A Vascular Flora Inventory

Ottawa Sands
Ottawa County Parks, Michigan
September 2020
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: | 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.

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

Natural Communities
Community Type
- Artificial Wetlands
- Disturbed Dune Fields
- Dry Mesic Northern Forest
- Emergent Marsh
- Great Lakes Barrens
- Great Lakes Marsh
- Intermittent Wetland
- Inundated Shrub Swamp
- Mesic Northern Forest
- Open Dunes
- Southern Hardwood Swamp
- Submerged Marsh

Ottawa Sands Natural Communities 1 inch = 600 feet
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

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

*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

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

* non-native

Vascular Plant Inventory

Notes
* 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 ×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 fluitabilis, River Bulrush 6; common in Grand River marsh
Carex albicans var. albicans, White Tinge Sedge 3; uncommon in forested dunes
Carex albersina, 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 commutis, 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 leptonervia, Two-edged Sedge 3; common in forested dunes
Carex lurosum, 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 pensylvanica, 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 scabra, Rough Sedge 4; rare in seep along Grand River  
Carex stipata, Awd-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  

Poaceae, Grass Family  
Hydrocharitaceae, Frog’s-bit Family  
Eloida nuttallii, Slender Waterweed 5; rare in Grand River marsh  

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 alpinuarticulatus, 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  
Petasites hybridus, Hybrid Buttercup 4; 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  
Chenopodium spinosum, Mat Sandbur 0; uncommon in disturbed open upland  
Daucus glomerata, Orchard Grass* 0; occasional in disturbed open upland  
Donanthia spicata, Common Wild Oat-grass 4; rare in forested dunes open edge  
Dichanthium clandestinum, Deer-tongue Grass 3; uncommon in wooded upland edge  
Dichanthium comansnm var. eucalyptum, Common’s Panic-grass 6; occasional in back-dune grassland  
Dichanthium 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  
Echinocloa muricata var. microstachya, Rough Barnyard Grass 1; rare in disturbed wetland  
Echinocloa heterami, 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  

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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
Lotium arundinaceum, Tall Fescue* 0; uncommon in disturbed open upland
Lotium perenne var. perenne, e perennial 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 scoparium, 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
Aizoaceae, 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 pallasi, 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**

Achyranthes aspera var. atropurpurea, Purple Japanese Barberry* 0; occasional in open dunes
Asclepias syriaca, Common Milkweed 1
Bidens cernua, Nodding Bur-marigold 3; rare in Grand River wetlands
Bidens connata, Spotted Knotweed 0; common in open upland
Centurea 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
Cirsium var. pringlei, Gillman's Goldenrod 10; rare in open dune
Erechtites hieraciifolius, False Sunflower 5; rare in open upland
Eryngium yuccifolium, Honeysuckle Thistle* 0; uncommon in disturbed open field
Eupatorium perfoliatum, Boneset 0; uncommon in open wetland
Heliopsis helianthoides, False Sunflower 5; rare in disturbed open upland
Hieracium scabrum, Rough Hawkweed 3; uncommon in open upland forest edge
Hypochaeris 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; uncommon 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. gilmanii, Gillman’s Goldenrod 10; rare in open dunes
Sonchus asper, Prickly Sow-thistle* 0; rare in disturbed open field
Symphyotrichum latiflorum, 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*, Creeping Mustard* 0; uncommon in disturbed open upland
- *Cardamine hirsuta*, Hairy Bitter Cress* 0; occasional in disturbed open upland
- *Cerastium arvense*, Mouse-ear Chickweed* 0; common in disturbed upland
- *Elaeagnus umbellata*, Autumn Olive* 0; rare understory tree in forested dunes
- *Elymus repens*, Stringy Stonecrop* 0; rare in disturbed open upland
- *Euphorbia polygonifolia*, Seaside Spurge 10; common in open dunes
- *Fabaceae, Pea Family*
- *Althaea rosea*, Hound's-tongue* 0; abundant in uplands
- *Catalpa speciosa*, Northern Catalpa 0; rare tree in upland forest
- *Cornus alternifolia*, Alternate-leaved Dogwood 5; rare understory tree in forested dunes
- *Cornus amomum* subsp. *obliqua*, Pale Dogwood 2; rare shrub in wetland edge
- *Corydalis aurea*, False Heath 10; locally common in open back dunes
- *Cistus diffusus*, False Heather 10; locally common in open back dunes
- *Cistus lanatus*, False Heather 10; locally common in open back dunes
- *Cistus salviifolius*, False Heather 10; locally common in open back dunes
- *Echium vulgare*, Common Viper's Bugloss 10; common in open dunes
- *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

