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THE ILLINOIS STATUS OF  
*LIATRIS SCARIOSA* (L.) WILLD.  
VAR. *NIEUWLANDII* LUNELL  
A NEW THREATENED SPECIES FOR ILLINOIS

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## ABSTRACT

Through a field and herbarium study, Illinois references to *Liatris* X *nieuwlandii* (Lunell) Gaiser, *L. X sphaeroidea* Michx., and *L. ligulistylis* (Nels) K. Schum. are referred to *L. scariosa* (L.) Willd. var. *nieuwlandii* Lunell. In Illinois, we found *L. scariosa* to be temporally and spatially isolated from other *Liatris*. It flowers in early fall, and essentially is restricted to remnant savannas on transitional forest-prairie silt loam soils derived from Wisconsinan aged glacial materials. Eleven populations of this *Liatris* are known to occur in a few northeastern and west-central Illinois counties. Because of continued loss and degradation of its savanna habitat, this species now is threatened with extirpation from Illinois.

## INTRODUCTION AND PROBLEM

The genus Liatris Schreb. (Blazing-star) is a taxonomically difficult and genetically variable group of species, varieties, and putative hybrids. In the northeastern United States, Fernald (1950) recognized 18 species and 9 varieties, while Gleason (1952) included 15 species and 6 varieties of this genus. Midwestern Liatris occupy prairie or savanna habitats, and often are isolated from hybridization by different ecological requirements or flowering times (Menhusen 1973). However, considerable hybridization may occur (Gaiser 1951), especially when habitats overlap, such as in the Illinois Lake Michigan Dunes (Levin 1967, 1968).

Illinois botanists (e.g., Swink and Wilhelm 1979) have recognized a poorly understood and rare Liatris that occurs in mesic grassland or savanna habitats in a few northeastern and west-central Illinois counties. In comparison to related species, this plant is characterized by large, campanulate, pedunculate heads, herbaceous middle involucral bracts, and often broad lower leaves. Illinois material of this Liatris keys imperfectly in Gaiser (1946) and Fernald (1950) toward L. borealis Nutt., L. ligulistylis (Nels.) K. Schum. (including L. X nieuwandii), or to L. aspera Michx. (including L. X sphaeroidea Michx.). In modern Illinois floras, references to this morphology have been treated with L. aspera Michx. as L. X nieuwandii (Lunell) Gaiser (by Jones 1963) or as L. X sphaeroidea Michx. (by Mohlenbrock 1986). Also, Wunderlin (1966) recognized it as L. ligulistylis (Nels.) K. Schum., within which Mohlenbrock (1986) includes L. X nieuwandii (Lunell) Gaiser. In contrast, Gleason (1952) followed Shinnars (1943) in recognizing morphologies similar to our Illinois material as L. novae-angliae

Shinners var. nieuwlandii (Lunell) Shinners. In a more recent treatment, Cronquist (1980) follows Lunell (1912) in treating this taxon as L. scariosa (L.) Willd. var. nieuwlandii Lunell.

Recent studies in Chicago region savannas (Packard 1988) and an update of Illinois endangered and threatened species (Bowles 1987) led us to re-evaluate the taxonomic and ecological status of this blazing-star in Illinois. Our initial observations were that it differed from the closely allied Liatris aspera by association with bur and white oak savannas, and a fall period of anthesis. These distinct habitat and phenological niches in part support Fernald's (1950) observations of phenological and ecological isolation for L. X nieuwlandii.

We initiated herbarium research on this blazing-star in order to determine its former Illinois distribution, and if it has uniform taxonomic features. Field studies also were conducted to determine its current Illinois distribution, its ecological characteristics, and its potential endangered or threatened status in Illinois.

## METHODS

Herbarium studies

Herbarium specimens (primarily those labeled Liatris scariosa, L. ligulistylis, L. X newlandii, L. X sphaeroidea, L. aspera, and L. scabra) were examined at: Morton Arboretum (MOR), Field Museum (F), University of Illinois (ILL), Illinois Natural History Survey (ILLS), Illinois State Museum (ISM), Southern Illinois University (SIU), and Missouri Botanical Garden (MO); specimens also were obtained on loan from the New York State Museum (NYS). Herbarium abbreviations follow Holmgren et al. (1981).

Collection data (original identification, annotations, collector, collection date, locality, and herbarium) were recorded from Illinois collections of Liatris scariosa. Information also was obtained from The Illinois Nature Preserves Commission (Meyer 1986), personal interviews, and published literature (e.g., Wunderlin 1966, Schwegman 1972).

In assessing key characteristics used by various authorities, we agree with Shinners (1943) that species variability, hybridization, minor taxonomic importance of some obvious variations, and scanty representation of some species in herbaria contribute to difficulty in understanding the L. scariosa group. The necessity of considering characters in combination is a key feature, as the break in a single character between two species may be obscured by an unimportant obvious feature (Shinners 1943). All specimens were compared and sorted by their labeled identity, and by geographic region of collection. Illinois specimens were sorted further by the following

sequential key that we derived from Shinners (1943), Fernald (1950), and Cronquist (1980).

- 1) Pappus plumose: Sec. Euliatris DC. in Fernald (1950).
- 1) Pappus barbellate. Sec. Suprago (Cass.) DC. in Fernald (1950).
  - 2) Heads cylindrical to narrowly turbinate-campanulate: Ser. Spicatae & Pycnostachyae (E.J. Alex.) Gaiser in Fernald (1950).
  - 2) Heads broadly turbinate-campanulate to hemispheric: Ser. Scariosae (E.J. Alex.) Gaiser in Fernald (1950).
- 3) Middle involucral bracts bullate, glabrous abaxially, with broad, uneven, irregularly lacerate, eciliate, scarious margins.
  - 4) Heads campanulate or hemispheric, corolla tube glabrous within: L. ligulistylis (Nels.) K. Schum.
  - 4) Heads subglobose, corolla tube pilose within: L. aspera Michx.
- 3) Middle involucral bracts non-bullate, glabrous, hirsutulous, or cinereous abaxially, coriaceous, or herbaceous with uniformly narrow, entire, slightly erose, or ciliate scarious borders.
  - 4) Heads small, with fewer than 25 flowers: L. squarrosa Michx. (including L. scabra (Greene) K. Schum.)
  - 4) Heads large, 25-80 (or more) flowered: L. scariosa (L.) Willd, including three varieties, among which var. nieuwlandii Lunell is said to occur in inland United States (Cronquist 1980).

Also, we examined L. scariosa (primarily MOR specimens) for the character of corolla tube pilosity, which can lead to the following identifications, sensu Gaiser (1946) and Fernald (1950):

- 1) Corolla tube pilose within: L. X sphaeroidea (one putative parent = L. aspera).
- 2) Corolla tube glabrous within: L. X nieuwlandii (one putative parent = L. ligulistylis).

#### Field studies.

Sites believed to support extant populations of this blazing-star were visited during October-November 1987. Representative collections from larger populations were deposited at MOR. Population census and ecological information were collected at sites containing blazing-stars. Populations were censused by counts or estimates of the number of flowering plants; non-flowering plants were neither identified or censused. Ecological data included natural plant community descriptions (sensu White and Madany 1978), community dominants, and specific associates. The protection status, threats, and management needs of each population were noted. County soils maps and regional geological literature were consulted for additional habitat information.

## RESULTS

Taxonomy and nomenclature

Thirty-five voucher specimens from seventeen Illinois counties (Appendix I) were found almost uniformly to fit the description of Liatris scariosa (L.) Willd. var. nieuwlandii Lunell (Cronquist 1980). Illinois plants were found to be characterized by numerous stem leaves, and often broad lower leaves; large, campanulate, and pedunculate heads, the uppermost often larger; and herbaceous, non-bullate, often ciliate-margined involucre bracts without strongly lacerate scarious borders. Gaiser (1946) suggested that this midwestern element was a hybrid, with L. aspera or L. ligulistylis as respective parents. However, we agree with Lunell (1912) and Cronquist (1980) that it represents L. scariosa.

Among specimens, density of inner corolla tube pilosity was variable, and some plants had entirely glabrous inner corolla tubes. Evidently this is a facultative trait within an otherwise uniform morphology, and does not necessarily imply hybrid origin. Corolla tube pilosity may be useful in separating Liatris ligulistylis (glabrous) from L. aspera (pilose), and identifying hybrids between these species. In herbarium specimens, the relatively large terminal flowering head, and usually larger and more lacerate middle phyllaries of L. ligulistylis also helped distinguish it from L. aspera.

We found no Illinois specimens that closely resembled Liatris ligulistylis as described by Shinnars (1943) or Fernald (1950). The range of this species is

to the north and west of Illinois, where it is reported to occur in prairie wetlands (Shinners 1943). Johnson and Iltis (1963) record L. ligulistylis and related hybrids from southeast Wisconsin. Their near proximity to Illinois may represent a source for putative hybrids containing characters of L. ligulistylis reported by Levin (1968) from Lake Co. We interpret other Illinois references (Wunderlin 1966, Schwegman 1972, Mohlenbrock 1986) to L. ligulistylis as based on specimens of L. scariosa var. nieuwlandii.

#### Distribution and ecology

Liatris scariosa is known from 17 Illinois counties (Figure 1). This plant has a bicentric distribution in Illinois, with a few Chicago region stations and a more widespread occurrence in west-central Illinois. Liatris scabra (Greene) K. Schum., which Cronquist (1980) places in synonymy with Liatris squarrulosa Michx., appears to replace this species southward. For example, all Evers (ILLS) specimens labeled L. nieuwlandii from Clay, Effingham, Fayette, Jefferson, and Marion counties examined during this study have been referred to L. scabra. The Southern Till Plain Natural Division of Illinois (Schwegman et al. 1973) appears to limit the southern distribution of L. scariosa in Illinois. This boundary represents an edaphic transition from essentially Wisconsinan-aged soils to the older, more leached soils of southern Illinois and evidently is a migration barrier to distribution of other Illinois plants (e.g., Sheviak 1974).

The eleven extant Illinois populations of L. scariosa var. nieuwlandii (Table 1) are essentially restricted to mesic savanna on the silt loam (or eroded clay loam) soils of well-drained morainic ridges or dissected till plains.

Table 1. Distribution, site ownership/management status, and population sizes for *Liatris scariosa* var. *neuwlandii* in Illinois. Historic records status: EXA = extant, UNK = unknown, EXI = presumed extirpated. POP SIZE: population estimates are based on flowering plants censused in 1987. < = less than.

COUNTY	HISTORIC RECORDS			OWNERSHIP/MANAGEMENT OF EXTANT POPULATIONS	POP. SIZE
	EXA	UNK	EXI		
Adams		1	1	Cook Co.	
Brown		1		public/unmanaged	<15
Cass			1	public/unmanaged	<150
Calhoun		1	1	public/unmanaged	<150
Cook	4	1	5	public/managed	<10
Fulton			1		
Hancock			1	Macon Co.	
Macon	1			private/unmanaged	1
Macoupin	2		3		
				Macoupin Co.	
Macoupin	2		3	private/unmanaged	2
McDonough			1	private(?)/unmanaged	10
McLean		1			
Menard			2	Montgomery Co.	
Montgomery	2			public/unmanaged	1
				public/managed	25
Pike			2		
Sangamon			2	Will Co.	
Schuyler			1	public/managed	<100
Will	2			public/unmanaged	3
TOTALS	11	5	21		



During pre-settlement times, the irregular topography of such habitats may have ameliorated fire intensities and frequencies, allowing development of savanna vegetation (Bray 1955).

In the Chicago region, L. scariosa populations are confined to remnant savannas on the Tinley and Valparaiso morainic systems, and appear restricted to forest-prairie transition soils of the Morley-Markham-Ashkum silt loam (USDA 1979) soil catena. Typically, these savanna communities have been disturbed from past over grazing, and are often associated with railroad rights-of-way. Quercus macrocarpa is the characteristic overstory tree, forming a partial canopy in association with Carya ovata and Quercus alba. Other dominant woody plants include Cornus racemosa, Rhus glabra, and Vitis riparia. Common grasses include Andropogon gerardii, Sorghastrum nutans, and the Eurasian Poa compressa and P. pratensis.

Forty-one herbaceous species were recorded in association with Liatris scariosa var. nieuwlandii from six Chicago region stations (Appendix II). The most frequent associates included Allium cernuum, Anemone virginiana, Aster ericoides, A. laevis, A. sagittifolius var. drummondii, Fragaria virginiana, Helianthus divaricatus, Polygonatum canaliculatum, Silphium terebinthinaceum, Smilacina racemosa, Solidago rigida, and Zizia aurea. Also, many additional associates that may have been distinctive species of original savanna (Packard 1988) include Arenaria lateriflora, Lathyrus venosus var. intonsus, Polygala senega, Taenidia integerrima, and Thaspium trifoliatum var. flavum.

In central Illinois, Liatris scariosa populations were usually found in

railroad or cemetery savannas situated on transitional habitat between level and dissected till plains. The Macon Co. station is adjacent to the Shelbyville Moraine, at the southern limit of Wisconsinan glaciation (Willman and Frye 1970). The Macoupin Co. and Montgomery Co. stations are south of Wisconsinan glaciation. However, they occur on Wisconsinan-aged loess, which is deposited over the Vandalia ground moraine (Lineback 1979). These habitats are well-drained uplands at the edges of wooded ravines and consist of Sicily silt loam (a transitional soil formed under savanna vegetation) and other related soils (USDA 1969). Overstories of these central Illinois savanna communities are characterized by Quercus macrocarpa, Q. imbricaria, Q. velutina, and Q. stellata. Liatris scariosa appears restricted to microhabitats formed by partial overstory shade from these trees. Important associates include Andropogon gerardii, Andropogon scoparius, Ceanothus americanus, Coreopsis tripteris, Echinacea purpurea, Euphorbia corollata, Helianthus divaricatus, Silphium integrifolium, S. terebinthinaceum, Solidago nemoralis, S. speciosa, Sorghastrum nutans, and Veronicastrum virginicum.

It appears that in the past, Liatris scariosa var. nieuwlandii may have been more widely distributed in west-central Illinois (Figure 1), especially in the Western Forest Prairie Border Natural Division (Schwegman et al. 1973). Topography in this region is highly dissected, and savanna or barrens presumably were common. Mead (1846), who worked principally in Hancock Co., IL, distinguished Liatris aspera Michx. as a prairie species and L. scariosa (L.) Willd. as a barrens species. Typical soils in this natural division are developed in Wisconsinan-aged loess over Illinoian or older glacial till (Lineback 1979). Although plants still may occur in Calhoun, Adams, and Brown counties, all collections are prior to 1970 (Appendix II), and no

specific information is available on the condition or ecology of these stations.

Status

Liatrix scariosa was recommended as a State of Illinois threatened species (Bowles 1987). The species has a history of decline, with a 65% reduction in extant county records, and probably a similar or even more severe population decline. Eleven populations now are known from five counties, and only three of these are within managed and protected sites (Table 1).

Although our estimates of population sizes included only counts of flowering individuals, the Illinois populations of Liatrix scariosa var. nieuwlandii appear relatively small (Table 1), with individual plants usually infrequent within communities. Population sizes appear to be limited by the sizes of specific savanna micro-habitats, especially in central Illinois. Most populations appear threatened by competition for light and other resources as a result of succession toward total woody vegetation; it is likely this blazing star will decline further without prescribed burning of its savanna community.

In the Chicago region, the largest population (in Cook Co.) consists of fewer than 150 plants; another Cook Co. population was essentially destroyed by construction activities in December, 1987. Single Cook Co. and Will Co. sites containing this species have been managed by prescribed burning since 1987.

Other Illinois populations are very small and appear vulnerable even to

minimal disturbances. One plant was found in an unmanaged Macon Co. railroad right-of-way. The Macoupin Co. populations consisted of 10 flowering plants in a cemetery savanna, and of 2 flowering plants in a railroad prairie and savanna, which was disturbed by public utility line construction in 1988. In Montgomery Co., a single flowering plant was found in a publicly owned but unmanaged prairie/savanna threatened by invasion and competition from exotic vegetation. A second Montgomery Co. population consisted of 25 flowering plants in a fire-managed cemetery savanna nature preserve. Populations may exist at Siloam Springs State Park (Adams Co. and Brown Co). and in Calhoun Co.. but their status is unknown. One 1978 McLean Co. collection is from a mesic prairie nature preserve, where a population could remain extant.

#### SUMMARY

Our studies indicate that in Illinois, populations of Liatris scariosa var. nieuwlandii constitute a valid taxon. In the past, this plant may have suffered great loss of habitat and populations, especially during the rapid loss of savanna that occurred in Illinois during the decade after settlement (Engelmann 1863). This decline continues, and L. scariosa currently is threatened with extirpation from the state. Proper protection and community management by the re-introduction of burning appear essential for the survival of many smaller populations and the proper maintenance of all savanna communities containing this blazing-star.

