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Murphysboro Marsh

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THE HARBINGER

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

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TO CONTRIBUTE See inside back cover for guidelines.

ERIGENIA

Number 9 September, 1987

Contents

Cover Photo: Murphysboro Marsh in winter.

Murphysboro Marsh

Robert H. Mohlenbrock

A little known one-acre wetland habitat about one mile north of Murphysboro in Jackson County has long been known as a unique natural area since its discovery by Raymond Hatcher and the author during the summer of 1948 while we were still in high school. For want of a better name, we called it the Murphysboro Marsh, and that name is applied today to it by the few people who know of its existence.

The area is nearly circular and treeless in the center where the water is deepest. Surrounding the marsh is a dense woodland border of green ash (Fraxinus lanceolata), sweet gum (Liquidambar styraciflua), red maple (Acer rubrum), slippery elm (Ulmus rubra), swamp chestnut oak (Quercus michauxii), and black willow (Salix nigra).

The marsh itself is not visible from the country road that passes within 50 feet of it, but a roadside ditch full of aquatic plants and a dense hedge of swamp rose (Rosa palustris) mark the area from the road.

Plants in the wet ditch include arrowhead (Sagittaria latifolia), water plantain (Alisma plantago-aquatica var. parviflorum), wild blue iris (Iris shrevei), small buttercup (Ranunculus pusillus), parsley buttercup (Ranunculus sceleratus), manna grass (Glyceria striata), perfoliate boneset (Eupatorium perfoliatum), ground bean (Apios americana), and several sedges (Scirpus cyperinus, Carex lurida, C. vulpinoidea, C. tribuloides, C. squarrosa, C. frankii, and C. shortiana).

But it is the marsh itself that is the center of attraction. The area is bog-like, and it is unwise and usually impossible to walk into the depth of the marsh without

sinking in to one's knees. Voigt and Mohlenbrock (1964) described the area as "a seepage area" in which "a small spring flows onto low ground where drainage is poor, and this results in a marshy condition throughout the year. . From the immediate area of the orifice may be found water starwort (Callitriche heterophylla), while along the course of its flow to lower ground is a dense stand of tear thumb (Polygonum sagittatum)."

The deepest area is dominated by marsh goldenrod (Solidago patula) and marsh fern (Thelypteris palustris var. pubescens), two species generally not found elsewhere in extreme southern Illinois. Dominant sedges are Carex crus-corvi, C. crinita, C. stipata, C. comosa, and C. lanuginosa.

In the wooded border, smooth arrowwood (Viburnum recognitum) is common, and the hairy buttonbush (Cephalanthus occidentalis var. pubescens) is present. Growing in the transition zone between the marsh and its drier border are swan's sedge (Carex swanii), false nettle (Boehmeria cylindrica var. drummondiana), and white turtlehead (Chelone glabra).

This small area is privately owned, but efforts should be made to acquire it for an Illinois Nature Preserve so that this unusual habitat in southern Illinois can be preserved.

Literature Cited

Voigt, J. W. & R. H. Mohlenbrock. 1964. Plant Communities of Southern Illinois. Southern Illinois University Press, Carbondale. 202 pp.

Taxa New to Illinois in Guide to The Vascular Flora of Illinois, Revised and Enlarged Edition

Robert H. Mohlenbrock

One hundred eighty taxa of vascular plants are included in the Guide to the Vascular Flora of Illinois, Revised and Enlarged Edition (1986) that were not in the previous edition (1975). These additions during the decade represent newly discovered taxa in Illinois or, in a few instances, taxa which are now recognized as distinct but were not considered distinct in 1975.

An analysis of these 180 additions provides some interesting data. Nine of the additions, including four hybrids, are ferns. All are considered native in Illinois. Four species are gymnosperms, all introduced. Of the thirteen additional grasses, only five are native. In addition to the grasses and ferns, there are 80 new adventive herbs and 42 new native herbs. Among the broad-leaved woody plant additions, 25 are adventive and 7 are native.

In summary, there are 32 additional woody taxa and 148 additional herbaceous taxa. One hundred seventeen of the additions are adventive, 63 are native.

A number of taxa included in the 1975 work have been reduced to synonymy and no longer are recognized.

The overall total number of taxa in the Guide to the Vascular Flora of Illinois, Revised and Enlarged Edition (1986) is 3,203.

The following list contains the 180 taxa of vascular plants added to the Illinois flora between 1975 and 1986. The sequence follows that found in the new edition.

Selaginella eclipes Buck SELAGINELLACEAE
Botrychium oneidense (Gilb.) House OPHIOGLOSSACEAE
Gymnocarpium robertianum (Hoffm.) Newm. ASPLENIACEAE
Dryopteris filix-mas (L.) Schott ASPLENIACEAE
Asplenium X shawneense (R.C. Moran) ASPLENIACEAE
Asplenium trichomanes L. ssp. quadrivalens D.E. Meyer ASPLENIACEAE
Cystopteris X illinoensis Moran ASPLENIACEAE
Cystopteris X laurentiana (Weatherby) Blasd. ASPLENIACEAE
Cystopteris X tenuis (Michx.) Desv. ASPLENIACEAE
Picea mariana (Mill.) BSP. PINACEAE
Picea abies (L.) Karst. PINACEAE
Pinus wallichiana A.B. Jacks. PINACEAE
Pinus nigra Arnold PINACEAE
Bromus carinatus Hook. POACEAE
Bromus squarrosus L. POACEAE
Calamagrostis neglecta (Ehrh.) Gaertn. POACEAE
Hordeum geniculatum All. POACEAE
Diarrhena americana Beauv. var. obovata Gl. POACEAE
Paspalum laeve Michx. var. circulare (Nash) Fern. POACEAE
Paspalum dilatatum Poir. POACEAE
Andropogon hallii Hack. POACEAE
Andropogon ternarius Michx. POACEAE
Sporobolus ozarkanus Fern. POACEAE
Leptochloa uninervia (Presl) Hitchc. & Chase POACEAE
Zoysia japonica Steud. POACEAE
Pennisetum alopecuroides (L.) Spreng. POACEAE
Cyperus retrorsus Chapm. CYPERACEAE
Eleocharis parvula (Roem. & Schult.) Link CYPERACEAE
Scirpus mucronatus L. CYPERACEAE
Scleria oligantha Michx. CYPERACEAE
Calla palustris L. ARACEAE
Tradescantia subaspera Ker var. montana (Shuttlew.) Anders. & Woodson COMMELINACEAE
Liriope spicata Lour. LILIACEAE
Allium fistulosum L. LILIACEAE
Erythronium mesochoreum Knerr LILIACEAE
Ornithogalum natans L. LILIACEAE
Lycoris radiata Herb. LILIACEAE
Dioscorea batatas Dcne. DIOSCOREACEAE
Iris flavescens DC. IRIDACEAE
Thalia dealbata Roscoe MARANTACEAE
Spiranthes romanzoffiana Cham. ORCHIDACEAE
Isotria medeoloides (Willd.) Raf. ORCHIDACEAE
Betula pumila L. var. glabra Regel BETULACEAE

Betula pumila L. var. glandulifera Regel BETULACEAE
Corylus rostrata Ait. CORYLACEAE
Castanea mollissima Blume FAGACEAE
Rumex longifolius DC. POLYGONACEAE
Rumex cristatus DC. POLYGONACEAE
Polygonum arenastrum Boreau POLYGONACEAE
Polygonum neglectum Besser POLYGONACEAE
Salsola collina Pallas CHENOPODIACEAE
Corispermum nitidum Kit. CHENOPODIACEAE
Atriplex glabriuscula Edmondston CHENOPODIACEAE
Chenopodium pumilio R. Br. CHENOPODIACEAE
Monolepis nuttalliana (R. & S.) Greene CHENOPODIACEAE
Mirabilis jalapa L. NYCTAGINACEAE
Cerastium semidecandrum L. CARYOPHYLLACEAE
Ranunculus arvensis L. RANUNCULACEAE
Ranunculus ficaria L. RANUNCULACEAE
Eranthis hyemalis (L.) Salisb. RANUNCULACEAE
Consolida regalis S.F. Gray RANUNCULACEAE
Delphinium carolinianum Walt. var. penardii (Huth) Warnock RANUNCULACEAE
Cimicifuga americana Michx. RANUNCULACEAE
Aconitum uncinatum L. RANUNCULACEAE
Calycanthus floridus L. CALYCANTHACEAE
Dicentra eximia (Ker) Torr. PAPAVERACEAE
Tamarix gallica L. TAMARICACEAE
Cardamine pratensis L. var. palustris Wimm. & Grab. BRASSICACEAE
Thlaspi perfoliatum L. BRASSICACEAE
Matthiola incana (L.) R.Br. BRASSICACEAE
Lunaria annua L. BRASSICACEAE
Sedum rupestre L. CRASSULACEAE
Sedum alboroseum Boreau CRASSULACEAE
Rhodotypos scandens (Thunb.) Makino ROSACEAE
Kerria japonica L. ROSACEAE
Spiraea japonica L. ROSACEAE
Prunus triloba Lindl. ROSACEAE
Prunus padus L. ROSACEAE
Amelanchier sanguinea (Pursh) DC. ROSACEAE
Pyrus calleryana Dcne. ROSACEAE
Rosa wichuriana Crep. ROSACEAE
Rosa moschata Herrm. ROSACEAE
Rosa rubrifolia Vill. ROSACEAE
Rosa acicularis Lindl. ROSACEAE
Potentilla reptans L. ROSACEAE
Potentilla inclinata Vill. ROSACEAE

