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SOME CHANGES THAT HAVE OCCURRED IN THE INDIGENOUS FLORA OF TWO ADJOINING WEST-CENTRAL ILLINOIS COUNTIES (HANCOCK AND MCDONOUGH) DURING THE LAST 140 YEARS

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ABSTRACT - Changes in the indigenous flora of a Study Area consisting of two adjoining west-central Illinois counties (Hancock and McDonough) during the last 140 years are reported. Sixteen percent or 130 of the 820 native species are now considered extinct or nearly extinct, and another 68 species, rare or endangered. This reduction in the number of native species is attributed to disturbances caused by man, primarily affecting plants on the edge of their Illinois distribution and those found in wetland or aquatic habitats.

Increasing concern about the effects of man-made disturbances on our native flora and fauna has resulted in the compilation of lists of extinct and endangered species, mostly animals. It has also stimulated efforts to preserve the endangered species. The Illinois Nature Preserves Commission is compiling a list of rare and endangered Illinois plant species and this report is intended to be a contribution to this effort.

THE STUDY AREA

The Study Area which consists of two adjoining west-central Illinois counties (Hancock and McDonough), borders on the Mississippi River. It has an area of 357,260 hectares (882,432 acres) or 3626 km^2 (1,378 mi^2) which is 2.44 percent of the Illinois land area. At the time of settlement about 42 percent was forested (Telford, 1926; Myers and Wright, 1948; and Kibbe, 1952), with the remainder largely tall grass prairie. The habitats for most of the two counties are similar except for bluff, wet lands and sand areas along the Mississippi River not found in adjoining McDonough County.

The Study Area is probably unique for Illinois as extensive plant collections started in 1833, or shortly after settlement began, and have continued to the present time. These provide a base-line for some of the floristic changes that have occurred during the last 140 years including taxa that have become extinct, nearly extinct, rare and presumably endangered. In addition, data are available concerning the establishment of species from outside the Study Area that are native in Illinois, and species not native in Illinois.

Today over 91 percent of the Study Area is in farms with most of the remainder used for highways, railroads, housing and other man-related activities. The prairies have disappeared and the forested areas have been reduced from 45 percent to about 8 percent. Over 72 percent is used for crops, mostly corn and soybeans, 11 percent for pastures, and about 18 percent is artificially drained (U.S. Bureau of the Census, 1972). This has destroyed or considerably reduced the area and number of wet habitats required for a number of species. In addition to disturbances related to crop production, the environment of the remaining land area is also extensively disturbed. This includes logging and grazing of timbered areas; the use of herbicides along highways, railroads and in other places, mowing, grazing and trampling; stream and pond pollution caused by fertilizers, herbicides and other agricultural chemicals leached from crop lands, and industrial chemicals; and other man-related activities. These disturbances have eliminated or reduced the number of many native species and as a result the present vegetational cover not consisting of cultivated crops, contains many alien and native species that can tolerate these disturbances.

REVIEW OF THE LITERATURE

The report by Kibbe (1952) provides most of the data used to evaluate the floristic composition of Hancock County, and presumably also McDonough County, between 1833 and 1952. She summarized and evaluated the voucher specimens for species collected during this period by herself between 1921 and 1952, and seven earlier collectors. She made an extensive survey of the flora between 1951 and 1952 and prepared an annotated catalog for the flora of Hancock County (Kibbe, 1952). In this catalog she noted that "species not recorded since 1915 are not numbered in the present flora, but those collected since that date are numbered as they are assumed to be still represented in the flora of the county . . . " Nearly all of the species "not numbered" she annotated as "not recently found."

The extensive collections made by Henry in Hancock County since 1964 and by Myers (Myers and Wright, 1948; Myers, 1972 and 1975) since 1944 in McDonough County provide data for the present floristic composition of the Study Area. Voucher specimens for Hancock County are deposited in the Alice L. Kibbe Herbarium (WARK), Warsaw, Illinois; and those for McDonough County are in the Western Illinois University Herbarium (MWI), Macomb. Collection records and evaluation of voucher specimens for the two counties in the Study Area have also been obtained from Jones and Fuller (1955), Winterringer and Evers (1960), and for the Orchidaceae, from Sheviak (1974).

