

# A Vascular Flora Inventory



## Ottawa Sands Ottawa County Parks, Michigan

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Prepared by  
William Martinus & Associates

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The statements, findings, conclusions, and recommendations in this report are those of the Ottawa County Parks & Recreation Commission and do not necessarily reflect the views of the Michigan Department of Environment, Great Lakes, and Energy or the National Oceanic and Atmospheric Administration.





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## I. Introduction and Purpose

Ottawa Sands, Ottawa County Parks, consists of 345 acres including an 80-acre inland lake, natural forests, coastal dunes, intermittent wetlands, inundated shrub swamp, and riparian marsh, shrub, and swamp communities. The eleven natural plant communities occurring on the site are listed along with hundreds of associated plant and animal species.

- Ottawa Sands is located near the mouth of the Grand River in sections 17, 18 and 20 of Spring Lake Township, Ottawa County, in Western Michigan.
- Property includes 5,585 feet of Grand River frontage.
- A Floristic Quality Assessment demonstrates that a diverse and extremely high-quality plant component exists at Ottawa Sands.

### Purpose

- To gain an understanding of the vegetative plant communities and flora of western Ottawa County and central west Michigan area.
- Information to assist Ottawa County Parks staff with conservation master-planning.
- Provide documentation of certain species and scientific data to Michigan Natural Features Inventory and University of Michigan Herbarium.
- Information to assist Ottawa County Parks staff and volunteers with understanding and aid in interpretation of natural features.
- Information to assist college or university students in planning future research.
- Information to assist the general public with understanding what can be observed at the site.
- Provide baseline comparative data.

## II. Overview

### Floristic Quality Assessment

Ottawa Sands Floristic Quality Assessment Score: 57.8

A tool useful in determining the natural significance of a location by a thorough examination of the flora found therein, is the Floristic Quality Assessment. The Floristic Quality Assessment is determined by the Floristic Quality Index (FQI), calculated by using the “Coefficient of Conservatism” (C) value that has been given to each native vascular plant species in Michigan by the Department of Natural Resources Natural Heritage Program. Values range from 0 - 10 and “represent an estimated probability that a plant is likely to occur in a landscape relatively unaltered from what is believed to be pre-European settlement condition.” (Herman et al. 2001). Bracken Fern (*Pteridium aquilinum*), for example, is common in Michigan and is found in numerous habitats. It has a coefficient (C) of zero, while False Heather (*Hudsonia tomentosa*) is a species rated a ten, and one that is “almost always is restricted to a pre-settlement remnant, *i.e.* a high quality natural area” (Herman et al. 2001). The FQI results will be higher when several diverse plant communities occur at a particular site. Generally, species associated with wet habitats have higher individual coefficient numbers. “Areas with FQI higher than 35 possess sufficient conservatism and richness that they are floristically important from a statewide perspective. Areas registering in the 50s and higher are extremely rare and represent a significant component of Michigan’s native biodiversity and natural landscapes.” (Herman et al. 2001).

### Species Statistics:

Total Species:	428	+ 2 hybrids, 1 form
Native Species:	306	
Non-native Species:	122	29% (Cf. 34% of MI flora is non-native)

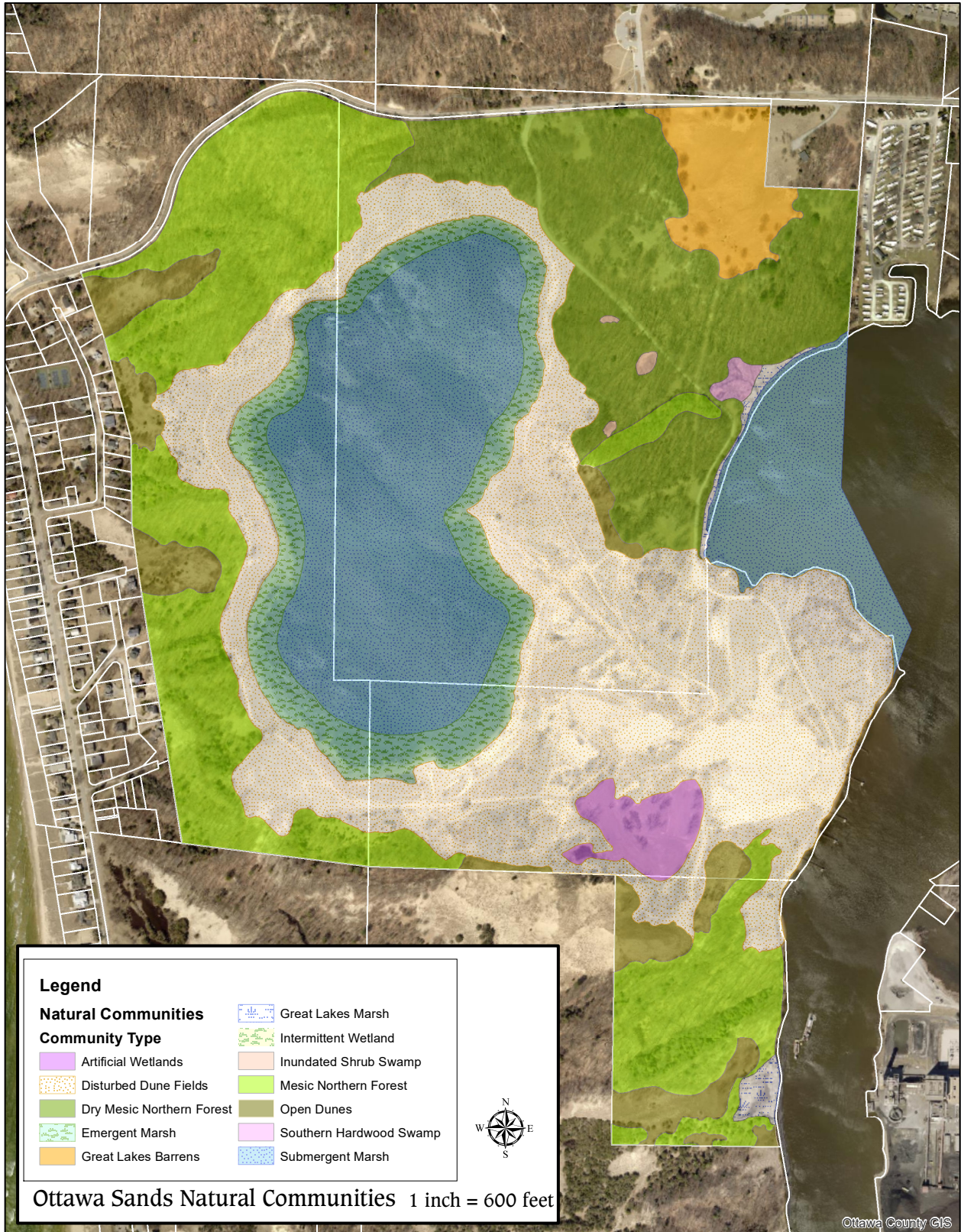
Plant Species:	428
Amphibians:	9
Reptiles:	6
Mammals:	9
Birds:	105
Fish:	3
Insects:	51

### III. Plant Communities

Eleven natural plant communities, as described in Kost et al., 2007, occur in Ottawa Sands. Their Global and State Element Ranking Criteria can be found at the end, in References. All of the natural communities have been altered due to sand mining, periodic logging, grazing, fire, and changes in fauna over time; these changes from pre-settlement times are often complex. The three artificial communities, with disturbed and greatly altered habitats, are not listed as being natural. It is difficult to place successional forest into an exact future natural community, though many successional areas are beginning to mature. Pre-settlement maps show open dunes along the Lake Michigan shoreline, and Beech-Maple-Hemlock forest inland.

<b>Natural Plant Communities</b>	<b>State Rank &amp; Global Rank</b>
<b>Palustrine</b>	
Submergent Marsh	S4, GU
Emergent Marsh	S4, GU
Great Lakes Marsh	S3, G4
Intermittent Wetland	S3, G3
Inundated Shrub Swamp	S3, G4
Northern Shrub Thicket	S5, G4
Southern Hardwood Swamp	S3, G3
<b>Terrestrial</b>	
Mesic Northern Forest	S3, G4
Dry-Mesic Northern Forest	S3, G4 (Successional Forest)
Great Lakes Barrens	S2, G3
Open Dunes	S3, G3
<b>Artificial Plant Communities</b>	
Artificial Lake	
Artificial mixed wetlands	
Disturbed dune fields	





## IV. Endangered, Threatened, and Special Concern Species

A number of rare plant and animal species in Michigan are given a status designation by the State for conservation purposes (MDNR, 2009). This status refers to the placement of a species on the Department of Natural Resources' "Threatened and Endangered Species" list. The "Endangered" category indicates the most precarious status in the State, "Threatened" is the next most severe; third is "Special Concern." Special Concern species have a degree of rarity within the state, usually associated with diminishing habitat.

Many significant species occur or have been seen in Ottawa Sands; the following eleven are Michigan listed species.

