



Conservation Master Plan for the Coves ESA

Prepared for the City of London Parks Planning & Design

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North-South Environmental Inc.



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COVER PHOTOGRAPHY CREDIT

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THE COVES ENVIRONMENTALLY SIGNIFICANT AREA CONSERVATION MASTER PLAN

Section 1 – Introduction to the Coves CMP



Autumn At The South Pond

Photo Credit – Andrew Jackson (www.ontariowildlife.net)



THE COVES ENVIRONMENTALLY SIGNIFICANT AREA CONSERVATION MASTER PLAN

SECTION 1 – INTRODUCTION TO THE COVES CMP

What is an Environmentally Significant Area (ESA)?

Environmentally Significant Areas are recognized and designated as fully protected natural areas *that contain natural features and perform ecological functions that warrant their protection in a natural state*. In the hierarchy of the Natural Heritage System, ESAs are considered the largest, highest quality areas within the City. They represent areas that may have unusual geological processes, contribute important hydrological functions related to wetlands and watercourses, contain high quality vegetation communities, rare and uncommon vegetation communities and species, including Species at Risk, are of sufficiently large size to support critical wildlife habitat and linkage functions, and represent important areas of biodiversity. Protection of important ecological areas, including the physical and ecological features and functions that sustain these areas, is therefore the primary management goal of ESAs.

Why is the Coves an ESA?

The Coves area is representative of the Thames River floodplain, which is characterized by a relatively wide low floodplain of glacial origin with steep valley slopes. The Coves also includes a unique series of ponds that follow an old oxbow which is now cut off from the main Thames River channel. The floodplain vegetation communities present include deciduous forests and swamps, meadow marsh, cultural vegetation communities, and areas of open aquatic habitat associated with the oxbow ponds. There is also deciduous forest vegetation along valley slopes and some adjacent tableland areas and open habitat associated with an old landfill area.

The Coves is situated in the central part of the City of London, south and west of the confluence of the north and south branches of the Thames River. The Coves is an ESA based on the environment meeting the following six criteria used to evaluate an ESA (London 2007).

Criterion 1: Distinctive or unusual landforms

- The Coves contains a series of oxbow ponds and meander scars, some of the largest on the Thames River, and the only ones in the City of London
- Extensive ravine system including watercourses steep slopes and floodplain
- Provincially Significant (S2 Imperiled) vegetation community, Dry-fresh hackberry deciduous forest type (FOD4-3)

Criterion 3: Presence of forest area sensitive species

- Great Crested Flycatcher
- White-breasted Nuthatch
- American Redstart
- Blue-gray Gnatcatcher



| | |
|--|---|
| Criterion 4: Significant hydrological characteristics | <ul style="list-style-type: none"> • Interconnected ponds which are part of the Coves Subwatershed and drain to the Thames River • The ponds perform important stormwater detention and conveyance functions • Large floodplain area • Wetlands |
| Criterion 5: High community and species diversity | <ul style="list-style-type: none"> • 14 ELC Vegetation Types, 7 Community Series • 9 herpetofauna species • 67 bird species |
| Criterion 6: Important ecological linkage function | <ul style="list-style-type: none"> • The Coves is linked to the Thames River and forms part of the Thames River corridor |
| Criterion 7: Significant habitat for rare, threatened or endangered species | <ul style="list-style-type: none"> • Provincially Threatened Eastern Meadowlark breeding habitat present • Provincially Endangered tree Butternut • Significant Wildlife Habitat present as confirmed breeding habitat for American Bullfrog • Thirty bird species considered significant at a provincial, regional and/or local level • Provincially significant (S2/3) Unicorn Clubtail (dragonfly) is present • Special Concern Monarch butterfly is present • Provincially significant (S3) Giant Swallowtail butterfly is present • Five Regionally rare plant species |

What is a Conservation Master Plan (CMP)?

Conservation Master Plans may be adopted by Council, and will function as guideline documents for the purposes of defining the boundaries and providing direction on the management of these areas [ESA]. (Official Plan Section 15.3.8)

The development of a CMP is undertaken in two phases. Phase I of the CMP is intended to provide a detailed life science inventory sufficient to formalize and/or refine ESA boundaries, define management zones, identify areas of disturbance and recommend an environmental management strategy for long-term ecosystem health and ecological integrity.

Phase II the CMP process outlines realistic strategies, achievable objectives, and actionable items to manage disturbances that may threaten natural areas, and to identify key indicators that can be monitored to detect change over time, in order to maintain and protect irreplaceable natural heritage values, including earth and life science interests, and sensitive cultural and archaeological resources. Phase II of the CMP process also includes a substantial public engagement process to obtain input on goals, objectives, recommendations and a long term implementation plan based on the priorities identified. One of the most important components of the CMP is how public use will be managed through careful trail design, signage, education and stewardship. Trail planning and design must address physical sustainability (trails that will retain their form over years of use and natural forces acting on them); ecological sustainability (managing the impacts of trail location and use to ensure no loss of ecological features and functions) and stewardship (fostering of individual and collective responsibility for protection of natural areas).



Key Elements of a CMP

- Refinement of the ESA boundary;
- Background information on the natural heritage features and functions present and their ecological significance
- Identification of priority areas for acquisition, where appropriate;
- Identification of appropriate uses, including access areas, formalized pathways and trail systems and programs for site and facility development;
- Proposed management activities to restore degraded areas and enhance ecological functions;
- Opportunities for Community Engagement and Stewardship;
- Monitoring framework to inform adaptive management; and
- Commitment to work with key partners, such as Friends of the Coves, Nature London, the Upper Thames River Conservation Authority and local community.

The CMP for the Coves ESA

The Coves ESA is an important natural area within the City of London for which a CMP has been developed. Protecting a significant natural area like the Coves is challenged by the urban context of this ESA. The CMP includes a careful assessment of the significance and sensitivity the natural features and functions present together with an analysis of impacts arising from surrounding land uses and public use within the ESA. The Coves CMP identifies issues and provides management priorities to ensure protection of the long term ecological integrity of the Coves ESA to sustain the diversity of native plants, animals and habitats present and it identifies ongoing monitoring to support adaptive management.

The Coves CMP is a “living document” that will be updated from time to time providing storehouse of information on natural heritage features and functions, restoration and management issues and recommendations, community stewardship partners and events and monitoring data and analysis. The CMP provides the framework for ongoing adaptive ecological management of the Coves, and as such is provided in an open binder format to facilitate access and updating of information. The proposed revised boundary for the Coves ESA, the recommended zoning, management actions and monitoring have been developed through a two year consultative process. Future analysis and consultation may lead to refinements and additions to what is presented in this document. The Coves CMP includes the following sections:

- Section 1 – Introduction to the Coves CMP
- Section 2 – Natural Heritage Features and Functions in the Coves
- Section 3 – Ecological Management in the Coves
- Section 4 – Trail Management in the Coves
- Section 5 – Ecological Monitoring Framework for the Coves
- Section 6 – Community Stewardship Partners and Events

The Coves CMP builds on previous work completed for the Coves ESA, particularly the comprehensive Coves Subwatershed Plan completed Friends of the Coves (PEIL 2004). Important background material may be found in the following reports:

- Natural Heritage Inventory and Evaluation for the Coves ESA (North-South Environmental 2014)



- Coves Subwatershed Plan Final Report and Appendices prepared for Friends of the Coves by PEIL (2004)
- The Archaeological Component of the Coves Subwatershed Study prepared by D.R. Poulton & Assoc. (2004)
- The Coves Drainage and Remediation Master Plan Characterization Report prepared by Dillon Consulting (2003)
- The Coves Drainage and Remediation Master Plan Final Report prepared by Dillon Consulting (2004)
- Bicycle Master Plan A Guideline Document for Bicycle Infrastructure in the City of London prepared by City of London Planning Division (2005)
- Euston Park Naturalization Plan prepared by Friends of the Coves (2004)
- Coves Elmwood Gateway Concept Plan prepared by the City of London (2010)
- Thames Valley Corridor Plan prepared by Envision (2010)

Mission, Goals and Objectives for the Coves ESA CMP

Coves ESA CMP Mission Statement

The Coves Environmentally Significant Area will be protected, restored and recognized by the City of London and its residents for its distinctive landforms, species diversity, geomorphology, ecological functions and unique cultural heritage.

Coves ESA CMP Goals

The decisions we make regarding the future of the Coves ESA will center on the following guiding principles:

- Conservation first
- Recognize the Coves ESA as part of the Carolinian corridor
- Consider long term sustainability
- Consider the impact of climate change
- Consider the Coves ESA within the context of the larger Coves subwatershed

Coves ESA CMP Objectives

The Coves ESA CMP seeks to achieve the following objectives:

1. Actively manage the natural features and functions of the ESA, including management of invasive species.
2. Undertake ecological restoration to improve ecological integrity within the ESA.
3. Determine the location and type of authorized compatible uses permitted within the ESA.
4. Establish a safe trail network that respects ecological sensitivity.
5. Encourage awareness and education among children, youth and all residents, and promote educational opportunities centered on the natural and cultural features of the Coves.
6. Work with community partners to create a culture of stewardship among Coves users.
7. Carry out regular monitoring in support of an adaptive management approach





THE COVES ENVIRONMENTALLY SIGNIFICANT AREA CONSERVATION MASTER PLAN

Section 2 – Natural Heritage Features and Functions in the Coves



Immature Painted Turtle

Photo Credit – Andrew Jackson (www.ontariowildlife.net)



THE COVES ENVIRONMENTALLY SIGNIFICANT AREA CONSERVATION MASTER PLAN

SECTION 2 – NATURAL HERITAGE FEATURES AND FUNCTIONS IN THE COVES

Section 2 provides a comprehensive summary of what is currently known about the natural heritage features and functions present within the Coves ESA, including an assessment of their significance. The field methods used to as part of this study are also outlined and provide direction for future studies that may further our understanding of natural heritage features and functions. Complete lists for flora and fauna are provided in tables at the end of Section 2.1

Methods to Use for Field Inventory in the Coves

The following table outlines field inventory methods for major species groups that may be used to conduct field studies in the Coves. The locations of significant species should be recorded preferably with a GPS receiver and/or recorded on an aerial photograph.

| FIELD INVENTORY METHODS FOR MAJOR SPECIES GROUPS | |
|---|--|
| Species Group | Field Inventory Method |
| Mammals | <ul style="list-style-type: none"> • record sightings, tracks, scat, hair, calls, dens, sign, trails, etc. |
| Breeding Birds | <ul style="list-style-type: none"> • point counts (10 min) in suitable blocks of habitat following Canadian Wildlife Service Ontario Forest Bird Monitoring Protocol (2011) • Area searches using Breeding Bird Atlas protocols; location mapping • Nocturnal bird surveys for whippoorwill, common nighthawk, etc. |
| Seasonal Bird Habitat | <ul style="list-style-type: none"> • active searching of appropriate habitat including perching and foraging habitat for winter species such as bald eagle • targeted survey of aquatic habitat for migrating waterfowl |
| Reptiles | <ul style="list-style-type: none"> • searching under debris • searching of basking habitat in and around ponds |
| Amphibians - salamanders | <ul style="list-style-type: none"> • active searching of ponds for breeding salamanders during first spring thaw & rain • non-intrusive egg mass surveys • active searching upland habitat under rocks, logs etc. |
| Amphibians - frogs | <ul style="list-style-type: none"> • frog call identification using Marsh Monitoring protocols in areas of suitable breeding habitat |
| Butterflies | <ul style="list-style-type: none"> • visual identification • sweep net capture and release |
| Dragonflies & Damselflies | <ul style="list-style-type: none"> • visual identification • sweep net capture and release |
| Flora Inventory | <ul style="list-style-type: none"> • stratified searching targeting micro-habitat variations within each vegetation type in the appropriate season including peak flowering periods for spring ephemerals, summer flora and late summer/early fall plant species |
| Ecological Land Classification | <ul style="list-style-type: none"> • vegetation communities are classified using ELC methods developed by the Ontario Ministry of Natural Resources (OMNR) for southern Ontario (Lee <i>et al.</i> 1998). |



Organization, Storage and Analysis of Data

Plant and animal species recorded within the Coves are organized in a Microsoft Access database, including species names and observation records for location, date, habitat type, etc. Species lists are provided in tabular form below and these may be updated as new species are recorded.

Plant communities within the Coves are identified mapped using the methods outlined in Ecological Land Classification (ELC) for Southern Ontario guide (Lee et al. 1998). Descriptions for each ELC Vegetation Type are provided below.

Plant species are analyzed using the Floristic Quality Index (FQI) (Oldham *et al.* 1995) which is based on a measure of the Native Mean Coefficient of Conservatism (Native Mean CC) and percentages of native and non-native species composition for each vegetation community. Each plant species has been assigned a Coefficient of Conservatism (CC), which is a number between 1 and 10 that represents the degree of tolerance to disturbance and the specialized habitat requirements that a plant species requires to persist (Swink and Wilhelm 1979). FQI is calculated by taking the sum of all CC values for the community divided by the square root of the number of native plant species present in the community ($FQI = \sum CC / \sqrt{N}$). FQI provides a measure of both “habitat conservatism” and “species richness” and is considered an indicator of vegetation community quality (Oldham *et al.* 1995).

Plant and animal species may also be screened for national and provincial significance. Provincial flora and faunal rarity is based on rankings provided by the NHIC (identified as S1-S3) or species identified as endangered, threatened or special concern by COSEWIC¹ and/or COSSARO².

Regional floral rarity is based on listings provided by Oldham (1993), and local floral rarity is based on listings provided by Bowles (2005).

Regional faunal significance is determined using Priority Landbird Species in Ontario Bird Conservation Region (BCR) 13, identified by Ontario Partners in Flight (Ontario Partners in Flight 2005), which identified priority species based on the following priority categories:

- continental concern;
- regional concern;
- continental stewardship;
- regional stewardship;
- at risk – Canada;
- at risk – Ontario; and
- Management Interest.

Fauna area-sensitivity is based on species reported as area-sensitive in the Ministry of Natural Resources Significant Wildlife Habitat Technical Guide Appendix C (OMNR 2000).

¹ Nationally rare species are designated by the Committee on the Status of Endangered Wildlife in Canada (COSEWIC) and are subject to the Federal Species at Risk Act.

² Provincially rare species are designated by the Committee on the Status of Species at Risk in Ontario (COSSARO) and are subject to the Ontario Endangered Species Act.





Ecological Land Classification for the Coves ESA

Fourteen vegetation communities are present within the Coves ESA including a variety of forest, wetland, and cultural communities. Each of these communities is described below, including the dominant species, special environmental conditions and past and recent disturbances. The floral and faunal species present in each of the major vegetation community groups is provided in tabular form at the end of Section 2.

Forested Vegetation Communities

Dry-Fresh Red Oak Deciduous Forest Type (FOD1-1)

This vegetation community occurs in two locations. A small patch is located on tableland, east of Ridgewood Crescent, and a larger patch is location on tableland and along the steep ravines located at the west end of Briscoe Street West and Forbes Street. The canopy of this community is dominated by Red Oak (*Quercus rubra*), Sugar Maple (*Acer saccharum* ssp. *saccharum*), American Beech (*Fagus grandifolia*), and White Ash (*Fraxinus americana*). This layer is approximately 25 m in height and covers greater than 60%. The sub-canopy consists of Sugar Maple, American Beech, Red Oak and Sweet Cherry (*Prunus avium*). This layer is between 10-25 m in height and covers between 35-60%. The understory is dominated by American Beech, American Witch-hazel (*Hamamelis virginiana*), Maple-leaved Viburnum (*Viburnum acerifolium*), and Sugar Maple saplings. This layer is between 1-2 m in height and covers 25-35%. The ground layer is dominated by sedges (*Carex* spp.), Blue-stemmed Goldenrod (*Solidago caesia*), False Solomon's Seal (*Maianthemum racemosum* ssp. *racemosum*), and White lettuce (*Prenanthes alba*). This layer is between 0.2-0.5 m in height and covers between 10-25%.

Evidence of tree cutting was noted at the edge of this community, which likely occurred within the last ten years. At the north end of the patch located east of Ridgewood Crescent, a channel was noted to have eroded down the slope, which appeared to be the result of surface drainage entering the natural area from the adjacent subdivision. Seepages were noted along the ravine banks, and a small population of Skunk Cabbage (*Symplocarpus foetidus*) was noted in association with a large seepage area on the west side of the ravine.

Dry-Fresh Sugar Maple Deciduous Forest Type (FOD5-1)

This vegetation community occurs in three locations. A large patch is located to the south of Southcrest Drive, and two smaller patches are located along the steep banks of the East and West Coves Ponds. In all three patches, the canopy is dominated by Sugar Maple, with American Beech, White Ash, and Red Oak as common associates. This layer is approximately 25 m in height, and covers greater than 60%. The sub-canopy is dominated by Sugar Maple, Eastern Hop-hornbeam (*Ostrya virginiana*), White Ash, and American Basswood (*Tilia americana*). This layer is between 10-25 m in height and covers between 35-60%. The understory was dominated by Buckthorn (*Rhamnus cathartica*), Choke Cherry (*P. virginiana*), Alternate-leaf Dogwood (*Cornus alternifolia*), American Hornbeam (*Carpinus caroliniana*), and Virginia Creeper (*Parthenocissus vitacea*). This layer is between 1-2 m in height and covers greater than 60%. The ground layer consists of Running Strawberry-bush (*Euonymus obovatus*), False Solomon's Seal, Calico Aster (*Symphyotrichum lateriflorum*), Wild Crane's-bill (*Geranium maculatum*), and Broad-leaved Goldenrod (*S. flexicaulis*). This layer is between 0.5-1 m in height, and covers between 35-60%.

Well-used *ad hoc* trails run throughout the large patch of this community, south of Southcrest Drive. Dumping was noted in several locations along the edges, and erosion along the banks of



the watercourse and steep slopes was noted in several places. Buckthorn was more prevalent in some areas compared with others, usually in association with disturbed areas where other cultural or non-native species were also higher in abundance. Some large standing snags with large cavities were noted within this community, which may provide important nesting habitat for cavity-nesting bird species. In general, American Beech trees appeared to be in poor health within this community, possibly due to Beech Bark Disease. Vegetation characteristic of wetlands was noted in small pockets within the floodplain of the watercourse that passes through the southern patch of this forest community, including Fowl Manna-grass (*Glyceria striata*), Ditch-stonecrop (*Penthorum sedoides*), and Fringed Loosestrife (*Lysimachia ciliata*).

Dry-Fresh Sugar Maple – Beech Forest Type (FOD5-2)

This community is located north of Southcrest Drive, along the steep banks of the watercourse and small portion of tableland at the western end of Briscoe Street West. The canopy of this community is dominated by Sugar Maple and American Beech, with Wild Black Cherry (*P. serotina*) and Red Oak as common associates. This layer is approximately 25 m in height, and covers greater than 60%. The sub-canopy is dominated by Sugar Maple, American Beech, White Ash and Red Oak. This layer is between 10-25 m in height and covers between 35-60%. The understory consists of Sugar Maple and American Beech saplings, and Alternate-leaf Dogwood and American Witch-hazel. This layer is between 1-2 m in height and covers between 10-25%. The ground layer consists of sedges (*Carex spp.*), False Solomon's Seal, Blue-stemmed Goldenrod, and Broad-leaved Goldenrod. This layer is between 0.2-0.5 m in height and covers between 10-25%. The understory of this community contained abundant spring ephemerals, such as Narrow-leaved Spring Beauty (*Claytonia virginica*) and Wood Anemone (*Anemone quinquefolia*).

Seepages were noted in several locations along the steep banks of the ravine, and abundant downed woody debris was noted within this community. *Ad hoc* trails were noted throughout the tableland portion of this community, and trampling of vegetation was evident. Yard waste and dumping was noted along the edges of this community, and evidence of erosion was noted in several locations. A retaining wall, approximately 10 m in length was noted in the ravine on the east bank, north of Southcrest Drive. A large population of English Ivy (*Hedera helix*) was observed growing underneath a fence into the natural area from an adjacent backyard.

Dry-Fresh Sugar Maple – Oak Deciduous Forest Type (FOD5-3)

This deciduous forest is located on valley slopes along the southeastern side of the study area. Sugar Maple dominates the canopy with American Beech and Red Oak as associate canopy species. The canopy is 10-25 m in height and these trees cover greater than 60% of the forest community. The sub-canopy is almost entirely dominated by Sugar Maple. Associate sub-canopy species are rare in occurrence and include Hop-hornbeam, Blue Beech (*Carpinus caroliniana*), and European Buckthorn. This layer is 2-10 m in height and covers greater than 60% of the community. The understory vegetation is 1-2 m in height and covers 35-60% of the community. Such understory vegetation includes: American Witch-hazel, Round-leaved Dogwood (*Cornus rugosa*), and Choke Cherry. The ground layer is densely vegetated (greater than 60% cover of species 0.2-0.5 m in height) with a variety of species including: Running Strawberry-bush, Blue-stemmed Goldenrod, Zig-Zag goldenrod (*Solidago flexicaulis*), and Large-leaved Aster (*Eurybia macrophylla*).

Dry-Fresh Hackberry Deciduous Forest Type (FOD4-3)

This community is listed as an Imperiled (S2) vegetation community by the Natural Heritage Information Centre (NHIC). According to NHIC, S2 communities are at high risk of extinction due to a very restricted range, very few populations (often 20 or fewer), steep declines, or other



factors. This community is present in two locations within the Coves ESA, a small patch located to the east of Greenwood Avenue and south of Springbank Drive and a second patch located west of Orchard Street, on floodplain and valley slopes. A few large Black Walnut (*Juglans nigra*) emerge above the canopy, reaching heights of approximately 25 m. The canopy is dominated by Common Hackberry (*Celtis occidentalis*), Black Walnut, White Ash, and Manitoba Maple (*A. negundo*). This layer is between 10-25 m in height and covers greater than 60%. The sub-canopy consists of smaller Common Hackberry, Manitoba Maple, White Ash, and Alternate-leaf Dogwood. This layer is between 2-10 m in height and covers between 25-35%. The understory is dominated by Virginia Creeper, raspberry (*Rubus spp.*), Manitoba Maple saplings, European Buckthorn, and Multiflora Rosa (*Rosa multiflora*). This layer is between 1-2 m in height and covers greater than 60%. The ground layer consists of Yellow Avens (*Geum aleppicum*), Garlic Mustard (*Alliaria petiolata*), Enchanter's Nightshade (*Circaea lutetiana*), and Calico Aster. This layer is between 0.2-0.5 m in height and covers between 25-35%.

In general, this community is quite disturbed, especially near the northern edge, where Black Locust (*Robinia pseudoacacia*) becomes more dominant. Dumping was noted in several locations along the edge, and erosion was widespread along the slopes leading down to the west pond. Non-native species dominated the ground and understory layers, and Manitoba Maple and Black Locust appear to be invading this community.

Fresh-Moist Willow Lowland Deciduous Forest Type (FOD7-3)

This vegetation community is located in three different areas. A large patch is located in the floodplain of the watercourse, at the base of the east and west ponds. Two smaller patches are located along the eastern and western edges of the pond located north of Springbank Drive. The canopy of this community is dominated by Hybrid Willow (*Salix x rubens*), Freeman's Maple (*A. x freemanii*), Manitoba Maple, and Green Ash (*F. pennsylvanica*). This layer is approximately 25 m in height and covers greater than 60%. The sub-canopy is dominated by Manitoba Maple, Sugar Maple, and Green Ash. This layer is between 10-25 m in height and covers between 10-25%. The understory is dominated by Multiflora Rose, Glossy Buckthorn (*R. frangula*), Buckthorn, and Riverbank Grape (*Vitis riparia*). Red-osier Dogwood (*C. stolonifera*) was more abundant along the edge of the water. This layer is between 1-2 m in height and covers greater than 60%. The ground layer is dominated by Forget-me-not (*Myosotis sp.*), Colt's Foot (*Tussilago farfara*), Rice Cut-grass (*Leersia oryzoides*), Fowl Manna-grass, American Hog-peanut (*Amphicarpaea bracteata*), and Swamp Buttercup (*Ranunculus hispidus* var. *caricetorum*). This layer is between 0.2-0.5 m in height, and covers greater than 60%.

A few meadow marsh inclusions occur within this community, where Reed Canary Grass (*Phalaris arundinacea*), Purple Loosestrife (*Lythrum salicaria*), and Spotted Joe-pye Weed (*Eupatorium maculatum* ssp. *maculatum*) dominate. Non-native species were abundant within this community, and the understory was dominated by non-native buckthorn shrubs and Multiflora Rose. Several animal tracks (Raccoon and White-tailed Deer) were noted within this community.

Fresh-Moist Black Walnut Lowland Deciduous Forest Type (FOD7-4)

This vegetation community is considered Imperiled/Vulnerable (S2S3) by NHIC, meaning that it is at risk of extinction (high to moderate risk) due to a very restricted range, few populations (between six and eighty), declines in populations, or other factors. This community occurs north of Springbank Drive, west of the pond. Black Walnut was often planted as a food source, especially settlement areas. Based on the prevalence and spacing of trees within this community, Black Walnut appeared to have been planted in the area. The canopy was dominated by Black Walnut, Manitoba Maple, Common Hackberry, and Green Ash. This layer



was between 10-25 m in height and covered greater than 60%. The sub-canopy consisted mainly of Manitoba Maple, with a few smaller Black Walnut. This layer was between 2-10 m in height and covered between 35-60%. The understory consisted of Manitoba Maple, Alternate-leaf Dogwood, Buckthorn, and Glossy Buckthorn. This layer was between 1-2 m in height and covered between 25-35%. The ground layer was dominated by Virginia Creeper, Garlic Mustard, Dame's-rocket (*Hesperis matronalis*), and Enchanter's Nightshade. This layer was between 0.5-1 m in height, and covered greater than 60%.

A wet swale is located along the western boundary of this community, at the base of a slope. This area supported wetland species, such as Fowl Manna-grass, Fringed Loosestrife, and Ostrich Fern (*Matteuccia struthiopteris* var. *pennsylvanica*). Several seepage areas were also noted along the slope leading down to the wet swale. Several piles of building materials and concrete tiling were found, as were several non-native and invasive species, including buckthorn (*R. cathartica* and *R. frangula*) and Garlic Mustard.

Wetland Vegetation Communities

Swamp Maple Mineral Deciduous Swamp Type (SWD3-3)

This community type is located in two small patches at the south end of McAlpine Avenue. The canopy is dominated by Freeman's Maple (*Acer x freemanii*). Associate canopy species, Eastern Cottonwood (*Populus deltoides*), is rare in the canopy. The canopy trees are 10-25 m in height and cover greater than 60% of the community. The sub-canopy is less densely vegetated than the canopy with only 35-60% cover of tree species growing 2-10 m in height. The sub-canopy contains the occasional Freeman's Maple, Manitoba Maple, Slender Willow (*Salix petiolaris*), and Pussy Willow (*Salix discolor*). The understory contains an abundance of Pussy Willow which covers 35-60% of the community and is 1-2 m in height. The ground layer is densely vegetated with False Nettle (*Boehmeria cylindrica*), as well as the occasional Bittersweet Nightshade, Spotted Water-hemlock (*Cicuta maculata*), Riverbank Grape, Field Horsetail (*Equisetum arvense*), and Spotted Jewelweed (*Impatiens capensis*). The ground layer vegetation covers greater than 60% of the swamp community and includes vegetation which is 0.2-0.5 m in height. The centre of these swamp communities is permanently flooded throughout the season with 30-50 cm of water.

Willow Mineral Deciduous Swamp Type (SWD4-1)

A small patch of this community is located at the base of the slope on the west side of the west pond, south of Springbank Drive and east of Greenwood Avenue. The canopy was dominated by Hybrid Willow, Freeman's Maple, Sweet Cherry, and American Basswood. This layer was approximately 30 m in height, and covered greater than 60%. The sub-canopy consisted of Freeman's Maple, Manitoba Maple, and willow (*Salix spp.*). This layer was between 2-10 m in height and covered between 10-25%. The understory was dominated by Buckthorn and Manitoba Maple, which were between 1-2 m in height and covered between 10-25%. The ground layer consisted of Creeping Jenny (*Lysimachia nummularia*), Large Bur-reed (*Sparganium eurycarpum*), Rice Cut-grass, and Broadleaf Arrowhead (*Sagittaria latifolia*). This layer was between 0.2-0.5 m in height, and covered between 25-35%.

This community captures the transition between aquatic and upland habitats, and understory vegetation ranges from species that typically occur in shallow marshes (e.g., Large Bur-reed, to species more commonly found in swamps and lowland forest (e.g., Spotted Water-hemlock and Yellow Trout Lily (e.g., *Erythronium americanum*) respectively).



Mineral Meadow Marsh Ecosite / Mineral Cultural Meadow Ecosite (MAM2/CUM1)

This marsh/meadow community complex is located along the eastern bank of the eastern pond. Due to seasonal fluctuating water levels in pond, this area is periodically flooded during times of high water levels (*i.e.* spring), and dry during the summer when water levels are lower. Therefore, this area is a complex of meadow marsh and cultural meadow plant species. The canopy is sparsely vegetated with Black Walnut which cover less than 10% of the community. These tree species are 3-10 m in height. The sub-canopy is densely vegetated (greater than 60% cover) with vegetation which is 1-2 m in height. The predominant species in this layer include: Tall Coneflower (*Rudbeckia laciniata*), Canada Blue-joint (*Calamagrostis canadensis*), and Canada Goldenrod (*Solidago canadensis*). The understory contains an abundance of wetland species including Tussock Sedge (*Carex stricta*), Spotted Joe-pye Weed, and Purple Loosestrife. The understory is 0.5-1 m in height and covers greater than 60% of the community. The ground layer is also densely vegetated (greater than 60% cover) with plant species which are 0.2-0.5 m in height. The predominant species in the ground layer include American Bugleweed (*Lycopus americanus*), Red-top (*Agrostis gigantea*), and False Nettle.

Rice Cut-grass Mineral Meadow Marsh Type (MAM2-3)

This community is located south of the west pond, east of Ridgewood Crescent, at the base of the Sugar Maple forest. A small patch of this community also occurs at the northern tip of the pond located to the north of Springbank Drive. A narrow channel passes through this community, which enters the Willow Lowland Forest to the south. The canopy of this community is dominated by Rice Cut-grass, Reed Canary Grass, Purple Loosestrife, Yellow Iris (*Iris pseudoacorus*), and American Stinging Nettle (*Urtica dioica ssp. gracilis*). This layer is between 1-2 m in height and covers greater than 60%. The ground layer consists of Spotted Jewelweed, Peppermint (*Mentha x piperita*), Mad Dog Skullcap (*Scutellaria lateriflora*), and American Bugleweed (*Lycopus americanus*). This layer is between 0.2-0.5 m in height and covers between 25-35%.

Soils in this community were mineral; however, a greater depth of organic soils (20 cm) was noted within the larger patch of this community. The small patch contained a higher proportion of Reed Canary Grass and an organic layer of approximately 10 cm.

Open Aquatic (OAO)

The open aquatic communities were generally quite turbid, and as such contained no vegetation. Small patches of Lesser Duckweed (*Lemna minor*) and Greater Duckweed (*Spirodela polyrhiza*) were noted floating on the surface of the water in some locations, covering less than 10% of the community. Floral species were also noted around the edges of this community, such as: Purple Loosestrife, Reed Canary Grass, and Yellow Iris (*Iris pseudoacorus*). Small inclusions of Water Lily – Bullhead Lily Floating-leaved Aquatic Type (SAF1-1) were noted within this community in the eastern pond. These small, inclusion-sized, communities were dominated by Bullhead Pond-lily (*Nuphar variegata*).

Cultural Vegetation Communities

Mineral Cultural Meadow Ecosite (CUM1)

This old field community has a very sparse canopy of scattered trees. This canopy covers less than 10% of the meadow and consists primarily of Black Walnut and Cottonwood. The canopy trees are 10-25 m in height. The sub-canopy vegetation is 2-10 m in height and covers less than 10% of the community. Young Green Ash saplings are the predominant species in the



sub-canopy as well as the occasional European Buckthorn. The understory and ground layers are the most densely vegetated; each with greater than 60% community cover. The understory is 0.5-2 m in height and contains an abundance of open meadow species including: Wild Carrot (*Daucus carota*), Gray Dogwood (*Cornus foemina* ssp. *racemosa*), and Orchard Grass (*Dactylis glomerata*). The ground layer vegetation is 0.2-0.5 m in height and consists of a variety of old field species including Kentucky Bluegrass (*Poa pratensis*), Red-top, and Timothy (*Phleum pratense*).

Mineral Cultural Thicket Ecosite (CUT1)

This vegetation community is located in the central portion of site, which was once operated as an orchard, and in a long linear strip along the watercourse at the northern end of the site (Figure 1). Permission to access the central portion of the site was not granted, and thus species lists for this area were completed using binoculars. The canopy and sub-canopy of this community is dominated by Manitoba Maple and hawthorn, which range in height from 2-10 m and cover between 25-35%. The ground layer is dominated by a variety of cultural meadow species, including Wild Carrot, Orchard Grass, and Canada Goldenrod. Riverbank Grape and Virginia Creeper form dense mats in some locations.

Mineral Cultural Woodland Ecosite (CUW1)

This vegetation community is located in several locations within the Coves ESA, on private land. Access to this portion of the site was not permitted, and therefore, inventories of this area were completed using binoculars and aerial photography. The edges of this community are dominated by Manitoba Maple. Based on aerial photography, tree cover appears to be between 35-60%, which would classify this area as cultural woodland. Based on the signature of the aerial photography which indicates a high degree of disturbance and cultural modification, this site is likely dominated by vegetation that is tolerant of disturbance, often found in associated with cultural landscapes, such as Wild Carrot, Asters and Goldenrods.





Flora of the Coves ESA

A total of 301 species of vascular plants have been identified within the Coves ESA (see table at end of Section 2). Of these 213 (71%) species are native and 88 (29%) species are considered non-native. This represents a high proportion of native plants present for an urban natural area is similar to what has been reported for the flora of Ontario as a whole, which has approximately 73% native plant species (Kaiser 1983).

The Floristic Quality Index (FQI) for plant communities in the Coves has been calculated by lumping plant communities by ELC Community Series, “ecosite” (e.g. FOD – all deciduous forests). Plant communities with lower FQI’s are characterized by plants that occupy a wide variety of habitats which often grow in more disturbed habitats; these are species with lower Coefficient of Conservatism (CC) values such as Kentucky Bluegrass, Canada Goldenrod, and Red Raspberry (*Rubus idaeus ssp. strigosus*). Plant communities with higher FQI’s have plants that have more specific habitat requirements which grow in less disturbed habitats; these are species with higher CC values such as Chinquapin Oak (*Q. muhlenbergii*) and Large-leaved Avens (*Geum macrophyllum*).

The table below provides a summary of plant community characteristics in the Coves. Higher numbers of native plants, higher FQI values and higher Native Mean CC values all represent plant communities of higher quality which are generally less disturbed and which may considered more significant and potentially more sensitive native plant communities.

| Floristics of the Coves ESA for ELC Vegetation Community Series | | | | | | |
|---|-------------------------|------------|---------|-------|-------|----------------|
| Ecosite | Number of Plant Species | | | | FQI | Native Mean CC |
| | Native | Non-Native | Unknown | Total | | |
| FOD | 174 | 74 | 5 | 253 | 57.26 | 4.34 |
| SWD | 28 | 10 | 0 | 38 | 18.52 | 3.50 |
| MAM | 21 | 8 | 1 | 30 | 17.64 | 3.85 |
| MAM/CUM | 38 | 16 | 1 | 55 | 25.86 | 4.19 |
| CUW | 44 | 14 | 2 | 60 | 23.60 | 3.56 |
| CUT | 7 | 12 | 1 | 20 | 2.12 | 0.80 |
| CUM | 32 | 28 | 0 | 60 | 16.79 | 2.97 |
| OAQ | 22 | 5 | 0 | 27 | 17.48 | 3.73 |

Overall, FQIs reported from vegetation communities at the Coves ESA are in line with what is expected from a natural area located in an urbanized setting, with the deciduous forest communities reporting a higher-than-average FQI (57.26). For comparison the FQIs in the City of Mississauga generally range from 10 to 30 (NSE 2010). Many of the other vegetation communities in the Coves were quite small in extent compared to the deciduous forest communities, and these smaller patches generally had comparatively fewer native species. The early successional cultural communities (CUM, CUT) have lower FQI and Native Mean CC due



to the fact that these vegetation communities have been highly influenced by past land use histories resulting in a higher proportion of non-native and habitat-generalist floral species.

Significant Flora of the Coves ESA

Species lists have been screened for provincial, regional and local significance as shown in the table below. One provincially rare floral species, Butternut (*Juglans cinerea*), which is a nationally and provincially endangered (S3?) species, was noted at the edge of the Sugar Maple Deciduous Forest Type (FOD5-1) south of Southcrest Avenue (see figure showing Significant Species and Habitats in the Coves ESA). Two Butternut trees have been recorded in the Coves, both showed evidence of Butternut Canker, a disease responsible for the widespread decline of this species across its range in North America. Sooty cankers and crown dieback were noted on both trees, and no Butternut nuts or seedlings were noted in the understory suggesting natural Butternut regeneration and the long term survival of this species may depend on active restoration programs replanting this species.

A total of five regionally rare floral species are recorded in the Coves (see table below), they include:

- Redbud (*Cercis canadensis*);
- Northern Mountain-Ash (*Sorbus decora*);
- Philadelphia Fleabane (*Erigeron philadelphicus*);
- Large-leaved Avens (*Geum macrophyllum*); and
- Woolly Blue Violet (*Viola sororia*).

