Appendices

Appendix A Regulatory Correspondence

From: Varga, Steve (NDMNRF) <steve.varga@ontario.ca>
Sent: November 23, 2021 4:51 PM
To: Nick Crockford <NCrockford@morrisonhershfield.com>
Subject: FW: York Region Individual Environmental Assessment for Transportation Improvements - Teston Road Area, City of Vaughan

Hi Nick

As requested at our meeting today I'm enclosing the Life Science Maple Uplands and Kettle Wetlands and Earth Science Maple Spur ANSI report and the wetland evaluation package for the East Don River Headwater Wetland Complex.

All the best
Steve

Steve Varga
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From: Nick Crockford <NCrockford@morrisonhershfield.com>
Sent: November 16, 2021 1:32 PM
To: Warren, Catherine (NDMNRF) <Catherine.Warren@ontario.ca>; Varga, Steve (NDMNRF) <steve.varga@ontario.ca>
Cc: 'John, Praveen' <praveen.john@york.ca>; 'Brandon, Philip' <Philip.Brandon@york.ca>; Andrew Harkness <AHarkness@morrisonhershfield.com>; Martin Blouin <MBlouin@morrisonhershfield.com>
Subject: RE: York Region Individual Environmental Assessment for Transportation Improvements - Teston Road Area, City of Vaughan

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Hi Catherine,

Thank you for getting back to us. I have sent out a teams invite for November 23rd. I booked 90 minutes but we likely won't take the entire time. We'll get you all caught up on the project details and then we can circle back after the meeting with any information/follow up that's needed.

Thanks,

Nick Crockford
Environmental Planner
Morrison Hershfield
416-499-3110

INVENTORY OF THE LIFE SCIENCE MAPLE UPLANDS & KETTLE WETLANDS
AND EARTH SCIENCE OAK RIDGES MORAINE MAPLE SPUR
AREAS OF NATURAL AND SCIENTIFIC INTEREST, CITY OF VAUGHAN, ONTARIO

March 1997, updated September 2000

Steve Varga[1], John Fraser[2] and Lionel Normand[3]
Ontario Ministry of Natural Resources
Aurora District

1. Ontario Ministry of Natural Resources, Aurora District
2. Ontario Ministry of Natural Resources, South Central Region, Science & Technology Section
3. Toronto and Region Conservation Authority

OBM Map: 10 17 6150 48600, 6150 48550, 6200 48600
NTS Map: 30M/13, 30M/14
UTM Reference: 6**210**00 48**610**00
Latitude: 43° 54' **Longitude**: 79° 30'
Area: 282 ha earth science ANSI, 344 ha life science ANSI
Aerial Photographs: 1:10,000, 1978, Roll 30, Line & No. 4363: 113-116; Roll 48, Line & No. 4362: 449-453; Roll 41, Line & No. 4361:70-73; 1:8,000, April 18 1993, Roll 015, Line & No. 26: 137-139; Line & No. 27: 219-223; Line & No. 28: 303-305; 1, 10,000 Infrared, Roll 37, No. 6099-6103, 6277-6281; Roll 46, No. 2196-2198; Roll 47, No. 2639-2642; Roll 48, No. 2831-2836, 2981-2986
Municipality, Lots & Concessions: Regional Municipality of York, City of Vaughan, Vaughan Township: Lots 25-33, Conc. 3; Lots 29-34, Conc. 2.
General Location: northeastern portion of the City of Vaughan bounded by Keele Street to the west, Bathurst Street to east, King- Vaughan Road to the north and Major Mackenzie Drive to the south.
Site District: 6E7
Ownership: largely private
Date of Investigations: 1995: May 18, 31, June 8, 14, 16, July 3, 4, 12, August 2, September 22, 27, 28; 1996: October 4; 1998: September 21.

Introduction

The Maple Uplands & Kettle Wetlands occurs on a southerly extending ridge of the Oak Ridges Moraine, known as the Maple Spur. It is situated north and east of the Town of Maple. This site was identified by the Ontario Ministry of Natural Resources in 1984 as a regional life science Area of Natural and Scientific Interest (ANSI). It was selected for its representation of Sugar Maple - Hemlock upland forest types on the Oak Ridges Moraine (site district 6E7) (Lindsay 1984). Its boundaries were mapped on 1:50,000 NTS maps in 1984 and transferred without modification to 1:10,000 OBM maps in 1992.

The Maple Uplands & Kettle Wetlands is also significant for its earth science features. It contains kettle and meltwater channel features characteristic of moraine physiography. In 1976 it was identified as an "Earth Science Candidate Nature Reserve" (Cowell and Woerns 1976). In 1980 it was selected as a Regionally Significant Earth Science ANSI, known as the Maple Spur of the Oak Ridges Moraine (Cordiner 1982). Its selection was part of the Oak Ridges Moraine - Peterborough Drumlin Field Theme Study for the Landscape Component of the Earth Science Framework under the Ontario Ministry of Natural Resources', ANSI program. The ANSI represents a rolling moraine of sands and gravels rising 30 to 60 meters above the Halton Till plain to the south. It is noteworthy for its large ice block depression and associated meltwater channels. The significant features lie within the boundaries of the associated Life Science ANSI.

The Ministry of Natural Resources in 1990 has identified wetlands in the northern portion of the ANSI as part of the provincially significant King - Vaughan Wetland Complex (OMNR 1990). A 1997 wetland re-evaluation based on 1995-96 fieldwork reconfirmed its provincial significance and expanded the complex to include a cluster of wetlands east of Dufferin Street that are partially in the ANSI (OMNR 1997).

Other agencies have also applied designations to the ANSI. The Toronto and Region Conservation in 1982 has identified the portion of the ANSI east of Dufferin Street as an Environmentally Significant Area (MTRCA 1982). In 1995, the ESA boundaries were expanded west of Dufferin Street to include the ANSI's kettle depression and meltwater channel (MTRCA 1995). York Region in their 1994 Official Plan designated the ANSI an Environmental Policy Area and Wetland, Significant Forested Land and part of a Regional Greenland System (York Region 1994).

In 1995 and 1996 life and earth science inventories were undertaken on the Maple Uplands & Kettle Wetlands and the Oak Ridges Moraine Maple Spur as part of ongoing efforts by the Ministry of Natural Resources to inventory all ANSIs in Ontario. Fieldwork was carried out by the Science and Technology Section of the Ontario Ministry of

Natural Resources, South Central Region office and by staff of the Aurora District office. Staff of the Toronto and Region Conservation Authority also assisted in this inventory work.

This study incorporates previous work undertaken in the area including the fieldwork carried out by the Toronto and Region Conservation Authority (MTRCA 1982), the wetland evaluation carried out by the Ministry of Natural Resources (OMNR 1990, 1997) and botanical collections housed at the Royal Ontario Museum vascular plant herbarium.

Earth Science Features

Physiography

The Oak Ridges Moraine Maple Spur ANSI occurs on a southerly extending ridge of the Oak Ridges Moraine known as the Maple Spur. The moraine is noteworthy for being the largest in southern Ontario, with glacial deposits up to 200 metres deep. The Oak Ridges Moraine is situated north of Metro Toronto stretching west to east for 170 km from the Niagara Escarpment to Northumberland County.

Glacial Geology

At the ANSI, the Moraine consists of a considerable thickness of glaciolacustrine and glaciofluvial sands and finer sediments deposited in close proximity to the margins of northern and southern ice lobes. These ice lobes reached their maximum extent at the present location of the Oak Ridges Moraine during the Port Huron Stadial. During the eventual deglaciation of the area at the end of the Port Huron, parts of the standing ice mass divided into large separate ice blocks surrounded by complex flows of sand and gravel debris which had been eroded and transported by the glacial lobes.

During de-glaciation most of the Maple site was occupied by a large block of glacial ice which was partially buried by glacial sediments melted out of the main ice mass. When the ice block melted it left behind the present depression, with the floor covered in hummocky glacial sediments which formerly covered the ice block. The roughly oval flat-bottomed depression is oriented northeast to southwest and is bounded by steep forest covered slopes 25 to 35 metres high. This major ice-block depression or "kettle" which occupies the central portion of the Maple site is the basis for selection of the area as a regionally significant Earth Science ANSI.

The kettle is also characterized by a number of narrow "spillway" meltwater channels along the eastern and southern margins of the depression. These features are the result of meltwater flow out of the depression into the headwaters of the East Don River during later stages of deglaciation. Three small channels have been mapped along the eastern boundary of the kettle and record meltwater flow out of the depression. Some of these features have been degraded by a borrow pit in this area that has been excluded from the ANSI.

The largest and best developed of the meltwater channel features lies at the southern end of the depression along the eastern boundary of the Keele Valley Landfill. The channel is part of a well-defined valley system, which forms the headwaters of the East Don River. Portions of the western side of the channel margin have been destroyed by land regrading but the channel floor and eastern margins are well preserved and are of significance in the interpretation of the entire site. A representative section of this channel was mapped as part of the field evaluation of the site and has been included in the Earth Science ANSI.

Significance

The site was selected as part of the Oak Ridges Moraine-Peterborough Drumlin Theme Study for the Landform Component of the Earth Science Framework under the Provincial ANSI Program. "The Earth Science Framework is designed to identify the ancient and modern environmental themes that occur in Ontario... The framework is based on internationally recognized concepts of earth science history adapted to Ontario... The geoclimate and landform classifications are most adaptable to the last one million years when glaciation dominated the landscape. The landform classification distinguishes the surficial features of the landscape such as eskers, moraines, raised beaches modern beaches and river valleys. The earth science target is to adequately represent each past environment through features representative of that environment." (Cordiner 1982).

After detailed site inventories are undertaken for a given landform component they are priorized according to criteria which involve the representation provided by the site, its scientific value, its interpretive value for educational purposes, and its condition. Sites are assigned to provincial, regional and local significance levels based on an evaluation of these criteria.

A total of 18 provincially significant sites were identified to achieve protection objectives for a variety of glacial landforms on the Oak Ridges Moraine and Peterborough

Drumlin Field. Several provincially significant sites on the Oak Ridges Moraine contain kettle landforms, notably the Musselman Lake Kettle Complex east of Newmarket. The Maple Uplands and Kettle Wetlands site contains similar landforms and provides additional protection of this landform on the Oak Ridges Moraine at the Regional level of significance. The Maple site is notable however in that the main kettle depression is not water filled as is the case for many of the other kettle landforms on the moraine and thus provides a valuable opportunity for the interpretation of bottom sediments and physiography of these features. The Maple site is also significant because of the large and well-developed meltwater channel associated with it. This feature is important in the interpretation of the depositional and erosional processes involved in kettle formation and ice marginal stagnation.

Other Resource Values

The sand deposits in this area constitute a highly sensitive recharge area which discharges in the southern part of the ANSI and further south providing a major headwater source for the East Branch of the Don River (Gartner Lee Ltd. 1993). North of the ice-block depression the rolling moraine is dotted with small kettle depressions underlain by peat and muck deposits and sustaining a variety of wetlands.

Life Science Features

Vegetation

The Maple Uplands & Kettle Wetlands ANSI supports a high diversity of 66 vegetation community types (Table 1). Most of the ANSI is covered in moist and drier (fresh) upland forests. The moist forests are dominated by Sugar Maple, with Red Maple and Beech often a strong secondary species or co-dominant. Beech is most prevalent in the northeast portion of the ANSI. Other common secondary species include White Ash, Red Oak and White Birch. The richest stands occur on the finer loamy soils. They have an understorey dominated by White Trillium, Yellow-trout Lily and Blue Cohosh, with scattered Wild Ginger, Virginia Waterleaf, Enchanter's Nightshade, Early Meadow-rue, Yellow Violet, Jack-in-the-Pulpit, Rose-twisted Stalk, Peduncled Sedge and Christmas Fern. Stands on coarser soils have an understorey of White Trillium and Wild Sarsaparilla.