Fragaria vesca L. ROSACEAE
Filipendula ulmaria (L.) Maxim. ROSACEAE
Porteranthus trifoliatus (L.) Britt. ROSACEAE
Psoralea argophylla Pursh FABACEAE
Lathyrus hirsutus L. FABACEAE
Medicago falcata L. FABACEAE
Canavalia ensiformis (L.) DC. FABACEAE
Lespedeza X manniana Mack. & Bush FABACEAE
Lespedeza daurica (Laxm.) Schindl. FABACEAE
Lespedeza bicolor Turcz. FABACEAE
Oxalis illinoensis Schwegm. OXALIDACEAE
Geranium sanguineum L. GERANIACEAE
Ruta graveolens L. RUTACEAE
Phyllanthus urinaria L. EUPHORBIACEAE
Croton lindheimerianus Scheele EUPHORBIACEAE
Euphorbia hexagona Nutt. EUPHORBIACEAE
Euphorbia lathyrus L. 1 EUPHORBIACEAE
Chamaesyce prostrata (Ait.) Small EUPHORBIACEAE
Toxicodendron toxicarium (Salisb.) Gillis ANACARDIACEAE
Nemopanthus mucronatus (L.) Trelease AQUIFOLIACEAE
Euonymus kiautschovica Loes. CELASTRACEAE
Acer rubrum L. var. trilobum Koch ACERACEAE
Rhamnus davurica Pall. RHAMNACEAE
Viola tricolor L. VIOLACEAE
Opuntia fragilis (Nutt.) Haw. CACTACEAE
Thymelaea passerina (L.) Coss. & Germ. THYMELAEACEAE
Elaeagnus multiflora Thunb. ELAEAGNACEAE
Oenothera triloba Nutt. ONAGRACEAE
Aralia elata Seem. ARALIACEAE
Hydrocotyle ranunculoides L.f. APIACEAE
Spermolepis echinata (Nutt.) Heller APIACEAE
Anthriscus cerefolium (L.) Hoffm. APIACEAE
Anthriscus sylvestris (L.) Hoffm. APIACEAE
Chimaphila maculata (L.) Pursh PYROLACEAE
Lysimachia fraseri Duby PRIMULACEAE
Ligustrum obtusifolium Sieb. & Zucc. OLEACEAE
Gentiana septemfida Pall. GENTIANACEAE
Gentiana clausa Raf. GENTIANACEAE
Asclepias speciosa Torr. ASCLEPIADACEAE
Convolvulus incanus Vahl CONVOLVULACEAE
Calystegia sepium (L.) R.Br. ssp. angulata Brummitt
CONVOLVULACEAE
Calystegia sepium (L.) R.Br. ssp. erratica Brummitt
CONVOLVULACEAE
Evolvulus pilosus Nutt. CONVOLVULACEAE

Cuscuta gronovii Willd. var. latiflora Engelm. CUSCUTACEAE
Gilia capitata Sims POLEMONIACEAE
Phlox subulata L. POLEMONIACEAE
Phlox maculata L. ssp. pyramidalis (J.E. Smith) Wherry POLEMONIACEAE
Phlox carolina L. ssp. angusta Wherry POLEMONIACEAE
Phacelia gilioides A. Brand HYDROPHYLLACEAE
Asperugo procumbens L. BORAGINACEAE
Lycopus europaeus L. LAMIACEAE
Ballota nigra L. LAMIACEAE
Perilla frutescens (L.) Britt. var. crispa (Benth.) Deane LAMIACEAE
Solanum heterodoxum Dunal var. novomexicanum Bartl. SOLANACEAE
Physalis texana Rydb. SOLANACEAE
Nicotiana longiflora Cav. SOLANACEAE
Veronica agrestis L. SCROPHULARIACEAE
Penstemon brevisepalus Pennell SCROPHULARIACEAE
Penstemon canescens Britt. SCROPHULARIACEAE
Penstemon gracilis Nutt. var. wisconsinensis (Pennell) Bennett SCROPHULARIACEAE
Verbascum speciosum Schrad. SCROPHULARIACEAE
Lonicera dioica L. glaucescens (Rydb.) Butters CAPRIFOLIACEAE
Lonicera japonica Thunb. var. chinensis (P.W. Wats.) Baker CAPRIFOLIACEAE
Lonicera standishii Jacques CAPRIFOLIACEAE
Lonicera X xylosteoides Tausch. CAPRIFOLIACEAE
Lonicera ruprechtiana Regel CAPRIFOLIACEAE
Lonicera X muendeniensis Rehd. CAPRIFOLIACEAE
Lonicera X minutiflora Zabel CAPRIFOLIACEAE
Lonicera X muscaviensis Rehd. CAPRIFOLIACEAE
Valeriana sitchensis Bong. ssp. uliginosa (Torr. & Gray) F.G. Mey. VALERIANACEAE
Valeriana chenopodifolia (Pursh) DC. VALERIANACEAE
Knautia arvensis (L.) Coult. DIPSACACEAE
Campanula glomerata L. CAMPANULACEAE
Senecio jacobaea L. ASTERACEAE
Solidago boottii Hook. ASTERACEAE
Solidago neurolepis Fern. ASTERACEAE
Solidago strigosa Small ASTERACEAE
Aster undulatus L. ASTERACEAE
Aster urophyllus Lindl. ASTERACEAE
Sanvitalia procumbens Lam. ASTERACEAE
Gaillardia aristata Pursh ASTERACEAE

Cosmos bipinnatus Cav. ASTERACEAE
Silphium speciosum Nutt. ASTERACEAE
Helianthus X doronicoides Lam. ASTERACEAE
Rudbeckia bicolor Nutt. ASTERACEAE
Rudbeckia grandiflora (Sweet) DC. ASTERACEAE
Echinacea simulata McGregor ASTERACEAE
Petasites hybridus (L.) Gaertn., Mey. & Scherb. ASTERACEAE
Liatris squarrulosa Michx. ASTERACEAE
Pluchea odorata L. var. succulenta (Fern.) Cronq. ASTERACEAE
Artemisia pontica L. ASTERACEAE
Thelesperma gracile (Torr.) Gray ASTERACEAE
Crepis tectorum L. ASTERACEAE
Lactuca hirsuta Muhl. var. sanguinea (Bigel.) Fern. ASTERACEAE

Literature Cited

Mohlenbrock, R.H. 1975. Guide to the Vascular Flora of Illinois. Southern Illinois University Press, Carbondale. 494 pp.

_____. 1986. Guide to the Vascular Flora of Illinois, Revised and Enlarged Edition. Southern Illinois University Press, Carbondale. 508 pp.

New Distribution Data for Illinois Vascular Plants III

Robert H. Mohlenbrock

Continued field and herbarium research from 1984 to the present has resulted in several new vascular flora distributional additions for Illinois. This paper is an update of Mohlenbrock and Ladd (1978) and the first two supplements in this series (Mohlenbrock & Ladd, 1983; Mohlenbrock, 1985).

This paper is divided into two parts: a listing of additional distributional records for mapped taxa in Mohlenbrock & Ladd (1978), and a listing of taxa previously unmapped or unreported in the two preceding articles in this series. Some of the records listed below were previously reported by Hess, Podasky, & Stoynoff (1986).

Although the nomenclature for more than 300 taxa in the Illinois flora has changed between the publications of Mohlenbrock & Ladd (1978) and Mohlenbrock (1986), the nomenclature in this paper adheres to that in Mohlenbrock & Ladd (1978) to permit ease in updating the distributional records.

All records listed in this paper have been confirmed by the author, who has more complete data, including herbaria where the specimens are deposited, in his files.

Additional Distribution Records for Mapped Taxa

Acer rubrum var. trilobum: WILLIAMSON. Allium sativum: WILLIAMSON. Alnus glutinosa: HARDIN. Alyssum alyssoides: ROCK ISLAND. Amaranthus ambigens: DEKALB, DUPAGE, KENDALL, TAZEWELL. Amaranthus cruentus: PEORIA. Amaranthus spinosus: TAZEWELL. Amphicarpa bracteata var. comosa: WILLIAMSON. Andropogon ternarius: SALINE. Arabidopsis thaliana: WILLIAMSON. Aralia spinosa: WILLIAMSON.

Aristolochia serpentaria: KENDALL, WILLIAMSON. Arrhenatherum elatius: POPE, WILLIAMSON. Asclepias quadrifolia: WOODFORD. Asclepias sullivantii: WASHINGTON. Asclepias viridiflora: LAWRENCE. Aster novae-angliae: WILLIAMSON. Aster patens: WILLIAMSON. Aster shortii: WILLIAMSON. Athyrium filix-femina var. asplenioides: WILLIAMSON. Azolla mexicana: TAZEWELL.

Belamcanda chinensis: ROCK ISLAND. Berberis thunbergii: WILLIAMSON. Betula nigra; WHITESIDE. Bidens cernua: WILLIAMSON. Bouteloua curtipendula: CHAMPAIGN. Brachyelytrum erectum: WILLIAMSON. Brassica nigra; OGLE. Brassica rapa: WILLIAMSON. Bromus arvensis: WILLIAMSON. Bromus japonicus: WILLIAMSON.

Cacalia muhlenbergii: WILLIAMSON. Cardamine pensylvanica: FULTON, WHITESIDE. Cardaria draba: PEORIA. Carex albursina: WILLIAMSON. Carex caroliniana: MARION. Carex comosa: BUREAU. Carex convoluta: WILLIAMSON. Carex emoryi: WILLIAMSON. Carex festucacea: WILLIAMSON. Carex gravida: MARION. Carex haydenii: MASON. Carex hystricina: WILLIAMSON. Carex lupulina: WHITESIDE. Carex lurida: BUREAU. Carex meadii: UNION. Carex muskingumensis: WOODFORD. Carex normalis: WILLIAMSON. Carex pensylvanica: WILLIAMSON. Carex scoparia: WILLIAMSON. Carex tenera: WILLIAMSON. Carex tetanica: MASON. Carex texensis: WILLIAMSON. Carex torta: WILLIAMSON. Carex umbellata: WILLIAMSON. Carya laciniosa: WILLIAMSON. Carya texana: WILLIAMSON. Caulophyllum thalictroides: WILLIAMSON. Celtis tenuifolia var. georgiana: WILLIAMSON. Cerastium brachypodum: ROCK ISLAND. Cerastium pumilum: WILLIAMSON. Cerastium viscosum: COOK, MACOUPIN. Clitoria mariana: WILLIAMSON. Conium maculatum: MERCER. Corallorhiza odontorhiza: SHELBY. Corallorhiza wisteriana: WILLIAMSON. Corispermum hyssopifolium: CARROLL. Crataegus crus-galli: ROCK ISLAND. Crataegus monogyna: DUPAGE, PEORIA. Crataegus pruinosa: WILLIAMSON. Cyperus aristatus: LEE, WILLIAMSON. Cyperus filiculmis: PEORIA. Cyperus houghtonii: WHITESIDE.