TAXA LISTED BY KIBBE (1952) NOW CONSIDERED EXTINCT, NEARLY EXTINCT RARE OR ENDANGERED IN THE STUDY AREA

The native plants listed below were derived from the report by Kibbe (1952) on the flora of Hancock County on the basis of her annotations concerning their occurrence from 1833 to 1952. Not included are taxa not supported by voucher specimens and species misidentified according to Jones and Fuller (1955), and Sheviak (1974). Species that Kibbe (1952) indicated had not been collected between 1915 and 1952 are annotated with an asterisk and those not collected since 1964 in Hancock County, or since 1945 in McDonough County, are annotated with an X. The data concerning habitats, local distribution, and nomenclature are from Jones (1963) and that for taxa on the edge of their Illinois distribution or disjunct in the Study Area is derived from Winterringer and Evers (1960), and Sheviak (1974).

POLYPODIACEAE

* Athyrium angustum (Willd.) Presl Collected in Hancock County, and reported for McDonough County in 1971. Local distribution.

* Dryopteris marginalis (L.) Gray McDonough County collection in 1948.

X Matteuccia struthiopteris (L.) Todaro "Nearly exterminated" (Kibbe, 1952). On S edge of Illinois distribution. Wet habitats may be destroyed. Local distribution.

* Pteridium latiusculum (Desv.) Hieron. McDonough County collection in 1950.

ACANTHACEAE

Dianthera americana L. "A rare plant at present" (Kibbe, 1952). Collected in Hancock County. Its wet habitats may be disappearing.

APOCYNACEAE

X Amsonia tabernaemontana Walt. Considered "very rare" by Kibbe (1952). Near NW edge of Illinois distribution. Local distribution. Wet habitats may be destroyed.

AQUIFOLIACEAE

X* Ilex decidua Walt. "Rare having been found at only one station during present survey" (Kibbe, 1952). On N edge of Illinois distribution. Wet habitats may be destroyed.

ARALIACEAE

X* Aralia nudicaulis L. Local distribution. Moist habitats may be destroyed.

ASCLEPIADACEAE

X *Asclepias amplexicaulis* Sm. Considered "very rare" by Kibbe (1952).

X* *A. meadii* Torr.

X* *A. viridiflora* Raf. Local distribution.

BORAGINACEAE

X *Onosmodium hispidissimum* Mack. "Occasional" (Kibbe, 1952). Local distribution.

CALLITRICHACEAE

* *Callitriche heterophylla* Pursh McDonough County collection in 1969. Its aquatic habitats may be disappearing. Local distribution.

CAMPANULACEAE

X* *Campanula aparinoides* Pursh Near S edge of Illinois distribution. Its wet habitats may be destroyed. Local distribution.

CARYOPHYLLACEAE

* *Silene nivea* (Nutt.) Otth. McDonough County collection in 1968. Local distribution.

* *Stellaria longifolia* Muhl. McDonough County collection in 1968. Its moist habitats may be disappearing.

CERATOPHYLLACEAE

X* *Ceratophyllum echinatum* Gray An aquatic whose habitats may be destroyed. Reported for only three other counties (Henderson, Ogle and Kankakee). Local distribution.

COMPOSITAE

X* *Agoseris cuspidata* (Pursh) D. Dietr. On S edge of distribution.

X *Ambrosia coronopifolia* T. & G. "Only one specimen found during present survey (Kibbe, 1952). A weedy species near S edge of Illinois distribution.

Aster anomalus Engelm. "Rare" and "only one station" (Kibbe, 1952). McDonough County collection in 1948. Near N edge of Illinois distribution.

X* *A. furcatus* Burgess Near S edge of Illinois distribution and local.

