

**CONSUMERS ENERGY COMPANY
DTE ELECTRIC COMPANY**

**LUDINGTON PUMPED STORAGE
HYDROELECTRIC PROJECT
(FERC NO. 2680-108)
WILDLIFE RESOURCES REPORT**



Surveys completed: August 2015

Report Prepared for:

Consumers Energy Company
Hydro and Renewable Generation
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INTRODUCTION

Consumers Energy and DTE Electric, the Licensees, own and operate under a license issued by the Federal Energy Regulatory Commission (FERC) the Ludington Pumped Storage Project (Project). The Project is located along the Lake Michigan shoreline, in the townships of Pere Marquette and Summit in Mason County, Michigan and in Port Sheldon in Ottawa County, Michigan. The Ottawa County portion of the Project is limited to a 1.8-acre satellite recreation site (established as part of the Settlement Agreement approved by Commission Order on January 23, 1996 (74 FERC ¶ 61,055)). Figure 1 shows the location of these sites.

As part of FERC relicensing, a wildlife survey was proposed to identify and document wildlife habitat, rare, threatened or endangered (RTE) species, and potential RTE habitat.

METHODS

Field surveys were conducted to verify land cover types, habitats, and document wildlife observations. The project area was traversed using a meander approach to visually inspect the site. Field crews walked through the Project area, documenting dominant vegetative species and wildlife observations. Surveys at the Pigeon Lake Facility were limited to those areas visible from the boardwalk.

A wildlife survey was conducted in late July 2015. Comprehensive plant species lists for the sites were documented during the botanical survey conducted in late August 2015 and are included with this report.

RESULTS AND DISCUSSION

Ludington Site

The Ludington Site provides habitat and potential habitat for numerous wildlife species. There were a variety of habitats identified on the Ludington Hydroelectric property. To facilitate a description of the habitat distribution and location, individual "Areas" were surveyed and noted on the plan. Figure 2 illustrates the individual areas evaluated during the wildlife survey.

Most open or unmaintained land has or is being colonized by autumn olive.

Habitat Types

There were six main habitat types identified on the subject site. They are described below:

Forested Areas

Several of the forested areas are present within the facility. Areas 5, 7, 8, 9, 10, 11, 12, 14, 15, 16, 17 and 18 are all woods of moderate age, consisting of a variety of younger and older growth. Areas 10 and 18 are characterized as mature woods contain a greater percentage of larger diameter trees. Area 7 is composed of mostly younger trees. Areas 15 and 16 are part of the disc golf course associated with Area 13. The Mason County Campground is also part of Area 17. Forested areas across the site typically contain trees such as sugar maple, American beech, white ash, big-toothed aspen, white pine and hemlock.

Beach & Low Dunes

Areas 1 and 4 are located along the Lake Michigan shoreline and are comprised mainly of low rolling dunes at the base of a steep bluff extending to the beach. These areas contained species such as beach grass, dune reed, beach wormwood, common milkweed and willow species. Area

4 contains a narrow stream/wetland area that is the result the discharge from groundwater-level maintenance pumping associated with the reservoir. This area contains smooth saw grass and sedge species along with various trees and shrubs.

Bluff Slope

A high, steep bluff-slope consisting of trees and shrubs is located adjacent to the north and south ends of the power plant immediately landward of the Beach & Low Dunes areas identified as Areas 2 and 3. These areas contained species such as white cedar, paper birch, and autumn olive.

Old Field/Shrub Thickets

The southeast corner of Area 18 along with portions of Areas 7 and 12 consisted of an old field in early succession with a dominance of autumn olive shrubs. In addition, a portion of Area 11 and areas along the edges of the property boundary and along the power line corridor are showing varying degrees of autumn olive encroachment and dominance. Common herbaceous vegetation in these areas includes spotted knapweed, smooth brome and orchard grass.

Reservoir Slope/Meadow

The reservoir slope contains a mix of native and non-native grasses and other herbaceous vegetation. A large Russian olive tree was noted on the east side of the reservoir about half way up the slope. A common plant found on the slopes is milkweed which harbors a population of monarch butterflies.

Maintained Recreational Areas

The amateur air field and the disc golf course (Area 13) consisted of open and mowed/maintained areas for recreational use along miscellaneous wooded and shrub areas. The amateur air field property consisted of numerous autumn olive shrubs in the unmaintained areas. The disc golf course also meanders through various woods and shrubs in Area 13. Although mostly forested, Areas 15 and 16 contain a portion of the disc golf course as well.

Wildlife Observations

A list of wildlife occurring or potentially occurring within the vicinity of the Project is included in Table 1. Table 2 provides a list of wildlife species (or evidence of their presence through scat, feathers, tracks, calls etc) observed during the survey. A vast majority of the wildlife observations occurred along the lakeshore on or adjacent to Areas 1 and 4. However, there were deer, small mammal and bird sightings across the Project. Several deer were also observed within the fenced reservoir site.

One species of special note is the double-crested cormorant (DCCO). A few DCCO individuals were observed during the site evaluation between the shoreline and breakwater. The report titled "Final Environmental Assessment: Double-crested cormorant damage management in Michigan" (USDA, et al. 2011), discusses the presence and use of the Project breakwater by nesting cormorants. That report also includes an assessment of alternatives for management of DCCO damage in Michigan. The Licensees currently provide access to the breakwater by the Michigan Department of Natural Resources (MDNR) and their contractor, USDA, to conduct a DCCO control program, and the Licensees will continue supporting this program. USDA and the MDNR coordinate the control program with the Licensees to assure that implementation of the control program will not pose safety or operational concerns at the Ludington Project.

RTE Habitat & Observations

A review of the Michigan Natural Features Inventory (MNFI) and U.S. Fish and Wildlife Service (USFWS) data sources indicated that state and federally threatened wildlife species are documented to occur within the vicinity of the project (MNFI 2015, USFWS 2015). Table 3 outlines the potential RTE species that are known to or may occur in the project vicinity. The following summarizes RTE observation and potential RTE habitats of the species identified in Mason County on the list in Table 3.

Birds

A calling red-shoulder hawk (state threatened) was noted during the site survey (only one call was heard). This bird was not visually verified and did not appear to stay in the area during the survey.

An immature bald eagle was observed flying over the reservoir during the survey. Although no nests were observed, the forested portions of the Project could provide nesting opportunities for the bald eagle.

The marsh wren utilizes large cattail and cord-grass marshes as its preferred habitat. The only emergent wetland identified on the Project was associated with a stream along the lakeshore. That area does not appear large enough nor does it contain thick enough stands of vegetation to harbor the marsh wren.

The piping plover might utilize the lakeshore beach with its scattered cobbles or the low dunes and associated wetland as potential habitat and nesting areas.

The rufa red knot may utilize the coastline during migration.

Insects

Karner blue butterfly prefer open, sandy soil areas and oak-pine savannahs that contain wild lupine, their primary host plant. The main open areas including the reservoir slope do not appear to contain adequate habitat for the karner blue butterfly. Lupine was not encountered in the open areas during this survey.

Mammals

Indiana bat prefer trees with sloughing bark and good sun exposure. No Indiana bat habitat was identified on the Project. Northern long-eared bat have less stringent roosting requirements than the Indiana bat and potential habitat is present in most wooded areas. The forested areas on the Project, especially the more mature woods contain potential northern long-eared bat habitat.

Reptile & Amphibians

The eastern box turtle prefers forested areas near wetland. Due to the relative lack of wetland within the forested areas on the Project, little if any potential box turtle habitat is likely present.

The eastern massasauga is known to utilize a variety of wetland habitats. The wetland habitat associated with the wetland/stream in the Beach & Low Dunes area (Area 4) that could provide potential eastern massasauga habitat.

Port Sheldon Site

The Port Sheldon site consists of a parking area and a six-foot wide boardwalk and path that provides access to the Pigeon River pier at Lake Michigan. The area surrounding this location is

comprised of a coal-powered electric generating facility, wooded dunes, the Pigeon River, and various residential properties. Figure 3 illustrates the individual habitat areas identified during the wildlife survey.

Habitat Types

There were four main habitats identified along the boardwalk. They are described below:

Riparian Edge

The riparian edge consisted of herbaceous and shrubby vegetation along river's edge including plants such as dogwood, willow, and reed canary grass.

Wooded Dune

The steep wooded dune slopes are composed mainly of sugar maple, sassafras, red oak, and American beech.

Beach & Low Dune

A portion of the path to the pier is adjacent to the beach and low dune section along the lakeshore that is comprised mainly of American beach grass and common milkweed.

Maintained/Developed

The maintained and developed areas include roads to access marinas and boat docks along the river. In addition, there are some home sites along this route.

Wildlife Observations

An abundance of mallard ducks on the river were observed along with numerous tree swallows. One cormorant, one gold finch and one meadow vole were observed during the survey. Several miscellaneous, unidentifiable birds were observed during the evaluation, as well. Table 4 provides a list of wildlife species identified during the evaluation of the Port Sheldon site.

RTE Habitat & Observations

The following summarizes RTE observation and potential RTE habitats of the species identified in Ottawa County on the list in Table 3.

Birds

Rufa red knot may utilize the coastline during migration.

Mammals

Indiana bat prefer trees with sloughing bark and good sun exposure. No Indiana bat habitat was identified at the Port Sheldon Site. Northern long-eared bat have less stringent roosting requirements than the Indiana bat and potential habitat is present in most wooded areas. The wooded dune adjacent to the boardwalk/path may contain potential northern long-eared bat habitat.

Fish

There is potential habitat for big mouth shiner, cisco and river redhorse found in the Pigeon River and Lake Michigan immediately adjacent to the Port Sheldon Site.

Reptile & Amphibians

Blanchard's cricket frog is known to exist in the vicinity of the Port Sheldon Site and could inhabit the areas adjacent to the boardwalk and path. No amphibians were encountered during the survey.

Table 1: Common Wildlife Species Known or Considered Likely to Occur in the Project Vicinity

COMMON NAME	SCIENTIFIC NAME
Mammals	
Cottontail rabbit	<i>Sylvilagus floridanus</i>
Deer mouse	<i>Peromyscus msniculatus</i>
Eastern chipmunk	<i>Tamias striatus</i>
Eastern coyote	<i>Canis Latrans</i>
Fox squirrel	<i>Sciurus niger</i>
Gray squirrel	<i>Sciurus carolinensis</i>
Little brown bat	<i>Myotis lucifugus</i>
Meadow vole	<i>Microtus pennsylvanicus</i>
Opossum	<i>Didelphis marsupialis</i>
Raccoon	<i>Procyon lotor</i>
Red fox	<i>Vulpes vulpes</i>
Shorttailed shrew	<i>Blarina brevicauda</i>
Silver-haired bat	<i>Lasionycteris noctivagans</i>
Southern flying squirrel	<i>Glaucomys volans</i>
Striped skunk	<i>Mephitis mephitis</i>
White-footed mouse	<i>Peromyscus leucopus</i>
White-tailed deer	<i>Odocoileus virginianus</i>
Woodchuck	<i>Marmota monax</i>
Birds	
American crow	<i>Corvus brachyrhynchos</i>
American goldfinch	<i>Carduelis tristis</i>
American kestrel	<i>Falco sparverius</i>
American redstart	<i>Setophaga ruticilla</i>
American robin	<i>Turdus migratorius</i>
Bald eagle	<i>Haliaeetus leucocephalus</i>
Bank swallow	<i>Riparia riparia</i>
Barred owl	<i>Strix varia</i>
Black-capped chickadee	<i>Poecile atricapillus</i>
Blue jay	<i>Cyanocitta cristata</i>
Bonaparte's gull	<i>Larus Philadelphia</i>
Broad winged hawk	<i>Buteo platypterus</i>
Brown thrasher	<i>Toxostoma rufum</i>
Brown-headed cowbird	<i>Molothrus ater</i>
Indigo bunting	<i>Passerina cyanea</i>
Canada goose	<i>Branta Canadensis</i>
Chipping sparrow	<i>Spizella passerine</i>
Common grackle	<i>Quiscalus quiscula</i>
Common merganser	<i>Mergus merganser</i>
Common tern	<i>Sterna hirundo</i>
Common yellowthroat	<i>Geothlypis trichas</i>
Double-crested cormorant	<i>Phalacrocorax auritus</i>

