



# Ojibway Shores Natural Heritage Inventory/Evaluation



2017

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## Executive Summary

The Essex County Field Naturalists' club, with permission from the Windsor Port Authority, and in partnership with the Detroit River Canadian Cleanup, Citizen Environment Alliance and Essex Region Conservation Authority were given the opportunity to undertake a biological inventory of the Ojibway Shores property. Data was collected solely on a volunteer basis and findings were verified by local experts. Using 4-season data collected from 2014 & 2015 and an Ecological Land Classification in 2016, this report provides a summary of the findings as well as an evaluation of the significance of the property based on provincial guidelines. The purpose of this report is to characterize the natural heritage significance of the property and its inhabitants and is intended to be used as a resource for future discussions on the land-use and fate of Ojibway Shores.

Ten evaluation criteria for 'natural heritage significance of the property' were developed by the study team. Other natural heritage inventories completed across the Province were reviewed in order to assess the current standards for natural heritage inventories and evaluations. Of the 10 criteria considered, Ojibway Shores met 9 of 10 criteria considered to be significant natural heritage. The 'satisfied' criteria were as follows: Significant Wetland, Habitat of Threatened and Endangered Species, Significant Woodlands, Significant Wildlife Habitat, Ecological Function, Diversity, Significant Species, Significant Communities, and Condition. Satisfying even one of the first 5 criteria typically qualifies a property with significant natural heritage. Scoring 9 of 10 possible criteria strongly indicates the importance and potential benefit of preserving a property's natural heritage.

Ojibway Shores, owned by the Windsor Port Authority, is 33.6 acres (13.5 ha) with approximately 500 linear meters of natural (undeveloped) shoreline. The property has a rich history of use, dating back to the 18<sup>th</sup> century. Although the property remains undeveloped, it has seen a number of disturbances (natural and anthropogenic) resulting in areas of varied micro-topography, soils and hydrology. Significant aspects of this property include:

- Last remaining stretch of undeveloped, natural shoreline in Windsor on the Detroit River
- Last remaining opportunity to physically link the Detroit River directly to the Ojibway Complex
- Size and location significant to function as an ecological connection.
- Currently supporting native species from a "soft" shoreline and river bottom.
- Is in close proximity to potential additional shoreline projects.

This area provides ecological linkage to the Detroit River International Wildlife Refuge and the Ojibway Prairie Complex, the latter is home to over 160 provincially rare plants and animals. Ojibway Shores' natural shoreline and Broadway Drain provide movement corridors, allowing species to maintain genetic diversity. The sandy shoreline provides nesting habitat for turtles (including the endangered Spiny Softshell) and the drain provides overwintering habitat for snakes. Total linkage potential from the Detroit River into the Ojibway Complex is approximately 250 acres (101.0 ha) (with a few smaller parcels included). The overall shoreline

potential is over 1250 m (1¼ km) in a natural state or with potential to restore based on ecological design for the bridge plaza complex and the Brighton Beach Power Plant.

Overall, 554 different species were documented on the property (293 fauna, 261 flora) over the course of the inventory. Twenty-eight (28) federally or provincially protected species were identified. A total of 141 species of birds have been documented on the property, over half of the 252 total species recorded in the Ojibway Prairie Complex. This significant number of species in an already species rich area indicates that Ojibway Shores is an important stop-over for migratory birds which includes eight Species at Risk; Bald Eagle, Barn Swallow, Bobolink, Canada Warbler, Common Nighthawk, Peregrine Falcon, Red-headed Woodpecker, and Wood Thrush.

From the 2016 Ecological Land Classification (ELC), 8 distinct vegetation communities were delineated, one of which is provincially rare (FODM7-4 Fresh–Moist Black Walnut Lowland Deciduous Forest, Table 5). By provincial standards, this many vegetation communities are considered to be ‘high diversity’, the second highest category for the ‘potential quality’ of habitat. Coupled with the Provincially Significant Wetland designation on a portion of the property and its direct linkage to other natural areas, Ojibway Shores serves as an important corridor habitat for numerous species that are recognized as rare, threatened and common.

Undertaking this study has provided a unique opportunity to study an unaltered piece of habitat in an otherwise developed area. Despite such close proximity to development and residing in a bi-national Area of Concern (AOC –Detroit River), Ojibway Shores supports a number of species and likely supports many more living adjacent to the property. Given the species diversity and habitat heterogeneity, this property would be a great candidate for preservation and habitat enhancement.

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## I INTRODUCTION

### I.1 Background

Ojibway Shores, owned by the Windsor Port Authority, is 33.6 acres (13.5 ha) with approximately 500 linear meters of natural (undeveloped) shoreline. The additional linkage with city owned lands (including Black Oaks) is an additional 210.3 acres (85.1 ha). Total linkage potential from the Detroit River into the Ojibway Complex is approximately 250 acres (101.0 ha) (with a few smaller parcels included). The overall shoreline potential is over 1250 m (1¼ km) in a natural state or with potential to restore based on ecological design for the bridge plaza complex and the Brighton Beach Power Plant.

Significant aspects of this property include:

- Last remaining stretch of undeveloped, natural shoreline in Windsor on the Detroit River
- Last remaining opportunity to physically link the Detroit River directly to the Ojibway Complex
- Size and location significant to function as an ecological connection.
- Currently supporting native species from a “soft” shoreline and river bottom.
- Is in close proximity to potential additional shoreline projects.

One key element of any land use planning exercise is the completion of a thorough and accurate inventory, characterization and evaluation of any natural heritage features. The intent of this Natural Heritage Inventory is to accurately document and map biological components of Ojibway Shores within the Detroit River watershed, as well as to evaluate the site’s natural heritage significance. This includes completion of biological inventories, vegetation community characterization and mapping, and the documentation of any rare features. The current inventory and evaluation is considered to be an update to previous inventories, assessments and plans. The purpose of this study is to utilize up-to date ecological evaluation protocols including GIS technology, to produce an accurate characterization of the natural heritage features from the standpoint of conservation stewardship (i.e., knowing what we have).

### I.2 Regional Context

Ojibway Shores is located within the City of Windsor in southwest Ontario, the most southerly portion of Canada. This area is in the extreme southwest quadrant of the Carolinian Canada forest zone, which is roughly delineated south of a line running from Grand Bend to Toronto. The climate in this area is heavily moderated by Lake Erie resulting in the highest number of frost-free days and therefore the longest growing season in Ontario, and also receiving limited snowfall (Chapman and Putnam, 1984).

The southerly location and moderate climate of this region is the main reason for the existence of such a unique and diverse ecosystem in Canada. Although the Carolinian forest zone is quite small in comparison with other vegetation zones, it hosts a greater number of floral and faunal species than any other ecosystem in Canada (Carolinian Canada, 2006). It is estimated that

approximately 2,200 species of herbaceous plants are found here including seventy different species of trees alone. Approximately 400 bird species have been recorded in this zone - over half of the bird species in all of Canada (Carolinian Canada, 2006).

Prior to European Settlement, the Essex region was dominated by lush natural areas including Carolinian woodlands, wetlands and Tallgrass prairies. Since this time of settlement in the 1830's, much of the original natural resources of the Essex region have either been removed from the landscape or have become extremely degraded as a direct or indirect result of clearing and drainage for timber, agriculture, and urban development (ERCA, 1986; Oldham, 1983). This has resulted in a degraded ecosystem characterized by a lack of sustainable natural area cover, buffers, large core areas, linkages and corridors. Our region's remaining natural heritage, consisting of small, isolated remnants of forest, wetland, prairie, savanna, alvar, and riparian habitat, constitutes one of the lowest percentages of natural cover of any region in Ontario (Oldham, 1983). It has long been realized that this cumulative loss and alteration of the region's natural heritage (i.e., habitats) since European settlement has had profound consequences on the region's sustainability and ecosystem health, necessitating the need to not only significantly increase the extent of remaining natural habitats, but also the quality.

### 1.3 Sub-watershed Natural Area Composition

The following table and figure summarizes the composition of existing natural areas within the Detroit River sub-watershed, based on the analysis from the Essex Region Natural Heritage System Strategy (ERNHSS) (ERCA, 2013).

Table 1. Detroit River Watershed Sub-watershed Natural Area Composition

<b>Natural Area Composition</b>			
<b>Vegetation Community Type</b>	<b>Hectares</b>	<b>Acres</b>	<b>%</b>
Forest	452.66	1118.53	35.55
Other Terrestrial	10.16	25.11	0.8
Swamp	19.68	48.62	1.55
Marsh	413.04	1020.63	32.44
Open Water	377.59	933.04	29.66
<b>Total Terrestrial Habitat</b>	<b>462.82</b>	<b>1143.64</b>	<b>36.35</b>
<b>Total Wetland Habitat</b>	<b>810.31</b>	<b>2002.30</b>	<b>63.65</b>
<b>Existing Natural Area</b>	<b>1273.12</b>	<b>3145.94</b>	<b>100.00</b>

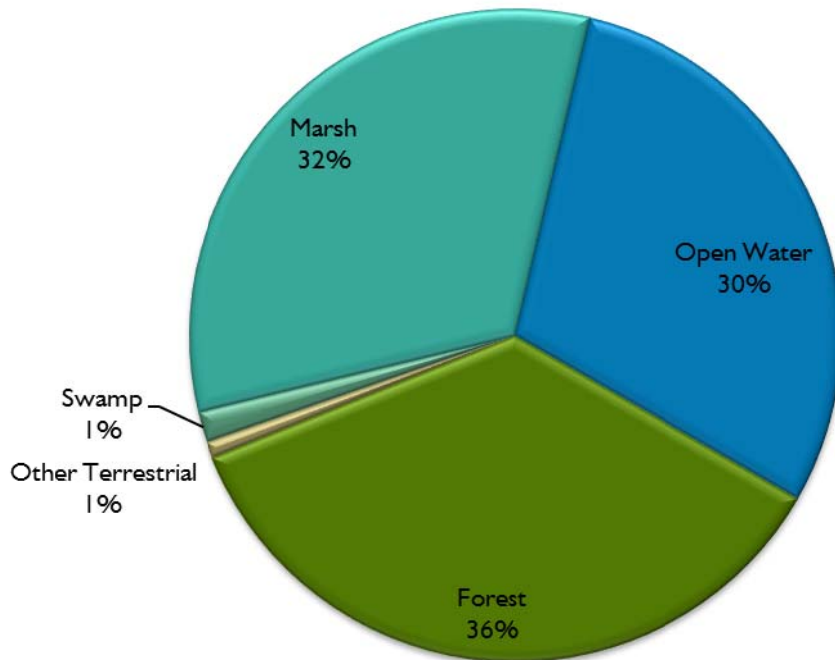


Figure 1. Detroit River Watershed Sub-watershed Natural Area Composition

## 1.4 Study Purpose

The purpose of the Ojibway Shores Biological Inventory and Evaluation Report is to provide a current baseline biological inventory and evaluation in accordance with currently accepted ecological evaluation standards. This exercise will result in a more accurate and up to date assessment of the site's natural heritage significance. This information will be provided to the Windsor Port Authority.

## 2 STUDY METHODS

### 2.1 Study Team

Data collection and analysis for the Ojibway Shores Natural Heritage Inventory and Evaluation was performed by the following team of specialists:

- Fish: Bill Glass, Lynda Corkum, Jesse Gardner-Costa, Katie Stammer, Stephanie Johnson, Tina Suntutres, Jasmine St. Pierre
- Birds: Kory Renaud, Claire Sanders, Tom Preney, Ian Woodfield, Steve Greidanus, Jeff Skevington, John Baker, David McNorton, Essex County Field Naturalists' Club historical data, Karen Hass, Claire McAllister, Phil Roberts

- Flora: Peggy Hurst, Gerry Waldron, Paul Pratt, Karen Cedar, Russ Jones
- Arachnids: Gergin Blagoev
- Herptofauna: Steve Marks
- Invertebrates: Bruce D. Gill, Michelle Dobrin
- Mammals: Essex County Field Naturalists' Club historical data
- Vegetation Community Mapping: Gerry Waldron, Peggy Hurst
- Data analysis and evaluation: Dan Lebedyk, ERCA *Conservation Biologist*
- GIS Technical Support, Analysis and Mapping: Tom Dufour, ERCA *Geomatics/GIS Technician*

## 2.2 Evaluation Criteria

Ten evaluation criteria were developed by the study team. Other natural heritage inventories completed across the Province were reviewed in order to assess the current standards for natural heritage inventories and evaluations.

The significance of a natural heritage area can be determined by assessing not only the number of evaluation criteria fulfilled, but also which of the 10 criteria were fulfilled. The first five criteria are based directly on the significant natural heritage features defined by the Provincial Policy Statement (PPS). If a site fulfilled any one of these criteria, the site is considered significant with respect to the PPS. Sites which fulfill any of the PPS criteria for significance are considered to be more significant than those which fulfill some of the remaining criteria. In addition, it should be noted that sites that fulfill the criteria for Significant Wetland and Significant Habitat of Threatened and Endangered Species are considered to be more significant than those that satisfy the criteria for Significant Woodland, Significant Valleyland or Significant Wildlife Habitat. This is due to the fact that the PPS policies relating to Significant Wetlands and the Significant Habitat of Threatened and Endangered Species are prohibitive with respect to development and site alteration. This is in recognition of the importance and the sensitivity of these types of habitats in the landscape.

The following ten criteria were developed by the study team in order to evaluate the subject property:

**Evaluation Criteria No.1**     ***Significant Wetland*** - These areas are seasonally or permanently covered by shallow water, as well as lands where the water table is close to or at the surface. In either case the presence of abundant water has caused the formation of hydric soils and has favoured the dominance of either hydrophytic plants or water tolerant plants. Provincially Significant Wetlands are identified by the Ontario Ministry of Natural Resources and Forestry (MNRF) utilizing evaluation procedures as established by the Province. Sites with greater than 50% wetland indicators are identified for subsequent application of the Ontario Wetland Evaluation System (OWES) conducted by a certified wetland evaluator in consultation with the MNRF.

**Evaluation Criteria No.2**     ***Habitat of Threatened and Endangered Species*** - Endangered Species are defined as species facing imminent extinction or extirpation in Ontario that are listed

or categorized as an Endangered Species in the MNRF's Species At Risk List. Threatened Species are defined as a species that is at risk of becoming endangered in Ontario if limiting factors are not reversed and is listed or categorized as a Threatened Species on the MNRF's Species At Risk List.

The habitat for these species are defined as portions of natural areas that are necessary for the maintenance, survival, and/or the recovery of naturally occurring or reintroduced populations of endangered species or threatened species, and areas of occurrence that are occupied or habitually occupied by the species during all or any part(s) of its life cycle. For this study, the presence of SAR and their habitats were assessed and verified through the Ontario Ministry of Natural Resources and Forestry.

**Evaluation Criteria No.3**     **Significant Woodlands** - Woodlands are natural areas where the native trees have a minimum tree cover of 50%. For this region, due to the limited amount of forest cover, the Provincial Natural Heritage Reference Manual recommends that woodlands of 2 hectares in size or larger should be assessed for significance. Woodlands are considered continuous even when bisected by public roads. Smaller woodlands may be considered significant, regardless of the benchmark size if they exhibit composition, age, or quality that is uncommon in the municipality or the region. For this study, Significant Woodlands were assessed utilizing criteria provided in the *Suggested Conservation Guidelines for the Identification of Significant Woodlands in Southern Ontario* provided from Ontario Nature, and Federation of Ontario Naturalists.

**Evaluation Criteria No.4**     **Significant Wildlife Habitat** - are areas where plants, animals and other organisms live, and find adequate amounts of food, water, shelter and space needed to sustain their populations. Specific wildlife habitats of concern may include areas where species concentrate at a vulnerable point in their annual life cycle; and areas which are important to migratory or non-migratory species. For this study, Significant Wildlife Habitat was assessed utilizing the guidelines provided in the *Significant Wildlife Habitat Guideline Manual* produced by the MNRF.

**Evaluation Criteria No.5**     **Significant Valleylands** - are areas that occur in a valley or other landform depression that has water flowing through or standing for some period of the year. These features often link or border natural areas and provide ecological functions such as habitat (including refuge), corridor, or buffering from adjacent impacts. An attempt has been made by ERCA to identify potential Significant Valleyland features based on 2004 Aerial Photography as well as guidelines provided in the *Natural Heritage Reference Manual*. For this study, areas not yet identified by ERCA were evaluated for significance, based on the following features:

- a) more or less continuous natural areas providing connections within the watershed;
- b) contains a diversity of native species, natural communities and landscapes;
- c) provides ecological functions such as habitat, passage, refuge, hydrological flow, and buffering from adjacent areas.

**Evaluation Criteria No.6**     **Ecological Function** - are the natural processes, products or services that living and non-living environments provide or perform within or between species,

ecosystems and landscapes. These may include biological and physical interactions. For this study, linkage, hydrological flow, ground water recharge, water retention and water purification were considered components determining ecological function.

**Evaluation Criteria No.7**     **Diversity** - Areas may be considered diverse if they support many species and associations, and a heterogeneous physical structure. Areas of high diversity contain several types of natural communities and will often encompass a spectrum of topography, soil types, moisture regimes and structure. Structural diversity is created by multiple horizontal layers within the community, edge and the presence of dead timbers both standing and fallen.

Typically, documentation of the vegetation communities within a site utilizing ELC protocols would serve as an appropriate guideline. For this study, the following table below provides a guide to the assessment of diversity at the vegetation community level.