Descurainia sophia: PEORIA. Desmodium nudiflorum: WILLIAMSON. Desmodium nuttallii: WILLIAMSON. Desmodium pauciflorum: WILLIAMSON. Diarrhena americana var. obovata: FAYETTE. Dipsacus sylvestris: UNION, WILLIAMSON. Draba

verna: MACOUPIN. Dyssodia papposa: LIVINGSTON.

Elodea canadensis: JACKSON, WILLIAMSON. Eleocharis elliptica: WILLIAMSON. Eragrostis frankii: TAZEWELL, WILLIAMSON. Euonymus atropurpureus: WILLIAMSON. Euonymus fortunei: MADISON, WILLIAMSON. Euphorbia commutata: WILLIAMSON.

Gerardia fasciculata: WILLIAMSON. Gerardia paupercula: WILLIAMSON. Goodyera pubescens: WILLIAMSON.

Hackelia virginiana: WILLIAMSON. Hosackia americana: DUPAGE. Houstonia longifolia: WILLIAMSON. Houstonia minima: ROCK ISLAND, WILLIAMSON. Hydrophyllum canadense: WILLIAMSON.

Ipomoea lacunosa: PUTNAM. Iris germanica: WILLIAMSON. Iva annua: WILLIAMSON.

Juncus secundus: WILLIAMSON. Juncus torreyi: WHITE.

Lactuca floridana: WILLIAMSON. Lamium amplexicaule: MACOUPIN. Lathyrus tuberosus: HENDERSON, KANE. Lechea tenuifolia: WILLIAMSON. Leersia virginica: WILLIAMSON. Lemna trisulca: FULTON. Lespedeza hirta: WILLIAMSON. Lespedeza stuevei: WILLIAMSON. Liatris cylindracea: LEE. Ligustrum vulgare: MARION. Lilium lancifolium: WHITE. Lilium superbum: WILLIAMSON. Linaria dalmatica: TAZEWELL. Lindernia anagallidea: LEE. Linum medium var. texanum: UNION. Linum striatum: UNION. Lobelia siphilitica: WILLIAMSON. Lonicera japonica var. chinensis: WILLIAMSON. Lonicera maackii: WILLIAMSON. Lonicera sempervirens: WILLIAMSON. Luzula multiflora: WILLIAMSON. Luzula multiflora var. echinata: WILLIAMSON. Lycopus virginicus: WILLIAMSON. Lysimachia ciliata: WILLIAMSON. Lysimachia lanceolata var. hybrida: DUPAGE, WILL.

Malus coronaria: WILLIAMSON. Malva sylvestris var. mauritiana: DUPAGE. Matricaria matricarioides: WILLIAMSON. Melica mutica: TAZEWELL. Monotropa hypopithys: PEORIA. Muhlenbergia bushii: LASALLE, WILLIAMSON. Muhlenbergia frondosa: WILLIAMSON. Muhlenbergia racemosa: TAZEWELL. Myosotis stricta: ROCK ISLAND.

Osmunda claytoniana: JACKSON. Oxypolis rigidior: ROCK ISLAND.

Panicum commutatum: WILLIAMSON. Panicum gattingeri: WILLIAMSON. Panicum lanuginosum var. implicatum: WILLIAMSON. Panicum linearifolium: WILLIAMSON. Papaver somniferum: JACKSON. Paspalum dissectum: WILLIAMSON. Penstemon calycosus: WILLIAMSON. Penstemon hirsutus: TAZEWELL. Phlox bifida: WILLIAMSON. Phlox pilosa: BUREAU. Pinus echinata: WILLIAMSON. Pinus strobus: DUPAGE. Pinus taeda: WILLIAMSON. Plantago major: WILLIAMSON. Poa angustifolia: WILLIAMSON. Poa annua: PEORIA. Poa sylvestris: WILLIAMSON. Polygonatum biflorum: WILLIAMSON. Polygonum cespitosum var. longisetum: UNION. Polygonum lapathifolium: WILLIAMSON. Polymnia canadensis: WILLIAMSON. Polymnia uvedalia: WILLIAMSON. Polytaenia nuttallii: PUTNAM. Populus tremuloides: WOODFORD. Potamogeton zosteriformis: PEORIA. Prunus americana: TAZEWELL. Prunus angustifolia: WILLIAMSON. Prunus mahaleb: TAZEWELL. Prunus munsoniana: WILLIAMSON. Prunus persica: WILLIAMSON. Ptelea trifoliata var. mollis: MASON, TAZEWELL.

Quercus coccinea: WILLIAMSON.

Ranunculus recurvatus: WILLIAMSON. Rhus aromatica: WILLIAMSON. Rhus aromatica var. arenaria: WILLIAMSON. Rorippa sylvestris: ALEXANDER, PUTNAM. Rubus allegheniensis: WILLIAMSON. Rubus alumnus: WILLIAMSON. Rubus enslenii: JOHNSON, WILLIAMSON. Rubus occidentalis: WILLIAMSON. Rubus occidualis: WILLIAMSON. Rudbeckia laciniata: WILLIAMSON. Rumex obtusifolius: WILLIAMSON.

Sagittaria rigida: KANE. Salix fragilis: WILLIAMSON. Salvia lyrata: WILLIAMSON. Sanicula canadensis: BUREAU. Scleria pauciflora: WILLIAMSON. Scutellaria lateriflora: WILLIAMSON. Scutellaria parvula var. leonardii: WILLIAMSON. Sedum pulchellum: WILLIAMSON. Senecio glabellus: FULTON. Smilax pulverulenta: WILLIAMSON. Solidago buckleyi: WILLIAMSON. Solidago graminifolia var. gymnospermoides: MASON. Solidago rigida: ROCK ISLAND. Sonchus arvensis var. glabrescens: PEORIA. Spiraea tomentosa: PEORIA. Spiranthes tuberosa: WILLIAMSON. Sporobolus asper: WILLIAMSON. Sporobolus clandestinus: HENDERSON.

Taraxacum laevigatum: WILLIAMSON. Thalictrum dasycarpum var. hypoglaucum: WILLIAMSON. Thaspium barbinode: BUREAU. Thelypteris palustris var. pubescens: ROCK ISLAND. Tilia americana: WILLIAMSON. Tragopogon dubius: TAZEWELL. Trifolium arvense: MASON. Trifolium dubium: WILLIAMSON. Triosteum illinoense: WILLIAMSON. Triosteum perfoliatum: WILLIAMSON.

Valeriana pauciflora: WILLIAMSON. Verbena simplex: WILLIAMSON. Verbena X illicita: WILLIAMSON. Veronica serpyllifolia: MASON, PEORIA. Vicia dasycarpa: WILLIAMSON. Viola pratincola: WILLIAMSON. Vulpia myuros: WILLIAMSON.

Wisteria macrostachya: FULTON. Wolffia columbiana: WILLIAMSON. Wolffiella floridana: WILLIAMSON.

Xanthoxylum americanum: WILLIAMSON.

Taxa Previously Unmapped or Unreported in this Series

Aconitum uncinatum L. DUPAGE.

Asplenium trichomanes L. ssp. quadrivalens D.E. Meyer. UNION.

Atriplex glabriuscula Edmondston. KANE.

Betula pumila L. var. glabra Regel. LAKE.

Betula pumila L. var. glandulifera Regel. LAKE, WINNEBAGO.

Botrychium oneidense (Gilb.) House. OGLE.

Carex willdenowii Schkuhr. GALLATIN.

Cerastium dubium L. EFFINGHAM.

Chenopodium pumilio R. Br. MCDONOUGH.

Corydalis curvisiliqua Engelm. var. grandibracteata Fedde. CASS.

Cystopteris X illinoensis Moran. WINNEBAGO.

Cystopteris X laurentiana (Weatherby) Blasd. OGLE.

Erythronium mesochoreum Knerr. MACOUPIN.

Fragaria vesca L. LAKE.

Gentiana clausa Raf. POPE.

Lespedeza bicolor Turcz. PERRY, WILLIAMSON.

Lespedeza X manniana Mack. & Bush. UNION.

Liatris squarrulosa Michx. ALEXANDER.

Lonicera japonica Thunb. var. chinensis (P.W. Wats.) Baker. POPE, WILLIAMSON.

Lonicera ruprechtiana Regel. DUPAGE.

Luffa cylindrica (L.) Roemer. JACKSON.

Minuartia groenlandica (Retz.) Ostenf. COOK.

Opuntia fragilis (Nutt.) Haw. JODAVIESS.

Penstemon brevisepalus Pennell. POPE, UNION.

Penstemon canescens Britt. FRANKLIN.

Penstemon gracilis Nutt. var. wisconsinensis (Pennell) Bennett. KANE.

Perilla frutescens (L.) Britt. var. crispa (Benth.) Deane. JACKSON.

Pinus virginiana Mill. WILLIAMSON.

Pinus wallichiana A.B. Jacks. UNION.

Porteranthus trifoliatus (L.) Britt. WABASH.

Ranunculus ficaria L. JACKSON.

Rosa moschata Herrm. PERRY.

Rudbeckia bicolor Nutt. JACKSON, UNION.

Silphium trifoliatum L. SALINE.

Solanum heterodoxum Dunal var. novomexicanum Bartl. CRAWFORD.

Solanum sarachoides Sendter. ST. CLAIR.

Solidago neurolepis Fern. JACKSON.

Zoysia japonica Steud. JACKSON.