Grossulariaceae, 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 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

Juglandaceae, 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
*Circeae 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, Broomrape 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 ciliata*, 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-fruitied Cinquefoil* 0; rare in upland forest edge
Verbena bracteata, 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

Rutaceae, Rue Family

Ptelea trifoliata, Buttonbush 7; uncommon shrub in Inundated Shrub Swamp

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

Solanaeae, Nightshade Family

Phymatotricha 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

Verbena, 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

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**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**


**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
Halâeetus 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
Megaceryle 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**
*Troglydytes aedon*, House Wren

**Polioptilidae, Gnatcatcher Family**
*Polioptila caerulea*, Blue-gray Gnatcatcher

**Regulidae, Kinglet Family**
*Regulus serrata*, Golden-crowned Kinglet
*Regulus calendula*, Ruby-crowned Kinglet

**Turdidae, Thrush Family**
*Sialia sialis*, Eastern Bluebird
*Cattharus fuscescens*, Veery
*Cattharus ustulatus*, Swainson’s Thrush
*Cattharus 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 caerulescens*, 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
Junco hyemalis, Dark-eyed Junco
Cardinalidae, Cardinal Family
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

Vespidae, 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
Lycaenidae, Coppers, Blues, Hairsteaks, Harvesters
Celastrina neglecta, Summer Azure

Nymphalidae, Brushfoots
Nymphalidae, Brushfoots
Nymphalis antiopa, Mourning Cloak
Vanessa cardui, Painted Lady
Junonia coenia, Common Buckeye
Limenitis arthemis astyanax, Red-spotted Purple
Enodia anthedon, Northern Pearl Eyed
Cercyonis pega, Common Wood Nymph

Danainae, Milkweed Butterflies
Danaus plexippus, Monarch

Moths
Crambidae, Crambid Snout Moths
Nomaphila nearctica, Lucerne Moth
Udea rubigalis, Celery Leaftier

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
Pyrrharctia isabella, Isabella Tiger Moth

Noctuidae, Owlet Moths
Anagapha falcierea, Celery Looper

Neuroptera, Lacewings, Antlions, and relatives
Myrmeleontidae, Antlions
Antlion sp.

Odonata, Dragonflies and Damselflies
Aeshnidae, Darners
Anax junius, Common Green Darter

Coenagrionidae, Narrow-winged Damselflies
Argia apicalis, Blue-fronted Dancer
Enallagma civile, Familier Bluet

Libellulidae, Skimmers
Celithemis elisa, Celico Pennant
Erythemis simplicicollis, Eastern Pondhawk
Libellula pulchella, Twelve Spotted Skimmer
Pachydiplax longipennis, Blue Dasher
Plathemis lydia, Common Whitetail
Symptemrum internum, Cherry-faced Meadowhawk
Symptemrum vicinum, Autumn Meadowhawk
Tramea lacerata, Black Saddlesbags

Orthoptera, Grasshoppers, Katydid, and Crickets
Acrididae, Short-horned Grasshoppers
Dissosteira carolina, Carolina Grasshopper
Melanoplus sanguinipes, Migratory Grasshopper

Gryllidae, True Grasshoppers
Gryllus pennsylvanicus, Fall Field Cricket
VIII. References


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


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 unrankanle 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