Redbud and Northern Mountain-Ash were located at the edge of a deciduous forest community and not likely naturally occurring. Both of these species are widely cultivated and are often planted within urban areas. Philadelphia Fleabane was recorded in deciduous forest and cultural woodland communities, Large-leaved Avens was recorded within deciduous forest, and Woolly Blue Violet was recorded within deciduous forest and cultural meadow communities.

One locally rare floral species was also recorded, Stiff Marsh Bedstraw (*Galium tinctorium*). This species was located within the meadow marsh community, and is listed as R3 in Middlesex County.

| Provincially, regionally, and locally rare plant species recorded in the Coves ESA | | | | | |
|--|-----------------------|---------------------|--------|---------------|-----------|
| Scientific Name | Common Name | COSSARO/ COSEWIC | S-Rank | SW Ontario | Middlesex |
| <i>Cercis canadensis</i> | Redbud | | | x | |
| <i>Erigeron philadelphicus</i> | Philadelphia Fleabane | | | x | |
| <i>Galium tinctorium</i> | Stiff Marsh Bedstraw | | | | R3 |
| <i>Geum macrophyllum</i> | Large-leaved Avens | | | x | |
| <i>Juglans cinerea</i> | Butternut | END | S3? | | |
| <i>Sorbus decora</i> | Northern Mountain-ash | | | x | |
| <i>Viola sororia</i> | Woolly Blue Violet | | | x | |



Fauna of the Coves ESA

One hundred and one fauna species were recorded within the Coves ESA (excluding fish species): 18 insects (dragonflies, damselflies and butterflies), 67 birds (59 for which there was evidence of breeding), four frogs, one salamander, one turtle, two snakes and eight mammals. From the perspective of wildlife habitat, the Coves ESA is relatively linear and narrow, with no forest-interior or grassland-interior habitat. Consequently there were few area-sensitive or forest-interior-dependent wildlife species (with a few exceptions, which will be discussed further). One area that may be of significance to the Coves, the old orchard (mapped as ELC community CUT1) at the end of Duke Street, has not yet been comprehensively assessed as this is an area of private property. This CUT1 community is unusual in the City of London as it represents a broad area of thicket vegetation types, that may have the potential to support area-sensitive thicket-nesting species.

A deer bedding area was noted within the Rice Cut-grass Mineral Meadow Marsh (MAM2-3) community, at the southern end of the west pond. Several well-used deer trails cross through this community, and areas of heavy browse have been observed.

Amphibians

The most common amphibian within the Coves ESA is American Toad: a species that is capable of breeding in a wide variety of small and large water bodies and is relatively tolerant of urban habitat, though it is constrained by the requirement for soils in which it can burrow beneath the frost line in winter. Most of the toads seen within the Coves have been noted during the non-breeding season, generally in forested habitat. It is likely that forested areas of the Coves are used as foraging areas during the summer and as hibernacula during winter (areas where this species can dig below the frost line to survive). One breeding location is present within a shallow pond at the end of Elmwood Avenue was full of tadpoles (this pond also contained Green Frog tadpoles).

One woodland-dependent frog species is recorded within the Coves ESA, Spring Peeper. Two Spring Peepers and one Green Frog were noted in the east pond. Spring Peepers are unusual in urban habitat. No other woodland-dependent amphibian species were noted (for example Wood Frog, Gray Treefrog or Spotted Salamander have not been recorded in the Coves), even though suitable breeding habitat exists for these species in vernal pools south of McAlpine Avenue. These vernal pools were specifically visited to record breeding frogs and salamanders on an evening in early April when frogs were calling elsewhere in the London area.

Two aquatic frog species have been recorded for the Coves, Green Frog and American Bullfrog. Both these species need water that persists later in the season than other frogs. Green Frogs require semi-permanent or permanent water (tadpoles may transform in the year the eggs are deposited, but may also overwinter as tadpoles). American Bullfrog is area-sensitive (MNR 2000), and requires permanent water to complete its life cycle, as larvae take more than one year to transform. American Bullfrog is present in two locations: three were heard in the east pond and one was heard in a small inlet adjacent to the Thames River. Green Frogs were heard calling from the east pond, and tadpoles were noted in the small pond at the end of Elmwood Avenue.

Red-backed salamanders were reported to be found on slopes in the northern part of the Coves (at the backs of residences off Forest Hill Avenue) by a neighbouring resident (Brian Farmer



pers. comm., 2011). This species is not dependent on aquatic habitat but occurs under logs in moist forest habitats and is considered an indicator of interior forest conditions (Welsh and Droege 2001).

Significant Amphibian Species

American bullfrogs are considered area-sensitive by MNR. Breeding habitat for American Bullfrog is considered Significant Wildlife Habitat by MNR.

Reptiles

Four reptile species were noted within the Coves ESA, two within the vicinity of the south-east cove pond and two within the vicinity of the northeast pond. Two snakes were noted in upland areas near the pond: Red-bellied Snake, an unusual snake in urban areas, noted in an open area just south of the German-Canadian Club and Northern Brownsnake, noted on the forested slope above the south-east pond. Eastern Gartersnake was noted in the cultural woodland community south of McAlpine Avenue as well as in the red oak forest south of Springbank Drive. Painted Turtles were noted only in the south-east cove pond, where three were seen basking on a log.

Dragonflies and Damselflies

The dragonflies and damselflies (Odonates) within the study area are primarily located along the edges of the ponds, in the floodplain vegetation. The areas with the highest abundance of Odonates were open communities with minimal shade (*i.e.* CUM and MAM communities). Fifteen species of Odonates were documented from the study area: five damselfly species and ten dragonfly species (Appendix 5).

Significant Dragonfly and Damselfly Species

The Provincially significant, Unicorn Clubtail (dragonfly) designated as S2S3 within Ontario has been documented from the MAM2/CUM1 community along the eastern bank of the eastern pond. This dragonfly was noted foraging along the banks of the pond.

Butterflies

Five butterfly species were documented from the study area: Giant Swallowtail, Cabbage White, Spring Azure, Monarch, and White Admiral (Appendix 5). Cabbage White was located in an abundance of vegetation communities including forests, meadow marshes, cultural meadows, and flying over open aquatic communities. Monarch was also located in multiple locations (MAM2/CUM1, MAM3-3, and CUW1). The remaining three species Giant Swallowtail, Spring Azure, and White Admiral were each found at only one location. Giant Swallowtail was observed in an FOD5-1 community along the southeastern pond. Spring Azure was located at the base of the ponds within the FOD7-3 community. The White Admiral was noted within the FOD5-1 community at the south end of the study area.

Significant Butterfly Species

Giant Swallowtail is designated as an S3 species within Ontario. This species of butterfly was documented from the FOD5-1 community located along the banks of the southeastern pond.



One of the Giant Swallowtail's food plants, Swamp Milkweed (*Asclepias incarnata*) is occasionally located along the banks of the Coves ponds.

One fauna species at risk documented from the study area, Monarch butterfly, is considered to be of Special Concern as designated by the Committee of Species at Risk in Ontario (COSARO). This designation is supported by the Ontario Ministry of Natural Resources (MNR) and the Committee on the Status of Endangered Wildlife in Canada (COSEWIC). Monarch butterflies were documented from three vegetation communities within the study area: MAM2/CUM1 along the eastern pond, MAM3-3 along the western pond, and within a CUW1 at the north end of the study area.

Birds

Fifty-nine species of breeding birds were noted during breeding bird surveys in 2011. Most of the species recorded are characteristic of a variety of habitats in urban settings, such as American Robin, Northern Cardinal and Black-capped Chickadee (see fauna table at end of section 2). Forest-dependent species were the most common habitat-specific species noted within the Coves, including Great Crested Flycatcher, Eastern Wood-pewee, Red-eyed Vireo, Wood Thrush and Rose-breasted Grosbeak. Few wetland-dependent species were noted including only Red-winged Blackbird, a species that can utilize the narrow meadow marsh areas present within the Coves, Common Yellowthroat, noted only within the mosaic of thicket and marsh along the northeast cove pond, and Willow Flycatcher, which was noted within a small ravine at the south end of the ESA (adjacent to Euston Meadows). Notable species of thicket habitats occurred within the eastern end of Euston Meadows and the apple orchard within the paint factory property, including Eastern Towhee and Field Sparrow, respectively, which are seldom found in urban habitats (personal experience) and may have been late migrants as they were heard only on the first breeding bird survey in late May. Species of open field habitats were most common in Euston Meadows, including Savannah Sparrow and Eastern Meadowlark, a threatened species discussed in the next section.

Seven cavity-nesting species were noted: Great Crested Flycatcher, House Wren, Hairy and Downy Woodpecker, Northern Flicker, Red-bellied Woodpecker and Black-capped Chickadee. Numerous nest boxes installed at the north end of the Coves (in Greenway Park and its vicinity) have the potential to provide habitat for additional cavity-nesting species such as swallows but almost all were occupied by House Sparrows, a non-native species that often out-competes native species and is considered a factor in some cavity-nesting species' declines.

Significant Bird Species

Thirty of the bird species noted within the Coves ESA are considered significant at a provincial, regional and/or local level, and/or because they have sensitive habitat requirements (see table of Significant birds within the Coves ESA). Four of the species noted are considered Species at Risk both nationally and provincially. Two of these (Chimney Swift and Barn Swallow) are birds that nest on buildings, and were likely not nesting within the ESA itself but were nesting on a shed or other building immediately adjacent, and using the Coves as a foraging area. These species were particularly noted in open areas such as the ponds and Euston Meadows at the south end of the ESA.

Eastern Meadowlark, is a nationally and provincially threatened species, which nests within Euston Meadows. The meadowlark was noted on all three visits to survey breeding birds, and has also been noted in this location for several years by a local birder (Len Manning, 2011 pers.



comm.). This species is a ground-nester, is area-sensitive, and is highly specific to grassland habitats. It is intolerant of habitat change: meadows where shrubs have invaded are no longer used as habitat by this species. Its area-sensitivity may stem partly from its reluctance to nest within 100 m of wooded areas.

Manning (2011 pers. comm) noted that Whip-poor-will, a species now considered threatened in Ontario, used to nest in the Coves many years ago, before it was surrounded by development. However, this species no longer breeds in this area.

Two species were noted that are considered rare in Ecoregion 7 (the Carolinian Region) by MNR (MNR 1993): Magnolia Warbler and Ovenbird. These warbler species are highly area-sensitive, and Magnolia Warbler is generally associated with coniferous habitat. Ovenbird is a ground-nesting species and is very rare in urban environments. They were noted only on the first breeding bird survey, and were not heard in subsequent surveys, and so may have been late migrants.

Thirteen of the species noted on the site are of conservation concern in Bird Conservation Region 13 (Ontario south of the Canadian Shield). These species have not yet been designated as Species at Risk (with the exception of Eastern Meadowlark), but all are of conservation concern because their populations are declining and/or because a large proportion of the species' habitat occurs in southern Ontario. Two of these species, Wood Thrush and Willow Flycatcher, are of the highest priority status because they are of continental and regional conservation concern. A primary objective for these species is to reverse the population decline, or to maintain populations, highlighting the importance of maintaining remnant habitat within urban areas for bird conservation.

Twenty species are birds considered a conservation priority in Middlesex County by Bird Studies Canada (Couturier 1999). These bird species are not rare *per se*, but the level of conservation priority (L1 to L4) represents their vulnerability to decline. This is derived by calculating a cumulative score that incorporates individual scores for factors that contribute to the species' vulnerability, such as regional and local population trends, habitat specificity, sensitivity to development and jurisdictional responsibility (whether the species' breeding habitat is concentrated in Middlesex). Most of these species were only possible breeders within the Coves (and many were considered unlikely to be breeding by Manning (2011, pers. comm.), a local birder who has been studying birds of the Coves for many years). However, the fact that they were heard in the breeding season indicates that they were advertising for a mate in this location, and there is potential for them to breed here.

Eleven area-sensitive species were noted in the Coves. However, most of these species, particularly those that are forest-dependent and at the higher end of the spectrum with regard to area-sensitivity, were noted only as possible breeding species. They were likely late migrants as they were seen on the first visit in late May but not heard during the second visit two weeks later. Examples of these included Black-throated Green Warbler, Black-throated Blue Warbler, Ovenbird and Scarlet Tanager: species generally found in large forest tracts in rural areas, and very seldom found in urban areas. Evidence of probable breeding was obtained for three species: American Redstart, Blue-gray Gnatcatcher and Eastern Meadowlark. These are species of successional habitats and Euston Meadows and other areas of young woodlands provide breeding habitat.



| Significant birds within the Coves ESA [*additional species record provided by Len Manning (2011 pers. comm.)] | | | | | | | | | |
|--|------------------------------|----------|--------------|-----------------------------|-----------|--------------|----------------|----------|----------------------------|
| Scientific Name | Common Name | S Rank | COSEWIC/ MNR | Bird Conservation Region 13 | Middlesex | Eco-region 7 | Area Sensitive | Breeding | Habitat |
| <i>Carduelis tristis</i> | American Goldfinch | S5B | | | L3 | No | No | PR | Thickets, young woodlands |
| <i>Setophaga ruticilla</i> | American Redstart | S5B | | | L2 | No | Yes | PR | Young forest |
| <i>Icterus galbula</i> | Baltimore Oriole | S4B | | Regional Concern | | No | No | PR | Young forest |
| <i>Riparia riparia</i> | Bank Swallow | S4B | | Stewardship Concern | L1 | No | No | PR | Bluffs near water |
| <i>Hirundo rustica</i> | Barn Swallow | S4B | THR/THR | | L3 | No | No | O | Farm buildings |
| <i>Ceryle alcyon</i> | Belted Kingfisher | S4B | | Regional Concern | | No | No | O | Riparian areas |
| <i>Poecile atricapillus</i> | Black-capped Chickadee | S5 | | | L4 | No | No | PO | Forest |
| <i>Dendroica caerulescens</i> | Black-throated Blue Warbler | S5B | | | | No | Yes | PO | Forest |
| <i>Dendroica virens</i> | Black-throated Green Warbler | S5B | | | L2 | No | Yes | PO | Forest, usually coniferous |
| <i>Polioptila caerulea</i> | Blue-gray Gnatcatcher | S4B | | | L4 | No | Yes | PR | Young forest |
| <i>Thryothorus ludovicianus</i> | Carolina Wren | S4 | | | L3 | No | No | PO | Forest, young forest |
| <i>Dendroica pensylvanica</i> * | Chestnut-sided Warbler* | S5B | | | L1 | No | No | PR | Young forest |
| <i>Chaetura pelagica</i> | Chimney Swift | S4B, S4N | THR/THR | | | No | No | O | Old chimneys |
| <i>Tyrannus tyrannus</i> | Eastern Kingbird | S4B | | Regional Concern | L3 | No | No | O | Thicket |



| Significant birds within the Coves ESA [*additional species record provided by Len Manning (2011 pers. comm.)] | | | | | | | | | |
|--|-------------------------|--------|--------------|-----------------------------|-----------|--------------|----------------|----------|---------------------------------------|
| Scientific Name | Common Name | S Rank | COSEWIC/ MNR | Bird Conservation Region 13 | Middlesex | Eco-region 7 | Area Sensitive | Breeding | Habitat |
| <i>Sturnella magna</i> | Eastern Meadowlark | S4B | THR/THR | Regional Concern | L2 | No | Yes | PR | Grassland |
| <i>Sayornis phoebe</i> | Eastern Phoebe | S5B | | | L3 | No | No | PO | Riparian forest |
| <i>Pipilo erythrophthalmus</i> | Eastern Towhee | S4B | | Regional Concern | L2 | No | No | PO | Thicket |
| <i>Contopus virens</i> | Eastern Wood-pewee | S4B | | Regional Concern | | No | No | PO | Forest |
| <i>Spizella pusilla</i> | Field Sparrow | S4B | | Regional Concern | L3 | No | No | PO | Thicket |
| <i>Picoides villosus</i> | Hairy Woodpecker | S5 | | | | No | Yes | PO | Forest (cavities) |
| <i>Dendroica magnolia</i> | Magnolia Warbler | S5B | | | L1 | Yes | Yes | PO | Forest, usually coniferous |
| <i>Colaptes auratus</i> | Northern Flicker | S4B | | Regional Concern | | No | No | PO | Forest (cavities) |
| <i>Seiurus aurocapillus</i> | Ovenbird | S4B | | | L4 | Yes | Yes | PO | Forest |
| <i>Sitta canadensis</i> | Red-breasted Nuthatch | S5 | | | L3 | No | Yes | PO | Forest, usually coniferous (cavities) |
| <i>Pheucticus ludovicianus</i> | Rose-breasted Grosbeak | S4B | | Stewardship Concern | | No | No | PR | Forest |
| <i>Passerculus sandwichensis</i> | Savannah Sparrow | S4B | | Regional Concern | L1 | No | Yes | PO | Grasslands |
| <i>Piranga olivacea</i> | Scarlet Tanager | S4B | | | L2 | No | Yes | PO | Forest |
| <i>Sitta carolinensis</i> | White-breasted Nuthatch | S5 | | | | No | Yes | PO | Forest (cavities) |



| Significant birds within the Coves ESA [*additional species record provided by Len Manning (2011 pers. comm.)] | | | | | | | | | |
|--|-------------------|--------|--------------|--------------------------------|-----------|--------------|----------------|----------|------------------|
| Scientific Name | Common Name | S Rank | COSEWIC/ MNR | Bird Conservation Region 13 | Middlesex | Eco-region 7 | Area Sensitive | Breeding | Habitat |
| <i>Empidonax trailii</i> | Willow Flycatcher | S5B | | Continental & Regional Concern | | No | No | PO | Shrubby wetlands |
| <i>Hylocichla Mustelina</i> | Wood Thrush | S5B | | Regional Concern | L4 | No | No | | Forest |



Migrating Birds

Studies for migrating birds were not conducted within the Coves. However, Len Manning (2011, pers. comm.) has studied birds within the Coves (including migrants and breeding birds) for approximately five years and has observed abundant migrating songbirds within forested areas of the Coves. He has also observed concentrations of migrant Common Nighthawks, a Species at Risk, over Euston Meadows every evening in September. In addition, he has noted concentrations of migrating shorebirds within the west Cove pond, north of Springbank Road. Water levels decline in the fall and so mudflats develop in this area. Great Egret roost here in the fall, and he has seen many shorebirds such as Pectoral Sandpiper, Least Sandpiper, Greater and Lesser Yellowlegs, Stilt Sandpiper, 10-11 Solitary Sandpiper, phalarope, American Coot, both teal species and one vagrant (very rare): Little Blue Heron. It is also a roost and foraging area for Green Heron and Black-crowned Night Heron, though they are not known to breed here.

Fish

A total of 16 fish species have been captured and recorded in the Coves including cool and warm water sportfish such as largemouth bass, pumpkinseed, yellow perch, black crappie and bluegill. The presence of non-native common carp and goldfish is of particular concern due to the negative environmental impact these species have on aquatic ecosystems. The Coves ponds exhibit the impact of common carp as noted by the lack of aquatic plants and turbid water conditions. The presence of common carp results in a reduction of native plant and animal biodiversity.

Significant Wildlife Habitat

Criteria for designation of Significant Wildlife Habitat (SWH) have been provided by OMNR (2000). More detailed guidelines for evaluating habitat within Ecoregions 6E and 7E, including thresholds of numbers of species that designate an area as SWH, have been provided in draft form (OMNR 2012). They include two types of habitat found in the Coves, both of which fall into the category of Seasonal Concentration Areas for Wildlife.

Breeding Habitat for American Bullfrog (Confirmed)

Two areas supported calling American Bullfrogs, and so should be considered breeding habitat for this species. These were the small inlet on the Thames River at the extreme north end of the ESA, and the southeast Coves Pond.

Habitat for Migrating Shorebirds (Candidate)

14 species of migrating shorebirds and wading birds have been recorded within the western Coves pond (Manning, pers. comm., 2011). Sites are considered SWH where the presence of three or more of listed species is documented and there are more than 1000 Shorebird Use Days recorded during spring or fall migration period (Shorebird Use Days are the accumulated number of shorebirds counted per day over the course of the fall or spring migration period). The west pond within the Coves should be considered candidate SWH until numbers and species richness of shorebirds are documented to meet the criteria for designation as SWH.



FLORA OF THE COVES ESA



| Flora documented from the Coves ESA in 2011.(* indicates an introduced species) | | | | | | | | | | | | | | |
|--|--|-------------------------|---------------|--------|-----------------|-----------|----------------------|-----|-----|-----|-----|-----|---------|-----|
| Scientific Name | | Common Name | Rarity Status | | | | Vegetation Community | | | | | | | |
| | | | G Rank | S Rank | Southwestern ON | Middlesex | FOD | SWD | MAM | CUW | CUT | CUM | MAM/CUM | OA0 |
| | Equisetaceae | | | | | | | | | | | | | |
| | Equisetum arvense L. | Field Horsetail | G5 | S5 | | | x | x | | | | | | |
| | Dryopteridaceae | | | | | | | | | | | | | |
| | Dryopteris carthusiana (Vill.) H.P. Fuchs | Spinulose Wood Fern | G5 | S5 | | | x | | | | | | | |
| | Matteuccia struthiopteris (L.) Tod. var. pensylvanica (Willd.) C.V. Morton | Ostrich Fern | G5 | S5 | | | x | | | x | | | | |
| | Onoclea sensibilis L. | Sensitive Fern | G5 | S5 | | | x | | | | | | | |
| | Pinaceae | | | | | | | | | | | | | |
| | Tsuga canadensis (L.) Carrière | Eastern Hemlock | G5 | S5 | | | x | | | | | | | |
| * | Pinus sylvestris L. | Scotch Pine | GNR | SNA | | | x | | | | | | | |
| | Cupressaceae | | | | | | | | | | | | | |
| | Thuja occidentalis L. | Eastern White Cedar | G5 | S5 | | | x | | | | | | | |
| | Nymphaeaceae | | | | | | | | | | | | | |
| | Nuphar variegata Durand in Clinton | Yellow Cowlily | G5T5 | S5 | | | | | | | | | | x |
| | Ranunculaceae | | | | | | | | | | | | | |
| | Ranunculus hispidus Michx. var. caricetorum (Greene) T. Duncan | Swamp Buttercup | G5T5 | S5 | | | x | | | | | | | x |
| | Anemone virginiana L. | Virginia Anemone | G5 | S5 | | | x | | | | | | | |
| | Aquilegia canadensis L. | Wild Columbine | G5 | S5 | | | x | | | | | | | |
| | Ranunculus abortivus L. | Kidney-leaved Buttercup | G5 | S5 | | | x | | | | | | | |
| | Anemone quinquefolia L. | Wood Anemone | G5 | S5 | | | x | | | | | | | |
| | Actaea pachypoda Elliott | White Baneberry | G5 | S5 | | | x | | | | | | | |
| | Actaea rubra (Aiton) Willd. | Red Baneberry | G5 | S5 | | | x | | | | | | | |
| | Anemone canadensis L. | Canada Anemone | G5 | S5 | | | | | | x | | | x | |
| | Ranunculus recurvatus Poir. var. recurvatus | Rough Crowfoot | G5 | S5 | | | x | | | | | | | |
| | Thalictrum dioicum L. | Early Meadow-rue | G5 | S5 | | | x | | | | | | | |
| * | Ranunculus acris L. | Tall Butter-cup | G5 | SNA | | | x | | | | | x | | |
| * | Ranunculus repens L. | Creeping Buttercup | GNR | SNA | | | x | | | | | | | |



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|--|---|--------------------------|---------------|--------|-----------------|-----------|----------------------|-----|-----|-----|-----|-----|---------|-----|
| Scientific Name | | Common Name | Rarity Status | | | | Vegetation Community | | | | | | | |
| | | | G Rank | S Rank | Southwestern ON | Middlesex | FOD | SWD | MAM | CUW | CUT | CUM | MAM/CUM | OAO |
| | Berberidaceae | | | | | | | | | | | | | |
| | Podophyllum peltatum L. | May Apple | G5 | S5 | | | x | | | | | | | |
| * | Berberis vulgaris L. | European Barberry | GNR | SNA | | | x | | | | | | | |
| * | Berberis thunbergii DC. | Japanese Barberry | GNR | SNA | | | x | | | | | | | |
| | Papaveraceae | | | | | | | | | | | | | |
| | Sanguinaria canadensis L. | Bloodroot | G5 | S5 | | | x | | | | | | | |
| | Platanaceae | | | | | | | | | | | | | |
| | Platanus occidentalis L. | Sycamore | G5 | S4 | | | | | | | | | x | |
| | Hamamelidaceae | | | | | | | | | | | | | |
| | Hamamelis virginiana L. | Witch-hazel | G5 | S5 | | | x | | | | | | | |
| | Ulmaceae | | | | | | | | | | | | | |
| | Ulmus americana L. | American Elm | G5? | S5 | | | x | | | | | | | |
| | Celtis occidentalis L. | Hackberry | G5 | S4 | | | x | | | | | | | |
| * | Ulmus pumila L. | Siberian Elm | GNR | SNA | | | x | | | | | x | | |
| * | Ulmus glabra Hudson | Wych Elm | GNR | SNA | | | x | | | | | | | |
| | Moraceae | | | | | | | | | | | | | |
| * | Morus alba L. | White Mulberry | GNR | SNA | | | x | | | | | | | |
| | Urticaceae | | | | | | | | | | | | | |
| | Laportea canadensis (L.) Wedd. | Wood Nettle | G5 | S5 | | | x | | x | | | | | |
| | Pilea pumila (L.) A. Gray | Canada Clearweed | G5 | S5 | | | x | | x | | | | | |
| | Urtica dioica L. ssp. gracilis (Aiton) Selander | American Stinging Nettle | G5T5 | S5 | | | x | | x | | | | | |
| | Boehmeria cylindrica (L.) Sw. | False Nettle | G5 | S5 | | | x | x | | | | | x | |
| * | Urtica dioica L. ssp. dioica | European Stinging Nettle | G5T5? | SNA | | | | | | | | | x | |
| | Juglandaceae | | | | | | | | | | | | | |
| | Carya cordiformis (Wangenh.) K. Koch | Bitternut Hickory | G5 | S5 | | | x | | | | | | | |
| | Carya ovata (Miller) K. Koch | Shagbark Hickory | G5 | S5 | | | x | | | | | | | |
| | Juglans cinerea L. | Butternut | G4 | S3? | | | x | | | | | | | |



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|--|---|-----------------------------|---------------|--------|-----------------|-----------|----------------------|-----|-----|-----|-----|-----|---------|-----|
| Scientific Name | | Common Name | Rarity Status | | | | Vegetation Community | | | | | | | |
| | | | G Rank | S Rank | Southwestern ON | Middlesex | FOD | SWD | MAM | CUW | CUT | CUM | MAM/CUM | OA0 |
| | Juglans nigra L. | Black Walnut | G5 | S4 | | | x | | | x | | x | x | |
| | Fagaceae | | | | | | | | | | | | | |
| | Quercus alba L. | White Oak | G5 | S5 | | | x | | | | | x | | |
| | Quercus macrocarpa Michx. | Bur Oak | G5 | S5 | | | x | | | | | | | |
| | Quercus muhlenbergii Engelm. | Chinquapin Oak | G5 | S4 | | | x | | | | | | | |
| | Quercus rubra L. | Red Oak | G5 | S5 | | | x | | | | | x | | |
| | Fagus grandifolia Ehrh. | American Beech | G5 | S4 | | | x | | | | | | | |
| | Betulaceae | | | | | | | | | | | | | |
| | Betula alleghaniensis Britton | Yellow Birch | G5 | S5 | | | x | | | | | | | |
| | Carpinus caroliniana Walter ssp. virginiana (Marshall) Furlow | Blue Beech | G5 | S5 | | | x | | | | | | | |
| | Ostrya virginiana (Miller) K. Koch | Hop Hornbeam | G5 | S5 | | | x | | | | | | | |
| | Portulacaceae | | | | | | | | | | | | | |
| | Claytonia virginica L. | Narrow-leaved Spring Beauty | G5 | S5 | | | x | | | | | | | |
| | Caryophyllaceae | | | | | | | | | | | | | |
| * | Silene latifolia Poir. | Bladder Campion | GNR | SNA | | | x | | | | | | | |
| | Polygonaceae | | | | | | | | | | | | | |
| | Polygonum virginianum L. | Virginia Knotweed | G5 | S4 | | | | | | x | | | | |
| | Polygonum amphibium L. | Water Smartweed | G5 | S5 | | | x | | | | | | x | x |
| | Rumex orbiculatus A. Gray | Water Dock | G5 | S4S5 | | | x | | | | | | | x |
| * | Polygonum persicaria L. | Lady's Thumb | G3G5 | SNA | | | x | | | | | | | x |
| * | Rumex crispus L. | Curly Dock | GNR | SNA | | | x | | | | | x | | |
| | Guttiferae | | | | | | | | | | | | | |
| | Triadenum fraseri (Spach) Gleason | Marsh St. John's-wort | G5 | S5 | | | x | x | | | | | | |
| * | Hypericum perforatum L. | Common St. John's-wort | GNR | SNA | | | x | | | | | x | | |
| | Tiliaceae | | | | | | | | | | | | | |
| | Tilia americana L. | American Basswood | G5 | S5 | | | x | | | x | | | | |
| * | Tilia cordata Miller | Little-leaf Linden | GNR | SNA | | | x | | | | | | | |



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|--|--|---------------------|---------------|--------|-----------------|-----------|----------------------|-----|-----|-----|-----|-----|---------|-----|
| Scientific Name | | Common Name | Rarity Status | | | | Vegetation Community | | | | | | | |
| | | | G Rank | S Rank | Southwestern ON | Middlesex | FOD | SWD | MAM | CUW | CUT | CUM | MAM/CUM | OA0 |
| | Malvaceae | | | | | | | | | | | | | |
| * | Malva neglecta Wallr. | Common Mallow | GNR | SNA | | | x | | | | | | | |
| | Violaceae | | | | | | | | | | | | | |
| | Viola pubescens Aiton | Downy Yellow Violet | G5TNR | S5 | | | x | | | | | | | |
| | Viola sororia Willd. | Woolly Blue Violet | G5 | S5 | Yes | | x | | | | | | x | |
| | Viola cucullata Aiton | Marsh Blue Violet | G4G5 | S5 | | | x | x | | x | | x | | |
| | Cucurbitaceae | | | | | | | | | | | | | |
| | Echinocystis lobata (Michx.) Torr. & A. Gray | Wild Cucumber | G5 | S5 | | | x | | | | | | | |
| | Salicaceae | | | | | | | | | | | | | |
| | Salix exigua Nutt. | Sandbar Willow | G5 | S5 | | | | | | x | | | | |
| | Populus balsamifera L. ssp. balsamifera | Balsam Poplar | G5 | S5 | | | x | | | | | | | |
| | Populus deltoides Bartram ex Marshall ssp. deltoides | Eastern Cottonwood | G5T5 | SU | | | x | x | | x | | x | | |
| | Populus tremuloides Michx. | Trembling Aspen | G5 | S5 | | | x | | | | | x | | |
| | Salix bebbiana Sarg. | Beaked Willow | G5 | S5 | | | | | | | | x | | |
| | Salix discolor Muhlenb. | Pussy Willow | G5 | S5 | | | | x | | | | | | |
| | Salix eriocephala Michx. | Heart-leaved Willow | G5 | S5 | | | x | x | | | | | | |
| | Salix petiolaris Sm. | Slender Willow | G5 | S5 | | | | x | | | | | x | |
| * | Populus alba L. | White Poplar | G5 | SNA | | | x | | | | | | | |
| * | Salix x rubens Schrank | Hybrid Willow | GNA | SNA | | | x | x | | | | | | |
| * | Salix fragilis L. | Crack Willow | GNR | SNA | | | x | | | | | x | | x |
| | Brassicaceae | | | | | | | | | | | | | |
| * | Nasturtium officinale R. Br. | True Watercress | G? | SNA | | | x | x | | | | | | |
| * | Hesperis matronalis L. | Dame's Rocket | G4G5 | SNA | | | x | x | | | x | | x | |
| * | Barbarea vulgaris R. Br. | Yellow Rocket | GNR | SNA | | | x | | x | x | | x | x | |
| * | Alliaria petiolata (M. Bieb.) Cavara & Grande | Garlic Mustard | GNR | SNA | | | x | x | | x | x | x | x | |
| | Primulaceae | | | | | | | | | | | | | |
| | Lysimachia ciliata L. | Fringed Loosestrife | G5 | S5 | | | x | | x | | | | | x |



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|--|--|----------------------------|---------------|--------|-----------------|-----------|----------------------|-----|-----|-----|-----|-----|---------|-----|
| Scientific Name | | Common Name | Rarity Status | | | | Vegetation Community | | | | | | | |
| | | | G Rank | S Rank | Southwestern ON | Middlesex | FOD | SWD | MAM | CUW | CUT | CUM | MAM/CUM | OA0 |
| * | Lysimachia nummularia L. | Creeping Jennie | GNR | SNA | | | x | x | | | | | | |
| | Grossulariaceae | | | | | | | | | | | | | |
| | Ribes triste Pall. | Swamp Red Currant | G5 | S5 | | | x | | | | | | | x |
| | Ribes cynosbati L. | Prickly Gooseberry | G5 | S5 | | | x | | | | | | | |
| | Ribes americanum Miller | Wild Black Currant | G5 | S5 | | | x | | | | | | | |
| * | Ribes rubrum L. | Northern Red Currant | G4G5 | SNA | | | x | | | | | | | |
| | Saxifragaceae | | | | | | | | | | | | | |
| | Penthorum sedoides L. | Ditch-stonecrop | G5 | S5 | | | x | | | | | | | |
| | Rosaceae | | | | | | | | | | | | | |
| | Crataegus sp. | Hawthorn | GNR | S? | | ? | x | | | | x | | | |
| | Geum sp. | Geum | GNR | S? | | ? | x | | | | x | | | |
| | Rosa sp. | Rose | GNR | S? | | ? | x | | | | | | | |
| | Prunus virginiana L. | Choke Cherry | G5 | S5 | | | x | x | | | | | | |
| | Prunus serotina Ehrh. | Black Cherry | G5 | S5 | | | x | | | | | | | |
| | Physocarpus opulifolius (L.) Maxim. | Ninebark | G5 | S5 | | | | | | | | x | | |
| | Geum macrophyllum Willd. | Large-leaved Avens | G5 | S5 | Yes | | x | | | | | | | |
| | Geum aleppicum Jacq. | Yellow Avens | G5T5 | S5 | | | x | | | | x | | | |
| | Fragaria virginiana Miller ssp. virginiana | Virginia Strawberry | G5 | SU | | | x | | | | | x | | |
| | Fragaria vesca L. ssp. americana (Porter) Staudt | Woodland Strawberry | G5 | S5 | | | x | | | | | | | |
| | Crataegus succulenta Schrad. ex Link | Fleshy Hawthorn | G5 | S4S5 | | | | | | | x | | | |
| | Agrimonia gryposepala Wallr. | Tall Hairy Groovebur | G5 | S5 | | | x | | | | | | x | |
| | Sorbus decora (Sarg.) C.K. Schneid. | Northern Mountain-ash | G4G5 | S5 | Yes | | x | | | | | | | |
| | Amelanchier arborea (Michx. f.) Fern. | Downy Serviceberry | G5 | S5 | | | x | | | | | | | |
| | Rubus idaeus L. ssp. melanolasius (Dieck) Focke | Red Raspberry | G5T5 | S5 | | | x | | | | x | | x | |
| | Rubus occidentalis L. | Black Raspberry | G5 | S5 | | | x | | | | | | | |
| | Spiraea alba Du Roi | Narrow-leaved Meadow-sweet | G5 | S5 | | | | | | | | x | | |
| * | Malus pumila Miller | Common Crabapple | G5 | SNA | | | x | | | | | | | |



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|--|--|-------------------------|---------------|--------|-----------------|-----------|----------------------|-----|-----|-----|-----|-----|---------|-----|
| Scientific Name | | Common Name | Rarity Status | | | | Vegetation Community | | | | | | | |
| | | | G Rank | S Rank | Southwestern ON | Middlesex | FOD | SWD | MAM | CUW | CUT | CUM | MAM/CUM | OAo |
| * | Prunus avium (L.) L. | Sweet Cherry | GNR | SNA | | | x | x | | | | | | |
| * | Rosa multiflora Thunb. ex Murray | Multiflora Rose | GNR | SNA | | | x | | | x | | x | | |
| Fabaceae | | | | | | | | | | | | | | |
| | Desmodium canadense (L.) DC. | Showy Tick-trefoil | G5 | S4 | | | x | | | x | | | x | |
| | Cercis canadensis L. | Redbud | G5 | SX | Yes | | x | | | | | | | |
| | Amphicarpaea bracteata (L.) Fern. | American Hog-peanut | G5 | S5 | | | x | | | | | | x | |
| * | Robinia pseudo-acacia L. | Black Locust | G5 | SNA | | | x | | | | | | | |
| * | Melilotus alba Medik. | White Sweet Clover | G5 | SNA | | | x | | | | | | | |
| * | Medicago lupulina L. | Black Medic | GNR | SNA | | | | | | | | x | | |
| * | Lotus corniculatus L. | Birds-foot Trefoil | GNR | SNA | | | x | | | | | | | |
| * | Coronilla varia L. | Crown-vetch | GNR | SNA | | | | | | | x | | | |
| * | Vicia cracca L. | Tufted Vetch | GNR | SNA | | | | | | | x | | | |
| * | Trifolium pratense L. | Red Clover | GNR | SNA | | | | | | | | x | | |
| Lythraceae | | | | | | | | | | | | | | |
| * | Lythrum salicaria L. | Purple Loosestrife | G5 | SNA | | | x | x | x | | | | x | x |
| Thymelaeaceae | | | | | | | | | | | | | | |
| | Dirca palustris L. | Leatherwood | G4 | S4? | | | x | | | | | | | |
| Onagraceae | | | | | | | | | | | | | | |
| | Epilobium ciliatum Raf. ssp. ciliatum | Hairy Willow-herb | G5 | S5 | | | x | | | | | | x | |
| | Circaea lutetiana L. ssp. canadensis (L.) Aschers. & Magnusson | Enchanter's Nightshade | G5 | S5 | | | x | | | x | | | | |
| * | Epilobium hirsutum L. | Great-hairy Willow-herb | GNR | SNA | | | | | | x | | | | |
| Cornaceae | | | | | | | | | | | | | | |
| | Cornus stolonifera Michx. | Red-osier Dogwood | G5 | S5 | | | x | | | x | | x | | |
| | Cornus rugosa Lam. | Round-leaved Dogwood | G5 | S5 | | | x | | | | | | | |
| | Cornus foemina Miller ssp. racemosa (Lam.) J.S. Wilson | Grey Dogwood | G5 | S5 | | | x | | | x | | x | x | |
| | Cornus drummondii C.A. Mey. | Drummond's Dogwood | G5 | S4 | | | | | | | | x | | |
| | Cornus alternifolia L. f. | Alternate-leaf Dogwood | G5 | S5 | | | x | | | x | | | | |