Little specific information is available on the total distribution and status of Liatris scariosa var. nieuwlandii beyond Illinois. This plant extends eastward through Indiana, Michigan, Ohio, West Virginia, Pennsylvania, New

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York and Ontario (Shinners 1943, Cronquist 1980). Its western distribution extends to Missouri and Nebraska (from where we have observed specimens), and Arkansas (Shinners 1943). The status of this blazing-star in these states may be comparable to that of Illinois if similar habitat decline has occurred.

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Appendix I. Historic county voucher specimens, site records, or references for *Liatris scariosa* var. *nieuwlandii*. Herbarium abbreviations: F (Field Museum), ILL (University of Illinois), ILLS (Illinois Natural History Survey), ISM (Illinois State Museum), MOR (the Morton Arboretum), SIU (Southern Illinois University).

COUNTY	COLLECTOR, NUMBER, DATE, LOCALITY, DEPOSITORY
Adams	Evers, #70989, 1961, Siloam Springs St. Pk., ILLS
Adams	Rexroat, #9587, 1964, E part of County, ISM
Brown	Evers, #101312, 1969, Siloam Springs St. Pk., ILLS
Calhoun	Campbell & Alexopoulos, <u>s.n.</u> , 1930, Ringhauser Orchard, ILLS
Calhoun	Evers, #92917, 1967, Perrens Ledge, Kampsville, ILLS
Cass	Rexroat, #641, 1953, ISM
Cook	Bray, <u>s.n.</u> , 1892, Burnside-by Railroad, F
Cook	Umbach, <u>s.n.</u> , 1909, Palos Pk, F
Cook	Bartel, <u>s.n.</u> , 1956, Palos Pk-1/2 mi SW 95th & Rt 45, F
Cook	Lace, <u>s.n.</u> , 1972, Palos Hts-141st & Harlem, MOR
Cook	Pearsall, #8332, 1973, Orland (Pk?), ISM, ILLS
Cook	Mule, <u>s.n.</u> , 1987, MOR, Orland Pk-McGinnis F.P., MOR
Cook	Mule & Bowles, pers. obs., 1987, Orland Pk-RRROW
Cook	Packard, <u>s.n.</u> , 1985, Oak Forest F.P., MOR
Cook	Bowles, #705-6, 1987, Oak Forest F.P., MOR
Cook	Packard, <u>s.n.</u> , 1985, Midlothian F.P., MOR
Cook	Bowles, #709, 1987, Midlothian F.P., MOR
Cook	Packard, pers. obs., 1987, Cap Sauers Holdings N.P.
Fulton	Winterringer, #5182, 1950, Avon-RRROW, ISM
Hancock	Mead (1846) <sup>1</sup>
Macon	Shildneck, #C-4507, 1972, W Decatur-RRROW, ISM
Macoupin	Robertson, <u>s.n.</u> , 1880, Carlinville, ILLS
Macoupin	White, #309, 1968, Carlinville-RRROW, SIU
Macoupin	Koelling, #4245, 1971, 2 mi S Plainview-RRROW, ISM
Macoupin	Bowles, #710, 1987 Plainview-Cemetery Savanna, MOR
McDonough	Myers, #1187, 1950, roadside near Colmar, ISM
McLean	Shildneck, #C-10136, 1978, Weston Cemetery N.P., MOR
Menard	Hall, <u>s.n.</u> , 1861, dry woods and sandy hills, F
Menard	Rexroat, #5312, 1958, S of Oakford, ISM
Montgomery	Schwegman, <u>s.n.</u> , 1970, E of Lake Lou Yaeger dam, SIU
Montgomery	Bowles, #694, 1987, Lake Lou Yaeger dam, MOR
Montgomery	Bowles, #695, 1987, Roberts Cemetery Savanna N.P., MOR
Pike	Campbell and Alexopoulos, <u>s.n.</u> , 1930, near Nebo, ILLS
Pike	Boewe, <u>s.n.</u> , 1938, in Pittsfield, ILLS
Sangamon	Winterringer, #2258, 1949, Rt 54 RRROW NE Springfield, ISM
Sangamon	Rexroat, #6401, 1959, NW Springfield, ISM
Schuyler	Rexroat, #10714, 1968, red clay open hill, ISM
Will	Packard, pers. comm., 1985, Hunters Woods F.P.
Will	DeMauro, <u>s.n.</u> , 1987, Hickory Creek F.P., MOR

<sup>1</sup> Mead, S.B. 1846. Catalogue of plants growing spontaneously in the State of Illinois, the principal part near Augusta, Hancock County. The Prairie Farmer 6:35-36, 60, 93, 119-122.

Appendix II. Occurrences of plant species associated within one meter of *Liatris scariosa* var. *nieuwlandii* in six Chicago region (Cook Co. and Will Co., IL). \* = species listed as savanna or barrens species by Mead (1846). Nomenclature follows Swink, F. and G. Wilhelm. 1979. Plants of the Chicago Region. The Morton Arboretum, Lisle, IL.

PLANT SPECIES	1	2	3	4	5	6	Total
<b>WOODY PLANTS</b>							
<i>Carya ovata</i>			x				1
<i>Cornus racemosa</i>	x			x	x		4
<i>Corylus americana</i> *						x	1
<i>Crataegus</i> sp					x		1
<i>Euonymus atropurpureus</i>		x					1
<i>Fraxinus</i> sp		x					1
<i>Lonicera tatarica</i> (?)		x					1
<i>Pyrus ioensis</i>						x	1
<i>Quercus alba</i>						x	1
<i>Quercus ellipsoidalis</i>			x			x	2
<i>Quercus macrocarpa</i>	x	x	x	x	x		5
<i>Quercus rubra</i>		x	x	x			3
<i>Rhus glabra</i> *		x		x		x	3
<i>Rosa blanda</i>	x						1
<i>Rosa carolina</i>						x	1
<i>Rubus</i> sp			x				1
<i>Salix humilis</i>					x		1
<i>Viburnum lentago</i>						x	1
<i>Vitis riparia</i>	x	x			x		3
<b>GRASSES AND SEDGES</b>							
<i>Andropogon gerardii</i>						x	1
<i>Carex pennsylvanica</i>				x			1
<i>Danthonia spicata</i>			x				1
<i>Hystrix patula</i>	x						1
<i>Panicum implicatum</i>				x			1
<i>Poa compressa</i>	x						1
<i>Poa pratensis</i>	x						1
<i>Sorghastrum nutans</i>			x			x	2
<b>FORBS</b>							
<i>Agrimonia gryposepala</i>						x	1
<i>Allium canadense</i>	x						1
<i>Allium cernuum</i>	x				x	x	3
<i>Anemone virginiana</i>	x	x			x	x	4
<i>Antennaria plantaginifolia</i>				x			1
<i>Apocynum androsaemifolium</i>	x						1
<i>Arenaria lateriflora</i> *		x					1
<i>Aster ericoides</i>	x		x		x		3
<i>Aster laevis</i>	x			x	x		3

Aster sagittifolius	x	x		x	3
var. drummondii					
Coreopsis tripteris*				x	1
Desmodium canadense	x			x	2
Desmodium cuspidatum			x		1
Desmodium paniculatum*				x	1
Eryngium yuccifolium			x		1
Eupatorium rugosum	x				1
Euphorbia corollata	x			2	2
Fragaria virginiana	x	x		x	3
Helianthus divaricatus	x			x	3
Lathyrus venosus	x				1
Parthenium integrifolium			x		1
Potentilla simplex			x	x	2
Polygala sanguinea			x		1
Polygala senega*	x			x	2
Polygonatum canaliculatum	x	x		x	3
Prenanthes alba*			x	x	2
Pycnanthemum tenuifolium			x		1
Ratibida pinnata	x			x	2
Rudbeckia hirta	x			x	2
Silphium integrifolium*	x			x	2
Silphium terebinthinaceum*	x		x	x	5
Smilacina racemosa	x			x	3
Smilax lasioneura	x			x	2
Smilax tamnoides var. hispida				x	1
Solidago altissima				x	1
Solidago juncea*	x	x			2
Solidago nemoralis			x	x	2
Solidago rigida				x	2
Solidago ulmifolia*	x		x		2
Taenidia integerrima*	x				1
Thaspium trifoliatum	x			x	2
var. flavum					
Vicia americana	x			x	2
Viola sagittata*		x			1
Zizia aurea	x			x	3



## Photographs

*Liatris scariosa* var. *nieuwlandii*

M. L. Bowles #694, 31 August 1987, Montgomery Co., IL

Morton Arboretum Herbarium



Top Photograph:

Liatris scariosa var. nieuwlandii

P. Shildneck # C-10136, 25 August 1978, McLean Co., IL  
Morton Arboretum Herbarium

Bottom Photograph:

Liatris scariosa var. nieuwlandii

P. Shildneck # C-4507, 2 September 1972, Macon Co., IL  
Morton Arboretum Herbarium



Photographs:

*Liatris ligulistylis*

C. J. Sheviak # 2323, 5 August 1982, Ward Co., ND  
New York State Museum Herbarium



Photographs:

Liatris aspera

U. Rowlett. #1013. 5 October 1980, Cook Co.  
Morton Arboretum Herbarium

## CLINTONIA--AN UNUSUAL STORY

Most of the additions to the flora of Illinois involve introduced species. It is not common when a native plant is added as new to Illinois at this late date.

However, this is the case with the Bluebead Lily, Clintonia borealis. Jerry Wilhelm, in rummaging around the Field Museum herbarium in Chicago, came across a specimen of Clintonia collected at Maplewood, Illinois, by Mr. C. W. Duesner, in 1908.

I checked with the Chicago Historical Society and found that Maplewood is now part of Chicago. Sally McGill, a librarian at the Society, gave me a copy of a page from a history of Cook County, which shows that it originally comprised the southeastern quarter of Section 25, bounded on the east by Western Avenue and on the south by Fullerton Avenue.

I then checked with my copy of the 1944 Official Guide to the Railways (not many people keep these!) and found that Maplewood was a stop on the Chicago & Northwestern Railroad, although so little used that it was not shown in any of the time tables. I then telephoned the railroad, and they informed me that the depot was a block or so south of Diversey Avenue at Maplewood Avenue (which would place it three short blocks west of Western Avenue).

Undoubtedly Mr. Duesner found a swampy wooded area along the nearby Chicago River in those early days--our guess being that it was a Red Maple forest. As late as the 1940's, I knew of such a Red Maple swamp in Morton Grove, on the northwest corner of Dempster Street and Austin Avenue. I remember it well because it contained a large colony of Black-Crowned Night Herons.

For those interested, vouchering of this specimen is available at the Field Museum, and also at the Morton Arboretum.

Floyd Swink

NEW DISTRIBUTION RECORDS FOR  
THE VASCULAR FLORA OF NORTHERN ILLINOIS

Erwin F. Evert

ABSTRACT

Tussilago farfara is reported new for the state, and 28 new county records involving 25 species are reported. Notes concerning the occurrence of 9 Illinois endangered and threatened species are also presented.

INTRODUCTION

During the last several years while engaged in various floristic studies in northern Illinois, I have collected a number of species which represent new distributional data. One species, Tussilago farfara, was unrecorded for the state, and 25 taxa apparently represent new Illinois county records. In addition, a number of previously unreported populations of Illinois endangered and threatened species have been observed, or extant populations of these species have been verified as occurring at former historical stations. It is the purpose of this paper to present these new distributional data.

Voucher specimens of all taxa listed below are deposited at the Morton Arboretum Herbarium (MOR). Taxa in each section are listed in alphabetical order by genus and are followed by county, location within county, habitat, collection date, collector, collector's number, and notes (omitted in section II) pertaining to occurrence and/or significance. Taxa not native to Illinois are preceded by an asterisk. Nomenclature follows Mohlenbrock (1986).

I. SPECIES NEW TO ILLINOIS

\*Tussilago farfara L. Lake Co., T43N R12E SE  $\frac{1}{4}$  S3, Lake Forest just n. of Ft. Sheridan, disturbed, unstable clay on n. facing slope near ravine bottom with Prunus virginiana, Smilacina

racemosa, and Solanum dulcamara, 11 May and 3 June 1982, Evert 3701, 3797. A native of Eurasia, Tussilago farfara is an early blooming (March-June) scapose, perennial composite. The flowering scapes bearing yellow radiate and discoid heads appear several weeks before the appearance of the eventually large basal leaves. Tussilago farfara is found naturalized occasionally in disturbed places, frequently on clay banks, throughout the northeastern U.S. as far west as Minnesota (Fernald, 1950). Thus far, this conspicuous species has been reported in the Chicago region only from Berrien County, Michigan, where it occurs on sandbars (Swink & Wilhelm, 1979). The apparently spontaneous colony of Tussilago farfara from Lake County, Illinois, covers an area of about 30 x 15 ft. in a disturbed portion of an otherwise undisturbed ravine.

## II. NEW COUNTY RECORDS

Aralia nudicaulis L. Will Co., T34N R14E SW  $\frac{1}{4}$  S26, mesic, wooded ravine, 27 May 1984, Evert 6469.

Asplenium platyneuron (L.) Oakes. Rock Island Co., T18N R1E SE  $\frac{1}{4}$  S8, Illiniwek Forest Preserve, wooded ravine, 20 Sept 1980, Evert, 2508.

Athyrium thelypteroides (Michx.) Desv. Henry Co., T18N R2E SE  $\frac{1}{4}$  S24, wooded, mesic ravine, 20 Sept 1980, Evert 2504.

Botrychium dissectum Spreng. var. obliquum (Muhl.) Clute. Rock Island Co., T18N R1E SE  $\frac{1}{4}$  S8, Illiniwek Forest Preserve, wooded ravine, 20 Sept 1980, Evert 2511.

Cystopteris bulbifera (L.) Bernh. Bureau Co., T15N R9E NW  $\frac{1}{4}$  S36, wooded seepage in ravine bottom, 21 Sept 1980, Evert 2515. Lake Co., T45N R12E NE  $\frac{1}{4}$  S9, Waukegan, seepage bank in wooded ravine, 19 May 1982, Evert 3737.

Cystopteris X tenuis (Michx.) Desv. Lake Co., T43N R13W NW  $\frac{1}{4}$  S31, Highland Park, wooded ravine bottom on limestone boulders, 3 June 1982, Evert 3796. McHenry Co., T43N R8E S33, Algonquin, sandstone railroad bridge, 13 June 1983, Evert 5201.

Dryopteris carthusiana (Villars) H. P. Fuchs. Rock Island Co., T18N R1E SE  $\frac{1}{4}$  S8, Illiniwek Forest Preserve, wooded ravine, 20 Sept 1980, Evert 2510.

Dryopteris goldiana (Hook.) Gray. Lake County, T43N R12E NW  $\frac{1}{4}$  S3,

Lake Forest, wooded ravine bottom, 13 June 1980, Evert 1875.

Dryopteris intermedia (Muhl.) Gray. Will Co., T34N R14E SW  $\frac{1}{4}$  S26, wooded, mesic ravine, 13 April 1984, Evert 6456.

\*Euonymus europaeus L. Cook Co., T41N R12E SW  $\frac{1}{4}$  S9, Carle Woods Forest Preserve, forest edge, 16 May 1981 and 19 Aug 1981, Evert 2579a, 2579b.

Filipendula rubra (Hill) Robins. McHenry Co., T45N R6E S5, wet prairie, 8 May 1987, Evert & Vanderpoel 11834.

\*Lonicera xylostium L. Lake Co., T43N R12E NW  $\frac{1}{4}$  S25, Highland Park, wooded ravine, 22 May 1981, Evert 2583.

Lycopodium lucidulum Michx. Rock Island Co., T17N R4W S34, Loud Thunder Forest Preserve, wooded ravine, 26 Nov 1982, Evert 5134. Will Co., T34N R14E SW  $\frac{1}{4}$  S26, wooded, mesic ravine, 27 May 1984, Evert 6467.

Milium effusum L. Cook Co., T41N R12E SW  $\frac{1}{4}$  S9, Carle Woods Forest Preserve, mesic woods, 2 June 1980, Evert 1791 and 5 June 1981, Evert 2650.

Mitchella repens L. Will Co., T34N R14E SW  $\frac{1}{4}$  S26, oak woods, 13 April 1984, Evert 6454.

Osmunda cinnamomea L. Kane Co., T42N R7E NW  $\frac{1}{4}$  S16, Rutland Bog, 8 May 1982, Evert 3683.

Phegopteris hexagonoptera (Michx.) Fee. Lake Co., T43N R13E NW  $\frac{1}{4}$  S31, Highland Park, wooded ravine, 18 Nov 1981, Evert 3636.