In the northeast portion of the ANSI and along the meltwater channel, there are large stands of moist mixed forests dominated by Eastern Hemlock and Sugar Maple, with Beech and Red Maple secondary tree species. The shade caste by the hemlocks results in a sparser herb understorey than those found in the broadleaf forests. Ferns such as Glandular Wood Fern, Spinulose Wood Fern and Marginal Shield Fern dominate the forest floor.

Large stands of moist conifer forests occur in the southwest portion of the ANSI on the floor of the meltwater channel fringing a conifer swamp. White Cedar or Eastern Hemlock with an understorey of Sensitive Fern, Lady Fern and Bulblet Fern dominates these forests.

Drier deciduous forests are scattered throughout the ANSI, with the largest stands in the eastern portion of the ANSI. These forests are dominated by Red Oak with Red Maple and Sugar Maple strong secondary or co-dominant species. The understorey often has a common tall shrub layer of Witch-hazel with scattered shrubs of Beaked Hazel, Maple-leaved Viburnum and Chokeberry. The herb layer is dominated by Wild Sarsaparilla, Pennsylvania Sedge, Large-leaved Aster, Blue-stem Goldenrod and White Trillium. Mixed stands in the central portion of the ANSI (Lots 29 and 30, Conc. 3) have Red Oak, Red Maple and Sugar Maple associated with White Pine.

Successional deciduous forests are common throughout the ANSI as younger stands in among the older forest types. White Birch, Large-toothed Aspen and Trembling Aspen largely dominate these forests. Occasionally the Trembling Aspen co-dominates with Black Cherry or Red Maple. Frequent associates with these successional species are Sugar Maple, White Ash, Red Maple and Black Cherry on moist sites and Red Oak on drier sites.

Occasional successional mixed forests of White Pine co-dominating with White Ash or Trembling Aspen occur on the slopes of the meltwater channel. There is also a stand of Eastern Hemlock co-dominating with White Birch and Trembling Aspen.

Small kettle wetlands are scattered through the northern portion of the ANSI, comprising just over 3 hectares. These wetlands are flooded in the spring and experience a drawdown in the summer, with some of the shallower kettles drying out by the summer. Most common in these wetlands are thicket swamps dominated by Bebb's Willow, Red-osier Dogwood, Winterberry and Heart-leaved Willow. Secondary shrubs in these thicket swamps include Meadowsweet, Pussy Willow, Shining Willow and Slender Willow. Below the shrub layer there is a rich herb layer variously dominated by Water-parsnip, Common Cattail, Eastern Manna Grass, Reed Canary Grass, Short-awned Foxtail, Water Arum and Tufted Loosestrife. Openings in

these thicket swamps support marshes dominated by Common Cattail, Water-parsnip, Eastern Manna Grass and Short-awned Foxtail. Some of the thicket swamps are ringed by open water moats. The best example of such a wetland abuts the eastern side of Dufferin Street in the northern portion of the ANSI (Lot 33, Conc. 2). This thicket swamp of Bebb's Willow and Common Cattail has a broad open water moat. The shrubs grow on Sphagnum moss hummocks and there are a few species typical of bogs including Leatherleaf. Other thicket swamps support such bog species as Chokeberry and Tamarack.

Scattered in the kettle wetlands and on the edges of some kettles are deciduous swamps dominated by Hybrid Maple, Reddish Willow and Peach-leaved Willow.

One small kettle (Lot 33, Conc. 2) supports a floating peat marsh dominated by Three-way Sedge and such strong secondary species as Sensitive Fern, Tufted Loosestrife, Spotted Jewelweed and Sphagnum moss.

Several kettles remain filled with water throughout the year its open waters being covered by Common Duckweed and Columbian Water-meal. In contrast, several small kettles dry out in the summer sustaining meadow marshes of Spotted Jewelweed and Rice Cut Grass.

Two wetlands also occur on the floor of the ice-block depression. The largest wetland supports a meadow marsh of Fowl Manna Grass ringed by a rich mixed swamp of Hemlock with scattered Yellow Birch. The western side of the meadow marsh grades into a regenerating field sustaining a meadow marsh of Narrow-leaved Cattail and Variegated Horsetail. On the southern portion, the wetland grades into a Pussy Willow Heart-leaved Willow and Red-osier Dogwood thicket swamp with Sensitive Fern and Fowl Manna Grass common in the understorey. A smaller second wetland in the ice-block depression supports an open pond covered in Common Duckweed.

A large wetland of about 18 hectares occurs on the floor of the meltwater channel. This wetland is situated on a discharge area and is a source for the East Don. Most of the wetland is covered in a mature conifer swamp of White Cedar and Eastern Hemlock with some of the trees appearing to pre-date European settlement. This semi-open swamp also has scattered trees of Yellow Birch and a rich understorey of Sensitive Fern, Bulblet Fern, Field Horsetail, Fowl Manna Grass, Rough Sedge, Rough Goldenrod, Mountain Maple, Spotted Joe-Pye-Weed and Red-stemmed Aster. Small openings in the swamp support meadow marshes of Spotted Joe-Pye-Weed and Red-stemmed Aster and a small pond is ringed by marshes of Variegated Horsetail, Narrow-leaved Cattail and Common Reed.

Regenerating lands are scattered through the ANSI, with the largest situated on the floor of the ice-block depression on the western side of the ANSI. These regenerating lands provide a critical link between existing woodlands and are reverting back into successional woodlands. They support fields of Tall Goldenrod mixed with Smooth Brome, Kentucky Blue Grass and New England Aster, groves of Trembling Aspen and White Birch and thickets of Staghorn Sumac. Sand Dropseed and Canada Blue Grass dominate the driest fields.

Several small conifer plantations with plantings of Red Pine, White Pine and White Spruce are scattered through the ANSI. The older plantations have a number of native saplings and young trees of Sugar Maple and Red Oak.

Table 1. Vegetation community types

Wetland Community Types

1. Open Water
   a. Common Duckweed
   b. Common Duckweed - Columbian Water-meal
2. Marsh
   a. Water-parsnip
   b. Water-parsnip - Retrorse Sedge
   c. Water-parsnip - Short-awned Foxtail
   d. Eastern Manna Grass
   e. Common Cattail
   f. Three-way Sedge
   g. Common Reed
3. Meadow Marsh
   a. Spotted Jewelweed
   b. Fowl Manna Grass
   c. Variegated Horsetail
   d. Rice Cut Grass
   e. Narrow-leaved Cattail
   f. Red-stemmed Aster - Spotted Joe-Pye-Weed
4. Thicket Swamp
   a. Red-osier Dogwood
   b. Red-osier Dogwood - Bebb's Willow - Meadowsweet
   c. Bebb's Willow
   d. Winterberry - Bebb's Willow
   e. Bebb's Willow - Heart-leaved Willow
   f. **Heart-leaved Willow -** Winterberry - Shining Willow
   g. Heart-leaved Willow
5. Deciduous Swamp
   a. **Reddish Willow** - Red Maple - Balsam Poplar
   b. Peach-leaved Willow
   c. Hybrid Maple
6. Mixed Swamp:
   Hemlock - Yellow Birch
7. Conifer Swamp

a. White Cedar - Eastern Hemlock
b. White Cedar

Terrestrial Community Types

9. Moist Deciduous Forest
a. Red Maple
b. **Red Maple** - Sugar Maple
c. Sugar Maple
d. **Sugar Maple** - Red Maple
e. **Sugar Maple** - Red Maple - Red Oak
f. **Sugar Maple** - White Ash
g. **Sugar Maple** - Beech
h. Sugar Maple - Beech
10. Fresh Deciduous Forest
a. Red Oak
b. **Red Oak - Sugar Maple** - Red Maple
c. **Red Oak** - Sugar Maple - Red Maple
d. Red Oak - Red Maple
11. Successional Deciduous Forest
a. Large-toothed Aspen
b. Large-toothed Aspen - Red Maple
c. Trembling Aspen
d. Trembling Aspen - Black Cherry
e. Trembling Aspen - Red Maple
f. Trembling Aspen - White Birch
g. White Birch
h. **White Birch** - Red Oak
i. **White Birch** - Sugar Maple - White Ash - Black Cherry
j. **White Birch** - Large-toothed Aspen
k. Black Cherry
l. Manitoba Maple
12. Moist Mixed Forest
a. **Eastern Hemlock** - Sugar Maple - Beech - Red Maple
b. **Eastern Hemlock** - Sugar Maple - Beech
c. **Eastern Hemlock** - Red Maple - Beech
d. **Sugar Maple - Beech** - Eastern Hemlock
13. Fresh Mixed Forest
a**.** **Red Oak** - White Pine - Red Maple
b. **Red Maple** - White Pine - Sugar Maple
14. Mixed Successsional Forest
a. **White Pine** - White Ash
b. White Pine - Trembling Aspen
c. Eastern Hemlock - White Birch
15. Moist Conifer Forest
a. Eastern Hemlock
b**.** White Cedar

Human-influenced (Cultural) Community Types

16. Regenerating Field
8. Thicket: Staghorn Sumac
17. Conifer Plantation
18. Abandoned Sand Borrow Pit

Flora

The Maple Uplands & Kettle Wetlands ANSI supports a high diversity of 433 vascular plant species (437 taxa) (Appendix A), with a large concentration of significant flora. There is the provincially endangered American Ginseng, the provincially rare Slender Sedge and Sharp-leaved Goldenrod and 34 locally rare species (Table 2). Locally rare species are those that are considered rare in site district 6E7, an area centred on the Oak Ridges Moraine (Varga et al 2000).

These rare species occur in a wide variety of habitats including upland deciduous and mixed forests, forest edges, wetlands and dry sandy fields.

The population size, distribution and status of the ANSI's significant species are noted:

Provincially Endangered:

Panax quinquefolium **American Ginseng**
A population of seven plants occurs on moist Sugar Maple slope forests in the ANSI. Although widespread in southern Ontario, American Ginseng has been noted as an endangered species because its numbers are threatened by harvesting for its presumed medicinal properties (White 1987). Several of the GTA stations for Ginseng have since disappeared and its numbers appear to be declining in our region.

Provincially Rare:

Carex gracilescens **Slender Sedge**
Several clumps were found in a moist Sugar Maple upland forest in the southwest portion of the ANSI. This sedge is restricted to rich forests in southernmost Ontario.

Solidago arguta **Sharp-leaved Goldenrod**
Anthony Goodban (Ecoplans 1999) found several clumps in a drier Red Oak dominated forest in the southeastern portion of the ANSI around the abandoned borrow pit. This goldenrod is restricted to southern Ontario where it prefers drier oak forests and savannahs.

Locally Rare:

Alopecurus aequalis **Short-awned Foxtail**
This aquatic grass was found in several kettle wetlands in the northern portion of the ANSI.

Arabis glabra **Tower Mustard**
This mustard was found on a dry sandy site near the abandoned borrow pit.

Aronia prunifolia **Chokeberry**
This northern shrub is confined to a kettle wetland in the northwestern portion of the ANSI. It is largely restricted to kettle peatlands on the Oak Ridges Moraine. It is rare to uncommon in southern Ontario south of the Shield.

