance-leaved Buckthorn. Infrequent.

VITACEAE (Vine Family)

- Parthenocissus quinquefolia* (L.) Planch. (*Psedera quinquefolia* (L.) Greene.) Virginia Creeper. See Ann. Mo. Bot. Gard. 22: 595. 1935. Common.
Vitis vulpina L. River-bank Grape. Common.

TILIACEAE (Linden Family)

- Tilia glabra* Vent. (*Tilia americana* of auth., and perhaps L.) Basswood. See Bot. Gaz. 66: 424. 1918. Occasional.

MALVACEAE (Mallow Family)

- Abutilon Theophrasti* Medic. Velvet Leaf. Common.
Althaea rosea (L.) Cav. Hollyhock. An escape from cultivation.
Hibiscus Trionum L. Flower-of-an-hour. Occasional.
Malva neglecta Wallr. (*Malva rotundifolia* L.) Common Mallow. See Rh. 39: 99. 1937. Common.
Sida spinosa L. False Mallow. Frequent.

HYPERICACEAE (St. John's-wort Family)

- Hypericum Ascyron* L. Great St. John's-wort. (*Pammel*), 1928.
Hypericum ellipticum Hook. (*Pammel*), July 13, 1919.
Hypericum cistifolium Lam. Frequent.

VIOLACEAE (Violet Family)

- Viola eriocarpa* Schwein. (*Viola scabriuscula* Schwein., in part) Yellow Violet. See Rh. 23: 275. 1922; also Bull. Torr. Bot. Club 38: 194. 1911. Common.
Viola missouriensis Greene. Missouri Violet. Occasional.
Viola papilionacea Pursh. Meadow Violet. Frequent.
Viola pedatifida G. Don. Prairie Violet. Infrequent.
Viola sororia Willd. Woolly Blue Violet. Common.
Viola viarum Pollard. Plains Violet. Rare.

LYTHRACEAE (Loosestrife Family)

- Lythrum alatum* Pursh. Winged Loosestrife. Frequent.

ONAGRACEAE (Evening Primrose Family)

- Circaea latifolia* Hill. (*Circaea luteana* of Am. auth., not L.) Enchanter's Nightshade. See Rh. 19: 87. 1917. Frequent.
Gaura biennis L. Biennial Gaura. Infrequent.
Ludvigia alternifolia L. Seed-box. Infrequent.
Oenothera biennis L. Common Evening Primrose. Common.
Oenothera laciniata Hill. Evening Primrose. Locally frequent.
Oenothera pilosella Raf. (*Oenothera pratensis* (Small) Robinson). See Bull. Torr. Bot. Club. 64: 290. 1937. Locally frequent.
Oenothera rhombipetala Nutt. Rhombic Evening-Primrose. Infrequent.
Oenothera strigosa (Rydb.) Mack. & Bush. (*Oenothera muricata* var. *cancscens* (T.&G.) Robinson. See Ann. Mo. Bot. Gard. 22: 606. 1935. Frequent.

ARALIACEAE (Ginseng Family)

- Aralia racemosa* L. American Spikenard. (*Pammel*), 1928.

UMBELLIFERAE (Parsley Family)

- Chaerophyllum procumbens* (L.) Crantz. Wild Chervil. Occasional.
Cicuta maculata L. Spotted Cowbane. Frequent.
Cryptotaenia canadensis (L.) DC. Honewort. Occasional.
Daucus Carota L. Wild Carrot. Occasional.
Eryngium yuccifolium Michx. Rattlesnake Master. Becoming infrequent.
Foeniculum vulgare Hill. Fennel. (*Pammel, Pratt & Johnson.*) 1928.
Heracleum lanatum Michx. Cow Parsnip. Occasional.
Osmorhiza Claytoni (Michx.) Clarke. Woolly Sweet Cicely. (*Pammel*), 1928.
Osmorhiza longistylis (Torr.) DC. Smooth Sweet Cicely. Occasional.
Pastinaca sativa L. Parsnip. Frequent.
Sanicula canadensis L. Black Snakeroot. Frequent.
Taenidia integerrima (L.) Drude. Yellow Pimpernel. Frequent.
Thaspium barbinode (Michx.) Nutt. Meadow Parsnip. Frequent.
Thaspium trifoliatum var. *flavum* Blake. (*Thaspium aureum* of auth., not Nutt.) See Rh. 20: 53. 1918. Frequent.
Zizia aurea (L.) Koch. Golden Alexanders. Occasional.