### Endangered, Threatened, and Special Concern Species

Species	Status	State & Global Rank	Date observed
<i>Setophaga discolor</i> , Prairie Warbler	Endangered	S3, G5	5/19/20
<i>Cirsium pitcheri</i> , Pitcher's Thistle	Federally Threatened	S3, G2G3	2019-2020
<i>Falco columbarius</i> , Merlin	Threatened	S3, G5	4/15/20, 7/1/20    nesting
<i>Gavia immer</i> , Common Loon	Threatened	S3, G5	Occasional visitor
<i>Triplasis purpurea</i> , Sand Grass	Special Concern	S2, G4G5	10/4/19
<i>Corispermum americanum</i> , American Bugseed	Special Concern	SNR, G5?	10/7/19
<i>Corispermum pallasii</i> , Siberian Bugseed	Special Concern	SNR, G4?	10/7/19
<i>Haliaeetus leucocephalus</i> , Bald Eagle	Special Concern	S4, G5	8/1/18, 2/23/20    nesting
<i>Pandion haliaetus</i> , Osprey	Special Concern	S4, G5	Occasional visitor
<i>Melanerpes erythrocephalus</i> , Red-headed Woodpecker	Special Concern	S3, G5	8/1/18, 2/23/20    nesting
<i>Anaxyrus fowleri</i> , Fowler's Toad	Special Concern	S3S4, G5	10/7/19, 6/30/20

#### *Setophaga discolor*, Prairie Warbler

- Female seen at the Sands on 5/19/20; Nesting in nearby Kitchel Dunes Preserve.

#### *Cirsium pitcheri*, Pitcher's Thistle

- Common in foredune natural areas and disturbed area east of inland Lake

#### *Falco columbarius*, Merlin

- Probable nesting; pair seen on 4/15/20, 7/1/20; courtship behavior observed

#### *Gavia immer*, Common Loon

- Occasional visitor to pond and Grand River

#### *Triplasis purpurea*, Sand Grass

- Recorded in five counties on the MNFI website (not including Ottawa County) with eight in Michigan; last documented in 1999. Michigan Rank listed as S2 "imperiled in state because of rarity ("6 to 20 occurrences or few remaining individuals or acres") or because of some factor(s) making it very vulnerable to extirpation from the state."

*Michigan Flora Online*: 14 specimen records in MI

#### *Corispermum americanum*, American Bugseed

- Recorded in six counties on the MNFI website (including Ottawa County: last observed in 1900). Eight occurrences in Michigan; last documented in 2011. *Michigan Flora Online*: 7 specimen records in MI

#### *Corispermum pallasii*, Siberian Bugseed

- Recorded in nine counties on the MNFI website (including Ottawa County: last observed in 2015 (via Wm Martinus documentation). Twelve occurrences in Michigan. *Michigan Flora Online*: 12 specimen records in MI

#### *Haliaeetus leucocephalus*, Bald Eagle

- Nesting pair 2019, on site 2020

#### *Pandion haliaetus*, Osprey

- Occasional visitor to pond and Grand River

#### *Melanerpes erythrocephalus*, Red-headed Woodpecker

- Nesting pair 2019, 2020

#### *Anaxyrus fowleri*, Fowler's Toad

- Frequently observed

## VI. Species Lists

While the primary emphasis of this study was an inventory of vascular plants, separate lists also include amphibians, reptiles, mammals, birds, fish, and insects. Data collection began in October 2019, and continued through August 2020, with 26 site visits. Excursions on foot involved the “intuitive meander” method. All species were personally observed by the author.

Several plant species were collected as new Ottawa County records and three species were documented to MNFI as Special Concern.

### Species collected by Wm Martinus and vouchered to U of M Herbarium

Species	Collection number	Date Collected	Status
- <i>Elsholtzia ciliata</i> , Crested Late-summer Mint*	MICH 1604	9/22/19	County Record
- <i>Eclipta prostrata</i> , Yerba De Tajo*	MICH 1606	10/4/19	County Record
- <i>Triplasis purpurea</i> , Sand Grass	MICH 1607	10/4/19	County Record & Special Concern
- <i>Corispermum pallasii</i> , Siberian Bugseed	MICH 1609a	10/7/19	Special Concern
- <i>Corispermum americanum</i> , American Bugseed	MICH 1609b	10/7/19	Special Concern
- <i>Heliopsis helianthoides</i> , False Sunflower	MICH 1610	10/7/19	County Record
- <i>Chaiturus marrubiastrum</i> , Lion’s Tail*	MICH 1615	10/10/19	County Record
- <i>Salix amygdaloides</i> , Peach-leaved Willow	MICH 1616	10/12/19	County Record
- <i>Berberis thunbergii</i> f. <i>atropurpurea</i>	MICH 1639	5/19/20	County Record (var.)
- <i>Cerastium arvense</i> subsp. <i>strictum</i> , Field Chickweed	MICH 1661	6/3/20	County Record
- <i>Lolium arundinaceum</i> , Tall Fescue*	MICH 1664	6/8/20	County Record
- <i>Sedum sarmentosum</i> , Stringy Stonecrop*	MICH 1674	6/16/20	County Record
- <i>Bromus japonicus</i> , Japanese Brome*	MICH 1675	6/16/20	County Record
- <i>Verbena stricta</i> , Hoary Vervain*	MICH 1675	7/1/20	County Record
- <i>Dichanthelium commonsianum</i> var. <i>euchlamydeum</i>	MICH 1693	7/1/20	County Record
- <i>Polanisia dodecandra</i> var. <i>dodecandra</i>	MICH 1709	7/12/20	County Record (var.)
- <i>Galium trifidum</i> , Small Bedstraw	MICH 1733	8/20/20	County Record
- <i>Echinochloa walteri</i> , Salt-marsh Cockspur Grass	MICH 1739	8/29/20	County Record
- <i>Phragmites australis</i> spp. <i>americanus</i>	MICH 1740	8/29/20	County Record

\* non-native

## Vascular Plant Inventory

### Notes

Nomenclature follows Voss & Reznicek, *Field Manual of Michigan Flora, 2012 & Michigan Flora Online*

\* Non-native Species

Coefficient of Conservatism number

Frequency based on field observations: rare, uncommon, occasional, common, abundant

Habitat occurrence

### Flora

#### Vascular Plants

#### Pteridophytes

##### Ferns

##### Dennstaedtiaceae, Bracken Fern Family

*Pteridium aquilinum* var. *latiusculum*, Bracken Fern 0; common in upland

##### Dryopteridaceae, Wood Fern Family

*Dryopteris carthusiana*, Spinulose Woodfern 5; uncommon in forested dunes

*Dryopteris intermedia*, Evergreen Woodfern 5; rare in forested dunes

*Dryopteris marginalis*, Marginal Woodfern 5; uncommon in forested dunes

##### Equisetaceae, Horsetail Family

*Equisetum arvense*, Field Horsetail 0; uncommon in wetland edge

*Equisetum hyemale*, Common Scouring Rush 2; uncommon in disturbed upland

- *Equisetum x ferrissii*, Intermediate Horsetail; uncommon in disturbed upland

*Equisetum variegatum*, Variegated Scouring Rush 6; uncommon along inland lake shoreline

##### Onocleaceae, Sensitive Fern Family



*Onoclea sensibilis*, Sensitive Fern 2; uncommon in wetland

**Osmundaceae, Royal Fern Family**

*Osmunda regalis*, Royal Fern 5; uncommon in wetland

*Osmundastrum cinnamomeum*, Cinnamon Fern 5; occasional in wetlands

**Thelypteridaceae, Marsh Fern Family**

*Thelypteris palustris*, Marsh Fern 2; occasional in wetlands

**Gymnosperms**

**Cupressaceae, Cypress Family**

*Juniperus communis* var. *depressa*, Common Juniper 4; uncommon shrub in open upland

*Juniperus virginiana*, Red-cedar 3; uncommon tree in upland

*Thuja occidentalis*, Arbor Vitae 4; rare tree in foredune forest

**Pinaceae, Pine Family**

*Picea pungens*, Blue Spruce\* 0; rare tree near former dwelling

*Pinus banksiana*, Jack Pine 5; uncommon tree in open backdunes

*Pinus resinosa*, Red Pine\* 0; occasional tree in dune plantations and as rare sapling

*Pinus strobus*, White Pine 3; uncommon tree in forested dunes

*Pinus sylvestris*, Scotch Pine\* 0; uncommon tree in upland

*Tsuga canadensis*, Hemlock 5; locally common canopy tree in forested dunes

**Taxaceae, Yew Family**

*Taxus canadensis*, Canada Yew 5; rare in forested dunes

**Angiosperms**

**Monocots**

**Araceae, Arum Family**

*Arisaema triphyllum*, Jack-in-the-pulpit 5; uncommon in forested dunes

*Lemna trisulca*, Star Duckweed 6; rare in Grand River wetland

*Lemna turionifera*, Red Duckweed 5; common in Grand River wetland

*Lemna minor*, Common Duckweed 5; common along Grand River wetland

*Peltandra virginica*, Arrow-arum 6; common in Grand River wetland

*Spirodela polyrhiza*, Greater Duckweed 6; common in Grand River wetland

*Wolffia borealis*, Dotted Water Meal 5; common in Grand River wetland

*Wolffia columbiana*, Common Water Meal 5; common in Grand River wetland

*Symplocarpus foetidus*, Skunk Cabbage 6; uncommon in seeps along Grand River

**Asparagaceae, Asparagus Family**

*Asparagus officinalis*, Garden Asparagus\* 0; uncommon in open upland

**Commelinaceae, Spiderwort Family**

*Commelina communis*, Common Dayflower\* 0; rare in disturbed forest

**Convallariaceae, Lily-of-the-valley Family**

*Maianthemum canadense* var. *canadense*, Canada Mayflower 4; uncommon in forested dunes