\*Poa bulbosa L. Cook Co., T41N R13E SW  $\frac{1}{4}$  S30, Niles, along forest path, 31 May 1983, Evert 5178.

Polystichum acrostichoides (Michx.) Schott. Rock Island Co., T18N R1E SE  $\frac{1}{4}$  S8, Illiniwek Forest Preserve, wooded ravine, 20 Sept 1980, Evert 2509.

Pyrola elliptica Nutt. Will Co., T34N R14E SW  $\frac{1}{4}$  S26, oak woods on ravine crest, 13 April 1984, Evert 6455.

\*Rhodotypos scandens (Thunb.) Makino. Cook Co., T41N R13E NE  $\frac{1}{4}$  S9, St. Paul Woods Forest Preserve, oak forest, 19 May 1983, Evert 5143.

Rubus pubescens Raf. Kane Co., T41N R8E NE  $\frac{1}{4}$  S1, Trout Park Nature Preserve, arbor vitae fen, 7 May 1982, Evert 3645.

Spiranthes ovalis Lindl. Rock Island Co., T17N R4W S34, Loud Thunder Forest Preserve, pine plantation, 26 Nov 1982, Evert 5135.

Trillium nivale Riddell. Bureau Co., T16N R9E S36, oak-maple woods, 4 April 1987, Evert 11811.

Viola conspersa Reichenb. DuPage Co., Timber Ridge Forest Preserve, oak woods, 1 May 1980, Lampa s.n.

### III. NOTES ON THE OCCURRENCE OF SOME ILLINOIS ENDANGERED AND THREATENED SPECIES

Carex woodii Dewey. Cook Co., T41N R11E NE  $\frac{1}{4}$  S20, Busse Woods Forest Preserve, along s. edge of marsh in old growth forest of Acer saccharum and Quercus rubra, 5 May 1980, Evert 1674. Listed as endangered in Illinois, Carex woodii was previously known from single collections in Cook, Kankakee, Will, and Winnebago Counties (Sheviak, 1981). Carex woodii was previously last collected (Chase 9489 ILL) in Cook County at Elk Grove on 28 May 1948. It is significant, therefore, that a few individuals of this rare, early flowering sedge were verified as extant in the same general area of the original Cook County collection. A diligent search for this species would probably uncover additional populations since much apparently suitable habitat (mesic woods) for this species exists in northern Illinois.

Chamaedaphne calyculata (L.) Moench. Cook Co., T36N R14E NE  $\frac{1}{4}$  S35, Zanders Woods Nature Preserve, several plants in a wet sandy depression with Osmunda regalis, Vaccinium macrocarpon, Quercus palustris, and Sphagnum sp., 17 Nov 1983, Evert 6451. An Illinois threatened species, Chamaedaphne calyculata is restricted in Illinois to a few bogs and swamps in Lake and McHenry Counties, to a bog in Kane County, and to a sandy swamp near Thornton in Cook County (Sheviak, 1981). Chamaedaphne calyculata was collected (Pearsall 7305, ISM) in Cook County near Thornton in 1941. The shrub was also observed near Thornton in a Department of Conservation inventory in the 1970's (Endangered species files of the Natural Land Institute, Rockford). My discovery in 1983 near Thornton of about 40 stems of Chamaedaphne calyculata covering a small area of about 3 x 10 ft. is, therefore, noteworthy in that it corroborates the presence of at least one extant population, however precarious, in Cook County. The precarious nature of this species' tenure in

Cook County was apparent when I revisited this population, just south of Thornton-Lansing Road, on 28 March 1987 and found the colony to have decreased in size; only 3 x 6 ft. was occupied by about 20 stems, and only 3 stems retained a few leaves. All stems of this evergreen shrub were browsed by herbivores (probably deer), and about 15 of the remaining 20 stems had recently died. The site also appeared to have been recently partially burned.

Gaultheria procumbens L. Cook Co., T35N R14E SE  $\frac{1}{4}$  S2, Jurgenson Woods Nature Preserve ca. 300-400 ft. west of Hwy 394, several small patches on sandy soil in wet woods dominated by Quercus palustris with a ground layer of Vaccinium angustifolium and Maianthemum canadense with some Mitchella repens, 17 Nov 1983, Evert 6448. This Cook County collection of Gaultheria procumbens apparently represents the only known extant population in Illinois of this diminutive shrub. Gaultheria procumbens, an endangered species in Illinois has also been reported from Lake, LaSalle, and Ogle Counties where no extant populations are presently known (Sheviak, 1981). This species was also collected (J. T. Stewart s. n., F) in Peoria County probably before the turn of the century. Gaultheria procumbens has been collected several times in Cook County at Niles, Glencoe, and Elk Grove (Higley and Raddin, 1891; Jones, 1950); the Elk Grove collection (Pearsall 8334, ISM) in 1943 was apparently the last in Illinois until the one reported above.

Milium effusum L. (See above: New County Records) was previously known in Illinois from only two nineteenth century collections from Kane and Tazewell Counties (Mohlenbrock, 1972) and was apparently presumed extinct in Illinois since it was not listed as an endangered or threatened species by Sheviak (1981). The collections reported from Carle Woods in Cook County represent the only known extant population of Milium effusum in the state. A conspicuous and visually striking species of rich moist woods of northeastern North America, Milium effusum is at the southwestern periphery of its range in northern Illinois. This rare grass has been growing in Carle Woods apparently unknown to botanists in Illinois for over forty years. Reeder (1940) in his study of Carle Woods reported Milium effusum to be frequent throughout. It seems, however, that this species has greatly declined here in abundance over the last forty years. The population of Milium effusum in Carle Woods when last observed in June 1985 was comprised of only about 30 individuals growing under old growth Acer saccharum and Quercus rubra in moist sandy soil in a few areas free of ground layer competition.

Polygonatum pubescens (Willd.) Pursh. Cook Co., T41N R12E SW  $\frac{1}{4}$  S9, Carle Woods Forest Preserve, mesic, maple-oak woods, 4 June 1982, Evert 3828; T41N R13E NE  $\frac{1}{4}$  S19, St. Paul Woods Forest Preserve, oak woods on clay bank along east side N. Br. Chicago River, 19 May 1983, Evert 5145; T41N R13E NE  $\frac{1}{4}$  S31, Clayton F. Smith Forest Preserve, wet woods of Quercus palustris and Acer rubrum, 20 May 1983, Evert 5154; T40N R13E NE  $\frac{1}{4}$  S5, Chicago, along N. Br. Chicago River s. of Devon Ave. in remnant oak woods with Hamamelis virginiana, 20 May 1983, Evert 5157; T41N R13E NE  $\frac{1}{4}$  S8, Harms Woods Forest Preserve, clay banks above N. Br. Chicago River under Acer saccharum, Hamamelis virginiana, and Quercus rubra, 2 June 1983, Evert 5190. Polygonatum pubescens is restricted in Illinois to 8 northern counties (Sheviak, 1981). The majority of collections of this species in Illinois have been early ones (before 1915) as cited by Jones and Fuller (1955). Urban development has eliminated much of this species' habitat particularly in Cook County where it was reported by Higley and Raddin (1891) as frequent in open woods and shaded banks. The most recent previous collection (Gates 468, F) from Cook County of Polygonatum pubescens, that I have been able to find, was made in 1905. My collections, all from Cook County representing extant populations of this Illinois endangered species, are, therefore, of interest. Most of these populations are small, consisting of less than 25 or 30 individuals; however, the largest, in the city of Chicago along a busy thoroughfare, consists of at least 300 individuals.

Rubus pubescens Raf. Cook Co.: T41N R12E SW  $\frac{1}{4}$  S9, Carle Woods Forest Preserve, wet soil with Quercus bicolor, Rhamnus frangula and Onoclea sensibilis, 7 May 1980 and 9 May 1982, Evert 1676a, 3689; T41N R11E NW  $\frac{1}{4}$  S21, Busse Woods Forest Preserve, swamp forest of Quercus bicolor and Fraxinus nigra with Thelypteris palustris, and Viola pallens, 6 June 1980, Evert 1811; T41N R13E SW  $\frac{1}{4}$  S9, Harms Woods Forest Preserve, flat, wet woods of Quercus palustris and Acer rubrum, 2 June 1983, Evert 5186. Lake Co., T44N R9E NE  $\frac{1}{4}$  S36, Wauconda Bog Nature Preserve, wet soil with Larix laricina, Maianthemum canadense, and Rhamnus frangula, 10 June 1980, Evert 1856. Rubus pubescens is an infrequently collected species in Illinois. Reported from 4 northern counties, from east central Vermilion County (Mohlenbrock & Ladd, 1978) and DuPage County (Mohlenbrock, 1985), Rubus pubescens is known in Illinois from only a few primarily early collections. Apparently this species has not been collected in Cook County since the nineteenth century, and Sheviak (1981) reports only a single known population in Illinois from Lake County. Thus, the recent collection of Rubus pubescens cited above from Cook and Lake

Counties representing three new stations for this species and the verification of an old one (Wauconda Bog) are noteworthy. Rubus pubescens is and has been found primarily on wet soils in bogs and swamps in Illinois. However, this species was reported by Higley and Raddin (1891) to occur in dry woods and sandy knolls, a habitat alternative corroborated by Voss (1985). As mentioned previously, Rubus pubescens has been attributed to 5 northern Illinois counties. The attribution of this species to DeKalb County by Jones & Fuller (1955) and many others since is probably in error due to, originally, a printing error (a misplaced circle on the map in Jones & Fuller, 1955). No collections of R. pubescens from DeKalb County could be found in Illinois herbaria. However, R. pubescens was reported to occur in Kane County by Patterson (1876), and a collection (Brendel s.n., ILL) from Elgin does exist. Therefore, it seems that this species should be correctly attributed to adjacent Kane County where indeed R. pubescens can still be found. See above New County Records.

Vaccinium macrocarpon Ait. Cook Co., T36N R14E NE  $\frac{1}{4}$  S35, one small colony in a sandy depression in Zanders Woods Nature Preserve growing with Chamaedaphne calyculata, Osmunda regalis, Quercus palustris, and Sphagnum sp., 17 Nov 1983 and 28 March 1987, Evert 6450 and 11807. Vaccinium macrocarpon has not been collected in Cook County since 1946, when Fuller found this species near Maple Lake (Fuller 12333, F, ILL). This species was also collected (Schneider 1151 & 1226, F, ILL, ILLS) in Will County near Braidwood in 1939. Sheviak (1981) reports that both of these populations have been destroyed. V. macrocarpon was also reported from the Thornton area in Cook County by Patterson (1876). All other previously known populations of V. macrocarpon in Illinois are from a few bogs in Lake and McHenry Counties (Sheviak, 1981). The small colony of V. macrocarpon growing in Zanders Woods near Thornton in a small area of about 4 x 10 ft. and consisting of about 100 stems in Nov 1983 is, therefore, of interest. Apparently thriving then, this population of V. macrocarpon like that of Chamaedaphne calyculata with which it grows seems to have been adversely affected over the last several years (only about 30 desiccated stems of the cranberry were observed in March 1987) by perhaps low water levels, lack of snow cover, fire, and herbivores.

Viola conspersa Reichenb. Cook Co.: T41N R13E NE  $\frac{1}{4}$  S31, forest preserve just sw. of the junction of Touhy Ave. and Caldwell Ave., a large population of over 100 individuals in wet woods with Quercus palustris, Acer rubrum, Maianthemum canadense, and Viola

incognita, 23 April 1981, Evert 2572; T41N R13E NE  $\frac{1}{4}$  S19, St Paul Woods Forest Preserve, a few plants on a clay bank above N. Br. Chicago River with Quercus rubra, Acer saccharum, and Polygonatum pubescens, 19 May 1983, Evert 5153. DuPage Co., see above New County Records. Lake Co., T44N R11E SE  $\frac{1}{4}$  S34, MacArthur Woods Forest Preserve, a few plants in wet woods of Quercus bicolor, 25 May 1983, Evert 5168. Sheviak (1981) reports only six known Illinois populations of Viola conspersa from Cook, Lake, and DeKalb Counties. V. conspersa has also been reported from Richland County (Mohlenbrock & Ladd, 1978). The most recent previous collections of the apparently largest naturally occurring populations in Illinois have been from Lake County where Moran (1978) reports V. conspersa as common along ravine crests. The collection from DeKalb County apparently represents an introduction (Sorensen, 1984). Viola conspersa was observed during a Department of Conservation inventory in the 1970's in extreme northern Cook County (Endangered species files of the Natural Land Institute, Rockford). However, all of the Cook County collections of V. conspersa, that I am aware of, have been early ones made before 1912. The two collections from Cook County and the ones from DuPage and Lake Counties of V. conspersa reported here as new stations for this species in these counties are, therefore, of interest.

Viola incognita Brainerd. Location and habitat the same as the first Cook County collection of Viola conspersa cited above, 23 April 1981, Evert 2573. Sheviak (1981) states that no known extant populations of Viola incognita are known from Illinois. This species has been reported from Cook, Jo Davies, and McHenry Counties (Mohlenbrock & Ladd, 1978) and from Kane County (Mohlenbrock, 1985). V. incognita, a stemless, white-flowered species with pubescent lateral petals and pubescent leaves, was last collected (Bross s.n., F) in Cook County, Chicago, in 1880. The recent collection reported above also from Cook County near Chicago is, therefore, noteworthy. Only a few plants occur at this site, but additional habitat occurs in the vicinity, and a larger population of V. incognita may be present in Cook County.

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## BIOGRAPHICAL SKETCH

Erwin F. Evert is a former biology teacher, now an active field botanist and research associate at the Morton Arboretum. In addition to his interest in collecting and growing Illinois native plants, he is especially interested in the floristics of the Yellowstone region where he has discovered and described a number of new species.

## ILLINOIS' "NATIVE" MOCK ORANGE

John E. Schwegman<sup>1</sup>

On June 7, 1919, a young botanist from Missouri was collecting plants from a newly constructed railroad trackway that parallels the Ohio River shore north of Golconda, Illinois. As he proceeded up the tracks, he noted a large population of beautiful flowering shrubs. The sight of mock orange (Philadelphus) shrubs growing in the Illinois forest must have been as exciting as it was unexpected. As Ernest Jesse Palmer collected specimens from the plants, he could scarcely have imagined the long chain of events regarding its identity, later discovery and eventual extinction that were to follow.

When Palmer's collections reached his sponsor, the Arnold Arboretum, it was suspected that the mock orange was an escape from cultivation as it did not fit the description of any recognized native species (Rehder, 1921). Palmer had labeled his first specimens P. coronarius (a European species) but at the request of Dr. Rehder, he returned in October 1920 to collect additional material.

Based on these two collections, Rehder (1921) declared the plants to be P. verrucosus a species described by Schrader in 1828 from cultivated plants in Germany. Although Schrader believed it was a North American native, botanists here knew of no wild populations of it. American botanists considered P. verrucosus a garden form or possibly a hybrid between P. pubescens and P. coronarius. However, Rehder concluded that P. verrucosus was a rare native species and that the Pope County population represented its only known wild population. He predicted that additional populations would be found, probably in Kentucky and Tennessee.

In subsequent years, no other "wild" populations of P. verrucosus turned up and indeed for 48 years after a final visit by Palmer in September, 1923, no botanist was able to relocate the population he had found. Several botanists had searched in vain for the elusive Philadelphus in the 1950's and 1960's. I had searched the bluffs with binoculars myself on several occasions during the late 1960's. In the spring of 1971, I decided to make a special effort to relocate the plants.

Preparations for the search were hampered because Palmer's original description of his expedition (Palmer, 1921) was not available at the Southern Illinois University Library and none of his specimens

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were available in Illinois herbaria. I felt these materials might hold additional clues to the location. At the time, I was unaware that a complete set of Palmer's collections were at The Missouri Botanical Garden.

I began preparations by visiting populations and collecting material of *P. pubescens* on the Cumberland River Bluffs in nearby western Kentucky. Mr. Raymond Athey of Paducah, Kentucky led me to populations he knew on limestone river bluffs near Dycusburg in Crittenden County and on sandstone bluffs one mile east of Smithland in Livingston County. The latter plants were growing with *Vaccinium arboreum* and were only 16 miles south of Golconda. Feeling familiar with the plant and its habitat, I was ready for the search.

As it happened, I had to attend a meeting at the Morton Arboretum at about this time. Taking advantage of their fine botanical library, I looked up Palmer's report on southern Illinois plants and was disappointed to see only "rocky talus below high bluffs of the Ohio River near Golconda". This is the description copied in numerous manuals and offered nothing new. But as I read Rehder's description of *P. verrucosus* which happens to follow Palmer's paper in the Journal, I was amazed to see published as an addendum to his paper a letter from Palmer. Intended as evidence from the collector that the plants were wild and not a cultivated escape, Palmer gives details of their location. He reports 10 or 12 clumps of the shrub at the base of a bluff with east or northeast exposure three or four miles from Golconda. He mentions the railroad and gives the impression that the plants were discovered from it. As a final observation, he notes that they were growing 30 to 40 feet above the Ohio River.

