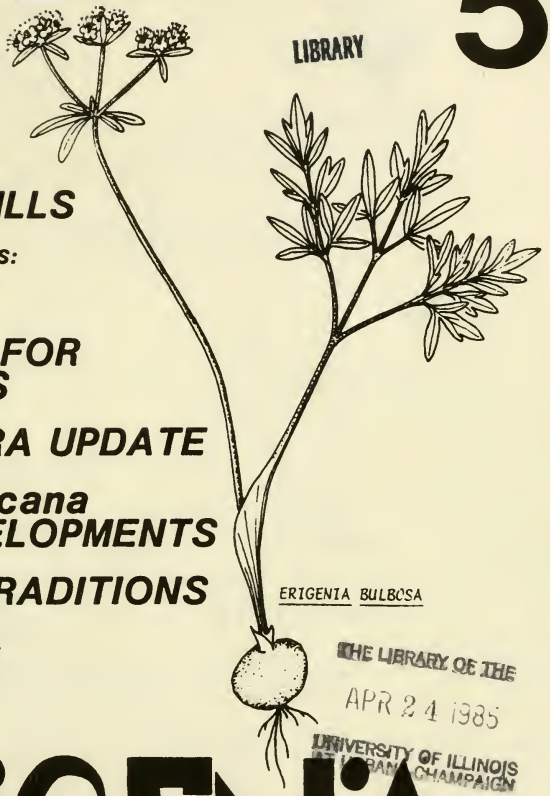
5

- GARDENING: **HERBS**
- **FLORA OF LARUE-PINE HILLS**
- ILLINOIS NATURAL AREAS: **HOGG BLUFF**
- **SUPER SITES FOR WILDFLOWERS**
- **ILLINOIS FLORA UPDATE**
- ***Thismia americana* RECENT DEVELOPMENTS**
- **MISTLETOE TRADITIONS**
- TAXONOMIC STATUS OF ***Panicum joori***



ERIGENIA BULBOSA

ERIGENIA

JOURNAL OF THE
SOUTHERN ILLINOIS NATIVE PLANT SOCIETY

SOUTHERN ILLINOIS NATIVE PLANT SOCIETY

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JOURNAL OF THE
SOUTHERN ILLINOIS NATIVE PLANT SOCIETY

THE HARBINGER

Quarterly Newsletter of the Society

Editor: Dr. Robert Mohlenbrock
Dept. of Botany
Southern Illinois University

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TO CONTRIBUTE: See inside back cover for guidelines.

Number 5: February 1985

CONTENTS

(Continued on next page)

EDITORIAL

– MARK W. MOHLENBROCK

This issue of Erigenia marks the beginning of a new format for the journal. In previous issues articles were published according to a particular topic or theme. This format did serve a useful purpose in that information on a particular topic was readily accessible at one place. However, lengthy delays in publication occurred while waiting for enough material to publish on a particular topic.

The readership of the journal is a diverse group, ranging from professional botanists, to casual plant enthusiasts, to people who just like the outdoors. We hope the new format offers something in each issue to please every reader.

The new format consists of feature articles of both technical and general interest, plus articles in regularly occurring departments or series. Departments first appearing in this issue include: Illinois Natural Areas; Southern Illinois Gardening; Illinois Flora Update; Book Reviews; and Endangered and Threatened Plants of Illinois (a special article appears on the extinct Illinois plant Thismia americana). Future issues of Erigenia will include the addition of at least one more department.

(Please turn to page 39)

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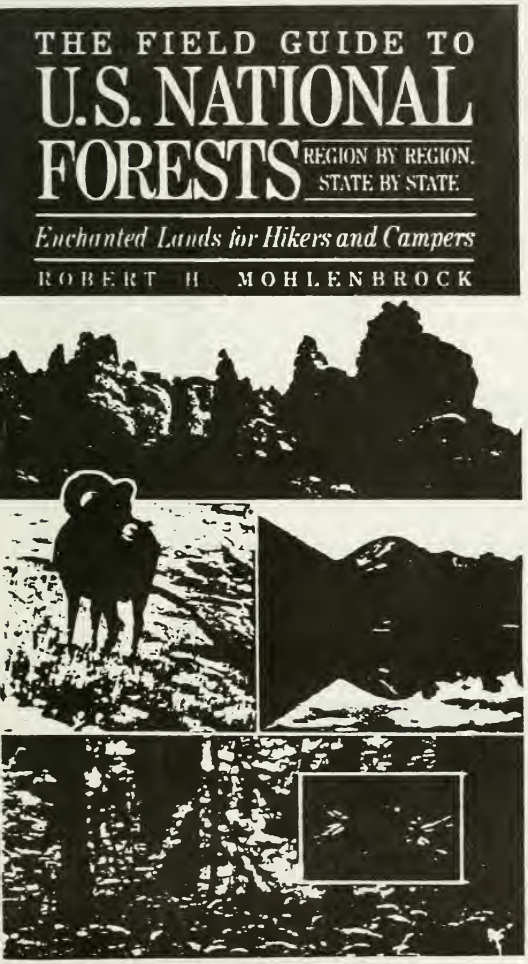

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Chief, U.S. Forest Service

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VASCULAR FLORA OF THE LARUE-PINE HILLS AREA OF SOUTHERN ILLINOIS

Robert H. Mohlenbrock[1]

In 1965, Mohlenbrock and Voigt published a checklist of the vascular plants of the Southern Illinois University Pine Hills Field Station and environs in Union County, Illinois. In that work, the remarkable total of 1,003 species of vascular plants was reported for an area of approximately six square miles. Since that time, a number of significant events have happened to warrant a new look at the plants of the area.

Southern Illinois University has given up a large part of its field station property to the Shawnee National Forest. A part of the area reported on earlier which is in the Shawnee National Forest was designated the LaRue-Pine Hills Ecological Area, the first such area to receive this designation in the National Forest system.

From 1982-1984, the Federal Department of Transportation, in conjunction with the United States Forest Service, proposed several alternative road adjustments through the area as part of the Great River Road project. The author was called upon several times to make statements concerning the natural qualities in the LaRue-Pine Hills, including the fact that a total of 1,153 taxa of vascular plants has now been recorded. This article documents the complete list for the first time.

The entire area was restudied by the author from 1977 to 1984. All previously collected specimens have been re-examined, and numerous nomenclatural changes have been made to coincide with the nomenclature used in Mohlenbrock's Guide to the Vascular Flora of Illinois (1975), or in more recent monographs.

Since a brief history of the area was included in Mohlenbrock and Voigt's work in 1965, and since most of the plant communities have been described in that work, as well as in Mohlenbrock (1959) and Ashby and Kelting (1963), that material will not be repeated here.

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[1]Dr. Robert H. Mohlenbrock is Professor of Botany at Southern Illinois University, Carbondale.

This paper, then, offers a revised list of taxa known from the LaRue-Pine Hills area of Union County. A more realistic look at the nomenclature, recognizing several taxa below the rank of species, has been taken. As a result, this paper reports a total of 1,153 taxa of vascular plants. This represents 35% of the taxa known from the entire state of Illinois.

Species deleted from the list of 1965 either because they were misidentified or because they have been combined with other taxa are:

Sparganium americanum Nutt. Specimen is actually S. androcladum (Engelm.) Morong.

Paspalum stramineum Nash. Not recognized as distinct from P. ciliatifolium Michx.

Luzula bulbosa (Wood) Rydb. Not recognized as distinct from L. multiflora (Retz.) Lejeune.

Trifolium arvense L. Specimen is actually T. dubium Sibth.

Acerates lanuginosa (Nutt.) Decne. Specimen is actually Asclepias viridiflora Raf.

Aster salicifolius Ait. Not recognized as distinct from A. praealtus Poir.

Taxa recognized as species in 1965 but now considered to be taxa of lesser rank are:

Sphenopholis intermedia (Rydb.) Rydb. is now S. obtusata (Michx.) Scribn. var. major (Torr.) Erdman.

Panicum scribnerianum Nash is now P. oligosanthes Schult. var. scribnerianum (Nash) Fern.

Luzula echinata (Small) F. J. Herm. is now L. multiflora (Retz.) Lejeune var. echinata (Small) Mohlenbr.

Prunus lanata (Sudw.) Mack. & Bush is now P. americana Marsh. var. lanata Sudw.

Acer drummondii H. & A. is now A. rubrum L. var. drummondii (H. & A.) Sarg.

Myosotis macrosperma Engelm. is now M. virginica (L.) BSP. var. macrosperma (Engelm.) Fern.

Fraxinus lanceolata Borkh. is now F. pensylvanica Marsh. var. subintegerrima (Vahl) Fern.

Apocynum pubescens R. Br. is now A. cannabinum L. var. pubescens (Mitchell) A. DC.

Mentha arvensis L. is now M. arvensis L. var. villosa (Benth.) S. R. Steward.

Xanthium chinense Mill. is now X. strumarium L. var. glabratum (DC.) Cronq.

Antennaria fallax Greene is now A. plantaginifolia (L.) Richards var. ambigens (Greene) Cronq.

Aster exiguus (Fern.) Rydb. is now A. ericoides L. var. prostratus (Ktze.) Blake.

Figure 1. View of the 300-foot limestone bluffs of the Pine Hills as seen from the Big Muddy River levee road.

Figure 2. Close-up view of the 300-foot limestone bluffs.

Following is the revised list of taxa known from the LaRue-Pine Hills area of Union County in southwestern Illinois. Nomenclature and the sequence of families follow Mohlenbrock's (1975) Guide to the Vascular Flora of Illinois, except for the treatment of some ferns. All taxa in the list are represented by collections in the herbarium of Southern Illinois University, except for the specimen of Apios priceana B. L. Robins. which is at the Illinois State Museum.

EQUISETACEAE

Equisetum arvense L.
Equisetum hyemale L. var. affine (Engelm.) A. A. Eaton
Equisetum laevigatum A. Br.
Equisetum Xferrissii Clute

SELAGINELLACEAE

Selaginella rupestris (L.) Spreng.

OPHIOGLOSSACEAE

Botrychium dissectum Spreng. var. dissectum
Botrychium dissectum Spreng. var. obliquum (Muhl.) Clute
Botrychium biternatum (Sav.) Underw.
Botrychium virginianum (L.) Sw.
Ophioglossum vulgatum L. var. pseudopodum (Blake) Farw.
Ophioglossum engelmannii Prantl

POLYPODIACEAE

Adiantum pedatum (Tourn.) L.
Pteridium aquilinum (L.) Kuhn var. latiusculum (Desv.) Underw.
Pellaea atropurpurea (L.) Link
Cheilanthes feei Moore
Cheilanthes lanosa (Michx.) D. C. Eaton
Polypodium virginianum (L.) Eaton
Polypodium polypodioides (L.) Watt var. michauxianum Weatherby
Polystichum acrostichoides (Michx.) Schott
Onoclea sensibilis L.
Thelypteris hexagonoptera (Michx.) Weatherby
Dryopteris carthusiana (Villars) H.P. Fuchs
Dryopteris intermedia (Muhl.) Gray
Dryopteris marginalis (L.) Gray
Athyrium pycnocarpon (Spreng.) Tidestrom
Athyrium thelypterioides (Michx.) Desv.
Athyrium angustum (Willd.) Presl
Athyrium asplenioides Michx.
Asplenium rhizophyllum L.
Asplenium pinnatifidum Nutt.
Asplenium Xgravesii Maxon
Asplenium Xkentuckiense McCoy
Asplenium Xherb-wagneri Taylor & Mohlenbr.
Asplenium bradleyi D.C. Eaton
Asplenium Xebenoides R.R. Scott
Asplenium trichomanes L.
Asplenium resiliens Kuntze
Asplenium platyneuron (L.) Oakes
Woodsia obtusa Torr.
Cystopteris bulbifera (L.) Bernh.
Cystopteris fragilis (L.) Bernh. var. fragilis
Cystopteris fragilis (L.) Bernh. var. protrusa Weatherby
Cystopteris Xtennesseensis Shaver

SALVINIACEAE

Azolla mexicana Presl

PINACEAE

Pinus echinata Mill.

TAXODIACEAE

Taxodium distichum (L.) Rich.

CUPRESSACEAE

Juniperus virginiana L.

TYPHACEAE

Typha latifolia L.

SPARGANIACEAE

Sparganium chlorocarpum Rydb.
Sparganium androcladum (Engelm.) Morong
Sparganium eurycarpum Engelm.

POTAMOGETONACEAE

Potamogeton foliosus Raf.
Potamogeton pusillus L.
Potamogeton diversifolius Raf.
Potamogeton nodosus Poir.

ALISMACEAE

Echinodorus berteroi (Spreng.) Fassett var. lanceolatus (Wats. & Coult.) Fassett
Echinodorus cordifolius (L.) Griseb.
Sagittaria calycina Engelm.
Sagittaria rigida Pursh
Sagittaria longirostra (Micheli) J.G. Sm.
Sagittaria latifolia Willd.
Alisma subcordatum Raf.

HYDROCHARITACEAE

Limnobium spongia (Bosc) Steud.

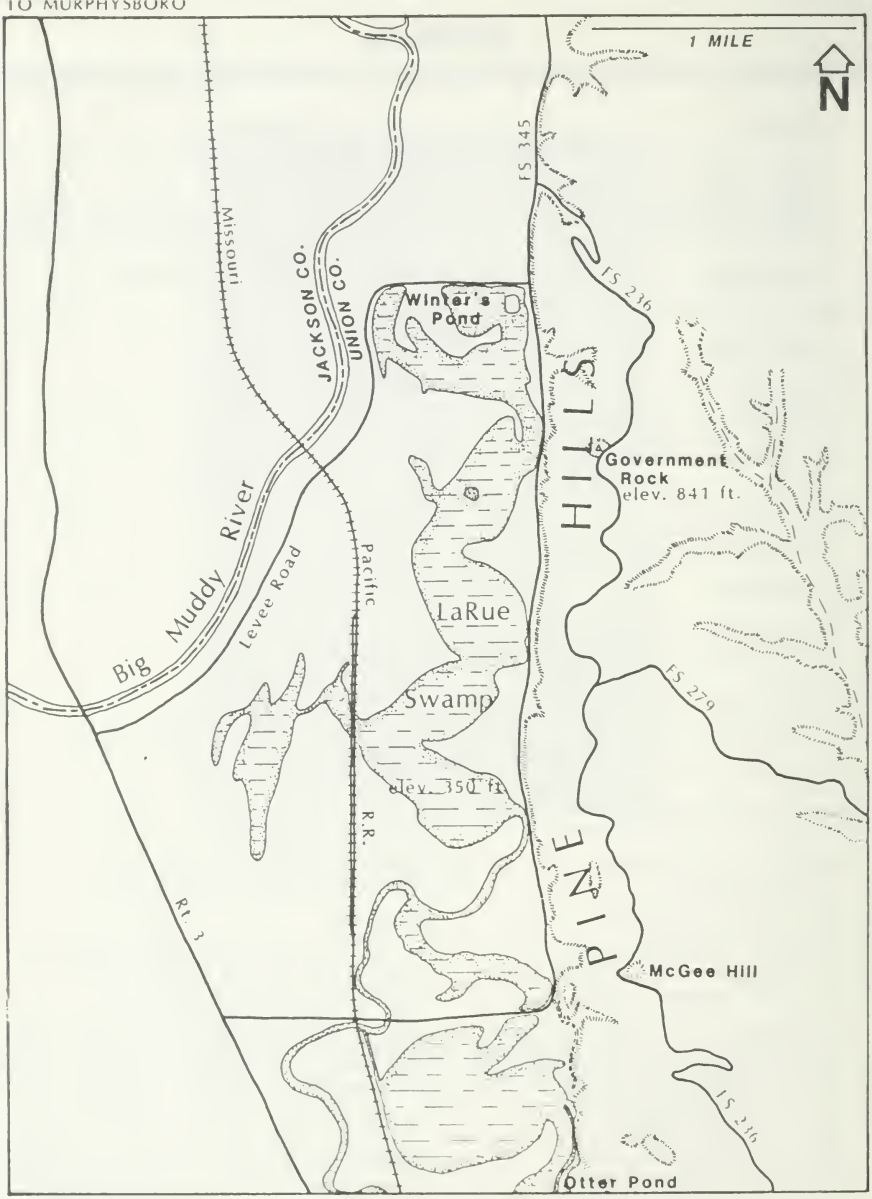

Figure 3. Map of the LaRue-Pine Hills and vicinity.

POACEAE

Bromus tectorum L.
Bromus secalinus L.
Bromus racemosus L.
Bromus commutatus Schrad.
Bromus japonicus Thunb.
Bromus inermis Leyss.
Bromus pubescens Muhl.
Bromus ciliatus L.
Vulpia octoflora (Walt.) Rydb. var. octoflora
Vulpia octoflora (Walt.) Rydb. var. tenella (Willd.) Fern.
Vulpia octoflora (Walt.) Rydb. var. glauca (Nutt.) Fern.
Festuca pratensis Huds.
Festuca obtusa Biehler
Festuca paradoxa Desv.
Lolium multiflorum Lam.
Lolium perenne L.
Puccinellia pallida (Torr.) Clausen
Poa annua L.
Poa chapmaniana Scribn.
Poa pratensis L.
Poa angustifolia L.
Poa compressa L.
Poa palustris L.
Poa sylvestris Gray
Dactylis glomerata L.
Koeleria macrantha (Ledeb.) Spreng.
Sphenopholis obtusata (Michx.) Scribn. var. obtusata
Sphenopholis obtusata (Michx.) Scribn. var. major (Torr.) Erdman
Sphenopholis nitida (Biehler) Scribn.
Avena sativa L.
Holcus lanatus L.
Agrostis elliottiana Schult.
Agrostis hyemalis (Walt.) BSP.
Agrostis perennans (Walt.) Tuckerm.
Agrostis alba L. var. alba
Agrostis alba L. var. palustris (Huds.) Pers.
Cinna arundinacea L.
Phalaris arundinacea L.
Alopecurus aequalis Sobol
Alopecurus carolinianus Walt.
Phleum pratense L.
Elumus hystrix L.
Elymus virginicus L.
Elymus villosus Muhl.
Elymus canadensis L.
Hordeum pusillum Nutt.
Hordeum jubatum L.
Triticum aestivum L.
Secale cereale L.
Melica mutica Walt.
Melica nitens (Scribn.) Nutt.
Glyceria septentrionalis Hitchcock
Glyceria arkansana Fern.
Glyceria striata (Lam.) Hitchcock
Brachyelytrum erectum (Schreb.) Beauv.
Diarrhena americana Beauv. var. obovata Gl.
Digitaria sanguinalis (L.) Scop.
Digitaria ischaemum (Schreb.) Muhl.
Eriochloa contracta Hitchcock
Paspalum fluitans (Ell.) Kunth
Paspalum pubiflorum Rupr. var. glabrum (Vasey) Vasey
Paspalum laeve Michx.
Paspalum ciliatifolium Michx.
Paspalum bushii Nash
Panicum dichotomiflorum Michx.
Panicum flexile (Gattinger) Scribn.
Panicum philadelphicum Bernh.
Panicum capillare L.
Panicum virgatum L.
Panicum rigidulum Bosc
Panicum anceps Michx.
Panicum depauperatum Muhl.
Panicum linearifolium Scribn.
Panicum laxiflorum Lam.
Panicum microcarpon Muhl.
Panicum dichotomum L.
Panicum lanuginosum Ell. var. lanuginosum
Panicum lanuginosum Ell. var. implicatum (Scribn.) Fern.
Panicum lanuginosum Ell. var. lindheimeri (Nash) Fern.
Panicum villosissimum Nash
Panicum sphaerocarpon Ell.
Panicum polyanthes Schult.
Panicum oligosanthes Schult. var. scribnerianum (Nash) Fern.
Panicum leibergii (Vasey) Scribn.
Panicum commutatum Schult.
Panicum joori Vasey
Panicum clandestinum L.
Panicum latifolium L.
Panicum boscii Poir.
Echinochloa walteri (Pursh) Heller
Echinochloa crus-galli (L.) Beauv.
Echinochloa pungens (Poir.) Rydb. var. pungens
Echinochloa pungens (Poir.) Rydb. var. wiegandii Fassett
Setaria lutescens (Weigel) Hubb.
Setaria faberi Herrm.
Setaria viridis (L.) Beauv.
Cenchrus longispinus (Hack.) Fern.
Erianthus alopecuroides (L.) Ell.
Sorghum halepense (L.) Pers.
Sorghastrum nutans (L.) Nash
Andropogon gerardii Vitman
Andropogon virginicus L.
Schizachyrium scoparium (Michx.) Nash
Tripsacum dactyloides (L.) L.
Zea mays L.
Eragrostis hypnoides (Lam.) BSP.
Eragrostis cilianensis (All.) Mosher
Eragrostis poaeoides Beauv.
Eragrostis spectabilis (Pursh) Steud.