*Maianthemum racemosum*, False Spikenard 5; rare in forested dunes

*Maianthemum stellatum*, Starry False Solomon-seal 5; rare in forested dunes

*Polygonatum pubescens*, Downy Solomon-seal 5; uncommon in forested dunes

*Uvularia grandiflora*, Bellwort 5; rare in forested dunes

**Amaryllidaceae, Amaryllis Family**

*Narcissus pseudonarcissus*, Daffodil\* 0; rare in disturbed open upland

**Cyperaceae, Sedge Family**

*Bolboschoenus fluviatilis*, River Bulrush 6; common in Grand River marsh

*Carex albicans* var. *albicans*, White Tinge Sedge 3; uncommon in forested dunes

*Carex albursina*, White Bear Sedge 5; uncommon in forested dunes

*Carex arctata*, Drooping Woodland Sedge 5; uncommon in forested dunes

*Carex argyrantha*, Silvery Oval Sedge 6; uncommon in open fields

*Carex blanda*, Woodland Sedge 1; uncommon in forested dunes

*Carex communis*, Fibrous-rooted Sedge 2; occasional in forested dunes

*Carex crinita*, Fringed Sedge 4; rare in wooded pond

*Carex debilis* var. *rudgei*, White-edge Sedge 6; uncommon in forested dunes

*Carex eburnea*, Bristle-leaved Sedge 7; common on fore-dune forested ridges

*Carex interior*, Inland Sedge 3; common in wetland seeps along Grand River

*Carex intumescens*, Bladder Sedge 3; common in wetlands

*Carex lasiocarpa*, Slender Sedge 8; rare in marsh

*Carex laxiflora*, Loose-flowered Sedge 8; uncommon in forested dune

*Carex leptonevria*, Two-edged Sedge 3; common in forested dunes

*Carex lucorum*, Blue Ridge Sedge 4; uncommon in forested dunes  
*Carex lurida*, Sallow Sedge 3; locally common in Grand River marsh  
*Carex muehlenbergii* var. *enervis*, Sand Sedge 7; common in open and forested upland  
*Carex pennsylvanica*, Pennsylvania Sedge 4; occasional in forested dunes  
*Carex radiata*, Eastern Star Sedge 2; rare in seeps along Grand River  
*Carex rosea*, Stellate Sedge 2; uncommon in forested dunes  
*Carex scabrata*, Rough Sedge 4; rare in seep along Grand River  
*Carex stipata*, Awl-fruited Sedge 1; locally common in Grand River marsh  
*Carex stricta*, Tussock Sedge 4; common in Grand River wetlands  
*Carex swanii*, Swan's Sedge 4; common in forested dunes  
*Carex tonsa* var. *rugosperma*, Shaved Sedge 5; common in open grass fields  
*Cyperus bipartitus*, Brook Nut Sedge 3; uncommon along inland lake shoreline  
*Cyperus esculentus*, Yellow Nut-grass 1; rare in Grand River wetland  
*Cyperus schweinitzii*, Rough Sand Sedge 5; common in open dunes  
*Cyperus strigosus*, Long Scaled Nut Sedge 3; common in wetlands  
*Schoenoplectus acutus*, Hardstem Bulrush 5; uncommon in Grand River marsh  
*Schoenoplectus pungens*, Three-square 5; uncommon on inland lake wetland  
*Schoenoplectus tabernaemontani*, Softstem Bulrush 4; uncommon in inland lake wetland  
*Scirpus cyperinus*, Wool-grass 5; uncommon in Grand River wetland

#### **Hydrocharitaceae, Frog's-bit Family**

*Elodea nuttallii*, Slender Waterweed 5; rare in Grand River marsh  
*Vallisneria americana*, Eel-grass 7; rare in inland lake

#### **Iridaceae, Iris Family**

*Iris pseudacorus*, Yellow Flag\* 0; uncommon in Grand River marsh  
*Iris virginica*, Southern Blue Flag 5; uncommon in seeps along Grand River

#### **Juncaceae, Rush Family**

*Juncus alpinoarticulatus*, Northern Green Rush 5; occasional on inland lake wetland  
*Juncus balticus*, Lakeshore Rush 4; occasional in wetlands  
*Juncus canadensis*, Canadian Rush 6; uncommon in wetlands  
*Juncus effusus*, Soft-stemmed Rush 3; common in wetlands  
*Juncus pylaei*, Pylaei's Soft Rush 3; uncommon in seeps along Grand River  
*Juncus tenuis*, Path Rush 1; common along trails

#### **Liliaceae, Lily Family**

*Erythronium americanum*, Yellow Trout-lily 5; uncommon in forested dunes

#### **Orchidaceae, Orchid Family**

*Corallorhiza odontorhiza* var. *odontorhiza*, Fall Coral-root 8; rare in forested dunes  
*Epipactis helleborine*, Helleborine\* 0; occasional in disturbed upland

#### **Poaceae, Grass Family**

*Agrostis gigantea*, Redtop\* 0; occasional in disturbed open upland  
*Agrostis perennans*, Autumn Bent 5; occasional in forested dunes  
*Agrostis scabra*, Ticklegrass 4; uncommon in disturbed open upland  
*Ammophila breviligulata*, Marram Grass 10; abundant in open dunes  
*Bouteloua curtipendula*, Side-oats Grama\* 0; planted; rare in disturbed open upland  
*Bromus hordeaceus* subsp. *hordeaceus*, Soft Chess\* 0; uncommon in disturbed open upland  
*Bromus inermis*, Hungarian Brome\* 0; uncommon in disturbed open upland  
*Bromus pubescens*, Canada Brome 5; rare in forested dunes  
*Bromus japonicus*, Japanese Brome\* 0; occasional in disturbed open upland  
*Bromus tectorum*, Downy Chess\* 0; occasional in open upland  
*Calamagrostis canadensis*, Blue-joint 3; common in wetlands  
*Calamovilfa longifolia* var. *magna*, Sand Reed 10; common in open dunes  
*Cenchrus longispinus*, Mat Sandbur 0; uncommon in disturbed open upland  
*Dactylis glomerata*, Orchard Grass\* 0; occasional in disturbed open upland  
*Danthonia spicata*, Common Wild Oat-grass 4; rare in forested dunes open edge  
*Dichanthelium clandestinum*, Deer-tongue Grass 3; uncommon in wooded upland edge  
*Dichanthelium commonsianum* var. *euchlamydeum*, Common's Panic-grass 6; occasional in back-dune grassland  
*Dichanthelium implicatum*, Slender-stemmed Panic-grass 3; rare in open forested dunes  
*Digitaria cognata*, Fall Witch Grass 3; uncommon in disturbed open upland  
*Digitaria ischaemum*, Smooth Crab Grass\* 0; uncommon in disturbed open upland  
*Digitaria sanguinalis*, Hairy Crab Grass\* 0; rare in disturbed open upland  
*Echinochloa muricata* var. *microstachya*, Rough Barnyard Grass 1; rare in disturbed wetland  
*Echinochloa walteri*, Salt-marsh Cockspur Grass 7; rare clump in sandy shore of Grand River  
*Elymus canadensis*, Canada Wild-rye 5; uncommon in open dunes and forest edge