Asclepias exaltata **Poke Milkweed**
Several plants were found in dry mesic Red Oak upland forests in the southeast portion of the ANSI around the abandoned borrow pit. Poke Milkweed is restricted to southern Ontario and is rare on the Oak Ridges Moraine, which is near it northern limits.

Botrychium dissectum **Dissected Grape Fern**
Several dozen plants were found in a conifer plantation in the west-central portion of the ANSI.

Calystegia spithamea **Low Bindweed**
Patches of this bindweed are scattered along the edges of drier oak forests, particularly around the abandoned borrow pit.

Carex backii **Back's Sedge**
Three clumps of this sedge were found in a dry mesic Red Oak forest, a moist Sugar Maple forest and a mixed Sugar Maple - Hemlock forest. Back's Sedge is considered rare to uncommon in most of the counties of southern Ontario.

Carex cephalophora **Oval-leaf Sedge**
Several clumps of this southern sedge occur in successional upland forests and a conifer plantation in the northwest portion of the ANSI.

Carex digitalis **Finger Sedge**
A number of clumps of Finger Sedge occur in a variety of habitats in the ANSI including a cleared forest, dry mesic Red Oak forests and moist Sugar Maple forests. This sedge is confined to southernmost Ontario.

Carex molesta **Troublesome Sedge**
This southern sedge is confined to a dry mesic forest edge in the center of the ANSI.

Carex tonsa **Red-seeded Sedge**
Red-seeded Sedge is confined to several clumps on the edge of dry mesic Red Oak forests in the eastern portion of the ANSI (Lots 30, 31, Conc. 2). This sedge is rare or uncommon in most counties in southern Ontario.

Chamaedaphne calyculata **Leatherleaf**
This classic shrub of kettle bogs on the Oak Ridges Moraine was collected by Margaret Heimburger in 1959 in a kettle wetland abutting Dufferin Street in the northern portion of the ANSI. This shrub is rare to uncommon in southern Ontario south of the Shield.

Claytonia virginica **Narrow-leaved Spring Beauty**
This southern species is a spring wildflower in the moister Sugar Maple forests.

Conopholis americana **Squaw-root**
This parasite on the roots of oak trees is known from only one clump in a moist Sugar Maple slope forest in the northeast portion of the ANSI. Squaw-root is rare or uncommon in many of the counties in southern Ontario.

Cyperus lupulinus **Slender-stemmed Cyperus**
This sedge is confined to a small dry sandy opening in the southwestern portion of the ANSI. Slender-stemmed Cyperus is restricted to southern Ontario and is rare or uncommon in many of the counties.

Dulichium arundinaceum **Three-way Sedge**
This northern sedge dominates a small kettle wetland on thick peats in the northeast portion of the ANSI. It is rare or uncommon in southern Ontario south of the Shield.

Equisetum variegatum **Variegated Horsetail**
This horsetail dominates the edges of a kettle wetland on the kettle floor in the east-central portion of the ANSI. It occurs in association with Alpine Rush, another locally rare species. The horsetail is also found around a pond in the southwest part of the ANSI.

Euonymus obovatus **Running Strawberry-bush**
This southern sprawling shrub is confined to a moist Sugar Maple forest in the southwestern portion of the ANSI. It is near the limit of its range here, and is one of the few records for this species on the Oak Ridges Moraine

Glyceria canadensis **Rattlesnake Manna Grass**
This grass was found for the first time in York and Metropolitan Toronto during this study. It is confined to kettle wetlands in the northwest portion of the ANSI. It is uncommon to rare in most counties in southern Ontario.

Glyceria septentrionalis **Eastern Manna Grass**
This grass is confined to kettle wetlands in the northwest portion of the ANSI. Eastern Manna Grass is restricted to southern Ontario wetlands.

Hamamelis virginiana **Witch-hazel**
Our only autumn flowering shrub, this southern species is common in the drier oak forests of the ANSI. It is near the limits of its range on the Oak Ridges Moraine.

Hepatica americana **Round-lobed Hepatica**
This woodland herb is one of the earliest bloomers in drier oak forests of the ANSI.

Juncus alpinoarticulatus **Alpine Rush**
This rush is confined to a kettle wetland on the kettle floor in the east-central portion of the ANSI.

Liparis loeselii **Loesel's Twayblade**
This orchid is restricted to a kettle wetland that supports a deciduous swamp in the northwestern portion of the ANSI.

Lycopodium hickeyi **Hickey's Tree Clubmoss**
This clubmoss occurs in scattered clumps through the ANSI. It is found in moist Sugar Maple forests and drier Red Oak forests.

Osmorhiza longistylis **Long-styled Sweet Cicely**
This woodland herb was collected by Margaret Heimburger in 1950 and is typically found in moist deciduous forests.

Osmunda clatyoniana **Interrrupted Fern**
This fern was observed in a moist Sugar Maple forest in the northeastern portion of the ANSI.

Panicum linearifolium **Linear-leaved Panic Grass**
This grass is confined to several clumps on the edge of dry mesic Red Oak forests in the southeastern portion of the ANSI around the abandoned borrow pit.

Pilea fontana **Spring Clearweed**
Spring Clearweed is confined to a meadow marsh in the northeast portion of the ANSI and to a conifer swamp in the southwest portion. It is rare or uncommon in many counties in southern Ontario.

Potentilla palustris **Marsh Cinquefoil**
Marsh Cinquefoil is restricted to several kettle wetlands in the northern portion of the ANSI.

Shepherdia canadensis **Soapberry**
Margaret Heimburger collected this shrub in 1954 and it typically prefers drier oak forest edges.

Utricularia vulgaris **Common Bladderwort**
This submerged aquatic plant was found in a kettle wetland in the northern portion of the ANSI.

Viburnum alnifolium **Hobblebush**
Several shrubs occur on a cooler northfacing moist slope of Eastern Hemlock and Sugar Maple in the southeastern portion of the ANSI. This Appalachian species is uncommon to rare in southwestern Ontario and is common on the Shield in the Algonquin Park and Muskoka areas.

Wolffia columbiana **Columbian Water-meal**
This floating aquatic is the world's smallest flowering plant. It forms a dense floating mat in one of the kettle wetlands in the ANSI.

Table 2. Significant vascular plants

Status: Pe - Provincially endangered, Pr - Provincially rare; L - Locally rare in site district 6E7 centred on the Oak Ridges Moraine (based on Varga et al 2000). Source: 1984, 1995, 1998 fieldwork by S. Varga (84, 95, 98); herbarium specimen at the Royal Ontario Museum Vascular Plant Herbarium (T-TRT); 1999 (99) fieldwork by Anthony Goodban (Ecoplans 1999) and the collections of Margaret Hiemburger in 1950 (50), 1954 (54) and 1959 (59).

PeL	*Panax quinquefolium* American Ginseng	T95
PrL	*Carex gracilescens* Slender Sedge	T95
PrL	*Solidago arguta* Sharp-leaved Goldenrod	99
L	*Alopecurus aequalis* Short-awned Foxtail	T95
L	*Arabis glabra* Tower Mustard	95
L	*Aronia prunifolia* Chokeberry	T95
L	*Asclepias exaltata* Poke Milkweed	95
L	*Botrychium dissectum* Dissected Grape Fern	T95
L	*Calystegia spithamea* Low Bindweed	95
L	*Carex backii* Back's Sedge	T95
L	*Carex cephalophora* Oval-leaf Sedge	T95
L	*Carex digitalis* Finger Sedge	T95
L	*Carex molesta* Troublesome Sedge	T95
L	*Carex tonsa* Red-seeded Sedge	T95
L	*Chamaedaphne calyculata* Leatherleaf	T59
L	*Claytonia virginica* Narrow-leaved Spring Beauty	T84
L	*Conopholis americana* Squaw-root	T95
L	*Cyperus lupulinus* Slender-stemmed Cyperus	T95
L	*Dulicuuim arundinaceum* Three-way Sedge	T95
L	*Equisetum variegatum* Variegated Horsetail	T95
L	*Euonymus obovatus* Running Strawberry-bush	T95
L	*Glyceria canadensis* Rattlesnake Manna Grass	T95
L	*Glyceria septentrionalis* Eastern Manna Grass	T95
L	*Hamamelis virginiana* Witch-hazel	95, 98
L	*Hepatica americana* Round-lobed Hepatica	T84
L	*Juncus alpinoarticulatus* Alpine Rush	T95
L	*Liparis loeseli* Loesel's Twayblade	95
L	*Lycopodium hickeyi* Hickey's Tree Club-moss	T95
L	*Osmunda claytoniana* Interrupted Fern	95
L	*Osmorhiza longistylis* Long-styled Sweet Cicely	T50
L	*Panicum linearifolium* Linear-leaved Panic Grass	T95
L	*Pilea fontana* Spring Clearweed	95
L	*Potentilla palustris* Marsh Cinquefoil	95
L	*Shepherdia canadensis* Soapberry	T54

L	*Utricularia vulgaris* Common Bladderwort	95
L	*Viburnum alnifolium* Hobbebush	95, T52
L	*Wolffia columbiana* Columbian Water-meal	95

The flora of the ANSI is noteworthy for its intermixing of northern and southern species. Forty-nine species have northern affinities (Table 3). Their ranges terminate just south of the lower Great Lakes and occasionally extend further south along the Appalachian Mountains. They range north into the boreal and even subarctic regions of Canada, with many having a circumboreal distribution (i.e. they are also present in the boreal regions of Eurasia). These include such boreal species as Tamarack (*Larix laricina*), Trembling Aspen (*Populus tremuloides*) Blue-bead Lily (*Clintonia borealis*) and Naked Mitrewort (*Mitella nuda*).

Fifty-two species with southern affinities also occur in the ANSI. These include such species as Finger Sedge (*Carex digitalis*), Slender Sedge (*Carex gracilescens*), Eastern Cottonwood (*Populus deltoides*), Witch-hazel (*Hamamelis virginiana*) and Running Strawberry-bush (*Euonymus obovatus*). These species are at or near their northern range limits in the ANSI.

Table 3. Geographic affinities of selected vascular plants

Species with northern affinities

Boreal and subarctic species ranging south to the Lower Great Lakes into Ohio and Pennsylvania, and sometimes with an extension into the Appalachian Mountains. Distributions are based on Hulten 1968, Riley 1989, Riley unpublished data, Oldham 1993, Johnson 1990, Morton & Venn 1984 and other sources.

Actaea rubra
Alopecurus aequalis
Aralia nudicaulis
Betula papyrifera
Calla palustris
Calystegia spithamea
Carex backii
Carex bebbii
Carex deweyana
Carex disperma
Carex leptalea
Carex prairea
Carex utriculata
Chamaedaphne calyculata
Cicuta bulbifera
Cinna latifolia
Circaea alpina
Clintonia borealis
Coptis trifolia
Cornus rugosa
Epilobium ciliatum
Equisetum scirpoides
Equisetum fluviatile
Equisetum variegatum
Galium trifidum
Geum aleppicum
Gymnocarpium dryopteris
Junus alpinoarticulatus
Juncus nodosus
Larix laricina
Lysimachia thyrsiflora
Mitella nuda
Pinus strobus
Poa palustris
Polygala paucifolia
Populus balsamifera
Populus temuloides
Ribes triste
Potentilla palustris
Prunus pensylvanica
Salix bebbiana
Sambucucs pubens
Schizachne purpurascens
Sisyrinchium montanum
Streptopus roseus
Thuja occidentalis
Trientalis borealis
Viburnum alnifolium
Viola macloskeyi

Species with southern affinities

Southern species with their northern range limits on the Bruce Peninsula or ranging north in Ontario to Manitoulin Island and often extending into the southern portion of the Canadian Shield to Algonquin Park or rarely to North Bay. Species at or near the limit of their range in the ANSI are noted with an asterisk.