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|--|---|---------------------------|---------------|--------|-----------------|-----------|----------------------|-----|-----|-----|-----|-----|---------|-----|
| Scientific Name | | Common Name | Rarity Status | | | | Vegetation Community | | | | | | | |
| | | | G Rank | S Rank | Southwestern ON | Middlesex | FOD | SWD | MAM | CUW | CUT | CUM | MAM/CUM | OAo |
| | Cornus amomum Miller ssp. obliqua (Raf.) J.S. Wilson | Silky Dogwood | G5T5 | S5 | | | x | | | | | | | |
| | Celastraceae | | | | | | | | | | | | | |
| | Euonymus obovata Nutt. | Running Strawberry-bush | G5 | S5 | | | x | | | | | | | |
| * | Euonymus alata (Thunb.) Siebold | Winged Burning Bush | GNR | SNA | | | x | | | | | | | |
| | Euphorbiaceae | | | | | | | | | | | | | |
| * | Euphorbia esula L. | Leafy Spurge | G5 | SNA | | | | | | | | x | | |
| | Rhamnaceae | | | | | | | | | | | | | |
| | Rhamnus alnifolia L'Hér. | Alder-leaved Buckthorn | G5 | S5 | | | x | x | | x | | | | |
| * | Rhamnus frangula L. | Glossy Buckthorn | GNR | SNA | | | x | | x | | | | | |
| * | Rhamnus cathartica L. | European Buckthorn | GNR | SNA | | | x | x | | x | x | x | | |
| | Vitaceae | | | | | | | | | | | | | |
| | Parthenocissus vitacea (Knerr) Hitchc. | Inserted Virginia Creeper | G5 | S5 | | | x | | x | | x | | x | |
| | Vitis riparia Michx. | Riverbank Grape | G5 | S5 | | | x | x | | x | x | | x | x |
| | Staphyleaceae | | | | | | | | | | | | | |
| | Staphylea trifolia L. | American Bladdernut | G5 | S4 | | | x | | | | | | | |
| | Hippocastanaceae | | | | | | | | | | | | | |
| * | Aesculus hippocastanum L. | Horse Chestnut | GNR | SNA | | | x | | | | | | | |
| | Aceraceae | | | | | | | | | | | | | |
| | Acer x freemanii E. Murr. | Hybrid Soft Maple | GNA | SNR | | | x | x | | x | | | | |
| | Acer saccharum Marshall ssp. saccharum | Sugar Maple | G5T5 | S5 | | | x | x | | x | | x | | |
| | Acer saccharum Marshall ssp. nigrum (Michx. f.) Desmarais | Black Maple | G5T5 | S4? | | | x | | | | | | | |
| | Acer saccharinum L. | Silver Maple | G5 | S4S5 | | | x | x | | | | | | |
| | Acer negundo L. | Manitoba Maple | G5 | S5 | | | x | x | | x | x | x | | |
| * | Acer platanoides L. | Norway Maple | GNR | SE5 | | | x | | | | | | | |
| | Anacardiaceae | | | | | | | | | | | | | |
| | Rhus typhina L. | Staghorn Sumac | G5 | S5 | | | x | | | x | | x | | |
| | Rhus rydbergii Small ex Rydb. | Western Poison-ivy | G5 | S5 | | | x | | | | | | | |



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|--|--|----------------------------|---------------|--------|-----------------|-----------|----------------------|-----|-----|-----|-----|-----|---------|-----|
| Scientific Name | | Common Name | Rarity Status | | | | Vegetation Community | | | | | | | |
| | | | G Rank | S Rank | Southwestern ON | Middlesex | FOD | SWD | MAM | CUW | CUT | CUM | MAM/CUM | OAo |
| | Rhus radicans L. ssp. negundo (Greene) McNeill | Climbing Poison-ivy | G5T5 | S5 | | | x | | | | | | | |
| | Oxalidaceae | | | | | | | | | | | | | |
| | Oxalis stricta L. | Upright Yellow Wood-sorrel | G5 | S5 | | | x | | | | | | | |
| | Geraniaceae | | | | | | | | | | | | | |
| | Geranium maculatum L. | Wild Crane's-bill | G5 | S5 | | | x | | | | | | | |
| * | Geranium robertianum L. | Herb-robert | G5 | SNA | | | x | | | | | | | |
| | Balsaminaceae | | | | | | | | | | | | | |
| | Impatiens capensis Meerb. | Spotted Jewel-weed | G5 | S5 | | | x | x | x | | | | x | x |
| | Araliaceae | | | | | | | | | | | | | |
| | Aralia nudicaulis L. | Wild Sarsaparilla | G5 | S5 | | | x | | | | | | | |
| * | Hedera helix L. | English Ivy | GNR | SNA | | | x | | | | | | | |
| | Apiaceae | | | | | | | | | | | | | |
| | Sium suave Walter | Water-parsnip | G5 | S5 | | | x | x | x | | | | | |
| | Sanicula marilandica L. | Black Snakeroot | G5 | S5 | | | x | | | | | | | |
| | Cryptotaenia canadensis (L.) DC. | Canada Honewort | G5 | S5 | | | x | | | | | | | |
| | Cicuta maculata L. | Spotted Water-hemlock | G5 | S5 | | | x | x | x | x | | | x | x |
| | Cicuta bulbifera L. | Bulb-bearing Water-hemlock | G5 | S5 | | | | | x | | | | | |
| * | Daucus carota L. | Wild Carrot | GNR | SNA | | | x | | | | x | x | x | |
| * | Aegopodium podagraria L. | Goutweed | GNR | SNA | | | x | | | | | | | |
| | Apocynaceae | | | | | | | | | | | | | |
| | Apocynum cannabinum L. | Indian Hemp | G5 | S5 | | | x | | | | | | | |
| | Apocynum androsaemifolium L. | Spreading Dogbane | G5 | S5 | | | | | | x | | | | |
| * | Vinca minor L. | Periwinkle | GNR | SNA | | | x | | | | | | x | |
| | Asclepiadaceae | | | | | | | | | | | | | |
| | Asclepias incarnata L. | Swamp Milkweed | G5 | S5 | | | | | | | | | x | |
| | Asclepias syriaca L. | Common Milkweed | G5 | S5 | | | x | | x | x | | x | | |
| | Solanaceae | | | | | | | | | | | | | |



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|--|--|------------------------|---------------|--------|-----------------|-----------|----------------------|-----|-----|-----|-----|-----|---------|-----|
| Scientific Name | | Common Name | Rarity Status | | | | Vegetation Community | | | | | | | |
| | | | G Rank | S Rank | Southwestern ON | Middlesex | FOD | SWD | MAM | CUW | CUT | CUM | MAM/CUM | OAo |
| * | Solanum dulcamara L. | Climbing Nightshade | GNR | SNA | | | x | x | | | | | | x |
| | Convolvulaceae | | | | | | | | | | | | | |
| | Cuscuta gronovii Willd. ex Schultz | Swamp Dodder | G5 | S5 | | | x | | | | | | | |
| * | Convolvulus arvensis L. | Field Bindweed | GNR | SNA | | | x | | x | | x | x | x | |
| | Hydrophyllaceae | | | | | | | | | | | | | |
| | Hydrophyllum virginianum L. | Virginia Waterleaf | G5 | S5 | | | x | | | | | | | |
| | Boraginaceae | | | | | | | | | | | | | |
| | Myosotis sp. | Forget-me-not | GNR | S? | | ? | x | | x | | | | | |
| | Myosotis laxa Lehm. | Small Forget-me-not | G5 | S5 | | | x | | | | | | | x |
| | Verbenaceae | | | | | | | | | | | | | |
| | Verbena urticifolia L. | White Vervain | G5 | S5 | | | x | | | | | | x | |
| | Verbena hastata L. | Blue Vervain | G5 | S5 | | | | | | | | | x | |
| | Lamiaceae | | | | | | | | | | | | | |
| | Mentha arvensis L. | Field Mint | G5 | S5 | | | | x | | | | | | x |
| | Scutellaria lateriflora L. | Mad Dog Skullcap | G5 | S5 | | | | | x | | | | x | |
| | Scutellaria galericulata L. | Hooded Skullcap | G5 | S5 | | | | | | | | | x | |
| | Pycnanthemum virginianum (L.) Durand & Jackson ex Fern. & Robinson | Virginia Mountain-mint | G5 | S4 | | | | | | x | | | | |
| | Prunella vulgaris L. ssp. lanceolata (W.C. Barton) Hultén | Heal-all | G5T5 | S5 | | | x | | | | | x | | |
| | Lycopus americanus Muhlenb. ex Bartram | American Bugleweed | G5 | S5 | | | | | x | | | | x | x |
| | Clinopodium vulgare L. | Field Basil | G5 | S5 | | | x | | | | | | | |
| | Monarda fistulosa L. | Wild Bergamot | G5 | S5 | | | | | | x | | x | x | |
| * | Mentha x piperita L. | Pepper Mint | GNA | SNA | | | x | | x | | | | | |
| * | Melissa officinalis L. ssp. officinalis | Lemon-balm | GNR | SNA | | | x | | | | | | | |
| * | Glechoma hederacea L. | Ground Ivy | GNR | SNA | | | x | | | | | | | |
| | Plantaginaceae | | | | | | | | | | | | | |
| | Plantago rugelii Decne. | Black-seed Plantain | G5 | S5 | | | x | | | | | x | | |



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| Scientific Name | | Common Name | Rarity Status | | | | Vegetation Community | | | | | | | |
| | | | G Rank | S Rank | Southwestern ON | Middlesex | FOD | SWD | MAM | CUW | CUT | CUM | MAM/CUM | OAo |
| * | Plantago lanceolata L. | English Plantain | G5 | SNA | | | | | | | | x | | |
| * | Plantago major L. | Nipple-seed Plantain | G5 | SNA | | | x | | | | | x | x | |
| Oleaceae | | | | | | | | | | | | | | |
| | Fraxinus americana L. | White Ash | G5 | S5 | | | x | | | | | x | | |
| | Fraxinus pennsylvanica Marshall | Green Ash | G5 | S5 | | | x | x | | x | | | | |
| * | Ligustrum vulgare L. | European Privet | GNR | SNA | | | x | | | x | | | | |
| Scrophulariaceae | | | | | | | | | | | | | | |
| | Chelone glabra L. | Turtlehead | G5 | S5 | | | x | | | | | | | |
| * | Veronica serpyllifolia L. ssp. serpyllifolia | Thyme-leaved Speedwell | G5TNR | SNA | | | x | | | x | | | x | |
| * | Veronica officinalis L. | Gypsy-weed | G5 | SNA | | | x | | | x | | | | |
| * | Linaria vulgaris Miller | Butter-and-eggs | GNR | SNA | | | | | | | | x | | |
| Campanulaceae | | | | | | | | | | | | | | |
| | Lobelia siphilitica L. | Great Blue Lobelia | G5 | S5 | | | x | | | | | | | |
| | Lobelia inflata L. | Indian-tobacco | G5 | S5 | | | x | | | | | | | |
| Rubiaceae | | | | | | | | | | | | | | |
| | Galium tinctorium L. | Stiff Marsh Bedstraw | G5 | S5 | | R3 | | | x | | | | | |
| | Galium circaezans Michx. | Wild Licorice | G5 | S5 | | | x | | | | | | | |
| * | Galium mollugo L. | White Bedstraw | GNR | SNA | | | x | | x | | | | | |
| Caprifoliaceae | | | | | | | | | | | | | | |
| | Viburnum trilobum Marshall | Highbush Cranberry | G5T5 | S5 | | | x | x | | | | x | x | |
| | Viburnum rafinesquianum Schult. | Downy Arrow-wood | G5 | S5 | | | x | | | | | | | |
| | Viburnum lentago L. | Nannyberry | G5 | S5 | | | x | | | | | | | |
| | Viburnum acerifolium L. | Maple-leaved Viburnum | G5 | S5 | | | x | | | | | | | |
| | Triosteum aurantiacum E.P. Bicknell | Wild Coffee | G5 | S5 | | | x | | | | | | | |
| | Sambucus canadensis L. | Common Elderberry | G5T5 | S5 | | | | | | | | x | | |
| | Lonicera dioica L. | Mountain Honeysuckle | G5 | S5 | | | x | | | | | | | |
| | Diervilla lonicera Miller | Bush Honeysuckle | G5 | S5 | | | x | | | | | | | |



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| Scientific Name | | Common Name | Rarity Status | | | | Vegetation Community | | | | | | | |
| | | | G Rank | S Rank | Southwestern ON | Middlesex | FOD | SWD | MAM | CUW | CUT | CUM | MAM/CUM | OA0 |
| * | Lonicera tatarica L. | Tartarian Honeysuckle | GNR | SNA | | | x | | | x | | | | |
| | Dipsacaceae | | | | | | | | | | | | | |
| * | Dipsacus fullonum L. ssp. sylvestris (Hudson) Clapham | Wild Teasel | GNR | SNA | | | | | | | x | x | | |
| | Asteraceae | | | | | | | | | | | | | |
| | Xanthium strumarium L. | Rough Cockle-bur | G5 | S5 | | | x | | | | | | | |
| | Eupatorium maculatum L. ssp. maculatum | Spotted Joe-pye-weed | G5TNR | S5 | | | x | x | x | | | | x | x |
| | Erigeron annuus (L.) Pers. | White-top Fleabane | G5 | S5 | | | x | | | | | x | | |
| | Bidens frondosa L. | Devil's Beggar-ticks | G5 | S5 | | | x | | | x | | | | |
| | Antennaria neglecta Greene | Field Pussy-toes | G5 | S5 | | | x | | | | | | | |
| | Ambrosia trifida L. | Great Ragweed | G5 | S5 | | | x | | | x | | | | |
| | Ambrosia artemisiifolia L. | Annual Ragweed | G5 | S5 | | | x | | | | | | | |
| | Eupatorium perfoliatum L. | Common Boneset | G5 | S5 | | | x | | | | | | | |
| | Erigeron philadelphicus L. | Philadelphia Fleabane | G5 | S5 | Yes | | x | | | x | | | | |
| | Achillea millefolium L. ssp. lanulosa (Nutt.) Piper | Woolly Yarrow | G5T5 | S5 | | | | | | | | x | | |
| | Solidago canadensis var. canadensis | Canada Goldenrod | G5T5 | S5 | | | x | | | x | | x | | |
| | Symphyotrichum urophyllum (Lindl. in DC.) Nesom | Arrow-leaved Aster | G4G5 | S4 | | | x | | | | | | | |
| | Symphyotrichum pilosum (Willd.) Nesom var. pilosum | Hairy Aster | G5T5 | S5 | | | x | | | x | | | | |
| | Symphyotrichum pilosum | White Heath Aster | G5T5 | S5 | | | x | | | | | | | |
| | Symphyotrichum novae-angliae (L.) Nesom | New England Aster | G5 | S5 | | | x | | | | x | x | | |
| | Symphyotrichum lateriflorum (L.) Löve & Löve var. lateriflorum | One-sided Aster | G5T5 | S5 | | | x | | | x | | | | |
| | Symphyotrichum lanceolatum (Willd.) Nesom ssp. lanceolatum | Panicked Aster | G5T5 | S5 | | | | x | | | | x | x | x |
| | Symphyotrichum ericoides (L.) Nesom var. ericoides | White Heath Aster | G5T5 | S5 | | | | | | | | x | | |
| | Symphyotrichum cordifolium (L.) Nesom | Heart-leaved Aster | G5 | S5 | | | x | | | | | | | |
| | Conyza canadensis (L.) Cronquist | Canada Fleabane | G5 | S5 | | | x | | | | | | | |
| | Solidago flexicaulis L. | Broad-leaved Goldenrod | G5 | S5 | | | x | | | | | | | |
| | Eurybia macrophylla (L.) Cass in Cuvier | Large-leaved Aster | G5 | S5 | | | x | | | | | | | |
| | Solidago canadensis | Canada Goldenrod | G5 | S5 | | | | | | | x | | | |



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|--|---|------------------------------|---------------|--------|-----------------|-----------|----------------------|-----|-----|-----|-----|-----|---------|-----|
| Scientific Name | | Common Name | Rarity Status | | | | Vegetation Community | | | | | | | |
| | | | G Rank | S Rank | Southwestern ON | Middlesex | FOD | SWD | MAM | CUW | CUT | CUM | MAM/CUM | OAo |
| | Solidago caesia L. | Bluestem Goldenrod | G5 | S5 | | | x | | | | | | | |
| | Prenanthes alba L. | White Lettuce | G5 | S5 | | | x | | | | | | | |
| | Euthamia graminifolia (L.) Nutt. | Flat-top Fragrant-golden-rod | G5 | S5 | | | x | | | | | x | | |
| | Helianthus tuberosus L. | Jerusalem Artichoke | G5 | S5 | | | x | | | | | | x | |
| | Helianthus giganteus L. | Tall Sunflower | G5 | S5 | | | | | | | | | x | |
| | Rudbeckia laciniata L. | Cut-leaved Coneflower | G5 | S5 | | | x | | | x | | | x | |
| | Solidago gigantea Aiton | Smooth Goldenrod | G5 | S5 | | | x | | | | | | | |
| * | Cirsium vulgare (Savi) Ten. | Bull Thistle | GNR | SNA | | | x | | | x | | | | |
| * | Cirsium arvense (L.) Scop. | Canada Thistle | GNR | SNA | | | x | | x | | x | x | x | |
| * | Cichorium intybus L. | Chicory | GNR | SNA | | | x | | | | | x | | |
| * | Chrysanthemum leucanthemum L. | Oxeye Daisy | GNR | SNA | | | x | | | | | | | |
| * | Arctium minus (Hill) Bernh. ssp. nemorosum (Lej. & Courtois) Syme | Woodland Burdock | GNRTNR | SNA | | | x | | | | | | | |
| * | Sonchus arvensis L. ssp. arvensis | Field Sow-thistle | GNRTNR | SNA | | | x | | | | | x | | |
| * | Achillea millefolium L. | Common Yarrow | G5T? | SNA | | | x | | | | | | | |
| * | Taraxacum officinale G. Weber | Common Dandelion | G5 | SNA | | | x | | | x | x | x | | |
| * | Arctium minus (Hill) Bernh. | Common Burdock | GNA | SNA | | | x | | | | | | | |
| * | Lapsana communis L. | Common Nipplewort | GNR | SNA | | | x | | | | | | | |
| * | Tussilago farfara L. | Colt's Foot | GNR | SNA | | | x | | | | | | | |
| | Alismataceae | | | | | | | | | | | | | |
| | Sagittaria latifolia Willd. | Broadleaf Arrowhead | G5 | S5 | | | x | x | x | | | | | x |
| | Araceae | | | | | | | | | | | | | |
| | Symplocarpus foetidus (L.) Salisb. ex Nutt. | Skunk Cabbage | G5 | S5 | | | x | | x | | | | | |
| | Arisaema triphyllum (L.) Schott | Jack-in-the-pulpit | G5 | S5 | | | x | | | x | | | x | |
| | Lemnaceae | | | | | | | | | | | | | |
| | Spirodela polyrhiza (L.) Schleid. | Greater Duckweed | G5 | S5 | | | | | | | | | | x |
| | Lemna minor L. | Lesser Duckweed | G5 | S5 | | | | | | | | | | x |



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| Scientific Name | | Common Name | Rarity Status | | | | Vegetation Community | | | | | | | |
| | | | G Rank | S Rank | Southwestern ON | Middlesex | FOD | SWD | MAM | CUW | CUT | CUM | MAM/CUM | OAo |
| | Juncaceae | | | | | | | | | | | | | |
| | Luzula acuminata Raf. | Hairy Woodrush | G5 | S5 | | | x | | | | | | | |
| | Juncus tenuis Willd. | Path Rush | G5 | S5 | Yes | | x | | | x | | | x | |
| | Juncus dudleyi Wiegelb | Dudley's Rush | G5 | S5 | | | | | | x | | | | |
| | Juncus bufonius L. | Toad Rush | G5 | S5 | | | x | | | | | | | |
| | Cyperaceae | | | | | | | | | | | | | |
| | Carex sp. | Sedge | GNR | S? | | ? | x | | | x | | | x | |
| | Carex laxiculmis Schwein. | Spreading Sedge | G5T4T5 | S4 | | | x | | | | | | | |
| | Scirpus atrovirens Willd. | Dark-green Bulrush | G5? | S5 | | | x | | | | | | | |
| | Carex stricta Lam. | Tussock Sedge | G5 | S5 | | | | | x | x | | | x | x |
| | Carex stipata Muhlenb. ex Willd. | Stalk-grain Sedge | G5 | S5 | | | x | | | | | | | |
| | Carex rosea Schkuhr ex Willd. | Rosy Sedge | G5 | S5 | | | x | | | | | | | |
| | Carex pedunculata Muhlenb. ex Willd. | Longstalk Sedge | G5 | S5 | | | x | | | | | | | |
| | Carex gracillima Schwein. | Graceful Sedge | G5 | S5 | | | x | | | x | | | | |
| | Carex blanda Dewey | Woodland Sedge | G5? | S5 | | | x | | | | | | | |
| | Carex pensylvanica Lam. | Pennsylvania Sedge | G5 | S5 | | | x | | | | | | | |
| | Poaceae | | | | | | | | | | | | | |
| | Elymus canadensis L. | Canada Wild-rye | G5 | S4S5 | | | | | | x | | | x | |
| | Calamagrostis canadensis (Michx.) Beauv. | Canada Blue-joint | G5 | S5 | | | | | | | | | x | |
| | Agrostis stolonifera L. | Spreading Bentgrass | G5 | S5 | | | | | | x | | | | |
| | Elymus virginicus L. | Virginia Wild-rye | G5T5 | S5 | | | x | | | | | | | |
| | Elymus hystrix L. | Bottlebrush Grass | G5 | S5 | | | x | | | | | | | |
| | Poa pratensis L. ssp. pratensis | Kentucky Bluegrass | G5T5 | S5 | | | | | | x | x | x | | |
| | Phalaris arundinacea L. | Reed Canary Grass | G5 | S5 | | | x | x | x | | | x | x | x |
| | Muhlenbergia mexicana (L.) Trin var. mexicana | Mexican Satin Grass | G5 | S5 | | | x | | | | | | | |
| | Leersia oryzoides (L.) Sw. | Rice Cutgrass | G5 | S5 | | | x | x | x | | | | | x |
| | Glyceria striata (Lam.) A. Hitchc. | Fowl Manna-grass | G5T5 | S4S5 | | | x | | | | | | | |



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|--|--|---------------------------------|---------------|--------|-----------------|-----------|----------------------|-----|-----|-----|-----|-----|---------|-----|
| Scientific Name | | Common Name | Rarity Status | | | | Vegetation Community | | | | | | | |
| | | | G Rank | S Rank | Southwestern ON | Middlesex | FOD | SWD | MAM | CUW | CUT | CUM | MAM/CUM | OAo |
| * | Phleum pratense L. | Meadow Timothy | GNR | SNA | | | x | | | | | x | x | |
| * | Triticum aestivum L. | Cultivated Wheat | GNR | SNA | | | x | | | | | | | |
| * | Poa compressa L. | Canada Bluegrass | GNR | SNA | | | x | | | | | | | |
| * | Festuca arundinacea Schreb. | Kentucky Fescue | GNR | SNA | | | | | | x | | x | x | |
| * | Elymus repens (L.) Gould | Quack Grass | GNR | SNA | | | | | | | | x | | |
| * | Echinochloa crusgalli (L.) P. Beauv. | Barnyard Grass | GNR | SNA | | | x | | | | | | | |
| * | Dactylis glomerata L. | Orchard Grass | GNR | SNA | | | x | x | | x | x | x | x | |
| * | Bromus inermis Leyss. ssp. inermis | Smooth Brome | G5TNR | SNA | | | | | | x | x | x | x | |
| * | Agrostis gigantea Roth | Red-top | G4G5 | SNA | | | | | | | | x | x | |
| * | Setaria faberi R.A.W. Herrm. | Giant Foxtail | GNR | SNA | | | x | | | | | | | |
| Sparganiaceae | | | | | | | | | | | | | | |
| | Sparganium eurycarpum Engelm. ex A. Gray | Large Bur-reed | G5 | S5 | | | | x | x | | | | | x |
| Typhaceae | | | | | | | | | | | | | | |
| | Typha latifolia L. | Broad-leaf Cattail | G5 | S5 | | | | | x | | | | | x |
| Liliaceae | | | | | | | | | | | | | | |
| | Allium canadense L. | Canada Wild Onion | G5 | S5 | | | x | | | x | | | x | |
| | Trillium grandiflorum (Michx.) Salisb. | White Trillium | G5 | S5 | | | x | | | | | | | |
| | Trillium cernuum L. | Nodding Trillium | G5 | S5 | | | x | | | | | | | |
| | Polygonatum pubescens (Willd.) Pursh | Downy Solomon's-seal | G5 | S5 | | | x | | | | | | x | |
| | Maianthemum stellatum (L.) Link | Starflower False Solomon's-seal | G5 | S5 | | | x | | | x | | | | |
| | Maianthemum racemosum (L.) Link ssp. racemosum | False Solomon's Seal | G5 | S5 | | | x | | | | | | | |
| | Maianthemum canadense Desf. | Wild-lily-of-the-valley | G5 | S5 | | | x | | | | | | | |
| | Erythronium americanum Ker Gawl. | Yellow Trout Lily | G5 | S5 | | | x | x | | | | | | |
| | Erythronium albidum Nutt. | White Trout Lily | G5 | S4 | | | x | | | | | | | |
| * | Narcissus pseudonarcissus L. | Commom Daffodil | GNR | SNA | | | x | | | | | | | |
| * | Hemerocallis fulva (L.) L. | Orange Daylily | GNA | SNA | | | x | | | | | | | |



| Flora documented from the Coves ESA in 2011.(* indicates an introduced species) | | | | | | | | | | | | | | |
|--|--|------------------------------|---------------|--------|-----------------|-----------|----------------------|-----|-----|-----|-----|-----|---------|-----|
| Scientific Name | | Common Name | Rarity Status | | | | Vegetation Community | | | | | | | |
| | | | G Rank | S Rank | Southwestern ON | Middlesex | FOD | SWD | MAM | CUW | CUT | CUM | MAM/CUM | OA0 |
| * | Convallaria majalis L. | Lily-of-the-valley | G5 | SNA | | | x | | | | | | | |
| * | Allium schoenoprasum L. var. schoenoprasum | Chives | G5T5 | SNA | | | x | | | | | | | |
| | Iridaceae | | | | | | | | | | | | | |
| * | Iris pseudacorus L. | Yellow Iris | GNR | SNA | | | x | | x | | | | | x |
| | Smilacaceae | | | | | | | | | | | | | |
| | Smilax herbacea L. | Smooth Herbaceous Greenbrier | G5 | S4 | | | x | | | | | | | |
| | Orchidaceae | | | | | | | | | | | | | |
| * | Epipactis helleborine (L.) Crantz | Eastern Helleborine | GNR | SNA | | | x | | | | | | | |



FAUNA OF THE COVES ESA



| Fauna documented from the Coves ESA in 2011. (* indicates and introduced species) | | | | | | | | | | | | | | | | |
|--|-------------------------|---------------|---------|---------|-----|-----------|--------|----------------|----------|----------------------|-----|-----|-----|-----|---------|-----|
| Scientific Name | Common Name | Rarity Status | | | | | | Area Sensitive | Evidence | Vegetation Community | | | | | | |
| | | G Rank | S Rank | COSEWIC | MNR | Middlesex | BCR 13 | | | FOD | SWD | MAM | CUW | CUM | MAM/CUM | OA0 |
| Bird | | | | | | | | | | | | | | | | |
| Branta canadensis | Canada Goose | G5 | S5 | | | | | | PR | x | | | x | | x | x |
| Aix sponsa | Wood Duck | G5 | S5 | | | L4 | | | PO | x | | | | | | |
| Anas platyrhynchos | Mallard | G5 | S5 | | | | | | PR | x | | | x | | | x |
| Ardea herodias | Great Blue Heron | G5 | S5 | | | | | | OB | x | | x | | | | x |
| Butorides virescens | Green Heron | G5 | S4B | | | L3 | | | PO | x | | | x | | | |
| Pandion haliaetus | Osprey | G5 | S5B | NAR | NAR | | | | OB | | | | x | | | |
| Buteo jamaicensis | Red-tailed Hawk | G5 | S5 | NAR | NAR | | | | OB | x | | | | | | |
| Porzana carolina | Sora | G5 | S4B | | | L1 | | | PO | x | | | | | | |
| Charadrius vociferus | Killdeer | G5 | S5B,S5N | | | | | | PO | x | | | x | | | |
| Tringa solitaria | Solitary Sandpiper | G5 | S4B | | | | | | OB | | | | | | | x |
| Actitis macularia | Spotted Sandpiper | G5 | S5 | | | L3 | | | PO | x | | | | | | |
| Larus marinus | Great Black-backed Gull | G5 | S2B | | | | | | OB | x | | | | | | |
| * Columba livia | Rock Pigeon | G5 | SNA | | | | | | OB | x | | | | | | |
| Zenaida macroura | Mourning Dove | G5 | S5 | | | | | | PO | x | | | x | x | | |
| Bubo virginianus | Great Horned Owl | G5 | S5 | | | | | | PO | x | | | | | | |
| Chaetura pelagica | Chimney Swift | G5 | S4B,S4N | THR | THR | | | | PO | x | | | x | x | | |
| Ceryle alcyon | Belted Kingfisher | G5 | S4B | | | | | | OB | x | | x | | | | |
| Melanerpes carolinus | Red-bellied Woodpecker | G5 | S4 | | | L1 | | | PO | x | | | x | | | |
| Picoides pubescens | Downy Woodpecker | G5 | S5 | | | | | | PO | x | | | x | x | | x |
| Picoides villosus | Hairy Woodpecker | G5 | S5 | | | | | Yes | PO | x | | | | | | |
| Colaptes auratus | Northern Flicker | G5 | S4B | | | | | | PO | x | x | | x | | | |
| Contopus virens | Eastern Wood-pewee | G5 | S4B | | | | | | PO | x | | | | x | | |
| Empidonax traillii | Willow Flycatcher | G5 | S5B | | | | | | PO | x | | | | | | |
| Sayornis phoebe | Eastern Phoebe | G5 | S5B | | | L3 | | | PO | x | | | x | | | |
| Tyrannus tyrannus | Eastern Kingbird | G5 | S4B | | | L3 | | | OB | | | | | | | x |



| Fauna documented from the Coves ESA in 2011. (* indicates and introduced species) | | | | | | | | | | | | | | | | |
|--|------------------------------|---------------|--------|---------|-----|-----------|--------|----------------|----------|----------------------|-----|-----|-----|-----|---------|-----|
| Scientific Name | Common Name | Rarity Status | | | | | | Area Sensitive | Evidence | Vegetation Community | | | | | | |
| | | G Rank | S Rank | COSEWIC | MNR | Middlesex | BCR 13 | | | FOD | SWD | MAM | CUW | CUM | MAM/CUM | OA0 |
| Myiarchus crinitus | Great Crested Flycatcher | G5 | S4B | | | | | | C | x | | | x | x | | x |
| Vireo gilvus | Warbling Vireo | G5 | S5B | | | | | | PO | x | | | x | x | | |
| Vireo olivaceus | Red-eyed Vireo | G5 | S5B | | | | | | PO | x | | | x | x | | |
| Cyanocitta cristata | Blue Jay | G5 | S5 | | | | | | PR | x | | | x | | | |
| Corvus brachyrhynchos | American Crow | G5 | S5B | | | | | | PO | x | | | | x | | |
| Riparia riparia | Bank Swallow | G5 | S4B | THR | THR | L1 | | | PR | x | | | | | | |
| Hirundo rustica | Barn Swallow | G5 | S4B | THR | THR | L3 | | | PO | | | | x | x | | |
| Poecile atricapillus | Black-capped Chickadee | G5 | S5 | | | L4 | | | PO | x | x | | x | x | x | |
| Sitta canadensis | Red-breasted Nuthatch | G5 | S5 | | | L3 | | Yes | PO | x | | | | | | |
| Sitta carolinensis | White-breasted Nuthatch | G5 | S5 | | | | | Yes | PO | x | | x | x | x | | |
| Thryothorus ludovicianus | Carolina Wren | G5 | S4 | | | L3 | | | PO | x | | | | x | | |
| Troglodytes aedon | House Wren | G5 | S5B | | | | | | PO | x | | | x | x | | |
| Poliopitila caerulea | Blue-gray Gnatcatcher | G5 | S4B | | | L4 | | Yes | PR | x | | | x | x | | |
| Hylocichla mustelina | Wood Thrush | G5 | S4B | | | L4 | | | PR | x | | | | | | |
| Turdus migratorius | American Robin | G5 | S5B | | | | | | PR | x | x | | x | x | | |
| Dumetella carolinensis | Gray Catbird | G5 | S4B | | | L4 | | | PR | x | | x | x | x | | |
| * Sturnus vulgaris | European Starling | G5 | SNA | | | | | | C | x | | | | x | | |
| Bombycilla cedrorum | Cedar Waxwing | G5 | S5B | | | | | | PO | x | | | | x | | |
| Dendroica petechia | Yellow Warbler | G5 | S5B | | | | | | PR | x | | | x | x | x | |
| Dendroica magnolia | Magnolia Warbler | G5 | S5B | | | L1 | | Yes | PO | x | | | x | | | |
| Dendroica caerulescens | Black-throated Blue Warbler | G5 | S5B | | | | | Yes | PO | x | | | | | | |
| Dendroica virens | Black-throated Green Warbler | G5 | S5B | | | L2 | | Yes | PO | x | | | | | | |
| Setophaga ruticilla | American Redstart | G5 | S5B | | | L2 | | Yes | PO | x | | | x | | | |
| Seiurus aurocapillus | Ovenbird | G5 | S4B | | | L4 | | Yes | PO | x | | | | | | |
| Geothlypis trichas | Common Yellowthroat | G5 | S5B | | | | | | PO | x | | | x | | | |
| Piranga olivacea | Scarlet Tanager | G5 | S4B | | | L2 | | Yes | PO | x | | | | | | |



| Fauna documented from the Coves ESA in 2011. (* indicates and introduced species) | | | | | | | | | | | | | | | | |
|--|------------------------|---------------|--------|---------|-----|-----------|--------|----------------|----------|----------------------|-----|-----|-----|-----|---------|-----|
| Scientific Name | Common Name | Rarity Status | | | | | | Area Sensitive | Evidence | Vegetation Community | | | | | | |
| | | G Rank | S Rank | COSEWIC | MNR | Middlesex | BCR 13 | | | FOD | SWD | MAM | CUW | CUM | MAM/CUM | OA0 |
| Pipilo erythrophthalmus | Eastern Towhee | G5 | S4B | | | L2 | | | PO | | | | | x | | |
| Spizella passerina | Chipping Sparrow | G5 | S5B | | | | | | PO | x | | | x | x | | |
| Spizella pusilla | Field Sparrow | G5 | S4B | | | L3 | | | PO | | | | x | | | |
| Passerculus sandwichensis | Savannah Sparrow | G5 | S4B | | | L1 | | Yes | PO | | | | | x | | |
| Melospiza melodia | Song Sparrow | G5 | S5B | | | | | | PR | x | | | x | x | x | |
| Cardinalis cardinalis | Northern Cardinal | G5 | S5 | | | | | | PO | x | | x | x | x | | |
| Pheucticus ludovicianus | Rose-breasted Grosbeak | G5 | S4B | | | | | | PR | x | | | x | | | x |
| Passerina cyanea | Indigo Bunting | G5 | S4B | | | | | | PO | x | | | x | | | |
| Agelaius phoeniceus | Red-winged Blackbird | G5 | S5 | | | | | | PR | x | | | x | x | | |
| Sturnella magna | Eastern Meadowlark | G5 | S4B | THR | THR | L2 | | Yes | PR | | | | | x | | |
| Quiscalus quiscula | Common Grackle | G5 | S5B | | | | | | C | x | | | x | | x | x |
| Molothrus ater | Brown-headed Cowbird | G5 | S4B | | | | | | PO | x | | | x | | | |
| Icterus galbula | Baltimore Oriole | G5 | S4B | | | | | | PR | x | x | | x | | | |
| * Carpodacus mexicanus | House Finch | G5 | SNA | | | | | | PO | x | | | | x | | |
| Carduelis tristis | American Goldfinch | G5 | S5B | | | L3 | | | PR | x | | x | x | x | | x |
| * Passer domesticus | House Sparrow | G5 | SNA | | | | | | PO | x | | | x | x | | |
| Mammal | | | | | | | | | | | | | | | | |
| Condylura cristata | Star-nosed Mole | G5 | S5 | | | | | | HO | x | | | | | | |
| Sciurus carolinensis | Grey Squirrel | G5 | S5 | | | | | | OB | x | | | x | | | |
| Tamias striatus | Eastern Chipmunk | G5 | S5 | | | | | | OB | | x | | | | | |
| Castor canadensis | Beaver | G5 | S5 | | | | | | FE | x | | | | | | |
| Microtus pennsylvanicus | Meadow Vole | G5 | S5 | | | | | | HO | | | | x | | | |
| Vulpes vulpes | Red Fox | G5 | S5 | | | | | | HO | x | | | | | | |
| Procyon lotor | Raccoon | G5 | S5 | | | | | | TK/SC | x | | | | x | | |
| Odocoileus virginianus | White-tailed Deer | G5 | S5 | | | | | | OB/TK/SC | x | x | | | x | | |
| Amphibian | | | | | | | | | | | | | | | | |