**Table 2. Assessment of Diversity at the Vegetation Community Level Criteria for Ojibway Shores**

Assessment of Diversity	
Diversity Level	Criteria
<b>Very High Diversity</b>	Site contains greater than 10 ELC Vegetation Types in 2 Community Series, OR had 3 or more Community Series documented on the site.
<b>High Diversity</b>	Site contains 6 to 10 ELC Vegetation Types in 2 Community Series, OR greater than 10 ELC Vegetation Types in one ELC Community Series.
<b>Diverse</b>	Site contains at least 2 to 5 ELC Vegetation Types in 2 ELC Community Series, OR 6 to 10 ELC Vegetation Types in one ELC Community Series.
<b>Relatively Homogeneous</b>	Not a diverse site. Vegetation consists of 2 to 5 ELC Vegetation Types in one ELC Community Series.
<b>Homogeneous</b>	Not a diverse site. All of the vegetation is of the same ELC Vegetation Type and the same ELC Community Series.

**Evaluation Criteria No.8**     **Significant Species** - These are species which are designated “rare” on the Natural Heritage Information Centre (NHIC) database (those listed as S1 to S3). The area has not only valid documented occurrence of a rare species, but also has been identified as providing the elements critical to the life cycle of the designated species.

The Provincial rarity rank begins with an “S” followed by a number (S1, S2, etc.) These ranks are used by the Natural Heritage Information Centre to set protection priorities for rare species and natural communities.

- “S1”     Critically Imperiled - Critically imperiled in Ontario because of extreme rarity or because of some factor(s) making it especially vulnerable to extirpation from the province. Typically 5 or fewer occurrences or very few remaining individuals.
- “S2”     Imperiled - Imperiled in Ontario because of rarity or because of some factor(s) making it vulnerable to extirpation from the province. Usually between 6 to 20 or few remaining individuals

- “S3” Vulnerable - Vulnerable in Ontario either because rare and uncommon or found only in a restricted range (even if abundant at some locations), or because of other factors making it vulnerable to extirpation. Typically 21 to 100 occurrences.
- “S4” Apparently Secure - Uncommon but not rare, and usually widespread in Ontario. Possibly of long-term conservation concern. Usually more than 100 occurrences.
- “?” Inexact or Uncertain - Denotes inexact or uncertain numeric rank.

For this study, any natural area containing an S1 to S3 species were considered as fulfilling the Significant Species criteria.

***Evaluation Criteria No.9 Significant Communities*** - Significant communities contain an assemblage of plants and animals which are either unique or unusual in the local, provincial, or national context. These communities may be geographically isolated from other occurrences in the region or elsewhere in Ontario/Canada. For this study, ELC protocols will be used for typification with cross-referencing to the NHIC rarity database. Any communities currently listed as S1 to S3, (see evaluation criterion #8 for definitions) were considered a significant community.

***Evaluation Criteria No.10 Condition*** - To meet this criterion, the area must be relatively undisturbed by grazing, tillage, compaction, cutting and clearing, artificial drainage, stormwater flow, extraction, spraying of pesticides, trails, debris, and aggressive, introduced (exotic) species. If disturbed by one or more of the above, the area should have the potential to regenerate naturally or to be restored. Wind-throw, disease and fire are considered to be natural disturbances which may be necessary to maintain the integrity of the ecosystem. For this study, the natural feature was relatively undisturbed to those human impacts listed above or exhibit sufficient regeneration to be considered naturalized (at least ten years after suspected disturbance).

## **2.3 Vegetation Community Evaluations**

### ***Ecological Land Classification Mapping***

Since the 1950s, there has been substantial work done across Canada to develop a standardized, ecological approach to land-unit description and classification. In Ontario this integrated approach to surveying and classifying vegetation communities is called the Ecological Land Classification System (ELC) (Lee et al., 1998). This classification scheme identifies recurring ecological land patterns on the landscape in order to reduce complex natural variation to a reasonable number of meaningful ecosystem units. Ontario has adopted this land classification approach. The intent of the provincial ELC program is to establish a comprehensive, consistent province-wide approach for ecosystem description, inventory and interpretation.

During the active field season, all sites were mapped according to the ELC System. Because the ELC System is in the process of being improved, revised and updated as a result of data

collection and input from expert field ecologists, the classification of vegetation communities are in a period of transition. This study has attempted to utilize the original ELC for Southern Ontario – First Approximation (Lee, et al., 1998), as well as the August 2008 version of the improved ELC System (Lee, 2008). All vegetation communities were classified ultimately based on the 2008 version of the ELC. In addition, 2008 and 2013 high resolution aerial photography, at a scale of 1:1000, was utilized in the field to delimit the boundaries of the different ELC vegetation communities.

### ***Vegetation Community Diversity***

Areas may be considered diverse if they support many species and associations, and a heterogeneous physical structure. Areas of high diversity contain several types of natural communities and will often encompass a spectrum of topography, soil types, moisture regimes and structure. Structural diversity is created by multiple horizontal layers within the community, edge, and the presence of dead timbers both standing and fallen. The evaluation of a site's community structure and diversity was completed utilizing the information obtained from the ELC vegetation community mapping.

For each site, the total number of ELC vegetation types in each Community Series was determined. Sites were considered heterogeneous if they contain at least 2 – 5 ELC vegetation types in 2 ELC Community Series, or 6 – 10 ELC vegetation types in one ELC Community Series. Sites which exhibit high diversity are those which contain 6 – 10 ELC vegetation types in 2 Community Series, or > 10 ELC vegetation types in one ELC Community Series. A site was described as having very high diversity if they contained > 10 ELC vegetation types in 2 Community Series or had 3 or more Community Series documented on the site. Sites are homogenous if all of the vegetation is of the same ELC vegetation type and the same ELC Community Series and relatively homogeneous if they contain 2 – 5 ELC vegetation types in one ELC Community Series. These conditions do not represent a diverse site.

### ***Significant Vegetation Communities***

Significant communities contain an assemblage of plants and animals which are either unique or unusual in the local, provincial, or national context. These communities may be geographically isolated from other occurrences in the region or elsewhere in Ontario/Canada. All mapped vegetation communities were cross-referenced with the rarity rankings provided by the OMNR's Natural Heritage Information Centre (NHIC). Any communities currently listed as S1 to S3 were considered a significant community. An explanation of the rarity rankings is as follows:

#### ***Global Rank (GRank):***

Heritage Programs such as the NHIC use a combination of global and provincial ranks as a tool to prioritize conservation and protection efforts, focusing efforts first on those elements of diversity that are both globally and provincially rare. Global ranks for each element are assigned by The Nature Conservancy (United States), based upon consideration of the provincial and state ranks assigned by heritage programs for the element across the range of its distribution, as well as the opinion of scientific experts.



The two major criteria used in determining a community's rank are the total number of occurrences and the total areal extent of the community range-wide. Secondary factors used in determining global rank include measures of the geographic range of an element's distribution, trends in status (e.g. expanding or shrinking range), trends in condition (e.g. declining condition of remaining areal extent), threats, and fragility.

Until recently, global ranks were unavailable for community types, as there was no overall classification scheme that heritage programs could use to consistently classify vegetation according to similar standards. The Nature Conservancy (U.S.) has been working with the heritage programs to develop a standardized, hierarchical North American classification system appropriate for conservation planning and management, and for the long-term monitoring of ecological communities and ecosystems. Global ranks for this list were provided by The Nature Conservancy (TNC), Midwestern Regional Office, Minneapolis, Minnesota, in December 1996. Global ranks are defined as follows:

- G1:** Critically imperiled globally because of extreme rarity (5 or fewer occurrences or very few remaining hectares) or because of some factor(s) making it particularly vulnerable to extinction.
- G2:** Imperiled globally because of extreme rarity (6 to 20 occurrences or few remaining hectares) or because of some factor(s) making it very vulnerable to extinction throughout its range.
- G3:** Either very rare and local throughout its range or found locally (even abundantly at some of its locations) in a restricted range (e.g. a single province or physiographic region) or because of other factor(s) making it vulnerable to extinction throughout its range; in terms of occurrences, in the range of 21 to 100.

Vegetation communities which are assigned lower ranks, such as G4 and G5, are considered to be globally secure. A rank of G4 refers to a community which is apparently secure globally; while a rank of G5 indicates a community is demonstrably secure globally.

Global ranks can be modified further, usually in cases where insufficient information exists for a community type. For example, G2G3 indicates that an element is rare, but it is not known if it is clearly G2 or G3. Since the global classification has only very recently been developed, and is based in some cases on incompletely documented community occurrences, in some cases there is uncertainty as to the validity or appropriateness of the global community type. In such cases, a rank of GQ may be applied. There are numerous information gaps for many communities, hence, a number of global types have insufficient information on which to properly determine rank. These have received an interim rank of G? until more information on the community becomes available.

### ***Provincial Rank (SRank):***

The NHIC uses a ranking system that considers the provincial rank of an element (=species or community type) as a tool to prioritize protection efforts. These ranks are not legal designations. The provincial (=subnational) rank is known as SRank. These ranks have been assigned using the best available scientific information, and follow a systematic ranking procedure developed by The Nature Conservancy (U.S.). The ranks are based on the three factors outlined in the three

previous columns, namely: estimated number of occurrences, estimated community areal extent, and estimated range of the community within the province. The provincial ranks are explained below.

- S1:** Extremely rare in Ontario; usually 5 or fewer occurrences in the province, or very few remaining hectares.
- S2:** Very rare in Ontario; usually between 5 and 20 occurrences in the province, or few remaining hectares.
- S3:** Rare to uncommon in Ontario; usually between 20 and 100 occurrences in the province; may have fewer occurrences, but with some extensive examples remaining.

Communities which are assigned lower ranks, such as S4 and S5, are considered to be common and widespread in Ontario. A rank of S4 denotes a community that is apparently secure in the province, with many occurrences, while S5 indicates it is demonstrably secure in the province.

The provincial ranks may be further modified. For example, S2S3 indicates that an element is rare, but insufficient information exists to accurately assign a single rank. SH indicates that an element is known from the province historically, but that it hasn't been seen in many years, although it is not known conclusively to be extirpated. SX indicates that an element is extirpated from the province.

It is important to note that while only those communities which occur in southern Ontario are listed here, many of them occur elsewhere in the province. Consequently, these ranks are intended to reflect their total provincial extent and distribution.

## **2.4 Floral Inventory**

In 2014 and 2015, volunteers with the Essex County Field Naturalists' Club undertook biological inventories of Ojibway Shore. In 2016 an Ecological Land Classification was used to map vegetation communities.

### ***Significant Species***

The floral species which were identified were then cross-referenced with the rarity rankings provided by the Natural Heritage Information Centre (NHIC). An explanation of the rarity rankings is as follows:

#### ***Global Rank (GRank):***

Global ranks are assigned by a consensus of the network of conservation data centers, scientific experts, and The Nature Conservancy to designate a rarity rank based on the range-wide status of a species, subspecies or variety.

The most important factors considered in assigning global (and provincial) ranks are the total number of known, extant sites world-wide, and the degree to which they are potentially or actively threatened with destruction. Other criteria include the number of known populations considered to be securely protected, the size of the various populations, and the ability of the taxon to persist at its known sites. The taxonomic distinctness of each taxon has also been

considered. Hybrids, introduced species, and taxonomically dubious species, subspecies and varieties have not been included. Global Rank (GRank) is defined as follows:

- G1:** **Extremely rare;** usually 5 or fewer occurrences in the overall range or very few remaining individuals; or because of some factor(s) making it especially vulnerable to extinction.
- G2:** **Very rare;** usually between 5 and 20 occurrences in the overall range or with many individuals in fewer occurrences; or because of some factor(s) making it vulnerable to extinction.
- G3:** **Rare to uncommon;** usually between 20 and 100 occurrences; may have fewer occurrences, but with a large number of individuals in some populations; may be susceptible to large-scale disturbances.
- G4:** **Common;** usually more than 100 occurrences; usually not susceptible to immediate threats.
- G5:** **Very common;** demonstrably secure under present conditions.
- GH:** **Historic;** no records in the past 20 years.
- GU:** **Status uncertain;** often because of low search effort or cryptic nature of the species; more data needed.
- GX:** **Globally extinct;** no recent records despite specific searches.
- GNR:** **Unranked;** Global rank not yet assessed.
- Q:** Denotes that the taxonomic status of the species, subspecies, or variety is **questionable**.

#### **COSEWIC Status:**

Status assigned by the Committee on the Status of Endangered Wildlife in Canada (COSEWIC). COSEWIC Status is defined as follows:

- END :** **Endangered;** a wildlife species facing imminent extirpation or extinction.
- THR:** **Threatened;** a wildlife species likely to become endangered if limiting factors are not reversed.
- SC:** **Special Concern;** a wildlife species that may become a threatened or an endangered species because of a combination of biological characteristics and identified threats.
- EXP:** **Extirpated;** a wildlife species no longer existing in the wild in Canada, but occurring elsewhere.
- EXT:** **Extinct;** a wildlife species that no longer exists.
- NAR:** **Not At Risk;** a wildlife species that has been evaluated and found to be not at risk of extinction given the current circumstances.
- DD:** **Data Deficient;** a wildlife species for which there is inadequate information to make a direct, or indirect, assessment of its risk of extinction.

#### **MNRF Status:**

The MNRF or Species at Risk in Ontario (SARO) Status is assigned by the OMNR. MNRF Status is defined as follows:

- END-R: Endangered Regulated;** a species facing imminent extinction or extirpation in Ontario which has been regulated under Ontario's Endangered Species Act (ESA).
- END: Endangered;** a species facing imminent extinction or extirpation in Ontario which is a candidate for regulation under Ontario's ESA.
- THR: Threatened;** a species that is at risk of becoming endangered in Ontario if limiting factors are not reversed.
- SC: Special Concern;** a species with characteristics that make it sensitive to human activities or natural events.
- EXP: Extirpated;** a species that no longer exists in the wild in Ontario but still occurs elsewhere.
- EXT: Extinct;** a species that no longer exists anywhere.
- NAR: Not at Risk;** a species that has been evaluated and found to be not at risk.
- DD: Data Deficient;** a species for which there is insufficient information for a provincial status recommendation.

### **Ontario Rank (SRank):**

Ontario (or subnational or provincial) ranks are used by the Natural Heritage Information Centre to set protection priorities for rare species and natural communities. These ranks are not legal designations. Provincial ranks are assigned in a manner similar to that described for global ranks, but consider only those factors within the political boundaries of Ontario. By comparing the global and provincial ranks, the status, rarity, and the urgency of conservation needs can be ascertained. The NHIC evaluates provincial ranks on a continual basis and produces updated lists at least annually. Ontario Rank (SRank) is defined as follows:

- SX: Presumed Extirpated;** species or community is believed to be extirpated from the nation or state/province. Not located despite intensive searches of historical sites and other appropriate habitat, and virtually no likelihood that it will be rediscovered.
- SH: Possibly Extirpated (Historical);** species or community occurred historically in the nation or state/province, and there is some possibility that it may be rediscovered. Its presence may not have been verified in the past 20-40 years. A species or community could become NH or SH without such a 20-40 year delay if the only known occurrences in a nation or state/province were destroyed or if it had been extensively and unsuccessfully looked for. The NH or SH rank is reserved for species or communities for which some effort has been made to relocate occurrences, rather than simply using this status for all elements not known from verified extant occurrences.
- S1: Critically Imperiled;** critically imperiled in the nation or state/province because of extreme rarity (often 5 or fewer occurrences) or because of some factor(s) such as very steep declines making it especially vulnerable to extirpation from the state/province.
- S2: Imperiled;** imperiled in the nation or state/province because of rarity due to very restricted range, very few populations (often 20 or fewer), steep declines, or other factors making it very vulnerable to extirpation from the nation or state/province.
- S3: Vulnerable;** vulnerable in the nation or state/province due to a restricted range,

- relatively few populations (often 80 or fewer), recent and widespread declines, or other factors making it vulnerable to extirpation.
- S4:** **Apparently Secure;** uncommon but not rare; some cause for long-term concern due to declines or other factors.
- S5:** **Secure;** common, widespread, and abundant in the nation or state/province.
- SNR:** **Unranked;** nation or state/province conservation status not yet assessed.
- SU:** **Unrankable;** currently unrankable due to lack of information or due to substantially conflicting information about status or trends.
- SNA:** **Not Applicable;** a conservation status rank is not applicable because the species is not a suitable target for conservation activities.
- S#S#:** **Range Rank;** a numeric range rank (e.g., S2S3) is used to indicate any range of uncertainty about the status of the species or community. Ranges cannot skip more than one rank (e.g., SU is used rather than S1S4).
- S#B:** **Breeding migrants;** there is no major concentration or staging areas during migration or in the non-breeding season.
- S#N:** **Non-breeding migrants;** for birds which have major concentration or staging areas during migration in the province.

Occurrences of species which are currently listed under “MNRF Status” as endangered or threatened under Ontario’s *Endangered Species Act (ESA)* were documented. Where possible, point locations of single individuals or populations were recorded using a handheld Global Positioning System (GPS) and a digital photograph of the specimen was recorded. Where this was not possible, locations were marked on high resolution aerial photo field maps. These point locations were then cross-referenced with the results from the Ecological Land Classification (ELC) vegetation community mapping. While this information does not necessarily constitute complete identification of significant habitat of Endangered or Threatened species, it will provide information on the known occurrences of these species and information regarding the habitat type in which these species occurred. This will assist staff in determining the potential presence of significant habitat. This reporting however is considered to be confidential information and will only be made available to the appropriate staff personnel.