Eragrostis pectinacea (Michx.) Nees
Eragrostis capillaris (L.) Nees
Eragrostis pilosa (L.) Beauv.
Eragrostis frankii C.A. Meyer
Tridens flavus (L.) Hitchcock
Muhlenbergia capillaris (Lam.) Trin.
Muhlenbergia cuspidata (Torr.) Rydb.
Muhlenbergia schreberi J.F. Gmel.
Muhlenbergia sobolifera (Muhl.) Trin.
Muhlenbergia bushii Pohl
Muhlenbergia frondosa (Poir.) Fern.
Muhlenbergia racemosa (Michx.) BSP.
Muhlenbergia tenuiflora (Willd.) BSP.
Muhlenbergia sylvatica (Torr.) Torr.
Muhlenbergia mexicana (L.) Trin.
Sporobolus vaginiflorus (Torr.) Wood
Sporobolus neglectus Nash
Eleusine indica (L.) Gaertn.
Leptochloa filiformis (Lam.) Beauv.
Leptochloa fascicularis (Lam.) Gray
Cynodon dactylon (L.) Pers.
Bouteloua curtipendula (Michx.) Torr.
Aristida oligantha Michx.
Aristida purpurascens Poir.
Aristida ramosissima Engelm.
Aristida longespica Poir.
Aristida dichotoma Michx.
Arundinaria gigantea (Walt.) Chapm.
Leersia lenticularis Michx.
Leersia oryzoides (L.) Swartz
Leersia virginica Willd.
Danthonia spicata (L.) Beauv.
Chasmanthium latifolium (Michx.) Yates

CYPERACEAE

Cyperus densicaespitosus Mattf. & Kükenth.
Cyperus aristatus Rottb.
Cyperus acuminatus Torr. & Hook.
Cyperus ovularis (Michx.) Torr.
Cyperus erythrorhizos Muhl.
Cyperus engelmannii Steud.
Cyperus esculentus L.
Cyperus ferruginescens Boeckl.
Cyperus strigosus L.
Eleocharis obtusa (Willd.) Schult. var. obtusa
Eleocharis obtusa (Willd.) Schult. var. detonsa (Gray) Drap. & Mohlenbr.
Eleocharis acicularis (L.) Roem. & Schultes
Fimbristylis autumnalis (L.) Roem. & Schultes
Scirpus validus Vahl
Scirpus georgianus Harper
Scirpus atrovirens Willd.
Scirpus pendulus Muhl.
Scirpus cyperinus (L.) Kunth
Scirpus verecundus Fern.
Carex retroflexa Muhl.
Carex convoluta Mack.
Carex rosea Schk.
Carex socialis Mohlenbr. & Schwegm.
Carex cephalophora Muhl.
Carex muhlenbergii Schk.
Carex cephaloidea Dewey
Carex vulpinoidea Michx.
Carex decomposita Muhl.
Carex conjuncta Boott
Carex laevivaginata (Kükenth.) Mack.
Carex crus-corvi Shuttlew.
Carex muskingumensis Schwein.
Carex scoparia Schk.
Carex normalis Mack.
Carex albolutescens Schwein.
Carex brevior (Dewey) Mack.
Carex jamesii Schwein.
Carex pensylvanica Lam.
Carex emmonsii Dewey
Carex artitecta Mack.
Carex physorhyncha Liebm.
Carex umbellata Schk.
Carex eburnea Boott
Carex crinita Lam.
Carex shortiana Dewey
Carex lanuginosa Michx.
Carex hirsutella Mack.
Carex caroliniana Schwein.
Carex bushii Mack.
Carex granularis Muhl.
Carex grisea Wahlenb.
Carex flaccosperma Dewey
Carex glaucodea Tuckerm.
Carex oligocarpa Schk.
Carex albursina Sheldon
Carex blanda Dewey
Carex gracilescens Steud.
Carex frankii Kunth
Carex squarrosa L.
Carex typhina Michx.
Carex lacustris Willd.
Carex hyalinolepis Steud.
Carex comosa Boott
Carex hystricina Muhl.
Carex lurida Wahlenb.
Carex grayi Carey
Carex louisianica Bailey
Carex lupulina Muhl.
Carex lupuliformis Sartwell
Carex gigantea Rudge
Carex retrorsa Schwein.

ARACEAE

Acorus calamus L.
Peltandra virginica (L.) Kunth
Arisaema dracontium (L.) Schott
Arisaema triphyllum (L.) Schott

LEMNACEAE

Spirodela polyrhiza (L.) Schleiden
Spirodela oligorhiza (Kurtz) Hegelm.
Lemna trisulca L.

Lemna minor L.
Lemna perpusilla Torr.
Lemna trinervis (Austin) Small
Lemna valdiviana Phil.
Lemna obscura (Austin) Daubs
Wolffiella floridana (J.D. Smith) Thompson
Wolffia papulifera Thompson
Wolffia columbiana Karst.

COMMELINACEAE

Tradescantia subaspera Ker
Tradescantia ohiensis Raf.
Tradescantia virginiana L.
Commelina communis L.
Commelina diffusa Burm. f.
Commelina virginica L.

PONTEDERIACEAE

Pontederia cordata L.
Heteranthera reniformis R. & P.

JUNCACEAE

Luzula multiflora (Retz.) Lejeune var. multiflora
Luzula multiflora (Retz.) Lejeune var. echinata (Small) Mohlenbr.
Juncus effusus L. var. solutus Fern. & Wieg.
Juncus biflorus Ell.
Juncus canadensis J. Gay
Juncus acuminatus Michx.
Juncus brachycarpus Engelm.
Juncus tenuis Willd.
Juncus dudleyi Wieg.
Juncus interior Wieg.

LILIACEAE

Lilium michiganense Farw.
Hemerocallis fulva L.
Ornithogalum umbellatum L.
Camassia scilloides (Raf.) Cory
Erythronium americanum Ker
Erythronium albidum Nutt.
Uvularia grandiflora Sm.
Uvularia sessilifolia L.
Polygonatum commutatum (Schult.) A. Dietr.
Polygonatum biflorum (Walt.) Ell.
Smilacina racemosa (L.) Desf.
Asparagus officinalis L.
Allium ampeloprasum L. var. atroviolaceum (Boiss.) Regel
Allium canadense L.
Allium stellatum Ker
Allium vineale L.
Allium cepa L.
Nothoscordum bivalve (L.) Britt.
Trillium recurvatum Beck
Trillium sessile L.
Trillium viride Beck
Trillium flexipes Raf.
Narcissus pseudo-narcissus L.
Narcissus poeticus L.
Polianthes virginica (L.) Shinners
Hypoxis hirsuta (L.) Coville

SMILACACEAE

Smilax glauca Walt. var. glauca
Smilax glauca Walt. var. leurophylla Blake
Smilax bona-nox L. var. bona-nox
Smilax bona-nox L. var. hederaefolia (Beyrich) Fern.
Smilax rotundifolia L.
Smilax hispida Muhl.
Smilax lasioneuron Hook.
Smilax pulverulenta Michx.

DIOSCOREACEAE

Dioscorea villosa L.
Dioscorea quaternata (Walt.) J.F. Gmel.

IRIDACEAE

Iris fulva Ker
Iris shrevei Small
Iris cristata Ait.
Sisyrinchium angustifolium Mill.
Sisyrinchium atlanticum Bickn.
Sisyrinchium albidum Raf.

ORCHIDACEAE

Cypripedium calceolus L. var. parviflorum (Salisb.) Fern.
Orchis spectabilis L.
Habenaria peramoena Gray
Liparis liliifolia (L.) Rich.
Spiranthes ovalis Lindl.
Spiranthes cernua (L.) Rich.
Corallorhiza wisteriana Conrad
Corallorhiza odontorhiza (Willd.) Nutt.
Aplectrum hyemale (Muhl.) Torr.

SAURURACEAE

Saururus cernuus L.

SALICACEAE

Salix nigra Marsh.
Salix interior Rowlee
Populus deltoides Marsh.
Populus heterophylla L.

JUGLANDACEAE

Juglans cinerea L.

Juglans nigra L.
Carya illinoensis (Wang.) K. Koch
Carya aquatica (Michx. f.) Nutt.
Carya cordiformis (Wang.) K. Koch
Carya texana Buckl.
Carya ovalis (Wang.) Sarg.
Carya glabra (Mill.) Sweet
Carya tomentosa (Poir.) Nutt.
Carya ovata (Mill.) K. Koch
Carya laciniosa (Michx.) Loud.
Carya pallida (Ashe) Engl. & Graebn.

BETULACEAE

Betula nigra L.
Corylus americana Walt.
Ostrya virginiana (Mill.) K. Koch
Carpinus caroliniana Walt.

FAGACEAE

Fagus grandifolia Ehrh.
Quercus imbricaria Michx.
Quercus phellos L.
Quercus marilandica Muenchh.
Quercus falcata Michx.
Quercus pagodaefolia (Ell.) Ashe
Quercus velutina Lam.
Quercus rubra L.
Quercus palustris Muenchh.
Quercus shumardii Buckley
Quercus coccinea Muenchh.
Quercus bicolor Willd.
Quercus michauxii Nutt.
Quercus muhlenbergii Engelm.
Quercus alba L.
Quercus stellata Wangh.
Quercus macrocarpa Michx.
Quercus lyrata Walt.

ULMACEAE

Ulmus rubra Muhl.
Ulmus aremicana L.
Ulmus alata Michx.
Celtis occidentalis L. var. occidentalis
Celtis occidentalis L. var. pumila (Pursh) Gray
Celtis occidentalis L. var. canina (Raf.) Sarg.
Celtis laevigata Willd.
Celtis tenuifolia Nutt.

MORACEAE

Morus rubra L.
Morus alba L.
Maclura pomifera (Raf.) Schneid.

URTICACEAE

Boehmeria cylindrica (L.) Sw.
Pilea pumila (L.) Gray
Pilea opaca (Lunell) Rydb.
Laportea canadensis (L.) Wedd.
Parietaria pensylvanica Muhl.

LORANTHACEAE

Phoradendron flavescens (Pursh) Nutt.

ARISTOLOCHIACEAE

Asarum canadense L. var. reflexum (Bickn.) Robins.
Aristolochia serpentaria L.

POLYGONACEAE

Rumex acetosella L.
Rumex obtusifolius L.
Rumex crispus L.
Rumex altissimus Wood
Rumex verticillatus L.
Rumex mexicanus Meisn.
Polygonum sagittatum L.
Polygonum convolvulus L.
Polygonum cristatum Engelm. & Gray
Polygonum scandens L.
Polygonum tenue Michx.
Polygonum aviculare L.
Polygonum exsertum Small
Polygonum ramosissimum Michx.
Polygonum erectum L.
Polygonum virginianum L.
Polygonum punctatum Ell.
Polygonum hydropiper L.
Polygonum persicaria L.
Polygonum setaceum Baldw. var. interjectum Fern.
Polygonum hydropiperoides Michx.
Polygonum opelousanum Riddell
Polygonum coccineum Muhl.
Polygonum longistylum Small
Polygonum lapathifolium L.
Polygonum pensylvanicum L. var. laevigatum Fern.

CHENOPODIACEAE

Chenopodium ambrosioides L.
Chenopodium album L.
Chenopodium gigantospermum Aellen
Chenopodium standleyanum Aellen

AMARANTHACEAE

Amaranthus spinosus L.
Amaranthus albus L.
Amaranthus graecizans L.
Amaranthus retroflexus L.
Amaranthus hybridus L.
Amaranthus tuberculatus (Moq.) Sauer
Amaranthus tamarascinus Nutt.
Froelichia gracilis (Hook.) Moq.

PHYTOLACCACEAE

Phytolacca americana L.

AIZOACEAE

Mollugo verticillatus L.

PORTULACACEAE

Portulaca oleracea L.
Claytonia virginica L.

CARYOPHYLLACEAE

Paronychia canadensis (L.) Wood
Paronychia fastigiata (Raf.) Fern.
Sagina decumbens (Ell.) Torr. & Gray
Holosteum umbellatum L.
Stellaria media (L.) Cyrillo
Cerastium vulgatum L.
Cerastium nutans Raf.
Cerastium viscosum L.
Cerastium brachypodum (Engelm.) B.L. Robins.
Dianthus armeria L.
Agrostemma githago L.
Silene stellata (L.) Ait.
Silene antirrhina L.
Saponaria officinalis L.

CERATOPHYLLACEAE

Ceratophyllum demersum L.
Ceratophyllum echinatum Gray

NYMPHAEACEAE

Nuphar luteum L. ssp. macrophyllum (Small) Beal
Nymphaea tuberosa Paine

NELUMBONACEAE

Nelumbo lutea (Willd.) Pers.

CABOMBACEAE

Brasenia schreberi Gmel.
Cabomba caroliniana Gray

RANUNCULACEAE

Ranunculus laxicaulis (Torr. & Gray) Darby
Ranunculus abortivus L.
Ranunculus micranthus Nutt.
Ranunculus flabellaris Raf.
Ranunculus hispidus Michx. var. hispidus
Ranunculus hispidus Michx. var. marilandicus (Poir.) L. Benson
Ranunculus septentrionalis Poir. var. septentrionalis
Ranunculus septentrionalis Poir. var. caricetorum (Greene) Fern.
Ranunculus carolinianus DC.
Ranunculus fascicularis Muhl.
Ranunculus sardous Crantz
Delphinium tricorne Michx.
Thalictrum revolutum DC.
Thalictrum dioicum L.
Actaea pachypoda Ell.
Hydrastis canadensis L.
Isopyrum biternatum (Raf.) Torr. & Gray
Anemonella thalictroides (L.) Spach
Anemone virginiana L.
Myosurus minimus L.
Aquilegia canadensis L.
Clematis virginiana L.
Clematis pitcheri Torr. & Gray

BERBERIDACEAE

Podophyllum peltatum L.
Caulophyllum thalictroides (L.) Michx.

MENISPERMACEAE

Calycocarpum lyonii (Pursh) Gray
Menispermum canadense L.
Cocculus carolinus (L.) DC.

MAGNOLIACEAE

Magnolia acuminata L.
Liriodendron tulipifera

ANNONACEAE

Asimina triloba (L.) Dunal.

LAURACEAE

Sassafras albidum (Nutt.) Nees var. albidum
Sassafras albidum (Nutt.) Nees var. molle (Raf.) Fern.
Lindera benzoin (L.) Blume

PAPAVERACEAE

Sanguinaria canadensis L.
Stylophorum diphyllum (Michx.) Nutt.
Dicentra cucullaria (L.) Bernh.
Dicentra canadensis (Goldie) Walp.
Corydalis flavula (Raf.) DC.

CRUCIFERAE

Dentaria laciniata Muhl.
Iodanthus pinnatifidus (Michx.) Steud.
Capsella bursa-pastoris (L.) Medic.
Arabis canadensis L.
Arabis laevigata (Muhl.) Poir.

Descurainia pinnata (Walt.) Britt. var. brachycarpa (Richards.) Fern.
Cardamine bulbosa (Schreb.) BSP.
Cardamine hirsuta L.
Cardamine pensylvanica Muhl.
Cardamine parviflora L. var. arenicola (Britt.) O.E. Schulz
Sibara virginica (L.) Rollins
Draba verna L.
Draba brachycarpa Nutt.
Arabidopsis thaliana (L.) Heynh.
Lepidium campestre (L.) R. Br.
Lepidium virginicum L.
Armoracia aquatica (Eat.) Wieg.
Armoracia lapathifolia Gilib.
Nasturtium officinale R. Br.
Thlaspi arvense L.
Barbarea vulgaris R. Br. var. arcuata (Opiz.) Fries
Erysimum repandum L.
Brassica kaber (DC.) L.C. Wheeler var. schkuhriana (Reichenb.) L.C. Wheeler
Brassica nigra (L.) Koch
Brassica juncea (L.) Coss
Sisymbrium officinale (L.) Scop.
Rorippa sessiliflora (Nutt.) Hitchc.
Rorippa islandica (Oeder) Borbas var. fernaldiana Butt. & Abbe

SAXIFRAGACEAE

Hydrangea arborescens L.
Robes cynosbati L.
Itea virginica L.
Heuchera hirsuticaulis (Wheelock) Rydb.
Penthorum sedoides L.

HAMAMELIDACEAE

Liquidambar styraciflua L.

PLATANACEAE

Platanus occidentalis L.

ROSACEAE

Prunus hortulana Bailey
Prunus mexicana S. Wats.
Prunus americana Marsh. var. americana
Prunus americana Marsh. var. lanata Sudw.
Prunus serotina Ehrh.
Amelanchier arborea (Michx. f.) Fern.
Pyrus communis L.
Malus coronaria (L.) Mill.
Malus ioensis (Wood) Britt.
Crataegus collina Chapm.
Crataegus crus-galli L.
Crataegus viridis L.
Crataegus pruinosa (Wendl.) K. Koch
Crataegus mollis (Torr. & Gray) Scheele
Rubus occidentalis L.
Rubus trivialis Michx.
Rubus flagellaris Willd.
Rubus enslenii Tratt.
Rubus allegheniensis Porter
Rubus pensylvanicus Poir.
Rubus frondosus Bigel.
Rosa multiflora Thunb.
Rosa setigera Michx.
Rosa palustris Marsh.
Rosa carolina L.
Potentilla simplex Michx.
Potentilla recta L.
Potentilla norvegica L.
Fragaria virginiana Duchesne
Aruncus dioicus (Walt.) Fern.
Gillenia stipulata (Muhl.) Baill.
Geum canadense Jacq.
Geum vernum (Raf.) Torr. & Gray
Agrimonia parviflora Ait.
Agrimonia pubescens Wallr.
Agrimonia rostellata Wallr.

LEGUMINOSAE

Cercis canadensis L.
Gymnocladus dioica (L.) K. Koch
Gleditsia triacanthos L.
Gleditsia aquatica Marsh.
Desmanthus illinoensis (Michx.) MacM.
Albizia julibrissin Duraz.
Robinia pseudoacacia L.
Crotalaria sagittalis L.
Psoralea psoralioides (Walt.) Cory var. eglandulosa (Ell.) Freeman
Vicia villosa Roth
Vicia dasycarpa Ten.
Vicia cracca L.
Vicia angustifolia Reich.
Lathyrus latifolius L.
Cassia hebecarpa Fern.
Cassia marilandica L.
Cassia fasciculata Michx.
Cassia nictitans L.
Apios americana Medic.
Apios priceana Robins.
Lotus corniculatus L.
Petalostemum candidum (Willd.) Michx.
Petalostemum purpureum (Vent.) Rydb.
Coronilla varia L.
Dalea alopecuroides Willd.
Tephrosia virginiana (L.) Pers.
Melilotus alba Desr.
Melilotus officinalis (L.) Lam.
Trifolium campestre Schreb.
Trifolium dubium Sibth.
Trifolium pratense L.
Trifolium repens L.
Trifolium hybridum L.
Medicago sativa L.
Medicago lupulina L.

Clitoria mariana L.
Stylosanthes biflora (L.) BSP.
Lespedeza striata (Thunb.) Hook. & Arn.
Lespedeza stipulacea Maxim.
Lespedeza procumbens Michx.
Lespedeza repens (L.) Bart.
Lespedeza hirta (L.) Hornem.
Lespedeza capitata Michx.
Lespedeza stuevei Nutt.
Lespedeza cuneata (Dum.-Cours.) G. Don
Lespedeza violacea (L.) Pers.
Lespedeza intermedia (S. Wats.) Britt.
Lespedeza virginica (L.) Britt.
Phaseolus polystachios (L.) BSP.
Desmodium nudiflorum (L.) DC.
Desmodium glutinosum (Muhl.) Wood
Desmodium pauciflorum (Nutt.) DC.
Desmodium sessilifolium (Torr.) Torr. & Gray
Desmodium rotundifolium DC.
Desmodium illinoense Gray
Desmodium canescens (L.) DC.
Desmodium cuspidatum (Muhl.) Loud.
Desmodium laevigatum (Nutt.) DC.
Desmodium marilandicum (L.) DC.
Desmodium ciliare (Muhl.) DC.
Desmodium rigidum (Ell.) DC.
Desmodium canadense (L.) DC.
Desmodium nuttallii (Schindl.) Schub.
Desmodium dillenii Darl.
Desmodium paniculatum (L.) DC.
Strophystyles leiosperma (Torr. & Gray) Piper
Strophostyles helvola (L.) Ell.
Strophystyles umbellata (Muhl.) Britt.
Galactia volubilis (L.) Britt. var. mississippiensis Vail
Amphicarpa bracteata (L.) Fern. var. bracteata
Amphicarpa bracteata (L.) Fern. var. comosa (L.) Fern.