COMMON NAME	SCIENTIFIC NAME
Downy woodpecker	<i>Dendrocopus pubescens</i>
Eastern bluebird	<i>Sialia sialis</i>
Eastern kingbird	<i>Tyrannus tyrannus</i>
Eastern phoebe	<i>Sayornis phoebe</i>
Eastern towhee	<i>Pipilo erythrophthalmus</i>
European starling	<i>Strunus vulgaris</i>
Field sparrow	<i>Spizella pusilla</i>
Great blue heron	<i>Ardea Herodias</i>
Great Crested flycatcher	<i>Myiachus crinitus</i>
Grey catbird	<i>Dumetella carolinensis</i>
Herring gull	<i>Larus argentatus</i>
Horned lark	<i>Eremophila alpestris</i>
House sparrow	<i>Passer domesticus</i>
House wren	<i>Troglodytes aedon</i>
Least sandpiper	<i>Calidris minutilla</i>
Mallard	<i>Anas platyrhynchos</i>
Meadowlark	<i>Sturnella magna</i>
Mourning dove	<i>Zenaida macroura</i>
Northern cardinal	<i>Cardinalis cardinalis</i>
Northern flicker	<i>Colaptes auratus</i>
Osprey	<i>Pandion haliaetus</i>
Purple martin	<i>Progne subis</i>
Red-eyed vireo	<i>Vireo olivaceus</i>
Red-tailed hawk	<i>Bufo jamaicensis</i>
Red-wing blackbird	<i>Agelaius phoeniceus</i>
Ring-billed gull	<i>Larus delawarensis</i>
Rock dove	<i>Columba livia</i>
Rose-breasted grosbeak	<i>Pheicticus ludovicianus</i>
Ruby-throated hummingbird	<i>Archilochus colubris</i>
Savannah sparrow	<i>Passerculus sandwichensis</i>
Song sparrow	<i>Melospiza melodia</i>
Spotted sandpiper	<i>Actitis macularia</i>
Tree swallow	<i>Tachycineta bicolor</i>
Vesper sparrow	<i>Pooecetes gramineus</i>
White-breasted nuthatch	<i>Sitta carolinensis</i>
Yellow warbler	<i>Dendroica petechia</i>
Reptiles	
Blanding's turtle	<i>Emys blandingii</i>
Common map turtle	<i>Graptemys geographica</i>
Common snapping turtle	<i>Chelydra serpentina</i>
Eastern garter snake	<i>Thamnophis sirtalis</i>
Eastern hog-nosed snake	<i>Heterodon platirhinos</i>
Eastern milk snake	<i>Lampropeltis triangulum triangulum</i>

COMMON NAME	SCIENTIFIC NAME
Northern ribbon snake	<i>Thamnophis sauritus septentrionalis</i>
Painted turtle	<i>Chrysemys picta</i>
Amphibians	
Blue spotted salamander	<i>Ambystoma laterale</i>
Eastern American toad	<i>Bufo americanus</i>
Eastern tiger salamander	<i>Ambystoma tigrinum tigrinum</i>
Fowler's toad	<i>Bufo fowleri</i>
Gray tree frog	<i>Hyla versicolor</i> and <i>H. chrysoscelis</i>
Green frog	<i>Rana clamitans</i>
Northern leopard frog	<i>Rana pipiens</i>
Northern spring peeper	<i>Pseudacris crucifer</i>
Western chorus frog	<i>Pseudacris triseriata triseriata</i>
Wood frog	<i>Rana sylvatica</i>

Source: Michigan State University, 2013 & Michigan DNR, 2014

Table 2: Wildlife Species Encountered During Survey – Ludington Site

COMMON NAME	SCIENTIFIC NAME
Mammals	
Eastern chipmunk	<i>Tamias striatus</i>
Eastern coyote	<i>Canis Latrans</i>
Gray squirrel	<i>Sciurus carolinensis</i>
Striped skunk	<i>Mephitis mephitis</i>
White-tailed deer	<i>Odocoileus virginianus</i>
Birds	
American crow	<i>Corvus brachyrhynchos</i>
American goldfinch	<i>Carduelis tristis</i>
American tree sparrow	<i>Spizella arborea</i>
Bald eagle	<i>Haliaeetus leucocephalus</i>
Caspian tern	<i>Hydroprogne caspia</i>
Common raven	<i>Corvus corax</i>
Common tern	<i>Sterna hirundo</i>
Double-crested cormorant	<i>Phalacrocorax auritus</i>
Eastern bluebird	<i>Sialia sialis</i>
Herring gull	<i>Larus argentatus</i>
House wren	<i>Troglodytes aedon</i>
Northern cardinal	<i>Cardinalis cardinalis</i>
Pileated woodpecker	<i>Dryocopus pileatus</i>
Purple martin	<i>Progne subis</i>
Red-shouldered hawk	<i>Buteo lineatus</i>
Red-wing blackbird	<i>Agelaius phoeniceus</i>
Ring-billed gull	<i>Larus delawarensis</i>
Rock pigeon	<i>Columba livia</i>
Ruffed grouse	<i>Bonasa umbellus</i>
Tree swallow	<i>Tachycineta bicolor</i>
Turkey vulture	<i>Cathartes aura</i>
Wild turkey	<i>Meleagris gallopavo</i>
Reptiles	
Eastern garter snake	<i>Thamnophis sirtalis</i>
Insects	
Monarch	<i>Danaus plexippus</i>
Cabbage white	<i>Pieris rapae</i>

Table 3: Rare, Threatened, and Endangered Wildlife Species that Occur in the Project Vicinity

COMMON NAME	SCIENTIFIC NAME	STATUS ^a	COUNTY
Birds			
Bald eagle	<i>Haliaeetus leucocephalus</i>	SC	Mason
Marsh wren	<i>Cistothorus palustris</i>	SC	Mason
Piping plover	<i>Charadrius melodus</i>	FE	Mason
Rufa red knot	<i>Calidris canutus rufa</i>	FT	Mason, Ottawa
Fish			
Bigmouth shiner	<i>Notropis dorsalis</i>	SC	Ottawa
Cisco (lake herring)	<i>Coregonus artedii</i>	T	Ottawa
River redhorse	<i>Moxostoma carinatum</i>	T	Ottawa
Insects			
Karner blue butterfly	<i>Lycaeides melissa samuelis</i>	FE	Mason
Mammals			
Indiana bat	<i>Myotis sodalis</i>	FE	Mason, Ottawa
Northern long-eared bat	<i>Myotis septentrionalis</i>	FT	Mason, Ottawa
Reptiles and Amphibians			
Eastern box turtle	<i>Terrapene carolina carolina</i>	SC	Mason
Eastern massasauga	<i>Sistrurus catenatus</i>	PFT	Mason
Blanchard's cricket frog	<i>Acris crepitans blanchardi</i>	T	Ottawa

^a E (State Endangered), T (State Threatened), SC (State Special Concern), FE (Federal Endangered), FT (Federal Threatened), FC (Federal Candidate), PFT (Proposed Federal Threatened)

Source: Michigan Natural Features Inventory. 2015. Michigan Natural Features Inventory Database (GIS Application). [Accessed Sept 2015]

Source: U.S. Fish and Wildlife Service. 2015. Michigan County Distribution of Federally-Listed Threatened, Endangered, Proposed, and Candidate Species.

<http://www.fws.gov/midwest/endangered/lists/michigan-cty.html> [Accessed Oct 2015]

Table 4: Wildlife Species Encountered During Survey – Port Sheldon Site

COMMON NAME	SCIENTIFIC NAME
Mammals	
Meadow vole	<i>Microtus pennsylvanicus</i>
Birds	
American goldfinch	<i>Carduelis tristis</i>
Double-crested cormorant	<i>Phalacrocorax auritus</i>
Mallard	<i>Anas platyrhynchos</i>
Tree swallow	<i>Tachycineta bicolor</i>

PHOTOGRAPHS



Area 1 - Beach & Low Dunes



Area 2 - Bluff Slope



Area 3 - Bluff Slope



Area 4 – Wetland/stream feature



Area 4 - Beach & Low Dunes



Area 5 - Woods



Area 6 - Reservoir Slope/Meadow



Area 7 – Old field/shrub thickets (autumn olive)



Area 7 - Woods



Area 8 Woods



Area 9 Woods



Area 10 – Mature woods



Area 11 – Old field/shrub thickets (autumn olive)



Area 11 - Woods



Area 12 – Old field/shrub thickets (autumn olive)



Area 12 - Woods



Area 18 - Old Field/Shrub Thickets (autumn olive)



