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NATURAL AREAS SURVEY

UPDATE
2001 December

(Part 4 of Volume 3 of 3)

NOTE:

This Part 4 of Volume 3 of 3, Natural Areas Survey Update, 2001 December, is to be read in conjunction with the Natural Areas Survey Report, 1996 September, (Volume 1 of 3) and Natural Areas Survey Appendices, 1996 September, (Volume 2 of 3) and the Updates of 2000 December, 1999 December and 1998 February.

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City of Mississauga

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NATURAL AREAS SURVEY UPDATE - PART 4 OF VOLUME 3 of 3

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1.0 INTRODUCTION

A Natural Areas Survey for the City of Mississauga was undertaken during 1995 and 1996 (Natural Areas Survey, 1996 September) which identified one hundred and forty-four natural areas representing the best remaining natural features in the City. Of these 144 natural areas, 141 were classified as either Significant Natural Sites, Natural Sites, or Natural Green Space, and three were classified as Residential Woodlands. In 1996 the 141 natural sites comprised 7.10% of the total area of the City. Also identified were 55 Special Management Areas (SMAs) and 40 Linkages. Definitions for these classifications are given in the Natural Areas Survey, 1996 September.

Since completion of the Natural Areas Survey in 1996 a number of development projects have been initiated within or adjacent to the natural areas identified in the 1996 survey. Programs to update the Natural Areas Survey were undertaken in 1998, 1999, 2000 and 2001. This current report documents the fourth year of updates. 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. The intent is to review natural areas within a different quadrant of the City each year. In 1998, the update was conducted on the natural areas in Wards 5 and 6. In 1999, Wards 1 and 2 were similarly updated. In 2000, Wards 3, 4 and 7 were updated. This year, Wards 8 and 9 were updated as well as additional natural areas throughout the City that were identified as having possible changes. With the completion of this years work, all Wards in the City will have been updated once since the initial study in 1996. This report documents the methods used, summarizes changes to the natural areas, 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 34 natural areas located in Wards 8 and 9. Also reviewed were 15 additional natural areas in the City. These 15 sites have been the subject of recent Environmental Impact Studies (EISs), locations where Community Services projects have been undertaken, or where capital projects had been undertaken by the City Transportation and Works Department. Information from the reports reviewed was incorporated into the NAS database and are listed in Appendix 1. In addition, 8 sites identified by the Region of Peel as requiring clarification regarding their status as potential natural areas were investigated. As a result of this investigation one site was designated as natural area ER7, the remainder of the sites are documented in Appendix 2.

The background review was undertaken by a careful review of aerial photograph analysis and review of reports (inventory reports, EISs, *etc.*) on natural areas undertaken since 1996. Black and white aerial photographs from 2000 were used to identify impacts to natural area boundaries. Detailed field checks were made to natural areas where changes to boundaries were noted, or where there was a change in land use within 500 m of a natural area boundary, subject to obtaining access. Where necessary, revisions to natural area boundaries were delineated on aerial photographs. These new boundaries were verified in the field and subsequently mapped on mylar plots provided by the City. All natural sites within Wards 8 and 9 were, at minimum, the subject of a "drive by" inspection, even if there was no indication of impacts from the aerial photograph analysis.

Using this protocol, a list of 52 natural areas were identified as requiring field investigation for updating (Appendix 3). This includes: 34 natural areas that occur in Wards 8 and 9, one Community Services project, ten projects undertaken by the Transportation and Works Department, four sites that were subject to Environmental Impact Studies and eight sites identified by the Region of Peel (Note: some sites fell into more than one of the above categories thus they add up to more than 52).

2.2 Fieldwork

Field visits were made to 40 of the 52 natural areas identified. Natural areas CM7, CM9 and CRR4 did not receive a field visit because access was not available. Locations of Transportation and Works Projects were not available for five of the sites and therefore field visits were not undertaken. Four of the natural areas identified by the Region of Peel were removed prior to 2001 for development and therefore field visits were not required.

Appendix 3 lists the reason for fieldwork, and date when fieldwork was conducted for each of the 40 natural areas. If there was no development within or adjacent to a natural area or change in the boundaries (identified through aerial photograph interpretation and literature review) a site inspection from the road was conducted. A complete field evaluation was conducted at all natural areas where the boundaries had changed based on the aerial photographs or where development had occurred either within or adjacent to the site. Landowner contact for natural areas in private ownership was undertaken by the City Planning and Building Department.

The following information was collected for each natural area that received a field visit:

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

A copy of the field notes and field data sheets were provided to the City under separate cover for inclusion in the natural area files.

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 2001. Data from field work carried out concurrently for two other projects for the City of Mississauga were also entered into the NAS database for purposes of analysis. This included data collected as part of a breeding bird survey of the Credit River valley (North-South 2001a) and as part of field work for the City of Mississauga Garden Park (North-South 2001b).

The provincial rarity ranks of floral and faunal species were also reviewed to determine the need for updating. Provincial rarity status was based on the following literature, NHIC (1997) and NHIC (2000a, 2000b, 2000c, 2000d, 2000e). The natural areas summary table for the City (Table 4 in the Natural Areas Survey, 1996 September, Volume 1 of 3) was updated to allow a comparison of the revised sites within the entire City (see Table 1, page 7).

The Floristic Quality Indices (FQI) were updated for natural areas where the floral inventory changed between 1996 and 2001. The Floristic Quality Assessment System for Southern Ontario (Oldham *et al.* 1995) adapted for use within the City of Mississauga was incorporated into the NAS database in 2001. For a summary of the methodology and interpretation of the Floristic Quality Assessment see the Natural Areas Survey, 1996 September, Volume 1 of 3. Overall, the ranking of the native mean coefficients (high > 4.00, medium = 3.3 to 3.99, low < 3.3) and Floristic Quality Indices (FQIs) (high > 40, medium = 30 to 39.99, low < 30) remained the same as in 1996.

Recent disturbances, threats and management needs were noted where they changed from the 1996 (Geomatics 1996), 1998 (Geomatics 1999), 1999 (North-South Environmental 1999) or 2000 (North-South Environmental 2000) reports. Recommendations for the mitigation of real or potential impacts that resulted from recent developments, including naturalization projects were identified.

2.4 Mapping

Boundary changes identified for natural areas were updated on mylar overlays provided by the City. Boundary delineation followed the approach used in the Natural Areas Survey, 1996 September, Volume 1 of 3. 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 7) summarizes the current information available for each natural area in the City of Mississauga. This table updates Table 4 in the Natural Areas Survey, 1996 September, Volume 1 of 3, and summarizes the following information:

- the classification of the natural areas;
- designation of the natural area as a significant feature (ANSI, ESA, evaluated wetland);
- size of the natural area in hectares and acres;
- the number of floral species;
- the proportion of the floral 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 birds, mammals, and herptiles;
- the number of Credit Valley Conservation species of conservation interest; and
- the condition of the natural areas.

Appendix 4 documents the changes that occurred in natural areas between 1996 and 2001 using the same categories. Some of the changes outlined in Appendix 4 are minor revisions while others are considered significant in the context of the natural areas program.

Figure 1 (see page 17) shows the location of natural areas, Special Management Areas, Residential Woodlands (RW) and Linkages. This figure updates Figure 2 from the Natural Areas Survey, 1996 September, Volume 1 of 3. Due to the scale of mapping, Significant Natural Sites (SNS), Natural Sites (NS) and Natural Green Space (NGS) are not discriminated on this map, are all labelled as "natural area". The location of "minor natural features" and "shoreline reaches" are the same as in the Natural Areas Survey, 1996 September, (Volume 1 of 3) report.

3.1 Summary of Changes

Table 2 (see page 13) summarizes the changes to natural area classification as a result of evaluation in 2001. The total number of natural areas has decreased from 141 in 1996 to 140 in 2001. The total area of the City identified as part of the natural area system in 2001 is 6.81%. This reflects a continuing decline in area from the 7.10% reported in 1996, 6.92% in 1998, 6.94% in 1999, and 6.91% in 2000. This decrease represents an overall loss of 99.03 ha (243.79 ac.) from 1996. The three Residential Woodlands remain unchanged between 1999 and 2001.

One Special Management Area associated with natural area MB8 was removed due to industrial development, bringing the 2001 total down to 48. The number of Special Management Areas has decreased from the original number of 55 identified in 1996. The total number of Linkages remains the same (36) as in 2000.

All natural areas retained the same designations as in 1999. Three natural areas have been substantially reduced in size as a result of development (WB1, CL26 and MV12). The vegetation composition in three other natural areas (EM6, LS1 and LS3) appear to be changing likely as a result of changes in hydrology

resulting from development. All of the sites may have lost species which would result in their redesignation. However, because it is difficult to demonstrate that a plant has been lost from an area, these sites have been retained for the time being. If in future years, repeated inventory fails to re-locate significant species previously recorded for the sites, these areas should be re-evaluated.

Table 3 (see page 14) shows the number and size of natural areas associated with the three major landform types in the City. Most of the natural areas (79 or 80.3%) are associated with valley systems, which has increased from 73 (approximately 78.4%) in 1996 and 1998 and 76 areas (approximately 79.1%) in 1999 and 2000. The number of valleyland sites has increased with the addition of natural areas ER7, and the splitting of CRR6 into CRR10 and CRR11. However, the overall size of the valleyland category has remained essentially the same between 2000 and 2001.

The number of natural areas located on the tablelands was 60 in 1996 and is now 53 with the removal of natural areas CM11, CM13, CM17, and MV3 for residential development as well as MB5 and GT4 for industrial development in 2001. This is in addition to the removal of natural areas HO2 in 1998 and EC10 in 1999, both for residential development as well as NE2 in 2000 for industrial development. One tableland natural area, CV6, was added in 2000.

Tableland natural areas are generally very small (mean size of 5.3 ha or 13.1 ac.) when compared to the valleyland areas (mean size of 19.4 ha or 48.0 ac.). The mean size of all three landscape types has been decreasing since 1996 due to the removal of portions of natural areas for development.

Based on the four years of updating the Natural Areas Survey, a few trends have emerged. The size of natural areas within all categories has been decreasing. Also, from 1996 to 2001 the proportion of the natural area system that is valleyland has been increasing, 78.3%, 78.5%,79.9% and 80.3%, respectively. Except for 2000, which saw a decrease in the proportion of valleyland (79.1%). The proportion that is tableland has been decreasing (16.4%, 16.2%, 14.8%, 14.7%). Except for 2000, with a slight increase in the proportion of tableland (15.8%). This slight increase in 2000 was due in part to a decrease in the size of some valleyland areas as well as the addition of one tableland area. This trend is also reflected in the amount of tableland that is protected in the City, with steady decreases from 1.16% in 1996 to 1.00% in 2001. Wetlands remain more or less constant, with the proportion in the natural area system (5.0%, 5.0%, 4.9%, 4.9%, 5.0%), and in the City overall (0.36%, 0.34%, 0.34%, 0.34%, 0.34%).

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 historically have been better protected from development. From a City-wide perspective, in 2001 only 0.99% of the land base is represented in tableland natural areas, down 0.17% from 1996. 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.

Insert Table 1

Insert Table 2a and 2b

Insert Table 3a and 3b

Figure 1: Legend For Natural Area Framework for the City of Mississauga

(Note: There are 140 natural areas and 3 Residential Woodlands identified on Figure 1, however 147 areas are listed below because 4 areas span two planning districts and are thus listed twice).

SOUTHDOWN
1. SD1
2. SD4
3. SD5 (Meadowwood)
150. SD7 (Lakeside)

CLARKSON-LORNE PARK
4. CL52 (Meadowwood)
5. CL1 (Meadowwood)
6. CL9 (Rattray Marsh)
7. CL8
8. CL15
9. CL16 (Jack Darling Park)
10. CL17 (Lorne Park Estates)
11. CL13
12. CL43
13. CL42
14. CL21 (Birch Glen)
15. CL39 (Whiteoaks)
16. CL22
17. CL30 (Lorne Park Prairie)
18. CL31 (Lornewood Creek Trail)
19. CL24 (Tecumseh)
20. CL26
24. CRR9 (Credit River Flats)

PORT CREDIT
21. PC1 (Rhododendron Gardens)
22. PC2 (Port Credit Memorial)
23. PC3

MINEOLA
24. CRR9 (Credit River Flats)
25. MI4
26. MI1
151. MI17 (Mary Fix)
152. MI7

LAKEVIEW
27. LV3 (Adamson Estate)
28. LV4 (Helen Molasy Memorial)
29. LV5
30. LV2
31. LV1
32. ETO8
33. LV14 (Lakeview Golf Course)
34. LV6
35. LV7 (Cawthra Woods)
36. ETO7

SHERIDAN PARK
37. SP1
38. SP3

SHERIDAN
39. SH6
40. CRR7
41. CRR8

ERINDALE
40. CRR7
41. CRR8
42. ER6
43. CRR6
156. ER7

COOKSVILLE
44. CV1 (Iroquois Flats)
45. CV2
46. CV12 (Richard Jones)
47. CV10
48. CV8 (Camilla)
153. CV6 (Stillmeadow)

DIXIE
36. ETO7
49. ETO6
50. AW1 (Willowcreek)

WESTERN BUSINESS PARK
51. WB1 (Erin Mills Twin Arena)

ERIN MILLS
52. EM30 (Tom Chater Memorial)
53. EM6 (King's Masting)
54. EM2 (South Common)
55. EM10
56. EM14
57. EM4
58. EM5 (Glen Erin Trail)
59. EM21 (Richard F.C. Mortensen)
154. CRR10