LINACEAE

Linum sulcatum Riddell
Linum virginianum L.

OXALIDACEAE

Oxalis violacea L.
Oxalis dillenii Jacq.
Oxalis stricta L.

GERANIACEAE

Geranium maculatum L.
Geranium carolinianum L.

ZYGOPHYLLACEAE

Tribulus terrestris L.

RUTACEAE

Xanthoxylum americanum Mill.
Ptelea trifoliata L.

POLYGALACEAE

Polygala sanguinea L.

EUPHORBIACEAE

Croton glandulosus L. var. septentrionalis Muell.-Arg.
Croton capitatus Michx.
Croton monanthogynus Michx.
Crotonopsis elliptica Willd.
Acalypha ostryaefolia Riddell
Acalypha rhomboidea Raf.
Acalypha virginica L.
Acalypha gracilens Gray
Euphorbia corollata L. var. corollata
Euphorbia corollata L. var. mollis Millsp.
Euphorbia obtusata Pursh
Poinsettia cyanthophora (Murr.) Kl. & Garcke
Poinsettia dentata (Michx.) Kl. & Garcke
Chamaesyce serpens (HBK.) Small
Chamaesyce supina (Raf.) Moldenke
Chamaesyce humistrata (Engelm.) Small
Chamaesyce maculata (L.) Small

CALLITRICHACEAE

Callitriche heterophylla Pursh
Callitriche palustris L.
Callitriche terrestris Raf.

ANACARDIACEAE

Toxicodendron radicans (L.) Kuntze
Rhus copallina L.
Rhus glabra L.
Rhus aromatica Ait. var. aromatica
Rhus aromatica Ait. var. serotina (Greene) Rehder

AQUIFOLIACEAE

Ilex decidua Walt.
Ilex verticillata (L.) Gray

CELASTRACEAE

Euonymus atropurpureus Jacq.
Celastrus scandens L.

STAPHYLEACEAE

Staphylea trifolia L.

ACERACEAE

Acer negundo L.
Acer barbatum Michx.
Acer saccharum Marsh. var. saccharum
Acer saccharum Marsh. var. schneckii Rehder
Acer saccharinum L.
Acer rubrum L. var. rubrum
Acer rubrum L. var. drummondii (H. & A.) Sarg.

HIPPOCASTANACEAE

Aesculus discolor Pursh
Aesculus glabra Willd.

BALSAMINACEAE

Impatiens biflora Walt.
Impatiens pallida Nutt.

RHAMNACEAE

Ceanothus americanus L.

VITACEAE

Parthenocissus quinquefolia (L.) Planch.
Ampelopsis cordata Michx.
Ampelopsis arborea (L.) Koehne
Vitis aestivalis Michx.
Vitis cinerea Engelm.
Vitis rupestris Scheele
Vitis vulpina L.
Vitis riparia Michx.

TILIACEAE

Tilia americana L.

MALVACEAE

Hibiscus militaris Cav.
Hibiscus laeiocarpus Cav.
Abutilon theophraatii Medic.
Sida spinosa L.

HYPERICACEAE

Ascyrum hypericoides L. var. multicaule (Michx.) Fern.

Hypericum perforatum L.
Hypericum punctatum Lam.
Hypericum spathulatum (Spach.) Steud.
Hypericum sphaerocarpum Michx.
Hypericum mutilum L.
Hypericum gentianoides (L.) BSP.
Hypericum drummondii (Grev. & Hook.) Torr. & Gray
Triadenum walteri (Gmel.) Gl.

CISTACEAE

Lechea tenuifolia Michx.

VIOLACEAE

Hybanthus concolor (T.F. Forst.) Spreng.
Viola pedata L.
Viola pratincola Greene
Viola missouriensis Greene
Viola affinis LeConte
Viola sororia Willd.
Viola sagittata Ait.
Viola pubescens Ait. var. eriocarpa (Schwein.) Russell
Viola striata Ait.
Viola rafinesquii Greene

PASSIFLORACEAE

Passiflora lutea L. var. glabriflora Fern.
Passiflora incarnata L.

CACTACEAE

Opuntia compressa (Salisb.) Macbr.

ELAEAGNACEAE

Elaeagnus angustifolia L.
Elaeagnus umbellata Thunb.

LYTHRACEAE

Decodon verticillatus (L.) Ell.
Cuphea petiolata (L.) Koehne
Lythrum alatum Pursh
Peplis diandra Nutt.
Rotala ramosior (L.) Koehne
Ammannia coccinea Rottb.

NYSSACEAE

Nyssa sylvatica Marsh.

ONAGRACEAE

Circaea quadrisulcata (Maxim.) Franch. & Sav. var. canadensis (L.) Hara
Ludwigia palustris (L.) Ell. var. americana (DC.) Fern. & Grisc.
Ludwigia alternifolia L.
Epilobium coloratum Muhl.
Jussiaea repens L.
Jussiaea decurrens (Walt.) DC.
Oenothera speciosa Nutt.
Oenothera laciniata Hill
Oenothera pilosella Raf.
Oenothera biennis L. var. biennis
Oenothera biennis L. var. canescens Torr. & Gray
Oenothera linifolia Nutt.

HALORAGIDACEAE

Proserpinaca palustris L.

ARALIACEAE

Aralia spinosa L.
Aralia racemosa L.
Panax quinquefolius L.

UMBELLIFERAE

Thaspium trifoliatum (L.) Gray var. trifoliatum
Thaspium trifoliatum (L.) Gray var. flavum Blake
Sanicula gregaria Bickn.
Sanicula canadensis L.
Torilis japonica (Houtt.) DC.
Daucus carota L.
Ptilimnium costatum (Ell.) Raf.
Ptilimnium nuttallii (DC.) Britt.
Oxypolis rigidior (L.) Coulter & Rose
Cryptotaenia canadensis (L.) DC.
Zizia aurea (L.) Koch
Pastinaca sativa L.
Sium suave Walt.
Osmorhiza longistylis (Torr.) DC. var. longistylis
Osmorhiza longistylis (Torr.) DC. var. villicaulis Fern.
Osmorhiza claytonii (Michx.) Clarke
Anethum graveolens L.
Erigenia bulbosa (Michx.) Nutt.
Chaerophyllum procumbens (L.) Crantz
Chaerophyllum tainturieri Hook.
Taenidia integerrima (L.) Drude
Polytaenia nuttallii DC.
Cicuta bulbifera L.
Cicuta maculata L.

CORNACEAE

Cornus florida L.
Cornus stolonifera Michx.
Cornus drummondii C.A. Mey.
Cornus racemosa Lam.
Cornus obliqua Raf.
Cornus foemina Mill.

ERICACEAE

Monotropa hypopithys L.
Monotropa uniflora L.
Rhododendron prinophyllum (Small) Millais
Rhododendron periclymenoides (Michx.) Shinners
Gaylussacia baccata (Wang.) K. Koch
Vaccinium arboreum Marsh. var. arboreum
Vaccinium arboreum Marsh. var. glaucescens (Greene) Sarg.
Vaccinium vacillans Torr.

PRIMULACEAE

Dodecatheon meadia L.
Androsace occidentalis Pursh
Samolus parviflorus Raf.
Anagallis arvensis L.
Lysimachia ciliata L.
Lysimachia lanceolata Walt.
Lysimachia hybrida Michx.
Lysimachia nummularia L.
Lysimachia terrestris (L.) BSP.
Hottonia inflata Ell.

EBENACEAE

Diospyros virginiana L.

OLEACEAE

Fraxinus quadrangulata Michx.
Fraxinus pensylvanica Marsh. var. pensylvanica
Fraxinus pensylvanica Marsh. var. subintegerrima (Vahl) Fern.
Fraxinus pensylvanica Marsh. var. austinii Fern.
Fraxinus americana L. var. americana
Fraxinus americana L. var. biltmoreana (Beadle) J. Wright
Fraxinus tomentosa Michx. f.
Forestiera acuminata (Michx.) Poir.

LOGANIACEAE

Spigelia marilandica L.

GENTIANACEAE

Swertia caroliniensis (Walt.) Kuntze
Obolaria virginica L.
Sabatia angularis (L.) Pursh

APOCYNACEAE

Amsonia tabernaemontana Walt.
Vinca minor L.
Apocynum androsaemifolium L.
Apocynum cannabinum L. var. cannabinum
Apocynum cannabinum L. var. pubescens (Mitchell) A. DC.
Apocynum sibiricum Jacq.
Trachelospermum difforme (Walt.) Gray

ASCLEPIADACEAE

Asclepias tuberosa L. var. interior (Woodson) Shinners
Asclepias verticillata L.
Asclepias viridiflora Raf.
Asclepias purpurascens L.

Asclepias syriaca L. var. syriaca
Asclepias syriaca L. var. kansana (Vail) Palmer & Steyerm.
Asclepias quadrifolia Jacq.
Asclepias variegata L.
Asclepias exaltata L.
Asclepias perennis Walt.
Asclepias incarnata L.
Matelea gonocarpa (Walt.) Shinners
Cynanchum laeve (Michx.) Pers.

CONVOLVULACEAE

Convolvulus arvensis L.
Calystegia sepium (L.) R. Br. var. americana (Sims) Mohlenbr.
Ipomoea coccinea L.
Ipomoea pandurata (L.) G.F.W. Mey.
Ipomoea hederacea (L.) Jacq.
Ipomoea lacunosa L.
Ipomoea purpurea (L.) Roth
Cuscuta cuspidata Engelm.
Cuscuta compacta Juss.
Cuscuta polygonorum Engelm.
Custuta cephalanthi Engelm.
Cuscuta gronovii Willd.
Cuscuta pentagona Engelm.
Cuscuta campestris Yuncker

POLEMONIACEAE

Polemonium reptans L.
Phlox bifida Beck var. bifida
Phlox bifida Beck var. stellaria (Gray) Wherry
Phlox divaricata L. ssp. laphamii (Wood) Wherry
Phlox pilosa L.
Phlox paniculata L.
Phlox glaberrima L. ssp. interior (Wherry) Wherry

HYDROPHYLLACEAE

Hydrolea uniflora Raf.
Hydrophyllum appendiculatum Michx.
Hydrophyllum canadense L.
Hydrophyllum virginianum L.
Phacelia purshii Buckley
Phacelia ranunculacea (Nutt.) Const.
Phacelia bipinnatifida Michx.

BORAGINACEAE

Mertensia virginica (L.) Pers.
Heliotropium indicum L.
Cynoglossum virginianum L.
Cynoglossum officinale L.
Hackelia virginiana (L.) I.M. Johnston
Myosotis virginica (L.) BSP. var. virginica
Myosotis virginica (L.) BSP. var. macrosperma (Engelm.) Fern.
Lithospermum arvense L.
Lithospermum latifolium Michx.
Lithospermum canescens (Michx.) Lehm.

VERBENACEAE

Lippia lanceolata Michx.
Verbena canadensis Britt.
Verbena bracteata Lag. & Rodr.
Verbena simplex Lehm.
Verbena stricta Vent.
Verbena hastata L.
Verbena urticifolia L.
Verbena Xillicita Moldenke

PHRYMACEAE

Phryma leptostachya L.

LABIATAE

Isanthus brachiatus (L.) BSP.
Mentha arvensis L. var. arvensis
Mentha arvensis L. var. villosa (Benth.) S.R. Steward
Mentha spicata L.
Mentha Xpiperita L.
Lycopus americanus Muhl.
Lycopus virginicus L.
Lycopus rubellus Moench var. rubellus
Lycopus rubellus Moench var. arkansanus (Fries.) Benner
Teucrium canadense L. var. virginicum (L.) Eat.
Scutellaria nervosa Pursh
Scutallaria parvula Michx.
Scutellaria lateriflora L.
Scutellaria ovata Hill var. ovata
Scutellaria ovata Hill var. versicolor (Nutt.) Fern.
Scutellaria ovata Hill var. rugosa (Wood) Fern.
Scutellaria elliptica Muhl.
Scutellaria incana Biehler
Marrubium vulgare L.
Cunila origanoides (L.) Britt.
Monarda bradburiana Beck
Monarda fistulosa L.
Blephilia ciliata (L.) Benth.
Blephilia hirsuta (Pursh) Benth.
Collinsonia canadensis L.
Hedeoma hispida Pursh
Hedeoma pulegioides (L.) Pers.
Salvia lyrata L.
Pycnanthemum pycnanthemoides (Leavenw.) Fern.
Pycnanthemum incanum (L.) Michx.
Pycnanthemum albescens Torr. & Gray
Pycnanthemum tenuifolium Schrad.
Pycnanthemum pilosum Nutt.
Agastache nepetoides (L.) Ktze.
Nepeta cataria L.

Glecoma hederacea L. var. micrantha Moricand
Lamium amplexicaule L.
Lamium purpureum L.
Stachys palustris L. var. homotricha Fern.
Stachys tenuifolia Willd. var. tenuifolia
Stachys tenuifolia Willd. var. hispida (Pursh) Fern.
Stachys hyssopifolia Michx. var. ambigua Gray
Leonurus cardiaca L.
Perilla frutescens L.
Physostegia virginiana (L.) Benth.
Prunella vulgaris L. var. vulgaris
Prunella vulgaris L. var. lanceolata (Bart.) Fern.

SOLANACEAE

Solanum carolinense L.
Solanum americanum Mill.
Datura stramonium L.
Physalis angulata L.
Physalis pendula Rydb
Physalis subglabrata Mack. & Bush
Physalis pruinosa L.
Physalis virginiana Mill.
Physalis heterophylla Nees var. heterophylla
Physalis heterophylla Nees var. ambigua (Gray) Rydb.
Physalis pubescens L.
Physalis lanceolata Michx.

SCROPHULARIACEAE

Veronicastrum virginicum (L.) Farw.
Veronica peregrina L.
Veronica arvensis L.
Gratiola neglecta Torr.
Gratiola virginiana L.
Lindernia anagallidea (Michx.) Pennell
Lindernia dubia (L.) Pennell var. dubia
Lindernia dubia (L.) Pennell var. riparia (Raf.) Fern.
Penstemon tubaeflorus Nutt.
Penstemon digitalis Nutt.
Penstemon alluviorum Pennell
Penstemon calycosus Small
Penstemon pallidus Small
Penstemon hirsutus (L.) Willd.
Pedicularis canadensis L.
Gerardia flava L.
Gerardia gattingeri Small
Gerardia skinneriana Wood
Gerardia purpurea L.
Gerardia tenuifolia Vahl
Seymeria macrophylla Nutt.
Bacopa rotundifolia (Michx.) Wettst.
Mimulus alatus Ait.
Mimulus ringens L.
Scrophularia marilandica L.
Verbascum thapsus L.
Verbascum blattaria L.

BIGNONIACEAE

Campsis radicans (L.) Seem.

OROBANCHACEAE

Epifagus virginiana (L.) Bart.
Orobanche uniflora L.

LENTIBULARIACEAE

Utricularia gibba L.
Utricularia vulgaris L.

ACANTHACEAE

Justicia americana (L.) Vahl
Ruellia humilis Nutt.
Ruellia pedunculata Torr.
Ruellia strepens L.

PLANTAGINACEAE

Plantago aristata Michx.
Plantago pusilla Nutt.
Plantago lanceolata L.
Plantago virginica L.
Plantago rugelii Dcne.

RUBIACEAE

Cephalanthus occidentalis L. var. occidentalis
Cephalanthus occidentalis L. var. pubescens Raf.
Galium circaezans Michx.
Galium lanceolatum Torr.
Galium pilosum Ait.
Galium triflorum Michx.
Galium aparine L.
Galium tinctorium L.
Galium trifidum L.
Galium concinnum Torr. & Gray
Galium obtusum Bigel.
Diodia virginica L.
Diodia teres Walt.
Spermacoce glabra Michx.
Houstonia minima Beck
Houstonia pusilla Schoepf
Houstonia nigricans (Lam.) Fern.
Houstonia purpurea L. var. calycosa Gray
Houstonia longifolia Gaertn. var. longifolia
Houstonia longifolia Gaertn. var. tenuifolia (Nutt.) Wood
Houstonia canadensis Willd.

CAPRIFOLIACEAE

Sambucus canadensis L.
Lonicera japonica Thunb.

Symphoricarpos obriculatus Moench
Viburnum rufidulum Raf.
Viburnum prunifolium L.
Viburnum recognitum Fern.
Triosteum angustifolium L.
Triosteum perfoliatum L.
Triosteum illinoense (Wieg.) Rydb.

VALERIANACEAE

Valerianella radiata (L.) Dufr.

CUCURBITACEAE

Cucurbita pepo L. var. ovifera (L.) Alef.
Sicyos angulatus L.

CAMPANULACEAE

Specularia biflora (R. & P.) Fisch. & Mey.
Specularia perfoliata (L.) A. DC.
Campanula americana L.
Lobelia cardinalis L.
Lobelia siphilitica L.
Lobelia puberula Michx.
Lobelia inflata L.
Lobelia spicata Lam. var. spicata
Lobelia spicata Lam. var. leptostachys (A. DC.) Mack. & Bush

COMPOSITAE

Polymnia canadensis L.
Polymnia uvedalia (L.) L.
Silphium perfoliatum L.
Silphium integrifolium Michx.
Parthenium integrifolium L.
Iva annua L.
Ambrosia bidentata Michx.
Ambrosia trifida L.
Ambrosia artemisiifolia L.
Xanthium strumarium L. var. canadensis (Mill.) Torr. & Gray
Xanthium strumarium L. var. glabratum (DC.) Cronq.
Heliopsis helianthoides (L.) Sweet
Eclipta alba (L.) Hassk.
Rudbeckia triloba L.
Rudbeckia hirta L.
Rudbeckia bicolor Nutt.
Echinacea pallida (Nutt.) Nutt.
Ratibida pinnata (Vent.) Barnh.
Helianthus annuus L.
Helianthus rigidus (Cass.) Desf.
Helianthus microcephalus Torr. & Gray
Helianthus decapetalus L.
Helianthus divaricatus L.
Helianthus strumosus L.
Helianthus grosseserratus Martens
Helianthus mollis Lam.
Helianthus tuberosus L. var. tuberosus
Helianthus tuberosus L. var. subcanescens Gray
Helianthus hirsutus Raf.
Verbesina helianthoides Michx.
Verbesina alternifolia (L.) Britt.
Coreopsis palmata Nutt.
Coreopsis tripteris L.
Bidens cernua L.
Bidens coronata (L.) Britt.
Bidens aristosa L. var. aristosa
Bidens aristosa L. var. retrorsa (Sherff) Wunderlin
Bidens connata Muhl.
Bidens comosa (Gray) Wieg.
Bidens bipinnata L.
Bidens frondosa L.
Bidens vulgata Greene
Bidens discoidea (Torr. & Gray) Britt.
Helenium amarum (Raf.) Rock
Helenium autumnale L.
Helenium flexuosum Raf.
Solidago graminifolia (L.) Salisb.
Solidago ridiga L.
Solidago caesia L.
Solidago flexicaulis L.
Solidago bicolor L. var. bicolor
Solidago bicolor L. var. concolor Torr.
Solidago buckleyi Torr. & Gray
Solidago missouriensis Nutt.
Solidago juncea Ait.
Solidago speciosa Nutt.
Solidago gigantea Ait.
Solidago arguta Ait.
Solidago strigosa Small
Solidago boottii Hook.
Solidago ulmifolia Muhl.
Solidago drummondii Torr. & Gray
Solidago radula Nutt.
Solidago canadensis L.
Solidago nemoralis Ait.
Boltonia asteroides (L.) L'Her.
Aster anomalus Engelm.
Aster shortii Lindl.
Aster azureus Lindl.
Aster cordifolius L.
Aster sagittifolius Wedem. var. sagittifolius
Aster sagittifolius Wedem. var. drummondii (Lindl.) Shinners
Aster novae-angliae L.
Aster oblongifolius Nutt.
Aster patens Ait.
Aster laevis L.
Aster pilosus Willd.
Aster ericoides L. var. ericoides
Aster ericoides var. prostratus (Ktze.) Blake
Aster vimineus Lam.
Aster praealtus Poir.
Aster turbinellus Lindl.
Aster ontarionis Wieg.
Aster lateriflorus (L.) Britt.