| Fauna documented from the Coves ESA in 2011. (* indicates and introduced species) | | | | | | | | | | | | | | | | |
|--|-------------------------------|---------------|--------|---------|-----|-----------|--------|----------------|----------|----------------------|-----|-----|-----|-----|---------|-----|
| Scientific Name | Common Name | Rarity Status | | | | | | Area Sensitive | Evidence | Vegetation Community | | | | | | |
| | | G Rank | S Rank | COSEWIC | MNR | Middlesex | BCR 13 | | | FOD | SWD | MAM | CUW | CUM | MAM/CUM | OA0 |
| Plethodon cinereus | Eastern Red-backed Salamander | G5 | S5 | | | | | | OB | x | | | | | | |
| Bufo americanus | American Toad | G5 | S5 | | | | | | OB | x | | | x | | | x |
| Rana catesbeiana | American Bullfrog | G5 | S4 | | | | | Yes | VO | x | | | | | | |
| Rana clamitans | Green Frog | G5 | S5 | | | | | | VO | x | | | | | | |
| Rana pipiens | Northern Leopard Frog | G5 | S5 | NAR | NAR | | | | VO | | | | | | | x |
| Reptile | | | | | | | | | | | | | | | | |
| Chrysemys picta marginata | Midland Painted Turtle | G5T5 | S5 | | | | | | OB | | | | | | | x |
| Storeria dekayi | Dekay's Brownsnake | G5 | S5 | NAR | NAR | | | | OB | x | | | | | | |
| Storeria occipitomaculata occipitomacula | Northern Red-bellied Snake | G5T5 | S5 | | | | | | OB | x | | | | | | |
| Thamnophis sirtalis sirtalis | Eastern Garter Snake | G5T5 | S5 | | | | | | OB | x | | | x | | | |
| Fish | | | | | | | | | | | | | | | | |
| * Cyprinus carpio | Common Carp | G5 | SNA | | | | | | OB | x | | | | | | |
| Dragonfly/ Damselfly | | | | | | | | | | | | | | | | |
| Arigomphus villosipes | Unicorn Clubtail | G5 | S2S3 | | | | | | OB | | | | | | x | |
| Anax junius | Common Green Darner | G5 | S5 | | | | | | OB | | | | | x | | |
| Libellula luctuosa | Widow Skimmer | G5 | S5 | | | | | | OB | | | | | | x | |
| Libellula pulchella | Twelve-spotted Skimmer | G5 | S5 | | | | | | OB | x | | x | | x | | |
| Pachydiplax longipennis | Blue Dasher | G5 | S5 | | | | | | OB | | | | | | x | |
| Perithemis tenera | Eastern Amberwing | G5 | S4 | | | | | | OB | | | | | | x | |
| Plathemis lydia | Common Whitetail | G5 | S5 | | | | | | OB | x | | x | | | x | |
| Sympetrum internum | Cherry-faced Meadowhawk | G5 | S5 | | | | | | OB | | x | | | | x | |
| Sympetrum obtrusum | White-faced Meadowhawk | G5 | S5 | | | | | | OB | | | x | | | x | |
| Sympetrum semicinctum | Band-winged Meadowhawk | G5 | S4 | | | | | | OB | x | | | | | | |
| Calopteryx maculata | Ebony Jewelwing | G5 | S5 | | | | | | OB | x | | x | | | | |
| Argia moesta | Powdered Dancer | G5 | S5 | | | | | | OB | | | x | | | | |



| Fauna documented from the Coves ESA in 2011. (* indicates and introduced species) | | | | | | | | | | | | | | | | | |
|--|---------------------|-------------------|---------------|---------|---------|-----|-----------|--------|----------------|----------|----------------------|-----|-----|-----|-----|---------|-----|
| Scientific Name | | Common Name | Rarity Status | | | | | | Area Sensitive | Evidence | Vegetation Community | | | | | | |
| | | | G Rank | S Rank | COSEWIC | MNR | Middlesex | BCR 13 | | | FOD | SWD | MAM | CUW | CUM | MAM/CUM | OAD |
| | Enallagma ebrium | Marsh Bluet | G5 | S5 | | | | | | OB | | | | | x | | |
| | Enallagma exsulans | Stream Bluet | G5 | S5 | | | | | | OB | | | x | | | x | |
| | Ischnura verticalis | Eastern Forktail | G5 | S5 | | | | | | OB | | | x | | | x | |
| | Butterfly/ Moth | | | | | | | | | | | | | | | | |
| | Papilio cresphontes | Giant Swallowtail | G5 | S3 | | | | | | OB | x | | | | | | |
| * | Pieris rapae | Cabbage White | G5 | SNA | | | | | | OB | x | | x | | x | x | x |
| | Celastrina ladon | Spring Azure | G5 | S5 | | | | | | OB | x | | | | | | |
| | Danaus plexippus | Monarch | G5 | S2N,S4B | SC | SC | | | | OB | | | x | x | | x | |
| | Limenitis arthemis | White Admiral | G5 | S5 | | | | | | OB | x | | | | | | |



THE COVES ENVIRONMENTALLY SIGNIFICANT AREA CONSERVATION MASTER PLAN

Section 3 –Ecological Management of the Coves ESA



Eastern Screech Owl

Photo Credit – Andrew Jackson (www.ontariowildlife.net)



THE COVES ENVIRONMENTALLY SIGNIFICANT AREA CONSERVATION MASTER PLAN

SECTION 3 – ECOLOGICAL MANAGEMENT OF THE COVES ESA

Management Needs of Urban Environmentally Significant Areas

The primary purpose of an ESA is protection of the natural features and ecological functions that support ecological integrity and ecosystem health. Human uses should be permitted only when they can be demonstrated to be compatible with conservation of the native biota and natural processes. In order to achieve the primary purpose of ESAs and to enable selective uses by the public, management and recreation activities must be carefully planned and designed, and integrated in an adaptive management regime.

Managers of urban conservation lands are often challenged by physical constraints (e.g. small size, irregular shape, lack of ecological connectivity, microclimatic changes, changes to natural hydrology/flooding) and ecological constraints (e.g. invasive species, altered natural disturbance processes, changes in wildlife behavior) due to the impacts of human settlement which fundamentally alters historical ecological processes that maintained healthy functioning ecosystems. For example, human settlements are often a source of exotic and/or invasive plants and animals that compete with, prey upon or displace native wildlife, resulting in the loss of native plant and animal biodiversity through biotic simplification.

Urban natural areas are often relatively small islands surrounded by diverse and heavily populated urban and suburban development. These areas are subject to the increasing demands and preferences for recreation use, and the impacts of heavy and often incompatible uses, including encroachment, trail widening and erosion, ad hoc trail creation, dogs off leash, mountain biking, vandalism and campfire party activities after dark. The very nature of urban natural areas assures often vigorous public involvement with an often crowded and conflicting roster of neighbours, recreationists, and environmentalists.

The CMP for the Coves outlines realistic strategies, achievable objectives, and actionable items to manage the multitude of disturbances that threaten a natural area, and identifies key indicators that can be monitored to detect change over time, in order to maintain and protect irreplaceable natural habitat values, including earth and life science interests, and sensitive cultural and archaeological resources.

Protecting ESAs against damaging or excessive visitor use requires that the types of recreational activities permitted be generally restricted to passive, nature-based uses and that visitor impacts are managed through appropriate placement of trails, signs and facilities to maintain the natural features and functions that characterize the area.



The Proposed Boundary for the Coves ESA

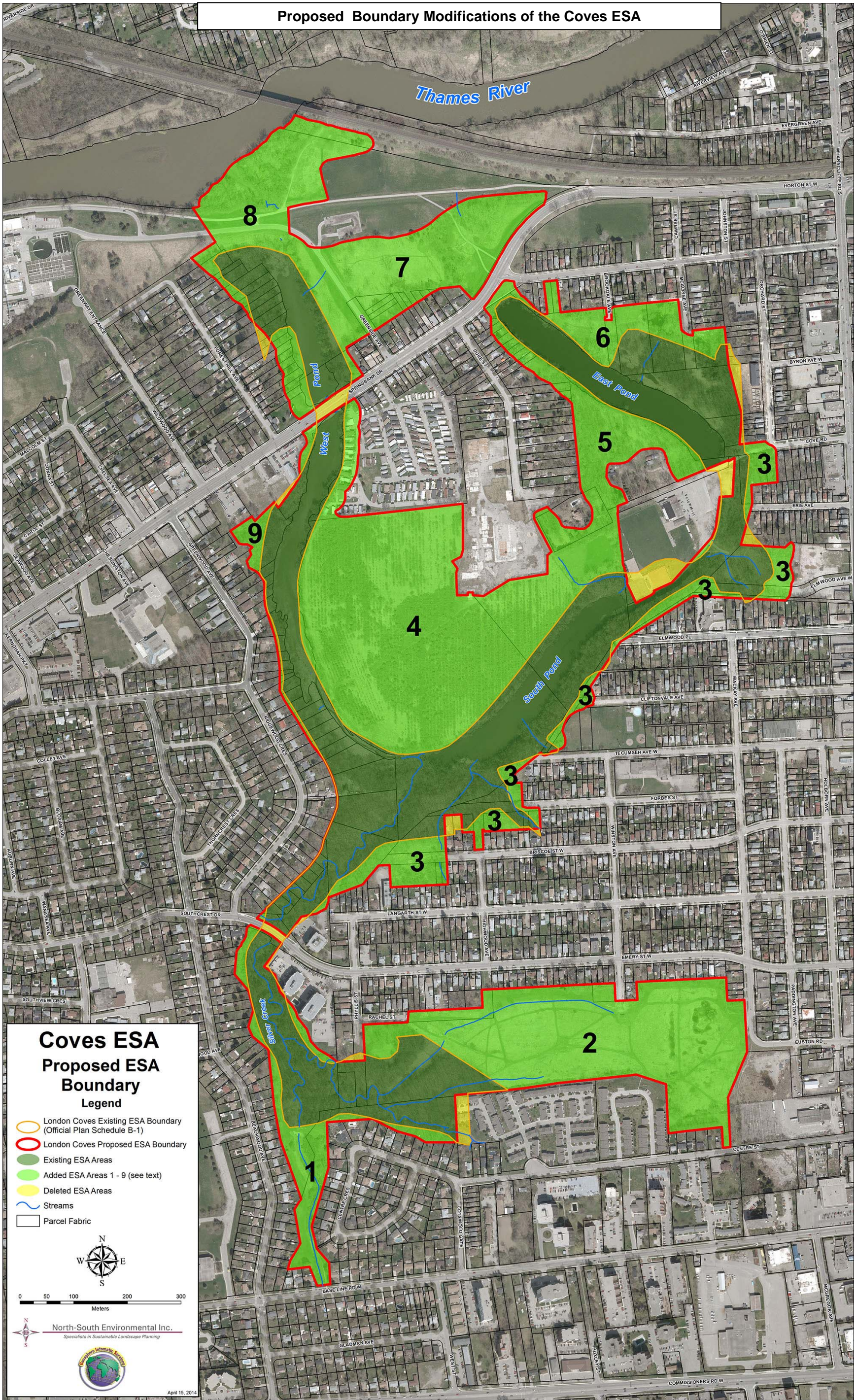
The Coves ESA boundary was reviewed and refined based on the City of London Guidelines Documents for Environmentally Significant Areas Identification, Evaluation and Boundary Delineation (London 1997). The figure below provides an overlay of the existing Coves ESA boundary taken from the City of London Official Plan Schedule B-1 and a new revised boundary proposed for the Coves ESA. Boundary changes have been proposed based on the inclusion of contiguous natural heritage areas and to protect ecological linkage functions as identified through Ecological Land Classification that meet the ecological criteria as outlined in the City of London Guideline Documents.

Future land use planning applications located adjacent to the Coves ESA which are submitted to the City for site plan approval should be evaluated in terms of their potential contribution to the ecological features and functions of the Coves ESA. Where a significant ecological contribution can be made, the protection and acquisition of additional ESA lands may be considered resulting in further refinement of the proposed boundary.

The major changes to the existing boundary and the rationale for these are as follows (refer to figure for areas discussed below):

- Area 1 Includes areas of contiguous woodland, a watercourse which flows in to Silver Creek along with the associated adjacent areas to this watercourse some of which are currently being restored and/or which have the potential to be restored to native woodland (see City of London Boundary Guidelines 4 & 7).
- Area 2 Includes contiguous woodland and areas of a former landfill site being restored to native woodland and open habitat associated with Euston Meadows. Buried infrastructure managing off-gassing of the former landfill remains in place in some areas and requires special consideration for management. Of particular note is the presence of the threatened bird species, eastern meadowlark, recorded as “probable breeding” within the open habitat that characterizes Euston Meadows (see City of London Boundary Guideline 1).
- Area 3 Includes contiguous woodland along the eastern Coves boundary including, steep slopes, top of slope and adjacent tableland areas extending from Biscoe Woods Park to Murray Park, Elmwood Gateway and East Pond (see City of London Boundary Guidelines 1,2 &3).
- Area 4 Includes a large area (>15 ha) of successional woodland and open habitat within an old apple orchard on a floodplain of the Thames River with evidence of old Thames River meander channels (see City of London Boundary Guideline 7).
- Area 5 Includes areas of woodland, shoreline areas of East Pond and an enhanced ecological linkage internal to the Coves ESA from natural areas associated with the East Pond to natural areas located to the south (see City of London Boundary Guidelines 5 & 7).
- Area 6 Includes areas on the east side of the East Pond including contiguous woodland, wetland and areas currently being restored and/or which have the potential to be restored to native woodland and wetland (see City of London Boundary Guidelines 5 & 7).
- Area 7 Includes woodland and managed open habitat (see City of London Boundary Guidelines 5 & 7).
- Area 8 Includes woodland and ecological linkage of Coves ESA to the Thames River (see City of London Boundary Guidelines 5 & 7).
- Area 9 Includes rare Hackberry woodland (see City of London Boundary Guideline 7).





Management Zones within the Coves ESA

The CMP for the Coves ESA includes management zones that have been identified based on the City of London draft Planning and Design Standards for Trails in Environmentally Significant Areas (London 2012). The management zones identified for the Coves ESA shown on the figure below and each management is described below:

Nature Reserve Zone (NR) – For the protection of areas of highest sensitivity which sustain important ecological features and functions that meet the minimum standard of significance for one or more ESA criteria. Nature Reserve Zones includes Species at Risk habitat; provincially rare communities; communities with unique species assemblages; critical wildlife habitat areas; areas of forest interior; special features within evaluated wetlands; groundwater discharge and seepage areas; areas of unique regional geology; aboriginal burial grounds or spiritual sites that are considered highly sensitive to disturbance in which access and recreational uses are not permitted.

Nature Reserve Zone a NRa is the least disturbed area of the Coves ESA due to presence of steep slopes and due to a general lack of access through private property. Significant species and habitat identified in report Section 2 include American Bladdernut, Chinquapin Oak, Hackberry, Black-throated Green Warbler, Ovenbird, a deer bedding area, a vernal pool and a groundwater discharge area. Also present is the ELC community FOD4-3 Dry-Fresh Hackberry Deciduous Forest is a rare community listed as an Imperiled (S2) by the Natural Heritage Information Centre (NHIC).

Nature Reserve Zone b NRb is a relatively undisturbed area characterized by the rare community (S2 imperiled) FOD4-3 Dry-Fresh Hackberry Deciduous Forest, SWD3-3 Maple Mineral Deciduous Swamp and vernal pool.

Nature Reserve Zone c NRc is an area of open habitat that provides nesting and foraging habitat for Eastern Meadowlark, a nationally and provincially threatened species. Eastern Meadowlark is a ground-nester, is area-sensitive, and is highly specific to grassland habitats.

Natural Area Zone 1 – For the protection of areas of moderate to high sensitivity which sustain important ecological features and functions that meet the minimum standard of significance for one or more ESA criteria. Natural Area Zone 1 includes natural terrestrial, wetland and aquatic landscapes and waterscapes with moderate to high sensitivity in which a minimum level of trail development is permitted in support of low-intensity nature-based recreation.

Natural Area Zone 1a NA1a includes a large, diverse and relatively highly used area that includes woodland (FOD5-1 Dry-Fresh Sugar Maple Deciduous Forest), open habitat (CUM1-1 Dry-Moist Old Field Meadow) and manicured areas that are regularly mowed. This zone also includes areas of steep slopes with the main branch and tributary of Silver Creek (also known as Spring Creek), a vernal pool and areas of groundwater discharge. There a number of significant species present including Butternut, Hackberry, Showy Tick-trefoil, Black-throated Green Warbler, Eastern Towhee and Magnolia Warbler,



and of note are open habitat species Eastern Meadowlark and Savannah Sparrow.

- Natural Area Zone 1b** NA1b includes an area of Cultural Woodland (CUW1) on tableland adjacent to steep slopes associated with Silver Creek. The area is accessible from Briscoe Street West.
- Natural Area Zone 1c** NA1c is a large area that includes woodland on slopes, natural areas around the East Pond, an enhanced ecological linkage corridor from the East Pond to the South Pond, a large abandoned orchard undergoing natural succession, and open water areas of the East, South and West Ponds.
- Natural Area Zone 1d** NA1d includes areas of woodland, cultural meadow and open water areas of the West Pond north of Springbank Drive. This area provides a terrestrial linkage from the West Pond of the Coves ESA to the Thames River. NA1d also includes areas currently being restored to woodland and areas managed as open habitat.
- Natural Area Zone 2** – For the protection of supporting habitat areas such as shrub thickets, old fields, younger woodlands, and plantations that contribute to diversity, connectivity, internal linkages, visual and spatial buffers, restoration opportunities and ecological integrity of the whole ESA. In general, supporting habitat areas may be expected to have lower sensitivity than Nature Reserve or Natural Area Zone 1. Supporting habitat areas, when directly adjacent to an Access Zone may provide an opportunity for introduction of trails that permit use by persons with disabilities.
- Natural Area Zone 2a** NA2a includes areas of woodland and open areas on slopes associated with the proposed Elmwood Park Gateway and a buried stormwater utility corridor with an outlet to the South Pond. This area also provides an access point for the Coves ESA.
- Natural Area Zone 2b** NA2b includes an open mowed area with an existing hiking trail. Restoration area R8 is overlaid on this area to reduce future mowing and restore and enhance natural features and functions.
- Natural Area Zone 2c** NA2c is a large area in Euston Meadows that supports open habitat classified as Cultural Meadow (CUM1). This area has a restoration overlay (R1) that is intended to maintain open habitat.
- Natural Area Zones 2d-f** NA2d-f includes open mowed areas with restoration overlays (R3, R4, R5 and R9) which are intended to reduce future mowing and restore and enhance the natural features and functions of these areas.

Cultural Heritage Zone – The protection of cultural heritage landscapes within natural settings is important to safeguard the human–nature interaction. These may include farm complexes which contain important cultural heritage landscapes, historically significant buildings or structures, archaeological sites, mill sites, aboriginal sites, views and vistas. Cultural Heritage Zone applies where a cultural heritage feature is located inside an ESA, but is distinct from the



natural area and/or large enough to warrant a separate zone. Small, isolated cultural heritage features would be recognized and managed within other zones.

Cultural Heritage Zone a CHa is a large abandoned orchard undergoing natural succession, it represents an area of historic agricultural use within the City of London. It also represents an area previously used as a rifle range.

Access Zone – For the provision of controlled access to an ESA locations and/or staging areas are identified for visitors. Key access locations generally include designated parking areas and bike racks with information kiosks to direct users to appropriate trail segments. Secondary access locations have nearby on-street parking and smaller information signs and structures at the trailheads. Access Zones are ideally be located outside of the ESA boundary wherever possible on adjacent parkland. Where an Access Zone must be located within the ESA, every effort should be made to place it close to the edge of the ESA and/or in the area of lowest sensitivity, in order to minimize any impact on ecosystem features and functions.

Access Zone a Aa located at the west end of Euston Meadows provides access to proposed trails from Phyllis Street westward to Beachwood Avenue and eastward to Euston Meadows.

Access Zone b Ab located on the north side of Euston Meadows provides access to proposed trails within the park from Winston Ave and trail connections to Centre Avenue and Euston Road.

Access Zone c Ac located at the west end of Briscoe Street West provides access to an area of tableland woodland within NA2b.

Access Zone d Ad located at Elmwood Gateway provides access to proposed trails extending southward to Elmwood Place and northward to the East Pond.

Access Zone e Ae located at the south end of the East Pond provides access from Cove Road southward to Elmwood Gateway, westward to NA2c and northward to the East Pond.

Access Zone f Af located on the north side of the East Pond provides access from Brookdale Avenue to proposed trails and canoe launch for the East Pond.

Access Zone g Ag located at large parking area in Greenway Park provides access to Coves ESA trails in areas north of Springbank Drive

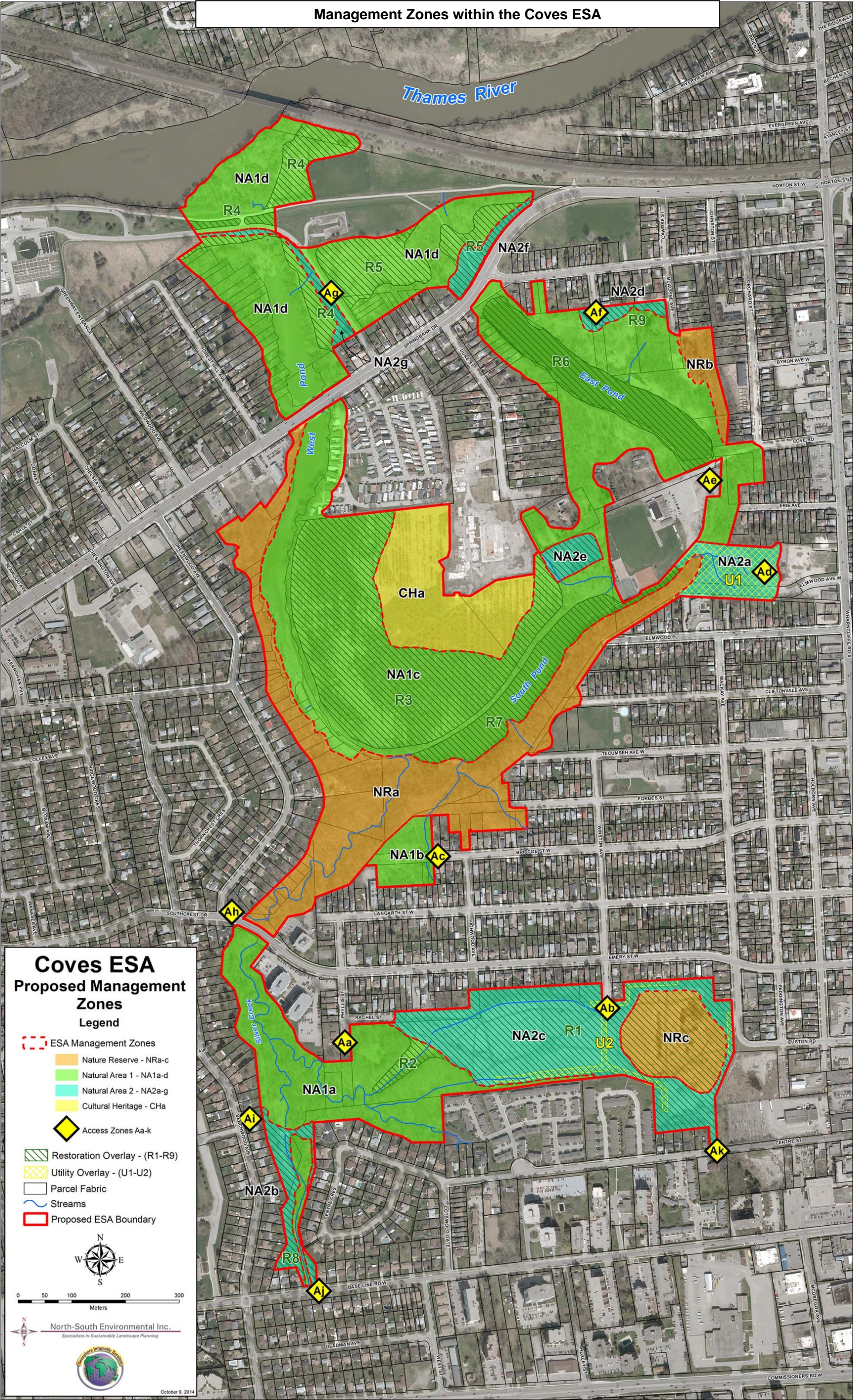
Access Zone h Ah located on Southcrest Drive provides access to the Coves ESA on a trail that runs south from Southcrest Drive

Access Zone i Ai located between residential homes on Beachwood Avenue provides access to the southwest Coves ESA



| | |
|----------------------|--|
| Access Zone j | Aj located on Baseline Road West provides access to the Coves ESA on a trail that runs north from Baseline Road West |
| Access Zone k | Ak located on Centre Street provides access to the southeast Coves ESA |





Management Activities within the Coves ESA

Urban natural areas are not self-sustaining, they require ongoing ecological management and the enforcement of protection by-laws in order to ensure they are maintained as healthy, diverse natural communities and management of public use to provide appropriate and safe recreation opportunities. The long term protection of the Coves ESA is best achieved through the implementation of adaptive management strategies that include issue identification, strategic actions which are prioritized and follow-up monitoring to assess the success and to recommend adjustment to strategic actions as required.

Ecological Restoration within the Coves ESA

There are areas within the Coves ESA that have been identified for active management. These may be areas that require intervention for a variety of reasons such as:

- habitat creation or restoration (e.g. woodland restoration, open habitat restoration, etc.);
- the control of nuisance wildlife (e.g. managing habitat for Canada Geese);
- invasive species control (e.g. removal of European Buckthorn)
- managing open habitat through mowing or prescribed burns; or
- creating or enhancing of specific habitat structures such as nest boxes or platforms, amphibian breeding habitat, snake hibernacula, etc.

Managing Invasive Plant and Animal Species within the Coves ESA

The severity of the threat posed by invasive plants and animals deserves special mention given the widespread occurrence of invasive species and the considerable impact they have on native species and habitats. The removal of aggressive invasive species should be recognized as a priority within all areas of the Coves ESA and is included as an integral part of many of the restoration and trail management recommendations.

Early recognition and removal of invasive species is the most effective and cost efficient method to address invasive species invasions. Where invasive species are well established comprehensive invasive species management plans are required to successfully achieve their removal and restore of affected areas.

On the pages below individual restoration areas are discussed and mapped. These pages should be updated as appropriate to record ongoing management.

Managing Areas with a Utility Overlay within the Coves ESA

Within some areas of the Coves ESA there is a requirement to acknowledge existing infrastructure such as in-ground infrastructure associated landfill off-gassing collection systems, stormwater and sanitary sewer pipes, natural gas pipelines, etc. and above-ground utilities such as hydro-corridors. Areas with a Utility Overlay may require ongoing vehicular access and periodic maintenance that may preclude restoration to the original ecological condition.

On the pages below individual utility overlay areas are discussed and mapped. These pages should be updated as appropriate to record ongoing management.



Managing Encroachment within the Coves ESA

The Coves ESA includes both public and private lands (see figure showing public land ownership in Coves CMP Section 6) within an older area of the City characterized by mixed residential development. Where private yards back on to public natural areas, private land owners may “develop” and/or “manage” natural areas in a variety of different ways for a variety of different reasons. Typical examples include mowing and the removal of understorey vegetation, dumping of yard waste, the establishment of ornamental and vegetable garden plots, installation of storage sheds, storage of boats, trailers, the creation of trails, etc., and in extreme cases the construction of more permanent structures such as fences, buildings, decks, swimming pools, and docks on Coves ponds, etc.

The direct impact of encroachment is loss/displacement of habitat and the disruption of natural growth and succession processes. In addition, there often are indirect impacts associated with encroachment, such as the introduction of non-native, invasive species.

There is a need to begin and sustain a broad campaign to prevent, identify, reduce, and correct encroachment. This will include monitoring, reporting, public communication, and enforcement. The monitoring program for the Coves ESA identifies the need to regularly assess the boundary of the ESA to identify all encroachment issues, some of the known encroachment areas within the Coves ESA are identified on the figure provided in Section 2. The Upper Thames River Conservation Authority (UTRCA) will play an important future role in managing the Coves ESA and as such will assist with identifying and reporting encroachment issues and in public education to reduce encroachment.

Pages are provided below to record the location of encroachment and management efforts to address encroachment. These pages should be updated as appropriate to record ongoing management.

Management of Stormwater in the Subwatershed of the Coves ESA

The Coves ESA is located within an older urban neighborhood which was developed without substantial stormwater infrastructure such as stormwater management ponds or the implementation of Low Impact Development initiatives intended to mitigate the negative impact of development on the water cycle (i.e. reduced groundwater infiltration, increased surface water runoff and reduced evapotranspiration). As a result there are significant erosion issues associated with the tributaries of Silver Creek as well as increased sedimentation and poor water quality issues arising from stormwater outlets to the East, South and West Ponds.

Substantial portions of the Coves ESA are regulated by the Upper Thames River Conservation Authority (UTRCA) in accordance with Ontario Regulation 157/06 made pursuant to Section 28 of the *Conservation Authorities Act* (see figure included below). The Regulation Limit is comprised of riverine flooding and erosion hazards as well as wetland features. The UTRCA has jurisdiction over lands within the regulated area and requires that landowners obtain written approval from the Authority prior to undertaking any site alteration or development within this area including filling, grading, construction, alteration to a watercourse and/or interference with a wetland.



Areas of the Coves ESA that are located within floodplain are identified as a “special policy” area within the City’s Official Plan for land use planning. Within the special policy area, existing uses may continue within the Duke Street / Brookdale / McAlpine neighbourhoods but no new development is permitted.

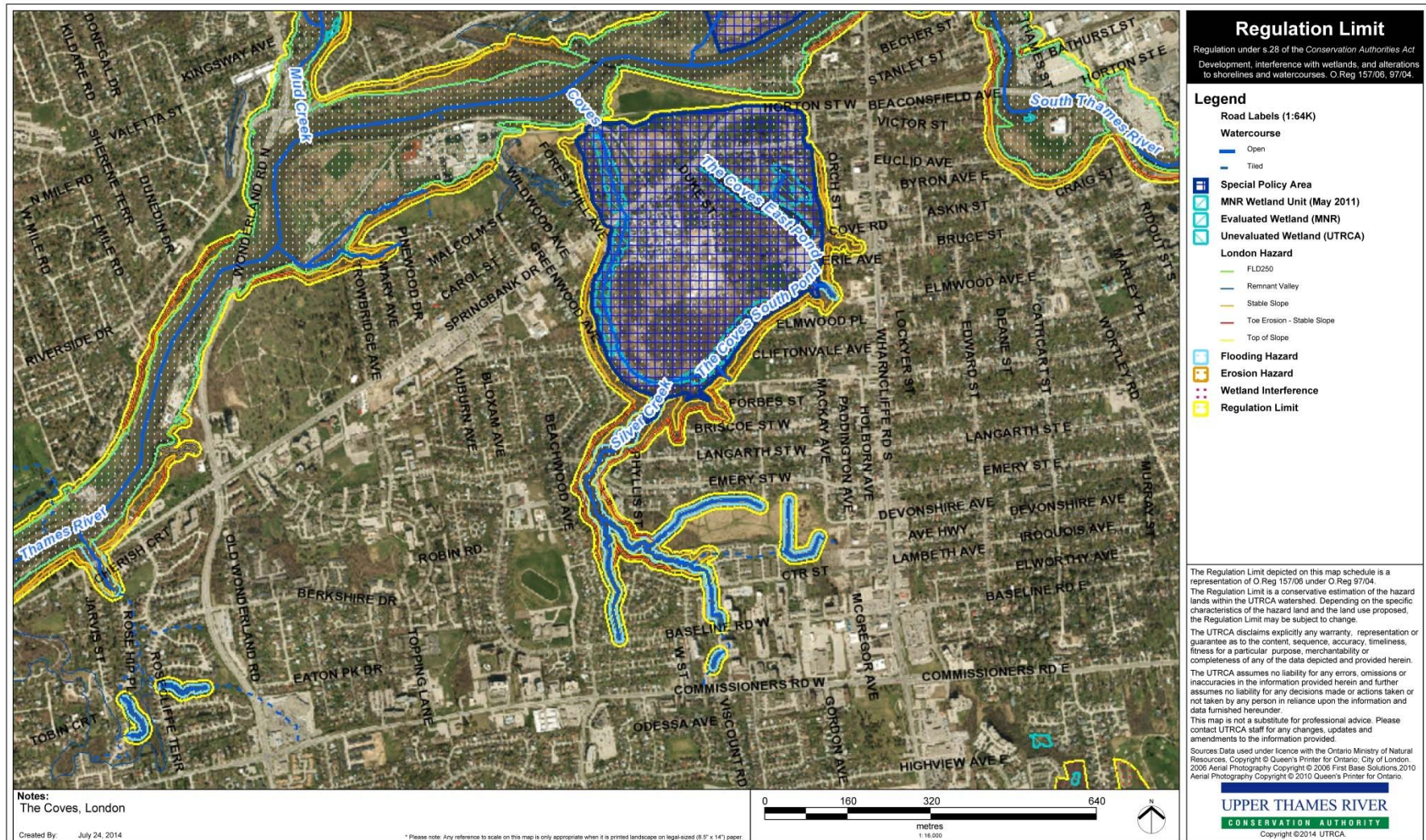
Two important studies have been undertaken within the larger Coves Subwatershed, which includes the Coves ESA and surrounding the surrounding urban neighborhoods, these are:

- Coves Subwatershed Plan (PEIL 2004); and
- Coves Drainage and Remediation Master Plan (Dillon 2003, 2004)

These reports identify stormwater management issues within the Coves subwatershed and provide numerous recommendations that can make an important contribution to an improvement of the aquatic and terrestrial environments of the Coves ESA. The recommendations include both large scale municipal works projects (e.g. upgrades to existing storm sewers, installation of oil/grit separators, etc.) and local initiatives aimed at individual landowners (e.g. homeowner best management practices educational materials, promotion of the use of rain barrels, etc.).

The Coves CMP recognizes and supports the implementation of recommendations provided in these reports.





Management Priorities within the Coves ESA

There are a number of management needs in the Coves ESA that must be phased in over time due to the cost of implementation. The table below identifies the priorities and estimated costs for each management area identified for the Coves ESA. The Upper Thames River Conservation Authority (UTRCA) should be consulted in the development of detailed management plans and prior to implementation as some activities will require approvals pursuant to the *Conservation Authorities Act*.

| Management Area | Key Management Issues | Priority for Implementation | Estimated Cost* |
|----------------------------------|--|-----------------------------|-----------------|
| R1 Euston Meadow | <ul style="list-style-type: none"> management to maintain open habitat removal of exotic species | • high | Low |
| R2 Silver Creek Woods | <ul style="list-style-type: none"> restoration of native woodland removal of exotic species | • low | Low |
| R3 Old Orchard | <ul style="list-style-type: none"> restoration of native woodland removal of exotic species | • low | Medium |
| R4 Thames River Linkage | <ul style="list-style-type: none"> restoration of native woodland linkage to Thames River | • medium | Medium |
| R5 Swallowtail Grove | <ul style="list-style-type: none"> management of open habitat | • medium | Low |
| R6 East Pond | <ul style="list-style-type: none"> enhancement of aquatic habitat shoreline restoration | • medium | High |
| R7 South Pond | <ul style="list-style-type: none"> enhancement of aquatic habitat removal of silt accumulation | • low | High |
| U1 Elmwood Stormwater | <ul style="list-style-type: none"> periodic maintenance of stormwater infrastructure periodic maintenance of landfill infrastructure | • as required | High |
| U2 Euston Meadow Landfill | <ul style="list-style-type: none"> periodic maintenance of landfill infrastructure | • as required | High |
| Areas of Encroachment | <ul style="list-style-type: none"> education to prevent encroachment bylaw enforcement | • high | Medium |

* Estimated cost represents the follow approximate costs: Low <\$20K; Medium \$20 to 100K; High >\$100K

The following pages and the accompanying figures provide detailed information on the environmental features and issues for management areas prioritized for the Coves ESA.



Restoration Overlay R1

Intent of Management for R1

R1 located in association with Euston Meadows is an area of Dry-Moist Old Field Meadow (CUM1-1) habitat which has developed on a reclaimed landfill. This open habitat community supports breeding Eastern Meadowlark, a threatened species that is highly specific to grassland habitats. The long term management objective is to maintain open habitat. Over the long term monitoring and adaptive management will be required to determine when management is required to maintain open habitat, control invasive species and to encourage and supplement native grassland species.