Species at risk are usually dependent on particular habitat conditions which provide species-specific features for certain life processes (e.g., reproduction, feeding grounds, etc.). Identification of such habitats, and any recommendations for their enhancement or management, are usually prescribed in species-specific Recovery Plans or Recovery Strategies. When information from these Recovery Plans or Recovery Strategies becomes available this information should be incorporated into the Management Plan on a site by site basis, taking into consideration a holistic ecosystem approach.

### ***Floristic Quality***

Every plant species at a particular site provides information relative to the quality of that site. Therefore, a Floristic Quality Analysis (FQA) was also applied to each site based on the full botanical inventory conducted during the field inventories. This was done by calculating a mean

Coefficient of Conservatism (CC) and a Floristic Quality Index (FQI) from the comprehensive list of plant species obtained from the floral inventories.

Generally, if the mean CC is above 3.5, the site is of sufficient floristic quality to be of remnant natural quality. If the mean CC is above 4.5, the site is considered to be a relatively intact natural area with high floristic quality. If the FQI has a value of 35 or more, one can be fairly confident that the site's flora is of sufficient quality to be of remnant natural quality and possess sufficient conservatism and richness to be floristically important from a Provincial perspective. An FQI below a value of 20 indicates that the site's flora is of minimal significance from a natural quality perspective. Any site which has an FQI exceeding 50 indicates that the site's flora is relatively intact with high floristic quality, an extremely rare condition representing a significant component of Ontario's native biodiversity and natural landscapes.

### ***Exotic Invasive Species***

The rapid spread of invasive plants has become a major concern among ecologists, naturalists, biologists and land managers worldwide. From an ecological perspective, the concern centers on the displacement of diverse native species, the impacts on interrelated species (those that rely on native plants for food or other values), and reduced genetic diversity (Havinga, 2000). Exotic invasive plant species, when established in a natural area, can disrupt established ecosystems by forming dense colonies or by competing so aggressively that they displace native vegetation. This decrease in native biodiversity can result in less food and shelter for wildlife dependent on native plants (Credit Valley Conservation, 2011). From the floral inventory, all invasive plant species were identified. Each invasive species will be assessed as to its potential negative influence on the native flora and management recommendations will be made to mitigate these effects on a species by species basis.

For the species *Phragmites australis* (Common Reed), the Ontario Ministry of Natural Resources and Forestry has published a Best Management Practices (BMP) manual (OMNR, 2011) which includes comprehensive recommendations for the control of *Phragmites*. For specific stands of *Phragmites*, it is recommended to consult this BMP manual for the option(s) available for control. Not all options may be implemented in all circumstances. For example, the application of herbicides is not an available option for stands of *Phragmites* growing in standing water. In addition, it must be realized that until such time as there is a comprehensive provincial-wide control program (such as the biological control program implemented for Purple Loosestrife in the late 1990's), any attempts at *Phragmites* control will require implementation of an ongoing program, to prevent re-establishment. In many instances this may prove to be extremely costly and labour intensive in the long term.

## **2.5 Condition**

A site considered to be in good condition should be relatively undisturbed by grazing, tillage, compaction, cutting and clearing, artificial drainage, stormwater flow, extraction, spraying of pesticides, trails, human use, debris, and aggressive, invasive, introduced (exotic) species. During the field investigations, evidence of disturbance was noted. If disturbed by one or more of the above, the area should have the potential to regenerate naturally or to be restored. Wind throw,

disease and fire are considered to be natural disturbances which may be necessary to maintain the integrity of the ecosystem.

## **2.6 GIS Data Compilation and Analysis**

ELC field mapping was digitized into the ERCA Geographic Information System (GIS). The GIS generated all of the final maps and statistics describing the vegetation community composition. ESRI's ArcGIS software was used to compile, manage and analyze the digital data. The data was imported into, and managed by, ESRI's File Geodatabases framework.

A complete list of data inputs and outputs is available in Table 2. This mapping exercise updates the natural area boundary delineations and provides accurate differentiation between the various vegetation community types through field application of the ELC on the ground. No minimum size limit was set for delineated polygons; however discretion was utilized in order to identify features of sufficient size to be mapped.

Once the field data had been mapped, spatial analysis on the information was conducted. GIS software was used to determine the total amount and the relative percentage of each vegetation community type within each site. In addition, the locations of any Species at Risk were entered into the GIS system and correlated with the corresponding ELC vegetation community type.

Table 3. GIS Technical Information

Input/Output	Description	Geographic Extent	Source	Vintage
<b>GIS Input Datasets</b>				
Aerial Photography	Colour digital aerial photography of the City of Windsor, the County of Essex, and Pelee Island. Used as the base to which data was mapped and corrected within its extent unless otherwise noted.	Windsor, Essex County, Pelee Island	City of Windsor/ County of Essex	Current
ERCA Property	Land identified as held in ERCA ownership. Derivative product compiled by ERCA, from the Land Assessment dataset.	Essex Region (Windsor, Essex County, Pelee Island)	ERCA	Current
ELC Field Mapping	11"X17" paper field mapping consisting of colour digital aerial photography and hand drawn ELC polygon mapping.	Subject property	ERCA	Current
SAR GPS or Point Location Field Data	GPS coordinates acquired from a hand-held GPS device, or point location depicted on 11"X17" paper field mapping consisting of colour digital aerial photography.	Subject property	ERCA	Current
<b>GIS Output Datasets</b>				
ELC Digital Mapping	Final ELC vegetation community polygon dataset and mapping	Subject property	ERCA	Current
SAR Dataset	Update to existing rare species dataset with new occurrence information.	Subject property	ERCA	Current

## 2.7 Faunal Inventory

A complete faunal inventory was produced for each of the sites documenting all rare species. As well, the locations of significant species including rare trees were obtained utilizing a global positioning system (GPS) and these locations were plotted on each site map. ELC vegetation types were determined and mapped in the field utilizing 1:1000 scale aerial photography base mapping.

Faunal surveys employed a visual and audio search method as well as the use of cover-boards. All species of herptofauna were recorded. Existing records from the Natural Heritage Information Centre were utilized. These records along with the researcher's field experience were utilized as a basis for evaluations of the study sites. Visual surveys included searching grassy areas, as well as looking under logs and existing debris that reptiles and amphibians may utilize as cover or for thermo-regulation. The visual survey was conducted when temperatures were between 10 and 27 degrees Celsius. The sites were visited once during the spring and one final time during the fall when there was a possibility of finding breeding evidence such as neonates (newly born individuals). Frogs and toads were documented by call or visual observation. Turtle species were identified by visual methods; however the majority of habitats which were the subject of this study have little to no suitable permanent wetland habitat.



Birds were documented by call or visual observation. Records were obtained from eBird. The team used the following criteria found in the table below for all bird species identified at Ojibway Shores. Species that are recognized as being Special Status or (S) as well as significant to the local area will be highlighted in the inventory table found in the results section.

Table 4. Bird Species Account and Status Criteria

Status		
Abundance Observed	Rarity	Breeding Status
<b>A – Abundant</b> More than 25 individuals observed	<b>CV – Common Visitor</b>	<b>NB – Non Breeding Species</b> Either is not known to breed locally or habitat does not support breeding.
<b>MS – Multiple Sightings</b> Between 2 – 25 individuals observed	<b>C – Common</b> (to region)	<b>UB – Unknown Breeding Status</b> Habitat suitable for species observed but no evidence of breeding
<b>SI – Single Individual Observed</b>	<b>M - Migrant</b>	<b>CB – Confirmed Breeding Bird</b> Nest found, feeding young, defending territory
	<b>R – Rare (2)</b> (Locally)	<b>PrB – Probable Breeding Bird</b> Pair bonding, display, carrying nest material
	<b>S – Special Status (2)</b> Species of local, provincial or federal importance (SARA, ESA 2007)	<b>PB – Possible Breeding Bird</b> Bird observed in suitable habitat and season Males singing on territory
		(1) Breeding Status based on Ontario Breeding Bird Atlas criteria (see Cadman et al)

### **3 RESULTS**

#### **3.1 Site Location**

Municipality: City of Windsor

Legal Description:

ARN: 373908085000330

PIN: 015900106

UTM: Zone 17 N: 326982, 4682309

#### **3.2 Size**

Ojibway Shores: 13.5 hectares (33.6 acres), part of the Black Oak Complex:

#### **3.3 General Description**

The site is bordered by the Detroit River to the west, Wright Street to the north, the Morton Terminal to the south, and Black Oak Heritage Park to the east. The site contains a rare, relatively undisturbed Detroit River shoreline.

#### **3.4 Soils (from 1992 Candidate Natural Heritage Site report)**

The soils at the site are fine sandy loams and silts of the Chappus, Elliot, Hanna, Mask, Sandwich, Springarden, and Tecumseh series. These soils vary in moisture, depending on the topography which affects the drainage. They also vary in acidity. In the southwestern corner, there is an area of Elliot clay soils which are typified by less than a meter of clay overlying medium sand. A marsh is located at the southwestern corner of the grounds.

#### **3.5 Vegetation Communities**

##### ***Vegetation Composition/Diversity***

Vegetation community composition is 99% terrestrial and 1% aquatic with a total of 8 vegetation types documented for the site. The uplands support 1 herbaceous meadow community and 6 woody plant communities within the treed shoreline, deciduous thicket, deciduous woodland and deciduous forest community series'. The aquatic ecosystem supports 1 shallow water aquatic community.

ELC analysis indicates the site exhibits very high diversity, containing 8 ELC vegetation types (ecoelements) in 6 Community Series. The following tables, figures and maps provide detailed information regarding the ELC vegetation communities documented for the site. Any communities currently listed as S1 to S3 were considered a significant community and have been highlighted in the results. There are numerous information gaps for many vegetation communities, hence, a number of global types have insufficient information on which to properly

determine rank. These have received an interim rank of G? until more information on the community becomes available.

Table 5. Ojibway Shores ELC Vegetation Community Diversity

ELC Vegetation Community Diversity						Area		
ELC Code	Community Class	Community Series	Ecoelement (Vegetation Type) Name	Grank	Srank	Ha	Ac	%
SHTM1-1	Shoreline	Treed Shoreline	Cottonwood Mineral Treed Shoreline			0.08	0.20	0.75%
MEMM3	Meadow	Mixed Meadow	Dry - Fresh Mixed Meadow			0.87	2.15	7.91%
THDM2-4	Thicket	Deciduous Thicket	Gray Dogwood Deciduous Shrub Thicket			0.57	1.42	5.23%
WODM4-4	Woodland	Deciduous Woodland	Dry - Fresh Black Walnut Deciduous Woodland			3.16	7.80	28.74%
WODM5-1			Fresh - Moist Poplar Deciduous Woodland			1.27	3.14	11.57%
FODM7-4	Forest	Deciduous Forest	Fresh - Moist Black Walnut Lowland Deciduous Forest	G4?	S2S3	0.80	1.98	7.29%
FODM8-3			Fresh - Moist Cottonwood Deciduous Forest			4.07	10.06	37.05%
SAM_1-2	Shallow Water	Mixed Shallow Aquatic	Duckweed Mixed Shallow Aquatic			0.16	0.40	1.46%
<b>Totals:</b>						<b>10.99</b>	<b>27.16</b>	<b>100.00%</b>

Table 6. Ojibway Shores ELC Community Class Statistics

ELC Community Class	Hectares	Acres	%
<b>Terrestrial</b>	<b>10.83</b>	<b>26.76</b>	<b>98.54%</b>
Shoreline	0.08	0.20	0.75%
Meadow	0.87	2.15	7.91%
Thicket	0.57	1.42	5.23%
Woodland	4.43	10.95	40.31%
Forest	4.87	12.04	44.34%
<b>Aquatic</b>	<b>0.16</b>	<b>0.40</b>	<b>1.46%</b>
Shallow Water	0.16	0.40	1.46%
<b>Total Habitat</b>	<b>10.99</b>	<b>27.16</b>	<b>100.00%</b>

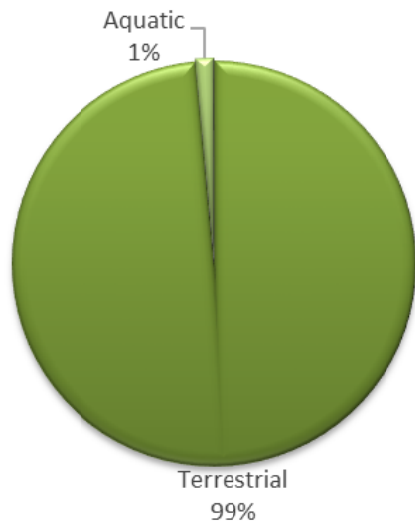


Figure 2. Ojibway Shores ELC Community Composition

Table 7. Ojibway Shores ELC Community Series Statistics

ELC Community Series	Hectares	Acres	%
<b>Terrestrial</b>			
<b>Shoreline</b>			
Treed Shoreline	0.08	0.20	0.75%
<b>Meadow</b>			
Mixed Meadow	0.87	2.15	7.91%
<b>Thicket</b>			
Deciduous Thicket	0.57	1.42	5.23%
<b>Woodland</b>			
Deciduous Woodland	4.43	10.95	40.31%
<b>Forest</b>			
Deciduous Forest	4.87	12.04	44.34%
<b>Aquatic</b>			
<b>Shallow Water</b>			
Mixed Shallow Aquatic	0.16	0.40	1.46%
<b>Total Habitat</b>	<b>10.99</b>	<b>27.16</b>	<b>100.00%</b>

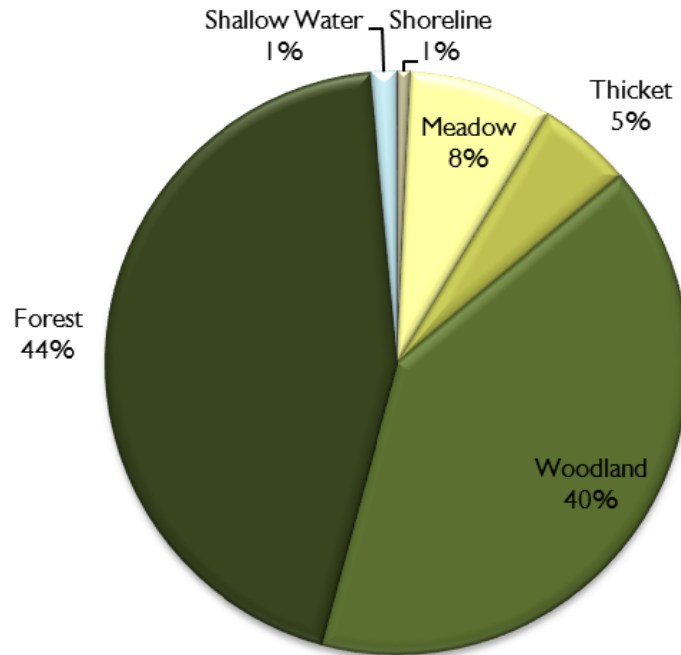


Figure 3. Ojibway Shores ELC Community Class Composition

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**Figure 4. Ojibway Shores ELC Vegetation Community Map I**

Please refer to the additional document labeled: "Ojibway Shores ELC Mapping - 20160704.pdf" for the s map.

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**Figure 5. Ojibway Shores PSW Map 2**

Please refer to the additional document labeled: "Ojibway Shores PSW map.pdf" for map of the PSW designation.

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### Significant Vegetation Communities

The following significant communities were identified and mapped according to the Ecological Land Classification (ELC) System for Southern Ontario (Lee et al., 1998; Lee, 2008). Global (GRank) and Provincial (SRank) rarity ranks for these vegetation communities are provided by the OMNR's Natural Heritage Information Centre (NHIC). The property contains a vegetation community that is ranked as provincially rare - this being the 0.80 hectare (1.98 acre) S2S3 Fresh-Moist Black Walnut Lowland Deciduous Forest vegetation community which occupies 7.29% of the area surveyed.

Any communities currently listed as S1 to S3 were considered a significant community and have been highlighted in the results. There are numerous information gaps for many vegetation communities, hence, a number of global types have insufficient information on which to properly determine rank. These have received an interim rank of G? until more information on the community becomes available.

Table 8. Ojibway Shores Significant Vegetation Communities

Significant Vegetation Communities				Area		
ELC Code	Ecoelement (Vegetation Type) Name	GRank	SRank	Hectares	Acres	%
FODM7-4	Fresh – Moist Black Walnut Lowland Deciduous Forest	G4?	S2S3	0.80	1.98	7.29%

## 3.6 Flora

### Floral Inventory

A total of 261 plant species were identified during the botanical inventory of the site. Any species currently listed as S1 to S3 were considered significant and have been highlighted in the results. Any species listed as Endangered, Threatened or Special Concern were considered significant and have been highlighted. Species that are ranked with a ? will remain so until more information on the species becomes available.