Amphicarpa bracteata
Amelanchier arborea
Asclepias exaltata
Aster cordifolius
Boehmeria cylindrica
Carex blanda
Carex cephalophora
Carex convoluta
Carex cristatella
Carex digitalis *
Carex gracilescens *
Carex laevivaginata
Carex laxiflora
Carex lupulina
Carex molesta
Carex platyphylla
Carex sparganioides
Carpinus caroliniana
Carya cordiformis
Crataegus pedicellata
Crataegus punctata
Desmodium glutinosum
Echinocystis lobata
Euonymus obovatus *
Eupatorium rugosum
Festuca verticillata
Galium lanceolatum
Geum canadense
Glyceria septentrionalis
Hamamalis virginiana *
Anemone acutiloba
Hydrophyllum virginianum
Mitella diphylla
Panax quinquefolium
Pilea fontana
Pilea pumila
Podophyllum peltatum
Polysitchum acrosticoides
Populus deltoides *
Rubus occidentalis
Rubus odoratus
Salix amygdaloides
Smilax herbacea
Smilax hispida
Solidago arguta
Solidago caesia
Solidago flexicaulis
Tiarella cordifolia
Uvularia grandiflora
Viburnum acerifolium
Viola rostrata
Wolffia columbiana

Fauna

The ANSI sustains a diversity of 49 breeding bird species (Appendix B). Wild Turkey, Veery and Chestnut-sided Warbler are considered locally rare or uncommon in the TRCA watershed (Table 4). A number of bird species are also considered sensitive species by Bird Studies Canada (Couturier 1999), the Toronto and Region Conservation Authority (TRCA 1999) and the Canadian Wildlife Service (Cadman 1999) (Table 4).

The ANSI is noteworthy for its diversity of sensitive forest bird species such as Veery, Ovenbird (4 breeding pairs), Scarlet Tanager (5 breeding pairs), Wood Thrush (5 breeding pairs), Red-breasted Nuthatch, Alder Flycatcher,

American Redstart, Mourning Warbler and Chestnut-sided Warbler. Species such as Ovenbird occur in larger forested tracts and are confined to forest interior habitats (Burke 1999), while other forest species such as Mourning Warbler also occur in forest edge and shrubby habitats. Many of these sensitive forest species have suffered population declines in eastern North America, presumably due to the fragmentation of forests and the resulting reduction in forest interior habitat. Cadman (1999) has shown that in southern Ontario these forest species reach their highest diversity in areas with over 35% forest cover. Cadman has noted that the Oak Ridges Moraine, where this ANSI resides, is one of the six areas in southern Ontario with the highest diversity of forest bird species. This is probably attributable to the relatively high forest cover of 28% on the Moraine (OMNR 1999).

In the TRCA watershed a number of the forest species are considered sensitive because they have largely disappeared from urbanized areas such as the City of Toronto. This is probably attributable to high nest predation from elevated numbers of Grey Squirrels, Raccoons and domestic cats and dogs that are associated with urban areas. Declines are particularly high for ground nesters such as Ovenbird, Wood Thrush and Veery. Friesen (1995) has noted that urban development within 100 metres of a woodlot result in declines for some forest bird species

Bobolink, Field Sparrow, American Goldfinch, Bank Swallow, Vesper Sparrow, Gray Catbird and Eastern Towhee are considered sensitive species of open country and shrubby areas with a number of them experiencing declines in their North American ranges.

Alder Flycatcher and Swamp Sparrow are sensitive wetland species because they are dependent on good quality wetlands, a habitat type that has suffered large losses in southern Ontario.

Wild turkeys have recently been re-introduced to southern Ontario. It is a sensitive species in the TRCA watershed because it is a ground nester and requires well-linked habitats, which support some mature forests. Turkeys particularly prefer oak forests, their acorns being a major food source.

Incidental observations were made on other fauna. Five mammal species were observed, including Raccoon, Eastern Chipmunk, Grey Squirrel, Coyote and White-tailed Deer. Seven amphibian and reptile species were also found, including American Toad, Red-back Salamander, Green Frog, Leopard Frog, Northern Spring Peeper, Tetraploid Gray Treefrog and Wood Frog. The later three species are considered sensitive species in the TRCA watershed because they have largely disappeared from urbanized areas such as the City of Toronto (Table 4). These woodland frogs require wetlands in the spring for breeding and nearby forested habitats for feeding and hibernating. Their extirpation from urbanized areas is attributable to the loss of wetland habitats and the loss of adjacent forests and their connecting links.

Table 4. Significant fauna

Status: L - locally rare or uncommon in the TRCA watershed being known from 20 or less stations (pres. comm. Lionel Normand 1999); s – species of concern in the TRCA watershed (TRCA 1999); p1 – conservation priority forest, wetland and open country bird species for York Region ranging from conservation priority level 1 (highest) to level 4 (lowest), based on Bird Studies Canada (Couturier 1999); f – forest bird species with the highest sensitivity to forest cover in southern Ontario (Cadman 1999). Breeding bird status: P – Probable breeder, o – Possible breeder. Source: 1995 TRCA fieldwork (95).

Breeding Birds			
Ls	Wild Turkey	o	95
p2	Black-billed Cuckoo	o	95
p3	Ruby-throated Hummingbird	o	95
s	Eastern Wood-Pewee	P	95
p3f	Alder Flycatcher	P	95
p3f	Eastern Phoebe	P	95
p3	Eastern Kingbird	P	95
p2	Bank Swallow	o	95
p4	Black-capped Chickadee	o	95
p3f	Red-breasted Nuthatch	o	95
Lsp3f	Veery	P	95
p4f	Wood Thrush	o	95
p3	Gray Catbird	o	95
Lsp1f	Chestnut-sided Warbler	o	95
sp4f	Ovenbird	o	95
p2f	Mourning Warbler	o	95
p2f	American Redstart	o	95
p2f	Scarlet Tanager	o	95
sp3	Eastern Towhee	P	95
p3	Field Sparrow	o	95
p3	Vesper Sparrow	P	95
p2	Swamp Sparrow	o	95
p2	Bobolink	P	95
p3	American Goldfinch	o	95
Amphibians			
s	Wood Frog		95
s	Northern Spring Peeper		95
s	Tetraploid Gray Treefrog		95

Conclusions
The inventory work carried out re-confirms that the Maple Uplands & Kettle Wetlands is a regional life science Area of Natural and Scientific Interest and the Oak Ridges Moraine Maple Spur is a regional earth science Area of Natural and Scientific Interest.

Life Science Significance
The Maple Uplands & Kettle Wetlands ANSI fulfills the following five criteria for life science ANSI selection:

Representation
The Maple Uplands & Kettle Wetlands ANSI provides good representation of Oak Ridges Moraine natural features. These include moist deciduous and mixed upland forests, drier deciduous forests, kettle wetlands and lowland conifer swamps. It supports some of the best examples of kettle wetlands in ANSIs on the Oak Ridges Moraine. Kettle wetlands are also represented at Lake Wilcox Kettle Wetlands & Uplands ANSI, Vandorf Bog Complex ANSI and White Rose Bog ANSI. Maple Uplands & Kettle Wetlands is also noteworthy for supporting one of the most mature examples of a White Cedar – Hemlock – Yellow Birch conifer headwater swamp on the Moraine.

Diversity
The ANSI is noteworthy for its high diversity of 66 plant communities, 433 vascular plant species and 49 breeding bird species.

Special Features
The ANSI has a high concentration of 37 significant plant species, 24 significant bird species and 3 significant amphibian species. They include the provincially endangered American Ginseng and the provincially rare Slender Sedge and Sharp-leaved Goldenrod.

Condition
The ANSI's forests are largely intermediate aged to semi-mature, with some trees in excess of a hundred years old. A noteworthy mature conifer swamp has old-growth characteristics. There are also successional forests, which are reverting to forest types typical of the moraine. There has been no recent logging in most of the ANSI. An abandoned sand borrow pit in the southeast portion abuts the ANSI. Other disturbances include Dufferin Street cutting through the middle of the ANSI and a recently approved residential subdivision in the southwest portion of the kettle depression.

Ecological Function
The Oak Ridges Moraine is noted for its large tracts of sandy woodlands, the largest in the Greater Toronto Area (OMNR 1999). The Maple Uplands & Kettle Wetlands ANSI with over 300 hectares of forested and regenerating lands is one of the twelve largest forested blocks on the Moraine (OMNR 2000). The ANSI's forests are connected to the south to additional valley forests that are part of the East Don valley system. This large woodland block provides critical forest interior habitat.

The ANSI is a highly sensitive recharge and discharge area for the East Branch of the Don River. Waters percolating into the highly permeable sands of the ANSI, are discharged in the ANSI and to the south as headwater sources for the Don River watershed (Gartner Lee Ltd. 1993).

The ANSI is connected to a major natural valley corridor, the East Don. This valley provides an important ecological corridor linking the Oak Ridges Moraine to the till plain to the south. Such natural corridors play an important role in maintaining ecological functions by allowing for the genetic flow of animals and plants (Riley & Mohr 1994).

Earth Science Significance
The Oak Ridges Moraine Maple Spur ANSI is representative of kettle landforms on the Oak Ridges Moraine. The site is representative of these landforms at the regional level of significance and provides additional protection for this landform type in addition to the landforms in the Musselman Lake Kettle Complex ANSI. The fact that the depression is not water-filled, in contrast to most of the other kettles on the moraine, adds to its scientific and interpretive value. These values of the site are also considerable enhanced by the presence of a large and well-developed meltwater channel, which provides a record of an important phase in kettle development. The quality and condition of the landforms in the Maple site is good. There has been some disturbance of the landform features including an abandoned borrow pit and a recently approved residential subdivision on a portion of the kettle floor.

ANSI boundaries
The boundaries for the earth and life science ANSIs are shown on Map 1.

The life science ANSI boundary has been modified to conform more closely to the natural features of the site and to avoid several homes, a recently approved residential subdivision, the abandoned sand borrow pit and a cultivated field on the kettle floor.

A southward extension of the life science ANSI includes a major meltwater channel and discharge area. This extension

adds to the diversity of the ANSI incorporating a high quality conifer swamp and headwater source for the East Don. It also supports additional moist broadleaf, mixed and conifer upland forests.

The boundaries of the Earth Science ANSI encompass the dry kettle and meltwater channels. It is largely confined within the life science ANSI with one exception. The cultivated field which is excluded from the life science ANSI is included in the earth science ANSI because it provides representation of the hummocky landform of the kettle floor.

Recommendations

It is recommended that no further development occur in the ANSI and appropriate buffers be set aside to ensure that ANSI functions are maintained.

The existing cultivated field, the abandoned sand borrow pit and the regenerating fields provide important corridor functions. Encouragement should be given to forest regeneration on these lands, thereby greatly increasing the amount of forest interior habitat.

The corridor connecting the ANSI's morainal forests and kettle wetlands to the East Don valley system needs to be maintained and strengthened.

Natural corridors also need to be maintained and protected between the ANSI and the surrounding kettle wetlands. These wetlands are largely situated in the northern portion of the ANSI with one isolated wetland also to the west. They serve as critical breeding grounds for the ANSI's amphibian populations such as its Spring Peepers Gray Treefrogs and Wood Frogs. These amphibians utilize the ANSI's forests for feeding and hibernating but need to migrate to the wetlands every spring for breeding. The resulting young then migrate back to the forests when they have matured.