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Narrow-leaved Vriginia Snakeroot, *Aristolochia serpentaria* var. *hastata* An Endanged Plant in Illinois

Robert H. Mohlenbrock

The narrow-leaved virginia snakeroot, *Aristolochia serpentaria* L. var. *hastata* (Nutt.) Duchartre, a plant of floodplain forests and cypress swamps, has been designated as endangered in Illinois (Natural Land Institute, 1981). Because of the taxonomic confusion that surrounds this taxon, it is necessary to discuss typical var. *serpentaria*, the virginia snakeroot, in any discussion of var. *hastata*.

Virginia snakeroot, *Aristolochia serpentaria* L. var. *serpentaria*, is a rather obscure herb that occurs in rich woods throughout most of Illinois except for the northwestern counties. The slender, usually zigzag stems, rarely exceeding 30 cm in height, grow from deep leaf litter on the forest floor. Because of its relative obscurity, it probably is more common than the distribution map indicates (Fig. 1).

The virginia snakeroot is also overlooked because its flowers and fruits are usually hidden by the leaf litter. The flowers, typically S-shaped and vaguely resembling a dutchman's pipe, are usually purple-brown, 3-lobed, and about 1.5 cm long. The capsule, which follows fertilization, at first is ellipsoid to nearly spherical, but splits open into a symmetrical 6-lobed, star-shaped structure, releasing the seeds which are 4-5 mm long. Underground is a small knotty rhizome from which grow yellowish roots that have a strong odor of turpentine. It is the substance in these roots that has long been known as a possible cure for a number of ailments, including snakebite, and from which the specific epithet and the common name are derived.

It is the leaves of the virginia snakeroot that permit easy identification, even in the absence of flowers and fruits. The leaves are broadly lanceolate to ovate-oblong, at least 2 cm broad at their widest point, and possess a pair of rounded lobes at the base (Figure 2). The range of this typical variety is from Connecticut southwest to southern Missouri, south to Texas, and east to Florida.

In a few rich bottomland forests and cypress swamps of extreme southern Illinois is the intriguing narrow-leaved virginia snakeroot, known here as Aristolochia serpentaria L. var. hastata (Nutt.) Duchartre. Although considered endangered in the state of Illinois and known only from Alexander, Johnson, Massac, Pulaski, and Union counties (Figure 1), this taxon is frequently observed along the Cache River between the villages of Karnak and Perks.

When seen in its most extreme narrow-leaved form, var. hastata has linear-lanceolate leaves sometimes no more than 5 mm broad at their widest point (Figure 3). Other specimens, however, may have leaves approaching or even slightly exceeding a width of 2 cm. As in the typical variety, this taxon has slender, zigzag stems and yellowish turpentine-scented roots. The flowers, fruits, and seeds are indistinguishable from those of var. serpentaria.

The narrow-leaved virginia snakeroot is a plant of the southeastern United States, occurring from Florida to Texas and up the Mississippi Embayment to southern Illinois and southern Missouri. In some of the southern areas, it is the more common of the two varieties of Aristolochia serpentaria.

When Thomas Nuttall first found the narrow-leaved plant, he described it as a distinct species, calling it Aristolochia hastata. Later, Thomas Kearney described the same entity as Aristolochia nashii. Botanists are generally in agreement that Nuttall's A. hastata and Kearney's A. nashii are one and the same. Duchartre was the first to suggest that since the only difference he could observe between the broad- and the narrow-leaved virginia snakeroots was the width of the leaves, they did not merit the status of two separate species. He accordingly named the narrow-leaved plants as a variety of Aristolochia serpentaria.

I must admit that when I first encountered the narrow-leaved plants in a southern Illinois cypress swamp, I had little doubt that they represented a good species since they looked so unlike the broader leaved plants. In addition, the swampy habitat was completely different from the rich hardwood forests that Aristolochia serpentaria grew in. Nonetheless, the flowers and fruits, usually considered by taxonomists to be the reliable structures on which to base distinct species, were virtually identical.

During the summer of 1986, David Ketzner, an Illinois Native Plant Society member and a graduate student in botany at Southern Illinois University, studied the vegetation along the Cache River between Karnak and Limekiln Slough just west of Perks. He was able to demonstrate a complete intergradation of leaf shape in var. hastata from leaves 5 mm broad to leaves at least 30 mm broad from plants growing in the bottomland forests adjacent to the river. No line could be drawn which would reliably separate the plants on the basis of leaf width.

It is obvious that unless additional characters come to light, the narrow-leaved virginia snakeroot should not be considered a separate species from Aristolochia serpentaria. There is some doubt that the narrow-leaved plants should have any nomenclatural designation, although the very distinct habitat lends some credence to its recognition as var. hastata.

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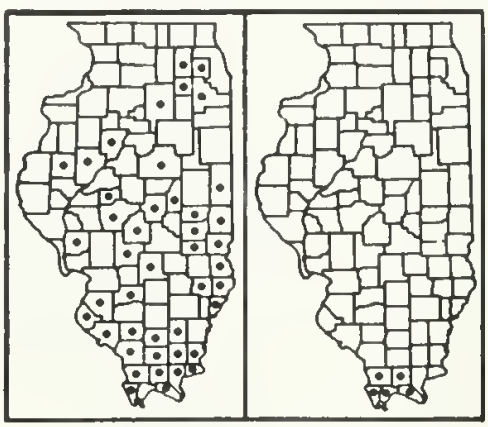

Aristolochia serpentaria

Aristolochia serpentaria var. hastata

An Overview of the Selective Advantage of Cleistogamy in the Poaceae

Sharon E. Bartholomew[1]

Abstract

The production of cleistogamous florets, i. e., those that remain closed at anthesis, is common in many grasses. This evolutionarily derived condition is expressed as a result of selective pressures working on a plastic genome. The degree of cleistogamy in grasses increases as a result of drought, heavy grazing, mowing, or burning. In addition, cleistogamy imparts a competitive advantage which allows these plants to be early colonizers of disturbed sites. Potentially detrimental effects due to selfing and the associated lack of population variability are neutralized by maintaining outcrossing through the production of both chasmogamous and cleistogamous inflorescences on the same plant.

Introduction

Numerous plant taxa have acquired a reproductive system which allows at least partial self-fertilization through the evolution of floral dimorphism. Of the two types of flowers, one, the chasmogamous flower, is adapted for cross-fertilization, while the other, the cleistogamous flower, is adapted for self-fertilization in that pollination and fertilization occur within closed florets (Clay 1982). This type of system reportedly exists in 287 species from 56 plant families and is especially prevalent in the grasses (Lord 1981; Clay 1982). Examples of grasses with dimorphic flowers include species of

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Amphicarpum Kunth, Andropogon L., Avena L., Bromus L., Chloris Swartz, Danthonia Lam. & DC., Festuca L., Leersia Swartz, Panicum L., Sorghum Moench, Sporobolus R. Br., Stipa L., Tridens Roem. & Schult., and Triplasis Beauv. (Lord 1981).

Although cleistogamous flowers appear to be distributed worldwide, cleistogamy is more frequent in grasses with a temperate climatic origin and are quite prevalent in America. Overall, the most evolutionarily advanced cleistogamous condition, in which specialized subterranean cleistogamous florets and aerial chasmogamous florets are produced as opposed to the simple intermixing of aerial chasmogamous and cleistogamous florets, occurs in members of the subfamily Pooideae (Rosenguitt 1984).

Observations of natural populations and controlled experimentation indicate that cleistogamy is an adaptation to adverse environmental conditions. It is a genetically plastic trait suseptible to modification by factors such as soil moisture, humidity, photoperiod, light intensity, plant density, and grazing, mowing or burning (Lord 1981, Clay 1982). Hence, through a genetic response to selective pressures, cleistogamous grasses are able to propagate under conditions which are unfavorable for the fertilization of chasmogamous flowers, ensuring their existance in addition to allowing cleistogamous species to be early colonizers of disturbed sites.

Morphology

In 1918, Chase described the axillary cleistogamous florets of some grasses as being so different from the chasmogamous ones, that if classification were based on the cleistogamous inflorescences, the plant would be placed in a totally different tribe from that indicated by the chasmogamous florets. In general, there is a reduction in floral structures as compared with chasmogamous flowers. The number of anthers, pollen sacs, and stamens is reduced as well as the length of the anthers and stigmas and the diameter of the pollen grains (Uphof 1938). In addition, the lodicules are reduced to such an extent that they are rendered nonfunctional. This condition, plus the fact that the cleistogamous florets are confined within vegetative sheaths

or by the soil in subterranean cleistogenes, accounts for the unopening of the flowers at anthesis (Chase 1918, Weatherwax 1928).

Disarticulation is usually at the nodes, so the caryopsis is permanantly enclosed in the sheath together with the internode and culm when dispersed (Chase 1918). Precocious germination ensues, often only after a period of dormancy which may be as long as one year (Dyksterhuis 1945). During this time, the basal portion of the ensheathing tissue begins to disintegrate allowing the entrance of water and silt, thus creating a suitable medium for germination. The primary root of the seedling extends through the partially disintegrated basal portion of the ensheathing tissue to anchor the young plant (Dyksterhuis 1945).

The positions of cleistogamous inflorescences are variable. Gould and Shaw (1985) site some cases as in Sporobolus cryptandrous (Torr.) A. Gray and Andropogon barbinodis Lag., where, under unfavorable climatic conditions, the normal spikelets of the terminal inflorescences are cleistogamous, remaining at least partially entrapped in the uppermost leaf sheaths. Many annuals, such as Sporobolus vaginiflorus (Torr.) Wood, develop lateral inflorescences late in the season, while the perennial Leptochloa dubia (H. B. K.) Nees produces short axillary inflorescences. In Stipa leuchotricha Trin. & Rupr., cleistogamous and chasmogamous spikelets are produced together in the terminal inflorescence and also at the base of the plant. Finally, in grasses such as Chloris chloridea (Presl.) Hitchc., Amphicarpum purshii Kunth., and A. muhlenbergianum (Schult.) Hitchc., the highly specialized cleistogamous spikelets terminate subterranean branches.