An example management approach and actions for open habitat is provided on the pages below, this presents information on a similar species of concern and management issues.

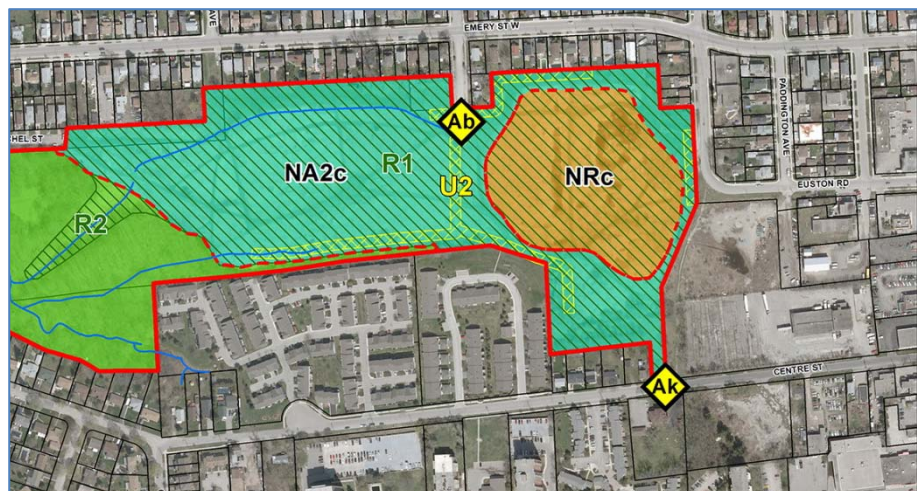
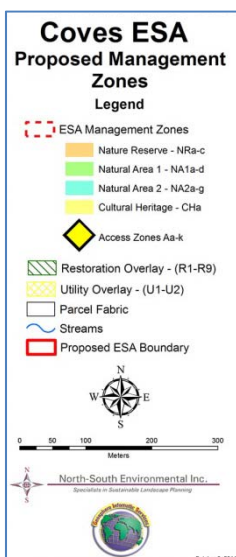
Management Actions Required for R1

A special note for all management actions within R1 is to ensure any action taken must ensure there is no negative impact on Eastern Meadowlark, including direct impacts during the breeding bird season or indirect impacts that may affect habitat quality.

Also note management actions should be undertaken in consultation with the City of London Park Maintenance Department to ensure the required boulevard mowing is maintained and to ensure maintenance staff are aware of areas identified for restoration where no mowing is required.

The following are the key management actions identified for R1

- Removal of invasive species, particularly European Buckthorn
- Periodic mowing of all areas to reduce the establishment of woody tree and shrub growth
- Adopt an adaptive management approach should be implemented that includes ongoing monitoring of the establishment of woody plants and research to determine the best method(s) for their removal (e.g. mowing, prescribed burning, selective removal).



| Record of Management Actions Taken for R1 | | |
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Example of Open Habitat Management in New Hampshire

Species Focus of conservation concern

Eastern meadowlark

These songbirds require fields larger than 15 acres, with tall grasses and a mix of wildflowers typical of fields that have gone un-mowed for up to five years. Meadowlarks will also breed in lush hayfields, but the fields must be of a sufficient size.



Eastern meadowlark

Bobolink

Bobolink, although not listed as a species of conservation concern, is the most common grassland-nesting bird found in New Hampshire fields. Ideal bobolink habitat is a lush hayfield larger than five acres, that is mowed once a year in September. Removing the hay from the field is also beneficial, as the birds prefer fields without thick thatch layers. A one- or two-acre border area might be mowed only every two or three years to provide a diverse mix of wildflowers such as milkweed, aster, goldenrod, and thistle. These plants attract a wide variety of insects that provide a rich food source for bobolinks and other birds.



Bobolink

Smooth green snake

Smooth green snakes live and feed in open habitats such as pastures, old fields, and wet meadows throughout New Hampshire. Edges of these habitats provide the rotting logs and mammal burrows in which smooth green snakes lay eggs in summer and hibernate in winter. They feed on insects, slugs, caterpillars and earthworms. Populations of smooth green snakes are in decline due to habitat loss. Frequent mowing and low mower blades can kill snakes. Insecticide spraying in agricultural fields (especially for slugs) may also impact smooth green snakes by reducing the amount of prey available.



Green snake

Managing Small Fields for Wildlife

Many landowners own fields smaller than five acres. These fields are still important for other wildlife species, and as foraging areas for grassland birds nesting in nearby larger fields or migrating songbirds passing through. Landowners can manage their fields to improve the overall plant and wildlife diversity by:

- Mowing fields only once every two or three years to increase wildflower and insect diversity.
- Mowing as late in the fall as possible (September-October) to allow late-blooming wildflowers to form and provide nectar sources for migrating butterflies.
- Maintaining some areas of bare ground (poor soils or heavily-grazed areas) for such species as killdeer and horned larks.
- Establishing a rotational mowing or grazing program in which different parts of a field are mowed/grazed at different times. This creates a patchwork of different grass heights that provides cover and feeding opportunities to the greatest number of wildlife. Contact your county UNH Cooperative Extension Agricultural Educator for more information on establishing a rotational mowing or grazing program on your land.



Historical

changes in grassland habitats

Historically, Native Americans and beavers were the primary forces responsible for creating and maintaining grassland habitats in New England. Native Americans created grasslands when they burned the land for agriculture and to improve forage for game species such as white-tailed deer. At the same time, ponds above abandoned beaver dams grew into grassy meadows after the water drained and the nutrient-rich soil was exposed to sunlight.

In more recent history, fire suppression and limits to where beavers are allowed to build dams has meant that grasslands are restricted mainly to agricultural areas. The peak of agricultural clearing in the state occurred in the mid-1800s. Since then, New England has been losing grassland habitats, which have grown back into forest. With their well-drained soils, tree-less fields, and ample road frontage, agricultural lands also offer attractive sites for development.

Today most grasslands in New Hampshire require maintenance by humans. If left alone, these habitats will grow back into shrubs and small trees, reverting eventually to forest.

Declines in grassland-nesting birds

Bird species that depend on grasslands have declined, along with their habitats, faster than any other group of birds in New England. Most grassland-nesting birds are "area sensitive," which means they won't nest in fields smaller than a certain size. The following list is a simplified guide to the required minimum field size and the preferred vegetation height in fields used by grassland-nesting birds:

Birds of smaller grasslands (<25 acres)

| | | |
|--------------------|-----------|---|
| Bobolink | 5+ acres | dense grass taller than 3 feet |
| Eastern meadowlark | 15+ acres | dense grass and wildflowers taller than 3 feet |
| Savannah sparrow | 20+ acres | prefers sites with both short and tall vegetation |

Birds of larger grasslands (>25 acres)

| | | |
|----------------------|-----------|---|
| Grasshopper sparrow* | 30+ acres | prefers sites with short, sparse grass; uncommon |
| Northern harrier** | 30+ acres | forages in short grass fields; nests in wet meadows |
| Upland sandpiper** | 150 acres | prefers sites with short, spare grass; very rare |

*state-threatened species

**state-endangered species

Agricultural practices and bird nesting

Without the work of farmers and other landowners, most grasslands would quickly revert to forest. However, the timing of mowing can affect a field's ability to provide habitat for grassland-nesting birds and other wildlife. Farmers growing high-quality forage for livestock usually mow their fields two or three times during the summer. At least one of these mowings typically occurs between May and mid-July, a time that corresponds with the nesting season for most grassland-nesting birds. Mowing during this period can destroy nests and eggs, kill fledglings, or cause adult birds to abandon their nests.



Stewardship Guidelines for grasslands

- Grasslands of any size provide valuable habitat for wildlife in New Hampshire. If you own fields, maintain them by mowing in the fall at least once every three years to discourage trees and shrubs. It is much more difficult and expensive to create a new field than to maintain an existing field by mowing.
- Focus land conservation on large grasslands (greater than 25 acres in size), which benefit the greatest number of wildlife species and are increasingly rare in the state.
- In fields where intensive agricultural production is not an issue, mow fields after August 1st, the end of grassland-breeding bird season. Mowing even later (August-October) is ideal, since this allows late-flowering wildflowers such as aster and goldenrod to provide nectar for migrating butterflies. Areas where later mowing may be possible include airfields, capped landfills, fallow fields, edge habitats, marginal farmland, weedy areas, and fields producing bedding straw.
- In agricultural fields, modifications to mowing techniques can help reduce impacts on grassland-breeding birds during the breeding season (May through mid-July):
 - Raise mowing bar to six inches or more in areas with grassland bird concentrations.
 - Grassland birds roost in the fields at night, so avoid mowing after dark.
 - Use flushing bars on haying equipment (for more information, contact the Wildlife Division of the New Hampshire Fish and Game Department at 271-2461).
 - Delay mowing in wetter areas or in grasslands along rivers.
- Farmers are faced with many pressures during the growing season—variable weather, equipment demands, planting schedules—making it difficult for them to incorporate a refined mowing technique and schedule to accommodate grassland-nesting birds. However, interested farmers have a number of federal and state cost-share programs available to help pay for practices that benefit wildlife. Contact your county UNH Cooperative Extension office or the Natural Resources Conservation Service (NRCS) for more information about these cost-share programs.
- Where possible, remove all shrubs and trees growing in the middle of fields, as these decrease the useable acreage as perceived by grassland-nesting birds.
- Burning fields, particularly in areas with poor soil, can improve soil nutrients and mimic historical disturbances to grassland habitats. Burning will also help spread native grasses (see below) if they already exist in a field. Some New Hampshire landowners have established partnerships with their local fire departments to burn fields on an annual basis as training for firefighters.
- Warm-season grasses, many of which are native to the U.S., may be a viable alternative to (non-native) cool-season grasses as an agricultural hay crop. Warm-season grasses are more difficult to establish, but they offer some benefits to landowners willing to take on the challenge. They require less fertilizer, lime, and herbicides, and are more drought-tolerant. For wildlife, they offer better nesting cover (growing as in bunches, with space between for movement and nests), a more dependable food source, and better winter cover, since they don't mat down during heavy snows. The NRCS and UNH Cooperative Extension can provide advice and possible cost-share funds to plant warm-season grasses.



Tractor with flushing bar



A controlled burn



Wildlife found in grasslands

Grasslands of all sizes will be used by over 150 different wildlife species throughout the year. Below are some examples of species that depend on grassland habitats. Be on the lookout for these species, and follow the stewardship guidelines provided to help maintain or enhance grassland habitats in your area. Species of conservation concern—those wildlife species identified in the Wildlife Action Plan as having the greatest need of conservation—appear in **bold** typeface.

- American bittern
- American kestrel
- **Black racer**
- **Blanding's turtle**
- Bobolink
- **Eastern hognose snake**
- **Eastern meadowlark**
- **Grasshopper sparrow***
- **Horned lark**
- **Northern harrier****
- **Northern leopard frog**
- **Purple martin****
- Savannah sparrow
- Small rodents (important as prey species)
- **Smooth green snake**
- Turkey
- **Upland sandpiper****
- **Vesper sparrow**
- **Whip-poor-will**
- White-tailed deer
- **Wood turtle**

◆ The threatened and endangered status of many wildlife species is under review. For the current list, visit NH Fish and Game's website at wildlife.state.nh.us.

* state-threatened species
** state-endangered species

Where to get help

If you have information about a wildlife species of conservation concern, contact NH Fish & Game's Wildlife Division at 603-271-2461. Contact the UNH Cooperative Extension Wildlife Specialist at 603-862-3594 for technical assistance for landowners or your community.

Publications and assistance on forestry and wildlife topics are available through the UNH Extension Educators in Forest Resources in each county. Contact information for each UNH Cooperative Extension office is provided below. Additional publications, contact information, resources, and web versions of all brochures in the Habitat Stewardship Series are available on the UNH Cooperative Extension website at: extension.unh.edu.

| | | | | | |
|-----------------|--------------|---------------------|--------------|-------------------|--------------|
| Bellamy County | 603-527-5475 | Grafton County | 603-787-6944 | Rockingham County | 603-679-5616 |
| Carroll County | 603-447-3834 | Hillsborough County | 603-641-6060 | Stafford County | 603-749-4445 |
| Cheshire County | 603-352-4550 | Merrimack County | 603-225-5505 | Sullivan County | 603-863-9200 |
| Coos County | 603-788-4961 | | | | |

Authorship

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About the Habitat Stewardship Series

Much of the land in New Hampshire is privately owned. These individuals are the primary stewards of our wildlife and forests, and also our clean water, scenic views, fresh air, natural and cultural heritage, and recreational resources. The Habitat Stewardship Series has been created to help landowners and land managers recognize the habitats critical for wildlife species at risk, and to illustrate the role private landowners can play in sustaining those species through conservation, management, and sound land stewardship.

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UNIVERSITY of NEW HAMPSHIRE
COOPERATIVE EXTENSION



SUSTAINABLE
FORESTRY
INITIATIVE



Restoration Overlay R2

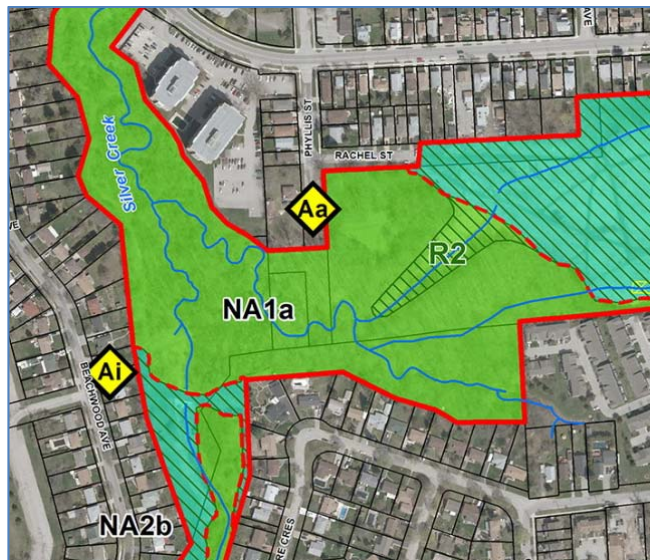
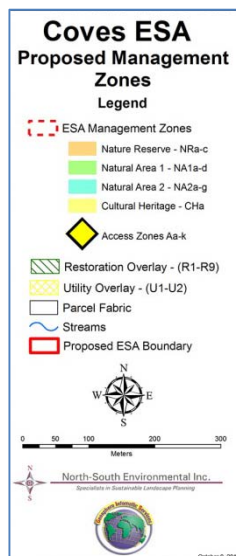
Intent of Management for R2

R2 located at the west end of Euston Meadows is a disturbed area that forms an approximately 150 metre long, narrow cleared embayment into the surrounding woodland. The objective is to restore native woodland of similar composition to the surrounding Dry-Fresh Sugar Maple Deciduous Forest (FOD5-1) to increase interior forest habitat. Given the proximity of surrounding forest, natural succession processes will lead to restoration of this area. Monitoring and adaptive management is recommended to control invasive species and to encourage and supplement native regeneration.

Management Actions Required for R2

The following are the key management actions identified for R2

- Removal of invasive species, particularly European Buckthorn
- Tree planting to encourage the establishment of deciduous forest
- Supplemental shrub and forb planting to restore native deciduous forest understorey vegetation



| Record of Management Actions Taken for R2 | | |
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Restoration Overlay R3

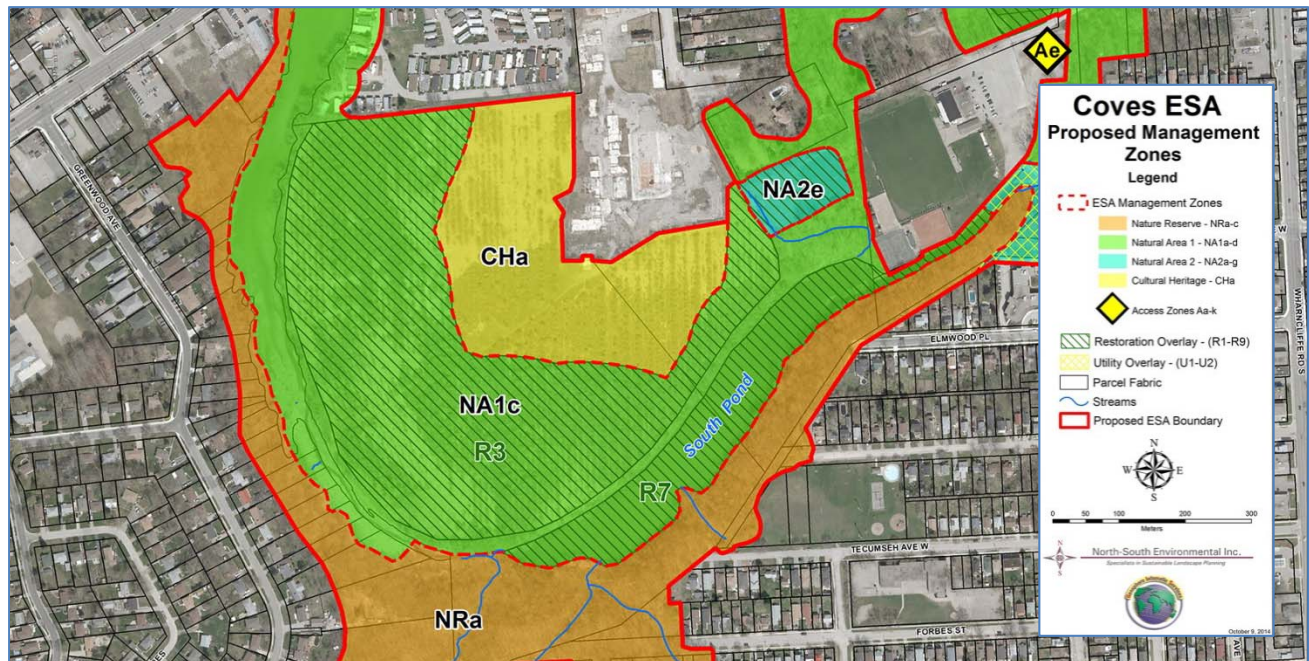
Intent of Management for R3

R3 located between the Coves West and South Ponds is an abandoned orchard undergoing natural succession. The objective is to restore a native, self-sustaining plant community. A comprehensive inventory and restoration plan is required to provide detailed information regarding goals, objectives, target species, restoration methods, monitoring and adaptive management.

Management Actions Required for R3

The following are the key management actions identified for R3

- Comprehensive flora and fauna inventory
- Development of a plan to establish goals and objectives for restoration and appropriate methods for implementation



| Record of Management Actions Taken for R3 | | |
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| Date (dd/mm/yy) | Management Action Taken | Contact Person |
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Restoration Overlay R4

Intent of Management for R4

R4 located north of Springbank Drive includes four open areas of mown lawn (M) and Cultural Meadow (CUM), where some tree planting has been initiated. The restoration objective is to restore these areas to native woodland to increase the ecological linkage of the Coves West Pond area to the Thames River. Restoration should consist of no mowing in these areas and the planting of native trees species selected based on adjacent Fresh-Moist Black Walnut Lowland Deciduous Forest (FOD7-4)

Management Actions Required for R4

Note management actions should be undertaken in consultation with the City of London Park Maintenance Department to ensure the required boulevard mowing is maintained and to ensure maintenance staff are aware of areas identified for restoration where no mowing is required.

The following are the key management actions identified for R4

- Consult with Park Maintenance Department to identify the boundary of areas to be restored
- Develop a list of appropriate tree species for planting based on trees present in adjacent natural area FOD7-4 Fresh-Moist Black Walnut Lowland Deciduous Forest
- Tree planting to encourage the establishment of deciduous forest vegetation
- Supplemental shrub and forb planting to restore native deciduous forest understorey vegetation
- Springbank Drive constitutes a substantial ecological barrier, enhanced ecological connectivity opportunities associated with the existing culvert should be investigated

Note: see main map for legend to map section shown below



| Record of Management Actions Taken for R4 | | |
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Restoration Overlay R5

Intent of Management for R5

R5 is located north of Springbank Drive and east of Greenside Avenue and includes two areas of Cultural Meadow (CUM) that were previously soccer fields and open mowed areas adjacent to Springbank Drive. The smaller and more easterly area includes Swallowtail Grove, open habitat being managed by Friends of the Coves (<http://www.thecoves.ca/project.php?id=24>). The long term management objective is to maintain open habitat in these two areas and this will require monitoring and adaptive management for periodic mowing, the control of invasive species and to encourage and supplement (where needed) native grassland species (see also information provided in R1 guidance on maintaining open habitat).

Management Actions Required for R5

Note management actions should be undertaken in consultation with the City of London Park Maintenance Department to ensure the required boulevard mowing is maintained and to ensure maintenance staff are aware of areas identified for restoration where no mowing is required.

The following are the key management actions identified for R5

- Removal of invasive species, particularly European Buckthorn
- Periodic mowing of all areas to reduce the establishment of woody tree and shrub growth
- Adopt an adaptive management approach should be implemented that includes ongoing monitoring of the establishment of woody plants and research to determine the best method(s) for their removal (e.g. mowing, prescribed burning, selective removal).



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Restoration Overlay R6

Intent of Management for R6

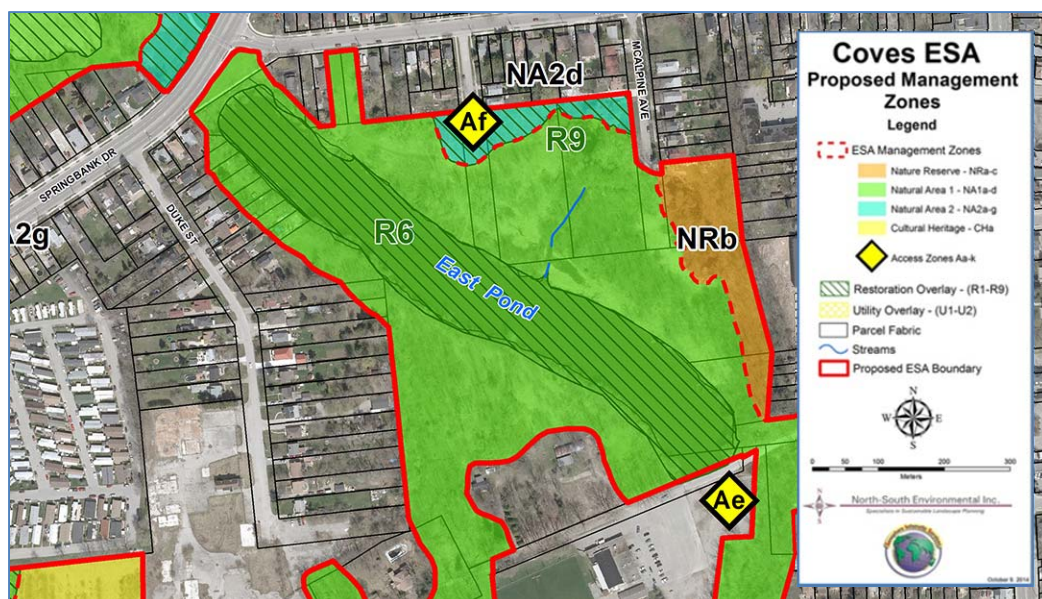
R6 located south of Springbank Drive includes the open water and shoreline areas of the East Pond. Restoration has been proposed for the East Pond focusing on strategies related to shoreline enhancement and pond deepening (see information provided below). These initiatives are consistent with the Coves Subwatershed Plan (Friends of the Coves 2004), which has identified management recommendations and actions.

Management Actions Required for R6

Note the conveyance of stormwater through the Coves ponds to the Thames river is critical infrastructure for the surrounding urban neighborhood. Management actions must therefore be done in consultation with the Environment and Engineering Services Department of the City of London and the Upper Thames River Conservation Authority (UTRCA) and must ensure stormwater conveyance is maintained.

The following are the key management actions identified for R6

- sediment testing to consider the potential negative impacts of sediment disturbance prior to development and implementation of a restoration strategy;
- deepening along a portion of the historical river channel to provide suitable over-wintering habitat;
- creation of near-shore littoral habitat that connects to mid-depth and maximum depth areas to provide a greater diversity of habitat conditions;
- restoration of shoreline vegetation and structural diversity through appropriate aquatic vegetation plantings as well as logs, dead trees (snags) and rock; and
- creation of bays along the eastern shoreline that provide spawning habitat and thermal refuge during the spring through the installation of appropriate in-water substrate and aquatic vegetation.



| Record of Management Actions Taken for R6 | | |
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Coves ESA East Pond Aquatic Enhancement

Justification for Proposed Aquatic Enhancement

The Coves ESA protects ecologically significant aquatic and terrestrial environments associated with an oxbow (ancient river channel) of the Thames River. The Coves ESA is located within areas of urban development at the centre of the City of London representing an important natural area that is appreciated by residents.

The Coves ESA includes three inter-connected ponds (or “coves”); the aquatic habitat of the East Pond experiences fewer negative impacts from stormwater and surface erosion runoff because of its upstream location. The East Pond has a diverse aquatic and riparian flora and fauna including fish, turtles, frogs, birds, insects and a variety of plant communities.

Despite the more protected position of the East Pond the input of sediment contained in runoff from surrounding areas of urban development causes infilling of the East Pond resulting in more shallow water levels. Water levels are on average less than one metre. Sediment inputs and shallow water levels have a negative impact on flora and fauna that can be mitigated through rehabilitation.

Currently, the restoration proposed for East Pond as outlined below includes strategies for shoreline enhancement and pond deepening. While these initiatives are consistent with the recommendations of the Coves Subwatershed Plan (Friends of the Coves 2004) they should be reviewed with stakeholders prior to implementation.

The proposed rehabilitation is also consistent with City of London policies for encouraging management and rehabilitation measures that protect, maintain and enhance the ecological function and integrity of the Natural Heritage System (15.3.7), in particular to rehabilitate degraded shorelines of rivers and streams (clause d), and to protect, rehabilitate and/or create fish habitat, and to encourage a net gain of productive capacity (clause g).

Sediment Testing Prior to Restoration

The proposed restoration activities include actions that will result in disturbance of the existing sediments within the East Pond. As the quality of sediments is unknown and as disturbance of the sediments may result in negative impacts, sediment testing should be conducted as a first step in the development of a restoration plan.

Proposed Locations for Enhancement of Coves ESA East Pond

The proposed location for shoreline enhancement and pond deepening is shown on Figure below. The locations were chosen based on accessibility to undertake rehabilitation and the opportunity to obtain the greatest possible benefit from enhancement.

Target Species

A total of 16 fish species have been captured and recorded in the East pond, some of which are not preferred (common carp and goldfish). Enhancement could target native species of cool and warm water fish present in the East pond of the Coves (pers. comm. John Schwindt, Fish Biologist with UTRCA). Native species would benefit from deeper refuge habitat for overwintering and potential spawning bays with areas of submerged vegetation.



Target species will also include species of terrestrial wildlife, with particular focus on those that inhabit narrow wetlands characteristic of riparian areas, (see Table below). Enhancement of the East Pond for terrestrial wildlife will be configured to attract species with relatively specific habitat requirements, though target wildlife species must also be those that are relatively tolerant of urban habitat. The list provided below includes those that have more specific habitat dependencies than, for example, ubiquitous species such as American Robin or Song Sparrow. The table also includes recommended vegetation and habitat elements to be included in enhancement intended to attract these species.

| Examples of target wildlife species recommended for restoration of the East Pond Aquatic Enhancement Area | | |
|---|--|---|
| Target Wildlife Species | Representative Habitat | Recommended Vegetation Species and other Habitat Elements |
| Birds | | |
| Willow Flycatcher | <ul style="list-style-type: none"> Thicket swamp | <ul style="list-style-type: none"> shrub willows (e.g. slender willow, heart-leaved willow) red-osier dogwood . |
| Common Yellowthroat | <ul style="list-style-type: none"> Cattail marsh | <ul style="list-style-type: none"> common cattail bulrushes |
| Blue-gray Gnatcatcher, Warbling Vireo | <ul style="list-style-type: none"> Treed riparian areas | <ul style="list-style-type: none"> bur oak sycamore black willow |
| Wood Duck, Tree Swallow | <ul style="list-style-type: none"> Tree cavities in treed riparian areas | <ul style="list-style-type: none"> black willow sycamore nest boxes (smaller diameter for Tree Swallow, larger diameter for Wood Duck; requires protection from European Starling & House Sparrow) |
| Barn Swallow (Threatened in Ontario) | <ul style="list-style-type: none"> Overhanging ledges near open areas for foraging | <ul style="list-style-type: none"> shed or other small outbuilding (requires protection from cats) |
| Turtles | | |
| Snapping Turtle, Midland Painted Turtle | <ul style="list-style-type: none"> Deep water for overwintering Sandy nest sites Basking sites | <ul style="list-style-type: none"> aquatic habitat with adjacent sandy open banks (requires protection from predators) woody debris placed for basking sites |
| Frogs | | |
| American Bullfrog | <ul style="list-style-type: none"> Deep water for overwintering Emergent vegetation for spawning habitat | <ul style="list-style-type: none"> common cattail bulrushes (e.g. river bulrush) robust sedges (e.g. water sedge, lakebank sedge, beaked sedge) |



Rehabilitation Methods

Enhancement of open water and shoreline habitat will improve the aquatic conditions in the East pond by providing a diversity of depths, substrate type, cover, seasonal refuge. Current depths found in the East pond in the north end range from 0.2 to 1.4 metres; depths which do not provide adequate deep water habitat for overwintering. A maximum depth of 3.7 to 4.6 metres in the East pond would provide ideal deep water overwintering habitat. The linear shoreline of the East pond has an abrupt transition from onshore terrestrial habitat and has a low diversity of aquatic vegetation and structural diversity present. Rehabilitation in the East pond would also include mid-depth enhancement areas 1.8 to 2.4 metres deep and near shore spawning bays 0.6 to 1.2 metres deep (see Figure below). Proposed rehabilitation will therefore consist of:

- deepening along a portion of the historical river channel to provide suitable overwintering habitat;
- creation of near-shore littoral habitat that connects to mid-depth and maximum depth areas to provide a greater diversity of habitat conditions;
- restoration of shoreline vegetation and structural diversity through appropriate aquatic vegetation plantings as well as logs, dead trees (snags) and rock; and
- creation of bays along the eastern shoreline that provide spawning habitat and thermal refuge during the spring through the installation of appropriate in-water substrate and aquatic vegetation.

Equipment used for the dredging and construction of the new habitat will require a base to work from in order to access areas within the East pond that will be dredged. Discussion with the City of London has determined suitable access is available from two locations; (1) public property located adjacent to Springbank Drive at the north end of the East pond and (2) public property along the eastern shore of East pond accessible via an existing grassed entranceway or via the end of Brookdale Avenue (see Figure below). Substrate dredged from the area to provide deeper overwintering habitat can be used for littoral zone creation similar to a cut/fill balance. Suitable native substrate can be stockpiled and used for “toping” once final depths have been achieved in deeper areas. Coir (coconut husk) matting or a berm configuration will be used to keep fine grained sediments from migrating back into the pond and provide material to build the bays and associated shoreline improvements.

Expected Benefits

- increased biodiversity provided by species plantings and greater number and complexity of niche created;
- structural elements installed create expanded habitats for new and existing species;
- in water and out of water structural diversity and habitats provided by plants
- water quality enhancement provided by shading that reduces water temperatures
- increased organic material (leaves and woody material) in water that adds physical structure to the habitat and food sources to feed aquatic organisms
- increased bank stability and reduced shoreline erosion

Improvements to the Aquatic habitat and littoral zones found in the east pond will have an overall benefit to the entire ecosystem. Ecological benefits to the East pond will be:

- diversity of habitat types that will support sport fish species and required life stages, as well as additional terrestrial wildlife species;

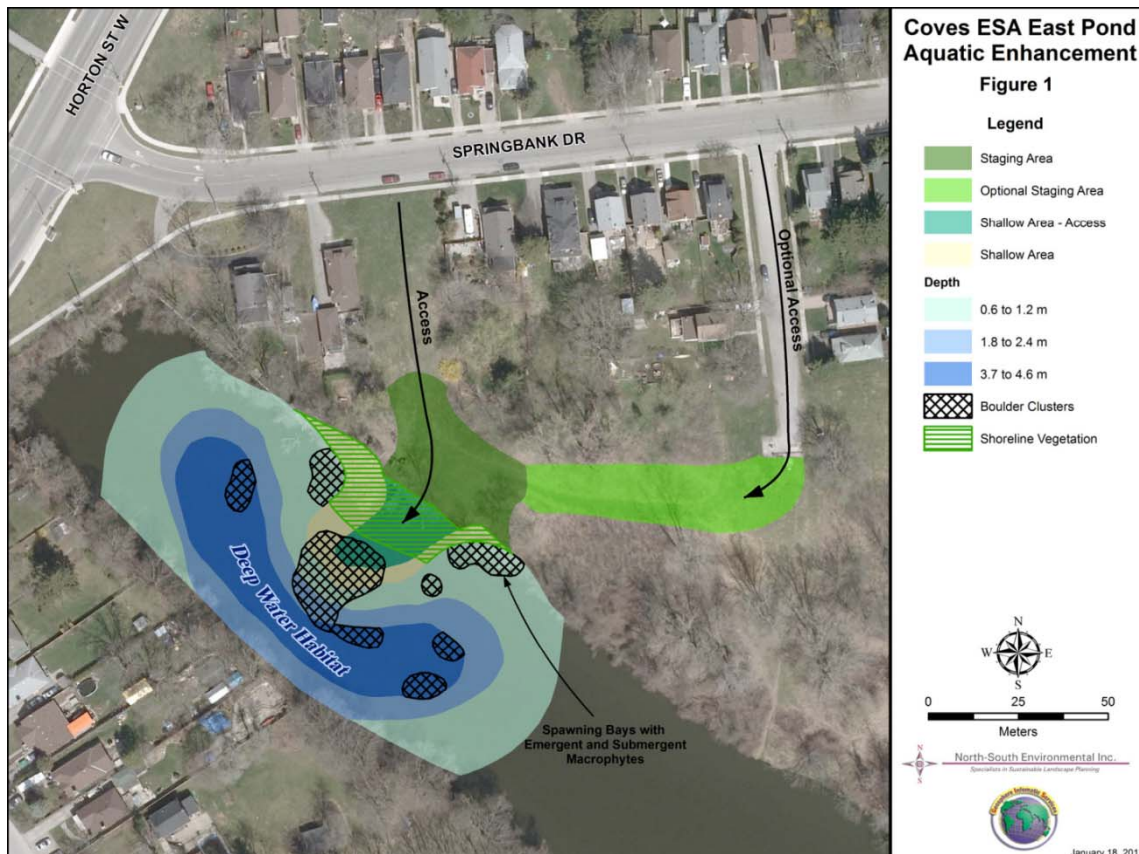


- improvements to water quality through the removal of fine grained sediments and the removal of non-native fish species (carp and goldfish) that disturb aquatic vegetation and sediments, factors which contribute to increased turbidity and reduced growth of macrophytes
- deeper over wintering areas may expose groundwater input, provide some thermal diversity and reduce winter kill of fish and additional wildlife such as turtles and frogs by providing over wintering habitat
- creation of woody shoreline habitat that will also benefit several bird species;
- creation of habitat elements such as basking logs and nest boxes that would be used as habitat by several species; and
- improvement to the social perception of the ecosystem health in the Coves

It will be important to determine the area that will benefit most from these improvements and protect surrounding areas during construction from sedimentation, damage to native vegetation and changes to water quality. Mitigation measures will be developed based on detailed design.

Expected Costs

1. Detailed engineering, design drawings for dredging and restoration plan for shoreline enhancement - \$50K
2. Dredging to provide suitable over-wintering habitat and mid-depth littoral zones - \$100K
3. Creation of bays along eastern shoreline and installation of shoreline cover - \$50K



Restoration Overlay R7

Intent of Management for R7

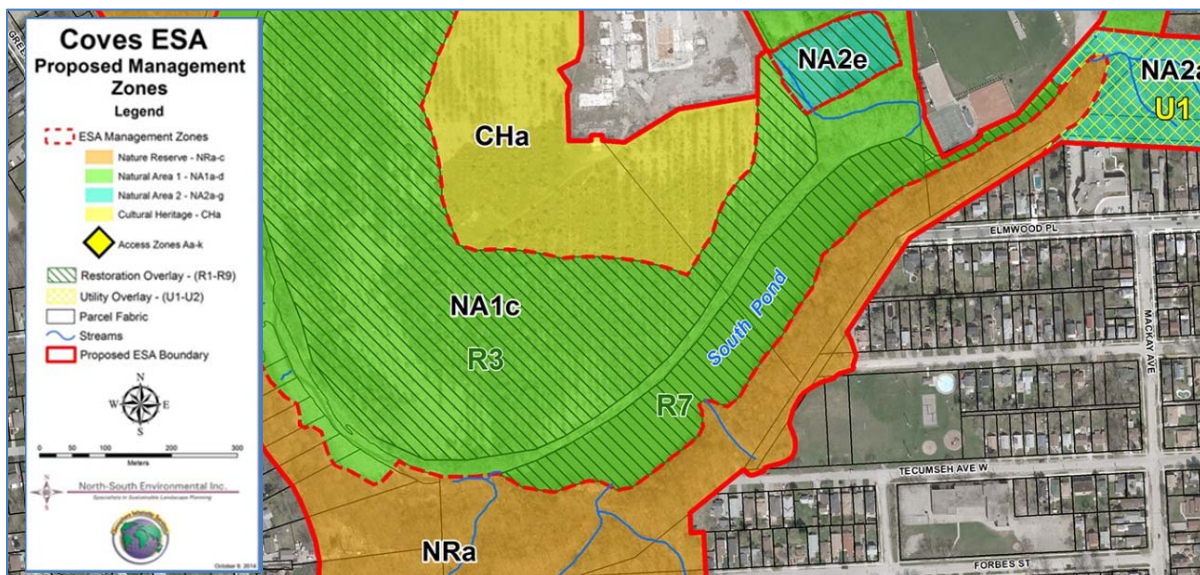
R7 is overlaid on the South Pond of the Coves due to the presence of a stormwater outfall that can have an impact on the hydrology, water quality and the associated accumulation of silt. Restoration options should be considered to reduce impacts that may be associated with the stormwater outfall, including recommendations to enhance the South Pond with objectives related to the mitigation of water quantity, water quality and sedimentation, while also ensuring the continued flow of stormwater through the South Pond and the prevention of flooding in the watershed.

