

ENVIRONMENTALLY SIGNIFICANT AREAS (ESAs) IN THE CITY OF TORONTO JUNE 2012

PREPARED FOR TORONTO CITY PLANNING



North-South Environmental Inc.
Specialists in Sustainable Landscape Planning



City of Toronto Contact

Jane Weninger
Senior Planner
Zoning By-Law and Environmental Planning
Toronto City Planning
Metro Hall, 55 John Street, 22nd Floor
Toronto, Ontario
M5V 3C6

The Study Team wishes to thank Toronto and Region Conservation Authority for supplying data and advice for this project.

Study Team

North-South Environmental Inc.

Sarah Mainguy: lead ecologist, research, principal report author, project manager, botanical and wildlife inventories

Daryl Cowell: landform review and analysis

Sarah Piatt: botanical and wildlife inventories, data entry and review

Leah Lefler: botanical inventories, research, Ecological Land Classification, data management

Nancy Falkenberg (no longer with NSE): botanical inventories

Sal Spitale: data management, analysis

Richard Czok: mapping and GIS analysis

Mary Ann Johnson: botanical inventories

Dougan & Associates

Karl Konze: wildlife inventories, development of interpretation guidelines for criteria

Ian Richards: wildlife inventories

Margy deGruchy: botanical inventories, Ecological Land Classification

Lynn Wardle: GIS support

Melinda Thompson-Black (no longer with D&A): botanical inventories, Ecological Land Classification, data base design

Vladimir Kricsfalusy (no longer with D&A): botanical inventories

Beacon Environmental Ltd.

Margot Ursic: project coordination, report review and editing

Ken Ursic: botanical inventories, Ecological Land Classification, conversion of 1991 Rouge Valley ANSI ecological land classification to current ELC

Dan Westerhof: botanical inventories, Ecological Land Classification, data review

Geri Poisson: botanical inventories, Ecological Land Classification

Dirk Janas: botanical inventories, Ecological Land Classification

Andrew Keaveney: wildlife inventories

Kim Baker: wildlife inventories

Independent Consultants

Glenn Coady: wildlife inventories

Tyler Hoar: wildlife inventories

Josh Hevenor: data base redesign and conversion

Cover Photos (clockwise from top left): Finch Avenue Meander (Daryl Cowell); two photos of Little Rouge Forest (Ken Ursic), Centennial Swamp (Ken Ursic), dutchmans breeches (Dan Westerhof), yellow lady's slipper (Ken Ursic), toothwort (Dan Westerhof), red trillium (Karl Konze), twinleaf (Vladimir Kricsfalusy), Tabor's Horsetail Meadow (Dan Westerhof)

EXECUTIVE SUMMARY

Within the City of Toronto's natural heritage system there are natural areas which are particularly significant or sensitive and which require additional protection to preserve their environmental qualities and significance. These areas are referred to as Environmentally Significant Areas or ESAs. The Official Plan lays out a clear policy framework for the protection of ESAs. Development is not permitted within ESAs and activities are limited to those which are compatible with the preservation of the natural feature(s).

ESAs are meant to capture the most locally and regionally significant terrestrial natural areas within the City's natural heritage system. The Official Plan identifies criteria for the identification of ESAs as follows:

Areas of land or water within the natural heritage system with any of the following characteristics:

a) habitats for vulnerable, rare, threatened or endangered plant and/or animal species and communities that are vulnerable, threatened or endangered within the City or the Greater Toronto Area; or

b) rare, high quality or unusual landforms created by geomorphological processes within the City or the Greater Toronto Area; or

c) habitats or communities of flora and fauna that are of a large size or have an unusually high diversity of otherwise commonly encountered biological communities and associated plants and animals; or

d) areas where an ecological function contributes appreciably to the healthy maintenance of a natural ecosystem beyond its boundaries, such as serving as a wildlife migratory stopover or concentration point, or serving as a water storage or recharge area.

The Toronto Official Plan designates ESAs within the area of the former City of Toronto and provides criteria for identifying additional ESAs across the City. Potential new ESAs and preliminary boundaries were identified throughout the City as part of a previous report (North-South Environmental and Dougan and Associates 2008). City-wide ecological assessments were subsequently carried out on both the existing and potential ESAs. The specific objectives of these assessments were: (1a) to verify if existing ESAs continue to meet the Official Plan ESA criteria, and (1b) to verify the appropriateness of their boundaries; (2a) to assess potential ESAs across the City by undertaking the required ecological assessments to verify if these sites met the established ESA criteria, and (2b) to verify the appropriateness of their boundaries,

The work described in this report focusses on efforts to assess whether already designated and potential new ESAs met one or more of the four characteristics, or criteria, laid out in the Official Plan as cited above. Sites were evaluated as meeting, or not meeting, the established ESA criteria based entirely on ecological considerations (and without regard for property

ownership). As such, this report provides the technical basis for moving forward with recommendations for ESA designations, but does not represent the final recommended ESA designations.

In order to ensure transparency and consistency in application of the four ESA characteristics (hereafter referred to as criteria), interpretation guidelines for the criteria were developed at the outset of this study with input from various members of the study team, the TRCA and the City. Guidelines for boundary delineation were also developed to ensure consistency and provide guidance in application. These are provided in the report.

Background work to identify potential ESAs was carried out between 2006 and 2008 and involved: review of all relevant background documents; database development and population; extensive air photo interpretation and GIS mapping; consideration and integration of available terrestrial natural heritage mapping and data (primarily from the Toronto Region Conservation Authority (TRCA) as well as the Ministry of Natural Resources (OMNR)); and preliminary field studies. The purpose was to develop a list and maps of all current and potential ESAs across the City of Toronto requiring field verification including potential extensions to existing designated ESAs. Field work was also undertaken within the designated ESAs to confirm that they continue to meet the ESA criteria. .

The bulk of the field work conducted for this study consisted of field surveys carried out between 2009 and 2012 within, and adjacent to, potential ESAs throughout the City. Findings from field work to confirm existing ESAs carried out in 2006 is also included in this report. All field assessments followed provincial protocols and included assessments of landform and vegetation communities (according to the Ontario Ecological Land Classification system), as well as surveys for plants, herpetofauna (i.e., amphibians and reptiles), breeding birds, and incidental observations of mammals and odonates. While all sites had their boundaries and general condition verified, not all sites were subject to the full suite of assessment and survey types. In general, site-specific surveys for each of the categories listed above were undertaken where no data had been collected recently, or where the data collected was considered incomplete. Furthermore, sites targeted for landform assessments were restricted to sites coinciding with the presence of a reported or known topographic feature, and sites targeted for herpetofaunal surveys were restricted to those with historical records and/or where permanent or temporary ponds were confirmed or potentially present.

The process of trying to obtain permission to access private lands, and public lands outside the City's and TRCA's ownership, identified as needing field assessment was coordinated by the City of Toronto. Letters were sent out and only properties where permission was granted in writing were accessed. Study team staff undertook contact with the landowners, or their representatives, just prior to the field visits, where requested and where the property was considered to contribute significantly to a more comprehensive inventory of the site.

The total number of existing and potential ESA sites, including extensions, is 113. One hundred and three (103) sites, including all of the currently designated ESAs, met at least one of the ESA criteria. Seven (7) sites did not contain any qualifying features, and in two (2) sites, the status could not be determined because access was not obtained and sufficient data could not be

gathered from other sources. One (1) site that was identified through background review on the boundary of the City of Toronto actually turned out to be in the City of Pickering, and therefore cannot be considered as a City of Toronto ESA. This latter site was, nonetheless, kept within this report because it is located at the mouth of the Rouge River which is a very dynamic floodplain area that is continually shifting within its meander belt and therefore may occasionally be found within the City, at least in part.

The Official Plan policies state that an area qualifies as an ESA if it meets any one of the four established criteria. Of the 103 sites that qualified based on our assessment:

- One hundred and one (101) sites contained significant flora, one (1) site qualified because of landform alone, and one (1) site qualified because of landform and a significant vegetation community.
- Fifteen (15) sites qualified based on the presence of one or more significant flora species, without meeting any other criteria.
- Eighty-two (82) sites qualified as ESAs by meeting two, three or all four of the established criteria, as follows:
 - Fifty-four (54) sites contained significant fauna;
 - Sixty-seven (67) sites contained significant vegetation communities;
 - Fifty-nine (59) sites contained habitats of large size and/or high diversity
 - Thirty-four (34) sites were confirmed as having significant landform (as noted above, only one site qualified because of landform alone); and
 - Sixty-five (65) sites qualified because of the presence of one or more significant ecological function(s).

Despite the fact that the City of Toronto is the largest urban area in the Province, this study confirmed that areas of unique and high quality habitats continue to persist within its urban boundaries. A total of 2735 ha or 4% of the total land area of the City of Toronto (66,750) meets the Official Plan ESA criteria. Most sites that qualified are associated with major river and creek valleys of the waterfront. Ecological highlights included:

- Rare forest vegetation types dominated by oak and pine and other shade-intolerant species that required periodic natural disturbance.
- The presence of significant plant species associated with prairie and savannah habitats, at the northern edge of their range in this part of Ontario, or with particular affinities to Great Lakes Shorelines.
- Confirmation of eight amphibian species, including six species considered significant in the City (i.e., northern leopard frog, bullfrog, wood frog, spring peeper, gray treefrog and eastern redback salamander).
- Eight species of reptiles were observed in the surveyed sites (mainly in the larger sites along the waterfront): painted turtle, red-eared slider, snapping turtle, northern map turtle, Blanding's turtle, eastern gartersnake, Dekay's brownsnake, and eastern milksnake. A total of 137 bird species were documented during the breeding season with 62 species considered locally or regionally significant, including a few area-sensitive species dependent on relatively large tracts or extensive grasslands and forests.

- Seventeen mammal species were documented that are primarily common, adaptable species that occur in a wide variety of urban habitats, but notable species included the locally significant hairy-tailed mole and star-nosed mole.

In addition to providing habitat for significant species, a number of the ESAs were documented as having ecological functions of significance. These included the following:

- presence of seepage areas;
- presence of wetland areas indicating function as water storage;
- function of the area as a linkage that provides a connection between habitat required to complete a species' life cycle;
- significant habitat for migrating bird species;
- habitat for colonial bird species; and
- amphibian breeding habitat.

Significant landform features included many sites with significant modern fluvial and modern lacustrine features, moderate numbers of sites with glaciofluvial features, glaciolacustrine features and bedrock features, and four sites with bluffs representing both modern and glacial processes. The rarest landforms within sites investigated in this study were features associated with Peel ponding and drumlins. Though there were a number of sites that contained significant examples of fluvial features, there were many different aspects of fluvial processes within each of these sites (such as cut-off meanders, meander bars, meander channels, active and relict floodplain channels) which contribute to the diversity of landform representation in the City.

Assessment of site condition was also carried out as part of this study. Most sites that qualified as ESAs had areas that were of high quality and diversity, as described above. However, there were several significant issues that affected all sites to varying degrees:

- *ad hoc* paths (non-sanctioned paths that often led to impacts on sensitive features);
- encroachment by adjacent landowners (including building of decks, sheds, gazebos and pools, removal of native vegetation for gardens, removal of trees to improve the view;
- dumping of garbage, particularly compost and building materials; and
- non-native species invasion, particularly invasions of dog-strangling vine, garlic-mustard, giant reed grass, Norway maple, common buckthorn, black alder and European birch.

Virtually all of the locations examined would benefit from management as well as some targeted landowner and user outreach, education and stewardship, as well some City-led hands-on management.

A number of the identified sites meeting one or more of the City's ESA criteria are contained within or overlap with provincially designated wetlands (PSWs) and Areas of Natural and Scientific Interest (ANSIs). These areas, combined with the sites that meet the ESA criteria throughout the City as identified in this report, support critical natural heritage features and ecological functions. Their protection within a contiguous and largely natural natural heritage system is an important part of protecting biodiversity within the City of Toronto, the wider ecodistrict and the province of Ontario.

ENVIRONMENTALLY SIGNIFICANT AREAS (ESAs) IN THE CITY OF TORONTO

VOLUME 1: REPORT

Table of Contents

1.0	Study Purpose, Phasing, and Context	1
1.1	Study Purpose	1
1.3	Rationale and Context for Identification of ESAs in Toronto	3
1.2	Brief History of ESA Designation in Toronto	4
2.0	ESA Criteria and Guidelines.....	8
2.1	City of Toronto ESA Criteria.....	8
2.2	Need for Interpretation Guidelines	9
2.3	Interpretation Guidelines for ESA Criteria	9
2.4	Boundary Delineation Guidelines for ESAs	16
3.0	Approach and Methodology	18
3.1	Identification of Potential ESAs	19
3.2	Preliminary Boundary Determination and Review.....	20
3.3	Consideration and Integration of Additional Data.....	21
3.3.1	Review of Landform.....	22
3.4	Landowner Contact.....	22
3.5	Field Studies.....	23
3.5.1	Amphibian Surveys.....	23
3.5.2	Breeding Bird Surveys.....	24
3.5.3	Surveys for Incidental Wildlife.....	25
4.0	Overview of Results.....	25
4.1	Sites That Did Not Qualify	29
4.2	Sites for Which Status is Unknown	30
4.3	Breakdown of Criteria Met by Sites	30
4.3.1	Criterion A: Significant Flora	30
4.3.2	Criterion A: Significant Vegetation Communities	32
4.3.3	Criterion A: Significant Fauna.....	33
4.4	Criteria B, C and D	33
4.5	Relationship between ESAs and Provincially Significant Features	33
5.0	Characteristics of Qualifying Species and Features within Sites.....	37
5.1	Criterion A: Significant Flora, Fauna and Vegetation Communities	37
5.1.1	Vegetation Communities	37
5.1.2	Flora	38
5.1.3	Fauna.....	40
5.1.3.1	Amphibians	40
5.1.3.2	Reptiles	45
5.1.3.3	Birds.....	46
5.1.3.4	Mammals.....	47
5.1.3.5	Insects	48
5.2	Criterion B: Significant Landform.....	48
5.3	Criterion C: Areas of Significant Size and/or with Significant Species Diversity	50
5.4	Criterion D: Significant Ecological Functions.....	50

6.0	Analysis of Site Condition and management needs.....	51
7.0	Summary and Conclusions	53
8.0	Glossary	54
9.0	References.....	57

List of Tables

Table 1.	Comparison of the City of Toronto ESA Criteria with Criteria used by the MTRCA, the former City of Scarborough and the former City of Toronto.	5
Table 2.	Number of sites that meet each criterion (excluding the Rouge Lakeshore Swale in the City of Pickering).....	30
Table 3.	Species not considered qualifying	32
Table 4.	Number of qualifying plant species and the number of sites where found.....	38
Table 5.	Numbers of breeding frogs within Toronto sites	44
Table 6.	Sites with more than two reptile species within the City of Toronto	46
Table 7.	Sites supporting more than one qualifying bird species and overlapping provincial designations.....	47
Table 8.	Significant landform features that qualified within sites investigated.....	48

List of Figures

Figure 1.	Location and Status of Sites Investigated.....	27
Figure 2.	Relationship between Areas that Meet ESA Criteria, and Provincial ANSIs PSWs ...	35

List of Appendices

Appendix 1:	Description of Derivation of Diversity Criterion.....	63
Appendix 2:	Summary of Qualifying Features within Sites and Recommendations for Designation	69
Appendix 3:	Summary of Significant Floral Species within sites	85
Appendix 4:	Summary of Significant Vegetation Communities within Sites Assessed in the City of Toronto	97
Appendix 5:	Summary of Significant Bird Species within Sites Assessed in the City of Toronto	103

1.0 STUDY PURPOSE, PHASING, AND CONTEXT

1.1 Study Purpose

The City of Toronto Official Plan (2006) recognizes the importance of natural areas in an urban context, identifies a natural heritage system for the City, and includes policies and land use designations to protect, restore and enhance important natural areas. Toronto's natural heritage system is identified on Map 9 of the Official Plan and consists of a diverse mosaic of natural features and functions that collectively form a system. This living, dynamic system captures the City's significant landforms, watercourses and their associated riparian zones, valley slopes and floodplains, forests, wetlands, meadows, beaches and bluffs, and other habitats supporting significant species and ecological functions. In addition to providing habitat for a diversity of floral and faunal species, the natural heritage system provides aesthetic and recreational amenities, as well as valuable ecological services to the City's residents such as storm water management, air pollution filtration, temperature moderation, shade, and carbon storage.

Within the City's natural heritage system there are natural areas which are particularly significant or sensitive, and which require additional protection to preserve their environmental qualities and significance. In the City of Toronto, such areas are referred to as Environmentally Significant Areas (ESAs) and are identified on Map 12 of the Official Plan¹. The Official Plan designates ESAs within the former City boundaries, provides four broad characteristics or criteria for identifying ESAs, and states that further study and field work will be carried out to identify ESAs across the City. A comprehensive, City-wide ecological assessment was required to identify and assess potential ESAs throughout the City in a consistent and defensible way.

The purpose of this study was to undertake these ecological assessments and analyses within sites identified as potentially meeting one or more ESA criteria. Potential ESAs were identified throughout the City with preliminary boundaries as part of an earlier study (North-South Environmental and Dougan & Associates 2008). The specific objectives of this study were to: (1a) verify if the designated ESAs continue to meet the Official Plan ESA criteria, (1b) verify the appropriateness of their boundaries, 2a) assess potential ESAs across the City by undertaking the required ecological assessments to verify if these sites met the established ESA criteria, and (2b) verify the appropriateness of their boundaries,

Notably, recommendations provided in this study are based entirely on the available data and ecological considerations. Boundaries were delineated based on the limits of ecological features without regard for property ownership (although in some sites the limits of ecological features and property limits coincide), while recommendations have been based on species significance rankings as they existed on the date of completion of this study. It is understood that some of the boundaries may be refined or recommendations revised based on: (a) new data or information collected at the site-specific level, (b) changes in species status, or (c) planning considerations. This study provides the technical basis for moving forward with the formal identification and designation of ESAs in the City of Toronto Official Plan.

¹ The ESAs designated on Map 12 of the Official Plan are based on data that was available as of the date of approval of the Official Plan.

1.2 Study Phasing and Deliverables

The work carried out as part of this study was primarily undertaken to fulfil the commitment to identify ESAs throughout the City of Toronto, as described in the Official Plan, and is based on the criteria for ESA identification as laid out in the Official Plan (and presented in Section 2 of this report). The study team has been working with the City since 2006 to undertake this work, which has involved two phases.

The first phase, which took place between 2006 and 2008 (North-South Environmental and Dougan & Associates 2008), involved

- careful review of all available background documents,
- natural heritage database development and population,
- extensive air photo interpretation and GIS mapping,
- consideration and integration of available mapping and data (primarily from the Toronto Region Conservation Authority (TRCA) as well as the Ministry of Natural Resources (OMNR)),
- field assessment of the designated ESAs to verify for qualifying features (as per the criteria laid out in the Official Plan) and the appropriateness of previously established ESA boundaries, and
- identification of potential ESAs throughout the City (based primarily on assessment of available background and data, and air photo interpretation).

The second phase, which has taken place between 2009 and 2012, has been this study which has involved:

- field verification of potential ESAs to determine (a) whether or not they met the established ESA criteria, and (b) have been mapped with appropriate boundaries as part of the first phase,
- field verification of additional potential sites (including extensions to designated and potential ESAs) identified during the course of field studies,
- integration of all the data and mapping collected over the course of the two phases, and
- synthesis and analysis of this data to develop fact sheets for each area considered, and provide technical recommendations as to whether it qualifies based on the established ESA criteria.

The two volumes of this report represent the culmination of this work. Volume 1 includes (herein) the policy context for this work, a detailed description of how the work was undertaken, the interpretation guidelines that were used to help identify and delineate the sites, summaries of the findings of the site assessments (i.e., which sites did or did not meet the established ESA criteria), and associated recommendations as to which sites meet the ESA criteria based on the ecological data collected and synthesized.

Volume 2 provides fact sheets for each of the sites assessed. The fact sheets include: a description of the site (i.e., size, location, previous designations – if any, significant landform, vegetation communities, flora and fauna), summary of fulfillment (or not) of each of the ESA

criteria, a brief assessment of site condition, key management needs, and a map showing the original and recommended boundaries (where applicable).

A natural heritage database and GIS mapping that includes the information provided in these summaries, as well as additional metadata (e.g., data sources, Ecological Land Classification, species and habitats documented for each site that are not currently considered significant) has been provided to the City for their use going forward.

1.3 Rationale and Context for Identification of ESAs in Toronto

The identification of ESAs as a natural heritage planning tool has a long history in the Province of Ontario, and in the Greater Toronto Area. The general intent of ESA identification and protection is to try and ensure the conservation and sustainability of significant species and habitats at the local and regional scales. This approach is similar to the designation of provincially significant areas such as Provincially Significant Wetlands (PSWs) and Areas of Natural and Scientific Interest (ANSIs) at the provincial scale. Local and regional diversity are not necessarily captured by provincial designations, and so while there tends to be overlap of provincially designated and locally designated natural features, local designations can also capture areas that have a high degree of local significance but may be overlooked at the provincial scale.

These discrete areas are best protected within the context of a broader, connected natural heritage system but also provide habitats that are specialized, unique or important enough to warrant special recognition and protection, particularly in an urban context where there are continual pressures and multiple stressors on these areas.

In the 1980's and 1990's, the focus of natural heritage planning in southern Ontario, and elsewhere, was on protection of areas considered ecologically unique and/or sensitive in an increasingly urbanized landscape, sometimes referred to as the "islands of green" approach. Over 1990's and into the 21st century, the science and practice of natural heritage planning has shifted away from the "islands of green" approach towards more of a focus on systems planning and connectivity (e.g., Noss 1994, Riley and Mohr 1994, Forman 1995; Soulé and Terborgh 1999; Fahrig 2002; Lee et al. 2002; Haila 2002). Restoration and maintenance of connecting areas is one of the most important points in maintaining a reserve network in urban areas. In a nutshell, "interconnected blocks of habitat are better than isolated blocks" (Noss 1994, p.7). However, the value – both from a planning and an ecological perspective – of having important, unique and sensitive habitats identified and protected within more broadly connected natural systems continues to be recognized in both theory and practice (e.g., Austen and Bradstreet 1996; Villard et al. 1999; Calhoun and Klemens 2002; Lee et al. 2002; Provincial Policy Statements 1997 and 2005).

One of the key steps in formulating a natural heritage system is defining core areas and determining the general locations of core areas in a potential reserve network (Noss 1994). Selecting core areas is often an urgent matter because, by definition, these are the areas that have most to lose if not protected or managed wisely. As noted by Noss (1994), biodiversity is not distributed randomly or uniformly across the landscape. In establishing protection priorities,

zoning could focus protection on “hot spots” of high species richness, endemism, or other biological or ecological values. Designation of ESAs ensures that these hot spots are recognized and offered special protection.

1.2 Brief History of ESA Designation in Toronto

The City of Toronto consists of the former cities and boroughs of Toronto, Etobicoke, North York, East York, York, and Scarborough, which were amalgamated in 1998. In the 1980’s, there were three studies that identified potential sites of environmental significance for municipal protection within these former cities and boroughs. Table 1 compares the City of Toronto ESA criteria (used in this study) with those used in studies by the MTRCA, the former City of Scarborough and the former City of Toronto.

The first, and broadest, was undertaken by the MTRCA who conducted ecological assessments throughout the greater Toronto area to identify ESAs according to nine established criteria (provided in Table 1). The final report (MTRCA 1982) identified a total of 126 ESAs in the MTRCA’s jurisdiction, 47 of which were within the boundaries of the current City of Toronto. These ESAs were not formally designated through any municipal Official Plans, but were typically considered through the land use planning process.

The former City of Scarborough concurrently delineated and evaluated 21 natural areas (Scarborough Public Works 1981, 1983). The City of Scarborough’s assessments used the same ESA criteria as MTRCA (provided in Table 1), but focused on natural areas not being examined by MTRCA, particularly tableland sites facing immediate development pressures. This work resulted in the identification of an additional six ESAs by the former City of Scarborough. These sites were acknowledged but not mapped in the Scarborough Official Plan (1995).

In the early 1990s, the former City of Toronto identified 16 ESAs and 29 Natural Areas within its borders, using criteria similar to those embedded today in the City’s Official Plan (Geomatics 1992; provided in Table 1). These ESAs were designated in the former City of Toronto Official Plan (1994).

The other former municipalities did not undertake ESA studies, but relied on information provided by the MTRCA (1982) report. Other than in the former City of Toronto, no ESAs were formally mapped or designated as part of municipal Official Plans.

Table 1. Comparison of the City of Toronto ESA Criteria with Criteria used by the MTRCA, the former City of Scarborough and the former City of Toronto.

Criteria	City of Toronto Official Plan (2004)	MTRCA (1982) and former City of Scarborough	Former City of Toronto Official Plan (1998)
Rare species	<u>Criterion A:</u> Habitats for vulnerable, rare or threatened plant and/or animal species and communities that are vulnerable, rare, threatened or endangered within the Province, the City or the Greater Toronto Area.	<u>Criterion 6:</u> <i>The area provides natural habitat for indigenous species that area rare and/or endangered regionally (MTRCA), provincially and nationally.</i>	<i>Criterion a: Habitat for vulnerable, rare,, threatened or endangered species and communities that are threatened or endangered withint the City, Metropolitan Toronto, the province of Ontario, or Canada</i>
Landform	<u>Criterion B:</u> Rare, high quality or unusual landforms created by geomorphological processes within the City or the Greater Toronto Area.	<u>Criterion 1:</u> <i>The area represents a distinctive and unusual landform or feature within the MTRCA region, Ontario or Canada.</i>	<i>Criterion b: Rare, high quality or unusual landform or geomorphological process within the City, Metropolitan Toronto, the Province of Ontario, or Canada</i>
Unusually high diversity	<u>Criterion C:</u> Habitats or communities of flora and fauna that are of a large size or have an unusually high diversity of otherwise commonly encountered biological communities and associated plants and animals	<u>Criterion 5:</u> <i>The area has an unusually high diversity of biological communities and/or species.</i>	<i>Criterion d: An unusually high diversity of otherwise commonly encountered biological communities and associated plants and animals</i>

Criteria	City of Toronto Official Plan (2004)	MTRCA (1982) and former City of Scarborough	Former City of Toronto Official Plan (1998)
Ecological Functions	<p><u>Criterion D.</u> areas where an ecological function contributes appreciably to the healthy maintenance of a natural ecosystem beyond its boundaries, such as serving as a wildlife migratory stopover or concentration point, or serving as a water storage or recharge area.</p>	<p><i>Criterion 2: The ecological function of the area contributes significantly to the healthy maintenance of a natural system beyond its boundaries.</i></p> <p><i>a) the area serves as a water storage area or high soil permeability area, and/or</i></p> <p><i>b) the area helps to maintain or link significant natural biological systems, and/or</i></p> <p><i>c) the area is essential for the healthy continuation of a significant species and/or significant population or concentration of species.</i></p> <p><i>The area serves as any one of the following:</i></p> <ul style="list-style-type: none"> <i>• the area has a high concentration of a particular species during a critical stage of its life cycle. Examples of areas that may qualify are fish spawning areas, heronries, rookeries and deer yards.</i> <i>• The area maintains a gene pool which is essential for the healthy continuation of a species.</i> <i>• The area is a significant stopover or concentration point for (resting and feeding by) migrating birds.</i> 	<p><i>Criterion C: the ecological function of the area contributes significantly to the healthy maintenance of a natural ecosystem beyond its boundaries by serving as a wildlife migratory stopover or concentration point, or serves as a linkage corridor of suitable habitat between natural biological communities, or serves as a water storage or recharge area</i></p>

Criteria	City of Toronto Official Plan (2004)	MTRCA (1982) and former City of Scarborough	Former City of Toronto Official Plan (1998)
High quality habitats or biological communities	Incorporated into criteria A and C	<i>Former Criterion 3: The habitats and/or biological communities are identified as exceptional and/or high quality within the MTRCA region, Ontario or Canada.</i>	<i>Not applicable</i>
Contains limited habitat or representation	Incorporated into criterion A	<i>Former Criterion 4: The area contains an ecosystem which has limited representation in the MTRCA region, Ontario or Canada and/or is a small remnant of a particular habitat which has virtually disappeared within the MTRCA region.</i>	<i>Not applicable</i>
Wetlands	Incorporated into criteria A and D; protected through the Provincial Policy Statement	<i>Not applicable</i>	<i>Identified as Provincially Significant Wetlands by the Ministry of Natural Resources</i>

2.0 ESA CRITERIA AND GUIDELINES

2.1 City of Toronto ESA Criteria

Policy 3.4.13 of the Official Plan provides that basis for identifying and protecting ESAs in the City of Toronto. The policy states:

Areas of land or water within the natural heritage system with any of the following characteristics are particularly sensitive and require additional protection to preserve their environmentally significant qualities:

- a) habitats for vulnerable, rare, threatened or endangered plant and/or animal species and communities that are vulnerable, threatened or endangered within the City or the Greater Toronto Area; or*
- b) rare, high quality or unusual landforms created by geomorphological processes within the City or the Greater Toronto Area; or*
- c) habitats or communities of flora and fauna that are of a large size or have an unusually high diversity of otherwise commonly encountered biological communities and associated plants and animals; or*
- d) areas where an ecological function contributes appreciably to the healthy maintenance of a natural ecosystem beyond its boundaries, such as serving as a wildlife migratory stopover or concentration point, or serving as a water storage or recharge area.*

Development will not occur on lands within the natural heritage system that exhibit any of these characteristics. Activities will be limited to those that are compatible with the preservation of the natural features and ecological functions attributed to the areas. An impact study, as referred to in Policy 12, will be required for any proposed undertaking in those areas not already the subject of an Environmental Assessment under the Environmental Assessment Act.

Official Plan side bar text providing the basis for this study states:

Where areas of local and regional environmental significance are identified using the criteria in Policy 13, these areas will be identified on Map 12 through amendments to the Plan. Based on information available as of the approval date of this Plan, only those environmentally significant areas of local and regional importance in the former City of Toronto have been identified on Map 12. As additional fieldwork is completed, this map will be amended to add such environmentally significant areas in other parts of the City. The City will, as expeditiously as is practicable, comprehensively identify environmentally significant areas within the natural heritage system.

2.2 Need for Interpretation Guidelines

Official Plan policy 3.4.13 (as described in Section 2.1 above) provides the criteria for identifying ESAs in the City of Toronto. However, these criteria are somewhat broad and require interpretation in order to be applied. For example, what is meant by “large size” or “unusually high diversity”? The policies also do not provide guidance on how to delineate ESA boundaries, particularly in an urban context.

In order to ensure transparency and consistency in application (both during this study and as part of ongoing policy implementation), interpretation guidelines for the four ESA criteria were developed at the outset of this study, and are provided in Section 2.3 below. These guidelines were developed in consultation with the City and TRCA, and were also carefully considered and reviewed by the senior members of the study team who have experience with ESA identification and policy implementation throughout southern Ontario. It was also recognized from the outset that guidelines would be required to try and ensure consistency in boundary determination because ESAs are meant to be discrete, high quality areas within the City’s broader natural heritage system. These guidelines were also developed with input from various members of the study team and the City, and are provided in Section 2.4 below.

Guidelines for both ESA criteria application and boundary determination were provided to the study team prior to each field season, along with directions regarding methods for field data collection, to guide efforts and try to ensure as much consistency as possible between various assessors. These guidelines are presented below with a few minor refinements based on our collective experience in the field. The criteria and the following guidelines have been used as the basis for verifying designated ESAs within the former City of Toronto and recommending additional ESAs throughout the City, and should continue to be used for the verification of ESAs moving forward.

2.3 Interpretation Guidelines for ESA Criteria

The interpretation guidelines for the four ESA criteria in the City’s Official Plan are provided below. They are meant to be applied so that an area meeting any one of the four criteria has the potential to qualify as an ESA. However, ultimately recommendations for designation must consider whether or not such areas meet the overall intent of ESA identification (as provided below).

General Intent and Context for ESA Identification

ESAs are meant to capture the most locally and regionally significant terrestrial natural areas within the City’s natural heritage system. Notably, the focus is on terrestrial natural areas (excluding aquatic systems but including wetlands) because aquatic systems in the City are regulated by Toronto Region Conservation Authority (TRCA) under distinct legislation set out by the federal Department of Fisheries and Oceans (DFO), as well as conservation authority-specific regulations and policies.

Areas which are considered to be provincially significant, such as PSWs and provincially and regionally significant ANSIs, are identified by the Province. ESAs are meant to capture terrestrial natural areas with ecological features and/or functions considered significant at the local (i.e., Greater Toronto Area or City) level, although in many cases this also includes features and/or functions that are significant at the regional and provincial scales. As the most significant natural areas in the City, ESAs are given the highest level of protection in the Official Plan. Development is not permitted and activities are limited to those which are compatible with the preservation of the natural feature(s).

Although they are discrete natural areas, ESAs cannot be viewed as features that if protected in isolation, would necessarily be able to continue to support, on their own, the significant ecological features and functions for which they have been identified. Rather, ESAs should be viewed as critical nodes in the City's natural heritage web that sustain important locally and regionally significant species and habitats. The ability of the City's ESAs to continue to support the features and functions for which they have been identified depends in most cases on the supporting connectivity provided by the City's broader natural heritage system and / or the ongoing management of these features in relation to the pressures presented by their location in an urban environment.

The interpretation guidelines below are aimed at protecting significant habitats, generally of a minimum area of 0.5 ha, within the City's natural heritage system. Explanations for species and habitat ranking codes are provided in the Glossary (Section 9.0).

Specific Guidelines for ESA Identification

Criterion A: Habitats for vulnerable, rare, threatened or endangered plant and/or animal species and communities that are vulnerable, rare, threatened or endangered within the City or the Greater Toronto Area.