This variety of inflorescence positioning is reflected nicely in the classification scheme contrived by Lord (1981) for all cleistogamous plants. His groupings are a modification of Hackel's 1906 scheme. According to Lord (1981), preanthesis cleistogamy encompasses all cases in which bud pollination occurs followed by anthesis. This is common in cultivated legumes, grasses and other crop plants. In pseudocleistogamy, no morphological differences occur between cleistogamous and chasmogamous flowers other than their closed state at anthesis. This phenomenon is often induced by an environmental factor such

as drought. Complete cleistogamy occurs in species which produce only cleistogamous flowers. This is seen in some orchids and grasses. Finally, in "true" cleistogamy, floral dimorphisms result from divergent developmental pathways in a species or individual. The cleistogamous flowers are modified forms of the chasmogamous flowers differing primarily in the reduction of sexual parts. These dimorphic flowers typically occur on specific parts of the inflorescence in two different combinations. The chasmogamous florets may be on the aerial part of the spike, while the cleistogamous flowers are lateral or near the base of the plant and enclosed by leaf sheaths as in Panicum clandestinum L., or cleistogenes may terminate subterranean rhizomes as in Amphicarpum purshii.

The concomitant production of both cleistogamous and chasmogamous florets allows the species to retain the ability to outcross because the reproductive output of any individual consists of a mixture of self-fertilizing and cross-fertilizing progeny. This is an important factor since self-fertilization represents an extreme form of inbreeding. Theoretically, under this condition, the gene for cleistogamy could become fixed in a population (Bell & Quinn 1985). This increases homozygosity, decreases gene flow and decreases variability within a population, which, under changing environmental conditions, could become deleterious by hindering the evolutionary potential of the population (Clay 1982).

Responses to Selective Pressures

The involvement of cleistogamy in the reproductive system of grasses is obviously an effective response to selective environmental pressures. According to Schoen (1984), cleistogamy is favored because it increases the success of fertilization and results in the retrieval of the resource costs of producing male gametes and reproductive structures. The degree of cleistogamy, that is, the percentage of cleistogamous versus chasmogamous flowers produced by the plant, is a genetically variable trait which is capable of responding to natural selection for increasing or decreasing levels of cleistogamy (Clay 1983a). Clay (1983a) determined heretability estimates for Danthonia spicata (L.) Beauv. through genetic breeding studies both in the field and in the greenhouse, and deduced that cleistogamy is a multigenic trait. The

heretability estimates of Ø.53 for the natural population and Ø.71 for the greenhouse population indicate that Danthonia possesses a degree of cleistogamy adequate to remit the potential for responce to natural selection.

The primary limiting factor in the grassland ecosystem, available soil moisture, has been found to be influential in the production of cleistogamous inflorescences. Under controlled conditions, Brown (1952) compared the effects of available soil moisture on Stipa leucotricha grown under four different conditions of available water. An inverse relationship between the production of cleistogamous florets and available soil moisture was recorded; the less available soil moisture, the higher the percentage of cleistogamy. Brown (1952) concluded that the floral form that is actually produced by the plant is determined by a disruption in the usual equalibrium between the two conditions by crossing a determined threshold value in the amount of soil moisture during floral initiation.

Along with soil moisture, day length and light intensity have also been shown to be contributing factors to the cleistogamous condition. Langer and Wilson (1965) tested the effect of day length and temperature and the role of soil moisture in cleistogamous and chasmogamous flowers. Temperature was found to have almost no effect, but photoperiod and water availability apparently work together to strongly influence the flowering type. Under a long day (16 h light) regime, the flowers were almost exclusively cleistogamous, while the chasmogamous flowers were predominant under shorter photoperiods provided soil moisture was high. Langer and Wilson (1965) also reported that high atmospheric humidity appears to play a role in influencing the degree of chasmogamy, although this parameter was not measured experimentally. Similarly, Schoen (1984) demonstrated that a distinct threshold of low light intensity exists below which mostly cleistogamous flowers are produced.

The selective advantage or disadvantage of reproduction by chasmogamy and cleistogamy depends ultimately on the success of each type of progeny, thus conforming to the old darwinian idea of fitness. Success could be at the level of fertilization, seed set, seedling establishment, or adult survival and fecundity (Clay 1983b). According to Clay (1983b), seed set appears to be relatively equal for both types of systems,

therefore, both types appear to be fertilized successfully. However, the probability of flower maturation and seed set is lower for chasmogamous than cleistogamous flowers in many situations depending on environmental conditions. A chasmogamous flower has the benefit of contributing to offspring either through the transfer of its pollen to another plant or through the maturation of its own seeds. However, cleistogamous flowers possess the advantage of efficient and successful pollination and the seeds are energetically cheaper because large numbers are produced on reduced panicles (Bell & Quinn 1985).

The probability of flower maturation and seed set is lower for chasmogamous than cleistogamous flowers in situations in which the developing inflorescences are removed as in the case of grazing, mowing, or burning. Since chasmogamous flowers are predominantly situated higher on the inflorescence than cleistogamous flowers, they are most likely to be destroyed under these conditions. In contrast, the cleistogamous flowers are usually lower on the plant, and in some cases, even subterranean. Hence, these cleistogamous florets are unharmed. Therefore, cleistogamy is an advantageous selective response to these otherwise detrimental pressures.

Supportive evidence for this selection scheme is abundant particularly for grazing pressures. Clay (1983b) noted that the most frequently grazed Danthonia taxa in North Carolina also produce the highest percentage of cleistogamous flowers. Similarly, Conner (1979) noted that in areas with the greatest diversity of Danthonia and related genera in New Zealand and Australia, regions in which large grazing mammals were unknown before the advent of European settlers, no species produced cleistogamous flowers. In contrast, Danthonia species in North and South America, where grazing pressures have existed for a longer period of time, produce both chasmogamous and cleistogamous flowers.

In a comparative study of adjacent ungrazed and heavily grazed plots in East Texas, Dyksterhuis (1945) found that caryopses produced by cleistogamous spiklets in the basal sheaths of Stipa leucotricha, an important perennial forage grass, were responsible for propagating the species in its natural environment when subjected to heavy grazing. He showed that

under heavy grazing, Stipa may behave as an annual without producing flowering culms. This is accomplished by fall seedlings of cleistogamous origin producing new cleistogenes in spring and then succumbing to summer drought.

Dyksterhuis (1945) supplemented his natural observations with clipping experiments. Stipa plants that were clipped twice a week to a height of 1 1/2" produced very few tillers, and none produced flowering culms, while unclipped plants tillered into large clumps and 40% produced mature panicles. In addition, the clipped plants produced cleistogenes even though panicle development was prevented, but, the number of cleistogenes produced per plant was less than that of the unclipped plants. The cumulative results of Dyksterhuis' (1945) studies imply that cleistogamous production may largely account for the increasing percent coverage by Stipa under severe grazing on yearlong pastures and ranges. Maintaining such a cleistogamous phenotype which has distinct advantages for seeding winter pastures in cases where suitable cool season rhizomatous and stoloniferous species are not available should be considered in management techniques. Many cleistogamous strains could be kept pure in a limited space by removing flowering culms when they appear (Dyksterhuis 1945).

Another selective pressure to be reckoned with is competition. According to Bell and Quinn (1985), who studied three populations of Dichanthelium clandestinum (L.) Gould in a greenhouse experiment, no differences in fitness as measured by shoot biomass and spikelet number exist between chasmogamous and cleistogamous progeny produced by chasmogamous and cleistogamous seeds grown separately or intermixed at three different densities. Similar experiments with seedlings indicated no differences in fitness between the two types of progeny at any density when grown separately. However, chasmogamous plants were significantly heavier and possessed greater numbers of spikelets than cleistogamous plants at the lowest density of the mixtures. Bell and Quinn (1985) hypothesized that the increased competitive ability of the chasmogamous offspring in the low density mixture may have resulted from reduced sibling competition among the chasmogamous seedlings. In a competitive situation, the cleistogamous progeny, which have more similar genotypes, compete for similar resources. In contrast, the chasmogamous progeny may differ genetically from the cleistogamous progeny and among themselves so that competition

for resources is not as intense, especially at the lowest densities.

Dispersal and Colonization

The reduced sib competition noted by Bell and Quinn (1985) under experimental conditions parallels the competitive conditions afforded to seedlings by dispersal patterns. Seed types dispersed over greater distances experience less sib competition than do closely dispersed seed types (Schoen 1984). Since chasmogamous seeds are relatively small in size and weight, they are better adapted for long distance dispersal by wind. The larger cleistogamous seeds often remain attached to the culm and fall near the parental site, and thus are more successful at establishing sites located within their limited dispersal range.

Observed and expected ratios of chasmogamous and cleistogamous seedlings in the field imply that cleistogamous progeny are more successful than chasmogamous progeny (Campbell 1982; Clay 1983b; Schoen 1984). A comparison of cleistogamous and chasmogamous progeny reveals that production of cleistogamous progeny begins earlier in the season than chasmogamous production, but cleistogamous seeds are dispersed later than chasmogamous fruits. The germination of cleistogamous seeds is delayed longer than that of chasmogamous seeds since the former are dispersed within the spikelet and the latter are not. Also, the two types of progeny may face different growing conditions. These characteristics, plus the increased homozygosity which accompanies cleistogamy provides for greater adaptation to the local environment (Stebbins 1957; Allard 1975), and the greater fruit productivity of cleistogamous systems provide them with a distinct advantage for colonization of early successional and disturbed habitats.

Summary

The cleistogamous reproductive strategy in grasses is a responce to environmental pressures working on the genome. The production of cleistogamous florets is under the control of multiple genes, and expression of the trait, as well as the degree of expression, is triggered by stressful conditions.

Hence, low available soil moisture, intense grazing, mowing, and burning increase the degree of cleistogamy, thus insuring adequate reproductive potential. In addition, the increased survival capabilities allow these plants to be early colonizers of disturbed sites.