CREDITVIEW
60. CR1

FAIRVIEW
61. FV1
62. FV3

CITY CENTRE
63. CC1 (Bishopstoke Walk)

MISSISSAUGA VALLEY
64. MY1 (Mississauga Valley)
65. MY3 (Stonebrook)

APPLEWOOD
50. AW1 (Willowcreek)
66. AW4 (Applewood Hills)
67. AW3 (Applewood Hills)
68. ETO5
49. ETO6

RATHWOOD
69. ETO4
70. RW5 (Applewood Hills)
71. RW6 (Applewood Hills)
72. RW4 (Rathwood District)
73. RW1
74. RW2 (Woodington Green)

CHURCHILL MEADOWS
75. CM7
76. CM9
78. CM12

CENTRAL ERIN MILLS
81. CE7 (Sugar Maple Woods)
82. CE9 (Quenippenon Meadows)
83. CE10 (Erin Wood)
84. CE5
85. CE1 (Woodland Chase Trail)
86. CE12 (Bonnie Brae)
87. CRR5
88. CRR4
155. CRR11

STREETSVILLE
89. SV12 (Bonnie Brae)
90. SV10
88. CRR4
91. SV1 (Turney Woods)
92. CRR3
93. CRR2

EAST CREDIT
87. CRR5
88. CRR4
92. CRR3
93. CRR2
94. EC22
96. EC13
97. EC1
155. CRR11

HURONTARIO
98. HO1
100. HO3 (Staghorn Woods)
101. HO6
102. HO7
103. HO9 (Britannia Woods)

NORTHEAST
104. NE4
105. NE3
107. NE1
108. NE6
109. NE5
110. NE7
69. ETO4
111. ETO3
112. NE8
113. NE10
114. NE11
115. NE12
116. ETO2
117. ETO1
118. NE9 (Wildwood)

LISGAR
119. LS1 (Lisgar Meadow Brook)
120. LS2
121. LS3 (Trelawny Woods)

MEADOWVALE
122. ME10 (Eden Woods)
123. ME12 (Lake Wabukayne)
124. ME11 (Lake Aquitaine)
125. ME9 (Maplewood)
126. ME8 (Windrush Woods)

MEADOWVALE BUSINESS PARK
127. MB9
128. MB7 (Mullet Creek)
129. MB8
130. MB3
132. MB4
133. MB6 (Totoredaca)
134. MB2
135. MB1

MEADOWVALE VILLAGE
136. MV19
137. CRR1 (Meadowvale C.A.)
138. MV18
139. MV2
141. MV12
142. MV14
143. MV11
144. MV15
93. CRR2

GATEWAY
145. GT1
146. GT3
147. GT2

MALTON
149. MA1

insert Figure 1: Natural Area Framework

4.0 NATURAL ENVIRONMENT OVERVIEW

4.1 Vegetation Communities

The 49 vegetation communities described for the City (see Table 2 in Natural Areas Survey, 1996 September, Volume 1 of 3) were compared between 1996 and 2001 (see Tables 4 and 5). In 2000, the Ecological Land Classification (ELC) (Lee *et al.* 1998) was applied to the vegetation communities described for the City. A list of the City's vegetation communities and their corresponding ELC vegetation community classification is provided in Appendix 5, Natural Areas Survey, 2000 Update, (Volume 3 of 3). However, to facilitate the comparison of vegetation communities between updates, the City designations are discussed in this report.

The vegetation communities have been grouped into six broad categories to facilitate discussion; 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 one of the other five categories. 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.

Insert Table 4

Insert Table 5

Table 6 (page 28) summarizes the changes in the vegetation community categories between 1996 and 2001. This table highlights the significant decrease in the size of all vegetation community categories within the City in the past five years. In particular, 50% of the total loss of woodlands and over 80% of the total loss of wetlands between 1996 and 2001 was documented in the last year. This loss of vegetation communities will result in a reduction in biodiversity in the City, contrary to the goals and objectives of the Natural Areas Program (Geomatics 1996).

Valleylands

Valleylands includes nine vegetation communities (listed in Table 4). Even though this category is termed valleylands, the boundaries of these vegetation communities do not necessarily follow floodplain boundaries. For example wooded slope could occur on valley slopes or above the top of bank (tableland is included as long as it contiguous with the valleyland). This category has seen a total decrease between 1996 and 2001 of 40.42 ha (98.58 ac.). However, there has been a small increase of 3.37 ha (8.37 ac.) to this category between 2000 and 2001 (Table 6). 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.

Wooded non-native valleylands (J) increased between 2000 and 2001 by 8.87 ha (21.93 ac.) due to the naturalization efforts by the City in natural area EM14 and the addition of natural area ER7. A naturalization project undertaken in EM14 sometime since 1996 has resulted in the conversion of the original vegetation communities "manicured with wooded slopes valleylands" (O) and "open with wooded slopes valleylands" (M) to "wooded non-native valleylands" (J) and "old field" (C). The community manicured with "wooded slopes valleyland" (O) is no longer represented in the City and the valleyland community "open with wooded slopes valleylands" (M) has decreased by 4.44 ha (10.97 ac.) and is currently represented at only one natural area in the City. The conversion of these two manicured valleyland communities indicates that there is potential for successful naturalization efforts in the City. However, while the current approach to naturalization that involves leaving an area of unmowed grass to regenerate naturally will increase the overall size of the natural area, the resulting plant species composition will be predominantly non-native.

Woodlands

Woodlands includes twenty vegetation communities (Table 4), all of which occur outside of valleylands, although intermittent streams may be present within. This category has seen a total decrease between 1996 and 2001 of 20.62 ha (50.52 ac.), with half of this decrease documented between 2000 and 2001 (Table 6). Eleven of the vegetation communities in this category (see Table 4 for a complete list) are considered uncommon in the City, each occupying less than 1% of the total area of natural areas or containing an uncommon "working-group" (Krahn *et al.* 1995). Six of these eleven communities can also be considered "at risk" in the City, each represented in a single natural area. Two woodland communities, "bur oak-American beech forest" (QQ) and "bur oak-black walnut forest" (WW), are no longer represented in the City due to the removal of natural areas MB5 and CM13. One woodland community, "sugar maple-American beech forest" (DD) decreased by 4.92 ha (12.16 ac.) between 2000 and 2001 as a result of development removing GT4 and portions of WB1. A number of other woodland communities saw small decreases (less than 1 ha).

The loss of two woodland communities from the City emphasizes the need for protection and management of the remaining woodland vegetation communities. The continued loss of these communities will result in a subsequent loss of plant and animal species from the City. The additional pressures associated with adjacent development will jeopardize the remaining communities even more (see section 5.0 for a discussion of disturbances related to development).

Successional
The successional category has six vegetation communities (Table 4). This category has decreased in size by 7.79 ha (19.12 ac.) between 1996 and 2001 (Table 6). In 2001, this category comprised only 0.44 % of the total City area. Five of the vegetation communities in this category are still considered to be uncommon in the City occupying less than 1% of the total area of natural areas (Table 6). One of these five communities can also be considered "at risk" in the City, as it is represented in a single natural area. "Old field" (C) increased by 2.45 ha (6.06 ac.) between 2000 and 2001 with the conversion of portions of LS3, EM30, EM14, MI1 to this community as well as the addition of natural area ER7. "Early successional forest" (E) decreased by 5.14 ha (12.7 ac.) due to the removal of this community from MV12, CM12 and CM13 for residential development.

The loss of successional communities from the City continues as a result of development pressure because of the assumption that these types of communities do not contribute to the biodiversity of the City. 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, and they provide structural diversity to a site (variation in the height of plant species provides a wider range of animal habitat).

Wetland
The wetland category is composed of six vegetation communities (Table 4). Between 1996 and 2001 this category decreased in size by 11.85 ha (29.21 ac.) to only 0.22% of the total City area (Table 6). Over 80% of this decrease, 10.40 ha (25.70 ac.) occurred in 2001 with the removal of natural areas CM17 and MV3 for residential development. Each of the vegetation communities in this category continue to be considered uncommon in the City occupying approximately 1% of the total area of natural areas (open water marsh is 1% and cattail marsh is 1.2%). One of these six communities can also be considered "at risk" in the City, as it is represented in a single natural area.

For their small size wetland communities tend to contribute a disproportionate amount of biodiversity of the City. A large number of both plant and animal species are restricted to this habitat within the City. In addition to the 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 regime from the development will result in permanent conversion of the vegetation community from wetland to upland.

Anthropogenic
Anthropogenic is composed of five vegetation communities (Table 4). The size of this category decreased between 1996 and 2001 by 14.36 ha (35.14 ac.) and currently comprises 1.16% of the total City area. This is more than the amount of the City occupied by wetlands (0.22%) and successional (0.44%) communities combined. "Wooded residential" is still considered to be one of the largest communities in the City. The community "manicured" (F) decreased by 3.29 ha (8.14 ac.) between 2000 and 2001 as a result of mapping updates for natural area CRR6.

Other
The other category is composed of three vegetation communities (Table 4): "beach", "tall grass prairie" and "unknown". This category remained substantially unchanged from 1996-2000 (see Table 6).

Insert Table 6

4.2 Flora

The flora in the City of Mississauga database was updated in 2001 according to the Vascular Plant Flora of the Region of Peel and the Credit Valley Conservation (Kaiser 2001). This included updating the occurrence of plants recorded for the City. The nomenclature used for the plants of Mississauga continues to follow Oldham *et al.* (1995) to allow for the calculation of Floristic Quality Indicies (see section 4.3 for a discussion). For this reason discrepancies continue to remain between the Vascular Plant Flora of the Region of Peel (Kaiser 2001) and the flora of Mississauga. The latter also includes a large number of plant species that have been planted in various natural areas, whereas Kaiser (2001) only includes the spontaneously occurring flora in the Region. With an ability to record these planted species in the database, valuable information is provided for future management initiatives in the City (*e.g.*, Norway maple control, *etc*.).

Changes to the flora of Mississauga are summarized in Table 7. A total of four new species were added to the flora of the City in 2001, based on Kaiser (2001) and field work. The total number of species stands at 1111 (see database for a complete list). Two native plant species, Virginia creeper (*Parthenocissus quinquefolia*) and the sedge (*Carex normalis*), rejected from the Peel Flora have been retained in the Flora of Mississauga pending the review of specimens.

Table 7: Changes to the Flora of the City of Mississauga Resulting from the 2001 Update Study

Common Name	Scientific Name	Non-native	Comments
sedge	*Carex lucorum*		CRR10 (field work 2001)
small chickweed	*Cerastium semidecandron*	yes	addition based on Peel Flora
nodding spurge	*Chamaesyce polygonifolia*		addition based on Peel Flora
stiff marsh bedstraw	*Galium tinctorium*		CRR10 (field work 2001)

The total number of native species in Mississauga stands at 670 (60% of the flora) and non-natives number 441 (40% of the flora).

Definitions of rarity status can be found in the Natural Areas Survey, Appendix 4, 1996 September, Volume 2 of 3. There were no changes to the provincial rarity ranks, thus Appendix 5, Natural Areas Survey, 1998 Update, (Volume 3 of 3) is considered to be current and is not provided in this report. There were no changes in the regional rarity rankings for plant species in 2001. Of the 670 native species in the Mississauga flora, 433 (65%) are rare or uncommon in the City, and 237 (36%) are common.

4.3 Floristic Quality Assessment

Table 1 (page 7) provides the FQIs and native mean coefficients for all natural areas that were assessed, and changes are summarized in Appendix 4 (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 areas were assessed. FQIs ranged from 2.68 to 80.10 and the native mean coefficients ranged from 1.20 to 4.82. In 2001, 120 of the 143 natural areas were assessed. Currently, the FQIs range from 2.68 to 79.86 and the native mean coefficients range from 1.20 to 4.61, both basically unchanged since 1996.

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). This is still the case in 2001 for FQIs, with 112 natural areas having low FQIs. However, in 2001 the majority of natural areas (62) have low native mean coefficients (< 3.3) followed closely by 59 natural areas with medium native mean coefficients. Lower native mean coefficients

indicate an increase in the presence of native plant 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. The Natural Areas report Natural Areas Survey, 1996 September, Volume 1 of 3, has a complete explanation of native mean coefficients.

FQIs and native mean coefficients were re-calculated for 37 natural areas in 2001; *i.e.*, for those natural areas that had a change in their floral inventories. Of the natural areas evaluated in 2001, most (21) have medium mean coefficients and low FQI values. FQIs and native mean coefficients for the natural areas evaluated in 2001 are basically unchanged in 2001and likely represent minor revisions resulting from additional fieldwork. High, medium and low values are defined in the Natural Areas report (page 28) Natural Areas Survey, 1996 September, Volume 1 of 3.

4.4 Fauna

In the early summer of 2001, a wildlife survey of the Credit Valley was conducted (North-South 2001a). This project provided detailed information on the fauna (especially breeding birds) of the Credit Valley which was not previously available. All of the species documented during this project were incorporated into the NAS database. During this project one new mammal species was documented for the City. Ermine (*Mustela erminea*) was documented by the Credit Valley Conservation from CRR1. The study's findings highlighted the need to control urban predators, maximize forest edge to interior ratios by supplementing forest area, as well as protect and maintain restricted habitat in the City (forest interior, grassland and wetland habitat). Information on fauna in the City is still limited (especially with respect to small mammals) and additional surveys of the fauna that use the City's natural areas (outside of the Credit Valley) need to be conducted.