Aster simplex Willd.
Erigeron pulchellus Michx.
Erigeron philadelphicus L.
Erigeron annuus (L.) Pers.
Erigeron strigosus Muhl.
Erigeron divaricatus Michx.
Erigeron canadensis L.
Anthemis cotula L.
Achillea millefolium L. var. millefolium
Achillea millefolium L. var. lanulosa (Nutt.) Piper
Matricaria matricarioides (Less.) Porter
Chrysanthemum leucanthemum L.
Artemisia annua L.
Pluchea camphorata (L.) DC.
Antennaria plantaginifolia (L.) Richards. var. plantaginifolia
Antennaria plantaginifolia (L.) Richards. var. ambigens (Greene) Cronq.
Gnaphalium purpureum L.
Gnaphalium obtusifolium L.
Erechtites hieracifolia (L.) Raf.
Cacalia atriplicifolia L.
Cacalia muhlenbergii (Sch.-Bip.) Fern.
Senecio aureus L.
Senecio glabellus Poir.
Eupatorium purpureum L.
Eupatorium coelestinum L.
Eupatorium incarnatum Walt.
Eupatorium serotinum Michx.
Eupatorium rugosum Houtt.
Eupatorium altissimum L.
Eupatorium perfoliatum L.
Eupatorium sessilifolium L.
Brickellia eupatorioides (L.) Shinners
Liatris scabra (Greene) K. Schum.
Liatris cylindracea Michx.
Liatris squarrosa (L.) Michx.
Liatris spicata (L.) Willd.
Liatris aspera Michx.
Vernonia missurica Raf.
Vernonia fasciculata Michx.
Vernonia gigantea (Walt.) Trel.
Elephantopus carolinianus Willd.
Arctium minus (Hill) Bernh.
Carduus nutans L.
Cirsium vulgare (Savi) Tenore
Cirsium discolor (Muhl.) Spreng.
Cirsium altissimum (L.) Spreng.
Centaurea cyanus L.
Cichorium intybus L.
Krigia dandelion (L.) Nutt.
Krigia biflora (Walt.) Blake
Krigia virginica (L.) Willd.
Krigia oppositifolia Raf.
Taraxacum officinale Weber
Sonchus asper (L.) Hill
Lactuca canadensis L.
Lactuca serriola L.
Lactuca saligna L.
Lactuca floridana (L.) Gaertn.
Pyrrhopappus carolinianus (Walt.) DC.
Prenanthes altissima L.
Hieracium gronovii L.

EDITOR'S NOTE: The taxa in the above list are not underlined due to the reduction in print which would make them difficult to read.

LaRue-Pine Hills Endangered and Threatened Species

Twenty-nine species that are listed as endangered and threatened in Illinois (Natural Land Institute, 1981) are known to occur in the LaRue-Pine Hills area. They are:

Apios priceana
Asplenium bradleyi
Asplenium resiliens
Botrychium biternatum
Carex decomposita
Carex gigantea
Carex physorhyncha
Carya pallida
Eupatorium incarnatum
Glyceria arkansana
Heteranthera reniformis
Hydrastis canadensis
Hydrolea uniflora
Iris fulva
Panax quinquefolius
Panicum joori
Paspalum bushii
Pinus echinata
Polygonum longistylum
Ptilimnium costatum
Ptilimnium nuttallii
Puccinellia pallida
Pycnanthemum albescens
Quercus phellos
Rubus enslenii
Sagittaria longirostra
Scirpus verecundus
Solidago arguta
Sparganium chlorocarpum

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RECENT DEVELOPMENTS IN *Thismia americana* N.E. PFEIFFER

Robert H. Mohlenbrock[1]

When I became interested in the Illinois flora as a high school junior, I was fascinated by the story about a plant called *Thismia americana*, a member of a tropical and subtropical family of flowering plants, that had been found in Chicago in 1912 and 1913 and not seen anywhere in the world since.

Later, as a doctoral student doing research at the Missouri Botanical Garden in St. Louis, I saw my first specimen of *Thismia americana* preserved in little vials and stored in a steel cabinet on the second floor of the old herbarium building. Knowing my intense interest in the Illinois flora, my major professor, Dr. Robert E. Woodson, Jr., presented me with one of the vials that contained two specimens of *Thismia americana*.

For thirty years these little plants pickled in glycerine have accompanied me on speaking engagements all across the country and have made guest appearances at every botany class I have taught at Southern Illinois University. Thousands of people have become acquainted with the story of *Thismia* that I pieced together from the literature.

I recounted the story as the lead chapter in my "Where Have All the Wildflowers Gone?" (Mohlenbrock, 1983). I repeat the story here in order to set the stage for a remarkable and unexpected development in the *Thismia* story.

> "It was overcast in Chicago when Norma Pfeiffer awoke that August 1 morning in 1912, not a suitable day for a field trip, but Miss Pfeiffer had been planning for several days to visit a patch of prairie south of the University of Chicago campus to look for material suitable for her research. Little did she know that by the time the sun would finally glide from behind the broken cloud cover at noon

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that she would make one of the most remarkable plant discoveries in the history of botany.

"By midmorning the young botanist, who had turned twenty-three earlier in the year, arrived at her destination, a flat, open prairie rather densely covered with vegetation of varying heights. She slowly made her way through waist-high tussocks of black-eyed Susan, thoroughwort, and various kinds of goldenrods, kneeling occasionally to push aside these coarse herbaceous stems to observe what lay at the surface of the soil. Several low-growing mosses were crowded close together in the shade provided by the goldenrods, and an occasional filmy strand of a small clubmoss, or Selaginella, hugged the soil. In damper areas, the handsome blue iris was giving way to the pink of the swamp milkweed.

"Suddenly Pfieffer observed an astonishing sight. Lying between several small mounds of mosses were tiny white to pastel blue-green swellings, appearing to have emerged recently from the soil. The largest of these was about one-fourth of an inch tall above the ground and of about equal size across. As she parted the stems of the nearby herbs, Norma saw several more of these nearly transparent structures, some just barely visible above the soil. There were no leaves, and nothing about the specimens was deep green, which would have indicated the presence of chlorophyll.

"Hurriedly but carefully she removed the soil from around her discovery and prepared to take some of the material back to the laboratory, where she would attempt to identify it.

"The above-ground part of the specimen narrowed abruptly where it entered the soil and merged into nearly colorless, thread-like, horizontal roots. The idea that she had found an unusual transparent moss was dispelled by the unearthing of the root system.

"At the laboratory, the excitement grew as first one fellow student and then another each in turn proclaimed his astonishment and bewilderment at this plant. Professors John M. Coulter, Charles J. Chamberlain, and W.J.G. Land,

considered among the most respected botanists of the country at that time, were puzzled by the find.

"Under the microscope the blue-green transparent mystery was observed to be a flower! The flower was tubular-shaped, with a raised ring around the top. Hanging from this ring to the inside of the tube were six tiny pollen-producing stamens. Above the opening of the ring, the blue-green petals were prolonged to form an arch.

"The flower was nothing at all like any other flower known in the Chicago area. The total absence of the green pigment chlorophyll was also mystifying, because only a relatively few flowering plants are nongreen.

"A search of the botanical literature in the University of Chicago library finally revealed that the little plant from the prairie south of the campus belonged to a tropical family of plants known as the Burmanniaceae, a group closely related to orchids. More precisely, the new plant was some type of Thismia. Of the fifteen kinds of Thismia known in the world, none had ever been found before in North America, the nearest being several thousand miles from Chicago. What's more, all fifteen previously known Thismias grew in rich-loamed primeval forests, in regions of great rainfall.

"Having made such a remarkable discovery, Norma Pfeiffer and her professors made several trips back to the prairie for additional observations. By mid-September, some of the little flowers had developed into tiny fruits with minute seeds.

"Throughout the winter of 1912, Pfeiffer studied every aspect of her specimens. On July 1, 1913, she found more of this new plant in the same prairie. She surmised that the underground parts had overwintered. Her studies indicated that she had found a new species, which she named Thismia americana in 1914.

"Botanists from all over the country have tried to relocate Thismia americana, including prominent scientists from the Field Museum and the nearby Morton Arboretum. The prairie was replaced several years ago by an oil-tank storage area,

Figure 1. Thismia americana N. E. Pfeiffer. Habit, X5. (Illustration by Miriam W. Meyer, from The Illustrated Flora of Illinois. Flowering Rush to Rushes, by Robert H. Mohlenbrock, used by permission of the Southern Illinois University Press).

yet every species of plant which Norma Pfeiffer indicated as growing with Thismia still occurs there. Less than one mile away, a similar habitat, known as Burnham Prairie, exists today, and Thismia may be hiding under the goldenrods there as well."

Early in September, 1984, while routinely reading my mail, I was astonished to open an envelope containing a letter from Norma Pfeiffer!! - yes, the same Norma Pfeiffer who made that startling discovery of Thismia back in 1912. As she said in her letter, "I bet you had no idea I was still on this side of the River Styx".

After thanking me for my "complimentary remarks on Thismia", Miss Pfeiffer offered some details of her discovery that had never before been publicized. I quote from her letter:

"In 1912, I was planning to teach botany at the University of North Dakota. Another graduate student, Florence A. McCormick, planned to teach at an eastern college. Neither of us knew what equipment or supplies would be available at our respective openings; so we took several collecting trips together to augment out plant supplies.

"This particular summer day, we went to 'Solvay', a location where University of Chicago classes in 'Local Flora' sometimes went for the prairie flora. As an assistant in that course, I had been there earlier. But this was the first time I was down on my hands and knees, collecting liverworts on the damp soil shaded by the prairie flora. Suddenly I saw my first specimen of Thismia, a tiny flower half imbedded in the soil. I showed it to Florence, who said, 'Let's tear it up!' I prevented that and looked for other specimens. I wanted to take an adequate supply back to the Botany Department.

"When the knowledgeable staff members, Dr. Charles J. Chamberlain, and Dr. W. J. G. Land, said it was new to them, we agreed that a sample should be sent to Dr. John Merle Coulter who was vacationing in Indiana. The reply came promptly. With all his knowledge of world flora, he had never seen it. His response - 'Go to it' - meant a new thesis subject for me.

"I went out to Solvay several times thereafter, usually alone, but once with my sister, Wanda M. Pfeiffer, and once with E. Maris Harvey, a good friend also seeking his doctorate in botany. I knew the destruction a group could wreak. So did the botany department which ceased taking classes there, a nice courtesy.

"I looked for the plant beyond this first location, and once found a very few, about a third of a mile away, in the midst of Typha.

"This area as I recall is between beach ridges of the prehistoric lake that preceded Lake Michigan long ago.

"I collected during August that year until I was sure I had enough material for a complete study. Sometimes I took more soil than necessary, to be sure not to destroy underground parts. I prepared and imbedded material to be worked on after I started teaching. I also took some live material and tried to culture the tiny seed with methods used in germinating orchid seed. Those attempts led nowhere.

"While I was still in Chicago, photographs of the specimens were made with the help of Dr. Land. He was expert, very patient and thorough-going, so the results were excellent.

"In North Dakota, I used all the time I was free from earning my living to make preparations and study them. At the end of the school year in June, I hurried back to Chicago. The next morning, I went to the John Crerar Library in downtown Chicago. I went through the files in this fine library and soon had a good list of books to consult. Amusingly, the young clerk at the desk, on looking at the titles, asked, 'Are you a cross-word puzzle fan?'

"In time, I narrowed the search down to the family, Burmanniaceae, and eventually to the genus Thismia. This genus was originally named by Theodore Smith who wanted to use his name in the genus, but didn't like the sound of 'Smithia', so he turned the consonants around to 'Thismia'. I once heard a botanist say, 'It sounds like a Greek goddess.'

"This same year, 1913, I went out to Solvay and found Thismia still there. I showed the location to one other person, A. G. Vestal, an ecologist working for his doctorate under Dr. Harry Chandler Cowles, at the University of Chicago.

"The following year when I went out, I found a barn had been built on this particular area. Goodbye, Thismia.

"This was long before the day of 'Nature Conservancy', or I might have thought of buying the plot as a preserve.

"After the publication of my thesis in the Botanical Gazette, I gave explicit directions to personnel at the Field Museum. No one ever found or reported finding the plant.

"I deposited all the material, including the transparency photographs, slides from which I made the drawings for my thesis, at the Field Museum, after I had prepared vials of specimens in glycerine, for the big herbaria in the World. When the herbarium in Germany was destroyed by bombing during the war, we were able to replace it. I have had very cordial relations with the Curator at the Field Museum.

"As you know, Dr. J. M. Greenman was at the Field Museum before going to the Missouri Botanical Gardens. At the University of Chicago, he gave the lectures and I the laboratory work as a teaching assistant, in the Local Flora course. I submitted my Latin and English descriptions to him before publication. I was pleased that he made no change in the description of the new Thismia americana. I am fond of languages and had enough Latin so that with a good dictionary for scientific words in Latin, I was able to do a satisfactory job."

The circumstances surrounding Dr. Pfeiffer's discovery are truly fascinating. In addition, one surprising bit of new information surfaced when she wrote "I looked for the plant beyond the first location, and once found a very few, about a third of a mile away, in the midst of Typha." This is the first evidence that Thismia americana was found in a second location and the first report of it among cat-tails. Botanists may now rush to cat-tail stands in South Chicago in an attempt to relocate Thismia americana!!

Although the rest of Norma Pfeiffer's letter is not about Thismia, I believe her comments about Professor Greenman and her recent personal life should be published for historical documentation. Therefore, the remainder of her letter of September 19, 1984, follows:

"Dr. Greenman was one of the outstanding teachers I have had - very clear in his lectures and concise in his diction. I admired him greatly. I believe he thought I would make a good taxonomist, then he suggested that I should work on Dr. Engelmann's fine collection of Isoetes plus those acquired otherwise by the Missouri Botanical Gardens. That is how I came to do the study that led to the Isoetes monograph you so kindly mentioned.

"I had difficulty getting it typed when I returned to work. Yet I was eager to get the monograph published. I believe it was between the work of two typists that my acknowledgment to Dr. Greenman for his encouragement and helpful suggestions was omitted inadvertently. To my great regret, I failed to notice it at the time.

"Another extraneous matter about which you may be curious is how I came to live in Dallas. In 1978, I was living alone in Yonkers, retired from Boyce Thompson Institute for Plant Research. I was busy gardening, growing lilies and writing a series of articles on Great Names in Lilies, which were published in the North American Lily Society Yearbook.

"A Friday afternoon in April, 1978, I went to shop in Yonkers for Sunday dinner, as I was expecting a nephew'a family (five children) to have Sunday dinner with me. I had finished shopping and was going to my bus, crossing the main street. A careless young driver forgot the amber light between red and green, as he flirted with a girl. He stepped on the gas without even looking, and threw me to the pavement on the right side of my head and right shoulder. I was in a coma until midnight, in a strange hospital. But with brain scans, etc., the edict came that I must not live alone. A sister's progeny lived in Dallas, including a niece with grown children, and it seemed logical to come here and to this superior retirement village. With increasing

years and more hospitalization, I now am more dependent physically, using a wheelchair or a walker according to the need. And I keep busy."

Cordially,

Norma E. Pfeiffer

Literature Cited

MOHLENBROCK, R. H. 1983. Where Have All the Wildflowers Gone? MacMillan Publishing Co., Inc., New York. 239 pp.

(EDITORIAL from page 2)
Two other additions occur in this issue of Erigenia. First, photographs appear in this issue for the first time and second, we would like to welcome Dave E. Mueller to our staff as Photography Editor.

PLEASE READ "NOTICE TO FUTURE CONTRIBUTORS" (page 69) AND "GUIDELINES FOR MANUSCRIPTS SUBMITTED TO ERIGENIA FOR PUBLICATION (REVISED 1985)" (inside back cover) IF YOU ARE INTERESTED IN CONTRIBUTING TO FUTURE ISSUES OF ERIGENIA.

BOOK REVIEW

A Guide To Prairie Restoration. William E. McClain. 1983. Illinois Department of Conservation, Springfield, Illinois. 24p. (paperback).

This is a very interesting little booklet which offers much useful information on prairie restoration. Although geared for large restorations, the hints and directions presented are useful for establishing any size restoration. Discussions of presettlement vegetation, prairie names, as well as the types of prairies, wet, mesic, and dry, lead off the booklet. Site selection is also described, suggesting that the location of a restoration be in an area which was historically prairie. Following the site selection, seed selection and storage of the seed are discussed. Two tables accompany this section, one provides propagation data for some prairie taxa while the other lists a number of prairie plants which are easily propagated from seed.

The discussion on seedbed preparation is useful on a general level but is written with the big restoration in mind. For example, the author states, "Plow and then disc the site . . ." (For smaller sites a rototiller will certainly do.)

The seeds of most prairie legumes have hard, thick coats and need to be weakened in order for germination to occur, a process known as scarification. Three methods of scarification are described, with mechanical scarification recommended. Legume seeds also should be inoculated with nitrogen-fixing bacteria. A table indicating the specific inoculum for a given prairie legume is provided.

The sections on seeding rates and planting methods discuss large scale restoration techniques and are of little use to the home prairie restoration. Transplanting techniques offered and the discussion on weed control are quite useful, however.

A good checklist and discussion of prescribed burning is presented, followed by an historical essay on the beauty of prairies in the 1840's. The "Literature Cited" and "Additional References" offer a useful list of publications for further information. A list of three commercial sources of Illinois prairie plant seeds follows.

- Mark W. Mohlenbrock

MISTLETOE AND ITS CHRISTMAS TRADITION

by Lawernce R. Stritch[1]

Christmas is a very special time of year. It is celebrated throughout the world in a myriad of ways. In the United States we are indeed fortunate that so many differing cultures have contibuted the best of their Christmas traditions to form our American Christmas celebration. The use of mistletoe (Phoradendron serotinum) is one such tradition that was brought to this land by our forefathers.

The word mistletoe comes from the Anglo-Saxon mistletan. Mistel is the diminutive of the German word mist, meaning dung, and tan is Anglo-Saxon, meaning twig. Its name is derived from its means of propagation and dispersal. Birds eat the sticky fruits, ingesting some and getting some of them stuck to their bills. Flying to another host tree the birds may either scrape their bills on a twig in order to remove the sticky fruits from their bills or they may empty their cloaca, depositing their droppings on a twig or branch. Thus the cycle will begin anew as a new tree is infected by this parasite.

In ancient times mistletoe was surrounded with superstition and mystery. As a plant that grew without roots in the tops of trees, it was treated as a divine gift from the gods. Because it was considered a divine gift it was likened to the soul. Since it remained green in winter when all the trees "died" mistletoe was considered the sign of eternal life; the spirit of the trees still lived.

Sacred to the druids of northern Europe, mistletoe was employed as an all-healer. It was used to guard homes against trolls, cure epilepsy, protected against witches and their spells, and ward off death in battle.

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Our tradition of hanging mistletoe throughout our homes at Christmas comes from Scandinavia. There it is considered the plant of peace. Legend has it that if enemies met under it they declared a truce for the day. From this custom has come the modern tradition of exchanging a kiss of peace with whoever is standing under a sprig of mistletoe.

American Mistletoe (Phoradendron serotinum) is the state flower of Oklahoma. During the winter months it was the only green plant the early settlers of the Cherokee Strip could find to place on the graves of their loved ones. In the southern part of the country it became part of the Christmas tradition because it could be found either in flower or fruit during late autumn and early winter. The southern tradition of using American Mistletoe to decorates one's home at Christmas spread north as emigrants from the northern United States sent sprigs of this Christmas plant back to relatives and friends to decorate their homes at Christmas.

There are two species of mistletoe found in the eastern United States and Canada. American Mistletoe, Phoradendron serotinum, is native to southern Illinois and the southeastern United States. In Illinois it is found growing in the tree tops of various bottomland hardwoods in the counties of St. Clair, Randolph, Jackson, Union, Alexander, Pulaski, Massac, Pope, Johnson, Williamson, Saline, Hardin, Galatin, White, Wayne, Wabash, Lawrence, Crawford, and Clark. Dwarf Mistletoe, Arceuthobium pusillum, is native to the boreal forest and northern hardwoods forest biomes, stretching from Newfoundland to Ontario, south to Nova Scotia, New England, northern New Jersey, northern Pennsylvania, Michigan, Wisconsin, and Minnesota.