CORNACEAE (Dogwood Family)

- Cornus alternifolia* L. f. Alternate-leaved Dogwood. Occasional.
Cornus asperifolia Michx. Rough-leaved Dogwood. Frequent.
Cornus obliqua Raf. (*Cornus Amonum* of auth. in part, not Mill.) Swamp Dogwood. See Ann. Mo. Bot. Gard. 22: 613. 1935. Infrequent.
Cornus racemosa Lam. (*Cornus paniculata* L'Her.) See Ann. Mo. Bot. Gard. 22: 613. 1935. Frequent.

PRIMULACEAE (Primrose Family)

- Androsace occidentalis* Pursh. Androsace. Infrequent.
Lysimachia ciliata L. (*Steironema ciliatum* (L.) Raf. See Pflanzenfam. IV. 237: 276. 1905. Frequent.

OLEACEAE (Olive Family)

- Fraxinus americana* L. White Ash. Common.
Fraxinus pennsylvanica Marsh. Red Ash. Common.
Fraxinus pennsylvanica var. *lanceolata* (Borkh.) Sarg. Green Ash. Frequent.
Syringa persica L. Lilac. Occasional.

GENTIANACEAE (Gentian Family)

- Gentiana Andrewsii* Griseb. Closed Gentian. Infrequent.

APOCYNACEAE (Dogbane Family)

- Apocynum androsaemifolium* L. Spreading Dogbane. Ia. Geol. Surv. Bull. 4: 235. 1913.
Apocynum cannabinum L. Indian Hemp. Frequent.

ASCLEPIADACEAE (Milkweed Family)

- Acerates hirtella* Pennell. (*Acerates floridana* of auth. (Gray's M.) See Bull. Torr. Bot. Club 46: 184-185. 1919. Occasional.
Asclepias incarnata L. Swamp Milkweed. Frequent.
Asclepias Sullivantii Engelm. Sullivant's Milkweed. (*Pammel*), 1928.
Asclepias syriaca L. Common Milkweed. Frequent.
Asclepias tuberosa L. Butterfly-weed. Occasional.
Asclepias verticillata L. Whorled Milkweed. Common.
Gonolobus laevis Michx. Angle-pod. (*John Moore*).

CONVOLVULACEAE (Convolvulus Family)

- Convolvulus arvensis* L. Small Bindweed. Occasional.
Convolvulus sepium L. Hedge Bindweed. Frequent.
Cuscuta pentagona Engelm. (*Pammel*), July 25, 1927.
Ipomoea hederacea Jacq. Blue Morning Glory. (*Pammel*), Sept. 5, 1930.
Ipomoea purpurea (L.) Roth. Common Morning Glory. Ia. Geol. Surv. Bull. 4: 245. 1913.

POLEMONIACEAE (Polemonium Family)

- Collomia linearis* Nutt. (*Gilia linearis* (Nutt.) Gray). See Rh. 23: 288. 1921. Frequent.
Phlox divaricata var. *Laphamii* Wood. Blue Phlox. See *Bartonia* 12: 34. 1930. Frequent.
Phlox pilosa L. Downy Phlox. Occasional.
Polemonium reptans L. Jacob's Ladder. Frequent.

HYDROPHYLLACEAE (Waterleaf Family)

- Ellisia Nyctelea* L. *Nyctelea*. Frequent.
Hydrophyllum appendiculatum Michx. Woolen Breeches. Occasional.
Hydrophyllum virginianum L. Waterleaf. Common.