The loss of variability within the genome due to self-fertilization remains in check by the production of both cleistogamous and out-crossing chasmogamous florets on the same individual. This advantageous reproductive strategy has evolved through natural selection to insure the survival of many grass species under common, but adverse environmental conditions.

Acknowledgments

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Major Nomenclatural Changes in Guide to the Vascular Flora of Illinois Revised and Enlarged Edition

Robert H. Mohlenbrock

With the publication during the summer of 1986 of the Guide to the Vascular Flora of Illinois Revised and Enlarged edition, major nomenclatural changes have been made. This has been necessitated by recent published research whose findings the author concurs with, although sometimes reluctantly.

In order to learn the changes more quickly, and to find the whereabouts of some binomials, the following list gives the major nomenclatural changes. The first entry of each couplet is the binomial used in the 1975 edition of Guide to the Vascular Flora of Illinois. The second entry of each couplet is the binomial for the same taxon as it appears in the 1986 revised and enlarged edition. For simplicity, the first entries of the couplets are arranged alphabetically.

Acorus calamus L.
    Acorus americanus (Raf.) Raf.

Aesculus octandra Marsh.
    Aesculus flava Soland.

Agropyron subsecundum (Link) Hitchc.
    Agropyron trachycaulum (Link) Malte var. unilaterale (Vasey) Malte

Agrostis tenuis Sibth.
    Agrostis capillaris L.

Alisma subcordatum Raf.
    Alisma plantago-aquatica L. var. parviflorum (Pursh) Torr.

Allium mutabile Michx.
Allium canadense L. var. mobilense (Regel) Ownbey

Allium tricoccum Ait. var. burdickii Hanes
Allium burdickii (Hanes) A.G. Jones

Alnus rugosa (DuRoi) Spreng. var. americana (Regel) Fern.
Alnus incana (L.) Muench. ssp. rugosa (DuRoi) Clausen

Althaea rosea (L.) Cav.
Alcea rosea L.

Amaranthus torreyi (Gray) Benth.
Amaranthus arenicola I.M. Johnston

Amaranthus tamarascinus Nutt.
Amaranthus rudis Sauer

Andromeda glaucophylla Link
Andromeda polifolia L. var. glaucophylla (Link) DC.

Anemone patens L.
Pulsatilla patens (L.) P. Mill. ssp. multifida (Pritz.) Zamels

Anemonella thalictroides (L.) Spach.
Thalictrum thalictroides (L.) Eaves & Boivin

Anthemis nobilis L.
Chamaemelum nobilis (L.) All.

Arenaria lateriflora L.
Moehringia lateriflora (L.) All.

Arenaria patula Michx.
Minuartia patula (Michx.) Mattf.

Arenaria stricta Michx.
Minuartia stricta (Michx.) Hiern.

Aristida necopina Shinners
Aristida glauca (Nees) Walp.

Armoracia lapathifolia Gilib.
Armoracia rusticana (Lam.) Gaertn., Meyer, & Scherb.

Asclepias lanuginosa Nutt.
Asclepias otarioides Fourn.

Ascyrum hypericoides L.
Hypericum hypericoides (L.) Crantz

Ascyrum hypericoides L. var. multicaule (Michx.) Fern.
Hypericum stragulum P. Adams & Robson

Aster junciformis Rydb.
Aster borealis (T. & G.) Prov.

Aster pioosus Willd. var. pringlei (Gray) Blake
Aster pringlei (Gray) Britt.

Aster puniceus L. var. lucidulus Gray
Aster firmus Nees

Aster ptarmicoides (Nees) Torr. & Gray
Solidago ptarmicoides (Nees) Boivin

Aster sagittifolius Wedem. var. drummondii (Lindl.) Shinners
Aster drummondii Lindl.

Astragalus goniatus Nutt.
Astragalus agrestis Doug.

Astragalus trichocalyx Nutt.
Astragalus crassicarpus Nutt. var. trichocalyx (Nutt.) Barneby

Athyrium filix-femina (L.) Roth var. asplenioides (Michx.) Farw.
Athyrium asplenioides Michx.

Athyrium filix-femina (L.) Roth var. michauxii Spreng.
Athyrium angustum (Willd.) Presl

Bacopa acuminata (Walt.) Small
Mecardonia acuminata (Walt.) Small

Baptisia minor Lehm.
Baptisia australis (L.) R. Br. var. minor (Lehm.) Fern.

Berula pusilla (Nutt.) Fern.
Berula erecta (Huds.) Coville

Betula lutea Michx. f.
Betula alleghaniensis Britt.

Bidens beckii Torr.
Megalodonta beckii (Torr.) Greene

Bidens comosa (Gray) Wieg.
Bidens tripartita L.

Bromus mollis L.
Bromus hordeaceus L.

Bromus willdenowii Kunth
Bromus catharticus Vahl

Cacalia tuberosa Nutt.
Cacalia plantaginea (Raf.) Shinners

Callitriche palustris L.
Callitriche verna L.

Calystegia sepium (L.) R. Br. var. fraterniflora (Mack. & Bush) Mohlenbr.
Calystegia silvatica (Kit.) Griseb. ssp. fraterniflorus (Mack. & Bush) Brummitt

Cassia tora L.
Cassia obtusifolia L.

Ceanothus ovatus Desf.
Ceanothus herbaceus Raf.

Centunculus minimus L.
Anagallis minima (L.) Krause

Cerastium brachypodum (Engelm.) B.L. Robins.
Cerastium nutans Raf. var. brachypodum Engelm.

Cerastium tetrandrum Curtis
Cerastium diffusum Pursh

Cerastium velutinum Raf.
Cerastium arvense L.

Cerastium viscosum L.
Cerastium glomeratum Thuill

Ceratophyllum echinatum Gray
Ceratophyllum muricatum Cham.

Chrysanthemum balsamita L.
Balsamita major Desf.

Chrysanthemum leucanthemum L.
Leucanthemum vulgare Lam.

Chrysanthemum parthenium (L.) Bernh.
Tanacetum parthenium (L.) Sch. Bip.

Circaea quadrisulcata (Maxim.) Franch. & Sav. var. canadensis (L.) Hara
Circaea lutetiana Aschers. & Magnus ssp. canadensis (L.) Aschers. & Magnus

Citrullus vulgaris Schrad.
Citrullus lanatus (Thunb.) Matsumura & Nakai

Cladrastis lutea (Michx. f.) K. Koch
Cladrastis kentuckea (Dum.-Cours.) Rudd

Clematis dioscoreifolia Lev. & Vaniot
Clematis terniflora DC.

Corydalis halei (Small) Fern. & Schub.
Corydalis micrantha (Engelm.) Gray ssp. australis (Chapm.) G.B. Ownbey

Corydalis montana (Engelm.) Gray
Corydalis aurea Willd. ssp. occidentalis (Engelm.) G.B. Ownbey

Cuphea petiolata (L.) Koehne
Cuphea viscosissima Jacq.

Cypripedium calceolus L. var. parviflorum (Salisb.) Fern.
Cypripedium parviflorum Salisb.

Cypripedium calceolus L. var. pubescens (Willd.) Correll
Cypripedium pubescens Willd.

Dalea alopecuroides Willd.
Dalea leporina (Ait.) Bullock

Delphinium ajacis L.
Consolida ambigua (L.) Ball & Heywood

Dioclea multiflora (Torr. & Gray) C. Mohr
Galactia mohlenbrockii Maxwell

Draba reptans (Lam.) Fern. var. micrantha (Nutt.) Fern.
Draba reptans (Lam.) Fern. ssp. stellifera (O.E. Schulz) Abrams

Draba verna L.
Eriophila verna (L.) Chev.

Draba verna L. var. boerhaavii Van Hall
Eriophila verna (L.) Chev. ssp. praecox (Stevens) S.M. Walters

Echinochloa frumentacea (Roxb.) Link
Echinochloa crus-galli (L.) Beauv. var. frumentacea (Roxb.) W. Wight

Echinochloa pungens (Poir.) Rydb.
Echinochloa muricata (Beauv.) Fern.

Echinochloa pungens (Poir.) Rydb. var. wiegandii Fassett
Echinochloa muricata (Beauv.) Fern. var. wiegandii Fassett

Eclipta alba (L.) Hassk.
Eclipta prostrata (L.) L.

Eleocharis caribaea (Rottb.) Blake
Eleocharis geniculata (L.) Roem. & Schultes

Eleocharis tenuis Schult. var. verrucosa (Svenson) Svenson
Eleocharis verrucosa (Svenson) Fern.

Elodea densa (Planch.) Caspary
Egeria densa Planch.

Eragrostis poaeoides Beauv.
Eragrostis minor Host.

Erigeron canadensis L.
Conyza canadensis (L.) Cronq.

Erigeron divaricatus Michx.
Conyza ramosissima Cronq.

Eriochloa gracilis (Fourn.) Hitchcock
Eriochloa lemmonii Vasey & Scribn. var. gracilis (Fourn.) Gould

Eruca sativa Mill.
Eruca vesicaria (L.) Cav.

Falcaria sioides (Wibel) Aschers.
Falcaria vulgaris Bernh.

Festuca ovina L. var. duriuscula (L.) Koch
Festuca duriuscula L.

Fimbristylis baldwiniana (Schult.) Torr.
Fimbristylis annua (All.) Roem. & Schultes

Galactia volubilis (L.) Britt. var. mississippiensis Vail
Galactia regularis (L.) BSP.

Galinsoga ciliata (Raf.) Blake
Galinsoga quadriradiata R. & P.

Gentiana crinita Froel.
Gentianopsis crinita (Froel.) Ma

Gentiana procera Holm
Gentianopsis procera (Holm) Ma

Gentiana quinquefolia L. var. occidentalis (Gray) Hitchc.
Gentianella quinquefolia (L.) Small ssp. occidentalis (Gray) J. Gillett

Gerardia aspera Dougl.
Agalinis aspera (Dougl.) Britt.

Gerardia auriculata Michx.
Tomanthera auriculata (Michx.) Raf.

Gerardia fasciculata Ell.
Agalinis fasciculata Ell.