Significant wildlife species documented for the City are listed in Appendix 5. There are currently 31 provincially significant bird species documented from the City, of which five (16%) are possibly breeding. The remainder are considered migrants, wintering or accidental (*i.e.*, are not known to breed in the City). Of the 38 bird species occurring in the City that were considered provincially significant in 1998, seven are no longer considered significant by the NHIC (NHIC 2000a). This decrease in provincially significant species is owing to changes in status, not a loss of breeding species in the City. These species are: northern mockingbird (*Mimus polyglottes*), Carolina wren (*Thryothorus ludovicianus*), northern shoveler (*Anas clypeata*), hooded merganser (*Lophodytes cucullatus*), American coot (*Fulica americana*), and short-eared owl (*Asio flammeus*). One amphibian species, Jefferson salamander (*Ambystoma jeffersonianum*) found in the City has been recently designated as nationally threatened by COSEWIC.

There has been no change to the list of Credit Valley Conservation species of conservation interest, thus Appendix 6, Natural Areas Survey, 2000 Update, Volume 3 of 3, is considered current and is not provided here. As a result of the breeding bird survey in the Credit Valley (North-South 2001a) an additional 11 natural areas are now documented as having resident species of conservation interest (see Appendix 4).

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 CONDITION OF NATURAL AREAS

5.1 Condition

Generally, the natural areas within the City that were surveyed continue to be in fair condition (see Table 1). 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 2001 remained largely unchanged from previous studies.

One natural area EM14 improved its condition from poor to fair as a result of a naturalization program undertaken by the City. Two natural areas, WB1 and LS2, had their condition decrease from fair to poor as a result of development removing large portions of these sites.

The drier than usual conditions that persisted from 1998 through the winter and spring of 1999 affected many natural areas, in particular tableland woodlots. The most prevalent effect was smaller populations of many native ground cover species. Other impacts included dry soil conditions, an increase in exposed soil, an apparent increase in the populations of non-native species and a loss of leaves from canopy trees. Normal to above normal levels of precipitation in 2000 and 2001 appear to have ameliorated many of the drought impacts. However, three tableland sites visited in 2001 (EM6, LS1and LS3) were noted to have impacts associated with a change in the site hydrology (*e.g.*, change in habitat from wetland to successional, and potential loss of wetland species). These changes are more likely to be related to the surrounding residential development then the drought conditions of 1998/1999.

5.2 Disturbances

As with the all of the other update surveys, 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 have become more prevalent at all of the natural areas surveyed this year. The most notable impact to natural areas visited in 2001 was the presence of new mountain bike racing circuits. Since field work conducted in 1996 extensive mountain bike courses have been created in four natural areas (CE7, CE9, EM6 and EM30). Two additional natural areas saw an increase in the extent of impacts associated with mountain bike courses that were present in 1996.

In a study of suburban forest fragments Matlack (1993) notes that 95% of all impacts occurred within 82 m of a forest edge. With encroachment impacts (dumping of grass and garden waste, boundary infringement) typically occurring closer to forest edges then recreation related impacts (tree houses, fire pits, vandalism). He also noted in his study that human impacts are locally more damaging then natural edge effects (light, temperature) and their severity does not decrease with distance from the edge unlike natural edge effects. Of particular concern is mention of a number of studies in eastern deciduous forests that suggested that the recovery of soil and understorey vegetation could take 10 to 20 years after the cessation of traffic (Matlock 1993).

Documented impacts associated with intensive human use of natural areas include: the loss of understorey vegetation (particularly herbaceous species) (Friesen 1998, Matlock 1993); the loss of leaf litter, humus as well as moss species; and soil compaction in the top 5-15 cm (Matlock 1993). Together these impacts result

in alteration of the drainage and nutrient exchange properties (decomposition and nutrient cycles) of the site.

Observations in Mississauga are consistent with these reports from the literature. 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.

5.3 Development

Direct impacts from development have resulted in the removal of portions, as well as entire natural areas. Six natural areas (CM11, CM13, CM17, GT4, MB5 and MV3) were totally eliminated as a result of development. In addition, 13 of the 52 natural areas surveyed in 2001decreased 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 in the remainder of the area, and changes in the vegetation structure. Other potential long-term impacts that could occur are: changes in moisture (soil and air); increased impacts from air pollution, temperature and precipitation within the natural area; as well as the less well documented impacts of increased light and noise pollution. Three natural areas (EM6, LS1and LS3) visited in 2001 show evidence of impacts to hydrology, probably as a result of the surrounding development.

5.4 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 2001 (see Appendix 4). 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 platinoides*), garlic mustard (*Alliaria petiolata*), European buckthorn (*Rhamnus cathartica*), and others will result in a continued loss of native plant species in a number of 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 typically has involved leaving an area of unmowed grass to regenerate naturally. While the size of the natural areas 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 (*Vincetoxicum rossicum*). 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 a common vector for the introduction of non-native plants to natural areas. This was prevalent in all of the residential areas visited during this update.

6.0 CONCLUSIONS

After four years of update surveys covering the entire City two serious trends have emereged. There has been a decrease in the quality of vegetation as indicated by an increase in the number of natural areas with low native mean coefficients (section 4.3); and there has been a decrease in the amount of tableland (woodland and successional communities) and wetland habitats (section 3.1). Development between 1996 and 2001 has resulted in the loss of nine natural areas and a substantial reduction in size (a loss of more than 1 ha) of 17 natural areas resulting in a total loss of 99.03 ha (243.79 ac.) from the natural areas system. 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). Eleven woodland communities, five 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 (Table 4). 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 in a number of natural areas is also occurring, likely as a result of increased human disturbance and changes in hydrology resulting from development. These trends reinforce the urgent need to maintain 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.

The majority of naturalization projects initiated by the City between 1996 and 2001 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 an approach that includes long-term management will more likely result in a healthy natural area with a diversity of native plant and animal species.

7.0 RECOMMENDATIONS

1. All of the remaining natural areas in the City should be protected from development and managed to maintain the biodiversity of the City for future generations. Of particular importance is the protection and subsequent management of all woodlands, wetlands and successional habitats. The City should consider prioritizing the natural areas based on significance, representation, size and condition, and initiate Conservation Plans for those of greatest value.

2. Initiate a greater control over natural areas to reduce impacts related to human use. This is best achieved through site-specific Conservation Plans. 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 Natural Areas Survey, 1996 September, Volume 1 of 3, for a complete description of Conservation Plan requirements). Natural areas CM12, CM7 and CM9 are ideal candidates to have Conservation Plans developed prior to completion of the surrounding residential subdivisions.

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, 1996 September, Volume 1 of 3. Key to this is demonstrating the ongoing degradation of woodland through careless and improper use. A stewardship initiative is apparently underway in ME10 with the establishment of a trail system, markers and closure of ad hoc trails.

4. Formulate a City-wide strategy to deal with non-native species and develop management initiatives to address the most invasive exotic species. 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 immediately adopt policies to restrict or prevent the planting of invasive non-native plants within the City, and provide 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. Continue and expand restoration (management of natural habitat) initiatives at natural areas. The native planting scheme for Jack Darling Park and the prescribed burns at Lorne Park Prairie could be used as an education tool to gain community support for similar prairie and savannah initiatives for the other natural areas that contain remnants of the Lorne Park Prairie: CL24, CL31 and CL22. In particular, White Oak Woods park (CL39) is an excellent candidate for restoration of the indigenous savannah community of that area.

7. With the incorporation of the Floristic Quality Assessment System (Oldham *et al.* 1995) into the NAS database in 2001 it is recommended that the nomenclature of plant species in the database be updated to follow the *Ontario Plant List* (Newmaster *et al.* 1998). Updating the plant species nomenclature will allow easier comparisons with reports prepared post-1998 and with the provincial plant species rarity status.

8. Due to the lack of access to natural areas CM7 and CM9 in 2001 as a result of road reconstruction it is recommended that a field visit be undertaken to these areas as part of the 2002 update.

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North-South Environmental Inc. 2001a. Credit Valley Wildlife Study. Final Draft. Prepared for Community Services Department, City of Mississauga. 68pp.

North-South Environmental Inc. 2001b. Mississauga Garden Park Master Plan: Ecological Report. Prepared for Community Services Department, City of Mississauga. 53pp.

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Appendix 1: Reports Examined for Background Review

The format of this appendix follows Appendix 2 in the Natural Areas Survey, 1996 September, Volume 2 of 3. The numbers correspond to those used in the database for literature references.

202 Ursic, K. and T. Farrell. 2000. List of plants observed at the Lorne Park Prairie, Mississauga, Ontario on October 26, 1999 by K. Ursic and J. Dougan.

204 Gregory, D. 2000. Meadowvale Woodlot, Scoped Environmental Impact Statement. Prepared for Mavis Developments Inc.

208 Bird and Hale Ltd. 2000. Woodland Management and Restoration Plan, Indian Road. Prepared for Mattamy (Lorne Park) Limited.

209 Ecoplans Limited. 2000. Industrial Development: 555 Matheson Boulevard East and 575 Matheson Boulevard East. Scoped Environmental Impact Study, Gateway Employment District, City of Mississauga. Prepared for Menkes CKM Holdings Inc.

Appendix 2: Assessment of Peel Region Natural Features

Additional sites identified as requiring clarification regarding their status as potential natural areas in the City of Mississauga based on Region of Peel data.

Location	Natural Area	Comments on Status
north of Hwy 403 and south of Eglinton Avenue	CM1	natural area removed for development in 1995
north of Hwy 403 and south of Eglinton Avenue	CM2	natural area removed for development in 1995
north of Hwy 403 and south of Eglinton Avenue	CM3	natural area removed for development in 1995
south of Hwy 403 and north of Unity Drive	WB1	western woodlot removed for development in 1995, boundaries revised in 2001
south of Britannia Road and west of 2nd Line West	EC10	natural area removed for development in 2000
Mississauga Garden Park	CRR10	original criteria for delineating natural area boundaries excluded any estate features
Windwood Park	n/a	minor natural feature (1996) not included as natural area due to lack of understorey and dominance of canopy by Norway maple (*Acer platanoides*).
Huron Park	n/a	minor natural feature (1996) added to NAS as natural area ER7

Insert Appendix 3

Insert Appendix 4

Insert Appendix 5

Table 1: Summary of Natural Area Features, Significance and Condition

This table represents an update of Table 4 in the Natural Areas Survey, 1996 September, Volume 1 of 3. Classification abbreviations are as follows: SNS = Significant Natural Site, NS = Natural Site, NGS = Natural Greenspace, and RW = Residential Woodland. Native FQI and native mean C are defined in the Natural Areas Survey, 1996 September, Volume 1 of 3. Definitions for provincially significant species (prov. sig. species) and regionally significant species (reg. sig. species) are in the Natural Areas Survey, 1996 September, Volume 1 of 3, with updates as discussed in this report (section 4.0). See Section 4.4, Natural Areas Survey, 2000 Update, Volume 3 of 3, for a discussion of Credit Valley Conservation (CVC) Species of Conservation Interest. Condition is explained in Appendix 1, Natural Areas Survey, 1996 September, Volume 2 of 3. Abbreviations used in this table are as follows: n/a = not available. ^ Areas evaluated in 2001. ~ Areas evaluated that changed between 1996 and 2001 (see Appendix 4 for a summary of the changes).

Site Number	Site Code	Classification	Designation	Area		Flora							Fauna					Condition
				(ha)	(acres)	total	# non-native (% non-native)	native FQI	native mean C	# vegetation communities	prov. sig. species	reg. sig. species	# birds	# mammals	# herptiles	prov. sig. species	CVC	
1	SD1	NS		19.35	47.78	96	26 (27.08%)	30.00	3.59	6		5	13	4	2			Fair
2	SD4	NS		26.59	65.67	65	14 (21.54%)	25.63	3.59	1		2						n/a
3	SD5	SNS		10.14	25.05	48	7 (14.58%)	28.74	4.49	3		3	3	1				Good
4	CL52	NGS		6.69	16.53	44	23 (52.27%)	14.84	3.24	1			11	1	2			Poor
5	CL1	SNS		3.59	8.86	48	7 (14.58%)	28.74	4.49	1		3	3	1				Good
6 ~	CL9	SNS	ESA,ANSI, wetland	46.81	115.63	496	159 (32.06%)	79.86	4.35	13	1	133	200	22	21		8	Good
7	CL8	SNS	wetland	11.28	27.86	73	19 (26.03%)	22.73	3.09	8		5	14	10	1			Good
8	CL15	NS		0.83	2.05	46	9 (19.57%)	24.66	4.05	1		3	2	2				Fair
9	CL16	NS		8.52	21.04	147	44 (29.93%)	40.30	3.97	5		14	38	17			5	Fair-Poor
10	CL17	RW		33.48	82.70	73	15 (20.55%)			1		19			4			n/a
11 ~	CL13	NS		8.42	20.79	74	43 (58.11%)	14.37	2.58	3		1	8					Poor
12	CL43	NS		4.14	10.24	71	12 (16.90%)	29.16	3.80	2		5	5	1				Fair-Poor
13	CL42	NS		8.88	21.93	115	33 (28.70%)	37.10	4.10	3		12	4	1				Fair-Poor
14	CL21	SNS	ESA,wetland	9.36	23.11	97	21 (21.65%)	38.66	4.43	3		20	2		1			Fair-Poor
15	CL39	SNS		12.90	31.87	266	76 (28.57%)	56.22	4.08	2		43	25	5	8			Fair
16	CL22	SNS	ESA,ANSI	17.78	43.92	134	46 (34.33%)	37.31	3.98	1	1	13	2	1	6			Good
17 ~	CL30	SNS	ESA,ANSI	0.06	0.14	81	31 (38.27%)	27.72	3.92	1	1	20						Fair
18	CL31	SNS	ESA,ANSI	2.61	6.45	59	25 (42.37%)	19.04	3.26	1		2	4					Poor
19	CL24	SNS	ESA,ANSI	7.80	19.27	236	61 (25.85%)	59.26	4.48	4		37	10	1				Good
20 ~	CL26	NS		2.01	4.96	178	65 (36.52%)	34.05	3.20	1		17	18	7				Fair

Table 1: continued .....