Intent: This criterion is intended to protect significant habitats within the City. Areas are identified as significant based on the presence of a significant vegetation community, or by the occurrence of species considered significant at the national, provincial, regional or local scale documented as using the area to complete critical portions of its life cycle in consecutive or multiple years. A single, unrepeated occurrence of a significant species is not considered adequate to trigger an ESA identification, as the intent is to capture habitats (irrespective of size) in the City capable of supporting significant species on a consistent basis². The protected area should include the contiguous, suitable habitat for the given species used to complete critical portions of its life cycle, as well as immediately adjacent habitats contributing to the maintenance of the suitable habitat. While there may some guidance available to define the extent of this habitat for some species (e.g., Species at Risk), in other cases this determination will rely on professional judgement.

² "Consistent occupation" by significant species of birds is defined as use (or consistent use reasonably presumed based on the presence of suitable habitat) for at least two consecutive years within the past ten.

Discussion: The terms “vulnerable”, “threatened” and “endangered” can have very specific meanings (e.g., as per the Ontario *Endangered Species Act* (2007) or the Canadian *Species at Risk Act* (2002) (e.g., the term “vulnerable” has been replaced by “special concern”), or the meanings can be broader, and therefore need to be defined. Guidelines have been developed to specify which status lists should be used to determine which species are vulnerable, rare, threatened or endangered within the the City and the Greater Toronto Area³. Guidelines have also been developed to aid in the determination of what constitutes the “habitat” for vulnerable, rare or threatened species in the context of this criterion. For example, a rare bird species may use a wide variety of habitats for short periods of time during migration, including parks and gardens, which are not necessarily significant.

Specific measures for the City of Toronto are the presence of any of the following:

Nationally or Provincially Significant:

- plant communities with a provincial status of S1, S2, S3 or S3S4 according to the Natural Heritage Information Center (NHIC);
- species listed as threatened or endangered by COSEWIC or OMNR, with the exception of butternut;⁴
- species with a provincial status of S1, S2, S3 or S3S4 according to NHIC;
- a population⁵ of floral species identified as Special Concern by COSEWIC or OMNR **and** scoring 4 or 5 for habitat-dependence in the TRCA scoring system;
- Probable⁶ or confirmed⁷ breeding of faunal species identified as Special Concern by COSEWIC or OMNR **and** scoring 4 or 5 in habitat-dependence **or** sensitivity to development in the TRCA scoring system.

³ It is understood that the most current, accepted species status lists will be used, and that if and when updated status lists are developed for the applicable jurisdictions that these will be used instead of those cited here, and that the guidelines will be updated accordingly.

⁴ Butternut is currently considered endangered because of a disease, butternut canker, rather than declining habitat and therefore is not considered an appropriate trigger for ESA designation. Protection for this species is addressed separately under Ontario’s *Endangered Species Act* (2007).

⁵ A “population” is defined in this context as a self-sustaining group of organisms. Planted species can be considered a population if they are native to the Toronto area, planted as part of restoration of a community that was likely naturally occurring at a site, and if there is evidence that they are in suitable habitat, are self-sustaining and would likely reproduce in time if suitable habitat conditions were maintained. Notably, hop-tree (*Ptelea trifoliata*), honey locust (*Gleditsia triacanthos*), dense blazing-star (*Liatris spicata*), cup-plant (*Silphium perfoliatum*), compass plant (*S. laciniatum*) and prairie rosinweed (*S. terebinthinaceum*), used occasionally in restoration plantings in Toronto, are not considered native to the Toronto area although they are native to parts of Ontario (Oldham *et al.* 2009).

⁶ “Probable breeding” is defined (Ontario Breeding Bird Atlas 2001) as an observation of any of the following: (1) a pair in breeding season in suitable habitat, (2) permanent territory presumed through registration of territorial song on at least two days, a week or more apart, at the same place or (3) courtship or display between a male and a female or two males, including courtship feeding or copulation; visiting probable nest site; agitated behaviour or anxiety calls of an adult; brood patch on an adult female or cloacal protuberance on an adult male; nest building or excavation of a nest hole.

Regionally or Locally Significant:

- plant communities ranking L1, L2 or L3 as determined by TRCA;
- a population of flora that is considered rare in Ecodistrict 7E-4, the Greater Toronto Area, or in the City of Toronto by OMNR **and** scoring 4 or 5 for habitat dependence in the TRCA scoring system, with the following exceptions⁸:
 - highbush cranberry (*Viburnum trilobum*), red pine (*Pinus resinosa*), blue cohosh (*Caulophyllum thalictroides*), and butternut (*Juglans cinerea*);
- Probable or confirmed breeding of fauna species considered rare in Ecodistrict 7 by OMNR **and** scoring 4 or 5 for habitat-dependence **or** sensitivity to development in the TRCA scoring system;
- a population of flora scoring L1 or L2 in TRCAs L-ranking score **and** scoring 4 or 5 for habitat dependence in the TRCA scoring system, excluding white oak (*Quercus alba*), which is frequently planted; or
- Probable or confirmed breeding of fauna species ranking L1 to L3 (incorporating Local Occurrence data specific for the City of Toronto) **and** scoring 4 or 5 for habitat-dependence **or** sensitivity to development in the TRCA scoring system.

Criterion B: Rare, high quality or unusual landforms created by geomorphological processes within the City or the Greater Toronto Area.

Intent: This criterion is intended to capture significant landforms within the City. Significant landforms in the City are those that represent key events or processes known to have occurred throughout geological time (e.g., such as glacial advance and retreat phases, bedrock formations, geomorphological processes) that continue to be high quality (i.e., well displayed with good potential for academic, research and interpretive uses). While a number of these areas are encompassed within provincially significant Earth Science ANSIs, additional areas have significance at the local scale even though they do not qualify as ANSIs because they were not considered representative at the Ecodistrict scale. This criterion is intended to capture sites which, though they may not be provincially significant, provide outstanding examples of regional and/or local glacial and post-glacial natural processes.

⁷ “Confirmed breeding” is defined (Ontario Breeding Bird Atlas 2001) as observation of any of the following: (1) a distraction display or injury feigning; (2) used nest or egg shell found (occupied or laid within the period of the study); (3) recently fledged young or downy young, including young incapable of sustained flight; (4) adults entering or leaving nest site in circumstances indicating occupied nest (e.g., adult carrying fecal sac; adult carrying food for young), or (5) nest containing eggs, or nest with young seen or heard.

⁸ These species were excepted based on the study findings that they were sometimes misidentified (*Caulophyllum giganteum* may have been misidentified as *C. thalictroides*, and the non-native highbush cranberry (*Viburnum opulus*) may have been misidentified as the native highbush cranberry); or frequently planted (red pine, which is likely native to the Toronto area only in restricted locations in the Humber Valley and High Park (Varga 2010, pers. comm.). Rarity, according to current status lists, is determined to be species occurring at 40 or fewer sites in the Greater Toronto Area, 12 or fewer sites in Ecodistrict 7E-4, and six or fewer sites in the City of Toronto (Varga et al. 2005). A “site” is defined as a location separated by 1 km.

Specific measures for the City of Toronto are sites that may include, but are not restricted to, representative, high-quality portions of the following:

- Iroquois Shoreline;
- Scarborough Bluffs;
- Toronto Islands; and
- Areas with landforms of more recent, local significance such as prominent lacustrine landforms and fluvial landforms that continue to be subject to natural hydrologic dynamics.

Criterion C: Habitats or communities of flora and fauna that are of a large size or have an unusually high diversity of otherwise commonly encountered biological communities and associated plants and animals.

Intent: This criterion is intended to capture discrete natural areas that are among the largest in the Toronto's natural heritage system as well as those areas with a relatively high level of vegetation community and/or species diversity in the context of the City of Toronto. This criterion is not meant to capture areas that are unusually diverse because of the presence of a large number of cultural communities, and/or a high number of non-native or invasive species, but rather areas that sustain a relatively high number of native vegetation communities and/or native species, whether they be common, uncommon or rare.

Because the bulk of the City's remaining natural areas are associated with the ravine and creek systems, as well as hydro corridors and bands along the lakeshore, they tend to be somewhat linear and narrow features. These features are also fragmented by various urban land uses and infrastructure, making larger contiguous patches with high levels of native diversity unusual in the City. Notably, native species and/or habitat diversity is typically correlated to size, but not always.

Specific measures used for capturing such areas in the City of Toronto are the presence of any of the following:

- Large Size
 - presence of habitat patches scoring 4 or 5 points in TRCA patch size ranking⁹; or
 - patches with a TRCA rank of L1 or L2.
- Diversity
 - presence of at least 40 different species¹⁰ (flora plus fauna) ranked as L1, L2, L3 or

⁹ TRCA patch ranking is related to size - L1 indicates patches that are smallest in size, and L5 is the score for the largest patches.

¹⁰ Determined based on an analysis of patch diversity in Toronto as provided in Appendix 1. Species ranked L1 to L4 by TRCA are those that are considered relatively sensitive in terms of habitat needs, are sensitive to development and urbanization, and tend to decline in urban settings. The analysis provided in Appendix 1 shows that the presence of 40 or more L1 to L4 species within a patch was confined to approximately the top 20% of patches, indicating an unusual diversity of habitats.

- L4 by the TRCA (definitions of species rankings provided in the Glossary); or
- sites with greater than 20 plant communities¹¹.

Criterion D. Areas where an ecological function contributes appreciably to the healthy maintenance of a natural ecosystem beyond its boundaries, such as serving as a wildlife migratory stopover or concentration point, or serving as a water storage or recharge area.

Intent: This criterion is intended to capture discrete natural areas that provide one (or more) readily discernable ecological function(s) required to either complete a wildlife species' life cycle, or sustain an adjacent or downstream ecosystem that meets any of the previous ESA criteria (particularly a or c). A number of important terrestrial ecological functions are already captured by areas meeting the previous criteria (e.g., habitat for significant plants and vegetation communities, breeding habitat for significant and area-sensitive wildlife species). However, these criteria do not necessarily capture ecological functions that are needed to sustain these significant species in the long term.

The ecological functions considered of significance for the City of Toronto's terrestrial habitats are largely derived from the guidance provided by the Province through its Significant Wildlife Habitat Technical Guide (OMNR 2000), and the recently released Draft Significant Wildlife Habitat criteria schedule for Ecoregion 7E (2012). Measures listed below are organized under the categories of "seasonal concentration areas", "ecological linkages" and "hydrologic functions" and have been tailored to what is applicable to the City of Toronto, and to the intent of the ESAs.

While seasonal concentration areas are generally discrete features that can readily be delineated, ecological linkages and hydrologic functions are by nature more diffuse and expansive and so measures have been developed to try and refine their identification to a scale that is appropriate for ESAs in the City of Toronto.

Ecological linkages in this context are not meant to be landscape-scale linkages for facilitating long-term dispersal or ensuring connectivity between various ESAs, or within the Natural Heritage System as a whole. Rather, the ecological linkages captured by this criterion are restricted to significant nodes of habitat within riparian corridors that function as terrestrial linkages identified as being required for the completion of a life-cycle for one or more significant species (as defined by criterion a).

Hydrologic functions, particularly at the scale of a typical ESA, are difficult to assess and very difficult to set significance thresholds for. A few measures are provided, but more may be added as the science in this area evolves.

While these measures listed below are fairly comprehensive, they are not exhaustive nor do they provide specific thresholds. Ultimately "significance" for many of the measures identified for this criterion will need to be determined based on the available data, guidance from provincial

¹¹ Note: only 30 of the 113 sites investigated contained more than 20 vegetation communities, indicating this level of diversity is relatively rare.

documents (e.g., OMNR 2000, OMNR Draft Significant Wildlife Habitat Ecoregion Criteria Schedule for Ecoregion 7E, 2012), and professional judgement.

Significant ecological functions in this context include:

- significant seasonal wildlife concentration areas:
 - important areas for migratory birds (i.e., areas in the City known to provide stopover habitat for large numbers on a consistent basis) including aquatic and terrestrial waterfowl stopover and staging areas, shorebird stopover areas, songbird stopover areas, butterfly stopover areas.
 - Well-documented stopover areas for migratory birds (i.e., sites that are identified as having 1% or more of migratory bird records in the City of Toronto by the recent study in the City of Toronto (Dougan & Associates and North-South Environmental 2009);
 - colonial bird nesting sites, except for double-crested cormorants;
 - waterfowl nesting: areas including more than one (1) waterfowl species and more than one (1) pair, for species with a habitat dependence score of 4 or 5;
 - raptor wintering areas;
 - deer wintering areas (typically identified by OMNR);
 - specialized habitats for significant species (as defined by criterion a):
 - bat hibernacula (including winter roosts and significant maternal colonies);
 - snake hibernacula providing critical habitat for species originating (or likely originating) outside the area;
 - vernal pools or other naturally-occurring areas of standing water providing critical breeding habitat for sensitive woodland and aquatic amphibian species: namely wood frog, gray treefrog, spring peeper, pickerel frog, northern leopard frog and American bullfrog; as well as woodlands that provide critical non-breeding habitat for sensitive amphibian species; as well as standing water that provides breeding areas for high abundances of American toads (call code 3); or
 - turtle nesting or overwintering areas, except for red eared sliders (a non-native species).
- ecological linkages that support:
 - localized life cycle requirements of significant species (as defined by criterion a) such as amphibian movement corridors or bat migration corridors;
 - important nodes of habitat within the linear corridors of the City's broader natural heritage system ;with the caveat that the ESAs are meant to be discrete and the broader linkage function is meant to be served by the NHS; and this guideline is not intended as a stand alone criterion for identifying an ESA .
- significant hydrologic functions
 - presence of wetlands >2 ha (water storage);
 - areas of substantial seepage and/or springs that measurably contribute to the sustenance of habitat for a significant species (as identified in criterion a), or a prominent lacustrine or fluvial landform (as identified in criterion b), or

substantially contribute to habitat diversity by sustaining substantial wetland communities that would otherwise not be present, or contributing water quality to a stream.

2.4 Boundary Delineation Guidelines for ESAs

The following guidelines were developed to guide boundary verification and delineation of areas that meet ESA criteria in the City of Toronto.

General Guidelines for ESA Boundary Delineation

- A. ESAs should be discrete areas within the City's broader natural heritage system composed primarily of relatively high quality vegetation communities or habitat.
- B. ESAs should be generally contiguous and compact areas without holes or narrow projections into the surrounding landscape.
- C. ESAs may include or overlap with natural heritage features identified and designated at the provincial level.
- D. ESAs may include portions of watercourses, but are primarily identified on the basis of their terrestrial attributes, or areas that contribute significantly to sustaining these attributes.
- E. The attributes for which an ESA is identified are defined by the four Official Plan criteria.
- F. Evidence of existing impacts (e.g., an abundance of invasive species) or anticipated impacts related to the adjacent land uses should not preclude the confirmation or identification of an ESA, as long as the area continues to meet at least one of the four established ESA criteria. However, such areas should be identified as management priorities.

Specific Guidelines for ESA Boundary Delineation

- 1. Initial desktop screening should be undertaken at a scale between 1:5,000 – 1:10,000 using the most current available orthorectified air photos. Final boundary confirmation should be undertaken following field verification at a scale between 1:500 and 1:5000.
- 2. Data used should be obtained or derived from the most current and comprehensive sources available (e.g., TRCA, NHIC, City reports).
- 3. Supporting field work will likely be required to confirm the identification and assist with more precise delineation.
- 4. Outer ESA boundaries must correspond to one or more vegetation community polygons identified using the Ecological Land Classification (ELC) System for southern Ontario.
 - a. ESAs must be comprised entirely or predominantly of "natural" ELC community types. ELC communities classified as "cultural" are to be excluded from ESAs unless they:

- i. represent small gaps (i.e., less than 20 m in diameter) in an area otherwise surrounded by “natural” ELC communities; or
 - ii. provide one or more readily discernable ecological function(s) required to either complete a significant wildlife species’ life cycle, or sustain an adjacent or downstream ESA.
5. Each ESA must be comprised of ELC communities that are contiguous, linked or sufficiently close to allow for movement of flora and fauna through the area.
 - a. “Contiguous” natural areas should ideally be adjacent to each other and be no more than 20 m apart to be part of the same ESA.
 - b. Manicured portions of parks, golf courses, cemeteries, and other open space uses should be excluded from ESAs except where they consist of small existing inclusions in an area otherwise surrounded by “natural” ELC communities.
 - c. An ESA should not be bisected by a built-up land use (e.g., residential, industrial, institutional or commercial), although there can be two or more areas that protect the same feature that have the same ESA name (for example the Iroquois Shoreline ESA).
 - d. Where the adjacent land use is built-up, the ESA boundary will be determined by the feature limit against the built structure, infrastructure or manicured landscape.
 - e. An ESA should not be bisected by major roads (unless a span bridge allows the connection of two portions of an ESA across a major road), but may be bisected by minor roads. Major roads include provincial highways and arterial roads. Minor roads include residential streets and other municipal roads requiring a total right-of-way of no more than 26 m. Where the ESA extends over any road marginally, the road should form the external boundary.
 - f. ESAs may contain active (and abandoned) rail lines.
 - g. ESAs may contain hydro and other utility (e.g., gas pipeline) corridors, even if they are wider than 20 m.
6. Many of Toronto’s natural areas are found along the City’s ravines and lakeshore, and are consequently somewhat narrow and linear in form. While the overall approach to ESA identification is to delineate landscapes that fulfill the designation criteria, there will be locations where boundaries need to be interpreted with particular attention as to whether to include or exclude one or more narrow extensions. In general, such extensions should be included if they are contiguous habitat of comparable quality to that identified within the remainder of the ESA, and are of sufficient width to support similar features.
7. boundary delineation in this study should not have regard for parcel fabric or land ownership, in some cases minor boundary refinements may be made to accommodate lot lines where it does not have a significant impact on the ESA in terms of compromising its ability to sustain the ecological features or functions for which it has been identified.

3.0 APPROACH AND METHODOLOGY

The following sections describe the approach and methodology used for identifying potential ESAs, determining ESA boundaries, and undertaking field work for screening sites for qualifying ESA features and/or functions. In order to “qualify as an ESA” a site must meet at least one of the four ESA criteria as per the interpretation guidelines provided in Section 2.3.

As described in Section 1.2, the City-wide assessment of ESAs was undertaken over two phases. The first phase, which took place between 2006 and 2008 (North-South Environmental and Dougan & Associates 2008), focused on:

- review of all available background documents,
- natural heritage database development and population,
- extensive air photo interpretation and GIS mapping,
- consideration and integration of available mapping and data (primarily from the Toronto Region Conservation Authority (TRCA) as well as the Ministry of Natural Resources (OMNR)),
- field assessment of the designated ESAs to verify for qualifying features (as per the criteria laid out in the Official Plan) and the appropriateness of designated ESA boundaries, and
- identification of potential ESAs throughout the City (based primarily on assessment of available background and data, and air photo interpretation).

Phase 1 field work included verifying of whether all the designated ESAs met the updated ESA criteria (as per Table 1) as well as verifying the appropriateness of the ESA boundaries (per the guidelines provided in Section 2.4). The work found that all of the designated ESAs were found to meet the established criteria, however a number of recommendations were made for boundary refinements (including the removal of small portions of some ESAs that no longer met the criteria, and the addition of others). This information was provided to the City in draft format in 2007, and has been integrated into this report in the context of City-wide ESA evaluation.

However the bulk of the Phase 1 work involved identification of potential ESAs across the City based on (a) a review of available background, (b) air photo interpretation, and (c) field assessments of selected sites (North-South Environmental and Dougan & Associates 2008). The approach used and the results of this work are detailed in the 2008 report and described in more detail in Section 3.1 below.

Phase 2 (this study), which took place between 2009 and 2012, has involved:

- field verification of potential ESAs to determine (a) whether or not they met the established ESA criteria, and (b) have been mapped with appropriate boundaries as part of the first phase,
- field verification of additional potential sites (including extensions to designated and potential ESAs) identified during the course of field studies,
- integration of all the data and mapping collected over the course of the two phases, and

- synthesis and analysis of this data to develop fact sheets for each area considered, and provide technical recommendations as to whether each area qualifies based on the established ESA criteria,

In 2009, North-South Environmental Inc., Dougan & Associates and Beacon Environmental Ltd. were retained by the City to undertake the field work and related assessments of each of the potential ESAs identified in the 2008 report, as well as any additional sites identified through the course of the field work. This included determining which of these sites met the established ESA criteria, as well as verifying the appropriateness of the preliminary boundaries for these sites. This work involved extensive field studies and included assessment of additional potential sites (or extensions to previously identified sites) identified through the course of the field work. The results of this work are documented in this report (Volumes 1 and 2), and the detailed methodology used for undertaking these assessments is provided in Sections 3.1 through 3.5.

3.1 Identification of Potential ESAs

Identification of potential ESAs in the City of Toronto was based on the identification of significant natural areas in older natural heritage studies across the City, and supplemented by other, more current, data sources as well as scoped air photo interpretation.

The review of background documents and data included synthesis and consideration of information concerning significant natural areas in the City. These included the ESA studies undertaken by MTRCA (1982), the City of Scarborough (1982, 1983), the former City of Toronto (1994, Geomatics, 1992) as well as ravine and Toronto Islands studies by the Toronto Field Naturalists undertaken in the 1960's and 1970's. Additional sources of data that were considered as part of the identification process included aerial photography from 2005, extensive mapping and data collection done by OMNR in the Rouge River valley (Varga et al., 1991), various PSW and ANSI reports from OMNR, and data from the TRCA collected in various natural areas throughout the City (1994 – 2007).

It was recognized that the background review would not necessarily capture every area potentially meeting ESA criteria across the City. The possibility of identifying additional potential ESAs using the TRCA's database superimposed over the City's natural heritage system boundaries was explored in collaboration with TRCA in 2008. However, this approach presented a number of technical and logistical challenges for this study. A key limitation of this approach included the fact that the emphasis of TRCA data collection has been on species records in selected locations throughout the City's natural heritage system without consideration for what might constitute discrete, high quality habitats within that system, which is the focus of this study. Therefore, it was concluded that use of this data alone would likely result in the need to screen and field verify a much greater proportion of the City's natural heritage system, but would not likely yield that many additional sites. Furthermore, the areal coverage of this data collection would be no more random or comprehensive than the consideration of previous ESA / significant area studies combined with scoped air photo interpretation.

Ultimately reliance on previously identified ESAs and significant natural areas within the City's boundaries combined with consideration for other data sources (e.g., OMNR, TRCA) and

targeted air photo interpretation was determined to be the most cost effective approach likely to identify most discrete areas meeting the established ESA criteria across the City for the following reasons:

- ESAs or significant areas identified in other studies have been identified by knowledgeable naturalists, ecologists and researchers familiar with the respective study areas;
- Many of the previously identified areas have a long history of being recognized as areas of outstanding or unique ecological quality;
- The former ESA studies used criteria that were comparable to those approved in the City's Official Plan (MTRCA 1982; City of Scarborough 1982, 1983; City of Toronto 1994 (as illustrated in Table 1);
- The current review included previously identified areas that met the former criteria, as well as those that did not but were identified as natural areas of unusual quality;
- Most of Toronto's remaining significant natural areas occur along the ravine systems and river valleys, and the previous significant area studies focussed on these lands; and
- Site selection was supplemented by recent updates to candidate and confirmed ANSIs and PSWs in the City (North South Environmental 2008, 2009), as well as scoped air photo interpretation of lands adjacent to and between potential ESAs.

This methodology is described in detail in the Potential ESA Study (North-South Environmental and Dougan and Associates 2008).

3.2 Preliminary Boundary Determination and Review

As part of the 2009 Potential ESA Study, the boundary of each potential ESA was extracted from existing mapping in order to represent a broad "area to be investigated". Boundaries of potential ESAs and potential extensions to designated ESAs were digitized in Arcview from hard-copy mapping and this area was mapped on a base showing Toronto's road network.

For the current study, the mapped boundaries for each potential ESA were placed on 2003 orthorectified aerial photography for each site. Since the mapped boundary was frequently drawn from older sources (sometimes roughly-drawn hard-copy maps), the boundary was "shifted" in relation to the feature on which the potential ESA was based where required. In cases where the boundary did not appear to match the feature, an "extension" boundary was drawn that matched the feature boundary. Thus, when investigating the potential ESA, the area investigated included the original boundary as well as the boundary of the natural feature on which the ESA appeared to be based.

In addition, a second line was drawn on the base mapping that encompassed a 100 m extension to the original boundary. This 100 m zone was considered a reasonable distance within which to assess the appropriateness of the original boundary and recommend refinements or, where the potential boundary appeared to extend more than 100 m, further study, where appropriate.

A total of 113 sites were investigated including 18 designated ESAs, 20 potential ESA extensions and 75 potential ESAs. The extensions included:

- areas identified in the 1992 Geomatics study for the former City of Toronto as contiguous with the designated ESAs, but were originally determined to have lower significance or judged to be of lesser quality than the ESA; these sites were reconsidered as part of the 2009 and 2010 field work;
- more extensive areas associated with potential ESAs identified for further consideration (particularly in the Rouge Valley and Highland Creek Valley) where site visits over 2009 and 2010 revealed that the high quality habitat extended beyond the 100 m verification zone (these were assessed in 2011)

Other surveys conducted in 2011 included selected surveys to fill gaps identified through the prior field work. For example, if amphibian visits had not been conducted, in locations where surveys had identified a vernal pool not already identified.

Data are summarized in this volume, but are also shown separately for 113 sites in Appendix 2. Notably, Snake Island and Extension, Sherwood Park and Extension, and Rowntree Mill Park and Extension were each considered as single sites as it was not practical to separate these sites from their extensions.

3.3 Consideration and Integration of Additional Data

The primary source of additional and current City-wide data were Ecological Land Classification (ELC) polygons and numerous species data records provided by the TRCA. All available species data as well as ELC mapping going back to 1994 was first obtained from the TRCA in 2007. Much of this data was originally collected as part of the TRCA's Natural Heritage System planning and had been updated and expanded annually as resources allowed based on various internal considerations and priorities. Data within each study area (i.e., the original potential site plus a 100 m boundary extension) were overlaid on the site mapping to determine what type of information was available for each area.

The other major sources of supplementary data were the OMNR ANSI surveys and PSW surveys (Varga et al., 1991; OMNR 1998-2008) which were also extracted and overlaid on each site if specific locations were noted. Notably, the Varga *et al.* (1991) work included a comprehensive vegetation community classification of the entire Rouge Valley. As part of this study, we digitized this mapping and converted the vegetation classification to the current ELC system (Lee et al., 1998) to make it consistent with the vegetation mapping elsewhere in the City. We also made some unit boundary refinements based on comparisons with more current air photo coverage where communities had shifted or succeeded over time. This mapping was also verified and updated in the field where possible.

Site boundaries were reviewed for each site on a preliminary basis based on the 2003 air photos. The types and numbers of surveys required for each site were determined based on the scope and nature of previous data collected (if any), as well as the size and apparent ecological complexity of the site. Vegetation community and floral data more than 20 years old was considered historical and in need of verification and/or updating. Faunal data more than 10 years old was considered in need of verification and/or updating. Former records for significant species were

verified to the greatest extent possible through the field surveys, but the screening cannot be considered comprehensive for all species so if the habitat was still extant for the species, it was assumed the species could still be breeding there. Herpetofaunal (i.e., amphibian and reptile) surveys were flagged for all sites where historical records or interpretation of aerial photographs indicated that breeding sites for herpetofauna (i.e., permanent or temporary ponds) were potentially present. Bird surveys as well as surveys of incidental wildlife were flagged for all sites where faunal data had not been collected within the past 10 years, or where certainty of breeding had not been assessed in the available data (which was most sites).

3.3.1 Review of Landform

Each ESA was annotated to show its general surficial geology representation by overlaying ESA boundaries on a medium-scale (1:100,000) map of the Toronto Region (Sharpe 1980, Map P2204). Potential significance from a landform perspective was identified from these sources. In addition, the description of each formerly identified ESA was screened for mention of significant landform. All sites with potential for significant landform were flagged for further assessment in the field.

3.4 Landowner Contact

Mapping of potential sites where field work was to be conducted was cross-referenced with property parcel mapping provided by the City that distinguished between private and public ownership, and between City-owned park lands and TRCA-owned conservation lands (where permission was not required), and other public lands (where permission was required) (e.g., Ministry of Transportation rights-of-way, University of Toronto). Data provided to the study team did not include any contact or property information beyond the address of each parcel.

The consulting team then flagged all parcels for which access was needed to complete their ecological assessments, and provided this information in digital format to the City. The City used this information to generate a mailing list and sent out letters to the respective land owners explaining the purpose of the study and requesting permission to access their lands. This process was completed in the spring / summer of 2009 and again in the spring of 2010. The vast majority of sites requiring access in 2011 were either City park or TRCA conservation lands, or sites for which landowners had already been contacted regarding an adjacent parcel, and so the limited amount of additional access was requested in 2011 via email and phone.

Letters needed to be emailed, faxed or mailed back to the City indicating permission had been granted, or else field staff did not access those lands, and worked around them as best as possible. In some cases, surveys were conducted from adjacent lands where access had been provided. In two cases, the status of the site (i.e., if ESA criteria were fulfilled or not) could not be verified because of inadequate access. The City provided updates on the status of landowner responses on a regular basis throughout the field season, and this information was updated in supplementary site field maps.

Field staff were provided with site maps clearly indicating parcel / property lines and sites where there was access (i.e., shaded in green) versus properties where access was denied or no response was given (i.e., shaded in red). Landowners were also given the option of a phone call

prior to the actual site visit, and these were provided by field staff as required. In these cases, field staff were provided with the name and phone number of the contact by the City.

3.5 Field Studies

Dates when field work was conducted within each site are provided in the fact sheets for each site (Volume 2). These include the dates for field work conducted since 2006 as part of this and related studies by members of this study team (including investigations of designated ESAs and PSWs in 2006, investigations of some potential ESAs in 2008, investigations of ANSIs in 2009, and investigations during the current study over 2009, 2010 and 2011). This information is also included as metadata in the database provided to the City.

The types of surveys required and the level of survey effort allocated per site depended on the amount and quality of available data for a given site, as well as its date, the size of the site, and its accessibility. For example, studies of designated ESAs and studies of designated provincially significant areas (ANSIs and PSWs) focused on verifying qualifying features and the appropriateness of boundaries, rather than collecting new information, while more comprehensive field assessments were undertaken in most of the potential ESAs and extensions. While ANSI and PSW data collected over 2007 and 2008 was provided for use in this study, in some cases the level of detail was not sufficient for the size and diversity of the area to screen for qualifying ESA criteria, and therefore some additional, targeted field work was required. While level of effort per site was originally estimated and allocated based on site size and anticipated ease of access, in some cases time allocated per site was refined based on actual site complexity (e.g., sites where there was the potential for finding additional significant species with additional field visits, were allocated a bit of extra time where possible). In all cases, coverage of all representative vegetation communities in a site and verification of boundaries was prioritized over spending additional time in particular units.

3.5.1 Amphibian Surveys

Amphibian surveys were carried out to supplement existing amphibian data (i.e., primarily from TRCA's database), and were focused on sites that had not been previously studied, or where studies had not been carried out in the previous 10 years.

Amphibian surveys were carried out in each potential ESA that appeared, on the basis of aerial photography or previous records, to have potential for amphibian breeding habitat. Visits were timed to obtain information on frog species having sensitive habitat requirements for ephemeral ponds for breeding and requiring forest habitat for breeding. Generally, these are the species that breed earliest in the spring, after the ground thaws. Surveys did not include surveys for green frogs as these are generally detectable during daytime surveys, can generally adapt to a wide variety of habitats (including storm ponds) and are not considered significant in the City. Surveys were also timed to detect bullfrogs if habitat appeared suitable. The first visits were timed for April, a time appropriate for detection of wood frogs, spring peepers, northern leopard frogs and western chorus frogs. The second visit was timed for early to mid-May, suitable timing for detection of gray treefrogs, pickerel frogs, later-breeding spring peepers and northern leopard frogs. Visual searches for Ambystomatid salamanders were conducted in a few sites

where the habitat appeared suitable. These entailed searches of ponds after dark during the final spring thaw, during the first rains of the spring.

Notably, the project was initiated in late April of 2009, too late for the first visit to survey amphibians and too late to coordinate and obtain landowner permissions for early spring. Therefore, the focus of the 2009 work was on sites where access was readily available or easy to obtain (i.e., public lands). Several sites were visited in early May and then, if suitable habitat for earlier-breeding amphibians was found, flagged for re-visits in early 2010. Over the course of the 2009 and 2010 field studies, a few additional sites of potential significance for amphibian breeding were added and surveyed in 2010 or 2011. Some sites that appeared suitable for amphibians from examination of aerial photographs were not investigated further if the habitat appeared unsuitable based on examination during the field visits.

Amphibian surveys were conducted in the evening, using guidance provided by the Canadian Wildlife Service Marsh Monitoring program (CWS 2008). Visits were conducted after dusk, in mild weather with little wind, when frog calling was expected to be at its peak. Reference ponds (i.e., ponds with known populations of breeding frogs) were visited on the same night if frogs were not heard at a site, to ensure that the conditions were suitable for frog calling. Suitable habitat was surveyed for a minimum of 3 to 7 minutes.