I was struck by the elevation notation. Thirty to forty feet above the river would be high river banks on the Ohio and would be on the river side of the railroad tracks not the bluff side where everyone had been looking!

On May 22, 1971, I searched north from Golconda watching the river banks and rediscovered the lost *Philadelphus*. Two clumps of the shrub were found on the east side of the railroad tracks 1½ miles north of Golconda. The exact location was 900 feet south of the Gideonson Hollow trestle.

While Palmer had noted 10 or 12 clumps and estimated their distance at 3 or 4 miles from town, I felt certain that these plants were the population he knew. Palmer lacked topographic maps as an aid to determining his location and his estimate of 3 or 4 miles indicates he was unsure. If one were 3 or 4 miles north of Golconda, the bluff exposure would be southeast, not east to northeast as he

described. In addition, my plants matched his collections which I later checked at the Missouri Botanical Garden, and were definitely different from typical P. pubescens from western Kentucky.

My first impression on seeing the plants was that they were not P. pubescens. Neither of the standard manuals for the northeastern United States follow Rehder (1921) in recognizing P. verrucosus. Fernald (1950) lumps it under P. pubescens and Gleason (1952) ignores it. The Pope County plants come down to a choice between P. pubescens and P. coronarius in both keys. They key directly to P. coronarius in Gleason (1952) which relies on twig color and exfoliation of bark from young branches as the key characters. Their brown to maroon branchlets with strongly exfoliating bark contrasts sharply with the light gray, tight bark of P. pubescens from western Kentucky. Fernald, on the other hand, places greater significance on leaf and calyx pubescence. Using his key the plants key weakly to P. pubescens on the basis of their hairy lower leaf surface but they lack the supposed Calyx pubescence.

Hu (1955) in his monograph on Philadelphus, follows Fernald in giving great weight to pubescence. He took what appears to be a glabrous form of P. pubescens and not only placed it in a separate species (P. intectus) but also in a different Series. He segregates and describes a new species (P. gattingeri) from P. pubescens on the basis of a pubescent style, disc and corolla base versus glabrous. He also creates a new variety verrucosus for P. pubescens. He separates the variety on leaf shape with it having elliptic leaves with acute to obtuse bases as opposed to ovate with rounded bases for the species. Hu has annotated the Palmer collections from Galconda housed at the Missouri Botanical Garden. He attributes some of these collections to each of his varieties of P. pubescens. While Hu describes P. pubescens as having gray bark that does not exfoliate, the specimens he annotated have red-purple bark that is shredding on older stems. His identifications of the Pope County materials should be ignored.

Based upon material I have collected and that which I examined at the Missouri Botanical Garden, I feel that the twig color and bark characters are more constant and more significant than pubescence. All of my Kentucky collections consistently have a tight smooth gray bark but exhibit great variation in pubescence. Typical collections have densely pubescent lower leaf surfaces and sparse to densely hairy outer sepal surfaces. However, one specimen has small leaves that are sparsely pubescent on lower leaf surfaces and glabrous on outer sepal surfaces and the hypanthium. This plant keys to P. pubescens var. intectus in Gleason (1952) but would best key to P. coronarius in Fernald (1950). Its slightly pubescent lower leaf surfaces would prevent it from fitting Hu's P. intectus. I feel this specimen is clearly part of P. pubescens based on its

branchlets with smooth gray bark and the fact that it was collected from a shrub within a large colony of typical P. pubescens.

While having the branchlet bark typical of P. coronarius, the Pope County plants consistently have lower leaf pubescence and occasionally have some pubescence on the hypanthium and outer sepal surfaces. This seems to clearly separate them from P. coronarius.

My conclusion is that the Pope County plants do not fall within the variation of P. pubescens. They are also not typical P. coronarius. I feel they are P. verrucosus as Rehder thought. Since P. verrucosus has not appeared elsewhere in the wild as Rehder speculated it might, I feel it is a garden plant of hybrid origin. The Pope County plants are clearly intermediate between P. pubescens and P. coronarius which are the probable parent species. My specimens are deposited at the Illinois State Museum.

While the Pope County locality is remote, the arrival of P. verrucosus from a cultivated source is rather easily explained. The site's location near the river's high water mark is where one would expect plants washed out by upstream flooding to lodge.

On July 30, 1981, after an absence of 9 years, I returned to the Philadelphus site north of Golconda. When I could not immediately find the plants, I went up to the railroad trestle and measured back to the exact spot. A railroad car of rip rap rock had been dumped right where the plants had been and none of them had survived! Apparently, high water on the river had threatened to wash out the tracks at some time in the late 1970's and the rock was dumped to stabilize the erosion. The plant, whatever its identity, now appears to be extinct in the wild in Illinois.

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## MACROLICHENS OF POUNDS HOLLOW

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## INTRODUCTION

Lichens are classified broadly according to their general growth forms. One common convention is to divide them into two major groups: the crustose lichens and the macrolichens. Crustose forms are those which lack a lower cortex and cannot be removed intact from their substrate; in Illinois, about half the lichen flora consists of crustose species. Macrolichens, on the other hand, include the remaining forms, those described as foliose, fruticose, squamulose, umbilicate, and gelatinous.

Identification of the crustose species, sadly, is hampered by the fact that many genera are poorly understood, and the literature references which include Illinois species in their scope are both old and few in number. Many crustose genera are in desperate need of comprehensive revision; indeed many Illinois specimens of *Acarospora*, *Arthonia*, *Bacidia*, *Caloplaca*, *Graphis*, *Lecanora*, *Lecidea*, *Lepraria*, *Rinodina*, *Verrucaria*, and others must remain undetermined for the time being. Identification of the macrolichens is made easier, inasmuch as the genera are fairly well understood, and there is adequate literature covering Illinois species.

This is an annotated checklist of the 98 macrolichens known from Pounds Hollow, in Gallatin County, Illinois. It includes a synopsis of the major macrolichen habitats at Pounds Hollow. Following the checklist is a discussion concerning phytogeographic affinities of the macrolichens. A short glossary is included because some of the lichen terminology is unfamiliar even to most botanists.

Gallatin County is in the extreme southeastern portion of Illinois and lies within the Shawnee Hills Section of the Shawnee Hills Natural Division. This unglaciated hill country is characterized by a high east-west escarpment of sandstone cliffs and their associated

topography (Schwegman, 1973). Pounds Hollow, which includes approximately 1000 acres, lies about 12 miles southeast of the southernmost boundary of the Illinoisan Till Plain; the southern boundary of Pounds Hollow is on the Hardin County line. Parker (1985) has discussed at length the geology, soils, climate, geography, and anthropogenics of the Pounds Hollow area.

Skorepa (1973) reported 25 species from Gallatin County in his lichen flora of southern Illinois. Parker (1985) produced a checklist of the macrolichens of Pounds Hollow in connection with her Master's thesis work on a comprehensive flora of the area. In addition to vascular plants and bryophytes, 77 lichen species were reported. Parker's initial studies at Pounds Hollow revealed that it was uncommonly rich in macrolichen species, even for Southern Illinois. Jackson County, for example, also in the Shawnee Hills Natural Division, has substantial natural areas, but an intensive study of the entire county turned up only 84 macrolichens (Wilhelm & Ladd, 1985); of these, 68 occur at Pounds Hollow.

Pounds Hollow, with the exception of the concession facility, is largely a natural area. Its lichen flora is remarkably conservative and basically weed free. Species such as *Hyperphyscia adglutinata*, *H. syncolla*, *Phaeophyscia pusilloides*, *Physconia detersa*, and *Xanthoria fallax*, all so common northward on roadside elms and cottonwoods, are unknown from Pounds Hollow; other weedy species, such as *Phaeophyscia cernohorskyi* and *Xanthoria candelaria*, are locally very rare. Even the briefest of visits to Pounds Hollow leaves one impressed with the lichenose growth festooning all available substrates, so it seemed to us that Pounds Hollow deserved a study which was singularly directed toward the lichens.

#### MACROLICHEN COMMUNITIES

Most of the lichens at Pounds Hollow occur in two major habitats: open-timbered upland woods along the bluffs, ridges, and ravine slopes; and massive sandstone exposures with their associated sandstone glades and cliff faces. These cliffs often grade into steep slopes to form a succession of rock ledges; these ledges are the result of the lateral grading of massive sandstone into thin-bedded sandstones and shales that cannot maintain a cliff face. Small seepage areas are often found above these ledges. The hollow itself extends over a mile in a northeastward direction from the Pounds Escarpment to the dam. Several ravines enter the hollow from the east and west. About 80 feet below, in the depths of the hollow, is a rich beech-maple forest, which, except for the lichens found on exposed surfaces of fallen sandstone boulders and blocks, is relatively depauperate in macrolichen species.

### Upland Woods

The upland woods are characterized by open-grown trees of *Quercus alba*, *Q. velutina*, and *Q. rubra*, along with *Carya glabra* and *C. ovata*; *Cercis canadensis* and *Cornus florida* are frequent in the understory. Downslope, *Quercus rubra* tends to dominate and is joined by *Acer saccharum*; on xeric sites and on glade margins *Quercus stellata* and *Ulmus alata* are more prominent, along with *Vaccinium arboreum* and *Sassafras albidum*. The ground cover is characterized by low, warm-season grasses, sedges and forbs; outcroppings of sandstone are common, and, in many areas, sandstone is just beneath the soil surface.

The trunks of the trees in the upland woods are richly populated by lichens. Commonly these include: *Candelaria concolor*, *Collema furfuraceum*, *Flavoparmelia caperata*, *Heterodermia speciosa*, *Leptogium cyanescens*, *Parmelia aurulenta*, *Parmotrema hypotropum*, *P. reticulatum*, *Phaeophyscia rubropulchra*, *Physcia millegrana*, *Punctelia rudecta*, *Pyxine caesiopruinosa*, and *P. sorediata*. Infrequent to occasional species include: *Canoparmelia caroliniana*, *C. crozalsiana*, *Heterodermia obscurata*, *Leptogium milligranum*, *Punctelia bolliana*, and *P. subrudecta*. *Catapyrenium tuckermanii* and *Collema conglomeratum* are occasional on the lower trunks of open-grown trees of *Quercus alba* and *Q. stellata*. Upper canopy branches and lower branches of open-grown trees are characterized by *Canoparmelia texana*, *Hypotrachyna livida*, *Parmelia aurulenta*, *P. galbina*, *Parmotrema michauxianum*, and *Physcia stellaris*.

Sandstone outcrops and cobbles in the upland woods are inhabited regularly by *Cladonia apodocarpa*, *Flavoparmelia baltimorensis*, *Parmelia aurulenta*, *P. minarum*, *Parmotrema hypotropum*, *P. reticulatum*, *Punctelia rudecta*, *Xanthoparmelia hypopsila*, and *X. somloensis*; less frequently by *Parmelia obsessa*, *Physcia stellaris*, *Punctelia semansiana*, *Pyxine sorediata*, and *Xanthoparmelia subramigera*. On shallow soil over sandstone, *Cladonia subtenuis*, *Cladonia cristatella*, *C. furcata*, *C. grayi*, *Peltigera canina*, and *P. polydactyla* are relatively frequent. Fallen logs and old wood are characterized by *Cladonia bacillaris*, *C. coniocraea*, *C. cristatella*, *C. cylindrica*, *C. grayi*, *C. peziziformis*, and *C. polycarpoides*.

### Sandstone Glades, Bluff Tops, and Cliffs

The sandstone glades and bluff tops are populated largely by an open growth of *Juniperus virginiana*, *Quercus marilandica*, *Q. stellata*, and *Vaccinium arboreum*. Bare sandstone is the prevailing feature. Along with extensive mossy mats of *Grimmia laevigata* and *Hedwigia ciliata*, the following lichens are common: *Cladonia rangiferina*, *C. subtenuis*,

*Cladonia apodocarpa*, *C. caroliniana*, *C. cristatella*, *C. furcata*, *C. grayi*, *C. squamosa*, *C. strepsilis*, *Dermatocarpon miniatum*, *Flavoparmelia baltimorensis*, *Xanthoparmelia hypopsila*, and *X. somloensis*. In thin soil areas, along with *Agrostis elliottiana*, *Crotonopsis elliptica*, *Diodia teres*, *Plantago pusilla*, *Sedum pulchellum*, and *Vulpia octoflora*, the following lichens are characteristic: *Cladonia cristatella*, *C. furcata*, *C. grayi*, *C. piedmontensis*, *C. polycarpoides*, *C. robbinsii*, and *C. squamosa*. Old cedar stumps provide the habitat for *Cladonia atlantica*, *C. cristatella*, *C. grayi*, and *C. squamosa*. Cedar trunks and branches are characterized by *Candelaria concolor*, *Physcia millegrana*, *Punctelia perreticulata*, *P. rudecta*, *P. subrudecta*, and, more rarely, *Imshaugia aleurites*.

Dry vertical cliff faces are characterized by *Heuchera parviflora*, *Dryopteris marginalis*, and two crustose lichens: *Lepraria finkii* and *L. lobificans*. The former lichen coats the sandstone walls with leprose mats of yellowish or grayish green; the latter, a white leprose crust, has such well-defined margins that from a distance it resembles a macrolichen. The following macrolichens appear sporadically along the cliff faces: *Canoparmelia texana*, *Collema flaccidum*, *Dirinaria frostii*, *Parmotrema madagascariaceum*, *P. tinctorum*, *Ramalina intermedia*, and *Usnea herrei*.

Below the cliffs, shaded, mossy, sandstone blocks and boulders are inhabited by *Anaptychia palmulata*, *Cladonia coniocraea*, *C. grayi*, *Heterodermia speciosa*, *Leptogium cyanescens*, *Parmelina aurulenta*, *P. minarum*, *Parmotrema hypotropum*, *Phaeophyscia adiastrum*, and *P. rubropulchra*.

#### ANNOTATED CHECKLIST

Lichen nomenclature follows Egan (1987). Names used by Skorepa (1973) and Hale (1979), when different from those used here, are given in *italics* type face after the habitat annotation; the initials "H" and "S" after the synonym stand for Hale and Skorepa respectively. Species entries which have voucher specimens on file at the Morton Arboretum Herbarium are rendered in **boldface italics**. Species entries rendered in *light italics* represent reports made solely by Skorepa (1973), wherein he states specifically that the specimen was collected from Pounds Hollow; he indicates that his voucher specimens are at the University of Tennessee. Specimens are cited by their collector and collection number. The initial "P" stands for Parker, "W" for Wilhelm, and "W&P" for Wilhelm & Parker. Specimens without collection numbers are designated *s.n.* (*sine numero*), and the date of the collection is provided. Lichen substances were determined by thin-layer chromatography, using the methods described by Culberson (1972).

Ninety-one species are represented by collections at The Morton Arboretum. Of the 25 macrolichens that Skorepa reported from Pounds Hollow, six were not seen during our study. Eight macrolichens, now known from Pounds Hollow, were not included in Skorepa's lichen flora of Southern Illinois: *Cladina arbuscula*, *Cladonia cariosa*, *Hypotrachyna pustulifera*, *Phaeophyscia cernohorskyi*, *Physcia alba*, *Physciella chloantha*, *Punctelia perreticulata*, and *Xanthoria candelaria*. Half of these, however, were reported from Southern Illinois [Jackson County] by Wilhelm & Ladd (1985): *Cladonia cariosa*, *Phaeophyscia cernohorskyi*, *Physciella chloantha*, and *Xanthoria candelaria*.

**ANAPTYCHIA** Koerb.

*palmulata* (Michx.) Vain. Rare; on a shaded, moss-covered sandstone boulder at the base of a bluff in mesic woods.  
*Anaptychia palmatula* H. P 2274.

**CANDELARIA** Mass.

*concolor* (Dicks.) B. Stein Common; on trunks of deciduous trees and cedars throughout. P 2113.

**CANOPARMELIA** Elix & Hale

*caroliniana* (Nyl.) Elix & Hale Infrequent; on old growth trees of *Quercus rubra* in dry upland woods. *Parmelia caroliniana* S; *Pseudoparmelia caroliniana* H. P 2263.

*crozalsiana* (B. de Lesd. ex Harm.) Elix & Hale Occasional; on deciduous trees and cedars in upland woods. *Parmelia crozalsiana* S; *Pseudoparmelia crozalsiana* H. P 2404, 2779; W 14715a.

*texana* (Tuck.) Elix & Hale Frequent; on twigs, branches, and trunks and on fallen limbs of deciduous trees and cedars nearly throughout; also occasional on shaded sandstone cliff faces. *Parmelia texana* S; *Pseudoparmelia texana* H. P 2218, 2318; W&P 13692, 13711.