Site Number	Site Code	Classification	Designation	Area		Flora							Fauna					Condition
				(ha)	(acres)	total	# non-native (% non-native)	native FQI	native mean C	# vegetation communities	prov. sig. species	reg. sig. species	# birds	# mammals	# herptiles	prov. sig. species	CVC	
21	PC1	NS		1.09	2.68	92	44 (47.83%)	25.84	3.73	1		7	68	1				Poor
22	PC2	NGS		4.37	10.79	18	9 (50.00%)			1			5		1			Poor
23	PC3	NS		1.77	4.36	11	3 (27.27%)			1								n/a
24 -	CRR9	SNS	ESA,ANSI, wetland	25.63	63.30	45	15 (33.33%)	21.00	3.83	3		16	27	1	10		6	Fair
25	MI4	RW		153.28	378.61	28	16 (57.14%)			1		1						Fair
26 -	MI1	NS		5.63	13.91	16	5 (31.25%)			2			50					Fair
27	LV3	NS		3.55	8.76	83	33 (39.76%)	25.17	3.56	3		1	20	3				Fair
28	LV4	NS		1.09	2.68	44	25 (56.82%)	10.32	2.37	1		2	5					Poor
29	LV5	NGS		0.95	2.34					1								Poor
30	LV2	NS		2.09	5.17	26	10 (38.46%)	11.25	2.81	1			3					Poor
31	LV1	NS		14.22	35.12	93	37 (39.78%)	24.32	3.25	5		1	8					Fair
32	ETO8	SNS		16.67	41.17	86	33 (38.37%)	25.55	3.51	3		4	2	4	1			Fair
33	LV14	NGS		1.95	4.82	40	20 (50.00%)	13.42	3.00	1			1					Poor
34	LV6	NS		2.03	5.01	64	19 (29.69%)	25.19	3.76	1		4	1	1				Fair
35	LV7	SNS	ESA,ANSI, wetland	21.56	53.26	331	107 (32.33%)	62.74	4.19	2		61	67	7	5	1	3	Good
36	ETO7	SNS	ESA	27.36	67.59	97	34 (35.05%)	24.69	3.11	2		6	11	2	11	2	1	Fair
37	SP1	NS		9.04	22.34	108	25 (23.15%)	33.37	3.66	5		11	4	1				Fair
38	SP3	SNS		8.84	21.83	134	29 (21.64%)	40.70	3.97	5		11	5	2	1			Good
39	SH6	NS		6.44	15.91	80	37 (46.25%)	23.03	3.51	2		2	6	1				Poor
40 -	CRR7	SNS	ESA,ANSI	88.94	219.69	93	23 (24.73%)	34.90	4.17	3	1	10	29	5	7		8	Good
41 -	CRR8	SNS	ESA,ANSI, wetland	110.62	273.23	50	3 (6.00%)			4	1	30	38	6	8		6	Good
42	ER6	NS		1.31	3.24	46	18 (39.13%)	18.33	3.46	1			5	1				Poor
43 -	CRR6	SNS	ESA,ANSI	135.16	333.86	264	88 (33.33%)	61.21	4.61	4	2	62	67	7	18	1	10	Good
44	CV1	NS		1.71	4.22	52	25 (48.08%)	14.05	2.70	2			6	1				Fair
45	CV2	RW		50.66	125.14	143	41 (28.67%)	41.09	4.07	1		10	6	1				Fair
46	CV12	NS		6.99	17.27	213	92 (43.19%)	38.18	3.47	3		16	4	1				Fair
47	CV10	NS		4.26	10.53	51	22 (43.14%)	15.04	2.79	2		1	6	1				Poor

Table 1: continued .....

Site Number	Site Code	Classification	Designation	Area		Flora							Fauna					Condition
				(ha)	(acres)	total	# non-native (% non-native)	native FQI	native mean C	# vegetation communities	prov. sig. species	reg. sig. species	# birds	# mammals	# herptiles	prov. sig. species	CVC	
48	CV8	NS		8.04	19.85	60	25 (41.67%)	15.72	2.66	4		2	7	2				Poor
49	ETO6	SNS		9.52	23.52					3								Poor
50	AW1	NS		7.98	19.71	75	28 (37.33%)	22.17	3.23	3		2	10	1				Poor
51 -	WB1	NS		3.94	9.73	57	10 (17.54%)	26.11	3.81	5			5		1			Fair
52 -	EM30	NS		5.57	13.75	68	8 (11.76%)	30.73	3.97	5		7	7	8				Good
53 -	EM6	NS		1.07	2.65	58	14 (24.14%)	24.72	3.73	1		1	6	1				Fair
54 -	EM2	NS		4.90	12.09	74	15 (20.27%)	29.81	3.88	1			8	1				Fair
55 -	EM10	NS		3.73	9.22	54	13 (24.07%)	22.96	3.59	2			4	2				Fair
56 -	EM14	NS		9.19	22.70	74	36 (48.65%)	17.36	2.82	2			8					Poor
57 -	EM4	SNS	ESA,ANSI	42.98	106.17	235	62 (26.38%)	55.96	4.25	8	2	31	67	5	6		2	Good-Fair
58	EM5	NS		1.87	4.63	49	17 (34.69%)	22.27	3.94	1			4					Fair
59	EM21	NS		1.13	2.80	42	8 (19.05%)	19.89	3.41	1			2	1				Fair
60	CR1	SNS	ESA	4.90	12.10	47	3 (6.38%)	29.56	4.45	2		6	2	1				Fair
61	FV1	NS		2.11	5.22	54	11 (20.37%)	22.72	3.47	1		2	2					Fair
62	FV3	NS		6.76	16.71	100	39 (39.00%)	27.27	3.49	3			16	2				Fair
63	CC1	NS		3.18	7.84	145	48 (33.10%)	37.16	3.77	1		9	10	1				Fair
64	MY1	NS		13.44	33.20	133	42 (31.58%)	35.96	3.77	2		7	9	1				Fair
65	MY3	NGS		3.71	9.16	41	26 (63.41%)	6.45	1.67	1		1						Poor
66	AW4	NS		11.71	28.92	42	28 (66.67%)	8.29	2.21	1		2	3					Poor
67	AW3	NGS		7.92	19.57	52	30 (57.69%)	13.22	2.82	2			8	1				Poor
68	ETO5	SNS		7.72	19.06	53	32 (60.38%)	10.91	2.38	2		2	8	1				Poor
69	ETO4	SNS	ESA	58.00	143.27	141	36 (25.53%)	43.72	4.27	3		15	24	3	5		2	Fair
70	RW5	NS		3.51	8.68	54	26 (48.15%)	13.42	2.54	1		2	7	1				Poor
71	RW6	NS		7.31	18.06	51	28 (54.90%)	13.97	2.91	1		1	11	1				Poor
72	RW4	NS		1.09	2.68	44	7 (15.91%)	24.99	4.11	1			7	1				Fair
73	RW1	SNS		2.11	5.21	69	12 (17.39%)	34.04	4.51	1		3		1				Fair
74	RW2	NGS		3.90	9.63	34	20 (58.82%)	9.89	2.64	1			4					Poor
75 ➔	CM7	SNS		11.38	28.12	88	18 (20.45%)	34.78	4.16	3		3	15	1	5			Excellent

Table 1: continued .....

Site Number	Site Code	Classification	Designation	Area		Flora							Fauna					Condition
				(ha)	(acres)	total	# non-native (% non-native)	native FQI	native mean C	# vegetation communities	prov. sig. species	reg. sig. species	# birds	# mammals	# herptiles	prov. sig. species	CVC	
76 ➔	CM9	NS		3.37	8.34	62	12 (19.35%)	27.58	3.90	2		3	8	2				Good
77 -	CM11	REMOVED		0.00	0.00	22	1 (4.55%)	18.33	4.00	1			1					REMOVED
78 -	CM12	NS		5.77	14.25	82	15 (18.29%)	30.42	3.72	1		3	14	5	6			Good
79 -	CM17	REMOVED		0.00	0.00	25	4 (16.00%)	16.80	3.67	1			5					REMOVED
80 -	CM13	REMOVED		0.00	0.00	37	14 (37.84%)	16.26	3.39	1			1	1				REMOVED
81 -	CE7	SNS		10.08	24.90	98	29 (29.59%)	33.11	3.99	2		6	4	1	7			Good
82 -	CE9	NS		4.74	11.70	78	17 (21.79%)	32.52	4.16	3		5	10	2				Fair
83	CE10	SNS		18.20	44.95	99	19 (19.19%)	37.90	4.24	3		9	13	2	2			Good-Fair
84	CE5	NGS		5.47	13.50	13	8 (61.54%)	2.68	1.20	1								Poor
85	CE1	NGS		16.93	41.82	50	23 (46.00%)			2			3		5			Poor
86	CE12	NS		17.62	43.51	91	38 (41.76%)	21.98	3.02	2		1	13	3	1			Fair
87 -	CRR5	SNS		24.74	61.10	64	26 (40.63%)	21.09	3.42	2			15	2	2		2	Fair
88 -	CRR4	SNS	ESA,ANSI	21.17	52.29	11	2 (18.18%)			3		1	19	3	7	1	5	Good
89	SV12	NS		1.72	4.25	91	38 (41.76%)	21.98	3.02	1		1	13	3	1			Fair
90	SV10	NGS		3.93	9.71	29	13 (44.83%)	9.25	2.31	1			1		1			Poor
91	SV1	NS		4.63	11.44	94	21 (22.34%)	34.53	4.04	2		5	9	2				Fair
92 -	CRR3	SNS		68.94	170.28	74	25 (33.78%)	25.00	3.57	4		3	36	4	8		7	Fair
93 -	CRR2	SNS	ESA,ANSI	91.29	225.50	100	30 (30.00%)	32.75	3.91	8		2	44	9	11		11	Good
94	EC22	NS		2.32	5.73	72	9 (12.50%)	30.62	3.86	1		6	4	1				Fair-Poor
95	EC10	REMOVED		0.00	0.00	46	10 (21.74%)	21.83	3.64	2		1	2					REMOVED
96	EC13	SNS	wetland	4.61	11.39	169	27 (15.98%)	52.78	4.43	4		66	86	6	11		13	Excellent
97	EC1	SNS	ESA,wetland	2.63	6.50	10	4 (40.00%)	4.90	2.00	1		1	6		2			Poor
98	HO1	NS		1.20	2.97	23	5 (21.74%)	17.44	4.11	1			3	1				Fair-Poor
99	HO2	REMOVED		0.00	0.00	24	3 (12.50%)	18.77	4.10	2			3					REMOVED
100	HO3	NS		14.41	35.59	56	10 (17.86%)	25.51	3.76	3			12	2				Fair
101	HO6	NGS		8.50	21.00					1								Poor
102	HO7	NS		2.11	5.21	72	15 (20.83%)	28.87	3.82	2		4	6					Fair-Poor
103	HO9	SNS	ESA	11.94	29.48	204	53 (25.98%)	50.86	4.14	1		22	19	2	1			Good-Poor

Table 1: continued .....

Site Number	Site Code	Classification	Designation	Area		Flora							Fauna					Condition
				(ha)	(acres)	total	# non-native (% non-native)	native FQI	native mean C	# vegetation communities	prov. sig. species	reg. sig. species	# birds	# mammals	# herptiles	prov. sig. species	CVC	
104	NE4	NS		13.43	33.17	106	19 (17.92%)	34.31	3.68	5		9	8					Excellent
105	NE3	NGS		2.59	6.40	29	10 (34.48%)			2								Poor
106	NE2	REMOVED		0.00	0.00	55	10 (18.18%)	28.17	4.20	1		4	5					REMOVED
107	NE1	NGS		0.95	2.35	62	26 (41.94%)	17.00	2.83	1			4					Fair
108	NE6	NS		4.34	10.72	60	15 (25.00%)	24.00	3.58	2		1	4	1				Good
109	NE5	NGS		12.75	31.5					1								Poor
110	NE7	NGS		2.76	6.82					1								Poor
111	ETO3	SNS		112.22	277.18	400	164 (41.00%)	56.11	3.65	4	1	59	7	5	5		3	Fair-Poor
112	NE8	NGS		6.25	15.45					1								Poor
113	NE10	NGS		8.27	20.42					1								Poor
114	NE11	NGS		5.72	14.13					1								Poor
115	NE12	NGS		6.49	16.02					1								Poor
116	ETO2	SNS		13.01	32.14	20	12 (60.00%)	3.54	1.25	1			2	1				Poor
117	ETO1	SNS		9.13	22.55	37	10 (27.03%)	15.01	2.89	4		1	3	1				Fair-Poor
118	NE9	NS		43.66	107.84	67	26 (38.81%)	20.30	3.17	4		5	12	1	1			Fair
119 `	LS1	SNS	wetland	28.47	70.32	111	39 (35.14%)	28.99	3.42	3		7	9	1				Good-Poor
120 `	LS2	NS		1.03	2.55	52	15 (28.85%)	23.18	3.81	1			5	1				Fair
121 `	LS3	NS		3.00	7.40	95	29 (30.53%)	27.94	3.44	3		4	4	1	2			Fair
122 `	ME10	SNS		2.92	7.22	64	17 (26.56%)	26.26	3.83	1		2	4	1				Fair
123 `	ME12	NGS		2.90	7.16	64	36 (56.25%)	14.55	2.75	1			8	2	7			Poor
124 `	ME11	NGS		4.36	10.78	56	27 (48.21%)	17.08	3.17	1		3	9	2	4			Poor
125 `	ME9	NS		2.39	5.90	54	13 (24.07%)	29.20	4.56	1		3	2	1				Fair
126 `	ME8	SNS		5.82	14.38	90	24 (27.67%)	31.27	3.85	1		4	5	3	4			Fair
127	MB9	NGS		6.60	16.31					1					2			Poor
128 `	MB7	NGS		10.45	25.80	35	21 (60.00%)	6.68	1.79	1			4					Poor
129 `	MB8	SNS		10.17	25.11	88	24 (27.27%)	30.25	3.78	2		4	5	3	4			Fair
130 `	MB3	NGS		4.91	12.13	26	15 (57.69%)	4.82	1.45	1			3		1			Poor

Table 1: continued .....