These two species belong to the the Mistletoe family, the Loranthaceae, a family of approximately 300 tropical and temperate parasitic shrublets.

Key to the Loranthaceae of Eastern North America

1. Leaves broad, thick, greenish; drupe pulpy, globose.....1. Poradendron serotinum

1. Leaves reduced to tiny, greenish-brown scales; drupe dry, compressed.....2. Arceuthobium pusillum

1. Phoradendron serotinum (Raf.) Johnston

Dioecious shrubs, parasitic on the branches and trunks of flowering trees. Leaves evergreen, thick, leathery, opposite, simple, entire, elliptic to oblanceolate, glabrous, 2.0 to 7.0 cm long, 1.0 to 3.5 cm broad, stipules absent. Inflorescence an interupted spike, 0.5 to 6.0 cm long; flowers small, several to each fleshy bract. Calyx green, (2-) 3 (-4) lobed, united near the base; corolla absent; staminate flower: the stamen number equaling the number of calyx lobes, the sessile anther adnate to the base of each calyx lobe; pistillate flower: the calyx tube adnate to the ovary, the stigma sesille. Fruit a pulpy drupe, one-seeded, white.

2. Arceuthobium pusillum Peck

Dioecious, extremely small dwarf shrublets, parasitic chiefly upon black spruce (Picea mariana), rarely upon white spruce (Picea glauca), tamarack (Larix decidua), or white pine (Pinus strobus). Leaves evergreen, reduced to obtuse scales, opposite, 1.2 mm long, 1.0 mm broad. The inflorescences are scattered or clustered stems, 0.6 to 2.0 cm long (arising from the rhizomatous stems in the cambium of the host); flowers small, solitary in the axils of the scales. Calyx greenish-brown, 2 to 5 lobed, united near the base; corolla absent; staminate flower: stamen number equaling the number of calyx lobes, the sessile anther adnate to the base of the calyx lobe; pistillate flower: calyx 2-lobed, the lobes adnate to the ovary, stigma sessile. Fruit a dry drupe, one-seeded, greenish-brown.

Figure 1. Phoradendron serotinum *(Raf.) Johnston. a. Branch of staminate plant, X 2/3. b. Branch of pistillate plant, X 2/3. (Illustrations by Mark W. Mohlenbrock).*

THE TAXONOMIC STATUS OF *Panicum joori* VASEY

Robert H. Mohlenbrock[1]

On August 4, 1969, while exploring in a deep cypress swamp in Johnson County in southern Illinois, John White collected a specimen of *Panicum* in a floodplain woods. Preliminary identification by use of Gray's Manual of Botany (Fernald, 1950) and the New Britton and Brown Illustrated Flora of the Northeastern United States (Gleason, 1952) led to *Panicum commutatum* Schultes. In 1976 a specimen referable to the same taxon was discovered by the author in a swampy woodland at LaRue-Pine Hills, Union County. Since *Panicum commutatum* in southern Illinois is a plant of dry, rocky woodlands, some doubt was cast on the identification of this lowland *Panicum*.

More intensive investigation of the characters of the plant revealed remarkably beaked spikelets. Specimens of *P. commutatum*, on the other hand, when examined in the herbarium of Southern Illinois University, were found to lack prominently beaked or even pointed spikelets. When the beaked specimens were "keyed out" in Chase (1951), they were identified as *P. joori*, a species previously unknown from Iliinois. Although the descriptions and illustrations in Hitchcock and Chase (1910) and Chase (1951) clearly show the beaked spikelet, no floras that were consulted utilized the beaked versus obtuse to acute spikelet to separate *P. joori* from *P. commutatum*.

Since Chase (1951), Fernald (1950), and Gleason (1952) all accord different treatments to these two taxa, an examination of material of *Panicum commutatum* and *P. joori* for a careful analysis was undertaken. Accordingly, specimens borrowed from the Missouri Botanical Garden have formed the basis of this investigation.

The type specimen of *Panicum joori* was collected by a physician, Dr. J. F. Joor, from along the banks of a creek near Baton Rouge, Louis-

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Figure 1. Panicum commutatum Schult. var. commutatum. a. Upper part of plants, X ½. b. Sheath, with ligule, X 7½. c. Sheath and node, X 7½. d. Spikelet, front view, X 12½. e. Spikelet, back view, X 12½. (Illustrations by Miriam W. Meyer, from The Illustrated Flora of Illinois. Grasses: Panicum to Danthonia, by Robert H. Mohlenbrock, used by permission of the Southern Illinois University Press).

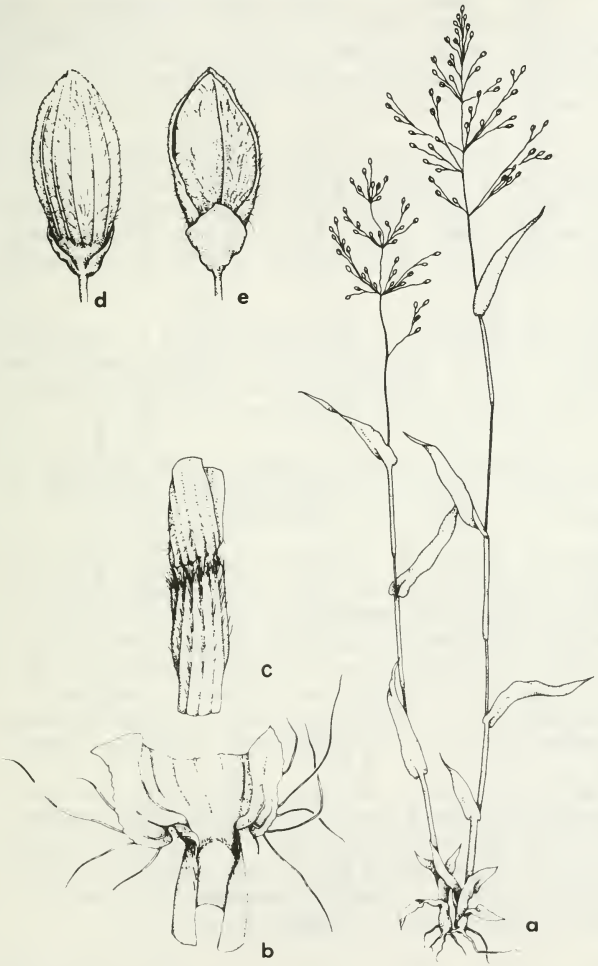

Figure 2. Panicum commutatum Schult. var. ashei Fern. a. Habit, X ½. b. Sheath, with ligules, X 7½. c. Sheath and node, X 7½. d. Spikelet, front view, X 12½. e. Spikelet, back view, X12½. (Illustrations by Miriam W. Meyer, from The Illustrated Flora of Illinois. Grasses: Panicum to Danthonia, by Robert H. Mohlenbrock, used by permission of the Southern Illinois Universtiy Press).

iana, on October 1, 1885. This, of course, is the autumnal form, but the features distinguishing this species from P. commutatum are apparent. An examination of an isotype (Joor 39) deposited in the Missouri Botanical Garden herbarium reveals the thin, falcate leaves and the abruptly acuminate-tipped spikelets about 3 mm long.

Fernald (1950) failed to place much reliance on the differences between P. commutatum and P. joori and accordingly reduced the latter to a variety of P. commutatum. In his enumeration of the differences which separate var. joori, Fernald does not mention the chief diagnostic difference of P. joori, namely the abruptly acuminate-tipped spikelets.

Gleason (1952) goes even further in his reduction of P. joori by placing it in synonymy with P. commutatum var. commutatum. Examination of material of both P. commutatum and P. joori leaves little doubt as to the distinctness of the two taxa.

It was inevitable in studying Panicum commutatum that a third taxon, known (erroneously) usually as Panicum ashei Pearson in Ashe or P. commutatum var. ashei Fern., became involved.

Chase (1951) maintains P. ashei as a distinct species, while Fernald (1950), Gleason (1952), and most other more recent workers accord it only varietal rank. An examination of the characters utilized to distinguish P. commutatum and P. ashei reveals that leaf width is the only consistently recorded difference. It is true that every specimen of P. ashei examined has a pubescent stem, while most specimens of P. commutatum have a glabrous stem, but a few hairy-stemmed plants of P. commutatum have been found.

Although there do not appear to be any very reliable characters which will distinguish P. ashei from P. commutatum, familiarity with these plants in the field indicates that P. ashei merits recognition in some rank. Since there are no good specific differences, varietal status for this taxon is recommended. Thus it should be known as P. commutatum var. ashei Fern.

On the other hand, P. joori differs from P. commutatum var. commutatum and P. commutatum var. ashei in several reliable characters - the thin, falcate, non-cordate blades and the larger, beaked spikelets, thereby substantiating the hypothesis that P. joori deserves the status of species.

Table I summarizes these taxa.

Table I. Summary of Major Characters

	P. commutatum	P. commutatum var. ashei	P. joori
culm	40-75 cm tall erect glabrous or puberulent	25-50 cm tall erect crisp-puberulent	20-55 cm tall spreading or ascending glabrous (rarely puberulent)
blades	firm 5-12 cm X 12-25 mm cordate-clasping base glabrous or puberulent above and below	firm 4-8 cm X 5-10 mm subcordate base glabrous above and below	thin 6-18 cm X 7-18 mm narrow to rounded base glabrous above and below
panicle	6-12 cm long	5-8 cm long	5-9 cm long
spikelets	2.6-2.8 X 1.3 mm obtuse softly puberulent	2.4-2.7 X 1.2-1.3 mm obtuse or subacute short-hairy	3.0-3.1 X 1.2-1.3 mm abruptly short-pointed pubescent
first glume	1/4 as long as spikelet acute or obtuse	1/3 as long as spikelet subacute	1/3-2/5 as long as spikelet acute
grain	2.2-2.3 X 1.2 mm ellipsoid	2.1 X 1/1 mm ellipsoid	2.4 X 1.2 mm ellipsoid

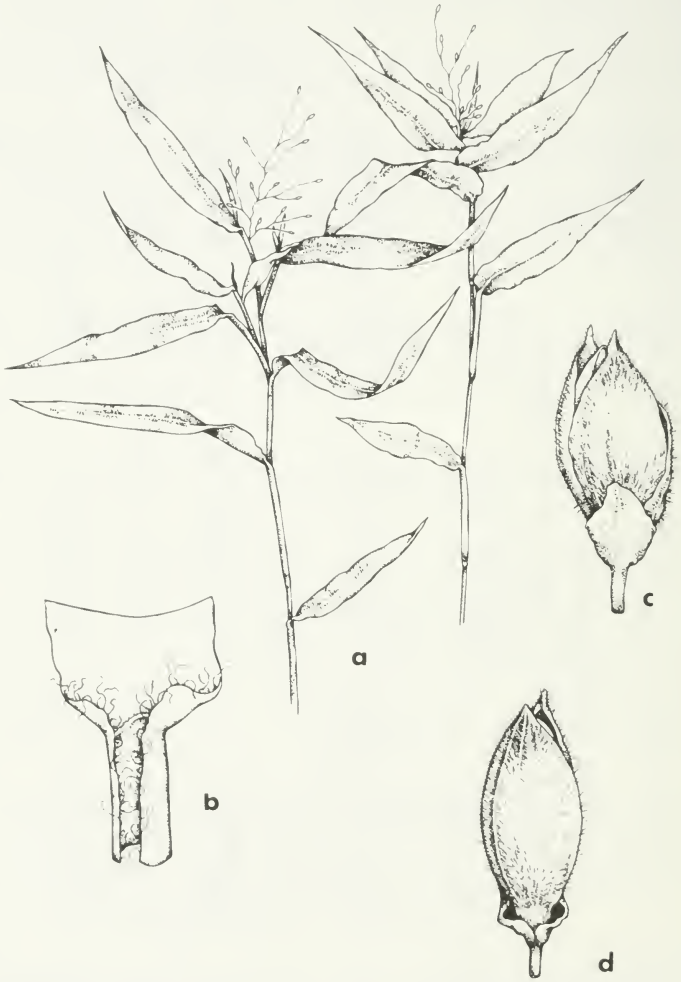

Figure 3. Panicum joori Vasey. a. Upper part of plants, X ½. b. Sheath, with ligule, X 5. c. Spikelet, front view, X 12½. d. Spikelet, back view, X 12½. (Illustrations by Miriam W. Meyer, from The Illustrated Flora of Illinois. Grasses: Panicum to Danthonia, by Robert H. Mohlenbrock, used by permission of the Southern Illinois University Press).

Key to Panicum commutatum and P. joori

1. Spikelets 2.4-2.8 mm long, obtuse to subacute; blades firm, cordate or subcordate at base. . . . . 1. P. commutatum

1. Spikelets more than 2.8 mm long, abruptly short-pointed; blades thin, narrow to slightly rounded at base. . . . . 2. P. joori

1. *Panicum commutatum* Schult. Mantissa 2:242. 1824.

Tufted perennial; culms erect, to 75 cm tall, glabrous to softly puberulent, usually purplish; sheaths glabrous to puberulent, short-ciliate; ligule up to 1 mm long; blades to 25 cm long, nearly as broad, loosely flowered, the branches spreading or ascending; spikelets 2.4-2.8 mm long, 1.2-1.3 mm broad, oblong-ellipsoid, obtuse to acute, glabrous to short-pubescent; second glume and sterile lemma subequal, nearly as long as the grain; grain 2.1-2.3 mm long, 1.1-1.2 mm broad, ellipsoid, minutely umbonate; autumnal form erect to reclining, branched, the blades somewhat reduced, the panicles greatly reduced.

Two varieties may be distinguished in the eastern United States.

1. Leaves to 25 mm broad, heart-shaped at base; spikelets 2.6-2.8 mm long. . . . . 1a. P. commutatum var. commutatum

1. Leaves to 10 mm broad, less heart-shaped at base; spikelets 2.4-2.7 mm long. . . . . 1b. P. commutatum var. ashei

1a. *Panicum commutatum* Schult. var. *commutatum*

Culms to 75 cm tall, glabrous or rarely softly puberulent, the nodes puberulent, often purplish; ligule less than 0.5 mm long; blades to 25 mm broad; panicle to 14 cm long; spikelets 2.6-2.8 mm long, 1.3 mm broad, obtuse; first glume 1/4 as long as the spikelet, triangular, obtuse to acute, more or less glabrous; grain 2.2-2.3 mm long, 1.2 mm broad; autumnal form erect or nearly so, the blades somewhat reduced, the panicles greatly reduced.

Panicum commutatum var. commutatum occurs primarily in dry woodlands. It ranges from Maine to Michigan, south to Texas and Florida.

This taxon is distinguished from var. ashei by its broader blades. It is distinguished from the broad-leaved P. boscii, P. ravenelii, and P. latifolium by its shorter spikelets, and from P. clandestinum by its lack of papillose pubescence.

1b. *Panicum commutatum* Schult. var. *ashei* Fern. Rhodora 36:83. 1934.

Culms wiry, to 50 cm tall, puberulent; ligule less than 1 mm long; blades to 10 mm broad, more or less cordate at the base; panicle to 8 cm long; spikelets 2.4-2.7 mm long, 1.2-1.3 mm broad, obtuse to subacute; first glume 1/3 as long as the spikelet, subacute, short-pubescent; grain 2.1 mm long, 1.1 mm broad; autumnal form erect to reclining, the blades scarcely reduced.

This variety grows predominantly in dry woodlands from Massachusetts to Michigan, south to Oklahoma and Florida.

Voss (1966) explains why this varietal name is not based on Panicum ashei Pearson in Ashe.

Although the width of the blades is strikingly different between var. ashei and var. commutatum, no other clear-cut differences can be found to merit specific segregation.

2. *Panicum joori* Vasey, U.S.D.A. Div. Bot. Bull. 8:31. 1889.

Panicum commutatum var. joorii (Vasey) Fern. Rhodora 39:388. 1937.

Tufted perennial; culms decumbent, to 50 cm tall, glabrous or nearly so, the lowest internodes purplish; sheaths glabrous, ciliate; ligule up to 1 mm long; blades to 1.5 cm broad, spreading to ascending, firm, glabrous except for some cilia near the base; panicle to 9 cm long, nearly as broad, loosely flowered, the branches spreading to ascending; spikelets 3.0-3.2 mm long, 1.2-1.3 mm broad, ellipsoid, abruptly short-pointed, pubescent; first glume about 1/3 as long as the spikelet, acute; second glume and sterile lemma papillose between the nerves, the sterile lemma conspicuously short-pointed; grain about 2.4 mm long, about 1.2 mm broad, ellipsoid, minutely umbonate; autumnal form not observed in Illinois but reportedly widely spreading with branching from all the nodes and with reduced upper blades and numerous, small, partly included panicles.

ILLINOIS FLORA UPDATE:

NEW DISTRIBUTION DATA FOR ILLINOIS VASCULAR PLANTS II

Robert H. Mohlenbrock[1]

Continued field and herbarium research following publication of Mohlenbrock and Ladd (1978) has resulted in many new vascular flora distributional data for Illinois. The records reported here are the result of research covering 1981 through 1983.

This paper is divided into two parts: a listing of additional distributional records for mapped taxa in Mohlenbrock and Ladd (1978) and a listing of taxa new to Illinois since the first report in this series (Mohlenbrock and Ladd, 1983). Species concepts and nomenclature follow Mohlenbrock and Ladd (1978). All records listed in this paper have been confirmed by the author.

Additional Distribution Records for Mapped Taxa

Acer ginnala: COOK. Acer rubrum var. drummondii: PERRY. Achillea millefolium var. lanulosa: UNION. Acorus calamus: ROCK ISLAND. Agrimonia pubescens: PERRY. Agrimonia rostellata: PERRY. Agropyron subsecundum: TAZEWELL, WINNEBAGO. Agrostis scabra: PERRY. Agrostis tenuis: PERRY. Ailanthus altissima: PERRY, ROCK ISLAND. Albizia julibrissin: PERRY. Alnus glutinosa: UNION. Alopecurus aequalis: POPE. Amaranthus hybridus: DEWITT, PERRY, VERMILION. Amaranthus palmeri: MADISON, ST. CLAIR. Amaranthus retroflexus: DEWITT, LOGAN. Amelanchier interior: JO-DAVIESS. Ammannia auriculata: PERRY, UNION. Ampelopsis cordata: PERRY. Amphicarpa bracteata: PERRY. Amphicarpa bracteata var. comosa: POPE. Anagallis arvensis: UNION. Andropogon elliottii: PERRY. Antennaria neglecta: CHRISTIAN, MOULTRIE. Antennaria plantaginifolia: PERRY. Anthemis arvensis: MADISON. Anthriscus sylvestris: LAKE. Aplectrum hyemale: MARION, PERRY. Apocynum androsaemifolium: SHELBY. Aralia racemosa: BUREAU. Arctium minus: MADISON. Arctostaphylos uva-ursi var. coactilis: TAZEWELL. Arenaria serpyllifolia: PERRY. Aristida longespica: PERRY.

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Aristida ramosissima: PERRY. Aristolochia serpentaria: PERRY. Aristolochia serpentaria var. hastata: MASSAC, UNION. Artemisia dracunculus: CASS, MASON, MORGAN. Artemisia ludoviciana: DEWITT. Asarum canadense var. reflexum: PERRY. Asclepias amplexicaulis: GREENE. Asclepias lanuginosa: LASALLE. Asclepias ovalifolia: KENDALL. Asclepias purpurascens: GREENE. Asclepias viridiflora: GREENE. Asplenium bradleyi: SALINE. Asplenium platyneuron: CHAMPAIGN. Aster anomalus: FAYETTE. Aster cordifolius: CHAMPAIGN. Aster ericoides: FULTON, MOULTRIE, SHELBY. Aster lateriflorus: CLINTON, PERRY. Aster ontarionis: GALLATIN, HARDIN, PERRY, SHELBY, WABASH. Aster praealtus: SHELBY. Aster puniceus var. lucidulus: FAYETTE. Aster sagittifolius var. drummondii: CHRISTIAN, FAYETTE. Aster schreberi: ROCK ISLAND. Aster shortii: COLES, SHELBY. Aster simplex: EDWARDS, JERSEY, MCLEAN, PERRY. Aster tataricus: VERMILION. Aster turbinellus: GALLATIN. Aster undulatus: GALLATIN. Aster vimineus: PERRY. Astragalus tennesseensis: ROCK ISLAND. Athyrium thelypterioides: STEPHENSON, VERMILION. Atriplex glabriuscula: Delete DUPAGE, add KANE. Avena fatua: JACKSON.