Table 9. Ojibway Shores Floral Inventory

Floral Inventory						
Scientific Name	Common Name	CW	GRank	COSEWIC	MNR	SRank
<i>Abutilon theophrasti</i>	Velvet-leaf	4.0	GNR			SE5
<i>Acer negundo</i>	Manitoba Maple	-2.0	G5			S5
<i>Acer saccharinum</i>	Silver Maple	-3.0	G5			S5
<i>Acer x freemanii</i>	Freeman's Maple	0.0	GNA			SNA
<i>Achillea millefolium ssp. millefolium</i>	Common Yarrow	3.0	G5			SE
<i>Aesculus hippocastanum</i>	Horse Chestnut	5.0	GNR			SE2
<i>Agrimonia gryposepala</i>	Tall Hairy Agrimony	2.0	G5			S5
<i>Agrimonia parviflora</i>	Small-flower Agrimony	-1.0	G5			S4
<i>Agrostis gigantea</i>	Redtop	0.0	G4G5			SE5
<i>Agrostis stolonifera</i>	Spreading Bentgrass	-3.0	G5			SE5
<i>Ailanthus altissima</i>	Tree-of-heaven	5.0	GNR			SE5

## Ojibway Shores Natural Heritage Inventory/Evaluation

Floral Inventory						
Scientific Name	Common Name	CW	GRank	COSEWIC	MNR	SRank
<i>Alisma plantago-aquatica</i>	Broad-leaved Water-plantain	-5.0	G5			S5
<i>Alliaria petiolata</i>	Garlic Mustard	0.0	GNR			SE5
<i>Allium canadense</i> var. <i>canadense</i>	Wild Garlic	3.0	G5			S5
<i>Ambrosia artemisiifolia</i>	Annual Ragweed	3.0	G5			S5
<i>Ambrosia trifida</i>	Great Ragweed	-1.0	G5			S5
<i>Amorpha fruticosa</i>	False Indigo	-4.0	G5			SE2
<i>Amphicarpaea bracteata</i>	Hog-peanut	0.0	G5			S5
<i>Andropogon gerardii</i>	Big Bluestem	1.0	G5			S4
<i>Anemone virginiana</i> var. <i>cylindroidea</i>	Thimbleweed	0.0	G5T4T5			SU
<i>Anemone virginiana</i> var. <i>virginiana</i>	Virginia Anemone	5.0	G5T5			S5
<i>Apocynum cannabinum</i> var. <i>cannabinum</i>	Clasping-leaf Dogbane	0.0	G5			S5
<i>Arctium minus</i> ssp. <i>minus</i>	Lesser Burdock	5.0	GNR			SE5
<i>Artemisia vulgaris</i>	Mugwort	5.0	GU			SE5
<i>Asclepias syriaca</i>	Common Milkweed	5.0	G5			S5
<i>Asclepias tuberosa</i>	Butterfly Milkweed	5.0	G5?			S4
<i>Asparagus officinalis</i>	Asparagus	3.0	G5?			SE5
<i>Aster ericoides</i> ssp. <i>ericoides</i>	Heath Aster	4.0	G5T?			S5
<i>Aster lanceolatus</i> ssp. <i>lanceolatus</i>	Panicled Aster	-3.0	G5T?			S5
<i>Aster novae-angliae</i>	New England Aster	-3.0	G5			S5
<i>Aster pilosus</i> var. <i>pilosus</i>	Hairy Aster	2.0	G5T?			S5
<i>Aster praealtus</i> var. <i>praealtus</i>	Willow Aster	-3.0	G5T5?	THR	THR	S2
<i>Berberis thunbergii</i>	Japanese Barberry	4.0	G?			SE5
<i>Berteroa incana</i>	Hoary False-alyssum	5.0	G?			SE5
<i>Bidens frondosa</i>	Devil's Beggar's Ticks	-3.0	G5			S5
<i>Bidens vulgata</i>	Tall Beggar's Ticks	-3.0	G5			S5
<i>Bromus inermis</i> ssp. <i>inermis</i>	Smooth Brome	5.0	G4G5T?			SE5
<i>Butomus umbellatus</i>	Flowering-rush	-5.0	G5			SE5
<i>Calystegia sepium</i> ssp. <i>americanum</i>	Hedge Bindweed		G4G5T?			SU
<i>Campanula americana</i>	Tall Bellflower	0.0	G5			S4
<i>Carex blanda</i>	Woodland Sedge	0.0	G5?			S5
<i>Carex brevior</i>	Fescue Sedge	0.0	G5?			S4S5
<i>Carex granularis</i>	Meadow Sedge	-4.0	G5			S5
<i>Carex vulpinoidea</i>	Fox Sedge	-5.0	G5			S5
<i>Catalpa bignonioides</i>	Southern Catalpa	3.0	G4G5			SE1
<i>Catalpa speciosa</i>	Northern Catalpa	3.0	GU			SE1
<i>Celastrus scandens</i>	Climbing Bittersweet	3.0	G5			S5
<i>Celtis occidentalis</i>	Common Hackberry	1.0	G5			S4
<i>Centaurea maculosa</i>	Spotted Knapweed	5.0	G?			SE5
<i>Centaureum pulchellum</i>	Branching Centaury-plant	4.0	G?			SE3
<i>Chenopodium album</i> var. <i>album</i>	White Goosefoot	1.0	G5T5			SE5
<i>Chrysanthemum leucanthemum</i>	Oxeye Daisy	5.0	G?			SE5
<i>Cichorium intybus</i>	Chicory	5.0	G?			SE5
<i>Cicuta maculata</i>	Spotted Water-hemlock	-5.0	G5			S5
<i>Circaea lutetiana</i> ssp. <i>canadensis</i>	Enchanter's Nightshade	3.0	G5T5			S5
<i>Cirsium arvense</i>	Crepping Thistle	3.0	G?			SE5
<i>Cirsium discolor</i>	Field Thistle	5.0	G5			S3
<i>Cirsium vulgare</i>	Bull Thistle	4.0	G5			SE5
<i>Clinopodium vulgare</i>	Field Basil	5.0	G?			S5
<i>Comandra umbellata</i>	Umbellate Bastard Toad-flax	3.0	G5			S5

Floral Inventory						
Scientific Name	Common Name	CW	GRank	COSEWIC	MNR	SRank
<i>Convallaria majalis</i>	European Lily-of-the-valley	5.0	G5			SE5
<i>Conyza canadensis</i>	Fleabane	1.0	G5			S5
<i>Coreopsis tripteris</i>	Tall Coreopsis	0.0	G5			S2
<i>Cornus amomum ssp. obliqua</i>	Silky Dogwood	-4.0	G5T?			S5
<i>Cornus drummondii</i>	Rough-leaved Dogwood	0.0	G5			S4
<i>Cornus foemina ssp. racemosa</i>	Gray Dogwood	-2.0	G5			S5
<i>Cornus stolonifera</i>	Red-osier Dogwood	-3.0	G5			S5
<i>Cryptotaenia canadensis</i>	Canada Honewort	0.0	G5			S5
<i>Dactylis glomerata</i>	Orchard Grass	3.0	G?			SE5
<i>Daucus carota</i>	Queen Anne's Lace	5.0	G?			SE5
<i>Desmodium canadense</i>	Showy Tick-trefoil	1.0	G5			S4
<i>Dianthus armeria</i>	Deptford-pink	5.0	G?			SE5
<i>Elaeagnus umbellata</i>	Autumn Olive	3.0	G?			SE3
<i>Elymus repens</i>	Quack Grass	3.0	G?			SE5
<i>Elymus virginicus var. virginicus</i>	Virginia Wild-rye	-2.0	G5T?			S5
<i>Epipactis helleborine</i>	Eastern Helleborine	5.0	G?			SE5
<i>Equisetum arvense</i>	Field Horsetail	0.0	G5			S5
<i>Erigeron annuus</i>	White-top Fleabane	1.0	G5			S5
<i>Erigeron philadelphicus ssp. philadelphicus</i>	Philadelphia Fleabane	-3.0	G5T?			S5
<i>Erigeron strigosus</i>	Daisy Fleabane	1.0	G5			S5
<i>Eupatorium altissimum</i>	Tall Boneset	3.0	G5			S1
<i>Eupatorium maculatum ssp. maculatum</i>	Spotted Joe-pye Weed	-5.0	G5T5			S5
<i>Eupatorium perfoliatum</i>	Common Boneset	-4.0	G5			S5
<i>Euphorbia corollata</i>	Flowering Spurge	5.0	G5			S4
<i>Euthamia graminifolia</i>	Grass-leaved Goldenrod	-2.0	G5			S5
<i>Festuca arundinacea</i>	Kentucky Fescue	2.0	G?			SE5
<i>Fragaria virginiana ssp. virginiana</i>	Virginia Strawberry	1.0	G5T?			SU
<i>Fraxinus pennsylvanica</i>	Green Ash	-3.0	G5			S5
<i>Galium aparine</i>	Cleavers	3.0	G5			S5
<i>Galium triflorum</i>	Sweet-scent Bedstraw	2.0	G5			S5
<i>Gaura biennis</i>	Biennial Gaura	4.0	G5			S3
<i>Gentiana andrewsii</i>	Closed Gentian	-3.0	G4			S4
<i>Geum aleppicum</i>	Yellow Avens	-1.0	G5			S5
<i>Geum canadense</i>	White Avens	0.0	G5			S5
<i>Glyceria striata</i>	Fowl Manna Grass	-5.0	G5			S5
<i>Hackelia virginiana</i>	Virginia Stickseed	1.0	G5			S5
<i>Helianthus decapetalus</i>	Thin-leaved Sunflower	5.0	G5			S5
<i>Helianthus divaricatus</i>	Woodland Sunflower	5.0	G5			S5
<i>Helianthus giganteus</i>	Tall Sunflower	-3.0	G5			S5
<i>Helianthus strumosus</i>	Pale-leaf Sunflower	5.0	G5			S5
<i>Helianthus tuberosus</i>	Jerusalem Artichoke	0.0	G5			SE5
<i>Heliopsis helianthoides</i>	Ox-eye	5.0	G5			S5
<i>Hemerocallis fulva</i>	Orange Daylily	5.0	G?			SE5
<i>Hordeum jubatum ssp. jubatum</i>	Fox-tail Barley	-1.0	G5T?			SE5
<i>Hypericum perforatum</i>	St. John's-wort	5.0	G?			SE5
<i>Impatiens capensis</i>	Spotted Jewel-weed	-3.0	G5			S5
<i>Iris virginica</i>	Virginia Blue Flag	-5.0	G5			S5
<i>Juglans nigra</i>	Black Walnut	3.0	G5			S4

Ojibway Shores Natural Heritage Inventory/Evaluation

Floral Inventory						
Scientific Name	Common Name	CW	GRank	COSEWIC	MNR	SRank
<i>Juncus gerardii</i>	Black-grass Rush	-5.0	G5			SE3
<i>Juncus tenuis</i>	Slender Rush	0.0	G5			S5
<i>Juncus torreyi</i>	Torrey's Rush	-3.0	G5			S5
<i>Lactuca canadensis</i>	Canada Lettuce	2.0	G5			S5
<i>Lactuca serriola</i>	Prickly Lettuce	0.0	G?			SE5
<i>Lathyrus tuberosus</i>	Tuberous Vetchling	5.0	G?			SE3
<i>Lemna minor</i>	Lesser Duckweed	-5.0	G5			S5
<i>Leonurus cardiaca</i> ssp. <i>cardiaca</i>	Common Motherwort	5.0	G?T?			SE5
<i>Lepidium campestre</i>	Field Pepper-grass	5.0	G?			SE5
<i>Liatris spicata</i>	Spiked Blazing Star	0.0	G5	THR	THR	S3
<i>Ligustrum vulgare</i>	European Privet	1.0	G?			SE5
<i>Linaria vulgaris</i>	Butter-and-eggs	5.0	G?			SE5
<i>Lindera benzoin</i>	Spicebush	-2.0	G5			S5
<i>Lobelia siphilitica</i>	Great Blue Lobelia	-4.0	G5			S5
<i>Lobelia spicata</i>	Pale-spiked Lobelia	0.0	G5			S4
<i>Lonicera japonica</i>	Japanese Honeysuckle	3.0	G?			SE2
<i>Lonicera maackii</i>	Amur Honeysuckle	5.0	G?			SE2
<i>Lonicera tatarica</i>	Tartarian Honeysuckle	3.0	G?			SE5
<i>Lycopus americanus</i>	American Bugleweed	-5.0	G5			S5
<i>Lycopus europaeus</i>	European Bugleweed	-5.0	G?			SE5
<i>Lycopus uniflorus</i>	Northern Bugleweed	-5.0	G5			S5
<i>Lysimachia ciliata</i>	Fringed Loosestrife	-3.0	G5			S5
<i>Lythrum alatum</i>	Winged Loosestrife	-5.0	G5			S3
<i>Maianthemum racemosum</i> ssp. <i>racemosum</i>	False Solomon's Seal	3.0	G5T			S5
<i>Malus baccata</i>	Siberian Crabapple	5.0	G?			SE1
<i>Malus pumila</i>	Common Apple	5.0	G5			SE5
<i>Medicago lupulina</i>	Black Medic	1.0	G?			SE5
<i>Melilotus alba</i>	White Sweet Clover	3.0	G5			SE5
<i>Melilotus officinalis</i>	Yellow Sweet Clover	3.0	G?			SE5
<i>Mentha</i> sp.	Mint Species					
<i>Monarda fistulosa</i>	Wild Bergamot	3.0	G5			S5
<i>Morus alba</i>	White Mulberry	0.0	G?			SE5
<i>Nepeta cataria</i>	Catnip	1.0	G?			SE5
<i>Oenothera biennis</i>	Common Evening-primrose	3.0	G5			S5
<i>Oenothera parviflora</i>	Northern Evening-primrose	3.0	G4?			S5?
<i>Osmorhiza claytonii</i>	Hairy Sweet-cicely	4.0	G5			S5
<i>Osmorhiza longistylis</i>	Smooth Sweet-cicely	4.0	G5			S5
<i>Oxalis stricta</i>	Upright Yellow Wood Sorrel	3.0	G5			S5
<i>Panicum acuminatum</i> var. <i>fasciculatum</i>	Panic Grass		G5T			S5
<i>Panicum capillare</i>	Old Panic Grass	0.0	G5			S5
<i>Panicum oligosanthes</i>	Few-flowered Panic Grass	3.0	G5			S4
<i>Panicum</i> sp.	Panic Grass Species					
<i>Panicum virgatum</i>	Switch Grass	-1.0	G5			S4
<i>Parthenocissus inserta</i>	Thicket Creeper	3.0	G5			S5
<i>Penstemon digitalis</i>	Foxglove Beardtongue	1.0	G5			S4S5
<i>Philadelphus coronarius</i>	Philadelphia Mock-orange	5.0	G?			SE1
<i>Phleum pratense</i>	Timothy	3.0	G?			SE5
<i>Phlox divaricata</i>	Wild Blue Phlox	3.0	G5			S4

Ojibway Shores Natural Heritage Inventory/Evaluation

Floral Inventory						
Scientific Name	Common Name	CW	GRank	COSEWIC	MNR	SRank
<i>Phragmites australis</i>	Common Reed	-4.0	G5			S5
<i>Phryma leptostachya</i>	Lopseed	5.0	G5			S4S5
<i>Physalis heterophylla</i>	Clammy Ground-cherry	5.0	G5			S4
<i>Phytolacca americana</i>	Common Pokeweed	1.0	G5			S4
<i>Pilea pumila</i>	Canada Clearweed	-3.0	G5			S5
<i>Plantago lanceolata</i>	English Plantain	0.0	G5			SE5
<i>Plantago major</i>	Nipple-seed Plantain	-1.0	G5			SE5
<i>Plantago rugelii</i>	Black-seed Plantain	0.0	G5			S5
<i>Poa annua</i>	Annual Bluegrass	1.0	G?			SE5
<i>Poa compressa</i>	Canada Bluegrass	2.0	G?			S5
<i>Poa pratensis</i> ssp. <i>pratensis</i>	Kentucky Bluegrass	1.0	G5T			S5
<i>Polygonum amphibium</i>	Water Smartweed	-5.0	G5			S5
<i>Polygonum hydropiperoides</i>	Mild Water-pepper	-5.0	G5			S5
<i>Polygonum pennsylvanicum</i>	Pennsylvania Smartweed	-4.0	G5			S5
<i>Polygonum persicaria</i>	Lady's Thumb	-3.0	G?			SE5
<i>Polygonum virginianum</i>	Virginia Knotweed	0.0	G5			S4
<i>Populus alba</i>	White Poplar	5.0	G5			SE5
<i>Populus deltoides</i> ssp. <i>deltoides</i>	Eastern Cottonwood	-1.0	G5T5			SU
<i>Populus tremuloides</i>	Quaking Aspen	0.0	G5			S5
<i>Potentilla anserina</i> ssp. <i>anserina</i>	Silverweed	-4.0	G5			S5
<i>Potentilla recta</i>	Sulphur Cinquefoil	5.0	G?			SE5
<i>Potentilla simplex</i>	Old-field Cinquefoil	4.0	G5			S5
<i>Prunella vulgaris</i> ssp. <i>vulgaris</i>	Common Heal-all	0.0	G5T?			SE3
<i>Prunus serotina</i>	Wild Black Cherry	3.0	G5			S5
<i>Prunus virginiana</i> ssp. <i>virginiana</i>	Choke Cherry	1.0	G5T?			S5
<i>Pycnanthemum virginianum</i>	Virginia Mountain-mint	-4.0	G5			S4
<i>Quercus palustris</i>	Pin Oak	-3.0	G5			S4
<i>Ranunculus abortivus</i>	Kidney-leaved Buttercup	-2.0	G5			S5
<i>Ranunculus hispidus</i> var. <i>hispidus</i>	Bristly Buttercup	0.0	G5T5			S3
<i>Ranunculus recurvatus</i> var. <i>recurvatus</i>	Hooked Crowfoot	-3.0	G5			S5
<i>Ratibida pinnata</i>	Gray-headed Coneflower	5.0	G5			S3
<i>Rhamnus cathartica</i>	Buckthorn	3.0	G?			SE5
<i>Rhamnus frangula</i>	Glossy Buckthorn	-1.0	G?			SE5
<i>Rhus glabra</i>	Smooth Sumac	5.0	G5			S5
<i>Rhus radicans</i> ssp. <i>negundo</i>	Poison Ivy	-1.0	G5T			S5
<i>Rhus typhina</i>	Staghorn Sumac	5.0	G5			S5
<i>Ribes americanum</i>	Wild Black Currant	-3.0	G5			S5
<i>Robinia pseudo-acacia</i>	Black Locust	4.0	G5			SE5
<i>Rosa blanda</i>	Smooth Rose	3.0	G5			S5
<i>Rosa carolina</i>	Carolina Rose	4.0	G4G5			S4
<i>Rosa multiflora</i>	Rambler Rose	3.0	G?			SE4
<i>Rosa rugosa</i>	Rugosa Rose	3.0	G?			SE1
<i>Rosa setigera</i>	Climbing Prairie Rose	2.0	G5	SC	SC	S3
<i>Rubus allegheniensis</i>	Allegheny Blackberry	2.0	G5			S5
<i>Rubus flagellaris</i>	Northern Dewberry	4.0	G5			S4
<i>Rubus occidentalis</i>	Black Raspberry	5.0	G5			S5
<i>Rudbeckia hirta</i>	Black-eyed Susan	3.0	G5			S5
<i>Rumex crispus</i>	Curly Dock	-1.0	G?			SE5
<i>Salix alba</i>	White Willow	-3.0	G5			SE4