Site Number	Site Code	Classification	Designation	Area		Flora							Fauna					Condition
				(ha)	(acres)	total	# non-native (% non-native)	native FQI	native mean C	# vegetation communities	prov. sig. species	reg. sig. species	# birds	# mammals	# herptiles	prov. sig. species	CVC	
131 `	MB5	REMOVED		0.00	0.00	42	5 (11.90%)	23.67	3.89	1								REMOVED
132	MB4	NS		1.94	4.78	40	11 (27.50%)	19.31	3.59	1								Poor
133 `	MB6	SNS		23.76	58.68	100	18 (18.00%)	33.57	3.71	2		9	5	2	2			Good
134 ↠	MB2	NS		1.34	3.31	41	6 (14.63%)	23.66	4.00	1		1	1					Poor
135 ↠	MB1	NS		0.94	2.33	34	6 (17.65%)	22.87	4.32	1								Fair
136	MV19	SNS		22.66	55.96	207	53 (25.60%)	51.57	4.16	3		30	20	6	4			Good
137 `	CRR1	SNS	ESA	71.40	176.36	76	23 (30.26%)	25.55	3.51	5		4	29	4	7		4	Fair
138 `	MV18	NS		3.14	7.76	19	1 (5.26%)			2		1	7				2	Fair
139 `	MV2	SNS	ESA,ANSI	78.38	193.61	215	68 (31.63%)	47.01	3.88	4		19	67	15	4	1	14	Good-Fair
140 `	MV3	REMOVED		0.00	0.00	57	17 (29.82%)	23.40	3.70	1			6	2				REMOVED
141 `	MV12	NS		8.71	21.50	121	35 (28.93%)	36.23	3.91	2		7	8	4				Fair
142	MV14	NGS		4.56	11.25					1								Poor
143	MV11	NS		2.90	7.17	24	4 (16.67%)	17.44	3.90	1			1					Fair
144	MV15	NS		10.70	26.44	53	24 (45.28%)	14.48	2.69	2		1	7	1				Poor
145	GT1	NS		1.95	4.82	41	10 (24.39%)	18.50	3.32	1		1	2					Fair
146	GT2	NS		7.20	17.78	56	10 (17.86%)	26.24	3.87	6		6	9	3	1			Good
147	GT3	NS		2.67	6.59	43	11 (25.58%)	18.74	3.31	2		1	1					Fair
148 `	GT4	REMOVED		0.00	0.00	206	55 (26.70%)	50.86	4.14	1		22	22	4	1			REMOVED
149	MA1	NS		24.06	59.42	50	24 (48.00%)	13.73	2.69	1		3	2					Poor
150	SD7	NGS		2.01	4.97	34	16 (47.06%)			2				1				Poor
151	MI17	SNS		6.04	14.92	145	44 (30.34%)	41.99	4.18	2		15	5	2	3			Fair
152	MI7	SNS		5.95	14.69	125	38 (30.40%)	39.67	4.25	2		7	1	4				Poor
153	CV6	NS		2.71	6.69	57	13 (22.81%)	20.80	3.14	1		1	2	1				Fair
154 `	CRR10	SNS	ESA,ANSI	43.75	108.07	359	129 (35.93%)	65.28	4.30	2	1	64	88	8	10	1	25	Good
155 `	CRR11	SNS	ESA	32.16	79.44					3			12	1	5			Good
156 `	ER7	NS		3.15	7.78	50	17 (34.00%)	16.54	2.88	3		2	2	1				Poor

Table 1: continued .....

Table 2a: Comparison (in hectares) of Natural Area Classes for the City of Mississauga Between 1996 and 2001

Classification	Number of Sites					Total Area (ha)					Proportion of Natural Areas System					Proportion of the City				
	1996	1998	1999	2000	2001	1996	1998	1999	2000	2001	1996	1998	1999	2000	2001	1996	1998	1999	2000	2001
Significant Natural Site (SNS)	51	45	46	45	46	1530.17	1423.39	1425.44	1416.56	1413.16	74%	70%	70%	70%	71%	5.23%	4.91%	4.87%	4.84%	4.83%
Natural Site (NS)	59	64	68	70	67	349.92	426.35	445.66	456.57	433.64	17%	21%	22%	23%	22%	1.2%	1.41%	1.52%	1.56%	1.48%
Natural Green Space (NGS)	31	31	28	27	26	197.05	171.55	160.18	148.86	145.89	9%	9%	8%	7%	7%	0.67%	0.60%	0.55%	0.51%	0.50%
Residential Woodland (RW)	3	3	3	3	3	252	252	239.93	237.42	237.42	-	-	-	-	-	-	-	-	-	-
TOTAL	144	143	145	145	143	2329.14	2273.29	2271.21	2259.41	2230.11	100%	100%	100%	100%	100%	7.10%	6.92%	6.94%	6.91%	6.81%

* NOTE: Residential Woodlands were not used in the calculations for proportion of natural areas system or proportion of the City.

Table 2b: Comparison (in acres) of Natural Area Classes for the City of Mississauga Between 1996 and 2001

Classification	Number of Sites					Total Area (ac.)					Proportion of Natural Areas System					Proportion of the City				
	1996	1998	1999	2000	2001	1996	1998	1999	2000	2001	1996	1998	1999	2000	2001	1996	1998	1999	2000	2001
Significant Natural Site (SNS)	51	45	46	45	46	3779.52	3517.15	3522.23	3498.98	3490.56	74%	70%	70%	70%	71%	5.23%	4.91%	4.87%	4.84%	4.83%
Natural Site (NS)	59	64	68	70	67	864.30	1053.50	1101.25	1127.75	1071.04	17%	21%	22%	23%	22%	1.2%	1.41%	1.52%	1.56%	1.48%
Natural Green Space (NGS)	31	31	28	27	26	486.71	423.89	395.81	367.69	360.36	9%	9%	8%	7%	7%	0.67%	0.60%	0.55%	0.51%	0.50%
Residential Woodland (RW)	3	3	3	3	3	621.67	621.67	592.88	586.49	586.49	-	-	-	-	-	-	-	-	-	-
TOTAL	144	143	145	145	143	5752.20	5616.21	5612.27	5580.91	5508.41	100%	100%	100%	100%	100%	7.10%	6.92%	6.94%	6.91%	6.81%

* NOTE: Residential Woodlands were not used in the calculations for proportion of natural areas system or proportion of the City.

Table 3a: Comparison (in hectares) of Natural Areas by Major Landform Type Between 1996 and 2001

Landform Type	No. of Sites					Size (ha)					Mean Size (ha)					Proportion of Natural Area System					Proportion of entire City				
	1996	1998	1999	2000	2001	1996	1998	1999	2000	2001	1996	1998	1999	2000	2001	1996	1998	1999	2000	2001	1996	1998	1999	2000	2001
valleylands and associated tablelands	73	73	76	76	79	1626.3	1588	1622.1	1594.8	1593.9	22.3	21.8	21.3	20.2	19.4	78.3%	78.5%	79.9%	79.1%	80.3%	5.6%	5.43%	5.55%	5.45%	5.45%
tablelands	60	59	58	58	53	339.9	328.5	301.6	319.7	291.2	5.7	5.6	5.2	5.3	5.3	16.4%	16.2%	14.8%	15.8%	14.7%	1.16%	1.12%	1.03%	1.09%	0.99%
wetlands and associated valleyland	6	6	6	6	6	103.7	100.4	100.3	100.3	100.3	17.3	16.7	16.7	16.7	16.7	5.0%	5.0%	4.9%	4.9%	5.0%	0.36%	0.34%	0.34%	0.34%	0.34%
TOTAL *	139	138	140	140	138	2069.9	2016.9	2024	2014.7	1985.4	-	-	-	-	-	99.7%	99.7%	99.7%	99.8%	100%	7.1%	6.9%	6.92%	6.88%	6.78%

* NOTE: two small areas that did not readily fall into these three categories and the residential woodlands were omitted from this analysis so figures differ slightly from those provided elsewhere in the report.

Table 3b: Comparison (in acres) of Natural Areas by Major Landform Type Between 1996 and 2001

Landform Type	No. of Sites					Size (ac.)					Mean Size (ac.)					Proportion of Natural Area System					Proportion of entire City				
	1996	1998	1999	2000	2001	1996	1998	1999	2000	2001	1996	1998	1999	2000	2001	1996	1998	1999	2000	2001	1996	1998	1999	2000	2001
valleylands and associated tablelands	73	73	76	76	79	4017	3923.9	4008.2	3939.2	3936.9	55.0	53.7	52.7	49.9	48.0	78.3%	78.5%	79.9%	79.1%	80.3%	5.6%	5.43%	5.55%	5.45%	5.45%
tablelands	60	59	58	58	53	839.5	811.6	745.3	789.5	719.3	14.0	13.8	12.9	13.2	13.1	16.4%	16.2%	14.8%	15.8%	14.7%	1.16%	1.12%	1.03%	1.09%	0.99%
wetlands and associated valleyland	6	6	6	6	6	256.1	248.1	247.9	247.8	247.8	42.7	41.3	41.3	41.3	41.3	5.0%	5.0%	4.9%	4.9%	5.0%	0.36%	0.34%	0.34%	0.34%	0.34%
TOTAL *	139	138	140	140	138	5112.6	4983.6	5001.5	4976.5	4904.0	-	-	-	-	-	99.7%	99.7%	99.7%	99.8%	100%	7.1%	6.9%	6.92%	6.88%	6.78%

* NOTE: two small areas that did not readily fall into these three categories and the residential woodlands were omitted from this analysis so figures differ slightly from those provided elsewhere in the report.

Table 4: A Comparison of the Area (in hectares and acres) of Vegetation Communities Mapped for the City of Mississauga from 1996 and 2001

Grouped according to six broad categories. Communities are based on classifications of Bakowsky (1995) and Kavanaugh and McKay-Kuja (1992) see Natural Areas Survey, 1996 September, Volume 1 of 3. See Appendix 5, Natural Areas Survey, 2000 Update, Volume 3 of 3, for a comparison of the vegetation communities with the Ecological Land Classification (Lee *et al.* 1998).

Code	Vegetation Community	# Occurrences					Area (hectares)					Area (acres)				
		1996	1998	1999	2000	2001	1996	1998	1999	2000	2001	1996	1998	1999	2000	2001
Valleylands																
A	wooded slope	19	20	20	20	22	347.36	348.54	348.72	340.69	347.85	857.98	861.23	861.7	841.84	859.55
B	floodplain	22	21	21	21	23	458.42	426.21	426.10	426.10	426.32	1132.3	1053.15	1052.91	1052.89	1053.44
G	golf course	4	4	4	4	4	101.18	101.19	101.19	101.13	101.13	249.91	250.04	250.05	249.89	249.89
J	wooded non-native valleylands	18	18	20	20	22	93.43	94.36	100.27	100.22	109.09	230.77	233.16	247.77	247.64	269.57
K	open with open slopes valleylands	31	32	33	33	33	229.02	210.58	217.50	217.62	215.34	565.68	520.34	537.45	537.74	532.1
L	wooded native valleylands	5	5	5	5	5	39.77	39.78	39.64	39.64	38.64	98.23	98.29	97.95	97.95	95.48
M	open with wooded slopes valleylands	2	2	2	2	1	5.26	5.25	5.25	5.25	0.82	12.99	12.97	12.97	12.97	2.02
N	open with manicured slopes valleylands	2	2	3	2	2	22.16	22.15	22.15	22.15	22.15	54.74	54.73	54.73	54.73	54.74
O	manicured with wooded slopes valleylands	1	1	1	1	0	5.17	5.17	5.17	5.17	0	12.77	12.77	12.77	12.77	0
	Totals						*1301.77*	*1253.23*	*1265.99*	*1257.98*	*1261.35*	*3215.37*	*3096.68*	*3128.3*	*3108.42*	*3116.79*
Woodlands																
BB	red ash-American elm forest	14	15	15	15	16	35.32	35.61	37.35	37.16	36.4	87.24	87.99	92.29	91.82	89.94
CC	sugar maple forest	7	7	7	7	7	14.79	13.12	13.12	13.12	13.12	36.53	32.42	32.42	32.42	32.43
DD	sugar maple-American beech forest	15	16	16	17	16	108.35	102.44	100.07	100.07	95.15	267.62	253.13	247.28	247.28	235.12
EE	sugar maple-white ash forest	9	9	9	9	9	63.06	62.18	62.18	61.73	61.27	155.76	153.64	153.64	152.53	151.41
FF	sugar maple-red oak forest	10	10	10	9	9	42.48	44.96	44.96	43.12	42.76	104.93	111.09	111.09	106.55	105.65
GG	sugar maple-eastern hemlock forest	1	1	1	1	1	16.03	16.07	16.07	16.07	15.97	39.59	39.71	39.71	39.71	39.47
II	sugar maple-black cherry forest	1	1	1	1	1	1.93	1.94	1.94	1.94	1.94	4.77	4.79	4.79	4.79	4.79
KK	sugar maple-American beech-red oak forest	5	5	5	5	5	29.46	29.46	29.46	29.46	29.46	72.77	72.77	72.77	72.77	72.8
LL	sugar maple-American beech-eastern hemlock forest	1	1	1	1	1	4.44	4.45	4.44	4.45	4.45	10.97	11	10.97	10.97	10.98
MM	white pine-eastern hemlock-sugar maple forest	1	1	1	1	1	6.77	6.77	5.69	5.69	5.69	16.72	16.72	14.06	14.06	14.07

Table 4: continued .....