BORAGINACEAE (Borage Family)

- Cynoglossum officinale* L. Hound's Tongue. Infrequent.
Lappula virginiana (L.) Greene. Beggar's Lice. Common.
Lithospermum arvense L. Corn Gromwell. Locally abundant.
Lithospermum canescens (Michx.) Lehm. Orange Puccoon. Frequent.
Lithospermum carolinense (Walt.) Mac. M. (*Lithospermum Gmelini*
 (Michx.) Hitchc.) See Rh. 17: 131. 1915. Locally frequent.
Mertensia virginica L. Bluebells. Common.
Myosotis virginica (L.) B. S. P. Scorpion Grass. Locally abundant.

VERBENACEAE (Vervain Family)

- Lippia lanceolata* var. *recognita* Fernald & Griscomb. Fog Fruit. See Rh.
 37: 178. 1935. Frequent.
Verbena bracteata Lag. & Rodr. (*Verbena bracteosa* Michx.) Common
 Vervain. See Ann. Mo. Bot. Gard. 20: 304. 1933. Common.
Verbena hastata L. Blue Vervain. (*Pammel*), Sept. 10, 1912.
Verbena stricta Vent. Hoary Vervain.
Verbena urticifolia L. White Vervain. Frequent.

LABIATAE (Mint Family)

- Agastache nepetoides* (L.) Ktze. Giant Hyssop. Frequent.
Agastache scrophulariaefolia (Willd.) Ktze. Figwort Giant-Hyssop. Oc-
 casional.
Blephilia hirsuta (Pursh) Benth. Wood Mint. Frequent.
Hedeoma hispida Pursh. Mock Pennyroyal. Occasional.
Hedeoma pulegiodes (L.) Pers. Pennyroyal. Common.
Leonurus Cardiaca L. Motherwort. Common.
Lycopus americanus Muhl. Water Horehound.
Mentha arvensis L. Ia. Geol. Surv. Bull. 4: 269. 1913.
Mentha piperita L. Peppermint. (*Pammel*), Sept. 5, 1930.
Monarda fistulosa var. *mollis* (L.) Benth. (*Monarda mollis* L.) Horse
 Mint. See Ann. Mo. Bot. Gard. 22: 663. 1935. Common.
Nepeta Cataria L. Catnip. Common.
Nepeta hederacea (L.) Trevisan. Ground Ivy. Occasional.
Prunella vulgaris L. Self-heal. Frequent.
Pycnanthemum flexuosum (Walt.) B. S. P. Mountain Mint. Common.
Pycnanthemum pilosum Nutt. Hairy Mountain-Mint. Occasional.
Pycnanthemum virginianum (L.) Durand & Jackson.
Salvia lanceifolia Poir. Lance-leaved. Sage. Occasional.
Scutellaria lateriflora L. Mad-dog Skullcap. Frequent.
Scutellaria ovata Hill. (*Scutellaria versicolor* Nutt.) See Contr. U. S. Nat.
 Herb. 22: 734. 1927. Common.
Stachys aspera Michx. Rough Hedge Nettle.
Stachys hispida Pursh. Hedge Nettle. (*Stachys tenuifolia* var. *aspera* of
 auth., not *Stachys aspera* Michx.) See Ann. Mo. Bot. Gard. 22: 633.
 1935.
Stachys palustris L. Hedge Nettle. Common.

Teucrium canadense var. *virginicum* (L.) Eat. (*Teucrium canadense* of auth., not L.) Germander. See Rh. 35:395. 1933. Common.

SOLANACEAE (Nightshade Family)

Datura Stramonium L. Jimson Weed. Occasional.

Datura Tatula L. Purple Thorn Apple. Frequent.

Lycium halimifolium Mill. Matrimony Vine. An escape from cultivation.

Physalis longifolia Nutt. Ground Cherry. Occasional.

Physalis subglabrata Mack. & Bush. Smooth Ground-Cherry. Occasional.

Physalis virginiana Mill. Virginia Ground-Cherry. Occasional.

Solanum carolinense L. Horse Nettle. Frequent.

Solanum nigrum L. Black Nightshade. Common.

Solanum rostratum Dunal. Buffalo Bur. Frequent.