X* *A. linariifolius* L.

A. oblongifolius Nutt. "A rather rare plant" (Kibbe, 1952). Collected in Hancock County. Local distribution.

X* A. sericeus Went. Local distribution.

X Cacalia muhlenbergii (Sch.-Bip.) Fern. Considered "very rare" by Kibbe (1952). Moist habitats may be destroyed.

X* C. suaveolens L. Local distribution.

Cirsium hillii (Canby) Fern. "Rather rare" (Kibbe, 1952). McDonough County collection in 1946.

X C. muticum Michx. Near S edge of Illinois distribution. Wet habitats may be destroyed.

X Dyssodia papposa (Vent.) Hitchc. "Abundant at several stations" (Kibbe, 1952). Local distribution.

* Helenium nudiflorum Nutt. Collected in McDonough County. Near N edge of Illinois distribution.

X Helianthus occidentalis Riddell "Occasionally, . . . nowhere abundant" (Kibbe, 1952).

X* Lactuca ludoviciana (Nutt.) Riddell

X Prenanthes crepidinea Michx. Considered "rare" by Kibbe (1952). Local distribution.

X* P. racemosa Michx. Moist habitats may be destroyed.

X Solidago rugosa Mill. "Fairly abundant at two or three stations" (Kibbe, 1952). Moist habitats may be destroyed.

X S. speciosa Nutt. "Nowhere abundant" (Kibbe, 1952).

* Verbesina helianthoides Michx. McDonough County collection in 1971. Near N edge of Illinois distribution.

CONVOLVULACEAE

* Convolvulus spithamaeus L. McDonough County collection in 1950 and collected in Hancock County. Local distribution.

X* Cuscuta coryli Engelm.

X C. glomerata Choisy "Abundant at several stations" (Kibbe, 1952).

CRUCIFERAE

X* Arabis confinis Wats. Disjunct in Study Area.

X* A. pycnocarpa Hopkins Local distribution. Wet habitats may be destroyed.

* A. virginica (L.) Poir. McDonough County collection in 1963. Near N edge of Illinois distribution.

* Iodanthus pinnatifidus (Michx.) Steud. Collected in Hancock County. Local distribution.

X Neobeckia aquatica (A. Eaton) Greene "Rare" and found "at but few stations" (Kibbe, 1952). An aquatic whose habitats may be destroyed. Local distribution.

CUCURBITACEAE

X Echinocystis lobata (Michx.) T. & G. "Occasional" (Kibbe, 1952). Local distribution.

EUPHORBIACEAE

* Acalypha gracilens Gray McDonough County collection in 1948.

X* Chamaesyce humistrata (Engelm.) Small Local distribution.

X* Croton capitatus Michx. "Never abundant" (Kibbe, 1952).

X C. monanthogynus Michx. "Not abundant" (Kibbe, 1952). Near N edge of Illinois distribution.

X* Euphorbia obtusata Pursh Local distribution. Moist habitats may be destroyed.

GENTIANACEAE

Gentiana flavida Gray "Rare" (Kibbe, 1952). McDonough County collection in 1971. Moist habitats may be disappearing.

X G. quinquefolia L. "Very rare now" (Kibbe, 1952).

HALORAGACEAE

X* Myriophyllum heterophyllum Michx. Local distribution. An aquatic whose habitats may be destroyed.

X M. pinnatum (Walt.) BSP. "No doubt will become extinct" (Kibbe, 1952). Near N edge of Illinois distribution. An aquatic whose habitats may be destroyed.

X* Proserpinaca palustris L. Local distribution and disjunct in Study Area. An aquatic whose habitats may be destroyed.

HYPERICACEAE

* Hypericum canadense L. Collected in Hancock County. Moist habitats may be disappearing. Near S edge of Illinois distribution.

X* H. gymnanthum Engelm. & Gray Local distribution. Wet habitats may be destroyed.