Amphibian Call Codes were used to estimate abundance of breeding frogs, as recommended by Marsh Monitoring Protocols. Call Codes are as follows:

- Code 1:** individuals can be counted; calls not simultaneous
- Code 2:** calls distinguishable, some simultaneous calling
- Code 3:** full chorus; calls continuous and overlapping

3.5.2 Breeding Bird Surveys

Breeding bird surveys were conducted according to guidelines provided by the Ontario Breeding Bird Atlas (Ontario Breeding Bird Atlas 2001) and Canadian Wildlife Service Forest Bird Monitoring Program (FBMP) for obtaining evidence for breeding. Bird surveys were conducted between May 24th and July 10th, the “window” suggested by the Ontario Forest Bird Monitoring protocol within which birds can usually be assumed to be nesting in this part of Ontario. However, breeding evidence noted at other times of the year (such as a singing male or fledged young) was recorded whenever it was available.

Two visits were usually conducted per site in order to obtain stronger evidence of breeding¹². Two visits also increases the chances of detecting species that nest earlier or later in the season, and increases the probability of detecting species that sing infrequently. Only one visit was conducted in a few small, highly disturbed and urban sites where it was considered highly unlikely that additional or significant bird species would be detected. There were also a few sites where landowner permission was not received until late in the season, and only one visit was

¹² As noted in Footnote 7, The presence of a singing male in suitable habitat in approximately the same area at least a week apart is considered an indication that a species is a probable breeder; in addition to other evidence (Ontario Breeding Bird Atlas 2001).

possible in that year. Where possible, a second visit was undertaken the next year. In these cases, a species heard in both years was assumed to be a probable breeder.

All visits were conducted in fair weather with no precipitation and little wind (wind at a strength of 3 or less as measured by the Beaufort Scale). As recommended by bird survey protocols, surveys were conducted between 5:00 and 10:00 a.m., the time when birds are most active and sing most frequently. However, birds were recorded opportunistically during visits for other purposes whenever it was possible to record breeding evidence.

3.5.3 Surveys for Incidental Wildlife

Observations of other wildlife were collected whenever opportunities arose on site. Specific mammal surveys were not conducted because most mammals are cryptic and elusive, and surveys specifically designed for detecting them (generally trapping surveys) can result in high mortality within some taxonomic groups, particularly small mammals such as shrews.

Insect observations, particularly surveys for odonates (dragonflies and damselflies) and butterflies, were occasionally recorded as incidental observations by field biologists conducting surveys for birds, flora etc. Insect surveys were not specifically conducted for this project because many species are highly mobile and associated with river corridors, and their presence within an area may not necessarily be related to breeding habitat. In Toronto, many potential ESAs occur along river corridors and it is likely that odonates noted are associated with the riparian corridor rather than with a specific natural area.

4.0 OVERVIEW OF RESULTS

The total number of designated and potential ESA sites considered, including extensions and sites investigated in 2011, was 113. One hundred and three (103) sites, including the 18 designated ESAs, met at least one of the ESA criteria. Seven (7) sites did not contain any qualifying features, and in two (2) sites, the status could not be determined because of inadequate access to private lands. One (1) site is on the boundary of Toronto, but actually within the City of Pickering, and thus cannot be considered for City of Toronto ESA status.

The locations of all sites that were investigated as part of this study are shown on Figure 1 and summarized in Appendix 2. Sites that meet at least one of the ESA criteria are shown in red in Figure 1. Sites that were found not to meet any of the ESA criteria, or which remained undetermined, are shown in green in Figure 1. Generally, extensions are mapped on Figure 1 with the original site as part of a seamless area within one boundary, except where the extension did not qualify, in which cases they are shown separately with the letter "A".

As noted above, one of the sites, the Rouge Lakeshore Swale (Area 63) is in the City of Pickering. It constitutes the east side of the baymouth bar that protects the Rouge Marsh Area (Area 64). Though it meets the criteria to qualify as an ESA, its location in the City of Pickering does not permit its consideration as a City of Toronto ESA. It was included in the investigations because its jurisdiction was not certain at the time it was investigated, and it was suspected that features on the east side of the baymouth bar might be similar on the City of Toronto side.

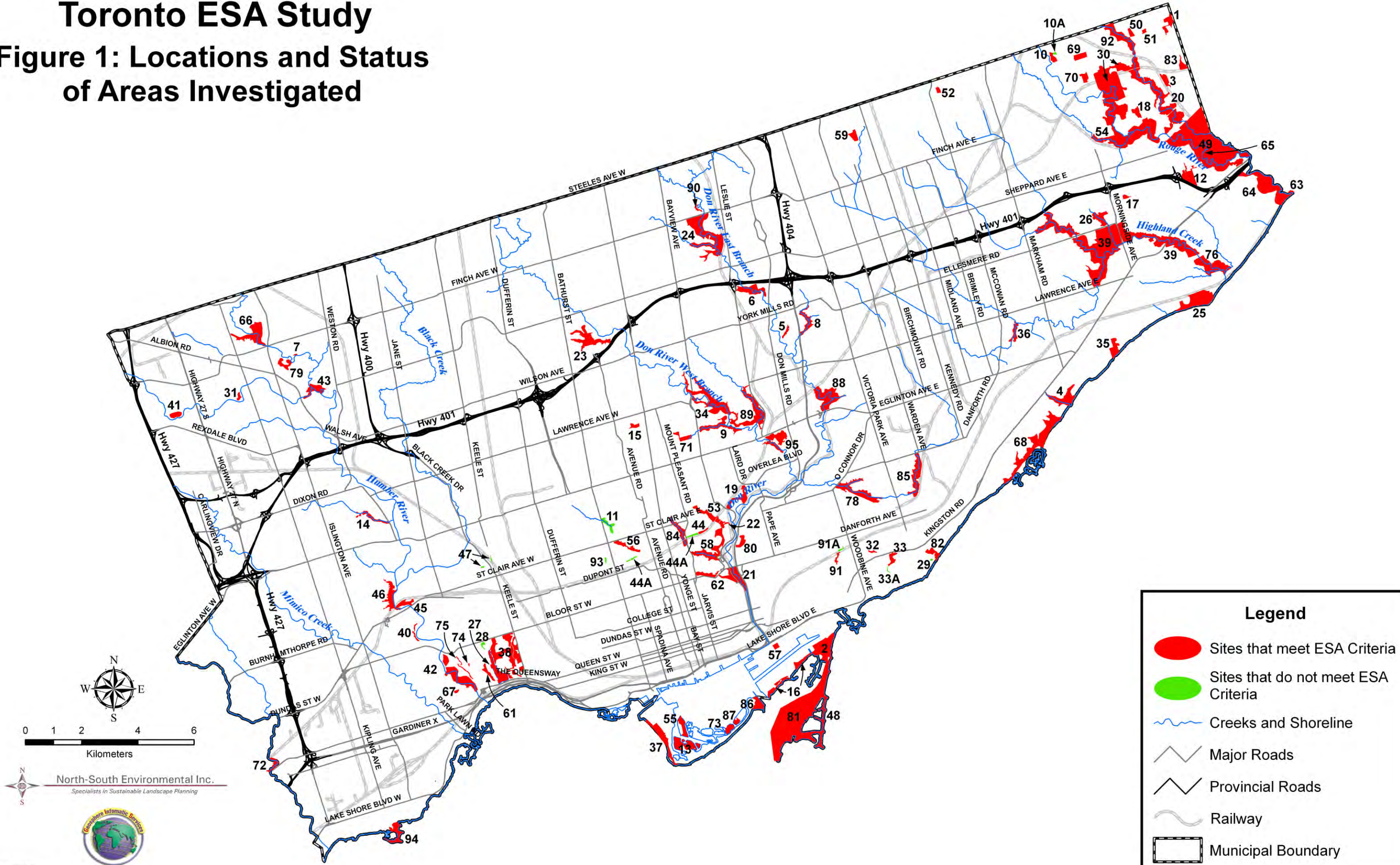
Legend: Figure 1 (next page)

Note: all extensions (denoted by #A in Appendix 2) are contained within the boundary of the main area unless they do not qualify as an ESA.

1	Barkey Woods	53	Moore Park Ravine
2	Base of Spit	54	Morningside Creek Forest/MilnesForest
3	Beare Road Woodlot	55	Muggs Island
4	Bellamy Ravine/Sylvan Park	56	Nordheimer Ravine
5	Bell's Woodlot	57	North Shore Park
6	Black Grass Site	58	Park Drive Ravine/DonValley (West Side)
7	Bluehaven Area	59	Passmore Forest
8	Brookbanks Ravine	60	Formerly Pearce Woods; now mapped as part of area 20
9	Burke Brook Forest	61	Rennie Park
10	Cedarbrae Woods	62	Rosedale Valley
10A	Cedarbrae Woods Extension*	63	Rouge Lakeshore Swale
11	Cedarvale Ravine*	64	Rouge Marsh Area
12	Centennial Forest & Swamp	65	Rouge River Whitby Formation Section
13	Centre Island Meadow/Wildlife Sanctuary	66	Rowntree Mill Swamp
14	Chapman Valley	67	Sassafras Site
15	Chatsworth Ravine	68	Scarborough Bluff Sequence
16	Cherry Beach	69	Sewells Forest North
17	Conlin's Pond	70	Sewells Forest West
18	Core Woods	71	Sherwood Park
19	Crothers Woods	72	Silverthorn Area
20	Diller Woods/Pearce Woods/Tabor's Horsetail Meadow	73	Snake Island Area
21	Don Valley (Central Section)	74	South Kingsway (East Flank)
22	Don Valley Brickworks	75	South Kingsway (West Flank)
23	Earl Bales Woodlot	76	Stephenson's Swamp/Highland Creek East
24	East Don Valley Swamp	77	Formerly Tabor's Horsetail Meadow; now mapped as part of Area 20
25	East Point	78	Taylor Creek
26	Ellesmere Woods	79	Thistletown Oxbow
27	Ellis Avenue	80	Todmorden Mills
28	Ellis Park*	81	Tommy Thompson Park
29	Fallingbrook Woods*	82	Toronto Hunt Club
30	Finch Ave. Meander/Sewells Forest/Reesor Woodlot	83	Townline Swamp
31	Garland Park	84	Vale of Avoca
32	Glen Davis Ravine	85	Warden Woods
33	Glen Stewart Ravine	86	Ward's Island
33A	Glen Stewart Ravine Extension*	87	West Algonquin Island
34	Glendon Forest	88	Wigmore Park Ravine
35	Guild Woods	89	Wilket Creek Forest
36	Hague Park	90	Williams Area
37	Hanlan's Beach	91	Williamson Park
38	High Park	91A	Williamson Park Extension*
39	Highland Forest/Morningside Park Forest and Highland Creek West	92	Woodlands on Little Rouge Creek
40	Home Smith Area	93	Wychwood Park Community*
41	Humber College Arboretum	94	Colonel Sam Smith Park
42	Humber Valley	95	E.T. Seton Park
43	Humberforks at Thistletown		* indicates sites that do not qualify as ESAs
44	Iroquois Shoreline		
44A	Iroquois Shoreline Extension*		
45	Lambton Park Prairie		
46	Lambton Woods		
47	Lavender Creek*		
48	Leslie Street Spit		
49	Little Rouge Forest		
50	Meadowvale Woodlot A		
51	Meadowvale Woodlot B		
52	Milliken Woods		

Toronto ESA Study

Figure 1: Locations and Status of Areas Investigated



Legend

- Sites that meet ESA Criteria
- Sites that do not meet ESA Criteria
- Creeks and Shoreline
- Major Roads
- Provincial Roads
- Railway
- Municipal Boundary

North-South Environmental Inc.
Specialists in Sustainable Landscape Planning



It remains within the mapping because this baymouth bar is highly active and it is possible that this site may partly fall within the City of Toronto from time to time, was documented because it was part of the study, and is an integral feature of the Rouge River marshes (which are in Toronto).

It was not entirely unexpected that a large number of sites qualified, given that most of the sites had been identified in previous studies, in whole or in part, as sites that would potentially qualify as ESAs. A summary table with a description of each of the sites investigated and their qualifying features is provided in Appendix 2. Figure 1 shows 95 sites individually, as extensions were mapped with contiguous sites unless it was found that they did not qualify as ESAs.

The total area occupied by the sites qualifying as ESAs in Toronto is 2735.4 ha, or 4% of the total land base of Toronto (66,750 ha). Most sites that qualified as ESAs are associated with the major river and creek valleys in Toronto, or the Toronto waterfront (Figure 1): Etobicoke Creek (1 site), the Humber River (16 sites), the Don River (18 sites), Highland Creek (5 sites), and the Rouge River (18 sites). This illustrates the importance of the major river and creek corridors in contributing to Toronto's biological diversity. Twenty-seven qualifying sites drain directly to the waterfront; six of these are associated with the bluffs along the eastern portion of the waterfront; and 18 sites are situated in smaller tributaries outside a river valley or its major tributaries, but are in close proximity to a major ravine. No potential or qualifying ESAs were associated with Mimico Creek or Black Creek.

4.1 Sites That Did Not Qualify

Seven sites did not qualify as ESAs:

- Cedarbrae Woods Extension;
- Cedarvale Ravine;
- Fallingbrook Woods;
- Glen Stewart Extension;
- Lavender Creek;
- Williamson Park Extension; and
- Wychwood Park Community.

These sites (shown in green on Figure 1) were the smallest of the sites investigated, and some of the most disturbed. One of these sites (Glen Stewart Extension) appeared to have been mowed regularly.

Even though these sites do not qualify, the field investigations identified ecological features and functions associated with these sites that should be considered if development is proposed within or adjacent to them. These features and functions are summarized in the Fact Sheets.

4.2 Sites for Which Status is Unknown

The status of two sites, Ellis Park and Iroquois Shoreline Extension, is unknown. These could not be evaluated because they were entirely privately owned and access was not provided to investigate sufficient portions of them, and though significant vegetation communities were identified at Ellis Park by TRCA, these could not be reviewed by the study team. If development is proposed within or adjacent to these sites, field studies should be carried out to determine if the area meets any of the ESA criteria.

4.3 Breakdown of Criteria Met by Sites

Table 2 provides a breakdown of the number of sites that met each criterion. The presence of significant species was the criterion that was met by most of the sites, although a significant number of the sites also had other qualifying ecological features and functions.

Table 2. Number of sites that meet each criterion (excluding the Rouge Lakeshore Swale in the City of Pickering)

Criterion	Number of sites that meet criterion
<u>A</u> : Habitats for vulnerable, rare or threatened plant and/or animal species and communities that are vulnerable, rare, threatened or endangered within the Province, the City or the Greater Toronto Area.	102
<u>B</u> : Rare, high quality or unusual landforms created by geomorphological processes within the City or the Greater Toronto Area.	34
<u>C</u> : Habitats or communities of flora and fauna that are of a large size or have an unusually high diversity of otherwise commonly encountered biological communities and associated plants and animals	59
<u>D</u> : areas where an ecological function contributes appreciably to the healthy maintenance of a natural ecosystem beyond its boundaries, such as serving as a wildlife migratory stopover or concentration point, or serving as a water storage or recharge area.	71

4.3.1 Criterion A: Significant Flora

Almost all sites that qualified contained significant flora. The two exceptions were Don Valley Brickworks and Rouge River Section, which qualified primarily because of landform (the Rouge River Section also supported a significant vegetation community). The following is the breakdown of the numbers of significant flora in each site (excluding the seven sites that did not qualify as ESAs, and two sites that could not be determined):

- 29 sites: fewer than 5 significant flora species
- 25 sites: 5-10 significant flora species
- 41 sites: 11-50 significant flora species
- 6 sites: greater than 50 significant flora species.

In 15 sites, the only qualifying feature was the presence of significant flora:

- Black Grass Site (3 species)
- Black Grass Extension (9 species)
- Bluehaven Area (1 species)
- Chatsworth Ravine ESA (2 species)
- Conlin's Pond (1 species)
- Core Woods (7 species)
- Garland Park (3 species)
- Glen Davis Ravine (2 species)
- Home Smith Area (2 species)
- Humber College Arboretum (6 species)
- Meadowvale Woodlot B (1 species)
- Milliken Woods (3 species)
- North Shore Park (4 species)
- Rosedale Valley Extension (2 species)
- South Kingsway East Flank (2 species)

Although, according to the ESA criteria, the presence of only one significant species is required to warrant designation of a site, the overall intent of ESA designation is to ensure protection of the more sensitive natural areas in the City, as well as to try and ensure that the full range of habitats that occur across the City are protected in order to sustain current levels of native biodiversity. Therefore, the sites qualifying because of the presence of relatively few plant species were carefully considered in terms of meeting the overall ESA intent, as well as meeting a single criterion.

All the sites listed above are considered able to continue to provide viable habitat for the significant species within them, and therefore qualify as ESAs. Though they support only a few significant species, these sites are important in protecting biodiversity at many levels as a collected whole. For example, South Kingsway (East Flank), is a relatively small area (0.4 ha) that supports two significant species: black oak and sassafras, both considered Carolinian in distribution (i.e., with a very restricted range in Ontario and Canada). This site is extremely degraded and requires some active management to better protect these trees and their rooting zones, but contains significant species at the northern end of their range in Ontario that are likely to benefit from the changes anticipated with climate change and may be important seed sources for the increasing diversity of Carolinian species throughout Toronto.

Some of the sites meeting only this criterion, as well as others, were identified as being fairly degraded and would benefit from (and even require) active management and restoration in order to sustain significant species habitat in the medium to long term (as noted in their respective fact sheets provided in Appendix 2). Given that the significant species documented in these areas are largely considered to be naturally occurring, and therefore able to survive under the current conditions, it was assumed that management activities in these areas would have a good chance of success. Notably, natural areas in urbanized landscapes typically require some active and/or passive management to improve resilience in the face of various impacts, and as noted in the fact

sheets (see Volume 2) and discussed in Section 7.0, and many of the sites recommended for ESA designation in the City would benefit from some active management and restoration activities.

As noted in the section on ESA guidelines (Section 2.0), five of the initial qualifying floral species (as listed in Table 3) were ruled out because they are species that are: likely to have been planted, readily misidentified and confused with a very similar, more common species, or in the case of butternut, not rare but having status because of susceptibility to disease (Table 3).

Table 3. Species not considered qualifying

Species	No. of Sites	Explanatory Notes for Significant Species Not Used to Qualify a Site as an ESA
Blue Cohosh (<i>Caulophyllum thalictroides</i>)	14	Easily misidentified and confused with the more common <i>Caulophyllum giganteum</i> (also called Blue Cohosh)
Red Pine (<i>Pinus resinosa</i>)	24	Most likely planted at most sites.
Highbush Cranberry (<i>Viburnum trilobum</i>)	28	Often planted; easily confused with non-native highbush cranberry (<i>Viburnum opulus</i>).
White Oak (<i>Quercus alba</i>)	35	Not rare in the City, often planted.
Butternut (<i>Juglans cinerea</i>)	38	Not rare. Provincially Endangered under the <i>Endangered Species Act</i> because of its susceptibility to a fatal fungal disease.

Six additional floral species also noted relatively frequently in ESAs were examined to determine whether they repeatedly manifested as the only qualifying species: speckled Alder (*Alnus incana* ssp. *rugosa*), riverbank wild-rye (*Elymus riparius*), common red currant (*Ribes triste*), American three-square (*Scirpus pungens*), rose twisted-stalk (*Streptopus roseus*) and ninebark (*Physocarpus opulifolius*). However, after further analysis these were still considered qualifying because they currently have regional or local status, appear to continue to be relatively rare in the City based on our findings, are unlikely to have been misidentified and are unlikely to have been planted. Notably, the rare species under discussion are different for almost each site, supporting the assertion that even sites with only a few qualifying species make important contributions to local and regional native biodiversity as a whole.

All other sites qualified as ESAs by meeting more than one significant criterion except for the Don Valley Brickworks, which qualified because of landform alone.

4.3.2 Criterion A: Significant Vegetation Communities

The presence of significant vegetation communities was a qualifying feature in 67 sites (not including the Rouge Lakeshore Swale in the City of Pickering). The breakdown of sites that supported significant vegetation communities was as follows:

- 41 sites: fewer than 5 significant vegetation communities
- 19 sites: 5 to 10 significant vegetation communities

- 6 sites: 11 to 50 vegetation communities

4.3.3 Criterion A: Significant Fauna

Presence of significant fauna (in addition to significant flora and often other significant features) was a qualifying feature in 54 sites. However, many fewer fauna species were noted in each site (as expected) than significant flora, as follows:

- 45 sites: 1 to 4 species
- 6 sites: 5 to 10 species
- 3 sites: 11 to 50 species

Not surprisingly the largest sites also tended to have the greatest diversity of significant faunal species.

4.4 Criteria B, C and D

Fifty-nine sites that qualified also contained habitats of large size and/or high diversity (Criterion B); 34 sites qualified because of significant landform (as noted above, only one site qualified because of landform alone) (Criterion C); and 65 sites qualified because of the presence of one or more significant ecological function(s) (Criterion D) with the breakdown of functions as follows:

- 16 sites: breeding or overwintering habitat for sensitive frog species;
- 18 sites: substantial seepage that contributed to the presence additional diversity or functions;
- 6 sites: habitat for colonial bird species;
- 29 sites: water storage area of > 2 ha (excluding coastal sites, since according to the Ontario Wetland Evaluation System (1993) coastal sites do not contribute significantly to water storage functions);
- 24 sites: significant sites for migrating songbirds (i.e. 1% or more of records from the Toronto Ornithological Club, according to Dougan & Associates and NSE 2009)
- snake hibernacula: 3 sites;
- wintering habitat for deer: 1 site; and
- significant node of habitat contributing to linkage between critical habitats: 10 sites.

4.5 Relationship between ESAs and Provincially Significant Features

At the provincial level, agencies such as the Ontario Ministry of Natural Resources (OMNR) have programs to identify areas of provincial and regional significance (provincial and regional Areas of Natural and Scientific Interest, or ANSIs) and Provincially Significant Wetlands within Ecodistrict 7E-4. Criteria used for evaluating significance of ANSIs are comparable to those used to delineate ESAs in some respects (e.g., size, condition, ecological functions, special features and diversity are taken into account), however, the designation of a candidate ANSI is based on its representation of landform/vegetation associations within an ecodistrict. For example, the Rouge Valley is designated as a provincial ANSI because it forms the most significant system of linked natural areas along any of the lower river valleys draining into northwestern Lake Ontario, and contains the best representation of certain vegetation / landform

associations within Ecodistrict 7E-4 (NHIC 2008). Regional ANSIs are those that provide the second-best representation of landform/vegetation associations within a particular ecodistrict.

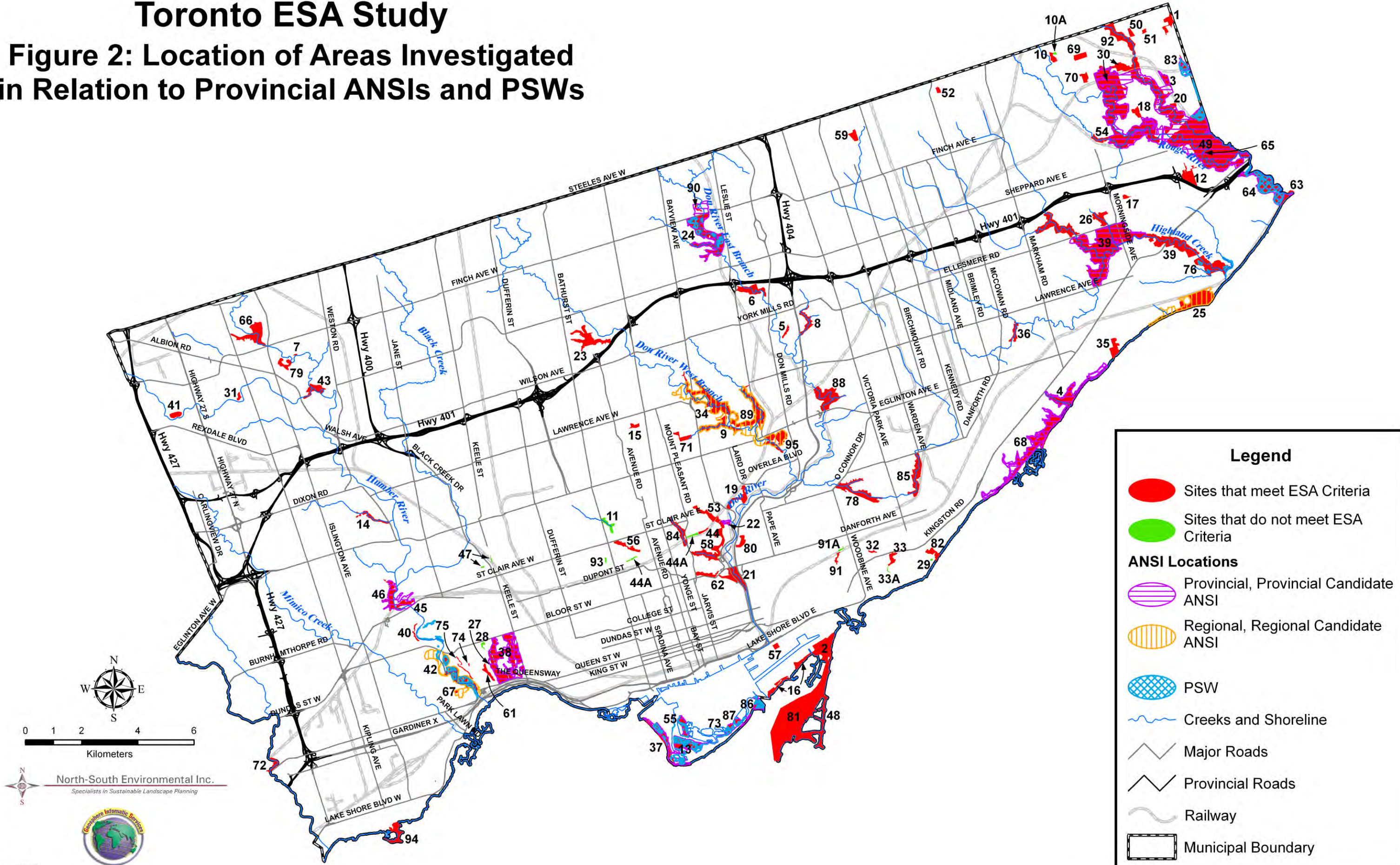
Provincially Significant Wetlands (PSWs) are designated on the basis of a scoring system that also takes into consideration size, diversity, ecological functions and special features. However the scoring system also includes many other attributes related to wetland function, including some that are not considered for ESAs such as social attributes.

Figure 2 shows sites that qualify as ESAs in relation to PSWs and provincially and regionally significant ANSIs identified by the OMNR. Twenty-four ESAs overlap with ANSIs and 11 sites overlap with PSWs. This information has been included to illustrate that some sites that meet municipal ESA criteria may overlap with provincially designated PSWs and ANSIs. In some cases, sites that meet ESA criteria extend beyond the provincially significant areas (e.g., Humber Valley ESA, East Point) because they contain qualifying features that make them significant at the local level, even if they do not contribute significantly to representation at the provincial level.

None of the sites that did not qualify as ESAs overlap with ANSIs and PSWs. It is important to note that the Official Plan policies that apply to provincial features may be different from those that apply to ESAs, but that both need to be recognized and typically the more restrictive of the two would apply.

Toronto ESA Study

Figure 2: Location of Areas Investigated in Relation to Provincial ANSIs and PSWs



5.0 CHARACTERISTICS OF QUALIFYING SPECIES AND FEATURES WITHIN SITES

Appendices 1 through 5 provide a summary of the qualifying ESA features for each site investigated for this study. The following sections provide a summary of the analysis of the qualifying features within the sites investigated.

5.1 Criterion A: Significant Flora, Fauna and Vegetation Communities

5.1.1 Vegetation Communities

Significant vegetation communities across all sites included a total of 114 different communities considered significant by TRCA (with a rank of L1 to L3) and 16 considered provincially significant (NHIC S-ranks of S1, S2, S3 or S3S4). Appendix 4 provides a list of these communities and their significance. The summary of significant community types noted within this study is as follows:

- beach: 8 types
- bluff: 6 types
- clay barren: 2 types
- cultural: 5 types (including only those with a significant native tree or shrub component)
- coniferous forest: 4 types
- deciduous forest: 17 types
- mixed forest: 11 types
- meadow marsh: 9 types
- shallow marsh: 6 types
- floating leaved shallow aquatic marsh: 1 type
- mixed shallow aquatic marsh: 5 types
- submerged shallow aquatic marsh: 2 types
- Sand Barren: 4 types
- sand dune: 7 types
- coniferous swamp: 3 types
- deciduous swamp: 8 types
- mixed swamp: 4 types
- thicket swamp: 5 types
- tallgrass prairie/savannah: 7 types

Many significant vegetation types were related to sand dunes, prairies, savannahs, shorelines and bluffs, sites that historically were kept unvegetated by natural processes. Rare forest vegetation types included those dominated by oak and pine and other shade-intolerant species that thrive only with periodic natural disturbance. Many wetland vegetation types documented, except those dominated by non-native species, are considered significant.

5.1.2 Flora

A total of 1049 flora species were documented within the sites assessed. Appendix 3 provides a list of the 369 documented floral species considered significant. It also provides the number of sites in which each species was found.

Table 4 provides a breakdown of the number of qualifying species that occurred with the number of sites in which they occurred. This analysis shows that approximately 40% of qualifying species are very rare, with many documented only in one site (many of these at High Park). Fifteen (15) percent of the significant species were documented at only two sites, 39% of the significant species were documented at fewer than 10 sites (i.e., between 3 to 9 sites), and only 7% of the significant species were documented at more than 10 sites. None of the qualifying species were documented at more than 20 sites.

While it is likely that more time spent in the field would have yielded a few additional significant species at a few more sites, the general trend seems to be one of low levels of occurrence and abundance of rare plant species in the City. This shows that although there are some significant species that occur at as many as 20 sites, it is important to protect as many sites as possible to ensure the persistence of significant species in the face of habitat change. It also points out that it is important to protect as wide a range of sites as possible to ensure that significant species are protected, as so many occur in only one area of Toronto.

Table 4. Number of qualifying plant species and the number of sites where found.

Numbers of Qualifying Species	Number of Sites	Percent of Species
140	1	38%
56	2	15%
37	3	10%
27	4	7.0%
23	5	6.0%
19	6	5.0%
12	7	3.2%
15	8	4.0%
10	9	2.7%
5	10	1.3%
3	11	0.8%
6	12	1.6%
3	13	0.8%
2	14	0.5%
1	15	0.3%
2	16	0.5%
2	18	0.5%
1	20	0.3%

The most common floristic theme for rare habitat in Toronto was prairie and savannah, reflecting Toronto's location as a significant remnant of the Iroquois Sand Plain. Prairies and savannahs are provincially rare plant communities, and many of the species found within these communities are also provincially rare. Forty-two of the qualifying species are those with affinities to prairie and savannah habitats (Riley 1989). These were found primarily on the Toronto Islands, in High Park and in Lambton Prairie, but also scattered on bluffs and south-facing slopes at some other sites. All species occurred at fewer than 10 sites, and many occurred only at High Park. Prairie/savannah species documented include:

- big bluestem (*Andropogon gerardii*),
- little bluestem (*Schizachyrium scoparium*),
- Kalm's brome (*Bromus kalmii*),
- Canada wild-rye (*Elymus canadensis*),
- switch-grass (*Panicum virgatum*),
- Indian grass (*Sorghastrum nutans*),
- sand, small and sheathed dropseeds (*Sporobolus cryptandrus*, *S. neglectus* and *S. vaginiflorus* respectively),
- freshwater cordgrass (*Spartina pectinata*),
- hay sedge (*Carex siccata*),
- slender cyperus (*Cyperus lupulinus*),
- American hazel (*Corylus americana*),
- bastard-toadflax (*Commandra umbellata*)
- thimbleweed (*Anemone cylindrica*),
- early buttercup (*Ranunculus fascicularis*),
- tall cinquefoil (*Potentilla arguta*),
- Carolina rose (*Rosa carolina*),
- paniced tick-trefoil (*Desmodium canadense*),
- round-headed, wand-like and hairy bush-clovers (*Lespedeza capitata*, *L. intermedia* and *L. hirta*, respectively),
- wild lupine (*Lupinus perennis*),
- New Jersey tea (*Ceanothus americanus*),
- Virginia yellow flax (*Linum virginianum*),
- racemed and whorled milkwort (*Polygala polygama* and *P. verticillata* respectively),
- shrubby St. John's wort (*Hypericum prolificum*),
- stiff gentian (*Gentianella quinquefolia*),
- butterfly milkweed (*Asclepias tuberosa*),
- fernleaf yellow false-foxglove (*Aureolaria pedicularia*),
- narrowleaf pinweed (*Lechea intermedia*),
- roundleaf harebell (*Campanula rotundifolia*),
- sky-blue aster (*Symphyotrichum oolentangiense*),
- smooth aster (*S. laeve*),
- arrow-leaved aster (*S. urophyllum*),
- field thistle (*Cirsium discolor*),

- Robin's plantain (*Erigeron pulchellus*),
- plains and Canada frostweed (*Helianthemum bicknellii* and *H. canadense*, respectively),
- pale-leaf sunflower (*Helianthus strumosus*), and
- cylindrical blazing-star (*Liatris cylindracea*).

Another common floristic theme for qualifying species included those that are at the northern edge of their range in this part of Ontario (Riley 1989), and thus represent the Carolinian or southern character that is so much a part of Toronto's significance. Many of these also have affinities with prairie and savannah habitats. Some of the more commonly documented significant species (i.e., at more than 10 sites, with the caveat that these were not considered qualifying species if they were planted in sites where they would not normally occur naturally and were not self-sustaining) included black oak (*Quercus velutina*), sassafras (*Sassafras albidum*) and running strawberry-bush (*Euonymus obovata*). However, most other southern species were documented more rarely (i.e., at fewer than 5 sites) such as white trout-lily (*Erythronium albidum*), wild lupine (*Lupinus perennis*), burning bush (*Euonymus atropurpurea*), summer grape (*Vitis aestivalis*), yellow false-foxglove (*Aureolaria pedicularia*), twinleaf (*Jeffersonia diphylla*), Virginia yellow flax (*Linum virginianum*), golden Alexanders (*Zizia aurea*) and hairy-fruited sedge (*Carex trichocarpa*). Three of these southern species occur only at High Park.