SCROPHULARIACEAE (Figwort Family)

Chaenorrhinum minus (L.) Lange. (Rydb. M.) (*Linaria minus* (L.) Desf. of Gray's M.) Small Snapdragon. See also Acad. Nat. Sci. Phila. Monogr. 1:318. 1935. Locally abundant.

Gerardia tenuifolia var. *macrophylla* Benth. (*Agalinis tenuifolia* var. *macrophylla* Benth.) See Acad. Nat. Sci. Phila. Monogr. 1:462. 1935.

Linaria vulgaris Hill. Butter and Eggs. Occasional.

Lindernia dubia var. *typica* (L.) Pennel. (*Ilysanthes dubia* (L.) Barnh. in part) False Pimpernel. See Acad. Nat. Sci. Phila. Monogr. 1:141. 1935. Occasional.

Mimulus ringens L. Monkey Flower. Occasional.

Penstemon pallidus Small. (*Penstemon canescens* of auth., Not Britton). Beardtongue. See Ann. Mo. Bot. Gard. 22:639. 1935. See also Acad. Nat. Sci. Phila. Monogr. 1:223. 1935. Frequent.

Scrophularia lanceolata Pursh. (*Scrophularia leporella* Bicknell). Figwort. See Torreya 22:81-84. 1922. Occasional.

Scrophularia marilandica L. Maryland Figwort. Occasional.

Verbascum Thapsus L. Mullein. Common.

Veronica arvensis L. Corn Speedwell. Locally abundant.

Veronica peregrina L. Neckweed. Frequent.

Veronicastrum virginicum (L.) Farwell. (*Veronica virginica* L.) Culver's Root. See Acad. Nat. Sci. Phila. Monogr. 1:322. 1935. Common.

OROBANCHACEAE (Broom-rape Family)

Orbanche uniflora L. Small Cancer-root. Locally abundant.

BIGNONIACEAE (Bignonia Family)

Catalpa biognonioides Walt. Indian Bean. Infrequent.

Catalpa speciosa Warder. Cigar Tree. Infrequent.

ACANTHACEAE (Acanthus Family)

Ruellia caroliniensis (Walt.) Steud. (*Ruellia ciliosa* Pursh.) Wild Petunia. See Rh. 17:134. 1915. Locally abundant.

PHRYMACEAE (Lopseed Family)

Phryma Leptostachya L. Lopseed. Locally abundant.

PLANTAGINACEAE (Plantain Family)

Plantago aristata Michx. Bracted Plantain. Common.

Plantago lanceolata L. Buckhorn. Ia. Geol. Surv. Bull. 4:301. 1913.

Plantago major L. Common Plantain. Ia. Geol. Surv. Bull. 4:297. 1913.

Plantago Rugelii Dcne. Rugel's Plantain. Common.
Plantago virginica L. Dwarf Plantain. Common.

RUBIACEAE (Madder Family)

Cephalanthus occidentalis L. Button-Bush. Occasional.
Galium Aparine L. Cleavers. Frequent.
Galium concinnum T. & G. Shining Bedstraw. Locally abundant.
Galium obtusum Bigel. (*Galium tinctorium* L.) Wild Madder. See Rh. 37: 443-445. 1935. Frequent.

CAPRIFOLIACEAE (Honeysuckle Family)

Lonicera prolifera (Kirch.) Rehder. (*Lonicera Sullivantii* Gray.) Grape Honey-suckle. See Rh. 12: 166. 1910. Infrequent.
Sambucus canadensis L. Elderberry. Common.
Symphoricarpos orbiculatus Moench. Buck Brush. Common.
Triosteum perfoliatum L. Wild Coffee. Occasional.
Viburnum affine var. *hypomalacum* Blake. (*Pammel*), 1928.

CUCURBITACEAE (Gourd Family)

Echinocystis lobata (Michx.) T. & G. Wild Balsam-apple. Infrequent.
Sicyos angulatus L. One-seeded Bur Cucumber. Occasional.
Campanula americana L. Tall Bellflower. Common.
Specularia perfoliata (L.) A. DC. Venus' Looking-glass. Common.

LOBELIACEAE (Lobelia Family)

Lobelia inflata L. Indian Tobacco. Occasional.
Lobelia siphilitica L. Great Lobelia. Common.
Lobelia spicata Lam. Pale Spiked Lobelia. Occasional.