**CATAPYRENIUM** Flot.

*tuckermanii* (Rav. ex Mont.) Thoms. Uncommon; on the lower trunks of open-grown trees of *Quercus alba* and *Q. stellata*, particularly on the edges of high bluffs. *Dermatocarpon tuckermanii* S, H. P 2146, 2181.

**CLADINA** (Nyl.) Harm.

*arbuscula* (Wallr.) Hale & Culb. Rare; known locally only from a massive, south-facing sandstone exposure on a cedar glade. W&P 13698.

*rangiferina* (L.) Nyl. Frequent; on massive sandstone exposures in dry upland woods and glades; often growing with *C. subtenuis*. *Cladonia furcata*, *C. robbinsii*, and *C. strepsilis*. *Cladonia rangiferina* S. P 2583; W&P 13696.

*subtenuis* (des Abb.) Hale & Culb. Common; on well-leached soil in dry upland woods, often with the lichen *Cladonia furcata*, amidst *Danthonia spicata*, *Antennaria plantaginifolia*, *Dicranum scoparium*, *Leucobryum glaucum*, and *Bryoandersonia illecebra*; also with other fruticose lichens on massive sandstone exposures on glades. *Cladonia subtenuis* S. P 2195, 2207, 2210, 2309.

**CLADONIA** Hill ex Browne

*apodocarpa* Robb. Occasional; on massive sandstone exposures in glades and on sandstone outcrops in dry upland woods. P 2776; W&P 13719.

*atlantica* A. Evans Occasional; our two specimens were collected from a dry cedar limb and a stump on a sandstone glade west of Pounds Lake. It is difficult to know just how frequent it really is since, morphologically, it is identical to *C. squamosa*, from which it can be distinguished only by chromatography; note that we have six specimens of *C. squamosa*. P 2323; W&P 13725.

*bacillaris* Nyl. Occasional to common; on decorticate logs in dry upland woods. P 2128, 2163.

*cariosa* (Ach.) Spreng. Evidently rare; our specimen, which consists of squamules only, was collected on thin soil over sandstone. P 2189.

*caroliniana* Schwein. ex Tuck. Frequent to common; on massive sandstone exposures and glades. P 2203, 2211, 2221; W 8732.

*chlorophaea* (Flk. ex Somm.) Spreng. Evidently rare; most of the sorediate cup lichens are referable to *C. grayi*, which see; our only specimen of this species was growing on a cedar stump in a glade west of Pounds Lake. W&P 13730.

*conlocraea* auct. fide Ahti Occasional; on shaded sandstone ledges and decorticate logs in dry upland woods. Some of our material is referable to what Skorepa calls *C. ochrochlora* Flk. P 2217; W 11958, 14703.

*crisatella* Tuck. Common; on a wide variety of substrates, particularly on glades and in dry upland woods; we have specimens from thin soil over sandstone, on soil around clumps of *Andropogon scoparius*, among other lichens and mosses on stumps and soil, fallen cedar limbs, and on massive sandstone exposures. Specimens with usnic acid: P 2171, 2177, 2179, 2180, 2208; W&P 13723; W 8724; specimen without usnic acid: W&P 13726.

*cryptochlorophaea* Asah. Evidently rare, this chemical segregate of *C. chlorophaea* is known locally only from among mosses at the base of *Quercus stellata* in dry upland woods. In addition to cryptochlorophaeic acid, it contains fumarprotocetraric acid and atranorin. W&P 13679.

*cylindrica* (A. Evans) A. Evans Occasional; on corticate and decorticate fallen logs in dry upland woods, often with *C.*

- coniocraea* and *C. cristatella*. P 2216; W 14713.
- didyma* (Fee) Vain. Rare; known locally only from a decorticate log at the north end of the recreation area in the region just east of the dam. W 14714.
- furcata* (Huds.) Schrad. Common; on shaded soil among mosses in dry upland woods; also on thin soil over massive sandstone exposures on glades. P 2205, 2206, 2220, 2325.
- grayi* G. K. Merr. ex Sandst. Common; on thin soil over sandstone in dry upland woods, on massive exposed sandstone on glades, cedar and oak stumps, and shaded decorticate logs. This species, clearly the common element locally, was subsumed under *C. chlorophaea* by Skorepa (1973). Specimens with fumarprotocetraric acid: W&P 13739; W 14701, 14707; specimens without fumarprotocetraric acid: P 2187, 2215; W&P 13691, 13717, 13718, 13720, 13722, 13735.
- peziziformis* (With.) Laund. Uncommon; along paths and on old dry wood. *Cladonia capitata* H, S. P 2164.
- pedmontensis* G. K. Merr. Infrequent; on thin soil over sandstone outcrops in dry upland woods and on massive sandstone exposures. P 2158.
- pleurota* (Flk.) Schaer. Rare; known locally only from a massive sandstone exposure on a glade west of Pounds Lake. W&P 13721.
- polycarpoides* Nyl. Common; on exposed massive sandstone on glades, on moist shaded soil, and on logs and stumps in dry upland woods. *Cladonia subcariosa* S. P 2191; W&P 13716; W 11956, 14718a.
- pyxidata* (L.) Hoffm. Rare; known locally only from a shaded sandstone boulder on the bluff east of the dam. W 14705.
- robbinsii* A. Evans Occasional; on moist thin soil around seeps on massive sandstone exposures on bluff tops and glades. P 2183, 2222.
- sobolescens* (Nyl.) Vain. Rare; the population from which our specimen was taken grows with *C. pedmontensis* on sandstone cobbles in dry upland woods. *Cladonia clavulifera* H, S. P 2172.
- squamosa* (Scop.) Hoffm. Frequent; on massive sandstone exposures on bluff tops and on glades, and among mosses over thin soil in seep areas; also on old cedar stumps and limbs. P 2310; W&P 13724, 13740; W 11955, 14700, 14704.
- strepsilis* (Ach.) Vain. Occasional; this species forms tight, hemispherical mounds of small to medium-sized squamules in exposed or partly shaded areas on massive sandstone exposures; podetia are rarely found. P 2311; W 11957.
- unclalis* (L.) Weber ex Wigg. Rare; known locally only from a massive sandstone exposure on a glade west of Pounds Lake. W&P 13697.

**COCCOCARPIA** Pers.

- palmicola* (Spreng.) Arvidss. & D. Galloway Rare; known locally only from a couple of dead cedar stumps in dry upland woods.  
*Coccocarpia cronia* H. S. P 2278, 2590.

**COLLEMA** Wigg.

- conglomeratum* Hoffm. Uncommon; on lower trunks of open-grown trees of *Quercus alba* and *Q. stellata* on glades and in dry upland woods, often associated with *Catapyrenium tuckermanii*. P 2587.  
*flaccidum* (Ach.) Ach. Infrequent; on shaded, moist, sandstone cliff faces and boulders. P 2167, s.n. 6 Jul 1984.  
*furfuraceum* (Arn.) Du Rietz Frequent; at the bases of hickories, old growth oaks, and cedars on glades and in dry upland woods. P 2585, 2592, 2594a; W&P 13677, 13680a.

**DERMATOCARPON** Eschw.

- luridum* (With.) Laund. According to Skorepa (1973), this species is "common on shaded sandstone, sandstone in creek beds, and sandstone on dry bluff tops. When it is on bluff tops, it usually is in seepage areas." He separates it from *D. miniatum* on the basis of morphology and the fact that the latter remains brown or gray when wet. We have not seen specimens of what we believe to be this species, but taxonomic distinctions between this and *D. miniatum* are unclear in local populations. *Dermatocarpum fluviatile* H. S. Skorepa 4839.  
*miniatum* (L.) Mann Common; on bare sandstone or in seepage areas over sandstone in dry upland woods, massive sandstone exposures, and creek beds. P 2108; W 8723.

**DIRINARIA** (Tuck.) Clem.

- frostil* (Tuck.) Hale & Culb. Uncommon; on dry, sheltered, vertical sandstone walls along the south-facing bluff of Rim Rock Trail. P 2405.

**FLAVOPARMELIA** Hale

- baltimorensis* (Gyeln. & Foriss) Hale Common; on sandstone cobbles and outcrops in dry upland woods and on glades. *Parmelia caperata* S. in part; *Pseudoparmelia baltimorensis* H. P 2175; W&P 13733, 13737.  
*caperata* (L.) Hale Very common; on trunks and branches of deciduous trees and cedars throughout the area. *Parmelia caperata* S. in part; *Pseudoparmelia caperata* H. P 2200, 2212.

**HETERODERMIA** Trev.

- granulifera* (Ach.) Culb. Uncommon; on open-grown trees of *Quercus stellata* and *Q. alba* on bluff tops and on glades. P 2188.  
*obscurata* (Nyl.) Trev. Infrequent; on oaks and hickories in dry upland woods. P 2173, 2196; W 8739.

*speciosa* (Wulf.) Trev. Common; at the bases of oaks in dry upland woods and on glades; also among mosses over fallen trunks and on sandstone. *Heterodermia tremulans* S. P 2317, 2584.

**HYPOTRACHYNA** (Vain.) Hale

*livida* (Tayl.) Hale Common; on canopy branches of oaks and hickories in dry upland woods; also on branches of old growth cedars and *Vaccinium arboreum*. *Parmelia livida* S. P 2199.

*pustulifera* (Hale) Skorepa Rare; though he never reported it, this species was first collected in Illinois by Skorepa in November, 1967 on cedar at Pounds Hollow; it was not collected again until 1984 when it was noted by the junior author, again on cedar. Insofar as we can determine, these are the only two specimens known from Illinois. These specimens from Pounds Hollow were reported as new to Illinois by McKnight *et al.* (1987). P 2597; Skorepa 3987 (Southern Illinois University Herbarium, this specimen was determined by Skorepa as *Parmelia aurulenta*).

**IMSHAUGIA** S. F. Meyer

*aleurites* (Ach.) S. F. Meyer Rare; known locally only from dead standing cedar trunks along Rim Rock Trail and on a glade west of Pounds Lake. *Parmeliopsis aleurites* H, S. P 2182, 2588.

**LEPTOGIUM** (Ach.) Gray

*austramericanum* (Malme) Dodge Occasional; at the bases of oaks and hickories in dry upland woods and on glades. P 2407.

*corticola* (Tayl.) Tuck. Rare; our only specimen is from the base of a cedar near the beginning of Rim Rock Trail. P *s.n.* 11 Feb 1984.

*cyanescens* (Rabenh.) Koerb. Common; on exposed shaded roots and lower trunks of deciduous trees and cedars, moist to dry shaded sandstone outcrops, and sandstone creek beds. P 2255, 2406. 2780, *s.n.* 6 Jul 1984.

*milligranum* Sierk Frequent; at the bases of oaks and hickories in dry upland woods and on glades. We have a specimen (W&P 13685) from sandstone which resembles *L. milligranum*, but the lobe surfaces are smooth as in *L. cyanescens*; it may be referable to *L. chloromelum* (Ach.) Nyl. as it is described by Hale (1979). though not by Sierk (1964). P 2586, 2594; W&P 13680.

**LOBARIA** Schreb.

*quercizans* Michx. Skorepa (1973) first reported this species for Illinois from Pounds Hollow and Lusk Creek Canyon; he listed the substrates as *Quercus alba* and *Ulmus alata*. Skorepa (1977) published it new to Illinois. Skorepa 6098.

**PARMELINA** Hale

*aurulenta* (Tuck.) Hale Common; on a variety of substrates.

including shaded sandstone cobbles and outcrops, trunks and branches of deciduous trees and cedars in dry upland woods and glades. *Parmelia aurulenta* S. P 2267, 2306, 2308, 2321.

**galbina** (Ach.) Hale Occasional, though often undetected in the upper branches of canopy trees in dry upland woods; also on *Ulmus alata* and *Vaccinium arboreum* on glades and bluff tops. *Parmelia galbina* S. P 2275.

**minarum** (Vain.) Skorepa Common; though known from elsewhere in the region on bark, all of our records are from shaded sandstone, usually among mosses, in dry upland woods and on cliff faces. *Parmelia dissecta* S; *Parmelina dissecta* H. P 2169, 2260, 2316, 2320, 2322; W&P 13703, 13734.

**obsessa** (Ach.) Hale Rare; known locally only from a shaded sandstone boulder in dry upland woods. *Parmelia obsessa* S. W&P 13704.

#### PARMOTREMA Mass.

**austrosinense** (Zahlbr.) Hale Rare; known locally only from cedar twig at the edge of the bluff along Rim Rock Trail; perhaps more frequent than our records indicate. *Parmelia austrosinensis* S. P 2596.

**cestratum** (Ach.) Hale Listed by Skorepa (1973) as uncommon on oaks and hickories on dry bluff tops. *Parmelia cestrata* S. Skorepa 4864.

**crinitum** (Ach.) M. Choisy Listed by Skorepa (1973) as rare on trees in dry woods; his Pounds Hollow specimen is the only Southern Illinois specimen reported. *Parmelia crinita* S. Skorepa 4705.

**eurysacum** (Hue) Hale Rare; known locally only from the trunk of an oak in dry upland woods along Rim Rock Trail. *Parmelia eurysaca* S. P 2257.

**hypotropum** (Nyl.) Hale Common; on a variety of substrates, particularly the trunks and branches of deciduous trees and cedars, but also on shaded sandstone boulders and outcrops in dry upland woods. *Parmelia hypotropa* S. P 2261, 2402, 2411. s.n. 25 Jun 1984.

**madagascariaceum** (Hue) Hale Rare regionally; locally frequent on the vertical sandstone walls along the west and southwest faces of the Pounds Escarpment. *Parmelia madagascariacea* S. P 2410; W 14706.

**michauxianum** (Zahlbr.) Hale Occasional; on canopy branches of trees in dry upland woods and on the branches of *Ulmus alata*, *Vaccinium arboreum*, and *Quercus stellata* on glades and bluff tops. *Parmelia michauxiana* S. P 2254.

**reticulatum** (Tayl.) M. Choisy Common; usually on the trunks and branches of deciduous trees and cedars, but occasionally on

- shaded sandstone cobbles and outcrops in dry upland woods. *Parmelia reticulata* S. P 2219, 2256, 2781.
- submichauxianum* Hale in ed. Skorepa (1973) reported this recently described species from Pounds Hollow under the name *Parmelia dilatata* Vain., to which it keys in his dissertation. The latter is a southeastern species with a shinier upper cortex and broader lobes, but the chemistry is the same as *Parmotrema submichauxianum*. With the exception of the soredia, this species is identical to *Parmotrema michauxianum*. It is known also from the Missouri Ozarks and the Appalachian Mountains.
- tinctorum* (Delise ex Nyl.) Hale Uncommon regionally, this species is locally frequent with *P. madagascariaceum*, which see. *Parmelia tinctorum* S. P 2409.

#### PELTIGERA Willd.

- canina* (L.) Willd. Frequent: on shaded moist banks and mossy slopes; also among mosses and other lichens on well-leached soils in dry upland woods, at the bases of old growth oaks, and on shaded mossy sandstone outcrops. P 2176, 2197.
- polydactyla* (Neck.) Hoffm. Infrequent; on substrates similar to *P. canina*, but nowhere near as common. One of the duplicates of the cited voucher specimen has an apothecium oriented horizontally--as in *Peltigera horizontalis* (Huds.) Baumg.; apothecia in the other specimen are oriented lengthwise. P 2131.

#### PHAEOPHYSCIA Moberg

- adiastola* (Essl.) Essl. Common; prevailing among mosses over shaded sandstone, less often on lower trunks of cedars and oaks in dry upland woods in glades; also among mosses on fallen logs. *Physcia orbicularis* S, in part. P 2159, 2170, 2315, 2324, 2595.
- cernohorskyi* (Nadv.) Essl. Rare; known locally only from an old-growth cedar near a large sandstone outcrop northeast of Pounds Lake. P 2314.
- imbricata* (Vain.) Essl. Occasional; at the bases of oaks and hickories in dry upland woods. *Physcia lacinulata* S. P 2326.
- rubropulchra* (Degel.) Moberg Common; characteristic of lower trunks and exposed roots of deciduous trees and cedars in moist to dry woods, less often among mosses over shaded sandstone; this is one of the more shade-tolerant lichens of Pounds Hollow. *Physcia orbicularis* S, in part. P 2124.

#### PHYSICIA (Schreb.) Michx.

- aipolia* (Ehrh. ex Humb.) Fuernr. This species is known from Pounds Hollow solely on the basis of the report by Skorepa (1973), in which he indicates that it is rare in the region and occurs on trees in open areas. Skorepa 6067.
- alba* (Fee) Muell. Arg. Rare; known locally only from a small fallen

limb along Rim Rock Trail in upland woods; perhaps it is occasional on upper canopy branches. P 2185.