JUGLANDACEAE

Carya illinoensis (Wang.) K. Koch "Formerly very abundant near the river, but comparatively few trees left" (Kibbe, 1952). Collected in Hancock County.

X C. laciniosa (Michx. f.) Loud. "Not abundant" (Kibbe, 1952). Near N edge of Illinois distribution and local. Moist habitats may be destroyed.

LABIATAE

* Agastache scrophulariaefolia (Willd.) Ktze. McDonough County collection in 1946. Local distribution.

* Isanthus brachiatus (L.) BSP. Collected in Hancock County. Local distribution.

X Teucrium occidentale Gray "Rare, . . . only record" for Hancock County was in 1917 (Kibbe, 1952). Near S edge of Illinois distribution and local. Moist habitats may be destroyed.

LEGUMINOSAE

X* Desmanthus illinoensis (Michx.) MacM. On edge of Illinois distribution and local.

X Desmodium canescens (L.) DC. "Fairly abundant" (Kibbe, 1952).

X D. nuttallii (Schindl.) Schubert Considered "rare" by Kibbe (1952). Disjunct distribution in Study Area.

* D. nudiflorum (L.) DC. Collected in Hancock County.

X* Lathyrus venosus Muhl. Disjunct distribution in Study Area.

X* Lespedesa intermedia (Wats.) Britt. On N edge of Illinois distribution.

LENTIBULARIACEAE

X Utricularia vulgaris L. "Drainage has resulted in very nearly exterminating this probably once abundant species" (Kibbe, 1952). An aquatic whose habitats now have probably been destroyed.

LOBELIACEAE

Lobelia cardinalis L. Considered "rare" by Kibbe (1952). Collected in Hancock County. Wet habitats may be disappearing.

LYTHRACEAE

X* Peplis diandra Nutt. Its wet habitats may be destroyed.

X* Rotala ramosior (L.) Koehne Its wet habitats may be destroyed.

MARTYNIACEAE

X* Proboscidea louisianica (Mill.) Thell. Its distribution is local in most of Illinois, but since it has been cultivated as a vegetable, some of these records may be for escapes. Dr. S. B. Mead in 1875 considered it introduced to Hancock County and noted it as "spontaneous about cultivated places, occasionally", but A. B. Tandy collected it in 1904 "far from cultivated land" (Kibbe, 1952). In Indiana, Deam (1940) collected it three times "each . . . introduced by some means or other." Jones and Fuller (1955) considered it native in S Illinois, but probably adventive northward.

ONAGRACEAE

* Ludwigia palustris (L.) Ell. McDonough County collection in 1956. Local distribution. Its wet habitats may be disappearing.

PLANTAGINACEAE

X* Plantago purshii R. & S. On S edge of Illinois distribution.

X* P. pusilla Nutt. On N edge of Illinois distribution.

PODOPHYLLACEAE

X Caulophyllum thalictroides (L.) Michx. Considered "very rare" by Kibbe (1952).

POLEMONIACEAE

X* Phlox glaberrima L.

X* P. maculata L. On S edge of Illinois distribution. Moist habitats may be destroyed. Local distribution in N half of state.

POLYGALACEAE

X* Polygala incarnata L.

P. senega L. Considered "very rare" by Kibbe (1952). Collected in Hancock County. Local distribution.

POLYGONACEAE

X* Polygonum hydropiperoides Michx. "Not widely distributed" (Kibbe, 1952). On S edge of Illinois distribution. Its moist habitats may be destroyed.

* P. tenue Michx. McDonough County collection in 1948.

PRIMULACEAE

X* Centunculus minimus L. On N edge of Illinois distribution. Moist habitats may be destroyed.

Lysimachia quadriflora Sims "Rare at present, but apparently much more abundant in Dr. Mead's day" (Kibbe, 1952). Collected in Hancock County. Local distribution. Its moist habitats may be disappearing.

X Samolus parviflorus Raf. "Not abundant" (Kibbe, 1952). Its wet habitats may be destroyed.