COMPOSITAE (Composite Family)

Achillea lanulosa Nutt. Milfoil. Frequent.
Achillea Millefolium L. Yarrow. Common.
Ambrosia artemisiaefolia var. *elatior* (L.) Desc. (*Ambrosia artemisiaefolia* of auth., not L.) Small Ragweed. See Rh. 37: 185. 1935. Common.
Ambrosia trifida L. Great Ragweed. Common.
Antennaria neglecta Greene. Pussy's Toes. Frequent.
Antennaria plantaginifolia (L.) Richards. Ladies' Tobacco. Common.
Anthemis Cotula L. Dog Fennel. Frequent.
Arctium Lappa L. Great Burdock. Ia. Geol. Surv. Bull. 4: 371. 1913.
Arctium minus Bernh. Smaller Burdock. Common.
Artemisia biennis Willd. Wormwood. Occasional.
Artemisia vulgaris var. *ludoviciana* (Nutt.) Ktze. Mugwort. Occasional.
Aster azureus Lindl. Blue Devil. Frequent.
Aster cordifolius L. Heart-leaved Aster. Occasional.
Aster Drummondii Lindl. Drummond's Aster. Occasional.
Aster ericoides L. (*Aster multiflorus* Ait.) See Rh. 32: 138. 1930. And also Rh. 30: 227. 1928. Common.
Aster interior Wiegand (*Aster Tradescantii* of auth. in part, not L.) Michaelmas Daisy. See Rh. 35: 312. 1933. Occasional.
Aster laevis L. Frost-flower. Occasional.
Aster lucidulus (A. Gray) Rydb. Occasional.
Aster novae-angliae L. New England Aster. Frequent.
Aster pilosus Willd. (*Aster ericoides* var. *villosus* T. & G.) White Heath Aster. See Rh. 32: 139. 1930. Occasional.

- Aster praealtus* Poir. (*Aster salicifolius* Ait. in part.) Willow-leaved Aster.
See Rh. 35:21. 1933. Common.
- Bidens cernua* L. Sticktight. Common.
- Bidens discoidea* (T. & G.) Britton. Tall Boot-jack. Ia. Geol. Surv. Bull. 4: 350. 1913.
- Bidens frondosa* L. Beggar-ticks. (*Maakestead*), Sept., 1926.
- Bidens involucrata* (Nutt.) Britton. Spanish Needles. Frequent.
- Chrysanthemum Leucanthemum* var. *pinatifidum* Lecoq. & Lamotte. Daisy. Infrequent.
- Cirsium altissimum* (L.) Spreng. Plumed Thistle. Common.
- Cirsium arvense* (L.) Scop. Canada Thistle. Ia. Geol. Surv. Bull. 4: 381. 1913.
- Cirsium discolor* (Muhl.) Spreng. Prairie Thistle. Ia. Geol. Surv. Bull. 4: 377. 1913.
- Cirsium lanceolatum* (L.) Hill. Bull Thistle. Common.
- Coreopsis palmata* Nutt. Tickseed. Occasional.
- Cosmos bipinnatus* Cav. Locally frequent.
- Echinacea angustifolia* DC. Narrow-leaved Purple Cone-flower. Infrequent.
- Echinacea pallida* Nutt. (*Brauneria pallida* (Nutt.) Britton.) Purple Cone-flower. See Ann. Mo. Bot. Gard. 22:670. 1935. Occasional.
- Erechtites hieracifolia* (L.) Raf. Fireweed. Ia. Geol. Surv. Bull. 4: 369. 1913.
- Erigeron annuus* (L.) Pers. Daisy Fleabane. Frequent.
- Erigeron canadensis* L. Horseweed. Ia. Geol. Surv. Bull. 4: 326. 1913.
- Erigeron divaricatus* Michx. Dwarf Fleabane. (*Maakestead*), Sept. 1926.
- Erigeron philadelphicus* L. Philadelphia Fleabane. Occasional.
- Erigeron ramosus* (Walt.) B. S. P. Daisy Fleabane. Frequent.
- Eupatorium altissimum* L. Tall Thoroughwort. (*Pammel*), Oct. 12, 1924.
- Eupatorium perfoliatum* L. Boneset. Occasional.
- Eupatorium purpureum* L. (*Eupatorium falcatum* Michx.) Joe Pye Weed.
See Rh. 22:62-68. 1920. And also Rh. 39:306. 1937. Frequent.
- Eupatorium urticaefolium* Reichard. White Snakeroot. Frequent.
- Gnaphalium obtusifolium* L. (*Gnaphalium polycephalum* Michx.) Everlasting. See Rh. 20:71. 1918. Common.
- Helenium autumnale* L. Sneezeweed. Occasional.
- Helianthus annuus* L. Sunflower. Occasional.
- Helianthus grosseserratus* Martens. Saw-tooth Sunflower. Common.
- Helianthus Maximiliani* Schrad. Maximilian's Sunflower. Occasional.
- Helianthus rigidus* (Cass.) Desf. (*Helianthus scaberrimus* Ell.) See Papers Mich. Acad. Sci. 9: 344. 1929. Occasional.
- Helianthus strumosus* L. Pale-leaved Wood Sunflower. Locally abundant.
- Helianthus tuberosus* L. Jerusalem Artichoke. Occasional.
- Heliopsis scabra* Dunal. Rough Ox-eye. Frequent.
- Hieracium scabrum* Michx. Hawkweed. Infrequent.
- Iva xanthifolia* Nutt. Burweed Marsh Elder. Frequent.
- Kuhnia eupatorioides* L. False Boneset. Occasional.
- Lactuca canadensis* var. *latifolia* O. Kuntze. See Rh. 22:10. 1920. Frequent.
- Lactuca canadensis* var. *longifolia* (Michx.) Farwell. See Rh. 22:10. 1920.
And also Rh. 40:481. 1938. Common.
- Lactuca ludoviciana* (Nutt.) Riddell. Occasional.