**americana** G. K. Merr. in Evans & Meyrow. Frequent; on deciduous trees and cedars in dry upland woods and on glades. *Physcia tribacoides* S. P 2186, 2190, 2591.

**millegrana** Degel. Common; on deciduous trees and cedars throughout Pounds Hollow. P 2209.

**stellaris** (L.) Nyl. Common; prevailingly on deciduous trees and cedars throughout Pounds Hollow; less often on dry sandstone boulders. P 2192, 2598, 2593, 2598.

**subtilis** Degel. Rare; known locally only from a large sandstone boulder on the east side of Pounds Lake. P 2273.

#### PHYSICIELLA Essl.

**chloantha** (Ach.) Essl. This species, weedy in Illinois northward, is known from Pounds Hollow only on the sandstone retaining wall near the concession facility. *Physcia chloantha* H. W&P 13686.

#### PUNCTELIA Krog

**bolliana** (Muell. Arg.) Krog Occasional; on the lower trunks of oaks and cedars in dry upland woods and on glades. *Parmelia bolliana* H. S. P 2269.

**perreticulata** (Ras.) Wilhelm & Ladd Frequent; on old-growth cedars on bluff tops and on glades. *Parmelia perreticulata* H. P 2130, 2160, 2170, 2204.

**rudecta** (Ach.) Krog Common; on a variety of substrates, prevailingly on the trunks and branches of deciduous trees and cedars in dry upland woods and glades, but also on shaded sandstone boulders and outcrops. *Parmelia rudecta* H. S. P 2178, 2201, 2258.

**semansiana** (Culb. & C. Culb.) Krog Uncommon; on shaded sandstone boulders in upland woods. *Parmelia hypoleucites* H. S. P 2264.

**subrudecta** (Nyl.) Krog Frequent; on substrates similar to *P. rudecta*, though nowhere near as common. *Parmelia subrudecta* H. S. P 2161, 2198, 2327.

#### PYXINE Fr.

**caesioprulnosa** (Nyl.) Imsh. Common; on a wide variety of deciduous trees and cedars in dry upland woods and on glades. P 2168.

**sorediata** (Ach.) Mont. Frequent; on a wide variety of deciduous trees and cedars in dry upland woods and on glades; less often on shaded sandstone boulders and outcrops. P 2162, 2307.

#### RAMALINA Ach.

**intermedia** (Delise ex Nyl.) Nyl. Rare; known locally only on a dry.

sheltered, sandstone boulder near the base of a north-facing, vertical wall along the lower trail. P 2408.

**TUCKERMANNOPSIS** Gyeln.

*viridis* (Schwein. in Halsey) Hale Rare; known only from the branches of *Quercus stellata* on a sandstone glade west of Pounds Lake. *Cetraria viridis* H. S. W&P 13678.

**USNEA** Dill. ex Adans.

*herrei* sensu Hale Frequent; on dry sandstone boulders in upland woods and dry vertical cliff faces. According to Egan (1987), *U. herrei* is a *nomen nudum*. Whatever the name, our specimens all have soredia, white medullae, bases concolorous with the branches, and are saxicolous. P 2266 has usnic acid only; P 2165, 2319, W&P 13706, W 14699 all have usnic acid along with norstictic and galbinic acids.

*strigosa* (Ach.) A. Eaton Rare; known locally only from a dead sassafras tree in the pine plantation near the Lake Road entrance. Our specimen has usnic acid only. P 2403.

**XANTHOPARMELIA** (Vain.) Hale This genus is very difficult to interpret without access to thin-layer chromatography. Medullary substances and lower thallus color are critical in making determinations. We have included taxonomic notes to facilitate determinations of Pounds Hollow specimens.

*conspersa* (Ehrh. ex Ach.) Hale Infrequent; on massive sandstone exposures, outcrops, and boulders. This is the only isidiate *Xanthoparmelia* with a black lower surface at Pounds Hollow; its medulla reacts K+ persistent yellow. *Parmelia conspersa* S. P 2271.

*cumberlandia* (Gyeln.) Hale Occasional; on massive sandstone exposures, outcrops, and boulders. This species is similar to *X. hypopsila*, but it has a prevailing brown lower surface; its medulla reacts K+ persistent yellow. *Parmelia cumberlandia* S. W&P 13715.

*hypomelaena* (Hale) Hale Occasional; on massive sandstone exposures, outcrops, and boulders. This is the only non-isidiate species at Pounds Hollow with a K- medullary reaction. *Parmelia hypomelaena* S. W&P 13701.

*hypopsila* (Muell. Arg.) Hale Common; on massive sandstone exposures, outcrops, and boulders. This species has a black lower surface and no isidia; its medulla reacts K+ persistent yellow. *Parmelia hypopsila* S. P 2262, 2276; W&P 13714; W 14696.

*somloensis* (Gyeln.) Hale Common; on massive sandstone exposures, outcrops, and boulders. This species is similar to *X. hypopsila*, but it has a largely brown lower surface, and its medulla reacts K+ yellow turning red. *Xanthoparmelia taractica* H: *Parmelia*

*taractica* S. P 2270; W&P 13699, 13710; W 14708.

*subramigera* (Gyeln.) Hale Frequent; on massive sandstone exposures, outcrops, and boulders. This is the only isidiate species at Pounds Hollow with K- (or K+ brownish) medullary reactions. *Parmelia subramigera* S. P 2272; W 14695.

*tasmanica* (J. D. Hook. & Tayl.) Hale Uncommon; on massive sandstone exposures, outcrops, and boulders. This species is similar to *X. somloensis*, but its lower surface is black everywhere except the margins. *Parmelia tasmanica* S. P 2268.

#### XANTHORIA (Fr.) Th. Fr.

*candelaria* (L.) Th. Fr. This species is virtually a weed northward in the till plain of Illinois, but at Pounds Hollow it is known only from a small population on a single tree of *Carya texana* located near the parking area at the concession facility. W&P 13684.

#### EXCLUDED SPECIES

Seven species of macrolichens have been reported from Pounds Hollow, but examination of the specimens upon which they were based has led us to refer them to other species. Their exclusion here does not mean necessarily that they are absent from Pounds Hollow, only that there are no other specimens or literature reports to support their presence.

*Acarospora chlorophana*. Parker (1985). The specimen upon which this report is based (P 2277) is better referred to the closely related *A. schleicheri* (Ach.) Mass. The latter is a manifestly crustose species with an essentially areolate thallus. *A. chlorophana* is very similar, but can be considered a macrolichen because the thallus margins are notably effigurate with branched lobes. It is probably at Pounds Hollow.

*Cladonia ramulosa*. Parker (1985). This species was reported under the name *C. pityrea*. The voucher specimen (P 2216) contains grayanic acid and is referable to *C. cylindrica*.

*Cladonia polycarpha*. Parker (1985). This species, common in the Deep South, contains atranorin, stictic acid, and norstictic acid; authentic material still is unknown from Illinois. The specimen (P 2189) upon which this report is based contains only atranorin and is therefore referable to *C. cariosa*, *which see*. Both species have K+ persistent yellow cortical reactions, so chromatographic methods are necessary for identification.

*Hypotrachyna formosana*. Parker (1985). The specimens (P 2597; Skorepa 3987) upon which this report is based are referable to *H.*

*pustulifera*. The upper cortex of the latter contains atranorin (K+ yellow) and lacks lichexanthone. All of the pustular-isidiate *Hypotrachyna*e, in The Morton Arboretum Herbarium, from Southern Illinois and the Missouri Ozarks are referable to *H. pustulifera*; all of the specimens which have lichexanthone (UV+ bright orange) in the cortex and lack atranorin are from the Deep South.

*Parmotrema dilatatum*. Skorepa (1973). See the comments under *P. submichauxianum*.

*Parmotrema xanthinum*. Parker (1985). All of the southern Illinois material contains gyrophoric acid in the medulla, a character which identifies *P. madagascariaceum*, which see.

*Xanthoparmelia plittii*. Parker (1985). The specimen (P 2272); upon which this report is based is referable to *X. subramigera*.

#### PHYTOGEOGRAPHIC AFFINITIES

Not surprisingly, the macrolichen flora of Pounds Hollow has a close affinity to the lichen flora of the eastern and southeastern United States. The great tall grass prairie of Illinois' till plain long has provided a physiographic barrier between the northern forests and the timbered lands of the lower Midwest. Consequently, the boreal element is small, and probably its presence at Pounds Hollow is by way of the Appalachians. The absence of exposed limestone and the preponderance of sandstone severely limit the extent to which the saxicolous flora can have any affinity to the Ozarks; nevertheless, there are significant numbers of Ozark and Appalachian elements in the flora.

There is no satisfactory way in which to place many species within a defined phytogeographic province. The inability to utilize names and distributions from older literature, paucity of distribution data, and the fact that some species do not adhere to such provinces, combine to frustrate most attempts to assign species to provincial categories. The following phytogeographic groupings are essentially those used by Skorepa (1973); distribution is based largely on that same reference and on Hale (1979).

Pan-Eastern United States: *Anaptychia palmulata*, *Catapyrenium tuckermanii*, *Cladina subtenuis*, *Cladonia caroliniana*, *C. cristatella*, *C. cylindrica*, *C. didyma*, *C. peziziformis*, *C. piedmontensis*, *C. poly-carpoides*, *C. robbinsii*, *C. sobolescens*, *C. squamosa*, *C. strepsilis*, *Flavoparmelia baltimorensis*, *F. caperata*, *Heterodermia speciosa*, *Hypotrachyna livida*, *Leptogium corticola*, *Parmelina aurulenta*, *P. galbina*, *Parmotrema reticulatum*, *Phaeophyscia adiastrata*, *P. cernohorskyi*, *P. imbricata*, *P. rubropulchra*, *Physcia americana*, *P. mille-*

*grana*, *Physciella chloantha*, *Punctelia bolliana*, *P. semansiana*, *Pyxine soredata*, *Usnea strigosa*, *Xanthoparmelia hypopsila*, and *X. tasmanica* (35 species).

Southeastern United States: *Canoparmelia caroliniana*, *C. texana*, *Coccocarpia palmicola*, *Heterodermia obscurata*, *Leptogium austroamericanum*, *Parmotrema austrosinense*, *P. cetratum*, *P. crinitum*, *P. hypotropum*, *P. madagascariaceum*, *P. michauxianum*, *P. tinctorum*, *Physcia alba*, and *Pyxine caesiopruinosa* (14 species).

Wide-spread in North America: *Cladina rangiferina*, *Cladonia chlorophaea*, *C. coniocraea*, *C. furcata*, *C. grayi*, *Dermatocarpon luridum*, *D. miniatum*, *Peltigera canina*, *P. polydactyla*, *Punctelia subrudecta*, *Xanthoparmelia conspersa*, and *X. cumberlandia* (12 species).

Ozark/Appalachian: *Canoparmelia crozalsiana*, *Cladonia apodocarpa*, *Dirinaria frostii*, *Heterodermia granulifera*, *Hypotrachyna pustulifera*, *Parmelina minarum*, *P. obsessa*, *Parmotrema submichauxianum*, *Tuckermannopsis viridis*, and *Usnea herrei* (10 species).

Pan-Temperate United States: *Candelaria concolor*, *Cladonia bacillaris*, *C. cryptochlorophaea*, *Collema furfuraceum*, *Leptogium milligranum*, *Physcia aipolia*, *P. stellaris*, *Xanthoparmelia somloensis*, and *Xanthoria candelaria* (9 species).

Eastern United States and Western Mountains: *Cladonia cariosa*, *Collema conglomeratum*, *Imshaugia aleurites*, *Leptogium cyanescens*, *Physcia subtilis*, and *Punctelia rudecta* (6 species).

Boreal North America: *Cladina arbuscula*, *Cladonia pleurota*, *C. pyxidata*, *C. uncialis*, and *Collema flaccidum* (5 species).

Ozark/South Central: *Parmotrema eurysacum*, *Punctelia perreticulata*, and *Xanthoparmelia subramigera* (3 species).

Appalachian Mountains/Great Lakes: *Lobaria quercizans*, *Ramalina intermedia*, and *Xanthoparmelia hypomelaena* (3 species).

Coastal Plain: *Cladonia atlantica* (1 species).

#### GLOSSARY

**Apothecium (a):** ascocarp; the usually disc- or cup-shaped "fruiting body."

**Areolate:** pertaining to the thallus or cortical surfaces which break up into discrete units or patches.

**Concolorous:** the same color.

**Cortex:** a smooth skin or surface, with respect to lichens; bark, with respect to trees.

**Corticate:** with a cortex.

**Decorticate:** having sloughed or shed a cortex.

**Eccorticate:** without a cortex.

**Effigurate:** with a definite form, usually implying lobed margins.

**Esorediate:** without soredia.

**Foliose:** pertaining to a strongly dorsiventrally flattened lichen thallus, which thallus is usually adnate to its substrate and consists of a medulla and an upper cortex.

**Fruticose:** pertaining to a lichen whose morphology is such that the thallus stands elevated from its substrate, attached usually at only one point.

**Gelatinous:** pertaining to lichen thalli which are notably gelatin-like upon soaking and which contain cyanobacteria (blue-green algae) as their "algal" host.

**Isidia:** small, usually narrowly cylindrical, corticate projections on the upper lichen surface.

**Isidiate:** with isidia.

**Leprose:** pertaining to a thallus which is composed of unconsolidated or loosely organized, ecorticate granules.

**Lobes:** flat, usually discrete projections of a foliose thallus.

**Medulla (ae):** the inner mass of loosely woven fungal hyphae, usually overlaid by cortical tissue.

**Podetium (a):** the club-shaped or cup-shaped portion of a *Cladonia* thallus.

**Pustular:** pertaining to open or incipiently open blisters or warts on the upper surface of certain lichen thalli.

**Rhizines:** hair-like strands of hyphae on the lower surfaces of certain lichen thalli.

**Saxicolous:** inhabiting rock or rock-like substrates.

**Sorediate:** with soredia.

**Soredium (a):** a somewhat unorganized, ecorticate unit of hyphae and algae which extrudes from or appears on the surface of the cortex or exposed medulla. It is a curious artifact of the terminology that this term is nearly never used in the singular.

**Squamule (s):** small, scale-like portion of a thallus, typically without a lower cortex and rhizines.

**Squamulose:** with squamules.

**Umbilicate:** pertaining to dorsiventrally flattened lichen thalli which are attached to the substrate at a single point, as if by an umbilicus.

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## The Vascular Flora of Langham Island Kankakee County , Illinois

by John E. Schwegman

Langham Island is located in the Kankakee River at the village of Altorf, five miles northwest of Kankakee, Illinois. This 24 acre island has long been noted for the variety of rare and unusual plants inhabiting it. Chief among these is the Kankakee Mallow (*Iliamna remota*) which is native only to this island. Although visited by botanists since 1872, no complete vascular flora list has been compiled for the area. This paper presents such a list.

Historically, the first written record I have found of the island was made by a government land surveyor on April 7, 1834. He described it as a "beautiful timbered island that does not overflow" and called it Langham's Island (Page 98, volume 356 PLS field notes). At this time the south shore of the river was "high level rich prairie" and the north shore was timbered. Tree species listed for the area are "burr oak, white oak, and hickory".

In 1834 the north shore of the river, to which the island is closest, was part of a large timbered grove which contained a major Potawatomi indian village. Several tracts in this grove (Rock Grove) were deeded to the Indians by the Treaty of Tippecanoe. A large tract just east of the island was granted to an Indian named Joseph Laughton, son of Wais-Ke-Shaw. Since histories of the county list no Langhams among the earliest settlers, it appears that the island was named for this Indian and that the surveyor and the authors of the treaty spelled his name differently. The Indians were forced to cede their lands and move to Iowa in 1836 (Beckwith, 1884).

Land near the island was settled rapidly following the departure of the Indians. A dam was built between the island and the north shore. The village of Altorf was settled at this time. The mill deteriorated before 1890, but the end of the dam and an apparent borrow area are still evident on the island.

E.J. Hill began visiting the island and collecting the unusual plants he found there in 1872. He does not describe the conditions on the island at that time, but describes some of his visits in his letters found in Kibbe (1953). He describes the habitat for most of his collections as "gravelly island", "dry banks" and "gravelly bank of island". By 1912, and continuing at least until 1916, Sheriff (1946) noted that the more elevated flat portion of the island was cleared and cultivated as a corn field. He described the remaining woodland as "open woods" and "rocky grassy slopes". When Sheriff returned in 1945 the field had been abandoned. Since that time the island has remained undisturbed and the field has succeeded to a brushy and small tree stage.

Langham Island became part of Kankakee River State Park in the early 1940s, and was dedicated as an Illinois Nature Preserve in 1966. Management of the

Island to benefit the Kankakee Mallow, under a recovery plan for that species (Schwegman 1984), began in 1983, began in 1983. Management has included prescribed fire and chemical control of exotic shrubs.