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APPENDIX A:
VASCULAR PLANTS OF THE MAPLE UPLANDS & KETTLE WETLANDS AREA OF NATURAL AND SCIENTIFIC INTEREST

A total of 434 species (437 taxca) have been recorded in the Maple Uplands & Kettle Wetlands ANSI. There are 347 native taxa and 90 taxa have been introduced, and are so noted with the symbol "+", along the left margin. These introduced species constitute 20% of the flora. The botanical names generally follow Newmaster et al. 1998.

Other status symbols indicate species that are provincially rare (Pr), provincially endangered (Pe) and locally rare (L). A species is considered locally rare if it is known from 20 or less locations in site district 6E7. The site district is centred on the Oak Ridges Moraine, the abutting South Slope and a portion of the Niagara Escarpment and adjacent Horseshoe Moraines from central Halton Region north to central Simcoe Region.

Voucher specimens and sight records (SR) are based on the following sources: SV - Steve Varga (1995, 1996 and 1998 field seasons and a 1984 visit with Sheila McKay-Kuja), AG - Anthony Goodban's 1999 field notes for Lot 30, Concession 2 (Ecoplans 1999) and MH - Margaret L. Heimburger (collections in the 1950s). Species based on voucher specimens are noted by the herbarium they are housed in: TRT - Royal Ontario Museum, Botany Department and the year of the collection. The vegetation community types in which they are found are noted for most species. They are based on community numbers in the text.

Status	Species	Common Name	Community Types	Source
	LYCOPODIACEAE	**CLUBMOSS FAMILY**		
	Diphasiastrum digitatum (Dill. Ex A. Braun) Holub (*Lycopodium digitatum* Dill ex A. Braun.)	Crowfoot Clubmoss	11	SV(TRT84,95)
	Huperzia lucidula (Michx.) Trevis. (*Lycopodium lucidulum* Michx.)	Shining Clubmoss	9,12	SV(SR)
L	*Lycopodium hickeyi* W.H. Wagner, Beitel & Moran (*L. obscurum* L. var. *isophyllum* Hickey)	Hickey's Tree Club-moss	9,10,11,12	SV(TRT84,95)
	EQUISETACEAE	**HORSETAIL FAMILY**		
	Equisetum arvense L.	Field Horsetail	2,3,4,5,6,7,9,16	SV(SR)
	Equisetum fluviatile L.	Water Horsetail	2,4,5	SV(SR)
	Equisetum hyemale L. var. *affine* (Engelm.) A.A. Eat.	Common Scouring-rush	9,10,11	SV(SR)
	Equisetum scirpoides Michx.	Dwarf Scouring-rush	6,7,12	SV(TRT84)
	Equisetum variegatum Schleich.	Variegated Horsetail	3	SV(TRT95)
	OPHIOGLOSSACEAE	**ADDER'S-TONGUE FAMILY**		
L	*Botrychium dissectum* Spreng.	Dissected Grape Fern	17	SV(TRT95)

Status	Species	Common Name	Community Types	Sources
	Botrychium virginianum (L.) Sw.	Rattlesnake Fern	9,10,11,12,13	SV(SR)
	OSMUNDACEAE	**ROYAL FERN FAMILY**		
	Osmunda cinnamomea L.	Cinnamon Fern	4	SV(SR)
L	*Osmunda claytoniana* L.	Interrupted Fern	9	SV(SR)
	DENNSTAEDTIACEAE	**BRACKEN FAMILY**		
	Pteridium aquilinum (L.) Kuhn var. *latiusculum* (Desv.) Underw.	Eastern Bracken	8,10,11,13,14,16,17	SV(SR)
	ADIANTACEAE	**MAIDENHAIR FERN FAMILY**		
	Adiantum pedatum L.	Northern Maidenhair Fern	6,9,12	SV(SR)
	ASPLENIACEAE	**SPLEENWORT FAMILY**		
	Athyrium filix-femina (L.) Roth var. *michauxii* (Spreng.) Fern. (*A. angustum* (Willd.) Presl. var. *angustum*)	Northeastern Lady Fern	7,9,10,11,12,13,15	SV(SR)
	Cystopteris bulbifera (L.) Bernh.	Bulblet Fern	3,6,7,12,14,15	SV(SR)
	Dryopteris carthusiana (Vill.) H.P. Fuchs (*D. spinulosa* (O.F. Muell.) Watt; *D. austriaca* (Jacq.) Woynar var. *spinulosa* (O.F. Muell.) Fiori)	Spinulose Wood Fern	5,6,7,9,11,12,15	SV(SR)
	Dryopertis clintoniana (D.C. Eat) Dowell (*D. cristata* (L.) Gray var. *clintoniana* (D.C. Eat) Underw.)	Clinton's Wood Fern	9	MH(TRT84)
	Dryopteris cristata (L.) Gray	Crested Wood Fern	3	SV(TRT95)
	Dryopteris intermedia (Willd.) Gray (*D. spinulosa* (O.F. Muell.) Watt. var. *intermedia* (Willd.) Underw.) (*D. austriaca* (Jacq.) Woynar var. *intermedia* (Willd.) Mort.)	Glandular Wood Fern	7,9,10,11,12,13,15	SV(SR)
	Dryopteris marginalis (L.) Gray	Marginal Wood Fern	7,9,10,12,13,15	SV(SR)
	Dryopteris X *triploidea* Wherry (*D. intermedia* X *D.carthusiana*) (*D. austriaca* (Jacq.) Woynar var. *fructuosa* (Gilb.) Mort.) (*D. spinulosa* (O.F. Muell.) Watt. var. *fructuosa* (Gilb.) Trud.)	Triploid Wood Fern	9,12	SV(SR)

Status	Species	Common Name	Community Types	Sources
	Gymnocarpium dryopteris (L.) Newm. (*Dryopteris disjuncta* (Ledeb.) Mort.)	Oak Fern	6,7,12,15	SV(SR), MH(TRT52)
	Matteuccia struthiopteris (L.) Todaro var. *pensylvanica* (Willd.) Mort. (*Pteretis pensylvanica* (Willd.) Fern.)	American Ostrich Fern	3,4,5,6,7,9,12	SV(SR)
	Onoclea sensibilis L.	Sensitive Fern	2,3,4,5,6,7,15	SV(SR)
	Polystichum acrostichoides (Michx.) Schott	Christmas Fern	9,12,15	SV(SR)
	THELYPTERIDACEAE	**BEECH FERN FAMILY**		
	Thelypteris palustris (Salisb.) Schott var. *pubescens* (Lawson) Fern. (*Dryopteris thelypteris* (L.) Gray var. *pubescens* (Lawson) Nakai)	Marsh Fern	2,3,4,5,6,7	SV(SR),MH(TRT52)
	POLYPODIACEAE	**POLYPODY FAMILY**		
	Polypodium virginianum L.	Rock Polypody Fern	10	AG(SR)
	PINACEAE	**PINE FAMILY**		
	Larix laricina (Du Roi) K. Koch	Tamarack	4,17	SV(SR)
+	*Picea glauca* (Moench) Voss	White Spruce	11,17	SV(SR)
+	*Pinus banksiana* Lam.	Jack Pine	17	SV(SR)
+	*Pinus resinosa* Ait.	Red Pine	17	SV(SR)
	Pinus strobus L.	White Pine	7,9,10,11,12,13,14,15,16,17	SV(TRT84)
	Tsuga canadensis (L.) Carr.	Eastern Hemlock	6,7,9,10,11,12,14,15	SV(SR)
	CUPRESSACEAE	**CYPRESS FAMILY**		
	Thuja occidentalis L.	White Cedar	5,6,7,15	SV(SR)
	TYPHACEAE	**CATTAIL FAMILY**		
	Typha angustifolia L.	Narrow-leaved Cattail	3	SV(SR)
	Typha latifolia L.	Common Cattail	2,4,5	SV(SR)
	SPARGANIACEAE	**BUR-REED FAMILY**		
	Sparganium chlorocarpum Rydb. (*S. emersum* Rehman ssp. *emersum*)	Green-fruited Bur-reed	1,2	SV(TRT95)

Status	Species	Common Name	Community Types	Sources
	ZOSTERACEAE	**PONDWEED FAMILY**		
	Potamogeton foliosus Raf.	Leafy Pondweed	1	SV(TRT95)
	ALISMATACEAE	**WATER-PLANTAIN FAMILY**		
	Alisma plantago-aquatica L. (incl. *A. triviale* Pursh & *A. subcordatum* Raf.)	Water-plantain	1,2,4,5	SV(SR)
	Sagittaria latifolia Willd.	Common Arrowhead	2	SV(SR)
	POACEAE	**GRASS FAMILY**		
+	*Agropyron repens* (L.) Beauv. (*Elymus repens* (L.) Gould)	Quack Grass	16	SV(SR)
+	*Agrostis gigantea* Roth. (*A. alba auct. amer.*, *non* L.)	Redtop	3,16	SV(SR)
	Agrostis stolonifera L. (*A. alba* L. var. *palustris* (Huds.) Pers.)	Creeping Bent Grass	3	SV(SR)
L	*Alopecurus aequalis* Sobol	Short-awned Foxtail	2,3,4,5	SV(TRT95)
+	*Bromus inermis* Leyss. ssp. *inermis*	Smooth Brome Grass	8,11,16,17	SV(SR)
+	*Bromus japonicus* Murray	Japanese Brome	16,18	SV(TRT95)
	Cinna latifolia (Goepp.) Grisep.	Nodding Wood Grass	7	SV(SR)
+	*Dactylis glomerata* L.	Orchard Grass	8,11,16,17	SV(SR)
	Danthonia spicata (L.) R. & S.	Poverty Oat Grass	17	SV(SR)
+	*Digitaria ischaemum* (Schreb.) Schreb. *ex* Muhl.	Smooth Crabgrass	16	SV(SR)
	Festuca subverticillata (Pers.) & Alexeev (*F. obtusa* Biehl.)	Nodding Fescue	6,9,12	SV(TRT95)
+	*Festuca pratensis* Huds. (*F. elatior* L. *pro parte*)	Meadow Fescue	16	SV(SR)
L	*Glyceria canadensis* (Michx.) Trin.	Rattlesnake Manna Grass	2,4	SV(TRT95)
	Glyceria grandis S. Wats.	Tall Manna Grass	2,4	SV(SR)
L	*Glyceria septentrionalis* A.S. Hitchc.	Eastern Manna Grass	2,4,5	SV(TRT95)
	Glyceria striata (Lam.) A.S. Hitchc.	Fowl Manna Grass	3,4,5,6,7,9	SV(SR)