- Lactuca pulchella* (Pursh) DC. Blue Lettuce. Ia. Geol. Surv. Bull. 4: 402. 1913.
- Lactuca Serriola* var. *integrata* (Gren. & Godr.) Farwell. (*Lactuca Scariola* var. *integrata* Gren. & Godr.) See Am. Midl. Nat. 10: 46. 1926. Occasional.
- Lactuca villosa* Jacq. Hairy-veined Blue Lettuce. Infrequent.
- Liatris pycnostachya* Michx. Blazing Star. Locally frequent.
- Madia glomerata* Hook. (*Pammel*), Sept. 7, 1930.
- Prenanthes alba* L. Rattlesnake-root. Infrequent.
- Ratibida pinnata* (Vent.) Barnhart. (*Lepachys pinnata* Vent. T. & G.) Pinnate-leaved Cone-flower. See Ann. Mo. Bot. Gard. 22: 670. 1935. Occasional.
- Rudbeckia hirta* L. Black-eyed Susan. Frequent.
- Rudbeckia subtomentosa* Pursh. Cone-flower. Locally abundant.
- Rudbeckia triloba* L. Brown-eyed Susan. Occasional.
- Senecio pauperculus* Michx. (*Senecio Balsamitae* Muhl.) See Ann. Mo. Bot. Gard. 3: 159. 1916. Infrequent.
- Silphium integrifolium* Michx. Rosin-weed. Common.
- Silphium laciniatum* L. Compass Plant. Infrequent.
- Silphium perfoliatum* L. Cup Plant. Frequent.
- Solidago canadensis* L. Goldenrod. Common.
- Solidago glaberrima* Martens. (*Solidago missouriensis* Nutt. of Gray's M.) See Ann. Mo. Bot. Gard. 22: 660. 1935. Occasional.
- Solidago graminifolia* (L.) Salisb. Flat-topped Godenrod. Occasional.
- Solidago latifolia* L. Broad-leaved Golden-rod. Infrequent.
- Solidago rigida* L. Hard-leaved Golden-rod. Occasional.
- Solidago serotina* Ait. Ia. Geol. Surv. Bull. 4: 316. 1913.
- Solidago speciosa* Nutt. Showy Golden-rod. Frequent.
- Solidago ulmifolia* Muhl. Elm-leaved Golden-rod. Occasional.
- Sonchus asper* (L.) Hill. Sow Thistle. Ia. Geol. Surv. Bull. 4: 394. 1913.
- Sonchus oleraceus* L. Annual Sow Thistle. Ia. Geol. Surv. Bull. 4: 393. 1913.
- Tanacetum vulgare* L. Tansy. Infrequent.
- Taraxacum laevigatum* (Willd.) DC. (*Taraxacum erythrospermum* Andr.) Red-seeded Dandelion. See Rh. 35: 379. 1933. Frequent.
- Taraxacum palustre* var. *vulgare* (Lam.) Fernald. (*Taraxacum officinale* Weber.) Common Dandelion. See Rh. 35: 380. 1933. Common.
- Tragopogon porrifolius* L. Salsify. Occasional.
- Tragopogon pratensis* L. Goat's Beard. Frequent.
- Vernonia Baldwini* Torr. Ironweed. Ia. Geol. Surv. Bull. 4: 310. 1913.
- Vernonia Baldwini* var. *interior* (Small) Schubert. (*Vernonia interior* Small.) See Rh. 38: 370. 1931. Frequent.
- Vernonia fasciculata* Michx. Western Iron-weed. Occasional.
- Xanthium canadense* Mill. (Probably *Xanthium chinense* Mill.) See Ann. Mo. Bot. Gard. 22: 668. 1935. Ia. Geol. Surv. Bull. 4: 335. 1913.
- Xanthium echinatum* Murr. Beach Clotbur. (*Pammel*), Sept. 10, 1912.
- Xanthium italicum* Mor. (*Xanthium commune* Britton of Gray's M.) See Ann. Mo. Bot. Gard. 22: 668. 1935. Common.