Floral Inventory						
Scientific Name	Common Name	CW	GRank	COSEWIC	MNR	SRank
<i>Salix discolor</i>	Pussy Willow	-3.0	G5			S5
<i>Salix eriocephala</i>	Heart-leaved Willow	-3.0	G5			S5
<i>Salix exigua</i>	Sandbar Willow	-5.0	G5			S5
<i>Sambucus canadensis</i>	Common Elderberry	-2.0	G5			S5
<i>Sanicula marilandica</i>	Black Snakeroot	3.0	G5			S5
<i>Sanicula trifoliata</i>	Large-fruited Snakeroot	5.0	G4			S4
<i>Saponaria officinalis</i>	Bouncing-bet	3.0	G?			SE5
<i>Scirpus atrovirens</i>	Woolgrass Bulrush	-5.0	G5?			S5
<i>Scirpus pendulus</i>	Pendulous Bulrush	-5.0	G5			S5
<i>Scutellaria lateriflora</i>	Mad Dog Skullcap	-5.0	G5			S5
<i>Setaria faberi</i>	Giant Foxtail	2.0	G?			SE4
<i>Setaria pumila</i>	Yellow Foxtail	0.0	G?			SE5
<i>Setaria verticillata</i>	Bristly Bristle Grass	0.0	G?			SE4
<i>Setaria viridis</i>	Green Bristle Grass	5.0	G?			SE5
<i>Sinapis arvensis</i>	Charlock	5.0	G?			SE5
<i>Smilax lasioneura</i>	Herbaceous Greenbrier	5.0	G5			S4
<i>Solanum dulcamara</i>	Climbing Nightshade	0.0	G?			SE5
<i>Solanum nigrum</i>	Black Nightshade	0.0	G?			SE1
<i>Solidago altissima</i> var. <i>altissima</i>	Tall Goldenrod	3.0	G?			S5
<i>Solidago caesia</i>	Bluestem Goldenrod	3.0	G5			S5
<i>Solidago canadensis</i>	Canada Goldenrod	3.0	G5			S5
<i>Solidago gigantea</i>	Smooth Goldenrod	-3.0	G5			S5
<i>Solidago rigida</i> ssp. <i>rigida</i>	Stiff Goldenrod	4.0	G5T5			S3
<i>Solidago sempervirens</i>	Seaside Goldenrod	-2.0	G5			SE2
<i>Spiraea alba</i>	Narrow-leaved Meadow-sweet	-4.0	G5			S5
<i>Sporobolus asper</i>	Longleaf Dropseed	5.0	G5			S4
<i>Stachys hispida</i>	Hispid Hedge-nettle	-4.0	G4Q			S4S5
<i>Syringa vulgaris</i>	Common Lilac	5.0	G?			SE5
<i>Taraxacum officinale</i>	Common Dandelion	3.0	G5			SE5
<i>Taraxacum</i> sp.	Dandelion Species					
<i>Thalictrum dasycarpum</i>	Purple Meadowrue	-2.0	G5			S4?
<i>Thlaspi arvense</i>	Field Penny-cress	5.0	G?			SE5
<i>Tilia americana</i>	American Basswood	3.0	G5			S5
<i>Tragopogon dubius</i>	Meadow Goat's-beard	5.0	G?			SE5
<i>Trifolium pratense</i>	Red Clover	2.0	G?			SE5
<i>Trifolium repens</i>	White Clover	2.0	G?			SE5
<i>Typha angustifolia</i>	Narrow-leaved Cattail	-5.0	G5			S5
<i>Ulmus americana</i>	American Elm	-2.0	G5?			S5
<i>Ulmus pumila</i>	Siberian Elm	5.0	G?			SE3
<i>Ulmus rubra</i>	Slippery Elm	0.0	G5			S5
<i>Urtica dioica</i> ssp. <i>dioica</i>	Stinging Nettle	-1.0	G5T?			SE2
<i>Verbascum blattaria</i>	White Moth Mullein	4.0	G?			SE5
<i>Verbascum thapsus</i>	Common Mullein	5.0	G?			SE5
<i>Verbena hastata</i>	Blue Vervain	-4.0	G5			S5
<i>Verbena stricta</i>	Hoary Vervain	5.0	G5			S4
<i>Verbena urticifolia</i>	White Vervain	-1.0	G5			S5
<i>Vernonia gigantea</i> ssp. <i>gigantea</i>	Giant Ironweed	0.0	G5			S1?
<i>Veronicastrum virginicum</i>	Culver's-root	0.0	G4			S2



Floral Inventory						
Scientific Name	Common Name	CW	GRank	COSEWIC	MNR	SRank
<i>Viburnum acerifolium</i>	Maple-leaf Viburnum	5.0	G5			S5
<i>Viburnum lentago</i>	Nannyberry	-1.0	G5			S5
<i>Viburnum opulus</i>	Guelder-rose Viburnum	0.0	G5			SE4
<i>Viburnum trilobum</i>	Highbush Cranberry	-3.0	G5T5			S5
<i>Viola sororia</i>	Woolly Blue Violet	1.0	G5			S5
<i>Vitis riparia</i>	Riverbank Grape	-2.0	G5			S5
<i>Xanthium strumarium</i>	Rough Cockle-bur	0.0	G?			S5
<i>Zanthoxylum americanum</i>	Northern Prickly Ash	5.0	G5			S5

### **Floristic Analysis**

Floristically, the site's native flora has a mean Coefficient of Conservatism (CC) of 4.10 and a Floristic Quality Index (FQI) value of 52.78. This indicates that the site's flora is of sufficient quality to be of remnant natural quality and possesses sufficient conservatism and richness to be



Table 11. Ojibway Shores Physiognomy

Physiognomy						
Plant Form	Native		Introduced		All Species	
	Number	% of Total	Number	% of Total	Number	% of Total
Trees	14	5.36	9	3.45	23	8.81
Shrubs	23	8.81	15	5.75	38	14.56
Woody Vines	4	1.53	2	0.77	6	2.30
<b>Total Woody</b>	<b>41</b>	<b>15.71</b>	<b>26</b>	<b>9.96</b>	<b>67</b>	<b>25.67</b>
Herb. Vines	2	0.77	1	0.38	3	1.15
Forbs	105	40.23	49	18.77	156	59.77
Ferns	1	0.38	0	0.00	1	0.38
<b>Total Herbaceous Non-Graminoids</b>	<b>108</b>	<b>41.38</b>	<b>50</b>	<b>19.16</b>	<b>160</b>	<b>61.30</b>
Grasses	9	3.45	15	5.75	25	9.58
Rushes	2	0.77	1	0.38	3	1.15
Sedges	6	2.30	0	0.00	6	2.30
<b>Total Graminoids</b>	<b>17</b>	<b>6.51</b>	<b>16</b>	<b>6.13</b>	<b>34</b>	<b>13.03</b>
<b>Total Non-Woody</b>	<b>125</b>	<b>47.89</b>	<b>66</b>	<b>25.29</b>	<b>194</b>	<b>74.33</b>
<b>Total All Forms</b>	<b>166</b>	<b>63.60</b>	<b>92</b>	<b>35.25</b>	<b>261</b>	<b>100.00</b>

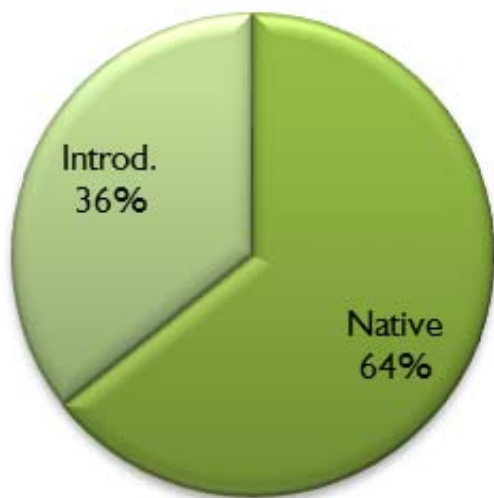


Figure 6. Invasive versus Native Species Composition at Ojibway Shores

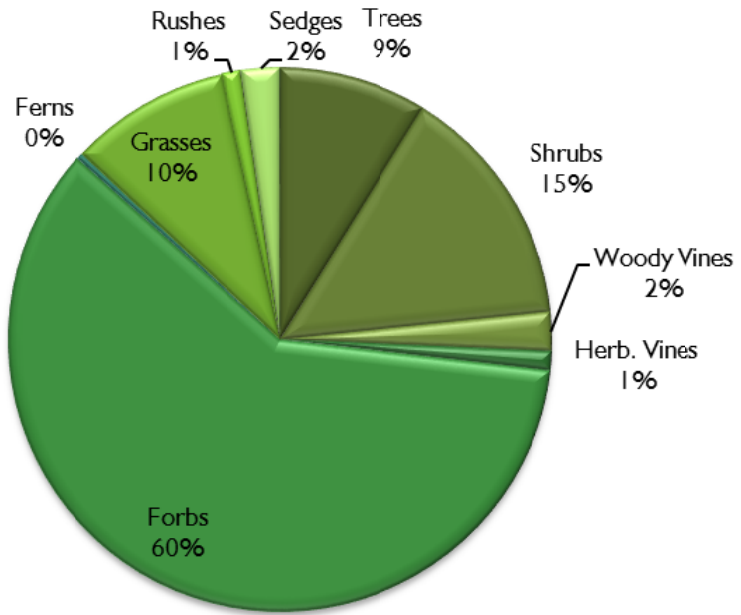
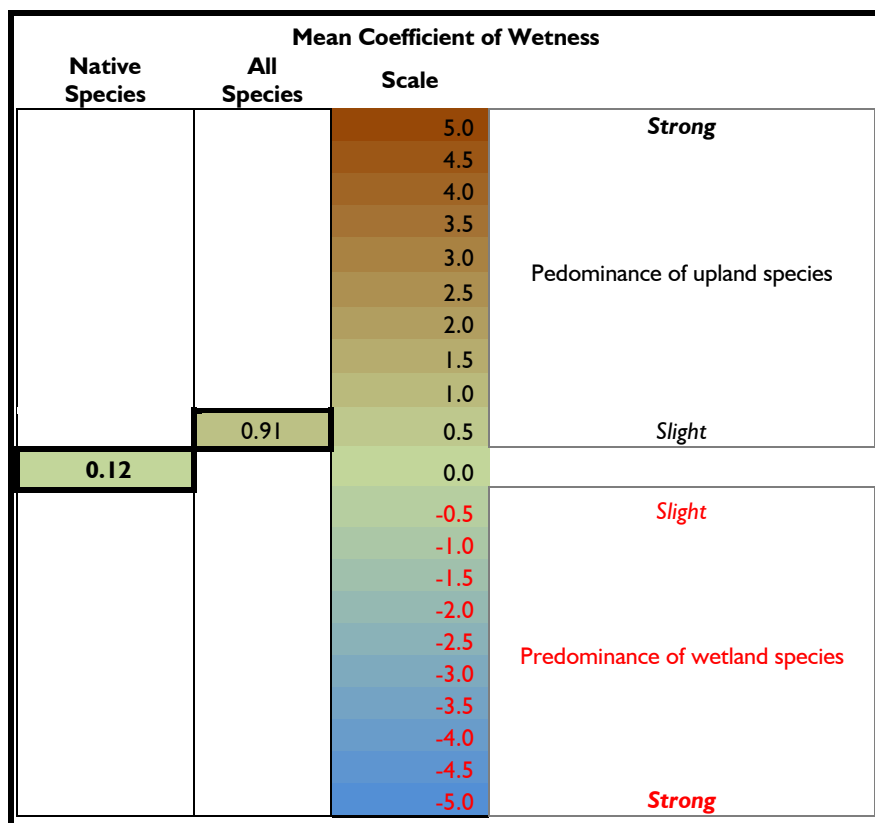


Figure 7. Ojibway Shores Plant Families

he Wetness Index for the site, calculated from the mean Coefficient of Wetness (CW) of all native taxa recorded from the site inventory, is **0.12** indicating that the site has a very slight predominance of upland species. The following table highlights the Coefficient of Wetness for Ojibway Shores.

Table 12. Ojibway Shores Wetness Index Analysis



### Significant Floral Species

The following significant floral species were documented on the property as a result of the botanical inventory.

Table 13. Ojibway Shores Significant Floral Species

Significant Flora						
Scientific Name	Common Name	CW	GRank	COSEWIC	MNR	SRank
<i>Aster praealtus</i> var. <i>praealtus</i>	Willow Aster	-3.0	G5T5?	THR	THR	S2
<i>Cirsium discolor</i>	Field Thistle	5.0	G5			S3
<i>Coreopsis tripteris</i>	Tall Coreopsis	0.0	G5			S2
<i>Eupatorium altissimum</i>	Tall Boneset	3.0	G5			S1
<i>Gaura biennis</i>	Biennial Gaura	4.0	G5			S3
<i>Liatris spicata</i>	Spiked Blazing Star	0.0	G5	THR	THR	S3
<i>Lythrum alatum</i>	Winged Loosestrife	-5.0	G5			S3

Significant Flora						
Scientific Name	Common Name	CW	GRank	COSEWIC	MNR	SRank
<i>Ranunculus hispidus</i> var. <i>hispidus</i>	Bristly Buttercup	0.0	G5T5			S3
<i>Ratibida pinnata</i>	Gray-headed Coneflower	5.0	G5			S3
<i>Rosa setigera</i>	Climbing Prairie Rose	2.0	G5	SC	SC	S3
<i>Solidago rigida</i> ssp. <i>rigida</i>	Stiff Goldenrod	4.0	G5T5			S3
<i>Vernonia gigantea</i> ssp. <i>gigantea</i>	Giant Ironweed	0.0	G5			S1?
<i>Veronicastrum virginicum</i>	Culver's-root	0.0	G4			S2

A total of 13 significant floral species were documented on the property. The following table provides information relating to the number of species within each rarity ranking.

Table 14. Ojibway Shores Floral Rarity Statistics

Rarity Status Analysis		
COSEWIC Status		
COSEWIC Status	Number of Species	% of Total Species
END	0	0.00
THR	2	0.01
SC	1	0.00
MNR Status		
MNR Status	Number of Species	% of Total Species
END	0	0.00
THR	2	0.01
SC	1	0.00
<b>Total Species at Risk</b>	<b>3</b>	<b>0.01</b>
Provincial Rarity		
SRank	Number of Species	% of Total Species
S1	1	0.00
S1?	1	0.00
S1S2	0	0.00
S1S3	0	0.00
S2	3	0.01
S2?	0	0.00
S2S3	0	0.00
S3	8	0.03
S3?	0	0.00
S3S4	0	0.00
<b>Total Provincially Rare</b>	<b>13</b>	<b>0.05</b>

### Invasive Species

The following invasive species were documented for the site can be found in the table below with their associated ranking. There are numerous information gaps for many vegetation communities, hence, a number of global types have insufficient information on which to properly determine rank. These have received an interim rank of G? until more information on the community becomes available.