*Elymus hystrix*, Bottlebrush Grass 5; uncommon in forested dunes  
*Elymus repens*, Quack Grass\* 0; uncommon in disturbed open upland  
*Eragrostis minor*, Low Love Grass\* 0; uncommon in disturbed open upland  
*Eragrostis pectinacea* var. *pectinacea*, Small Love Grass 0; uncommon in disturbed open upland  
*Festuca subverticillata*, Nodding Fescue 5; uncommon in forested dunes  
*Festuca trachyphylla*, Sheep Fescue\* 0; common in disturbed open upland  
*Glyceria striata*, Fowl Manna Grass 4; uncommon in Grand River marsh  
*Leersia oryzoides*, Cut Grass 3; uncommon in Grand River wetland edge  
*Lolium arundinaceum*, Tall Fescue\* 0; uncommon in disturbed open upland  
*Lolium perenne* var. *perenne*, Erennial Rye Grass\* 0; uncommon in disturbed open upland  
*Muhlenbergia frondosa* f. *commutata*, Common Satin Grass 3; occasional in forested dunes  
*Muhlenbergia tenuiflora*, Slender Satin Grass 8; common in forested dunes  
*Oryzopsis asperifolia*, Rough-leaved Rice-grass 6; uncommon in forested dunes  
*Panicum capillare*, Witch Grass 0; uncommon in disturbed open upland  
*Panicum virgatum*, Switch Grass 4; common in open upland  
*Patis racemosa*, Black-fruited Rice-grass 8; rare in forested dunes  
*Phalaris arundinacea*, Reed Canary Grass\* 0; uncommon in wetlands  
*Phleum pratense*, Timothy\* 0; occasional in disturbed open upland  
*Phragmites australis* subsp. *australis*, Common Reed\* 0; uncommon in wetlands  
*Poa annua*, Annual Bluegrass\* 0; uncommon in disturbed open upland  
*Poa compressa*, Canada Bluegrass\* 0; common in upland  
*Poa nemoralis*, Wood Bluegrass \*0; uncommon in forested back-dunes  
*Poa pratensis*, Kentucky Bluegrass\* 0; common in disturbed upland  
*Schizachyrium scoparius*, Little Bluestem 5; common in open dunes  
*Setaria faberi*, Giant Foxtail\* 0; uncommon in disturbed open upland  
*Setaria pumila*, Yellow Foxtail\* 0; occasional in disturbed open upland  
*Setaria viridis*, Green Foxtail\* 0; uncommon in disturbed open upland  
*Sporobolus cryptandrus*, Sand Dropseed 3; uncommon in disturbed open upland  
*Sporobolus vaginiflorus*, Sheathed Rush-grass 2; occasional in disturbed open upland  
*Triplasis purpurea*, Sand Grass 6; locally abundant in disturbed open sandy upland  
**Potamogetonaceae, Pondweed Family**  
*Potamogeton crispus*, Curly Pondweed\* 0; uncommon in inland lake and Grand River  
*Potamogeton gramineus*, Variable Pondweed 5; uncommon in inland lake  
*Potamogeton illinoensis*, Illinois Pondweed 5; common in inland lake  
*Stuckenia pectinata*, Sago Pondweed 3; uncommon in inland lake  
**Smilacaceae, Carrion-flower Family**  
*Smilax ecirrata*, Upright Carrion-flower 6; rare in forested dunes  
**Trilliaceae, Trillium Family**  
*Trillium grandiflorum*, Common Trillium 5; rare in forested dunes  
**Typhaceae, Cat-tail & Bur-reed Family**  
*Sparganium americanum*, American Bur-reed 6; uncommon in Grand River wetland  
*Typha angustifolia*, Narrow-leaved Cat-tail\* 0; uncommon in wetlands  
*Typha latifolia*, Broad-leaved Cat-tail 1; uncommon in Grand River wetlands

## Dicots

### Adoxaceae, Moschatel Family

*Sambucus canadensis*, Common Elder 3; locally common shrub in forested wetlands  
*Viburnum acerifolium*, Maple-leaved Viburnum 6; uncommon shrub in forested dunes

### Amaranthaceae, Amaranth Family

*Amaranthus tuberculatus*, Rough-fruited Water-hemp 6; uncommon on Grand River sandy shore  
*Chenopodium album*, Lambs-quarters\* 0; occasional in disturbed open upland  
*Corispermum americanum*, American Bugseed 3; rare in open sandy upland  
*Corispermum pallasii*, Siberian Bugseed 3; occasional in open sandy upland  
*Cycloloma atriplicifolium*, Winged Pigweed\* 0; uncommon in open sand  
*Dysphania botrys*, Jerusalem-oak\* 0; rare in disturbed open upland

### Anacardiaceae, Cashew Family

*Rhus typhina*, Staghorn Sumac 2; uncommon understory tree in forest edge  
*Toxicodendron radicans*, Poison Ivy 2; rare vine in upland forest  
*Toxicodendron rydbergii*, Western Poison Ivy 3; uncommon in wetland edge

### Apiaceae, Carrot Family

*Cicuta bulbifera*, Bulb-bearing Water-hemlock 5; uncommon in wetlands  
*Daucus carota*, Wild Carrot\* 0; occasional in disturbed upland fields

*Osmorhiza claytonii*, Hairy Sweet-cicely 4; rare in forested dunes  
*Torilis japonica*, Hedge-parsley\* 0; locally abundant in disturbed wetlands

**Apocynaceae, Dogbane Family**

*Asclepias syriaca*, Common Milkweed 1; occasional in open upland

**Aquifoliaceae, Holly Family**

*Ilex verticillata*, Michigan Holly 5; uncommon shrub in Inundated Shrub Swamp

**Asteraceae, Aster Family**

*Achillea millefolium*, Common Yarrow 1; uncommon in open upland  
*Ambrosia artemisiifolia*, Common Ragweed 0; common in disturbed open upland  
*Artemisia vulgaris*, Mugwort\* 0; rare in open upland  
*Antennaria parlinii* subsp. *fallex*, Smooth Pussytoes 2; uncommon in upland forest edge  
*Arctium minus*, Common Burdock\* 0; uncommon in disturbed upland  
*Artemisia campestris*, Wild Wormwood 5; common in open dunes  
*Bidens cernua*, Nodding Bur-marigold 3; rare in Grand River wetlands  
*Bidens connata*, Purplestem Tickseed 5; uncommon on inland lake wetlands  
*Centaurea stoebe*, Spotted Knapweed\* 0; common in open upland  
*Chondrilla juncea*, Skeleton-weed\* 0; uncommon in open upland  
*Cichorium intybus*, Chicory\* 0; uncommon in disturbed open upland  
*Cirsium arvense* var. *horridum*, Canada Thistle\* 0; common in wetlands and disturbed uplands  
*Cirsium pitcheri*, Pitcher's Thistle 10; locally common in open dunes  
*Cirsium vulgare*, Bull Thistle\* 0; uncommon in upland  
*Conyza canadensis*, Horseweed 0; occasional in open upland  
*Eclipta prostrata*, Yerba De Tajo\* 0; uncommon on Grand River sandy shore  
*Erechtites hieraciifolius*, Fireweed 2; uncommon in upland  
*Erigeron annuus*, White-top 0; rare in upland forest edge  
*Erigeron philadelphicus*, Common Fleabane 2; uncommon in open upland  
*Erigeron strigosus*, Daisy Fleabane 4; uncommon in open upland  
*Eupatorium perfoliatum*, Boneset 4; uncommon in Grand River marsh  
*Eurybia macrophylla*, Large-leaved Aster 4; uncommon in forested dune  
*Euthamia graminifolia*, Grass-leaved Goldenrod 3; uncommon in open wetland  
*Helianthus divaricatus*, Woodland Sunflower 5; uncommon in open upland forest  
*Heliopsis helianthoides*, False Sunflower 5; rare in disturbed open upland  
*Hieracium scabrum*, Rough Hawkweed 3; uncommon in open upland forest edge  
*Hypochoeris radicata*, Cat's-ear\* 0; uncommon in disturbed open upland  
*Krigia virginica*, Dwarf Dandelion 4; common in open back-dunes  
*Lactuca canadensis*, Wild Lettuce 2; rare in forested upland  
*Pseudognaphalium obtusifolium*, Fragrant Cudweed 2; uncommon in open upland  
*Solidago altissima*, Tall Goldenrod 1; uncommon in disturbed open area  
*Rudbeckia hirta*, Black-eyed Susan 1; rare in forested dune open edge  
*Solidago caesia*, Bluestem Goldenrod 6; uncommon in upland forest  
*Solidago canadensis*, Canada Goldenrod 1; uncommon in open upland  
*Solidago gigantea*, Late Goldenrod 3; occasional in wetlands  
*Solidago nemoralis*, Gray Goldenrod 2; uncommon in upland fields  
*Solidago rugosa* var. *aspera*, Rough-stemmed Goldenrod 3; uncommon in marsh edge  
*Solidago simplex* var. *gillmanii*, Gillman's Goldenrod 10; rare in open dunes  
*Sonchus asper*, Prickly Sow-thistle\* 0; rare in disturbed open field  
*Symphyotrichum lateriflorum*, Calico Aster 2; uncommon in upland forest  
*Symphyotrichum pilosum* var. *pringlei*, Frost Aster 1; rare in upland forest edge  
*Taraxacum officinale*, Common Dandelion\* 0; uncommon in open upland  
*Tragopogon dubius*, Sand Goat's Beard\* 0; uncommon in open upland

**Balsaminaceae, Touch-me-not Family**

*Impatiens capensis*, Spotted Touch-me-not 2; common in wetlands

**Berberidaceae, Barberry Family**

*Berberis aquifolium*, Oregon-grape\* 0; uncommon shrub in open upland  
*Berberis thunbergii*, Japanese Barberry\* 0; locally abundant shrub in upland forest  
- *Berberis thunbergii* f. *atropurpurea*, Purple Japanese Barberry\*; occasional shrub in upland forest  
*Podophyllum peltatum*, May-apple 3; occasional in forested upland

**Betulaceae, Birch Family**

*Alnus incana* subsp. *rugosa*, Speckled Alder 5; occasional tree in Grand River wetlands  
*Betula alleghaniensis*, Yellow Birch 7; occasional tree in Grand River wetlands  
*Betula papyrifera*, Paper Birch 2; rare tree in river edge  
*Ostrya virginiana*, Hop-hornbeam 5; common understory tree in upland forest

**Bignoniaceae, Trumpet Creeper Family**

*Catalpa speciosa*, Northern Catalpa\* 0; rare tree in upland forest

**Boraginaceae, Borage Family**

*Cynoglossum officinale*, Hound's-tongue\* 0; abundant in uplands

*Echium vulgare*, Common Viper's Bugloss\* 0; locally common in disturbed open upland