Gerardia flava L.
Aureolaria flava (L.) Farw.

Gerardia gattingeri Small
Agalinis gattingeri (Small) Small

Gerardia grandiflora Benth. var. pulchra (Pennell) Fern.
Aureolaria grandiflora (Benth.) Pennell var. pulchra Pennell

Gerardia paupercula Gray
Agalinis paupercula (Gray) Britt.

Gerardia pedicularia L. var. ambigens Fern.
Aureolaria pedicularia L. var. ambigens (Fern.) Farw.

Gerardia purpurea L.
Agalinis purpurea (L.) Pennell

Gerardia skinneriana Wood
Agalinis skinneriana (Wood) Britt.

Gerardia tenuifolia Vahl
Agalinis tenuifolia (Vahl) Raf.

Gerardia tenuifolia Vahl var. macrophylla Benth.
Agalinis besseyana Benth.

Geum strictum Ait.
Geum aleppicum Jacq.

Gillenia stipulata (Muhl.) Baill.
Porteranthus stipulatus (Muhl.) Britt.

Gnaphalium macounii Greene
Gnaphalium viscosum HBK.

Habenaria blephariglottis (Willd.) Hook.
Platanthera blephariglottis (Willd.) Lindl.

Habenaria ciliaris (L.) R. Br.
Platanthera ciliaris (L.) Lindl.

Habenaria clavellata (Michx.) Spreng.
Platanthera clavellata (Michx.) Luer

Habenaria dilatata (Pursh) Hook.
Platanthera dilatata (Pursh) Lindl.

Habenaria flava (L.) R. Br.
Platanthera flava (L.) Lindl.

Habenaria flava (L.) R. Br. var. herbiola (R. Br.) Ames & Correll
Platanthera flava (L.) Lindl. var. herbiola (R. Br.) Luer

Habenaria hookeri Torr.
Platanthera hookeri (Torr.) Lindl.

Habenaria hyperborea (L.) R. Br. var. huronensis (Nutt.) Farw.
Platanthera hyperborea (L.) Lindl. var. huronensis (Nutt.) Luer

Habenaria lacera (Michx.) Lodd.
Platanthera lacera (Michx.) G. Don

Habenaria leucophaea (Nutt.) Gray
Platanthera leucophaea (Nutt.) Lindl.

Habenaria orbiculata (Pursh) Torr.
Platanthera orbiculata (Pursh) Lindl.

Habenaria peramoena Gray
Platanthera peramoena (Gray) Gray

Habenaria psycodes (L.) Spreng.
Platanthera psycodes (L.) Lindl.

Habenaria viridis (L.) R. Br. var. bracteata (Muhl.) Gray
Coeloglossum viride (L.) Hartm.

Hackelia americana (Gray) Fern.
Hackelia deflexa (Wahlenb.) Opiz var. americana (Gray) Fern. & I.M. Johnston

Haplopappus ciliatus (Nutt.) DC.
Prionopsis ciliatus Nutt.

Heracleum maximum Bartr.
Heracleum lanatum Michx.

Heuchera hirsuticaulis (Wheelock) Rydb.
Heuchera americana L. var. hirsuticaulis (Wheelock) Rosend., Butt. & Lak.

Heterotheca villosa (Pursh) Shinners
Heterotheca camporum (Greene) Shinners

Hibiscus esculentus L.
Abelmoschus esculentus (L.) Moench.

Hibiscus militaris Cav.
Hibiscus laevis All.

Hibiscus palustris L.
Hibiscus moschuetos L.

Hieracium pratense Tausch
Hieracium caespitosum Dumort.

Hordeum X montanense Scribn.
Elyhordeum X montanense (Scribn.) Bowden

Houstonia caerulea L.
Hedyotis caerulea (L.) Hook.

Houstonia longifolia Gaertn.
Hedyotis longifolia (Gaertn.) Hook.

Houstonia longifolia Gaertn. var. ciliolata (Torr.) Torr.
Hedyotis longifolia (Gaertn.) Hook. var. ciliolata (Torr.) Mohlenbr.

Houstonia longifolia Gaertn. var. tenuifolia (Nutt.) Wood
Hedyotis nuttalliana Fosberg

Houstonia minima Beck
Hedyotis crassifolia Raf.

Houstonia nigricans (Lam.) Fern.
Hedyotis nigricans (Lam.) Fosberg

Houstonia purpurea L.
Hedyotis purpurea (L.) Torr. & Gray

Houstonia purpurea L. var. calycosa Gray
Hedyotis purpurea (L.) Torr. & Gray var. calycosa (Gray) Fosberg

Houstonia pusilla Schoepf.
Hedyotis pusilla (Schoepf.) Mohlenbr.

Hypericum punctatum Lam. var. pseudomaculatum (Bush) Fern.
Hypericum pseudomaculatum Bush

Hypericum spathulatum (Spach) Steud.
Hypericum prolificum L.

Impatiens biflora Walt.
Impatiens capensis Meerb.

Isanthus brachiatus (L.) BSP.
Trichostema brachiatum L.

Jussiaea decurrens (Walt.) DC.
Ludwigia decurrens Walt.

Jussiaea leptocarpa Nutt.
Ludwigia leptocarpa (Nutt.) Hara

Jussiaea repens L. var. glabrescens Ktze.
Ludwigia peploides (HBK.) Raven ssp. glabrescens (Ktze.) Raven

Kallstroemia intermedia Rydb.
Kallstroemia parviflora J.B.S. Nelson

Krigia oppositifolia Raf.
Krigia caespitosa (Raf.) Chambers

Lathyrus myrtifolius Muhl.
Lathyrus palustris L. var. myrtifolius (Muhl.) Gray

Lemna minima Phil.
Lemna minuta HBK.

Lespedeza stipulacea Maxim.
Kummerowia stipulacea (Maxim.) Makino

Lespedeza striata (Thunb.) Hook. & Arn.
Kummerowia striata (Thunb.) Schindl.

Linaria canadensis (L.) Dum.-Cours. var. texana (Scheele) Pennell
Linaria texana Scheele

Linaria dalmatica (L.) Mill.
Linaria genistifolia (L.) Mill. ssp. dalmatica (L.) Maire & Petitmengin

Lindernia anagallidea (Michx.) Pennell
Lindernia dubia (L.) Pennell var. anagallidea (Michx.) Cooperrider

Linnaea americana Forbes
Linnaea borealis L. ssp. americana (Forbes) Hulten

Lippia cuneifolia (Torr.) Steud.
Phyla cuneifolia (Torr.) Greene

Lippia lanceolata Michx.
Phyla lanceolata (Michx.) Greene

Lithospermum arvense L.
Buglossoides arvense (L.) I.M. Johnston

Lycium halimifolium Mill.
Lycium barbarum L.

Lycopodium flabelliforme (Fern.) Blanch.
Lycopodium digitatum A. Br.

Lysimachia lanceolata Walt. var. hybrida (Michx.) Gray
Lysimachia hybrida Michx.

Malaxis monophylla (L.) Sw. var. brachypoda (Gray) F. Morris
Malaxis brachypoda (Gray) Fern.

Malus coronaria (L.) var. lancifolia Rehd.
Malus coronaria (L.) Mill. var. dasycalyx Rehd.

Matricaria maritima L.
Matricaria perforata L.

Mazus japonicus (Thunb.) Kuntze
Mazus pumilus (Burm. f.) Steenis

Mentha X alopecuroides Hull
Mentha X villosa Huds.

Microseris cuspidata (Pursh) D. Dietr.
Nothocalais cuspidata (Pursh) Sch. Bip.

Myosotis virginica (L.) BSP.
Myosotis verna Nutt.

Myosotis virginica (L.) BSP. var. macrosperma (Engelm.) Fern.
Myosotis macrosperma Engelm.

Oenothera cruciata Nutt.
Oenothera parviflora L.

Oenothera missouriensis Sims
Oenothera macrocarpa Nutt.

Oenothera serrulata Nutt.
Calylophus serrulatus (Nutt.) Raven

Oenothera tetragona Roth
Oenothera fruticosa L. ssp. glauca (Michx.) Straley

Onosmodium occidentale Mack.
Onosmodium molle Michx. ssp. occidentale (Mack.) Cochrane

Panicum boreale Nash
Dichanthelium boreale (Nash) Freckm.

Panicum boscii Poir.
Dichanthelium boscii (Poir.) Gould & Clark

Panicum boscii Poir. var. molle (Vasey) Hitchc. & Chase
Dichanthelium boscii (Poir.) Gould & Clark var. molle (Vasey) Mohlenbr.

Panicum clandestinum L.
Dichanthelium clandestinum (L.) Gould

Panicum columbianum Scribn.
Dichanthelium columbianum (Scribn.) Freckm.

Panicum commutatum Schult.
Dichanthelium commutatum (Schult.) Gould

Panicum commutatum Schult. var. ashei Fern.
Dichanthelium commutatum (Schult.) Gould var. ashei (Fern.) Mohlenbr.

Panicum depauperatum Muhl.
Dichanthelium depauperatum (Muhl.) Gould

Panicum dichotomum L.
Dichanthelium dichotomum (L.) Gould

Panicum joori Vasey
Dichanthelium joori (Vasey) Mohlenbr.

Panicum lanuginosum Ell.
Dichanthelium acuminatum (Sw.) Gould & Clark var. fasciculatum (Torr.) Freckm.

Panicum lanuginosum Ell. var. inmplicatum (Scribn.) Fern.
Dichanthelium acuminatum (Sw.) Gould & Clark var. fasciculatum (Torr.) Freckm.

Panicum lanuginosum Ell. var. lindheimeri (Nash) Fern.
Dichanthelium acuminatum (Sw.) Gould & Clark var. lindheimeri (Nash) Gould & Clark

Panicum lanuginosum Ell. var. septentrionale (Fern.) Fern.
Dichanthelium acuminatum (Sw.) Gould & Clark var. lindheimeri (Nash) Gould & Clark

Panicum latifolium L.
Dichanthelium latifolium (L.) Gould & Clark

Panicum laxiflorum Lam.
Dichanthelium laxiflorum (Lam.) Gould

Panicum leibergii (Vasey) Scribn.
Dichanthelium leibergii (Vasey) Freckm.