Status	Species	Common Name	Community Types	Sources
+	*Hordeum jubatum* L.	Foxtail Barley	18	SV(TRT)
	Leersia oryzoides (L.) Sw.	Rice Cut Grass	2,3,4,7	SV(SR)
+	*Lolium perenne* L. (incl. *L. multiflorum* Lam.)	Perennial Rye-grass	16	SV(TRT95)
	Milium effusum L.	Wood Millet	9	SV(SR)
	Oryzopsis asperifolia Michx.	Rough-leaved Mountain-rice	9,11,12,13,14,15,17	SV(TRT84)
	Panicum lanuginosum Ell. var. *implicatum* (Scribn.) Fern. (*P. implicatum* Scribn.)	Hairy Panic Grass	9,16	SV(TRT95)
L	*Panicum linearifolium* Britt. (*Dichanthelium l.* (Scribn.) Gould)	Narrow-leaved Panic Grass	9,16	SV(TRT95)
	Phalaris arundinacea L.	Reed Canary Grass	2,3,4,5,7	SV(SR)
	Phragmites australis (Cav.) Trin. ex. Steud. (*P. communis* Trin.)	Common Reed	2	SV(SR)
+	*Phleum pratense* L.	Timothy	8,11,16,18	SV(SR)
	Poa compressa L.	Canada Blue Grass	8,11,14,16,18	SV(SR)
	Poa palustris L.	Fowl Meadow Grass	2,3,4	SV(SR)
+	*Poa pratensis* L.	Kentucky Blue Grass	8,11,14,16,17,18	SV(SR)
+	*Puccinellia distans* (Jacq.) Parl.	Alkali Grass	18	SV(TRT95)
	Schizachne purpurascens (Torr.) Sw.	Purple Melic Grass	10,11	SV(TRT84)
+	*Setaria glauca* (L.) Beauv.	Yellow Foxtail	16	SV(SR)
+	*Setaria viridis* (L.) Beauv.	Green Foxtail	16	SV(SR)
	Sphenopholis intermedia (Rydb.) Rydb.	Slender Wedge Grass	3	SV(SR)
	Sporobolus cryptandrus (Torr.) Gray	Sand Dropseed	16,18	SV(SR)
	CYPERACEAE	**SEDGE FAMILY**		
	Carex arctata Boott	Drooping Wood Sedge	9,10,11,12,14,15,16	SV(TRT95),MH(TRT52)
L	*Carex backii* Boott	Back's Sedge	10,12,13	SV(TRT95)
	Carex bebbii (Bailey) Fern.	Bebb's Sedge	2,3,4	SV(TRT95)
	Carex blanda Dew.	Woodland Sedge	9,10,11,12	SV(TRT84,95)

Status	Species	Common Name	Community Types	Sources
L	*Carex cephalophora* Muhl. *ex* Willd.	Oval-headed Sedge	11,18	SV(TRT95)
	Carex communis Bailey	Fibrous Rooted Sedge	9,10,11,12,16	SV(TRT84,95)
	Carex comosa Boott	Bearded Sedge	1,2,4	SV(TRT95)
	Carex crinita Lam.	Fringed Sedge	4	SV(TRT95)
	Carex cristatella Britt.	Crested Sedge	2,3,4,5,7	SV(TRT95)
	Carex deweyana Schw.	Dewey's Sedge	9,10,11,12,16	SV(TRT84,95), MH(TRT52)
	Carex diandra Schrank	Lesser Panicled Sedge	2,4	SV(TRT95)
L	*Carex digitalis* Willd.	Finger Sedge	9,10,11,12,16	SV(TRT95)
	Carex disperma Dewey	Soft-leaved Sedge	7	SV(SR)
PrL	*Carex gracilescens* Steud. (*C. laxiflora* Lam. var. *gracillima* Robins. & Fern.)	Slender Sedge	9	SV(TRT95)
	Carex gracillima Schw.	Graceful Sedge	6,12	SV(SR)
	Carex granularis Muhl. *ex* Willd.	Meadow Sedge	16	SV(SR)
	Carex hystericina Muhl. *ex* Willd.	Porcupine Sedge	2,3,4,7	SV(SR)
	Carex interior Bailey	Inland Sedge	7	SV(SR)
	Carex intumescens Rudge	Bladder Sedge	4,5,6,9,12	SV(SR)
L	*Carex laevivaginata* (Kukenth.) Mack.	Smooth-sheathed Sedge	2,3	SV(SR),MH(TRT52)
	Carex laxiflora Lam.	Loose-flowered Sedge	9,10,11,12,13	SV(TRT95),MH(TRT52)
	Carex leptalea Wahl.	Bristle-stalked Sedge	7	SV(SR)
	Carex lupulina Muhl. *ex* Willd.	Hop Sedge	2,3,4,5	SV(TRT95)
L	*Carex molesta* Mack. *ex* Bright (*C. brevior* (Dew.) Mack. *ex* Lunnell var. *molesta* (Mack.) Gates)	Troublesome Sedge	16	SV(TRT95)
	Carex pedunculata Muhl. *ex* Willd.	Peduncled Sedge	7,9,10,11,12,13,14,15	SV(SR)
	Carex pensylvanica Lam.	Pennsylvania Sedge	9,10,11,12,13,14,17	SV(TRT95)
	Carex plantaginea Lam.	Pantain-leaved Sedge	9	MH(TRT52)
	Carex platyphylla Carey	Broad-leaved Sedge	10	MH(TRT52)
	Carex projecta Mack.	Necklace Sedge	2,3,4,5,9	SV(TRT95)

Status	Species	Common Name	Community Types	Sources
	Carex pseudocyperus L.	Cyperus-like Sedge	1,2,3,4	SV(SR)
	Carex radiata (Wahlenb.) Small (*C. rosea* auct.)	Straight-styled Wood Sedge	6,9,12	SV(SR)
	Carex retrorsa Schw.	Retrorse Sedge	2,3,4	SV(TRT95)
	Carex rosea Schkuhr ex Willd. (*C. convoluta* Mack.)	Curly-styled Wood Sedge	9,10,11,12,16	SV(TRT95)
	Carex scabrata Schwein.	Rough Sedge	7	SV(SR)
	Carex sparganioides Muhl. *ex* Willd.	Bur-reed Sedge	9,11,12	SV(TRT95)
+	*Carex spicata* Huds.	Spiked Sedge	16	SV(SR)
	Carex stipata Muhl. *ex* Willd.	Awl-fruited Sedge	2,3,4,7	SV(TRT95)
L	*Carex tonsa* (Fern.) Bicknell *(C. rugosperma* Mack.)	Red-seeded Sedge	9,16	SV(TRT95)
	Carex utriculata Boott (*C. rostrata* of authors)	Beaked Sedge	2	SV(TRT95)
	Carex vulpinoidea Michx. (incl. *C. annectans* (Bickn.) Bickn.)	Fox Sedge	3	SV(SR)
L	*Cyperus lupulinus* (Spreng.) Marcks (part of *Cyperus filiculmis* Vahl.)	Slender Cyperus	16	SV(SR)
L	*Dulichium arundinaceum* (L.) Britt.	Three-way Sedge	2	SV(SR)
	Eleocharis erythropoda Steud. (*E. calva* Torr.)	Red-footed Spike-rush	1,2	SV(TRT95)
	Eleocharis obtusa (Willd.) Schultes	Blunt Spike-rush	3	SV(TRT95)
	Scirpus atrovirens Willd.	Dark Green Bulrush	3,7	SV(SR)
	Scirpus cyperinus (L.) Kunth var. *cyperinus*	Wool-grass	3,4	SV(SR)
	Scirpus validus Vahl	Softstem Bulrush	3	SV(SR)
	ARACEAE	**ARUM FAMILY**		
	Arisaema triphyllum (L.) Schott	Jack-in-the-pulpit	7,9,10,11,12,13,15,17	SV(SR)
	Calla palustris L.	Water-arum	2,3,4	SV(SR)
	LEMNACEAE	**DUCKWEED FAMILY**		
	Lemna minor L.	Common Duckweed	1,2,4,5	SV(SR)

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	Lemna trisulca L.	Star Duckweed	1,2,4	SV(SR)
	Spirodela polyrhiza (L.) Schleid.	Greater Duckweed	1,2,4	SV(SR)
L	*Wolffia columbiana* Karst.	Columbian Water-meal	1	SV(SR)
	JUNCACEAE	**RUSH FAMILY**		
	Juncus alpinoarticulatus Chaix *in* Vill. (*Juncus alpinus* Villars)	Alpine Rush	3	SV(TRT95)
	Juncus articulatus L.	Jointed Rush	3	SV(SR)
	Juncus dudleyi Wieg.	Dudley's Rush	3	SV(SR)
	Juncus effusus L. ssp. *solutus* (Fern. & Wieg.) Hamet-Ahti (*J. effusus* L. var. *solutus* Fern. & Wieg.) (*J. griscomii* Fern.)	Soft Rush	2,3,4	SV(TRT95)
	Juncus nodosus L.	Knotted Rush	3	SV(SR)
	Juncus tenuis Willd.	Path Rush	11	SV(SR)
	LILIACEAE	**LILY FAMILY**		
	Allium tricoccum Ait	Wild Leek	9	SV(SR)
+	*Asparagus officinalis* L.	Garden Asparagus	16	SV(SR)
	Clintonia borealis (Ait.) Raf.	Bluebead-lily	9,11,12,15	SV(SR)
	Erythronium americanum Ker	Yellow Trout-lily	9,10,11,12,13,15	SV(TRT84)
	Maianthemum canadense Desf.	Wild Lily-of-the-valley	9,10,11,12,13,14,15,17	SV(SR)
	Medeola virginiana L.	Indian Cucumber-root	9,10,11,12,15	SV(SR)
	Polygonatum pubescens (Willd.) Pursh	Hairy Solomon's-seal	9,10,11,12,13,14,1,5,17	SV(SR)
	Smilacina racemosa (L.) Desf. (*Maianthemum racemosum* (L.) Link ssp. *racemosum*)	False Solomon's-seal	9,10,11,12,13,14,1,5,17	SV(SR)
	Smilax herbacea L.	Carrion-flower	9,10,11,12,17	SV(SR)
	Smilax hispida Torr. (*S. tamnoides* L. var. *hispida* (Torr.) Fern.)	Bristly Greenbrier	10,15	SV(SR)
	Streptopus roseus Michx.	Rose Twisted Stalk	6,7,9,10,11,12,13,15,17	SV(TRT84)
	Trillium erectum L.	Red Trillium	9,10,11,12,13,15	SV(SR)

Status	Species	Common Name	Community Types	Sources
	Trillium grandiflorum (Michx.) Salisb.	White Trillium	9,10,11,12,13,14,15,17	SV(SR)
	Uvularia grandiflora Sm.	Large-flowered Bellwort	9,10,11,12	SV(TRT84)
	IRIDACEAE	**IRIS FAMILY**		
	Sisyrinchium montanum Greene	Little Blue-eyed Grass	16	SV(TRT95)
	ORCHIDACEAE	**ORCHID FAMILY**		
+	*Epipactis helleborine* (L.) Crantz.	Helleborine	6,7,9-14,17	SV(SR)
L	*Liparis loeselii* (L.) Rich.	Loesel's Twayblade	5	SV(TRT95)
	SALICACEAE	**WILLOW FAMILY**		
+	*Populus alba* L.	White Poplar	16	SV(SR)
	Populus balsamifera L.	Balsam Poplar	5,6,7,11,16	SV(SR)
	Populus deltoides Marsh.	Eastern Cottonwood	16,18	SV(SR)
	Populus grandidentata Michx.	Large-toothed Aspen	8,9-17	SV(SR)
	Populus tremuloides Michx.	Trembling Aspen	5,10-18	SV(SR)
	Salix amygdaloides Anderss.	Peach-leaved Willow	4,5	SV(TRT95)
	Salix bebbiana Sarg.	Bebb's Willow	2,3,4,5,7	SV(SR)
	Salix discolor Muhl.	Pussy Willow	2,3,4,5,16	SV(SR)
	Salix eriocephala Michx. (*S. rigida* Muhl.)	Heart-leaved Willow	2,3,4,5,7	SV(SR)
	Salix exigua Nutt. (*Salix interior* Rowlee)	Sandbar Willow	16	SV(SR)
	Salix lucida Muhl.	Shining Willow	2,3,4	SV(SR)
	Salix petiolaris Sm. (*S. gracilis* Anderss.)	Slender Willow	2,3,4	SV(TRT95)
+	*Salix* X *rubens* Schrank (*S. alba* X *S. fragilis*)	Reddish Willow	2,3,4,5	SV(TRT95)
	JUGLANDACEAE	**WALNUT FAMILY**		
	Carya cordiformis (Wang.) K. Koch	Bitternut Hickory	9,10,11,12,13,14,15,17	SV(SR).MH(TRT52)
	Juglans cinerea L.	Butternut	9,10,11,12,13,15,16,17	SV(SR)