*Hackelia virginiana*, Virginia Stick-seed 1; uncommon in upland forest

*Lithospermum caroliniense*, Hairy Puccoon 10; common in open dunes

*Myosotis scorpioides*, True Forget-me-not\* 0; rare in Grand River marsh

**Brassicaceae, Mustard Family**

*Alliaria petiolata*, Garlic Mustard\* 0; common to abundant in uplands

*Alyssum alyssoides*, Pale Alyssum\* 0; abundant in disturbed open upland

*Arabidopsis lyrata*, Sand Cress 7; abundant in open dunes

*Arabidopsis thaliana*, Mouse-ear Cress\* 0; occasional in disturbed open upland

*Barbarea vulgaris*, Yellow Rocket\* 0; uncommon in disturbed open upland

*Berteroa incana*, Hoary Alyssum\* 0; occasional in disturbed upland

*Boechera stricta*, Drummond Rock Cress 6; uncommon in open upland

*Cardamine hirsuta*, Hairy Bitter Cress\* 0; common in disturbed open upland

*Cardamine pensylvanica*, Pennsylvania Bitter Cress 1; rare in eastern seep

*Coincya monensis*, Wallflower Cabbage\* 0; rare in disturbed open upland

*Lepidium campestre*, Field Cress\* 0; common in disturbed upland

*Lepidium virginicum*, Common Peppergrass 0; uncommon in disturbed upland

*Rorippa palustris* subsp. *hispida*, Hispid Yellow Cress 1; rare on Grand River sandy shore

*Rorippa sylvestris*, Creeping Yellow Cress\* 0; uncommon in Grand River marsh

**Campanulaceae, Harebell Family**

*Campanula rotundifolia* subsp. *gieseckiana*, Harebell 6; uncommon in forested dunes

**Caprifoliaceae, Honeysuckle Family**

*Lonicera morrowii*, Morrow Honeysuckle\* 0; common shrub throughout

**Caryophyllaceae, Pink Family**

*Arenaria serpyllifolia*, Thyme-leaved Sandwort\* 0; common in disturbed open upland

*Cerastium arvense* subsp. *strictum*, Field Chickweed 6; uncommon in disturbed upland

*Cerastium semidecandrum*, Small Mouse-eared Chickweed\* 0; uncommon in disturbed upland

*Dianthus armeria*, Deptford Pink\* 0; uncommon in disturbed open upland

*Petrorhagia prolifera*, Childing Pink\* 0; common in disturbed open upland

*Saponaria officinalis*, Bouncing Bet\* 0; uncommon in disturbed open upland

*Silene latifolia*, White Champion\* 0; uncommon in disturbed open upland

*Silene vulgaris*, Bladder Champion\* 0; uncommon in disturbed open upland

*Stellaria media*, Common Chickweed\* 0; uncommon in upland forest edge

**Ceratophyllaceae, Hornwort Family**

*Ceratophyllum demersum*, Coontail 1; common in Grand River Bayou

**Cistaceae, Rockrose Family**

*Hudsonia tomentosa*, False Heather 10; locally common in open back dunes

**Cleomaceae, Spider-plant Family**

*Polanisia dodecandra* var. *dodecandra*, Redwhisker Clammy-weed 5; locally common in open wetland and upland

**Convolvulaceae, Morning-glory Family**

*Calystegia sepium*, Hedge Bindweed 2; rare in Grand River sandy shore

**Cornaceae, Dogwood Family**

*Cornus alternifolia*, Alternate-leaved Dogwood 5; rare understory tree in forested dunes

*Cornus amomum* subsp. *obliqua*, Pale Dogwood 2; rare shrub in wetland edge

**Crassulaceae, Orpine Family**

*Sedum acre*, Mossy Stonecrop\* 0; rare in disturbed open upland

*Sedum sarmentosum*, Stringy Stonecrop\* 0; rare in forested dunes open edge

**Elaeagnaceae, Oleaster Family**

*Elaeagnus umbellata*, Autumn Olive\* 0; common shrub in upland

**Ericaceae, Heath Family**

*Chimaphila maculata*, Spotted Wintergreen 8; uncommon in forested dunes

*Monotropa uniflora*, Indian-pipe 5; rare in forested dunes

**Euphorbiaceae, Spurge Family**

*Acalypha rhomboidea*, Rhombic Copperleaf 0; uncommon in disturbed upland

*Euphorbia maculata*, Spotted Spurge 0; uncommon in disturbed open upland

*Euphorbia nutans*, Eyebane 0; rare in disturbed open upland

*Euphorbia polygonifolia*, Seaside Spurge 10; common in open dunes

**Fabaceae, Pea Family**



*Dalea purpurea*, Purple Prairie-clover\* 0; planted; uncommon in open field by entrance

*Lotus corniculatus*, Birdfoot Trefoil\* 0; rare in disturbed open upland

*Medicago lupulina*, Black Medick\* 0; common in disturbed upland

*Medicago sativa*, Alfalfa\* 0; uncommon in disturbed open upland

*Melilotus alba*, White Sweet-clover\* 0; common in disturbed upland

*Melilotus officinalis*, Yellow Sweet-clover\* 0; occasional in disturbed open upland

*Trifolium arvense*, Rabbitfoot Clover\* 0; uncommon in disturbed open upland

*Trifolium pratense*, Red Clover\* 0; uncommon in disturbed open upland

*Trifolium repens*, White Clover\* 0; uncommon in disturbed open upland

#### **Fagaceae, Beech Family**

*Fagus grandifolia*, American Beech 6; common canopy tree in forested dunes

*Quercus alba*, White Oak 5; occasional canopy tree in forested dunes

*Quercus ellipsoidalis*, Hill's Oak 4; rare tree in dune savannah

*Quercus rubra*, Red Oak 5; common canopy tree in forested dunes

*Quercus velutina*, Black Oak 6; uncommon canopy tree in forested dunes

#### **Gentianaceae, Gentian Family**

*Centaurium erythraea*, Forking Centaury\* 0; uncommon in inland lake marsh

#### **Geraniaceae, Geranium Family**

*Geranium robertianum*, Herb Robert 3; uncommon in dune forest edge

#### **Grossulaceae, Gooseberry Family**

*Ribes cynosbati*, Prickly Gooseberry 4; uncommon shrub in forested dunes

#### **Haloragaceae, Water-milfoil Family**

*Myriophyllum heterophyllum*, Various-leaved Water-milfoil 6; occasional in inland lake and Grand River

*Myriophyllum sibiricum*, Spiked Water-milfoil 10; rare in Grand River bayou

*Myriophyllum spicatum*, Eurasian Water-milfoil\* 0; occasional in inland lake

*Proserpinaca palustris*, Cut-leaved Mermaid-weed 6; occasional in inland lake edge

#### **Hamamelidaceae, Witch-hazel Family**

*Hamamelis virginiana*, American Witch-hazel 5; common understory tree in forested dunes

#### **Hypericaceae, St. John's-wort Family**

*Hypericum perforatum*, Common St. John's-wort\* 0; uncommon in disturbed open upland

#### **Juglandiceae, Walnut Family**

*Juglans cinerea*, Butternut 5; uncommon tree in forested dunes

*Juglans nigra*, Black Walnut 5; rare tree in forested dunes edge

#### **Lamiaceae, Mint Family**

*Chaiturus marrubiastrum*, Lion's Tail\* 0; rare in open damp field

*Elsholtzia ciliata*, Crested Late-summer Mint\* 0; rare in disturbed upland forest

*Glechoma hederacea*, Ground Ivy\* 0; rare in disturbed upland

*Lamium purpureum*, Purple Dead-nettle\* 0; common in disturbed open upland

*Leonurus cardiaca*, Motherwort\* 0; common in disturbed upland

*Lycopus americanus*, Cut-leaved Water Horehound 2; rare in sandy shore of Grand River

*Lycopus asper*, Rough Water Horehound\* 0; rare in sandy shore of Grand River

*Lycopus uniflorus*, Northern Bugleweed 2; rare on inland lake edge

*Lycopus rubellus*, Stalked Water Horehound 8; rare on log on Grand River shore

*Monarda fistulosa*, Wild-bergamot 2; rare in open dunes

*Monarda punctata*, Horse Mint 4; common in open dunes

*Nepeta cataria*, Catnip\* 0; occasional in disturbed upland

*Prunella vulgaris*, Self-heal 0; uncommon in disturbed upland

*Scutellaria galericulata*, Marsh Skullcap 5; locally common in wetlands

*Scutellaria lateriflora*, Mad-dog Skullcap 5; uncommon in wetlands

*Teucrium canadense*, Wood-sage 4; locally abundant in disturbed upland and wetlands

#### **Lauraceae, Laurel Family**

*Lindera benzoin*, Spicebush 7; occasional understory tree in wetland edge

*Sassafras albidum*, Sassafras 5; occasional tree in forested dunes

#### **Lythraceae, Loosestrife Family**

*Decodon verticillatus*, Swamp Loosestrife 7; uncommon in Grand River marsh

*Lythrum salicaria*, Purple Loosestrife\* 0; uncommon in wetlands

#### **Malvaceae, Mallow Family**

*Tilia americana*, Basswood 5; occasional canopy tree in forested dunes

#### **Moraceae, Mulberry Family**

*Morus alba*, White Mulberry\* 0; uncommon tree in disturbed upland

#### **Nelumbonaceae, Lotus Family**

*Nelumbo lutea*, American Lotus 8; local in Grand River bayou

**Nymphaeaceae, Water-lily Family**

*Nymphaea odorata*, Sweet-scented Water-lily 6; rare in Grand River bayou

**Nyssaceae, Tupelo Family**

*Nyssa sylvatica*, Sour-gum 9; uncommon tree in swamps

**Oleaceae, Olive Family**

*Fraxinus americana*, White Ash 5; uncommon tree in forested dunes

*Fraxinus pennsylvanica*, Red Ash 2; uncommon tree in forested wetland edge

**Onagraceae, Evening-primrose Family**

*Circaea canadensis* subsp. *canadensis*, Enchanter's-nightshade 2; uncommon in upland forest