RANUNCULACEAE

X Anemone cylindrica Gray "Rather rare" (Kibbe, 1952).

X Hydrastis canadensis L. Considered "rare" by Kibbe (1952). Local distribution.

Ranunculus fascicularis Muhl. "Very rare now" and found at "only one station" (Kibbe, 1952). McDonough County collection in 1968.

X* R. laxicaulis (T. & G.) Darby On N edge of Illinois distribution. Wet habitats may be destroyed.

X R. trichophyllus Chaix Collected in 1926 in Hancock County and reported in 1876 to be "frequent in Mississippi bottoms" (Kibbe, 1952). On S edge of its major Illinois distribution. An aquatic whose habitats may be destroyed.

ROSACEAE

* Agrimonia rostellata Wallr. Collected in McDonough County. Near N edge of Illinois distribution.

Crataegus calpodendron (Ehrh.) Medic. "Rare" and found at "few stations" (Kibbe, 1952). McDonough County collection in 1968.

X C. punctata Jacq. "Nowhere abundant" (Kibbe, 1952).

X C. viridis L. "A rare species here" (Kibbe, 1952). On N edge of Illinois distribution.

* Gillenia stipulata (Muhl.) Trel. Collected in McDonough County. Near N edge of Illinois distribution.

X* Physocarpus opulifolius (L.) Maxim. "At present little trace of it" (Kibbe, 1952). Local distribution.

X Prunus nigra Ait. "Moderately abundant" (Kibbe, 1952).

X Rosa suffulta Greene "Abundant on open hillside and in sparsely wooded ravines" Kibbe (1952).

RUBIACEAE

X Galium asprellum Michx. Disjunct distribution in the Study Area. Wet habitats may be destroyed.

SALICACEAE

X Salix rigida Muhl. Wet habitats may be destroyed.

SAURURACEAE

X* Saururus cernuus L. Local distribution. Wet habitats may be destroyed.

SCROPHULARIACEAE

* Aureolaria pedicularia (L.) Raf. Collected in McDonough County. Disjunct distribution in Study Area.

* Chelone glabra L. McDonough County collection in 1970. Local distribution. Its wet habitats may be disappearing.

X C. obliqua L. "Only one station noted" (Kibbe, 1952).

Collinsia verna Nutt. Considered "rare" by Kibbe (1952). Collected in Hancock County. Its moist habitats may be disappearing. Local distribution.

* Gerardia auriculata Michx. "A rare plant" and collected at "only one station during present survey" (Kibbe, 1952). Collected in Hancock County.

* G. purpurea L. The Hancock County record is from 1852 but collected in McDonough County in 1950. Moist habitats may be destroyed.

* Gratiola neglecta Torr. Collected in Hancock County, and in McDonough County in 1974. Its wet habitats may be disappearing.

X* G. virginiana L. Its wet habitats may be destroyed.

* Pedicularis lanceolata Michx. McDonough County collection in 1971. Its wet habitats may be disappearing.

SOLANACEAE

* Physalis pubescens L. Collected in Hancock County. Local distribution.

UMBELLIFERAE

X* Erigenia bulbosa (Michx.) Nutt. Hancock County records are for 1843 and 1862. On W edge of Illinois distribution. Local distribution.

VERBENACEAE

X* Verbena canadensis (L.) Britt. "A rare plant located at only one station" (Kibbe, 1952). Local distribution.

X* V. simplex Lehm.

VIOLACEAE

X* Viola cucullata Ait. Local distribution. Wet habitats may be destroyed.

VITACEAE

X Vitis aestivalis Michx. "Not abundant" (Kibbe, 1952).

ALISMACEAE

* Sagittaria rigida Pursh Collected in Hancock County. Its wet habitats may be disappearing.

COMMELINACEAE

X* Tradescantia subaspera Ker On N edge of major Illinois distribution.

T. virginica L. Considered "very rare" by Kibbe (1952). McDonough County collection in 1968. On N edge of Illinois distribution.