Langham Island consisted only of a flat-topped 13 acre bedrock upland when first surveyed and platted in 1868. Since that time, an 11 acre low alluvial area has accreted to the southeastern (upstream) end. The island is located at the upstream end of the "gorge" of the Kankakee River at a point where the river is swift, shallow and rocky. It is nearest the northern shore.

The present study area consists of this entire 24 acre island and the aquatic habitats immediately bordering it. The natural communities present in the study area include dry upland forest on the southwest slopes, mesic upland forest on the northeast slopes floodplain forest, late successional old field, bedrock outcrops, river banks, swift river and quiet river. The river bank community is impacted frequently by ice flow scouring as well as flooding.

The island is 2,300 feet long and a maximum of 640 feet wide. Its linear dimension tends southeast to northwest. The river elevation is approximately 560 feet above sea level, while the old field interior of the island is at elevation 580 feet. The highest elevation is 581 feet. The northeast side of the island has more gentle 4 to 7 percent slopes than the 18 to 30 percent slopes of the southwest side.

Soils of the flat upland are Rockton Loam which is developed in 20 to 36 inches of stratified sands and silts over dolomite bedrock. The northeast slopes are Ritchey Loam which is 10 to 24 inches thick on bedrock while the steeper southwest slopes contain Sogn Loam. Sogn has less than 10 inches of loamy material over bedrock. This soil is gravelly with some very large cobbles in some areas. Two areas of bedrock outcrop also occur on the southwest slopes. The lower southwest end of the island has medium textured alluvium on lower areas while the higher elevations contain Onarga Fine Sandy Loam.

Dominant plants of the late succession stage old field are Canada bluegrass (*Poa compressa*), white sweet clover (*Melilotus alba*) and goldenrod (*Solidago canadensis*). Slippery elm (*Ulmus rubra*) and hawthorn (*Crataegus crus-galli*) are the principal invaders of the field along with the introduced shrub Amur honeysuckle (*Lonicera maackii*). Mesic forests on the northeast slope are of red oak (*Quercus rubra*) with an understory of bladdernut (*Staphylea trifolia*). The drier forests of the south slope are of burr oak (*Quercus macrocarpa*) and blue ash (*Fraxinus pennsylvanica*), hackberry (*Celtis occidentalis*) and American elm (*Ulmus americana*). Cottonwood (*Populus deltoides*) is a common tree along the north shore. Swift water areas support sago pondweed (*Potamogeton pectinatus*) and eelgrass (*Vallisneria spiralis*) while quiet waters are usually dominated by water weed (*Elodea canadensis*) and curly pondweed (*Potamogeton crispus*). Common shoreline herbs are water willow (*Justicia americana*) and rose mallow (*Hibiscus laevis*).

Among the more notable plants known from Langham Island is the Kankakee mallow which was first collected there by E. J. Hill on June 29, 1872. It remains abundant there today and, so far as is known, is native only to this island. The corn salads (*Valerianella intermedia* and *V. unbulbata*) are annuals occupying the banks and interior fields. While the latter species was abundant during this study, the former was last collected by Swink on July 2, 1966 (SIU). The leafy prairie clover (*Dalea foliosa*) was first discovered on the island

on August 27, 1872 by E. J. Hill. He found it growing on "gravelly banks". Realizing he had discovered a little known species, he returned July 28, 1873 to collect more. In a letter to Harry Patterson dated November 29, 1873, Hill, referring to the leafy prairie clover, writes "In fact I found but five plants after thorough search. Four of these I dug up, sending two of the roots to Dr. (Asa) Gray, to cultivate, fearing I might exterminate; the other was left". This species has not been seen on the island since. Seeds of the leafy prairie clover from Will County Illinois were sowed along the south banks of the island in 1986 in hopes of reestablishing a population there. Buffalo clover (*Trifolium reflexum*) was collected on the island June 13, 1884 (ILL) and the violet (*Viola viarum*) was also collected here May 16, 1884 (ILL), both by Hill. Neither was found during the present study.

Among the unexpected species I encountered were *Scutellaria nervosa*, a single specimen of which was found on a dry ledge on the south slopes. This species was later found to be locally common on the nearby north shores of the river. A few *Viola missouriensis* were found in low woods near the south end of the island and a single *Lysimachia terrestris* was found on the north shore. *Carex hitchcockiana* and *Allium burdickii* were found in a bit of mesic forest near the old dam.

The following annotated checklist includes 315 taxa and was compiled during the 1985 growing season. It also includes a few taxa observed in 1986 and several species collected by others in prior years but apparently now extinct on the island. The taxonomy follows Mohlenbrock (1986) as to species and family names and family sequence. The Genera and Species are alphabetically arranged within the families. Species preceded by an asterisk (\*) are alien species.

(Editor's Note: According to the author, the species list which follows was compiled mostly of site identifications only. More unusual species were collected and are housed in the herbarium at the Illinois State Museum.)

## Equisetaceae

- Equisetum arvense* L. Common Horsetail. Local along north shore.  
*Equisetum hyemale* L. Scouring Rush. Local on moist shores.

## Ophioglossaceae

- Botrychium virginianum* (L.) Sw. Rattlesnake Fern. Local in mesic forest.

## Appleniaceae

- Asplenium platyneuron* (L.) Oakes Ebony Spleenwort. Rare in upland forest.

## Potamogetonaceae

- \**Potamogeton crispus* L. Curly Pondweed. Common in quiet water along north shore.  
*Potamogeton nodosus* Poir. Pondweed. Local along north shore.  
*Potamogeton pectinatus* L. Sago Pondweed. Common in swift and quiet water.

## Hydrocharitaceae

- Elodea canadensis* Michx. Waterweed. Common in quiet water.  
*Vallisneria americana* Michx. Eelgrass. Common in swift and quiet water.

## Poaceae

- Andropogon gerardii* Vitman Big Bluestem. Rare on south slope.  
 \**Agrostis alba* L. Redtop. Local on moist south shore.  
 \**Bromus inermis* Leyss. Smooth Brome. Local on dry open south slopes.  
*Cirna arundinacea* L. Stout Wood Reed. Local in upland woods.  
*Echinochloa crus-galli* (L.) Beauv. Barnyard Grass. Rare on south shore.  
*Elymus villosus* Muhl. Slender Wild Rye. Common on forested slopes.  
*Elymus virginicus* L. Virginia Wild Rye. Local in woods.  
*Eragrostis frankii* A. Meyer Lovegrass. Local on moist open river banks.  
*Eragrostis hypnoides* (Lam.) BSP Pony Grass. Local on moist sandy shores.  
 \**Eragrostis pilosa* (L.) Beauv. Love Grass. Common on moist shores on north side.  
 \**Festuca pratensis* Huds. Tall Fescue. Rare on open south slope.  
*Festuca obtusa* Bieler Nodding Fescue. Common in mesic forest.  
*Leersia virginica* Willd. White Grass. Local in alluvial forest.  
*Muhlenbergia bushii* Pohl Muhly. Local in alluvial forest.  
*Muhlenbergia frondosa* (Poir.) Fern. Muhly. Local in moist forest.  
*Muhlenbergia schreberi* J.F. Gmel. Nimble Will. Rare in forest.  
*Panicum capillare* L. Witch Grass. Local on open banks.  
*Panicum dichotomiflorum* Michx. Fall Panicum. Local on moist shores.  
*Panicum virgatum* L. Switchgrass. rare on the open south bank.  
*Phalaris arundinacea* L. Reed Canary Grass. Common along shores.  
*Poa compressa* L. Canada Bluegrass. Common in interior old field.  
*Poa sylvestris* Gray Woodland Bluegrass. Common in mesic forest.  
 \**Setaria faberi* Herrm. Giant Foxtail. Rare on open south slopes.  
 \**Setaria lutescens* (Weigel) Hubb Yellow Foxtail. Rare in interior fields.  
*Spartina pectinata* Lind. Cordgrass. Local on moist south banks.  
*Spenopholis obtusata* (Michx.) Scribn. Wedge Grass. Local in woods.

## Cyperaceae

- Carex blanda* Dewey Woodland Sedge. Common in woods.  
*Carex cephalophora* Muhl. Sedge. Local on dry slopes.  
*Carex davisi* Schwein. & Torr. Sedge. Local on south slopes.  
*Carex gravida* Bailey Sedge. Local in upland woods.  
*Carex hitchcockiana* Dewey Hitchcock's Sedge. Local in woods at old dam site.  
*Carex jamesii* Schwein. James's Sedge. Rare in mesic forest.  
*Carex normalis* Mack. Sedge. Local in old field.  
*Carex pennsylvanica* Lam. Penn Sedge. Local on dry open south slope.  
*Carex sparganioides* Muhl. Sedge. Rare in woods.  
*Carex stricta* Lam. Clumped Sedge. Rare along south shore.  
*Carex vulpinoidea* Michx. Fox Sedge. Local along south shore.  
*Cyperus aristatus* Rottb. Galingale. Rare along north shore.  
*Cyperus erythrorhizos* Muhl. Galingale. Common on north shore.  
*Eleocharis elliptica* Kunth Spike Rush. Local along north shore.  
*Scirpus americanus* Pers. Three-square Bulrush. Local on shore near north end.  
*Scirpus micranthus* Vahl Small Bulrush. Rare along north shore.

## Araceae

- Arisaema dracontium* (L.) Schott Green Dragon. Local in alluvial woods.

## Lemnaceae

- Lemna minor* L. Common Duckweed. Local in quiet water around island.

## Commelinaceae

- Tradescantia ohioensis* Raf. Ohio Spiderwort. Local in fields.

## Liliaceae

- Allium burdickii* (Hanes) A.G. Jones Wild Leek. Rare in woods by old mill dam.  
*Allium canadense* L. Wild Onion. Common in woods.  
*Allium cernuum* Roth Nodding Onion. Local in old field and on dry slopes.  
 \**Asparagus officinalis* L. Asparagus. Local in woods and on banks.  
*Camassia scilloides* (Raf.) Cory Wild Hyacinth. Common on south slopes.  
 \**Hemerocallis fulva* L. Day Lily. Rare along north shore.  
*Polygonatum commutatum* (Schult.) A. Dietr. Solomon's Seal. Local in woods.  
*Smilacina stellata* (L.) Desf. False Solomon's Seal. Reported by Payton in 1973.  
*Trillium recurvatum* Beck Wake Robin. Local in dry woods on south slope.  
*Trillium sessile* L. Sessile Wake Robin. Common in mesic and moist woods.

## Smilacaceae

- Smilax ectrhata* (Engelm.) S. Wats. Carrion Flower. Local in woods.  
*Smilax lasioneuron* Hook. Carrion Flower. Local in woods.  
*Smilax hispida* Muhl. Bristly Greenbriar. Local in mesic woods.

## Dioscoreaceae

- Dioscorea villosa* L. Wild Yam. One large population in dry woods.

## Iridaceae

- \**Belamcanda chinensis* (L.) DC. Blackberry Lily. Rare on south slope.  
 \**Iris x germanica* L. Bearded Iris. One population in old field.  
*Iris shrevei* Small Wild Blue Iris. Local along shore.

## Salicaceae

- Populus deltoides* Marsh. Cottonwood. Local along north shore.  
*Salix exigua* Nutt. Sandbar Willow. Rare on south banks.

## Juglandaceae

- Carya cordiformis* (Wang.) K. Koch Bitternut Hickory. Rare in woods.  
*Carya ovata* (Mill.) K. Koch Shagbark Hickory. Rare in woods.  
*Juglans nigra* L. Black Walnut. Local in low woods.

## Fagaceae

- Quercus alba* L. White Oak. Local in woods.  
*Quercus bicolor* Willd. Swamp White Oak. Local in low woods.  
*Quercus macrocarpa* Michx. Burr Oak. Common on south side.  
*Quercus prinoides* Willd. Yellow Chestnut Oak. Local on south side.  
*Quercus rubra* L. Northern Red Oak. Local in woods.

## Ulmaceae

- Celtis occidentalis* L. Hackberry. Local in low woods.  
*Ulmus americanus* L. American Elm. Local along north shore.  
*Ulmus rubra* Muhl. Slippery Elm. Local in upland woods and fields.

## Urticaceae

- Boehmeria cylindrica* (L.) Sw. False Nettle. Local in moist soil.  
*Laportea canadensis* (L.) Wedd. Stinging Nettle. Rare on moist banks.  
*Parietaria pensylvanica* Muhl. Pellitory. Rare in woods.  
*Pilea pumila* (L.) Gray Clearweed. Local along north shore.  
*Urtica dioica* L. Stinging Nettle. Local along north shore.

## Aristolochiaceae

- Asarum canadense* L. Wild Ginger. Common in mesic woods.

## Polygonaceae

- Polygonum amphibium* L. Water smartweed. Rare along north shore.  
 \**Polygonum aviculare* L. Knotweed. Local on dry south banks.  
*Polygonum lapathifolium* L. Nodding Smartweed. Local along north shore.  
*Polygonum pennsylvanicum* L. Common Smartweed. Local on shores.  
 \**Polygonum persicaria* L. Lady's Thumb. Local on north shore.  
*Polygonum punctatum* Ell. Smartweed. Local on north shore.  
*Polygonum scandens* L. False Buckwheat. Local in woods and on open banks.  
*Rumex crispus* L. Curly Dock. Local on river banks.  
*Rumex verticillatus* L. Water Dock. Local along shore.

## Chenopodiaceae

*Chenopodium album* L. Lamb's Quarters. Local in fields and on banks.

*Chenopodium gigantospermum*. Aellen Maple-leaved Goosefoot. Rare on dry banks.

*Chenopodium standleyanum* Aellen Goosefoot. Common in woods.

## Amaranthaceae

*Amaranthus rudis* Saver Water Hemp. Local on moist shores.

## Nyctaginaceae

\**Mirabilis nyctaginea* (Michx) MacM. Wild Four-o'clock. Local on dry banks.

## Portulacaceae

*Claytonia virginica* L. Spring Beauty. Local in woods.

## Caryophyllaceae

*Cerastium arvense* L. Field Mouse-eared Chickweed. Local on dry south bank.

*Silene antirrhina* L. Sleepy Catchfly. Rare on an uprooted stump.

\**Silene cucbalus* Wibel Bladder Catchfly. Rare on dry south banks.

*Silene stellata* (L.) Ait. f. Starry Campion. Local in dry woods.

## Ceratophyllaceae

*Ceratophyllum demersum* L. Coontail. Local in quiet water around island.

## Ranunculaceae

*Anemone virginiana* L. Tall Anemone. Local in woods and on banks.

*Clematis pitcheri* Torr. & Gray Leatherflower. Common on dry open banks.

*Ranunculus abortivus* L. Small-flowered Crowfoot. Local in all communities.

*Ranunculus micranthus* Nutt. Small-flowered Buttercup. Local in woods.

*Ranunculus septentrionalis* Poir. Swamp Buttercup. Local in moist areas.

*Thalictrum revolutum* DC. Waxy Meadow Rue. Local in moist woods.

## Berberidaceae

\**Berberis vulgaris* L. Common barberry. Rare on south slopes.

*Podophyllum peltatum* L. Mayapple. Rare near old mill site.

## Menispermaceae

*Menispermum canadense* L. Canada Moonseed. Rare on moist banks.

## Papaveraceae

*Corydalis micrantha* (Engelm.) Gray Slender Corydalis. Rare on dry south banks.

*Dicentra cucullaria* (L.) Bernh. Dutchman's Breeches. Common in north slope woods.

## Brassicaceae

- Arabis laevigata* (Muhl.) Poir. Smooth Rock Cress. Local in woods.  
*Arabis shortii* (Fern.) Gl. Rock Cress. Common in low areas all around the island.  
 \**Brassica nigra* (L.) Koch Black Mustard. Common on dry open banks.  
*Dentaria laciniata* Muhl. Toothwort. Common in slope woods.  
*Descurainia pinnata* (Walt.) Britt. Tansy Mustard. Rare on limestone ledges.  
*Iodanthus pinnatifidus* (Michx.) Steud. Purple Rocket. Local in low woods.  
 \**Lepidium campestre* (L.) R.Br. Field Peppergrass. Local on river banks.  
 \**Lepidium densiflorum* Schrad. Peppergrass. Local on dry south slopes.  
 \**Rorippa sylvestris* (L.) Bess. Creeping Yellow Cress. Common on river banks.

## Crassulaceae

- \**Sedum sarmentosum* Bunge Yellow Stonecrop. Rare on rocks on south bank.  
*Sedum ternatum* Michx. Three-leaved Stonecrop. Very local on south banks.

## Grossulariaceae

- Ribes missouriense* Nutt. Missouri Gooseberry. Common in all communities.