*Epilobium coloratum*, Cinnamon Willow-herb 3; rare along inland lake shore

*Oenothera biennis*, Common Evening-primrose 2; uncommon in open dunes

*Oenothera oakesiana*, Oak's Evening-primrose 7; uncommon in open upland

**Orobanchaceae, Broom-rape Family**

*Agalinis purpurea* subsp. *parviflora*, Purple False Foxglove 7; occasional on inland lake edge

*Conopholis americana*, Squaw-root 10; occasional in forested dunes

*Epifagus virginiana*, Beech-drops 10; uncommon in forested dunes

*Melampyrum lineare*, Cow-wheat 6; uncommon in forested dunes

**Oxalidaceae, Wood-sorrel Family**

*Oxalis dillenii*, Common Yellow Wood-sorrel 0; occasional in disturbed upland

*Oxalis stricta*, Yellow Wood-sorrel 0; occasional in disturbed upland

*Dicentra canadensis*, Squirrel-corn 7; uncommon in forested dunes

**Phrymaceae, Lopseed Family**

*Phryma leptostachya*, Lopseed 4; uncommon in forested dunes

**Phytolaccaceae, Pokeweed Family**

*Phytolacca americana*, Pokeweed 2; occasional in disturbed upland

**Plantaginaceae, Plantain Family**

*Linaria vulgaris*, Butter-and-eggs\* 0; occasional in disturbed upland

*Nuttallanthus canadensis*, Blue Toadflax 8; common in dune savanna

*Plantago lanceolata*, English Plantain\* 0; occasional in disturbed upland

*Plantago major*, Common Plantain\* 0; occasional in disturbed open upland

*Plantago rugelii*, Red-stalked Plantain 0; uncommon in disturbed open upland

*Veronica anagallis-aquatica* var. *glandulosa*, Water Speedwell 4; uncommon in Grand River wetland edge

*Veronica serpyllifolia* var. *serpyllifolia*, Thyme-leaved Speedwell\* 0; uncommon in disturbed upland

*Veronica arvensis*, Corn Speedwell\* 0; common in disturbed open upland

**Polygonaceae, Smartweed Family**

*Fallopia cilinodis*, Fringed False Buckwheat 3; rare in forested dune open edge

*Fallopia convolvulus*, False Buckwheat\* 0; rare in forested dune open edge

*Fallopia scandens*, Black-bindweed 2; rare in disturbed upland

*Persicaria maculosa*, Lady's-thumb\* 0; rare in river wetland edge

*Persicaria punctata*, Dotted Smartweed 5; uncommon in disturbed open upland

*Persicaria sagittata*, Arrow-leaved Tear-thumb 5; uncommon in Inundated Shrub Swamp

*Polygonum achoreum*, Beak-seeded Knotweed 0; uncommon in disturbed open upland

*Polygonum articulatum*, Jointweed 8; locally abundant in dune savanna

*Polygonum aviculare* subsp. *aviculare*, Prostrate Knotweed\* 0; uncommon in disturbed open upland

*Rumex acetosella*, Sheep Sorrel\* 0; common in disturbed open upland

*Rumex crispus*, Curly Dock\* 0; uncommon in disturbed open upland

*Rumex obtusifolius*, Bitter Dock\* 0; uncommon in disturbed open upland

**Ranunculaceae, Buttercup Family**

*Aquilegia canadensis*, Wild Columbine 5; uncommon in dune forest

*Hepatica americana*, Round-lobed Hepatica 6; rare in forested dunes

*Ranunculus abortivus*, Small-flowered Buttercup 0; rare in forested dunes

*Ranunculus recurvatus*, Hooked Crowfoot 5; rare on Grand River sandy shore

*Ranunculus sceleratus*, Cursed Crowfoot 1; uncommon on Grand River sandy shore and in seeps

**Rhamnaceae, Buckthorn Family**

*Rhamnus cathartica*, Common Buckthorn\* 0; rare shrub in dune forest open edge

**Rosaceae, Rose Family**

*Amelanchier arborea*, Downy Juneberry 4; uncommon understory tree in forested dunes

*Amelanchier laevis*, Smooth Shadbush 4; uncommon understory tree in forested dunes

*Malus pumila*, Apple\* 0; rare tree near former dwelling

*Potentilla anserina*, Silverweed 5; locally common in sandy shore of Grand River

*Potentilla norvegica*, Rough Cinquefoil 0; rare in disturbed open upland

*Potentilla recta*, Rough-fruited Cinquefoil\* 0; rare in upland forest edge

*Prunus avium*, Sweet Cherry\* 0; rare tree in forested dunes  
*Prunus pensylvanica*, Pin Cherry 3; uncommon tree in forested dunes  
*Prunus serotina*, Wild Black Cherry 2; occasional canopy tree in forested dunes  
*Prunus virginiana*, Choke Cherry 2; occasional understory tree in forested dunes  
*Rosa multiflora*, Multiflora Rose\* 0; uncommon shrub in disturbed upland  
*Rosa palustris*, Swamp Rose 5; rare shrub in Grand River marsh  
*Rosa rubiginosa*, Sweetbrier\* 0; uncommon shrub in wetland edge  
*Rubus allegheniensis*, Common Blackberry 1; uncommon in upland  
*Rubus flagellaris*, Northern Dewberry 1; uncommon in Grand River marsh upland edge  
*Rubus hispidus*, Swamp Dewberry 4; rare in wetland edge  
*Rubus occidentalis*, Black Raspberry 1; uncommon in upland  
*Rubus strigosus*, Wild Red Raspberry 2; uncommon in upland  
*Spiraea tomentosa*, Steeplebush 5; locally common shrub in wetlands

**Rubiaceae, Madder Family**

*Cephalanthus occidentalis*, Buttonbush 7; uncommon shrub in Inundated Shrub Swamp  
*Galium aparine*, Cleavers 0; common in upland  
*Galium circaezans*, White Wild Licorice 4; uncommon in forested dunes  
*Galium obtusum*, Wild Madder 5; rare in forested dune opening  
*Galium trifidum*, Small Bedstraw 6; rare on Grand River sandy shore  
*Galium triflorum*, Fragrant Bedstraw 4; rare in forested dunes  
*Mitchella repens*, Partridge Berry 5; rare in forested dunes

**Rutaceae, Rue Family**

*Ptelea trifoliata* var. *trifoliata*, Hop-tree 4; rare shrub in open upland

**Salicaceae, Willow Family**

*Populus deltoides* subsp. *monilifera*, Eastern Cottonwood 1; common tree in fields and wetland edge  
*Populus grandidentata*, Largetooth Aspen 4; locally common tree in forested dunes  
*Populus nigra*, Lombardy Poplar\* 0; occasional tree in fields  
*Salix amygdaloides*, Peach-leaved Willow 3; uncommon tree in wetland edge  
*Salix candida*, Hoary Willow 9; uncommon shrub in open wetlands  
*Salix exigua*, Sandbar Willow 1; uncommon shrub in wetlands  
- *Salix xfragilis*, Hybrid Crack Willow\*; rare tree in former pond edge  
*Salix myricoides*, Blueleaf Willow 9; uncommon shrub in wetland  
*Salix nigra*, Black Willow 5; uncommon tree in wetlands  
*Salix petiolaris*, Slender Willow 1; uncommon shrub in damp fields

**Sapindaceae, Soapberry Family**

*Acer negundo*, Box-elder 0; uncommon tree in disturbed field;  
*Acer nigrum*, Black Maple 4; uncommon tree in forested dunes along vernal pond  
*Acer rubrum*, Red Maple 1; common canopy tree in wetland  
*Acer saccharinum*, Silver Maple 2; rare tree in former pond edge  
*Acer saccharum*, Sugar Maple 5; common canopy tree in forested dunes

**Scrophulariaceae, Figwort Family**

*Verbascum blattaria*, Moth Mullein\* 0; uncommon in disturbed open upland  
*Verbascum thapsus*, Common Mullein\* 0; occasional in upland

**Simaroubaceae, Quassia Family**

*Ailanthus altissima*, Tree-of-Heaven\* 0; common tree in disturbed upland and wetland

**Solanaceae, Nightshade Family**

*Physalis heterophylla*, Clammy Ground-cherry 3; rare in disturbed open upland  
*Solanum carolinense*, Horse-nettle\* 0; uncommon in disturbed open upland  
*Solanum ptychanthum*, Black Nightshade 1; rare in disturbed open upland

**Ulmaceae, Elm Family**

*Ulmus americana*, American Elm 1; rare tree in forested dunes  
*Ulmus pumila*, Siberian Elm\* 0; uncommon sapling in disturbed open upland