CYPERACEAE

X* Carex albolutescens Schw. Local distribution.

* C. artitecta Mack. McDonough County collection in 1969. Local distribution.

X* C. atherodes Spreng. Disjunct distribution in the Study Area as there is only one other collection reported: in N Illinois (Winnebago County). Its wet habitats may be destroyed.

X* C. buxbaumii Wahl. At S and W edge of Illinois distribution. Its bog and marsh habitats probably destroyed.

X* C. conoidea Schk. On S edge of Illinois distribution and its wet habitats probably destroyed. Local distribution.

* C. crinita Lam. Recorded for McDonough County in 1971. Marsh habitats being destroyed.

X C. cruscorvi Shuttlew. "Once abundant, but rapidly diminishing, as swamp lands are drained" (Kibbe, 1952). Its swampy habitats are probably destroyed.

* C. granularis Muhl. Collected in Hancock County, and reported for McDonough County in 1968.

* C. grayii Carey Collected in Hancock County.

* C. hirtifolia Mack. McDonough County collection in 1968.

X* C. intumescens Rudge On SW edge of Illinois distribution. Swampy habitats may be destroyed.

* C. jamesii Schw. McDonough County collection in 1968.

* C. lacustris Willd. McDonough County collection in 1964. Local distribution. Wet habitats may be disappearing.

X* C. muskingumensis Schw. "Not abundant" (Kibbe, 1952). Wet habitats may be destroyed. Local distribution.

* C. oligocarpa Schk. McDonough County collection in 1967.

X C. richardsonii R. Br. On S edge of Illinois distribution.

X* C. rostrata Stokes On S edge of Illinois distribution. Wet habitats may be destroyed. Local distribution.

* C. scoparis Schk. Collected in McDonough County. Wet habitats may be disappearing.

X* C. sprengelii Dewey At S edge of Illinois distribution.

X* C. suberecta (Olney) Britt. At S and W edge of Illinois distribution. Wet habitats may be destroyed.

* C. trichocarpa Muhl. At S edge of Illinois distribution. Wet habitats may be disappearing. McDonough County collection in 1951.

X* C. tuckermani Dewey Disjunct in Study Area as considerably S of its Illinois distribution. Wet habitats may be destroyed.

* C.vesicaris L. McDonough County collection in 1950. Local distribution. Wet habitats may be disappearing.

* Cyperus rivularis Kunth McDonough County collection in 1974. On S edge of Illinois distribution. Wet habitats may be disappearing.

* Eleocharis compressa Sulliv. Collected in McDonough County. Wet habitats may be disappearing.

X Hemicarpa micrantha (Vahl) Pax Considered "almost extinct" by Kibbe (1952). Local distribution. Wet habitats may be destroyed.

X Scirpus polyphyllus Vahl "Common in swamps . . . throughout" (Kibbe, 1952). Near N edge of Illinois distribution. Wet habitats may be destroyed.

X* S. purshianus Fern. Collected in only two other counties. Wet habitats may be destroyed.

X* Scleria triglomerata Michx. At S edge of Illinois distribution. Moist habitats may be destroyed.

GRAMINEAE

* Agrostis perennans (Walt.) Tuckerm. McDonough County collection in 1968. Local distribution.

X Alopecurus aequalis Sobol. "Abundant at numerous stations along streams" (Kibbe, 1952). Wet habitats may be destroyed.

X* Aristida dichotoma Michx. On N edge of Illinois distribution.

* Brachyelytrum erectum (Schreb.) Beauv. Considered "rare" by Kibbe (1952). Collected in Hancock County. Local distribution.

* Diarrhena americana Beauv. McDonough County collection in 1974. Local distribution.

X Koeleria cristata (L.) Pers. "Rather widespread, but it is nowhere abundant" (Kibbe, 1952). Local distribution.

* Leersia lenticularis Michx. Collected in Hancock County. Local distribution except for the N counties. Wet habitats may be disappearing.