Panicum linearifolium Scribn.
Dichanthelium linearifolium (Scribn.) Gould

Panicum linearifolium Scribn. var. werneri (Scribn.) Fern.
Dichanthelium linearifolium (Scribn.) Gould var. werneri (Scribn.) Mohlenbr.

Panicum malacophyllum Nash
Dichanthelium malacophyllum (Nash) Gould

Panicum mattamuskeetense Ashe
Dichanthelium mattamuskeetense (Ashe) Mohlenbr.

Panicum meridionale Ashe
Dichanthelium meridionale (Ashe) Freckm.

Panicum microcarpon Muhl.
Dichanthelium microcarpon (Muhl.) Mohlenbr.

Panicum nitidum Lam.
Dichanthelium nitidum (Lam.) Mohlenbr.

Panicum oligosanthes Schult.
Dichanthelium oligosanthes (Schult.) Gould

Panicum oligosanthes Schult. var. helleri (Nash) Fern.
Dichanthelium oligosanthes (Schult.) Gould var. helleri (Nash) Mohlenbr.

Panicum oligosanthes Schult. var. scribnerianum (Nash) Fern.
Dichanthelium oligosanthes (Schult.) Gould. var. scribnerianum (Nash) Gould

Panicum perlongum Nash
Dichanthelium perlongum (Nash) Freckm.

Panicum polyanthes Schult.
Dichanthelium polyanthes (Schult.) Mohlenbr.

Panicum praecocius Hitchc. & Chase
Dichanthelium praecocius (Hitchc. & Chase) Freckm.

Panicum ravenelii Scribn. & Merr.
Dichanthelium ravenelii (Scribn. & Merr.) Gould

Panicum scoparioides Ashe
Dichanthelium X scoparioides (Ashe) Mohlenbr.

Panicum scoparium Lam.
Dichanthelium scoparium (Lam.) Gould

Panicum sphaerocarpon Ell.
Dichanthelium sphaerocarpon (Ell.) Gould

Panicum subvillosum Ashe
Dichanthelium acuminatum (Sw.) Gould & Clark var.
fasciculatum (Torr.) Freckm.

Panicum villosissimum Nash
Dichanthelium villosissimum (Nash) Freckm.

Panicum villosissimum Nash var. pseudopubescens (Nash) Fern.
Dichanthelium villosissimum (Nash) Freckm. var.
pseudopubescens (Nash) Mohlenbr.

Panicum wilcoxianum Vasey
Dichanthelium wilcoxianum (Vasey) Freckm.

Panicum yadkinense Ashe
Dichanthelium yadkinense (Ashe) Mohlenbr.

Parthenocissus vitacea (Knerr) Hitchc.
Parthenocissus inserta (Kerner) K. Fritsch

Peplis diandra Nutt.
Didiplis diandra (DC.) Wood

Petalostemum candidum (Willd.) Michx.
Dalea candida (Michx.) Willd.

Petalostemum foliosum Gray
Dalea foliosa (Gray) Barneby

Petalostemum purpureum (Vent.) Rydb.
Dalea purpurea Vent.

Phoradendron flavescens (Pursh) Nutt.
Phoradendron serotinum (Raf.) M.C. Johnst.

Plantago indica L.
Plantago arenaria Waldst. & Kit.

Plantago purshii Roem. & Schultes
Plantago patagonica Jacq. var. brevicarpa (Shinners) Shinners

Polianthes virginica (L.) Shinners
Manfreda virginica (L.) Rose

Polygonum aviculare L.
Polygonum arenastrum Boreau

Polygonum coccineum Muhl.
Polygonum amphibium L.

Polypodium vulgare L. var. virginianum (L.) Eaton
Polypodium virginianum L.

Prunella vulgaris L. var. lanceolata (Bart.) Fern.
Prunella vulgaris L. var. elongata Benth.

Puccinellia pallida (Torr.) Clausen
Torreyochloa pallida (Torr.) Church

Pyrola secunda L.
Orthilia secunda (L.) House

Quercus pagodaefolia (Ell.) Ashe
Quercus pagoda Raf.

Ribes sativum (Reichenb.) Syme
Ribes rubrum L.

Rosa lunellii Greene
Rosa arkansana Porter

Rosa pimpinellifolia L.
Rosa spinosissima L.

Rubus occidualis Bailey
Rubus roribaccus (Bailey) Rydb.

Rudbeckia amplexicaulis Vahl
Dracopsis amplexicaulis (Vahl) Chase

Rudbeckia fulgida Ait. var. missouriensis (Engelm.) Cronq.
Rudbeckia missouriensis Engelm.

Salix interior Rowlee
Salix exigua Nutt.

Salsola kali L. var. tenuifolia Tausch
Salsola iberica Sennen & Pav.

Salvia sylvestris L.
Salvia nemorosa L.

Sambucus pubens Michx.
Sambucus racemosa L. ssp. pubens (Michx.) House

Saponaria vaccaria L.
Vaccaria pyramidata Medic.

Scutellaria epilobiifolia Muhl.
Scutellaria galericulata L.

Scutellaria parvula Michx. var. australis Fassett
Scutellaria australis (Fassett) Epling

Scutellaria parvula Michx. var. leonardii (Epling) Fern.
Scutellaria leonardii Epling

Sesbania exaltata (Raf.) Cory
Sesbania macrocarpa Muhl.

Setaria lutescens (Weigel) Hubb.
Setaria glauca (L.) Beauv.

Seymeria macrophylla Nutt.
Dasistoma macrophylla (Nutt.) Raf.

Solanum americanum Mill
Solanum ptycanthum Dunal

Solanum rostratum Dunal
Solanum cornutum Lam.

Solanum torreyi Gray
Solanum dimidiatum Sendt.

Solidago bicolor L. var. concolor Torr. & Gray
Solidago hispida Muhl.

Solidago graminifolia (L.) Salisb.
Euthamia graminifolia (L.) Salisb.

Solidago graminifolia (L.) Salisb. var. remota (Greene) Harris
Euthamia tenuifolia (Pursh) Greene

Solidago gymnospermoides (Greene) Fern.
Euthamia gymnospermoides Greene

Specularia biflora (R. & P.) Fisch. & Mey.
Triodanis perfoliata (L.) Nieuwl. var. biflora (R. & P.) Bradley

Specularia leptocarpa (Nutt.) Gray
Triodanis leptocarpa (Nutt.) Nieuwl.

Specularia perfoliata (L.) A. DC.
Triodanis perfoliata (L.) Nieuwl.

Sphaeralcea angusta (Gray) Fern.
Sidopsis hispida (Pursh) Rydb.

Spirodela oligorhiza (Kurtz) Hegelm.
Spirodela punctata (Mey.) C.H. Thompson

Stachys hyssopifolia Michx. var. ambigua Gray
Stachys aspera Michx.

Stachys riddellii House
Stachys nuttallii Shuttlw.

Swertia caroliniensis (Walt.) Kuntze
Frasera caroliniensis Walt.

Teucrium canadense L. var. occidentale (Gray) McClintock & Epling
Teucrium canadense L. var. boreale (Bickn.) Shinners

Thelypteris hexagonoptera (Michx.) Watt.
Phegopteris hexagonoptera (Michx.) Fee

Thelypteris phegopteris (L.) Slosson
Phegopteris connectilis (Michx.) Watt.

Tunica saxifraga (L.) Scop.
Petrorhagia saxifraga (L.) Link

Vaccinium vacillans Torr.
Vaccinium pallidum Ait.

Valeriana ciliata Torr. & Gray
Valeriana edulis Nutt. ssp. ciliata (Torr. & Gray) F.G. Mey.

Valeriana uliginosa (Torr. & Gray) Rydb.
Valeriana sitchensis Bong. ssp. uliginosa (Torr. & Gray) F.G. Mey.

Valerianella olitoria (L.) Poll.
Valerianella locusta (L.) Betcke

Verbena canadensis (L.) Britt.
Glandularia canadensis (L.) Nutt.

Verbena peruviana (L.) Britt.
Glandularia peruviana (L.) Small

Vicia angustifolia Reich.
Vicia sativa L. ssp. nigra (L.) Ehrh.

Vigna sinensis (L.) Endl.
Vigna unguiculata (L.) Walp.

Viola canadensis L. var. rugulosa (Greene) C.L. Hitchc.
Viola canadensis L. var. corymbosum Nutt.

Viola cucullata Marsh.
Viola obliqua Hill

Viola papilionacea Pursh
Viola pratincola Greene

Viola pratincola Greene f. albiflora (Glover) Mohlenbr.
Viola priceana Pollard

Wisteria floribunda (Willd.) DC.
Rehsonia floribunda (Willd.) Stritch

Wisteria sinensis (Sims) Sweet
Rehsonia sinensis (Sims) Stritch

Wolffia papulifera C.H. Thompson
Wolffia braziliensis Weddell

Wolffiella floridana (J.D. Sm.) C.H. Thompson
Wolffiella gladiata (Hegelm.) Hegelm.

Wulfenia bullii (Eat.) Barnh.
Besseya bullii (Eat.) Rydb.

Xanthocephalum dracunculoides (DC.) Shinners
Amphiachyris dracunculoides (DC.) Nutt.

Xanthocephalum texanum (DC.) Shinners
Gutierrezia texana (DC.) Torr. & Gray

Yucca filamentosa L. var. smalliana (Fern.) Ahles
Yucca flaccida Haw.

Zigadenus glaucus Nutt.
Zigadenus venenosus S. Wats. var. gramineus (Rydb.) Walsh

Literature Cited

Mohlenbrock, R.H. 1975. Guide to the Vascular Flora of Illinois. Southern Illinois University Press, Carbondale. 494 pp.

_____. 1986. Guide to the Vascular Flora of Illinois, Revised and Enlarged Edition. Southern Illinois University Press, Carbondale. 508 pp.

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