Area 13 – Public Access Area – Disc Golf



Area 14 - Woods



Area 15 – Woods and Disc Golf



Area 16 – Woods and Disc Golf



Area 17 – Woods – Mason County Campground



Area 18 - Old Field/Shrub Thickets



Area 18 - Woods



Air field

PHOTOGRAPHS – Port Sheldon









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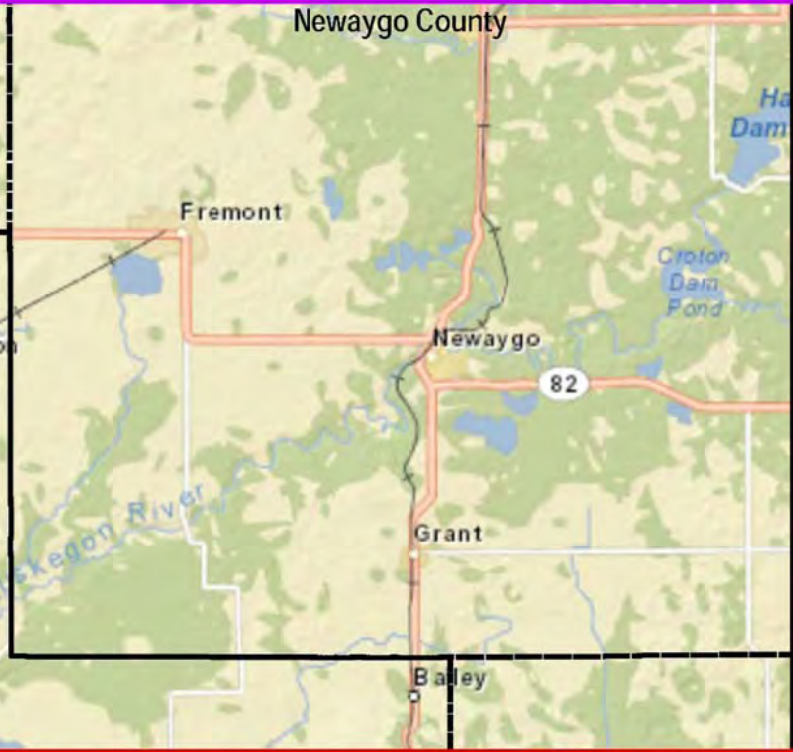
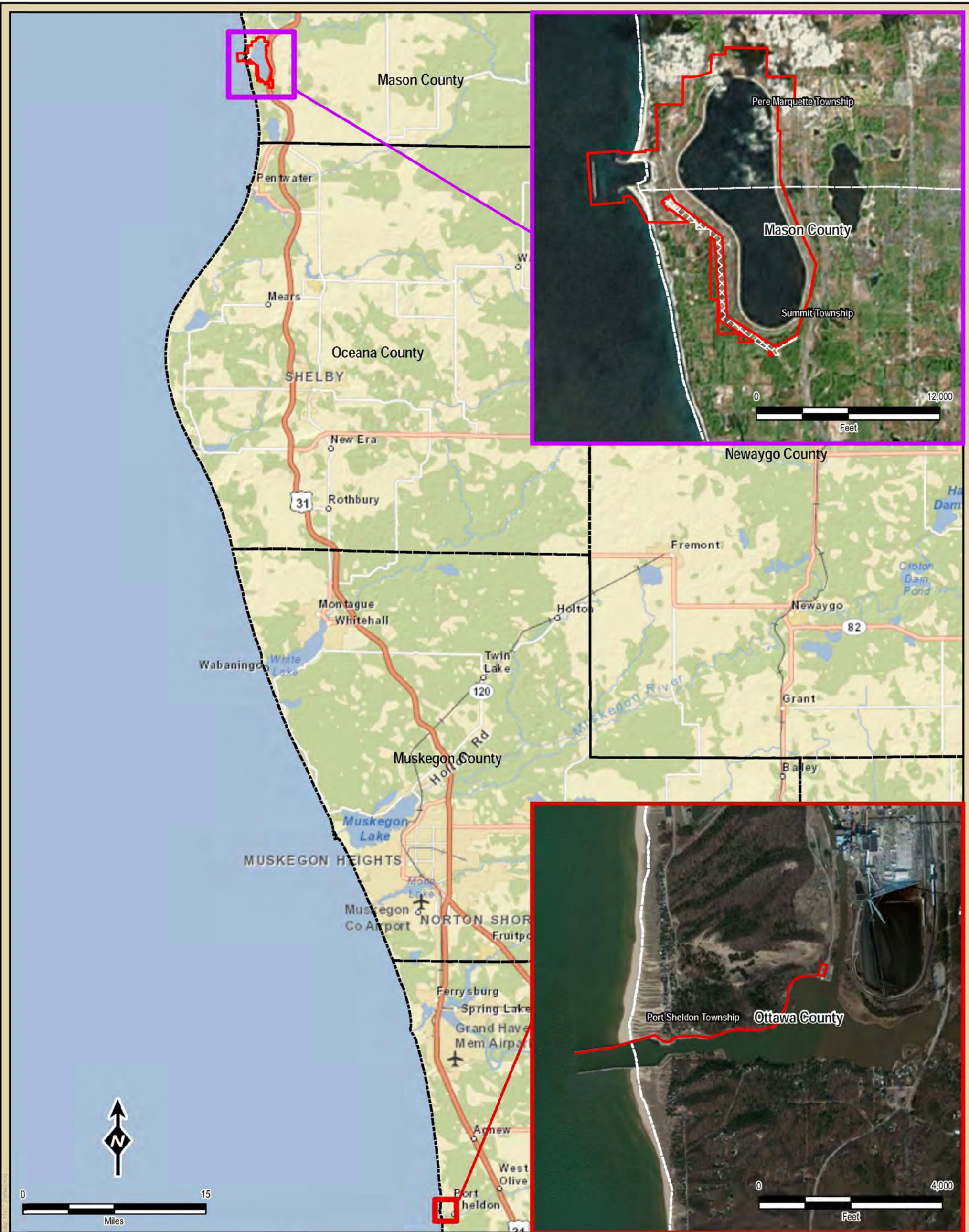
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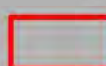



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USFWS. 2015. Michigan County Distribution of Federally-Listed Threatened, Endangered, Proposed, and Candidate Species. <http://www.fws.gov/midwest/endangered/lists/michigan-cty.html> [Accessed Oct, 2015]



Legend

-  Project_Bndy_12_6_2013_poly
-  Non-Project Land
-  County Boundary
-  Township Boundary

Note: Project Boundary will be updated upon receipt of electronic files to reflect lands removed/to be removed from boundary.

Sources: ESRI, MGD, Consumers Energy Company

CONSUMERS ENERGY
COMPANY

DTE Electric Company

LUDINGTON PUMPED
STORAGE PROJECT
LOCATION MAP

FIGURE 1



Figure 2. Ludington Site

Aerial source: USDA, 2014



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Figure 3. Port Sheldon Site

Aerial source: USDA, 2012



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Plant Species List for Ludington Hydroelectric - Consumers Energy

27-28 August 2015

AREA	SITE DESCRIPTION	SCIENTIFIC NAME	ENGLISH NAME	NATIVE?	WETL. IND. CODE	WETL. IND. NO.	ABUNDANCE	GROWTH HABIT	COEFF. OF CONSERV.
1	North beach. Low dunes.	<i>Ammophila breviligulata</i>	American Beach Grass	Yes	UPL	5	Abundant	Herb	10
		<i>Arctostaphylos uva-ursi</i>	Red Bearberry	Yes	UPL	5	Occasional	Herb	8
		<i>Artemisia campestris</i>	Beach Wormwood	Yes			Frequent	Herb	5
		<i>Asclepias syriaca</i>	Common Milkweed	Yes	UPL	5	Local	Herb	1
		<i>Betula papyrifera</i>	Paper Birch	Yes	FACU	3	Uncommon	Tree	2
		<i>Cakile edentula</i>	American Searocket	Yes	FACU	3	Local	Herb	5
		<i>Calamovilfa longifolia</i>	Dune Reed	Yes			Frequent	Herb	10
		<i>Campanula rotundifolia</i>	Bluebell-of-Scotland	Yes	FACU	3	Uncommon	Herb	6
		<i>Carex eburnea</i>	Brittle-Leaf Sedge	Yes	FACU	3	Locally Common	Herb	7
		<i>Carex stricta</i>	Uptight Sedge	Yes	OBL	-5	Abundant	Herb	4
		<i>Centaurea maculosa</i>	Spotted Knapweed	No*			Frequent	Herb	0
		<i>Coronilla varia</i> (<i>Securigera</i> v.)	Crown-Vetch	No*			Local	Herb	0
		<i>Elaeagnus umbellata</i>	Autumn Olive	No*	[UPL]	5	Occasional	Shrub	0
		<i>Euthamia graminifolia</i>	Flat-Top Goldentop	Yes	FAC	0	Uncommon	Herb	3
		<i>Juniperus communis</i>	Common Juniper	Yes	FACU	3	Uncommon	Shrub	4
		<i>Lathyrus japonicus</i> (<i>L. maritimus</i>)	Sea Vetchling	Yes	FACU	3	Local	Herb	10
		<i>Melilotus alba</i>	White Sweetclover	No	[UPL]	5	Uncommon	Herb	0
		<i>Oenothera oakesiana</i>	Oakes' Evening-primrose	Yes			Uncommon	Herb	8
		<i>Panicum virgatum</i>	Wand Panic Grass	Yes	FAC	0	Uncommon	Herb	4
		<i>Pinus banksiana</i>	Jack Pine	Yes	FACU	3	Uncommon	Tree	5
		<i>Pinus sylvestris</i>	Scotch Pine	No*			Uncommon	Tree	0
		<i>Plantago lanceolata</i>	English Plantain	No	FACU	3	Uncommon	Herb	0

King and MacGregor Environmental, Inc. / 15023

1

"*" denotes Invasive Species

Plant Species List for Ludington Hydroelectric - Consumers Energy

27-28 August 2015

SITE	SITE DESCRIPTION	SCIENTIFIC NAME	ENGLISH NAME	NATIVE?	WETL. IND. CODE	WETL. IND. NO.	ABUNDANCE	GROWTH HABIT	COEFF. OF CONSERV.
1	North beach. Low dunes.	Poa compressa	Flat-Stem Blue Grass	No	FACU	3	Locally Common	Herb	0
		Populus balsamifera	Balsam Poplar	Yes	FACW	-3	Occasional	Tree	2
		Populus deltoides	Cottonwood	Yes	FAC	0	Local	Tree	1
		Prunus virginiana	Choke Cherry	Yes	FACU	3	Uncommon	Shrub	2
		Robinia pseudoacacia	Black Locust	No*	FACU	3	Local	Tree	0
		Salix amygdaloides	Peach-Leaf Willow	Yes	FACW	-3	Uncommon	Tree	3
		Salix cordata (S. syrticola)	Heart-Leaf Willow	Yes	FAC	0	Frequent	Shrub	10
		Salix eriocephala (S. rigida)	Missouri Willow	Yes	FACW	-3	Uncommon	Shrub	2
		Salix interior (S. exigua)	Sandbar Willow	Yes	FACW	-3	Occasional	Shrub	1
		Salix lucida	Shining Willow	Yes	FACW	-3	Uncommon	Shrub	3
		Salix myricoides (S. glaucophylloides)	Bayberry Willow	Yes	FACW	-3	Occasional	Shrub	9
		Schizachyrium scoparium (Andropogon s.)	Little False Bluestem	Yes	FACU	3	Uncommon	Herb	5
		Sedum album	Stonecrop	No			Uncommon	Herb	0
		Shepherdia canadensis	Russet Buffalo-Berry	Yes	UPL	5	Uncommon	Shrub	7
		Silene vulgaris (S. cucuballus)	Bladder-Campion	No			Frequent	Herb	0
		Solidago altissima	Tall Goldenrod	Yes	FACU	3	Local	Herb	1
		Solidago simplex (S. spathulata)	Mt. Albert Goldenrod	Yes	FACU	3	Occasional	Herb	10
		Thuja occidentalis	Eastern Arborvitae	Yes	FACW	-3	Uncommon	Tree	4
		Toxicodendron rydbergii	Western Poison-Ivy	Yes	FAC	0	Uncommon	Herb	3
		Verbascum thapsus	Great Mullein	No*	UPL	5	Local	Herb	0
		Vitis riparia	Riverbank Grape	Yes	FAC	0	Uncommon	Vine	3

Count: 43

Average: 3.7

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1	North beach. Interdunal swale.	Argentina anserina (Potentilla a.)	Common Silverweed	Yes	FACW	-3	Uncommon	Herb	5
		Calamagrostis canadensis	Bluejoint	Yes	OBL	-5	Occasional	Herb	3
		Carex eburnea	Brittle-Leaf Sedge	Yes	FACU	3	Locally Common	Herb	7
		Dichanthelium implicatum (Panicum i.)	Folded Panic Grass	Yes	[FAC]	0	Local	Herb	3
		Juncus arcticus (J. balticus)	Arctic Rush	Yes	OBL	-5	Local	Herb	4
		Juncus brachycephalus	Small-Head Rush	Yes	OBL	-5	Locally Common	Herb	7
		Packera paupercula (Senecio p.)	Balsam Groundsel	Yes	FAC	0	Uncommon	Herb	3
Count: 7								Average: 4.6	
2	North beach. Steep wooded bluff.	Arctostaphylos uva-ursi	Red Bearberry	Yes	UPL	5	ommon	Herb	8
		Betula papyrifera	Paper Birch	Yes	FACU	3	Occasional	Tree	2
		Bromus inermis	Smooth Brome	No*	UPL	5	Very Common	Herb	0
		Crataegus sp.	Hawthorn	Yes			Uncommon	Tree	4
		Daucus carota	Queen Anne's-Lace	No*	UPL	5	Occasional	Herb	0
		Elaeagnus umbellata	Autumn Olive	No*	[UPL]	5	Common	Shrub	0
		Festuca arundinacea (F. elatior)	Tall Fescue	No	FACU	3	Local	Herb	0
		Juniperus communis	Common Juniper	Yes	FACU	3	Frequent	Shrub	4