X Melica mutica Walt. Local distribution.

M. nitens (Scribn.) Nutt. Kibbe (1952) considered it "rare." Collected in Hancock County.

* Muhlenbergia racemosa (Michx.) BSP. Collected in McDonough County. Wet habitats may be disappearing.

X M. sylvatica Torr. Kibbe (1952) considered it "fairly abundant." At S edge of Illinois distribution.

X* M. tenuiflora (Willd.) BSP.

X* Panicum agrostoides Spreng. Near N edge of Illinois distribution. Local distribution except for N counties. Moist habitats may be destroyed.

X* P. leibergii (Vasey) Scribn. Near S edge of Illinois distribution. Local distribution.

X P. lindheimeri Nash Kibbe (1952): "Grows abundantly on prairies and in open grounds."

X P. praecocius Hitchc. & Chase Kibbe (1952): "Fairly abundant in dry woods and on sandy soils." Near S edge of major Illinois distribution.

X Paspalum ciliatifolium Michx. Kibbe (1952): "rare."

Phragmites communis Trin. Considered "rare" by Kibbe (1952). Collected in Hancock County. Near S edge of Illinois distribution and local in N and central counties. Wet habitats being destroyed.

* Poa palustris L. McDonough County collection in 1951. On SW edge of Illinois distribution. Wet habitats may be disappearing. Local distribution in N half of state.

X Sporobolus vaginflorus (Torr.) Wood "Abundant at a few stations" (Kibbe, 1952).

X Stipa spartea Trin. Kibbe (1952): "Abundant on plains and prairies." Local distribution in N half of state.

* Tripsacum dactyloides L. McDonough County collection in 1946. On N edge of Illinois distribution. Wet habitats may be destroyed. Local distribution in S half of state.

JUNCACEAE

* Juncus acuminatus Michx. "It seems strange that a plant so abundant as this species must have been in Dr. Mead's day, should not have been collected during the present survey" (Kibbe, 1952). Collected in McDonough County. Wet habitats may be disappearing.

X* J. nodatus Coville Disjunct distribution in the Study Area. Swampy habitats may be destroyed. Local distribution.

LILIACEAE

X Allium mutabile Michx. Considered rare by Kibbe (1952). At W edge of Illinois distribution and reported for only two northeastern and one southern county. Local distribution.

X* A. tricoccum Ait. Near S edge of Illinois distribution.

X* Medeola virginiana L. Disjunct in Study Area and considerably SW of its Illinois distribution.

X Smilax glauca Walt. Considered "rare" by Kibbe (1952). Disjunct in Study Area as N of its Illinois distribution.

X* Trillium gleasoni Fern. Local distribution.

X* T. sessile L. Disjunct in Study Area and W of its Illinois range.

X* Veratrum woodii Robbins. At S edge of Illinois distribution.

ORCHIDACEAE

X* Aplectrum hyemale (Muhl.) Torr.

X* Calopogon pulchellus (Salisb.) R. Br.

X* Corallorhiza trifida Chat. Disjunct in Study Area as Mohlenbrock (1970) lists it only for St. Clair County. But Sheviak (1974) provisionally accepts Mead's record for Hancock County.

X* Cypipedium candidum Muhl. At S edge of major Illinois distribution. Its wet prairie habitats probably destroyed.

X C. parviflorum Salisb. Kibbe (1952): "practically extinct." Its moist or wet habitats probably destroyed.

X* C. reginae Walt. At S edge of Illinois distribution. Its wet habitats probably destroyed.

X* Habenaria hookeri Torr. ex Gray Disjunct in Study Area as considerably S of its Illinois distribution (Lake and Cook counties).

X H. lacera (Michx.) Lodd. Considered "very rare" by Kibbe (1952). Its wet habitats probably destroyed.

* H. leucophaea (Nutt.) Gray Considered "rare" by Kibbe (1952). McDonough County collection in 1950. Its wet habitats probably destroyed.