Management Actions Required for R7

Note the conveyance of stormwater through the Coves ponds to the Thames River is critical infrastructure for the surrounding urban neighborhood. Management actions must therefore be undertaken in consultation with the Environment and Engineering Services Department of the City of London and the Upper Thames River Conservation Authority (UTRCA) and must ensure stormwater conveyance is maintained.

The following are the key management actions identified for R7

- Work with the Environment and Engineering Services Department and the Upper Thames River Conservation Authority (UTRCA) to identify restoration options within the Coves ESA and options that may apply outside with the ESA boundary within the Coves Subwatershed (see Dillon 2003, 2004) that may enhance the environment of the South Pond
- Monitor water quality of the South Pond (see CMP Section 5)
- Review the available information to assess changes in silt accumulation



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Restoration Overlay R8

Intent of Management for R8

R8 is located north of Base Line Road West and includes an open area of mown lawn (M), where some tree planting has been initiated. The restoration objective is to restore these areas to native woodland to increase natural features and functions along the adjacent watercourse. Restoration should minimize mowing in these areas and increase the planting of native trees species selected based on the species composition of the neighbouring plant community Dry-Fresh Sugar Maple Deciduous Forest (FOD5-1)

Management Actions Required for R8

Note management actions should be undertaken in consultation with the City of London Park Maintenance Department to ensure the required boulevard mowing is maintained and to ensure maintenance staff are aware of areas identified for restoration where no mowing is required.

The following are the key management actions identified for R8:

- Consult with Park Maintenance Department to identify the boundary of areas to be restored
- Consult with the homeowners that have lots backing on this section of the Coves to engage their participation and acceptance of reduced mowing.
- Develop a list of appropriate tree species for planting based on trees present in adjacent natural area FOD5-1 Dry-Fresh Sugar Maple Deciduous Forest
- Tree planting to encourage the establishment of deciduous forest vegetation
- Supplemental shrub and forb planting to restore native deciduous forest understorey vegetation



| Record of Management Actions Taken for R8 | | |
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Restoration Overlay R9

Intent of Management for R9

R9 is located along the boundary of the Coves ESA west of McAlpine Avenue and includes an open area of mown lawn (M). The restoration objective is to restore a portion of this area to native woodland adding to the adjacent natural areas. Restoration will minimize mowing and plant native trees and shrubs based on the species composition of the neighbouring plant communities Swamp Maple Mineral Deciduous Swamp (SWD3-3) and Cultural Woodland (CUW1)

Management Actions Required for R9

Note management actions should be undertaken in consultation with the City of London Park Maintenance Department to ensure the required boulevard mowing is maintained and to ensure maintenance staff are aware of areas identified for restoration where no mowing is required.

The following are the key management actions identified for R9:

- Consult with Park Maintenance Department to identify the boundary of areas to be restored
- Consult with the homeowners that have lots backing on this section of the Coves to engage their participation and acceptance of reduced mowing.
- Develop a list of appropriate tree species for planting based on trees present in adjacent natural area Swamp Maple Mineral Deciduous Swamp (SWD3-3) and Cultural Woodland (CUW1)
- Tree planting to encourage the establishment of deciduous forest vegetation
- Supplemental shrub and forb planting to restore native deciduous forest understorey vegetation

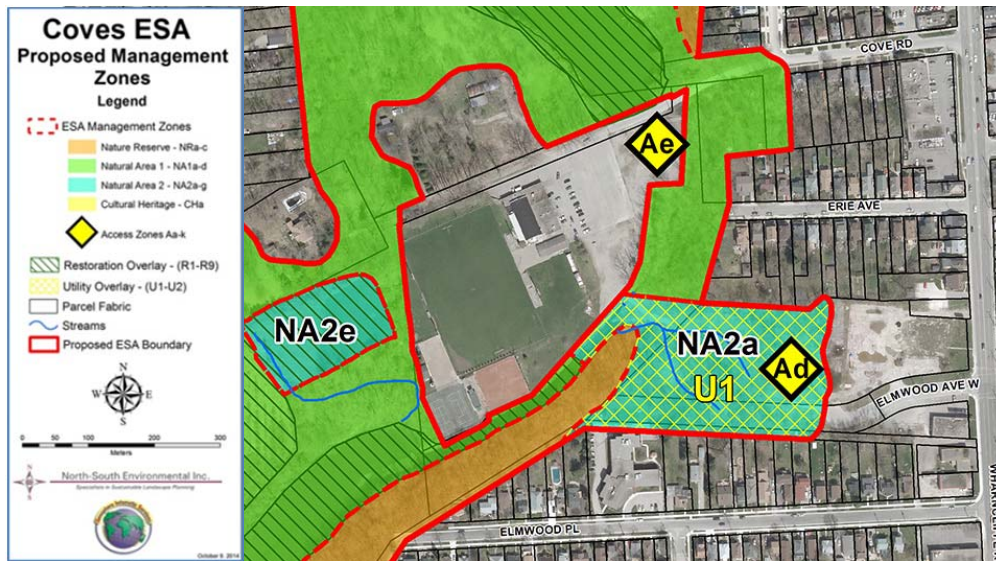


| Record of Management Actions Taken for R9 | | |
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Utility Overlay U1

U1 is overlaid on Natural Area 2a due to the presence of a stormwater pipe that runs from Elmwood Avenue West through to the South Pond where an outlet is located. This infrastructure is critical to stormwater management within the Coves subwatershed and may require periodic maintenance to ensure it continues to function as required, conveying stormwater flow to the South Pond. In addition, in this location some areas within the Cove ESA and the adjacent Elmwood Gateway were a former landfill. Existing methane gas off-gassing infrastructure is installed within the area of Elmwood Gateway outside the Coves ESA. Ongoing monitoring of methane off-gassing may in future require maintenance and/or the installation of additional below ground gas collection piping and this may include areas within Natural Area 2a immediately adjacent to the Elmwood Gateway.

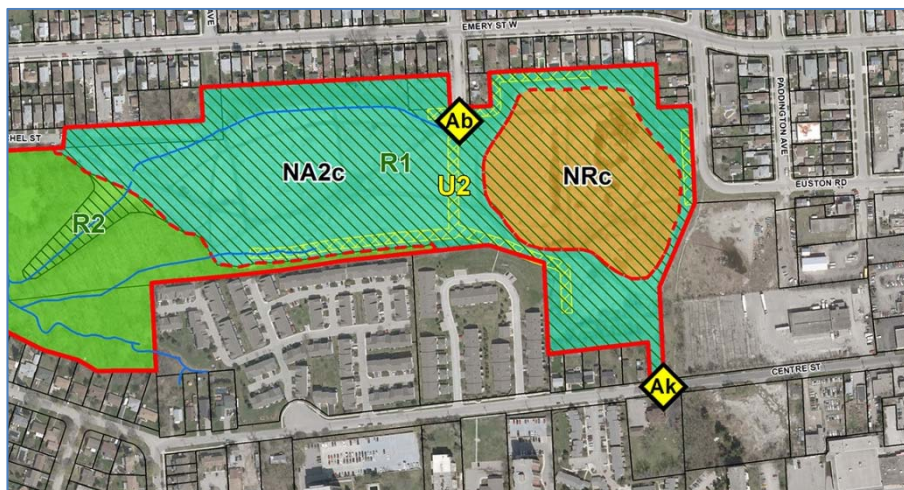
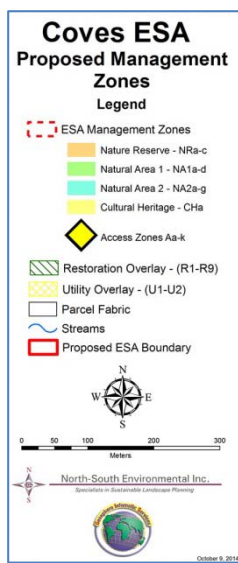


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Utility Overlay U2

Much of the Euston Meadows area was a former landfill. Utility Overlay U2 is overlaid on those areas in Euston Meadows where below ground infrastructure is located to vent gas arising from the decommissioned landfill. The infrastructure includes below ground pipes, wells, purge points and a fan house. Periodic maintenance of this critical infrastructure may be required, including digging to access below ground infrastructure.



| Record of Maintenance and/or Management Actions Taken within U2 | | |
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Areas of Encroachment within the Coves ESA

Intent of Management for Areas of Encroachment

To control the direct impact of encroachment which is resulting in the loss and/or displacement of native habitat and the disruption of natural growth and succession processes. To also control indirect impacts associated, such as the introduction of non-native, invasive species. The management of areas of encroachment is linked to the monitoring program for the Coves ESA which includes regular assessment of the boundary of the ESA to identify encroachment issues. Some current areas of encroachment areas within the Coves ESA have been identified on the figure provided in Section 2.

Management Actions Required for Areas of Encroachment

Note management of encroachment should be undertaken in consultation with Municipal Bylaw Enforcement Services of the City of London and should include the distribution of public education materials to ensure residents are aware of the impacts of encroachment (see sample and City Bylaws related to encroachment).

The following are the key management actions identified for Areas of Encroachment:

- Encourage the community to participate by completing and submitting City of London ESA Observation Forms (see copy of ESA Observation Form below)
- Conduct regular monitoring of the Coves ESA boundary to document encroachment issues noting the type and location of encroachment;
- Conduct follow-up visits with residents where encroachment issues have been identified.
- Report issues by phoning 519.661.4980
- Distribute educational material regarding encroachment to residents that border on the Coves ESA (see Living with Natural a Guide for Landowners below);



CITY OF LONDON ESA OBSERVATION FORM

The City of London, in partnership with the Upper Thames River Conservation Authority, manages seven different environmentally significant areas (ESAs) in the City. This form is provided so that members of the public may record observations arising from time spent in ESAs. The City of London will review the information received and take steps to incorporate your suggestions into our ESA Management efforts, subject to existing policies, approved conservation master plans, budget and environmental considerations. Please respect the natural environment during your visit, be aware of permitted and prohibited activities defined on the signs at the trail head and stay on the managed trail system.

**OBSERVATIONS
PROVIDED BY:**

**CONTACT
INFORMATION:**

PLEASE IDENTIFY THE ENVIRONMENTALLY SIGNIFICANT AREA YOU ARE PROVIDING COMMENTS ON:

☐ Meadowlily Woods
☐ Westminster Ponds
☐ Warbler Woods

☐ Medway Valley Heritage Forest
☐ Kilally Meadows

☐ Sifton Bog
☐ Kains Woods

**EXPLAIN GENERAL LOCATION (AND/OR
GPS POINTS) OF OBSERVATIONS:**

COMMENTS RELATE TO THE FOLLOWING:

☐ Trails
☐ Signage
☐ Dogs Off Leash

☐ Encroachments/Garbage
☐ Invasive Species
☐ Monitoring Requirements

☐ Habitat Restoration
☐ Others

| To be filled out by observer | | To be filled out by City of London | | | | | |
|------------------------------|------------------|------------------------------------|------------------|-----------------|-------------|-----------------|-------------|
| Observations/Date: | Recommendations: | Action | | | Status | | File Number |
| | | No Action Req'd | Routine Maintnc. | Capital Project | Target date | Completion Date | |
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For information related to the City of London Environmentally Significant Areas, including maps, brochures and permitted activities, please visit both the City of London and Upper Thames River Conservation Authority web sites.

To speak with a person regarding ESA management activities, please contact the City of London's Environmental and Parks Planning section.

Please submit comment forms by mail or email to the attention of Linda McDougall
lmcDougall@london.ca at the City of London Environmental and Parks Planning Office.

WWW.LONDON.CA

WWW.THAMESRIVER.ON.CA

PHONE: 519-661-4980

City of London Environmental and Parks Planning, 383
Richmond Street, Suite 1102, London Ontario N6A 4L9



Stepping out in ESAs

Since you live adjacent to an ESA you probably visit it often. The very features that make our ESAs precious are also those that could be easily damaged. By following the guidelines below, you can enjoy these natural areas without harming them, and leave them in a healthy state for all to benefit from.

Use only the official access points and trails. When people and dogs leave the marked trails, wildlife and plants are trampled and disturbed. Most ESAs are mapped, have signed entrances to a marked trail system, and trails marked with yellow blazes.

No Bikes except on the asphalt or crushed gravel paths in Kilally Meadows and Medway Valley. Carry in/Carry out your trash. Do not leave anything in an ESA. Help out by picking up any litter that you find, and dispose of it properly.

Leashes Please! Natural areas are not dog parks. All pets must be on leash (maximum 2 meters/6 feet). Remember to stoop and scoop!

Do not disturb wildlife or plants. It is illegal. Respect all plants and wildlife. Leave natural areas as you found them and do not feed the deer.

What can I take from an ESA?

Nothing! Bring a camera and take photographs.



Leave all wildlife, plants, seeds, flowers, soil, substrate, and deadfall in place. Every part of the ecosystem has an important and vital role to play in keeping ESAs healthy.

What is an invasive alien species?

Alien alert! Invasive alien species are non-native species – plants, animals, fungi, etc. – that evolved in another part of the world (e.g., Europe or Asia) and were transported to Ontario by humans. Invasive alien species can easily outcompete native species and lead to a decline in native biodiversity and reduced ecosystem functionality wherever they occur. Globally and locally, invasive alien species are one of the primary causes of habitat degradation and biodiversity loss today.



More Information

Ontario Invasive Plant Council
http://www.ontarioinvasiveplants.ca/index.php/other_sites

Plant Selection for Environmentally Significant Areas
www.reforestlondon.ca/resources-healthy-city

City of London Information:
Environmental and Parks Planning
(519) 661-4980
Environmentally Significant Areas
Yard Waste Collection Information
www.london.ca

Reforest London
www.reforestlondon.ca

Upper Thames River Conservation Authority
www.thamesriver.on.ca
519-451-2800



UPPER THAMES RIVER
CONSERVATION AUTHORITY



Brochure prepared and revised by EEPAC (2014)

Living With Natural Areas

A Guide for Living Next to Environmentally Significant Areas

What is an ESA?

An **Environmentally Significant Area (ESA)** is a natural area that receives the highest level of protection within the City of London. ESAs contain rare and endangered species, unique landforms, and habitats that are prized for their quality and high biodiversity. ESAs contain wetlands, freshwater ponds and streams, meadows, forests, valley lands, and other relatively undisturbed wildlife habitat.

Why are ESAs important?

ESAs are essential to the health and well-being of all Londoners because they provide ecosystem services, the most important being habitat for our native biodiversity – indigenous plants, animals, fungi, and other organisms – enables our ecosystem to function properly. A fully functional ecosystem filters our freshwater, provides oxygen for us to breathe, cleans our air, provides decomposition for fertile soil, and provides a beautiful, natural environment in which to de-stress from our busy lives.

Is there a problem?

Yes! Even though our ESAs are protected from development, they are suffering from invasive alien species (see inset), encroachment, and misuse by the demands of our ever-growing human population.

Is there a solution?

Yes! It is the responsibility of each and every Londoner to help keep our ESAs healthy and in a natural state.



Alien Tree Species
Example

Norway Maple
(*Acer platanoides*)

Why this information is important to you!

You are one of the very fortunate members of the community who lives adjacent to an ESA; you have a special role to play. You are aware of the high value of your property, a way to keep that value is to minimize your impact on the ESA. You can help to maintain our ESAs in a healthy, natural condition that preserves the spectacular view from your home, and sustains the value of your home.

What you do around your home - impacts the environment.

Some of your actions may have a greater negative impact on the ESA. As such, it is important how you treat your yard and the area next to it.

Does it matter what I grow on my property?

Be careful when growing plants that are not native to Ontario (see INSET). Animals, wind, and water transport seeds, the mobile stage of a plant, from one place to another. Nature doesn't recognize property boundaries, and seeds can spread from gardens into ESAs.

Alien plants degrade natural habitats by reducing plant biodiversity, which in turn reduces animal biodiversity.



Native Planting brochures
www.reforestlondon.ca

Can I dump my yard waste or pond waste in the ESA?

No! Do not dump any yard or pond waste into the ESA – it is illegal. And, you may be inadvertently transporting alien plants or animals into the ESA. Seeds and other plant parts in your waste can germinate or regenerate once inside the ESA. Pond waste may contain alien animals (e.g. goldfish or exotic snails) or plants that can wreak havoc on our native ecosystem. Compost your waste on your property, or take advantage of the city's regular, curb side pickup of yard waste materials.

Encroachment

Your lot ends at the property line. **Any activity extending onto public land is illegal.** Examples of encroachment include mowing, gardening, or installing structures such as sheds or fences in an ESA. Rear fences should not have a gate. Enter the ESA at designated access points, and use the official trails – don't make new ones. The cumulative impact of homeowners encroaching into the edges of ESAs effectively reduces their size, and threatens their integrity and value.

Your pets, did you know?

Cats and dogs can greatly disturb the wildlife and natural habitats so keep them from running loose in ESAs. Dogs and cats can hunt down and kill a variety of small animals, and cats kill thousands of birds each year. Our furry pets also disperse seeds of invasive alien plants. Seeds are transported in their fur, and in mud collected on their feet.

Don't release Aquarium stock or other household pets into ESAs. Aquarium plants and animals that you buy at pet stores are alien species in Ontario. Goldfish in particular have already been illegally released into our ESAs and are causing widespread damage. **It is illegal to release any live plants or animals into an ESA.**



THE COVES ENVIRONMENTALLY SIGNIFICANT AREA CONSERVATION MASTER PLAN

Section 4 – Trail Management in the Coves ESA



Coves Field

Photo Credit – Andrew Jackson (www.ontariowildlife.net)



THE COVES ENVIRONMENTALLY SIGNIFICANT AREA CONSERVATION MASTER PLAN

SECTION 4 – TRAIL MANAGEMENT IN THE COVES ESA

In the Coves ESA, the footprint of trails may date back to First Nations settlements and some of the earliest explorers and settlers. Archaeological evidence and the location of potential areas of human occupation are frequently associated with sites such as the Coves that are located along the Thames River Valley and its major tributaries (Wilson and Horne 1995). Years of mostly informal use within the Coves has established trail networks that reflect urban settlement patterns and local use for recreation and community travel routes, rather than a planned trail system based on an ecosystem approach. With the increase of public access and the diverse nature of user groups, many of the existing trails within the Coves ESA are showing signs of overuse leading to damage to natural features and some are located within sensitive natural habitats. Trails located on steep slopes are more susceptible to erosion, while trails crossing wet areas lead to trail widening and soil compaction. Many trails are too close to watercourses or cut across the habitat of significant wildlife. These are key management issues that are addressed in the Coves CMP.

As many trails are located within the Conservation Authority Regulation Limit, trail planning should be conducted in consultation with the Upper Thames River Conservation Authority (UTRCA) and in some cases may require written approval (permits) from the UTRCA prior to implementation.

Trail Assessment Results

Field work has confirmed and mapped the location of existing trails throughout the Coves ESA. The figures provided below summarize key issues including trail locations, existing issues, opportunities, constraints and a photographic survey, based on site investigations and discussions with the public, Friends of the Coves and City staff used in the development of a trail plan for the Coves ESA.

The key issues identified throughout the Coves ESA include:

- Presence of erosion and soil compaction where trails traverse steep slopes (>15%);
- Localized trampling of native vegetation;
- Branched or multiple trails in similar location;
- Unconnected trail segments;
- Ad hoc trail creation contributing to undercutting of soils and slopes;
- Exposed and damaged roots with the potential for destabilization of trees (potential risk to property and trail users);
- Flood prone sites – trails directly adjacent ponds and in low-lying areas;
- Sedimentation in tributaries and ponds;
- Widened trail sites (often in muddy areas);
- Lack of demarcation at entry points to trails;
- Multiple trail widths and surfaces i.e. mown, granular, overgrown, rugged track, access road, links along roads;
- Presence of invasive species originating where human disturbances occur within the ESA;
- Evidence of encroachment and access to public lands directly from private properties;



- Presence of dumped materials and garden waste; and
- Non-sign posted crossings of local roads.

The key opportunities identified throughout the Coves ESA included:

- Significant natural heritage resources afford opportunities for interpretation;
- The Coves is accessible to a large population within a 15 minute drive and is well served by transit and surrounding cycling routes and local trails;
- The Coves area provides passive nature-based recreational opportunities different from the adjacent Thames River Corridor thereby affording an “urban wilderness” experience;
- The ESA supports a range of habitats and populations of important species which will benefit from on-going protection;
- Co-ordination of trail planning with other projects such as the proposed future improvements for the Elmwood Gateway and any other projects;
- Signage of trails and for educational purposes has the potential to encourage responsible behavior, reduce conflict with private property owners, and reduce littering, dumping, encroachment and vandalism; and
- The Coves area is supported by a considerable volunteer network, a resource that may be relied upon to implement and manage trails within ESA.

The key constraints identified throughout the Coves ESA include:

- The landscape setting of the Coves as an Oxbow is comprised of valleyland characterized by incised slopes and flood prone lowlands. Consequently some areas with existing trails traverse areas subject to seasonal inundation, acute erosion and potential slope instability and this poses concerns related to environmental impacts, the safety of trail users and the long term sustainability of trails;
- Barriers to trail connectivity are present in the form of creeks, local roads, steep slopes, proximity of private property and the top of bank;
- Increased levels of use may spur the need for increased facilities, parking and visitor amenities which in-turn has the potential to impact the natural character of the Coves;
- Development of trails and the resultant increased use may result in increased disturbance to sensitive species and habitats;
- Some existing trails have the potential for disturbance to archaeological resources;
- Trails that provide access for a variety of users may lead to conflicts between user groups and potential impacts to the environment unless carefully managed (e.g. mountain biking within the ESA); and
- Existing trails that have the potential to fragment important habitat features.

Additional documents that should be considered in trail planning include:

- Planning and Design Standards for Sustainable Trails in ESA's (City of London 2012);
- London Bicycle Master Plan, (City of London 2005);
- Coves Conservation Master Plan Sub-Watershed Study (PEIL 2004);
- Accessibility for Ontarians with Disabilities Act (2005);
- Thames Valley Corridor Study (Dillon 2011);
- Trail mapping prepared by the Friends of the Coves Subwatershed Inc. (www.thecoves.ca); and
- Euston Naturalization Plan, 2004 (www.thecoves.ca);.



Addressing Trail Signage and Interpretation within the Coves ESA

The primary goal of a trail plan is to protect the natural features and functions of the ESA, while also providing a connected system of trails that enables visitor access to different landscape settings affording a variety of experiences, educational opportunities and interpretive programming.

There is a need to recognize the linkage and transition between trails inside and outside the Coves ESA. For example the Thames Valley Parkway runs through a portion of the Coves ESA and many on-road bikeways connect to trails within the Coves ESA. There is a need therefore, to erect signage at these transition points that clearly informs users they are entering the Coves ESA. The signage should inform users of the sensitivity and significance of the Coves as an Environmentally Significant Area and the more restrictive uses that are permitted, such as no bicycle riding.

To facilitate trail planning there is a need to build and install signage throughout the Coves ESA that conveys consistent, informative, and attractive messaging that addresses the following:

- identification of the trail system including the access points, parking, the trail hierarchy and points of interest within the Coves ESA;
- identification of permitted uses within the Coves ESA, including common “do’s and don’ts” for users;
- trail signage that considers the minimization of risk to public safety, such trails that intersect roads, steep slopes or water hazards;
- identification of accessible trails available within the Coves ESA;
- identification of connections to other trail systems such as the Thames Valley Parkway and neighbouring on-road bicycle trail systems;
- development of interpretive signage that reinforces the protection of natural features and functions of the ESA;
- identification of trails that have identified for closure, including information on the reason such as the presence of significant or sensitive areas (e.g. nature reserve zones, steep slopes, wetlands, areas of existing high impact); and
- identification of areas where there is ongoing active management such invasive species removal or woodland restoration.

Common “do’s and don’ts” that have been identified for the Coves ESA include the following:

- bicycle riding on the Coves ESA trails is not permitted;
- dogs should be kept on a leash and owners must clean up after their dogs;
- stay on trails to avoid impacts to natural areas;
- removal or destruction of native vegetation is prohibited;
- dumping or littering is prohibited;
- hunting is prohibited;
- access is from 6:00 am to 10:00pm
- no motorized vehicles are permitted



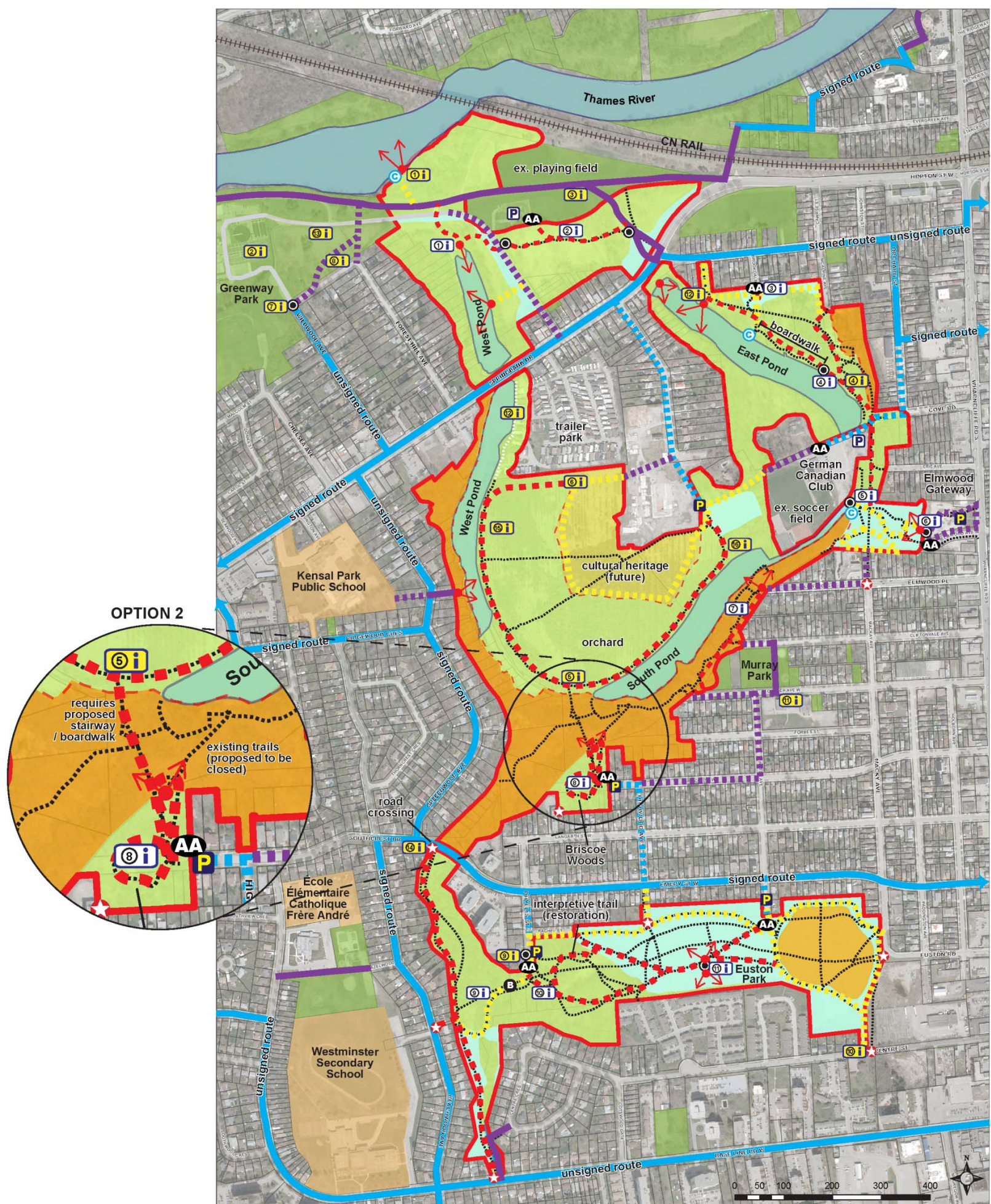
Trail Management Priorities within the Coves ESA

Trail management needs to be phased in over time due to the cost of implementation. The table below identifies the priorities and estimated costs of each trail management area identified for the Coves ESA.

| Trail Management Area | Key Management Issues | Priority for Implementation | Estimated Cost |
|--|---|------------------------------------|-----------------------|
| West Pond | <ul style="list-style-type: none"> • improved trail connections to Thames River and Thames Valley Parkway | • low | \$300K |
| East Pond | <ul style="list-style-type: none"> • improved trail surfaces for public use • installation of boardwalk to protect wetland | • high | \$620K |
| Elmwood Gateway | <ul style="list-style-type: none"> • improved trail connections from Gateway to Coves ESA • closure of trail and restoration of slope erosion | • high | \$450K |
| Briscoe Woods & Murray Park | <ul style="list-style-type: none"> • improved trail surfaces for public use • establishment of accessible trail in Briscoe Woods • potential future north to south trail linkage | • medium | \$80K |
| Euston Meadow | <ul style="list-style-type: none"> • re-alignment of trails to protect open habitat for species at risk • improved trail surfaces for public use | • high | \$280K |
| Southcrest Ravine | <ul style="list-style-type: none"> • improved trail connection east to west across Silver Creek • installation of a safe trail crossing over Silver Creek | • high | \$350K |
| Old Orchard | <ul style="list-style-type: none"> • potential future trail development • potential future cultural heritage appreciation | • low | \$470K |

The following pages and the accompanying figures provide detailed information on the environmental features and issues for trail planning within neighborhood areas prioritized for the Coves ESA.





LONDON COVES ESA

DRAFT TRAIL CONCEPT PLAN

Rev. October 10, 2014

LEGEND

- Proposed London Coves ESA Boundary
- Level 1 Hiking Trails
- Level 2 Pedestrian Trails
- Level 3 Pathway (Proposed)
- Thames Valley Parkway and Level 3 Trails (Existing)
- Level 4 On-Road Bike Route
- Proposed Bike Route Additions
- Existing Trails (Potential Closure)
- Proposed Access Zone
- Proposed Secondary Access Zone
- Proposed Node
- Existing Parking
- Proposed Parking
- Proposed Canoe Put In
- Proposed Pedestrian Bridge
- Proposed Overlook
- School Sites
- Public Open Space
- ESA Management Zones
 - Nature Reserve
 - Natural Area 1
 - Natural Area 2
 - Cultural Heritage

INTERPRETIVE SIGNAGE LEGEND

- HISTORICAL FEATURES
 - Cove Railway Bridge / Outlet of the Oxbow
 - Green Recycling Facility
 - Springbank Electric Railway (1896 - 1935)
 - Jeffrey Estate (Ca. 1918 - 1990)
 - Coe Rifle Range (Ca. 1900 - 1950)
 - River Meander Scrolls
 - Norton Site (Ca. 1400 - 1450)
 - J.P. Hunt Site
 - Bowman Site
 - Chestnut Hill, Residence of Andrew Weldon (1872 - Present)
 - McArthur House & Orchard (Ca. 1850 - Present)
 - Ice Houses
 - Cove Hospital (Ca. 1910 - 1925)
 - 264 Greenwood - Drill Grounds
 - Lord Simcoe Camped at the Coves
 - Curling was first played at the Coves

NATURAL FEATURES

- oxbow formation
- naturalization
- ESA
- sycamore overlook
- Stormwater Management
- Low Impact Development
- river valley slopes / stabilization
- remnant woodlot
- ecological sensitivity
- forest management / protection
- former landfill

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Trail Management Priorities within the Coves ESA

Coves ESA Trail Management Area – West Pond

Key Trail Management Actions

- establish trail connections to Thames Valley Parkway
- establish trail connection to Thames River
- establish trail overlooks
- install signage at access points showing trail locations and ESA “do’s and don’ts”

Historical Features

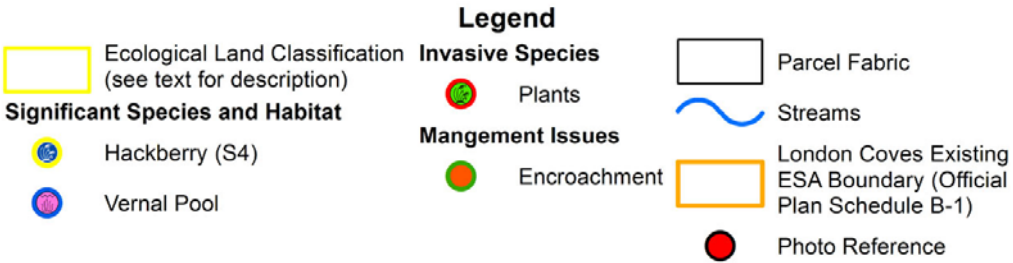
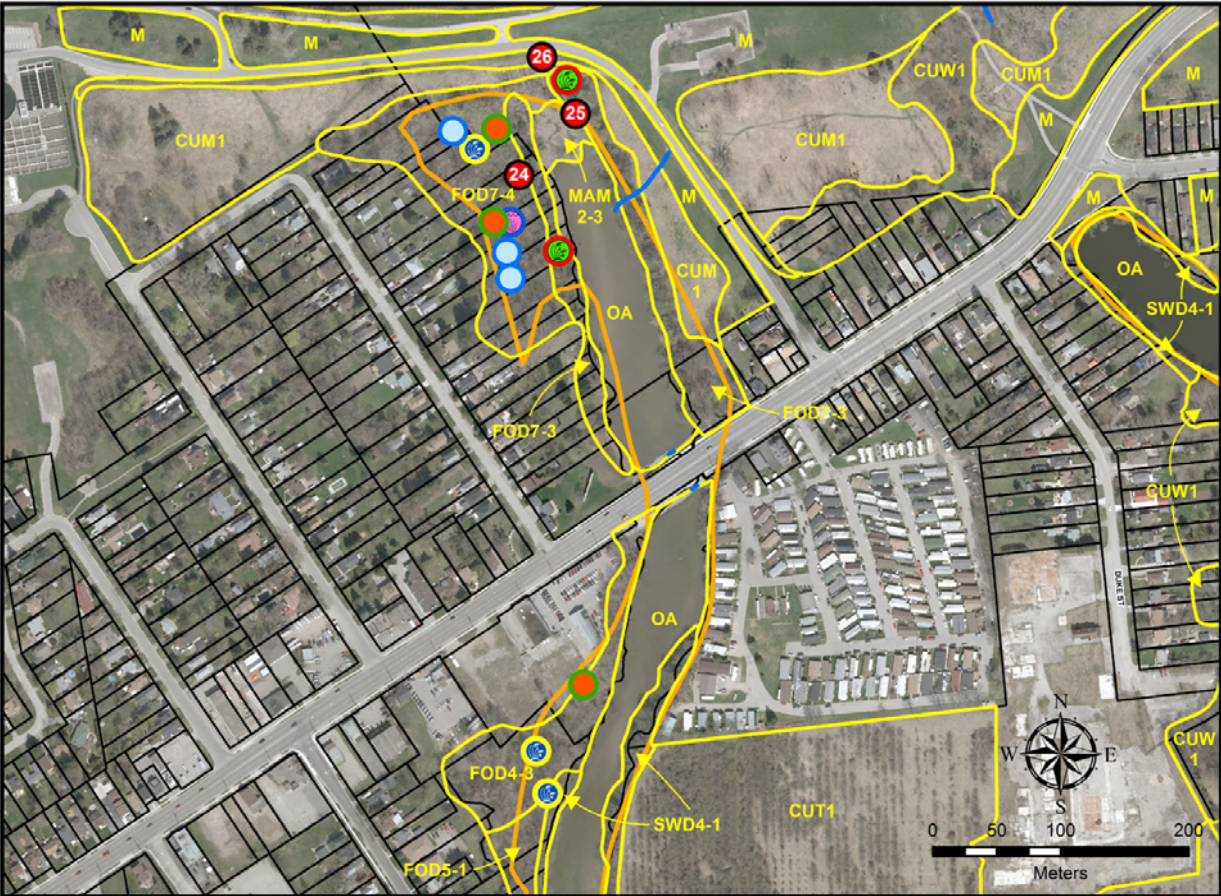
- CN railway crossing Thames River
- City of London Green Recycling Facility
- Location of Springbank Electric Railway (1896 to 1935)
- Norton Site (ca. 1400 to 1450)
- J.P. Hunt Site
- Coves Hospital Site (ca. 1910 to 1925)

Natural Features

- areas of open habitat restoration
- historic formation of oxbow in Thames River

Note: see main map for legend to map section shown below

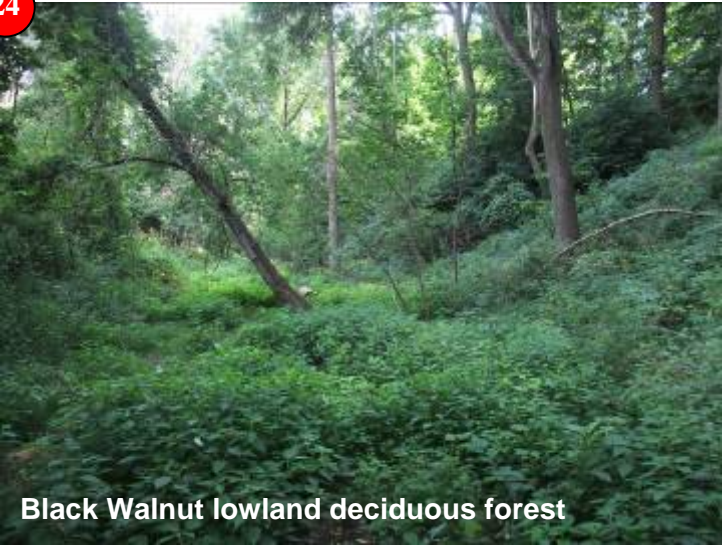




Environmental Features and Concerns within West Pond and Greenway Park

- plant and animal species inventory and wildlife habitat assessment
- rare vegetation community type FOD4-3 Dry-Fresh Hackberry Deciduous Forest
- a corridor maintains ecological linkage through wooded and open areas connecting the Coves West Pond to the Thames River Corridor
- a hydrologic connection conveys water from the Coves to the Thames River
- there are opportunities to enhance the ecological linkage through the restoration and management of woodland and open habitat
- the old orchard presents an opportunity for the interpretation of cultural heritage associated with First Nation and Early European farming of floodplain areas

24



Black Walnut lowland deciduous forest

25



Rice Cut Grass organic meadow marsh

26



View of West Pond from the north





- A. Proposed ESA node/kiosk. Opportunities for this area could include interpretive programming and signage, addition of seating and demonstration areas for school groups. Proposed trails should consider on-going restoration work occurring in this area.
- B. Opportunity to incorporate an overlook at the West Pond. Potential to link existing trails to lookout directly from parking lot. Connection requires across private road. Sightline issues are required to be addressed as well as an easement over the right of way to purification plant.
- C. There is an opportunity to create a direct link from the Thames Valley Parkway to the lookout with a second road crossing.