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2	North beach. Steep wooded bluff.	Melilotus alba	White Sweetclover	No	[UPL]	5	Uncommon	Herb	0
		Monarda fistulosa	Oswego-Tea	Yes	FACU	3	Occasional	Herb	2
		Pinus banksiana	Jack Pine	Yes	FACU	3	Locally Common	Tree	5
		Pinus sylvestris	Scotch Pine	No*			Uncommon	Tree	0
		Shepherdia canadensis	Russet Buffalo-Berry	Yes	UPL	5	Occasional	Shrub	7
		Thuja occidentalis	Eastern Arborvitae	Yes	FACW	-3	Frequent	Tree	4
		Count: 14							Average: 2.6
3	South beach. Steep wooded bluff.	Betula papyrifera	Paper Birch	Yes	FACU	3	Common	Tree	2
		Carex eburnea	Brittle-Leaf Sedge	Yes	FACU	3	Locally Common	Herb	7
		Daucus carota	Queen Anne's-Lace	No*	UPL	5	Occasional	Herb	0
		Elaeagnus umbellata	Autumn Olive	No*	[UPL]	5	Occasional	Shrub	0
		Fallopia japonica (Polygonum cuspidatum)	Japanese Knotweed	No*	FACU	3	Local	Herb	0
		Fraxinus americana	White Ash	Yes	FACU	3	Occasional	Tree	5
		Lonicera morrowii	Morrow's Honeysuckle	No*	FACU	3	Uncommon	Shrub	0
		Melilotus alba	White Sweetclover	No	[UPL]	5	Occasional	Herb	0
		Monarda fistulosa	Oswego-Tea	Yes	FACU	3	Occasional	Herb	2
		Poa compressa	Flat-Stem Blue Grass	No	FACU	3	Locally Common	Herb	0
		Thuja occidentalis	Eastern Arborvitae	Yes	FACW	-3	Common	Tree	4

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3	South beach. Steep wooded bluff.	Ulmus rubra	Slippery Elm	Yes	FAC	0	Occasional	Tree	2
		Vitis riparia	Riverbank Grape	Yes	FAC	0	Occasional	Vine	3
		Count: 13							Average: 1.9
4	South beach. Swale.	Agrostis gigantea (A. alba)	Black Bent (Redtop)	No	FACW	-3	Common	Herb	0
		Betula papyrifera	Paper Birch	Yes	FACU	3	Occasional	Tree	2
		Carex eburnea	Brittle-Leaf Sedge	Yes	FACU	3	Uncommon	Herb	7
		Carex stricta	Uptight Sedge	Yes	OBL	-5	Abundant	Herb	4
		Cladium mariscoides	Smooth Saw-Grass	Yes	OBL	-5	Locally Common	Herb	10
		Daucus carota	Queen Anne's-Lace	No*	UPL	5	Occasional	Herb	0
		Equisetum laevigatum	Smooth Scouring-Rush	Yes	FACW	-3	Frequent	Herb	2
		Euthamia graminifolia	Flat-Top Goldentop	Yes	FAC	0	Locally Common	Herb	3
		Populus tremuloides	Quaking Aspen	Yes	FACU	3	Uncommon	Tree	1
		Schizachyrium scoparium (Andropogon s.)	Little False Bluestem	Yes	FACU	3	Frequent	Herb	5
		Shepherdia canadensis	Russet Buffalo-Berry	Yes	UPL	5	Occasional	Shrub	7
		Solidago altissima	Tall Goldenrod	Yes	FACU	3	Uncommon	Herb	1
Count: 12							Average: 3.5		
4	South beach. Low dunes.	Achillea millefolium	Common Yarrow	No	FACU	3	Uncommon	Herb	1

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4	South beach. Low dunes.	<i>Ammophila breviligulata</i>	American Beach Grass	Yes	UPL	5	Abundant	Herb	10
		<i>Artemisia campestris</i>	Beach Wormwood	Yes			Occasional	Herb	5
		<i>Asclepias syriaca</i>	Common Milkweed	Yes	UPL	5	Frequent	Herb	1
		<i>Centaurea maculosa</i>	Spotted Knapweed	No*			Uncommon	Herb	0
		<i>Chamaesyce polygonifolia</i> (Euphorbia p.)	Seaside Sandmat	Yes	UPL	5	Local	Herb	10
		<i>Cichorium intybus</i>	Chicory	No	FACU	3	Uncommon	Herb	0
		<i>Cornus alba</i> (C. stolonifera)	Red Osier	Yes	FACW	-3	Uncommon	Shrub	2
		<i>Coronilla varia</i> (Securigera v.)	Crown-Vetch	No*			Local	Herb	0
		<i>Cycloloma atriplicifolium</i>	Winged Pigweed	No			Uncommon	Herb	0
		<i>Elymus canadensis</i>	Canada Wild-rye	Yes	FAC	0	Uncommon	Herb	7
		<i>Equisetum laevigatum</i>	Smooth Scouring-Rush	Yes	FACW	-3	Uncommon	Herb	2
		<i>Euthamia graminifolia</i>	Flat-Top Goldentop	Yes	FAC	0	Uncommon	Herb	3
		<i>Frangula alnus</i> (Rhamnus f.)	Glossy False Buckthorn	No*	FAC	0	Uncommon	Shrub	0
		<i>Juncus arcticus</i> (J. balticus)	Arctic Rush	Yes	OBL	-5	Local	Herb	4
		<i>Melilotus alba</i>	White Sweetclover	No	[UPL]	5	Uncommon	Herb	0
		<i>Monarda punctata</i>	Spotted Beebalm	Yes	UPL	5	Uncommon	Herb	4
		<i>Oenothera oakesiana</i>	Oakes' Evening-primrose	Yes			Uncommon	Herb	8
		<i>Phalaris arundinacea</i>	Reed Canary Grass	No*	FACW	-3	Uncommon	Herb	0
		<i>Pinus sylvestris</i>	Scotch Pine	No*			Uncommon	Tree	0
		<i>Polanisia dodecandra</i>	Red-Wisker Clammyweed	Yes	UPL	5	Uncommon	Herb	5
		<i>Populus deltoides</i>	Cottonwood	Yes	FAC	0	Uncommon	Tree	1
		<i>Salix cordata</i> (S. syrticola)	Heart-Leaf Willow	Yes	FAC	0	Uncommon	Shrub	10

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4	South beach. Low dunes.	Salix interior (S. exigua)	Sandbar Willow	Yes	FACW	-3	Occasional	Shrub	1
		Salix petiolaris	Meadow Willow	Yes	FACW	-3	Uncommon	Shrub	1
		Saponaria officinalis	Bouncing-Bett	No	FACU	3	Uncommon	Herb	0
		Schizachyrium scoparium (Andropogon s.)	Little False Bluestem	Yes	FACU	3	Occasional	Herb	5
		Shepherdia canadensis	Russet Buffalo-Berry	Yes	UPL	5	Occasional	Shrub	7
		Silene vulgaris (S. cucuballus)	Bladder-Campion	No			Occasional	Herb	0
		Spartina pectinata	Freshwater Cordgrass	Yes	FACW	-3	Local	Herb	5
		Toxicodendron rydbergii	Western Poison-Ivy	Yes	FAC	0	Uncommon	Herb	3
		Verbascum thapsus	Great Mullein	No*	UPL	5	Uncommon	Herb	0
		Count: 32							Average: 3.0
4	South beach stream.	Cladium mariscoides	Smooth Saw-Grass	Yes	OBL	-5	Locally Common	Herb	10
		Epilobium coloratum	Purple-Leaf Willowherb	Yes	OBL	-5	Uncommon	Herb	3
		Salix myricoides (S. glaucophylloides)	Bayberry Willow	Yes	FACW	-3	Frequent	Shrub	9
		Count: 3							Average: 7.3
5	Parking lot woods. Mostly planted spruce.	Acer saccharum	Sugar Maple	Yes	FACU	3	Occasional	Tree	5
		Dactylis glomerata	Orchard Grass	No*	FACU	3	Frequent	Herb	0

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5	Parking lot woods. Mostly planted spruce.	Elaeagnus umbellata	Autumn Olive	No*	[UPL]	5	Locally Common	Shrub	0
		Fraxinus americana	White Ash	Yes	FACU	3	Occasional	Tree	5
		Hypericum perforatum	Common St. John's-Wort	No*	UPL	5	Uncommon	Herb	0
		Morus alba	White Mulberry	No	FACU	3	Uncommon	Tree	0
		Picea glauca	White Spruce	Yes	FACU	3	Locally Common	Tree	3
		Quercus rubra	Northern Red Oak	Yes	FACU	3	Occasional	Tree	5
		Tilia americana	Basswood	Yes	FACU	3	Occasional	Tree	5
		Count: 9						Average: 2.6	
6	Reservoir slope	Achillea millefolium	Common Yarrow	No	FACU	3	Occasional	Herb	1
		Asclepias syriaca	Common Milkweed	Yes	UPL	5	Common	Herb	1
		Bromus inermis	Smooth Brome	No*	UPL	5	Abundant	Herb	0
		Carex sp.	Sedge	Yes			Uncommon	Herb	
		Centaurea maculosa	Spotted Knapweed	No*			Uncommon	Herb	0
		Cichorium intybus	Chicory	No	FACU	3	Uncommon	Herb	0
		Convolvulus arvensis	Field Bindweed	No*			Uncommon	Herb	0
		Dactylis glomerata	Orchard Grass	No*	FACU	3	Occasional	Herb	0
		Daucus carota	Queen Anne's-Lace	No*	UPL	5	Uncommon	Herb	0
		Elaeagnus angustifolia	Russian Olive	No*	FACU	3	Uncommon	Shrub	0
		Elymus repens (Agropyron r.)	Creeping Wild Rye	No	FACU	3	Local	Herb	0
		Hypericum perforatum	Common St. John's-Wort	No*	UPL	5	Occasional	Herb	0

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6	Reservoir slope	Lathyrus latifolius	Everlasting Pea	No			Frequent	Herb	0
		Linaria vulgaris	Butter-And-Eggs	No			Occasional	Herb	0
		Melilotus alba	White Sweetclover	No	[UPL]	5	Occasional	Herb	0
		Verbascum thapsus	Great Mullein	No*	UPL	5	Occasional	Herb	0
		Vicia villosa	Hairy Vetch	No			Uncommon	Herb	0
Count: 17								Average:	0.1
7	Woods of mostly young trees; a few old ones.	Acer saccharum	Sugar Maple	Yes	FACU	3	Locally Common	Tree	5
		Asclepias syriaca	Common Milkweed	Yes	UPL	5	Uncommon	Herb	1
		Barbarea vulgaris	Garden Yellow-Rocket	No*	FAC	0	Local	Herb	0
		Betula papyrifera	Paper Birch	Yes	FACU	3	Common	Tree	2
		Bromus inermis	Smooth Brome	No*	UPL	5	Locally Common	Herb	0
		Carex crinita	Fringed Sedge	Yes	OBL	-5	Uncommon	Herb	4
		Carex rosea (C. convoluta)	Convolute Sedge	Yes			Uncommon	Herb	2
		Carex scoparia	Pointed Broom Sedge	Yes	FACW	-3	Uncommon	Herb	4
		Centaurea maculosa	Spotted Knapweed	No*			Local	Herb	0
		Chondrilla juncea	Skeleton-weed	No			Local	Herb	0
		Cirsium vulgare	Bull Thistle	No*	FACU	3	Uncommon	Herb	0
		Crataegus sp.	Hawthorn	Yes			Occasional	Tree	4
		Daucus carota	Queen Anne's-Lace	No*	UPL	5	Uncommon	Herb	0