A few of the qualifying species are those with particular affinities to Great Lakes Shorelines. These were mainly found on the Toronto Islands, and included beach grass (*Ammophila breviligulata*), elk sedge (*Carex garberi*), heart-leaved willow (*Salix cordata*), American sea-rocket (*Cakile edentula*) (which occurred along the beaches of the Scarborough Bluffs and Rouge Marshes as well as on the Toronto Islands), bushy cinquefoil (*Potentilla paradoxa*), beach pea (*Lathyrus japonicus*) and beach wormwood (*Artemisia campestris* ssp. *caudata*).

There were no other strong floristic themes evident in the remaining qualifying flora species (i.e., no species with particular northern or western affinities). Most qualifying species were those that are widespread in southern and central Ontario but are generally found as part of high-quality vegetation assemblages where native species predominate. These included:

- a few forest and wetland species that are common in other parts of Ontario such as starflower (*Trientalis borealis*), green sedge (*Carex viridula*), beaked sedge (*C. utriculata*) and skunk cabbage (*Symplocarpus foetidus*); and
- species that are characteristic of rare groundwater seepage areas such as fens (for example slender sedge (*Carex lasiocarpa*) and sundew (*Drosera intermedia*)).

5.1.3 Fauna

5.1.3.1 Amphibians

Eight amphibian species were noted in the present surveys within the City of Toronto. Six of these (northern leopard frog, bullfrog, wood frog, gray treefrog, spring peeper, and eastern redback salamander), are ranked L1 to L3 by TRCA, and have a habitat dependence scored at 4 or 5. Their presence thus qualifies an area as an ESA. Two species, American toad and green frog, are not considered qualifying species because they are still widespread in Toronto and are

highly flexible in their habitat preferences. However, given the relative rarity of amphibian habitat across the City, the presence of natural breeding habitat for high abundances (i.e., call code 3) of any species of frog, including American toad, is considered a significant ecological function and qualifies an area as an ESA in the City (under Criterion D).

Sites that support breeding habitat for frog species are very uncommon in the City of Toronto, as shown in Table 5. Only two species were found at more than 20 sites: American toad (25 sites) and green frog (23 sites) and larger breeding aggregations of even these species were rare as most of the sites supported only one or two individuals. This is likely related to the scarcity of suitable habitat (i.e., standing water that persists for sufficient time for amphibians to transform into adults, and that is surrounded by sufficient summer foraging and overwintering habitat) but for some species may also be related to the predominantly built up character of the City (e.g., Rubbo and Kiesecker 2005). Woodland frogs that have very specific habitat requirements for ponds in close proximity to high-quality deciduous woods are very rare in the City. These species include wood frogs, spring peepers and gray treefrogs.

Interestingly, the most important breeding site for northern leopard frogs (found in three sites along the Toronto waterfront as well as a handful of other sites further inland) is the Leslie Street headland, an engineered spit projecting into Lake Ontario that has been continuously constructed of rubble and soil excavated from construction sites in Toronto since 1959 (Tommy Thompson Park 2000). For the purposes of this study, the headland was divided into two sites: the existing Tommy Thompson Park ESA on the west side of the headland, and the Leslie Street Spit on the east side of the headland. This was done in order to distinguish between the older portion, which is a designated ESA, and the more newly-constructed eastern portion of the headland, which is still under active construction. Most amphibian breeding habitat is within new embayments and small ponds created on the east side of the headland (i.e., the Leslie Street Spit site), as per the breeding aggregations reported throughout the 1990s and 2000s (i.e., from one to eight individual ponds on the east side of the headland). However, the western site (i.e., Tommy Thompson Park ESA) seems to be used as active foraging area for many of these northern leopard frogs. The numbers of leopard frogs noted during the summer, after the breeding season, have been relatively high (e.g., 20 to 30 individuals reported in 1986 and 2006), and non-breeding records are primarily from the west side of the headland. Notably, we are suggesting that the two “sides” be combined into a single ESA area given their proximity, the fact they both have qualifying criteria, and the fact that they appear to function jointly to provide habitat for this locally significant species.

Amphibian records elsewhere in the City reflect the relative scarcity of this taxonomic group, as summarized in Table 5. Highlights of amphibian surveys included the following:

- Some sites are used only periodically; for example, surveys of Ward’s Island revealed two calling leopard frogs in 2006, but none were heard during surveys of the same area in 2010;
- American bullfrogs, a species that requires permanent water that does not freeze to the bottom for tadpoles to overwinter, as well as dense stands of vegetation at the water’s edge, were only noted at three sites across the City;

American toads and green frogs, which frequently breed in anthropogenic or disturbed habitats, occur much more widely in Toronto and are not considered significant species in and of themselves, although sufficient concentrations of them may be considered rare in the City. For example, a small breeding aggregation of American toads (three individuals) was heard vocalizing from an ornamental pond on the Toronto Island school grounds in 2006, and toads and green frogs frequently inhabit storm ponds which were not widely surveyed in this study. These types of sites would not qualify as ESAs based on this data alone.

Most of the sites of greatest importance to the most sensitive amphibians (i.e., supporting more than two sensitive species) are located in the Rouge River valley system:

- Beare Road Woodlot,
- Finch Avenue Meander,
- Pearce Woods, Morningside Forest/Milne's Forest, and
- Sewell's Forest and Rouge Marsh.

This is likely because these sites are still found within a less urbanized matrix that is still somewhat rural in character, as well as within the largest area of continuous habitat across the City.

Very few sites supported more than two of even the less sensitive species. The following were the areas of most significance to less sensitive species:

- Townline Swamp supports three species, though these include two older records;
- The Highland Creek system supports three species;
- Two sites with three species occur in the Don Valley: E.T. Seton Park and Park Drive Ravine.
- Tommy Thompson Park ESA/Leslie Street Spit supports the highest abundances of the most common species: green frog, American toad and northern leopard frog.

There are also historical records for three additional frog species in the City: pickerel frog, mink frog and western chorus frog. Pickerel frog and mink frog were reported in Townline Swamp in the Wetland Data Record for the Townline Swamp PSW, but were not found at this site during assessments undertaken for this study. Western chorus frog has been reported in the past from Tommy Thompson Park, but the date of this record is uncertain, and it was not detected in surveys of the Park by TRCA during the 1980s and 1990s, or as part of surveys conducted for this study. Although local extirpation for some of these is suspected, it is premature to be presumed.

Salamanders are, it seems, more scarce than frogs in the City, and the presence of confirmed habitat for any species qualifies a site as an ESA.

- Eastern red-backed salamander, generally a widespread and abundant species in Ontario (with a provincial status of S5) which does not depend on vernal pools for breeding but lays eggs under rotting logs, was only noted at ten sites: Bell's Woodlot, Brookbanks Ravine, Crother's Woods, Earl Bales Woodlot, East Don Valley Swamp, High Park, Highland Forest/Stephenson's Swamp Extension, Morningside Creek Forest/Milne's

Forest, Vale of Avoca, and Williamson Park. The presence of this species qualifies an area as an ESA.

- No other salamander species were documented as part of the surveys undertaken for this study despite surveys specifically dedicated to salamander searches, and none have been documented in the City for decades. Spotted salamanders, which have specific requirements for vernal pools for breeding and upland wooded habitat for summer foraging and overwintering, were recorded historically in the Humber and Rouge Valleys, but not in recent decades. Nonetheless, they can be extremely difficult to detect because they spend most of the year under ground, only being present above ground during the first two weeks after the first rain of the spring, and may not breed every year if conditions are not suitable, so may still persist in a few locations in the City undetected.

Table 5. Numbers of breeding frogs within Toronto sites

Species	Number of Sites with Breeding Aggregations			Additional Sites with non-breeding observations	Sites with Largest Breeding Aggregations (call codes 2 and 3)
	Call Code 1	Call Code 2	Call Code 3		
American Bullfrog	3				None with call codes 2 or 3; the only records are for Townline Swamp, E.T. Seton Park and Highland Creek/Stephenson's Swamp Extension (there is also an older record for Highland Forest/Morningside Park Forest and Highland Creek West)
American Toad	12	5	2	10	Humber Valley, Leslie Street Spit, Rouge Marsh, Morningside Creek Forest/Milne Park, Conlin's Pond, Rennie Park, Sewell's Forest North
Gray Treefrog	6	2	1	3	Finch Avenue Meander, Pearce Woods, Townline Swamp
Green Frog	17	8	1		Glendon Forest, Rouge Marsh, Thistletown Oxbow
Northern Leopard Frog	7	3		2	Humber Valley, Tommy Thompson Park/Leslie Street Spit, Townline Swamp
Spring Peeper	3				None with call codes 2 or 3; 1 individual tentatively heard adjacent to Park Drive Ravine/Don Valley West Side (Brickworks pond), and 1-2 individuals in Rouge Marsh, Woodlands on Little Rouge
Wood Frog	8		1	3	Finch Avenue Meander (the only site with call code more than 1; with more than 8 individuals), Rowntree Marsh (call code 3 in 2006); other sites with fewer (Rouge Marsh, Morningside Park/Milne's Forest, Passmore Forest, Barkey Woods (1-2 individuals), Scarborough Bluffs, Sewell's Forest North, and; old records for Meadowvale Woodlot A, Humber Valley and Centennial Forest and Swamp

5.1.3.2 Reptiles

Eight species of reptile have been noted in the City of Toronto among the surveyed sites, mainly in the larger sites along the waterfront. Most of the reptile species are turtles: painted turtle, red-eared slider, snapping turtle, northern map turtle and Blanding's turtle. Only three snake species have been reported with any frequency in Toronto: eastern gartersnake, Dekay's brownsnake and eastern milksnake. However, the presence of snakes is likely underestimated as they are highly cryptic and elusive. Two additional snake species have been reported from Tommy Thompson Park/Leslie Street Spit: northern red-bellied snake and northern watersnake (Tommy Thompson Park 2010), but the records are unconfirmed.

The presence of any turtle or snake species, with the exception of Eastern Gartersnake, Dekay's Brownsnake, and pond slider (a non-native species that has been released in many sites along the waterfront), is remarkable in the City of Toronto and qualifies a site as an ESA.

The most important sites for reptile diversity are noted in Table 6. All other sites supported only one or two species. The most common species of reptile were eastern gartersnake, found in 14 sites, Dekay's brownsnake, found in eight sites, and midland painted turtle, found in five sites. The only site that has been identified as a hibernaculum for snakes is Tommy Thompson Park and the Leslie Street Spit (the two contiguous sites qualifying as ESAs on the Leslie Street headland). It is also possible that the rubble at Colonel Sam Smith Park provides hibernacula for snakes and hibernacula must exist elsewhere in the City (though they are difficult to find without telemetry studies) as snakes are periodically noted in other areas and require hibernacula to survive the winter.

The importance of the three sites noted in Table 6 is likely related to the inclusion of a large body of water, and sufficient overwintering habitat in these sites, as well as their interconnectedness along the shore of Lake Ontario. The only site away from the waterfront that supported more than one species was Townline Swamp, which supports two common species of turtle (midland painted turtle and snapping turtle). Notably, two of the three sites that supported relatively high reptile diversity are also considered provincially or regionally significant: High Park is considered a Provincial ANSI, Townline Swamp is a PSW and Provincial candidate ANSI, and Humber Valley and Extension include both a PSW and a regional candidate ANSI.

Table 6. Sites with more than two reptile species within the City of Toronto. * indicates a species whose habitat would qualify as an ESA

Site Name	Snake Species	Turtle Species
High Park	Dekay's Brownsnake, Eastern Gartersnake	Midland painted turtle*, red-eared slider, snapping turtle*, Blandings turtle*
Humber Valley and Extension	Dekay's brownsnake, Eastern gartersnake, eastern milksnake*	Midland painted turtle*, red-eared slider, snapping turtle*, Blanding's turtle*, northern map turtle*
Tommy Thompson Park/Leslie Street Spit	Eastern Gartersnake, Dekay's brownsnake, eastern milksnake*, northern red-bellied snake*, northern watersnake*	Midland painted turtle*, red-eared slider, snapping turtle*, Blanding's turtle*, northern map turtle*

5.1.3.3 Birds

A total of 175 bird species were noted during surveys in the course of site investigations for this study. Most birds noted were considered possible or probable breeding species, as the surveys were mainly conducted within the breeding bird timing window (i.e., mid-May to early July), when most migrants would have already passed through the City. However, some of the species noted during breeding bird surveys in the City could have been late migrants, or unmated males singing in search of a mate. To rule out the possibility of including migrants, only species for which probable or confirmed breeding evidence was obtained were used to qualify an area as an ESA. Breeding evidence (of at least possible breeding) was noted for 128 species. Four additional species were recorded as breeding in the City in the past, but likely no longer breed there: black tern, Henslow's sparrow, marsh wren and Caspian tern.

Any bird species, which are ranked as L1, L2 or L3 by TRCA (adjusted to reflect the occurrence score for Toronto) and are assigned a habitat dependence or sensitivity to development score of 4 or 5, could qualify an area as an ESA if they were noted as probable or confirmed breeders within the City. Based on the most recent City-wide surveys conducted in and around Toronto (as part of the 2001 – 2005 Ontario Breeding bird Atlas), there are 62 such species, although not all were documented as part of this study, as shown in Appendix 5.

Within potential ESA sites, breeding evidence was obtained for 46 of these species. However, probable or confirmed breeding evidence was obtained for only 30 of these species, which were used as qualifying criteria. If the Humber Valley ESA and Humber Valley Extension are considered as one site, and Leslie Street Spit and Tommy Thompson Park ESA are considered as one site (since they are contiguous), then the total number of sites qualifying because of the presence of a significant bird is 28 instead of 30.

As shown in Table 7, qualifying bird species were more concentrated in sites that have already been designated or are candidates for designation of provincial or regional significance (provincially significant wetlands, or provincial, provincial candidate, regional or regional

candidate ANSIs), with the exception of Tommy Thompson Park ESA/Leslie Street Spit. Rouge Marsh and Tommy Thompson Park ESA/Leslie Street Spit supported the highest diversity of qualifying species, and 15 additional sites supported just one qualifying bird species. Eight of these 15 sites have no other provincial, regional or candidate provincial/regional designations.

Table 7. Sites supporting more than one qualifying bird species and overlapping provincial designations

Site	Provincial Designations	Number of Qualifying Bird Species
Rouge Marsh Area	PSW, Rouge River Valley Provincial ANSI	8
Leslie Street Spit/Tommy Thompson Park ESA	none	8
Humber Valley ESA	PSW, Humber River Coastal Marsh Regional Candidate ANSI	7
Townline Swamp	PSW, Pickering-Scarborough Beach Provincial Candidate ANSI	6
High Park ESA	High Park Oak Woodlands Provincial ANSI	5
Highland Forest/Morningside Park/Highland Creek - West	Highland Creek Swamp Provincial Candidate ANSI	4
Little Rouge Forest	Rouge River Valley Provincial ANSI	4
Little Rouge Forest Extension	Rouge River Valley Provincial ANSI	4
Morningside Creek Forest/Milne's Forest	Rouge River Valley Provincial ANSI	4
Centre Island Meadows/Wildlife Sanctuary ESA	PSW, Toronto Islands Provincial Candidate ANSI	3
Stephenson's Swamp/Highland Creek East	PSW	2

5.1.3.4 Mammals

Seventeen mammal species were noted within the sites investigated (see Appendix 5). Most mammal sightings within the potential and existing ESAs were common, adaptable species that occur in a wide variety of urban habitats, and that leave distinctive signs or are frequently seen (such as white-tailed deer, grey squirrel, eastern chipmunk, red fox, skunk and raccoon, as well as aquatic species such as beaver, muskrat and mink). None of these are considered qualifying species. However, two qualifying species were noted within the sites investigated in this study: hairy-tailed mole (Burke Brook Forest and Sherwood Park) and star-nosed mole (East Don Valley Swamp and Taylor Creek).

It is likely that additional species of small mammals are present in the sites investigated in this study. However, dedicated surveys for small mammals were not conducted because they are

highly labour-intensive, and trapping surveys, which are best for obtaining results that truly represent small mammal abundance and diversity, have high mortality rates for the mammals collected.

5.1.3.5 Insects

Although no surveys specifically targeted for insects were conducted, 20 odonates (dragonflies and damselflies) and 29 butterfly species were noted opportunistically during surveys for other taxa within the sites investigated for this study (see Appendix 5). There are no TRCA ranks for insect species, and no habitat-dependence scores, so insects in general were difficult to evaluate to determine if they could be qualifying species. None of the species noted were provincially significant, based on the ranks assigned by NHIC. However the status of members of this group is still less well-understood than other groups and the ranks are evolving quickly based on data as it is collected.

5.2 Criterion B: Significant Landform

Significant landform features for each site are summarized in Table 8, and described in individual fact sheets for each site (see Volume 2). Significant landform features included many sites with significant modern fluvial and modern lacustrine features, a moderate number of sites with glaciofluvial features, glaciolacustrine features and bedrock features, and four sites with bluffs. The rarest landforms within sites investigated in this study are are features associated with Peel ponding and drumlins. Though there are a number of sites that contain significant examples of fluvial features, there are many different aspects of fluvial processes within each of these sites (such as cut-off meanders, meander bars, meander channels, active and relict floodplain channels) which are rare or unusual in the City, and therefore are considered qualifying features for significance.

Table 8. Significant landform features that qualified within sites investigated

Significant Feature Represented	Sites with Significant Landform Features
Modern Fluvial	Cedarbrae Woods Earl Bales Woodlot Finch Avenue Meander/Sewell's Forest/Reesor Woodlot Humber Forks at Thistletown Lambton Park Prairie Lambton Woods Little Rouge Forest Morningside Creek Forest/Milne's Forest Tabor's Horsetail Meadow Thistletown Oxbow Toronto Hunt Club Wigmore Park Ravine Wilket Creek Forest Woodlands on Little Rouge Creek
Glaciofluvial	Cedarbrae Woods Crother's Woods

Significant Feature Represented	Sites with Significant Landform Features
	Lambton Park Prairie Lambton Woods Morningside Creek Forest/Milne's Forest Extension Tabor's Horsetail Meadow
Bedrock	Centennial Forest and swamp Lambton Park Prairie Lambton Woods Little Rouge Forest Rouge River Section
Bluff	East Point Bluffs Scarborough Bluffs Toronto Hunt Club Forest
Peel Ponding (possible)	Cedarbrae Woods
Drumlin	Finch Avenue Meander Morningside Creek Forest
Modern Lacustrine	Central Island Meadow ESA East Point Hanlan's Beach ESA Hanlan's Beach Extension Mugg's Island ESA Rouge Marshe Area Rouge Lakeshore Swale Snake Island Area ESA Toronto Hunt Club Ward's Island ESA (possibly partly modified) West Algonquin Island
Glaciolacustrine	Finch Avenue Meander/Sewell's Forest/Reesor Woodlot High Park ESA Lambton Park Prairie Lambton Woods Morningside Creek Forest/Milne's Forest Toronto Hunt Club

Many other sites were assessed for landform significance, on the basis of preliminary screening using surficial geology mapping. These sites were not considered significant because they were obscured by significant development or they did not display significant features, per the categories listed in Table 8.

5.3 Criterion C: Areas of Significant Size and/or with Significant Species Diversity

Fifty-nine sites qualified because of significant size and/or significant species diversity. All of these sites supported significant flora species. Twenty-six qualified on the basis of 40 or more L1 to L4 species alone, without a high diversity of vegetation communities. This likely means that much of the species diversity in these sites is based on small variations in topography, soils, moisture and aspect; all of which cause small variations in microclimate. These variations may not be sufficient to foster the development of a vegetation community of half a hectare or more, but appear to promote the persistence of additional diversity within ESAs as a whole.

5.4 Criterion D: Significant Ecological Functions

As discussed in Section 4.4, the most common ecological functions noted within the sites investigated in this study (those determined to be features that qualify the area as an ESA) included:

- presence of seepage areas;
- presence of wetland areas indicating function as water storage;
- function of the area as a linkage between important habitats critical to a species' life cycle;
- significant habitat for migrating bird species;
- habitat for colonial bird species; and
- amphibian breeding habitat.

Field observations indicated that 18 of the sites assessed contained seepage areas. Small seepage areas were relatively common, and were not in and of themselves considered significant. However, if the seepage area supported an assemblage of L3 to L4 flora species and was over 0.5 ha this was considered a qualifying criterion. Most seepage areas of significant size supported species, such as skunk cabbage, that were sufficient to qualify an area as an ESA. Generally, those that were considered qualifying features supported species such as jewelweed, skunk cabbage, tamarack, and other species associated with seepage areas.

It is likely that more ecological functions were present than were noted in the field, as a number of ecological functions are extremely difficult to document in the field. For example, linkages between amphibian breeding and upland habitat can only be observed during short periods at night in the early spring and mid fall. Similarly, snake hibernacula and turtle nesting habitats can be easily overlooked unless, for example, snakes are observed entering hibernacula or turtles are observed excavating nests. Often the only evidence of turtle nests comes from a sighting of egg shells that have been eaten by predators such as raccoons.

In the absence of resources dedicated towards labour-intensive techniques such as radio-tracking required to unequivocally confirm many of these functional areas, ecologists rely on a suite of other tools to verify for significant ecological functions. A combination of identifying suitable habitat (e.g., in the case of snakes - stone piles, evidence of rock fissures, sandy banks near water) in conjunction with current records for species that may use the habitat in the immediate

area, and knowledge of the species sensitivities to determine the likelihood of specialized habitat can be used to make an assessment.

However, given the nature of the field assessments conducted for this study (i.e., with a greater emphasis on areal coverage than site-specific verification of all species and habitats present), only confirmed ecological functions were used as qualifying features, as listed above.

6.0 ANALYSIS OF SITE CONDITION AND MANAGEMENT NEEDS

Notes on the condition of the sites are provided in the fact sheets for each site (Volume 2). While this was not the primary focus of this study, it was recognized that natural areas in urban centres tend to be subject to a variety of impacts and stressors related to the surrounding urban land uses, and therefore it would be of value to document the relative condition of these sites in that context.

Most sites that qualified as ESAs had areas that were of high quality and diversity. However, there were several significant issues that affected all sites to varying degrees:

- *ad hoc* paths (non-sanctioned paths that often led to impacts on sensitive features);
- encroachment by adjacent landowners (including building of decks, sheds gazebos and pools, removal of native vegetation for gardens, removal of trees to improve the view;
- dumping of garbage, particularly compost and building materials; and
- non-native species invasion, particularly invasions of dog-strangling vine, giant reed grass, Norway maple, common buckthorn, black alder and European birch.

Most of the sites have been affected by surrounding development and by human disturbances to some extent. Encroachment, surrounding noise and lighting, damage to vegetation because of trampling and mountain biking, and dumping of debris and compost are evident at most sites, as listed above, and can present serious threats to the ongoing sustainability of these sites from an ecological perspective. For example, non-native plant species that invade sensitive habitats can out-compete and exclude native plant species to the point of preventing regeneration of native trees.

Notes on specific management needs are provided with each fact sheet (Volume 2), but some general recommendations based on our observations and experience is provided here.

In general, each area that qualifies as an ESA has been recognized because it supports one or more unique and uncommon aspect of the City of Toronto's natural heritage, including unique landforms, and should be protected as such. Many of the fauna that utilize these areas depend on specific habitat elements (such as mature forest with moist, high quality understory, large wetlands, sandy soils and abundant woody debris) to sustain themselves. Therefore, these features should be maintained as important elements of wildlife habitat, and as key to the continued ability of these ESAs to support the unique diversity of flora and fauna, as well as related ecological functions, into the future.

It is also important to remember that the ESAs identified as qualifying through this study are not, for the most part, “islands of green” within an otherwise urbanized landscape. Rather, they represent concentrations of biodiversity or “hotspots” of ecologically significant features and functions within a broader, and relatively well-connected, natural heritage system in the City. The ability of these sites to continue to support the full range of significant attributes for which they have been identified will also depend on the continued existence of this broader natural heritage system and its continued ability to provide linkage and habitat for movement between ESAs.

Those few sites that remain currently within a predominantly rural matrix (i.e., those associated with the northern part of the Rouge River and its tributaries) are able to sustain some of the unique species within them because of the continued presence of both the surrounding agricultural and the natural areas within the broader natural heritage system. This will need to be taken into consideration if development is proposed in their vicinity.

Irrespective of their location in a more or less urban context, virtually all of the sites examined would benefit from the following general management recommendations:

- Encroachment by neighbouring landowners, dumping, use by mountain bicycles and off-leash dogs, and ad hoc paths may degrade the quality of the areas identified and should be addressed through landowner/user outreach, education and stewardship. This could include implementation of a variety of tools and strategies, and may range from signs installed to educate trail users indicating the importance and sensitivities of the natural area to agreements with user groups. For example, the City of Toronto has recently been developing agreements with mountain bike user groups with respect to staying on established trails that appear to be working well. .
- A dedicated program to management of non-native species should be developed and implemented, particularly in areas that still have relatively high levels of native species.
- Consideration to formalizing strategies for balancing access to and protection of natural sites qualifying as ESAs, with special consideration for restricting access to highlight sensitive portions of the sites. Based on our informal observations, areas that were least disturbed were those that were least accessible, and management of these sites so as to maintain some areas as inaccessible may be most effective in maintaining their significant environmental qualities.
- Continued implementation and monitoring of the effectiveness of existing management plans, with updating of plans where needed, as well as development and implementation of management plans for sites qualifying as ESAs that do not have one.

Although it is beyond the scope of this study to provide detailed and comprehensive management strategies for all the sites qualifying as ESAs in the City, it is important to recognize that simply protecting these sites from development will not be enough to ensure their continued ability to sustain the significant habitats and ecological qualities for which they have been identified. Ongoing management will need to include a range of strategies (e.g., educational signs,

stewardship to involve surrounding residents and users, ecologically-sensitive trail planning and design, selective enclosures to ensure that human impacts are kept out of sensitive areas, monitoring of encroachments, etc.) if these sites are to continue being of high ecological value into the future.

7.0 SUMMARY AND CONCLUSIONS

Sites verified as meeting ESA criteria through this study together include the most significant and most ecologically sensitive natural heritage features and functions within the City of Toronto. These sites contribute disproportionately to biodiversity in the City because they capture areas that support a wide range of unusual ecological conditions, as well as a high diversity of common species and habitat types. Almost all of the sites provide specific habitat for rare plant species and vegetation communities, many of which are dependent on unusual microclimates, and many of them also provide habitat for fauna with specific habitat needs. Many of the sites support significant ecological functions such as amphibian breeding, groundwater seepage (that provides habitat for significant flora and fauna), local ecological linkage, and colonial bird breeding habitat.

Sites that meet the established ESA criteria should be protected from development, site disturbance, encroachment and inappropriate uses to ensure that the natural features and functions for which they have been identified continue to persist and flourish for the long term. In the City of Toronto, identification and protection of ESAs is particularly important because:

- they are located in a dense urban area where the population is expected to grow by an additional 360,000 residents by 2031, with resulting increased pressures on natural areas;
- many parts of the natural heritage system where ESAs are located (e.g., along the lakeshore and in the ravine/valley system) also support a range of recreation uses, are traversed by infrastructure, and are under continual pressure to provide additional uses; and
- even under the current population levels the existing natural areas are subject to a wide range of impacts and stressors, so there is a need to identify and protect the most sensitive and least degraded areas quickly to ensure they are not further degraded as the population continues to grow.

The continued protection of a broader and well-connected natural heritage system is necessary to sustain ESAs (as well as PSWs and ANSIs) into the long-term and is an essential part of protecting biodiversity within the City of Toronto, the wider Ecodistrict, and the Province of Ontario.

8.0 GLOSSARY

ANSI = Areas of Natural and Scientific Interest

COSEWIC = Committee on the Status of Endangered Wildlife in Canada

DFO = Department of Fisheries and Oceans

ESA = Environmentally Significant Area

National and Provincial Significance

National status of Species at Risk is determined by the Committee on the Status of Wildlife in Canada (COSEWIC). Species at Risk are listed on an official “Species at Risk list”. Provincial status of Species at Risk is determined by the Committee on the Status of Species at Risk in Ontario (COSSARO). The terms “vulnerable”, “threatened” and “endangered” are terms used by COSEWIC and COSSARO to describe status, with the exception that the term “vulnerable” has now been replaced by the term “Special Concern”. The Provincial Policy Statement (2005) defines threatened and endangered species simply, as “a species that is listed or categorized as a threatened or endangered species on the Ontario Ministry of Natural Resources official Species at Risk list, as updated and amended from time to time.” The terms are explained by NHIC (2006) more specifically as follows:

- **Endangered:** A wildlife species facing imminent extirpation or extinction.
- **Threatened:** A wildlife species likely to become endangered if limiting factors are not reversed.
- **Special Concern:** A wildlife species that may become a threatened or an endangered species because of a combination of biological characteristics and identified threats.

The official list of Species at Risk is found on the Ministry of Natural Resources’ Species at Risk website (<http://www.mnr.gov.on.ca/mnr/speciesatrisk/>).

The Natural Heritage Information Centre (NHIC) in Ontario also maintains a database of current national and provincial designations of Species at Risk. Rarity in the province is assessed by the NHIC, with species ranked as S1, S2 or S3 considered those most endangered or threatened in the Province. The NHIC defines the ranks specifically as follows:

Presumed Extirpated—Species or community is believed to be extirpated from the nation or state/province. Not located despite intensive searches of historical sites and other appropriate habitat, and virtually no likelihood that it will be rediscovered.

SH Possibly Extirpated (Historical)—Species or community occurred historically in the nation or state/province, and there is some possibility that it may be rediscovered. Its presence may not have been verified in the past 20-40 years. A species or community could become NH or SH without such a 20-40 year delay if the only known occurrences in a nation or state/province were destroyed or if it had been extensively and unsuccessfully looked for. The NH or SH rank is reserved for species or communities for which some effort has been made to relocate occurrences, rather than simply using this status for all elements not known from verified extant occurrences.

S1 Critically Imperiled—Critically imperiled in the nation or state/province because of extreme rarity (often 5 or fewer occurrences) or because of some factor(s) such as very steep declines making it especially vulnerable to extirpation from the state/province.

S2 Imperiled—Imperiled in the nation or state/province because of rarity due to very restricted range, very few populations (often 20 or fewer), steep declines, or other factors making it very vulnerable to extirpation from the nation or state/province.

S3 Vulnerable—Vulnerable in the nation or state/province due to a restricted range, relatively few populations (often 80 or fewer), recent and widespread declines, or other factors making it vulnerable to extirpation.

S4 Apparently Secure—Uncommon but not rare; some cause for long-term concern due to declines or other factors.

S5 Secure—Common, widespread, and abundant in the nation or state/province.

SNR Unranked—Nation or state/province conservation status not yet assessed.

SU Unrankable—Currently unrankable due to lack of information or due to substantially conflicting information about status or trends.

SNA Not Applicable—A conservation status rank is not applicable because the species is not a suitable target for conservation activities.

S## Range Rank—A numeric range rank (e.g., S2S3) is used to indicate any range of uncertainty about the status of the species or community. Ranges cannot skip more than one rank (e.g., SU is used rather than S1S4).

NHIC = Natural Heritage Information Center

OMNR = Ontario Ministry of Natural Resources

PSW = Provincially significant Wetland

Regional and Local Species Significance

Rarity at the local scale for this study is considered the GTA. Plant species in the GTA have been assessed recently by the Ontario Ministry of Natural Resources (Varga *et al.* 2005). It is based on the municipal lists for the City of Toronto, and the Regional municipalities of Halton, Peel, York and Durham. A rare species in the GTA is one that occurs at 40 or fewer stations. Rarity status in the City of Toronto is also provided in Varga *et al.* 2005. A plant species is considered rare in the City of Toronto if it occurs in 6 or fewer stations.

TRCA “L-Ranks” are used to establish whether a species is a “species of concern” within the TRCA jurisdiction, based on a scoring system (TRCA 2008). The L-Ranks are used to indicate vulnerability to extirpation and can therefore be used as one of the measures to determine whether species present fulfil Criterion A. For flora species, the L-Rank is a cumulative score that sums the scores for: (i) the species’ number of local occurrences; (ii) population trends; (iii) vulnerability to disturbance; and (iv) habitat dependence. Fauna species are ranked according to a cumulative score that sums the scores for: (i) their local number of occurrences; (ii) population

trends (continent-wide); (iii) population trends within the TRCA watershed; (iv) specificity of habitat dependence; (v) area sensitivity; (vi) mobility restriction; and (vii) sensitivity to development. For both plants and animals, all species ranked L1 to L3 are considered a priority for conservation in the TRCA jurisdiction. L4 species are also considered of concern in the urban context (e.g. Toronto).

Brief Summary of Scoring System

A full description of the scoring system is provided by TRCA (2008). The following provides a brief summary of the scores that cumulatively provide the L ranks for species within the TRCA watershed.

Local Occurrence

The score for local occurrence for plants, amphibians, reptiles, birds and mammals is based on the total number of 10 x 10 UTM grid squares that each species is found in, based on TRCA records or based on the respective atlases for each of these groups. Bird abundance is based on possible, probable or confirmed breeding records, and does not consider records of migrants.

SCORE	# 10 x10 km SQUARES
5 points	1 square
4 points	2 - 5 squares
3 points	6 - 10 squares
2 points	11 - 15 squares
1 point	16 - 20 squares
0 points	> 20 squares

TRCA = Toronto Region Conservation Authority

9.0 REFERENCES

- Apfelbaum, S., J. Larson, A.W. Haney and D. Orsini. 1993. Analysis of Historic and Existing Ecological Conditions of Significant Oak Woodlands at High Park, Toronto, Canada. Prepared for City of Toronto, Department of Parks and Recreation. Review Draft. 114 pp.
- Austen, J. W., and M. S. W. Bradstreet. 1996. Report on the Effects of Forest Fragmentation on Woodland Biodiversity in southern Ontario and Recommendations for Woodland Conservation. Prepared for the Laidlaw Foundation, National Fish and Wildlife Foundation, Ontario Heritage Foundation, Ontario hydro, Ontario Ministry of Natural Resources, and The Richard Ivey Foundation.
- Bakowsky, W.D. 1993. A Review and Assessment of Prairie, Oak Savannah and Woodland in Site Regions 7 and 6 (Southern Region). DRAFT. Report prepared by Gore and Storrie Ltd. for Ontario Ministry of Natural Resources, Southern Region, Aurora.
- Bird Studies Canada. 2003. Marsh Bird and Amphibian Communities in the Toronto and Region AOC, 1995 – 2002. Viewed on line February 2012 <http://www.bsc-eoc.org/download/MMP-AOC%20Toronto%20and%20Region.pdf>
- Calhoun, A. J. K., and M. W. Klemens. 2002. Best development practices: Conserving pool-breeding amphibians in residential and commercial developments in the northeastern United States. 57 p. Metropolitan Conservation Alliance, Wildlife Conservation Society, Bronx, New York.
- City of Scarborough. 1983. An Assessment of Natural Areas in Scarborough - Part 2. City of Scarborough Works Department. vii + 217 pp.
- City of Scarborough. 1995 Scarborough Official Plan (Official Consolidation) City of Scarborough, 150 Borough Drive, Scarborough, Ontario M1P 4N7
- City of Toronto and Toronto and Region Conservation Authority. 2001. City of Toronto natural heritage study – final report. Report for Policy and Research, City Planning Division, City of Toronto.
- City of Toronto. 1994. Official Plan. (Official plan for the former City of Toronto)
- City of Toronto. 2001. City of Toronto Natural Heritage Study – final report. Report in partnership between City of Toronto and Toronto and Region Conservation Authority.
- City of Toronto. 2006. Toronto Official Plan. Adopted by Council November 2002. with subsequent modifications by the Ontario Municipal Board . Consolidated December 2010.
- Cooley, T. and G. Hooper. 1992. Wetland Data Record and Evaluation- Townline Swamp Complex. June 29, September 24 and October 7, 1992. Second Edition. Ontario Ministry of Natural Resources. Manuscript. 22 pp + 5 maps + 7 pp supplement.

Dougan & Associates 2008. Floristic Survey of the Anewen Ravine. Unpublished report for the City of Toronto.

Dougan & Associates. 2009. Natural heritage impact study of Todmorden Mills Heritage Site. Unpublished report for the City of Toronto.

Dougan and Associates and North-South Environmental Inc. 2008. Migratory birds in the City of Toronto: a literature review and data assessment. Unpublished report for the City of Toronto.

Fahrig, L. 2002. Effect of habitat fragmentation on the extinction threshold: a synthesis. *Ecological Applications* 12: 346-353.

Forman, R. T. T. 1995. *Land Mosaics: The Ecology of Landscapes and Regions*. Cambridge University Press, Cambridge, Massachusetts.

Geomatics International. 1992. Natural areas and environmentally significant areas in the City of Toronto. Report for City of Toronto Department of Planning and Development.

Haila, Y. 2002. A conceptual genealogy of fragmentation research: from island biogeography to landscape ecology. *Ecological Applications* 12: 321-334.

Hanna, R. 1984. Life Science Areas of Natural and Scientific Interest in Site District 7-4: A Review and Assessment of Significant Natural Areas in Site District 7-4. OMNR, Parks and Recreational Areas Section, Central Region, Richmond Hill. SR OFER 8404. vii + 69 pp. + folded map, illus.

Hertsberg, L. and H. Juhola. *Todmorden Mills: a human and natural history*. Toronto Field Naturalists, 2 Carleton Street, #1519 Toronto Ontario.

Hills, G.A. 1959. *A Ready Reference to the Description of the Land of Ontario and Its Productivity (A compendium of maps, charts, tables and brief comments)*. Division of Research, Ontario; Department of Lands and Forests. Maple, ON. 142 pp.

Kamstra, J. 2003. Biophysical inventory of Todmorden Mills Park. Unpublished report for the Todmorden Mills Wildflower Preserve Committee

Kamstra, J. 2007. Environmental baseline study of Warden Woods Park, City of Toronto. Prepared for Parks, Forestry and Recreation Department, City of Toronto

Lee, M., L. Fahrig, K. Freemark, and D. J. Currie. 2002. Importance of patch scale vs landscape scale on selected forest birds. *Oikos* 96: 110 - 118.

MTRCA (Metropolitan Toronto and Region Conservation Authority). 1982. *Environmentally Significant Areas Study. Final Report*. Metro. Toronto and Region Conservation Authority, North York, Ontario.

McIlveen, W. D. 2008. McIlveen, W.D. 2007. John Goldie – Pioneer Field Botanist. Field Botanists of Ontario Newsletter Vol. 19 (1) Spring 2007. Pp. 12

Mohr, P., S. Ball and W. Kerr. 1985. Wetland Data Record and Evaluation- East Don Valley Swamp (ESA 69). June 12, 13 & July 18-21, 1985. Second Edition. Metropolitan Toronto and Region Conservation Authority. Manuscript. 22 pp + 1 map + 18 pp supplement.

North-South Environmental Inc., in association with Dougan & Associates. 2009 Review of Provincially Significant Wetlands in the City of Toronto. Report for City Planning.

North-South Environmental Inc., and Dougan & Associates. 2008. Identification of Potential Environmentally Significant Areas (ESAs) in the City of Toronto. Report for City Planning,.

North-South Environmental Inc. and Dougan & Associates. undated. Review of Areas of Natural and Scientific Interest (ANSIs) in the City of Toronto. Draft report for the City of Toronto

Noss 1994. Some principles of conservation biology, as they apply to environmental law. Chicago-Kent Law Review Volume 69 No. 4.

O'Donnell, J. 2000. Humber Forks at Thistletown. Toronto Field Naturalists, 2 Carleton St., Toronto, Ontario.

Ontario Breeding Bird Atlas. 2001. Ontario Breeding Bird Atlas guide for participants. report for Atlas Management Board, Federation of Ontario Naturalists, Don Mills.

Ontario Ministry of Natural Resources. 1995. Southern Ontario Wetland Evaluation, Data and Scoring Record- Humber River Marshes. Third Edition (May). June 26 to July 14, 1995. Ontario Ministry of Natural Resources. Manuscript. 41 pp + 1 map + 4 pp supplement.

Ontario Ministry of Natural Resources (OMNR). Various dates. Open file reports for Provincially Significant Wetlands and Areas of Scientific and Natural Interest (ANSI)s, Aurora District Office, Aurora

Ontario Ministry of Natural Resources (OMNR). 2000. Significant wildlife habitat technical guide. Fish and Wildlife Branch. Wildlife Section. 300 Water St., Peterborough, Ontario

Ontario Ministry of Natural Resources. Draft 2012. Schedule 7E: Identification of Significant Wildlife Habitat. viewed on line June 2012 at http://publicdocs.mnr.gov.on.ca/View.asp?Document_ID=21843&Attachment_ID=45645

Ontario Ministry of Municipal Affairs and Housing. 1997. Provincial Policy Statement (1996, amended in 1997)

Ontario Ministry of Municipal Affairs and Housing (MMAH). 2005. Provincial Policy Statement 2005.

Planning Partnership, Bird and Hale, and International Mountain Bicycling Association. 2007. Crother's Woods trail management strategy. Unpublished report for City of Toronto Parks, Forestry and Recreation, viewed November 2008:
<http://www.toronto.ca/trees/pdfs/CothersWoodsTrailManagementStrategy.pdf>

Riley, J.L. 1989. Distribution and status of the vascular plants of Central Region, Ontario Ministry of Natural Resources. Report for Ontario Ministry of Natural Resources former Parks and Recreational Areas section, Central Region, Richmond Hill. Open file ecological report SR8902, Central Region, Richmond Hill, Ontario. xix + 110 pages.

Riley, J.L. and P. Mohr. 1994. The Natural Heritage of Southern Ontario's Settled Landscapes. A Review of Conservation and Restoration Ecology for Land-Use and Landscape Planning. Science and Technology Transfer, Technical Report TR-001. Ontario Ministry of Natural Resources, Southern Region, Aurora, Ontario. 78 pp.

Rubbo, M. J. and J. M. Kiesecker. 2005. Amphibian Breeding Distribution in an Urbanized Landscape. *Conservation Biology* 19(2): 504-511.

Scarborough Planning Department. 1984. Northeast Scarborough land use study. Natural and environmentally sensitive areas report. Report for the City of Scarborough prepared by the Plan Review and Research Division.

Scarborough Public Works Department. 1981. An assessment of natural areas in Scarborough – Part 1. Report for the City of Scarborough.

Scarborough Public Works Department. 1983. An assessment of natural areas in Scarborough – Part 2. Report for the City of Scarborough.

Sharpe, D. R. 1980: Quaternary Geology of Toronto and Surrounding Area; Ontario Geological Survey Preliminary Map P. 2204. Geological Series, Scale 1:100,000

Soulé, M. E., and J. Terborgh. 1999. Conserving nature at regional and continental scales - a scientific program for North America. *BioScience* 49: 809 - 817.

Svancara, L.K., R. Brannon, J.M. Scott, C.R. Groves, R.F. Noss and R.L. Pressey. 2005. Policy-driven versus evidence-based conservation: a review of political targets and biological needs. *BioScience* 55 (11): 989-995.

Toronto Field Naturalists' Club. 1968 (revised 1972). Check list of plants in four Toronto parks (Wilket Creek Park, High Park, Humber Valley and Lambton Woods, James Gardens). Toronto Field Naturalists, 2 Carleton St., Toronto, Ontario.

Toronto Field Naturalists' Club. 1973. Chatsworth Ravine. Toronto Ravine Survey Program Study # 1. Prepared by J. Cranmer-Byng, E. Hamilton and S. Hilts. Toronto Field Naturalists, 2 Carleton St., Toronto, Ontario.

Toronto Field Naturalists' Club. 1974. Brookbanks Ravine. Toronto Ravine Survey # 2. Authored by B. Cruikshank and B. Parker. Toronto Field Naturalists, 2 Carleton St., Toronto, Ontario.

Toronto Field Naturalists' Club. 1975. Chapman Creek Ravine, Etobicoke. Toronto Field Naturalists' Ravine Survey # 3. Authored by C. E. Goodwin and J. E. Goodwin. Toronto Field Naturalists, 2 Carleton St., Toronto, Ontario.

Toronto Field Naturalists' Club. 1976. Toronto the green. Toronto Field Naturalists, 2 Carleton St., Toronto, Ontario.

Toronto Field Naturalists' Club. 1976. Wigmore Park Ravine. Toronto Field Naturalists Ravine Survey # 4. Authored by D. Kelly and A. Greenbaum. Toronto Field Naturalists, 2 Carleton St., Toronto, Ontario.

Toronto Field Naturalists' Club. 1977. Taylor Creek – Woodbine Bridge ravines. Toronto Field Naturalists' Ravine Survey # 7. Prepared by L. Cardini and H. Juhola. Toronto Field Naturalists, 2 Carleton St., Toronto, Ontario.

Toronto Field Naturalists' Club. 1988. Burke Ravine: 1974-1976. Toronto Field Naturalists' Ravine Survey # 6. Authored by J. Cranmer-Byng, R. Cunningham and E. Hamilton. Toronto Field Naturalists, 2 Carleton St., Toronto, Ontario.

Toronto Field Naturalists' Club. C. 1976. The Park Drive Ravine, Rosedale. Toronto Field Naturalists Ravine Survey # 5. Authored by D. Taylor and P. Scrivener for the North Rosedale Ratepayers' Association. Toronto Field Naturalists, 2 Carleton St., Toronto, Ontario.

Toronto Field Naturalists' Club. West Don River Valley: 1978. Authored by D. Banville and L. Cardini. Toronto Field Naturalists' Ravine Survey # 8. Toronto Field Naturalists, 2 Carleton St., Toronto, Ontario.

Toronto and Region Conservation Authority (TRCA). Various dates (1994-2010). Unpublished records for the City of Toronto. TRCA electronic files, Toronto Ontario.

Toronto and Region Conservation Authority (TRCA). 2009. Breeding birds of Tommy Thompson Park. Unpublished report for TRCA. Viewed on line February 2012 at <http://tommythompsonpark.ca/dotAsset/120465.pdf>

Varga, S. 1979. Toronto Islands plant communities and noteworthy species. Toronto Field Naturalists, 2 Carleton St., Toronto, Ontario.

Varga, S. 1989. A Botanical Inventory and Evaluation of the High Park Oak Woodlands Area of Natural and Scientific Interest. Ontario Ministry of Natural Resources, Parks and Recreational Areas Section, Central Region, Richmond Hill. OFER 8907. iv + 39 pp. + appendices + maps.

Varga, S., J.V. Jalava and J.L. Riley. 1991. Ecological Survey of the Rouge Valley Park. Ontario Ministry of Natural Resources, Parks and Recreational Areas Section, Central Region, Aurora, Ontario. OFER 9104. vii + 282 pp. + maps.

Varga, S. 2010 pers. comm.. Ontario Ministry of Natural Resources, Aurora District Office, Aurora.

Varga, S., D. Leadbeater, J. Webber, J. Kaiser, B. Crins, J. Kamstra, D. Banville, E. Ashley, G. Miller, C. Kingsley, C. Jacobsen, K. Mewa, L. Tebby, E. Mosley and E. Zajc. Distribution and status of the vascular plants of the Greater Toronto Area. Draft report for the Ontario Ministry of Natural Resources, Aurora District Office.

Villard, M. A., M. K. Trzcinski, and G. Merriam. 1999. Fragmentation effects on forest birds: relative importance of woodland cover and configuration on landscape occupancy. *Conservation Biology* 13: 774 - 783.

William Draper Consulting. 1999. Ecological land classification, vegetation inventory and monitoring plan for Sherwood Park, City of Toronto. Report for Toronto Parks and Recreation, City of Toronto

APPENDIX 1: DESCRIPTION OF DERIVATION OF DIVERSITY CRITERION

Setting Threshold for Diversity Criterion for City of Toronto Environmentally Significant Areas (ESAs) (modified from an analysis by Lionel Normand, TRCA, 2006)

Objective: to determine the number of species and vegetation types per hectare within sample patches of natural cover in the City of Toronto; to be used in the City of Toronto Phase Two Natural Heritage Study in the interpretation guidelines for its ESA criteria, specifically the “Diversity” criterion.

Data Set: the patch information was initially generated using interpreted 1999 digital orthophotos and the diversity of vegetation types and species derived from TRCA field inventories. ELC vegetation types ranking L1 to L5 only were used. Cultural vegetation types (e.g., L+, etc.) were excluded in order to derive the diversity of native communities. Data points of flora and fauna species ranking from L1 to L4 were used in the calculation of species diversity as L5 species were not part of the standard collection protocol.

Method: A grid of squares measuring 10x10 kilometer (the same one used in other Toronto Natural Heritage Program scoring) was overlaid on the City of Toronto map and a patch was randomly selected from each square to form the sample set. The eight City of Toronto squares produced eight patches for the rudimentary exercise; patches 9 and 10 are associated with TRCA ESAs. For each patch the patch identifier, patch size in hectares, number of species (flora and fauna combined) and number of vegetation type were calculated and recorded. The average number of species per hectare for these sites was calculated and then the average number of vegetation types per hectare.

Results: The following tables provide the patch size with the number of L1 to L4 species of flora and fauna.

Patch Count	Patch Identifier	Patch Size (Hectares)	Number of Species (Flora, Fauna)	Number of Vegetation Types
1	6878	5.4	4, 3	5
2	9928	46.7	67, 13	25
3	12704	28.2	29, 2	31
4	14590	15.3	20, 15	11
5	15945	11.8	24, 1	15
6	11441	50.5	32, 12	24
7	8566	19.7	19, 4	12
8	6880	5.8	8, 2	5
9	6836	4.9	1, 5	1
10	16334	31.5	22, 11	5
Total		219.8	(294) 226, 68	134

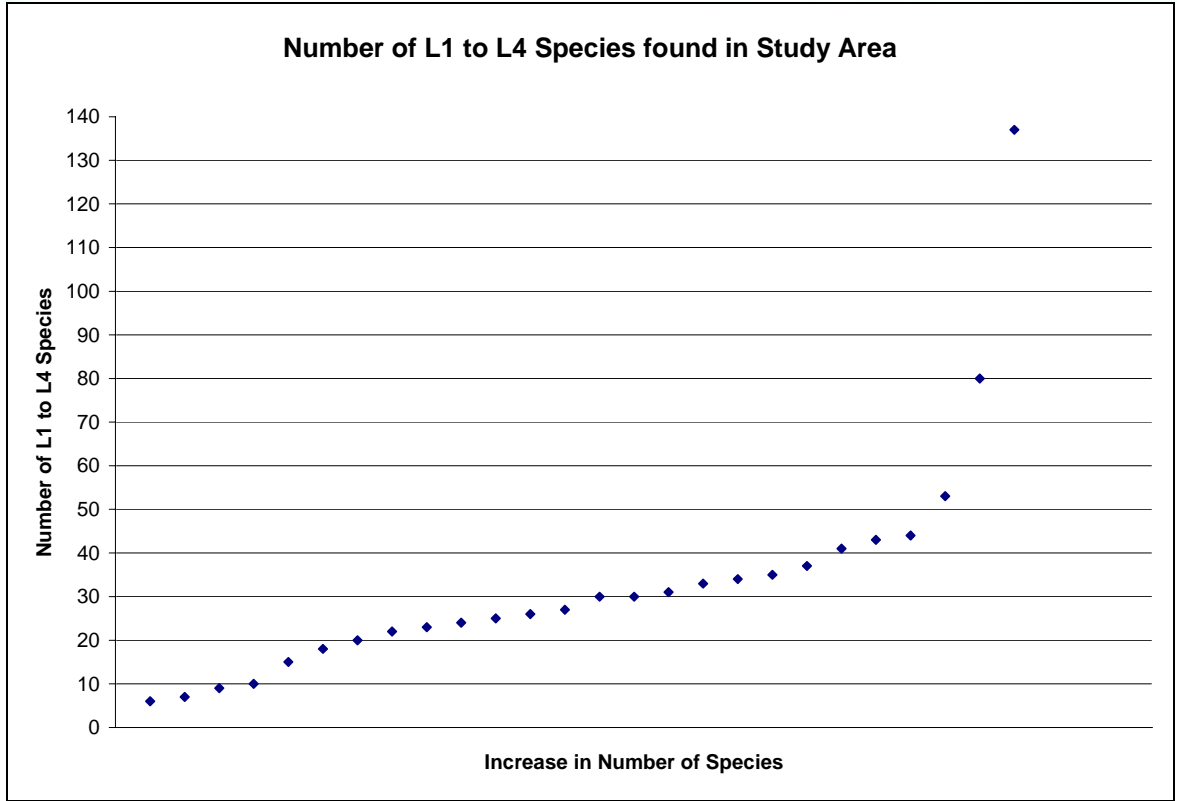
Results per hectare

Patch Count	Patch Identifier	Patch Size (Hectares)	Species per Hectare	Vegetation Types per Hectare
1	6878	5.4	1.3	0.9
2	9928	46.7	1.7	0.5
3	12704	28.2	1.1	1.1
4	14590	15.3	2.3	0.7
5	15945	11.8	2.1	1.3
6	11441	50.5	0.9	0.5
7	8566	19.7	1.2	0.6
8	6880	5.8	1.7	0.9
9	6836	4.9	1.2	0.2
10	16334	31.5	1.0	0.2
		Total: 219.8	Average: 1.5	Average: 0.7

Analysis: Numbers for patches above were plotted with numbers for City of Toronto ESAs to determine a suitable threshold for the Diversity criterion for L1 to L4 species, as shown by the graph below. The absolute number of species was the criterion selected, as opposed to the numbers of species per hectare, because the number of species is unextricably influenced by patch size and this provides a measure of both patch size and diversity.

Conclusion: This study indicated, as per the graph below, that the presence of at least 40 L1, L2, L3 and/or L4 species per given site would be an appropriate threshold for the “diversity” criterion.

Diversity Factor (10 patches)	Species	Vegetation Type
Range	0.9 – 2.3	0.2 – 1.3
Average	1.5	0.7
Suggested Diversity Threshold	40	20



**APPENDIX 2: SUMMARY OF QUALIFYING FEATURES WITHIN SITES AND
RECOMMENDATIONS FOR DESIGNATION**

Appendix 2. Summary of characteristics that qualify sites as ESAs within each site. See Appendix 2 for information on Criterion D: All areas are mapped on Figure 1: Extensions are mapped as a contiguous part of the site unless they do not qualify.

Number	Name	Description	Area (Ha)	Valley System	CRITERION A: Rare Species/Rare Communities	CRITERION B: Significant Landform	CRITERION C: Significant Size, Levels of Diversity	CRITERION D: Significant Ecological Functions	Qualified as an ESA
1	Barkey Woods	mature upland deciduous forest with a small deciduous swamp	11.7	Rouge Tributary	7 significant flora species 2 significant fauna species	none	<ul style="list-style-type: none"> 47 L1 to L4 species 	<ul style="list-style-type: none"> breeding habitat for sensitive woodland frogs. 	Yes
2	Base of Spit	thicket, meadow, woodland and wetland on fill at the base of the Leslie Street Spit	42.7	Waterfront	19 significant flora species 2 significant fauna species 7 significant vegetation communities	none	<ul style="list-style-type: none"> 28 vegetation communities 46 L1 to L4 species 	<ul style="list-style-type: none"> Notable as a stopover area for migrating songbirds: with approximately 2% of Toronto's records of migrant songbirds noted in this location (Dougan and NSE 2010). water storage function (wetland 8.3 ha) 	Yes
3	Beare Road Woodlot	mature forest on tableland, continuing on moderately steep valley slopes descending to a floodplain and small creek	8.1	Rouge	11 significant flora species 1 significant fauna species	none	<ul style="list-style-type: none"> 59 L1 to L4 species 	<ul style="list-style-type: none"> non-breeding habitat (potentially including summer foraging and winter hibernating habitat) for sensitive woodland frogs. 	Yes
4	Bellamy Ravine/Sylvan Park	deciduous forests on steep slopes of a ravine, with an adjacent area of table land ending next to the lake at the Scarborough Bluffs	28.0	Waterfront	9 significant flora species 3 significant vegetation communities	none	<ul style="list-style-type: none"> 45 L1 to L4 species 	<ul style="list-style-type: none"> approximately 300 bank swallow (a colonial nesting bird species) nests on bluffs just east of the ravine 	Yes
5	Bell's Woodlot	deciduous woodlot within a small ravine with a watercourse flowing through it	3.5	Don Tributary	1 significant flora species 1 significant fauna species	none	none	none	Yes
6	Black Grass Site	cattail marsh on the outside "elbow" of a meander	0.7	Don	3 significant flora species	none	none	none	Yes
6A	Black Grass Extension	broader area of valley slopes and floodplain along the East Don River, as well as a portion of tableland	22.3	Don	9 significant flora species	none	<ul style="list-style-type: none"> 46 L1 to L4 species 	none	Yes
7	Bluehaven Area	moist, open area interspersed with patches of green ash deciduous swamp and Manitoba maple cultural woodland on the bottomlands adjacent to the Humber River	0.6	Humber	1 significant flora species	none	none	none	Yes
8	Brookbanks Ravine	deciduous forest dominated by sugar maple, American beech and hemlock along the steep slopes of a ravine, to a bottomland dominated by lowland forest	16.7	Don Tributary	5 significant flora species 1 significant vegetation community 1 significant fauna species	none	<ul style="list-style-type: none"> 41 L1 to L4 species 	none	Yes
9	Burke Brook Forest	cultural, forest, bluff, swamp and marsh units on the slopes and bottomlands of a ravine	24.6	Don Tributary	4 significant flora species 2 significant vegetation communities 1 significant fauna species	none	<ul style="list-style-type: none"> large size: TRCA Size Score of 4 31 vegetation communities 54 L1 to L4 species 	<ul style="list-style-type: none"> numerous seepage areas support increased wetland diversity 	Yes

Number	Name	Description	Area (Ha)	Valley System	CRITERION A: Rare Species/Rare Communities	CRITERION B: Significant Landform	CRITERION C: Significant Size, Levels of Diversity	CRITERION D: Significant Ecological Functions	Qualified as an ESA
10	Cedarbrae Woods	mid-aged to mature sugar maple forest along steep valley slopes; bottomland with cedar-hardwood mixed forest	5.5	Rouge	1 significant flora species	modern alluvium and recent post-glacial lakes	none	none	Yes
10A	Cedarbrae Woods Extension	contiguous with Cedarbrae Woods and is found on a tableland with relatively flat topography, primarily an early successional woodland characterized by past disturbances of agriculture surrounding an old farm pond.	5.5	Rouge	none	none	none	none	No
11	Cedarvale Ravine	ravine with oak-maple forested slopes, remnant hemlock-white pine woodland, wetlands in seepage areas and drainage areas at the base of the ravine	8.2	Don Tributary	none	none	none	none	No
12	Centennial Forest and Swamp	large mature silver maple mineral deciduous swamp containing numerous vernal pools, fringed by immature green ash mineral deciduous swamp and meadow marsh habitats	58.7	Rouge Tributary	12 significant flora species 2 significant vegetation communities 1 significant fauna species	area of shallow sands over bedrock is unusual in the City of Toronto	<ul style="list-style-type: none"> 40 L1 to L4 species 	<ul style="list-style-type: none"> water storage function (wetland 11.6 ha) 	Yes
13	Centre Island Meadow/ Wildlife Sanctuary	sand dune, sand barren, beach, thicket swamp and meadow marsh interspersed with cultural communities	21.0	Waterfront	34 significant flora species 7 significant vegetation communities 4 significant fauna species	well sorted and well stratified medium sand representing shallow water sediments deposited in the quiet areas behind the formerly active spit	<ul style="list-style-type: none"> 53 L1 to L4 species 	<ul style="list-style-type: none"> notable stopover area for migrant songbirds: 28% of migrant bird records are from the Toronto Islands 	Yes
13A	Centre Island Meadow Extension	slender willow and red-osier dogwood, with a highly diverse understory of sedges, rushes and forbs characteristic of open wetlands	2.9	Waterfront	15 significant flora species 1 significant vegetation community	well-sorted and well-stratified medium sand representing shallow water sediments deposited in the quiet areas behind the formerly active spit	none	<ul style="list-style-type: none"> this site is part of a notable stopover area for migrant songbirds: 28% of migrant bird records are from the Toronto Islands 	Yes
14	Chapman Valley	deeply incised ravine vegetated by mature mixed and deciduous forest	12.0	Humber Tributary	7 significant flora species	none	<ul style="list-style-type: none"> 43 L1 to L4 species 	none	Yes
15	Chatsworth Ravine ESA	wooded area along the slopes of a ravine with coniferous forest along the north slope and mature deciduous forest along the south slope	4.2	Don Tributary	2 significant flora species	none	none	none	Yes
16	Cherry Beach ESA	an area of fill in varying stages of succession, including native and non-native successional communities, along the shoreline west of the Leslie Street Spit	8.4	Waterfront	11 significant flora species; 4 significant vegetation communities	none	none	<ul style="list-style-type: none"> notable area for migrant songbirds: 2% of migrant songbird records for the City of Toronto are from the area along Unwin Avenue 	Yes

Number	Name	Description	Area (Ha)	Valley System	CRITERION A: Rare Species/Rare Communities	CRITERION B: Significant Landform	CRITERION C: Significant Size, Levels of Diversity	CRITERION D: Significant Ecological Functions	Qualified as an ESA
16A	Cherry Beach Extension	an area of fill in varying stages of succession, including native and non-native successional communities, along the shoreline west of Cherry Beach E.S.A.	11.3	Waterfront	8 significant flora species; 1 significant fauna species 5 significant vegetation communities	none	none	<ul style="list-style-type: none"> notable area for migrant songbirds: 2% of migrant songbird records for the City of Toronto are from the area along Unwin Avenue (Dougan and NSE 2010) 	Yes
17	Conlin's Pond	a pond, which occupies a former gravel pit, with a narrow band of vegetation along its edge	2.7	Highland Tributary	1 significant flora species	none	none	<ul style="list-style-type: none"> water storage function (wetland and open water of 2.04 ha) 	Yes
18	Core Woods	mature deciduous forest situated on gentle to moderately steep slopes	7.4	Rouge Tributary	7 significant flora species	none	none	none	Yes
19	Crothers Woods	mature beech-maple-oak slope forest, thicket and successional forest with small seepage areas at the base of the slopes	15.6	Don	6 significant flora species 2 significant fauna species	A high-quality excellent example of the upper valley wall and terrace of the Don River.	50 L1 to L4 species	none	Yes
20	Diller Woods	a remnant stand of mature deciduous forest dominated by mid-aged sugar maple forest and cedar-sugar maple mixed forest, young to mid-aged mixed cedar-poplar forest, open meadow and successional woodland, and gravel beds and willow bars	1.4	Rouge	4 significant flora species 1 significant vegetation community	none	none	none	Yes
20A	Diller/Pearce/Tabor's Extension	characterized as a valley feature which follows the Little Rouge Creek including upland tableland as well as lowland wetlands	100.5	Rouge	42 significant flora species 3 significant fauna species 7 significant vegetation communities	none	44 vegetation communities 158 L1 to L4 species	<ul style="list-style-type: none"> This site is a significant node of habitat that provides linkage between amphibian breeding and foraging habitat. 	Yes
21	Don Valley (central section)	deciduous lowland forest, successional areas and swamp on the floodplain of the Don River	15.7	Don	8 significant flora species (all likely planted as part of wetland restoration and appear to be established) 1 significant fauna species	none	none	<ul style="list-style-type: none"> water storage function (wetland area of 2.4 ha) 	Yes
22	Don Valley Brickworks (earth science only)	steep exposed man-made bluff, excavated as part of a former quarry, that exhibits deposits that represent at least two glaciations	0.9	Don	none	the most complete series of Pre-Wisconsinan drift deposits from a single locality	none	none	Yes
23	Earl Bales Woodlot	Mature deciduous forest, lowland forest and swamp on the tablelands, slopes and bottomlands of a ravine	37.0	Don Tributary	4 significant flora species 1 significant fauna species	good representation of the west valley wall of the upper Don River in this part of Toronto	TRCA Size Score of 4 54 L1 to L4 species	none	Yes

Number	Name	Description	Area (Ha)	Valley System	CRITERION A: Rare Species/Rare Communities	CRITERION B: Significant Landform	CRITERION C: Significant Size, Levels of Diversity	CRITERION D: Significant Ecological Functions	Qualified as an ESA
24	East Don Valley Swamp	section of valley walls with mature deciduous forest and valley floodplain with lowland deciduous forest and swamp along the Don River	83.9	Don	51 significant flora species 4 significant vegetation communities 4 significant fauna species	none	TRCA Size Score of 4 21 vegetation communities 127 L1 to L4 species	<ul style="list-style-type: none"> significant groundwater seepage (presence of groundwater discharge communities) water storage area of 16.6 ha 	Yes
25	East Point	patchy open area associated with active bluffs and gullies representing the east end of the Scarborough Bluffs	46.6	Waterfront	37 significant flora species 9 significant vegetation communities 2 significant fauna species	an excellent example of bluff formation and maintenance	30 vegetation communities 74 L1 to L4 species	<ul style="list-style-type: none"> total water storage area of 7.2 ha 	Yes
26	Ellesmere Woods	Mid-aged to mature deciduous and mixed forested steep-sided ridges with a variety of narrow valleys and flat-topped crests.	16.2	Highland	5 significant flora species 1 significant vegetation community 1 significant fauna species	none	48 L1 to L4 flora species	none	Yes
27	Ellis Avenue	small tract of mature deciduous forest at the back of lots on the slope down to Grenadier Pond, on the west side of High Park	0.9	Waterfront	1 significant flora species (access restricted) 1 significant fauna species	none	none	none	Yes
28	Ellis Park	steep, deciduous forest on slopes surrounding a bowl-shaped wet depression.	1.9	Humber	2 significant vegetation communities (not reviewed in this study: access restricted)	none	none	none	Unknown
29	Fallingbrook Woods	two wooded ravines with mature forest dominated by Norway maple and red oak with a lesser abundance of eastern hemlock	0.6	Waterfront	none	none	none	none	No
30	Finch Ave. Meander/Sewells Forest/Reesor Woodlot	large, forested ravine adjacent to the Rouge River with mature forest, very diverse topography (varying from level to rolling) and areas of bottomland	58.3	Rouge	29 significant flora species 5 significant vegetation communities 5 significant fauna species	significant meander bends associated with the river and its main valley	40 vegetation communities 86 L1 to L4 species	<ul style="list-style-type: none"> area of significant wildlife habitat (bank swallow colony nesting in bluffs). water storage area of 9.9 ha 	Yes
31	Garland Park	deciduous forest and cultural units along the slopes and bottomlands of a ravine	2.8	Humber	3 significant flora species	none	none	none	Yes
32	Glen Davis Ravine	forested south-facing slope of a ravine	1.7	Waterfront	2 significant flora species	none	none	none	Yes
33	Glen Stewart Ravine ESA	ravine with mature deciduous forest on slopes and seepages supporting swamp communities	7.3	Waterfront	9 significant flora species 1 significant vegetation community 1 significant fauna species	none	43 L1 to L4 species.	<ul style="list-style-type: none"> significant stopover area for migrant songbirds: 1% of the migrant songbird records are from Glen Stewart Ravine. seepage areas supporting wetland vegetation contribute to water quality and diversity. 	Yes
33A	Glen Stewart Ravine Extension	shallow ravine extended from Glen Stewart Ravine manicured with mowed grass, planted trees and shrubs; some restoration plantings	0.6	Waterfront	none	none	none	none	No

Number	Name	Description	Area (Ha)	Valley System	CRITERION A: Rare Species/Rare Communities	CRITERION B: Significant Landform	CRITERION C: Significant Size, Levels of Diversity	CRITERION D: Significant Ecological Functions	Qualified as an ESA
34	Glendon Forest	mixture of cultural, forest, bluff, swamp and marsh units on the slopes and bottomlands of a ravine	60.6	Don	37 significant flora species 4 significant vegetation communities 2 significant fauna species	none	TRCA Size Score of 4 41 vegetation communities 109 L1 to L4 species	<ul style="list-style-type: none"> groundwater seepage supports substantial wetland communities; water storage area of 6.3 ha 	Yes
35	Guild Woods	deciduous forest and swamp on tableland, with bluffs along the southern edge (along Lake Ontario)	14.8	Waterfront	11 significant flora species 4 significant vegetation communities	none	none	<ul style="list-style-type: none"> water storage area of 3.9 ha 	Yes
36	Hague Park	moderate to steep deciduous and mixed forest on valley slopes and lowland forest and swamp on floodplain situated along West Highland Creek	10.1	Highland	4 significant flora species	none	none	<ul style="list-style-type: none"> seepage areas support diversity of wetland communities 	Yes
37	Hanlan's Beach ESA	open dune, beach and thicket swamp communities on active and stabilized sand dunes	9.3	Waterfront	41 significant flora species 11 significant vegetation communities	best example of beach and dune formation creating the re-curved portion of the major spit composing the original Toronto Islands	76 L1 to L4 species	<ul style="list-style-type: none"> notable stopover area for migrant songbirds: 28% of migrant bird records are from the Toronto Islands water storage area of 5.2 ha 	Yes
37A	Hanlan's Beach Extension	thicketed and open sand dune and beach at the north end of Hanlan's Beach adjacent to the Toronto Island Airport	17.8	Waterfront	12 significant flora species 4 significant vegetation communities	the best example of beach and dune formation creating the re-curved portion of the major spit composing the original Toronto Islands.	none	<ul style="list-style-type: none"> notable stopover area for migrant songbirds: 28% of migrant bird records are from the Toronto Islands 	Yes
38	High Park ESA	rolling sandy uplands vegetated with black oak savannah as well as steeply incised stream channels with mature forest, pond with aquatic and shallow marsh	107.7	Waterfront	103 significant flora species 6 significant vegetation communities 10 significant fauna species	largely intact remnants of the interim period between the recession of Lake Iroquois and the modern lake processes that formed the Toronto Islands	24 vegetation communities 177 L1 to L4 species	<ul style="list-style-type: none"> notable area for migrant songbirds: 20% of migrant songbird records are from High Park (Dougan and NSE 2010) 	Yes
38A	High Park Extension	two areas in the central part of High Park where the quality of savannah vegetation (a globally rare vegetation community) is among the highest in the park	8.2	Waterfront	7 significant flora species 1 significant vegetation community	largely intact remnants of the interim period between the recession of Lake Iroquois and the modern lake processes that formed the Toronto Islands		<ul style="list-style-type: none"> notable area for migrant songbirds: 20% of migrant songbird records are from High Park 	Yes
39	Highland Forest/ Morningside Park and Highland Creek - West	steep, high quality deciduous and mixed forested slopes, coniferous forest and bottomlands, younger forest, tamarack swamp, meadow marsh, swamp thicket and shallow marsh communities	242.0	Highland	54 significant flora species 22 significant vegetation communities 4 significant fauna species	none	TRCA Size Score of 4 173 L1 to L4 species	<ul style="list-style-type: none"> marshes and swamps provide 33.3 ha of water storage area 	Yes

Number	Name	Description	Area (Ha)	Valley System	CRITERION A: Rare Species/Rare Communities	CRITERION B: Significant Landform	CRITERION C: Significant Size, Levels of Diversity	CRITERION D: Significant Ecological Functions	Qualified as an ESA
39A	Highland Forest/Stephenson' Swamp Extension	comprised of steep forested valley slopes with a high diversity of vegetation communities, including additional wetland habitats.in the floodplain	53.3	Highland	6 significant flora species 2 significant fauna species 5 significant vegetation communities	none	30 vegetation communities 49 L1 to L4 species	<ul style="list-style-type: none"> major node in the regional Highland Creek corridor that contributes to connection between foraging and breeding habitat for amphibians provides breeding habitat for amphibians (green frog, American bullfrog, American toad) provides habitat for colonial nesting birds (bank swallow) 	Yes
40	Home Smith Area	mature deciduous and mixed forest on the slopes of Humber Valley	3.2	Humber	2 significant flora species	none	none	none	Yes
41	Humber College Arboretum	extensive closed deciduous forest on table land	7.2	Humber	6 significant flora species	none	none	none	Yes
42	Humber Valley ESA	cattail marshes, graminoid meadows and bottomland forests which have formed in backwater areas of the Humber River meanders and meander cut-offs upstream of Lake Ontario, bordered by deciduous forest	27.6	Humber	49 significant flora species 6 significant vegetation communities 11 significant fauna species	none	39 vegetation communities 139 L1 to L4 species	<ul style="list-style-type: none"> area of waterfowl aggregation; significant stopover area for migrant songbirds (almost 2% of the total migrant songbird records for the City of Toronto are from Humber Bay); marshes and swamps provide 22.9 ha of water storage; significant area of amphibian breeding habitat; provides an important node in the linkage between the lake and the river corridor that contributes to connection between foraging and breeding habitat for frogs and turtles. 	Yes
42A	Humber Valley Extension	table land woodland remnant, floodplain habitats and deciduous forested valley slopes associated with the west side of the Humber River	20.8	Humber	8 significant flora species 1 significant fauna species	none	22 vegetation communities 44 L1 to L4 species	<ul style="list-style-type: none"> area of waterfowl aggregation; significant stopover area for migrant songbirds (almost 2% of the total migrant songbird records for the City of Toronto are from Humber Bay); marshes and swamps provide 22.9 ha of water storage; significant area of amphibian breeding habitat; provides an important node in the linkage between the lake and the river corridor that provides linkage between foraging and breeding habitat for frogs and turtles. 	Yes
43	Humberforks at Thistletown	successional communities in various stages, lowland forest, and small areas of meadow marsh situated on the tablelands and bottomlands at the junction of the West Humber and Humber Rivers	17.8	Humber	4 significant flora species. 1 significant vegetation community	high-quality, unusual fluvial landforms/processes are well displayed along these two rivers	none	none	Yes

Number	Name	Description	Area (Ha)	Valley System	CRITERION A: Rare Species/Rare Communities	CRITERION B: Significant Landform	CRITERION C: Significant Size, Levels of Diversity	CRITERION D: Significant Ecological Functions	Qualified as an ESA
44	Iroquois Shoreline ESA	the last undeveloped part of the Iroquois Shoreline in Toronto in a relatively natural state that shows both the old shoreline as well as the bluff above it	2.4	Don Watershed	5 significant flora species	virtually unmodified examples of the bluff slope, boulder lag deposit (eroded from the upper tills and lying at the base of the slope) and former lake bed.	none	none	Yes
44A	Iroquois Shoreline Extension	parts of the Iroquois Shoreline in Toronto in a relatively natural state that show the bluff but not the shoreline platform	4.4	Don Watershed	1 significant flora species but possibly planted as ornamental	remnants of shore bluff remain but not the whole feature so this is not considered significant	none	none	Possibly, pending further investigation
45	Lambton Park Prairie	prairie remnants on table lands, deciduous forested bank and flat terrace next to the Humber river	10.0	Humber	21 significant flora species 3 significant vegetation communities	excellent representation of the lower to middle Humber River valley in the City of Toronto	48 L1 to L4 species	none	Yes
46	Lambton Woods	extensive mature deciduous forests on steep valley wall and portions of narrow flood plain, mature mixed forest on the west bank of the Humber River; groundwater-fed swamp dominated by balsam poplar, tamarack and yellow birch, skunk cabbage; small open shallow marsh	21.6	Humber	42 significant flora species 9 significant vegetation communities 1 significant fauna species	excellent representation of the lower to middle Humber River valley in the City of Toronto	28 vegetation communities 111 L1 to L4 species	<ul style="list-style-type: none"> Notable area for migrant songbirds: 5% of migrant songbird records for the City are from Lambton Woods Swamps and marshes provide 9.8 ha of water storage Wetlands are situated in areas of groundwater discharge or high water table 	Yes
47	Lavender Creek	narrow ravine dominated by deciduous forest	1.3	Humber	none	none	none	none	No
48	Leslie Street Spit	spit constructed of large rubble from building sites deposited into Lake Ontario, vegetated with successional herbaceous species, shrubs and deciduous trees	63.0	Waterfront	12 significant flora species 7 significant vegetation communities 4 significant fauna species	none	none	<ul style="list-style-type: none"> notable area for migrant songbirds: 21% of migrant songbird records are from Tommy Thompson Park/Leslie Street Spit important colonial breeding bird area noted area for migrant and wintering waterfowl probable function of rubble as snake hibernacula breeding habitat for American toad and northern leopard frog provides linkage between foraging and breeding habitat for frogs 	Yes
49	Little Rouge Forest (includes Little Rouge Creek Earth Science features)	large natural area situated between the Rouge River and Little Rouge Creek containing deciduous and mixed table land forest, deciduous and mixed forest on steep valley slopes, terraces, bluffs, and swamps and marshes on floodplain.	104.6	Rouge Tributary	47 significant flora species 14 significant vegetation communities 5 significant fauna species	excellent examples of an active river floodplain in a relatively natural setting, along with a very prominent interfluvial ridge. Two provincial earth science ANSIs based on bedrock outcrops	TRCA Size Score of 4; Patch Score ranking L2 (City of Toronto 2001) 70 vegetation communities 144 L1 to L4 species	<ul style="list-style-type: none"> marshes and swamps provide 17.9 ha of water storage area this node is significant to a major landscape linkage along the Rouge River; providing linkage between foraging and breeding habitat for frogs 	Yes

Number	Name	Description	Area (Ha)	Valley System	CRITERION A: Rare Species/Rare Communities	CRITERION B: Significant Landform	CRITERION C: Significant Size, Levels of Diversity	CRITERION D: Significant Ecological Functions	Qualified as an ESA
49A	Little Rouge Forest Extension	situated west of the original ESA and includes the floodplain and steep valley slopes east of the Little Rouge River	154.6	Rouge Tributary	10 significant flora species 11 significant vegetation communities 5 significant fauna species	none	63 vegetation communities 71 L1-L4 species	<ul style="list-style-type: none"> 17.3 ha of water storage area major landscape linkage along the Rouge River, providing linkage between breeding and foraging habitat for frogs 	Yes
50	Meadowvale Woodlot A	mature hemlock-sugar maple forest woodlot on the east facing slope of a valley	4.2	Rouge	3 significant flora species 2 significant fauna species	none	none	<ul style="list-style-type: none"> foraging area for significant amphibian species 	Yes
51	Meadowvale Woodlot B	mature woodlot dominated by deciduous forest, with a stream and intermittent tributary	2.0	Rouge	1 significant flora species	none	none	none	Yes
52	Milliken Woods	small woodlot dominated by deciduous forest	2.7	Rouge	3 significant flora species	none	none	none	Yes
53	Moore Park Ravine ESA	slopes and bottomlands of a ravine with mature deciduous forest	18.8	Don	12 significant flora species 1 significant vegetation community	none	TRCA Size Score of 4 22 vegetation communities 56 L1 to L4 species	<ul style="list-style-type: none"> seepage areas support substantial swamp communities 	Yes
54	Morningside Creek Forest/Milne's Forest	narrow floodplain with steep forested valley walls dominated by deciduous and mixed forest as well as huge bluffs along the banks of the Rouge River	146.0	Rouge	57 significant flora species 10 significant vegetation communities 10 significant fauna species	well-displayed and prominent fluvial landforms	TRCA Size Score of 4 80 vegetation communities 164 L1 to L4 species	<ul style="list-style-type: none"> important linkage along the Rouge River, providing linkage between foraging and breeding habitat for frogs; habitat for wintering concentrations of deer marshes and swamps provide 10.84 ha of water storage area this site contains significant amphibian breeding habitat 	Yes
54A	Morningside Creek Forest/ Milne's Forest Extension	includes an area to the east of the Rouge River and west of the Toronto Zoo that exhibits unique topography including a series of steep ridges/slopes and broad terraces that contain a number of relict river meanders, which evidently hold water for part of the year acting as ephemeral ponds during the spring	42.7	Rouge	10 significant flora species 1 significant fauna species	exhibits unique topography including a series of steep ridges/slopes and broad terraces with relict river meanders	35 vegetation communities 47 L1 to L4 species	<ul style="list-style-type: none"> wetlands provide 2.3 ha of water storage 	Yes
55	Muggs Island ESA	open cottonwood forest as well as thicket, dry open sand barrens areas, small swampy depressions	11.2	Waterfront	26 significant flora species 4 significant vegetation communities	well-sorted and well-stratified fine to medium sands representing shallow water sediments in the Toronto Islands	49 L1 to L4 species	<ul style="list-style-type: none"> notable stopover area for migrant songbirds: 28% of migrant bird records are from the Toronto Islands 	Yes
56	Nordheimer Ravine	mature deciduous forest on a south eastern ravine slope, lowland deciduous forest community	9.9	Don	15 significant flora species 1 significant vegetation community	none	51 L1 to L4 species	none	Yes
57	North Shore Park	successional communities (mainly open meadow) with small area of marsh	3.5	Waterfront	4 significant flora species	none	none	none	Yes

Number	Name	Description	Area (Ha)	Valley System	CRITERION A: Rare Species/Rare Communities	CRITERION B: Significant Landform	CRITERION C: Significant Size, Levels of Diversity	CRITERION D: Significant Ecological Functions	Qualified as an ESA
58	Park Drive Ravine/Don Valley (West Side) E.S.A.	mature forested communities, as well as successional thickets and savannahs, along the upper slopes of the Don River Valley	10.5	Don	4 significant flora species 3 significant vegetation communities 2 significant fauna species	none	TRCA Size Score of 4	none	Yes
58A	Park Drive Ravine Extension	mature deciduous forested ravine along the Don River Tributary contiguous with Don Valley (West Side) E.S.A.	26.3	Don	5 significant flora species 1 significant vegetation community	none	TRCA Size Score of 4 22 vegetation communities	none	Yes
59	Passmore Forest	mature, diverse deciduous forest	7.9	Highland Watershed	8 significant flora species	none	none	<ul style="list-style-type: none"> substantial seepage areas support swamp vegetation community and additional diversity. 	Yes
60	Pearce Woods	narrow strip of tableland with steep deciduous and mixed forested valley slopes, a large open bluff, and wooded floodplain of Little Rouge Creek	7.5	Rouge	19 significant flora species 1 significant vegetation community 4 significant fauna species	none	82 L1 to L4 species	<ul style="list-style-type: none"> this site is a significant node of habitat along the Little Rouge Creek corridor that provides linkage between foraging and breeding habitat for frogs 	Yes
61	Rennie Park	west and east facing slopes of a ravine just west of High Park supporting deciduous forest, old field and lowland forest following a small creek and including a pond.	6.8	Humber	8 significant flora species 2 significant vegetation communities 1 significant fauna species	none	43 L1 to L4 species	<ul style="list-style-type: none"> marshes and open water provide 2.7 ha of water storage area. this area provides amphibian breeding habitat 	Yes
62	Rosedale Valley ESA	wooded slopes of a steep ridge along the north side of the Rosedale Valley	13.2	Don Tributary	4 significant flora species. 3 significant vegetation communities 1 significant fauna species	none	none	<ul style="list-style-type: none"> Notable area for migrant songbirds: 3.1% of migrant songbird records for the City of Toronto are from Rosedale Valley 	Yes
62A	Rosedale Valley Extension	deep ravine with steep slopes on either side of Rosedale Valley road, which runs along the bottom of the ravine. Deciduous forest dominates both slopes	5.1	Don Tributary	2 significant flora species	none	none	none	Yes
63	Rouge Lakeshore Swale	lakeshore/rivermouth beach/bar habitat dominated by herbs and grasses	1.4	Rouge	15 significant flora species 3 significant vegetation communities	excellent example of a baymouth bar	none	<ul style="list-style-type: none"> baymouth bar protects Rouge Marsh Area from exposure, promoting establishment of marsh habitat 	Yes: now included within Rouge Marsh Area
64	Rouge Marsh Area	high quality marsh, with abundant standing water, surrounded by deciduous forest on slopes along the broad Rouge River floodplain at the river mouth	64.4	Rouge	79 significant flora species 6 significant vegetation communities 6 significant fauna species	excellent example of a baymouth bar	157 L1 to L4 species 35 vegetation communities	<ul style="list-style-type: none"> significant foraging area for colonial waterbirds one of the few breeding habitats for amphibians in the City of Toronto baymouth bar protects Rouge Marsh Area from exposure, promoting establishment of marsh habitat 	Yes

Number	Name	Description	Area (Ha)	Valley System	CRITERION A: Rare Species/Rare Communities	CRITERION B: Significant Landform	CRITERION C: Significant Size, Levels of Diversity	CRITERION D: Significant Ecological Functions	Qualified as an ESA
65	Rouge River Section	Unvegetated rock outcrop, with surrounding deciduous forest	0.5	Rouge	1 significant vegetation community	uppermost part of the Blue Mountain Formation or the lower portion (and possibly the contact) of the overlying Georgian Bay Formation	none	none	Yes
66	Rowntree Mill Swamp	shallow marsh, deciduous forest, swamp and cultural plantation communities on the slopes and bottomlands of a ravine	4.5	Humber	12 significant flora species 2 significant vegetation communities	none	47 L1 to L4 species	<ul style="list-style-type: none"> important contributor to linkage along the Humber Valley, provides linkage between foraging and breeding habitat for frogs one of the most important breeding habitats for amphibians within the City of Toronto 	Yes
66A	Rowntree Mill Swamp Extension	forested slopes, additional lowland forest, marsh, and a pond that has formed out of an old oxbow of the East Humber River	30.7	Humber	25 significant flora species 2 significant fauna species 4 significant vegetation communities	none	41 vegetation communities 102 L1 to L4 species	<ul style="list-style-type: none"> provides both breeding and upland habitat for amphibians marshes, swamps provide 2.1 ha of water storage 	Yes
67	Sassafras Site	remnants of black oak savannah dominated by open-grown black oak, with large patches of sassafras in the understory and openings dominated by little bluestem	1.5	Humber	9 significant flora species 2 significant vegetation communities	none	none	none	Yes
68	Scarborough Bluff Sequence	biologically and geologically significant area of bluffs, surrounded by deciduous forest and successional communities and beach	73.6	Waterfront	30 significant flora species 9 significant vegetation communities	The Scarborough Bluffs incorporate four distinct Quaternary sections that have been designated as Provincially Significant	79 L1 to L4 species 43 vegetation communities	<ul style="list-style-type: none"> bank swallow colonies present within this site (over 100 nest holes noted) swamps and marshes provide 4.5 ha of water storage 	Yes
69	Sewell's Forest North	mosaic of forest and swamp	8.9	Rouge	12 significant flora species 4 significant fauna species	none	48 L1 to L4 species	<ul style="list-style-type: none"> marsh and swamp provide 2.4 ha of water storage area 	Yes
70	Sewell's Forest West	sugar maple-beech forest with a large deciduous swamp on the west side, and two smaller wetland areas in the northwest and northeast corners	6.7	Rouge	16 significant flora species 1 significant vegetation community 1 significant fauna species	none	52 L1 to L4 species	none	Yes
71/71A	Sherwood Park ESA/Sherwood Park Extension	deciduous and mixed forest on steep slopes, table lands and bottomlands along Burke Brook	8.4	Don Tributary	22 significant flora species 13 significant vegetation communities 2 significant fauna species	none	53 L1 to L4 species 26 vegetation communities	<ul style="list-style-type: none"> seepage areas are dominated by habitat-sensitive wetland plant species 	Yes
72	Silverthorn Area	steep slope on the east and south sides of Etobicoke Creek dominated by successional communities, which lead down to wooded floodplain areas and a broad, open gravel bar	8.4	Etobicoke Creek	2 significant flora species 2 significant vegetation communities 1 significant fauna species	none	none	none	Yes

Number	Name	Description	Area (Ha)	Valley System	CRITERION A: Rare Species/Rare Communities	CRITERION B: Significant Landform	CRITERION C: Significant Size, Levels of Diversity	CRITERION D: Significant Ecological Functions	Qualified as an ESA
73/73A	Snake Island Area ESA and Snake Island Extension	open cottonwood woodlands, sand barrens and beach on Toronto Islands	7.0	Waterfront	36 significant flora species 5 significant vegetation communities 1 significant fauna species	good example of well-sorted and well-stratified medium sand representing shallow water sediments deposited in the quiet areas behind the formerly active spit	61 L1 to L4 species	<ul style="list-style-type: none"> notable as a stopover area for migrant songbirds: 28% of migrant bird records are from the Toronto Islands 	Yes
74	South Kingsway (East Flank)	small, highly degraded pocket of black oak deciduous forest situated on a deep but small bowl-like depression	0.4	Humber	2 significant flora species	none	none	none	Yes
75	South Kingsway (West Flank)	long narrow strip of deciduous forest winding along a steep ridge	3.6	Humber	1 significant flora species 1 significant vegetation community	none	none	none	Yes
76	Stephenson's Swamp/Highland Creek - East	Steep valley slopes with deciduous and coniferous forest mark the eastern and western boundaries of the site, descending sharply to a broad floodplain with lowland forest, swamp, meadow marsh and riparian bars.	44.8	Highland	56 significant flora species 1 significant vegetation community 4 significant fauna species	none	170 L1 to L4 species	<ul style="list-style-type: none"> marsh and swamp provide 6.4 ha of water storage area this area is a major node in the regional Highland Creek corridor, providing linkage between foraging and breeding habitat for frogs 	Yes
77	Tabor's Horsetail Meadow	a wide range of topographic areas on the east side of Little Rouge Creek, incorporating deciduous table land forest deciduous slope forest and floodplain, a swamp/marsh community, a small sedge meadow marsh community and a huge open bluff	11.3	Rouge	19 significant flora species 4 significant vegetation communities 1 significant fauna species	bluff exposure representing the location of the former Iroquois shoreline in this area	55 L1 to L4 species 37 vegetation communities	<ul style="list-style-type: none"> groundwater discharge has resulted in calcareous soils which has fostered the persistence of sensitive species 	Yes
78	Taylor Creek	a mixture of cultural, forest, swamp and marsh units on the slopes and bottomlands of a ravine	38.5	Don Tributary	33 significant flora species 2 significant vegetation communities 1 significant fauna species		74 L1 to L4 species 33 vegetation communities	<ul style="list-style-type: none"> wetlands provide 9 ha of water storage 	Yes
79	Thistle town Oxbow	oxbow of the Humber River supporting an aquatic marsh, surrounded by floodplain forest and late successional communities	9.6	Humber	6 significant flora species	oxbow unusual in the City of Toronto	none	none	Yes
80	Todmorden Mills	deciduous and successional forests on slopes and floodplain with seepage areas	7.4	Don	38 significant flora species 3 significant vegetation communities	none	129 L1 to L4 flora species	<ul style="list-style-type: none"> substantial seepage supports additional diversity and contributes to amphibian breeding areas 	Yes

Number	Name	Description	Area (Ha)	Valley System	CRITERION A: Rare Species/Rare Communities	CRITERION B: Significant Landform	CRITERION C: Significant Size, Levels of Diversity	CRITERION D: Significant Ecological Functions	Qualified as an ESA
81	Tommy Thompson Park	man-made promontory consisting of landfill extending into Lake Ontario with vegetation in varying stages of early to mid-succession: cottonwood trees interspersed with sandy openings; wetland depressions and sandy shorelines	191.3	Waterfront	32 significant flora species 12 significant vegetation communities 14 significant fauna species	none	46 L1 to L4 species 31 vegetation communities	<ul style="list-style-type: none"> notable as a stopover area for migrant songbirds: 21% of migrant songbird records are from Tommy Thompson Park/Leslie Street Spit significant amphibian breeding habitat for American toad and northern leopard frog significant linkage between foraging and breeding habitat for frogs significant habitat for colonial bird species (herons, terns, gulls) probable function of rubble as snake hibernacula 	Yes
82	Toronto Hunt Club Forest	high quality deciduous forest on a ravine adjacent to the Scarborough Bluffs; bottomlands with wetland species on seepage areas	9.1	Waterfront	3 significant flora species 7 significant vegetation communities	excellent example of recent bluff formation by the modern Lake Ontario (Holocene)	40 L1 to L4 species	<ul style="list-style-type: none"> substantial seepage areas support additional vegetation community diversity 	Yes
83	Townline Swamp	large pond with surrounding cattail marsh, meadow marsh, green ash swamp, and willow thicket swamp	7.1	Rouge	12 significant flora species 7 significant fauna species 1 significant vegetation community	none	46 L1 to L4 species	<ul style="list-style-type: none"> breeding area for 5 frog species; including 1 sensitive woodland species and 3 sensitive aquatic species significant linkage between foraging and breeding habitat for frogs marsh and swamp provide 7.0 ha of water storage 	Yes
84	Vale of Avoca ESA	steep-sided ravine slopes and base largely covered with deciduous forest	16.8	Don	4 significant flora species 1 significant fauna species	none	none	none	Yes
85	Warden Woods	steep valley with a variety of habitats ranging from well-developed old field systems to red oak forested slopes. Seepage slopes dominated by wetland plant species	33.7	Don	16 significant flora species 3 significant vegetation communities	none	94 L1 to L4 species 32 vegetation communities	<ul style="list-style-type: none"> substantial seepage areas support additional wetland diversity marsh and swamp provide 2.3 ha of water storage area 	Yes
86	Wards Island ESA	a variety of habitats including dune ridge communities, meadows, beach and woodland	11.5	Waterfront	42 significant flora species 10 significant vegetation communities 1 significant fauna species	best example of longshore drift and beach formation that created the large spit feature composing the original Toronto Islands (possibly modified)	78 L1 to L4 species	<ul style="list-style-type: none"> notable stopover area for migrant songbirds: 28% of migrant bird records are from the Toronto Islands breeding habitat for northern leopard frogs 	Yes
86A	Ward's Island Extension	cottonwood coastal woodland and small area of prairie on sandy soils of the Toronto Islands	2.6	Waterfront	6 significant flora species 2 significant vegetation communities	none	none	<ul style="list-style-type: none"> notable stopover area for migrant songbirds: 28% of migrant bird records are from the Toronto Islands 	Yes

Number	Name	Description	Area (Ha)	Valley System	CRITERION A: Rare Species/Rare Communities	CRITERION B: Significant Landform	CRITERION C: Significant Size, Levels of Diversity	CRITERION D: Significant Ecological Functions	Qualified as an ESA
87	West Algonquin Island	mixture of native and non-native successional communities on sand, as well as cottonwood forest and red-osier dogwood thicket swamp	3.7	Waterfront	11 significant flora species 4 significant vegetation communities	West Algonquin Island provides some representation of the quiet water deposits consisting of well sorted medium sand and gravelly sand but lacking obvious stratification	none	<ul style="list-style-type: none"> notable stopover area for migrant songbirds: 28% of migrant bird records are from the Toronto Islands 	Yes
88	Wigmore Park Ravine	deciduous and mixed slope forests surrounding the Don River Valley and several small tributaries	46.0	Don	19 significant flora species 6 significant vegetation communities 1 significant fauna species	river section provides excellent examples of meandering in the Don River watershed	76 L1 to L4 species 61 vegetation communities	none	Yes
89	Wilket Creek Forest	mixture of deciduous forest, cultural, swamp and marsh communities on the steep slopes and bottomlands of a ravine	50.2	Don	29 significant flora species 5 significant vegetation communities	high-quality representation of fluvial erosion and deposition in a relatively steep gradient stream within Toronto	TRCA Size Score of 4 75 L1 to L4 species 38 vegetation communities	<ul style="list-style-type: none"> notable stopover area for migrant songbirds: 2.1% of migrant songbird records from the City of Toronto are from Wilket Creek Park wetlands present based on groundwater discharge marsh and swamp provide 3.6 ha of water storage area 	Yes
90	Williams Area	floodplain swamp on the east branch of the Don River dominated by Manitoba maple and red-osier dogwood	2.1	Don	6 significant flora species 1 significant vegetation community	none	none	<ul style="list-style-type: none"> substantial seepage supports wetland communities marsh and swamp provide 2.4 ha of water storage 	Yes
91	Williamson Park ESA	deciduous upland and lowland forest on the steep slopes and bottomlands of a ravine	3.0	Waterfront	2 significant flora species 1 significant fauna species	none	none	<ul style="list-style-type: none"> substantial seepage supports wetland communities 	Yes
91A	Williamson Park Extension	deciduous forest along the slopes of a small disturbed ravine just north of Williamson Park E.S.A. (separated by a railway embankment)	1.8	Waterfront	none	none	none	none	No
92	Woodlands on Little Rouge Creek	deciduous and mixed forests along the valley walls and floodplain of Little Rouge Creek, as well as a connecting hydro corridor	34.3	Rouge	19 significant flora species 1 significant vegetation community 3 fauna species	excellent example of relatively non-impacted upper watershed creek within the context of the City of Toronto	70 L1 to L4 species 21 vegetation communities	<ul style="list-style-type: none"> the site provides breeding habitat for sensitive woodland breeding frog species provides linkage between foraging and breeding habitat for frogs 	Yes
93	Wychwood Park Community	pond surrounded by mature deciduous woodland composed of native and non-native species	1.0	Don Tributary	none	none	none	none	No
94	Colonel Sam Smith Park	lakefill area mainly naturalized with successional communities including grasses, shrubs and small trees, as well as wet depressions and ponds supporting meadow marsh and shallow marsh. The shoreline is a combination of rocky headlands, cobble beaches and protected wetland	48.2	Waterfront	2 significant flora species 1 significant fauna species	none	none	<ul style="list-style-type: none"> notable stopover area for migrant songbirds: 4.5% of migrant bird records are from Colonel Sam Smith Park notable stopover area for migrating whimbrel, a large shorebird rubble provides hibernacula for snakes 	Yes

Number	Name	Description	Area (Ha)	Valley System	CRITERION A: Rare Species/Rare Communities	CRITERION B: Significant Landform	CRITERION C: Significant Size, Levels of Diversity	CRITERION D: Significant Ecological Functions	Qualified as an ESA
95	E.T. Seton Park	mixture of forested, cultural, swamp and marsh communities on the steep slopes and bottomlands of a ravine surrounded by parkland and urban residential development with the West Don River flowing south through the western portion of this site	27.5	Don	3 significant flora species 2 significant vegetation communities 2 significant fauna species	none	TRCA Size Score of 4 28 vegetation communities 49 L1 to L4 flora species	<ul style="list-style-type: none"> Groundwater seepage supports wetland communities marsh, swamp, and pond provide 6.1 ha of water storage area 	Yes

**APPENDIX 3: SUMMARY OF SIGNIFICANT FLORAL SPECIES
WITHIN SITES**

Appendix 3. Significant plant species within sites assessed in the City of Toronto. HD refers to the Habitat Dependence Score assigned to this species by TRCA.