Status	Species	Common Name	Community Types	Sources
	BETULACEAE	**BIRCH FAMILY**		
	Betula alleghaniensis Britt. (*B. lutea auct.,non* Michx.)	Yellow Birch	6,7,12,15	SV(TRT84)
	Betula papyrifera Marsh.	White Birch	5,9-18	SV(SR)
	Carpinus caroliniana Walt.	Blue Beech	6,9,12	SV(SR)
	Corylus cornuta Marsh.	Beaked Hazel	9-15,17	SV(SR)
	Ostrya virginiana (Mill.) K. Koch	Ironwood	9-15,17	SV(SR)
	FAGACEAE	**BEECH FAMILY**		
	Fagus grandifolia Ehrh.	American Beech	9-15,17	SV(SR)
	Quercus alba L.	White Oak	10,17	SV(SR)
	Quercus rubra L.	Red Oak	9-17	SV(SR)
	ULMACEAE	**ELM FAMILY**		
	Ulmus americana L.	White Elm	5-11,14,16,17	SV(SR)
	URTICACEAE	**NETTLE FAMILY**		
	Boehmeria cylindrica (L.) Sw.	False Nettle	3,4,5	SV(SR)
	Laportea canadensis (L.) Wedd.	Wood Nettle	6	SV(SR)
L	*Pilea fontana* (Lunell) Rydb.	Spring Clearweed	2,3	SV(SR)
	Pilea pumila (L.) Gray	Dwarf Clearweed	2,3	SV(SR)
	Urtica dioica L. subsp. *gracilis* (Ait.) Seland. (*U. procera* Muhl.)	American Stinging Nettle	3,7	SV(SR)
	ARISTOLOCHIACEAE	**BIRTHWORT FAMILY**		
	Asarum canadense L.	Wild Ginger	9,12	SV(TRT84)
	POLYGONACEAE	**BUCKWHEAT FAMILY**		
+	*Polygonum achoreum* Blake	Striate Knotweed	16,18	SV(TRT95)

Status	Species	Common Name	Community Types	Sources
	Polygonum amphibium L. (incl. var. *stipulaceum* Coleman (*P. natans* Eat.) & var. *emersum* Michx. (*P. coccineum* Willd.))	Water Smartweed	2,4,5	SV(SR)
	Polygonum aviculare L. (*s.l.*) (incl. *P. monspeliense* L.)	Prostrate Knotweed	16,18	SV(TRT95)
	Polygonum convolvulus L. (*Bilderdkyia convolvulus* (L.) Dumort)	Wild Buckwheat	16	SV(SR)
	Polygonumn hydropiper L.	Marshpepper Smartweed	3	SV(SR)
+	*Rumex acetosella* L.	Sheep Sorrel	16,18	SV(SR)
+	*Rumex crispus* L.	Curly Dock	16	SV(SR)
+	*Rumex obtusifolius* L.	Bitter Dock	3	SV(SR)
	CHENOPODIACEAE	**SPINACH FAMILY**		
+	*Chenopodium album* L.	Lamb's-quarters	18	SV(SR)
+	*Salsola kali* L. (*S. pestifer* A. Nels.)	Russian Thistle	18	SV(SR)
	AMARANTHUS	**AMARANTH FAMILY**		
+	*Amaranthus powellii* S. Wats. (*A. retroflexus* L. var. *powellii* (S.Wats.) Boivin)	Green Pigweed	16	SV(SR)
	PORTULACACEAE	**PURSLANE FAMILY**		
	Claytonia caroliniana Michx.	Broad-leaved Spring Beauty	9,12	SV(SR)
L	*Claytonia virginica*	Narrow-leaved Spring Beauty	6	SV(TRT84)
	CARYOPHYLLACEAE	**PINK FAMILY**		
+	*Arenaria serpyllifolia* L.	Thyme-leaved Sandwort	16	SV(SR)
+	*Cerastium fontanum* Baumg. (ssp. *triviale* (Link) Jatas; *C. vulgatum* L.)	Mouse-eared Chickweed	16	SV(SR)
+	*Myosoton aquaticum* (L.) Moench (*Stellaria aquatica* (L.) Scop.)	Aquatic Chickweed	3,7	SV(TRT95)
+	*Saponaria officinalis* L.	Bouncing-bet	16	SV(SR)

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+	*Silene vulgaris* (Moench) Garcke (*S. cucubalus* Wibel)	Bladder Campion	16	SV(SR)
	RANUNCULACEAE	**CROWFOOT FAMILY**		
	Actaea pachypoda Ell. (*A. alba sensu* Bibel.)	White Baneberry	9-15,17	SV(SR)
	Actaea rubra (Ait.) Willd.	Red Baneberry	9-15,17	SV(SR)
	Anemone acutiloba (DC.) G. Lawson *(Hepatica acutiloba* DC.)	Sharp-lobed Hepatica	9,11,12	SV(TRT84)
L	*Anemone americana* (DC.) H. Hara. *(Hepatica americana* (DC.) Ker)	Round-lobed Hepatica	10,11,13	SV(TRT84)
	Anemone quinquefolia L.	Wood Anemone	9,10	SV(SR)
	Anemone virginiana L. (incl. *A. riparia* Fern.)	Thimbleweed	10,11,16,17	SV(SR)
	Aquilegia canadensis L.	Wild Columbine	10,11,12	SV(SR)
	Caltha palustris L.	Marsh-marigold	2,3,4,5,6,7	SV(TRT84)
	Coptis trifolia (L.) Salisb. (*C. groenlandica* (Oeder) Fern.)	Gold-thread	6,7,12	SV(TRT84)
	Ranunculus abortivus L.	Kidney-leaved Buttercup	9,10,11,12,13,14,15	SV(SR)
+	*Ranunculus acris* L.	Tall Buttercup	8,11,16	SV(SR)
	Ranunculus recurvatus Poir.	Hooked Buttercup	7	SV(SR)
	Thalictrum dioicum L.	Early Meadow Rue	9,10,11,12,13,14,15	SV(SR)
	BERBERIDACEAE	**BARBERRY FAMILY**		
+	*Berberis thunbergii* DC.	Japanese Barberry	11	SV(SR)
	Caulophyllum thalictroides (L.) Michx. var. *thalictroides*	Blue Cohosh	9,11,12	SV(SR)
	Podophyllum peltatum L.	May-apple	9,10,11,12	SV(SR)
	PAPAVERACEAE	**POPPY FAMILY**		
	Sanguinaria canadensis L.	Bloodroot	9,10,11,12,13	SV(SR)
	BRASSICACEAE	**MUSTARD FAMILY**		
+	*Alliaria petiolata* (Bieb.) Cavara & Grande (*A. officinalis* Andrz. *ex* Bieb.)	Garlic Mustard	9,10,11	SV(SR)

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L	*Arabis glabra* (L.) Bernh.	Tower Mustard	16	SV(SR)
+	*Barbarea vulgaris* R. Br.	Yellow Rocket	16	SV(SR)
	Cardamine pensylvanica Muhl.	Pennsylvania Bitter Cress		SV(TRT95)
	Dentaria diphylla Michx. (*Cardamine d.* (Michx.) Wood)	Two-leaved Toothwort	6,9,12	SV(TRT84)
+	*Diplotaxis tenuifolia* (L.) DC.	Narrow-leaved Wall-rocket	18	SV(TRT95)
+	*Lepidium campestre* (L.) R. Br.	Field Pepper-grass	16	SV(TRT95)
+	*Lepidium densiflorum* Schrad.	Common Pepper-grass	16	SV(TRT95)
+	*Sisymbrium altissimum* L.	Tumble Mustard	18	SV(SR)
	SAXIFRAGACEAE	**SAXIFRAGE FAMILY**		
	Mitella diphylla L.	Bishop's Cap	6,7,9,10,15	SV(TRT84)
	Mitella nuda L.	Naked Mitrewort	3,6,7	SV(TRT84)
	Tiarella cordifolia L.	Foam Flower	6,7,9,15	SV(TRT84)
	GROSSULARIACEAE	**GOOSEBERRY FAMILY**		
	Ribes americanum Mill.	Wild Black Currant	3	SV(SR)
	Ribes cynosbati L.	Prickly Gooseberry	9,10,11,12,13,14,15	SV(TRT84)
+	*Ribes rubrum* L. (*R. sylvestre* (Lam.) Mert. & Koch; *R. sativum* Syme)	Garden Red Currant	11	SV(SR)
	Ribes triste Pall.	Swamp Red Currant	6,7	SV(SR)
	HAMAMELIDACEAE	**WITCH-HAZEL FAMILY**		
L	*Hamamelis virginiana* L.	Witch-hazel	9,10,11,12,13,14	SV(SR)
	ROSACEAE	**ROSE FAMILY**		
	Agrimonia gryposepala Wallr.	Tall Hairy Agrimony	8,11,17	SV(SR)
	Amelanchier arborea (Michx. f.) Fern.	Downy Juneberry	9,10,11,12,13,14,17	SV(TRT95)
	Amelanchier sanguinea (Pursh) DC. var. *sanguinea*	Roundleaf Juneberry	10,13	SV(TRT95)

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L	*Aronia prunifolia* (Marsh.) Rehd. (incl. *A. melanocarpa* (Michx.) Ell.; *Pyrus floribunda* Lindley)	Chokeberry	4	SV(TRT95)
	Crataegus macracantha Lodd (C. *succulenta* Link var. *macracantha* (Loud.) Eggles.)	Large-thorned Hawthorn	10	SV(SR)
	Crataegus pedicellata Sarg.	Pedicelled Hawthorn	10,11,13,14,16	SV(SR)
	Crataegus punctata Jacq.	Dotted Hawthorn	10,13,16	SV(SR)
	Fragaria vesca L.	Woodland Strawberry	11	SV(SR)
	Fragaria virginiana Dcne.	Common Strawberry	8,10,11,14,16,17	SV(SR)
	Geum aleppicum Jacq. var. *strictum* (Ait.) Fern.	Yellow Avens	3,4,5	SV(SR)
	Geum canadense Jacq.	White Avens	8,9,10,11,12,13,14,17	SV(SR)
	Geum rivale L.	Purple Avens	7	SV(SR)
+	*Malus domestica* Borkh. (*Pyrus malus* L.; Malus pumila Miller)	Apple	11,16	SV(SR)
+	*Potentilla norvegica* L.	Rough Cinquefoil		SV(SR)
L	*Potentilla palustris* (L.) Scop.	Marsh Cinquefoil	2,4	SV(SR)
+	*Potentilla recta* L.	Rough-fruited Cinquefoil	8,11,16	SV(SR)
	Prunus pensylvanica L.f.	Pin Cherry	16	SV(SR)
	Prunus serotina Ehrh.	Black Cherry	8-15,17	SV(SR)
	Prunus virginiana L.	Chokecherry	9-15,17	SV(SR)
	Rosa blanda Ait	Smooth Wild Rose	16	SV(SR)
	Rubus allegheniensis Porter	Common Blackberry	8,11,16,17	SV(SR)
	Rubus occidentalis L.	Black Raspberry	8-15,17	SV(SR)
	Rubus odoratus L.	Purple-Flowering Raspberry	8,11,17	SV(SR)
	Rubus pubescens Raf.	Dwarf Raspberry	4,5,6,7	SV(SR)
	Rubus strigosus Michx. (*R. idaeus* L. var. *strigosus* (Michx.) Maxim.)	Wild Red Raspberry	8-17	SV(SR)
+	*Sorbus aucuparia* L. (*Pyrus aucuparia* (L.) Gaertn.)	European Mountain-ash	11	SV(SR)