Table 15. Ojibway Shores Invasive Floral Species

Invasive Flora					
Scientific Name	Common Name	CW	GRank	SRank	Type
<i>Acer negundo</i>	Manitoba Maple	-2.0	G5	S5	TR
<i>Ailanthus altissima</i>	Tree-of-heaven	5.0	GNR	SE5	TR
<i>Alliaria petiolata</i>	Garlic Mustard	0.0	GNR	SE5	FO
<i>Butomus umbellatus</i>	Flowering-rush	-5.0	G5	SE5	FO
<i>Cirsium arvense</i>	Creeping Thistle	3.0	G?	SE5	FO
<i>Elaeagnus umbellata</i>	Autumn Olive	3.0	G?	SE3	SH
<i>Lonicera japonica</i>	Japanese Honeysuckle	3.0	G?	SE2	VW
<i>Lonicera maackii</i>	Amur Honeysuckle	5.0	G?	SE2	SH
<i>Lonicera tatarica</i>	Tartarian Honeysuckle	3.0	G?	SE5	SH
<i>Melilotus alba</i>	White Sweet Clover	3.0	G5	SE5	FO
<i>Melilotus officinalis</i>	Yellow Sweet Clover	3.0	G?	SE5	FO
<i>Morus alba</i>	White Mulberry	0.0	G?	SE5	TR
<i>Phragmites australis</i>	Common Reed	-4.0	G5	S5	GR
<i>Poa pratensis ssp. pratensis</i>	Kentucky Bluegrass	1.0	G5T	S5	GR
<i>Populus alba</i>	White Poplar	5.0	G5	SE5	TR
<i>Rhamnus cathartica</i>	Buckthorn	3.0	G?	SE5	SH
<i>Rhamnus frangula</i>	Glossy Buckthorn	-1.0	G?	SE5	SH
<i>Robinia pseudo-acacia</i>	Black Locust	4.0	G5	SE5	TR
<i>Rosa multiflora</i>	Rambler Rose	3.0	G?	SE4	SH
<i>Syringa vulgaris</i>	Common Lilac	5.0	G?	SE5	SH
<i>Ulmus pumila</i>	Siberian Elm	5.0	G?	SE3	TR

## 3.7 Fauna

### Faunal Inventory

A total of 293 species were identified during the faunal inventory of the site, including invertebrates, butterflies, birds, reptiles, amphibians, mammals, and fish. This section outlines those species as well as the associated rankings found in the tables below. Any species currently listed as S1 to S3 as well as Threatened, Special Concern or Endangered were considered significant and have been highlighted in the results.

#### Invertebrates

117 species of terrestrial invertebrates were documented in the study area. During a one-day study period, five new species for Canada and one new species for Ontario were recorded. In

addition, a rare bug, *Chariesterus antennator* (S1S2) was discovered. This species is associated with Ontario's tallgrass prairie ecosystem, meaning its range is extremely limited in the province. Other invertebrates of note are: Tawny Emperor (S2S3), Hackberry Emperor (S2), Monarch (S2N, S4B) and Cobra Clubtail dragonfly (S1). Hackberry and Tawny Emperor butterflies have been identified in less than 20 locations in Ontario and are considered rare locally and provincially. Their distribution is restricted to the range of Northern Hackberry trees, with Essex County as the largest population.

Monarch butterflies have been seen on the site both as larva and adults which indicates that they utilize the area for their life cycle. Monarchs are listed by COSEWIC as Endangered and their populations have declined rapidly over the last decade. The Cobra Clubtail dragonfly is only known from two records in the Ojibway Complex and is considered provincially rare.

### **Reptiles and Amphibians**

Three snake species and five amphibian species were found on site. One Species at Risk (SAR) reptile was documented on the property during the survey period, the Eastern Foxsnake (Endangered [COSEWIC, COSSARO]). Other SAR reptiles are known to occur on the Detroit River in close proximity to the site such as: Queensnake (Endangered [COSEWIC, COSSARO]), Butler's Gartersnake (Endangered [COSEWIC, COSSARO]) and Spiny softshell Turtle (Endangered COSEWIC, Threatened COSSARO).

### **Birds**

A total 141 species of birds have been documented on the property which is over half of the 252 total species recorded in the Ojibway Prairie Complex. This significant number suggests Ojibway Shores is an important stop-over for migratory birds. The list of birds includes eight Species at Risk; Bald Eagle, Barn Swallow, Bobolink, Canada Warbler, Common Nighthawk, Peregrine Falcon, Red-headed Woodpecker, and Wood Thrush. The Ministry of Natural Resources and Forestry considers 35 species to be a significant number of migrants, suggesting Ojibway shores is a large, important corridor for numerous species.

The 10 identified distinct vegetation communities provide nesting opportunities for many of our resident breeding birds. A total of 31 birds have been confirmed breeding on site and 10 probable. One breeding bird of note is the Black-billed Cuckoo which was recently added to the Canada concern species watch list (2012).

### **Mammals**

A total of 15 species of mammals were observed on the property. One locally rare mammal, the Meadow Jumping Mouse inhabits this area and has also been confirmed breeding on site. All other mammals use the area to access the Detroit River and the connected Black Oak Heritage Park.

### **Fish**

Fish were collected on June 21<sup>st</sup> and 28<sup>th</sup> 2014 by means of electro-fishing, seine netting and



angling. 10 fish species were identified on Ojibway Shores (table 20). Although no rare species were caught, several of the species identified have economic or recreational importance (yellow perch, smallmouth bass and shiners as bait-fish). Boat electro-fishing would likely have yielded greater diversity; however, we relied solely on volunteered experts, time and equipment. The shoreline drops off quickly and in low water years may not provide a large area of habitat. With wetland enhancements in the newly expanded Broadway drain, it is expected to provide fish nursery habitat.

### Important Habitat Features

This area provides ecological linkage to the Detroit River International Wildlife Refuge and the Ojibway Prairie Complex, the latter is home to over 160 provincially rare plants and animals. Ojibway Shores' natural shoreline and Broadway Drain provide movement corridors, allowing species to increase their genetic diversity. In addition, the sandy shoreline provides nesting habitat for turtles (including the Endangered Spiny Softshell) and the drain provides overwintering habitat for snakes. The Provincially Significant Wetlands found within the site allow amphibians to breed, such as the Western Chorus Frog.

Table 16. Ojibway Shores Invertebrate Inventory

Invertebrate Inventory						
Scientific Name	Common Name	Evidence	SRank	COSEWIC/ COSSARO	Essex Status	Other Significance
<i>Acmaeodera pulchella</i> (Herbst)	Flat-headed Bald Cypress Borer	2014 BioBlitz	-	-	-	-
<i>Agelenopsis potteri</i>	American Grass Spider	2014 BioBlitz	-	-	-	-
<i>Agyneta micaria</i>	Sheetweb Weaver	2014 BioBlitz	-	-	-	-
<i>Anyphaena celer</i>	A Ghost Spider	2014 BioBlitz	-	-	-	-
<i>Anyphaena pectorosa</i>	A Ghost Spider	2014 BioBlitz	-	-	-	-
<i>Araneus marmoreus</i>	Marbled Orbweaver	2014 BioBlitz	-	-	-	-
<i>Argiope trifasciata</i>	Banded garden Spider	2014 BioBlitz	-	-	-	-
<i>Blepharida rhois</i> (Forster)	Sumac Flee Beetle	2014 BioBlitz	-	-	-	-
<i>Cicurina brevis</i>	Mesh Weaver Spider	2014 BioBlitz	-	-	-	-
<i>Chrysolina hyperici</i> (Forster)	Chrysomelid Beetle	2014 BioBlitz	-	-	-	-
<i>Clubiona abboti</i>	Stout Sac Spider	2014 BioBlitz	-	-	-	-
<i>Coras lamellosus</i>	Hackled Mesh Weaver	2014 BioBlitz	-	-	-	-
<i>Dictyna foliacea</i>	Mesh Weaver Spider	2014 BioBlitz	-	-	-	-
<i>Emblyna sublata</i>	Mesh Weaver Spider	2014 BioBlitz	-	-	-	-
<i>Enoplognatha ovata</i>	Candy stripe Spider	2014 BioBlitz	-	-	-	-
<i>Erigone atra</i>	-	2014 BioBlitz	-	-	-	-
<i>Erigone dentigera</i>	Sheetweb & Dwarf Weaver	2014 BioBlitz	-	-	-	-
<i>Eris militaris</i>	Bronze Jumper	2014 BioBlitz	-	-	-	-
<i>Exema canadensis</i> (Pierce)	Warty Leaf Beetle	2014 BioBlitz	-	-	-	-
<i>Faiditus cancellatus</i>	Cobweb Spider	2014 BioBlitz	-	-	-	-
<i>Grammonota inornata</i>	Dwarf Weaver	2014 BioBlitz	-	-	-	-
<i>Hentzia mitrata</i>	White-jawed Jumping Spider	2014 BioBlitz	-	-	-	-

Invertebrate Inventory						
Scientific Name	Common Name	Evidence	SRank	COSEWIC/ COSSARO	Essex Status	Other Significance
<i>Hypselistes florens</i>	Dwarf Weaver	2014 BioBlitz	-	-	-	-
<i>Idionella rugosa</i>	-	2014 BioBlitz	-	-	-	-
<i>Leucauge venusta</i>	Orchard Orbweaver	2014 BioBlitz	-	-	-	-
<i>Maevia inclemens</i>	Dimorphic Jumping Spider	2014 BioBlitz	-	-	-	-
<i>Mangora gibberosa</i>	Lined Orbweaver	2014 BioBlitz	-	-	-	-
<i>Mangora placida</i>	Tuftlegged Orbweaver	2014 BioBlitz	-	-	-	-
<i>Mecas pergrata</i> (Say)	Pleasing Mecas	2014 BioBlitz	-	-	-	New for Canada
<i>Micrathena gracilis</i>	Spined Micrathena	2014 BioBlitz	-	-	-	New for Canada
<i>Micrathena sagittata</i>	Arrow-shaped Micrathena	2014 BioBlitz	-	-	-	-
<i>Mimetus puritanus</i>	Pirate Spider	2014 BioBlitz	-	-	-	-
<i>Misumenoides formosipes</i>	Whitebanded Crab Spider	2014 BioBlitz	-	-	-	-
<i>Neoscona arabesca</i>	Arabesque Orbweaver	2014 BioBlitz	-	-	-	-
<i>Oxyopes salticus</i>	Striped Lynx Spider	2014 BioBlitz	-	-	-	New for Canada
<i>Oxyopes scalaris</i>	Western Lynx Spider	2014 BioBlitz	-	-	-	-
<i>Parasteatoda tabulata</i>	-	2014 BioBlitz	-	-	-	-
<i>Parasteatoda tepidariorum</i>	Common House Spider	2014 BioBlitz	-	-	-	-
<i>Pardosa milvina</i>	Thinlegged Wolf Spider	2014 BioBlitz	-	-	-	-
<i>Pardosa saxatilis</i>	Thinlegged Wolf Spider	2014 BioBlitz	-	-	-	-
<i>Pelegrina galathea</i>	Peppered Jumper	2014 BioBlitz	-	-	-	-
<i>Pelegrina proterva</i>	-	2014 BioBlitz	-	-	-	-
<i>Phidippus clarus</i>	Jumping Spider	2014 BioBlitz	-	-	-	-
<i>Philodromus peninsulanus</i>	Running Crab spider	2014 BioBlitz	-	-	-	-
<i>Piratula minuta</i>	-	2014 BioBlitz	-	-	-	-
<i>Pisaurina brevipes</i>	Nursery Web Spider	2014 BioBlitz	-	-	-	-
<i>Pisaurina mira</i>	Nursery Web Spider	2014 BioBlitz	-	-	-	-
<i>Podabrus rugulosus</i> (LeConte)	Soldier Beetle	2014 BioBlitz	-	-	-	-
<i>Polemium laticornis</i> (Say)	Net-Winged Beetle	2014 BioBlitz	-	-	-	-
<i>Schizocosa ocreata</i>	Wolf Spider	2014 BioBlitz	-	-	-	-
<i>Synema parvulum</i>	Black Tail Crab Spider	2014 BioBlitz	-	-	-	New genus for Canada
<i>Synemosyna formica</i>	Antmimic Jumping Spider	2014 BioBlitz	-	-	-	-
<i>Tenuiphantes tenuis</i>	-	2014 BioBlitz	-	-	-	-
<i>Tetragnatha straminea</i>	Long-jawed Orbweaver	2014 BioBlitz	-	-	-	-
<i>Theridion albidum</i>	Cobweb Spider	2014 BioBlitz	-	-	-	-
<i>Theridion differens</i>	Cobweb Spider	2014 BioBlitz	-	-	-	-
<i>Theridion glaucescens</i>	Cobweb Spider	2014 BioBlitz	-	-	-	-
<i>Tibellus oblongus</i>	Slender Crab Spider	2014 BioBlitz	-	-	-	New for Ontario
<i>Trachelas tranquilus</i>	Broad-faced Sac Spider	2014 BioBlitz	-	-	-	-

Invertebrate Inventory						
Scientific Name	Common Name	Evidence	SRank	COSEWIC/ COSSARO	Essex Status	Other Significance
<i>Wulfilia saltabundus</i>	Foliage Spider	2014 BioBlitz	-	-	-	-
<i>Xysticus elegans</i>	Elegant Crab Spider	2014 BioBlitz	-	-	-	-
<i>Xysticus ferox</i>	Ground Crab Spider	2014 BioBlitz	-	-	-	-
<i>Xysticus funestus</i>	Deadly ground crab spider	2014 BioBlitz	-	-	-	-
<i>Zygoballus rufipes</i>	Hammerjawed jumper	2014 BioBlitz	-	-	-	-
<i>Fidia viticida (Walsh)</i>	Grapevine Root Worm Beetle	2014 BioBlitz	-	-	-	-
<i>Microrhopala vittata (Fabr.)</i>	Goldenrod Leaf Miner	2014 BioBlitz	-	-	-	-
<i>Orchestes alni (L.)</i>	European Elm Flea Weevil	2014 BioBlitz	-	-	-	-
<i>Coccinella septempunctata (L.)</i>	Seven-spot Ladybird	2014 BioBlitz	-	-	-	-
<i>Polydrusus formosus</i>	Broad-nosed Weevil	2014 BioBlitz	-	-	-	-
<i>Euspilotus assimilis (Payk.)</i>	-	2014 BioBlitz	-	-	-	-
<i>Photinus curtatus (Green)</i>	-	2014 BioBlitz	-	-	-	-
<i>Photinus pyralis (L.)</i>	Eastern Firefly	2014 BioBlitz	-	-	-	-
<i>Photuris pensylvanica (DeG.)</i>	Pennsylvania Firefly	2014 BioBlitz	-	-	-	-
<i>Nemognatha nemorensis (Hentz)</i>	Blister Beetle	2014 BioBlitz	-	-	-	-
<i>Maladera castanea (Arrow)</i>	Asiatic Garden Beetle	2014 BioBlitz	-	-	-	New for Ontario
<i>Nipponoserica peregrina (Chapin)</i>	-	2014 BioBlitz	-	-	-	New for Canada
<i>Onthophagus hecate (Panzer)</i>	Dung Beetle	2014 BioBlitz	-	-	-	-
<i>Trox spinulosus (Robinson)</i>	-	2014 BioBlitz	-	-	-	-
<i>Forficula auricularia (L.)</i>	Earwig	2014 BioBlitz	-	-	-	-
<i>Chariesterus antennator</i>	Euphorbia Bug	2014 BioBlitz	S1S2	-	Rare	-
<i>Euthochtha galeator (Fabr.)</i>	Coreid Bug	2014 BioBlitz	-	-	-	-
<i>Pissonotus piceus (Van Duzee)</i>	-	2014 BioBlitz	-	-	-	-
<i>Campylenchia latipes (Say)</i>	Widefooted Treehopper	2014 BioBlitz	-	-	-	-
<i>Enchenopa binotata (Say)</i>	Two-marked Treehopper	2014 BioBlitz	-	-	-	-
<i>Nabicula subcoleoptrata (Kirby)</i>	Damsel Bug	2014 BioBlitz	-	-	-	-
<i>Euschistus tristigmus (Say)</i>	-	2014 BioBlitz	-	-	-	-
<i>Corimelaena lateralis (Fabr.)</i>	Tiny Black Bug	2014 BioBlitz	-	-	-	-
<i>Amphicrossus ciliatus (Olivier)</i>	Little Bronze Beetle	2014 BioBlitz	-	-	-	-

Invertebrate Inventory						
Scientific Name	Common Name	Evidence	SRank	COSEWIC/COSSARO	Essex Status	Other Significance
<i>Pallodes pallidus</i> (Palisot)	Sap Beetle	2014 BioBlitz	-	-	-	-
<i>Chortophaga viridifasciata</i> (DeG.)	Green-stripped Grasshopper	2014 BioBlitz	-	-	-	-
<i>Melanoplus confusus</i> (Scudder)	Pasture Grasshopper	2014 BioBlitz	-	-	-	-
<i>Gryllus veletis</i> (A. & B.)	Spring Field Cricket	2014 BioBlitz	-	-	-	-

Table 17. Ojibway Shores Invasive Dragonfly Inventory

Dragonfly Inventory						
Scientific Name	Common Name	Evidence/ #individuals	SRank	COSEWIC/COSSARO	Essex Status	Other Significance
<i>Gomphus vastus</i>	Cobra Clubtail	1	S1	-	Extremely rare	Second record for Ojibway Prairie Complex
<i>Sympetrum rubicundulum</i>	Ruby Meadowhawk	6	S5	-	Common Widespread	