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7	Woods of mostly young trees; a few old ones.	<i>Dryopteris carthusiana</i> (D. spinulosa)	Spinulose Wood Fern	Yes	FACW	-3	Uncommon	Herb	5
		<i>Elaeagnus umbellata</i>	Autumn Olive	No*	[UPL]	5	Frequent	Shrub	0
		<i>Fagus grandifolia</i>	American Beech	Yes	FACU	3	Occasional	Tree	6
		<i>Fraxinus americana</i>	White Ash	Yes	FACU	3	Common	Tree	5
		<i>Linaria vulgaris</i>	Butter-And-Eggs	No			Uncommon	Herb	0
		<i>Lonicera morrowii</i>	Morrow's Honeysuckle	No*	FACU	3	Uncommon	Shrub	0
		<i>Malus pumila</i>	Apple	No	[UPL]	5	Uncommon	Tree	0
		<i>Melilotus alba</i>	White Sweetclover	No	[UPL]	5	Uncommon	Herb	0
		<i>Monarda fistulosa</i>	Oswego-Tea	Yes	FACU	3	Locally Common	Herb	2
		<i>Onoclea sensibilis</i>	Sensitive Fern	Yes	FACW	-3	Local	Herb	2
		<i>Ostrya virginiana</i>	Eastern Hop-Hornbeam	Yes	FACU	3	Frequent	Tree	5
		<i>Phalaris arundinacea</i>	Reed Canary Grass	No*	FACW	-3	Uncommon	Herb	0
		<i>Phytolacca americana</i>	American Pokeweed	Yes	FACU	3	Local	Herb	2
		<i>Picea pungens</i>	Blue Spruce	No			Local	Tree	0
		<i>Pinus resinosa</i>	Red Pine	Yes	FACU	3	Local	Tree	6
		<i>Populus deltoides</i>	Cottonwood	Yes	FAC	0	Uncommon	Tree	1
		<i>Prunella vulgaris</i>	Common Selfheal	No	FAC	0	Uncommon	Herb	0
		<i>Prunus serotina</i>	Black Cherry	Yes	FACU	3	Occasional	Tree	2
		<i>Quercus rubra</i>	Northern Red Oak	Yes	FACU	3	Common	Tree	5
		<i>Rhus typhina</i>	Staghorn Sumac	Yes			Uncommon	Shrub	2
		<i>Robinia pseudoacacia</i>	Black Locust	No*	FACU	3	Local	Tree	0

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7	Woods of mostly young trees; a few old ones.	Rubus idaeus ssp. strigosus (R. strigosus)	Common Red Raspberry	Yes	FACU	3	Local	Herb	2
		Rumex obtusifolius	Bitter Dock	No	FAC	0	Uncommon	Herb	0
		Salix interior (S. exigua)	Sandbar Willow	Yes	FACW	-3	Uncommon	Shrub	1
		Salix petiolaris	Meadow Willow	Yes	FACW	-3	Common	Shrub	1
		Sanguinaria canadensis	Bloodroot	Yes	FACU	3	Uncommon	Herb	5
		Scutellaria lateriflora	Mad Dog Skullcap	Yes	OBL	-5	Uncommon	Herb	5
		Silene vulgaris (S. cucuballus)	Bladder-Campion	No			Local	Herb	0
		Solanum dulcamara	Climbing Nightshade	No	FAC	0	Uncommon	Herb	0
		Solidago gigantea	Late Goldenrod	Yes	FACW	-3	Local	Herb	3
		Vitis riparia	Riverbank Grape	Yes	FAC	0	Occasional	Vine	3
Count: 44								Average: 1.9	
8	Woods	Acer saccharum	Sugar Maple	Yes	FACU	3	Very Common	Tree	5
		Berberis thunbergii	Japanese Barberry	No*	FACU	3	Uncommon	Shrub	0
		Elaeagnus umbellata	Autumn Olive	No*	[UPL]	5	Locally Common	Shrub	0
		Fagus grandifolia	American Beech	Yes	FACU	3	Occasional	Tree	6
		Fraxinus americana	White Ash	Yes	FACU	3	Occasional	Tree	5
		Geranium robertianum	Herb-Robert	Yes			Locally Common	Herb	3
		Lonicera morrowii	Morrow's Honeysuckle	No*	FACU	3	Locally Common	Shrub	0
		Malus pumila	Apple	No	[UPL]	5	Uncommon	Tree	0

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8	Woods	Populus grandidentata	Big-Tooth Aspen	Yes	FACU	3	Occasional	Tree	4
		Quercus rubra	Northern Red Oak	Yes	FACU	3	Common	Tree	5
		Viburnum acerifolium	Maple-Leaf Arrow-Wood	Yes	UPL	5	Uncommon	Shrub	6
		Count: 11							Average: 3.1
9	Woods	Actaea pachypoda (A. alba)	White Baneberry	Yes	UPL	5	Uncommon	Herb	7
		Allium tricoccum	Ramp	Yes	FACU	3	Local	Herb	5
		Amphicarpaea bracteata	American Hog-Peanut	Yes	FAC	0	Local	Herb	5
		Arisaema triphyllum	Jack-in-the-Pulpit	Yes	FAC	0	Occasional	Herb	5
		Asparagus officinalis	Asparagus	No	FACU	3	Uncommon	Herb	0
		Athyrium filix-femina	Subarctic Lady Fern	Yes	FAC	0	Uncommon	Herb	4
		Berberis thunbergii	Japanese Barberry	No*	FACU	3	Uncommon	Shrub	0
		Betula papyrifera	Paper Birch	Yes	FACU	3	Uncommon	Tree	2
		Brachyelytrum erectum	Short-glume Grass	Yes	[UPL]	5	Uncommon	Herb	7
		Carex pensylvanica	Pennsylvania Sedge	Yes	[UPL]	5	Locally Common	Herb	4
		Circaea canadensis (C. lutetiana)	Broad-Leaf Enchanter's-Nightshade	Yes	FACU	3	Uncommon	Herb	2
		Dryopteris carthusiana (D. spinulosa)	Spinulose Wood Fern	Yes	FACW	-3	Occasional	Herb	5
		Eurybia macrophylla (Aster m.)	Large-Leaf Wood-Aster	Yes	UPL	5	Uncommon	Herb	4
		Fagus grandifolia	American Beech	Yes	FACU	3	Occasional	Tree	6
		Geranium robertianum	Herb-Robert	Yes			Uncommon	Herb	3

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9	Woods	Hypericum perforatum	Common St. John's-Wort	No*	UPL	5	Uncommon	Herb	0
		Laportea canadensis	Canadian Wood-Nettle	Yes	FACW	-3	Uncommon	Herb	4
		Leonurus cardiaca	Motherwort	No			Uncommon	Herb	0
		Morus alba	White Mulberry	No	FACU	3	Uncommon	Tree	0
		Onoclea sensibilis	Sensitive Fern	Yes	FACW	-3	Uncommon	Herb	2
		Pinus strobus	Eastern White Pine	Yes	FACU	3	Locally Common	Tree	3
		Polystichum acrostichoides	Christmas Fern	Yes	FACU	3	Uncommon	Herb	6
		Ribes cynosbati	Eastern Prickly Gooseberry	Yes	FACU	3	Uncommon	Shrub	4
		Sambucus racemosa ssp. pubens	Red-berried Elder	Yes	FACU	3	Uncommon	Shrub	3
		Solidago caesia	Wreath Goldenrod	Yes	FACU	3	Uncommon	Herb	7
		Thalictrum dioicum	Early Meadow-Rue	Yes	FACU	3	Uncommon	Herb	6
		Thelypteris hexagonoptera	Broad Beech-fern	Yes			Local	Herb	8
		Tilia americana	Basswood	Yes	FACU	3	Uncommon	Tree	5
		Torilis japonica	Hedge-Parsley	No*	[UPL]	5	Uncommon	Herb	0
		Trifolium arvense	Rabbitfoot Clover	No			Local	Herb	0
		Viburnum acerifolium	Maple-Leaf Arrow-Wood	Yes	UPL	5	Local	Shrub	6
		Viola pubescens	Downy Yellow Violet	Yes	FACU	3	Uncommon	Herb	4
Count: 32									Average: 3.7

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10	Portion of Area 10 outside perimeter fence. Mature forest. Interior nearly weed-free.	<i>Acer saccharum</i>	Sugar Maple	Yes	FACU	3	Frequent	Tree	5
		<i>Amphicarpaea bracteata</i>	American Hog-Peanut	Yes	FAC	0	Uncommon	Herb	5
		<i>Aquilegia canadensis</i>	Red Columbine	Yes	FACU	3	Uncommon	Herb	5
		<i>Carex deweyana</i>	Dewey's Sedge	Yes	FACU	3	Occasional	Herb	3
		<i>Carex laxiflora</i>	Broad Loose-Flower Sedge	Yes	UPL	5	Frequent	Herb	8
		<i>Carex pensylvanica</i>	Pennsylvania Sedge	Yes	[UPL]	5	Uncommon	Herb	4
		<i>Carex rosea</i> (C. convoluta)	Convolute Sedge	Yes			Uncommon	Herb	2
		<i>Carex</i> sp.	Sedge	Yes			Uncommon	Herb	
		<i>Circaea canadensis</i> (C. lutetiana)	Broad-Leaf Enchanter's-Nightshade	Yes	FACU	3	Uncommon	Herb	2
		<i>Corallorhiza striata</i>	Hooded Coralroot	Yes	FACU	3	Uncommon	Herb	6
		<i>Eurybia macrophylla</i> (Aster m.)	Large-Leaf Wood-Aster	Yes	UPL	5	Local	Herb	4
		<i>Fagus grandifolia</i>	American Beech	Yes	FACU	3	Occasional	Tree	6
		<i>Fraxinus americana</i>	White Ash	Yes	FACU	3	Frequent	Tree	5
		<i>Geranium robertianum</i>	Herb-Robert	Yes			Uncommon	Herb	3
		<i>Juniperus communis</i>	Common Juniper	Yes	FACU	3	Uncommon	Shrub	4
		<i>Lonicera dioica</i>	Limber Honeysuckle	Yes	FACU	3	Uncommon	Shrub	5
		<i>Lonicera morrowii</i>	Morrow's Honeysuckle	No*	FACU	3	Occasional	Shrub	0
		<i>Oryzopsis asperifolia</i>	Rough-leaved Ricegrass	Yes			Uncommon	Herb	6
		<i>Ostrya virginiana</i>	Eastern Hop-Hornbeam	Yes	FACU	3	Occasional	Tree	5
		<i>Pedicularis canadensis</i>	Canadina Lousewort	Yes	FACU	3	Uncommon	Herb	10

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SITE	SITE DESCRIPTION	SCIENTIFIC NAME	ENGLISH NAME	NATIVE?	WETL. IND. CODE	WETL. IND. NO.	ABUNDANCE	GROWTH HABIT	COEFF. OF CONSERV.
10	Portion of Area 10 outside perimeter fence. Mature forest. Interior nearly weed-free.	<i>Picea glauca</i>	White Spruce	Yes	FACU	3	Uncommon	Tree	3
		<i>Pinus resinosa</i>	Red Pine	Yes	FACU	3	Uncommon	Tree	6
		<i>Pinus strobus</i>	Eastern White Pine	Yes	FACU	3	Local	Tree	3
		<i>Poa compressa</i>	Flat-Stem Blue Grass	No	FACU	3	Uncommon	Herb	0
		<i>Polygonatum pubescens</i>	Downy Solomon's-seal	Yes			Uncommon	Herb	5
		<i>Polystichum acrostichoides</i>	Christmas Fern	Yes	FACU	3	Uncommon	Herb	6
		<i>Prenanthes altissima</i>	Tall Rattlesnake-Root	Yes	FACU	3	Uncommon	Herb	5
		<i>Prunus serotina</i>	Black Cherry	Yes	FACU	3	Uncommon	Tree	2
		<i>Pteridium aquilinum</i>	Northern Bracken Fern	Yes	FACU	3	Locally Common	Herb	0
		<i>Quercus rubra</i>	Northern Red Oak	Yes	FACU	3	Very Common	Tree	5
		<i>Ribes cynosbati</i>	Eastern Prickly Gooseberry	Yes	FACU	3	Uncommon	Shrub	4
		<i>Rubus allegheniensis</i>	Allegheny Blackberry	Yes	FACU	3	Locally Common	Herb	1
		<i>Sanicula odorata</i> (S. gregaria)	Clustered Black-Snakeroot	Yes	FAC	0	Uncommon	Herb	2
		<i>Saponaria officinalis</i>	Bouncing-Bett	No	FACU	3	Local	Herb	0
		<i>Sassafras albidum</i>	Sassafras	Yes	FACU	3	Uncommon	Tree	5
		<i>Solidago caesia</i>	Wreath Goldenrod	Yes	FACU	3	Occasional	Herb	7
		<i>Tilia americana</i>	Basswood	Yes	FACU	3	Uncommon	Tree	5
		<i>Torilis japonica</i>	Hedge-Parsley	No*	[UPL]	5	Local	Herb	0
		<i>Tsuga canadensis</i>	Eastern Hemlock	Yes	FACU	3	Locally Common	Tree	5
		<i>Viburnum acerifolium</i>	Maple-Leaf Arrow-Wood	Yes	UPL	5	Common	Shrub	6