LONDON COVES ESA INVENTORY
West Pond and Greenway Park

LEGEND

- Open Space
- Proposed London Coves ESA
- Existing Trails

- 10 Photo Reference
- Slopes / Trail Implications
- 0-5% (site specific trail design)
 - 5-15% (trail improvement)
 - 15-25% (trail relocate / trail improvement)
 - >25% (close trails)

**EXISTING TRAIL ISSUES TO BE ADDRESSED
IN CONSERVATION MASTER PLAN**

Figure 2.6

Revised: January 14, 2014

NOTE: Refer Figure 1.6 for description of all environmental management zones.

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Coves ESA Trail Management Area – East Pond

Key Trail Management Actions

- improve trail surfaces for public use
- install boardwalk along wet sections of trail
- establish canoe launch
- create overlook at Sycamore tree
- establish parking area at access point
- install signage at access point showing trail locations and ESA “do’s and don’ts”
- close multiple trails and restore natural vegetation

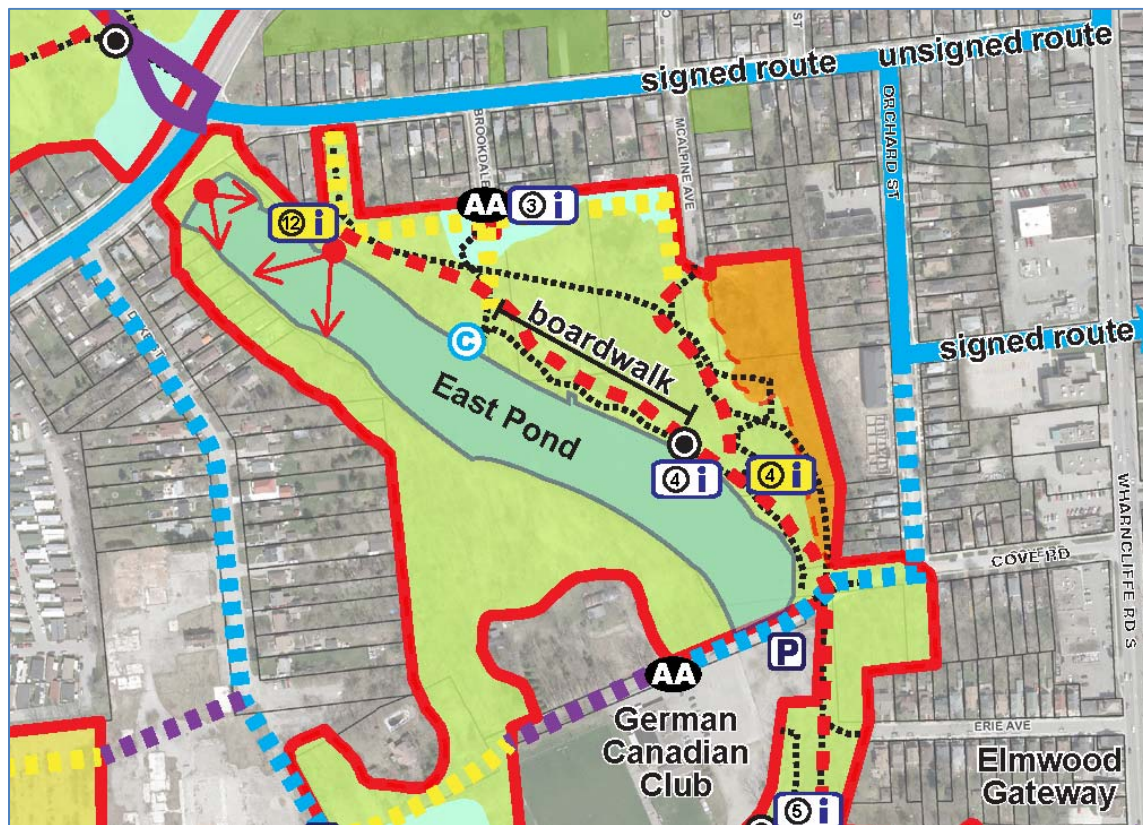
Historical Features

- location of Jeffery Estate (ca. 1918 to 1990)
- former site of ice houses and ice harvesting from the East Pond

Natural Features

- location of rare Hackberry Woodland
- location of distinctive Sycamore tree

Note: see main map for legend to map section shown below

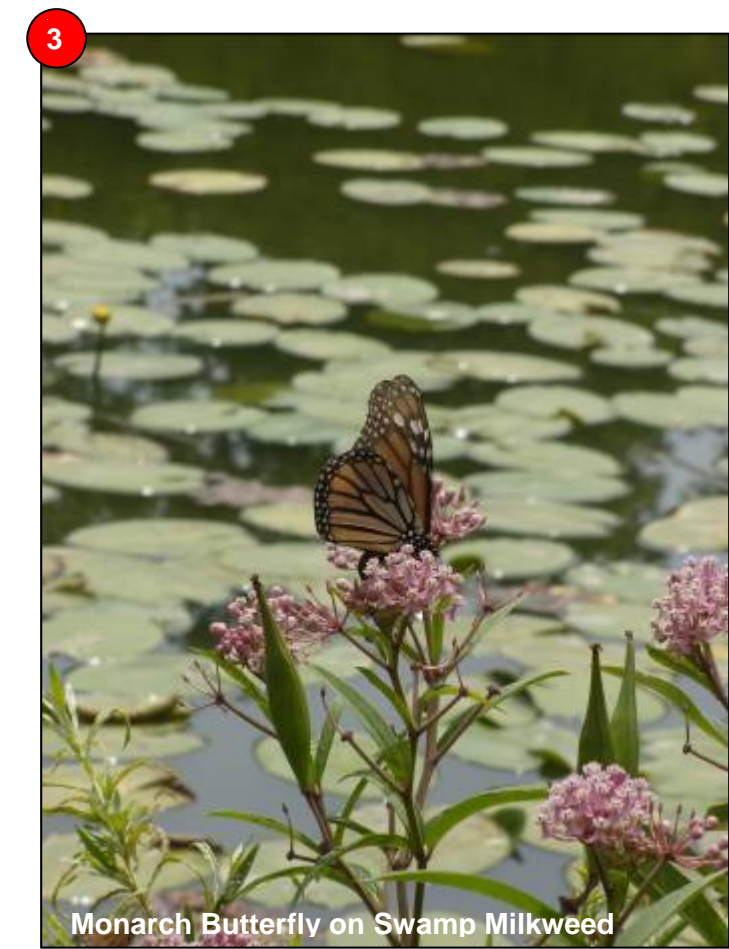




| Legend | | |
|---|-------------------------------|---|
| <div></div> Ecological Land Classification (see text for description) | <div></div> Invasive Species | <div></div> Parcel Fabric |
| <div></div> Significant Species and Habitat | <div></div> Fish | <div></div> Streams |
| <div></div> Hackberry (S4) | <div></div> Plants | <div></div> London Coves Existing ESA Boundary (Official Plan Schedule B-1) |
| <div></div> Deer Bedding Area | <div></div> Management Issues | <div></div> Photo Reference |
| <div></div> Vernal Pool | <div></div> Encroachment | |

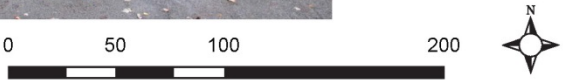
Environmental Features and Concerns within East Pond

- plant and animal species inventory and wildlife habitat assessment
- rare vegetation community type FOD4-3 Dry-Fresh Hackberry Deciduous Forest
- identification of areas of encroachment from surrounding land uses
- wetland habitat and shoreline areas impacted by trampling
- suitable vernal pools are present to support breeding amphibians, however, amphibian surveys recorded few species and low abundance
- open water aquatic habitat is impacted by exotic carp creating turbid water conditions with limited aquatic vegetation
- there are opportunities to restore and enhance the aquatic environment





- A. Existing mown trail link exists between A and B. The trail and existing vegetation is being well maintained and should be retained. The trail is not well defined from Springbank Drive nor is there a defined access point. Trail proposed to link to sidewalk network.
- B. An opportunity for an alternate linkage between A and B could utilize existing easements.
- C. In order to protect natural heritage features a linkage from location C to D should not be considered. Existing trails should be closed in this area.
- D. Potential trail improvements could provide mitigation from impacts to the natural environment in this location and provide safer passage in this seasonally wet lowland. A trail through this section would be considered secondary. There are opportunities for sections of a proposed trail through this area to be accessible. Short sections of boardwalk may also be required through this area. A pond-side trail would require a 15m setback from the edge of the pond to minimize safety and management concerns ie. ice build-up at edge in winter, washout of trail.



LONDON COVES ESA INVENTORY

East Pond Woods

LEGEND

- Open Space
- Proposed London Coves ESA
- Existing Trails

- 10 Photo Reference
- Slopes / Trail Implications
 - 0-5% (site specific trail design)
 - 5-15% (trail improvement)
 - 15-25% (trail relocate / trail improvement)
 - >25% (close trails)

**EXISTING TRAIL ISSUES TO BE ADDRESSED
IN CONSERVATION MASTER PLAN**

Figure 2.1

Revised: January 14, 2014

NOTE: Refer Figure 1.1 for description of all environmental management zones.

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Coves ESA Trail Management Area – Elmwood Gateway

Key Trail Management Actions

- establish a connection from Elmwood Gateway to Coves ESA
- establish north to south connection within Coves ESA
- establish overlook
- establish parking area at access point adjacent to German Canadian Club
- install signage at access point showing trail locations and ESA “do’s and don’ts”
- close trails and restore natural vegetation where excessive erosion has occurred

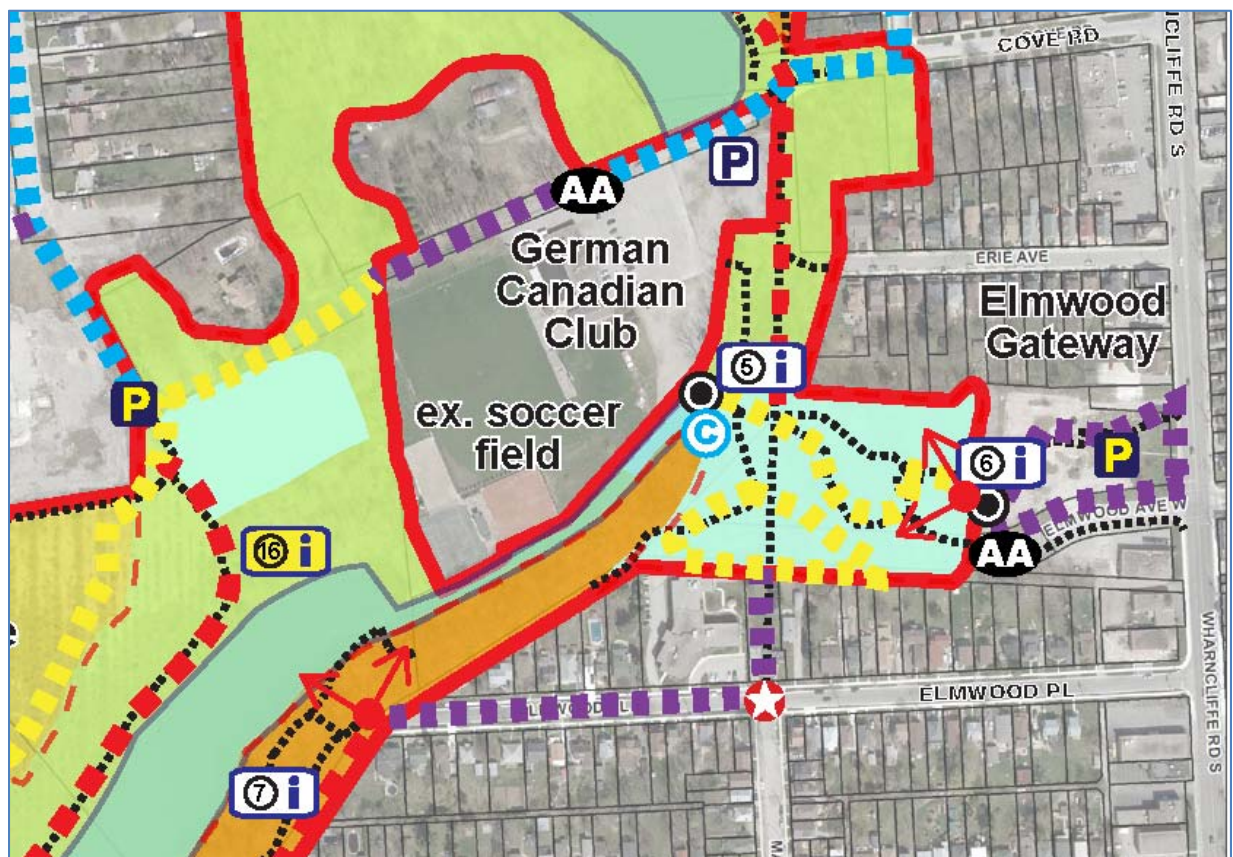
Historical Features

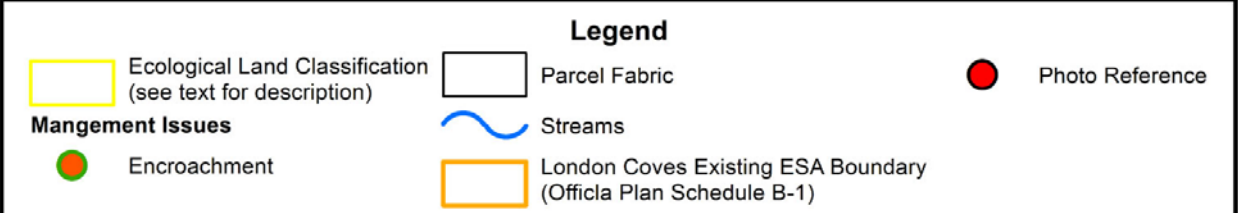
- curling was formally played on the South Pond

Natural Features

- opportunity for interpretation of stormwater management and Low Impact Development

Note: see main map for legend to map section shown below





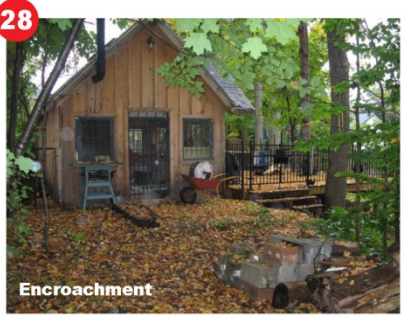
Environmental Features and Concerns within Elmwood Gateway

- plant and animal species inventory and wildlife habitat assessment
- a natural corridor maintains ecological linkage through wooded areas connecting the East Pond and South Ponds
- opportunities for restoration associated with Elmwood Gateway
- areas of significant trampling, erosion, and root exposure on steep slopes
- some areas of significant encroachment from surrounding land uses
- a stormwater outfall may reduce water quality of the Central (South) Pond
- a hydrologic connection conveys water from the East Pond to South Pond
- very steep wooded slopes adjacent to residential areas at the top of slopes





- A. Opportunity for looped accessible trail in Elmwood Gateway with linkage to ESA. Requires traversal of steep slope. Geotechnical investigation required. The proposed parking facility has potential for showcasing Low Impact Development features ie. biofiltration of run-off, permeable paving etc.
- B. Steep slopes in this area require stairway and/ or ramp structure to provide access to valley floor. Slopes are prone to erosion and is evident in many areas. A proposed structure with interpretive potential could be located at the existing SWM facility. Encroachment is an issue with surrounding private residences in this area.
- C. An informal trail follows the base of the valley slope and traverses seepage sites. A proposed trail should be positioned away from the toe of bank to minimize impact to existing vegetation as well as the potential to destabilize the slope during construction.
- D. A flat open space behind the retirement residence provides an opportunity for a loop trail.



LONDON COVES ESA INVENTORY Elmwood Gateway

LEGEND

- Open Space
- Proposed London Coves ESA
- Existing Trails

- 10 Photo Reference
- Slopes / Trail Implications
- 0-5% (site specific trail design)
 - 5-15% (trail improvement)
 - 15-25% (trail relocate / trail improvement)
 - >25% (close trails)

EXISTING TRAIL ISSUES TO BE ADDRESSED IN CONSERVATION MASTER PLAN

Figure 2.2

Revised: January 14, 2014

NOTE: Refer Figure 1.2 for description of all environmental management zones.

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Coves ESA Trail Management Area – Briscoe Woods & Murray Park

Note – the old orchard area is not currently in public ownership, option 2 trail linkage recommendations are provided should the City acquire the old orchard area in the future

Key Trail Management Actions

- improve north to south trail connections
- formalize on-road trail connections
- improve trail surfaces for existing trails
- establish accessible loop trail in Briscoe Woods
- establish overlooks to view South and West Ponds
- establish parking area at access point
- install signage at access point showing trail locations and ESA “do’s and don’ts”
- close trails and restore natural vegetation where excessive erosion has occurred

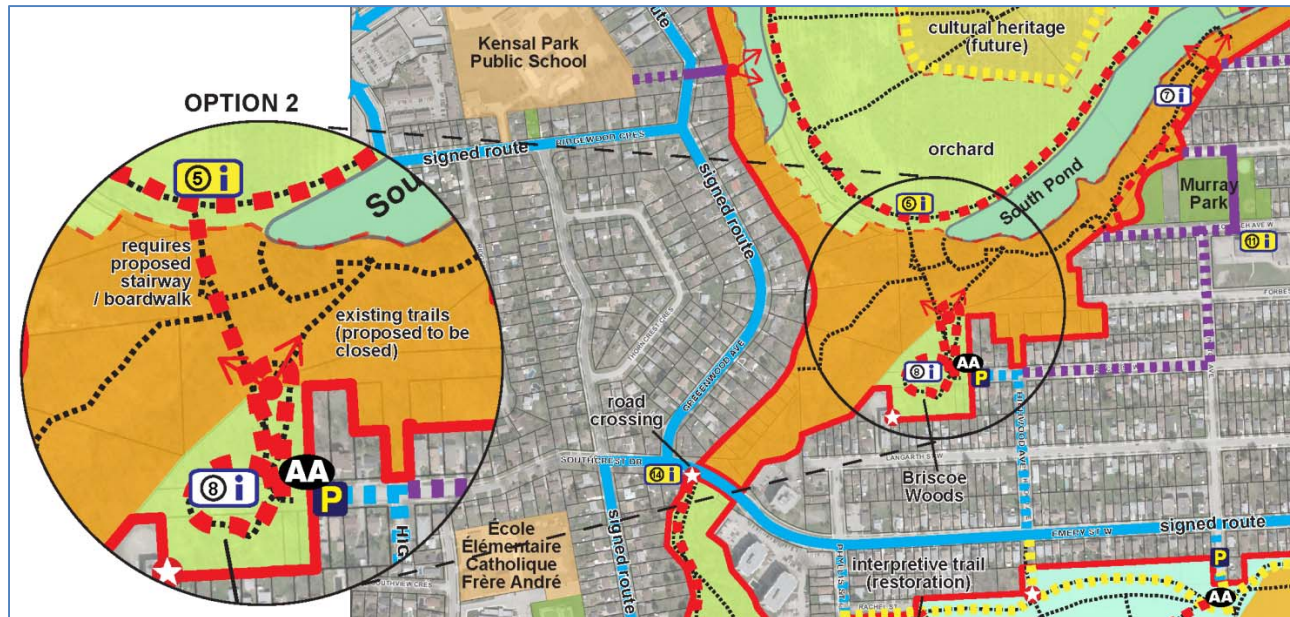
Historical Features

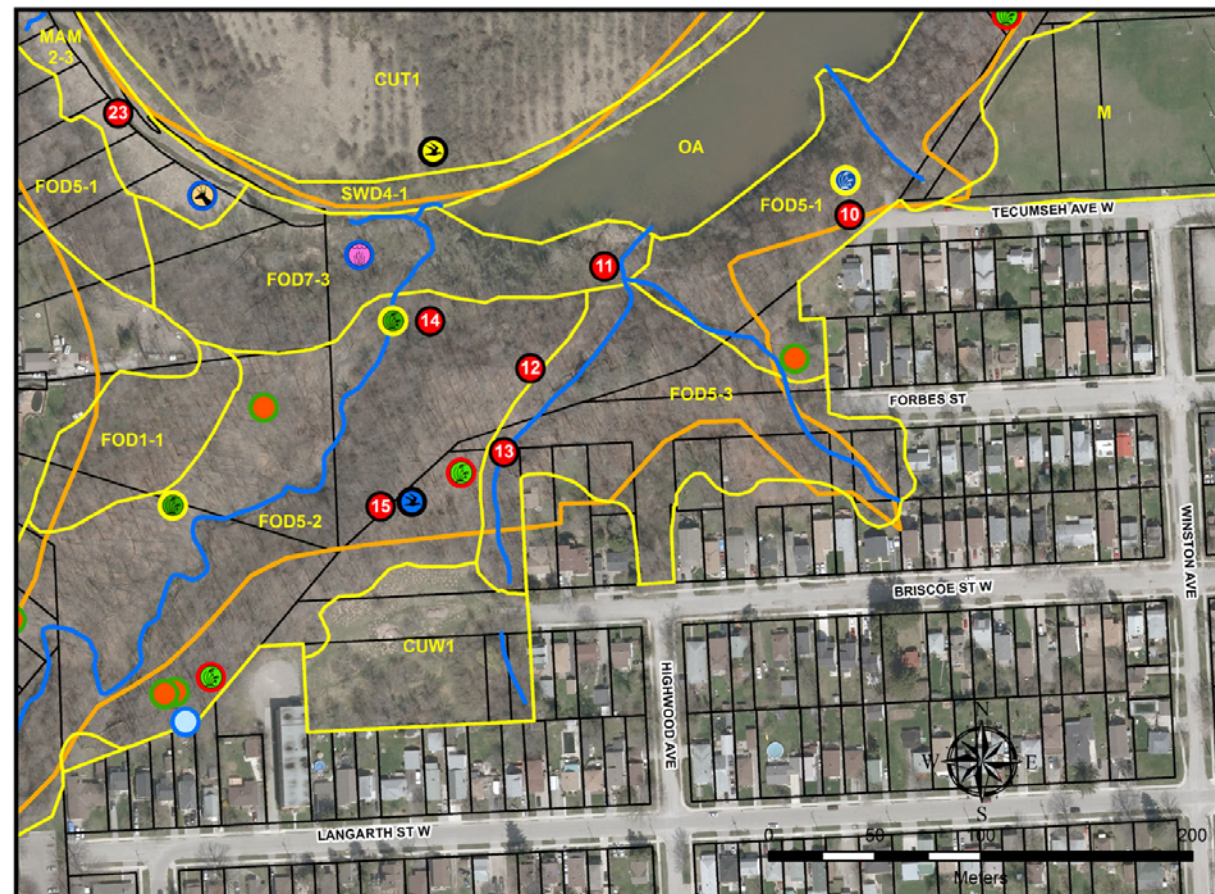
- view of area previously used for rifle range (ca. 1900 to 1950)
- view of area likely used when Lord Simcoe first camped in the area

Natural Features


- woodland present on steep slopes of historic glacial valleyland
- importance of the role of vegetation in the stabilization of soil on steep slopes

Note: see main map for legend to map section shown below







Legend

 Ecological Land Classification
(see text for description)

Significant Species and Habitat

-  Chinquapin Oak (regionally uncommon; S4)
-  Hackberry (S4)
-  Field Sparrow (L3)
-  Ovenbird (L4; area-sensitive)

Significant Species and habitat (con't)

-  Deer Bedding Area
-  Vernal Pool


Invasive Species

- 
- Plants

Mangement Issues

-  Encroachment

☐ Parcel Fabric

 Streams


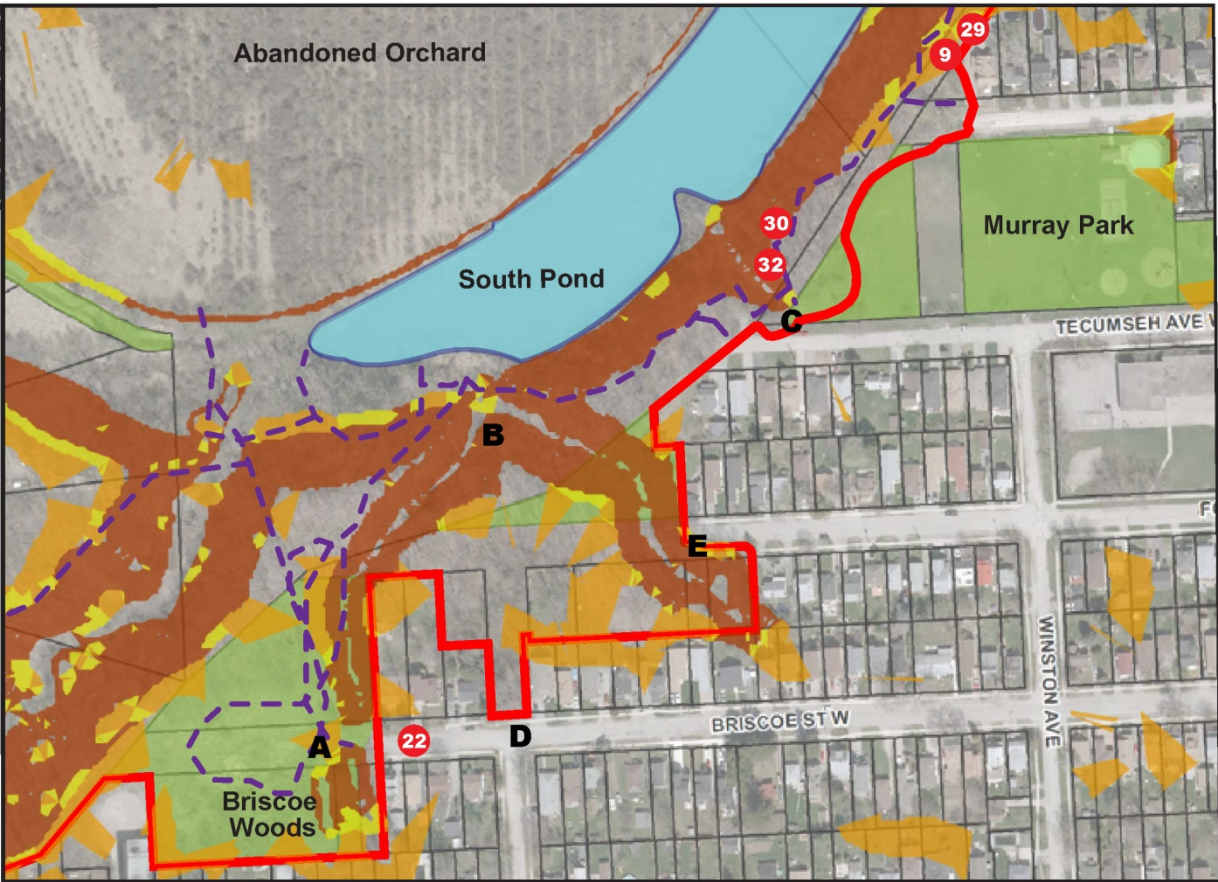
 London Coves Existing
ESA Boundary (Official
Plan Schedule B-1)

 Photo Reference

Environmental Features and Concerns within Briscoe Woods Park

- plant and animal species inventory and wildlife habitat assessment
- narrow steep sided wooded valleys convey surface water runoff through Silver Creek and other small tributaries to the Coves ponds
- a large area of regenerating Cultural Woodland (CUW1) is present on tableland at the end of Briscoe St W.
- steep slopes and a general lack of easy access protect areas of woodland that provide habitat for plants, birds and other animals such as deer





- A. Lack of parking. Existing guard rail. Earthen trails throughout tableland and traverse steep valley slopes causing some erosion and soil compaction.
- B. Undercutting of soils on slope resulting in exposed roots and some minor erosion.
- C. An existing informal trail accessed from the park follows the top of the bank along a very steep slope. The trail meanders in locations to avoid piles of yard waste. Some informal structures have been built to avoid seepage areas.
- D. Existing dense canopy and undersotrey preclude access to this area. Narrow green space dead ends in two sharply incised gullies which prevent access.
- E. Gully is steeply incised and inaccessible from end of road. Some illegal dumping evident. Invasive species present at edge.



LONDON COVES ESA INVENTORY

Southcrest Ravine - Northern Portion

LEGEND

- Open Space
- Proposed London Coves ESA
- Existing Trails

10

Photo Reference

- Slopes / Trail Implications
- 0-5% (site specific trail design)
- 5-15% (trail improvement)
- 15-25% (trail relocate / trail improvement)
- >25% (close trails)

**EXISTING TRAIL ISSUES TO BE ADDRESSED
IN CONSERVATION MASTER PLAN**

Figure 2.3

Revised: January 14, 2014

NOTE: Refer Figure 1.3 for description of all environmental management zones.

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Coves ESA Trail Management Area – Euston Meadows (previously Euston Park)

Key Trail Management Actions

- re-route trails around area protected for Eastern Meadowlark
- improve trail surfaces for existing trails designated Level 2
- establish parking area at access point
- install signage at access point showing trail locations and ESA “do’s and don’ts”
- stop mowing trails designated for closure

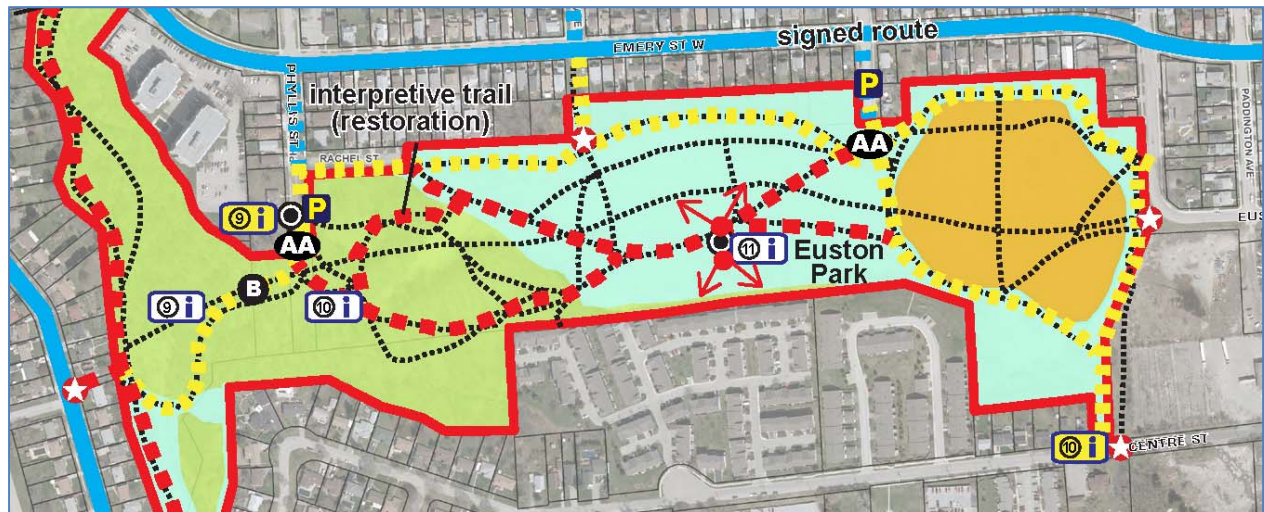
Historical Features

- Chestnut Hill, Residence of Andrew Weldon (1870 to present)
- historic landfill site for City of London

Natural Features

- large area of open habitat
- breeding habitat for Threatened Eastern Meadowlark

Note: see main map for legend to map section shown below



Coves ESA Trail Management Area – Southcrest Ravine

Key Trail Management Actions

- improve east to west trail connection
- install trail crossing at Silver Creek
- improve trail surfaces for existing trails
- establish parking area at access point
- install signage at access point showing trail locations and ESA “do’s and don’ts”
- close trails and restore natural vegetation where excessive erosion has occurred

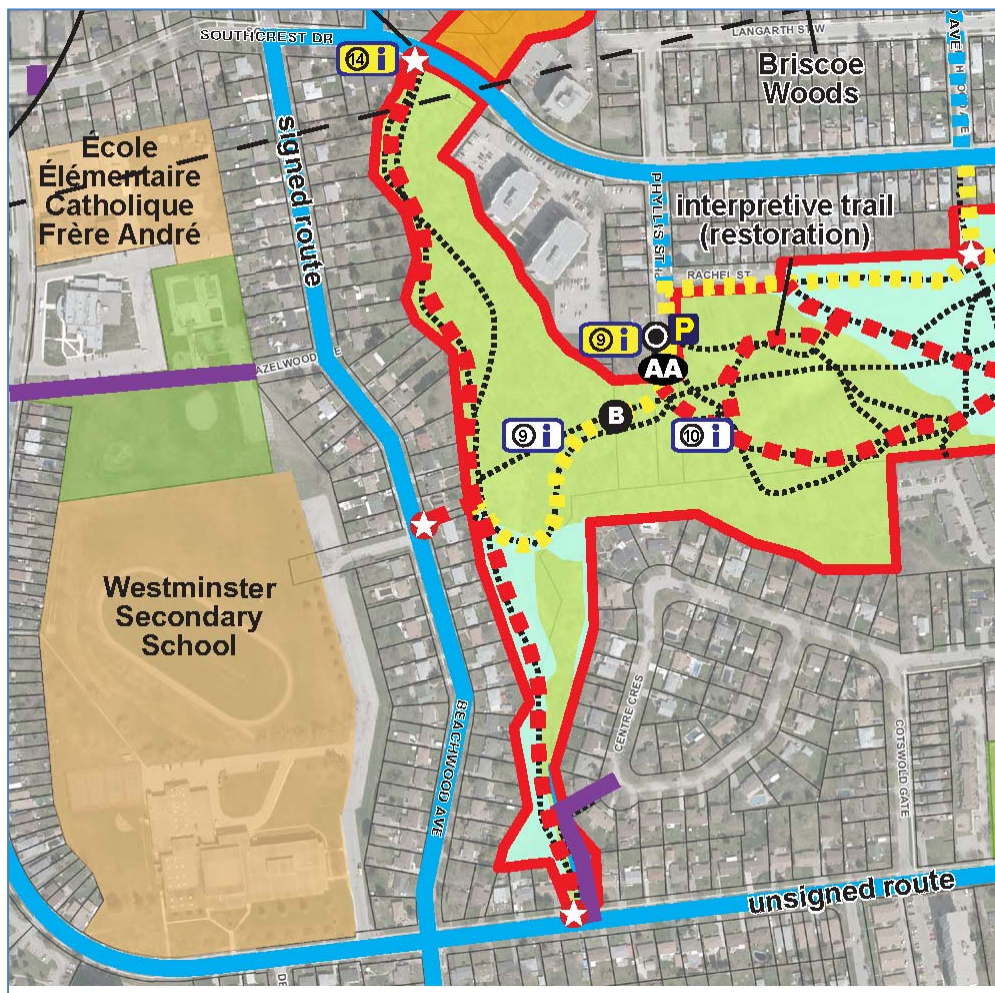
Historical Features

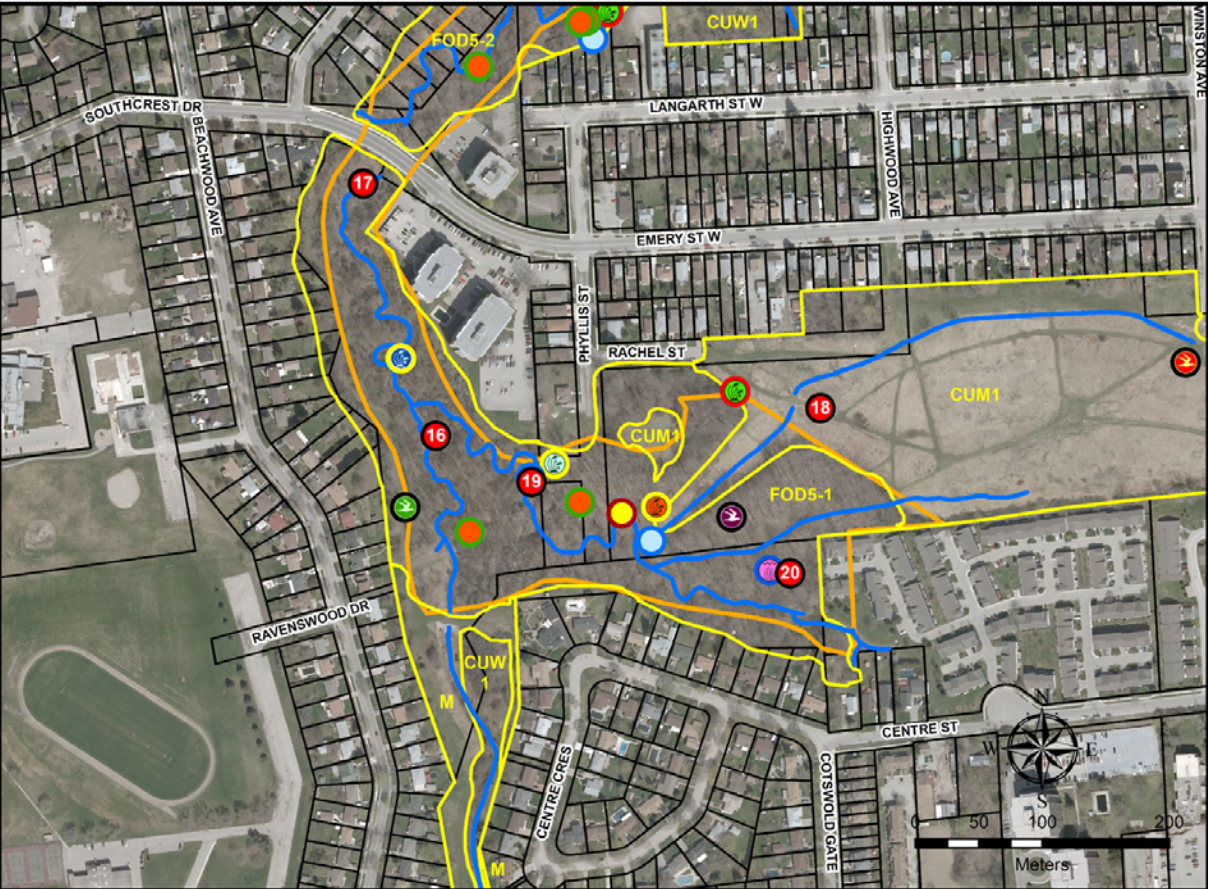
- location of Bowman Site
- location of 264 Greenwood Drill Grounds

Natural Features

- large area of woodland present on steep slopes along Silver Creek
- example native tableland woodland vegetation

Note: see main map for legend to map section shown below





| Legend | | |
|---|---|---|
| <div></div> Ecological Land Classification (see text for description) | Significant Species and Habitat (con't) | Management Issues |
| Significant Species and Habitat | <div></div> Black-throated Green Warbler (L2; area-sensitive) | <div></div> Encroachment |
| <div></div> Butternut (endangered; S3?) | <div></div> Magnolia Warbler (L1; area-sensitive) | <div></div> Erosion |
| <div></div> Hackberry (S4) | <div></div> Savannah Sparrow (L1; area-sensitive) | <div></div> Parcel Fabric |
| <div></div> Showy Tick-trefoil (S4) | Invasive Species | <div></div> Streams |
| <div></div> Vernal Pool | <div></div> Plants | <div></div> London Coves Existing ESA Boundary (Official Plan Schedule B-1) |
| | | <div></div> Photo Reference |

Environmental Features and Concerns within Southcrest Ravine – Southern Portion

- plant and animal species inventory and wildlife habitat assessment
- deeply incised ravines and wooded slopes create unique urban valley system
- large area of open habitat associated with Euston Meadows
- large water flows in Silver Creek lead to excessive erosion with impacts to ravine woodland and siltation of Coves ponds





- A. A number of access points and redundant informal trails within Euston Park. Closure of a number of redundant mown trails in landfill area should be considered in lieu of edge trails which create a loop and are easily accessible from surrounding areas. Opportunities in Euston park include: off leash dogwalking area, interpretive and viewing nodes, informal parking areas at access points and passive walking trails.
- B. Potential for linkage from ESA to nearby school École Élémentaire Catholique Frère André. This would require a boardwalk/ bridge over the creek including restoration works to creek banks and slope. Any proposed trail alignments in this area should follow existing trail disturbances.
- C. Potential for accessible trail between location C and E along rear lots in mown area. Some existing encroachment issues may require management. Some sections may require privacy screening.
- D. A trail linkage between B to D not recommended as traverses undulating terrain, low lying areas and good quality forest habitat. Opportunity for linkage/ access to the private condo complex. Requires discussion with the private owner.