Table 18. Ojibway Shores Butterfly Inventory

Butterfly Inventory					
Scientific Name	Common Name	Evidence/ #individuals	SRank	COSEWIC/COSSARO	Essex Status
<i>Ancyloxypha numitor</i>	Least Skipper		S5		
<i>Asterocampa celtis</i>	Hackberry Emperor		S2		Known from 12 locations in Ontario, the core of its range being Essex Co. Uncommon and local in Ontario being confined to areas where hackberry ( <i>Celtis</i> sp.) is found.
<i>Asterocampa clyton</i>	Tawny Emperor		S2S3		Less than 20 known locations. Rare and local in Ontario; only regularly found at PPNP and the Erie Islands
<i>Celastrina neglecta</i>	Summer Azure		S5		
<i>Colias eurytheme</i>	Orange Sulphur		S5		
<i>Colias philodice</i>	Clouded Sulphur		S5		
<i>Cupido comyntas</i>	Eastern Tailed Blue		S5		
<i>Danaus plexippus</i>	Monarch		S2N,S4B	END/SC	
<i>Epargyreus clarus</i>	Silver-spotted Skipper		S4		
<i>Junonia coenia</i>	Common Buckeye		SNA		
<i>Libytheana carinenta</i>	American Snout		SNA		
<i>Limenitis archippus</i>	Viceroy		S5		
<i>Papilio cressphontes</i>	Giant Swallowtail		S4		
<i>Papilio glaucus</i>	Eastern Tiger Swallowtail		S5		
<i>Papilio polyxenes</i>	Black Swallowtail		S5	-	
<i>Papilio troilus</i>	Spicebush Swallowtail		S4		
<i>Pholisora catullus</i>	Common Sootywing		S4		

Butterfly Inventory					
Scientific Name	Common Name	Evidence/ #individuals	SRank	COSEWIC/ COSSARO	Essex Status
<i>Pieris rapae</i>	Cabbage White		SNA		
<i>Poanes viator</i>	Broad-winged Skipper		S4		
<i>Polytonia interrogationis</i>	Question Mark		S5		
<i>Vanessa virginiensis</i>	American Lady		S5		

Table 19. Ojibway Shores Reptile Inventory

Reptile Inventory					
Scientific Name	Common Name	Evidence/ #individuals	SRank	COSEWIC/ COSSARO	Essex Status
<i>Elaphe gloydi</i>	Eastern Foxsnake-Carolinian Population	1	S2	END	Uncommon Widespread
<i>Storeria dekayi</i>	Dekay's Brownsnake	6	S5	-	Common Widespread
<i>Thamnophis sirtalis</i>	Eastern Gartersnake	4	S5	-	Common Widespread

Table 20. Ojibway Shores Amphibian Inventory

Amphibian Inventory						
Scientific Name	Common Name	Evidence/ #individuals	SRank	COSEWIC/ COSSARO	Essex Status	Other Significance
<i>Anaxyrus americanus</i>	American Toad	3	S5	-	Common Widespread	Confirmed Breeding
<i>Pseudacris triseriata</i>	Western Chorus Frog	calling	S4	-		Confirmed Breeding
<i>Rana catesbeiana</i>	American Bullfrog	1	S4	-		
<i>Rana clamitans</i>	Green Frog	2	S5	-	Common Widespread	-
<i>Rana pipiens</i>	Northern Leopard Frog	8	S5	-	Common Widespread	-

Table 21. Ojibway Shores Mammal Inventory

Mammal Inventory						
Scientific Name	Common Name	Evidence/ #individuals	SRank	COSEWIC/ COSSARO	Essex Status	Other Significance
<i>Canis latrans</i>	Coyote	1	S5	-	Common Widespread	Probable Breeding
<i>Didelphis virginiana</i>	Virginia Opossum	1	S4		Common Widespread	Probable Breeding
<i>Eptesicus fuscus</i>	Big Brown Bat	1		-	Common Widespread	Unknown Breeding Status
<i>Mephitis mephitis</i>	Striped Skunk	2-25	S5	-	Common Widespread	Probable Breeding
<i>Microtus pennsylvanicus</i>	Meadow Vole	>25	S5	-	Common Widespread	Confirmed Breeding
<i>Mustela vison</i>	American Mink	1	S4		Locally Rare	Unknown Breeding Status

Mammal Inventory						
Scientific Name	Common Name	Evidence/ #individuals	SRank	COSEWIC/ COSSARO	Essex Status	Other Significance
<i>Odocoileus virginianus</i>	White-tailed Deer	2-25	S5	-	Common Widespread	Probable Breeding
<i>Ondatra zibethicus</i>	Muskrat	>25	S5	-	Common Widespread	Unknown Breeding Status
<i>Peromyscus leucopus</i>	White-footed Mouse	2-25	S5	-	Common Widespread	Confirmed Breeding
<i>Peromyscus maniculatus</i>	Deer Mouse	2-25	S5	-	Common Widespread	Confirmed Breeding
<i>Procyon lotor</i>	Raccoon	2-25	S5	-	Common Widespread	Confirmed Breeding
<i>Sciurus carolinensis</i>	Eastern Grey Squirrel	>25	S5	-	Common Widespread	Confirmed Breeding
<i>Sylvilagus floridanus</i>	Eastern Cottontail	2-25	S5	-	Common Widespread	Confirmed Breeding
<i>Vulpes vulpes</i>	Red Fox	2-25	S5	-	Common Widespread	Probable Breeding
<i>Zapus hudsonius</i>	Meadow Jumping Mouse	1	S5	-	Locally Rare	Confirmed Breeding

Table 22. Ojibway Shores Fish Inventory

Fish Inventory					
Scientific Name	Common Name	Evidence/ #individuals	SRank	COSEWIC/ COSSARO	Essex Status
<i>Ambloplites rupestris</i>	Rock Bass	9	S5	-	Common Widespread
<i>Catostomus commersonii</i>	White Sucker	1	S5	-	Common Widespread
<i>Luxilus cornutus</i>	Common shiner		S5		Common Widespread
<i>Micropterus dolomieu</i>	Smallmouth Bass	1	S5	-	Common Widespread
<i>Neogobius melanostomus</i>	Round goby		SNA		Common Widespread
<i>Notropis atherinoides</i>	Emerald Shiner	5	S5	-	Common Widespread
<i>Notropis hudsonius</i>	Spottail Shiner	1	S5	-	Common Widespread
<i>Perca flavescens</i>	Yellow Perch	1	S5	-	Common Widespread
<i>Percina caprodes</i>	Logperch		S5		Common Widespread
<i>Pimephales notatus</i>	Bluntnose minnow		S5		Common Widespread

Table 23. Ojibway Shores Bird Inventory

Bird Inventory					
Common Name	SRank	COSEWIC/ COSSARO	Partners in Flight Level of Concern	Status	Observation

Ojibway Shores Natural Heritage Inventory/Evaluation

Bird Inventory					
Common Name	SRank	COSEWIC/ COSSARO	Partners in Flight Level of Concern	Status	Observation
Canada Goose	S5B		-	A CV CB	Detroit River
Mute Swan	SNA		-		February 7, 2015, John Baker
Tundra Swan	S4		-		March 10, 2015, Ian Woodfield, (2)
Wood Duck	S5B		-	A CV PB	Broadway Drain
Mallard	S5B		-	A CV CB	
Canvasback	S1B,S4N		-		February 27, 2015, Ian Woodfield
Redhead	S2B,S4N		-		February 16, Ian Woodfield, (4)
Ring-necked Duck	S5		-		February 8, 2015, Ian Woodfield (2)
Greater Scaup	S4		-		March 16, 2015, Ian Woodfield, (4)
Lesser Scaup	S4		-		November 28, 2014, Ian Woodfield (3)
White-winged Scoter	S4B, S4N		-		April 7, 2014, Ian Woodfield (2)
Bufflehead	S4		-		April 19, 2015, John Baker,
Common Goldeneye	S5		-		March 16, 2015, Ian Woodfield (6)
Hooded Merganser	S5B,S5N		-		March 10, 2015, Ian Woodfield
Common Merganser	S5B,S5N		-		March 10, 2015, Ian Woodfield
Red-breasted Merganser	S4B,S5N		-		February 27, 2015, Ian Woodfield
Ruddy Duck	S4B,S4N		-		October 19, 2014, Ian Woodfield, (2)
Ring-necked Pheasant	SE		Regional concern score, breeding, 12	MS C CB	Naturalized (unknown site, young present)
Wild Turkey	S4B		Regional concern score, breeding, 10	SI	Reintroduced
Common Loon	S5B,S5N		-		May 9, 2015, Ian Woodfield (1)
Double-crested Cormorant	S5B		-		September 25, 2015 Ian Woodfield (1)
Great Blue Heron	S5B		-	MS CV NB	Day roosting / occupying drainage features
Great Egret	S2B				September 25, 2015, Ian Woodfield (1)
Green Heron	S4B			SI M NB	
Turkey Vulture	S4B		Regional concern score, breeding, 8	MS CV NB	Day roosting, no evidence of breeding
Sharp-shinned Hawk	S5B		Regional concern score, breeding, 15		March 10, 2015, Ian Woodfield, (1)
Cooper's Hawk	S4B		Regional concern score, breeding, 11	MS C PrB	
<b>Bald Eagle</b>	S4B	SC/SC	Regional concern score, breeding, 12	MS <b>S</b> NB	common visitor / Detroit River corridor species
<b>Red-shouldered Hawk</b>	S4B		Regional concern score, breeding, 13	SI <b>S</b>	(foraging) migrant
Broad-winged Hawk	S5B		Regional concern score, breeding, 11		May 5, 2014, David McNorton (2)
Red-tailed Hawk	S5B		Regional concern score, breeding, 10	MS C CB	Several breeding records – none for 2014

Bird Inventory					
Common Name	SRank	COSEWIC/ COSSARO	Partners in Flight Level of Concern	Status	Observation
American Coot	S4B		-		April 13, 2014, Karen Hass (1)
Killdeer	S5B		-	A C CB	Nest found
Spotted Sandpiper	S5B		-		August 27, 2015, Ian Woodfield (1)
Solitary Sandpiper	S4B		-		May 9, 2015, Ian Woodfield (1)
Wilson's Snipe	S5B		-	SI C PB	
American Woodcock	S5B		-	MS C CB	Nest found
Bonaparte's Gull	S4B,S4N		-		April 19, 2015, John Baker,
Ring-billed Gull	S5B,S4N		-		November 20, 2015-Ian Woodfield (8)
Herring Gull	S5B,S5N		-		November 20, 2015-Ian Woodfield (3)
Glaucous Gull	S4N		-		February 16, 2014, Tom Preney (3)
Great Black-backed Gull	S2B		-		February 27, 2015 Ian Woodfield (1)
Rock Pigeon	SE		Regional concern score, breeding, 12		November 20, 2015-Ian Woodfield (22)
Mourning Dove	S5B		Regional concern score, breeding, 8	A C CB	
Black-billed Cuckoo	S4B		Regional concern score, breeding, 17; Regional concern species; US-Canada concern species (2012 Watch List); Common Bird in Steep Decline; Regional Stewardship Species; US-Canada Stewardship Species		June 28, 2014, ECFNC (1)
Eastern Screech-Owl	S5B		Regional concern score, breeding, 13	MS C CB	Nest found
Great Horned Owl	S5B		Regional concern score, breeding, 11	MS C CB	Several breeding records – none for 2014
Saw-whet Owl	S5		Regional concern score, breeding, 11	A M NB	Detroit River corridor migrant
Common Nighthawk	S4B	Thr/SC	Regional concern score, breeding, 12	A S NB	(aerial foraging) common
Ruby-throated Hummingbird	S5B		Regional concern score, breeding, 10	SI C CB	Carrying food
Belted Kingfisher	S5B		Regional concern score, breeding, 16; Regional Concern Species;		April 7, 2015, Ian Woodfield, (1)



Bird Inventory					
Common Name	SRank	COSEWIC/ COSSARO	Partners in Flight Level of Concern	Status	Observation
			Common Bird in Steep Decline		
Red-headed Woodpecker	S3B	Thr/SC	Regional concern score, breeding, 15; Regional Concern Species; US-Canada Concern Species; Common Bird in Steep Decline	MS S PB	Species of interest – locally rare
Red-bellied Woodpecker	S4		Regional concern score, breeding, 9	MS R CB	Carrying food to cavity
Yellow-bellied Sapsucker	S5B		Regional concern score, breeding, 10	SI M NB	
Downy Woodpecker	S5		Regional concern score, breeding, 12	MS C CB	
Hairy Woodpecker	S5		Regional concern score, breeding, 11	MS C PrB	Excavating cavity – cavity not occupied
Northern Flicker	S5B		Regional concern score, breeding, 15; Regional Concern; Common Bird in Steep Decline	MS C CB	
American Kestrel	S5B		Regional concern score, breeding, 16; Regional Concern	A C CB	Woodlot edge - “agricultural” trees
Peregrine Falcon	S253B	SC/SC	Regional concern score, breeding, 12	MS S NB	Foraging / migration movements – (CV)
Eastern Wood- Pewee	S5B		Regional concern score, breeding, 15; Regional Concern		September 10, 2015, Ian Woodfield, (1)
Least Flycatcher	S5B		Regional concern score, breeding, 14; Regional Concern	MS M	
Eastern Phoebe	S5B		Regional concern score, breeding, 12	MS C PB	Courtship behavior
Great Crested Flycatcher	S5B		Regional concern score, breeding, 11	MS C CB	Cavity found
Eastern Kingbird	S5B		Regional concern score, breeding, 15; Regional Concern		August 24, 2014, Essex County Field Naturalists’ Club (1)
Blue-headed Vireo	S5B		Regional concern score, breeding,		May 8, 2014, David McNorton (3)

Bird Inventory					
Common Name	SRank	COSEWIC/ COSSARO	Partners in Flight Level of Concern	Status	Observation
			10		
Warbling Vireo	S5B		Regional concern score, breeding, 9		September 10, 2015, Ian Woodfield (2)
Red-eyed Vireo	S5B		Regional concern score, breeding, 9	MS M	
Blue Jay	S5		Regional concern score, breeding, 10	A C CB	
American Crow	S5B		Regional concern score, breeding, 10	A CV NB	
Horned Lark	S5B		Regional concern score, breeding, 11; Common Bird in Steep Decline	A C CB	Edge habitat use
Northern Rough-winged Swallow	S5B		Regional concern score, breeding, 11		PB July 18, 2015, Jeff Skevington (2)
Tree Swallow	S5B		Regional concern score, breeding, 12; US-Canada Stewardship Species	A C CB	
Barn Swallow	S5B	Thr/Thr	Regional concern score, breeding, 15; Regional Concern	A S PB	Nesting may be occurring in concrete piles
Black-capped Chickadee	S5		Regional concern score, breeding, 11	A CV	No breeding evidence was found
Tufted Titmouse	S253		Regional concern score, breeding, 10	SI S PB	Locally rare – singing male observed
Red-breasted Nuthatch	S5B		Regional concern score, breeding, 8	SI CV NB	
White-breasted Nuthatch	S5		Regional concern score, breeding, 10	MS C PB	
Brown Creeper	S5B		Regional concern score, breeding, 11	MS M NB	Early migrant
House Wren	S5B		Regional concern score, breeding, 10	MS C CB	
Winter Wren	S5B		Regional concern score, breeding, 10		May 8, 2014, David McNorton (1)
Carolina Wren	S35B		Regional concern score, breeding, 9	MS C PB	
Blue-grey Gnatcatcher	S4B		Regional concern score, breeding, 9		August 27, 2015, Ian Woodfield, (3)
Golden-crowned Kinglet	S5B		Regional concern score, breeding, 9	MS M NB	Early migrant

Bird Inventory					
Common Name	SRank	COSEWIC/ COSSARO	Partners in Flight Level of Concern	Status	Observation
Ruby-crowned Kinglet	S5B		Regional concern score, breeding, 9	A M NB	Early migrant
Eastern Bluebird	S4S5B		Regional concern score, breeding, 9		May 5, 2015, Ian Woodfield (2)
Veery	S4B		Regional concern score, breeding, 15; Regional Concern	SI M NB	
Gray-cheeked Thrush	S354B		-	MS M NB	
Swainson's Thrush	S5B		Regional concern score, breeding, 8	MS M NB	
Hermit Thrush	S5B		Regional concern score, breeding, 10	MS M NB	
Wood Thrush	S5B	Thr/-	Regional concern score, breeding, 15; Regional Concern; US-Canada Concern Species; Tri-National Concern Species	MS S NB	Detroit River corridor migrant
American Robin	S5B		Regional concern score, breeding, 10	MS C CB	
Grey Catbird	S5B		Regional concern score, breeding, 11	A C CB	Multiple nest sites
Brown Thrasher	S5B		Regional concern score, breeding, 16; Regional Concern	SI M NB	
European Starling	SE		Regional concern score, breeding, 12		November 20, 2015-Ian Woodfield (14)
Cedar Waxwing	S5B		Regional concern score, breeding, 11; US-Canada Stewardship Species	MS C CB	Multiple nest sites, nests not found
Ovenbird	S5B		Regional concern score, breeding, 11		May 8, 2014, David McNorton (2)
Northern Waterthrush	S5B		Regional concern score, breeding, 10	MS M NB	Foraging in "swamp" ponds
Blue-winged Warbler	S4B		Regional concern score, breeding, 17; Regional Concern; Regional Stewardship Species; US-Canada		May 5, 2015, Ian Woodfield, (1)