Code	Vegetation Community	# Occurrences					Area (hectares)					Area (acres)				
		1996	1998	1999	2000	2001	1996	1998	1999	2000	2001	1996	1998	1999	2000	2001
NN	eastern hemlock forest	3	3	3	3	3	4.09	4.11	4.11	4.11	4.11	10.1	10.16	10.16	10.16	10.15
OO	red maple-red oak forest	5	6	6	6	6	30.24	30.24	30.42	30.42	30.42	74.69	74.69	74.69	74.69	75.17
PP	American beech forest	1	1	1	1	1	2.56	2.56	2.56	2.56	2.56	6.32	6.32	6.32	6.32	6.33
QQ	bur oak-American beech forest	1	1	1	1	0	2.24	2.24	2.24	2.24	0	5.53	5.53	5.53	5.53	0
RR	oak-ash forest	8	9	9	10	10	28.61	28.57	24.75	27.34	27.34	70.67	70.6	61.16	67.56	67.56
SS	oak-hickory forest	5	7	7	7	7	24.20	23.56	23.55	23.31	22.58	59.77	58.22	58.19	57.6	55.79
TT	ash-hickory forest	3	3	3	3	3	6.94	6.68	6.68	6.68	6.21	17.14	16.51	16.51	16.51	15.34
VV	black cherry-eastern hemlock-white ash forest	1	1	1	1	1	2.02	2.03	2.03	2.03	2.03	4.99	5.02	5.02	5.02	5.01
WW	bur oak-black walnut forest	1	1	1	1	0	0.9	0.9	0.9	0.9	0	2.22	2.22	2.22	2.22	0
ZZ	oak-white pine forest	0	0	2	2	2	0	0	2.35	2.35	2.35	0	0	5.81	5.81	5.8
	Totals						*424.43*	*417.89*	*414.87*	*414.73*	*403.81*	*1048.33*	*1032.53*	*1025.14*	*1024.8*	*997.81*
Successional																
C	old field	26	27	27	27	32	88.45	95.33	95.33	95.30	97.75	218.47	235.56	235.56	235.49	241.55
D	hedgerow	5	5	4	4	4	7.68	7.01	6.95	6.95	5.46	18.97	17.32	17.17	17.17	13.48
E	early successional forest	9	10	10	10	7	21.68	14.66	14.66	12.82	7.68	53.55	36.22	36.22	31.68	18.98
P	hawthorn thicket	4	4	4	4	4	14.54	14.35	14.35	14.35	14.35	35.91	35.46	35.46	35.45	35.45
XX	birch forest	1	1	1	1	1	0.46	0.46	0.46	0.46	0.46	1.14	1.14	1.14	1.14	1.13
YY	poplar forest	1	2	2	2	2	2.37	1.69	1.69	1.69	1.69	5.85	4.18	4.18	4.18	4.17
	Totals						*135.18*	*133.5*	*133.44*	*131.56*	*127.39*	*333.89*	*329.88*	*329.73*	*325.08*	*314.77*
Wetland																
V	cattail marsh	13	14	14	14	15	27.73	26.99	26.99	26.99	27.07	68.49	66.69	66.69	66.69	66.9
W	open water marsh	6	6	6	6	7	22.70	22.70	22.70	22.70	22.56	56.07	56.07	56.07	56.07	55.74
X	willow-buttonbush swamp thicket	1	1	1	1	1	2.77	2.77	2.77	2.77	2.77	6.84	6.84	6.84	6.84	6.85
Y	wet meadow	1	3	3	3	3	3.43	3.72	3.72	3.72	3.72	8.47	9.19	9.19	9.19	9.18
Z	willow-ash forest	2	2	2	2	2	0.55	0.56	0.56	0.56	0.56	1.36	1.38	1.38	1.38	1.38
AA	silver maple forest	5	5	5	5	3	18.59	18.14	18.14	17.58	7.24	45.92	44.82	44.82	43.44	17.89
	Totals						*75.77*	*74.88*	*74.88*	*74.32*	*63.92*	*187.15*	*184.99*	*184.99*	*183.64*	*157.94*

Table 4: continued .....

Code	Vegetation Community	# Occurrences					Area (hectares)					Area (acres)				
		1996	1998	1999	2000	2001	1996	1998	1999	2000	2001	1996	1998	1999	2000	2001
Anthropogenic																
F	manicured	11	11	11	12	13	72.41	75.16	75.16	76.28	72.99	178.85	185.71	185.71	188.49	180.35
H	urban lake	2	2	2	2	2	7.26	7.26	7.26	7.26	7.26	17.93	17.93	17.93	17.93	17.95
I	wooded residential	3	3	3	3	3	251.59	251.59	239.93	237.43	237.43	621.43	621.67	592.88	586.69	586.68
T	plantation	11	11	11	13	12	21.58	21.57	21.60	21.73	20.8	53.3	53.3	53.37	53.69	51.4
UU	black walnut grove	1	1	1	1	1	0.17	0.17	0.17	0.17	0.17	0.42	0.42	0.42	0.42	0.41
	Totals						*353.01*	*355.75*	*344.12*	*342.87*	*338.65*	*871.93*	*879.03*	*850.31*	*847.23*	*836.79*
Other																
R	beach	3	3	4	4	4	2.36	1.96	2.18	2.18	2.18	5.83	4.84	5.39	5.39	5.38
S	tall grass prairie	1	1	1	1	1	0.06	0.06	0.06	0.06	0.06	0.15	0.15	0.15	0.15	0.14
U	unknown	5	3	3	3	3	35.65	35.64	35.68	35.68	35.68	88.06	88.06	88.17	88.17	88.17
	Totals						*38.07*	*37.66*	*37.92*	*37.92*	*37.91*	*94.04*	*93.05*	*93.71*	*93.71*	*93.69*

Table 5: A Comparison of the Proportion of the Vegetation Communities Within the Natural Area System and the City of Mississauga from 1996 and 2001

Grouped according to six broad categories. Communities are based on classifications of Bakowsky (1995) and Kavanaugh and McKay-Kuja (1992) see Natural Areas Survey, 1996 September, Volume 1 of 3. See Appendix 5, Natural Areas Survey, 2000 Update, Volume 3 of 3, for 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	1996	1998	1999	2000	2001
Valleylands											
A	wooded slope	14.92	15.33	15.35	15.08	15.40	1.19	1.19	1.19	1.16	1.19
B	floodplain	19.69	18.75	18.76	18.86	18.87	1.57	1.46	1.46	1.46	1.46
G	golf course	4.35	4.45	4.45	4.48	4.48	0.35	0.35	0.35	0.35	0.35
J	wooded non-native valleylands	4.01	4.15	4.42	4.44	4.83	0.32	0.32	0.32	0.34	0.37
K	open with open slopes valleylands	9.84	9.26	9.58	9.63	9.53	0.78	0.72	0.74	0.74	0.74
L	wooded native valleylands	1.71	1.75	1.75	1.75	1.71	0.14	0.14	0.14	0.14	0.13
M	open with wooded slopes valleylands	0.23	0.23	0.23	0.23	0.04	0.02	0.02	0.02	0.02	0
N	open with manicured slopes valleylands	0.95	0.97	0.97	0.98	0.98	0.08	0.08	0.08	0.08	0.08
O	manicured with wooded slopes valleylands	0.22	0.23	0.23	0.23	0	0.02	0.02	0.02	0.02	0
	Totals	*55.92*	*55.12*	*55.74*	*55.68*	*55.83*	*4.47*	*4.3*	*4.32*	*4.3*	*4.31*
Woodlands											
BB	red ash-American elm forest	1.52	1.57	1.64	1.64	1.61	0.12	0.12	0.12	0.13	0.12
CC	sugar maple forest	0.64	0.58	0.58	0.58	0.58	0.05	0.04	0.04	0.04	0.04
DD	sugar maple-American beech forest	4.65	4.51	4.41	4.43	4.21	0.37	0.35	0.34	0.34	0.33
EE	sugar maple-white ash forest	2.71	2.74	2.74	2.73	2.71	0.22	0.21	0.21	0.21	0.21
FF	sugar maple-red oak forest	1.82	1.98	1.98	1.91	1.89	0.15	0.15	0.15	0.15	0.15
GG	sugar maple-eastern hemlock forest	0.69	0.71	0.71	0.71	0.71	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	0.01	0.01	0.01	0.01	0.01
KK	sugar maple-American beech-red oak forest	1.27	1.3	1.3	1.3	1.3	0.1	0.1	0.1	0.1	0.1
LL	sugar maple-American beech-eastern hemlock forest	0.19	0.2	0.19	0.2	0.2	0.02	0.02	0.02	0.02	0.02
MM	white pine-eastern hemlock-sugar maple forest	0.29	0.3	0.25	0.25	0..25	0.02	0.02	0.02	0.02	0.02

Table 5: continued .....

Code	Vegetation Community	Proportion of Natural Areas (%)					Proportion of City Area (%)				
		1996	1998	1999	2000	2001	1996	1998	1999	2000	2001
NN	eastern hemlock forest	0.18	0.18	0.18	0.18	0.18	0.01	0.01	0.01	0.01	0.01
OO	red maple-red oak forest	1.3	1.33	1.33	1.35	1.35	0.1	0.1	0.1	0.1	0.1
PP	American beech forest	0.11	0.11	0.11	0.11	0.11	0.01	0.01	0.01	0.01	0.01
QQ	bur oak-American beech forest	0.1	0.1	0.1	0.1	0	0.01	0.01	0.01	0.01	0
RR	oak-ash forest	1.23	1.26	1.09	1.21	1.21	0.1	0.1	0.1	0.09	0.09
SS	oak-hickory forest	1.04	1.04	1.04	1.03	1	0.08	0.08	0.08	0.08	0.08
TT	ash-hickory forest	0.3	0.29	0.29	0.3	0.27	0.02	0.02	0.02	0.02	0.02
VV	black cherry-eastern hemlock-white ash forest	0.09	0.09	0.09	0.09	0.09	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	0	0	0	0	0
ZZ	oak-white pine forest	0	0	0.1	0.1	0.1	0	0	0	0.01	0.01
	Totals	*18.25*	*18.41*	*18.25*	*18.36*	*17.87*	*1.45*	*1.41*	*1.4*	*1.42*	*1.38*
Successional											
C	old field	3.8	4.19	4.19	4.22	4.33	0.3	0.33	0.33	0.33	0.33
D	hedgerow	0.33	0.31	0.31	0.31	0.24	0.03	0.02	0.02	0.02	0.02
E	early successional forest	0.93	0.65	0.65	0.57	0.34	0.07	0.05	0.05	0.04	0.03
P	hawthorn thicket	0.62	0.63	0.63	0.64	0.64	0.05	0.05	0.05	0.05	0.05
XX	birch forest	0.02	0.02	0.02	0.02	0.02	0	0	0	0	0
YY	poplar forest	0.1	0.07	0.07	0.07	0.07	0.01	0.01	0.01	0.01	0.01
	Totals	*5.8*	*5.87*	*5.87*	*5.82*	*5.64*	*0.46*	*0.46*	*0.46*	*0.46*	*0.44*
Wetland											
V	cattail marsh	1.19	1.19	1.19	1.19	1.2	0.09	0.09	0.09	0.09	0.09
W	open water marsh	0.97	1	1	1	1	0.08	0.08	0.08	0.08	0.08
X	willow-buttonbush swamp thicket	0.12	0.12	0.12	0.12	0.12	0.01	0.01	0.01	0.01	0.01
Y	wet meadow	0.15	0.16	0.16	0.16	0.16	0.01	0.01	0.01	0.01	0.01
Z	willow-ash forest	0.02	0.02	0.02	0.02	0.02	0	0	0	0	0
AA	silver maple forest	0.8	0.8	0.8	0.78	0.32	0.06	0.06	0.06	0.06	0.02
	Totals	*3.25*	*3.29*	*3.29*	*3.29*	*2.83*	*0.25*	*0.25*	*0.25*	*0.25*	*0.22*

Table 5: continued .....