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10	Portion of Area 10 outside perimeter fence. Mature forest. Interior nearly weed-free.	Viola pubescens	Downy Yellow Violet	Yes	FACU	3	Uncommon	Herb	4
		Count: 41							
									Average: 4.1
10	Portion of Area 10 inside perimeter fence	Acer saccharum	Sugar Maple	Yes	FACU	3	Frequent	Tree	5
		Betula papyrifera	Paper Birch	Yes	FACU	3	Local	Tree	2
		Dactylis glomerata	Orchard Grass	No*	FACU	3	Occasional	Herb	0
		Elaeagnus umbellata	Autumn Olive	No*	[UPL]	5	Locally Common	Shrub	0
		Fagus grandifolia	American Beech	Yes	FACU	3	Occasional	Tree	6
		Fraxinus americana	White Ash	Yes	FACU	3	Uncommon	Tree	5
		Ostrya virginiana	Eastern Hop-Hornbeam	Yes	FACU	3	Uncommon	Tree	5
		Poa compressa	Flat-Stem Blue Grass	No	FACU	3	Locally Common	Herb	0
		Populus grandidentata	Big-Tooth Aspen	Yes	FACU	3	Uncommon	Tree	4
		Quercus rubra	Northern Red Oak	Yes	FACU	3	Common	Tree	5
		Count: 10							
									Average: 3.2
11	Woods	Abies balsamea	Balsam Fir	Yes	FAC	0	Uncommon	Tree	3
		Acer saccharum	Sugar Maple	Yes	FACU	3	Common	Tree	5
		Aquilegia canadensis	Red Columbine	Yes	FACU	3	Uncommon	Herb	5

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11	Woods	Arisaema triphyllum	Jack-in-the-Pulpit	Yes	FAC	0	Uncommon	Herb	5
		Asclepias syriaca	Common Milkweed	Yes	UPL	5	Uncommon	Herb	1
		Bromus inermis	Smooth Brome	No*	UPL	5	Local	Herb	0
		Carex laxiflora	Broad Loose-Flower Sedge	Yes	UPL	5	Occasional	Herb	8
		Carex pensylvanica	Pennsylvania Sedge	Yes	[UPL]	5	Locally Common	Herb	4
		Carya cordiformis	Bitter-Nut Hickory	Yes	FAC	0	Uncommon	Tree	5
		Centaurea maculosa	Spotted Knapweed	No*			Uncommon	Herb	0
		Daucus carota	Queen Anne's-Lace	No*	UPL	5	Uncommon	Herb	0
		Elaeagnus umbellata	Autumn Olive	No*	[UPL]	5	Locally Common	Shrub	0
		Eurybia macrophylla (Aster m.)	Large-Leaf Wood-Aster	Yes	UPL	5	Occasional	Herb	4
		Fraxinus americana	White Ash	Yes	FACU	3	Uncommon	Tree	5
		Juglans cinerea	White Walnut	Yes	FACU	3	Uncommon	Tree	5
		Lonicera morrowii	Morrow's Honeysuckle	No*	FACU	3	Locally Common	Shrub	0
		Monarda fistulosa	Oswego-Tea	Yes	FACU	3	Local	Herb	2
		Phalaris arundinacea	Reed Canary Grass	No*	FACW	-3	Locally Common	Herb	0
		Phleum pratense	Common Timothy	No	FACU	3	Uncommon	Herb	0
		Picea glauca	White Spruce	Yes	FACU	3	Local	Tree	3
		Picea glauca	White Spruce	Yes	FACU	3	Occasional	Tree	3
		Poa compressa	Flat-Stem Blue Grass	No	FACU	3	Locally Common	Herb	0
		Populus grandidentata	Big-Tooth Aspen	Yes	FACU	3	Locally Common	Tree	4
		Prunus serotina	Black Cherry	Yes	FACU	3	Uncommon	Tree	2
		Prunus virginiana	Choke Cherry	Yes	FACU	3	Uncommon	Shrub	2

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11	Woods	Pteridium aquilinum	Northern Bracken Fern	Yes	FACU	3	Local	Herb	0
		Quercus rubra	Northern Red Oak	Yes	FACU	3	Very Common	Tree	5
		Rhus typhina	Staghorn Sumac	Yes			Uncommon	Shrub	2
		Rubus occidentalis	Black Raspberry	Yes			Local	Shrub	1
		Salix interior (S. exigua)	Sandbar Willow	Yes	FACW	-3	Local	Shrub	1
		Sanguinaria canadensis	Bloodroot	Yes	FACU	3	Uncommon	Herb	5
		Solidago altissima	Tall Goldenrod	Yes	FACU	3	Local	Herb	1
		Solidago caesia	Wreath Goldenrod	Yes	FACU	3	Occasional	Herb	7
		Thalictrum dioicum	Early Meadow-Rue	Yes	FACU	3	Uncommon	Herb	6
		Tilia americana	Basswood	Yes	FACU	3	Uncommon	Tree	5
		Uvularia grandiflora	Bellwort	Yes			Local	Herb	5
		Viola pubescens	Downy Yellow Violet	Yes	FACU	3	Uncommon	Herb	4
		Vitis riparia	Riverbank Grape	Yes	FAC	0	Uncommon	Vine	3
		Count: 38							Average: 2.9
12	Narrow band of woods	Acer saccharum	Sugar Maple	Yes	FACU	3	Frequent	Tree	5
		Arisaema triphyllum	Jack-in-the-Pulpit	Yes	FAC	0	Occasional	Herb	5
		Berberis thunbergii	Japanese Barberry	No*	FACU	3	Uncommon	Shrub	0
		Bromus inermis	Smooth Brome	No*	UPL	5	Locally Common	Herb	0
		Elaeagnus umbellata	Autumn Olive	No*	[UPL]	5	Local	Shrub	0
		Fagus grandifolia	American Beech	Yes	FACU	3	Frequent	Tree	6

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12	Narrow band of woods	Fraxinus americana	White Ash	Yes	FACU	3	Uncommon	Tree	5
		Linaria vulgaris	Butter-And-Eggs	No			Uncommon	Herb	0
		Lonicera morrowii	Morrow's Honeysuckle	No*	FACU	3	Frequent	Shrub	0
		Melilotus alba	White Sweetclover	No	[UPL]	5	Uncommon	Herb	0
		Prunus serotina	Black Cherry	Yes	FACU	3	Uncommon	Tree	2
		Quercus rubra	Northern Red Oak	Yes	FACU	3	Common	Tree	5
		Rhus typhina	Staghorn Sumac	Yes			Uncommon	Shrub	2
		Robinia pseudoacacia	Black Locust	No*	FACU	3	Uncommon	Tree	0
		Solidago gigantea	Late Goldenrod	Yes	FACW	-3	Local	Herb	3
		Ulmus rubra	Slippery Elm	Yes	FAC	0	Uncommon	Tree	2
		Vicia cracca	Bird Vetch	No			Uncommon	Herb	0
Count: 17								Average: 2.1	
14	Woods on east side of disc golf parking lot	Acer saccharum	Sugar Maple	Yes	FACU	3	Occasional	Tree	5
		Actaea pachypoda (A. alba)	White Baneberry	Yes	UPL	5	Uncommon	Herb	7
		Allium tricoccum	Ramp	Yes	FACU	3	Local	Herb	5
		Aralia nudicaulis	Wild Sarsaparilla	Yes	FACU	3	Uncommon	Herb	5
		Berberis thunbergii	Japanese Barberry	No*	FACU	3	Uncommon	Shrub	0
		Betula papyrifera	Paper Birch	Yes	FACU	3	Locally Common	Tree	2
		Carex arctata	Bear Sedge	Yes			Uncommon	Herb	3

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14	Woods on east side of disc golf parking lot	Carex rosea (C. convoluta)	Convolute Sedge	Yes			Uncommon	Herb	2
		Caulophyllum thalictroides	Blue Cohosh	Yes			Uncommon	Herb	5
		Circaea canadensis (C. lutetiana)	Broad-Leaf Enchanter's-Nightshade	Yes	FACU	3	Uncommon	Herb	2
		Cornus alternifolia	Alternate-Leaf Dogwood	Yes	FACU	3	Uncommon	Tree	5
		Cornus rugosa	Round-Leaf Dogwood	Yes			Uncommon	Shrub	6
		Dirca palustris	Eastern Leatherwood	Yes	FAC	0	Locally Common	Shrub	8
		Elaeagnus umbellata	Autumn Olive	No*	[UPL]	5	Locally Common	Shrub	0
		Elymus hystrix (Hystrix patula)	Eastern Bottle-Brush Grass	Yes	FACU	3	Frequent	Herb	5
		Eurybia macrophylla (Aster m.)	Large-Leaf Wood-Aster	Yes	UPL	5	Local	Herb	4
		Lonicera morrowii	Morrow's Honeysuckle	No*	FACU	3	Occasional	Shrub	0
		Maianthemum canadense	False Lily-of-the-Valley	Yes	FACU	3	Uncommon	Herb	4
		Ostrya virginiana	Eastern Hop-Hornbeam	Yes	FACU	3	Occasional	Tree	5
		Picea glauca	White Spruce	Yes	FACU	3	Local	Tree	3
		Polystichum acrostichoides	Christmas Fern	Yes	FACU	3	Uncommon	Herb	6
		Prunus serotina	Black Cherry	Yes	FACU	3	Occasional	Tree	2
		Prunus virginiana	Choke Cherry	Yes	FACU	3	Locally Common	Shrub	2
		Quercus rubra	Northern Red Oak	Yes	FACU	3	Common	Tree	5
		Rhus typhina	Staghorn Sumac	Yes			Locally Common	Shrub	2
		Solidago caesia	Wreath Goldenrod	Yes	FACU	3	Occasional	Herb	7
		Solidago gigantea	Late Goldenrod	Yes	FACW	-3	Local	Herb	3
		Thalictrum dioicum	Early Meadow-Rue	Yes	FACU	3	Uncommon	Herb	6

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14	Woods on east side of disc golf parking lot	Tilia americana	Basswood	Yes	FACU	3	Occasional	Tree	5
		Toxicodendron rydbergii	Western Poison-Ivy	Yes	FAC	0	Occasional	Herb	3
		Tsuga canadensis	Eastern Hemlock	Yes	FACU	3	Uncommon	Tree	5
		Viburnum acerifolium	Maple-Leaf Arrow-Wood	Yes	UPL	5	Common	Shrub	6
		Viburnum rafinesquianum	Rafinesque's Viburnum	Yes			Uncommon	Herb	5
		Viola pubescens	Downy Yellow Violet	Yes	FACU	3	Occasional	Herb	4
Count: 34								Average: 4.0	
15	Woods	Acer saccharum	Sugar Maple	Yes	FACU	3	Common	Tree	5
		Actaea pachypoda (A. alba)	White Baneberry	Yes	UPL	5	Uncommon	Herb	7
		Allium tricoccum	Ramp	Yes	FACU	3	Occasional	Herb	5
		Betula papyrifera	Paper Birch	Yes	FACU	3	Uncommon	Tree	2
		Carex pensylvanica	Pennsylvania Sedge	Yes	[UPL]	5	Local	Herb	4
		Cornus alternifolia	Alternate-Leaf Dogwood	Yes	FACU	3	Occasional	Tree	5
		Dirca palustris	Eastern Leatherwood	Yes	FAC	0	Local	Shrub	8
		Epipactis helleborine	Helleborine	No	UPL	5	Uncommon	Herb	0
		Eurybia macrophylla (Aster m.)	Large-Leaf Wood-Aster	Yes	UPL	5	Uncommon	Herb	4
		Fagus grandifolia	American Beech	Yes	FACU	3	Occasional	Tree	6
		Fraxinus americana	White Ash	Yes	FACU	3	Uncommon	Tree	5
		Ostrya virginiana	Eastern Hop-Hornbeam	Yes	FACU	3	Frequent	Tree	5