Status	Species	Common Name	Community Types	Sources
	Spiraea alba DuRoi (incl. *S. latifolia* (Ait.) Borkh.)	Meadowsweet	2,3,4,5,16	SV(SR)
	Waldsteinia fragarioides (Michx.) Tratt.	Barren Strawberry	9,11,14,17	SV(TRT84)
	FABACEAE	**PEA FAMILY**		
	Amphicarpaea bracteata (L.) Fern.	Hog-peanut	9,10,11,12	SV(SR)
	Desmodium canadense (L.) DC.	Showy Tick-trefoil	11,16,17	SV(SR)
	Desmodium glutinosum (Muhl.) Wood	Pointed-leaved Tick-trefoil	9,10,11	SV(SR)
+	*Lotus corniculatus* L.	Bird-foot Trefoil	16	SV(SR)
+	*Medicago lupulina* L.	Black Medick	16,18	SV(SR)
+	*Medicago sativa* L. ssp. *sativa*	Alfalfa	16	SV(SR)
+	*Melilotus alba* Medic.	White Sweet-clover	8,16,18	SV(SR)
+	*Melilotus officinalis* (L.) Pall.	Yellow Sweet-clover	16	SV(SR)
+	*Trifolium pratense* L.	Red Clover	16,18	SV(SR)
+	*Trifolium repens* L.	White Clover	3,16,18	SV(SR)
+	*Vicia cracca* L.	Cow Vetch	8,16	SV(SR)
	GERANIACEAE	**GERANIUM FAMILY**		
	Geranium robertianum L.	Herb Robert	9,11	SV(SR)
	OXALIDACEAE	**WOOD-SORREL FAMILY**		
	Oxalis fontana Bunge (*O. stricta auct. amer.*, *non* L., *O. europaea* Jordan)	Wood-sorrel	11	SV(SR)
	POLYGALACEAE	**MILKWORT FAMILY**		
	Polygala paucifolia Willd.	Fringed Polygala	10,11,13,14	SV(SR)
	EUPHORBIACEAE	**SPURGE FAMILY**		
	Euphorbia glyptosperma Engelm.	Ridge-seeded Spurge	16,18	SV(TRT95)

Status	Species	Common Name	Community Types	Sources
	ANACARDIACEAE	**CASHEW FAMILY**		
	Rhus radicans L. ssp. *rydbergii* (Sm. ex Rydb.) McNeill (*Toxicodendron rydbergii* (Sm. *ex* Rydb.) Greene; *Rhus toxicodendron* L. var. *rydbergii* (Sm. *ex* Rydb.) Garrett)	Poison-ivy	8,10,11,13,14,16,17	SV(SR)
	Rhus typhina L.	Staghorn Sumac	8,11,14,16,17,18	SV(SR)
	AQUIFOLIACEAE	**HOLLY FAMILY**		
	Ilex verticillata (L.) Gray	Winterberry	4,5	SV(SR)
	CELASTRACEAE	**STAFF-TREE FAMILY**		
	Celastrus scandens L.	Climbing Bittersweet	10	SV(SR)
L	*Euonymus obovatus* Nutt.	Running Strawberry-bush	9	SV(TRT95),MH(TRT53)
	ACERACEAE	**MAPLE FAMILY**		
	Acer negundo L.	Manitoba Maple	5,11,16	SV(SR)
+	*Acer platanoides* L.	Norway Maple	16	SV(SR)
	Acer rubrum L.	Red Maple	5,6,7,9-17	SV(SR)
	Acer saccharum Marsh.	Sugar Maple	8-17	SV(SR)
	Acer spicatum L.	Mountain Maple	6,7,12,15	SV(SR)
	Acer X*freemanii* (*A. rubrum* X *A. saccharinum*)	Hybrid Maple	5	SV(SR)
	BALSAMINACEAE	**TOUCH-ME-NOT FAMILY**		
	Impatiens capensis Meerb. (*I. biflora* Walt.)	Spotted Jewelweed	2,3,4,5,6,7	SV(SR)
	RHAMNACEAE	**BUCKTHORN FAMILY**		
+	*Rhamnus cathartica* L.	Common Buckthorn	8,11,14,16,17	SV(SR)
	VITACEAE	**GRAPE FAMILY**		
	Parthenocissus inserta (A. Kerner) K. Fritsch (*P. vitacea* (Knerr) Hitchc.)	Virginia Creeper	9,10,11,12	SV(SR)

Status	Species	Common Name	Community Types	Sources
	Vitis riparia Michx.	Riverbank Grape	8,16	SV(SR)
	TILIACEAE	**LINDEN FAMILY**		
	Tilia americana L.	Basswood	7-15	SV(SR)
	HYPERICACEAE	**ST. JOHN'S-WORT FAMILY**		
+	*Hypericum perforatum* L.	Common St. John's-wort	8,16,17,18	SV(SR)
	Triadenum fraseri (Spach) Gl. (*Hypericum virginicum* L. var. *fraseri* (Spach) Fern.)	Marsh St. John's-wort	2,4	SV(SR)
	VIOLACEAE	**VIOLET FAMILY**		
	Viola blanda Willd.	Sweet White Violet	6,7,9,11,12,15	SV(TRT84)
	Viola canadensis L.	Canada Violet	9,12	SV(SR),MH(TRT52)
	Viola conspersa Reich.	Dog Violet	9,10	SV(TRT84)
	Viola cucullata Ait.	Marsh Violet	6	SV(TRT84)
	Viola macloskeyi F.E. Lloyd ssp. *pallens* (Banks ex DC.) M. Baker) *(V. pallens* (Banks ex DC.) Brain.	Northern White Violet	2	SV(SR)
	Viola pubescens Ait. (incl. var. *pubescens* & var. *scabriuscula* T. & G.; *pensylvanica sensu auct*., *non* Michx. var. *leiocarpa* (Fern. & Wieg.) Fern.)	Yellow Violet	9-15,17	SV(TRT84),MH(TRT51)
	Viola rostrata Pursh	Long-spurred Violet	9,10,11,12,13,14	SV(TRT84)
	Viola sororia Willd.	Woolly Blue Violet	9,12	SV(TRT84)
	THYMELAEACEAE	**MEZEREUM FAMILY**		
	Dirca palustris L.	Leatherwood	9	SV(SR)
	ELAEAGNACEAE	**OLEASTER FAMILY**		
L	*Shepherdia canadensis* (L.) Nutt.	Soapberry		MH(TRT54)
	LYTHRACEAE	**LOOSESTRIFE FAMILY**		
+	*Lythrum salicaria* L.	Purple Loosestrife	3	SV(SR)

Status	Species	Common Name	Community Types	Sources
	ONAGRACEAE	**EVENING-PRIMROSE FAMILY**		
	Circaea alpina L.	Small Enchanter's Nightshade	7	SV(SR)
	Circaea lutetiana L. var. *canadensis* L. (*C. quadrisulcata* (Maxim.) Franch. & Sav.)	Enchanter's Nightshade	7,9-15,17	SV(SR)
	Epilobium ciliatum Raf. (*E. glandulosum* Lehm. var. *adenocaulon* (Haussk.) Fern.; includes typical *E. glandulosum* Lehm.)	Sticky Willowherb	2,3,4,6,7	SV(SR)
+	*Epilobium parviflorum* Schreb.	Small-flowered Willowherb	7	SV(SR)
	Epilobium leptophyllum Raf.	Narrow-leaved Willowherb	2,4	SV(SR)
	Oenothera parviflora L.	Small-flowered Evening-primrose	16	SV(SR)
	ARALIACEAE	**GINSENG FAMILY**		
	Aralia nudicaulis L.	Wild Sarsaparilla	7,9-15,17	SV(SR)
	Aralia racemosa L.	Spikenard	9	SV(SR)
PeL	*Panax quinquefolius* L.	American Ginseng	9	SV(TRT95)
	APIACEAE	**CARROT FAMILY**		
	Cicuta bulbifera L.	Bulbous Water-hemlock	2,3,4	SV(SR)
+	*Daucus carota* L.	Queen Anne's Lace	8,11,16	SV(SR)
	Hydrocotyle americana L.	Marsh Pennywort	7	SV(SR),MH(TRT52)
	Osmorhiza claytonii (Michx.) Clarke	Sweet Cicely	9	SV(SR)
L	*Osmorhiza longistylis* (Torr.) DC.	Long-styled Sweet Cicely	9	MH(TRT50)
	Sanicula marilandica L.	Black Snakeroot		MH(TRT50)
	Sium suave Walt.	Water-parsnip	2,3,4,5	SV(SR)
	CORNACEAE	**DOGWOOD FAMILY**		
	Cornus alternifolia L.f.	Alternate-leaved Dogwood	9,10,11,12,15	SV(SR)
	Cornus rugosa Lam.	Round-leaved Dogwood	10,11,14	SV(SR)
	Cornus stolonifera Michx.	Red-osier Dogwood	2,3,4,5,6,7,16	SV(SR)

Status	Species	Common Name	Community Types	Sources
	PYROLACEAE	**WINTERGREEN FAMILY**		
	Monotropa uniflora L.	Indian-pipe	10,11	SV(SR)
	Pyrola asarifolia Michx.	Pink Pyrola	11	SV(TRT84)
	Pyrola elliptica Nutt.	Shinleaf	10-15,17	SV(TRT84)
	ERICACEAE	**HEATH FAMILY**		
L	*Chamaedaphne calyculata* (L.) Moench	Leather-leaf	4	MH(TRT59)
	Gaultheria procumbens L.	Wintergreen	10,11	SV(SR)
	PRIMULACEAE	**PRIMROSE FAMILY**		
	Lysimachia ciliata L. (*Steironema ciliata* (L.) Raf.)	Fringed Loosestrife		SV(SR)
	Lysimachia thyrsiflora L.	Tufted Loosestrife	2,3,4,5	SV(SR)
	Trientalis borealis Raf.	Star-flower	6,7,10,11,12,14,15,17	SV(SR)
	OLEACEAE	**OLIVE FAMILY**		
	Fraxinus americana L.	White Ash	7-18	SV(SR)
	Fraxinus nigra Marsh.	Black Ash	4,5,7	SV(SR)
	Fraxinus pennsylvanica Marsh. var. *pennsylvanica* var. *subintegerrima* (Vahl) Fern.	Red Ash	4,5	SV(SR)
	APOCYNACEAE	**DOGBANE FAMILY**		
	Apocynum androsaemifolium L.	Spreading Dogbane	8,10,11,14,16,17	SV(SR)
	ASCLEPIADACEAE	**MILKWEED FAMILY**		
L	*Asclepias exaltata* L.	Poke Milkweed	10	SV(SR),MH(TRT52)
	Asclepias syriaca L.	Common Milkweed	8,11,16	SV(SR)
	CONVOLVULACEAE	**MORNING GLORY FAMILY**		
	Calystegia sepium (L.) R.Br. (*Convolvulus sepium* L.)	Hedge Bindweed	16	SV(SR)
L	*Calystegia spithamea* (L.) