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City of Mississauga

Natural Areas Survey

2007 Update

City of Mississauga

NATURAL AREAS SURVEY

2007 UPDATE

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City of Mississauga

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EXECUTIVE SUMMARY

The intent of updating the Natural Areas Survey is to review the current status of natural areas and update information on flora, fauna, impacts, boundary changes and management needs. The Natural Areas Survey for the City of Mississauga (Geomatics 1996) identified one hundred and forty-four sites that represented the best remaining natural features in the City. Of these 144 sites, 141 were classified as natural areas (Significant Natural Sites, Natural Sites, or Natural Green Spaces), and three were classified as Residential Woodlands. Also identified were 55 Special Management Areas (SMAs) and 40 Linkages. With the completion of the 2007 update, the third round of reviews of the City Wards has begun. In 2007 natural areas in Wards 5, 6 and 11 were updated.

In 1996, the 141 natural areas comprised 7.10% of the total area of the City. The total number of natural areas decreased from 141 in 1996 to 136 in 2004 and has since remained the same. This decrease in the number of natural areas and alterations to natural sites equates to a loss of almost 159.3 ha from 1996 to 2006, however, in 2007 there is an increase of 51.5 ha. There has also been a reduction in the number of Special Management Areas and Linkages to 45 and 35, respectively.

The natural areas in the City have been grouped into three major landform types (valleyland, tableland, and wetland). In 2006, 80.1% of the natural areas were associated with valleylands and in 2007 this has increased to 80.43%; overall, this proportion has increased from 78.3% in 1996. In contrast, tablelands only account for 14.69% of the natural areas in 2007. This represents a continued decrease from 16.4% in 1996. From a City-wide perspective, there were steady decreases from 1.16% in 1996 to 0.97% in 2002 of the land base represented in tableland natural areas. From 2002 until 2007 this proportion has remained relatively constant. Tableland natural areas (which are mainly wooded) tend to be discrete islands that have limited connections to other remnant natural features. Valleylands are better connected by virtue of the linearity of the landform and because they have historically been better protected from development. This reinforces the need to place a high priority on the protection of the remaining tableland features present within the City, and an emphasis on their management to maintain or improve their quality. The proportion of natural areas associated with wetlands has remained more or less constant from 1996 at approximately 5.0%. The proportion of the City that is classified as wetland decreased marginally from 0.36% in 1996 to 0.33% in 2002, but has remained constant from 2002 to 2007.

Generally, the condition of natural areas within the City that were surveyed in 2007 continues to be in fair condition. Natural areas evaluated as in fair condition have moderate disturbances (few trails, limited dumping, some trampling, *etc*.) and an average number of non-native flora species typical of what can be expected in an urban natural area. The overall condition of the natural areas visited in 2007 remained largely unchanged from previous studies. As indicated in all the other survey updates, the most common disturbances within natural areas are those associated with an increase in uncontrolled human use of natural areas following development in adjacent areas. Examples of these disturbances include: the creation of *ad hoc* trails, the use of mountain bikes (including the construction of some elaborate racing circuits), the presence of garbage, boundary encroachment, and vandalism (tree carving, tree cutting, spray paint). These

disturbances are more prevalent at almost all of the natural areas surveyed this year. Deterioration of the quality of Mississauga's natural areas can be expected to continue unless there is a substantial effort to manage natural areas through site specific Conservation Plans and community stewardship initiatives.

After nine years of update surveys covering the entire City, two trends continue to emerge. There has been a decrease in the quality of vegetation and there has been a decrease in the amount of tableland (woodland and successional categories) and wetland habitats. Development between 1996 and 2006 resulted in the total loss of 159.26 ha. In 2007 there was an increase of 51.5 ha, however, almost all of this increase was composed of valleylands, and in part the associated tablelands. Eleven woodland communities, four successional communities and all six of the wetland vegetation communities are uncommon in the City, occupying less than 1% of the total area of the natural areas system. Of these, six of the woodland communities, one successional community and one wetland community are "at risk" in the City, occurring in only one natural area each. In addition, a longer-term conversion of vegetation community composition (from wetland pockets to old field) in some natural areas is also occurring. This is likely related to changes in hydrology resulting from development. These trends reinforce the urgent need to maintain and manage (and where possible restore) all of the remaining natural areas in the City. In particular, tableland natural areas (including woodlands, wetlands and successional vegetation communities) continue to be the most seriously threatened by development.

One positive trend is the naturalization projects undertaken by the City. The majority of naturalization projects initiated between 1996 and 2007 have involved leaving an area of unmowed grass adjacent to a watercourse or woodlot feature to regenerate naturally. While this approach will increase the overall size of the natural area in question, this initiative could be enhanced by taking an approach that includes long-term management which will more likely result in a healthy natural area with a diversity of native plant and animal species such as at Jack Darling Park. In addition, storm water facilities such as Osprey Marsh Wetland off Osprey Boulevard have been constructed in such a way that they foster wildlife habitat, with gradually sloping edges, cattails plantings as well as other wetland plant species. The upland area surrounding the Osprey pond is being allowed to naturalize. This pond already sustains a higher diversity of fauna than that normally seen in storm water management ponds, and has the potential for more species as the vegetation becomes established.

1.0 INTRODUCTION

A Natural Areas Survey for the City of Mississauga was undertaken during 1995 and 1996 (Geomatics 1996) which identified one hundred and forty-four natural sites representing the best remaining natural features in the City. Of these natural sites, 141 were classified as Significant Natural Sites, Natural Sites, or Natural Green Spaces, and three were classified as Residential Woodlands. In 1996 the 141 natural areas comprised 7.10% of the total area of the City. Also identified were 54 Special Management Areas (SMAs) and 40 Linkages. Definitions for these classifications are given in Appendix 1.

Since the completion of the Natural Areas Survey in 1996 a number of development projects have been initiated within or adjacent to the natural areas originally identified. In order to keep the Natural Areas Survey database current, updates have been undertaken on an annual basis which focused on the areas that may be affected by these developments. In addition, a group of natural areas, representing approximately one fourth of the City, are reviewed every four years. With the completion of the 2001 work, all Wards in the City were updated once since the initial study in 1996. The start of the second round of updates commenced in 2002 with natural areas in Wards 5 and 6. Wards 1 and 2 were updated in 2004, Wards 3, 4 and 7 were updated in 2005, and Wards 8, 9 and 10 were updated in 2006. In 2007, the third round of updates began with a review of natural areas within Wards 5, 6 and 11.

The intent of updating the Natural Areas Survey is to review the current status of natural areas and update information on floristics, fauna, impacts, boundary changes and management needs on a yearly basis. The importance of the Natural Area Survey is that it serves to identify natural areas in the City that should be protected. However, the NAS also serves to document changes to natural areas over time, and thus, provides the means to assess the impacts of development within the surrounding landscape, and to identify those natural areas that are at most risk. This report documents the methods used and presents the data collected to evaluate the natural areas, summarizes any changes that have occurred, and provides some recommendations for the mitigation of impacts and management considerations.

2.0 METHODS

2.1 Background Review

The primary focus of this update was the review of 43 natural areas located in Wards 5, 6 and 11. Thirteen sites were visited in an attempt to locate individual butternut trees (*Juglans cinerea*) to continue to monitor their presence and health. Butternut trees were identified at 2 of the 13 sites.

A background review was carried out comprising a careful analysis of digital aerial photographs (2006) and a review of reports (inventory reports, EIS, *etc*.) undertaken since the last update study that affected the natural areas reviewed for this survey. Colour aerial photographs overlaid with natural area boundaries were used to identify impacts to natural area boundaries. Where necessary, revisions to natural area boundaries were delineated on aerial photographs and verified in the field. Field investigations were carried out at a total of 43 sites (Appendix 3).

2.2 Fieldwork

Visits were made to the 43 field sites which make up the Natural Areas review for 2007. Natural areas EC22, ETO1, ETO3, GT3, HO3, HO6, MB9, MV11, MV15, MV18, NE6, NE8 and SV10 did not receive a field visit because permission to access these sites was not provided, however, these sites generally received a road side visit or were visited by walking along public areas adjacent to the natural areas (*e.g.* streams). Landowner contact for natural areas in private ownership was undertaken by the City Planning and Building Department. Full surveys were not conducted at natural area CRR6 because detailed inventories were obtained in 2006.

Appendix 3 lists the reasons for fieldwork, and the date when fieldwork was conducted for each of the natural areas. For those sites in Wards 5, 6 and 11 in public ownership or for which access was available, a two season field program was undertaken. This entailed a late spring visit to update information on spring ephemeral plant species and carry out breeding bird surveys, and a mid summer visit to document summer flora, disturbances and any other changes.

The following information was recorded on data sheets for each natural area that received a field visit:

- all flora and fauna species observed were recorded, and plant specimens collected where necessary;
- vegetation community descriptions were updated where necessary;
- evidence of disturbance, regeneration and management needs were noted; and
- the overall condition was qualitatively rated in comparison to other sites in the City.

Breeding bird surveys were conducted in the early morning hours (05:00 to 10:00) between June 1 and July 10, 2007 for all of the natural areas in Wards 5, 6 and 11 where road access was available. For most sites, the field visit entailed a search throughout the habitat, but in sites where permission was not granted for access, birds were recorded from as many nearby road access points as possible.

A review of the digital aerial photographs was also made to locate any potential amphibian habitat. An additional visit was made to those sites in the early spring, after 8:00 p.m., to locate potential habitat and to look and listen for the presence of any amphibian species.

Butternut surveys were conducted in 13 natural areas where access was available. A maximum time limit of 1 hour was spent in each natural area searching in appropriate vegetation communities (e.g., floodplains, forest edges) to locate individual trees. If a butternut tree was found, it was accurately located in the field using a Global Positioning System (GPS). The condition of the individual tree was assessed, including a determination of whether the tree was infected with butternut canker (see discussion in section 4.2).

2.3 Analysis

The City of Mississauga database records and fact sheets for each natural area were updated based on the literature review and fieldwork carried out in 2007. Hard copies of species lists and

field notes were provided under separate cover to the City.

The provincial rarity ranks of floral and faunal species were also reviewed to determine the need for updating. Provincial rarity status was based on Natural Heritage Information Centre (NHIC 2007) rankings and Species at Risk (Appendix 4). The natural areas summary table for the City has been updated with each survey to allow a comparison between natural areas in the City (see Table 1, page 6).

Floristic Quality Assessment

The Floristic Quality Assessment system allows for an objective numerical evaluation of an area based on the quality of its flora. It can be used to compare two or more areas or compare an area at two different points in time. It is extremely useful for measuring the success of management and restoration programmes, especially in combination with other site characteristics and evaluation criteria.

The premise upon which the evaluation method is based derives from the fundamental character of a region's flora, in particular the specific affinity a plant species has for a specific habitat. Some plants exhibit conservative characteristics which permits them to persist in very restricted habitats (*e.g.* prairie, wetlands, *etc.*). Other species are not as restricted and are able to persist in a variety of habitats. Each native species in the flora has been assigned a numerical value from 1 to 10. This is referred to as the "coefficient of conservatism". Species ranked as 10 are the most restrictive or "conservative", and thus are most representative of high quality habitat. The numbers have been assigned for Ontario by a group of experts on the provincial flora (Oldham *et al*. 1995). In order to evaluate a site, a species list is compiled, and the coefficients of all native plants are summed and divided by the total number of native plants to yield a mean coefficient for all the native plants in the site. A Floristic Quality Index (FQI) can then be calculated by multiplying the mean coefficient by the square root of the total number of native species. Natural areas can then be compared using their mean coefficient and/or FQI.

During an inventory of plants in a given area, the mean coefficient of conservatism tends to stabilize quite quickly as new plants are recorded and included in the total for the site. The mean coefficient thus serves as a reliable indicator of natural area quality even when only reconnaissance inventories are available. However, the FQI is more influenced by species richness; therefore areas that have complete inventories tend to have a higher FQI. Although the FQI is generally sensitive to the species richness of a site, it does not seem to be correlated to the size of a site.

Areas with incomplete inventories (*i.e.* fewer than 30 native species as this number of species is not considered representative of the site), or ones where just rare plants were surveyed, may provide biased results. The Floristic Quality Assessment was not used for such areas. However, heavily disturbed areas where an inventory of 30 or fewer native species represents a relatively complete inventory were assessed. The mean coefficients and FQI have been categorized as high, medium and low values as follows:

Native mean coefficients - high > 4.00;
medium = 3.3 to 3.99;
low < 3.3;
Floristic Quality Indices - high > 40;
medium = 30 to 39.99;
low < 30).

The Floristic Quality Indices were updated for the natural areas where the floral inventory changed between 1996 and 2007.

Condition
The condition of each site is ranked on its current condition as noted during field reconnaissance. Overall disturbance at each site is noted, especially that associated with urban stresses such as litter, vandalism and unplanned trail networks. Aggressive non-native plants are recorded and expressed as a proportion (percentage) of the total known flora of the site. The provincial flora is approximately 27% non-native (Kaiser 1983) which provides some comparison. Sites are evaluated as excellent, good, fair or poor. A site in excellent condition has very little disturbance (*e.g.* no trails, no dumping, limited cutting, no trampling), and few non-native flora species. A site in poor condition has many disturbances (*e.g.* trails, non-natives, garbage), and has a high percentage of non-native plants. A fair site is intermediate with respect to disturbance and has a medium ratio of native/non-native plants.

Recent disturbances, threats and management needs were noted where they changed from previous assessments between 1996 and 2007. Recommendations for the mitigation of real or potential impacts that resulted from recent developments including naturalization projects are provided.

2.4 Mapping

Boundary changes identified for natural areas were updated on colour aerial photographs overlaid with natural area boundaries provided by the City. Boundary delineation followed the approach used in the Natural Areas Survey (Geomatics 1996). These revisions were subsequently digitized using MicroStation GeoGraphics format by the City of Mississauga, Geographic Technology Services. Updated surficial areas (hectares and acres) for the natural areas and vegetation communities were determined using GIS and incorporated into the database. Updated UTM coordinates for the natural areas and vegetation communities were also incorporated into the database.

3.0 NATURAL AREAS FRAMEWORK

Table 1 (page 6) summarizes the current information available for each natural area in the City of Mississauga. This table updates Table 4 from Geomatics (1996) and summarizes the following information:

- the classification of each natural area;
- designation of natural areas as significant features (ANSI, ESA, evaluated wetland);
- size of each natural area in hectares and acres;
- the number of floral species;
- the proportion of the flora that is non-native;
- the native FQI and native mean coefficient;
- the number of vegetation communities;
- the number of provincially and regionally significant floral and faunal species;
- the number of bird, mammal, amphibian and reptile species;
- the number of Credit Valley Conservation Species of Conservation Interest; and
- the condition of the natural areas.

Appendix 5 documents the changes that occurred in natural areas between 1996 and 2007 using the same categories. Some of the changes outlined in Appendix 5 are minor revisions while others are considered significant in the context of the natural areas program. These changes are noted by increases (↑) or decreases (↓) for each of the above noted categories, from year to year. Significant changes are considered to be:

- a change in the classification of a natural area (e.g., from Significant Natural Site to Natural Site);
- a change in the designation of a natural area (e.g., the removal or addition of ANSI status);
- a change of more then 25% in the original size of a natural area;
- a change in the FQI or native mean coefficient rank for a natural area (e.g., a rank that goes from a high to medium category);
- the addition of rare floral or faunal species (provincial, local and CVC); and
- the addition or deletion of a vegetation community.

Figure 1 (page 15) shows the location of natural areas, Special Management Areas (SMA), Residential Woodlands (RW), Linkages, and sites shown as "Potential Addition" . Potential Additions include sites which are currently SMAs or Linkages which should be considered for classification to natural areas or new sites which have natural features and warrant an investigation to determine whether these areas should be classified within the natural areas system. These additions are proposed based on a visual inspection of the digital aerial photographs from the City and cursory site checks. Upon City approval, a field investigation would be completed the following field season. Due to the scale of mapping Significant Natural Sites (SNS), Natural Sites (NS) and Natural Green Space (NGS) are not discriminated on this map, and are all labelled as "natural area". However, Residential Woodlands, Special Management Areas, Linkages and Proposed Additions, are identified. Proposed Additions are identified by a red circle and are numbered sequentially. Each site is also sequentially identified in Appendix 3.

Table 1: Summary of Natural Area Features, Significance and Condition.
This table represents an update of Table 4 in the Natural Areas Survey (Geomatics 1996). Native FQI and native mean C are defined in section 2.3. Definitions for provincially significant species (prov. sig. species) and regionally significant species (reg. sig. species) are found in Appendix 4. Condition is explained in section 2.3. Abbreviations used in this table are as follows: n/a = not available. (see Appendix 5 for a summary of the changes).

Site Code	Classification	Designation	Area		Flora								Fauna					Condition
			(ha)	(acres)	total	# non-native	% non-native	native FQI	native mean C	# veg comm	prov. sig. species	reg. sig. species	# birds	# mammals	# reptiles & amphibians	prov. sig. species	CVC	
SD1	Significant Natural Site		19.55	48.28	170	67	39.41%	35.96	3.54	6	1	10	113	7	2		6	Fair
SD4	Natural Site		23.67	58.45	106	24	22.64%	31.69	3.50	6		2	13				2	Fair
SD5	Significant Natural Site		10.14	25.05	80	17	21.25%	34.65	4.37	3		5	14	1	1		2	Good
CL52	Natural Site		6.69	16.53	73	43	58.90%	14.61	2.67	1	1		25	1	2		3	Poor
CL1	Significant Natural Site		3.59	8.86	80	17	21.25%	34.65	4.37	1		5	14	1	1		2	Good
CL9	Significant Natural Site	ESA,ANSI,wetland	45.62	112.68	501	163	32.53%	80.30	4.37	13	1	133	203	22	21	3	14	Good
CL8	Significant Natural Site	wetland	11.28	27.86	85	24	28.24%	24.58	3.15	8		6	28	10	1		5	Good
CL15	Natural Site		0.83	2.05	54	9	16.67%	25.79	3.84	1		3	10	3			1	Fair
CL16	Significant Natural Site		11.79	29.12	161	49	30.43%	39.02	3.84	6	1	15	42	17			6	Fair - Poor
CL17	Residential Woodland		33.28	82.21	73	15	20.55%	0.00	0.00	1		19			4			n/a
CL13	Natural Site		7.03	17.35	87	50	57.47%	15.04	2.54	3		1	11	3			1	Poor
CL43	Natural Site		4.16	10.27	87	18	20.69%	31.18	3.75	2		6	14	2			1	Fair - Poor
CL42	Natural Site		8.31	20.54	119	34	28.57%	37.31	4.05	3		12	18	1			4	Fair - Poor
CL21	Significant Natural Site	ESA,wetland	9.05	22.35	112	23	20.54%	41.23	4.37	3		20	17	3	1		3	Fair - Poor
CL39	Significant Natural Site		12.59	31.1	271	79	29.15%	57.23	4.13	2		42	39	6	8		7	Fair
CL22	Significant Natural Site	ESA,ANSI	17.75	43.85	134	46	34.33%	37.31	3.98	1	1	13	2	1	6			Good
CL30	Significant Natural Site	ESA,ANSI	0.06	0.15	83	33	39.76%	27.86	3.94	1	1	20	1					Fair
CL31	Significant Natural Site	ESA,ANSI	2.55	6.29	82	34	41.46%	23.09	3.33	1	1	2	4	1				Poor
CL24	Significant Natural Site	ESA,ANSI	7.76	19.16	245	65	26.53%	59.89	4.46	5	1	36	20	1	1		3	Good

Site Code	Classification	Designation	Area		Flora								Fauna					Condition
			(ha)	(acres)	total	# non-native	% non-native	native FQI	native mean C	# veg comm	prov. sig. species	reg. sig. species	# birds	# mammals	# reptiles & amphibians	prov. sig. species	CVC	
CL26	Significant Natural Site		1.97	4.86	189	70	37.04%	36.03	3.30	1	1	17	19	7				Fair
PC1	Natural Site		1.03	2.54	101	49	48.51%	25.17	3.56	1		7	69	1			1	Poor
PC2	Natural Green Space		4.37	10.80	26	15	57.69%	0.00	0.00	1			5		1			Poor
PC3	Removed		0.00	0.00	11	3	27.27%	0.00	0.00	1								Removed
CRR9	Significant Natural Site	ESA,ANSI,wetland	25.63	63.30	49	17	34.69%	20.86	3.69	3		17	40	1	10	2	9	Fair
MI4	Residential Woodland		154.32	381.17	28	16	57.14%	0.00	0.00	1		1						Fair
MI1	Natural Site		5.64	13.94	57	36	63.16%	0.00	0.00	4			51	2			2	Fair
LV3	Natural Site		3.54	8.76	94	36	38.30%	28.23	3.71	5		1	34	3			4	Fair
LV4	Natural Site		2.31	5.70	51	27	52.94%	11.29	2.30	5		2	20	1			1	Poor
LV5	Natural Green Space		1.12	2.77	115	61	53.04%	22.46	3.06	1		8						Poor
LV2	Natural Site		2.09	5.17	40	13	32.50%	13.09	2.52	1			12	1			2	Poor
LV1	Significant Natural Site		14.22	35.11	123	46	37.40%	29.74	3.39	5	1	1	27	2			5	Fair
ETO8	Significant Natural Site		15.96	39.43	101	37	36.63%	29.21	3.65	4		4	26	6	1		5	Fair
LV14	Natural Site		1.86	4.59	51	24	47.06%	15.20	2.93	1			10				1	Poor
LV6	Natural Site		2.03	5.01	82	24	29.27%	29.41	3.86	1		4	7	1			1	Fair
LV7	Significant Natural Site	ESA,ANSI,wetland	21.56	53.26	336	110	32.74%	63.66	4.23	2	1	62	68	7	5	1	5	Good
ETO7	Significant Natural Site	ESA	31.09	76.79	131	51	38.93%	27.51	3.08	3		8	17	5	11	3	1	Fair
SP1	Natural Site		7.17	17.70	194	77	39.69%	39.57	3.66	5		17	27	7			4	Fair
SP3	Significant Natural Site		8.54	21.09	134	30	22.39%	40.89	4.01	5		11	13	2	1		2	Good
SH6	Natural Site		6.28	15.51	104	49	47.12%	24.68	3.33	4		2	12	3			1	Poor
CRR7	Significant Natural Site	ESA,ANSI	92.82	229.26	115	28	24.35%	41.13	4.44	5	2	18	44	5	7		12	Good
CRR8	Significant Natural Site	ESA,ANSI,wetland	109.73	271.04	67	8	11.94%	39.71	5.17	4	1	30	48	8	8	1	14	Good
ER6	Significant Natural Site		1.29	3.19	59	26	44.07%	19.50	3.39	1	1		9	1			1	Poor

Site Code	Classification	Designation	Area		Flora								Fauna					Condition
			(ha)	(acres)	total	# non-native	% non-native	native FQI	native mean C	# veg comm	prov. sig. species	reg. sig. species	# birds	# mammals	# reptiles & amphibians	prov. sig. species	CVC	
CRR6	Significant Natural Site	ESA,ANSI	137.55	339.75	302	97	32.12%	66.11	4.62	4	2	73	74	8	18	1	16	Good
CV1	Natural Site		1.65	4.09	61	25	40.98%	17.50	2.92	2			11	1				Fair
CV2	Residential Woodland		49.53	122.33	143	42	29.37%	41.29	4.11	1	1	10	17	4			3	Fair
CV12	Significant Natural Site		7.44	18.37	227	101	44.49%	39.73	3.54	4	1	17	17	2	1		3	Fair
CV10	Natural Site		5.05	12.47	85	37	43.53%	21.94	3.17	2		4	17	2			1	Poor
CV8	Natural Site		8.09	19.99	86	37	43.02%	18.52	2.65	5		3	17	3			1	Poor
ETO6	Significant Natural Site		11.36	28.06	7	5	71.43%	0.00	0.00	4		1	18	1			2	Poor
AW1	Significant Natural Site		7.52	18.57	88	34	38.64%	25.23	3.43	3	1	2	21	2			2	Poor
WB1	Natural Site		3.90	9.62	72	18	25.00%	28.85	3.93	5		1	15	2	1		2	Good - Fair
EM30	Natural Site		5.23	12.93	93	19	20.43%	33.83	3.93	5		8	12	8				Good
EM6	Natural Site		1.03	2.55	70	20	28.57%	27.01	3.82	1		1	7	1				Fair
EM2	Significant Natural Site		4.78	11.81	85	15	17.65%	32.99	3.94	1	1	1	12	1				Fair
EM10	Natural Site		3.82	9.43	70	21	30.00%	24.43	3.49	3			9	2	1		1	Fair
EM14	Significant Natural Site		9.38	23.16	94	42	44.68%	21.22	2.94	5	1		15	3	1		1	Fair
EM4	Significant Natural Site	ESA,ANSI	41.93	103.57	258	76	29.46%	57.15	4.24	8	2	36	70	7	6		5	Good - Fair
EM5	Natural Site		4.89	12.09	61	19	31.15%	23.15	3.57	2			6				1	Fair
EM21	Natural Site		0.84	2.08	51	10	19.61%	22.18	3.46	1			2	1				Fair
CR1	Significant Natural Site	ESA	5.67	14.00	111	33	29.73%	35.89	4.06	2		11	12	1				Fair
FV1	Natural Site		2.05	5.07	59	11	18.64%	23.82	3.44	1		2	8	1			1	Fair
FV3	Natural Site		6.35	15.67	108	44	40.74%	28.50	3.56	3			19	2			2	Fair
CC1	Significant Natural Site		3.32	8.19	165	54	32.73%	40.03	3.82	1	1	11	18	3		1	3	Fair
MY1	Significant Natural Site		13.45	33.23	165	54	32.73%	40.03	3.82	2	1	11	18	3		1	3	Fair
MY3	Natural Green Space		2.31	5.72	56	34	60.71%	11.09	2.36	1		1	12	1				Poor

Site Code	Classification	Designation	Area		Flora								Fauna					Condition
			(ha)	(acres)	total	# non-native	% non-native	native FQI	native mean C	# veg comm	prov. sig. species	reg. sig. species	# birds	# mammals	# reptiles & amphibians	prov. sig. species	CVC	
AW4	Natural Site		11.60	28.64	54	33	61.11%	11.85	2.65	2		3	12					Poor
AW3	Natural Green Space		7.96	19.66	58	31	53.45%	14.90	2.92	2		1	18	1			2	Poor
ETO5	Significant Natural Site		7.83	19.34	83	46	55.42%	16.36	2.76	6		5	16	1			3	Poor
ETO4	Significant Natural Site	ESA	53.47	132.07	179	53	29.61%	45.36	4.09	4	1	18	45	4	5		9	Fair
RW5	Natural Site		2.39	5.92	75	37	49.33%	14.83	2.47	1		3	14	1			1	Poor
RW6	Natural Site		6.13	15.15	71	37	52.11%	14.61	2.67	1		2	23	1			5	Poor
RW4	Natural Site		1.22	3.01	52	8	15.38%	27.14	4.09	2			8	1				Fair
RW1	Significant Natural Site		2.11	5.21	77	18	23.38%	34.11	4.44	1		3	1	1				Fair
RW2	Natural Green Space		3.84	9.50	57	31	54.39%	16.67	3.27	1			15	1			2	Poor
CM7	Significant Natural Site		11.17	27.58	92	18	19.57%	35.57	4.14	3		3	22	3	5	1	2	Good
CM9	Natural Site		3.91	9.67	78	14	17.95%	31.00	3.88	4		5	13	2	3		1	Good
CM11	Removed		0.00	0.00	22	1	4.55%	18.33	4.00	1			1					Removed
CM12	Natural Site		6.05	14.95	87	17	19.54%	31.79	3.80	1		3	19	5	8		1	Good
CM17	Removed		0.00	0.00	25	4	16.00%	16.80	3.67	1			5					Removed
CM13	Removed		0.00	0.00	37	14	37.84%	16.26	3.39	1			1	1				Removed
CE7	Significant Natural Site		9.33	23.04	109	33	30.28%	35.67	4.09	2	1	7	8	1	7			Good
CE9	Natural Site		5.04	12.44	96	28	29.17%	33.71	4.09	5		7	14	2				Fair
CE10	Significant Natural Site		18.68	46.14	132	28	21.21%	42.18	4.14	3	1	16	17	3	2			Good - Fair
CE5	Natural Green Space		4.27	10.55	34	19	55.88%	5.42	1.40	1			8					Poor
CE1	Natural Green Space		16.84	41.60	85	25	29.41%	23.85	4.15	3			13	1	5		2	Poor
CE12	Significant Natural Site		19.83	48.97	134	57	42.54%	29.06	3.31	2	1	9	24	6	1			Fair
CRR5	Significant Natural Site		28.27	69.83	64	26	40.63%	21.09	3.42	2	1		27	3	2	1	2	Fair
CRR4	Significant Natural Site	ESA,ANSI	22.99	56.78	54	22	40.74%	18.07	3.19	4		6	28	3	7	2	5	Good

Site Code	Classification	Designation	Area		Flora								Fauna					Condition
			(ha)	(acres)	total	# non-native	% non-native	native FQI	native mean C	# veg comm	prov. sig. species	reg. sig. species	# birds	# mammals	# reptiles & amphibians	prov. sig. species	CVC	
SV12	Significant Natural Site		2.34	5.77	97	42	43.30%	22.52	3.04	1	1	1	14	3	1			Fair
SV10	Natural Green Space		4.24	10.47	65	29	44.62%	17.00	2.83	1			12		1			Poor
SV1	Significant Natural Site		5.67	14.00	117	31	26.50%	36.99	3.99	2	1	5	16	2				Fair
CRR3	Significant Natural Site		74.64	184.36	92	31	33.70%	27.86	3.57	4	1	3	41	5	8	1	7	Fair
CRR2	Significant Natural Site	ESA,ANSI	98.30	242.80	183	66	36.07%	40.19	3.72	12		14	52	9	11		11	Good
EC22	Natural Site		1.54	3.80	79	9	11.39%	31.67	3.79	1		6	10	2				Fair - Poor
EC10	Removed		0.00	0.00	46	10	21.74%	21.83	3.64	2			2					Removed
EC13	Significant Natural Site	wetland	4.85	11.98	194	35	18.04%	54.64	4.33	4		71	88	6	11		13	Excellent
EC1	Removed	ESA,wetland	0.00	0.00	10	4	40.00%	4.90	2.00	1			5		2			Removed
HO1	Natural Site		1.21	2.99	40	10	25.00%	20.08	3.67	1			8	1				Fair - Poor
HO2	Removed		0.00	0.00	24	3	12.50%	18.77	4.10	2			3					Removed
HO3	Natural Site		15.04	37.15	73	14	19.18%	28.38	3.69	3		1	28	4				Fair
HO6	Natural Green Space		8.50	21.00	41	21	51.22%	9.84	2.20	1		1	21	1				Poor
HO7	Natural Site		1.36	3.36	84	18	21.43%	31.39	3.86	2		3	15	1				Fair - Poor
HO9	Significant Natural Site	ESA	12.76	31.52	229	66	28.82%	52.57	4.12	1	1	26	19	2	1			Good - Fair
NE4	Natural Site		13.15	32.47	134	27	20.15%	39.15	3.79	6		16	24				4	Excellent
NE3	Natural Green Space		2.85	7.04	59	26	44.07%	12.19	2.12	2			15	2			3	Poor
NE2	Removed		0.00	0.00	55	10	18.18%	28.17	4.20	1			5					Removed
NE1	Natural Green Space		1.07	2.65	70	27	38.57%	20.28	3.09	1		2	7	1			2	Fair
NE6	Significant Natural Site		1.42	3.51	101	33	32.67%	28.50	3.46	2	1	2	15	3				Good - Fair
NE5	Natural Green Space		12.95	31.99	47	27	57.45%	7.33	2.44	1			17				4	Poor
NE7	Natural Green Space		2.66	6.57	38	25	65.79%	6.93	1.92	1			5	2				Poor
ETO3	Significant Natural Site		87.35	215.75	400	164	41.00%	56.15	3.66	4	2	59	34	8	5		3	Fair - Poor

Site Code	Classification	Designation	Area		Flora								Fauna					Condition
			(ha)	(acres)	total	# non-native	% non-native	native FQI	native mean C	# veg comm	prov. sig. species	reg. sig. species	# birds	# mammals	# reptiles & amphibians	prov. sig. species	CVC	
NE8	Natural Site		3.75	9.26	28	17	60.71%	6.93	2.09	1		3						Poor
NE10	Natural Site		9.01	22.25	55	29	52.73%	10.59	2.08	1		3	13					Poor
NE11	Natural Site		6.26	15.46	52	28	53.85%	11.02	2.25	1		6						Poor
NE12	Natural Site		7.05	17.41	59	26	44.07%	14.45	2.25	1		5	9					Poor
ETO2	Significant Natural Site		14.16	34.97	65	30	46.15%	14.27	2.41	1		5	9	1				Poor
ETO1	Significant Natural Site		11.18	27.61	94	41	43.62%	21.28	2.92	4		8	16	2				Fair - Poor
NE9	Significant Natural Site		50.12	123.80	224	87	38.84%	40.56	3.48	4	1	31	42	7	5		6	Fair
LS1	Significant Natural Site	wetland	26.39	65.17	145	59	40.69%	32.35	3.49	3		10	10	1			1	Good - Poor
LS2	Natural Site		1.03	2.55	59	17	28.81%	24.53	3.79	1			5	1				Poor
LS3	Natural Site		3.00	7.40	113	40	35.40%	29.38	3.44	3		4	6	1	2		1	Fair
ME10	Significant Natural Site		3.39	8.38	73	18	24.66%	27.91	3.76	1	1	3	7	1			1	Fair
ME12	Significant Natural Site		2.90	7.16	87	49	56.32%	16.60	2.73	1		1	15	2	7	1		Poor
ME11	Natural Green Space		4.36	10.78	83	45	54.22%	14.79	2.70	1		5	17	4	4		1	Fair - Poor
ME9	Natural Site		2.26	5.58	64	15	23.44%	30.14	4.31	1		4	4	1				Good
ME8	Significant Natural Site		5.82	14.38	93	24	25.81%	32.02	3.86	1	1	4	15	3	4			Fair
MB9	Natural Site		6.60	16.31	88	42	47.73%	19.76	2.91	1		9	17	1	2			Poor
MB7	Natural Green Space		10.23	25.27	43	24	55.81%	7.99	1.83	1			12				1	Poor
MB8	Significant Natural Site		9.86	24.35	93	24	25.81%	32.02	3.86	2	1	4	15	3	4			Fair
MB3	Natural Green Space		5.38	13.28	34	19	55.88%	5.94	1.53	1			12	1	1		1	Fair
MB5	Removed		0.00	0.00	42	5	11.90%	23.67	3.89	1								Removed
MB4	Natural Site		1.77	4.36	40	11	27.50%	19.31	3.59	1			8				1	Poor
MB6	Significant Natural Site		23.56	58.20	141	39	27.66%	35.65	3.53	2		13	27	7	2		7	Good
MB2	Natural Site		1.34	3.31	50	6	12.00%	25.63	3.86	1		1	7				1	Poor

Site Code	Classification	Designation	Area		Flora								Fauna					Condition
			(ha)	(acres)	total	# non-native	% non-native	native FQI	native mean C	# veg comm	prov. sig. species	reg. sig. species	# birds	# mammals	# reptiles & amphibians	prov. sig. species	CVC	
MB1	Natural Site		0.77	1.89	34	6	17.65%	22.87	4.32	1			1					Fair
MV19	Significant Natural Site		23.92	59.08	238	65	27.31%	53.90	4.10	6		36	35	6	5			Good
CRR1	Significant Natural Site	ESA, wetland	73.39	181.27	294	107	36.39%	51.46	3.76	10	1	41	53	9	8		4	Fair
MV18	Natural Site		2.84	7.01	39	13	33.33%	7.07	2.50	2		1	15				2	Fair
MV2	Significant Natural Site	ESA,ANSI	61.78	152.59	248	83	33.47%	50.68	3.95	5	1	27	70	15	5	1	14	Good - Fair
MV3	Removed		0.00	0.00	57	17	29.82%	23.40	3.70	1			6	2				Removed
MV12	Natural Site		8.18	20.20	148	46	31.08%	38.91	3.85	2		10	14	5	3			Fair
MV14	Removed		0.00	0.00				0.00	0.00	1								Removed
MV11	Natural Site		2.90	7.17	48	15	31.25%	22.28	3.88	1		5	7					Fair
MV15	Natural Site		9.67	23.88	77	35	45.45%	19.44	3.00	2		2	23	2				Poor
GT1	Removed		0.00	0.00	41	10	24.39%	18.50	3.32	1			2					Removed
GT2	Natural Site		6.80	16.80	76	12	15.79%	32.13	4.02	6		8	21	3	1			Good
GT3	Natural Site		1.81	4.47	71	26	36.62%	20.58	3.07	2		2	6					Fair
GT4	Removed		0.00	0.00	206	56	27.18%	51.03	4.17	1	1		22	4	1			Removed
MA1	Natural Site		24.42	60.32	83	45	54.22%	15.89	2.69	1		3	19					Poor
SD7	Significant Natural Site		3.81	9.41	94	49	52.13%	18.84	2.84	3	1	5	54	1			1	Poor
MI17	Significant Natural Site		5.98	14.77	167	54	32.34%	43.56	4.10	2		16	19	8	3		3	Fair
MI7	Significant Natural Site		4.98	12.30	125	39	31.20%	39.90	4.30	2	1	7	10	4			2	Poor
CV6	Natural Site		2.71	6.69	75	16	21.33%	26.17	3.41	1		3	11	1			2	Fair
CRR10	Significant Natural Site	ESA,ANSI	61.78	152.60	384	131	34.11%	69.21	4.36	9	2	75	90	12	11	1	27	Good
CRR11	Significant Natural Site	ESA	32.16	79.44	157	48	30.57%	40.02	3.83	4	1	15	25	3	5		4	Good
ER7	Natural Site		3.15	7.78	77	29	37.66%	21.00	3.06	3		4	13	1			1	Poor

Table 2: Legend for Natural Area Framework for the City of Mississauga
(arranged by Planning District with several natural sites listed twice or more because these areas span two or more planning districts).

SOUTHDOWN
SD1
SD4
SD5 (Meadowwood)
SD7 (Lakeside)

CLARKSON-LORNE PARK
CL52 (Meadowwood)
CL1 (Meadowwood)
CL9 (Rattray Marsh)
CL8
CL15
CL16 (Jack Darling Park)
CL17 (Lorne Park Estates)
CL13
CL43
CL42
CL21 (Birch Glen)
CL39 (Whiteoaks)
CL22
CL30 (Lorne Park Prairie)
CL31 (Lornewood Creek Trail)
CL24 (Tecumseh)
CL26
CRR9 (Credit River Flats)

PORT CREDIT
PC1 (Rhododendron Gardens)
PC2 (Port Credit Memorial)

MINEOLA
CRR9 (Credit River Flats)
MI4
MI1
MI17 (Mary Fix)
M17

LAKEVIEW
LV3 (Adamson Estate)
LV4 (Helen Molasy Memorial)
LV5
LV2
LV1
ETO8
LV14 (Lakeview Golf Course)
LV6
LV7 (Cawthra Woods)
ETO7

SHERIDAN PARK
SP1
SP3

SHERIDAN
SH6
CRR7
CRR8

ERINDALE
CRR7
CRR8
ER6
CRR6
ER7

COOKSVILLE
CV1 (Iroquois Flats)
CV2
CV12 (Richard Jones)
CV10
CV8 (Camilla)
CV6 (Stillmeadow)

DIXIE
ETO7
ETO6
AW1 (Willowcreek)

WESTERN BUSINESS PARK
WB1 (Erin Mills Twin Arena

ERIN MILLS
EM30 (Tom Chater Memorial)
EM6 (King's Masting)
EM2 (South Common)
EM10
EM14
EM4
EM5 (Glen Erin Trail)
EM21 (R.F.C. Mortensen)
CRR10

CREDITVIEW
CR1

FAIRVIEW
FV1
FV3

CITY CENTRE
CC1 (Bishopstoke Walk)

MISSISSAUGA VALLEY
MY1 (Mississauga Valley)
MY3 (Stonebrook)

APPLEWOOD
AW1 (Willowcreek)
AW4 (Applewood Hills)
AW3 (Applewood Hills)
ETO5
ETO6

Figure 1 continued...

RATHWOOD
ETO4
RW5 (Applewood Hills)
RW6 (Applewood Hills)
RW4 (Rathwood District)
RW1
RW2 (Woodington Green)

CHURCHILL MEADOWS
CM7
CM9
CM12

CENTRAL ERIN MILLS
CE7 (Sugar Maple Woods)
CE9 (Quenippenon Meadows
CE10 (Erin Wood)
CE5
CE1 (Woodland Chase Trail)
CE12 (Bonnie Brae)
CRR5
CRR4
CRR11

STREETSVILLE
SV12 (Bonnie Brae)
SV10
CRR4
SV1 (Turney Woods)
CRR3
CRR2

EAST CREDIT
CRR5
CRR4
CRR3
CRR2
EC22
EC13
CRR11

HURONTARIO
HO1
HO3 (Staghorn Woods)
HO6
HO7
HO9 (Britannia Woods)

NORTHEAST
NE4
NE3
NE1
NE6
NE5
NE7
ETO4
ETO3
NE8
NE10
NE11
NE12
ETO2
ETO1
NE9 (Wildwood)

LISGAR
LS1 (Lisgar Meadow Brook)
LS2
LS3 (Trelawny Woods)

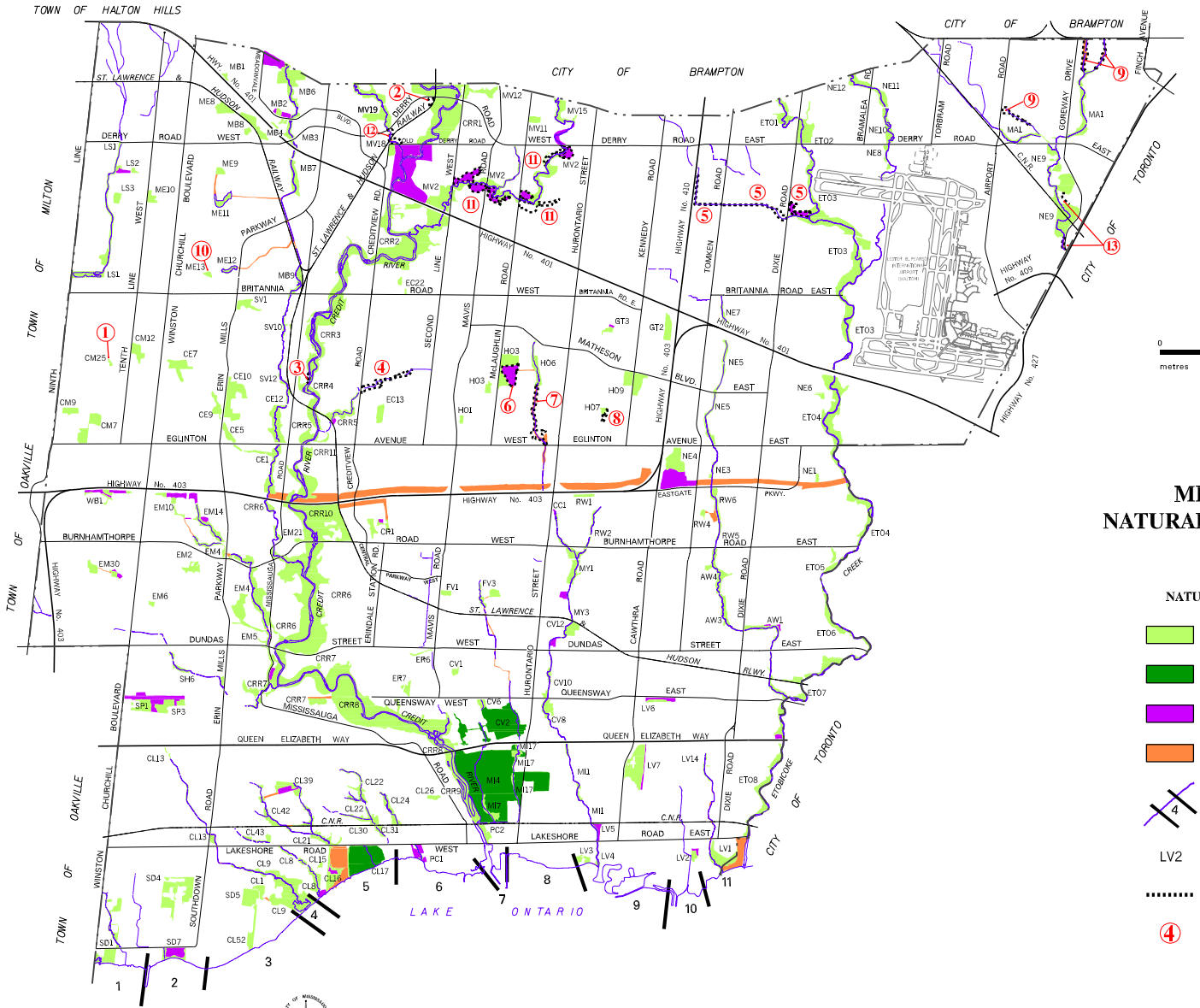
MEADOWVALE
ME10 (Eden Woods)
ME12 (Lake Wabukayne)
ME11 (Lake Aquitaine)
ME9 (Maplewood)
ME8 (Windrush Woods)

MEADOWVALE BUSINESS PARK
MB9
MB7 (Mullet Creek)
MB8
MB3
MB4
MB6 (Totoredaca)
MB2
MB1

MEADOWVALE VILLAGE
MV19
CRR1 (Meadowvale C.A.)
MV18
MV2
MV12
MV11
MV15
CRR2

GATEWAY
GT3
GT2

MALTON
MAI



MISSISSAUGA NATURAL AREAS SURVEY

FIGURE 1
NATURAL AREAS SYSTEM

- Natural Area
- Residential Woodland
- Special Management Area
- Linkage
- 4 — Shoreline Reach Number
- LV2 — Natural Area Name
- Potential Addition Boundary
- 4 — Potential Addition Site Number

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2007 December

3.1 Summary of Changes

Overall, the number of natural areas decreased from 141 in 1996 to 136 in 2004 and remains the same in 2007 (Appendix 6).

Figure 2 illustrates the overall change between 1996 and 2007 in the proportion of the City occupied by the natural areas. A detailed summary of the changes to natural area classifications between 1996 and 2007 is provided in Appendix 6. Overall, there has been a decline in the total proportion of natural areas identified within the City from 7.10% in 1996 to 6.76% in 2007. This decline occurred prior to 2007 when the total proportion of natural areas identified within the City decreased to a low of 6.61%. In 2007, there has been an increase of over 51.5 ha (0.18%) of natural area within the City, bringing the total proportion of natural areas identified within the City to 6.76%. This change was due primarily to increases in SNS in 2007. This classification now represents 5.44% of the proportion of the City occupied by the Natural Areas System (Figure 2; Appendix 6). These increases are related to refining natural area boundaries.

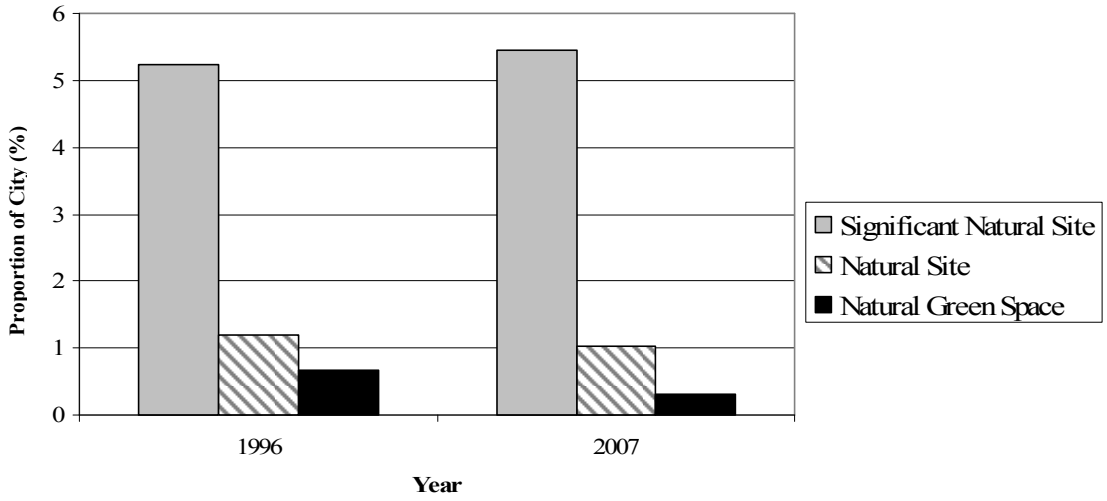

Figure 2: The proportion of the City contributed by each natural area classification in 1996 and 2007 (see Appendix 6 for a complete summary).

The proportion of the City occupied by NS has decreased from 1.2% in 1996 to 1.03% in 2007; however, there was an increase of 0.10% from 2006 to 2007. This increase is related to the upgrading of 5 natural areas (MB9, NE8, NE10, NE11, and NE12) classified as NGS to NS related to the identification of regionally significant plant species within these natural areas during the 2007 field surveys. The proportion of NS has fluctuated over the last 11 years increasing to a high of 1.56% in 2000, but has continually decreased since 2000 by 0.53% which equates to an overall loss of 156 ha within this classification.

In 2006, two NGS, CM25 and ME13, were added and used in the comparison of the natural area classifications, however, these two sites were not officially added in 2006 by the City and are now considered as "Proposed Additions". All Appendices reflect these changes and the total

number of natural areas in 2006 of 136 is now the same as was recorded in 2005, this number remains unchanged in 2007, as noted above. Presently, NGS constitutes 3.8% of the Natural Areas System, this is a decrease of 9% from 1996, and primarily reflects the transition of natural areas to other classifications (*i.e.*, 5 sites transitioned from NGS to NS in 2007). This change also reflects a decrease of 0.35% since 1996 in the proportion of the City identified as NGS (Figure 2; Appendix 6).

In 2007, 45 Special Management Areas were identified; this is a decrease of 10 SMAs from 1996. The total number of Linkages is 35 and this is an overall decrease of 5 from 1996. Eight SMAs are recommended for inclusion within the adjacent natural areas. Similarly, 4 linkages are recommended as additions to the adjacent natural areas. Two sites, CM25 and ME13, are now designated as proposed additions, based on recommendations from 2006.

The overall change to the three major landform types (valleyland, tableland, and wetland) in the City between 1996 and 2007 are presented in Figure 3 (also see Appendix 7). Figure 3 illustrates that the majority of the Natural Areas System in 2007 (80.43%) is still associated with valleylands. This proportion has increased by 2.13% since 1996 (78.3%), and this corresponds to an increase in the number of sites associated with valleylands which has increased by 7 since the inception of this study. In contrast, tablelands only account for 14.69% of the natural areas system in 2007 (Figure 3) and this represents a continued decrease from 16.4% in 1996. The total number of tableland natural areas decreased by 8 from 1996 to 2002, but has since increased by one in 2007. From a City-wide perspective, there were steady decreases in the proportion of tableland natural areas from 1.16% in 1996 to 0.97% in 2002. In 2006 this proportion had increased slightly to 0.98% and remains virtually unchanged in 2007 at 0.99%.

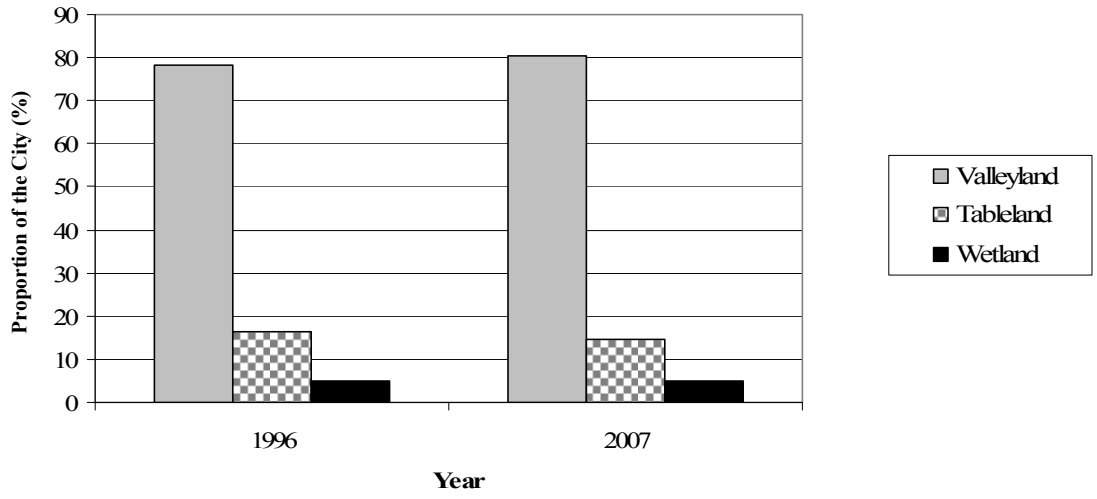

Figure 3: The proportion of the Natural Areas System contributed by landform type in 1996 and 2007 (see Appendix 7 for a complete summary).

Natural areas that occur on tableland (primarily wooded areas) tend to be discrete islands that have limited connections to other remnant natural features. Valleylands are better connected by virtue of the linearity of the landform and because they have historically been better protected from development. This reinforces the need to place a high priority on the protection of the remaining tableland features present within the City, and an emphasis on their management to maintain or improve their quality.

The proportion of the natural areas system associated with wetlands has remained more or less constant at 5.0% in 1996 to 4.88% in 2007 (Figure 3). The proportion of the City that is classified as wetland decreased marginally from 0.36% in 1996 to 0.33% in 2002 and this proportion has remained constant through to 2007 (Figure 3; Appendix 7).

The mean size of natural areas in all three landscape types has been decreasing since 1996 due to the incremental removal of portions of natural areas for development (Appendix 7). The exception to this is the mean size of wetlands which increased between 2001 and 2002 with the removal of EC1 which was smaller than the average wetland size. Currently the mean size of wetlands is 19.29 ha. Tableland natural areas are generally very small (mean size of 5.48 ha or 13.54 a.) when compared to the valleyland areas (mean size of 19.91 ha or 49.2 a.) in 2007.

4.0 NATURAL ENVIRONMENT OVERVIEW

4.1 Vegetation Communities

The 49 vegetation communities described for the City (Appendices 8 and 9) were compared between 1996 and 2007 (Figure 4). As the NAS study pre-dated the provincial ELC, the original community classification did not conform to ELC standards. A list of vegetation communities in the City and their approximate corresponding ELC vegetation community classifications were provided by North-South Environmental (2000), Appendix 5. However, to facilitate the comparison of vegetation communities between the 1996 study and updates, the original City designations are used in this report.

The vegetation communities have been grouped into six broad categories: valleylands, woodlands, successional, wetlands, anthropogenic and other. The category “other” was used for three communities (tall-grass prairie, beach and unknown) that did not easily fit into any of the other five categories. The category “anthropogenic” refers to five communities that have been created and maintained through human intervention (manicured, urban lake, wooded residential, plantation, black walnut grove). The most prevalent vegetation communities within the City remain those in the valleyland category. The tall-grass prairie community is still considered the only provincially rare vegetation community within the City.

Appendices 8 and 9 summarize the changes within the vegetation community categories between 1996 and 2007. Between 2006 and 2007 there were increases in the proportion of the City occupied by valleylands (0.14%), successional habitat (0.02%), and woodlands (0.04%) (Figure 4). There were no changes in the proportion of wetland and other from 2006 and 2007, and there was only a slight decrease of 0.01% in the proportion of the City occupied by anthropogenic

vegetation communities within the NAS.

Between 1996 and 2007, there has been an overall decrease in valleylands of 0.32%, a 0.02% decrease in wetlands, a 0.07% decrease in anthropogenic lands, and a decrease in "other" lands of 0.04%. Reductions within the "other" category could be the result of the loss of the only provincially significant community "tall-grass prairie". There have been minor fluctuations in the proportion of woodlands within the City but overall the proportion of woodlands remains the same between the years 1996 and 2007. Within the successional lands category there has been an increase of 0.14% between 1996 and 2007.

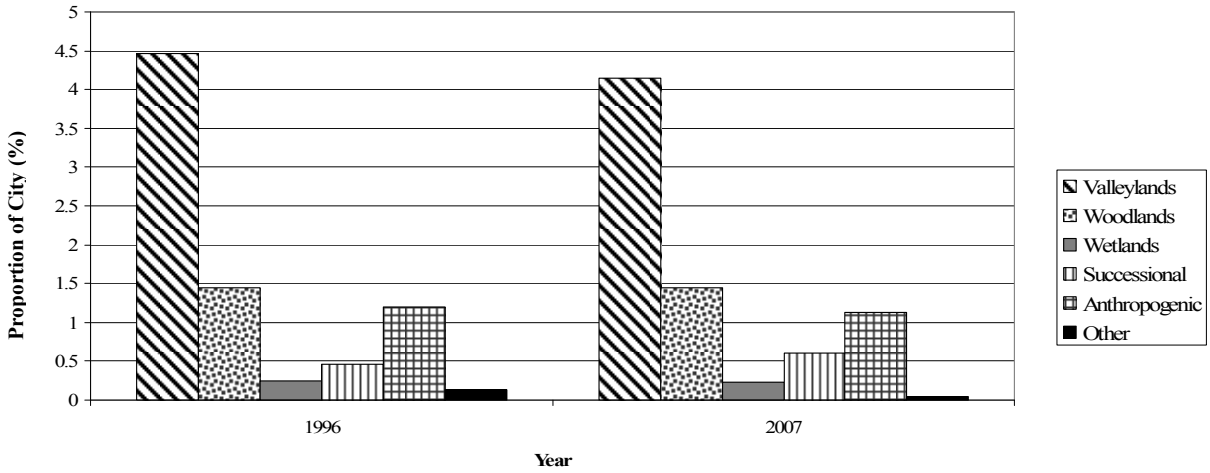

Figure 4: The proportion of NAS vegetation communities in the City in 1996 and 2007.

Valleylands

The Valleylands category includes 10 vegetation communities, two of which, "open with wooded slopes" (M) and "manicured with wooded slopes" (O), no longer occur in the natural areas system as a result of naturalization programs initiated by the City (Appendices 8 and 9). In 2007, this category comprised 4.15% of the total City area (Figure 4). There was a decrease of over 124 ha between 1996 and 2006, however, in 2007 there was an increase of 37.84 ha (Table 3). This increase generally reflects increases in the following vegetation communities: wooded slope (A), floodplain (B), and open with open slopes (K) (Appendix 8). Four of the vegetation communities in this category continue to be the most widespread in the City: wooded slope, floodplain, wooded non-native valleyland, and open with open slopes valleyland.

Table 3: Changes to the area of vegetation communities 1996-2007.

Vegetation Community Category	(1996 – 2007)		(2006 – 2007)		Reason For Change (2006 - 2007)
	hectares	acres	hectares	acres	
Valleylands	-86.87	- 214.57	+ 37.84	+ 93.46	Boundary revisions primarily to communities ET03, CRR1, CRR2, CRR3, CRR5, CRR6, SV12/CE10, and NE9 due to naturalization of plant community edges, and revisions based on property boundaries

Vegetation Community Category	(1996 – 2007)		(2006 – 2007)		Reason For Change (2006 - 2007)
	hectares	acres	hectares	acres	
Woodlands	- 1.60	- 3.95	+ 6.91	+ 17.07	ME13 is now a "Proposed Addition", as well as revisions of woodland edges (boundaries) at several sites
Successional	+ 40.56	+ 100.18	+ 3.92	+ 9.68	Revision of vegetation boundaries at several sites due to naturalization of plant community edges, and revisions based on property boundaries
Wetland	- 5.91	- 14.60	+ 0.26	+ 0.64	CM25 is now a "Proposed Addition"
Anthropogenic	- 21.66	- 53.50	- 2.49	- 6.15	Revision of community boundaries at several sites due to naturalization of plant community edges, and revisions based on property boundaries
Other	- 27.96	- 69.09	0.00	0.00	No change in 2007

Wooded slope communities within valleylands (A) have decreased in area between 1996 and 2006 by 20.00 ha, however, in 2007 there was an increase of 13.8 ha (Appendix 8). Wooded non-native valleylands (J) have increased in area by 20.81 ha from 1996 to 2006 and this trend continued in 2007 with an additional increase of 1.93 ha. Floodplain valleylands (B) decreased by over 71 ha between 1996 and 2006, however, in 2007 there was an increase of 13.66 ha. Open slopes valleylands (K) also increased by 8.42 ha between 2006 and 2007 in contrast to the steady decreases since 1996. Again, these increases are primarily attributable to revisions of natural area boundaries due to naturalization of plant community edges, and revisions based on property boundaries. Overall, there was no decrease in valleyland area between 2006 and 2007.

Woodlands

Woodlands include twenty vegetation communities all of which occur outside of valleylands, although they may contain intermittent woodland streams. Two of these communities, bur oak - American beech forest (QQ) and bur oak - black walnut forest (WW), no longer occur in the natural areas system due to their removal as a result of development (Appendix 8). In 2007, this category comprised 1.45% of the total City area, an increase of 6.9 ha (0.04%) from 2006 (Table 3). Overall these changes reflect the removal of ME13 and natural area boundary revisions due to the naturalization of plant community edges, and revisions based on property boundaries. Ten of the vegetation communities in this category are considered uncommon in the City, each occupying less than 1% of the total area of natural areas or containing an uncommon "working-group". Six of these ten communities can also be considered "at risk" in the City, each being represented only in a single natural area. These communities are: sugar maple-eastern hemlock forest (GG); sugar maple-black cherry forest (II); sugar maple-American beech-eastern hemlock forest (LL); white pine-eastern hemlock-sugar maple forest (MM); American beech forest (PP); and black cherry-eastern hemlock-white ash forest (VV). Four of these communities: GG, II, LL and MM are found within natural areas EM4 and MB4 (Erin Mills and Meadowvale Business Park). The American beech forest (PP) is found within GT3 and CE10 (Gateway and Central Erin Mills), and the black cherry-eastern hemlock-white ash forest (VV) is found within natural area LV6 (Lakeview).

An emphasis should be placed on the protection and management of the remaining woodland

vegetation communities even though these communities remained essentially unchanged in total size in 2007. The pressures associated with development adjacent to natural areas will continue to jeopardize the remaining communities (see section 5.0 for a discussion of disturbances related to development).

Successional

The successional category has six vegetation communities (Appendix 8). This category increased in size by 36.64 ha between 1996 and 2006 (Table 3) and this trend continued with an additional increase of 3.92 ha in 2007. These increases are largely related to increases in the old field (C) and early successional forest (E) communities. Even though successional vegetation communities continue to increase in overall area, this category comprises only 0.60 % of the total City area (Figure 4). Four of the vegetation communities in this category remain uncommon in the City occupying approximately 1% of the total area of natural areas (Appendix 8). One of these five communities, birch forest (XX), can also be considered "at risk" in the City, as it is represented in only one natural area.

Overall, the small size of successional communities in the City continues to highlight the perception that these types of communities do not contribute to the biodiversity of the City and, therefore, are not important to retain. However, these communities perform a number of important ecological functions: they provide habitat for a number of plant and animal species (including birds), they act as a buffer between forests and adjacent development, they provide structural diversity to a site (variation in the height and spatial structure of plants provides a wider range of animal habitat), and they provide habitat for small mammals and insects, which in turn provide a prey base for other species higher up the food chain.

Wetland

The wetland category is composed of six vegetation communities (Appendices 8). Between 1996 and 2006 this category decreased in size by 6.17 ha, however, between 2006 and 2007 there was a slight increase of 0.26 ha. Wetlands contribute only 0.23% of the total City area (Table 3 and Figure 4). Each of the vegetation communities in this category continues to be considered uncommon in the City occupying approximately 1% of the total area of natural areas (cattail marsh is 1.2%).

Despite their small size, wetland communities tend to contribute a disproportionately high amount of biodiversity to the City. A large number of both plant and animal species are restricted to this habitat. In addition to the concern about outright removal of these communities for development, there is also the concern that even if a wetland is retained within a subdivision, alterations to the hydrological and/or hydrogeological regime from the development will result in permanent conversion of the vegetation community from wetland to upland. These areas are especially important for amphibian species which can be key indicators of overall habitat quality.

Anthropogenic

The anthropogenic category is composed of five vegetation communities (Appendices 8). This category decreased in area between 1996 and 2006 by 19.17 ha and this trend continued with an additional decrease of 2.49 ha between 2006 and 2007. Currently, anthropogenic lands comprise 1.13% of the total City area (Table 3; Figure 4). Decreases in this category are primarily due to

revisions to natural area boundaries related to the naturalization of plant community edges and revisions based on property boundaries. Overall, anthropogenic lands still represent more than the amount of land occupied by wetlands (0.23%) and successional (0.60%) communities combined. "Wooded residential" (I) is still considered to be one of the largest communities in the City. The community "manicured" (F) decreased in size between 2006 and 2007 by 2.74 ha (6.77 a.).

Other

The "other" category is composed of three vegetation communities (Appendices 8): beach (R), tall grass prairie (S) and unknown (U). This category has had an overall decrease in area of 27.96 ha between 1996 and 2007 (Table 3). There was no change to this category between 2006 and 2007. The "other" category now only occupies 0.04 % of the total City area (Table 3; Figure 4) and is found only in natural area SD5.

4.2 Flora

The total number of flora species in the City of Mississauga stands at 1125. There are 674 native species in Mississauga (60% of the flora) and non-natives number 451 (40% of the flora). One native species, upland willow (*Salix humilis*) was added to the plant list this year. This species was located in natural area CRR10. This species is considered to be rare within the City (known from 3 or fewer locations). Of the 674 native species in the Mississauga flora, 36 (5%) are considered extirpated, 401 (60%) are rare (known from only 1 to 3 locations in the City) or uncommon (known from 4 to 10 locations in the City), and 237 (35%) are common (known from more than 10 locations in the City).

Butternut is currently designated as Endangered nationally by COSEWIC and provincially by Ontario Ministry of Natural Resources (OMNR). Species listed as Endangered in the province are afforded habitat protection under the Provincial Policy Statement of the Planning Act (OMNR 2004). Butternut was listed as Endangered because it is being infected throughout its entire North American range by a fungus, butternut canker (*Sirococcus clavigignenti-juglandacearum*). A number of the butternut records for the City's natural areas date prior to 1984 (are greater than 20 years old). The current health and presence of some of these individual trees is unknown. In 2007 surveys for butternut were conducted at 13 natural areas where access was available. Butternut trees were observed in 2 natural areas (Appendix 10). There were no additional plants designated as provincially rare in 2007, this remains unchanged from 2004 (Appendix 11).

Table 4 lists the plant species documented in natural areas in the literature reviewed in 2007 that are currently still not confirmed as occurring in the City of Mississauga [*i.e.*, there are no confirmed specimens and they are not listed by Kaiser (2001)]. These species need to be confirmed prior to their inclusion in the flora of Mississauga.

Table 4: Flora species documented for the City of Mississauga that require confirmation. Numbers in the source column correspond to Appendix 2.

Scientific Name	Common Name	Site	Reg Rank	NHIC Rarity	Source	Status in Kaiser (2001)
Raphanus raphanistrum	wild radish	LV5	new	SE3	226	not documented in Peel
Epilobium strictum	downy willow herb	LV5	new	SE5	226	not documented in Peel
Polygonum erectum	prostrate knotweed	LV5	new	S1	226	not documented in Peel
Crataegus crus-galli	cockspur hawthorn	LV5	new	S5	226	not documented in Peel
Sorbus americana	mountain ash	LV5	new	S5	226	not documented in Peel

4.3 Floristic Quality Assessment

FQIs and native mean coefficients were re-calculated for the 43 natural areas based on field data collected in 2007. Table 2 (page 6) provides the FQIs and native mean coefficients for all natural areas that were assessed, and changes are summarized in Appendix 5 (some of the changes noted in this appendix are significant in the context of the natural areas program while others are considered minor revisions). In 1996, 107 of the 144 natural sites were assessed. FQIs ranged from 2.68 to 80.10 and the native mean coefficients ranged from 1.20 to 4.82. In 2007, a total of 134 of the 136 natural areas and one residential woodland have been assessed either by a field visit or roadside visit. The current FQI values range from 4.90 to 80.30 and the native mean coefficients range from 1.40 to 5.17. High, medium and low values are defined in section 2.3 (page 4).

In 1996, the majority of natural areas fell in the medium range of native mean coefficients (3.3 to 3.99) and in the low range for the FQIs (< 30.00). In 2007, this is still the case for both the native mean coefficient and the FQI with approximately 55 natural areas assessed as low, 52 natural areas assessed as medium and 27 natural areas assessed with a high native mean coefficients and FQIs. Lower native mean coefficients indicate an increase in the presence of species characteristic of disturbed environments, and a commensurate decrease in plant species that indicate high quality habitat. Species with low coefficients tend to occur in a wide range of habitats and are not as susceptible to disturbance. In contrast, plant species with high coefficients tend to be conservative in their habitat requirements (see section 2.3). The increase in the high end of the native mean coefficient range, from 4.82 in 1996 to 5.17 in 2007, suggests a slight decrease in disturbance in at least some of Mississauga's natural areas. In addition, FQI values at 30 sites have increased. Overall these increases were minor, however, the FQI values at over 15 natural areas increased between 2 to 7 points, this may be a result of more thorough inventory. Continued monitoring of the natural areas over time will show whether this is a positive trend or an anomaly for 2007.

4.4 Fauna

No new species were added to the fauna list for the City of Mississauga through field work conducted in 2007 or the literature reviewed. The breeding bird surveys conducted in natural areas in Wards 5, 6 and 11 documented probable breeding Cooper's hawk at MV2 for the first time in that natural area. Savannah sparrow, an area-sensitive bird, and northern mockingbird

were both documented as probable breeding at MV2 for the second time, in 2007. Savannah sparrow was also documented at NE9 as probable and at CRR10 as possible breeding, for the first and second time, respectively.

The 2007 studies continued to document the widespread use of most natural areas by habitat-generalist breeding bird species. Despite habitat becoming increasingly fragmented, a few habitat-specialists are still present in larger patches and patches with a high diversity of vegetation communities. Many of these species are significant (birds of conservation concern) in the Credit River Watershed (Credit Valley Conservation updated) (Appendix 12). For example, highlights included extensive riparian areas with connected table land forest, such as the Credit River (CRR1 to CRR6 and CRR10). These sites sustained the highest number of possible breeding bird species of any areas surveyed in 2007, with a high diversity of adaptable species tolerant of urban habitats (e.g., American robin, northern cardinal and song sparrow), as well as more habitat-specific, and area-sensitive species (for example, pine warbler, hairy woodpecker, pileated woodpecker, Cooper's hawk). A few wetland-specific species were noted from larger wetland areas (for example alder flycatcher and mourning warbler in CRR10).

Species dependent on certain specific microhabitats (for example species that depend on high bluffs such as bank swallow, rough-winged swallow, belted kingfisher) were only found along the Credit River and larger creek valleys. These habitats were also among the few that supported a few habitat-specific species that require larger tracts of habitat, for example Cooper's hawk and mourning warbler. The most common Credit Valley Species of Concern were the mid-to late-successional species (of shrubby cultural meadows and young forest): eastern kingbird, common grackle and gray catbird. This is not because there is abundant cultural meadow and young forest (early successional types are not common in Mississauga), but because of the narrow bands of riparian vegetation along the smaller creek valleys contain many elements common to successional areas, such as shrubs and young trees. These communities likely persist because of the high level of disturbance and high light levels present there. A few areas were surveyed for area-sensitive marsh-nesting birds in 2007, as habitat appeared potentially suitable (HO6 and NE9), but none were found. Marsh area-sensitive species such as rails, pied-billed grebes and American coots are very rare in Mississauga (the only recent record was a Virginia rail in CRR9 in 2004). However, pine warbler and hairy woodpecker, considered forest area-sensitive by MNR, were present in several sites with a high density of mature trees. These have also been noted in older neighbourhoods. Raptorial birds are more common along the Credit River and larger creek valleys than in other parts of Mississauga, reflecting the larger number of open natural areas to support a forage base. Red-tailed hawk was noted at 7 sites in 2007, mainly associated with the Credit River and with the large fields at Britannia Farms. Cooper's hawk was noted in four areas, mainly from larger woodlots contiguous with other tracks of habitat (CRR2, HO3, NE6 and MV2). Cooper's hawk both nest and forage in forests, and though birds are usually reported as their main prey one family group was observed hunting black squirrels in 2006 (MB6). As documented by the recent Ontario Breeding Bird Atlas (Cadman et al. 2008), Cooper's hawks are becoming much more common in Mississauga forests, and generally in the Greater Toronto Area. Older areas of the City still provide habitat for declining bird species that depend on human structures in older neighbourhoods which are sensitive to human tolerance and are not present in new residential areas: such as barn swallow, chimney swift and cliff swallow.

Provincial rarity ranks for some fauna species reported in the City of Mississauga have changed since 2004, as recent status reports from the Committee on the Status of Endangered Wildlife in Canada (COSEWIC) have recommended a change in status (Appendix 13). Red-shouldered hawk has been uplisted from a Species of Special Concern to a species Not at Risk. Golden-winged warbler has been designated as Threatened. Status in Ontario has been changed to reflect the status given by COSEWIC. Golden-winged warbler has been heard singing during the breeding season in two natural areas of Mississauga in the past (CL9 and CRR10), but was not observed in 2007 surveys. It should be noted that identification of this species needs to be backed up by a sighting in future studies, as it is now known that golden-winged warbler and blue-winged warbler (which is not at risk) sing each other's songs. Most provincially significant bird species noted in the City are migrants. However, the one provincially significant bird species considered a confirmed breeder is peregrine falcon, which nests on a building (the Mississauga Executive Centre complex) adjacent to CC1. This species has been monitored intensively during the breeding season since 2002. This site was not surveyed in 2007, but the Peregrine Falcon Foundation monitoring site indicated that four eggs hatched in 2007 (www.peregrine-foundation.ca/tops/missmec.html).

There has been no change to the status of Credit Valley Conservation species of conservation interest (Credit Valley Conservation updated). A complete list of bird species of conservation interest documented from natural areas is provided in Appendix 12. Currently, 95 bird species of conservation interest are documented, of which 61 species are possibly breeding in natural areas. As described above, most of these species of conservation concern are habitat specialists, for which habitat is more likely to be eliminated as natural areas become isolated, fragmented and altered by surrounding development.

Amphibian surveys were conducted for the first time as part of the natural areas update in 2006 (Appendix 14). The surveys were focused on early forest breeding amphibians that require vernal pools: spring peepers and wood frogs. However, surveys for other amphibian species were conducted in conjunction with other faunal surveys whenever possible. Generally, very few sites provide habitat for forest breeding amphibians, which require "fishless" ponds near woodlands for breeding. These ponds are characteristically fed by snow melt, groundwater and/or rainfall, and are full in early spring and dry out slowly over the summer. However, the water in the ponds needs to persist long enough to allow amphibian larvae to transform into adults, generally around mid-July. This habitat is very rare in Mississauga. No woodland frog species were heard in Wards 5, 6 and 11 during 2007, though Credit Valley Conservation found wood frog egg masses in CRR2 in 2007. The following sites, where habitat appeared potentially suitable for woodland frogs, were surveyed for amphibians in 2007: CRR1, CRR2, CRR10, MV2, MV12, MV19, HO6 and NE9. Frogs were noted at natural areas CRR1, CRR10, MV2, MV12, MV19, and NE9.

Gray tree frogs, which vocalize later than spring peepers, have been heard in the past at EC13 (1989), CRR1 (2001), and CRR2 (2001) but none were heard in 2007. Western chorus frogs were not heard in 2007, and were heard in only one location in 2006 (CM9). This species requires open marshy or grassy ponds for breeding, and spends the non-breeding period in a variety of open uplands and woodlands. Ponds in grassy areas are some of the first habitats to become developed in most urban growth areas.

Green frog, which is a much more adaptable species that can use storm water ponds for breeding, will likely persist in Mississauga. This species was heard at sites CRR10, MV2, MV12 and NE9. American toads and leopard frogs are still extant in several locations, as they can use a number of upland and wetland habitats for foraging and breeding. American toads were heard at sites CRR1, MV12 and MV19. Bullfrogs require extensive emergent vegetation and deeper water, and this type of habitat is also rare in Mississauga, except in the marshes at the mouth of the Credit River. Bullfrogs were heard at MV12 in 2007, but were not heard at two sites where the species has been previously reported (CRR2 and EC13).

Adult spotted salamanders, which have similar requirements to woodland frog species but spend the non-breeding period underground, were noted in CRR2 for the first time in 2007. This species occurs very rarely in Mississauga, generally only in vernal pools in the largest forested areas (e.g. CRR10, MV2), and in some areas that have remained undeveloped. Also, both spotted salamander and wood frog egg masses were noted in CRR2 in 2007.

4.5 Significant Features

There are no changes to Areas of Natural and Scientific Interest (ANSIs) since they were last updated by the MNR, as reported in the 1998 update report.

5.0 NATURAL AREA CLASSIFICATION SCHEME

In 2004, the criteria for classifying the natural areas were updated (section 3.2, North-South Environmental 2004). No updates to the classification scheme are proposed in 2007, and thus the 2004 criteria are considered up to date. These are provided in Appendix 1.

6.0 CONDITION OF NATURAL AREAS

6.1 Condition

Generally, the natural areas within the City that were surveyed in 2007 continue to be in fair condition (see Table 1 and Appendix 5). Natural areas evaluated as in fair condition have moderate disturbances (few trails, limited dumping, some trampling, *etc*.) and an average number of non-native flora species typical of what can be expected in an urban natural area (see section 2.3 for definitions of "condition"). The overall condition of the natural areas visited in 2007 remained largely unchanged from previous studies.

Spring surveys in natural areas in Wards 5, 6, and 11 identified the presence of several spring ephemeral plant species primarily in areas in fair to good condition, and those areas with contiguous habitat (*e.g.*, the Credit River). Similar results were found in the spring 2005 and 2006 in natural areas in Wards 3, 4 and 7 and Wards 8, 9 and 10. This indicates that suitable conditions (e.g., adequate moisture, soils that are not compacted, adequate nutrients, *etc*.) are present to support these plant species in many of the natural areas in the City.

6.2 Disturbances

As with all of the other survey updates, the most common disturbances within natural areas are those associated with an increase in the uncontrolled human use of natural areas following development in adjacent sites. Examples of these disturbances include: the creation of *ad hoc* trails, the use of mountain bikes (including the construction of some elaborate racing circuits), the presence of garbage, boundary encroachment, and vandalism (tree carving, tree cutting, spray paint). These disturbances have become more prevalent at all of the natural areas surveyed this year.

Observations at natural areas in Mississauga are consistent with reports from the literature that human use of natural areas results in the alteration of decomposition and nutrient cycles through: the loss of understory vegetation (particularly herbaceous species) (Friesen 1998, Matlock 1993), the loss of leaf litter and humus, reduction of moss species, and soil compaction (Matlock 1993). Matlock (1993) also suggested that the recovery of soil and understory vegetation could take 10 to 20 years after the cessation of traffic. Deterioration of the quality of Mississauga's natural areas can be expected to continue unless there is a substantial effort to manage natural areas through site specific Conservation Plans and community stewardship initiatives.

6.3 Development

Direct impacts from development continue to impact natural areas; these impacts include the removal of portions, as well as entire natural areas. Development can include the removal of entire natural areas through the construction of a new residential subdivision or new industrial complex, infill construction of a single residential dwelling within a natural area, or the expansion of an industrial or commercial parking lot into a natural area.

In 2007, only 3 of the 43 natural areas surveyed decreased in overall size due to development. Some of the associated indirect impacts that resulted from the removal of portions of natural areas included: increased light penetration into the forest interior and changes in the vegetation composition (e.g., invasion of non-native species, *etc*.). Other potential long-term impacts that could occur are: changes in moisture (soil and air), increased impacts from air pollution and temperature within the natural area, as well as the less well documented impacts of increased light and noise pollution.

6.4 Non-native Species

There has been a continual increase in the proportion of non-native to native plant species in the natural areas surveyed between 1996 and 2007 (see Appendix 5). Of the 36 natural areas which had been previously inventoried, only 2 areas had a decrease in the proportion of non-native plants, CRR6 and EC22, and these were decreases were less than 1%. An increase in the presence and dominance of non-native species within the City's natural areas is a serious management concern. Without active management species such as Norway maple (*Acer platanoides*), garlic mustard (*Alliaria petiolata*), European buckthorn (*Rhamnus cathartica*), and other non-native plant species will result in a continued loss of native plant species in natural areas. A City-wide strategy to deal with aggressive non-native species impacts needs to be

formulated and management plans developed to remove the most invasive exotic species as soon as possible.

Naturalization projects initiated at a number of natural areas has typically involved leaving an area of unmowed grass to regenerate naturally. While the size of the natural area increases as a result of this regeneration, this strategy also provides habitat for invasive plants such as purple loosestrife (*Lythrum salicaria*) and dog-strangling vine (*Cynanchum rossicum*) (Toronto Region Conservation Authority 2008). In addition, if the natural area occurs in a valleyland its inherent ability to function as a linkage will promote the spread of these invasive species within the City.

As noted in previous studies, the dumping of discarded horticultural plants, largely as a result of encroachment where residents use the natural areas behind their house for compost and dumping yard waste, is another common vector for the introduction of non-native plants to natural areas. This was present at several of the residential areas visited during this update.

7.0 CONCLUSIONS

After nine years of update surveys covering the entire City several trends have emerged. First, there has been a decrease in the quality of vegetation as indicated by an increase in the number of natural areas with lower or decreasing native mean coefficients (section 4.3; appendix 5). However, there is a slight increase in the high end of the native mean coefficient range from 4.82 in 1996 to 5.17 in 2007 which suggests that several natural areas are less disturbed than in previous years allowing more sensitive plants to establish or expand their populations. There is an overall increase in FQI values although this does not reflect a shift toward higher FQI categories (*i.e.*, low to medium, medium to high, *etc.*). The increases in FQI values may be a result of more thorough inventories. Continued monitoring of the natural areas over time will show whether these changes are a positive trend or an anomaly. Second, there has been a decrease in the amount of tableland (woodland and successional categories) and wetland habitats (section 3.1). Development between 1996 and 2007 has resulted in the total loss of almost 102.5 ha from the natural areas system including the loss of thirteen natural areas. Two woodland vegetation communities have been lost, as a result of development removing the only two natural areas in which they were represented in the City (section 4.1). Ten woodland communities, four successional communities and all six of the wetland vegetation communities are uncommon in the City (Appendix 9). Of these, six of the woodland communities, one successional community and one wetland community are “at risk” in the City, occurring in only one natural area each.

An overall trend continues to be a shift in the quality of vegetation within natural areas likely in relation to increased human disturbance and changes in hydrology resulting from development. There has been a consequent decline in the diversity of fauna, particularly in amphibian species. These trends reinforce the need to maintain and manage (and where possible restore) the remaining natural areas in the City. In particular, tableland natural areas (including woodlands, wetlands and successional vegetation communities) which continue to be the most seriously threatened by development.

One positive trend is the naturalization projects undertaken by the City. The majority of

naturalization projects initiated between 1996 and 2007 have involved leaving an area of unmowed grass adjacent to a watercourse or woodlot feature to regenerate naturally and this has resulted in the increase of just over 2 ha of tableland at those sites inventoried in 2007. While this approach will increase the overall size of the natural area in question, this initiative could be enhanced by taking an approach that includes long-term management, which would more likely result in a healthy natural area with a diversity of native plant and animal species such as at Jack Darling Park.

Continued efforts to protect and increase the proportion of the City occupied by natural habitat will promote biodiversity and reinforce the goals and objectives of the Natural Areas Program as set out in the original NAS report (Geomatics 1996).

8.0 RECOMMENDATIONS

1. All of the remaining natural areas in the City should be protected from development and managed to maintain or increase biodiversity. Of particular importance is the protection and subsequent management of all woodlands, wetlands and successional habitats wherever possible. Protection of wetlands in close proximity to forested and cultural habitats is particularly important for both plant and wildlife.

2. It is recommended that the City initiate Conservation Plans for natural areas. Consideration should be given to prioritize natural areas based on significance, representation, size and condition, and those of greatest value. Issues addressed in the Conservation Plans should include, but not be limited to: access, encroachment, appropriate activities, non-native plant control, and restoration initiatives (see Geomatics 1996 for a complete description of Conservation Plan requirements). Restoration initiatives could be started on two or three natural areas for a period of two to three years, and natural areas could then be dealt with on a rotational basis that focuses on those natural areas at greatest risk.

3. Initiate a public education program in concert with community-based stewardship initiatives to involve local citizens in the conservation and management of natural areas, as outlined in the Natural Areas Survey (Geomatics 1996). The key to this is demonstrating the ongoing degradation of woodland through careless and improper use. The public education and stewardship activities in Cawthra Woods (LV7) offer a good example of what can be achieved.

4. A City-wide strategy should be developed to address non-native species and develop management initiatives to address the most invasive exotic species. Such a study should include an assessment of the feasibility of managing some aggressive exotics. Species that are a high priority are Norway maple, garlic mustard, purple loosestrife, dog-strangling vine, white poplar (*Populus alba*), Japanese knotweed (*Polygonum cuspidatum*) and white mulberry (*Morus alba*). At a minimum the City should adopt policies to restrict or prevent the planting of invasive non-native plants, as well as providing encouragement and a mechanism for the City and the community to work together to remove such plants.

5. All naturalization (creation of natural habitat from manicured parkland) projects undertaken in natural areas by the City should involve both the planting/seeding of native species and the control of non-native species.

6. Investigate the possibility of rehabilitating the compacted soils of mountain bike circuits through a combination of levelling the circuits and undertaking planting trials in publicly owned natural areas. This could be combined with a community education program and involve local volunteers. Some publicly owned natural areas that would benefit include ME8, CL39, CL1, and MI17.

7. At confirmed locations, continued monitoring of butternut is warranted and contact should be made with the Butternut Conservation Coalition to determine if any conservation strategies have been developed.

9.0 REFERENCES CITED

Credit Valley Conservation. Undated. Credit Watershed Bird Species of Conservation Interest. 2nd Edition. Bird Data Card.

Dillon Consulting Limited. 2005. Greenfield South Power Plant Site Environmental Impact Study – Vegetation Community Addendum. Final Report. Report prepared for Eastern Power. 6pp.

Dillon Consulting Limited. 2005. Greenfield South Power Plant Site Tree Inventory. Final Report. Report prepared for Eastern Power. 2pp.

Friesen, L. 1998. Impacts of urbanization on plant and bird communities in forest ecosystems. The Forestry Chronicle 74(6): 855-860.

Gartner Lee Limited. 2004. Environmental Impact Study for the Proposed Hydropole Training Facility, Part of Lot 2, Concession 4, East of Hurontario Street, Part 1 (43R – 24967), City of Mississauga. Report prepared for Pauls Properties Corporation. 17pp.

Gartner Lee Limited. 2005. Environmental Impact Study Update – Proposed EUSA Hydropole Training Facility, Creekbank Road and Matheson Boulevard, City of Mississauga. Report prepared for Pauls Properties Corporation. 22pp.

Gartner Lee Limited. 2006. Environmental Impact Study for Janoscik Property, Mississauga, Ontario.

Geomatics International Inc. 1996. City of Mississauga Natural Areas Survey. Report prepared for Planning and Building Department, City of Mississauga. 110 pp.

Geomatics International Inc. 1998. City of Mississauga Natural Areas Survey - Update. Report prepared for Planning and Building Department, City of Mississauga. 45 pp.

Kaiser, J. 1983. Native and exotic plant species in Ontario: a numerical synopsis. *The Plant Press* 1: 25-26.

Kaiser, J. 2001. The Vascular Plant Flora of the Region of Peel and the Credit Valley Conservation. Prepared for Credit Valley Conservation, Regional Municipality of Peel, and Toronto and Region Conservation.

Lee, H.T., W.D. Bakowsky, J. Riley, J. Bowles, M. Puddister, P. Uhlig and S. McMurray. 1998. Ecological Land Classification for Southern Ontario: First Approximation and Its Application. Ontario Ministry of Natural Resources, Southcentral Science Section, Science Development and Transfer Branch. SCSS Field Guide FG-02.

Matlock, G.R. 1993. Sociological Edge Effects: Spatial Distribution of Human Impact in Suburban Forest Fragments. Environmental Management 17(6): 829-835.

Natural Heritage Information Centre (NHIC). 2005. Natural Heritage Information website. www.mnr.gov.on.ca/MNR/nhic/nhic.cfm

Newmaster, S.G., A. Lehela, P.W.C. Uhlig, S. McMurray and M.J. Oldham. 1998. Ontario Plant List. Ontario Ministry of Natural Resources, Ontario Forest Research Institute, Sault Ste. Marie, Ontario. Forest Research Information Paper No. 123, 550pp + appendices.

North-South Environmental Inc. 1999. City of Mississauga Natural Areas Survey - Update. Report prepared for Planning and Building Department, City of Mississauga. 56pp.

North-South Environmental Inc. 2000. City of Mississauga Natural Areas Survey - Update. Report prepared for Planning and Building Department, City of Mississauga. 53pp.

North-South Environmental Inc. 2001. City of Mississauga Natural Areas Survey - Update. Report prepared for Planning and Building Department, City of Mississauga. 56pp.

North-South Environmental Inc. 2002. City of Mississauga Natural Areas Survey - Update. Report prepared for Planning and Building Department, City of Mississauga. 67pp.

North-South Environmental Inc. 2004. City of Mississauga Natural Areas Survey - Update. Report prepared for Planning and Building Department, City of Mississauga. 80pp.

Ontario Ministry of Natural Resources (OMNR). 2004. Species at Risk in Ontario List. www.ontarioparks.com/english/sar.html

Stantec Consulting Limited. 2004. Stonebrook Properties Inc. Scoped Environmental Impact Statement. Report prepared for Glen Schnarr and Associates. 20pp.

Stantec Consulting Limited. 2005. Orlando Mississauga Environmental Impact Study. Report prepared for Orlando Development Corporation. 33pp.

Toronto and Region Conservation Authority. 2008. Dog-strangling vine – *Cynanchum rossicum* (Kleopow) Borhidi, A review of distribution, ecology and control of this invasive exotic plant. 66pp.

Toronto and Region Conservation Authority. 2005. Comments on Site Plan Application. Report prepared for the City of Mississauga. 7pp.

Appendix 1: Natural Area Classification Scheme

Appendix 1: Natural Area Classification Scheme. As updated in Section 5.0 (North-South Environmental Inc. 2004)

With recent changes to the rarity status of significant species at the national, provincial and regional levels, the criteria for classifying the natural areas were updated in 2004. Changes to the criteria as defined in Geomatics (1996) are highlighted in bold. Areas still need only fulfill one criterion in any class to be designated in that class.

Significant Natural Site

These are areas that are outstanding from a natural areas perspective, in the context of the City of Mississauga. Significant Natural Sites must fulfill one of the following criteria:

- ANSI, ESA and other areas designated for outstanding ecological features
- areas with a Floristic Quality Index (FQI) of ≥ 40.00
- areas with a mean floristic coefficient of ≥ 4.50
- woodlands ≥ 10ha (25 acres) in size
- areas that support provincially significant **(S1, S2, S3)** or **"species at risk" listed as special concern**, threatened or endangered **(designated by COSEWIC or COSSARO)**
- woodlands with the potential to provide interior conditions (i.e., no dimension of the woodland is < 700m)
- woodlands that support old-growth trees (≥ 100 years old)
- wetlands ≥ 2ha (5 acres) in size regardless of rank
- the Credit River and Etobicoke Creek valleys

Natural Site

These are areas that represent good examples of remnant features that once characterized the City of Mississauga. Natural Sites must fulfill one of the following criteria:

- woodlands ≥ 2ha (5 acres) but < 10ha (25 acres) (defined as forests which support appropriate understory and canopy species
- **areas** that represent uncommon vegetation associations in the City
- **areas that support regionally significant plant (in the City of Mississauga) or animal species (CVC species of concern)**
- areas with a Floristic Quality Index (FQI) of 25.00 to 39.99
- areas with a mean floristic coefficient of 3.50 to 4.49
- areas that include natural (i.e., not engineered) landscape features [i.e., valley lands, watercourses, unusual (in the context of the City) landform features]

Natural Green Space

This class includes areas which perform ecological functions but do not satisfy any of the criteria for the previous two natural area classes. Natural Green Space includes:

- watercourses with vegetation other than mowed grass, even if they are predominantly engineered (i.e., straightened or channelized)
- wooded areas that are < 2ha (5 acres) in size and do not fulfill any of the other criteria for Natural Site or Significant Natural Site
- Lakes Aquitaine and Wabukayne

Residential Woodland

These are older residential areas, generally with large lots, and almost completely in private ownership. They support trees with a mature, fairly continuous canopy, but the native understory is generally absent or degraded, usually through maintenance of residential lawns and landscaping. However, these areas still serve some functions such as: providing habitat for tolerant canopy birds, both in migration and for breeding; fixing atmospheric carbon; and facilitating groundwater recharge owing to the high proportion of permeable ground cover. With approaches that involve landscaping with native species, the ecological function of these areas would be greatly increased.

Special Management Areas

These are areas adjacent to or close to existing natural areas, and which have the potential for restoration, or which should be planned or managed specially. They are primarily identified to alert planners to the possibility of directing compatible land uses to lands adjacent to natural areas.

Linkages

These are areas which serve to link two or more of any of the five previous classes within the City, or to natural areas outside of the City boundaries. Linkages could include:

- stormwater management facilities including ponds and watercourses;
- designated open space;
- rights of way; and
- greenspace along major arterial roads providing there is an adequate barrier between the linkage and roadway.

Appendix 2: Reports Examined for Background Review

Appendix 2: Reports Examined for Natural Areas Survey Updates
The format of this appendix follows Appendix 2 in the Natural Areas Survey (Geomatics 1996). The numbers correspond to those used in the database for literature references.

225 Gartner Lee Limited. 2004. Environmental Impact Study for the Proposed Training Facility, Part of Lot 2, Concession 4, East of Hurontario Street, Part 1.

226 Dillon Consulting Limited. 2003. Beaverbrook Homes (Lakeshore Village) Project Inc. "Lakeshore Village" Environmental Analysis Report.

227 Gartner Lee Limited. 2003. Scoped Environmental Impact Study, Glenerin Inn Redevelopment, City of Mississauga.

229 Philips Engineering Limited. 2004. North Sixteen District 'Scoped' Subwatershed Study and Ninth Line District Floodplain Mapping.

230 Stantec Consulting Ltd. 2004. Letter to Glen Schnarr & Associates Inc. re: Derrydale Golf Course - Ecological Constraints.

231 Bird and Hale Limited. 2003. Tree Evaluation Report 816 Meadow Wood Road Mississauga

232 Stantec Consulting Ltd. 2004. Credit River Pedestrian Bridge City of Mississauga Environmental Impact Study.

233 Aboud & Associates. 2004. Scoped Environmental Impact Study and Arborist Report. 77 Indian Valley Trail, Mississauga.

234 Dillon Consulting Limited. 2005. Greefield South Power Plant Site Tree Inventory. Final Report.

235 Dillon Consulting Limited. 2005. Greenfield South Power Plant Site Environmental Impact Study – Vegetation Community Addendum. Final Report.

236 Gartner Lee Limited. 2005. Environmental Impact Study Update – Proposed EUSA Hydropole Training Facility, Creekbank Road and Matheson Boulevard, City of Mississauga.

237 Stantec Consulting Limited. 2004. Stonebrook Properties Inc. Scoped Environmental Impact Statement.

239 Stantec Consulting Limited. 2005. Orlando Mississauga Environmental Impact Study.

240 Toronto and Region Conservation Authority. 2005. Comments on Site Plan Application.

250 Gartner Lee Limited. 2006. Environmental Impact Study for Janoscik Property,

Mississauga, Ontario.

251 Golder Associates. 2006. Scoped Environmental Impact Study Part of Lot 9, Concession 2, West of Tomken Road - South of Eglinton Avenue, City of Mississauga.

252 North-South Environmental Inc. 2006. Hershey Centre Woods Conservation Plan for Sports Complex at Hershey Centre (Phase III).

253 Baker Forestry Services Nursery and Consulting. 2006. Tree Survey Report for 3669 Mississauga Road, Northeast corner of Burnhamthorpe Road West and Mississauga Road, Ghalioungui Property. 4pp.

254 The Municipal Infrastructure Group with Dillon Consulting and Parish Geomorphic. 2006. Streetsville Quarry Environmental Management and Servicing Report Update, City of Mississauga.

255 The Municipal Infrastructure Group. 2006. Streetsville Quarry: comments in response to queries from Credit Valley Conservation Authority.

256 The Municipal Infrastructure Group. 2006. Streetsville Quarry. Environmental Management and Servicing Report, City of Mississauga.

Appendix 3: Fieldwork Identified and Date Completed

Appendix 3: Fieldwork Identified and Date Completed

Natural areas for which the need for a field visit was identified based on aerial photograph interpretation and literature review. Natural areas are grouped into categories based on the type of change identified either within or adjacent to the natural area. Field Visit indicates the type of visit the natural area received, field work or a road side visit (see section 2.2 for an explanation). Ownership indicates whether the natural area is privately owned and therefore required access permission or whether it is a City owned site (*i.e.*, parkland or greenbelt).

Natural Area	Site Status	Reason for Field Visit (based on review of aerial photography and available literature)	Ownership	Field Visit		Completion Date
				Type	Timing	
Minor changes to NAS boundaries						
CE5	NGS	• review of flora and fauna, site condition and site boundaries	greenbelt	field work	breeding birds	12/07/07
					amphibians	05/05/07
					spring flora	12/07/07
					summer flora	12/07/07
CE10	SNS	• review of flora and fauna, site condition and site boundaries	parkland	field work	breeding birds	12/07/07
					amphibians	05/05/07
					spring flora	11/07/07
					summer flora	11/07/07
CE12/SV12	SNS	• review of flora and fauna, site condition and site boundaries.	greenbelt	field work	breeding birds	13/07/07, 15/07/07
					spring flora	13/07/07
					summer flora	31/08/07
					butternut	31/08/07
CR1	SNS	• review of flora and fauna, site condition and site boundaries	parkland	field work	breeding birds	13/07/07
					spring flora	13/07/07
					summer flora	31/08/07
CRR1	SNS (ESA)	• review of flora and fauna, site condition and site boundaries	parkland	field work	breeding birds	09/07/07
					spring flora	09/07/07, 10/07/07
					summer flora	09/07/07, 10/07/07
					butternut	09/07/07, 10/07/07

Natural Area	Site Status	Reason for Field Visit (based on review of aerial photography and available literature)	Ownership	Field Visit		Completion Date
				Type	Timing	
CRR2	SNS (ESA, ANSI)	• review of flora and fauna, site condition and site boundaries	parkland	field work	breeding birds	10/07/07, 11/07/07
					amphibians	28/04/07
					spring flora	10/07/07, 11/07/07
					summer flora	13/09/07
					butternut	13/09/07
CRR3	SNS	• review fauna and site boundaries	parkland	field work	breeding birds	07/11/07
					amphibians	05/05/07
CRR4	SNS (ESA, ANSI)	• review fauna and site boundaries	parkland	field work	breeding birds	12/07/07
CRR5	SNS	• review of fauna and site boundaries	parkland	field work	breeding birds	12/07/07
					amphibians	27/03/07
					butternut	12/07/07
CRR6	SNS (ESA, ANSI)	• review fauna and site boundaries	parkland	field work	breeding birds	12/07/07
					butternut	12/07/07
CRR10	SNS	• review of flora and fauna, site condition and site boundaries - flora reviewed in 2006	parkland	field work	breeding birds	12/07/07
					spring flora	12/07/07
					summer flora	12/07/07
					butternut	12/07/07
EC13	SNS (wetland)	• review of flora and fauna, site condition and site boundaries	parkland	field work	breeding birds	06/07/07
					amphibians	28/04/07
					spring flora	06/07/07
					summer flora	06/07/07

Natural Area	Site Status	Reason for Field Visit (based on review of aerial photography and available literature)	Ownership	Field Visit		Completion Date
				Type	Timing	
EC22	NS	• review of flora and fauna, site condition and site boundaries	parkland /private	field work	breeding birds	05/07/07
					spring flora	05/07/07
					summer flora	05/07/07
ETO1	SNS	• review of flora and fauna, site condition and site boundaries	parkland /private	field work	breeding birds	30/06/07
					spring flora	30/06/07
					summer flora	30/08/07
ETO2	SNS	• review of flora and fauna, site condition and site boundaries	greenbelt	field work	breeding birds	30/06/07
					spring flora	30/06/07
					summer flora	30/08/07
ETO3	SNS	• review of flora and fauna, site condition and site boundaries	private	roadside visit	breeding birds	30/06/07
					spring flora	30/06/07
					summer flora	30/08/07
					butternut	30/06/07, 30/08/07
ETO4	SNS	• review fauna and site boundaries	parkland	field work	breeding birds	08/07/07
GT2	NS	• review of flora and fauna, site condition and site boundaries	parkland	field work	breeding birds	04/07/07
					spring flora	03/07/07
					summer flora	03/07/07
GT3	NS	• review of flora and fauna, site condition and site boundaries	private	field work /road side visit	breeding birds	12/07/07
					spring flora	12/07/07
					summer flora	31/08/07
HO1	NS	• review of flora and fauna, site condition and site boundaries	parkland	field work	breeding birds	06/07/07
					spring flora	06/07/07
					summer flora	06/07/07

Natural Area	Site Status	Reason for Field Visit (based on review of aerial photography and available literature)	Ownership	Field Visit		Completion Date
				Type	Timing	
HO3	NS	• review of flora and fauna, site condition and site boundaries	parkland /private	field work	breeding birds	29/06/07
					spring flora	29/06/07
					summer flora	02/09/07
HO7	NS	• review of flora and fauna, site condition and site boundaries	parkland	field work	breeding birds	29/06/07
					spring flora	29/06/07
					summer flora	02/09/07
HO9	SNS (ESA)	• review of flora and fauna, site condition and site boundaries	parkland	field work	breeding birds	12/07/07
					spring flora	12/07/07
					summer flora	31/08/07
					butternut	31/08/07
MA1	NS	• review of flora and fauna, site condition and site boundaries	greenbelt	field work	breeding birds	12/07/07
					spring flora	12/07/07
					summer flora	12/07/07
MV2	SNS (ESA, ANSI)	• review of flora and fauna, site condition and site boundaries	greenbelt	field work	breeding birds	06/07/07
					amphibians	15/07/07
					spring flora	06/07/07
					summer flora	13/09/07
					butternut	06/07/07 and 13/09/07
MV12	NS	• review of flora and fauna, site condition and site boundaries	greenbelt	field work	breeding birds	06/07/07
					spring flora	06/07/07
					summer flora	03/07/07
MV15	NS	• review of flora and fauna, site condition and site boundaries	private	roadside visit	breeding birds	06/07/07
					spring flora	03/07/07
					summer flora	03/07/07

Natural Area	Site Status	Reason for Field Visit (based on review of aerial photography and available literature)	Ownership	Field Visit		Completion Date
				Type	Timing	
MV18	NS	• review of flora and fauna, site condition and site boundaries	private	roadside visit	breeding birds	05/07/07
					spring flora	03/07/07
					summer flora	03/07/07
MV19	SNS	• review of flora and fauna, site condition and site boundaries	parkland	field work	amphibians	15/07/07
					breeding birds	09/07/07
					spring flora	09/08/07
					summer flora	09/08/07
NE5	NGS	• review of flora and fauna, site condition and site boundaries	greenbelt	field work	breeding birds	12/07/07
					spring flora	12/07/07
					summer flora	12/07/07
NE6	SNS	• review of flora and fauna, site condition and site boundaries	private	roadside visit	breeding birds	08/07/07
					spring flora	02/09/07
					summer flora	02/09/07
					butternut	08/07/07
NE7	NGS	• review of flora and fauna, site condition and site boundaries	greenbelt	field work	breeding birds	04/07/07
					spring flora	04/07/07
					summer flora	04/07/07
NE8	NGS	• review of flora, site condition and site boundaries	private	roadside visit	spring flora	08/08/07
					summer flora	08/08/07
NE9	SNS	• review of flora and fauna, site condition and site boundaries	parkland	field work	breeding birds	15/07/07
					spring flora	08/08/07
					summer flora	08/08/07
					butternut	08/08/07

Natural Area	Site Status	Reason for Field Visit (based on review of aerial photography and available literature)	Ownership	Field Visit		Completion Date
				Type	Timing	
NE10	NGS	• review of flora and fauna, site condition and site boundaries	greenbelt	field work	breeding birds	16/07/07
					amphibians	31/05/07
					spring flora	08/08/07
					summer flora	08/08/07
NE11	NGS	• review of flora, site condition and site boundaries	greenbelt	field work	spring flora	08/08/07
					summer flora	08/08/07
NE12	NGS	• review of flora and fauna, site condition and site boundaries	greenbelt	field work	breeding birds	16/07/07
					spring flora	08/08/07
					summer flora	08/08/07
SV1	SNS	• review of flora and fauna, site condition and site boundaries	parkland	field work	breeding birds	05/07/07
					amphibians	31/05/07
					spring flora	05/07/07
					summer flora	05/07/07
					butternut	05/07/07
SV10	NGS	• review of flora and fauna, site condition and site boundaries	greenbelt /private	field work /road side visit	breeding birds	06/07/07
					amphibians	31/05/07
					spring flora	05/07/07
					summer flora	05/07/07
Major Development Adjacent to Natural Areas						
HO6	NGS	• review of flora and fauna, site condition and site boundaries • residential development application for the northeast corner of Eglinton Avenue and Fairwind Drive	greenbelt /private	field work/ road side visit	breeding birds	06/07/07
					amphibians	15/07/07
					spring flora	06/07/07
					summer flora	02/09/07
MB9	NGS	• review of flora and fauna, site condition and site boundaries	private	field work /road side visit	breeding birds	13/07/07
					spring flora	31/08/07
					summer flora	31/08/07

Natural Area	Site Status	Reason for Field Visit (based on review of aerial photography and available literature)	Ownership	Field Visit		Completion Date
				Type	Timing	
MV11	NS	• review of flora and fauna, site condition and site boundaries	private	field work/visit with City Planner	breeding birds	05/07/07
					spring flora	03/07/07
					summer flora	03/07/07
Major changes to NAS boundaries						
No major changes to NAS boundaries in 2007						

Site ID	Natural Area	Site Status	Reason for Field Visit (based on review of aerial photography and available literature)	Ownership	Field Visit		Completion Date
					Type	Timing	
Proposed Addition to Natural Areas System (includes Special Management Areas and Linkages)							
1	CM25	NGS	• review of fauna • review of flora in 2006 when site was first proposed for addition to NAS	parkland	field work	flora	06/04/06, 07/09/06
						breeding birds	31/04/06, 13/07/07
2	CRR1	SNS	• review of flora and fauna, site condition and site boundaries	parkland	field work	breeding birds	09/07/07, 10/07/07
						amphibians	09/07/07
						summer flora	10/07/07
						butternut	10/07/07
3	CRR4	SNS (ESA, ANSI)	• review of fauna and site boundaries	parkland	field work	breeding birds	12/07/07
4	CRR5 - parkland 250 east of the site	SNS	• flora and fauna to be reviewed in 2008	greenbelt	field work	breeding birds	2008
						flora	2008
						butternut	2008
5	ET03 - parkland 249 west of the site	SNS	• portion of Parkland between Dixie Road and Tomken Road recommended as addition to ET03 • portions between Tomken Road and Pacific Circle, and west of Pacific Circle recommended addition as linkage • Special Management Area recommended as addition to natural area	greenbelt/ private	field work	flora	partly completed in 08/30/07; additional work in 2008
6	HO3 (also noted in **Minor changes to NAS boundaries**, above	NS	• Special Management Area recommended as addition to natural area	public/ institutional	fieldwork	breeding birds	29/06/07
						spring flora	02/09/07
						summer flora	02/09/07
						butternut	02/09/07

Site ID	Natural Area	Site Status	Reason for Field Visit (based on review of aerial photography and available literature)	Ownership	Field Visit		Completion Date
					Type	Timing	
7	HO6 (also noted in **Major Development Adjacent to Natural Areas**, above)	NGS	• Linkage recommended as addition to natural area • naturalized area recommended as addition to natural area	greenbelt/ private	fieldwork/ roadside visit	breeding birds	06/07/07 and 2008
						amphibians	15/07/07 and 2008
						spring flora	02/09/07 and 2008
						summer flora	02/09/07 and 2008
8	HO7	NS	• naturalized area recommended as addition to natural area • review of flora and fauna, site condition and site boundaries	parkland	field work	breeding birds	2008
						spring flora	2008
						summer flora	2008
9	MA1 - parklands 68 and 90 north of the site	NS	• Linkage recommended as addition to natural area • addition of riparian corridor along Mimico Creek to natural area	greenbelt/ parkland	field work	breeding birds	2008
						flora	2008
10	ME13	SNS	• review of flora in 2006 when site was first proposed for addition to NAS • review of fauna	parkland	fieldwork	butternut	02/09/07
						breeding birds	01/06/06
11	MV2 (also noted in **Minor changes to NAS boundaries**, above)	SNS	• 6 SMAs east of Second Line recommended as additions to natural area • existing SWM and naturalized area east of McLaughlin recommended as additions to natural area	greenbelt	field work	breeding birds	06/07/07 and 2008
						amphibians	15/07/07 and 2008
						spring flora	06/07/07 and 2008
						summer flora	06/07/07 and 2008
						butternut	13/09/07 and 2008
12	MV19 (also noted in **Minor changes to NAS boundaries**, above)	SNS	• Linkage south of Derry Road West and south of the railway recommended as addition to natural area • Parkland 434 south of Derry Road West and north of railway line • flora and fauna for recommended additions to be reviewed in 2008	greenbelt	fieldwork	amphibians	15/07/07 and 2008
						breeding birds	09/07/07 and 2008
						spring flora	09/08/07 and 2008
						summer flora	09/08/07 and 2008
						butternut	09/08/07 and 2008
13	NE9 (also noted in **Minor changes to NAS boundaries**, above)	SNS	• Toronto and Region Conservation Authority lands recommended addition to natural area • Linkage recommended as addition to natural area	parkland	fieldwork	breeding birds	15/07/07
						spring flora	08/08/07
						summer flora	08/08/07
						butternut	08/08/07

Appendix 4: Rarity Status Definitions

Appendix 4: Rarity Status Definitions

The following six rarity ranks follow the Natural Heritage Information Centre (NHIC 2006).

Global Rarity (G_Rank)
Global ranks are assigned by a consensus of the network of conservation data centres, scientific experts, and The Nature Conservancy to designate a rarity rank based on the range-wide status of a species, subspecies or variety. This ranking system ranges from G1 to G5; with G1 being extremely rare and G5 being common.

COSEWIC
The Committee on the Status of Endangered Wildlife in Canada (COSEWIC) provides assessments for species' at risk of extinction or extirpation and provides a subsequent designation. These designations range from Endangered (E), Extirpated (XT), Extinct (X), Not at Risk (NAR), Special Concern (SC), and Threatened (T). The Canadian list of Species at Risk is developed from these assessments.

SARA
The Species at Risk Act (SARA) is one part of a three part Government of Canada strategy for the protection of wildlife species at risk. This three part strategy also includes commitments under the Accord for the Protection of Species at Risk and activities under the Habitat Stewardship Program for Species at Risk. The species assessment process is conducted by the Committee on the Status of Endangered Wildlife in Canada (COSEWIC) (see above). A committee of experts use status reports to conduct a species assessment and assign the status of a wildlife species believed to be at some degree of risk nationally.

National Rank (N RANK)
National Rank is a term used by conservation data centres and NatureServe to refer to the national conservation status rank of an element.

MNR Status
The Ontario Ministry of Natural Resources assigns rarity ranks ranging from Extinct, Extirpated, Endangered (Regulated), Endangered (Not Regulated), Threatened, Special Concern to Not at Risk.

COSSARO
The Committee on the Status of Species at Risk in Ontario is based on a Ministry of Natural Resources (MNR) committee that evaluates the conservation status for species at risk in Ontario. The Ontario list of Species at Risk, on which the Ontario Endangered Species Act and sections of the Planning Act are based, is developed from these assessments.

Provincial Rank (S RANK)
Provincial ranks are used by the NHIC to set protection priorities for rare species and natural communities. These ranks are not legal designations. Provincial ranks are assigned in a manner similar to that described for global ranks, but consider only those factors within the political boundaries of Ontario. The NHIC evaluates provincial ranks on a continual basis and produces

updated lists at least annually. The ranking system ranges from S1 to S5; with S1 being critically imperilled and S5 being secure.

Provincially Significant Species
Flora species ranked S1, S2 or S3 by the NHIC are considered to be provincially significant. Fauna species ranked S1, S2 or S3 by the NHIC are currently breeding, or have bred historically (prior to 1970) within the City are considered to be provincially significant.

Regional Rarity (R Rank)
The regional rarity ranks are assigned to plant species within the City of Mississauga based on Webber (1984), and updated through contributions from Jocelyn Webber, consultant's reports, and 1995 field work.

The regional ranking system is as follows:

0 extirpated within the City;
1 1 to 3 locations within the City, these species are considered to be regionally rare;
2 4 to 10 locations within the City, these species are considered to be regionally significant
3 11 to 39 locations within the City; and
4 > 40 locations within the City.

Appendix 5: Changes in Natural Areas Updated (1996 to 2007)

Appendix 5: Changes in Natural Areas Updated (1996 to 2007)

Changes within natural areas evaluated in 2007. All changes between 1996 and 2007 are shown for natural areas where changes occurred. Blank cells represent no change from the previous year. Abbreviations as follows: SNS = Significant Natural Site, NS = Natural Site, NGS = Natural Green Space, Increase = ↑, Decrease = ↓. Some of the increases or decreases are significant in the context of the natural areas program while others are considered minor. Native FQI and native mean coefficient as well as definitions for provincially and regionally significant species are defined in section 2.3. Condition is explained in section 2.3. Credit Valley Conservation (CVC) Species of Conservation Interest are discussed in North-South (2000).

Site	Year	Classification	Designation	Area		Flora							Fauna					Condition
				(ha)	(acres)	total	# non-native (proportion)	native FQI	native mean C	# veg. comm.	prov. sig. species	reg. sig. species	# birds	# mammals	# reptiles & amphibians	prov. sig. species	CVC	
CE5	96																	
	98																	
	99	NGS		5.47	13.5	13	8 (61.5%)	2.68	1.20	1								Poor
	00																	
	01																	
	02																	
	04																	
	05																	
	06																	
	07			↓4.27	↓10.55	↑34	↑19(55.88%)	↑5.42	↑1.40				8					
CE10	96	SNS		18.2	44.95	73	13(17.80%)	33.82	4.37	3	0	6	8	0	2	0	0	↑Good
	98					↑93	↑19(20.40%)	↑36.04	↑4.19			↑7	↑9	↑2				↓Good-Fair
	99					↑99		↑37.90	↑4.24			↑9	↑13					
	00																	
	01																	
	02																	
	04																	
	05																	
	06																	
	07			↑18.68	↑46.14	↑132	↑28(21.21%)	↑42.18	↓4.14		↑1	↑16	↑17	↑3				

Site	Year	Classification	Designation	Area		Flora							Fauna					Condition
				(ha)	(acres)	Total	# non-native (proportion)	Native FQI	Native Mean C	# veg. comm.	prov. sig. species	reg. sig. species	# birds	# mammals	# reptiles and amphibians	prov. sig. species	CVC	
CE12	96	SNS		17.61	43.50	52	19(34.60%)	17.76	3.09	2	1		4	1				Fair
	98			↑19.33	↑47.80	↑91	↑39(41.80%)	↑22.19	↓3.08			↑1	↑13	↑3	↑1			
	99																	
	00																	
	01																	
	02					↑95	↑40(41.80%)	↑22.52	↓3.04									
	04																	
	05																	
	06																	
	07			↑19.83	↑48.97	↑134	↑57(42.54%)	↑29.06	↑3.31		↑1	↑9	↑24	↑6				
CR1	96	SNS	ESA,ANSI	4.90	12.10	47	3(4.30%)	29.55	4.45	2		2	1				Fair	
	98		ESA															
	99																	
	00																	
	01																	
	02					↑70	↑11(15.71%)	↑33.72	↓4.39			↑6	↑4	1				
	04																	
	05																	
	06																	
	07			↑5.67	↑14.00	↑111	↑33(29.73)	↑35.89	↓4.06			↑11	↑12					
CRR1	96	SNS	ESA,ANSI	71.40	176.36	41	12(26.80%)	0.00	0.00	5		2	2	2	1			Fair
	98		↓ESA			↑76	↑23(30.26%)	↑26.65	↑3.66			↑4	↑6					
	99																	
	00																	
	01							↓25.55	↓3.51				↑29	↑4	↑7		↑4	
	02					↑249	↑82(32.93%)	↑48.66	↑3.77			↑37						
	04		↑ESA, wetland	↓69.82	↓172.45	↑252		↑49.07	↓3.76	↑10	↑1			↑5				
	05			↑69.83	↑172.48	↑266	↑89(33.46%)	↑49.97				↑38	↑50	↑7	↑8			
	06																	

Site	Year	Classification	Designation	Area		Flora							Fauna					Condition
				(ha)	(acres)	Total	# non-native (proportion)	Native FQI	Native Mean C	# veg. comm.	prov. sig. species	reg. sig. species	# birds	# mammals	# reptiles and amphibians	prov. sig. species	CVC	
	07			↑73.39	↑181.27	↑294	↑107(36.39%)	↑51.46				↑41	↑53	↑9				
CRR2	96	SNS	ESA,ANSI	91.29	225.20	89	30(30.00%)	32.94	4.29	8		3	13	9	10			Good
	98					↑100	↑31(31.00%)	↑32.99	↓3.97			↓2	↑14					
	99																	
	00																	
	01						↓30(30.00%)	↓32.75	↓3.91				↑44		↑11		11	
	02					↑112	↑35(31.25%)	↑33.85	↓3.86	↑9		↑3	↑45					
	04																	
	05																	
	06																	
	07			↑98.30	↑242.80	↑183	↑66(36.07%)	↑40.19	↓3.72	↑12		↑14	↑52					
CRR3	96	SNS		68.94	170.28	34	5(14.71%)			4		3	1					Fair
	98					↑74	↑26(35.10%)	25.26	3.65				↑7					
	99																	
	00																	
	01						↓25(33.78%)	↓25.00	↓3.57				↑36	4	8		7	
	02					↑91	↑31(34.07%)	↑27.44	↓3.54				↑37	↑5		↑1		
	04																	
	05																	
	06																	
	07			↑74.64	↑184.36	↑92	↓31(33.70%)	↑27.86	↑3.57		1		↑41					
CRR4	96	SNS	ESA,ANSI	24.69	60.97	11	2(18.18%)			3		1			7			Good
	98																	
	99																	
	00																	
	01			↓21.17	↓52.29								19	3		1	5	
	02					↑54	↑22(40.74%)	18.07	3.19	↑4		↑6	↑22			↑2		
	04																	
	05																	

Site	Year	Classification	Designation	Area		Flora							Fauna					Condition
				(ha)	(acres)	Total	# non-native (proportion)	Native FQI	Native Mean C	# veg. comm.	prov. sig. species	reg. sig. species	# birds	# mammals	# reptiles and amphibians	prov. sig. species	CVC	
	06																	
	07			↑22.99	↑56.78								↑28					
CRR5	96																	Good
	98	SNS		21.22	52.41	64	27(42.20%)	21.37	3.51	2			5		5			Fair
	99																	
	00																	
	01			↑24.74	↑61.10		↓26(40.63%)	↓21.09	↓3.42				↑15	2	↓2		2	
	02																	
	04																	
	05																	
	06																	
	07			↑28.27	↑69.83						↑1		↑27	↑3		↑1	2	
CRR6	96	SNS	ESA,ANSI	213.66	527.74	269	88 (32.30%)	63.63	4.73	4	4	65	87	8	17	1	0	Good
	98			↓213.22	↓526.64	↑277	↑91 (32.50%)	↑64.67	↑4.74		↓3	↑73						
	99					↑281	↑92 (32.70%)	↑65.03	↓4.73			↓72						
	00						↓91 (32.38%)										↑8	
	01			↓135.16	↓333.86	↓264	↓88 (33.33%)	↓61.21	↓4.61		↓2	↓62	↓67		↑18		↑10	
	02			↓134.94	↓333.30	↑272	↑91 (33.46%)	↑61.74	↓4.59			↑64		↓7				
	04																	
	05																	
	06			↓137.55	↓339.75	↑302	↑97 (32.12%)	↑66.11	↑4.62			↑73	↑74	↑8			↑16	
	07			↑137.55	↑339.75													
CRR10	96																	
	98																	
	99																	
	00																	
	01	SNS	ESA,ANSI	43.75	108.07	359	129 (35.93%)	65.28	4.30	2	1	64	88	8	9	1	25	Good
	02			↑65.25	↑161.16	↑361	↑130 (36.01%)	↑65.75	↑4.33	↑9					↑10			
	04																	

Site	Year	Classification	Designation	Area		Flora							Fauna					Condition
				(ha)	(acres)	Total	# non-native (proportion)	Native FQI	Native Mean C	# veg. comm.	prov. sig. species	reg. sig. species	# birds	# mammals	# reptiles and amphibians	prov. sig. species	CVC	
	05																	
	06			↓60.42	↓149.23	↑373	↓130 (34.85%)	↑67.89	↑4.36		↑2	↑70	↑89	↑10	↑11		↑27	
	07			↑61.78	↑152.60	↑384	↑131(34.11)	↑69.35				↑75	↑90	↑12				
EC13	96	SNS	Wetland	4.61	11.39	162	29(16.70%)	50.73	4.40	4		68	89	6	11			Excellent
	98					↑168		↑53.01	↑ 4.50			↓65						
	99																	
	00						↑27 (16.07%)						↓86				↑12	
	01																	
	02					↑169		↓52.78	↓4.43			↑66					↑13	
	04			↓4.39	↓10.84	↑186	↑31 (16.67%)	↑54.62	↓4.39			↑71	↑88					
	05																	
	06																	
	07			↑4.85	↑11.98	↑194	↑35(18.04%)	↑54.64	↓4.33									
EC22	96	NS		2.59	6.4	39	4 (10.3%)	24	4.06	1		4	1	1				Fair
	98			↓2.32	↓5.73	↑55	↑7(12.70%)	↑25.26	↓3.65									↓Fair-Poor
	99					↑72	↑9(12.50%)	↑30.62	↑3.86			↑6	↑4					
	00																	
	01																	
	02					↑75		↑31.14	↓3.83									
	04																	
	05																	
	06																	
	07			↓1.54	↓3.80	↑79	↓9(11.39%)	↑31.67	↓3.79				↑10	↑2				
ETO1	96	SNS		10.40	25.69					2								Fair
	98					37	11(29.7%)	15.30	3.00	↑4		1	3	1				↓Fair-Poor
	99																	
	00																	
	01																	
	02			↓9.13	↓22.55	↑39	↓10(25.64%)	↓15.00	↓2.79				↑4	↑2				

Site	Year	Classification	Designation	Area		Flora							Fauna					Condition
				(ha)	(acres)	Total	# non-native (proportion)	Native FQI	Native Mean C	# veg. comm.	prov. sig. species	reg. sig. species	# birds	# mammals	# reptiles and amphibians	prov. sig. species	CVC	
	04																	
	05																	
	06																	
	07			↑11.18	↑27.61	↑94	↑41(43.62%)	↑21.28	↑2.92			↑8	↑16					
ETO2	96	SNS		13.01	32.13					1								Poor
	98					20	12 (60.0%)	3.54	1.25				2	1				
	99																	
	00																	
	01																	
	02					↑31	↑19 (61.29%)	↑7.22	↑2.08				↑3					
	04																	
	05																	
	06																	
	07			↑14.16	↑34.97	↑65	↑30(46.15%)	↑14.27	↑2.41			5	↑9					
ETO3	96	SNS		134.93	333.28	405	169 (41.2%)	57.09	3.72	4	2	60	7	5	5	0	0	Fair
	98			↑112.22	↑277.29	↑406					↓1	↑61						↓Fair-Poor
	99					↓400	↓167(41.8%)	↓56.47	↓3.7			↓58						
	00																	
	01																	
	02			↓78.87	↓194.81		↓164 (41.00%)	↓56.35	↓3.67			↑59						
	04																	
	05																	
	06																	
	07			↑87.35	↑215.75			↓56.15	↓3.66		↑2		↑34	↑8			↑3	
ETO4	96	SNS	ESA	58.00	143.32	128	35(26.6%)	42.31	4.39	3		14	23	2	9			Fair
	98					↑ 141	↑ 37(26.2%)	↑ 43.93	4.31			↑ 15	↑ 24	↑ 3				
	99																	
	00						↓36(25.53%)								↑ 5		↑ 2	
	01																	

Site	Year	Classification	Designation	Area		Flora							Fauna					Condition
				(ha)	(acres)	Total	# non-native (proportion)	Native FQI	Native Mean C	# veg. comm.	prov. sig. species	reg. sig. species	# birds	# mammals	# reptiles and amphibians	prov. sig. species	CVC	
	02																	
	04																	
	05			↓52.81	↓130.49	↑179	↑ 53 (29.61%)	↑ 45.36	↓ 4.09	↑ 4	↑ 1	↑ 18	↑ 41				↑ 9	↑ Good-Fair
	06																	
	07			↑53.47	↑132.07								↑45	↑4				
GT2	96	NS		7.20	17.78	41	6 (7.0%)	22.12	3.79	3		3	2	1				Good
	98					↑56	↑10(17.9%)	↑26.24	↑3.87	↑6		↑6	↑9	↑3	↑1			
	99																	
	00																	
	01																	
	02					↑68	↑11 (16.18%)	↑29.80	↑3.95				↑10					
	04																	
	05																	
	06																	
	07			↓6.80	↓16.80	↑76	↑12(15.79)	↑32.13	↑4.02			↑8	↑21					
GT3	96	NS		2.67	6.59	43	12 (25.6%)	19.04	3.42	2		1	1					Fair
	98																	
	99																	
	00																	
	01																	
	02						↓11 (25.58%)	↓18.74	↓3.31									
	04																	
	05																	
	06																	
	07			↓1.81	↓4.47	↑71	↑26(36.62%)	↑20.58	↓3.07			↑2	↑6					
HO1	96	NS		1.20	2.96	20	5 (25.0%)	16.27	4.20	1			2	1				Fair
	98					↑23		↑17.44	↓4.11				↑3					↓Fair-Poor
	99																	
	00																	

Site	Year	Classification	Designation	Area		Flora							Fauna					Condition
				(ha)	(acres)	Total	# non-native (proportion)	Native FQI	Native Mean C	# veg. comm.	prov. sig. species	reg. sig. species	# birds	# mammals	# reptiles and amphibians	prov. sig. species	CVC	
	01																	
	02					↑33	↑7 (21.21%)	↑19.81	↓3.88				↑5					
	04																	
	05																	
	06																	
	07			↑1.21	↑2.99	↑40	↑10(25.00%)	↑20.08	↓3.67				↑8					
HO3	96	NS		14.41	35.59	49	9 (18.4%)	25.61	4.06	3			11	2				Fair
	98					↑56	↑11 (19.6%)	↑25.79	↓3.84				↑12					
	99																	
	00																	
	01																	
	02					↑60		↑26.43	↓3.78				↑13					
	04																	
	05																	
	06																	
	07			↑15.04	↑37.15	↑73	↑14(19.18%)	↑28.38	↓3.69			1	↑28	↑4				
HO6	96	NGS		8.50	21.00					1								Poor
	98																	
	99																	
	00																	
	01																	
	02																	
	04																	
	05																	
	06																	
	07					41	21(51.22%)	9.84	2.20	1		1	21	1				
HO7	96	NS		4.09	10.1	54	10 (16.7%)	26.53	4	3		4						Fair
	98			↓2.11	↓5.21	↑59			↓3.78	↓2			2					↓Fair-Poor
	99					↑72	↑16 (22.2%)	↑29.13	↓3.89				↑6					

Site	Year	Classification	Designation	Area		Flora							Fauna					Condition
				(ha)	(acres)	Total	# non-native (proportion)	Native FQI	Native Mean C	# veg. comm.	prov. sig. species	reg. sig. species	# birds	# mammals	# reptiles and amphibians	prov. sig. species	CVC	
	00																	
	01																	
	02			↓1.07	↓2.65	↑80	↑17 (21.25%)	↑30.62					↑8	1				
	04																	
	05																	
	06																	
	07			↑1.36	↑3.36	↑84	↑18(21.43%)	↑31.39	↓3.86			↓3	↑15					
HO9	96	SNS	ESA,ANSI	27.06	66.84	201	55 (26.4%)	50.4	4.17	2		22	9	1		1		Excellent-Poor
	98		↓ESA	↓16.09	↓39.76	↑202		↑50.64	↑ 4.18	↓1		↓21	↑11					↓Good-Poor
	99					↑204		↑51.2	↑4.19			↑22	↑18	↑2	1			
	00																	
	01																	
	02			↓11.34	↓28.01	↑207		↑51.34	↓4.16				↑19					↑Good
	04																	
	05																	
	06																	
	07			↑12.76	↑31.52	↑229	↑66(28.82%)	↑52.57	↓4.12		1	↑26						
MA1	96	NGS		25.79	63.70					1								Poor
	98	NS		↓24.06	↓59.45	50	25 (50.0%)	14.00	2.80			3	2					
	99																	
	00																	
	01																	
	02					↑61	↑31 (50.82%)	↑15.34					↑4					
	04																	
	05																	
	06																	
	07			↑24.42	↑60.32	↑83	↑45(54.22%)	↑15.89	↓2.69				↑19					

Site	Year	Classification	Designation	Area		Flora							Fauna					Condition
				(ha)	(acres)	Total	# non-native (proportion)	Native FQI	Native Mean C	# veg. comm.	prov. sig. species	reg. sig. species	# birds	# mammals	# reptiles and amphibians	prov. sig. species	CVC	
MB9	96	NGS		6.60	16.31					1					2			Poor
	98																	
	99																	
	00																	
	01																	
	02																	
	04																	
	05																	
	06																	
	07	↑NS				88	42 (47.73%)	19.76	2.91			9	17	1				
MV2	96	SNS	ESA,ANSI	80.18	198.04	200	60 (29.50%)	46.99	3.97	4	1	20	58	10	2			Good - Fair
	98			↓78.38	↓193.61	↑215	↑69 (31.60%)	↑47.59	↓3.94				↑59	↑12		1		
	99																	
	00						↓68 (31.63%)					↓19					6	
	01							↓47.01	↓3.88				↑67	↑15	↑4		↑14	
	02			↓60.55	↓149.57	↑218	↑71 (32.57%)	↑47.33	↑3.90	↑5								
	04																	
	05																	
	06																	
	07			↑61.78	↑152.59	↑248	↑83(33.47%)	↑50.68	↑3.95			↑27	↑70		↑5			
MV11	06	NS		2.90	7.17	24	4(16.67%)	17.44	3.20	1								Fair
	07					↑48	↑15(31.25%)	↑22.28	↑3.88			5	7					
MV12	96	SNS		13.28	32.80	103	32 (31.07%)	33.94	4.03	3		7	5	4				Fair
	98	↓NS		↑13.38	↑33.06	↑115	↑35 (30.40%)	↑35.33	↓3.95									
	99																	
	00			↓11.08	↓27.41	↑121		↑36.23	↓3.91									
	01			↓8.71	↓21.50					↓2			↑8					
	02			↓8.63	↓21.32	↑125		↑36.26	↓3.82									
	04			↓8.27	↓20.43													

Site	Year	Classification	Designation	Area		Flora							Fauna					Condition
				(ha)	(acres)	Total	# non-native (proportion)	Native FQI	Native Mean C	# veg. comm.	prov. sig. species	reg. sig. species	# birds	# mammals	# reptiles and amphibians	prov. sig. species	CVC	
	05																	
	06																	
	07			↓8.18	↓20.20	↑148	↑46(31.08%)	↑38.91	↑3.85			↑10	↑14	↑5	3			
MV15	96																	
	98	NS		10.7	26.43	53	25(45.30%)	14.74	2.79	2		1	7	1				Poor
	99																	
	00																	
	01																	
	02			↓10.69	↓26.41		↓24(45.28%)	↓14.48	↓2.69									
	04																	
	05																	
	06																	
	07			↓9.67	↓23.88	↑77	↑35(45.45%)	↑19.44	↑3.00			↑2	↑23	↑2				
MV18	96	NS		3.14	7.76	19	1 (5.26%)			2		1	2					Fair
	98																	
	99																	
	00																	
	01												↑7				↑2	
	02			↓2.60	↓6.43													
	04																	
	05																	
	06																	
	07			↑2.84	↑7.01	↑39	↑13(33.33%)	7.07	2.50	2		1	↑15					
MV19	96	SNS		26.3	64.96	196	50 (25.0%)	50.48	4.18	3		31	13	6	3			Excellent
	98			↓22.66	↓55.99	↑202	↑53 (25.7%)	↑51.04				↓29	↑14					↓Good
	99					↑207		↑52.06	↑4.19			↑30	↑20		↑4			
	00																	
	01																	
	02			↑22.93	↑56.64	↑212	↑56 (26.42%)	↓51.80	↓4.15	↑5		↑31	↑23					

Site	Year	Classification	Designation	Area		Flora							Fauna					Condition
				(ha)	(acres)	Total	# non-native (proportion)	Native FQI	Native Mean C	# veg. comm.	prov. sig. species	reg. sig. species	# birds	# mammals	# reptiles and amphibians	prov. sig. species	CVC	
	04																	
	05																	
	06																	
	07			↑23.92	↑59.08	↑238	↑65(27.31%)	↑53.90	↓4.10	↓6		↑36	↑35		↑5			
NE5	96	NGS		13.29	32.83					1								Poor
	98			↓ 12.75	↓ 31.50													
	99																	
	00																	
	01																	
	02			↓ 12.20	↓ 30.14	↑ 17	↑ 11 (64.71%)						↑ 1					
	04																	
	05	↑ NS		↑ 12.58	↑ 31.08	↑ 30	↑ 20 (66.67%)						↑ 14				↑ 4	
	06																	
	07			↑12.95	↑31.99	↑47	↑27(57.45%)	↑7.33	2.44				↑17					
NE6	96	NS		4.34	10.72	40	10 (25.0%)	20.27	3.70	2								Good
	98					↑ 60	↑ 16 (26.7%)	↑ 24.27	↑ 3.66			↑ 1	↑ 4	↑ 1				
	99																	
	00																	
	01																	
	02			↓ 4.00	↓ 9.87		↓ 15 (25.00%)	↓ 24.00	↓ 3.58									
	04																	
	05	↑ SNS		↓ 1.64	↓ 4.05	↑ 91	↑ 28 (30.77%)	↑ 26.96	↓ 3.40	↓ 1	↑ 1	↑ 2	↑ 13	↑ 3				
	06																	
	07			↓1.42	↓3.51	↑101	↑33(32.67%)	↑28.50	↑3.46	↑2			↑15					
NE7	96																	
	98	NGS		2.76	6.82					1								Poor
	99																	
	00																	
	01																	

Site	Year	Classification	Designation	Area		Flora							Fauna					Condition
				(ha)	(acres)	Total	# non-native (proportion)	Native FQI	Native Mean C	# veg. comm.	prov. sig. species	reg. sig. species	# birds	# mammals	# reptiles and amphibians	prov. sig. species	CVC	
	02																	
	04																	
	05																	
	06																	
	07			↓2.66	↓6.57	38	25(65.79%)	6.93	1.92	1			5	2				
NE8	96	NGS		11.05	27.29					1								Poor
	98			↓6.25	↓15.44													
	99																	
	00																	
	01																	
	02			↓2.98	↓7.37													
	04																	
	05																	
	06																	
	07	↑NS		↑3.75	↑9.26	↑28	17(60.71%)	6.93	2.09			3						
NE9	96	NS		45.21	111.67	46	24 (50.0%)			4		1	5					Fair
	98			↓43.66	↓107.88	↑67	↑27 (40.3%)	↑20.55	↑3.25			↑5	↑12	↑1	↑1			
	99																	
	00																	
	01																	
	02			↑44.47	↑109.84	↑194	↑76 (39.18%)	↑37.74	↑3.47			↑27	↑38	↑3	↑4		↑5	
	04	↑SNS		↑46.00	↑113.66	↑197	↑78 (39.59%)				1		↑39					
	05																	
	06																	
	07			↑47.65	↑123.80	↑224	↑87(38.84%)	↑40.56	↑3.48			↑31	↑42	↑7	↑5		↑6	
NE10	96	NGS		8.27	20.43					1								Poor
	98																	
	99																	
	00																	

Site	Year	Classification	Designation	Area		Flora							Fauna					Condition
				(ha)	(acres)	Total	# non-native (proportion)	Native FQI	Native Mean C	# veg. comm.	prov. sig. species	reg. sig. species	# birds	# mammals	# reptiles and amphibians	prov. sig. species	CVC	
	01																	
	02																	
	04																	
	05																	
	06																	
	07	↑NS		↑9.01	↑22.25	55	29(52.73%)	10.59	2.08			3	13					
NE11	96	NGS		6.07	14.99					1								Poor
	98			↓5.72	↓14.13													
	99																	
	00																	
	01																	
	02			↓5.63	↓13.90													
	04																	
	05																	
	06																	
	07	↑NS		↑6.26	↑15.46	52	28(53.85%)	11.02	2.25			6						
NE12	96	NGS		6.49	16.03					1								
	98																	
	99																	
	00																	
	01																	
	02																	
	04																	
	05																	
	06																	
	07	↑NS		↑7.05	↑17.41	59	26(44.07%)	14.45	2.25			5	9					Poor
SV1	96	SNS		5.62	13.88	67	16 (23.9%)	29.55	4.14	2		3						Fair
	98	↓NS		↓4.63	↓11.44	↑79	↑18 (22.8%)	↑31.75	↓4.07			↑4	7	2				
	99					↑94	↑22 (23.4%)	↑34.77	↑4.1			↑5	↑9					

Site	Year	Classification	Designation	Area		Flora							Fauna					Condition
				(ha)	(acres)	Total	# non-native (proportion)	Native FQI	Native Mean C	# veg. comm.	prov. sig. species	reg. sig. species	# birds	# mammals	# reptiles and amphibians	prov. sig. species	CVC	
	00																	
	01																	
	02			↓4.57	↓11.29	↑102	↑23 (22.55%)	↑35.67	↓4.01				↑10					
	04																	
	05																	
	06																	
	07			↑5.67	↑14.00	↑117	↑31(26.50%)	↑36.99	↓3.99		1		↑16					
SV10	96	NGS		3.93	9.71	28	13 (42.9%)	9.55	2.47	1			1	1				Poor
	98																	
	99																	
	00																	
	01																	
	02			↓3.04	↓7.50	↑40	↑20 (50.00%)	↑10.29	↓2.30						↑1			
	04																	
	05																	
	06																	
	07			↑4.24	↑10.47	↑65	↑29(44.62%)	↑17.00	↑2.83				↑12					
SV12	96	SNS		17.61	43.50	52	19 (34.6%)	17.76	3.09	2	1	0	4	1	0	0	0	Fair
	98	↓NS		↑19.33	↑47.80	↑91	↑39 (41.8%)	↑22.19	↓3.08			↑1	↑13	↑3	↑1			
	99			↓1.72	↓4.25		↓38(41.76%)	↓21.98	↓3.02	↓1								
	00																	
	01																	
	02					↑94	↑40 (42.55%)	↑22.05	↑3.00				↑14					
	04																	
	05																	
	06					↑97	↑42(43.30%)	↑22.52	↑3.04									
	07			↑2.34	↑5.77													

Appendix 6: Comparison of Classifications (1996 to 2007)

Appendix 6: Comparison of Natural Area Classifications (1996 to 2007)*

Comparison Categories	Year	Classification				
		Significant Natural Site (SNS)	Natural Site (NS)	Natural Green Space (NGS)	Residential Woodland (RW)	TOTAL
Number of Sites	1996	51	59	31	3	144
	1998	45	64	31	3	143
	1999	46	68	28	3	145
	2000	45	70	27	3	145
	2001	47	67	26	3	143
	2002	47	66	24	3	140
	2004	62	53	21	3	139
	2005	61	61	14	3	139
	2006	62	53	21	3	139
	2007	62	58	16	3	139
Total Area (ha)	1996	1530.17	349.92	197.05	252	2329.14
	1998	1423.39	426.35	171.55	252	2273.29
	1999	1425.44	445.66	160.18	239.93	2271.21
	2000	1416.56	456.57	148.86	237.42	2259.41
	2001	1413.16	433.64	145.89	237.42	2230.11
	2002	1388.21	428.56	133.63	237.42	2182.82
	2004	1552.40	267.64	123.15	238.25	2181.44
	2005	1548.29	299.69	90.31	237.13	2175.42
	2006	1541.65	268.45	122.65	237.13	2169.88
	2007	1591.47	300.16	92.95	237.13	2221.71
Proportion of Natural Areas System	1996	74%	17%	9%	-	-
	1998	70%	21%	9%	-	-
	1999	70%	22%	8%	-	-
	2000	70%	23%	7%	-	-
	2001	71%	22%	7%	-	-
	2002	71%	22%	7%	-	-
	2004	71%	12%	6%	-	-
	2005	71%	14%	4%	-	-
	2006	71%	12%	6%	-	-
	2007	65.3%	12%	3.8%	-	-

Comparison Categories	Year	Classification				
		Significant Natural Site (SNS)	Natural Site (NS)	Natural Green Space (NGS)	Residential Woodland (RW)	TOTAL
Proportion of the City	1996	5.23%	1.2%	0.67%	-	7.10%
	1998	4.91%	1.41%	0.60%	-	6.92%
	1999	4.87%	1.52%	0.55%	-	6.94%
	2000	4.84%	1.56%	0.51%	-	6.91%
	2001	4.83%	1.48%	0.50%	-	6.81%
	2002	4.73%	1.46%	0.46%	-	6.65%
	2004	5.30%	0.91%	0.42%	-	6.63%
	2005	5.29%	1.02%	0.31%	-	6.62%
	2006	5.27%	0.92%	0.42%	-	6.61%
	2007	5.44%	1.03%	0.32%	-	6.76%

Appendix 7: Comparison of Major Landform Types (1996 to 2007)

Appendix 7: Comparison of Major Landform Types (1996 and 2006)*

Comparison Categories	Year	Landform Type			
		valleylands and associated tablelands	tablelands	wetlands and associated valleylands	TOTAL
Number of Sites	1996	73	60	6	139
	1998	73	59	6	138
	1999	76	58	6	140
	2000	76	58	6	140
	2001	79	53	6	138
	2002	78	52	5	135
	2004	77	52	5	134
	2005	77	52	5	134
	2006	77	52	5	134
	2007	80	53	5	138
Total Area (ha)	1996	1626.3	339.9	103.7	2069.9
	1998	1588.0	328.5	100.4	2016.9
	1999	1622.1	301.6	100.3	2024
	2000	1594.8	319.7	100.3	2014.7
	2001	1593.9	291.2	100.3	1985.4
	2002	1555.3	285.2	97.7	1938.1
	2004	1554.8	285.1	96.0	1935.9
	2005	1550.08	284.98	95.97	1931.03
	2006	1542.49	287.03	95.97	1925.49
	2007	1590.35	290.54	96.43	1977.32
Mean Size (ha)	1996	22.3	5.7	17.3	-
	1998	21.8	5.6	16.7	-
	1999	21.3	5.2	16.7	-
	2000	20.2	5.3	16.7	-
	2001	19.4	5.3	16.7	-
	2002	19.2	5.4	19.5	-
	2004	19.4	5.4	19.2	-
	2005	19.4	5.4	19.2	-
	2006	19.28	5.4	19.20	-
	2007	19.88	5.48	19.29	-

Comparison Categories	Year	Landform Type			
		valleylands and associated tablelands	tablelands	wetlands and associated valleylands	TOTAL
Proportion of Natural Areas System	1996	78.30%	16.40%	5.00%	99.70%
	1998	78.50%	16.20%	5.00%	99.70%
	1999	79.90%	14.80%	4.90%	99.70%
	2000	79.10%	15.80%	4.90%	99.80%
	2001	80.30%	14.70%	5.00%	100%
	2002	80.30%	14.70%	5.00%	100%
	2004	80.30%	14.70%	5.00%	100%
	2005	80.30%	14.70%	5.00%	100%
	2006	80.11%	14.91%	4.98%	100%
	2007	80.43%	14.69%	4.88%	100%
Proportion of the City	1996	5.60%	1.16%	0.36%	7.10%
	1998	5.43%	1.12%	0.34%	6.90%
	1999	5.55%	1.03%	0.34%	6.92%
	2000	5.45%	1.09%	0.34%	6.88%
	2001	5.45%	0.99%	0.34%	6.78%
	2002	5.31%	0.97%	0.33%	6.62%
	2004	5.31%	0.97%	0.33%	6.61%
	2005	5.30%	0.97%	0.33%	6.60%
	2006	5.27%	0.98%	0.33%	6.58%
	2007	5.43%	0.99%	0.33%	6.76%

Note: The number of sites (138) reflects one small natural area that did not readily fall into these three categories. Also, the residential woodlands were omitted from this analysis. Consequently, figures differ slightly from those provided elsewhere in the report.

Appendix 8: Comparison of Community Size (1996 to 2007)

Appendix 8: Comparison of Community Size (1996 to 2007).
A comparison of the area (in hectares) of vegetation communities mapped for the City of Mississauga from 1996 to 2007 (grouped according to six broad categories). Communities are based on classifications of Bakowsky (1995) and Kavanaugh and McKay-Kuja (1992) see Geomatics (1996). See North-South (2000), Appendix 5, for a comparison of the vegetation communities with the Ecological Land Classification (Lee *et al.* 1998).

Code	Vegetation Community	# Occurrences										Area (hectares)									
		1996	1998	1999	2000	2001	2002	2004	2005	2006	2007	1996	1998	1999	2000	2001	2002	2004	2005	2006	2007
	Valleylands																				
A	wooded slope	19	20	20	20	22	22	22	21	22	22	347.36	348.54	348.72	340.69	347.85	341.65	335.38	328.13	327.34	341.17
B	floodplain	22	21	21	21	23	23	23	24	24	23	458.42	426.21	426.10	426.10	426.32	393.50	390.48	387.52	387.09	400.75
DD	sugar maple-American beech forest	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	2.48	2.48
G	golf course	4	4	4	4	4	4	4	4	4	4	101.18	101.19	101.19	101.13	101.13	99.73	99.73	99.30	100.17	100.17
J	wooded non-native valleylands	18	18	20	20	22	22	24	27	28	28	93.43	94.36	100.27	100.22	109.09	109.09	115.56	119.76	115.17	117.10
K	open with open slopes valleylands	31	32	33	33	33	33	33	33	35	34	229.02	210.58	217.50	217.62	215.34	197.49	196.47	192.81	195.06	192.67
L	wooded native valleylands	5	5	5	5	5	5	5	5	5	5	39.77	39.78	39.64	39.64	38.64	38.64	33.49	33.32	33.32	33.32
M	open with wooded slopes valleylands	2	2	2	2	1	1	1	0	0	0	5.26	5.25	5.25	5.25	0.82	0.82	0.82	0.00	0.00	0.00
N	open with manicured slopes valleylands	2	2	3	2	2	2	2	2	2	2	22.16	22.15	22.15	22.15	22.15	22.15	22.15	16.65	16.43	16.43
O	manicured with wooded slopes valleylands	1	1	1	1	0	0	0	0	0	0	5.17	5.17	5.17	5.17	0.00	0.00	0.00	0.00	0.00	0.00
	Totals											***1301.77***	***1253.23***	***1265.99***	***1257.98***	***1261.35***	***1203.0***	***1194.08***	***1177.48***	***1177.06***	***1214.90***
	Woodlands																				
BB	red ash-American elm forest	14	15	15	15	16	16	18	18	18	18	35.32	35.61	37.35	37.16	36.40	36.40	48.14	47.83	47.87	47.79
CC	sugar maple forest	7	7	7	7	7	7	7	7	7	7	14.79	13.12	13.12	13.12	13.12	11.62	11.62	11.15	11.00	11.09
DD	sugar maple-American beech forest	15	16	16	17	16	16	16	16	16	17	108.35	102.44	100.07	100.07	95.15	97.23	93.06	93.08	92.13	95.68
EE	sugar maple-white ash forest	9	9	9	9	9	9	9	9	9	9	63.06	62.18	62.18	61.73	61.27	61.20	61.07	62.36	62.65	62.42
FF	sugar maple-red oak forest	10	10	10	9	9	9	10	10	10	10	42.48	44.96	44.96	43.12	42.76	42.70	43.44	43.45	42.87	44.72
GG	sugar maple-eastern hemlock forest	1	1	1	1	1	1	1	1	1	1	16.03	16.07	16.07	16.07	15.97	15.97	15.97	15.97	15.86	16.00

Code	Vegetation Community	# Occurrences										Area (hectares)									
		1996	1998	1999	2000	2001	2002	2004	2005	2006	2007	1996	1998	1999	2000	2001	2002	2004	2005	2006	2007
II	sugar maple-black cherry forest	1	1	1	1	1	1	1	1	1	1	1.93	1.94	1.94	1.94	1.94	1.94	1.94	1.94	1.77	1.77
KK	sugar maple-American beech-red oak forest	5	5	5	5	5	5	5	5	5	5	29.46	29.46	29.46	29.46	29.46	28.92	28.92	28.80	28.50	28.93
LL	sugar maple-American beech-eastern hemlock forest	1	1	1	1	1	1	1	1	1	1	4.44	4.45	4.44	4.45	4.45	4.45	4.45	4.45	4.26	4.26
MM	white pine-eastern hemlock-sugar maple forest	1	1	1	1	1	1	1	1	1	1	6.77	6.77	5.69	5.69	5.69	5.69	5.69	5.69	5.82	5.82
NN	eastern hemlock forest	3	3	3	3	3	4	4	4	4	4	4.09	4.11	4.11	4.11	4.11	5.20	5.20	5.20	5.20	5.20
OO	red maple-red oak forest	5	6	6	6	6	6	6	6	6	6	30.24	30.24	30.42	30.42	30.42	30.42	29.89	29.89	29.89	29.89
PP	American beech forest	1	1	1	1	1	1	1	1	1	1	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56	1.81
QQ	bur oak-American beech forest	1	1	1	1	0	0	0	0	0	0	2.24	2.24	2.24	2.24	0.00	0.00	0.00	0.00	0.00	0.00
RR	oak-ash forest	8	9	9	10	10	9	9	9	9	9	28.61	28.57	24.75	27.34	27.34	24.23	23.94	23.88	23.60	26.24
SS	oak-hickory forest	5	7	7	7	7	8	8	8	8	8	24.20	23.56	23.55	23.31	22.58	27.22	26.92	26.65	27.37	28.33
TT	ash-hickory forest	3	3	3	3	3	3	4	4	4	4	6.94	6.68	6.68	6.68	6.21	6.21	8.88	8.88	8.77	8.50
VV	black cherry-eastern hemlock-white ash forest	1	1	1	1	1	1	1	1	1	1	2.02	2.03	2.03	2.03	2.03	2.03	2.03	2.03	2.03	2.03
WW	bur oak-black walnut forest	1	1	1	1	0	0	0	0	0	0	0.90	0.90	0.90	0.90	0.00	0.00	0.00	0.00	0.00	0.00
ZZ	oak-white pine forest	0	0	2	2	2	2	2	2	2	2	0	0	2.35	2.35	2.35	2.35	2.35	2.35	2.35	2.35
	Totals											***424.43***	***417.89***	***414.87***	***414.73***	***403.81***	***406.32***	***416.07***	***416.17***	***415.92***	***422.83***
	Successional																				
C	old field	26	27	27	27	32	36	40	41	43	42	88.45	95.33	95.33	95.30	97.75	109.12	116.24	113.09	115.16	116.09
D	hedgerow	5	5	4	4	4	4	4	4	4	4	7.68	7.01	6.95	6.95	5.46	5.46	5.46	5.46	5.45	5.61
E	early successional forest	9	10	10	10	7	9	12	16	17	16	21.68	14.66	14.66	12.82	7.68	11.12	24.33	33.18	33.28	32.41
P	hawthorn thicket	4	4	4	4	4	5	5	4	5	4	14.54	14.35	14.35	14.35	14.35	14.57	14.36	13.80	14.36	14.36
XX	birch forest	1	1	1	1	1	1	1	1	1	1	0.46	0.46	0.46	0.46	0.46	0.46	0.46	0.46	0.46	0.46
YY	poplar forest	1	2	2	2	2	2	4	4	4	4	2.37	1.69	1.69	1.69	1.69	1.69	3.11	3.11	3.11	3.11
	Totals											***135.18***	***133.5***	***133.44***	***131.56***	***127.39***	***142.41***	***163.96***	***169.10***	***171.82***	***175.74***
	Wetland																				
AA	silver maple forest	5	5	5	5	3	3	3	3	3	3	18.59	18.14	18.14	17.58	7.24	7.24	7.24	7.24	6.57	6.57
V	cattail marsh	13	14	14	14	15	16	16	17	17	17	27.73	26.99	26.99	26.99	27.07	27.21	27.10	26.18	26.17	26.72

Code	Vegetation Community	# Occurrences										Area (hectares)									
		1996	1998	1999	2000	2001	2002	2004	2005	2006	2007	1996	1998	1999	2000	2001	2002	2004	2005	2006	2007
W	open water marsh	6	6	6	6	7	7	8	8	8	8	22.70	22.70	22.70	22.70	22.56	22.56	21.29	21.29	21.55	21.55
X	willow-buttonbush swamp thicket	1	1	1	1	1	1	1	1	2	2	2.77	2.77	2.77	2.77	2.77	2.77	2.77	2.77	2.97	3.00
Y	wet meadow	1	3	3	3	3	4	5	5	5	5	3.43	3.72	3.72	3.72	3.72	4.23	10.91	10.91	10.88	10.93
Z	willow-ash forest	2	2	2	2	2	2	3	3	3	3	0.55	0.56	0.56	0.56	0.56	0.56	1.15	1.15	1.09	1.09
	Totals											***75.77***	***74.88***	***74.88***	***74.32***	***63.92***	***64.56***	***70.46***	***69.54***	***69.60***	***69.86***
	Anthropogenic																				
F	manicured	11	11	11	12	13	12	16	18	19	19	72.41	75.16	75.16	76.28	72.99	61.25	58.52	65.67	66.49	63.75
H	urban lake	2	2	2	2	2	2	2	2	2	2	7.26	7.26	7.26	7.26	7.26	7.26	7.26	7.26	7.26	7.26
I	wooded residential	3	3	3	3	3	3	3	3	3	3	251.59	251.59	239.93	237.43	237.43	237.43	238.26	237.13	237.13	237.13
T	plantation	11	11	11	13	12	13	14	15	15	15	21.58	21.57	21.60	21.73	20.80	20.92	22.67	22.80	22.88	23.13
UU	black walnut grove	1	1	1	1	1	1	1	1	1	1	0.17	0.17	0.17	0.17	0.17	0.17	0.08	0.08	0.08	0.08
	Totals											***353.01***	***355.75***	***344.12***	***342.87***	***338.65***	***327.03***	***326.79***	***333.02***	***333.84***	***331.35***
	Other																				
R	beach	3	3	4	4	4	4	6	6	6	6	2.36	1.96	2.18	2.18	2.18	2.18	2.72	2.72	2.72	2.72
S	tall grass prairie	1	1	1	1	1	1	1	1	1	1	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06
U	unknown	5	3	3	3	3	3	1	1	1	1	35.65	35.64	35.68	35.68	35.68	35.68	7.33	7.33	7.33	7.33
	Totals											***38.07***	***37.66***	***37.92***	***37.92***	***37.92***	***37.92***	***10.11***	***10.11***	***10.11***	***10.11***

Appendix 9: Summary Of Changes In The Proportion Of Communities In The NAS **(1996 to 2007)**

Appendix 9: Summary of Changes in the Proportion of Communities in the NAS (1996 to 2007).
A comparison of the proportion of the vegetation communities within the Natural Areas System and the City of Mississauga from 1996 to 2007 (grouped according to six broad categories). Communities are based on classifications of Bakowsky (1995) and Kavanaugh and McKay-Kuja (1992) see Geomatics (1996). North-South (2000) Appendix 5 shows a comparison of the vegetation communities with the Ecological Land Classification (Lee *et al.* 1998).

Code	Vegetation Community	Proportion of Natural Areas (%)										Proportion of City Area (%)									
		1996	1998	1999	2000	2001	2002	2004	2005	2006	2007	1996	1998	1999	2000	2001	2002	2004	2005	2006	2007
	Valleylands																				
A	wooded slope	14.92	15.33	15.4	15.08	15.40	15.12	14.84	15.08	14.49	15.12	1.19	15.33	15.35	1.16	1.19	1.17	1.15	1.12	1.12	1.17
B	floodplain	19.69	18.75	18.8	18.86	18.87	17.42	17.28	17.81	17.13	17.74	1.57	18.75	18.76	1.46	1.46	1.34	1.33	1.32	1.32	1.37
G	golf course	4.35	4.45	4.45	4.48	4.48	4.41	4.41	4.56	4.43	4.43	0.35	4.45	4.45	0.35	0.35	0.34	0.34	0.34	0.34	0.34
J	wooded non-native valleylands	4.01	4.15	4.42	4.44	4.83	4.83	5.11	5.50	5.10	5.18	0.32	4.15	4.42	0.34	0.37	0.37	0.39	0.41	0.39	0.40
K	open with open slopes valleylands	9.84	9.26	9.58	9.63	9.53	8.74	8.70	8.86	8.63	8.53	0.78	9.26	9.58	0.74	0.74	0.67	0.67	0.66	0.67	0.66
L	wooded native valleylands	1.71	1.75	1.75	1.75	1.71	1.71	1.48	1.53	1.47	1.47	0.14	1.75	1.75	0.14	0.13	0.13	0.11	0.11	0.11	0.11
M	open with wooded slopes valleylands	0.23	0.23	0.23	0.23	0.04	0.04	0.04	0.00	0.00	0.00	0.02	0.23	0.23	0.02	0.00	0.00	0.00	0.00	0.00	0.00
N	open with manicured slopes valleylands	0.95	0.97	0.97	0.98	0.98	0.98	0.98	0.77	0.73	0.73	0.08	0.97	0.97	0.08	0.08	0.08	0.08	0.06	0.06	0.06
O	manicured with wooded slopes valleylands	0.22	0.23	0.23	0.23	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.23	0.23	0.02	0.00	0.00	0.00	0.00	0.00	0.00
	Totals	***55.92***	***55.12***	***55.74***	***55.68***	***55.83***	***53.25***	***52.93***	***54.13***	***51.98***	***53.68***	***4.47***	***55.12***	***55.74***	***4.30***	***4.31***	***4.11***	***4.08***	***4.02***	***4.01***	***4.15***
	Woodlands																				
BB	red ash-American elm forest	1.52	1.57	1.64	1.64	1.61	1.61	2.13	2.20	2.12	2.12	0.12	1.57	1.64	0.13	0.12	0.12	0.16	0.16	0.16	0.16
CC	sugar maple forest	0.64	0.58	0.58	0.58	0.58	0.51	0.51	0.51	0.49	0.49	0.05	0.58	0.58	0.04	0.04	0.04	0.04	0.04	0.04	0.04
DD	sugar maple-American beech forest	4.65	4.51	4.41	4.43	4.21	4.30	4.12	4.28	4.08	4.23	0.37	4.51	4.41	0.34	0.33	0.33	0.32	0.32	0.31	0.33
EE	sugar maple-white ash forest	2.71	2.74	2.74	2.73	2.71	2.71	2.70	2.87	2.77	2.76	0.22	2.74	2.74	0.21	0.21	0.21	0.21	0.21	0.21	0.21
FF	sugar maple-red oak forest	1.82	1.98	1.98	1.91	1.89	1.89	1.92	2.00	1.90	1.98	0.15	1.98	1.98	0.15	0.15	0.15	0.15	0.15	0.15	0.15

Code	Vegetation Community	Proportion of Natural Areas (%)										Proportion of City Area (%)									
		1996	1998	1999	2000	2001	2002	2004	2005	2006	2007	1996	1998	1999	2000	2001	2002	2004	2005	2006	2007
GG	sugar maple-eastern hemlock forest	0.69	0.71	0.71	0.71	0.71	0.71	0.71	0.73	0.70	0.71	0.05	0.71	0.71	0.05	0.05	0.05	0.05	0.05	0.05	0.05
II	sugar maple-black cherry forest	0.08	0.08	0.08	0.09	0.09	0.09	0.09	0.09	0.08	0.08	0.01	0.08	0.08	0.01	0.01	0.01	0.01	0.01	0.01	0.01
KK	sugar maple-American beech-red oak forest	1.27	1.30	1.30	1.30	1.30	1.28	1.28	1.32	1.26	1.28	0.10	1.30	1.30	0.10	0.10	0.10	0.10	0.10	0.10	0.10
LL	sugar maple-American beech-eastern hemlock forest	0.19	0.20	0.19	0.20	0.20	0.20	0.20	0.20	0.19	0.19	0.02	0.20	0.19	0.02	0.02	0.02	0.02	0.02	0.01	0.01
MM	white pine-eastern hemlock-sugar maple forest	0.29	0.30	0.25	0.25	0.25	0.25	0.25	0.26	0.26	0.26	0.02	0.30	0.25	0.02	0.02	0.02	0.02	0.02	0.02	0.02
NN	eastern hemlock forest	0.18	0.18	0.18	0.18	0.18	0.23	0.23	0.24	0.23	0.23	0.01	0.18	0.18	0.01	0.01	0.02	0.02	0.02	0.02	0.02
OO	red maple-red oak forest	1.30	1.33	1.33	1.35	1.35	1.35	1.32	1.37	1.32	1.32	0.10	1.33	1.33	0.10	0.10	0.10	0.10	0.10	0.10	0.10
PP	American beech forest	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.12	0.11	0.08	0.01	0.11	0.11	0.01	0.01	0.01	0.01	0.01	0.01	0.01
QQ	bur oak-American beech forest	0.10	0.10	0.10	0.10	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.10	0.10	0.01	0.00	0.00	0.00	0.00	0.00	0.00
RR	oak-ash forest	1.23	1.26	1.09	1.21	1.21	1.07	1.06	1.10	1.04	1.16	0.10	1.26	1.09	0.09	0.09	0.08	0.08	0.08	0.08	0.09
SS	oak-hickory forest	1.04	1.04	1.04	1.03	1.00	1.20	1.19	1.23	1.21	1.25	0.08	1.04	1.04	0.08	0.08	0.09	0.09	0.09	0.09	0.10
TT	ash-hickory forest	0.30	0.29	0.29	0.30	0.27	0.27	0.39	0.41	0.39	0.38	0.02	0.29	0.29	0.02	0.02	0.02	0.03	0.03	0.03	0.03
VV	black cherry-eastern hemlock-white ash forest	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.01	0.09	0.09	0.01	0.01	0.01	0.01	0.01	0.01	0.01
WW	bur oak-black walnut forest	0.04	0.04	0.04	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00
ZZ	oak-white pine forest	0.00	0.00	0.1	0.10	0.10	0.10	0.10	0.11	0.10	0.10	0.00	0.00	0.1	0.01	0.01	0.01	0.01	0.01	0.01	0.01
	Totals	***18.25***	***18.41***	***18.25***	***18.36***	***17.87***	***17.98***	***18.42***	***19.13***	***19.04***	***18.71***	***1.45***	***18.41***	***18.25***	***1.42***	***1.38***	***1.39***	***1.42***	***1.42***	***1.41***	***1.45***
	Successional																				
C	old field	3.80	4.19	4.19	4.22	4.33	4.83	5.14	5.20	5.10	5.14	0.30	0.33	0.33	0.33	0.33	0.37	0.40	0.39	0.39	0.40
D	hedgerow	0.33	0.31	0.31	0.31	0.24	0.24	0.24	0.25	0.24	0.25	0.03	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02
E	early successional forest	0.93	0.65	0.65	0.57	0.34	0.49	1.08	1.53	1.47	1.43	0.07	0.05	0.05	0.04	0.03	0.04	0.08	0.11	0.11	0.11
P	hawthorn thicket	0.62	0.63	0.63	0.64	0.64	0.64	0.64	0.63	0.64	0.64	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
XX	birch forest	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Code	Vegetation Community	Proportion of Natural Areas (%)										Proportion of City Area (%)									
		1996	1998	1999	2000	2001	2002	2004	2005	2006	2007	1996	1998	1999	2000	2001	2002	2004	2005	2006	2007
YY	poplar forest	0.10	0.07	0.07	0.07	0.07	0.07	0.14	0.14	0.14	0.14	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
	Totals	***5.8***	***5.87***	***5.87***	***5.82***	***5.64***	***6.30***	***7.26***	***7.77***	***7.61***	***7.78***	***0.46***	***0.46***	***0.46***	***0.46***	***0.44***	***0.49***	***0.56***	***0.58***	***0.58***	***0.60***
	Wetland																				
AA	silver maple forest	0.80	0.80	0.80	0.78	0.32	0.32	0.32	0.33	0.29	0.29	0.06	0.06	0.06	0.06	0.02	0.02	0.02	0.02	0.02	0.02
V	cattail marsh	1.19	1.19	1.19	1.19	1.20	1.20	1.20	1.20	1.16	1.18	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09
W	open water marsh	0.97	1.00	1.00	1.00	1.00	1.00	0.94	0.98	0.95	0.95	0.08	0.08	0.08	0.08	0.08	0.08	0.07	0.07	0.07	0.07
X	willow-buttonbush swamp thicket	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.13	0.13	0.13	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Y	wet meadow	0.15	0.16	0.16	0.16	0.16	0.19	0.48	0.50	0.48	0.48	0.01	0.01	0.01	0.01	0.01	0.01	0.04	0.04	0.04	0.04
Z	willow-ash forest	0.02	0.02	0.02	0.02	0.02	0.02	0.05	0.00	0.05	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Totals	***3.25***	***3.29***	***3.29***	***3.29***	***2.83***	***2.86***	***3.12***	***3.20***	***19.9***	***3.08***	***0.25***	***0.25***	***0.25***	***0.25***	***0.22***	***0.22***	***0.24***	***0.24***	***0.23***	***0.23***
	Anthropogenic																				
F	manicured	3.11	3.31	3.31	3.38	3.23	2.71	2.59	3.02	2.94	2.82	0.25	0.26	0.26	0.26	0.25	0.21	0.20	0.22	0.23	0.22
H	urban lake	0.31	0.32	0.32	0.32	0.32	0.32	0.32	0.33	0.32	0.32	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02
I	wooded residential	10.81	11.07	10.56	10.51	10.51	10.51	10.55	10.90	10.50	10.50	0.86	0.86	0.82	0.81	0.81	0.81	0.81	0.81	0.81	0.81
T	plantation	0.93	0.95	0.95	0.96	0.92	0.93	1.00	1.05	1.01	1.02	0.07	0.07	0.07	0.07	0.07	0.07	0.08	0.08	0.08	0.08
UU	black walnut grove	0.01	0.01	0.01	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Totals	***15.17***	***15.66***	***15.15***	***15.18***	***14.99***	***14.47***	***14.46***	***15.31***	***14.77***	***14.66***	***1.2***	***1.21***	***1.17***	***1.17***	***1.16***	***1.12***	***1.12***	***1.14***	***1.14***	***1.13***
	Other																				
R	beach	0.10	0.09	0.10	0.10	0.10	0.10	0.12	0.13	0.12	0.12	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
S	tall grass prairie	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
U	unknown	1.53	1.57	1.57	1.57	1.58	1.58	0.32	0.34	0.32	0.32	0.12	0.12	0.12	0.12	0.12	0.12	0.03	0.03	0.03	0.03
	Totals	***1.63***	***1.66***	***1.67***	***1.67***	***1.68***	***1.68***	***0.45***	***0.46***	***0.44***	***0.44***	***0.13***	***0.13***	***0.13***	***0.13***	***0.13***	***0.13***	**0.03**	***0.03***	***0.04***	***0.04***

Appendix 10: Butternut Survey Summary

Appendix 10. Butternut Survey Summary.

Site	Results of 2007 Survey	Last Recorded Observation Prior to 2007 Survey	GPS Co-ordinates (NAD 83)
AW1	not located NF 30/06/07	NAS database 2007	06173881 4826568
CC1/MY1	not located NF 02/09/07	NAS database 1980	
CE12/SV12	not located MJ 22/07/05	duToit Associates Limited and Ecoplans Limited (1977)	
CE7	not located MJ 11/08/06	City of Mississauga (1976)	
CL16	located in 2005: 60cm, 50 cm, 45cm, 15cm dbh infected with canker; 80cm dbh almost dead	NAS database 1998, HBT AGRA Limited (1993)	0612831 4819960; 0612825 4819985
CL24	not located MJ 29/07/05	NAS database 1999	
CL26	not located MJ 29/07/05	NAS database 1995	
CL31	not located MJ 29/07/05; planted?	NAS database 2004	
CL52	not located MJ 29/07/05; planted?	NAS database 1995	
CL9	not located MJ 22/07/05	Macdonald (1970)	
CRR1	not located SM 10/07/07; in 2005: 35cm; 25cm; 35cm; 25cm; 15cm; all infected with canker	Ecologistics Limited (1979)	0601986 4831102; 0601961 4831139; 0601954 4831144 ; 0601939 4831138; 0601922 4831212
CRR10	not located SM 11/07/01	NAS database 2001	
CRR3	not located MJ 13/10/05	NAS database 1998	
CRR5	not located SM 12/12/07	City of Mississauga (1976)	
CRR6	located in 2006 in good condition	NAS database 2006	
CRR7	located in good condition	newly documented during 2005 update survey	0609300 4822010
CV12	located in 2005: 15cm dbh in good condition	Gore & Storrie Limited and R.E. Winter and Associates Limited (1994)	0611875 4827070
CV2	no access in 2005	NAS database 1995	
EM14	not located MJ 11/08/06	NAS database 1995	
EM2	not located MJ 11/08/06	NAS database 1995	

Site	Results of 2007 Survey	Last Recorded Observation Prior to 2007 Survey	GPS Co-ordinates (NAD 83)
EM4	not located MJ 17/08/06	NAS database 1995	
ER6	not located MJ 19/10/05	NAS database 2000	
ETO3	access limited in 2007	Weber (1980)	
ETO4	located in 2005 in good condition	NAS database 2005	0611361 4834140
HO9	not located SP 31/08/07	NAS database 1978	
LV1	located in 2005: 30cm, 10 cm dbh infected with canker	NAS database 1995	0617388 4826569
LV7	not located MJ 13/10/05	NAS database 1999	
MB8/ME8	not located MJ 05/09/06	NAS database 1995	
ME10	not located MJ 24/08/06	MJ 25/07/01, MJ/CZ 15/06/95	
MI7	no access in 2005	NAS database 1999	
MV2	not located SM 29/06/07 and SP 13/09/07	Gartner Lee Limited (1994)	
NE6	located in 2007	NAS database 1995	
NE9	located in 2007	NAS database 2002	0610715 4840455
SD1	not located MJ 29/07/05	Dougan & Associates (2003)	
SD7	located in 2005: 45cm dbh infected with canker	NAS database 1999	0611951 4816431
SV1	not located SP 05/07/07	City of Mississauga (1976)	

Appendix 11: Provincially Significant Native Flora Species

Appendix 11. Provincially significant native flora species.
These species are also documented for the City of Mississauga. Provincial rarity status follows (NHIC 2004). Rarity ranks are defined in Appendix 4) of the Natural Areas Survey.

Scientific Name	Common Name	G Rank	S Rank	MNR	COSEWIC	Reg Rank	Location
Astragalus neglectus (Torr. & A. Gray) E. Sheld.	Coopers Milkvetch	G4	S3			1	CRR6
Aureolaria flava (L.) Farw.	Yellow False-foxglove	G5	S3			1	CRR7
Carex amphibola Steud.	Narrow-leaved Sedge	G5	S2			1	CRR6
Carex gracilescens Steud.	Slender Wood Sedge	G5?	S3			1	CRR8
Juglans cinerea L.	Butternut	G3G4	S3?	END	END	3	34 natural areas
Mertensia virginica (L.) Pers. ex Link	Bluebells	G5	S3			1	Clarkson-Lorne Park
Muhlenbergia sylvatica (Torr.) Torr. ex A. Gray var. *sylvatica*	Woodland Satin Grass	G5	S2			1	EM4, ETO3
Oenothera clelandii W. Dietr., Raven & W.L. Wagner	Clelands Evening-primrose	G3G5	S1			1	Clarkson-Lorne Park
Panax quinquefolius L.	American Ginseng	G3G4	S2		END	2	mentioned in Peel Flora
Potentilla paradoxa Nutt.	Bushy Cinquefoil	G5	S3			1	Lake Ontario shoreline

Appendix 12: Updated CVC Bird Species of Conservation Interest

Appendix 12: Updated CVC Bird Species of Conservation Interest.
Updated list of Credit River Watershed birds of conservation interest documented for the City of Mississauga including migrant and wintering species listed alphabetically by common name. An asterisk indicates an historical record. Rarity status follows (NHIC 2007). Rarity ranks are defined in Appendix 4 of the Natural Areas Survey. The city wide notation applies to birds which have been found in more than ten locations within the city.

Common Name	Scientific Name	G Rank	S Rank	COSEWIC	MNR	Breeding Status	Location
Acadian flycatcher	*Empidonax virescens*	G5	S2B,SZN	END	END	migrant	CL9
alder flycatcher	*Empidonax alnorum*	G5	S5B,SZN			possible	CRR10
American bittern	*Botaurus lentiginosus*	G4	S4B,SZN			possible	CRR9
American black duck	*Anas rubripes*	G5	S5B,SZN			possible	ETO8
American coot	*Fulica americana*	G5	S4B,SZN	NAR	NAR	migrant	CL9
American redstart	*Setophaga ruticilla*	G5	S5B,SZN			probable	CL16, CRR6, MB6
bank swallow	*Riparia riparia*	G5	S5B,SZN			possible	CRR8, ETO4
barn swallow	*Hirundo rustica*	G5	S5B,SZN			confirmed	city wide
barred owl	*Strix varia*	G5	S4S5			migrant	CL9
belted kingfisher	*Ceryle alcyon*	G5	S5B,SZN			probable	CL9, Credit River, MV2, ETO4, ETO5, CRR7, CRR8
black tern	*Chlidonias niger*	G4	S3B,SZN	NAR	SC	migrant	CL9
black-and-white warbler	*Mniotilta varia*	G5	S5B,SZN			migrant	CL39, CL9, CRR10, EC13, EM4, LV7, MV2, PC1, SDI
blackburnian warbler	*Dendroica fusca*	G5	S5B,SZN			migrant	CL9, CRR10, EM4, CRR6, LV7
black-crowned night-heron	*Nycticorax nycticorax*	G5	S3B,SZN			probable	Credit River, Etobicoke Creek, ETO7
black-throated blue warbler	*Dendroica caerulescens*	G5	S5B,SZN			migrant	CL9, CRR10, EC13, EM4, LV7, SD1
black-throated green warbler	*Dendroica virens*	G5	S5B,SZN			migrant	CL9, CM12, CRR10, CRR6, EM4, MV2, SD1
blue-gray gnatcatcher	*Polioptila caerulea*	G5	S4B,SZN			possible	CL9, CRR6, CRR10, CRR6, LV7, PC1, SD1
blue-winged warbler	*Vermivora pinus*	G5	S4B,SZN			migrant	CL9
bobolink	*Dolichonyx oryzivorus*	G5	S4B,SZN			probable	CRR2, EC13, MV2

Common Name	Scientific Name	G Rank	S Rank	COSEWIC	MNR	Breeding Status	Location
broad-winged hawk	*Buteo platypterus*	G5	S5B,SZN			migrant	CL9
brown creeper	*Certhia americana*	G5	S5B,SZN			probable	LV7
brown thrasher	*Toxostoma rufum*	G5	S5B,SZN			probable	CL16, CRR10, EC13, SD4, CRR6
Canada warbler	*Wilsonia canadensis*	G5	S5B,SZN			possible	CL8, CRR3
Carolina wren	*Thryothorus ludovicianus*	G5	S3S4			probable	CL9, Credit River, LV3, MI7, SD1, CRR6, CRR10
Caspian tern	*Sterna caspia*	G5	S3B,SZN	NAR	NAR	migrant	CL9, PC1
chestnut-sided warbler	*Dendroica pensylvanica*	G5	S5B,SZN			possible	CL39
chimney swift	*Chaetura pelagica*	G5	S5B,SZN			probable	AW3, CL42, Credit River, Etobicoke Creek, LV7, SP3, CRR7, CRR10, CV12
clay-colored sparrow	*Spizella pallida*	G5	S4B,SZN			probable	EC13
cliff swallow	*Petrochelidon pyrrhonota*	G5	S5B,SZN			possible	CRR10, CRR2, ETO4, RW6
common grackle	*Quiscalus quiscula*	G5	S5B,SZN			probable	city wide
common merganser	*Mergus merganser*	G5	S5B,SZN			possible	CRR8, SD1
common moorhen	*Gallinula chloropus*	G5	S4B,SZN			migrant	CL9
common nighthawk	*Chordeiles minor*	G5	S4B,SZN			possible	SD1
common snipe	*Gallinago gallinago*	G5	S5B,SZN			migrant	EC13
common tern	*Sterna hirundo*	G5	S4B,SZN	NAR	NAR	migrant	Lake Ontario shoreline
Connecticut warbler	*Oporornis agilis*	G4	S4B,SZN			migrant	CL9
Coopers hawk	*Accipiter cooperii*	G5	S4B,SZN	NAR	NAR	probable	ETO4, SD1, LS1, EM30
dark-eyed junco	*Junco hyemalis*	G5	S5B,SZN			wintering	city wide
eastern kingbird	*Tyrannus tyrannus*	G5	S5B,SZN			probable	city wide
eastern meadowlark	*Sturnella magna*	G5	S5B,SZN			probable	CRR2, EC13
eastern towhee	*Pipilo erythrophthalmus*	G5	S4B,SZN			possible	CRR1, EC13
eastern wood-pewee	*Contopus virens*	G5	S5B,SZN			probable	city wide
evening grosbeak	*Coccothraustes vespertinus*	G5	S5B,SZN			migrant	MI1, CL9

Common Name	Scientific Name	G Rank	S Rank	COSEWIC	MNR	Breeding Status	Location
gadwall	*Anas strepera*	G5	S4B,SZN			migrant	Lake Ontario shoreline
golden-crowned kinglet	*Regulus satrapa*	G5	S5B,SZN			migrant	CL9, EC13, EM4, LV3, PC1, SD1, SD7
golden-winged warbler	*Vermivora chrysoptera*	G4	S4B,SZN			migrant	CL9, CRR10
grasshopper sparrow	*Ammodramus savannarum*	G5	S4B,SZN			confirmed	ETO3
gray catbird	*Dumetella carolinensis*	G5	S5B,SZN			probable	city wide
great blue heron	*Ardea herodias*	G5	S5B,SZN			possible	CRR10, CRR11
green-winged teal	*Anas crecca*	G5	S4B,SZN			probable	EC13
hairy woodpecker	*Picoides villosus*	G5	S5			probable	CL9, Credit River, LV3, LV7, MB6
herring gull	*Larus argentatus*	G5	S5B,SZN			probable	CL9
hooded merganser	*Lophodytes cucullatus*	G5	S5B,SZN			possible	Lake Ontario shoreline
horned lark	*Eremophila alpestris*	G5	S5B,SZN			probable	EC13, MV2
killdeer	*Charadrius vociferus*	G5	S5B,SZN			probable	city wide
least bittern	*Ixobrychus exilis*	G5	S3B,SZN	THR	THR	migrant	CL9
least flycatcher	*Empidonax minimus*	G5	S5B,SZN			possible	CRR10, CRR2, CRR9
loggerhead shrike	*Lanius ludovicianus*	G5	S2B,SZN	END	END	migrant	CL9
magnolia warbler	*Dendroica magnolia*	G5	S5B,SZN			possible	CRR10
marsh wren	*Cistothorus palustris*	G5	S5B,SZN			possible	CL9
mourning warbler	*Oporornis philadelphia*	G5	S5B,SZN			possible	CL9, CRR10, CRR3, CRR7
Nashville warbler	*Vermivora ruficapilla*	G5	S5B,SZN			migrant	5 sites
northern goshawk	*Accipiter gentilis*	G5	S4	NAR	NAR	probable	CRR3
northern harrier	*Circus cyaneus*	G5	S4B,SZN	NAR	NAR	probable	ETO3
northern mockingbird	*Mimus polyglottos*	G5	S4B,SZN			possible	CL21, LV1, MV2, NE1
northern saw-whet owl	*Aegolius acadicus*	G5	S4B,SZN			wintering	HO9, MI1
northern waterthrush	*Seiurus noveboracensis*	G5	S5B,SZN			migrant	CL9, CRR10, EC13, EM4
orchard oriole	*Icterus spurius*	G5	SZB,SZN			migrant	EC13
osprey	*Pandion haliaetus*	G5	S4B,SZN			migrant	CL9, CRR1, EC13, LS1

Common Name	Scientific Name	G Rank	S Rank	COSEWIC	MNR	Breeding Status	Location
ovenbird	*Seiurus aurocapillus*	G5	S5B,SZN			possible	CRR10
peregrine falcon	*Falco peregrinus anatum*	G4T3	S2S3B,SZN	END	END-R	confirmed	CC1/MY1
pied-billed grebe	*Podilymbus podiceps*	G5	S4B,SZN			migrant	Lake Ontario shoreline
pileated woodpecker	*Dryocopus pileatus*	G5	S4S5			probable	CL1, CRR10, CRR8, MV18, SD5, CRR6
pine siskin	*Carduelis pinus*	G5	S5B,SZN			migrant	CL9
pine warbler	*Dendroica pinus*	G5	S5B,SZN			probable	CL39, CRR10, CRR6, CRR7, CRR8, CV2, CV6, MI17, EM4
purple finch	*Carpodacus purpureus*	G5	S5B,SZN			possible	CRR10
purple martin	*Progne subis*	G5	S4B,SZN			possible	CL42, CL9
red-breasted nuthatch	*Sitta canadensis*	G5	S5B,SZN			probable	city wide
red-headed woodpecker	*Melanerpes erythrocephalus*	G5	S3B,SZN	SC	SC	possible	CRR10
red-shouldered hawk	*Buteo lineatus*	G5	S4B,SZN	SC	SC	confirmed	LV7*, MV2
ruffed grouse	*Bonasa umbellus*	G5	S5			possible	CL9
savannah sparrow	*Passerculus sandwichensis*	G5	S5B,SZN			probable	CRR10, CRR2, EC13, MV2, NE1, NE9, SP1, CM25, WB1, LS1
scarlet tanager	*Piranga olivacea*	G5	S5B,SZN			possible	CRR10, MB6
sharp-shinned hawk	*Accipiter striatus*	G5	S5B,SZN	NAR	NIAC	possible	SD1
short-eared owl	*Asio flammeus*	G5	S3S4B,SZN	SC	SC	migrant	CL9
turkey vulture	*Cathartes aura*	G5	S4B,SZN			migrant	CL9, CM7, CRR1, CRR8, EC13, LV7, MV2
upland sandpiper	*Bartramia longicauda*	G5	S4B,SZN			confirmed	ETO3
veery	*Catharus fuscescens*	G5	S4B,SZN			migrant	CL9, CRR10, HO9, LV7
vesper sparrow	*Pooecetes gramineus*	G5	S4B,SZN			probable	EC13, MV2
white-throated sparrow	*Zonotrichia albicollis*	G5	S5B,SZN			migrant	CL9, CRR6, EC13, EM4, HO3, MV2, PC1, LV7, CRR10, SD7, MB6 (possible)
winter wren	*Troglodytes troglodytes*	G5	S5B,SZN			probable	CL16, CRR10, CRR6

Common Name	Scientific Name	G Rank	S Rank	COSEWIC	MNR	Breeding Status	Location
wood thrush	*Hylocichla mustelina*	G5	S5B,SZN			probable	CL9, CRR10, CRR7, CRR8, ETO8, MV2, NE9, CL16, MB6
yellow-bellied sapsucker	*Sphyrapicus varius*	G5	S5B,SZN			probable	CL16
yellow-billed cuckoo	*Coccyzus americanus*	G5	S4B,SZN			possible	CL8, CL9, NE4, CRR6
yellow-rumped warbler	*Dendroica coronata*	G5	S5B,SZN			migrant	city wide

Appendix 13: Updated Provincial Fauna Rarity

Appendix 13. Updated provincially significant native fauna species.
These species are also documented for the City of Mississauga, and include migrant and wintering bird species. Rarity status follows (NHIC 2004) and are defined in Appendix 4 of the Natural Areas Survey.

Common Name	Scientific Name	G Rank	S Rank	COSEWIC	MNR	Historical	Notes
Birds							
red-necked grebe	*Podiceps grisegena*	G5	S3B,SZN	NAR	NAR		migrant
horned grebe	*Podiceps auritus*	G5	S1B,SZN		DD		migrant
red-throated loon	*Gavia stellata*	G5	S1S2B,SZN				migrant
great black-backed gull	*Larus marinus*	G5	S2B,SZN				wintering
Caspian tern	*Sterna caspia*	G5	S3B,SZN	NAR	NAR		migrant
Arctic tern	*Sterna paradisaea*	G5	S2S3B, SZN				accidental
black tern	*Chlidonias niger*	G4	S3B,SZN	NAR	SC		migrant
redhead	*Aythya americana*	G5	S2B,SZN				migrant
canvasback	*Aythya valisineria*	G5	S1B,S2N				wintering
greater scaup	*Aythya marila*	G5	S2B,SZN				wintering
bufflehead	*Bucephala albeola*	G5	S3B,SZN				wintering
long-tailed duck	*Clangula hyemalis*	G5	S2S3B,SZN				wintering
white-winged scoter	*Melanitta fusca*	G5	S1S2B,SZN				migrant
surf scoter	*Melanitta perspicillata*	G5	S1B, SZN				migrant
ruddy duck	*Oxyura jamaicensis*	G5	S2B,SZN				migrant
king eider	*Somateria spectabilis*	G5	S1B,SZN				migrant
tundra swan	*Cygnus columbianus*	G5	S3B,SZN				migrant
least bittern	*Ixobrychus exilis*	G5	S3B,SZN	THR	THR		migrant
great egret	*Casmerodius albus*	G5	S2B,SZN				migrant
black-crowned night-heron	*Nycticorax nycticorax*	G5	S3B,SZN				CRR4, ETO7, CRR9

Common Name	Scientific Name	G Rank	S Rank	COSEWIC	MNR	Historical	Notes
Wilsons phalarope	*Phalaropus tricolor*	G5	S3B,SZN			Yes	migrant
short-billed dowitcher	*Limnodromus griseus*	G5	S2S3B,SZN				migrant
stilt sandpiper	*Calidris himantopus*	G5	S2S3B,SZN				migrant
dunlin	*Calidris alpina*	G5	S3B,SZN				migrant
short-eared owl	*Asio flammeus*	G5	S3S4B,SZN	SC	SC		migrant
red-shouldered hawk	*Buteo lineatus*	G5	S4B,SZN	SC	SC		MV2, LV7
rough-legged hawk	*Buteo lagopus*	G5	S1B,SZN	NAR	NAR		wintering
peregrine falcon	*Falco peregrinus anatum*	G4T3	S2S3B,SZN	THR	END-R		migrant
red-headed woodpecker	*Melanerpes erythrocephalus*	G5	S3B,SZN	SC	SC		CRR10
Acadian flycatcher	*Empidonax virescens*	G5	S2B,SZN	END	END		migrant
northern shrike	*Lanius excubitor*	G5	S2S3B,SZN				wintering
loggerhead shrike	*Lanius ludovicianus*	G5	S2B,SZN	END	END		migrant
yellow-breasted chat	*Icteria virens*	G5	S2S3B,SZN	SC	SC	Yes	HO9
prothonotary warbler	*Protonotaria citrea*	G5	S1S2B,SZN	END	END		migrant
Reptiles and Amphibians							
Jefferson/blue-spotted salamander complex	*Ambystoma jeffersonianum*	G4	S2	THR	THR		LV7, CRR6
Blanding's turtle	*Emydoidea blandingi*	G4	S3		THR		CL9
wood turtle	*Clemmys insculpta*	G4	S2	END	SC	Yes	ETO7
common map turtle	*Graptemys geographica*	G5	S3	SC	SC		CL9, CRR9, CRR8
eastern hognose snake	*Heterodon platirhinos*	G5	S3	THR	THR	Yes	CL9
eastern milk snake	*Lampropeltis triangulum triangulum*	G5	S3	SC	SC		CL9, CM7, CRR3, CRR4, CRR5, CRR7, CRR9, ETO4, ETO7, ME12
ribbon snake	*Thamnophis sauritus*	G5	S3	SC	SC		unknown

Appendix 14: Amphibian Surveys for 2007

Appendix 14: Rarity status follows (NHIC 2004) and are defined in Appendix 4 of the Natural Areas Survey.

Common Name	Scientific Name	G Rank	S Rank	COSEWIC	MNR	Location
American toad	*Bufo americanus*	G4	S2	THR	THR	CRR1, MV12, MV19
Green frog	*Rana clamitans*	G5	S5			CRR10, MV2, MV2, NE9
Chorus frog	*Pseudacris triseriata*	G5	S4	NAR	NAR	CM9
Spring peeper	*Pseudacris crucifer crucifer*	G5	S5			CM12
Leopard frog	*Rana pipiens*	G5	S5			CM9
Bull frog	*Rana catesbeiana*	G5	S4			MV12
Spotted salamander	*Ambystoma maculatum*	G5	S4			CM12, CRR10
Eastern redback salamander	*Plethodon cinerus*	G5	S5			CRR2, CRR6, MV2