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15	Woods	Polystichum acrostichoides	Christmas Fern	Yes	FACU	3	Occasional	Herb	6
		Prunus serotina	Black Cherry	Yes	FACU	3	Occasional	Tree	2
		Prunus virginiana	Choke Cherry	Yes	FACU	3	Uncommon	Shrub	2
		Quercus rubra	Northern Red Oak	Yes	FACU	3	Very Common	Tree	5
		Solidago gigantea	Late Goldenrod	Yes	FACW	-3	Local	Herb	3
		Thalictrum dioicum	Early Meadow-Rue	Yes	FACU	3	Uncommon	Herb	6
		Tsuga canadensis	Eastern Hemlock	Yes	FACU	3	Uncommon	Tree	5
		Uvularia grandiflora	Bellwort	Yes			Uncommon	Herb	5
		Viburnum acerifolium	Maple-Leaf Arrow-Wood	Yes	UPL	5	Occasional	Shrub	6
		Count: 21							Average: 4.6
16	Woods	Acer negundo	Ash-Leaf Maple	Yes	FAC	0	Uncommon	Tree	0
		Acer saccharum	Sugar Maple	Yes	FACU	3	Frequent	Tree	5
		Actaea pachypoda (A. alba)	White Baneberry	Yes	UPL	5	Occasional	Herb	7
		Aquilegia canadensis	Red Columbine	Yes	FACU	3	Uncommon	Herb	5
		Aralia nudicaulis	Wild Sarsaparilla	Yes	FACU	3	Locally Common	Herb	5
		Betula papyrifera	Paper Birch	Yes	FACU	3	Uncommon	Tree	2
		Betula pendula	European White Birch	No	[UPL]	5	Locally Common	Tree	0
		Carex eburnea	Brittle-Leaf Sedge	Yes	FACU	3	Uncommon	Herb	7
		Carex pensylvanica	Pennsylvania Sedge	Yes	[UPL]	5	Locally Common	Herb	4

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16	Woods	Circaea canadensis (C. lutetiana)	Broad-Leaf Enchanter's-Nightshade	Yes	FACU	3	Uncommon	Herb	2
		Cornus rugosa	Round-Leaf Dogwood	Yes			Uncommon	Shrub	6
		Dactylis glomerata	Orchard Grass	No*	FACU	3	Local	Herb	0
		Daucus carota	Queen Anne's-Lace	No*	UPL	5	Uncommon	Herb	0
		Elaeagnus umbellata	Autumn Olive	No*	[UPL]	5	Local	Shrub	0
		Epipactis helleborine	Helleborine	No	UPL	5	Uncommon	Herb	0
		Eurybia macrophylla (Aster m.)	Large-Leaf Wood-Aster	Yes	UPL	5	Frequent	Herb	4
		Fagus grandifolia	American Beech	Yes	FACU	3	Uncommon	Tree	6
		Fraxinus americana	White Ash	Yes	FACU	3	Uncommon	Tree	5
		Geranium robertianum	Herb-Robert	Yes			Uncommon	Herb	3
		Hypochaeris radicata	Hairy Cat's-Ear	No	FACU	3	Uncommon	Herb	0
		Lonicera morrowii	Morrow's Honeysuckle	No*	FACU	3	Uncommon	Shrub	0
		Maianthemum canadense	False Lily-of-the-Valley	Yes	FACU	3	Uncommon	Herb	4
		Maianthemum racemosum (Smilacina r.)	Feathery False Solomon's-Seal	Yes	FACU	3	Uncommon	Herb	5
		Mycelis muralis (Lactuca m.)	Wall Lettuce	No			Uncommon	Herb	0
		Osmorhiza claytonii	Hairy Sweet-Cicely	Yes	FACU	3	Uncommon	Herb	4
		Ostrya virginiana	Eastern Hop-Hornbeam	Yes	FACU	3	Uncommon	Tree	5
		Pedicularis canadensis	Canadina Lousewort	Yes	FACU	3	Local	Herb	10
		Picea glauca	White Spruce	Yes	FACU	3	Locally Common	Tree	3
		Picea pungens	Blue Spruce	No			Locally Common	Tree	0
		Pinus resinosa	Red Pine	Yes	FACU	3	Local	Tree	6

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16	Woods	Pinus strobus	Eastern White Pine	Yes	FACU	3	Uncommon	Tree	3
		Plantago major	Great Plantain	No	FACU	3	Uncommon	Herb	0
		Poa compressa	Flat-Stem Blue Grass	No	FACU	3	Local	Herb	0
		Populus grandidentata	Big-Tooth Aspen	Yes	FACU	3	Uncommon	Tree	4
		Prenanthes alba	White Rattlesnake-Root	Yes	FACU	3	Uncommon	Herb	5
		Prenanthes altissima	Tall Rattlesnake-Root	Yes	FACU	3	Uncommon	Herb	5
		Prunella vulgaris	Common Selfheal	No	FAC	0	Uncommon	Herb	0
		Prunus mahaleb	Perfumed Cherry	No			Uncommon	Tree	0
		Prunus virginiana	Choke Cherry	Yes	FACU	3	Locally Common	Shrub	2
		Quercus rubra	Northern Red Oak	Yes	FACU	3	Very Common	Tree	5
		Robinia pseudoacacia	Black Locust	No*	FACU	3	Local	Tree	0
		Rubus allegheniensis	Allegheny Blackberry	Yes	FACU	3	Uncommon	Herb	1
		Rubus occidentalis	Black Raspberry	Yes			Uncommon	Shrub	1
		Sassafras albidum	Sassafras	Yes	FACU	3	Uncommon	Tree	5
		Silene vulgaris (S. cucuballus)	Bladder-Campion	No			Occasional	Herb	0
		Solidago altissima	Tall Goldenrod	Yes	FACU	3	Uncommon	Herb	1
		Solidago caesia	Wreath Goldenrod	Yes	FACU	3	Locally Common	Herb	7
		Symphotrichum lateriflorum (Aster l.)	Farewell-Summer	Yes	FAC	0	Uncommon	Herb	2
		Viburnum acerifolium	Maple-Leaf Arrow-Wood	Yes	UPL	5	Frequent	Shrub	6
		Viburnum acerifolium	Maple-Leaf Arrow-Wood	Yes	UPL	5	Uncommon	Shrub	6
		Vitis riparia	Riverbank Grape	Yes	FAC	0	Uncommon	Vine	3

Plant Species List for Ludington Hydroelectric - Consumers Energy

27-28 August 2015

SITE	SITE DESCRIPTION	SCIENTIFIC NAME	ENGLISH NAME	NATIVE?	WETL. IND. CODE	WETL. IND. NO.	ABUNDANCE	GROWT H HABIT	COEFF. OF CONSERV.
		Count: 51	Average: 3.0						
17	Campground woods; west side. Younger and more open than east side.	Berberis thunbergii	Japanese Barberry	No*	FACU	3	Uncommon	Shrub	0
		Betula papyrifera	Paper Birch	Yes	FACU	3	Uncommon	Tree	2
		Carex pensylvanica	Pennsylvania Sedge	Yes	[UPL]	5	Locally Common	Herb	4
		Carex sp.	Sedge	Yes			Locally Common	Herb	
		Circaea canadensis (C. lutetiana)	Broad-Leaf Enchanter's-Nightshade	Yes	FACU	3	Uncommon	Herb	2
		Clinopodium vulgare (Satureja v.)	Wild Basil	Yes	[UPL]	5	Uncommon	Herb	3
		Crataegus sp.	Hawthorn	Yes			Uncommon	Tree	4
		Elaeagnus umbellata	Autumn Olive	No*	[UPL]	5	Uncommon	Shrub	0
		Epipactis helleborine	Helleborine	No	UPL	5	Uncommon	Herb	0
		Galium triflorum	Fragrant Bedstraw	Yes	FACU	3	Uncommon	Herb	4
		Geranium robertianum	Herb-Robert	Yes			Local	Herb	3
		Lonicera morrowii	Morrow's Honeysuckle	No*	FACU	3	Uncommon	Shrub	0
		Maianthemum canadense	False Lily-of-the-Valley	Yes	FACU	3	Uncommon	Herb	4
		Malus pumila	Apple	No	[UPL]	5	Uncommon	Tree	0
		Mitchella repens	Partridge-Berry	Yes	FACU	3	Uncommon	Herb	5
		Ostrya virginiana	Eastern Hop-Hornbeam	Yes	FACU	3	Occasional	Tree	5
		Pinus strobus	Eastern White Pine	Yes	FACU	3	Uncommon	Tree	3

Plant Species List for Ludington Hydroelectric - Consumers Energy

27-28 August 2015

Site	Site Description	Scientific Name	English Name	Native?	Wetl. Ind. Code	Wetl. Ind. No.	Abundance	Growth Habit	Coeff. of Conserv.
17	Campground woods; west side. Younger and more open than east side.	Populus grandidentata	Big-Tooth Aspen	Yes	FACU	3	Local	Tree	4
		Populus tremuloides	Quaking Aspen	Yes	FACU	3	Locally Common	Tree	1
		Prenanthes sp.	White-lettuce	Yes			Uncommon	Herb	
		Prunus serotina	Black Cherry	Yes	FACU	3	Uncommon	Tree	2
		Pteridium aquilinum	Northern Bracken Fern	Yes	FACU	3	Uncommon	Herb	0
		Quercus velutina	Black Oak	Yes	UPL	5	Frequent	Tree	6
		Rubus sp.	Bramble	Yes			Frequent	Herb	3
		Sassafras albidum	Sassafras	Yes	FACU	3	Uncommon	Tree	5
		Torilis japonica	Hedge-Parsley	No*	[UPL]	5	Uncommon	Herb	0
		Viburnum acerifolium	Maple-Leaf Arrow-Wood	Yes	UPL	5	Common	Shrub	6
		Viola pubescens	Downy Yellow Violet	Yes	FACU	3	Uncommon	Herb	4
Count: 28								Average: 2.7	
17	Campground woods; east side.	Acer rubrum	Red Maple	Yes	FAC	0	Uncommon	Tree	1
		Acer saccharum	Sugar Maple	Yes	FACU	3	Occasional	Tree	5
		Aralia nudicaulis	Wild Sarsaparilla	Yes	FACU	3	Local	Herb	5
		Elaeagnus umbellata	Autumn Olive	No*	[UPL]	5	Uncommon	Shrub	0
		Fagus grandifolia	American Beech	Yes	FACU	3	Frequent	Tree	6
		Fraxinus americana	White Ash	Yes	FACU	3	Occasional	Tree	5