## Rosaceae

- Agrimonia parviflora* Ait. Agrimony. Local in level upland woods.  
*Agrimonia pubescens* Wallr. Soft Agrimony. Local in upland woods.  
*Crataegus crus-galli* L. Cock-Spur Thorn. Local in fields and woods.  
*Crataegus mollis* (Torr. & Gray) Scheele Red Haw. Common in alluvial forest.  
*Geum canadense* Jacq. White Avens. Common in woods.  
*Geum laciniatum* Murr. Rough Avens. Rare on moist shores.  
*Geum verum* (Raf.) Torr & Gray Spring Avens. Local in alluvial woods.  
*Malus ioensis* (Wood) Britt. Iowa Crabapple. Local in fields and woods.  
 \**Potentilla recta* L. Sulphur Cinquefoil. Rare in old field.  
*Prunus americana* Marsh. Wild Plum. Local on dry south banks.  
*Prunus serotina* Ehrh. Wild Black Cherry. Local in fields and woods.  
*Prunus virginiana* L. Choke Cherry. Common in upland woods.  
*Rosa carolina* L. Pasture Rose. Local on dry south banks.  
 \**Rosa multiflora* Thunb. Multiflora Rose. Common in woods and fields.  
*Rosa setigera* Michx. Prairie Rose. Rare in successional forest.  
*Rosa suffulta* Greene Sunshine Rose. Rare on dry south banks.  
*Rubus occidentalis* L. Blackberry. Local in fields and woods.

## Mimosaceae

- Desmanthus illinoensis* (Michx.) MacM. Illinois Mimosa. Local on dry banks.

## Caesalpinaceae

- Cassia marilandica* L. Maryland Senna. Local on south slopes.  
*Cercis canadensis* L. Redbud. Common in fields and woods.  
*Gleditsia triacanthos* L. Honey Locust. Rare in woods and fields.

## Fabaceae

- Amorpha fruticosa* L. False Indigo. Local along shores.  
*Amphicarpa bracteata* (L.) Fern. Hog Peanut. Local in moist woods.  
*Apios americana* Medic. Ground Nut. Rare on moist north banks.  
*Dalea foliosa* (Gray) Barneby Leafy Prairie Clover. Formerly on dry banks, reintroduced in 1987.  
 \**Medicago lupulina* L. Black Medic. Rare on dry south banks.  
*Trifolium reflexum* L. Buffalo Clover. Formerly in dry open woods.

## Oxalidaceae

- Oxalis dillenii* Jacq. Yellow Wood Sorrel. Local on dry banks.  
*Oxalis stricta* L. Yellow Wood Sorrel. Local on dry banks.

## Rutaceae

- Ptelea trifoliata* L. Wafer Ash. Local along north bank.  
*Xanthoxylum americanum* Mill. Prickly Ash. Local in woods.

## Simaroubaceae

- \**Ailanthus altissima* (Mill.) Swingle Tree-of-heaven. Local in field.

## Euphorbiaceae

- Acalypha rhomboidea* Raf. Three-seeded Mercury. Local on moist shores.  
*Acalypha virginica* L. Three-seeded Mercury. Local on river banks.  
*Chamaesyce humistrata* (Engelm.) Small Milk Spurge. Local on dry banks.  
*Chamaesyce maculata* (L.) Small Nodding Spurge. Local on dry banks.  
*Poinsettia dentata* (Michx.) Kl. & Garcke Wild Poinsettia. Dry gravel around burned logs.

## Limnanthaceae

- Floerkea proserpinacoides* Willd. Flase Mermaid. Common in low and mesic woods.

## Anacardiaceae

- Rhus glabra* L. Smooth Sumac. Local in fields.  
*Toxicodendron radicans* (L.) Kuntze Poison ivy. Common in woods.

## Staphyleaceae

- Staphylea trifolia* L. Bladdernut. Common in north slope woods.

## Aceraceae

- Acer negundo* L. Box Elder. Local in low alluvial woods.  
*Acer saccharinum* L. Silver Maple. Local along shore at north end.

## Rhamnaceae

- \**Rhamnus cathartica* L. Common Buckthorn. Rare in open woods.

## Vitaceae

*Parthenocissus quinquefolia* (L.) Planch. Virginia Creeper. Local in slope woods.

*Vitis riparia* Michx. Riverbank Grape. Local in low woods.

## Tiliaceae

*Tilia americana* L. Basswood. Local along upper south banks.

## Malvaceae

*Hibiscus laevis* All. Halberd-leaved Rose Mallow. Local along shores.

*Iliamna remota* Greene Kankakee Mallow. Local in dry woods and fields on south side.

## Hypericaceae

*Hypericum sphaerocarpum* Michx. Round-fruited St. John's Wort. Common on open south banks.

## Violaceae

*Viola missouriensis* Greene Missouri Violet. Rare in low woods.

*Viola pratincola* Greene Smooth Violet. Local in afforested upland.

*Viola pubescens* Ait. Downy Yellow Violet. Local in wet woods.

*Viola sororia* Willd. Woolly Blue Violet. Local in mesic woods.

*Viola viarum* Pollard Violet. Collected from dry banks in 1884.

## Elaeagnaceae

*Elaeagnus umbellata* Thunb. Autumn Olive. Rare in open field.

## Lythraceae

\**Lythrum salicaria* L. Purple Loosestrife. Rare as seedlings along north shore.

## Onagraceae

*Ludwigia palustris* (L.) Ell. Marsh Purselane. Local on moist shores.

*Oenothera biennis* L. Biennial Evening Primrose. Local on dry banks.

## Apiaceae

*Chaerophyllum procumbens* Wild Chervil. Local in woods.

*Cryptotaenia canadensis* (L.) DC. Honewort. Local in moist woods.

\**Daucus carota* L. Queen Anne's Lace. Local in fields.

*Osmorhiza longistylis* (Torr.) DC. Anise-root. Local in moist to mesic woods.

*Perideridia americana* (Nutt.) Reichenb. Common on dry south slopes.

*Sanicula canadensis* L. Canadian Black Snakeroot. Common in moist woods.

*Sanicula gregaria* Bickn. Common Snakeroot. Local in mesic woods.

\**Torilis japonica* (Houtt.) DC. Hedge Parsley. Local in fields.

*Zizia aurea* (L.) Koch Golden Alexanders. Local along south banks.

## Cornaceae

- Cornus racemosa* Lam. Gray Dogwood. Common in woods by old dam.  
*Cornus stolonifera* Michx. Red Öster Dogwood. Local on river banks.

## Primulaceae

- Androsace occidentalis* Pursh Rare in open sandy old field.  
*Lysimachia ciliata* L. Fringed Loosestrife. Rare along the north bank.  
 \**Lysimachia nummularia* L. Moneywort. Local in moist woods.  
*Lysimachia terrestris* (L.) BSP. Swamp Candles. Rare (one plant) along north shore.

## Oleaceae

- Fraxinus pennsylvanica* Marsh. Green Ash. Local in woods and fields.  
*Fraxinus quadrangulata* Michx. Blue Ash. Local on south slopes.

## Apocynaceae

- Apocynum cannabinum* L. Dogbane. Local in fields.  
 \**Vinca minor* L. Periwinkle. Rare in woods near old dam.

## Asclepiadaceae

- Asclepias incarnata* L. Swamp Milkweed. Local along shores.  
*Asclepias syriaca* L. Common Milkweed. Rare on low open shore.

## Convolvulaceae

- Calystegia sepium* (L.) R. Br. American Bindweed. Common on low north banks.  
*Ipomoea pandurata* (L.) G.F.W. Mey. Wild Sweet Potato. Local on north banks.

## Polemoniaceae

- Phlox divaricata* L. Wild Sweet William. Local in woods.

## Hydrophyllaceae

- Ellisia nyctelea* L. Aunt Lucy. Local on dry wooded slopes.  
*Hydrophyllum appendiculatum* Michx. Great Waterleaf. Local in mesic woods.  
*Hydrophyllum virginianum* L. Virginia Waterleaf. Local in slope forest.

## Boraginaceae

- \**Cynoglossum officinale* L. Hounds Tongue. Rare in field.  
*Mertensia virginica* (L.) Pers. Virginia Bluebells. Rare in low woods at west end.  
*Onosmodium hispidissimum* Mack. Marbleseed. Rare at east end of field.

## Verbenaceae

- Phyla lanceolata* (Michx) Greene Frog Fruit. Common on moist shores.  
*Verbena hastata* L. Blue Vervain. Local on moist banks.

- Verbena simplex* Lehm. Narrow-leaved Vervain. Rare on dry rocky banks.  
*Verbena urticifolia* L. White Vervain. Local on dry banks.

## Lamiaceae

- Agastache nepetoides* (L.) Ktze. Yellow Giant Hyssop. Local on banks and in woods.  
 \**Glechoma hederacea* L. Ground Ivy. Local in low moist woods.  
 \**Leonurus cardiaca* L. Motherwort. Local in fields.  
*Lycopus americanus* Muhl. Common Water Horehound. Rare on banks at west end.  
 \**Mentha x piperita* L. Peppermint. Rare on south bank.  
*Monarda fistulosa* L. Bee Balm. Local in fields and on dry banks.  
*Physostegia speciosa* (Sweet) False Dragonhead. Rare on north banks.  
*Scutellaria lateriflora* L. Mad Dog Skullcap. Local along south bank.  
*Scutellaria nervosa* Pursh Veiny Skullcap. Rare (one plant) on limestone outcrop.  
*Stachys tenuifolia* Willd. Smooth Hedge Nettle. Local along moist north banks.  
*Teucrium canadense* L. American Germander. Local on dry banks and in woods.

## Solanaceae

- Physalis heterophylla* Nees. Ground Cherry. Rare on south banks.  
*Solanum carolinense* L. Horse-nettle. Local on dry banks.  
 \**Solanum dulcamara* L. Bittersweet Nightshade. Rare near shore at west end.  
*Solanum ptycanthum* Dunal Black Nightshade. Local on banks.

## Scrophulariaceae

- Agalinis tenuifolia* (Vahl) Raf. Slender False Foxglove. Common along shores.  
*Dasistoma macrophylla* (Nutt.) Raf. Mullein Foxglove. Common in fields.  
*Leucospora multifida* (Michx.) Nutt. Rare on sandy banks.  
*Mimulus ringens* L. Monkey-flower. Local on moist banks.  
*Penstemon digitalis* Nutt. Foxglove Beardstongue. Common on banks and in woods.  
*Scrophularia marilandica* L. Late Figwort. Local on dry banks.  
 \**Verbascum thapsus* L. Woolly Mullein. Local in fields and on slopes.

## Acanthaceae

- Justicia americana* (L.) Vahl Water Willow. Common in shallow water along shores.  
*Ruellia strepens* L. Smooth Wild Petunia. Local in woods.  
*Ruellia humilis* Nutt. Wild Petunia. Local on dry banks.

## Plantaginaceae

- \**Plantago major* L. Common plantain. Local in disturbed areas.  
*Plantago rugelii* Dcne. Rugel's Plantain. Local on dry banks.

## Rubiaceae

- Cephalanthus occidentalis* L. Buttonbush. Rare along south shore.  
*Galium aparine* L. Goose Grass. Common in woods.

*Gallium circaezans* Michx. Bedstraw. Local in woods.

Caprifoliaceae

\**Lonicera maackii* Maxim. Amur Honeysuckle. Common throughout island.  
*Lonicera proliifera* (Kirchn.) Rehder Grape Honeysuckle. Local on south slopes.

\**Lonicera tatarica* L. Tatarian Honeysuckle. Local in fields and woods.  
*Symphoricarpos orbiculatus* Moench. Coralberry. Rare at edge of field.  
*Viburnum prunifolium* L. Black Haw. Local in woods.

Valerianaceae

*Valerianella intermedia* Dyal Corn Salad. Rare, last collected in 1966.  
*Valerianella umbilicata* (Sulliv.) Wood Corn Salad. Common in fields and on dry banks.

Campanulaceae

*Lobelia cardinalis* L. Cardinal Flower. Rare on north shore.  
*Lobelia siphilitica* L. Great Blue Lobelia. Local along shores.  
*Triodanis perfoliata* (L.) Nieuwl. Venus's Looking Glass. Rare in disturbed field.

Asteraceae

*Achillea millefolium* L. Yarrow. Local in the field.  
*Ambrosia artemisiifolia* L. Common Ragweed. Common in disturbed sites.  
*Ambrosia trifida* L. Giant Ragweed. Rare in moist soil at south end.  
*Artemisia biennis* Willd. Biennial Wormwood. Rare on dry south bank.  
*Aster drummondii* Lindl. Drummond's Aster. Rare in mesic forest.  
*Aster novae-angliae* L. New England Aster. Rare on dry south banks.  
*Aster ontarionis* Wieg. Ontario Aster. Local in alluvial and upland woods.  
*Aster pilosus* Willd. Hairy Aster. Local on dry banks on south side.  
*Aster shortii* Lindl. Short's Aster. Common in dry woods on south side.  
*Aster vimineus* Lam. Aster. Local on north side.  
*Bidens bipinnata* L. Spanish needles. Rare in upland woods.  
*Bidens cernua* L. Nodding Bur Marigold. Common along shores.  
*Bidens connata* Muhl. Swamp Beggar-ticks. Local along shores.  
*Bidens frondosa* L. Common Beggar-ticks. Common on north shore.  
*Bidens vulgata* Greene Tall Beggar-ticks. Rare on south banks.  
*Brickellia eupatorioides* (L.) Shinn. False Boneset. Local in field.  
*Cirsium arvense* (L.) Scop. Canada Thistle. Rare on dry banks.  
*Cirsium discolor* (Muhl.) Spreng. Field Thistle. Local in field.  
*Conyza canadensis* (L.) Cronq. Muletail. Rare on dry banks.  
*Eclipta prostrata* (L.) L. Yerba de Tajo. Rare along south shore.  
*Erigeron annuus* (L.) Pers. Daisy Fleabane. Local in fields.  
*Erigeron philadelphicus* L. Marsh Fleabane. Local on moist banks.  
*Erigeron strigosus* Muhl. Daisy Fleabane. Local in dry fields and banks.  
*Eupatorium altissimum* L. Tall Boneset. Local in old field.  
*Eupatorium maculatum* L. Spotted Joe-pye-weed. Local on moist banks.  
*Eupatorium rugosus* Houtt. White Snakeroot. Common in woods.  
*Eupatorium serotinum* Michx. Late Boneset. Local on dry south banks.  
*Helenium autumnale* L. Autumn Sneezewood. Local along moist banks.  
*Helianthus divaricatus* L. Woodland Sunflower. Rare in dry woods.

- Helianthus strumosus* L. Pale-leaved Sunflower. Rare on dry banks.  
*Heliopsis helianthoides* (L.) Sweet False Sunflower. Local on dry open south banks.  
*Lactuca floridana* (L.) Gaertn. Wild Blue Lettuce. Common in mesic woods.  
\**Lactuca serriola* L. Prickly Lettuce. Local in field.  
*Prenanthes crepidinea* Michx. Great White Lettuce. Rare on south wooded slope.  
*Ratibida pinnata* (Vent.) Barnh. Gray Coneflower. Local in field and on south banks.  
*Rudbeckia laciniata* L. Golden Glow. Common in moist woods.  
*Senecio aureus* L. Golden Ragwort. Rare in old field.  
*Silphium perfoliatum* L. Cup Plant. Local on north banks.  
*Solidago canadensis* L. Tall Goldenrod. Local on dry banks and in field.  
*Solidago gigantea* Ait. Late Goldenrod. Local in moist woods.  
\**Sonchus asper* (L.) Hill Spiny Sow Thistle. Local on south banks.  
\**Taraxacum officinale* Weber Dandelion. Local in disturbed sites.  
\**Tragopogon dubius* Scop. Goat's Beard. Local on south bank.  
*Verbesina alternifolia* (L.) Britt. Yellow Ironweed. Common in alluvial forest.  
*Verbesina helianthoides* Michx. Yellow Crownbeard. Local on south banks.  
*Vernonia gigantea* (Walt.) Trel. Tall Ironweed. Local in moist ground.  
*Vernonia missurica* Raf. Missouri Ironweed. Local in field and on south bank.  
*Xanthium strumarium* L. Cocklebur. Local on river banks.

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## BIOGRAPHICAL SKETCH OF JOHN E. SCHWEGMAN

John E. Schwegman is a native of Metropolis, Illinois and holds a MA degree in Botany from SIU Carbondale. His professional interests have included natural areas preservation, natural community management and endangered plant species conservation. He continues to pursue his interest in floristics by producing flora lists for selected natural areas. As Botany Program Manager for the Illinois Department of Conservation, he is also coordinating the state's Ginseng conservation program and the Department's prairie restoration effort.

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