Scientific Name	Common Name	Number of Sites	G Rank	S Rank	COSEWIC	MNR	TRCA	GTA	Toronto	7E4	HD
<i>Abies balsamea</i> (L.) Miller	Balsam Fir	10	G5	S5			L3	X	R1	R4	4
<i>Acorus americanus</i> (Raf.) Raf.	Sweetflag	4	G5	S4			L3	R	R2	R3	5
<i>Adiantum pedatum</i> L.	Maidenhair Fern	6	G5	S5			L3	X	R5	R10	5
<i>Agalinis pauperula</i> (Gray) Britton	Small-flowered Agalinis	2	G5	S4S5			L1	R	R2	R3	5
<i>Agalinis tenuifolia</i> (Vahl) Raf. var. <i>tenuifolia</i>	Slender-leaved Agalinis	9	G5	S4S5			L3	R	R5	R5	5
<i>Agrimonia pubescens</i> Wallr.	Soft Groovebur	1	G5	S4			L3	R	R1	R1	4
<i>Agrostis scabra</i> Willd.	Rough Bentgrass	2	G5	S5			L3	R	R2	R6	4
<i>Alnus incana</i> (L.) Moench spp. <i>rugosa</i> (Du Roi) Clausen	Speckled Alder	14	G5	S5			L3	X	R4	R10	4
<i>Alopecurus aequalis</i> Sobol.	Short-awn Foxtail	1	G5	S4S5			L3	U	R1	R7	5
<i>Amelanchier stolonifera</i> Wiegand	Running Serviceberry	3	G5	S4?			L2	R	R3	R6	4
<i>Ammophila breviligulata</i> Fern.	American Beachgrass	6	G5	S4			L2	R	R1	R1	5
<i>Anaphalis margaritacea</i> (L.) Benth. & Hook. f. ex C.B. Clarke	Pearly Everlasting	7	G5	S5			L3	U	U	R12	4
<i>Andropogon gerardii</i> Vitman	Big Bluestem	7	G5	S4			L3	R	R7	R15	4
<i>Anemone americana</i> (DC.) H. Hara	Round-lobed Hepatica	3	G5	S5			L2	R	R2	R12	5
<i>Angelica atropurpurea</i> L.	Great Angelica	9	G5	S5			L3	R	R3	U	4
<i>Arabis canadensis</i> L.	Sicklepod	1	G5	S4			L2	R	R1	R3	4
<i>Arabis laevigata</i> (Muhlenb. ex Willd.) Poir.	Smooth Rock-cress	1	G5	S5			L2	R	R1	R3	4
<i>Artemisia campestris</i> L. ssp. <i>caudata</i> (Michx.) H.M. Hall & Clements	Beach Wormwood	7	G5T5	S4S5			L3	R	R4	R5	4
<i>Asclepias exaltata</i> L.	Poke Milkweed	4	G5	S4			L2	R	R3	R6	4
<i>Asclepias tuberosa</i> L.	Butterfly Milkweed	1	G5?	S4			LX	R	E	R1	5
<i>Astragalus canadensis</i> L.	Canadian Milkvetch	1	G5	S4			L2	R	R1	R1	4
<i>Aureolaria pedicularia</i> (L.) Raf.	Fernleaf Yellow False-foxglove	1	G5	S2?			LX	R	R1	R1	
<i>Betula pumila</i> L.	Dwarf Birch	1	G5	S5			L1	R			5
<i>Bidens discoidea</i> (Torr. & A. Gray) Britton	Swamp Beggar-ticks	1	G5	S4			L3	R		R1	4
<i>Bidens tripartita</i> L.	Beggar-ticks	5	G5	S5			L4	U	R3	R12	4
<i>Boehmeria cylindrica</i> (L.) Sw.	False Nettle	16	G5	S5			L4	X	R5	U	4
<i>Botrychium simplex</i> E. Hitchc.	Least Moonwort	1	G5	S4?			LX	R	E	E	5
<i>Botrychium virginianum</i> (L.) Swartz	Rattlesnake Fern	1	G5	S5			L2	X	R3	R12	4
<i>Brasenia schreberi</i> J. Gmel.	Watershield	1	G5	S5			L1	R	E	E	5
<i>Bromus ciliatus</i> L.	Fringed Brome	5	G5	S5			L3	U	U	R9	4
<i>Bromus kalmii</i> A. Gray	Wild Chess	1	G5	S4			LX	R	E	E	4
<i>Bromus pubescens</i> Muhl. ex Willd.	Hairy Wood Brome Grass	1	G5	S4			L2	R	R1	R2	4
<i>Cakile edentula</i> (Bigelow) Hook.	American Sea-rocket	6	G5	S4			L2	R	R6	R7	5
<i>Calla palustris</i> L.	Water Arum	3	G5	S5			L2	U	R1	R3	4
<i>Calystegia spithamea</i> (L.) Pursh ssp. <i>spithamea</i>	Low Bindweed	1	G4G5	S4S5			L3	R	R3	R5	4
<i>Campanula aparinoides</i> Pursh	Marsh Bellflower	5	G5	S5			L3	R	R3	R3	5

Scientific Name	Common Name	Number of Sites	G Rank	S Rank	COSEWIC	MNR	TRCA	GTA	Toronto	7E4	HD
<i>Campanula rotundifolia</i> L.	American Harebell	1	G5	S5			L1	R	R3	R7	4
<i>Cardamine bulbosa</i> (Schreb. ex Muhlenb.) B.S.P.	Bulbous Bitter-cress	1	G5	S4			L2	R	R3	R3	4
<i>Cardamine douglassii</i> Britton	Purple Cress	2	G5	S4			L3	R	R4	R10	4
<i>Cardamine pensylvanica</i> Muhlenb. ex Willd.	Pennsylvania Bitter-cress	10	G5	S5			L4	U	R4	R12	4
<i>Cardamine x maxima</i> (Nutt.) Alph. Wood	Hybrid Cress	4	GNA	S3			L4	X	X	X	3
<i>Carex albursina</i> E. Sheld.	White Bear Sedge	11	G5	S5			L3	U	R5	U	5
<i>Carex alopecoidea</i> Tuckerm.	Foxtail Sedge	4	G5	S5			L3	U	R1	R7	5
<i>Carex amphibola</i> Steud.	Narrow-leaved Sedge	2	G5	S2			L3	R	R3	R9	
<i>Carex aquatilis</i> Wahlenb.	Aquatic Sedge	6	G5	S5			L2	R	R3	R3	5
<i>Carex atherodes</i> Spreng.	Awed Sedge	1	G5	S4S5			L3	R			5
<i>Carex backii</i> Boott	Rocky Mountain Sedge	1	G4	S4S5			L3	R			4
<i>Carex brunnescens</i> (Pers.) Poir. ex Lam. ssp. brunnescens	Green Bog Sedge	1	G5	S5			L3	R		R2	4
<i>Carex castanea</i> Wahlenb.	Chestnut-colored Sedge	1	G5	S5			L3	R			4
<i>Carex cephaloidea</i> (Dewey) Dewey	Thin-leaved Sedge	5	G5	S5			L3	R	R2	R4	4
<i>Carex cephalophora</i> Muhlenb. ex Willd.	Oval-leaved Sedge	2	G5	S5			L3	U	R3	R11	4
<i>Carex comosa</i> Boott	Bristly Sedge	2	G5	S5			L3	U	R1	R4	5
<i>Carex crinita</i> Lam.	Fringed Sedge	2	G5	S5			L3	U		R10	4
<i>Carex diandra</i> Schrank	Lesser Panicked Sedge	1	G5	S5			L3	U	E	R1	5
<i>Carex disperma</i> Dewey	Soft-leaved Sedge	1	G5	S5			L3	U	R2	R2	5
<i>Carex eburnea</i> Boott	Ebony Sedge	8	G5	S5			L3	U	R3	R6	4
<i>Carex flava</i> L.	Yellow Sedge	2	G5	S5			L3	U	R2	R4	5
<i>Carex folliculata</i> L.	Long Sedge	1	G4G5	S3							
<i>Carex garberi</i> Fern.	Elk Sedge	1	G4	S4			L2	R	R1	R1	5
<i>Carex gracilescens</i> Steud.	Slender Wood Sedge	1	G5?	S4			L3	R		R4	4
<i>Carex gracillima</i> Schwein.	Graceful Sedge	21	G5	S5			L4	X	R3	X	4
<i>Carex grayi</i> Carey	Asa Gray Sedge	5	G4	S4			L2	R	R1	R6	4
<i>Carex hirtifolia</i> Mack.	Pubescent Sedge	8	G5	S5			L4	U	R4	U	4
<i>Carex hitchcockiana</i> Dewey	Hitchcock's Sedge	3	G5	S5			L3	U	R1	R6	5
<i>Carex interior</i> L.H. Bailey	Inland Sedge	8	G5	S5			L3	X	R2	R2	4
<i>Carex intumescens</i> Rudge	Bladder Sedge	6	G5	S5			L4	X	R2	U	4
<i>Carex laevivaginata</i> (Kükenth.) Mack.	Smooth-sheath Sedge	8	G5	S4			L3	R	R5	R8	4
<i>Carex lasiocarpa</i> Ehrh.	Slender Sedge	2	G5	S5			L2	R	E	E	5
<i>Carex laxiculmis</i> Schwein.	Spreading Sedge	4	G5T4T5	S4			L3	R		R5	5
<i>Carex laxiflora</i> Lam.	Loose-flowered Sedge	8	G5	S5			L4	U	R3	R10	4
<i>Carex leptalea</i> Wahlenb. ssp. <i>leptalea</i>	Slender Sedge	4	G5	S5			L3	U	R3	R5	5
<i>Carex leptonevia</i> (Fern.) Fern.	Finely-nerved Sedge	6	G4	S4			L3	U	R2	R4	4
<i>Carex lupulina</i> Muhlenb. ex Willd.	Hop Sedge	5	G5	S5			L3	X	R2	U	4

Scientific Name	Common Name	Number of Sites	G Rank	S Rank	COSEWIC	MNR	TRCA	GTA	Toronto	7E4	HD
<i>Carex lurida</i> Wahlenb.	Shallow Sedge	1	G5	S5			L3	R1			4
<i>Carex muhlenbergii</i> Schkuhr ex Willd. var. <i>muhlenbergii</i>	Muhlenberg's Sedge	1	G5T5	S4S5			L3	R	R3	R3	4
<i>Carex normalis</i> Mack.	Larger Straw Sedge	1	G5	S4			L3	R	R1	R2	5
<i>Carex peckii</i> Howe	White-tinged Sedge	3	G4G5	S5			L4	X	R3	U	4
<i>Carex pellita</i> Willd.	Woolly Sedge	9	G5	S5			L4	R	R6	R12	4
<i>Carex plantaginea</i> Lam.	Plantain-leaved Sedge	7	G5	S5			L3	X	R6	R10	5
<i>Carex prairea</i> Dewey	Prairie Sedge	1	G5?	S5			L2	R	R1	R1	4
<i>Carex projecta</i> Mack.	Necklace Sedge	1	G5	S5			L4	X		R9	4
<i>Carex scabrata</i> Schwein.	Rough Sedge	8	G5	S5			L4	U	R6	U	4
<i>Carex scoparia</i> Schkuhr ex Willd.	Pointed Broom Sedge	2	G5	S5			L3	R	R1	R5	5
<i>Carex siccata</i> Dewey	Hay Sedge	3	G5	S5			L3	R	R3	R4	4
<i>Carex sparganioides</i> Muhlenb. ex Willd.	Burreed Sedge	5	G5	S5			L4	X	R4	X	5
<i>Carex tribuloides</i> Wahlenb.	Blunt Broom Sedge	1	G5	S4S5			L4	R		R8	4
<i>Carex trichocarpa</i> Muhlenb. ex Willd.	Hairy-fruited Sedge	6	G4	S3			L3	R	R3	R4	5
<i>Carex trisperma</i> Dewey var. <i>trisperma</i>	Three-fruited Sedge	4	G5T5	S5			L3	R			5
<i>Carex tuckermanii</i> Dewey	Tuckerman Sedge	1	G4	S4			L3	U	R1	R9	4
<i>Carex utriculata</i> Boott	Beaked Sedge	5	G5	S5			L3	U	R2	R6	4
<i>Carex viridula</i> Michx. ssp. <i>viridula</i>	Green Sedge	8	G5	S5			L3	R	R2	R2	5
<i>Carya ovata</i> (Miller) K. Koch	Shagbark Hickory	10	G5	S5			L3	U	R5	U	4
<i>Castilleja coccinea</i> (L.) Spreng.	Scarlet Indian-paintbrush	1	G5	S5			LX	R	E	E	5
<i>Caulophyllum thalictroides</i> (L.) Michx.	Blue Cohosh	15	G4G5	S5			L3	R	R	R	4
<i>Ceanothus americanus</i> L.	New Jersey Tea	3	G5	S4			L1	R	R3	U	4
<i>Cephalanthus occidentalis</i> L.	Buttonbush	2	G5	S5			L3	R		R8	4
<i>Ceratophyllum demersum</i> L.	Common Hornwort	7	G5	S5			L3	U	R2	R5	5
<i>Chamaedaphne calyculata</i> (L.) Moench	Leatherleaf	1	G5	S5			L3	R	E	E	4
<i>Chamaesyce polygonifolia</i> (L.) Small	Seaside Spurge	1	G5?	S4			L2	R	R4	R4	5
<i>Chimaphila umbellata</i> (L.) Barton ssp. <i>cisatlantica</i> (S.F. Blake) Hultén	Prince's-pine	1	G5	S5			L2	R	E	R1	5
<i>Cicuta bulbifera</i> L.	Bulb-bearing Water-hemlock	6	G5	S5			L3	X	R3	R9	5
<i>Cinna arundinacea</i> L.	Stout Wood Reedgrass	4	G5	S4			L3	R	R3	R6	4
<i>Cinna latifolia</i> (Trevir. ex Goepp.) Griseb. in Ledeb.	Slender Wood Reedgrass	1	G5	S5			L3	U	R1	R2	5
<i>Circaea alpina</i> L.	Small Enchanter's Nightshade	1	G5	S5			L3	X	R4	R10	5
<i>Cirsium discolor</i> (Muhlenb. ex Willd.) Spreng.	Field Thistle	5	G5	S3			L2	R	R1	R1	4
<i>Cirsium muticum</i> Michx.	Swamp Thistle	2	G5	S5			L1	R	E	R1	4
<i>Claytonia caroliniana</i> Michx.	Carolina Spring-beauty	5	G5	S5			L3	U	R2	R5	5
<i>Clintonia borealis</i> (Aiton) Raf.	Clinton Lily	4	G5	S5			L3	X	R6	R12	4
<i>Comandra umbellata</i> (L.) Nutt.	Umbellate Bastard Toad-flax	5	G5	S5			L2	R	U	U	5
<i>Comptonia peregrina</i> (L.) J.M. Coult.	Sweet Fern	1	G5	S5			L1	R	R3	R5	5

Scientific Name	Common Name	Number of Sites	G Rank	S Rank	COSEWIC	MNR	TRCA	GTA	Toronto	7E4	HD
<i>Coptis trifolia</i> (L.) Salisb.	Goldthread	1	G5	S5			L2	X	R4	R5	5
<i>Cornus amomum</i> Miller ssp. <i>obliqua</i> (Raf.) J.S. Wilson	Silky Dogwood	4	G5T5	S5			L3	U	R2	R5	5
<i>Corylus americana</i> Walter	American Hazelnut	2	G5	S5			L3	R	R2	R1	4
<i>Crataegus chrysocarpa</i> Ashe	Round-leaved Hawthorn	1	G5TNR	S4?			L3	R	R1	R2	4
<i>Crataegus crus-galli</i> L.	Cockspur Hawthorn	1	G5	S5			L2	R	R1	R1	5
<i>Crataegus macrosperma</i> Ashe	Hawthorn	1	G5	S5			L3	R	R1	R4	4
<i>Crataegus pringlei</i> Sarg.	Hawthorn	3	G5	S5			L3	R	R2	R5	5
<i>Crataegus succulenta</i> Schrad. ex Link	Fleshy Hawthorn	4	G5	S4S5			L3	R	R1	R5	4
<i>Cyperus bipartitus</i> Torr.	Umbrella Sedge	3	G5	S5			L3	R	R4	R10	4
<i>Cyperus lupulinus</i> (Spreng.) Marcks ssp. <i>lupulinus</i>	Slender Cyperus	1	G5T5?	SNA			L2	R	R3	R4	5
<i>Cyperus odoratus</i> L.	Fragrant Umbrella Sedge	5	G5	S5			L3	R	R3	R4	5
<i>Cyperus schweinitzii</i> Torr.	Schweinitz's Cyperus	2	G5	S3			L2	R	R1	R1	5
<i>Cyperus strigosus</i> L.	Straw-colored Cyperus	1	G5	S5			L3	R	R3	R9	5
<i>Cypripedium calceolus</i> L. var. <i>parviflorum</i> (Salisb.) Hultén	Small Yellow Lady's Slipper	1	G5T4Q	S4S5			L3	U	R6	R8	4
<i>Cypripedium reginae</i> Walter	Showy Lady's Slipper	1	G4	S4			L2	R	R3	R3	5
<i>Cystopteris tenuis</i> (Michx.) Desv.	Bladderfern	6	G4G5	S5			L3	U	R6	R10	5
<i>Deparia acrostichoides</i> (Swartz) M. Kato	Silvery Spleenwort	1	G5	S4			L3	U	R3	R6	5
<i>Deschampsia flexuosa</i> (L.) Trin.	Crinkled Hairgrass	1	G5	S5			L2	R	R1	R3	4
<i>Desmodium nudiflorum</i> (L.) DC.	Bare-stemmed Tick-trefoil	1	G5	S4			L1	R	R1	R4	4
<i>Dicentra canadensis</i> (Goldie) Walp.	Squirrel-corn	2	G5	S5			L3	U	R5	R7	5
<i>Dicentra cucullaria</i> (L.) Bernh.	Dutchman's Breeches	3	G5	S5			L3	R	R5	R11	4
<i>Dirca palustris</i> L.	Leatherwood	2	G4	S4?			L3	U	R2	R3	5
<i>Drosera intermedia</i> Hayne	Spoon-leaved Sundew	1	G5	S5			LX	R			5
<i>Dryopteris clintoniana</i> (D.C. Eaton) Dowell	Clinton's Wood Fern	4	G5	S4			L3	U	R2	R5	5
<i>Dryopteris cristata</i> (L.) A. Gray	Crested Wood Fern	6	G5	S5			L3	X	R4	R12	4
<i>Dryopteris goldiana</i> (Hook. ex Goldie) A. Gray	Goldie's Fern	2	G4	S4			L2	R	R1	R1	5
<i>Eleocharis acicularis</i> (L.) Roem. & Schult.	Least Spike-rush	2	G5	S5			L3	R	R3	R9	4
<i>Eleocharis elliptica</i> Kunth	Slender Spike-rush	1	G5	S5			L3	R	R1	R1	5
<i>Eleocharis intermedia</i> Schult.	Matted Spike-rush	1	G5	S4			L3	R	R2	R2	4
<i>Eleocharis obtusa</i> (Willd.) Schult.	Blunt Spike-rush	2	G5	S5			L4	U	R4	R12	5
<i>Eleocharis smallii</i> Britton	Creeping Spike-rush	2	G5?	S5			L3	U		R8	5
<i>Elodea canadensis</i> Rich. ex Michx.	Broad Waterweed	4	G5	S5			L4	U	R3	R12	5
<i>Elodea nuttallii</i> (Planchon) H. St. John	Nuttall's Waterweed	4	G5	S3			L3	R	R1	R1	5
<i>Elymus canadensis</i> L.	Canada Wild-rye	10	G5	S4S5			L4	R	R6	R7	5
<i>Elymus riparius</i> Wiegand	River Wild-rye	14	G5	S4?			L4	R	X	U	4
<i>Epigaea repens</i> L.	Trailing Arbutus	2	G5	S5			L1	R	R2	R5	5
<i>Epilobium coloratum</i> Biehler	Purple-leaf Willow-herb	7	G5	S5			L4	R	R7	U	4

Scientific Name	Common Name	Number of Sites	G Rank	S Rank	COSEWIC	MNR	TRCA	GTA	Toronto	7E4	HD
<i>Epilobium leptophyllum</i> Raf.	Linear-leaved Willow-herb	2	G5	S5			L3	U	R2	R3	4
<i>Equisetum fluviatile</i> L.	Water Horsetail	9	G5	S5			L3	X	R3	R9	5
<i>Equisetum palustre</i> L.	Marsh Horsetail	3	G5	S5			L1	R	R2	R3	5
<i>Equisetum pratense</i> Ehrh.	Meadow Horsetail	5	G5	S5			L3	R	R1	R12	5
<i>Equisetum scirpoides</i> Michx.	Dwarf Scouring-rush	5	G5	S5			L3	U	R3	R6	5
<i>Equisetum sylvaticum</i> L.	Woodland Horsetail	4	G5	S5			L3	R	R4	R11	5
<i>Equisetum variegatum</i> Schleich. ex Fried., Weber & Mohr ssp. <i>variegatum</i>	Variegated Horsetail	5	G5	S5			L4	U	R6	R9	5
<i>Equisetum x nelsonii</i> (A.A. Eaton) J.H. Schaffn.	Hybrid Horsetail	12	GNA	S2?			L3	X	X	X	5
<i>Erigeron pulchellus</i> Michx.	Robin's Plantain	3	G5	S5			L2	R	R2	R4	4
<i>Eriophorum viridi-carinatum</i> (Engelm.) Fern.	Green Keeled Cottongrass	1	G5	S5			L2	R	R1	R1	5
<i>Erythronium albidum</i> Nutt.	White Trout Lily	5	G5	S4			L3	R		Yes	4
<i>Euonymus atropurpurea</i> Jacq.	Burning Bush	1	G5	S3			L2	R	E	E	4
<i>Euonymus obovata</i> Nutt.	Running Strawberry-bush	10	G5	S5			L3	X	R5	X	4
<i>Eupatorium purpureum</i> L. var. <i>purpureum</i>	Purple Joe-pye-weed	1	G5	S3			L2	R	R1	R1	4
<i>Festuca subverticillata</i> (Pers.) Alexeev	Nodding Fescue	2	G5	S4			L4	U	R6	R10	4
<i>Fraxinus nigra</i> Marshall	Black Ash	18	G5	S5			L4	X	R2	U	4
<i>Galium boreale</i> L.	Northern Bedstraw	4	G5	S5			L3	R	R4	R11	4
<i>Galium circaezans</i> Michx.	Wild Licorice	1	G5	S5			L3	R	R1	R2	4
<i>Galium tinctorium</i> L.	Stiff Marsh Bedstraw	1	G5	S5			L3	R	E	R1	4
<i>Galium trifidum</i> L. ssp. <i>trifidum</i>	Small Bedstraw	1	G5	S5			L3	U	R1	R2	4
<i>Gaultheria hispidula</i> (L.) Muhlenb. ex Bigelow	Creeping Snowberry	1	G5	S5			L1	R	E	E	5
<i>Gaultheria procumbens</i> L.	Wintergreen	3	G5	S5			L2	U	R5	U	4
<i>Gaylussacia baccata</i> (Wangenh.) K. Koch	Black Huckleberry	1	G5	S4			L3	R	R2	R8	4
<i>Gentiana andrewsii</i> Griseb.	Bottle Gentian	4	G5?	S4			L3	R	R3	R4	4
<i>Gentianella quinquefolia</i> (L.) Small ssp. <i>quinquefolia</i>	Stiff Gentian	1	G5	S2			L1	R	E	R1	
<i>Gentianopsis crinita</i> (Froel.) Ma	Fringed Gentian	9	G5	S5			L2	R	R4	R4	5
<i>Geum laciniatum</i> Murray	Rough Avens	3	G5	S4			L4	U	R5	X	4
<i>Geum rivale</i> L.	Purple Avens	3	G5	S5			L3	R	R3	R4	5
<i>Glyceria canadensis</i> (Michx.) Trin.	Canada Manna-grass	1	G5	S4S5			L2	R			5
<i>Glyceria septentrionalis</i> Hitchc.	Floating Manna-grass	2	G5	S4			L3	R	R1	R10	4
<i>Gymnocarpium dryopteris</i> (L.) Newman	Oak Fern	7	G5	S5			L3	X	R6	R11	5
<i>Helianthemum bicknellii</i> Fern.	Plains Frostweed	1	G5	S4			L1	R	R2	R4	4
<i>Helianthemum canadense</i> (L.) Michx.	Canada Frostweed	1	G5	S3			L1	R	R2	R2	5
<i>Helianthus decapetalus</i> L.	Thin-leaved Sunflower	2	G5	S5			L3	R	R2	R7	4
<i>Helianthus strumosus</i> L.	Pale-leaf Sunflower	6	G5	S5			L4	R	R4	R5	4
<i>Heteranthera dubia</i> (Jacq.) MacMill.	Grassleaf Mud-plantain	1	G5	S5			L2	R	R3	R4	5
<i>Hieracium kalmii</i> L.	Kalm's Hawkweed	1	G5T5?	SU			L3	R	R1	R2	4

Scientific Name	Common Name	Number of Sites	G Rank	S Rank	COSEWIC	MNR	TRCA	GTA	Toronto	7E4	HD
<i>Hydrocotyle americana</i> L.	American Water-pennywort	2	G5	S5			L3	U	R3	R8	4
<i>Hydrophyllum canadense</i> L.	Blunt-leaf Waterleaf	9	G5	S4			L3	R	U	R8	5
<i>Hypericum ascyron</i> L.	Great St. John's-wort	1	G4	S3?			L3	R	R3	R4	5
<i>Hypericum prolificum</i> L.	Shrubby St. Johnswort	1	G5	S2			L1	R	R1	R1	5
<i>Hypericum punctatum</i> Lam.	Common St. John's-wort	1	G5	S5			L3	R	R1	R3	4
<i>Ilex verticillata</i> (L.) A. Gray	Winterberry	2	G5	S5			L3	X	R1	R10	4
<i>Iris versicolor</i> L.	Blueflag	18	G5	S5			L3	X	R6	U	4
<i>Jeffersonia diphylla</i> (L.) Pers.	Twinleaf	1	G5	S4			L2	R	R4	R8	4
<i>Juglans cinerea</i> L.	Butternut	35	G4	S3?	END	END-R	L3	X	X	X	4
<i>Juncus acuminatus</i> Michx.	Sharp-fruited Rush	1	G5	S3			L2	E	E	E	5
<i>Juncus alpinoarticulatus</i> Chaix	Richardson Rush	4	G5	S5			L3	R	R5	R9	4
<i>Juncus balticus</i> Willd.	Baltic Rush	12	G5	S5			L4	R	R5	R7	5
<i>Juncus brachycephalus</i> (Engelm.) Buch.	Small-head Rush	2	G5	S4S5			L2	R	R1	R2	5
<i>Juncus canadensis</i> J. Gay ex Laharpe	Canada Rush	3	G5	S5			L1	R	R1	R1	5
<i>Juncus effusus</i> L. ssp. <i>solutus</i> (Fern. & Wiegand) Hämet-Ahti	Soft Rush	16	G5	S5			L4	X	R6	X	4
<i>Juncus nodosus</i> L.	Knotted Rush	8	G5	S5			L4	U	R6	X	5
<i>Juniperus virginiana</i> L.	Eastern Red Cedar	7	G5	S5			L5	U	R2	R8	4
<i>Larix laricina</i> (Du Roi) K. Koch	Tamarack	9	G5	S5			L3	X	R3	R7	4
<i>Lathyrus japonicus</i> Willd.	Beach Pea	1	G5	S4			L2	R	R1	R1	5
<i>Lathyrus palustris</i> L.	Vetchling Peavine	6	G5	S5			L2	R	R3	R6	4
<i>Lechea intermedia</i> Legg.	Narrowleaf Pinweed	1	G5	S4			LX	R	R2	R2	5
<i>Leersia virginica</i> Willd.	Virginia Cutgrass	5	G5	S4			L4	R	R6	U	5
<i>Lemna trisulca</i> L.	Star Duckweed	3	G5	S5			L3	U	R1	R9	5
<i>Lepidium virginicum</i> L.	Poor-man's Pepper-grass	1	G5	S5			L4	R	R3	R4	4
<i>Lespedeza capitata</i> Michx.	Round-head Bush-clover	2	G5	S4			L3	R	R3	R6	4
<i>Lespedeza hirta</i> (L.) Hornem.	Hairy Bush-clover	1	G5	S4			L1	R	R1	R4	4
<i>Liatris cylindracea</i> Michx.	Cylindric Blazing Star	1	G5	S3			L1	R	R1	R1	5
<i>Lilium philadelphicum</i> L.	Wood Lily	1	G5	S5			L1	R	R1	R2	5
<i>Lindernia dubia</i> (L.) Pennell var. <i>dubia</i>	Low-stalked False Pimpernel	2	G5T5	S4			L2	R	R3	R6	5
<i>Linum virginianum</i> L.	Virginia Yellow Flax	1	G4G5	S2			LX	R	E	R2	5
<i>Liparis loeselii</i> (L.) Rich. ex Lindl.	Loesel's Twayblade	3	G5	S4S5			L3	U	R3	R4	5
<i>Lobelia cardinalis</i> L.	Cardinal Flower	1	G5	S5			L1	R	E	R2	4
<i>Lobelia inflata</i> L.	Indian-tobacco	1	G5	S5			L3	X	R5	U	4
<i>Lobelia kalmii</i> L.	Kalm's Lobelia	1	G5	S5			L1	R	R1	R1	5
<i>Lonicera canadensis</i> Bartram	Fly Honeysuckle	9	G5	S5			L3	X	R6	U	4
<i>Lonicera hirsuta</i> Eaton	Hairy Honeysuckle	3	G4G5	S5			L3	R	R2	R5	4
<i>Lonicera oblongifolia</i> (Goldie) Hook.	Swamp Fly Honeysuckle	1	G4	S4S5			LX	R	ELR	E	5

Scientific Name	Common Name	Number of Sites	G Rank	S Rank	COSEWIC	MNR	TRCA	GTA	Toronto	7E4	HD
<i>Ludwigia palustris</i> (L.) Elliott	Marsh Seedbox	1	G5	S5			L3	R	R2	R8	4
<i>Lupinus perennis</i> L. ssp. <i>perennis</i>	Wild Lupine	1	G5	S3			L2	R	R2	R3	5
<i>Luzula acuminata</i> Raf.	Hairy Woodrush	3	G5	S5			L3	U	R3	U	4
<i>Luzula multiflora</i> (Retz.) Lej. ssp. <i>multiflora</i>	Woodrush	2	G5T5	S5			L3	R	R2	R8	4
<i>Lysimachia quadrifolia</i> L.	Whorled Loosestrife	2	G5	S4			L3	R	R1	R2	4
<i>Lysimachia terrestris</i> (L.) B.S.P.	Swamp Loosestrife	3	G5	S5			L3	R	R3	R4	4
<i>Lysimachia thyrsoiflora</i> L.	Water Loosestrife	4	G5	S5			L3	U	R4	R4	4
<i>Medeola virginiana</i> L.	Indian Cucumber-root	1	G5	S5			L3	U	R2	R9	4
<i>Menispermum canadense</i> L.	Canada Moonseed	8	G5	S4			L3	U	R6	U	4
<i>Mimulus glabratus</i> Kunth var. <i>jamesii</i> (Torr. & A. Gray ex Benth.) A. Gray	Glabrous Monkeyflower	1	G5	S1			LX	E	E	E	4
<i>Mitchella repens</i> L.	Partridge-berry	4	G5	S5			L3	X	R4	R11	4
<i>Mitella nuda</i> L.	Naked Bishop's-cap	2	G5	S5			L3	X	R4	R5	5
<i>Monarda x media</i> Willd.	Purple Horsemint	1	GNA	S1							
<i>Moneses uniflora</i> (L.) A. Gray	One-flowered Pyrola	1	G5	S5			L2	R		E	5
<i>Monotropa hypopithys</i> L.	American Pinesap	1	G5	S4			L3	R	R1	R2	5
<i>Muhlenbergia frondosa</i> (Poir. in Lam.) Fern.	Wirestem Muhly	2	G5	S4			L4	R	U	R11	4
<i>Muhlenbergia glomerata</i> (Willd.) Trin.	Marsh Muhly	1	G5	S5			L2	R	R1	R1	4
<i>Myriophyllum sibiricum</i> Kom.	Common Water-milfoil	2	G5	S5			L1	R	R2	R2	5
<i>Myriophyllum verticillatum</i> L.	Whorled Water-milfoil	1	G5	S5			L1	R	R1	R1	5
<i>Najas flexilis</i> (Willd.) Rost. & W. Schmidt	Slender Naiad	3	G5	S5			L2	R	R1	R2	5
<i>Nuphar variegata</i> Durand in Clinton	Yellow Cowlily	3	G5T5	S5			L3	U	R4	R4	5
<i>Nymphaea odorata</i> Aiton	American Water-lily	6	G5	S5			L2			Yes	5
<i>Oenothera oakesiana</i> (A. Gray) Robbins ex S. Watson & Coult.	Evening-primrose	6	G4G5Q	S4?			L3	R	R2	R2	5
<i>Oryzopsis pungens</i> (Torr. ex Spreng.) A. Hitchc.	Slender Mountain-ricegrass	1	G5	S5			LX	R	E	E	4
<i>Oryzopsis racemosa</i> (Sm.) Ricker ex A. Hitchc.	Black-fruit Mountain-ricegrass	4	G5	S4			L3	R	R3	R5	5
<i>Osmorhiza longistylis</i> (Torr.) DC.	Smooth Sweet-cicely	5	G5	S5			L3	R	R2	R5	4
<i>Osmunda cinnamomea</i> L.	Cinnamon Fern	2	G5	S5			L3	X	R3	X	5
<i>Osmunda claytoniana</i> L.	Interrupted Fern	2	G5	S5			L2	R	R4	R9	5
<i>Osmunda regalis</i> L. var. <i>spectabilis</i> (Willd.) A. Gray	Royal Fern	1	G5	S5			L2	U	R1	R5	5
<i>Panax quinquefolius</i> L.	American Ginseng	1	G3G4	S2	END	END-R	L2	R	R1	R2	4
<i>Panicum columbianum</i> Scribner var. <i>siccanum</i> (A. Hitchc. & Chase) B. Boivin	Panic Grass	1	G5T5	S4			L2	R	R1	R1	4
<i>Panicum dichotomum</i> (L.) Gould	Cypress Witchgrass	1	G5	S2				R			
<i>Panicum latifolium</i> L.	Broad-leaf Witchgrass	2	G5	S4			L1	R	R1	R3	5
<i>Panicum virgatum</i> L.	Old Switch Panic Grass	12	G5	S4			L3	R	R2	R2	5
<i>Panicum xanthophysum</i> A. Gray	Slender Dichanthelium	1	G5	S4			L2	R	R1	R1	4
<i>Pedicularis canadensis</i> L.	Wood-betony	1	G5	S5			L1	R	R5	R10	5
<i>Peltandra virginica</i> (L.) Schott & Endl. ssp. <i>virginica</i>	Green Arrow-arum	2	G5	S2			L3	R			5