X* Malaxis unifolia Michx. Reported for only two other counties (Henderson and Menard).

* Spiranthes cernua (L.) Rich. (S. magnicamporum Sheviak) McDonough County collection in 1946. Wet habitats being destroyed. Local distribution.

S. gracilis (Bigel.) Beck Considered "rare" by Kibbe (1952). Collected at several stations in McDonough County in 1974 where numerous plants were noted. Local distribution.

X* S. lucida (H.H. Eaton) Ames Disjunct in Study Area as SW of its Illinois distribution (Will and Woodford counties). Its wet habitats probably destroyed.

POTAMOGETONACEAE

* Potamogeton diversifolius Raf. McDonough County collection in 1951. Aquatic habitats may be disappearing.

X* P. epihydrus Raf. At S edge of Illinois distribution and collected in only two other counties (Fulton and Lake). Aquatic habitats may be altered or destroyed.

X* P. friesii Rupr. Disjunct in Study Area as considerably SW of its Illinois distribution (Lake and Cook counties). Aquatic habitats may be altered or destroyed.

SPARGANIACEAE

X* Sparganium androcladum (Engelm.) Morong At W edge of Illinois distribution. Wet habitats may be altered or destroyed.

DISCUSSION

This report, using data derived from published records and collections made largely by the authors, documents changes that have occurred in the indigenous flora of two adjoining west-central Illinois counties during the last 140 years. The data for the species listed above which are summarized in Table 1 indicate that 130 of the 820 native species reported by Kibbe (1952) are extinct or nearly extinct, and that:

1. These are almost 16 percent of the native species reported by Kibbe (1952) and include 6.5 percent of the plants she did not consider extinct in 1952.

2. About 40 percent are aquatics or have moist or wet habitats.

3. Half were disjunct or on the edge of their Illinois distribtion in the Study Area.

4. One-third have a local or scattered Illinois distribution.

The data also indicate that the remaining 68 of the 198 species on the list are probably rare or endangered in the Study Area. It should be emphasized, however, that further collections might change the status of some of these plants: e.g. two species were collected in 1974.

The data could also be interpreted as indicating that the extensive disturbances that have occurred in a largely agricultural area during the last 140 years have eliminated many species that were on the edge of their Illinois distribution, that had aquatic or moist habitats, or a local distribution. It also indicates that distribution maps for many less common species should be reevaluated on the basis of their collection dates because many probably have a more restricted distribution today.

TABLE 1. Status of 198 taxa considered extinct, nearly extinct, rare or endangered in the Study Area; and data on their habitats and distribution in Illinois.

Species category*	All species on the list (Total: 198)	Species not collected in Hancock County since 1964 or since 1946 in McDonough County (Total:130)
Considered extinct in Hancock County by Kibbe in 1952.	130 (65.2%)	77 (59.2%)
Not considered extinct by Kibbe in 1952.	68 (34.8%)	53 (40.8%)
Considered extinct by Kibbe in 1952 but collected in the Study Area.	52 (26.3%)	---
Aquatic, wet or moist habitats.	90 (45.4%)	57 (43.8%)
Disjunct or on edge of Illinois distribution in the Study Area	80 (40.2%)	65 (50.0%)
Local distribution in Illinois	69 (34.8%)	43 (33.1%)

* A number of species are listed in more than one category so the total exceeds 198, and 100 percent.

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ADDENDUM

Henry (1976) reported 84 new records for Hancock County for the period between 1965 and 1974. Of these, 41 (48.8 percent) are aliens and 43 (51.2 percent) are native. He notes that "this relatively high proportion of alien species probably reflects the destruction of native plant habitats by man's activities (principally associated with agricultural practices) and the replacement in the disturbed areas by alien disturbophytes." An analysis of these new records indicates that 8 (18.6 percent) of the native species and 30 (73.2 percent) of the aliens are weeds in Illinois or elsewhere.

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