Code	Vegetation Community	Proportion of Natural Areas (%)					Proportion of City Area (%)				
		1996	1998	1999	2000	2001	1996	1998	1999	2000	2001
Anthropogenic											
F	manicured	3.11	3.31	3.31	3.38	3.23	0.25	0.26	0.26	0.26	0.25
H	urban lake	0.31	0.32	0.32	0.32	0.32	0.02	0.02	0.02	0.02	0.02
I	wooded residential	10.81	11.07	10.56	10.51	10.51	0.86	0.86	0.82	0.81	0.81
T	plantation	0.93	0.95	0.95	0.96	0.92	0.07	0.07	0.07	0.07	0.07
UU	black walnut grove	0.01	0.01	0.01	0.01	0.01	0	0	0	0	0
	Totals	*15.17*	*15.66*	*15.15*	*15.18*	*14.99*	*1.2*	*1.21*	*1.17*	*1.17*	*1.16*
Other											
R	beach	0.1	0.09	0.1	0.1	0.1	0.01	0.01	0.01	0.01	0.01
S	tall grass prairie	0	0	0	0	0	0	0	0	0	0
U	unknown	1.53	1.57	1.57	1.57	1.58	0.12	0.12	0.12	0.12	0.12
	Totals	*1.63*	*1.66*	*1.67*	*1.67*	*1.68*	*0.13*	*0.13*	*0.13*	*0.13*	*0.13*

Table 6: Changes to the Area of Vegetation Communities 1996-2001

Vegetation Community Classification	Areal Change (1996-2001)		Areal Change (2000-2001)		Extent of Change and Reason (2000-2001)
	hectares	acres	hectares	acres	
Valleylands	-40.42	-95.58	-3.37	-8.37	Addition of natural area ER7 Conversion of portions of natural area MI1, EM14 to successional Removal of portions of LS1, MB3
Woodlands	-20.62	-50.52	-10.92	-26.99	Removal of natural areas CM11, GT4, MB5 Removal of portions of CM12, CL26, WB1, ME10, EM4, EM10, LS1, LS2 Conversion of portions of natural areas LS3 and EM30 to successional
Successional	-7.79	-19.12	-4.17	-10.31	Addition of natural area ER7 Conversion of portions of natural areas LS3, EM30, EM14, MI1 to successional Removal of natural area CM13 Removal of portions of natural areas CM12, MV12 Mapping adjustments for WB1
Wetland	-11.85	-29.21	-10.4	-25.7	Removal of natural areas CM17, MV3 Removal of portions of natural area LS1 Conversion of portions of natural area LS3 to successional
Anthropogenic	-14.36	-35.14	-4.22	-10.44	Removal of portions of natural areas CL26, WB1 Mapping adjustments for CRR6
Other	-0.16	-0.35	no change	no change	not applicable

Appendix 3: Fieldwork Identified for Natural Areas 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 was a City owned site (*i.e.*, parkland or greenbelt).

Natural Area	Reason for Field Visit (Based on Review of Aerial Photographs and Literature)	Field Visit	Ownership	Date Completed
Minor Development Adjacent to Natural Areas				
LS3	public park development adjacent	fieldwork	parkland	25/07/01
MB7	industrial development adjacent to south west corner - floodplain not visited since 1995	fieldwork	parkland	25/07/01
ME10	unknown activities occurring adjacent to west side - tableland woodlot not visited since 1995	fieldwork	parkland	25/07/01
EM4	residential development continuing along top of bank	road visit	parkland	16/08/01
CRR6	residential development continuing south of Burnhamthorpe and Transportation and Works	field work	parkland	22/08/01
CE9	condominium apartment construction adjacent to south of natural area	field work	parkland	16/08/01
Major Development Adjacent to Natural Areas				
CM7	residential development to the north - tableland woodlot not visited since 1995	field work	parkland	no access
CM9	residential development to the north - tableland woodlot not visited since 1995	field work	parkland	no access
Minor Development Within Natural Areas				
EM10	residential development and unknown activities in north end of natural area	fieldwork	parkland	16/08/01
MB8	industrial development in west end of natural area	road visit	greenbelt	25/07/01
CM12	residential development in north end of natural area	fieldwork	parkland	22/05/01
Major Development Within Natural Areas				
LS1	residential development and road in south portion of natural area	fieldwork	parkland	25/07/01
LS2	residential development removed a portion of the natural area	fieldwork	parkland	25/07/01
MB3	expansion of sports fields into natural area	fieldwork	parkland	22/08/01
MB5	industrial development removed a large portion of the natural area	road visit	private	22/08/01

Appendix 3: continued .....

Natural Area	Reason for Field Visit (Based on Review of Aerial Photographs and Literature)	Field Visit	Ownership	Date Completed
WB1	industrial development removed a large portion of the natural area	fieldwork	private/parkland	16/08/01
CM11	natural area removed	road visit	private	22/08/01
CM13	natural area removed	road visit	private	22/08/01
CM17	natural area removed	road visit	private	22/08/01
No Change				
MB1	no change - tableland woodlot not visited since 1995	road visit	private	22/08/01
MB2	no change - tableland woodlot not visited since 1995	road visit	private	22/08/01
MB4	no change - tableland woodlot not visited since 1995	road visit	private	22/08/01
MB6	no change - natural area not visited since 1995 (may be impacts associated with day camp)	fieldwork	parkland	22/08/01
EM30	no change - tableland woodlot not visited since 1995	fieldwork	parkland	16/08/01
CRR7	no change - trees removed on Dalton Drive	road visit	private/parkland	29/08/01
CRR8	no change - Hardwood Court	road visit	private/parkland	29/08/01
ME8	no change - tableland woodlot not visited since 1995	fieldwork	parkland	25/07/01
ME9	no change - tableland woodlot not visited since 1995	fieldwork	parkland	25/07/01
ME11	Lake Aquitaine	field work	parkland	25/07/01
ME12	Lake Wabukayne	field work	parkland	25/07/01
CE7	no change - tableland woodlot not visited since 1995	field work	parkland	16/08/01
EM6	no change - tableland woodlot not visited since 1995	field work	parkland	16/08/01
EM2	no change - tableland woodlot not visited since 1995	field work	parkland	16/08/01
EM14	no change - floodplain not visited since 1995	field work	parkland	16/08/01
Proposed Development No Change on Aerial Photograph				
GT4	proposed development scheduled to remove natural area	road visit	private	22/08/01
CL26	proposed development scheduled to remove a portion of the natural area	road visit	parkland	29/08/01

Appendix 3: continued .....

Natural Area	Reason for Field Visit (Based on Review of Aerial Photographs and Literature)	Field Visit	Ownership	Date Completed
MV3	proposed development scheduled to remove natural area	road visit	private	22/08/01
MV12	proposed development scheduled to remove a portion of the natural area	road visit	private	22/08/01
Clarify Region of Peel Database				
CM1	natural area removed for development in 1995	-	-	-
CM2	natural area removed for development in 1995	-	-	-
CM3	natural area removed for development in 1995	-	-	-
WB1	western woodlot removed for development in 1995, boundaries revised in 2001 (see above)	-	-	-
EC10	natural area removed for development in 2000	-	-	-
CRR6	natural area boundaries exclude estate features	-	-	-
n/a	Windwood Park - minor natural feature	fieldwork	parkland	25/07/01
n/a	Huron Park - minor natural feature	fieldwork	parkland	29/08/01
Community Services Projects				
CL30	Community Services Work	fieldwork	parkland	29/08/01
Transportation and Works Projects				
ETO4	SWM pond #2601B - Creekbank Road, north of Eglington Avenue	-	parkland?	location unknown
MV2*	SWM pond #4402B Fletchers Creek south of Derry Road	-	private	location unknown
MV2	SWM pond #4403 Fletchers Creek east of McLaughlin	-	private	location unknown
ETO3*	Etobicoke Creek east of Netherhart	-	parkland?	location unknown
CL13	Sheridan Creek, downstream of Benedat Rd and Brookhurst to GO Station	-	parkland	29/08/01
CRR6	Credit River at Burnhamthorpe Road (see above)	-	parkland	22/08/01
CRR4	Carolyn Creek at the confluence with the Credit River	-	private	no access
MI1	Cooksville Creek immediately south of the South Service Road	-	greenbelt	29/08/01
EM14	Sawmill Creek, Glen Erin to Erin Mills (see above)	-	parkland	16/08/01

Appendix 4: Comparison of Natural Areas (1996 and 2001)

Comparison of changes at natural areas evaluated in 2001 where a change was noted. All changes between 1996 and 2001 are shown for each natural area. 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 revisions. Native FQI and native mean coefficient as well as definitions for provincially and regionally significant species are defined in the Natural Areas Survey, 1996 September, Volume 1 of 3. Condition is explained in the Natural Areas Survey, 1996 September, Volume 1 of 3. See Section 4.4, Natural Areas Survey, 2000 Update, Volume 3 of 3, for a discussion of Credit Valley Conservation (CVC) Species of Conservation Interest.

Natural Area	Reason for Field Visit (Based on Review of Aerial Photographs and Literature)	Field Visit	Ownership	Date Completed
n/a	SWM pond, Highway 410 and Pendant Drive	-	private	location unknown

Site #	Site Code	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	# herptiles	prov. sig. species	CVC	
6	CL9	96	SNS	ESA,ANSI,wetland	46.89	115.82	491	156 (31.40%)	80.1	4.38	13	2	125	200	23	22	1	0	Good
		98					↑496	↑161 (32.30%)				↓0	↑132						
		99					↓495		↓79.83	↓4.37			↓131						
		0			↓46.81	↓115.63						↑1	↓130		↓22	↓21	↓0	↑8	
		1					↑496	↓159 (32.06%)	↑79.86	↓4.35			↑133						
11	CL13	96	NGS		1.5	3.7	40	23 (55.00%)	8.25	1.94	2	0	0	2	0	0	0	0	Poor
		98																	
		99	↑NS		↑8.42	↑20.79	↑61	↑34 (55.74%)	↑13.47	↑2.59			↑1	↑5					
		0																	
		1					↑74	↑43 (58.11%)	↑14.37	↓2.58	↑3			↑8					
17	CL30	96	SNS	ESA,ANSI	0.06	0.14	24	8 (33.30%)	n/a	n/a	1	2	11	0	0	0	0	0	Poor
		98					**46**	↑16 (34.80%)	25.56	4.67		↓1							↑Fair - Poor
		99					↑51	↑18 (35.30%)	↓25.29	↓4.58			↑14						↑Fair
		0					↑80	↑31 (38.75%)	↑28.00	↓4.00			↑20						
		1					↑81		↓27.72	↓3.92									
20	CL26	96	NS		4.34	10.72	157	58 (35.70%)	31.66	3.18	2	0	14	5	2	0	0	0	Fair
		98											↑15						
		99			↑4.76	↑11.75	↑178	↑68 (38.20%)	**34.52**	↑3.29			↑18	↑18	↑7				
		0																	
		1			↓2.01	↓4.96		↓65 (36.52%)	↓34.05	↓3.20	↓1		↓17						

Appendix 4: continued .....

Site #	Site Code	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	# herptiles	prov. sig. species	CVC	
24	CRR9	96	SNS	ESA,ANSI,wetland	25.63	63.3	37	14 (37.84%)	17.1	3.57	3	0	12	10	1	13	0	0	Fair
		98																	
		99																	
		0																	
		1					↑45	↑15 (33.33%)	↑21.00	↑3.83			↑16	↑27		↓10		↑6	
26	MI1	96	NS		6.31	15.59	9	4 (44.44%)	n/a	n/a	1	0	0	0	0	0	0	0	Fair
		98																	
		99																	
		0																	
		1			↓5.63	↓13.91	↑16	↑5 (31.25%)			↑2			↑50					
40	CRR7	96	SNS	ESA,ANSI	88.96	219.73	61	10 (13.10%)	33.89	4.75	3	1	8	0	0	9	0	0	Good
		98					↑74	↑18 (23.00%)	↑34.88	↓4.66			↑9						
		99					↑92	↑24 (26.00%)	↓34.68	↓4.21				↑4	↑1				
		0			↓88.94	↓219.69										↓6			
		1					↑93	↓23 (24.73%)	↑34.90	↓4.17			↑10	↑29	↑5	↑7		↑8	
41	CRR8	96	SNS	ESA,ANSI	110.62	273.23	43	3 (7.00%)	n/a	n/a	4	2	31	8	1	4	0	0	Good
		98		↑ESA,ANSI,wetland															
		99																	
		0																	
		1					↑50					↓1	↓30	↑38	↑6	↑8		↑6	
43	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						
		0						↓91 (32.38%)										↑8	
		1			↓135.16	↓333.86	↓264	↓88 (33.33%)	↓61.21	↓4.61		↓2	↓62	↓67		↑18		↑10	
51	WB1	96	NS		7.12	17.58	53	9 (16.98%)	25.93	3.91	5	0	0	4	0	1	0	0	Fair
		98																	
		99																	
		0																	
		1			↓3.94	↓9.73	↑57	↑10 (17.54%)	↑26.11	↓3.81				↑5					↓Fair - Poor

Appendix 4: continued .....

Site #	Site Code	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	# herptiles	prov. sig. species	CVC	
52	EM30	96	NS		5.57	13.75	52	5 (9.62%)	29.61	4.32	2	0	6	5	8	0	0	0	Good
		98																	
		99																	
		0																	
		1					↑68	↑8 (11.76%)	↑30.73	↓3.97	**5**		↑7	↑7					
53	EM6	96	NS		1.07	2.65	53	11 (20.75%)	25	3.86	1	0	1	6	1	0	0	0	Fair
		98																	
		99																	
		0																	
		1					↑58	↑14 (24.14%)	↓24.72	↓3.73									
54	EM2	96	SNS		4.9	12.09	63	12 (19.05%)	28.85	4.04	1	1	0	8	1	0	0	0	Fair
		98																	
		99																	
		0	↓NS									↓0							
		1					↑74	↑15 (20.27%)	↑29.81	↓3.88									
55	EM10	96	NS		3.99	9.86	43	9 (20.93%)	21.78	3.74	2	0	0	4	2	0	0	0	Fair
		98																	
		99																	
		0																	
		1			↓3.73	↓9.22	↑54	↑13 (24.07%)	↑22.96	↑3.59									
56	EM14	96	NS		9.61	23.74	49	22 (44.90%)	15.4	2.96	2	0	0	4	0	0	0	0	Poor
		98																	
		99																	
		0																	
		1			↓9.19	↓22.70	↑74	↑36 (48.65%)	↑17.36	↓2.82				↑8					↑Fair
57	EM4	96	SNS	ESA,ANSI	46.82	115.65	225	61 (26.70%)	55.05	4.3	8	2	28	67	4	6	0	0	Good - Fair
		98					↑228					↓1	↑30						
		99			↓43.18	↓106.65	↑235	↑64 (27.20%)	↑56.28				↑31		**5**				
		0																	
		1			↓42.98	↓106.17		↓62 (26.38%)	↓55.96	↓4.25		↑2						↑2	

Appendix 4: continued .....