**Urticaceae, Nettle Family**

*Boehmeria cylindrica*, False Nettle 5; uncommon in wetlands  
*Laportea canadensis*, Wood Nettle 4; uncommon in disturbed forest  
*Parietaria pensylvanica*, Pennsylvania Pellitory 2; locally abundant in temporary wetland  
*Pilea fontana*, Bog Clearweed 5; uncommon in marsh  
*Pilea pumila*, Canadian Clearweed 5; uncommon in Grand River marsh  
*Urtica dioica*, Stinging Nettle 1; uncommon in wetland and upland

**Verbenaceae, Vervain Family**

*Phyla lanceolata*, Lanceleaf Fog-fruit 6; common in sand on Grand River shore  
*Verbena bracteata*, Prostrate Vervain\* 0; occasional in disturbed upland

*Verbena hastata*, Blue Vervain 4; locally common in wetlands  
*Verbena stricta*, Hoary Vervain\* 0; rare on disturbed edge of dune grassland  
*Verbena urticifolia*, White Vervain 4; uncommon in open upland

**Violaceae, Violet Family**

*Viola pubescens*, Downy Yellow Violet 4; uncommon in forested dunes  
*Viola rostrata*, Long-spurred Violet 6; uncommon in forested dunes

**Vitaceae, Grape Family**

*Parthenocissus quinquefolia*, Virginia Creeper 5; uncommon vine in forested dunes  
*Vitis aestivalis*, Summer Grape 6; uncommon vine in uplands  
*Vitis riparia*, River-bank Grape 3; uncommon vine in forested dunes

## Fauna Observations

### Amphibians

**Bufonidae, Toad Family**

*Anaxyrus americanus*, Eastern American Toad  
*Anaxyrus fowleri*, Fowler's Toad

**Hylidae, Tree Frog Family**

*Hyla versicolor*, Eastern Gray Treefrog  
*Pseudacris crucifer*, Spring Peeper  
*Pseudacris triseriata triseriata*, Western Chorus Frog

**Ranidae, Frog Family**

*Rana catesbeiana*, Bullfrog  
*Rana clamitans*, Green Frog  
*Lithobates pipiens*, Northern Leopard Frog  
*Rana sylvatica*, Wood Frog

### Reptiles

**Colubridae, Colubrid Snake Family**

*Thamnophis sauritus*, Northern Ribbon Snake  
*Thamnophis sirtalis*, Eastern Garter Snake  
Heterodon platyrhinos, Eastern Hognose Snake  
*Coluber constrictor*, Blue Racer

**Chelydridae, Snapping Turtle Family**

*Chelydra serpentina*, Snapping Turtle

**Emydidae, Pond and Box Turtle Family**

*Chrysemys picta*, Painted Turtle

### Mammals

**Sciuridae, Squirrel Family**

*Marmota monax*, Woodchuck  
*Tamias striatus*, Eastern Chipmunk  
*Tamiasciurus hudsonicus*, Red Squirrel  
*Sciurus carolinensis*, Eastern Gray Squirrel  
*Sciurus niger*, Fox Squirrel

**Muridae; Rat, Mouse, Lemming, and Vole Family**

*Microtus pennsylvanicus*, Meadow Vole  
*Ondatra zibethicus*, Muskrat

**Procyonidae, Raccoon Family**

*Procyon lotor*, Raccoon

**Cervidae, Deer Family**

*Odocoileus virginianus*, White-tail Deer

### Birds

- The American Ornithologist's Union Check-list of North American Birds 7<sup>th</sup> edition, 58<sup>th</sup> supplement (August 2017)

**Anatidae, Waterfowl Family**

*Branta canadensis*, Canada Goose  
*Cygnus olor*, Mute Swan\*  
*Aix sponsa*, Wood Duck

*Anas rubripes*, American Black Duck  
*Anas platyrhynchos*, Mallard  
*Mergus merganser*, Common Merganser  
*Oxyura jamaicensis*, Ruddy Duck  
**Phasianidae, Grouse and Turkey Family**  
*Meleagris gallopavo*, Wild Turkey  
**Gaviidae, Loon Family**  
*Gavia immer*, Common Loon  
**Podicipedidae, Grebe Family**  
*Podilymbus podiceps*, Pied-billed Grebe  
**Phalacrocoracidae, Cormorant Family**  
*Phalacrocorax auritus*, Double-crested Cormorant  
**Ardeidae, Bittern and Heron Family**  
*Ardea herodias*, Great Blue Heron  
*Ardea alba*, Great Egret  
*Butorides virescens*, Green Heron  
**Cathartidae, New World Vulture Family**  
*Cathartes aura*, Turkey Vulture  
**Pandionidae, Osprey Family**  
*Pandion haliaetus*, Osprey  
**Accipitridae, Hawk, Kite, and Eagle Family**  
*Haliaeetus leucocephalus*, Bald Eagle  
*Accipiter cooperii*, Cooper's Hawk  
*Buteo jamaicensis*, Red-tailed Hawk  
**Rallidae, Rail, Gallinule, and Coot Family**  
*Porzana carolina*, Sora  
**Gruidae, Crane Family**  
*Grus canadensis*, Sandhill Crane  
**Charadriidae, Plover Family**  
*Charadrius vociferus*, Killdeer  
**Scolopacidae, Sandpiper and Phalarope Family**  
*Actitis macularius*, Spotted Sandpiper  
*Calidris pusilla*, Semipalmated Sandpiper  
**Laridae, Gull and Tern Family**  
*Larus delawarensis*, Ring-billed Gull  
*Larus argentatus*, Herring Gull  
*Hydroprogne caspia*, Caspian Tern  
**Columbidae, Pigeon and Dove Family**  
*Zenaida macroura*, Mourning Dove  
**Cuculidae, Cuckoo Family**  
*Coccyzus americanus*, Yellow-billed Cuckoo  
**Apodidae, Swift Family**  
*Chaetura pelagica*, Chimney Swift  
**Trochilidae, Hummingbird Family**  
*Archilochus columbris*, Ruby-throated Hummingbird  
**Alcedinidae, Kingfisher Family**  
*Megasceryle alcyon*, Belted Kingfisher  
**Picidae, Woodpecker Family**  
*Melanerpes erythrocephalus*, Red-headed Woodpecker  
*Melanerpes carolinus*, Red-bellied Woodpecker  
*Sphyrapicus varius*, Yellow-bellied Sapsucker  
*Picoides pubescens*, Downy Woodpecker  
*Picoides villosus*, Hairy Woodpecker  
*Colaptes auratus*, Northern Flicker  
*Dryocopus pileatus*, Pileated Woodpecker  
**Falconidae, Falcon Family**  
*Falco columbarius*, Merlin  
*Falco peregrinus*, Peregrine Falcon  
**Tyrannidae, Flycatcher Family**  
*Contopus virens*, Eastern Wood-Pewee  
*Sayornis phoebe*, Eastern Phoebe  
*Myiarchus crinitus*, Great Crested Flycatcher



*Tyrannus tyrannus*, Eastern Kingbird

**Vireonidae, Vireo Family**

*Vireo flavifrons*, Yellow-throated Vireo

*Vireo gilvus*, Warbling Vireo

*Vireo olivaceus*, Red-eyed Vireo

*Vireo solitarius*, Blue-headed Vireo

**Corvidae, Jay and Crow Family**

*Cyanocitta cristata*, Blue Jay

*Corvus brachyrhynchos*, American Crow

**Hirundinidae, Swallow Family**

*Progne subis*, Purple Martin

*Tachycineta bicolor*, Tree Swallow

*Stelgidopteryx serripennis*, Northern Rough-winged Swallow

*Riparia riparia*, Bank Swallow

*Hirundo rustica*, Barn Swallow

**Paridae, Chickadee and Titmouse Family**

*Poecile atricapillus*, Black-capped Chickadee

*Baeolophus bicolor*, Tufted Titmouse

**Sittidae, Nuthatch Family**

*Sitta carolinensis*, White-breasted Nuthatch

**Certhiidae, Creeper Family**

*Certhia americana*, Brown Creeper

**Troglodytidae, Wren Family**

*Troglodytes aedon*, House Wren

**Poliophtilidae, Gnatcatcher Family**

*Poliophtila caerulea*, Blue-gray Gnatcatcher

**Regulidae, Kinglet Family**

*Regulus setrapa*, Golden-crowned Kinglet

*Regulus calendula*, Ruby-crowned Kinglet

**Turdidae, Thrush Family**

*Sialia sialis*, Eastern Bluebird

*Catharus fuscescens*, Veery

*Catharus ustulatus*, Swainson's Thrush

*Catharus guttatus*, Hermit Thrush

*Hylocichla mustelina*, Wood Thrush

*Turdus migratorius*, American Robin

**Mimidae, Mockingbird and Thrasher Family**

*Dumetella carolinensis*, Gray Catbird

*Toxostoma rufum*, Brown Thrasher

**Bombycillidae, Waxwing Family**

*Bombycilla cedrorum*, Cedar Waxwing

**Parulidae, Wood Warbler Family**

*Parkesia noveboracensis*, Northern Waterthrush

*Protonotaria citrea*, Prothonotary Warbler

*Geothlypis trichas*, Common Yellowthroat

*Setophaga ruticilla*, American Redstart

*Setophaga tigrina*, Cape May Warbler

*Setophaga magnolia*, Magnolia Warbler

*Setophaga castanea*, Bay-breasted Warbler

*Setophaga petechia*, Yellow Warbler

*Setophaga striata*, Blackpoll Warbler

*Setophaga caerulea*, Black-throated Blue Warbler

*Setophaga palmarum*, Palm Warbler

*Setophaga coronata*, Yellow-rumped Warbler

*Setophaga discolor*, Prairie Warbler

*Setophaga virens*, Black-throated Green Warbler

*Cardellina pusilla*, Wilson's Warbler

**Emberizidae, Sparrow Family**

*Spizella passerina*, Chipping Sparrow

*Spizella pusilla*, Field Sparrow

*Melospiza melodia*, Song Sparrow

*Passerculus sandwichensis*, Savannah Sparrow

*Zonotrichia albicollis*, White-throated Sparrow  
*Zonotrichia leucophrys*, White-crowned Sparrow