A systematic annotated list of 590 species, subspecies, and varieties of Pteridophyta and Spermatophyta occurring in Mahaska

County, Iowa was made, 529 of which were collected and identified during this survey.

It was found that 381 or approximately 65 per cent of the species, subspecies, and varieties collected were contained in 15 of the 89 families. These 15 families are ranked below according to the number of species, subspecies, and varieties contained in each: Compositae 94, Gramineae 63, Rosaceae 31, Leguminosae 27, Cyperaceae 26, Labiatae 23, Cruciferae 22, Polygonaceae 16, Ranunculaceae 15, Umbelliferae 15, Liliaceae 12, Scrophulariaceae 12, Euphorbiaceae 8, Solanaceae 9, and Onagraceae 8.

Four species not found in Cratty's checklist (7) and which are apparently new for the state were collected during this survey. They are: Goat Grass (*Aegilops cylindica*), Corn Gromwell (*Lithospermum arvense*), Salsify (*Tragopogon porrifolius*), and the Plains Violet (*Viola viarum*). Other plants found in the county which are infrequent in the state include the Small Snapdragon (*Chaenorrhinum minus*), Hare's-ear Mustard (*Conringia orientalis*) Scorpion Grass (*Myosotis virginica*), and Salt marsh-Cockspur grass (*Echinochloa Walteri*).

The Oak-hickory forest occupies the rough upland areas in Mahaska County. The undisturbed lowland areas are occupied by a forest of several different kinds of deciduous trees consisting mainly of Soft Maple, Willows, Green Ash, Elms, River Birch, Honey Locust, Sycamore, Butternut, Black Walnut, and Hackberry. Herbaceous vegetation found under the forest canopy is variable and is dependent largely on the amount of disturbance created by man.

The prairie which occupies the plateaus between the streams is now mostly under cultivation. Consequently some of the former plants of the prairie are gone and many of the remaining ones are nearing extinction.

The flora of Mahaska County is undergoing a change as is evidenced by the number of adventive species, subspecies, and varieties, 112 of which are included in this work. The number of immigrant plants thus approximates 19 per cent of the total number treated during this survey.

PERTINENT LITERATURE AND ABBREVIATIONS

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