Site #	Site Code	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	# herptiles	prov. sig. species	CVC	
77	CM11	96	NS		2.24	5.53	22	1 (4.55%)	18.33	4	1	0	0	1	0	0	0	0	Good
		98																	
		99																	
		0																	
		1	Removed																
78	CM12	96	NS		8.22	20.3	54	8 (14.80%)	27.42	4.04	2	0	2	11	2	5	0	0	Good
		98																	
		99			↓8.21	↓20.28	↑76	↑15 (19.74%)	**29.96**	↓3.84			↑3	↑14	↑5	↑6			
		0																	
		1			↓5.77	↓14.25	↑82		↑30.42	↓3.72	↓1								
79	CM17	96	NS		8.39	20.71	25	4 (16.00%)	16.8	3.67	1	0	0	5	0	0	0	0	Fair
		98																	
		99																	
		0																	
		1	Removed																
80	CM13	96	NGS		0.77	1.91	37	14 (37.84%)	16.26	3.39	1	0	0	1	1	0	0	0	Poor
		98																	
		99																	
		0																	
		1	Removed																
81	CE7	96	SNS		10.08	24.9	88	28 (31.82%)	30.47	3.93	2	0	4	2	1	7	0	0	Good
		98																	
		99																	
		0																	
		1					**98**	↑29 (29.59%)	↑33.11	↑3.99			**6**	↑4					
82	CE9	96	NS		4.83	11.94	58	14 (24.10%)	26.99	4.07	3	0	2	2	1	0	0	0	Fair
		98																	
		99																	
		0					↑76	↑16 (21.05%)	↑32.29	↑4.20									
		1			↓4.74	↓11.70	↑78	↑17 (21.79%)	↑32.52	↓4.16			↑5	↑10	↑2				

Appendix 4: continued .....

Site #	Site Code	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	# herptiles	prov. sig. species	CVC	
87	CRR5	96	SNS		21.22	52.41	64	26 (40.63%)	21.37	3.51	2	1	0	5	2	1	0	0	Fair
		98										↓0							
		99																	
		0																	
		1			↑24.74	↑61.10			↓21.09	↓3.42				↑15		**2**		↑2	
88	CRR4	96	SNS	ESA,ANSI	24.69	60.97	11	2 (18.18%)	n/a	n/a	3	0	1	0	0	7	0	0	Good
		98																	
		99																	
		0																	
		1			↓21.17	↓52.29								↑19	↑3		**1**	↑5	
92	CRR3	96	SNS		68.94	170.28	34	5 (14.71%)	n/a	n/a	4	0	3	1	0	0	0	0	Fair
		98					↑74	↑26 (35.10%)	25.26	3.65				↑7					
		99																	
		0																	
		1						↓25 (33.78%)	↓25.00	↓3.57				↑36	↑4	↑8		↑7	
93	CRR2	96	SNS	ESA,ANSI	91.29	225.5	89	30 (30.00%)	32.94	4.29	8	0	3	13	9	10	0	0	Good
		98					**100**	↑31 (31.00%)	**32.99**	↓3.97			↓2	↑14					
		99																	
		0																	
		1						↓30 (30.00%)	↓32.75	↓3.91				↑44		↑11		↑11	
119	LS1	96	SNS	wetland	28.92	71.42	63	14 (22.22%)	27.14	3.88	3	0	6	4	0	0	0	0	Good - Poor
		98																	
		99																	
		0																	
		1			↓28.47	↓70.32	↑111	↑39 (35.14%)	↑28.99	↓3.42			**7**	↑9	↑1				
120	LS2	96	NS		1.27	3.13	45	13 (28.89%)	22.09	3.97	1	0	0	2	0	0	0	0	Fair
		98																	
		99																	
		0																	
		1			↓1.03	↓2.55	↑52	↑15 (28.85%)	↑23.18	↓3.81				↑5	↑1				↓Fair - Poor

Appendix 4: continued .....

Site #	Site Code	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	# herptiles	prov. sig. species	CVC	
121	LS3	96	NS		3	7.4	66	22 (33.33%)	23.94	3.65	2	0	2	1	1	2	0	0	Fair
		98																	
		99																	
		0																	
		1					↑95	↑29 (30.53%)	↑27.94	↓3.44	↑3		**4**	↑4	↑1				
122	ME10	96	SNS		4.18	10.33	55	15 (27.27%)	24.67	3.9	1	1	2	4	0	0	0	0	Fair
		98										↓0	**3**						
		99																	
		0																	
		1			↓2.92	↓7.22	↑64	↑17 (26.56%)					↓2		**1**				
123	ME12	96	NGS		2.9	7.16	49	27 (55.10%)	12	2.62	1	0	0	7	2	7	0	0	Poor
		98																	
		99																	
		0																	
		1					↑64	↑36 (56.25%)	↑14.55	↑2.75				↑8					
124	ME11	96	NGS		4.36	10.78	41	21 (51.20%)	11.4	2.55	1	0	0	5	2	4	0	0	Poor
		98																	
		99																	
		0					↑51	↑22 (43.14%)	**16.17**	**3.11**			**3**						
		1					↑56	↑27 (48.21%)	↑17.08	↑3.17				↑9					
125	ME9	96	NS		2.39	5.9	44	11 (25.00%)	25.59	4.45	1	0	2	2	1	0	0	0	Fair
		98																	
		99																	
		0																	
		1					↑54	↑13 (24.07%)	↑29.20	↑4.56			↑3						
126	ME8	96	SNS		5.82	14.38	87	13 (26.40%)	30.25	3.78	2	1	4	3	3	4	0	0	Fair
		98										0							
		99																	
		0					↑88	↑24 (27.27%)											
		1					↑90		↑31.27	↑3.85				↑5					

Appendix 4: continued .....

Site #	Site Code	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	# herptiles	prov. sig. species	CVC	
128	MB7	96	NGS		10.45	25.8	0	0	n/a	n/a	1	0	0	0	0	0	0	0	Poor
		98																	
		99																	
		0																	
		1					↑35	↑21 (60.00%)	6.68	1.79				↑4					
129	MB8	96	SNS		10.17	25.11	87	13 (26.40%)	30.25	3.78	2	1	4	3	3	4	0	0	Fair
		98										0							
		99																	
		0																	
		1					↑88	↑24 (27.27%)						↑5					
130	MB3	96	NGS		7.11	17.55	0	0	n/a	n/a	1	0	0	0	0	0	0	0	Poor
		98																	
		99																	
		0																	
		1			↓4.91	↓12.13	↑26	↑15 (57.69%)	4.82	1.45				↑3		↑1			
131	MB5	96	NS		0.9	2.22	42	5 (11.90%)	23.67	3.89	1	0	0	0	0	0	0	0	Poor
		98																	
		99																	
		0																	
		1	Removed																
133	MB6	96	SNS		23.7	58.54	84	14 (16.67%)	30.7	3.7	2	0	6	1	1	2	0	0	Good
		98																	
		99																	
		0																	
		1			↑23.76	↑58.68	↑100	↑18 (18.00%)	↑33.57	↑3.71			↑9	↑5	↑2				
137	CRR1	96	SNS	ESA,ANSI	71.4	176.36	41	12 (26.80%)	n/a	n/a	5	0	2	2	2	1	0	0	Fair
		98		↓ESA			↑76	↑23 (30.26%)	26.65	3.66			↑4	↑6					
		99																	
		0																	
		1							↓25.55	↓3.51				↑29	↑4	↑7		↑4	

Appendix 4: continued .....

Site #	Site Code	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	# herptiles	prov. sig. species	CVC	
138	MV18	96	NS		3.14	7.76	19	1 (5.26%)	n/a	n/a	2	0	1	2	0	0	0	0	Fair
		98																	
		99																	
		0																	
		1												**7**				↑2	
139	MV2	96	SNS	ESA,ANSI	80.18	198.04	200	60 (29.50%)	46.99	3.97	4	1	20	58	10	2	0	0	Good - Fair
		98			↓78.38	↓193.61	**215**	↑69 (31.60%)	**47.59**	↓3.94		↓0		↑59	↑12		↑1		
		99																	
		0						↓68 (31.63%)					↑19					↑6	
		1							↓47.01	↓3.88				**67**	↑15	**4**		↑14	
140	MV3	96	NS		2.67	6.59	47	13 (27.70%)	n/a	n/a	1	0	0	0	0	0	0	0	Fair
		98					↓46		21.61	3.71									
		99																	
		0			↓2.11	↓5.20	↑57	↑17 (29.82%)	↑23.40	↓3.70				**6**	↑2				
		1	Removed																
141	MV12	96	SNS		13.28	32.8	103	32 (31.07%)	33.94	4.03	3	0	7	5	4	0	0	0	Fair
		98	↓NS		**13.38**	↑33.06	↑115	↑35 (30.40%)	**35.33**	↓3.95									
		99																	
		0			↓11.08	↓27.41	↑121		↑36.23	↓3.91									
		1			↓8.71	↓21.50					↓2			↑8					
148	GT4	96	SNS	ESA, ANSI	27.06	66.84	201	55 (26.40%)	50.4	4.17	2	0	22	9	1	0	1	0	Excellent-Poor
		98		↓ESA			↑202		↑50.64	**4.18**	↓1		↓21	↑11			↓0		↓Good-Poor
		99					↑204		**51.2**	↑4.19			↑22	**18**		↑1			
		0													↑2				
		1	Removed																
154	CRR10*	96																	
		98																	
		99																	
		0																	
		1	SNS	ESA,ANSI	43.75	108.07	359	129 (35.93%)	65.28	4.3	2	1	64	88	8	9	1	25	Good

Appendix 4: continued .....

Site #	Site Code	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	# herptiles	prov. sig. species	CVC	
155	CRR11*	96																	
		98																	
		99																	
		0																	
		1	SNS	ESA	32.16	79.44	0	0	n/a	n/a	2	0	0	12	1	5	0	0	Good
156	ER7**	96																	
		98																	
		99																	
		0																	
		1	NS		3.15	7.78	50	17 (34.00%)	16.54	2.88	3	0	2	2	1	0	0	0	Poor

* These natural areas were originally part of CRR6.
** This natural area was newly designated in 2001.

Appendix 5: Updated Provincially Significant Native Fauna Species

Updated provincially significant native fauna species (NHIC 2000a, 2000b, 2000c, 2000d) documented for the City of Mississauga, including migrant and wintering bird species. Rarity ranks are defined in Appendix 4, Natural Areas Survey, 1996 September, Volume 2 of 3.

Common Name	Scientific Name	Historical	G Rank	S Rank	COSEWIC	MNR	CVC	Notes
red-necked grebe	*Podiceps grisegena*		G5	S3B,SZN	NAR			migrant
horned grebe	*Podiceps auritus*		G5	S1B,SZN		END		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		Yes	migrant
Arctic tern	*Sterna paradisaea*		G5	S2S3B, SZN				accidental
black tern	*Chlidonias niger*		G4	S3B,SZN	NAR	VUL	Yes	possibly breeding
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
tundra swan	*Cygnus columbianus*		G5	S3B,SZN				migrant
least bittern	*Ixobrychus exilis*		G5	S3B,SZN	SC	VUL	Yes	possibly breeding
great egret	*Casmerodius albus*		G5	S2B,SZN				migrant
black-crowned night-heron	*Nycticorax nycticorax*		G5	S3B,SZN			Yes	CRR4, ETO7
Wilsons phalarope	*Phalaropus tricolor*	Yes	G5	S3B,SZN				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
red-shouldered hawk	*Buteo lineatus*	LV7	G5	S4B,SZN	SC	VUL	Yes	MV2, LV7
rough-legged hawk	*Buteo lagopus*		G5	S1B,SZN	NAR			wintering
peregrine falcon	*Falco peregrinus anatum*		G4T3	S2S3B,SZN	THR	END	Yes	migrant
red-headed woodpecker	*Melanerpes erythrocephalus*		G5	S3B,SZN	SC	VUL	Yes	CRR10
Acadian flycatcher	*Empidonax virescens*		G5	S2B,SZN	END		Yes	migrant
northern shrike	*Lanius excubitor*		G5	S2S3B,SZN				wintering

Appendix 5: continued .....

Common Name	Scientific Name	Historical	G Rank	S Rank	COSEWIC	MNR	CVC	Notes
loggerhead shrike	*Lanius ludovicianus*		G5	S2B,SZN	END	END	Yes	migrant
yellow-breasted chat	*Icteria virens*	Yes	G5	S2S3B,SZN	SC	VUL		HO9
Jefferson/blue-spotted salamander complex	*Ambystoma jeffersonianum*		G5	S2	THR			LV7, CRR6
wood turtle	*Clemmys insculpta*	?	G4	S2	SC	VUL		ETO7
eastern hognose snake	*Heterodon platirhinos*	Yes	G5	S3	SC	VUL		CL9