Bird Inventory					
Common Name	SRank	COSEWIC/ COSSARO	Partners in Flight Level of Concern	Status	Observation
			Stewardship Species		
Black-and-white Warbler	S5B		Regional concern score, breeding, 10	MS M	
Tennessee Warbler	S5B		Regional concern score, breeding, 9		May 5, 2014, David McNorton, (1)
Orange-crowned Warbler	S4B		-		May 5, 2015, Ian Woodfield, (2)
Nashville Warbler	S5B		Regional concern score, breeding, 12		August 31, 2015, Ian Woodfield, (1)
American Redstart	S5B		Regional concern score, breeding, 12	MS M	
Cape May Warbler	S5B		Regional concern score, breeding, 11		September 10, 2015, Ian Woodfield (1)
Northern Parula	S4B		Regional concern score, breeding, 11		May 8, 2014, David McNorton (3)
Magnolia Warbler	S5B		Regional concern score, breeding, 10	MS M	
Bay-Breasted Warbler	S5B		Regional concern score, breeding, 11		September 10, 2015, Ian Woodfield, (1)
Blackburnian Warbler	S5B		Regional concern score, breeding, 10		May 5, 2015, Ian Woodfield (1)
Yellow Warbler	S5B		Regional concern score, breeding, 11	MS M CB	Nests from former seasons found
Chestnut-sided Warbler	S5B		Regional concern score, breeding, 11	MS M	
Black-throated Blue Warbler	S5B		Regional concern score, breeding, 12	MS M	
Palm Warbler	SNRB		Regional concern score, breeding, 12		May 5, 2015, Ian Woodfield (10)
Yellow-rumped Warbler	S5B		Regional concern score, breeding, 8	MS M	
Black-throated Green Warbler	S5B		Regional concern score, breeding, 12	MS M	
Canada Warbler	S4B	Thr/SC	Regional concern score, breeding, 15; Regional Concern Species; US-Canada Concern Species; Tri-National	SI S	(foraging) Migrant

Bird Inventory					
Common Name	SRank	COSEWIC/ COSSARO	Partners in Flight Level of Concern	Status	Observation
			Concern Species		
American Tree Sparrow	S4B		-		November 29, 2015- Steve Greidanus
Chipping Sparrow	S5B		Regional concern score, breeding, 10	MS C CB	
Field Sparrow	S5B		Regional concern score, breeding, 15; Regional Concern Species; Common Bird in Steep Decline		September 25, 2015 Ian Woodfield (1)
Fox Sparrow	S4B		-		November 20 <sup>th</sup> , 2015-Ian Woodfield (2)
Dark-eyed Junco	S5B		Regional concern score, breeding, 8	MS M NB	
White-crowned Sparrow	S4B		-		May 8, 2014, David McNorton, (4)
White-throated Sparrow	S5B		Regional concern score, breeding, 10	MS C M	Detroit River corridor species
Savannah Sparrow	S5B		Regional concern score, breeding, 15; Regional Concern Species		August 12, 2015, Ian Woodfield (1)
Song Sparrow	S5B		Regional concern score, breeding, 13	MS C CB	
Lincoln's Sparrow	S5B		Regional concern score, breeding, 9		May 20, 2014, Tom Preney (2)
Swamp Sparrow	S5B		Regional concern score, breeding, 10		May 8, 2014, David McNorton (1)
Eastern Towhee	S4B		Regional concern score, breeding, 14; Regional Concern Species		May 20, 2014, Tom Preney (1)
Northern Cardinal	S5		Regional concern score, breeding, 7	MS C CB	
Rose-breasted Grosbeak	S5B		Regional concern score, breeding, 14	SI CV CB	Previous season's nest found
Indigo Bunting	S5B		Regional concern score, breeding, 9	A C CB	
<b>Bobolink</b>	S4B	Thr/Thr	Regional concern score, breeding, 17; Regional Concern Species; US-Canada Concern Species; Common Bird in Steep Decline; Regional Stewardship	A <b>S</b>	Known breeding history – grass edges

Bird Inventory					
Common Name	SRank	COSEWIC/ COSSARO	Partners in Flight Level of Concern	Status	Observation
			Species; US- Canada Stewardship Species		
Red-winged Blackbird	S5B		Regional concern score, breeding, 12		November 20, 2015 Ian Woodfield (1)
Rusty Blackbird	S4B		Regional concern score, breeding, 10		April 10, 2014, David McNorton (10)
Common Grackle	S5B		Regional concern score, breeding, 12	MS C CB	
Brown Headed Cowbird	S5B		Regional concern score, breeding, 13		May 9, 2015, Ian Woodfield (6)
Orchard Oriole	SZB		Regional concern score, breeding, 9		May 8, 2014, David McNorton (1)
Baltimore Oriole	S5B		Regional concern score, breeding, 15; Regional Concern Species; Regional Stewardship Species; US- Canada Stewardship Species	MS C CB	Multiple sites
House Finch	SE		Regional concern score, breeding, 7		August 27, 2015, Ian Woodfield (4)
Purple Finch	S4B		Regional concern score, breeding, 12		April 10, 2014, David McNorton (1)
American Goldfinch	S5B		Regional concern score, breeding, 12; US-Canada Stewardship Species	A C CB	
House Sparrow	SE		Regional concern score, breeding, 12		November 20, 2015-Ian Woodfield (5)

## Faunal Analysis

### Significant Faunal Species

The following significant species were documented on the property as a result of the faunal inventory:

Table 24. Ojibway Shores Significant Fauna

Significant Fauna					
Scientific Name	Common Name	Evidence	SRank	COSEWIC/ COSSARO	Essex Status
<i>Asterocampa celtis</i>	Hackberry Emperor		S2		Uncommon
<i>Asterocampa clyton</i>	Tawny Emperor		S2S3		Uncommon
<i>Baeolophus bicolor</i>	Tufted Titmouse		S253		Locally rare
<i>Chariesterus antennator</i>	Euphorbia Bug	1 (2014 BioBlitz)	S1S2	-	Rare
<i>Chordeiles minor</i>	Common Nighthawk		S4B	THR/SC	Common
<i>Danaus plexippus</i>	Monarch		S2N,S4B	END/SC	
<i>Dolichonyx oryzivorus</i>	Bobolink		S4B	THR/THR	
<i>Elaphe gloydi</i>	Eastern Foxsnake- Carolinian Population	1	S2	END/END	Uncommon Widespread
<i>Falco peregrinus</i>	Peregrine Falcon		S253B	SC/SC	Uncommon
<i>Gamphus vastus</i>	Cobra Clubtail	1	S1	-	Extremely rare
<i>Haliaeetus leucocephalus</i>	Bald Eagle		S4B	SC/SC	Common
<i>Hirundo rustica</i>	Barn Swallow		S5B	THR/THR	Common
<i>Hylocichla mustelina</i>	Wood Thrush		S5B	THR/-	
<i>Melanerpes erythrocephalus</i>	Red-headed Woodpecker		S3B	THR/SC	Locally rare
<i>Wilsonia canadensis</i>	Canada Warbler		S4B	THR/SC	

A total of 15 significant faunal species were documented on the property. The following table provides information relating to the number of species within each rarity ranking.

Table 25. Ojibway Shores Faunal Rarity Statistics

Rarity Status Analysis		
COSEWIC Status		
COSEWIC Status	Number of Species	% of Total Species
END	1	
THR	6	
SC	3	
MNR Status		
MNR Status	Number of Species	% of Total Species
END	1	
THR	2	
SC	6	
<b>Total Species at Risk</b>	<b>9</b>	
Provincial Rarity		
SRank	Number of Species	% of Total Species
S1	1	
S1?	0	
S1S2	1	
S1S3	0	
S2	2	
S2?	0	
S2S3	1	
S3	1	
S3?	0	
S3S4	0	
<b>Total Provincially Rare</b>	<b>6</b>	



### **3.8 Evaluation Criteria Fulfilled & Natural Heritage Significance**

Evaluation analyses have determined that the natural heritage feature has fulfilled the following 9 out of 10 evaluation criteria.

#### **Criterion No. 1 – Significant Wetland**

Lands surveyed for this site have been identified as within the Black Oak Wetland Complex (ER 40) Provincially Significant Wetland (PSW) as identified by the MNRF. **(See “Ojibway Shores PSW map.pdf” for map of the PSW designation.**

“Significant wetland” designation is evaluated using a multi-factor Ontario Evaluation System (OWES) and confirmed by the MNRF. The significance of any evaluated wetland is based on rankings of: biological condition – productivity and diversity, social component – direct and indirect uses of wetlands, recreational, economical or human health, hydrological component – value of water-related value such as flood reduction and groundwater recharge, and special features – rarity of the wetland in the area, age or occurrence of Species at Risk (MNRF Natural Heritage Reference Manual 2005). A wetland designated as a PSW has undergone exhaustive evaluation to value its importance and is protected under the Ontario Provincial Policy Statement.

#### **Criterion No. 2 – Significant Habitat of Endangered/Threatened Species**

Habitat for SAR are defined as portions of natural areas that are necessary for the maintenance, survival, and/or the recovery of naturally occurring or reintroduced populations of endangered species or threatened species, and areas of occurrence that are occupied or habitually occupied by the species during all or any part(s) of its life cycle. For this study, the presence of SAR and their habitats were assessed and verified through the Ontario Ministry of Natural Resources and Forestry.

Eight (8) distinct vegetation communities were identified (One community listed as provincially rare) from the ELC (table 3, Please refer to the additional document labeled: “Ojibway Shores ELC Mapping - 20160704.pdf” for the ELC map) table 3 lists 6-10 vegetation communities as “high diversity”. These vegetation communities support 28 threatened and endangered species, 13 plant and 15 faunal species (tables 11 & 22, respectively).

#### **Criterion No. 3 – Significant Woodland**

Most of the site is wooded and thus greatly exceeds the two hectare minimum required to meet this criterion. In addition, woodlands are considered continuous even when bisected by public roads, and this property is adjacent (and thus continuous) with the Black Oaks forest complex. Of the 8 vegetation communities delineated in the ELC, a provincially rare forest ecotype (FODM7-4 Fresh-Moist Black Walnut Lowland Deciduous Forest (S2S3-provincially rare), Table 3) was discovered.

#### **Criterion No. 4 – Significant Wildlife Habitat**

Wildlife habitat is deemed significant if it serves as an area where plants, animals and other organisms live, and find adequate amounts of food, water, shelter and space needed to sustain their populations. This may include areas where species concentrate at a vulnerable point in their annual life cycle; and areas which are important to migratory or non-migratory species. As evidenced by bird surveys (table 21) a total 141 species of birds have been documented on the property. This is over half of the 252 total bird species recorded in the Ojibway Prairie Complex. Many of the breeding birds documented for the site are Partners in Flight Conservation Priority species. In addition, the Ministry of Natural Resources and Forestry considers 35 species to be a significant number of migrants, suggesting Ojibway shores is a large, important corridor for numerous species, and an important spot for migrant species.

Monarch butterflies have been identified Ojibway shores both as larva and adults indicating they utilize the area for their complex, migratory life cycle. Monarchs are listed by COSEWIC as a Species of Special Concern and their populations have declined rapidly over the last decade.

This area provides ecological linkage to the Detroit River International Wildlife Refuge and the Ojibway Prairie Complex, the latter is home to over 160 provincially rare plants and animals. Ojibway Shores' natural shoreline and Broadway Drain provide movement corridors, allowing species to increase their genetic diversity. The 8 identified distinct vegetation communities provide nesting opportunities for many of our resident breeding birds and refuge for reptiles and amphibians. In addition, the presence of vernal pools also provides significant opportunities for breeding amphibians.

The site also has been found to fulfill Criterion No. 8 – Significant Species and Criterion No.9 – Significant Communities, both of which indicate the presence of Significant Wildlife Habitat.

#### **Criterion No. 6 – Ecological Function**

The study site is the western termination of the chain of natural areas lying to the east, stretching from Oakwood Park to the Detroit River, a distance of 6 km. It is the only part of this linkage situated along the shore of the river. Additionally, it is the largest habitat node north of Turkey Creek along the river's shore. The next natural areas are located approximately 17 km upstream. This cluster includes the natural areas associated with the eastern end of Belle Isle, Peche Isle and the Little River corridor.

The large numbers of migrant birds documented on the site (warblers in particular), suggest that birds orienting to the river are hesitant to enter the industrial areas on the west and north banks, and are using Ojibway Shores as a feeding and resting stopover. This is likely true of migrating insects as well. The size of the area in natural cover is large enough to support a varied breeding population of bird species.

Water is retained on-site in ponds and provides the function of groundwater recharge. Flows from the area make a very modest contribution to the river's hydrology. These flows are

polished in settling depressions and by aquatic vegetation as they move towards the river. Thick vegetation captures most of the overland flow and infiltration into the sandy/gravelly soils.

### **Criterion No. 7 – Diversity**

Areas may be considered diverse if they support many species and associations, and a heterogeneous physical structure. Areas of high diversity contain several types of natural communities. We identified 8 distinct vegetation communities (1 listed as provincially rare) from the ELC analysis (table 3, Please refer to the additional document labeled: “Ojibway Shores ELC Mapping - 20160704.pdf” for the ELC map). From the table under the Criterion 7 heading, a site is considered “High Diversity” if 6-10 ELC types are found. Ojibway Shores falls right in the middle with 8 vegetation types. Considering the property’s history, linkage and inhabitants, Ojibway Shores is a heterogeneous habitat that supports many species.

### **Criterion No. 8 – Significant Species**

Significant species are designated “rare” on the Natural Heritage Information Centre (NHIC) database (those listed as S1 to S3). For this study, any natural area containing an S1 to S3 species were considered as fulfilling the Significant Species criteria (S1 critically imperiled S2, imperiled, S3 vulnerable). The area has not only valid documented occurrence of a rare species, but also has been identified as providing the elements critical to the life cycle of the designated species (primarily habitat–this pertains to criteria 2 & 4 and have been met). Twenty-eight (28) significant species were identified on the property.

A total of 261 plant species were identified during the botanical inventory of the site. The following 13 significant floral species were observed (tables 11 & 12): Willow Aster (S2), Field thistle (S3), Tall Coreopsis (S2), Tall Boneset (S1), Biennial Gaura (S3), Spike Blazing Star (S3), Winged Loosestrife (S3), Bristly Buttercup (S3), Gray-headed Coneflower (S3), Climbing Prairie Rose (SC S3), Stiff Goldenrod (S3), Giant Ironweed (S1), Culver’s root (S2).

A total of 293 species were identified during the faunal inventory of the site, including invertebrates, butterflies, birds, reptiles, amphibians, mammals, and fish. Five (5) of the species discovered were new records for Canada. The following 15 significant faunal species were observed (table 22):

Tufted Titmouse (S253), Euphorbia Bug (S1S2), Common Nighthawk (S4B), Monarch Butterfly (S2N, S4B), Bobolink (S4B), Eastern Foxsnake - Carolinian Population (S2), Peregrine Falcon (S253B), Cobra Clubtail Dragonfly (S1), Bald Eagle (S4B), Barn Swallow (S5B), Wood Thrush (S5B), Red-headed Woodpecker (S3B), Canada Warbler (S4B).

### **Criterion No. 9 – Significant Communities**

Significant communities contain an assemblage of plants and animals which are either unique or unusual in the local, provincial, or national context. These communities may be geographically

isolated from other occurrences in the region or elsewhere in Ontario/Canada. For this study, ELC protocols were used for the typification of 8 vegetation communities, with cross-referencing to the NHIC rarity database. Of the 8 vegetation communities delineated in the ELC, a provincially rare forest ecotype (FODM7-4 Fresh–Moist Black Walnut Lowland Deciduous Forest (S2S3-provincially rare), Table 3) was delineated. This community is provincially rare and therefore considered a significant community.

### **Criterion No. 10 – Condition**

The site has a history of disturbance since European incursion and settlement and very likely during Native American occupation. It was part of the Petite Cote community, founded during the French Regime (1701 – 1760). The area has been subject to deforestation, livestock grazing, crop tillage and drainage for nearly three centuries.

In more recent decades, fill was placed on portions of the site; however, the majority of the site retained its native soils *in situ* – a remarkable array of seven soil series. After the fill was placed, major disturbance ceased and succession proceeded with recruitment of species from adjacent natural areas. This colonization increased the native species component and enhanced biodiversity. A significant proportion of exotic species dominate parts of the area but can be expected to decline with further recruitment and maturation of the plant communities. Currently 78% of the flora is composed of native species, which is unusually high for an urban setting.

Currently, ATV traffic within the area has subsided but some mountain biking persists on established trails. A limited amount of fishing is conducted on the riverbank. Very little debris, other than broken concrete, persists from earlier uses of the site.

Natural disturbances include windthrow and Emerald Ash Borer infestation. The borer has run its course, removing the mature ash trees but leaving a cohort of ash saplings. The opening of the tree canopy due to the destruction of the elm and ash trees through disease and insect infestation has fostered an increase in understorey complexity that is usually associated with a more mature woodland community. There has been no significant cutting of trees since succession was initiated.

The high number of documented plant communities (10) reflects past diverse disturbances and management which have created areas of varied micro-topography, soils and hydrology. The hydrology of the native soils remains relatively unaltered; apparently the site has never been tile drained. The shallow open agricultural drains now function as ephemeral ponds suitable for amphibian breeding.

The potential of the study area to attain a condition capable of providing additional natural heritage values redeems its varied past and the casual observer might find it difficult to appreciate the extent and speed of its recovery of these values. The shoreline in particular, north of the constructed pond at the southernmost edge, exhibits an excellent state of

preservation with the outwash sands of the breached Detroit Moraine overlying a textbook example of glacial varved clay of unknown depth.

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