Scientific Name	Common Name	Number of Sites	G Rank	S Rank	COSEWIC	MNR	TRCA	GTA	Toronto	7E4	HD
<i>Penstemon hirsutus</i> (L.) Willd.	Hairy Beard-tongue	4	G4	S4			L3	R	R2	R9	4
<i>Phlox divaricata</i> L.	Wild Blue Phlox	5	G5	S4			L2	R	R4	R10	4
<i>Physocarpus opulifolius</i> (L.) Maxim.	Ninebark	13	G5	S5			L3	R	U	R11	5
<i>Physostegia virginiana</i> (L.) Benth. ssp. virginiana	Virginia False Dragonhead	7	G5	S4			L3	R	R5	R6	4
<i>Picea mariana</i> (Miller) B.S.P.	Black Spruce	1	G5	S5			L2	R			5
<i>Pilea fontana</i> (Lunnell) Rydb.	Springs Clearweed	6	G5	S4			L3	R	R2	R8	4
<i>Pinus resinosa</i> Sol. ex Aiton	Red Pine	21	G5	S5			L2	R	R3	R2	5
<i>Platanthera hyperborea</i> (L.) Lindl.	Leafy Northern Green Orchid	1	G5	S5			L2	U	R3	R6	5
<i>Platanus occidentalis</i> L.	Sycamore	6	G5	S4			L1	R	R2	R6	5
<i>Poa alsodes</i> A. Gray	Grove Meadow Grass	2	G4G5	S4			L3	R	R1	R6	5
<i>Poa saltuensis</i> Fern. & Wiegand	Drooping Bluegrass	1	G5	S4			L3	R		R1	5
<i>Polygala polygama</i> Walter	Racemed Milkwort	1	G5	S4			L3	R	E	E	5
<i>Polygala verticillata</i> L.	Whorled Milkwort	1	G5	S4			L1	R	E	R5	5
<i>Polygonum amphibium</i> L.	Water Smartweed	9	G5	S5			L4	X	R6	R7	4
<i>Polygonum hydropiperoides</i> Michx.	Marshpepper Smartweed	1	G5	S5			L3	R	R3	R6	5
<i>Polygonum punctatum</i> Elliott	Dotted Smartweed	4	G5	S5			L2	R	R1	R6	5
<i>Polygonum virginianum</i> L.	Virginia Knotweed	1	G5	S4			L4	R	R1	R2	5
<i>Pontederia cordata</i> L.	Pickrel Weed	1	G5	S5			L2	R	E	E	5
<i>Populus deltoides</i> Bartram ex Marshall ssp. <i>monilifera</i> (Aiton) Eckenwalder	Cottonwood	1	G5T5	S2?			L5				4
<i>Potamogeton amplifolius</i> Tuckerm.	Large-leaf Pondweed	1	G5	S5			L3	R	E	R3	5
<i>Potamogeton berchtoldii</i> Fieber	Slender Pondweed	2	G5	S4S5			L2	R	R2	R3	5
<i>Potamogeton gramineus</i> L.	Grassy Pondweed	1	G5	S5			L3	R	R1	R2	5
<i>Potamogeton perfoliatus</i> L.	Clasping-leaf Pondweed	1	G5	S4			LX	R	E	E	5
<i>Potamogeton richardsonii</i> (A. Bennett) Rydb.	Richardson's Pondweed	2	G5	S5			L1	R	R2	R2	5
<i>Potamogeton zosteriformis</i> Fern.	Flatstem Pondweed	3	G5	S5			L2	R	R2	R3	5
<i>Potentilla paradoxa</i> Nutt.	Bushy Cinquefoil	8	G5	S4			L3	R	R6	R10	5
<i>Prunus nigra</i> Aiton	Canada Plum	3	G4G5	S4			L3	U	R6	R10	4
<i>Pyrola elliptica</i> Nutt.	Shinleaf	1	G5	S5			L3	X	R5	R10	4
<i>Quercus alba</i> L.	White Oak	32	G5	S5			L2	X	X	X	4
<i>Quercus velutina</i> Lam.	Black Oak	12	G5	S4			L2	R	R5	R9	4
<i>Quercus x hawkinsiae</i> Sudw.	Hybrid Oak	1	GNA	S1			L2				4
<i>Ranunculus fascicularis</i> Muhlenb. ex Bigelow	Early Buttercup	2	G5	S4			LX	R	E	E	4
<i>Ranunculus pensylvanicus</i> L. f.	Bristly Crowfoot	2	G5	S5			L3	R	R2	R8	4
<i>Ranunculus rhomboideus</i> Goldie	Prairie Buttercup	1	G5	S4			LX	R	E	E	4
<i>Rhamnus alnifolia</i> L'Hér.	Alder-leaved Buckthorn	1	G5	S5			L3	U	R1	R3	4
<i>Rhus radicans</i> L. ssp. <i>negundo</i> (Greene) McNeill	Climbing Poison-ivy	20	G5T5	S5			L5	X	R5	X	4
<i>Ribes hirtellum</i> Michx.	Smooth Gooseberry	8	G5	S5			L3	R	R2	R5	4

Scientific Name	Common Name	Number of Sites	G Rank	S Rank	COSEWIC	MNR	TRCA	GTA	Toronto	7E4	HD
<i>Ribes triste</i> Pall.	Swamp Red Currant	12	G5	S5			L3	U	R2	R6	4
<i>Rosa carolina</i> L.	Carolina Rose	1	G5	S4			L2	R	R5	R5	4
<i>Rosa palustris</i> Marshall	Swamp Rose	2	G5	S5			L2	R		R8	5
<i>Rubus flagellaris</i> Willd.	Northern Dewberry	3	G5	S4			L3	R	R4	R7	4
<i>Rudbeckia laciniata</i> L.	Cut-leaved Coneflower	2	G5	S5			L4	U	R4	U	4
<i>Rumex orbiculatus</i> A. Gray	Water Dock	7	G5	S4S5			L3	U	R4	R12	4
<i>Rumex verticillatus</i> L.	Swamp Dock	1	G5	S4			LU	R	R1	R1	4
<i>Sagittaria cuneata</i> E. Sheld.	Northern Arrowhead	1	G5	S4?			L3	R	R1	R1	5
<i>Sagittaria rigida</i> Pursh	Sessile-fruited Arrowhead	1	G5	S4?			LX	R	E	E	5
<i>Salix humilis</i> Marshall	Upland Willow	2	G5	S5			L2	R	R3	R4	5
<i>Salix lucida</i> Muhlenb.	Shining Willow	1	G5	S5			L3	U	R4	R10	5
<i>Salix nigra</i> Marshall	Black Willow	8	G5	S4?			L3	R	R3	R8	5
<i>Salix pedicellaris</i> Pursh	Bog Willow	1	G5	S5			L2	R	R1SR	R1	5
<i>Salix petiolaris</i> Sm.	Slender Willow	12	G5	S5			L4	X	R2	R12	5
<i>Sanicula odorata</i> (Raf.) Pryer & Phillippe	Clustered Snakeroot	2	G5	S5			L3	R	R1	R1	4
<i>Saxifraga virginiana</i> Michx.	Early Saxifrage	1	G5	S5			L1	R	R1	R5	5
<i>Schizachyrium scoparium</i> (Michx.) Nees	Little Bluestem	3	G5	S4			L2	R	R2	R5	5
<i>Scirpus acutus</i> Muhlenb. ex Bigelow	Hard-stemmed Bulrush	4	G5	S5			L3	R	R4	R8	5
<i>Scirpus fluviatilis</i> (Torr.) A. Gray	River Bulrush	8	G5	S4S5			L3	R	R3	R8	5
<i>Scirpus pendulus</i> Muhlenb. ex Willd.	Rufous Bulrush	3	G5	S5			L3	U	E	R1	5
<i>Scirpus pungens</i> M. Vahl	Common Three-square	13	G5	S5			L4	R	U	R12	5
<i>Scirpus verecundus</i> Fern.	Bashful Bulrush	1	G4G5	S1	END	END-R	LX	R		R1	5
<i>Scleria verticillata</i> Muhlenb. ex Willd.	Low Nutrush	2	G5	S3			L2	R	R1	R1	5
<i>Scrophularia marilandica</i> L.	Carpenter's Square Figwort	2	G5	S4			L3	R	R3	R8	4
<i>Shepherdia canadensis</i> (L.) Nutt.	Canada Buffalo-berry	4	G5	S5			L3	R	R4	R7	5
<i>Silphium perfoliatum</i> L. var. <i>perfoliatum</i>	Cup-plant	1	G5	S2			L4	R	R4	R4	3
<i>Sium suave</i> Walter	Water-parsnip	9	G5	S5			L4	X	R6	U	4
<i>Solidago arguta</i> Aiton var. <i>arguta</i>	Sharp-leaved Goldenrod	1	G5	S4			L2	R	R1	R3	4
<i>Solidago bicolor</i> L.	White Goldenrod	1	G5	S4?			L2	R	E	R5	4
<i>Solidago hispida</i> Muhlenb.	Hairy Goldenrod	2	G5	S5			L2	R	R2	Yes	4
<i>Solidago patula</i> Muhlenb. ex Willd.	Roundleaf Goldenrod	6	G5	S5			L3	R	R6	R9	4
<i>Solidago squarrosa</i> Muhlenb. ex Nutt.	Squarrose Goldenrod	1	G4?	S4			L2	R	R2	R4	4
<i>Sorghastrum nutans</i> (L.) Nash	Yellow Indian-grass	3	G5	S4			L2	R	R2	R3	5
<i>Sparganium emersum</i> Rehmman ssp. <i>emersum</i>	Green-fruited Bur-reed	3	G5	S5			L3	U	R1	R4	5
<i>Sparganium eurycarpum</i> Engelm. ex A. Gray	Large Bur-reed	8	G5	S5			L3	U	R4	U	5
<i>Spartina pectinata</i> Link	Fresh Water Cordgrass	3	G5	S4			L3	R	R1	R1	5
<i>Spiraea alba</i> Du Roi	Narrow-leaved Meadow-sweet	7	G5	S5			L4	X	R1	R9	4

Scientific Name	Common Name	Number of Sites	G Rank	S Rank	COSEWIC	MNR	TRCA	GTA	Toronto	7E4	HD
<i>Spiranthes cernua</i> (L.) Rich.	Nodding Ladies'-tresses	8	G5	S5			L3	R	R5	R6	5
<i>Spiranthes lucida</i> (Eaton) Ames	Shining Ladies'-tresses	1	G5	S4			L2	R	R1	R1	5
<i>Spiranthes romanzoffiana</i> Cham.	Hooded Ladies'-tresses	2	G5	S5			L1	R	R2	R2	5
<i>Spirodela polyrhiza</i> (L.) Schleid.	Greater Duckweed	3	G5	S5			L3	U	R2	R11	5
<i>Sporobolus cryptandrus</i> (Torr.) A. Gray	Sand Dropseed	5	G5	S4			L3	R	U	R10	5
<i>Stachys palustris</i> L.	Marsh Hedge-nettle	4	G5	SNA			L4	R	R3	R11	4
<i>Staphylea trifolia</i> L.	American Bladdernut	3	G5	S4			L3	R	R5	R7	4
<i>Stellaria longifolia</i> Muhlenb. ex Willd.	Long-leaved Chickweed	1	G5	S5			L3	R	R4	R8	4
<i>Streptopus roseus</i> Michx.	Rose Twisted-stalk	13	G5	S5			L3	X	R4	R11	4
<i>Symphyotrichum laeve</i> (L.) Löve & Löve	Smooth Blue Aster	7	G5	S5			L3	R	R3	R6	4
<i>Symphyotrichum ontarione</i> (Weigand) Nesom var. ontarione	Ontario Aster	1	G5	S4			L3	R			5
<i>Symphyotrichum oolentangiense</i> (Riddell) Nesom	Sky-blue Aster	3	G5	S4			L4	R	R6	R7	4
<i>Symphyotrichum pilosum</i>	White Heath Aster	11	G5T5	S5			L3	R	R2	R3	4
<i>Symplocarpus foetidus</i> (L.) Salisb. ex Nutt.	Skunk Cabbage	11	G5	S5			L4	R	R6	R11	4
<i>Taenidia integerrima</i> (L.) Drude	Yellow Pimpernell	6	G5	S4			L1	R	R4	R12	4
<i>Taxus canadensis</i> Marshall	Canadian Yew	5	G5	S4			L3	X	R5	U	4
<i>Teucrium canadense</i> L. ssp. canadense	Wood Germander	6	G5T5	S5?			L3	R	R5	R9	4
<i>Thelypteris noveboracensis</i> (L.) Nieuwl.	New York Fern	1	G5	S4S5			L2	R	R3	R8	5
<i>Trientalis borealis</i> Raf. ssp. borealis	Star-flower	5	G5	S5			L3	X	R6	R11	4
<i>Utricularia minor</i> L.	Lesser Bladderwort	2	G5	S5			L1	R	R1	R1	5
<i>Utricularia vulgaris</i> L.	Greater Bladderwort	1	G5	S5			L2	U	R2	R4	5
<i>Vaccinium angustifolium</i> Aiton	Lowbush Blueberry	2	G5	S5			L2	R	R2	R10	4
<i>Vaccinium pallidum</i> Aiton	Early Lowbush Blueberry	2	G5	S4			L1	R	R3	R12	5
<i>Vallisneria americana</i> Michx.	Water-celery	2	G5	S5			L3	R	R1	R1	5
<i>Verbena stricta</i> Vent.	Hoary Vervain	1	G5	S4			L3	R	R3	R3	4
<i>Veronica americana</i> (Raf.) Schwein. ex Benth.	American Speedwell	3	G5	S5			L4	U	R3	R10	4
<i>Viburnum cassinoides</i> L.	Northern Wild-raisin	1	G5T5	S5			L2	R	E	R1	5
<i>Viburnum rafinesquianum</i> Schult.	Downy Arrow-wood	3	G5	S5			L2	R	R2	R10	4
<i>Viburnum trilobum</i> Marshall	Highbush Cranberry	27	G5T5	S5			L2	X	R	U	4
<i>Viola blanda</i> Willd.	Sweet White Violet	1	G4G5	S4S5			L3	X	R1	R6	4
<i>Viola canadensis</i> L.	Canada Violet	1	G5	S5			L3	X	R6	X	4
<i>Viola cucullata</i> Aiton	Marsh Blue Violet	4	G4G5	S5			L3	X	R4	U	4
<i>Viola rostrata</i> Pursh	Long-spurred Violet	1	G5	S5			L3	X	R2	R8	4
<i>Waldsteinia fragarioides</i> (Michx.) Tratt.	Barren Strawberry	5	G5	S5			L4	X	R5	U	4
<i>Wolffia columbiana</i> Karst.	Columbia Watermeal	1	G5	S4S5			L4	R	R1	R5	5
<i>Zizania palustris</i> L.	Northern Wild-rice	1	G4G5T4T5	S4			L1	R	R1	R1	5
<i>Zizia aurea</i> (L.) Koch	Common Alexanders	3	G5	S5			L3	R	R3	R5	4

**APPENDIX 4: SUMMARY OF SIGNIFICANT VEGETATION COMMUNITIES
WITHIN SITES ASSESSED IN THE CITY OF TORONTO**

Appendix 4. Significant vegetation communities within sites assessed within the City of Toronto.

Community Code	Vegetation Community Type	Provincial Status	TRCA Status	Number of Sites
BBO1	Mineral Open Beach		L3	11
BBO1-1	Sea Rocket Open Sand Beach	S2S3	L2	3
BBO1-2	Wormwood Open Gravel Beach	S2S3	L2	1
BBO1-3	Reed Canary Grass Riparian Bar		L3	2
BBS1	Mineral Shrub Beach / Bar Ecosite		L2	2
BBS1-2	Willow Shrub Beach		L3	8
BBS1-A	Red-Osier Dogwood Shrub Beach		L3	2
BBT1	Mineral Treed Beach / Bar		L2	4
BLS1	Mineral Shrub Bluff		L3	5
BLS1-A	Sumac - Willow - Cherry Shrub Bluff		L3	7
BLS1-B	Serviceberry - Buffaloberry Shrub Bluff		L2	2
BLT1	Mineral Treed Bluff		L2	3
BLT1-A	White Cedar Treed Bluff		L2	2
BLT1-B	Deciduous Treed Bluff		L3	12
CBO1	Open Clay Barren		L2	1
CBS1	Shrub Clay Barren		L2	1
CUS1-3	Red Oak Non-tallgrass Savannah		L3	2
CUT1-2	Serviceberry Deciduous Thicket		L2	2
CUT1-D	Round-leaved Dogwood Deciduous Thicket		L3	2
CUW1/TPS1-1/CUM1	Mineral Cultural Woodland/Tallgrass Savannah/Mineral Cultural Meadow		L4/L1/L5	1
CUW2-A	Black Oak Non-tallgrass Woodland		L3	1
FOC1-2	Dry-Fresh White Pine (- Red Pine) Coniferous Forest		L3	5
FOC3-A	Fresh-Moist Hemlock - White Pine Coniferous Forest		L3	5
FOC4-A	Fresh-Moist White Cedar-White Pine Coniferous Forest		L3	1
FOCA-A	Moderately Wet Hemlock Coniferous Forest (well-drained)		L2	1
FOD1	Dry-Fresh Oak Deciduous Forest		L2	2
FOD1-1	Dry-Fresh Red Oak Deciduous Forest		L2	12
FOD1-2	Dry-Fresh White Oak Deciduous Forest		L2	4
FOD1-3	Dry-Fresh Black Oak Deciduous Forest	S3	L1	1
FOD1-4	Dry-Fresh Mixed Oak Deciduous Forest	S3S4	L2	3
FOD1-4/CUW1	Dry-Fresh Mixed Oak Deciduous Forest/Mineral Cultural Woodland	S3S4	L2/L4	1

Community Code	Vegetation Community Type	Provincial Status	TRCA Status	Number of Sites
FOD2-1	Dry-Fresh Oak - Red Maple Deciduous Forest		L2	8
FOD2-2	Dry-Fresh Oak - Hickory Deciduous Forest	S3/S4	L3	2
FOD2-3	Dry-Fresh Hickory Deciduous Forest	S3/S4	L3	3
FOD6-2	Fresh-Moist Sugar Maple - Black Maple Deciduous Forest	S3?		7
FOD6-3	Fresh-Moist Sugar Maple - Yellow Birch Deciduous Forest		L3	3
FOD7-4	Fresh-Moist Black Walnut Lowland Deciduous Forest	S2S3	L4	4
FOD7-D	Fresh-Moist Red Maple Lowland Deciduous Forest		L3	1
FOD8-A	Fresh-Moist Cottonwood Coastal Deciduous Forest		L3	7
FOD9-1	Fresh-Moist Oak - Sugar Maple Deciduous Forest		L3	7
FOD9-A	Fresh-Moist Oak - Beech Deciduous Forest		L3	1
FOD9-B	Fresh-Moist Oak - Birch Deciduous Forest		L2	1
FOM2-1	Dry-Fresh White Pine - Oak Mixed Forest		L2	4
FOM2-1/FOD2-4	Dry-Fresh White Pine-Oak Mixed Forest/Dry-Fresh Oak-Hardwood Deciduous Forest		L2/L4	1
FOM3-1	Dry-Fresh Hardwood Hemlock Mixed Forest		L3	6
FOM5-1	Dry-Fresh Paper Birch Mixed Forest		L3	5
FOM5-1/CUP2	Dry-Fresh Paper Birch Mixed Forest/Mixed Plantation		L3/L4	1
FOM5-2	Dry-Fresh Poplar Mixed Forest		L3	1
FOM6-2	Fresh-Moist Hemlock - Hardwood Mixed Forest		L3	10
FOM8	Fresh-Moist Poplar - Paper Birch Mixed Forest Ecosite		L3	1
FOM8/SDT1	Fresh-Moist Poplar - Paper Birch Mixed Forest Ecosite/Treed Sand Dune Ecosite		L3/L2	1
FOM8-1	Fresh-Moist Poplar Mixed Forest		L3	1
FOM8-A	Fresh-Moist Poplar - White Birch Coastal Mixed Forest		L3	1
MAM2	Mineral Meadow Marsh		L3	8
MAM2/MAM4	Mineral Meadow Marsh/Great Lakes Coastal Meadow Marsh		L3/L1	1
MAM2-7	Horsetail Mineral Meadow Marsh		L3	5
MAM2-C	Rush Mineral Meadow Marsh		L3	1
MAM3-8	Jewelweed Organic Meadow Marsh		L3	1
MAM3-9	Forb Organic Meadow Marsh		L3	2
MAM4-A	Nelson's Scouring Rush - Baltic Rush Coastal Fen		L1	1
MAM5-1	Mineral Fen Meadow Marsh		L2	6

Community Code	Vegetation Community Type	Provincial Status	TRCA Status	Number of Sites
MAM6-A	Bluejoint - Switchgrass Tallgrass Meadow Marsh		L2	1
MAS2-7	Bur-reed Mineral Shallow Marsh		L3	2
MAS2-C	Rush Mineral Meadow Marsh		L3	1
MAS3-1	Cattail Organic Shallow Marsh		L3	1
MAS3-4	Broad-leaved Sedge Organic Shallow Marsh		L2	1
MAS3-8	Rice Cut-grass Organic Shallow Marsh		L2	1
MAS3-10	Forb Organic Shallow Marsh		L2	1
SAF1-1	Water Lily - Bullhead Lily Floating-leaved Shallow Aquatic		L3	2
SAM1	Mixed Shallow Aquatic Ecosite		L3	1
SAM1-2	Duckweed Mixed Shallow Aquatic		L3	2
SAM1-3	Watercress Mixed Shallow Aquatic		L3	1
SAM1-4	Pondweed Mixed Shallow Aquatic		L3	1
SAM1-A	Water Lily - Bullhead Lily Mixed Shallow Aquatic		L3	1
SAS1	Submerged Shallow Aquatic Ecosite		L3	6
SAS1-1	Pondweed Submerged Shallow Aquatic		L3	5
SBO1-A	Dry Dropseed Sand Barren		L2	2
SBO1-B	Dry-Fresh Flat-stemmed Bluegrass - Forb Sand Barren		L2	3
SBS1	Shrub Sand Barren Ecosite		L1	1
SBT1	Treed Sand Barren Ecosite		L1	3
SDO1	Open Sand Dune Ecosite		L2	3
SDO1-1	Switchgrass - Beachgrass - (Little Bluestem) Open Sand Dune	S2	L1	1
SDO1-A	Sand Dropseed - Flat-stemmed Bluegrass Open Sand Dune		L2	4
SDS1	Sand Shrub Dune Ecosite		L2	1
SDS1-A	Willow Shrub Sand Dune		L3	2
SDT1	Treed Sand Dune Ecosite		L2	3
SDT1-1	Cottonwood Treed Sand Dune	S1	L2	4
SWC1-2	White Cedar - Conifer Mineral Coniferous Swamp		L3	1
SWC2-1	White Pine Mineral Coniferous Swamp	S2		1
SWC2-2	Hemlock Mineral Coniferous Swamp		L3	1
SWD1-2	Bur Oak Mineral Deciduous Swamp	S3	L3	1
SWD3-1	Red Maple Mineral Deciduous Swamp		L3	1
SWD4-4	Yellow Birch Mineral Deciduous Swamp		L3	3

Community Code	Vegetation Community Type	Provincial Status	TRCA Status	Number of Sites
SWD4-A	White Birch - Cottonwood Coastal Mineral Deciduous Swamp		L2	1
SWD6-2	Silver Maple Organic Deciduous Swamp		L2	1
SWD7-1	Paper Birch - Poplar Organic Deciduous Swamp		L3	3
SWD7-2	Yellow Birch Organic Deciduous Swamp		L3	1
SWD7-A	Willow Organic Deciduous Swamp		L3	1
SWM4-1	White Cedar - Hardwood Organic Mixed Swamp		L3	4
SWM5-1	Red Maple - Conifer Organic Mixed Swamp		L2	1
SWM6-2	Poplar - Conifer Organic Mixed Swamp		L2	1
SWMA-A	Red (Green) Ash - Hemlock Mineral Mixed Swamp		L2	1
SWT2-10	Nannyberry Mineral Thicket Swamp		L3	1
SWT2-3	Mountain Maple Mineral Thicket Swamp		L3	1
SWT2-8	Silky Dogwood Mineral Thicket Swamp		L3	1
SWT3-2	Willow Organic Thicket Swamp		L3	2
SWT3-5	Red Osier Dogwood Organic Thicket Swamp		L3	1
TPO1-1	Dry Tallgrass Prairie	S1	L1	2
TPO2-1	Fresh-Moist Tallgrass Prairie		L1	1
TPS1-1	Dry Black Oak Tallgrass Savannah	S1	L1	3
TPS1-1/FOD8	Dry Tallgrass Prairie Ecosite/Fresh-Moist Poplar - Sassafras Deciduous Forest	S1/S5	L1/L4	1
TPS1-2	Dry Black Oak - Pine Tallgrass Savannah		L1	1
TPW1	Dry Tallgrass Woodland Ecosite		L1	1
TPW2-A	Fresh-Moist Cottonwood Tallgrass Woodland		L2	3

**APPENDIX 5: SUMMARY OF SIGNIFICANT BIRD SPECIES
WITHIN SITES ASSESSED IN THE CITY OF TORONTO**

Appendix 5. List of qualifying breeding bird species (those ranking L1 to L3 using a Local Occurrence score specific to Toronto, with a Habitat Dependence or Sensitivity to Development score of 4 or 5); and occurrence within sites assessed in the City of Toronto.

Species	Number of Sites with Breeding Evidence*	Sites with Probable or Confirmed Breeding Evidence**	Comments
Acadian Flycatcher	1	<ul style="list-style-type: none"> • none 	
Alder Flycatcher	1	<ul style="list-style-type: none"> • none 	
American Coot	2	<ul style="list-style-type: none"> • Humber Valley ESA • Rouge Marsh Area 	
American Woodcock	8	<ul style="list-style-type: none"> • Leslie Street Spit • Tommy Thompson Park ESA • Pearce Woods* • High Park ESA 	
Barred Owl	1	<ul style="list-style-type: none"> • none 	
Black Tern	3	<ul style="list-style-type: none"> • Rouge Marsh • Townline Swamp 	No breeding records reported after 1991
Black-and-White Warbler	1	<ul style="list-style-type: none"> • none 	
Blackburnian Warbler	1	<ul style="list-style-type: none"> • none 	
Black-crowned Night Heron	6	<ul style="list-style-type: none"> • Tommy Thompson Park ESA • Rouge Marsh Area • Stephenson's Swamp/Highland Creek East • Townline Swamp • Mugg's Island ESA 	Sighted frequently along the waterfront but most records are foraging birds as they forage considerable distance from nest site
Black-throated Blue Warbler	none	<ul style="list-style-type: none"> • none 	
Black-throated Green Warbler	1	<ul style="list-style-type: none"> • none 	
Blue-winged Warbler	1	<ul style="list-style-type: none"> • none 	
Bobolink	1	<ul style="list-style-type: none"> • East Point 	
Broad-winged Hawk	none	<ul style="list-style-type: none"> • none 	
Brown Creeper	9	<ul style="list-style-type: none"> • Finch Avenue Meander/Sewell's Forest/Reesor Woodlot • Humber Valley ESA • Little Rouge Forest; Little Rouge Forest Extension 	
Brown Thrasher	10	<ul style="list-style-type: none"> • High Park ESA 	

Species	Number of Sites with Breeding Evidence*	Sites with Probable or Confirmed Breeding Evidence**	Comments
		<ul style="list-style-type: none"> Cherry Beach Extension Highland Forest/Morningside Park and Highland Creek West Leslie Street Spit Tommy Thompson Park Silverthorn Area 	
Canada Warbler	4	<ul style="list-style-type: none"> none 	
Canvasback	1	<ul style="list-style-type: none"> Centre Island Meadows/Wildlife Sanctuary ESA 	Probable location from Toronto Islands Wetland Data Record
Caspian Tern	4	<ul style="list-style-type: none"> Leslie Street Spit 	Currently dependent on artificial habitat platforms – previously known to nest on Tommy Thompson Park ESA in natural habitat but displaced by ring-billed gulls
Chimney Swift	34	<ul style="list-style-type: none"> none 	All sightings of this species were of foraging individuals: dependent on nest sites within man-made structures (chimneys) that occur in neighbourhoods outside sites
Clay-coloured Sparrow	1	<ul style="list-style-type: none"> none 	
Common Moorhen	2	<ul style="list-style-type: none"> Rouge Marsh Area Townline Swamp 	all records prior to 2006
Common Nighthawk	3	<ul style="list-style-type: none"> Humber Valley ESA* 	
Eastern Towhee	2	<ul style="list-style-type: none"> Morningside Creek Forest/Milne Park 	
Golden-winged Warbler	none	<ul style="list-style-type: none"> none 	
Great Black-backed Gull	1	<ul style="list-style-type: none"> Tommy Thompson Park ESA 	
Great Blue Heron	2	<ul style="list-style-type: none"> Tommy Thompson Park ESA East Don Valley Swamp 	Records from East Don Valley Swamp from prior to 2006 – not noted in subsequent surveys Sighted frequently along the waterfront but most records are foraging birds as they forage considerable distance from nest site
Great Egret	4	<ul style="list-style-type: none"> Humber Valley ESA/Extension Tommy Thompson Park ESA 	Sighted frequently along the waterfront but most records are foraging birds as they forage considerable distance from nest site
Green-winged Teal	1	<ul style="list-style-type: none"> none 	
Hermit Thrush	none	<ul style="list-style-type: none"> none 	
Herring Gull	1	<ul style="list-style-type: none"> Tommy Thompson Park ESA 	

Species	Number of Sites with Breeding Evidence*	Sites with Probable or Confirmed Breeding Evidence**	Comments
Hooded Warbler	none	<ul style="list-style-type: none"> • none 	
Least Bittern	2	<ul style="list-style-type: none"> • Rouge Marsh Area 	
Magnolia Warbler	3	<ul style="list-style-type: none"> • none 	
Merlin	none	<ul style="list-style-type: none"> • none 	
Mourning Warbler	11	<ul style="list-style-type: none"> • Humber Valley ESA/Extension • Little Rouge Forest/Extension • Stephenson's Swamp • Morningside Creek Forest/Milne's Forest • Woodlands on Little Rouge Creek 	
Nashville Warbler	none	<ul style="list-style-type: none"> • none 	
Northern Waterthrush	1	<ul style="list-style-type: none"> • none 	
Olive-sided Flycatcher	none	<ul style="list-style-type: none"> • none 	
Osprey	3	<ul style="list-style-type: none"> • Rouge Marsh Area • Townline Swamp 	Breeding records prior to 2006
Ovenbird	8	<ul style="list-style-type: none"> • Little Rouge Forest • Morningside Creek Forest/Milne's Forest 	
Pied-billed Grebe	2	<ul style="list-style-type: none"> • Townline Swamp 	
Prothonotary Warbler	none	<ul style="list-style-type: none"> • none 	
Redhead	1	<ul style="list-style-type: none"> • Centre Island Meadows/Wildlife Sanctuary ESA 	Probable location from Toronto Islands PSW Wetland Data Record
Red-shouldered Hawk	2	<ul style="list-style-type: none"> • Rouge Marsh Area • Townline Swamp 	All breeding records prior to 2006
Ruffed Grouse	none	<ul style="list-style-type: none"> • none 	
Scarlet Tanager	8	<ul style="list-style-type: none"> • Finch Avenue Meander/Sewell's Forest/Reesor Woodlot • Highland Forest/Morningside Park Forest and Highland Creek-West • Little Rouge Forest • Morningside Creek Forest/Milne's Forest 	
Sedge Wren	none	<ul style="list-style-type: none"> • none 	
Sora	2	<ul style="list-style-type: none"> • none 	Reported from Humber Marsh ESA/Extension during Marsh Monitoring Program surveys from 1997-2002 (MMP 2002)

Species	Number of Sites with Breeding Evidence*	Sites with Probable or Confirmed Breeding Evidence**	Comments
			but breeding status uncertain
Upland Sandpiper	none	<ul style="list-style-type: none"> • none 	
Veery	5	<ul style="list-style-type: none"> • Little Rouge Forest Extension 	
Vesper Sparrow	3	<ul style="list-style-type: none"> • none 	Dependent on open habitats which are not well-represented in Toronto
Virginia Rail	3	<ul style="list-style-type: none"> • Rouge Marsh Area 	Also reported from Humber Marsh ESA/Extension and Tommy Thompson Park during marsh Monitoring Program surveys from 1997-2002 (MMP 2002) but breeding status uncertain
White-throated Sparrow	none	<ul style="list-style-type: none"> • none 	
Wild Turkey	2	<ul style="list-style-type: none"> • none 	
Wilson's Snipe	none	<ul style="list-style-type: none"> • none 	
Winter Wren	6	<ul style="list-style-type: none"> • Highland Forest/Morningside Park and Highland Creek-West • Pearce Woods • Snake Island Area ESA 	
Wood Duck	14	<ul style="list-style-type: none"> • Centre Island Meadow/Wildlife Sanctuary ESA • Don Valley (Central Section) • Ellis Avenue • High Park ESA • Humber Valley ESA/Extension • Rennie Park • Rouge Marsh Area • Townline Swamp • Tabor's/Pearce/Diller Extension 	
Wood Thrush	27	<ul style="list-style-type: none"> • Crother's Woods • Glen Stewart Ravine • Glendon Forest • High Park ESA • Highland Forest/Morningside Park and Highland Creek East ESA • Humber Valley ESA and Extension 	

Species	Number of Sites with Breeding Evidence*	Sites with Probable or Confirmed Breeding Evidence**	Comments
		<ul style="list-style-type: none"> • Lambton Woods • Little Rouge Forest • Morningside Creek Forest/Milne's Forest • Rosedale Valley • Sherwood Park/Blythewood Ravine 	
Yellow-breasted Chat	none	<ul style="list-style-type: none"> • none 	
Yellow-rumped Warbler	none	<ul style="list-style-type: none"> • none 	
Yellow-throated Vireo	1	<ul style="list-style-type: none"> • High Park ESA 	

* Bird exhibiting behaviour consistent with at least Possible breeding status (see section 2): **Bird exhibiting behaviour consistent with Probable or Confirmed breeding status (see section 2): †Portions of critical breeding habitat outside site