Bartonia paniculata: JOHNSON, POPE. Bidens bipinnata: CHRISTIAN, DEWITT, PERRY, SANGAMON. Bidens cernua: MOULTRIE, SHELBY. Bidens comosa: EFFINGHAM, SHELBY. Bidens frondosa: EFFINGHAM, FAYETTE, MOULTRIE, PERRY. Bidens vulgata: CHRISTIAN, EFFINGHAM, MOULTRIE, SANGAMON, SHELBY. Bothriochloa saccharoides: JACKSON. Botrychium biternatum: POPE. Botrychium dissectum var. dissectum: CARROLL, JODAVIESS, MCDONOUGH, PERRY, STEPHENSON. Botrychium dissectum var. obliquum: CARROLL, JODAVIESS. Botrychium multifidum var. silaifolium: CARROLL, JODAVIESS, STEPHENSON. Bouteloua curtipendula: PERRY. Brachyelytrum erectum: BUREAU. Brassica juncea: MADISON. Brassica kaber var. schkuhriana: HENDERSON. Brassica nigra: MADISON. Brassica rapa: FAYETTE. Brickellia eupatorioides: FAYETTE, MOULTRIE. Bromus japonicus: PERRY, POPE. Bromus pubescens: GREENE. Buchloe dactyloides: DUPAGE. Buchnera americana: JACKSON. Bulbostylis capillaris: FAYETTE. Bumelia lanuginosa: Delete HARDIN, PULASKI.

Cacalia atriplicifolia: SALINE, WILLIAMSON. Calamagrostis canadensis: SHELBY. Callitriche heterophylla: PERRY. Callirhoë triangulata: MADISON. Calystegia pubescens: COOK. Calystegia sepium var. americana: PERRY, WHITE. Calystegia sepium var. fraterniflorus: ST. CLAIR, WABASH. Calystegia spithamaea: EFFINGHAM, FAYETTE, SHELBY. Camassia angusta: PEORIA. Campanula aparinoides: VERMILION. Campanula rotundifolia: DUPAGE, MASON. Cardamine hir-

suta: PERRY. Carduus nutans: ST. CLAIR. Carex annectens: WILLIAMSON. Carex artitecta: PERRY. Carex atherodes: OGLE. Carex aurea: WASHINGTON. Carex bebbii: PERRY. Carex blanda: PERRY. Carex communis: COLES, EFFINGHAM, FAYETTE, GALLATIN. Carex crawei: CHAMPAIGN, MCHENRY. Carex crus-corvi: PERRY. Carex davisii: PERRY. Carex festucacea: PERRY. Carex frankii: PERRY. Carex glaucodea: PERRY. Carex gravida: POPE. Carex hirtifolia: PERRY. Carex intumescens: Delete LIVINGSTON, add ALEXANDER, MASSAC. Carex jamesii: PERRY. Carex lacustris: PERRY. Carex laxiculmis: VERMILION. Carex lupulina: PERRY. Carex muskingumensis: PERRY, UNION. Carex normalis: PERRY. Carex pallescens: HANCOCK. Carex physorhyncha: JACKSON. Carex protracta: DUPAGE. Carex rosea: PERRY. Carex stenophylla var. enervis: KANE. Carex stipata: PERRY. Carex striatula: JACKSON. Carex swanii: DUPAGE, PERRY. Carex tonsa: CARROLL. Carex tribuloides: MASON. Carex trichocarpa: DUPAGE. Carex woodii: WINNEBAGO. Carya illinoensis: PERRY. Carya pallida: JACKSON. Cassia nictitans: PERRY. Cassia tora: CLINTON. Castanea dentata: HANCOCK, JODAVIESS, MASSAC, PULASKI, ST. CLAIR, WABASH. Catalpa bignonioides: POPE. Celastrus scandens: PERRY. Celtis occidentalis var. canina: UNION. Celtis tenuifolia: PERRY. Centaurea maculosa: MADISON. Centaurium pulchellum: KANE. Centunculus minimus: PERRY, WILLIAMSON. Cerastium nutans: PERRY. Cerastium pumilum: CASS. Cerastium tetrandrum: PERRY. Cerastium viscosum: PERRY. Chelone obliqua var. speciosa: PERRY. Chenopodium berlandieri var. zschackei: PERRY. Chenopodium standleyanum: PERRY. Chimaphila maculata: POPE. Chorispora tenella: HENDERSON. Chrysanthemum leucanthemum: ROCK ISLAND. Cimicifuga rubifolia: GALLATIN, JOHNSON. Circaea alpina: COOK. Cirsium arvense: VERMILION. Cirsium carolinianum: HARDIN, SALINE. Cirsium muticum: FAYETTE. Clematis viorna: WAYNE. Comandra richardsiana: POPE. Comptonia peregrina: LAKE. Conium maculatum: FAYETTE. Conobea multifida: PERRY. Convolvulus arvensis: FAYETTE. Corallorhiza wisteriana: MARION, PERRY. Coreopsis grandiflora: MCDONOUGH. Cornus canadensis: MCHENRY. Cornus obliqua: PERRY. Cornus racemosa: POPE. Corydalis flavula: PERRY. Corydalis halei: POPE. Corydalis sempervirens: STEPHENSON, WINNEBAGO. Croton glandulosus var. septentrionalis: PERRY. Croton monanthogynus: PERRY. Crotonopsis elliptica: MASON, PERRY. Crypsis schoenoides: DUPAGE. Cuscuta campestris: TAZEWELL. Cuscuta cephalanthi: GREENE, KANKAKEE, MADISON, RICHLAND, STARK, TAZEWELL. Cuscuta coryli: DUPAGE, KANKAKEE, LAWRENCE, TAZEWELL. Cuscuta cuspidata: PEORIA, PERRY. Cuscuta gronovii: PERRY. Cuscuta indecora: PEORIA. Cuscuta polygonorum: CALHOUN. Cyperus densicaespitosus: PERRY, UNION. Cyperus filiculmis var. fili-

culmis: POPE. Cyperus filiculmis var. macilentus: PERRY. Cyperus houghtonii: MASON. Cyperus lancastriensis: PERRY. Cypripedium acaule: OGLE. Cystopteris fragilis var. fragilis: LEE. Cystopteris fragilis var. mackayi: CARROLL, JODAVIESS. Cystopteris Xtennesseensis: ADAMS, BROWN, CALHOUN, CARROLL, CLARK, COOK, DUPAGE, HANCOCK, HARDIN, JERSEY, JODAVIESS, JOHNSON, KNOX, LASALLE, LAWRENCE, MCDONOUGH, MENARD, MONROE, PEORIA, PIKE, POPE, RANDOLPH, ROCK ISLAND, ST. CLAIR, STEPHENSON, WABASH, WILLIAMSON.

Desmodium canescens: PERRY. Desmodium cuspidatum var. longifolium: DEKALB. Desmodium dillenii: PERRY. Desmodium glutinosum: PERRY. Desmodium nudiflorum: PERRY. Desmodium pauciflorum: PERRY. Dianthus armeria: PERRY. Diarrhena americana var. obovata: DUPAGE. Dioscorea quaternata: PERRY, SALINE. Dipsacus laciniatus: ROCK ISLAND. Dodecatheon amethystinum: WHITESIDE. Draba brachycarpa: PERRY. Dryopteris carthusiana: VERMILION. Dryopteris cristata: CARROLL. Dryopteris goldiana: CARROLL, DUPAGE, JODAVIESS, KANE, UNION. Dryopteris intermedia: MCLEAN. Echinochloa colonum: MASSAC. Echinochloa pungens var. microstachya: JACKSON, POPE. Echinochloa walteri: MARION, PERRY. Echinodorus berteroi var. lanceolatus: PERRY. Eclipta alba: SHELBY. Elaeagnus angustifolia: JACKSON, UNION. Elaeagnus umbellata: MCDONOUGH, POPE, VERMILION. Eleocharis acicularis: PERRY. Eleocharis equisetoides: LAKE. Eleocharis erythropoda: JACKSON. Eleocharis rostellata: GRUNDY, WILL. Elephantopus carolinianus: FAYETTE. Epifagus virginiana: SALINE. Epilobium coloratum: PERRY. Equisetum fluviatile: STEPHENSON. Equisetum laevigatum: JODAVIESS. Equisetum palustre: TAZEWELL. Equisetum pratense: OGLE. Equisetum variegatum: Delete CARROLL. Equisetum Xferrissii: JODAVIESS. Equisetum Xlitorale: CARROLL. Eragrostis capillaris: PERRY. Eragrostis frankii: PERRY. Eragrostis pilosa: PERRY. Erechtites hieracifolia: MOULTRIE, SHELBY. Erianthus alopecuroides: PERRY. Erigenia bulbosa: DEWITT. Erigeron divaricatus: VERMILION. Erigeron philadelphicus: GREENE. Erigeron strigosus: VERMILION. Eriochloa villosa: WILL. Eriophorum virginicum: MCHENRY. Eryngium prostratum: ALEXANDER. Euonymus alatus: COOK. Euonymus americanus: MASSAC. Euonymus atropurpureus: PERRY. Eupatorium altissimum: PERRY. Eupatorium fistulosum: SALINE. Eupatorium maculatum: POPE, VERMILION. Eupatorium perfoliatum: SHELBY. Eupatorium purpureum: PERRY. Eupatorium rugosum: PERRY. Euphorbia marginata: PERRY.

Fagopyrum esculentum: ALEXANDER, BOONE, LEE, PERRY, STARK. Filipendula rubra: CASS, MARSHALL. Fimbristylis annua: ALEXANDER. Fimbristylis autumnalis: PERRY. Fragaria virginiana: PERRY.

Gaillardia pulchella: CASS. Gerardia tenuifolia: PERRY. Geum allepicum var. strictum: DEKALB. Geum vernum: PERRY. Gilia rubra: PUTNAM, WASHINGTON. Goodyera pubescens: PEORIA, SCHUYLER. Gymnocarpium dryopteris: CARROLL, JODAVIESS, STEPHENSON. Gymnocladus dioica: ROCK ISLAND.

Habenaria leucophaea: GRUNDY. Hackelia americana: CARROLL, LAKE, WINNEBAGO. Hackelia virginiana: PERRY. Hamamelis virginiana: GRUNDY. Haplopappus ciliatus: HENDERSON. Hedeoma pulegioides: PERRY. Helenium autumnale: PERRY. Helianthus grosseserratus: PERRY. Helianthus hirsutus: PERRY. Helianthus mollis: GREENE. Helianthus rigidus: FAYETTE. Helianthus tuberosus: POPE, VERMILION. Hepatica nobilis var. acuta: SALINE. Heterotheca latifolia: HENDERSON., MADISON, ST. CLAIR. Heterotheca villosa: FAYETTE. Hibiscus militaris: WILLIAMSON. Hibiscus trionum: PERRY. Hieracium gronovii: PERRY. Hosta lancifolia: COOK. Houstonia longifolia var. tenuifolia: PERRY. Houstonia purpurea: POPE. Hudsonia tomentosa: WHITESIDE. Humulus lupulus: PERRY. Hydrastis canadensis: HENRY, JEFFERSON, KNOX, MONROE, PERRY, WASHINGTON. Hydrophyllum canadense: UNION. Hymenoxys acaulis: TAZEWELL; delete MASON. Hypericum adpressum: IROQUOIS, RANDOLPH, WILL; delete ST. CLAIR. Hypericum boreale: COOK. Hypericum canadense: GALLATIN. Hypericum densiflorum: MASSAC. Hypericum drummondii: JOHNSON. Hypericum gentianoides: PERRY. Hypericum gymnanthum: BOND, GALLATIN, IROQUOIS. Hypericum majus: WHITESIDE. Hypericum muticum: IROQUOIS, WABASH.

Ilex decidua: PERRY. Iodanthus pinnatifidus: DUPAGE. Ipomoea coccinea: HAMILTON. Ipomoea lacunosa: FAYETTE, PERRY. Ipomoea pandurata: PULASKI. Ipomoea purpurea: JEFFERSON. Iresine rhizomatosa: MASSAC.

Juncus brachycarpus: MASON. Juncus brachycephalus: GRUNDY, POPE. Juncus torreyi: POPE.

Lactuca hirsuta: delete CLAY. Lactuca saligna: PERRY. Laportea canadensis: PERRY. Lappula redowskii var. occidentalis: HENDERSON. Lathyrus latifolius: POPE. Lathyrus maritimus: HENRY. Lathyrus ochroleucus: GALLATIN, ST. CLAIR; delete MCHENRY. Lathyrus palustris: POPE; delete Jackson. Lechea intermedia: LAKE. Leersia

lenticularis: PERRY. Leersia virginica: SALINE. Leonurus marrubiastrum: MERCER. Lepidium ruderale: MASON. Lespedeza cuneata: GRUNDY. Lespedeza leptostachya: LEE, OGLE; delete ADAMS, ST. CLAIR. Lespedeza steuvei: SALINE. Lespedeza striata: SALINE. Lespedeza violacea: PERRY. Liatris spicata: ALEXANDER. Ligustrum obtusifolium: POPE. Linaria canadensis var. texana: MADISON, UNION. Linaria dalmatica: HENDERSON. Lindera benzoin: PERRY. Liparis liliifolia: ROCK ISLAND. Lobelia cardinalis: SHELBY, TAZEWELL. Lobelia inflata: CHRISTIAN, SALINE. Lobelia kalmii: GRUNDY. Lobelia spicata var. spicata: LASALLE. Lobelia spicata var. leptostachys: PIATT, STARK. Lobularia maritima: MCDONOUGH. Lolium multiflorum PERRY. Lonicera maackii: UNION. Lonicera sempervirens: UNION. Lonicera Xmunduensis: LAKE. Lonicera Xruprechtiana: LAKE. Lonicera Xxylosteum: GRUNDY. Lotus corniculatus: DUPAGE. Lycopodium esculentum: PERRY. Lychnis coronaria: UNION. Lycopodium clavatum: ROCK ISLAND. Lycopodium dendroideum: COOK, IROQUOIS, SCHUYLER, WINNEBAGO. Lycopodium flabelliforme: CARROLL, JODAVIESS, MCDONOUGH. Lycopodium lucidulum: BROWN, JODAVIESS, SCHUYLER. Lycopus rubellus: PERRY. Lycopus virginicus: PERRY, SALINE. Lysimachia lanceolata: PERRY. Lysimachia nummularia: PERRY. Lythrum salicaria: ROCK ISLAND, WILL.

Matelea decipiens: JACKSON. Matricaria matricarioides: PERRY. Mazus japonicus: JACKSON. Melothria pendula: UNION. Menispermum canadense: PERRY. Microseris cuspidata: JODAVIESS, OGLE, PUTNAM. Miscanthus sacchariflorus: MERCER. Mitella diphylla: JOHNSON. Monarda didyma: WABASH. Muhlenbergia frondosa: PERRY. Muhlenbergia racemosa: UNION. Muhlenbergia schreberi: PERRY. Muhlenbergia sobolifera: PERRY. Myriophyllum exalbescens: WILLIAMSON.

Najas minor: PERRY. Napaea dioica: ROCK ISLAND. Nicandra physalodes: JACKSON.

Oenothera linifolia: PERRY. Onoclea sensibilis: JODAVIESS. Onosmodium molle: JACKSON; delete HARDIN, POPE. Ophioglossum vulgatum var. pseudopodum: WINNEBAGO. Opuntia macrorhiza: MADISON. Orobanche fasciculata: JODAVIESS. Orobanche ludoviciana: BUREAU, HENRY, MASON, TAZEWELL. Oryzopsis racemosa: CARROLL, COOK, JODAVIESS, OGLE, STEPHENSON. Osmorhiza longistylis: LAWRENCE, PERRY. Osmunda cinnamomea: CARROLL, SALINE. Osmunda claytoniana: KANE. Osmunda regalis var. spectabilis: JODAVIESS. Oxalis grandis: delete WABASH.

Panax quinquefolia: CARROLL, CLARK, DEWITT, GRUNDY, JODAVIESS, MADISON, MARION, MCLEAN, SALINE, STEPHENSON, TAZEWELL, WILLIAMSON, WOODFORD. Panicum boscii: HENRY, PERRY. Panicum dichotomum var. barbulatum: POPE. Panicum flexile: PERRY. Panicum lanuginosum var. septentrionale: POPE. Panicum laxiflorum: IROQUOIS, LEE, PERRY. Panicum linearifolium: MASON. Panicum malacophyllum: PERRY. Panicum meridionale: ADAMS, ALEXANDER, LASALLE, LEE, MARSHALL, MONROE, POPE, PUTNAM, RANDOLPH. Panicum miliaceum: PERRY. Panicum philadelphicum: PERRY. Panicum polyanthes: PERRY. Panicum subvillosum: MASON. Panicum yadkinense: GALLATIN, UNION. Papaver dubium: CASS. Parnassia glauca: GRUNDY. Paspalum bushii: SCHUYLER. Paspalum pubiflorum var. glabrum: PERRY. Passiflora lutea var. glabriflora: PERRY. Penstemon alluviorum: POPE. Penstemon arkansanus: PERRY. Penstemon digitalis: ROCK ISLAND. Perideridia americana: FAYETTE. Petunia Xhybrida: MCDONOUGH. Phalaris arundinacea: LIVINGSTON, PERRY, ROCK ISLAND. Phaseolus polystachios: POPE. Phlox bifida ssp. stellaria: ALEXANDER, JOHNSON, UNION. Phlox glaberrima var. interior: CHAMPAIGN, STARK, WHITE. Phlox divaricata var. divaricata: BUREAU, FRANKLIN, MERCER, WARREN. Phlox maculata: STARK. Phlox paniculata: CARROLL, JODAVIESS, MARION, MCLEAN. Phryma leptostachya: PERRY. Phyllanthus caroliniensis: PERRY. Physalis heterophylla: PERRY. Physalis ixocarpa: ADAMS, FULTON, MCDONOUGH. Physalis lanceolata: COOK, MADISON, PEORIA, ST. CLAIR. Physalis pendula: PERRY. Physalis pruinosa: PERRY. Physalis subglabrata: MARION, PERRY. Pilea fontana: change all records to P. opaca. Physostegia intermedia: HENDERSON. Pinus banksiana: KENDALL. Pinus echinata: POPE. Pinus resinosa: LAKE. Pinus sylvestris: KANE. Plantago cordata: CHRISTIAN, PIATT, TAZEWELL. Poa alsodes: POPE. Poa angustifolia: POPE. Poa autumnalis: JACKSON. Poa bulbosa: HARDIN. Poa palustris: HARDIN, JERSEY, VERMILION. Poa sylvestris: PERRY. Poa trivialis: JODAVIESS. Polemonium reptans: PUTNAM, WASHINGTON. Polygala verticillata: PERRY. Polygonatum pubescens: LEE, MCHENRY. Polygonella articulata: ST. CLAIR. Polygonum achoreum: DUPAGE, GRUNDY, HARDIN, KANKAKEE, KENDALL, SCHUYLER, WILL. Polygonum amphibium: FORD. Polygonum arifolium var. pubescens: JASPER. Polygonum aviculare var. aviculare: CLARK, FORD, FRANKLIN, FULTON, GALLATIN, GRUNDY, HARDIN, HENRY, JEFFERSON, LASALLE, MARSHALL, SCOTT. Polygonum aviculare var. littorale: ADAMS, CASS, CHRISTIAN, COOK, DEWITT, HARDIN, HENRY, IROQUOIS, JODAVIESS, LAWRENCE, LOGAN, MACON, MASON, MOULTRIE, PIATT, SANGAMON, SHELBY, STARK, ST. CLAIR, WINNEBAGO. Polygonum bicorne: GALLATIN, RANDOLPH. Polygonum careyi: COOK, GRUNDY. Polygonum cespitosum var. longisetum: CALHOUN, JODAVIESS PERRY, POPE. Polygonum coccineum: PERRY. Poly-

gonum convolvulus: DEWITT, EFFINGHAM, POPE, SCHUYLER. Polygonum cristatum: BROWN, CASS, SCHUYLER. Polygonum cuspidatum: BROWN, LOGAN, MORGAN, SANGAMON, SCHUYLER, WAYNE. Polygonum erectum: FULTON, HARDIN, LEE, MACON, MASON, ST. CLAIR, WARREN. Polygonum exsertum: TAZEWELL. Polygonum hydropiper: CALHOUN, MOULTRIE. Polygonum hydropiperoides: EFFINGHAM, MENARD, MOULTRIE, ROCK ISLAND, SANGAMON. Polygonum lapathifolium: EDWARDS, SHELBY, WARREN. Polygonum opelousanum: HAMILTON, LAWRENCE. Polygonum orientale: CHRISTIAN. Polygonum persicaria: JASPER, MENARD, PERRY, STEPHENSON, WHITE. Polygonum punctatum: CRAWFORD. Polygonum ramosissimum: DEKALB, KENDALL, LASALLE, PERRY, TAZEWELL, WOODFORD. Polygonum sachalinense: LOGAN. Polygonum sagittatum: CARROLL, IROQUOIS, MCHENRY, PERRY, WASHINGTON, WHITESIDE. Polygonum scandens: BROWN, WAYNE. Polygonum setaceum var. interjectum: ADAMS, PERRY, WABASH. Polygonum tenue: FAYETTE, LASALLE, MONTGOMERY. Polygonum virginianum: PERRY. Polypodium vulgare var. virginianum: JODAVIESS. Polystichum acrostichoides: CARROLL, JODAVIESS. Populus alba: VERMILION. Populus balsamifera: HANCOCK. Populus grandidentata: MONTGOMERY. Potamogeton gramineus: LAKE. Potamogeton illinoensis: PERRY. Potentilla millegrana: UNION. Potentilla paradoxa: MASON. Potentilla recta: ROCK ISLAND. Prenanthes altissima: SALINE. Prenanthes crepidinea: JACKSON. Prenanthes racemosa: POPE. Prunus angustifolia: PERRY, VERMILION. Prunus hortulana: PERRY. Prunus munsoniana: PERRY, UNION. Psoralea onobrychis: MADISON. Ptelea trifoliata: PERRY. Pteridium aquilinum var. pseudocaudatum: FAYETTE, JASPER. Ptilimnium costatum: PULASKI, UNION. Puereria lobata: WILLIAMSON. Pycnanthemum incanum: SALINE. Pycnanthemum torreyi: JACKSON, POPE.