*Junco hyemalis*, Dark-eyed Junco

**Cardinalidae, Cardinal Family**

*Piranga olivacea*, Scarlet Tanager

*Cardinalis cardinalis*, Northern Cardinal

*Pheucticus ludovicianus*, Rose-breasted Grosbeak

**Icteridae, Blackbird Family**

*Agelaius phoeniceus*, Red-winged Blackbird

*Quiscalus quiscula*, Common Grackle

*Molothrus ater*, Brown-headed Cowbird

*Icterus spurius*, Orchard Oriole

*Icterus galbula*, Baltimore Oriole

**Fringillidae, Finch Family**

*Haemorhous mexicanus*, House Finch

*Spinus tristis*, American Goldfinch

**Fish**

**Centrarchidae, Sunfish Family**

*Lepomis macrochirus*, Common Bluegill

*Micropterus salmoides*, Largemouth Bass

**Cyprinidae, Minnow or Carp Family**

*Cyprinus carpio*, Common Carp\*

**Insects**

**Coleoptera, Beetles and Weevils**

**Carabidae, Ground Beetles**

*Calosoma scrutator*, Fiery Searcher, Hunter Beetle

*Harpalus erraticus*

**Chrysomelidae, Leaf Beetles**

*Diabrotica undecimpunctata*, Spotted Cucumber Beetle

**Coccinellidae, Lady Beetles**

*Harmonia axyridis*, Multicolored Asian Lady Beetle\*

**Gyrinidae, Whirligig Beetles**

Whirligig Beetle sp.

**Lampyridae, Fireflies**

*Ellychnia corrusca*, Winter Firefly

**Lycidae, Net-winged Beetles**

*Calopteron* sp.

**Dolichopodidae, Long-legged Flies**

*Dolichopus* sp.

**Hemiptera, True Bugs, Cicadas, Hoppers, Aphids, Scales, and Whiteflies**

**Lygaeidae, Seed Bugs**

*Lygaeus kalmii*, Small Milkweed Bug

*Oncopeltus fasciatus*, Large Milkweed Bug

**Pentatomidae, Stink and Shield Bugs**

*Chinavia hilaris*, Green Stink Bug

**Hymenoptera, Ants, Bees, and Wasps**

**Halictidae, Sweat Bees**

*Augochlora pura*, Green-gold Sweat Bee

**Sphecidae, Thread-waisted Wasps**

*Ammophila harti*, Thread-waisted Wasp

*Sphex ichneumoneus*, Great Golden Digger Wasp

**Vespididae, Hornets, Paper Wasps, Potter Wasps, and Yellowjackets**

*Dolichovespula maculata*, Bald Face Hornet

**Lepidoptera, Butterflies and Moths**

**Butterflies**

**Papilionidae, Swallowtails**

*Papilio glaucus*, Eastern Tiger Swallowtail

*Papilio troilus*, Spicebush Swallowtail

**Pieridae, Whites and Sulphurs**

*Pieris rapae*, Cabbage White\*

**Lycaenidae, Coppers, Blues, Hairsteaks, Harvesters**

*Celastrina neglecta*, Summer Azure

**Nymphalidae, Brushfoots**

*Nymphalis antiopa*, Mourning Cloak

*Vanessa cardui*, Painted Lady

*Junonia coenia*, Common Buckeye

*Limenitis arthemis astyanax*, Red-spotted Purple

*Enodia anhedon*, Northern Pearly Eye

*Cercyonis pegala*, Common Wood Nymph

**Danaidae, Milkweed Butterflies**

*Danaus plexippus*, Monarch

**Moths**

**Crambidae, Crambid Snout Moths**

*Nomophila nearctica*, Lucerne Moth

*Udea rubigalis*, Celery Leaf-tier

**Erebidae, Tiger, Lichen, and Wasp Moths**

*Ctenucha virginica*, Virginia Ctenucha

*Cycnia inopinatus*, Unexpected Cycnia Moth

*Euchaetes egle*, Milkweed Tussock Moth

*Haploa clymene*, Clymene Moth

*Haploa contigua*, The Neighborhood Moth

*Hyphantria cunea*, Fall Webworm

*Pyrharctia isabella*, Isabella Tiger Moth

**Noctuidae, Owllet Moths**

*Anagrapha falcifera*, Celery Looper

**Neuroptera, Lacewings, Antlions, and relatives**

**Myrmeleontidae, Antlions**

Antlion sp.

**Odonata, Dragonflies and Damselflies**

**Aeshnidae, Darners**

*Anax junius*, Common Green Darner

**Coenagrionidae, Narrow-winged Damselflies**

*Argia apicalis*, Blue-fronted Dancer

*Enallagma civile*, Familiar Bluet

**Libellulidae, Skimmers**

*Celithemis elisa*, Calico Pennant

*Erythemis simplicicollis*, Eastern Pondhawk

*Libellula pulchella*, Twelve Spotted Skimmer

*Pachydiplax longipennis*, Blue Dasher

*Plathemis lydia*, Common Whitetail

*Sympetrum internum*, Cherry-faced Meadowhawk

*Sympetrum vicinum*, Autumn Meadowhawk

*Tramea lacerata*, Black Saddlebags

**Orthoptera, Grasshoppers, Katydid, and Crickets**

**Acrididae, Short-horned Grasshoppers**

*Dissosteira carolina*, Carolina Grasshopper

*Melanoplus sanguinipes*, Migratory Grasshopper

**Gryllidae, True Crickets**

*Gryllus pennsylvanicus*, Fall Field Cricket

## VIII. References

Comer, P.J., D.A. Albert, H.A. Wells, B.L. Hart, J.B. Raab, D.L. Price, D.M. Kashian, R.A. Corner, and D.W. Schuen. 1995. Michigan's pre-settlement vegetation, as interpreted from the General Land Office Surveys 1816-1856. Michigan Natural Features Inventory, Lansing, MI.

Endangered, Threatened, Special Concern, and Probably Extirpated list. Endangered Species Program of the Michigan Department of Natural Resources and the Michigan Natural Features Inventory. April 9, 2009

Kost, M.A., D.A. Albert, J.G. Cohen, B.S. Slaughter, R.K. Schillo, C.R. Weber, and K.A. Chapman. 2007. Natural Communities of Michigan: Classification and Description. Michigan Natural Features Inventory, Report Number 2007-21, Lansing, MI. 314 pp.

Herman, K. D., L. A. Masters, M. R. Penskar, A. A. Reznicek, G. S. Wilhelm, W. W. Brodowicz, and K. P. Gardiner. (2001). Floristic Quality Assessment with Wetland Categories and Computer Applications for the State of Michigan - Revised, 2nd Edition. Lansing: Michigan Department of Natural Resources, Wildlife, Natural Heritage Program.

Voss, Edward G. and Anton A. Reznicek (2012). Field Manual of Michigan Flora. The University of Michigan Press.

### Global and State Element Ranking Criteria

#### Global Ranks

- G1 - critically imperiled globally because of extreme rarity (5 or fewer occurrences range-wide or very few remaining individuals or acres) or because of some factor(s) making it especially vulnerable to extinction.
- G2 - imperiled: at high risk of extinction due to very restricted range, very few occurrences (often 20 or fewer), steep declines, or other factors.
- G3 - vulnerable: at moderate risk of extinction due to a restricted range, relatively few occurrences (often 80 or fewer), recent and widespread declines, or other factors.
- G4 - apparently secure: uncommon but not rare; some cause for long-term concern due to declines or other factors.
- G5 - demonstrably secure globally, though it may be quite rare in parts of its range, especially at the periphery.
- GU - currently unrankable due to lack of information or due to substantially conflicting information about status or trends.
- G? - incomplete data.

#### State Ranks

- S1 - critically imperiled in the state because of extreme rarity (5 or fewer occurrences or very few remaining individuals or acres) or because of some factor(s) making it especially vulnerable to extirpation in the state.
- S2 - imperiled in state because of rarity (6 to 20 occurrences or few remaining individuals or acres) or because of some factor(s) making it very vulnerable to extirpation from the state.
- S3 - rare or uncommon in state (on the order of 21 to 100 occurrences).
- S4 - apparently secure in state, with many occurrences.
- S5 - demonstrably secure in state and essentially ineradicable under present conditions.
- SNR- status not yet designated