LONDON COVES ESA INVENTORY
Southcrest Ravine - Southern Portion

LEGEND

- Open Space
- Proposed London Coves ESA
- Existing Trails

- 10 Photo Reference
- Slopes / Trail Implications
- 0-5% (site specific trail design)
 - 5-15% (trail improvement)
 - 15-25% (trail relocate / trail improvement)
 - >25% (close trails)

**EXISTING TRAIL ISSUES TO BE ADDRESSED
IN CONSERVATION MASTER PLAN**

Figure 2.4

Revised: January 14, 2014

NOTE: Refer Figure 1.4 for description of all environmental management zones.

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Coves ESA Trail Management Area – Old Orchard

Note – this area is not currently in public ownership, trail recommendations are provided should the City acquire the old orchard area in the future

Key Trail Management Actions

- establishment of a loop trail
- establishment of an accessible loop trail
- establishment of a cultural heritage interpretation
- possible north to south connection to Briscoe Woods
- establish parking area at access point
- install signage at access point showing trail locations and ESA “do’s and don’ts”
- close trails and restore natural vegetation to establish large contiguous undisturbed natural area

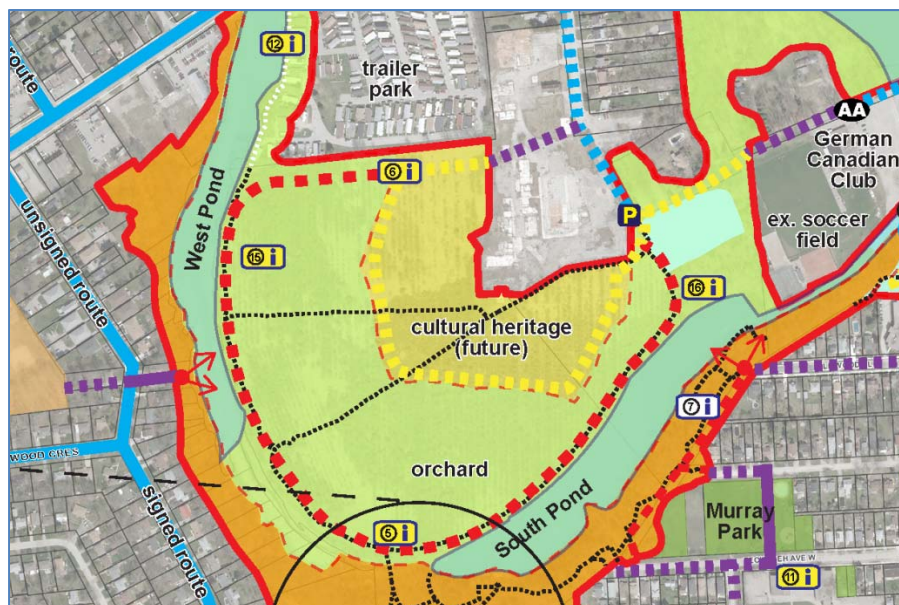
Historical Features

- area previously used for rifle range (ca. 1900 to 1950)
- area likely used when Lord Simcoe first camped in the area
- curling was formally played on the South Pond
- former site of ice houses and ice harvesting from the Coves’ Ponds
- area of First Nation agricultural use
- area of European settlement and farming

Natural Features

- large area of successional habitat associated with old orchard
- centre of historic formation of oxbow in Thames River
- opportunity for interpretation of stormwater management and Low Impact Development
- view of surrounding steep slopes associated with glacial valleyland

Note: see main map for legend to map section shown below





- Environmental Features and Concerns within South Pond and West Pond**
- woodland buffered by the Coves Ponds and adjacent abandoned orchard protects significant woodland areas which provide habitat for area sensitive forest birds
 - abandoned orchard provides an excellent opportunity for ecological restoration
 - steep valley walls are sensitive to trampling leading to erosions and root exposure
 - limited areas of tableland woodland present at the top of slopes

21

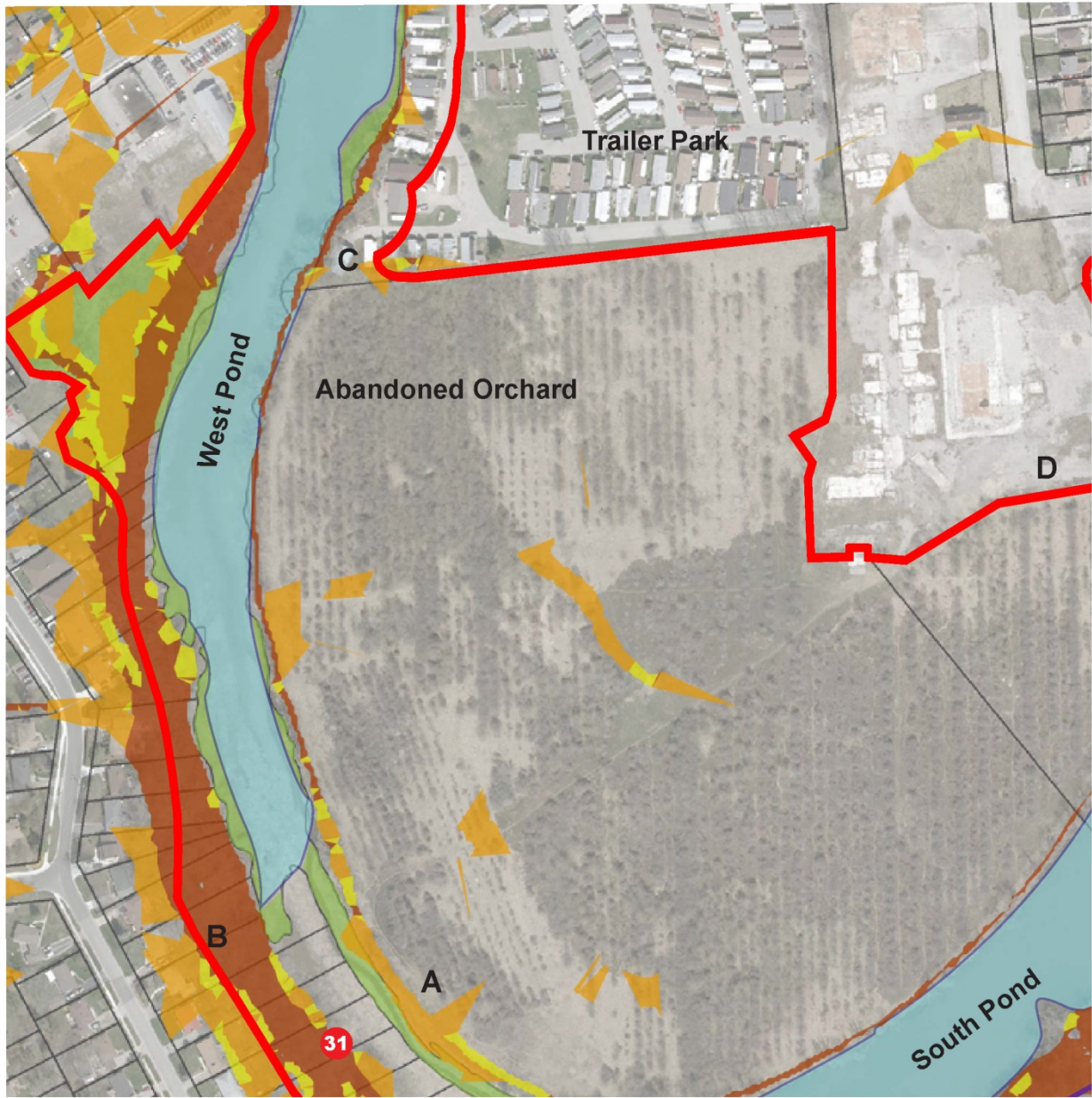


22



23





- A. Potential to locate a pond-side trail. Existing informal trail currently exists at the top of the east bank of the West Pond. Opportunity for cultural heritage interpretation of the existing orchard. The existing landform and vegetation of the Coves ESA and stormwater management initiatives in this areas could also be interpreted.
- B. Valley slope west side of the pond is steeply incised and therefore not suitable for trails. Private ownership of lands within ESA requires that informal trail creation and encroachment issues be managed.
- C. Potential to extend the trail to Springbank Drive from A along the bank of the pond with approval from the Trailer Park operator.
- D. A potential shared parking arrangement with the German Canadian Club could service these trails. This opportunity is contingent on acquisition or partnership.



LONDON COVES ESA INVENTORY
Southcrest Ravine - Central South Pond

LEGEND
Open Space
Proposed London Coves ESA

10 Photo Reference
Slopes / Trail Implications
0-5% (site specific trail design)
5-15% (trail improvement)
15-25% (trail relocate / trail improvement)
>25% (close trails)

**EXISTING TRAIL ISSUES TO BE ADDRESSED
IN CONSERVATION MASTER PLAN**

Figure 2.5

Revised: January 14, 2014

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Future Trail Planning for the Coves ESA

Ecosystem Approach applied to Trail Planning in ESAs

The City of London Official Plan promotes an ecosystem approach to environmental planning. This approach, applied to trail planning, must recognize the dynamic nature of ecosystems and the potential for ecosystems to change over time following a trajectory determined in large part by natural and human-induced stresses that are placed on the system. The introduction of new trails of any type into a natural area where none previously existed must be recognized as a new stress on the ecosystem that will result in some unavoidable ecological effects associated with a semi-permanent to permanent trail facility and the presence of trail users. A trail system that is well planned and designed sustainably can mitigate disturbances to the environment by avoiding the most sensitive portions of natural areas, utilizing sustainable construction techniques and by providing users a defined path with education opportunities and varied user experiences. In this way new trails should not result in any permanent loss of natural features or ecological functions.

Research on natural area trail impacts has demonstrated that a properly managed trail system will limit the areal extent and severity of recreation impacts by concentrating traffic on resistant trail surfaces and through the use of appropriate structures such as bridges, fences, and boardwalks (Leung & Marion 2000). Depending on the type of trail system developed, the visitor experience may vary from one that is primitive and intimate with nature to one that is more developed and separate from nature (Stankey and Schreyer 1987; Hendee and Dawson 2002). Within ESAs, it is the intent to continue to create trail systems that protect key ecological features and functions while permitting passive nature-based recreation appropriate to the natural setting.

Goals and Objectives for Future Trail Concept Planning in the Coves

The goal of a trail plan is to protect the natural features and functions of the ESA, while also providing a connected system of trails that enables visitors access to different landscape settings affording a variety of experiences, educational opportunities and interpretive programming.

Some of the objectives that may be used in future trail planning for the Coves ESA include:

- Minimization of risk to public safety;
- Provision for accessible trails where feasible;
- Establish connections to the Thames Valley Parkway and neighbouring trail systems;
- Development of trails that protect the natural features and functions of the ESA, and provision for controlled use and access through marked trails, interpretive signage and compatible passive recreational opportunities;
- Promotion of passive, nature-oriented pathways and trails within the Coves ESA that support healthy lifestyles, promote wellness, provide for affordable, unstructured recreational pursuits, promote tourism opportunities; and foster cultural and natural heritage appreciation.
- Consultation with the Upper Thames River Conservation Authority (UTRCA) for advice and assistance in obtaining permits that may be required pursuant to the Conservation Authorities Act.
- Employment of the services of a geotechnical engineer (consistent with Official Plan policies under section 15.7.6) to verify existing slope conditions within the Riverine



Erosion Hazard Limit where either existing ad hoc trails are proposed to remain accessible or new trails are planned;

- Where possible incorporate existing informal trails that provide passive recreation opportunities where these trails are safe and where they would not result in negative impacts to natural heritage features and functions;
- Where trails are to be planned or remain accessible within hazard lands regulate trail development and public access in accordance with provisions set out in the London Official Plan and the Conservation Authorities Act;
- Trails should be set back from the edge of ponds and drainage features and outside the flood line to minimize safety and management concerns (e.g. impacts to natural features, prevention of ice build-up and avoidance of flooding);
- Where possible trails may be positioned to utilize the six (6) metre erosion access allowance identified in the Official Plan 15.7.1. i) (d) added to the valley top of slope or the combined toe erosion and stable slope allowances, required for the purposes of providing sufficient access for emergencies, maintenance and construction activities.
- Trails may incorporate nodes coincident with unique points of interest, outlooks and access (e.g. vantage points that provide look outs, canoe launch, major trail intersections);
- Trail planning should identify ad hoc trails for closure that located within significant/sensitive areas (e.g. nature reserve zones, steep slopes, wetlands, areas of existing high impact);
- Where existing trails are proposed to remain open, where necessary re-route trails to avoid sensitive natural features and provide improvements utilizing techniques designed to mitigate disturbance to sensitive environments including boardwalks, minor footbridges, pipe culverts or clearstone base material to promote cross drainage;
- Where trail improvements are proposed, restoration should include the planting of appropriate indigenous plants;
- Where necessary, use natural materials that mimic natural conditions;
- Implementation involving trail construction should specify an acceptable zone of disturbance to minimize impacts to vegetation and wildlife;
- Where aggregate is recommended for trail improvements to trail base or surfacing that the aggregate be free from fines to prevent siltation within natural areas;
- Trail planning consider looped trails where possible for safety and evacuation;
- Integration of sustainable and Low Impact Development (L.I.D.) initiatives where possible in the development of new trails and ancillary facilities i.e. parking areas;
- As identified in the Official Plan develop stewardship and encroachment agreements with neighbouring private land owners and/or acquire private lands as necessary to secure important trail linkages; and
- Trail planning should maximize opportunities for education, interpretation and cooperation with nearby schools \ i.e. outdoor classrooms.

Future Trail Concept Planning

The design and implementation of a trail system through the Coves ESA can provide enhanced recreational opportunities, neighbourhood connectivity, improved serviceability and in some cases all-season accessibility, encouraging the responsible use of the ESA by the community. However, it is also recognized that a trail system needs to be integrated into the overall management strategy for the ESA warranting a balanced approach to trail design which establishes key connections while respecting ecological sensitivity.



It is envisaged that potential future impacts resulting from increased use of the area will need to be mitigated through the implementation of a sensitively designed, functional trail system that accommodates demands for recreational use within the Coves ESA and surrounding area.

The trail system can be viewed as a mitigative measure to ‘steer’ users down the right path and out of sensitive environments. Within urban settings natural areas are often accessed from anywhere possible and quite often the local community enjoys walking off leash dogs. Controlling this behavior is not always possible by simply planning the right trail system fencing may be required in order to reduce the desire to access an area off the trail.

Nonetheless, there are ways in which trails can form an essential component of forest impact mitigation. These include:

- Reducing potential impacts to ground flora from ad hoc trail creation;
- Planning alignments thus minimizing compaction and preventing root exposure of trees;
- Preventing erosion that may impact natural area and watercourses;
- Enabling access to varied upland and lowland forest communities to provide varied experiences of nature as well as educational opportunities; and
- Providing signage to help educate and generate respect and an understanding of the complex and fragile natural processes in different landscape settings.

It is envisaged that a trail network for the Coves will include signage which could be integrated as part of a stewardship program or educational strategy potentially reaching out to casual trail users as well as school groups, summer camps and local interest/community groups. The routing of low impact trails (boardwalks) through the more sensitive areas could provide more intimate experience within the Coves ESA as well as interpretive opportunities and should encourage environmental stewardship.



THE COVES ENVIRONMENTALLY SIGNIFICANT AREA CONSERVATION MASTER PLAN

Section 5 – Monitoring Framework for the Coves ESA



Female Northern Flicker - Yellow Shafted

Photo Credit – Andrew Jackson (www.ontariowildlife.net)



THE COVES ENVIRONMENTALLY SIGNIFICANT AREA CONSERVATION MASTER PLAN

SECTION 5 –MONITORING FRAMEWORK FOR THE COVES ESA

Adaptive Management Approach

Establishment of baseline conditions in a CMP initiates implementation of an adaptive management approach. Baseline data as outlined in Section 2 provides a benchmark against which objectives related to ecosystem protection, environmental policies and management can be measured to ensure activities are sustainable and effective. The key to effective adaptive management is to implement rigorous monitoring and evaluation to ensure ecological objectives are being maintained while achieving community and social objectives.

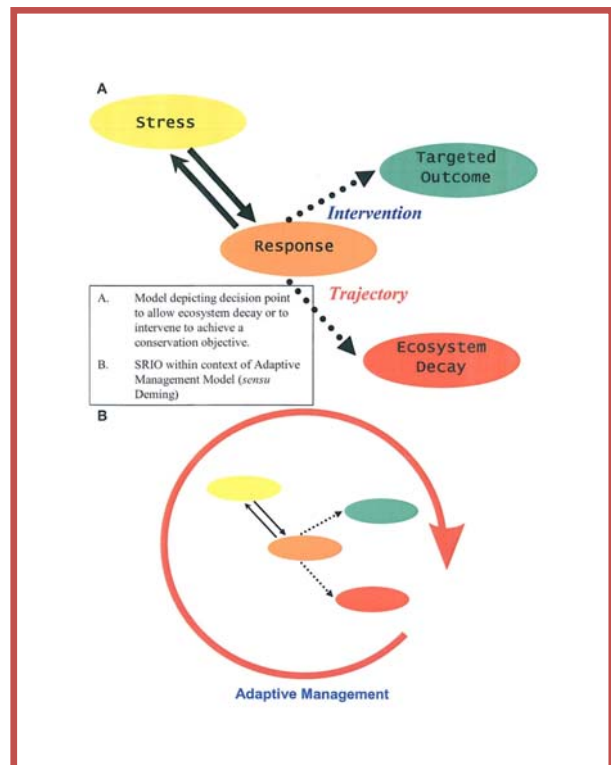
Adaptive Management – is a structured, iterative process of optimal decision making in the face of uncertainty regarding the effectiveness of our actions in achieving desired objectives – due to either gaps in our understanding or changes in the ecosystems we are trying to manage. Adaptive management provides a way to systematically reduce uncertainty over time via system monitoring and management intervention (Holling 1978; Murray and Marmorek 2004).

Monitoring Framework

Managing natural ecosystems involves evaluating existing conditions and current use through a decision framework such as the *Limit of Acceptable Change* (Cole and Stankey 1998) or the *Stress-Response-Intervention-Outcome* adaptive management framework (Bergsma and De Young 2007). These frameworks guide decisions about the acceptability and management of restoration initiatives, user impacts or ongoing management. Identification of an acceptable limit or targeted outcome establishes thresholds for permitted uses (e.g. trails) such that recreation use does not compromise protection of the resource beyond a minimally acceptable condition (Cole and Stankey 1998) that will contribute to ecosystem decay.

Monitoring begins by understanding the current conditions of an area to establish a baseline. Degraded areas require management plans for restoration and trail system improvements that are then monitored to track the success of management in achieving acceptable baseline conditions. The baseline of healthy natural areas must be monitored to ensure use of the trail system does not result in environmental impacts over time. Monitoring requires the regular collection of information that is analyzed to report on changing conditions over time (Marion 2008).

The table below identifies variables for monitoring, methods for monitoring, implementation partners, priorities and potential management responses.



| Monitoring Variable | Indicator Type | Monitoring Methods | Implementation Partners & Cost | Priority | Management Response |
|---|--|--|--|----------|--|
| Birds & Bats | • biodiversity & habitat conditions | • casual & targeted surveys by plant community type | <ul style="list-style-type: none"> • Friends of the Coves • McIlwraith Field Naturalists of London • City of London • Low cost | Moderate | Review every 5 years and meet to discuss changes |
| Amphibians | • water quality & habitat quality | • casual & targeted surveys of ponds & wetlands | | Moderate | |
| Insects | • butterfly, dragonfly & damselfly biodiversity • pollinators | • casual & targeted surveys of open habitat, ponds & wetlands | | Moderate | |
| Fish | • water quality & habitat quality • invasive species | • casual & targeted surveys of ponds & fishers | | Moderate | |
| Spring Ephemerals | • biodiversity & high quality habitats | • casual off trail site walks • mapping/GPS locations | | Low | |
| Invasive Species | • degradation of native biodiversity | • on trails • transect inventory • mapping/GPS locations | | High | Prioritize and remove |
| Trampling/Erosion/ New Trails | • direct impact resulting in loss of habitat | • trail inventory • mapping/GPS locations | | High | Prioritize, restore, install signage |
| Encroachment/ Inappropriate Uses | • direct impact resulting in loss of habitat | • transect inventory • boundary walk • mapping/GPS locations | | High | Enforcement by City |
| Water Chemistry & Temperature | • aquatic habitat quality | • water sampling & testing | <ul style="list-style-type: none"> • Friends of the Coves • City of London • Moderate Cost | High | Work with City Engineering Department |



THE COVES ENVIRONMENTALLY SIGNIFICANT AREA CONSERVATION MASTER PLAN

Section 6 – Community Engagement in the Coves ESA



Newborn Canada Goose Goslings

Photo Credit – Andrew Jackson (www.ontariowildlife.net)



THE COVES ENVIRONMENTALLY SIGNIFICANT AREA CONSERVATION MASTER PLAN

SECTION 6 – COMMUNITY ENGAGEMENT IN THE COVES ESA

The City of London Planning and Design Standards for Trails in ESA's acknowledges the role of community engagement in natural areas protection and the trail planning process to build awareness, foster education and encourage participation in order to increase the capacity for creating a conservation culture that promotes natural areas as a common good and conservation as a collective responsibility.

The Friends of the Coves is a local community-based organization with the following mission statement:

We believe that the quality of life in our community is enhanced through the protection, conservation and wise stewardship of the Coves Subwatershed.

The Friends of the Coves initiated the completion of the Coves Subwatershed Plan (PEIL. 2004) and supports 59 recommendations for the protection, rehabilitation, and stewardship of the Coves Subwatershed.

The Friends of the Coves website provides access to important information and resources including the full length documentary "**Crusaders for the Coves**" <http://www.thecoves.ca/>

Stakeholder engagement and the implementation of management recommendations should be aligned with organizations such as *Friends of the Coves*, *Nature London*, and *UTRCA* as well as members of the local community. Community engagement should take place at a relatively high frequency, through meetings, events and the distribution of educational materials. Sufficient information should be provided to local residents and users of the ESA to enable them to recognize and understand environmental impacts and encroachment issues, including how to document observations and report issues so they can be corrected.

Community Events

Community events can assist in raising the profile of issues and unite communities in a common initiative. Many municipalities arrange "clean-up days" where the public volunteers time to remove debris and garbage from valued amenities such as streams and woodlands. Other themes could include tree planting or removal of non-native plants. These can be facilitated by the municipality perhaps also in cooperation with the local Conservation Authority through organization and guidance, provision of services such as removal of trash and debris once it is collected to a central location, providing garbage bags and basic tools (shovels, etc.), and recognizing participants' contributions. Such events also result in the public investing time and energy in the maintenance of natural features, thus increasing their value, raising support for allocating funds for maintenance and increasing the likelihood of enforcement of use guidelines through peer pressure.

Community events in which the Coves ESA can participate include:

- **Earth Day** – held in late April each year organized by the Upper Thames Conservation Authority



- **Gathering on the Green** – held in late April each year organized by the Old South Community Organization
- **Adopt an ESA** – program organized by the City of London, Parks Planning and Design (see copy of Adopt an ESA flyer below)
- **The Great Backyard Bird Count** – organized by Friends of the Coves
- **World Water Day** – an event promoted by the United Nations
- **Christmas Bird Count** – held between December 14 and January 5 each year organized by Bird Studies Canada
- **Thames River Clean** – held in April each year organized by Friends of the Thames River
- **London Clean and Green** – held in June each year organized by the City of London
- **Re-Forest London** – a non-profit organization partnering to enhance environmental and human health in the Forest City, through the benefits of trees.
- **Community Speaker Series** – held at local libraries

Involvement of Local Schools

Local primary and high school students represent an exciting opportunity to extend ecological knowledge and stewardship of the Coves trails and natural spaces within the community. There are several options for engaging youth in the implementation of aspects of the trail development and environmental management initiatives including:

- In-Class Presentation and Feedback
- Spring into Action Volunteer Opportunity
- 40-Hours of Fall/Spring Youth Engagement (in fulfillment of high school volunteer requirements)

The options can be implemented individually but are designed to build on one another to strengthen stewardship of the woodlands amongst school children and youth. By participating in a creative in-class presentation, having an opportunity to provide input to ongoing management, and fulfilling volunteering activities such those suggested below, students can better understand the need for the management of sensitive habitats, and become more involved in community efforts to enhance and protect the site.

There are a variety of benefits for the students who participate in this exercise as well as for the broader community and other stakeholders as summarized in the table below.

| Benefits for youth | Benefits for the Municipalities and other stakeholders |
|---|--|
| <ul style="list-style-type: none"> • Learn about the ecology of woodlands, watercourses, and natural area management • Develop a sense of environmental stewardship and ownership for the site • Provide volunteer efforts to contribute to on-going management • Fulfill community volunteer requirements for high school • Contribute to positive change in their community regarding conservation | <ul style="list-style-type: none"> • Interact with young people in positive, constructive ways • Build a stronger sense of an integrated community effort to preserve the site • Enhance the ecological integrity of a local green space • Contribute to programs that meet the needs and interests of youth |



The target audience for this initiative is both primary and high school students from schools in the vicinity of the Coves. In particular, Grade ten students are an ideal audience as the Grade ten science curriculum introduces sustainability of ecosystems as well as ecosystem and human activity, both of which could directly relate to the management of the Coves ESA and contribute to respectful use of trails.

To realize these initiatives will require a coordinating committee to liaise between City staff and participating schools and students to coordinate implementation and stewardship activities as well as supervise field activities as required. The intention is to work with students in order to develop a few community activities that they can work to fulfill the 40-hour requirement.

Some potential opportunities include:

- Partnering with a biologist or City staff to do monitoring;
- Helping to build railings or boardwalks;
- Creating interpretative signage; or
- Delivering the in-class presentation to the other local schools or community youth groups.

The final details of the 40-hour work plan would be developed in consultation with City staff and participating schools to ensure that the curriculum requirements are met. Local schools that may be engaged include:

- Kensal Park Public School
- École Élémentaire Catholique Frère André
- Westminster Secondary School
- Victoria Public School

Coves Centre of Excellence for Sustainability of Urban Natural Areas

The City of London could benefit from a Centre of Excellence intended to provide a focus on research and education programs and provide a living model of urban communities capable of sustaining significant natural and cultural heritage features and functions. The Centre could promote environmental, cultural and social themes that reconnect people to nature and provide opportunities for individuals to create a vibrant sustainable culture.

The Coves ESA, which is centrally located in the City, represents a potential opportunity for Friends of the Coves and the City of London to provide leadership in the engagement of a wide variety of stakeholders, (University, Boards of Education, Conservation Authority, Private Industry, Federal, Provincial and Local Governments, Non-government organizations, Community Organizations, etc.) to the vision for a Centre for Excellence a reality.

Ongoing support, political buy-in, benefactors and funding are required investments to make the Coves ESA best in can be.

Conservation Easements and Land Securement

The Coves ESA includes both public and private lands (see figure showing public land ownership below). Conservation easements and land securement are legal mechanisms for natural areas or natural heritage lands which through a range of land securement methods facilitate long-term protection of public and private land in perpetuity. These methods rely on landowners who are willing to participate in the process, however, landowners may not



appreciate the range of opportunities available to them and there is an opportunity therefore for the City (or other stakeholders) to share information about the legal mechanisms available

The advantage of conservation land securement is that there are a range of securement methods available to the City, its partners, and the landowner that can adapt to each securement project on a case-by-case basis. This creates a win-win solution that will benefit the environment and all parties.

Conservation land securement can be done by any organization where their focus is on land securement or land conservation issues. Implementation of a conservation land securement strategy is a lengthy process that relies on fostering relationships with landowners and coordinating the work necessary to initiate each securement project. Considering the diverse range of conservation land securement tools and processes, an experienced staff member or consultant is typically required to oversee implementation of the strategy.

Conservation land securement tools may include the following:

- **Land donation** – simple & direct
- **Split receipt** – donate all of land receive \$ value for a portion of land
- **Conservation severance** – sever & donate a portion of land owned
- **Bequest** – donate land & estate receives tax benefits
- **Life interest agreement** – commit to protection while owning land
- **Conservation easement agreement** – protection registered on title for perpetuity





Did you know?

Your volunteer and in-kind contributions could qualify for the SPARKS Neighbourhood Matching Fund of \$500 to \$5,000 towards your neighbourhood enhancement project.

www.london.ca/neighbourhoods

Adopt-an-ESA today

If you have any questions, or to submit your Adopt-an-ESA application:

- ▶ call our Ecologist Planner at: 519-661-2500 ext. 6494
- ▶ e-mail: lmcdouga@london.ca

☐ **Yes! I'd like to Adopt-an-ESA.**

Name: _____

Organization: _____

Phone: _____ E-mail: _____

Address: _____

City: _____ Postal Code: _____

ESA to adopt: _____








Gather
Protect
Love your ESA

Adopt-an-ESA is a program which partners the City of London with interested community groups, working together to improve the environmental integrity of our Environmentally Significant Areas through stewardship.

Groups of all types and sizes can Adopt-an-ESA

| | |
|----------------------------|--------------------|
| Service clubs | Local businesses |
| School groups | Faith groups |
| Hiking groups | Nature enthusiasts |
| Neighbourhood associations | |





Environmentally Significant Areas (ESAs) have beautiful natural features and perform ecological functions that warrant their protection in a natural state. City-owned ESAs have a purpose and function distinct from City parks as governed by the Official Plan. The City, in partnership with the Upper Thames River Conservation Authority (UTRCA), manages our ESAs; Kilally Meadows, Meadowlily Woods, Medway Valley Heritage Forest, Sifton Bog, Warbler Woods, Kains Woods, The Coves and Westminster Ponds / Pond Mills.

Any of our City-owned ESAs are eligible for 'adoption'. As our ESAs are so large, a section of the ESA can be identified.

Stewardship of your adopted ESA can include:

- ☐ Litter clean-up along managed trails
- ☐ Exotic / Invasive species removal
- ☐ Tree and shrub planting
- ☐ Observation and reporting of hazards



Your group agrees to:

- ▶ Work together with the City in coordinating projects
- ▶ Host a minimum of two stewardship days per year, spring and fall, for at least two years
- ▶ Consider hosting additional events and clean-ups throughout the year
- ▶ Record volunteer hours and activities




The City agrees to:

- ▶ Provide the tools you'll need for a successful stewardship day – including garbage bags, gloves, first aid kits, safety equipment, vests and safety information
- ▶ Help with any inquiries, assistance or guidance you may need
- ▶ Erect an Adopt-an-ESA sign with your group's name on it, recognizing your commitment to stewardship of the ESA
- ▶ Supply volunteer agreement, registration & waiver forms
- ▶ Assist with the purchase of trees, shrubs and provide guidance and expertise on ecological restoration
- ▶ Remove filled garbage bags from the ESA after you finish





The ESA and our whole community benefits

Adopting an ESA:

- ▶ strengthens your connection to your neighbourhood and nature
- ▶ brings your group together for a common goal – a great way to team build
- ▶ gives you pride through actively benefiting your community
- ▶ increases the environmental quality and stewardship of our ESAs

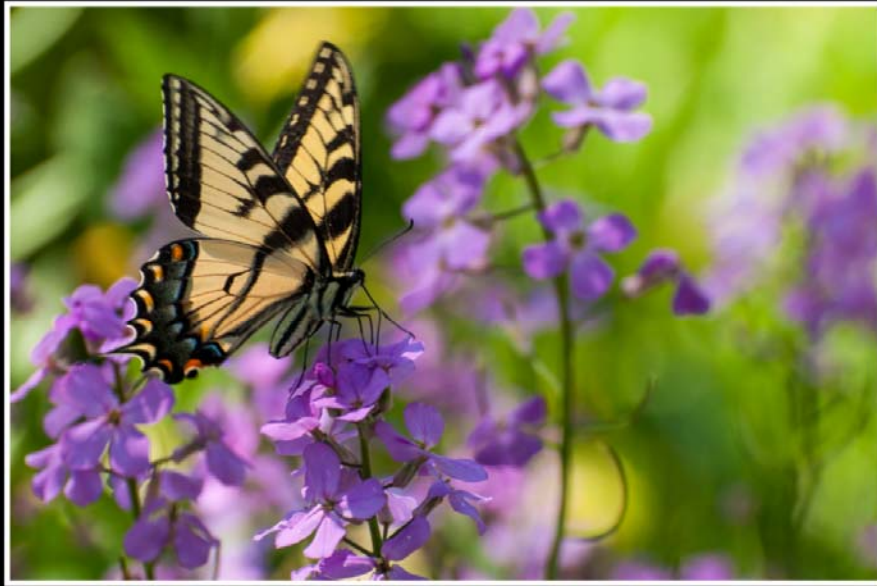






THE COVES ENVIRONMENTALLY SIGNIFICANT AREA CONSERVATION MASTER PLAN

Section 7 – References for the Coves ESA



Eastern Tiger Swallow-Tail

Photo Credit – Andrew Jackson (www.ontariowildlife.net)



**THE COVES ENVIRONMENTALLY SIGNIFICANT AREA
CONSERVATION MASTER PLAN**

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