Quercus muhlenbergii: ROCK ISLAND.

Ranunculus ambigens: HANCOCK, JACKSON. Ranunculus rhomboideus: MACOUPIN. Rhamnus alnifolia: delete ADAMS, BOONE, LAKE. Rhamnus davurica var. nipponica: KANE. Rhamnus lanceolata: BOONE. Rheum rhaponticum: CHAMPAIGN. Rhexia virginica: PERRY. Rhus aromatica: ROCK ISLAND. Rhynchospora alba: PEORIA. Rhynchospora capillacea: GRUNDY. Rhynchospora glomerata: COOK. Ribes hirtellum: LAKE. Ricinus communis: UNION. Rorippa islandica var. hispida: DUPAGE, IROQUOIS, PIATT. Rorippa sylvestris: UNION. Rosa multiflora: POPE, ROCK ISLAND. Rosa setigera var. tomentosa: JACKSON. Rubus allegheniensis: PERRY. Rubus enslenii: ADAMS, PERRY, POPE, UNION. Rubus laciniatus: DUPAGE. Rubus occidentalis: PERRY. Rubus occidualis: PERRY. Rubus procerus: JACKSON. Rubus pubescens: DUPAGE, VERMILION. Rudbeckia fulgida var. missouriensis: delete POPE.

Rudbeckia laciniata: PERRY. Rudbeckia triloba: PERRY. Ruellia caroliniensis var. dentata: UNION. Rumex maritimus var. fueginus: WILL. Rumex mexicanus: POPE. Rumex obtusifolius: DEKALB, PERRY.

Sabatia campestris: EFFINGHAM, MARION, MONTGOMERY, ST. CLAIR. Sagittaria calycina: CARROLL, MADISON. Sagittaria longirostra: PULASKI, UNION. Salix alba: POPE. Salix caroliniana: POPE. Salix discolor: JACKSON. Salix fragilis: POPE. Salix gracilis var. textoris: KANE. Salix rigida: PERRY. Salvia azurea: CALHOUN. Sambucus pubens: DEKALB. Samolus parviflorus: PERRY. Sanicula gregaria: PERRY. Saponaria officinalis: ROCK ISLAND. Scirpus cyperinus: CARROLL, GRUNDY, PERRY. Scirpus paludosus: LASALLE. Scirpus pedicellatus: POPE. Scirpus purshianus: delete CASS. Scirpus torreyi: LEE, WINNEBAGO. Scirpus validus: JACKSON, PERRY. Scleria pauciflora var. caroliniana: POPE. Scrophularia marilandica: PERRY. Scutellaria lateriflora: PERRY. Scutellaria nervosa: PERRY. Scutellaria ovata: PERRY. Scutellaria parvula var. leonardii: PERRY. Selaginella apoda: MARION, PERRY. Senecio pauperculus: POPE. Senecio plattensis: POPE. Setaria italica: PERRY. Seymeria macrophylla: ROCK ISLAND. Silene regia: MADISON. Silphium perfoliatum: PERRY. Sisyrinchium atlanticum: IROQUOIS, LIVINGSTON, POPE, UNION. Sisyrinchium angustifolium: PERRY. Sisyrinchium montanum: KANKAKEE. Sium suave: FAYETTE. Smilax herbacea: MASON. Smilax pulverulenta: PERRY. Solanum dulcamara: PERRY. Solanum elaeagnifolium: ST. CLAIR. Solanum nigrum: FRANKLIN. Solanum rostratum: MONTGOMERY, PERRY, RICHLAND. Solanum triflorum: MENARD. Solidago arguta: UNION. Solidago bicolor var. concolor: UNION. Solidago ohiensis: GRUNDY. Solidago rugosa: PERRY. Solidago uliginosa: GRUNDY. Sonchus asper: PERRY. Sparganium americanum: KNOX, STEPHENSON. Sparganium chlorocarpum: LEE. Specularia leptocarpa: HENDERSON. Specularia perfoliata: PIKE. Sphaeralcea angusta: ST. CLAIR. Sphenopholis obtusata var. major: PERRY, WAYNE. Spigelia marilandica: PERRY. Spiranthes cernua: PERRY, SALINE. Spiranthes gracilis: PERRY. Spiranthes lucida: LAKE. Spiranthes ovalis: PERRY, POPE. Stachys palustris var. homotricha: PERRY, POPE. Stachys tenuifolia var. hispida: HENRY, JACKSON. Strophostyles umbellata: PERRY. Styrax americana: JACKSON. Syringa vulgaris: POPE.

Taraxacum laevigatum: JACKSON, PERRY. Teucrium canadense var. occidentale: ROCK ISLAND. Thaspium barbinode: FAYETTE, SHELBY. Tilia heterophylla: PULASKI. Tofieldia glutinosa: WILL. Torilis japonica: MADISON, PERRY. Tradescantia bracteata: MADISON. Tragopogon dubius: UNION. Tragopogon pratensis: POPE. Triade-

num tubulosum: WILLIAMSON. Triadenum virginianum: delete LAKE. Trichostema dichotoma: JACKSON. Tridens flavus: HENRY. Trifolium campestre: PERRY. Trifolium reflexum: GALLATIN, SHELBY, VERMILION. Triglochin maritima: TAZEWELL. Trillium flexipes: MADISON.

Ulmus alata: PERRY. Urtica chamaedryoides: JACKSON, UNION. Utricularia intermedia: COOK, KANE. Utricularia minor: CLAY, SALINE. Utricularia vulgaris: JACKSON.

Vaccinium corymbosum: LEE. Veratrum woodii: FAYETTE. Verbascum blattaria: POPE. Verbena bracteata: PERRY. Verbena Xmoechina: HARDIN. Verbena Xrydbergii: UNION. Verbesina alternifolia: PERRY. Vernonia baldwinii: PERRY. Veronica americana: LASALLE. Veronica polita: WILLIAMSON. Veronica scutellata: IROQUOIS, WOODFORD. Veronica serpyllifolia: UNION. Viburnum dentatum var. deamii: POPE. Viburnum molle: BROWN, PIKE. Viburnum opulus: MCDONOUGH. Vicia angustifolia: DUPAGE. Vicia dasycarpa: PERRY. Vicia sativa: UNION. Vicia villosa: PERRY, ROCK ISLAND. Viola conspersa: DEKALB. Viola incognita: KANE. Viola missouriensis: PERRY. Viola pallens: KANE. Viola pratincola: UNION. Viola primulifolia: GRUNDY. Viola triloba: PERRY. Vitis riparia: PERRY. Vitis vulpina: PERRY. Vulpia myuros: JACKSON, PERRY. Vulpia octoflora var. tenella: MADISON.

Woodsia ilvensis: LASALLE, LEE. Woodwardia areolata: JACKSON.

Xanthium spinosum: PULASKI.

Zigadenus glaucus: KANKAKEE. Zizia aurea: GREENE, ROCK ISLAND.

Taxa New to Illinois

Acer rubrum L. var. trilobum K. Koch: POPE (SIU).

Anthriscus cereifolium (L.) Hoffm.: DUPAGE (MORT).

Aster Xurophyllus Lindl.: JACKSON, UNION (SIU).

Calystegia sepium (L.) R. Br. ssp. angulata Brummitt: COOK, WOODFORD (MO).

Calystegia sepium (L.) R. Br. ssp. erratica Brummitt: RICHLAND (MO).

Canavalia ensiformis (L.) DC.: WHITE (SIU).

Carex pensylvanica Lam. var. distans Peck: POPE (SIU).

Chamaesyce prostrata (Ait.) Small: DUPAGE (MORT).

Chenopodium pumilio R. Br.: MCDONOUGH (WIU).

Clematis verticillaris DC.: JODAVIESS (ISM).

Convolvulus incanus Vahl: ST. CLAIR (MO).

Corispermum nitidum Kit.: WHITESIDE (ILLS).

Corylus cornuta Marsh.: JODAVIESS (ISM).

Delphinium carolinianum Walt. ssp. penardii (Huth.) Warnock: HENDERSON (WIU).

Elaeagnus multiflora L.: DUPAGE, KANKAKEE (MORT).

Euonymus kiautschovicus Loes.: JACKSON (SIU).

Euphorbia hexagona Nutt.: MERCER (WIU).

Euphorbia lathyris L.: JACKSON (SIU).

Gilia capitata Sims: PUTNAM (ILL).

Iris flavescens DC.: HENRY, LAKE (ILLS).

Lathyrus hirsutus L. ALEXANDER (SEMO), PERRY (SIU).

Leptochloa uninervia (Presl) A.S. Hitchc. & Chase: MCDONOUGH (ISM).

Lespedeza daurica Schindl.: PERRY (SIU).

Liriope spicata Lour.: JACKSON (SIU).

Nicotiana longiflora Cav.: ST. CLAIR (MO).

Oxalis illinoensis Schwegman: POPE (ISM, SIU).

Phacelia gilioides A. Brand: JERSEY, ST. CLAIR (ILLS).

Phlox subulata L.: MASON (SIU).

Physalis texana Rydb.: ST. CLAIR (MO).

Picea abies (L.) Karst.: JODAVIESS (ISM).

Rosa acicularis Lindl.: JODAVIESS (ISM).

Rosa rubrifolia Vill.: JACKSON (SIU).

Rumex cristatus DC.: MACON, MADISON, STARK (ILL).

Rumex longifolius DC.: PEORIA, RICHLAND (ILL).

Scirpus mucronatus L.: MASON (ISM).

Solidago rugosa Ait. var. celtidifolia (Small) Fern.: POPE (SIU).

Sporobolus ozarkensis Fern.: COLES (EIU, SIU).

Toxicodendron toxicarium (Salisb.) Gillis: POPE (SIUM).

Valerianella chenopodifolia (Pursh) DC.: IROQUOIS (ISM).

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_____ & _____. 1983. New distribution data for Illinois vascular plants. Erigenia 3:2-21.

S. I. GARDENING:

HERB GARDENER'S NOTEBOOK

Robert H. Mohlenbrock[1]

Herb gardens have been popular for several centuries as sources of pleasure and usefulness. The plants which are grown in the herb garden are usually aromatic and frequently impart a distinctive flavor. As a result, herbs have found their way into cooking and into the preparation of scented baskets and potpourri.

There are several general comments that should be made regarding the harvesting and use of herbs:

1. The leaves of herbs are best gathered just before the plants begin to flower.

2. The leaves of herbs should be gathered in the morning before the sun has become hot but after the dew has evaporated.

3. Leaves of perennial herbs should not be collected after early September.

4. Immediately after harvesting the leaves, wash them gently with cool water. Dry the leaves with soft paper towels, being careful not to bruise them.

5. Lay small leaves out to dry on window screens that have been covered by cheesecloth, but do not let them dry in the sun.

6. You may gather bunches of stems and leaves together and hang them upside-down in a warm place until dry.

7. After drying, strip the leaves from the stems. Do not let the dried plants hang excessively since the aromatic oils will leach out.

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[1]Robert H. Mohlenbrock is Professor of Botany at Southern Illinois University, Carbondale.

8. Dried leaves may be stored whole or crumpled in air tight glass containers.

9. Most herbs can be cut back by about 2/3 their height two or three times during the growing season.

A brief discussion of herbs which can be grown successfully in southern Illinois follows:

Sweet Basil

Tender annual.
Clovelike spicy tang.
Leaves and stems are used fresh or dried.
Useful in flavoring soups, chowders, stews, spaghetti. Particularly excellent in tomato dishes. Good in seafoods and poultry and with beef, veal, lamb, pork. Also used in eggplant dishes, fruit compotes, seafood salads, salad dressings, egg dishes, herb butter, and herb vinegar.
One-half teaspoon dried is equivalent to one tablespoon fresh.
Start seeds indoors in warm place or outdoors well after the last frost. Thin plants to ten inches apart. For basil in winter, sow seeds indoors in a pot in August and keep plants in good light.
There are several variations of basil in the herb garden. Each has similar porperties to the sweet basil. Other kinds are:
Dark Opal Basil. Plant has attractive deep purple leaves and stems.
Holy Basil. Plant is sacred in the Hindu religion.
Lettuce-leaved Basil. Prettier leaves than sweet basil.
Small Basil. Form of basil with smaller leaves.
Cinnamon Basil. Interesting form with slight cinnamon flavor.

Chives

Hardy perennial.
Can be used fresh or frozen.
Mild onion flavor.
Leaves and flowers make an excellent garnish for many dishes.
Used to flavor vegetables and meat casseroles, seafood, peas, beans, potatoes, succotash, eggplant, and squash.
A delight in green salads, seafood salads, soups, and with cottage cheese.
Goes well in omelets and on baked potatoes with sour cream. Used in herb butter.

Potted chives usually may be purchased. Transplant into full sun in garden soil. Chives grow slowly from seeds. Leave clusters of young plants together. Clumps should be spaced about twelve inches apart.
A somewhat stronger onion flavor is derived from Garlic Chives.

Lovage

Hardy perennial.
Strong celery flavor.
Fresh or dried leaves can be used.
Good in vegetable dishes, meat salads, and salad dressings. Used to flavor meat or fish sauces, broths, soups, stews, and casseroles. Excellent for stuffing poultry and other meat. May be used minced on roasts, steaks, and chops. An ingredient of herb butter. Stems can be candied for cake and cookie decorations.
One-fourth teaspoon dried is equal to one teaspoon fresh.
Sow seeds outdoors in early autumn or obtain small living plants. Plant in deep loamy soil. Keep cool and damp. Plant may get to be six feet tall.

Parsley

Hardy perennial.
Leaves and stems can be used fresh, dried, or frozen.
Chopped leaves and sprigs used as garnishes; excellent with meats, seafood, cheese, egg dishes, and as stuffings for poultry, fish, and meat. Good in seafood salads and salad dressings. Used in parsley lemon butter.
One teaspoon dried is equivalent to one tablespoon fresh.
Grows readily from seeds if planted in warm soil. Young plant can usually be purchased. Grow in full sun or partial shade in good garden soil with a little lime.

Sage

Hardy perennial.
Leaves may be used fresh or dried.
Good for flavoring meat and fish, stews, sauces, stuffings, chowders, soups, and bouillion. Excellent with pork sausage, roast pork, pork chops, roast beef, veal, lamb, poultry, and seafood. May be used with beans, tomatoes, eggplant, squash, and cheese dishes. May be made into sage tea.

One-fourth teaspoon dried is equal to one teaspoon fresh.
Plant seeds in spring and thin seedlings to about fourteen inches. Soil should be light and sandy. Sage prefers full sun. Add a little bone meal to soil one a month.

Thyme

Hardy perennial.
Leaves and stems can be used fresh of dried.
Used for fish and shellfish, seafood salads, chowders, and soups. Good for stuffing poultry. Excellent with beef, veal, pork roasts, pork chops, and steaks. Particularly good with carrots, beans, peas, potatoes, squash, and in vegetable salads. May be used on cottage cheese and in egg dishes. Can be made into thyme tea and into herb butter.
One-fourth teaspoon dried is equal to one teaspoon fresh.
Plant seeds in spring in good garden soil and thin seedlings to twelve inches apart. Grow in full sun and add a little lime.
English Thyme is a similar, excellent plant in the herb garden. Lemon Thyme has a distinctive lemony aroma and flavor.

Salad Burnet

Hardy perennial.
Has flavor of cucumber.
Use only fresh leaves as a garnish for all salads, fresh tomatoes, cold asparagus. Flavors soups, particularly mushroom, chicken, and asparagus. Excellent ingredient in mayonnaise and herb vinegar. Can be mixed with cream cheese and also used as a garnish for iced drinks.
Plant seeds in garden soil in spring in full sun. Thin seedlings to ten inches.

Oregano

Hardy perennial, but should be mulched during winter in southern Illinois.
Sweet but pungent flavor.
Harvest leaves just as flower buds begin to open, but be sure to leave several inches of stem and several of the lower leaves.
Used in pizzas and in salads, hamburger, meatloaf, steaks, chops. and roasts.
Plant seeds in sandy garden soil in full sun well after last frost.

Summer Savory

Annual.
Spicy flavor.
Clip leaves and stems in June and July and dry or freeze.
Excellent with vegetables, particularly string beans, and with pork, stews, and chowders.
Sow seeds directly in garden in late spring. Thin seedlings to five inches apart. Soil should have good drainage and be in full sun.

Winter Savory

Hardy perennial.
Spicy taste; stronger than summer savory.
Cut tips of branchlets before the plant flowers. May be dried or frozen.
Unexcelled with pork and sausages.
Plant seeds in full sun after last frost. Winter savory is easy to grow indoors all winter.

NOTICE TO FUTURE CONTRIBUTORS:

There is a constant need for manuscripts pertaining to Illinois native plants, natural areas, horticulture, etc. of both technical and general interest. Guidelines for manuscripts submitted may be found on the inside back cover of this issue. Please note that these guidelines are revised and replace all previous guidelines. Feature articles may be of any number of topics: from floristics studies (of areas in Illinois or the states contiguous to Illinois) to articles on ferns, prairies, biographies on plant collectors, fall coloration, swamps, orchids, trees, edible plants, etc. If you have an idea for a potential article but would like to have it approved prior to completion, please feel free to discuss it with the Editor (see inside back cover for address).

(PANICUM from page 52)

Panicum joori is a species of low woodlands. In addition to its Illinois locations, this species ranges from Virginia to Arkansas, south to southeastern Texas and Florida. There are also collections from Mexico.

Illinois specimens of Panicum joori were found in shady floodplain woods along the Cache River and in low, swampy woods in the LaRue-Pine Hills Ecological Area of the Shawnee National Forest.

These floodplain and bottomland forests are dominated by hardwoods, including swamp red maple (Acer rubrum var. drummondii H. & A.), Shumard oak (Quercus shumardii Buckl.), basket oak (Quercus michauxii Nutt.), kingnut hickory (Carya laciniosa (Michx.) Loud.), and shagbark hickory (Carya ovata (Mill.) K. Koch). Understory includes spicebush (Lindera benzoin (L.) Blume) and swamp holly (Ilex decidua Walt.). Herbaceous plants growing with Panicum joori were sea oats (Chasmanthium latifolium (Michx.) Yates), marsh agrostis (Agrostis alba L. var. palustris (Huds.) Pers.), and bedstraw (Galium triflorum Michx.).

Apparently Panicum joori is not common in southern Illinois but grows in small clumps scattered in moist woodlands. This grass grows in similar situations along the Atlantic Coast and in the Gulf states. The Illinois collections represent a considerable extension of the known range up the Mississippi Embayment.

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HITCHCOCK. A.S. & A. CHASE. 1910. The North American species of Panicum. Contributions from the U. S. National Herbarium 15:1-396.

VOSS, E. G. 1966. Nomenclatural notes on monocots. Rhodora 68: 435-463.