Plant Species List for Ludington Hydroelectric - Consumers Energy

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SITE	SITE DESCRIPTION	SCIENTIFIC NAME	ENGLISH NAME	NATIVE?	WETL. IND. CODE	WETL. IND. NO.	ABUNDANCE	GROWT H HABIT	COEFF. OF CONSERV.
17	Campground woods; east side.	Impatiens capensis	Spotted Touch-Me-Not	Yes	FACW	-3	Local	Herb	2
		Prunus serotina	Black Cherry	Yes	FACU	3	Uncommon	Tree	2
		Quercus rubra	Northern Red Oak	Yes	FACU	3	Very Common	Tree	5
		Quercus velutina	Black Oak	Yes	UPL	5	Uncommon	Tree	6
		Solidago caesia	Wreath Goldenrod	Yes	FACU	3	Uncommon	Herb	7
		Tsuga canadensis	Eastern Hemlock	Yes	FACU	3	Occasional	Tree	5
		Viburnum acerifolium	Maple-Leaf Arrow-Wood	Yes	UPL	5	Uncommon	Shrub	6
		Count: 13							Average: 4.2
18	Old field succeeding to autumn olive.	Centaurea maculosa	Spotted Knapweed	No*			Occasional	Herb	0
		Daucus carota	Queen Anne's-Lace	No*	UPL	5	Frequent	Herb	0
		Elaeagnus umbellata	Autumn Olive	No*	[UPL]	5	Abundant	Shrub	0
		Festuca arundinacea (F. elatior)	Tall Fescue	No	FACU	3	Abundant	Herb	0
		Linaria vulgaris	Butter-And-Eggs	No			Frequent	Herb	0
		Solidago altissima	Tall Goldenrod	Yes	FACU	3	Common	Herb	1
		Count: 6							Average: 0.2
18	Mature woods	Acer saccharum	Sugar Maple	Yes	FACU	3	Common	Tree	5
		Apocynum androsaemifolium	Spreading Dogbane	Yes	UPL	5	Uncommon	Herb	3

Plant Species List for Ludington Hydroelectric - Consumers Energy

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SITE	SITE DESCRIPTION	SCIENTIFIC NAME	ENGLISH NAME	NATIVE?	WETL. IND. CODE	WETL. IND. NO.	ABUNDANCE	GROWTH HABIT	COEFF. OF CONSERV.
18	Mature woods	Arctium minus	Bur-dock	No*	FACU	3	Uncommon	Herb	0
		Arisaema triphyllum	Jack-in-the-Pulpit	Yes	FAC	0	Local	Herb	5
		Betula papyrifera	Paper Birch	Yes	FACU	3	Uncommon	Tree	2
		Bromus inermis	Smooth Brome	No*	UPL	5	Local	Herb	0
		Carex scabrata	Eastern Rough Sedge	Yes	OBL	-5	Local	Herb	4
		Dactylis glomerata	Orchard Grass	No*	FACU	3	Locally Common	Herb	0
		Elaeagnus umbellata	Autumn Olive	No*	[UPL]	5	Locally Common	Shrub	0
		Eurybia macrophylla (Aster m.)	Large-Leaf Wood-Aster	Yes	UPL	5	Uncommon	Herb	4
		Fagus grandifolia	American Beech	Yes	FACU	3	Occasional	Tree	6
		Fraxinus americana	White Ash	Yes	FACU	3	Uncommon	Tree	5
		Geranium robertianum	Herb-Robert	Yes			Uncommon	Herb	3
		Hamamelis virginiana	Witch-hazel	Yes			Uncommon	Shrub	5
		Impatiens capensis	Spotted Touch-Me-Not	Yes	FACW	-3	Uncommon	Herb	2
		Juglans nigra	Black Walnut	Yes	FACU	3	Uncommon	Tree	5
		Lindera benzoin	Northern Spicebush	Yes	FACW	-3	Occasional	Shrub	7
		Matteucia struthiopteris	Ostrich Fern	Yes	FAC	0	Local	Herb	3
		Mitchella repens	Partridge-Berry	Yes	FACU	3	Uncommon	Herb	5
		Monarda fistulosa	Oswego-Tea	Yes	FACU	3	Local	Herb	2
		Parthenocissus quinquefolia	Virginia-Creeper	Yes	FACU	3	Uncommon	Vine	5
		Phytolacca americana	American Pokeweed	Yes	FACU	3	Locally Common	Herb	2
		Populus grandidentata	Big-Tooth Aspen	Yes	FACU	3	Uncommon	Tree	4
		Pteridium aquilinum	Northern Bracken Fern	Yes	FACU	3	Local	Herb	0

Plant Species List for Ludington Hydroelectric - Consumers Energy

27-28 August 2015

SITE	SITE DESCRIPTION	SCIENTIFIC NAME	ENGLISH NAME	NATIVE?	WETL. IND. CODE	WETL. IND. NO.	ABUNDANCE	GROWTH HABIT	COEFF. OF CONSERV.
18	Mature woods	Quercus rubra	Northern Red Oak	Yes	FACU	3	Very Common	Tree	5
		Rosa multiflora	Rambler Rose	No*	FACU	3	Uncommon	Shrub	0
		Rubus occidentalis	Black Raspberry	Yes			Uncommon	Shrub	1
		Tilia americana	Basswood	Yes	FACU	3	Uncommon	Tree	5
		Torilis japonica	Hedge-Parsley	No*	[UPL]	5	Locally Common	Herb	0
		Tsuga canadensis	Eastern Hemlock	Yes	FACU	3	Occasional	Tree	5
		Count: 30							

Plant Species List for Consumers North Pier Boardwalk - Port Sheldon, Michigan

3 August 2015

SITE	SCIENTIFIC NAME	ENGLISH NAME	NATIVE?	WETL. IND. CODE	WETL. IND. NO.	ABUNDANCE	GROWTH HABIT	COEFF. OF CONSERV.
Along boardwalk	Achillea millefolium	Common Yarrow	No	FACU	1	Local	Herb	1
	Alliaria petiolata	Garlic-Mustard	No*	FACU	2	Uncommon	Herb	0
	Amelanchier arborea	Serviceberry	Yes	FACU	1	Uncommon	Tree	4
	Ammophila breviligulata	American Beach Grass	Yes	UPL	2	Local	Herb	10
	Apocynum cannabinum (incl. A. sibiricum)	Indian-Hemp	Yes	FAC	0	Uncommon	Herb	3
	Artemisia campestris	Beach Wormwood	Yes			Uncommon	Herb	5
	Asclepias syriaca	Common Milkweed	Yes	UPL	2	Local	Herb	1
	Bromus inermis	Smooth Brome	No*	UPL	2	Local	Herb	0
	Bromus pubescens (B. purgans)	Hairy Woodland Brome	Yes	FACU	1	Uncommon	Herb	5
	Calamovilfa longifolia	Dune Reed	Yes			Uncommon	Herb	10
	Carex stricta	Upright Sedge	Yes	OBL	-2	Locally Common	Herb	4
	Centaurea maculosa	Spotted Knapweed	No*			Frequent	Herb	0
	Cirsium vulgare	Bull Thistle	No*	FACU	1	Uncommon	Herb	0
	Coincya monensis	Wallflower Cabbage	No*			Uncommon	Herb	0
	Cornus obliqua (C. amomum ssp. o)	Pale Dogwood	Yes	FACW	-1	Uncommon	Shrub	2
	Coronilla varia (Securigera v.)	Crown-Vetch	No*			Uncommon	Herb	0
	Cycloloma atriplicifolium	Winged Pigweed	No			Local	Herb	0
	Dactylis glomerata	Orchard Grass	No*	FACU	1	Uncommon	Herb	0
	Daucus carota	Queen Anne's-Lace	No*	UPL	2	Local	Herb	0
	Dryopteris marginalis	Marginal Wood Fern	Yes	FACU	1	Uncommon	Herb	5
	Equisetum arvense	Field Horsetail	Yes	FAC	0	Uncommon	Herb	0
	Equisetum laevigatum	Smooth Scouring-Rush	Yes	FACW	-1	Uncommon	Herb	2

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"*" denotes Invasive Species

Plant Species List for Consumers North Pier Boardwalk - Port Sheldon, Michigan

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SITE	SCIENTIFIC NAME	ENGLISH NAME	NATIVE?	WETL. IND. CODE	WETL. IND. NO.	ABUNDANCE	GROWTH HABIT	COEFF. OF CONSERV.
Along boardwalk	Euphorbia corollata	Flowering Spurge	Yes			Uncommon	Herb	5
	Fraxinus pennsylvanica	Green Ash	Yes	FACW	-1	Uncommon	Tree	2
	Hamamelis virginiana	Witch-hazel	Yes			Uncommon	Shrub	5
	Iris virginica	Virginia Blueflag	Yes	OBL	-2	Uncommon	Herb	5
	Lactuca canadensis	Canadian Blue Lettuce	Yes	FACU	1	Uncommon	Herb	2
	Lonicera morrowii	Morrow's Honeysuckle	No*	FACU	1	Uncommon	Shrub	0
	Lythrum salicaria	Purple Loosestrife	No*	OBL	-2	Uncommon	Herb	0
	Melilotus alba	White Sweetclover	No	[UPL]	2	Uncommon	Herb	0
	Monarda fistulosa	Oswego-Tea	Yes	FACU	1	Uncommon	Herb	2
	Monarda punctata	Spotted Beebalm	Yes	UPL	2	Uncommon	Herb	4
	Nepeta cataria	Catnip	No	FACU	1	Uncommon	Herb	0
	Oenothera biennis	King's-Cureall	Yes	FACU	1	Uncommon	Herb	2
	Ostrya virginiana	Eastern Hop-Hornbeam	Yes	FACU	1	Common	Tree	5
	Pedicularis canadensis	Canadina Lousewort	Yes	FACU	1	Uncommon	Herb	10
	Phalaris arundinacea	Reed Canary Grass	No*	FACW	-1	Local	Herb	0
	Pinus strobus	Eastern White Pine	Yes	FACU	1	Uncommon	Tree	3
	Poa compressa	Flat-Stem Blue Grass	No	FACU	1	Local	Herb	0
	Populus tremuloides	Quaking Aspen	Yes	FACU	1	Uncommon	Tree	1
	Prunus virginiana	Choke Cherry	Yes	FACU	1	Uncommon	Shrub	2
	Pteridium aquilinum	Northern Bracken Fern	Yes	FACU	1	Local	Herb	0
	Quercus rubra	Northern Red Oak	Yes	FACU	1	Uncommon	Tree	5
	Robinia pseudoacacia	Black Locust	No*	FACU	1	Locally Common	Tree	0
	Rosa sp.	Rose	No			Local	Shrub	0

Plant Species List for Consumers North Pier Boardwalk - Port Sheldon, Michigan

3 August 2015

SITE	SCIENTIFIC NAME	ENGLISH NAME	NATIVE?	WETL. IND. CODE	WETL. IND. NO.	ABUNDANCE	GROWTH HABIT	COEFF. OF CONSERV.
Along boardwalk	Rubus idaeus ssp. strigosus (R. strigosus)	Common Red Raspberry	Yes	FACU	1	Local	Herb	2
	Salix discolor	Pussy Willow	Yes	FACW	-1	Uncommon	Shrub	1
	Saponaria officinalis	Bouncing-Bett	No	FACU	1	Uncommon	Herb	0
	Sassafras albidum	Sassafras	Yes	FACU	1	Common	Tree	5
	Solidago altissima	Tall Goldenrod	Yes	FACU	1	Uncommon	Herb	1
	Solidago caesia	Wreath Goldenrod	Yes	FACU	1	Occasional	Herb	7
	Spartina pectinata	Freshwater Cordgrass	Yes	FACW	-1	Locally Common	Herb	5
	Stachys tenuifolia (incl. S. hispida)	Smooth Hedge-Nettle	Yes	FACW	-1	Uncommon	Herb	5
	Toxicodendron radicans	Eastern Poison-Ivy	Yes	FAC	0	Uncommon	Vine	2
	Verbascum thapsus	Great Mullein	No*	UPL	2	Uncommon	Herb	0
	Verbena hastata	Simpler's Joy	Yes	FACW	-1	Uncommon	Herb	4
	Vitis aestivalis	Summer Grape	Yes	FACU	1	Uncommon	Herb	6
	Vitis riparia	Riverbank Grape	Yes	FAC	0	Uncommon	Vine	3
	Count: 57							Average: 2.6