SUPER SITES FOR SPRING WILDFLOWERS

As the spring season approaches, wildflower lovers begin to fill with excitement at the thought of spring beauties, trilliums, violets, and many other lovelies breaking their winter dormancy. We are fortunate to have several superior areas in southern Illinois for spring wildflowers, and some of them are listed below. Each of them has carpets of dutchman's-breeches, wild larkspurs, wild geraniums, buttercups, spring beauties, trilliums, trout lilies, bloodroots, phloxes, and many others. The blossoming of spring wildflowers usually begins in early March and continues until the summer flowers begin to bloom in June.

Piney Creek Ravine. Randolph County. Rich streambank woods flanked by sandstone cliffs. Best area to see the rare Harvey's buttercup in late April and early May.

Fountain Bluff. Jackson County. Rich woods on west side of bluff. Superior show of celandine poppy and large white trillium. Excellent area for sessile trillium, which blooms in late March.

Little Grand Canyon. Jackson County. Scenic gorge. Extremely rich flora. Rare buttercup-leaved phacelia blooms in April.

Lake Murphysboro State Park. Jackson County. Rich ravine west of spillway. Unusual amount of putty-root orchid (May). Shay's yellow trillium is also here (April).

Pomona Natural Bridge. Jackson County. Small ravine with good diversity of wildflowers.

Giant City State Park. Jackson and Union counties. Fern Rocks Nature Preserve is densely carpeted with spring wildflowers. Blue-eyed Mary is abundant in late April. French's shooting star, which was first found here, still blooms in late April and early May. Outstanding display of the rare synandra mint (early May).

Trail of Tears State Forest. Union County. Many wildflowers, with an abundance of squirrel corn.

LaRue-Pine Hills. Union County. Rich bottomland woods. Extraordinary display of bluebells and Miami mist in April and early

May. Cherty slopes beneath the shortleaf pines have bird's-foot violets in April and pink azaleas in mid-May.

Hogg Bluff. Johnson County. Woods adjacent to bluff rich with goldenseal.

Ferne Clyffe State Park. Johnson County. Box canyon features the lovely bishop's-cap in late April.

Devil's Kitchen Lake. Williamson County. Ravine near spillway has a great variety of wildflowers.

Belle Smith Springs. Pope County. Broad canyon with wide array of species.

Lusk Creek Canyon. Pope County. Canyon near horseshoe bend contains numerous wild orchids and a large colony of louseworts (May).

Jackson Hollow. Pope County. Deep canyon with numerous sandstone overhangs. Several colonies of hepatica bloom in late March and early April.

Hayes Creek Canyon. Pope County. Rich sandstone canyon with diversity of wildflowers.

Pounds Hollow. Gallatin County. Sensational canyon near Ox-lot Cave. Good diversity of spring wildflowers.

The following chart gives approximate mileage from selected southern Illinois towns to the super sites for spring wildflowers listed in this article:

	Belleville	Cairo	Carbondale	Chester	DuQuoin	Harrisburg	Marion	Metropolis	Mt. Vernon
Piney Creek Ravine	49	94	34	19	38	74	50	98	88
Fountain Bluff	75	62	20	29	33	60	36	84	74
Little Grand Canyon	84	81	14	49	27	54	30	78	68
Lake Murphysboro	74	71	11	28	24	51	27	75	65
Pomona Natural Bridge	88	60	18	42	31	58	34	63	72
Giant City State Park	95	56	11	49	31	51	27	60	65
Trail of Tears	99	49	29	53	42	69	45	52	83
Larue-Pine Hills	92	63	37	46	50	77	53	65	91
Hogg Bluff	130	44	46	84	66	30	30	31	69
Ferne Cliff State Park	112	55	28	66	48	39	15	33	71
Devil's Kitchen Lake	93	69	9	47	29	37	13	42	80
Belle Smith Springs	132	60	48	86	68	29	31	42	80
Lusk Creek Canyon	142	70	58	96	78	26	41	31	69
Jackson Hollow	128	56	44	82	64	33	27	38	76
Hayes Creek Canyon	136	64	52	90	72	25	35	29	67
Pounds Hollow	145	89	61	99	81	20	44	49	68

Fig. 1. Mileage to super wildflower sites from selected southern Illinois cities.

In Our Next Issue

The next issue of Erigenia will include articles on wildflower photography, the flora of the Fountain Bluff area of southern Illinois, part 2 of "Nomenclatural Equivalencies in the Illinois Flora", regular departments such as:"Illinois Natural Areas", Endangered and Threatened Plants of Illinois", "Book Reviews", plus other interesting articles.

BOOK REVIEW

Wildlife of the Prairies and Plains. Keith E. Evans and George E. Probasco. 1977. USDA For. Serv. Gen. Tech. Rep. NC-29, 18p. (Available from the U.S. Government Printing Office, Washington, D.C.)

At first glance you may wonder why a review of a booklet on wildlife. Opening the cover of this publication would quickly answer this question since it begins with an excellent summary of prairie under the heading "The Resource". Here, the authors discuss the various types of prairie and grassland in North America followed by comments on terrain, soil, and climate, and a discussion on the vegetation.

The authors then present interesting discussions on the wildlife of the prairie. Topics include: waterfowl, upland game birds, nongame birds, bison, pronghorn antelope, elk, deer, bighorn sheep, small game, prairie dogs, mammalian predators, fish, amphibians, and reptiles. For each, past and present ranges are presented.

Management of the prairie-grassland habitat is discussed, followed by a useful and quite extensive "Literature Cited".

- Mark W. Mohlenbrock

ILLINOIS NATURAL AREAS:

HOGG BLUFF

Jerry L. Hinkley[1]

There are conflicting stories among the local residents as to how the locality of Hogg Bluff got its name. One version is that early farmers included some of the area's shelter bluffs in their hog pens. Another story told by an area "old timer" includes the first version along with the fact that an early resident of the area had the family name of Hogg. Whichever way the name is spelled it remains that this area is certainly worthy of consideration as a botanical preserve because it is remote, relatively undisturbed, and contains a great variety of habitats and microhabitats. All these facts might lead one to believe that Hogg Bluff has the potential for great botanical diversity as well.

Hogg Bluff is located in the Creal Springs Quadrangle, T. 12S, R. 4E in the NW¼ of the SW¼ of Section 3. One way to get to Hogg Bluff is to drive to the junction of U.S. 45 and Tunnel Hill Road, turning southeast on the blacktop road. This very scenic drive of about five miles leads across a series of hills; past a cemetery and Gilead Church to a gravel road leading to the left (northeast). This narrow, gravel road crosses a bridge over the East Branch of Cedar Creek. After parking just north of the bridge, we can walk along the horse trail which leads eastward into the woods. Within a short distance, we can turn northward and follow an old railroad grade for about one-half mile. Here we encounter our first surprise about Hogg Bluff.

On the west side of the railroad grade is a swamp. The water level of this body of water is partially controlled by the fill material used to build the railroad bed and has also been controlled at least in

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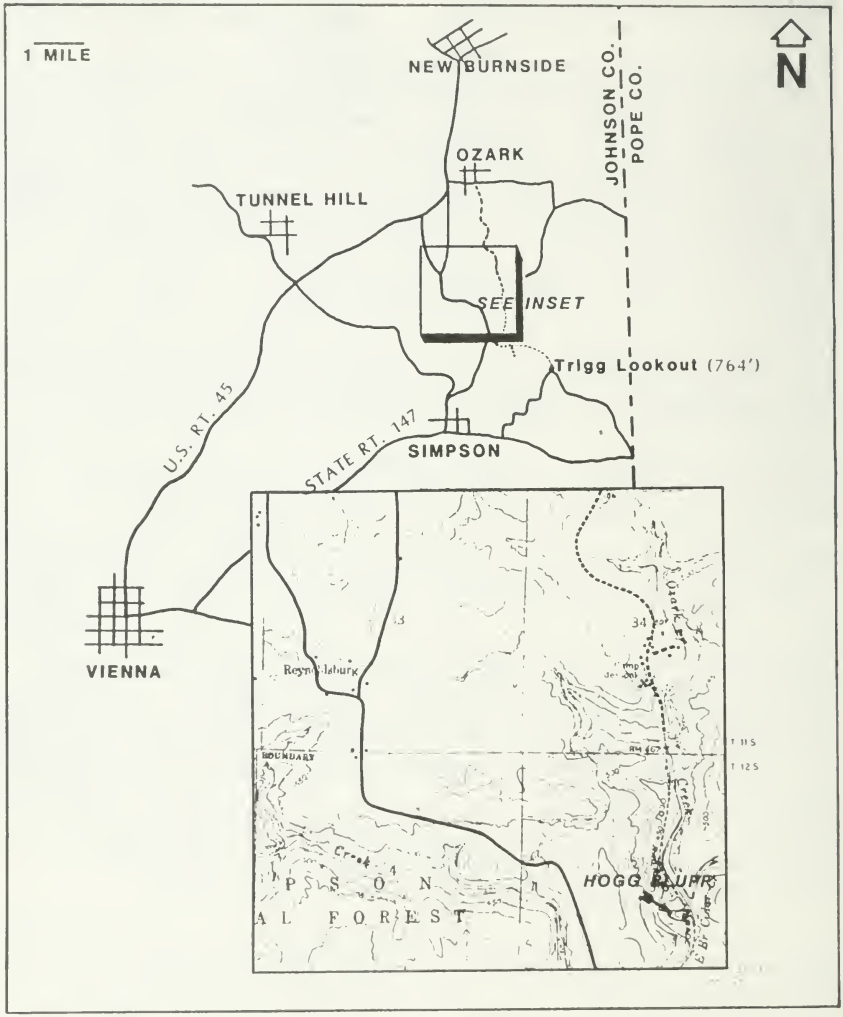

Figure 1. Map of Hogg Bluff and vicinity.

Figure 2. View of the swamp from the railroad embankment. Hogg Bluff is across the swamp.

the recent past, by beaver activity. This swamp harbored an active beaver lodge as recently as 1978. As of this writing, all evidence of the lodge has vanished. There has been much bark stripping from larger trees and the felling of smaller trees. Many pieces from these smaller trees, which are complete with typical beaver gnaw markings, form small dams which block the flow of water across the embankment toward Ozark Creek and the East Branch of Cedar Creek. These little dams complete the water level control mechanism of the swamp.

The botanical nomenclature used here follows Mohlenbrock (1975). The dominant tree species in the swamp is sycamore (Platanus occidentalis). These trees are tall, spindly, and do not exhibit well developed crowns. The canopy is sparcely leaved, allowing much sunlight to reach the surface of the swamp. Under the sycamores and among the rotting stumps and water logged trunks of

Figure 3. Dr. Robert H. Mohlenbrock stands at the edge of a thirty foot, north-facing cliff while observing the swamp below.

fallen trees, we can observe the yellow pond lily (Nuphar advena) surrounded by floating islets of duck-weeds (Lemna spp., and Spirodela polyrhiza) and watermeal (Wolffia columbiana).

Along the margin of the swamp and on saturated hummocks, we find swamp dock (Rumex verticillatus), common arrowleaf (Sagittaria latifolia), and the eye-catching cardinal flower (Lobelia cardinalis). A good indicator of the botanical potential of this area is the presence of swamp buttercup (Ranunculus flabellaris) with its

morphologically distinct above- and below-water leaves. By now, we can determine that the swamp surrounds a central bluff except at the point where the railroad embankment accomplishes a tangential attachment to the bluff's east face. The only real access to the bluff top is at this point of attachment where we are confronted with a steep but short climb.

Once on top, we find ourselves in a thin soiled drier habitat atop the sandstone bedrock. As we might expect the trees here are smaller than those found below in the low woodlands. Here on the blufftop, we find white oak (Quercus alba), black oak (Q. velutina), and blackjack oak (Q. marilandica) interspersed with hickories (Carya glabra and C. cordiformis). Shrubs and shrub-sized trees found here include farkleberry (Vaccinium arboreum), low bush blueberry (V. vacillans), winged elm (Ulmus alata), the lovely spring flowering dogwood (Cornus florida) and shadbush (Amelanchier arborea).

In the relatively sparse herb layer of the bluff top, we can locate two mint family representatives, skullcap (Scutellaria ovata) and wild bergamont mint (Monarda fistulosa). As the soil thins out near the edge of the bluff, pussy-toes (Antennaria plantaginifolia) are seen mixed within and growing out of a carpet of mosses and lichens. It is a fascinating walk around the perimeter of this blufftop, for now we can look down from the cliffs of twenty to thirty feet to the swamp below and the vegetation of the narrow talus slope between the cliffs and the swamp. Even though Hogg Bluff has only about one acre on top, even the casual observer can note distinctly different vegetational areas owing to different thicknesses in soil. As we return to the access point, we notice partridge berry (Mitchella repens) along the north edge and spilling over onto some narrow ledges below.

As we make the traverse from upland to lowland woods, we can notice that Virginia creeper (Parthenocissus quinquefolia) and poison ivy (Toxicodendron radicans) make the trip with us. Some of the robust specimens of poison ivy found here in the lowland woods assume the posture of shrubs, while the vines attain diameters of well over three inches.

Returning to the railroad embankment, we can skirt the swamp and enter the lowland woods. This tract of woodlands is bordered by the swamp on the lower side and on the upper circumference by a fascinating series of cliffs and shelter bluffs. Let us take a closer look at the low woods vegetation.

In contrast to the trees of the swamp, the sycamores in the low woods show a growth form which exhibits trunks three to four feet in diameter. The dense canopies of these specimens cast the forest floor into complete shadow. There are other large trees in this lowland woods which complete the dense canopy layer. Here we also find beech trees (Fagus grandifolia), bitternut hickory, red oak, and white oak. These last three species are also observed on the drier uplands. Found only in the lowland woods in this locality are tulip tree (Liriodendron tulipifera), sour gum (Nyssa sylvatica) and excitingly, the cucumber magnolia (Magnolia acuminata). If a plant like the cucumber magnolia is present, which is at the very edge of its geographic distribution, then perhaps we can hope to find other unusual and uncommon plants. As we continue through the lowland woods, we encounter dense stands of shrubs and young trees. This denseness is probably the result of secondary growth due to past beaver activity. Some of the largest sycamore trees have been girdled by ambitious beavers but these trees were never felled by the animal activity. The subsequent opening of the canopy has allowed for the rapid development of young sugar maples (Acer saccharum) and hackberry (Celtis occidentalis). Other shrub layer species found both within these thickets and under dense canopies include paw paw (Asimina triloba), spicebush (Lindera benzoin), and bladder-nut (Staphylea trifolia).

Turning our attention to the herbaceous plants, we can enjoy this luxuriant layer both in terms of the number of showy species and in the uncommon ones. As we scout about the slope between the swamp and the cliffs, we can observe many fern species including marginal fern (Dryopteris marginalis), lady fern (Athyrium filix-femina), and rattlesnake fern (Botrychium virginianum). In an area of large sandstone boulders

Figure 4. Same cliff as in Figure 2 seen from the talus slope below.

beneath a north-facing cliff, we can inspect a large colony of gray polypody fern (Polypodium polypodioides). Violets (Viola sororia and V. papilionacea), bloodroot (Sanguinaria canadensis), and the large flowered bellwort (Uvularia grandiflora) beacon us to continue our search. Pink valerian (Valeriana pauciflora) catches our attention as it blooms just down slope from a large colony of mayapple (Podophyllum peltatum). Just beyond the next boulder, Indian pipe (Monotropa uniflora) comes into view followed by a colony of wild ginger (Asarum reflexum). Here we also find the remains

Figure 5. Marc Evans examines a large colony of golden seal (Hydrastis canadensis).

of a putty-root orchid (Aplectrum hyemale). Just a few feet away, we see the spectacular showy orchid (Orchis spectabilis). Botanists' hearts beat a good deal faster with these finds for now we are realizing the promise of the cucumber magnolia. Nearby are large colonies of golden seal (Hydrastis canadensis). These colonies are the largest of this species that this writer has ever seen. One of the colonies is roughly oval, and is approximately thirty by forty feet. In this same locality are some small but no less exciting colonies of genseng (Panax quinquefolia).

Our botanical excursion would not be complete without climbing up the talus slopes between the perimeter shelter bluffs to find additional plants which are not found on the swamp encircled Hogg Bluff. These would include the false aloe (Agave virginica) and the eastern prickly pear cactus (Opuntia rafinesquii). In some of the most inhospitable appearing exposures we can notice that the slender lip fern (Cheilanthes lanosa) is growing out of soil collected in some cracks in the rocks.

Returning to the cooler shelter bluffs below, it appears that the openings under the overhangs are partially hidden with wild hydrangea (Hydrangea arborescens). Here we also find alumroot (Heuchera parviflora) and goosefoot (Chenopodium standleyanum) in the sand under the overhang. These plants are surrounded by depressions which look like cleat marks from football shoes. These depressions are actually constructed by and are the home of the voracious ant lion.

Before leaving Hogg Bluff and its surroundings, I urge you to do something very unbotanical. Sit on a rock in any one of the several shelter bluffs and gaze out over this quiet, unspoiled place. Relish the fact that areas of botanical diversity like this one still exist. Realize that you are sitting on a spot where a Native American sat long before North America was "discovered". What that Native American saw is probably not much different than what you see.

Enjoy Hogg Bluff!

Reference

Mohlenbrock, Robert H. 1975. Guide to the Vascular Flora of Illinois. Southern Illinois University Press. Carbondale.

Our Contributors

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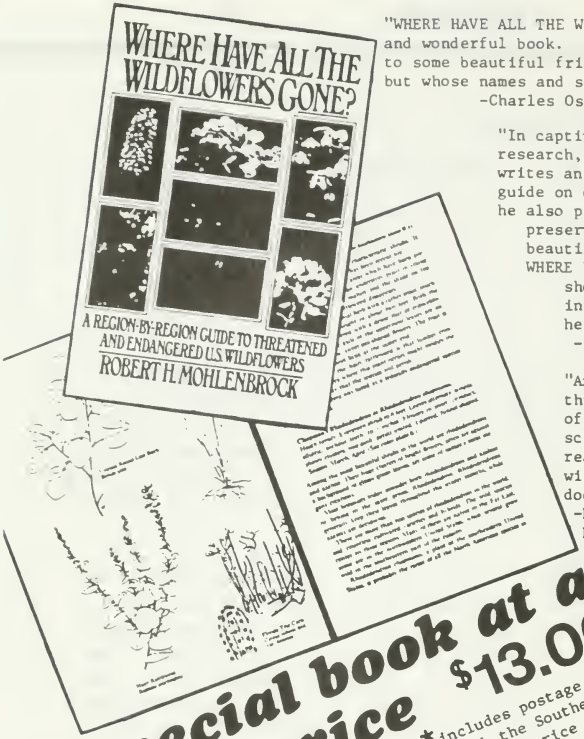
MR. LAWRENCE STRITCH is a native of upstate New York. He received his bachelor's degree from Illinois Benedictine College and master's from Southern Illinois University-Carbondale. Lawrence is in the final stages of completing his Ph.D. at SIU-C on a revision of the genus Wisteria (Leguminosae).



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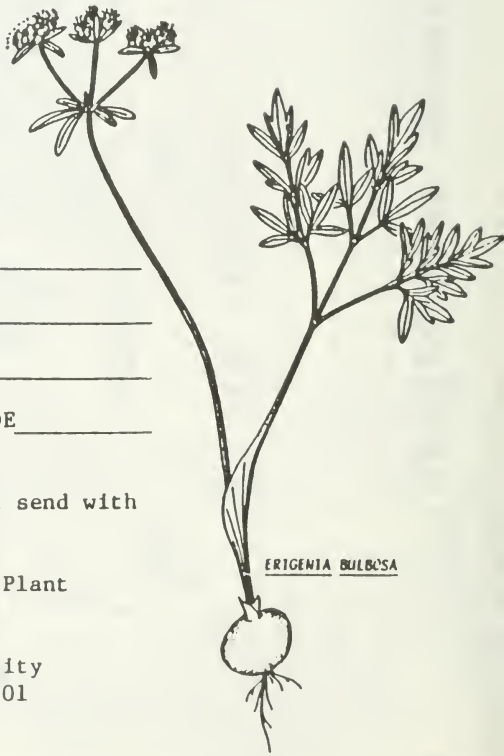

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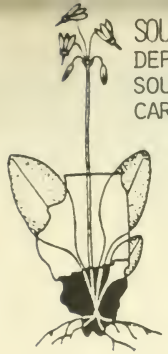

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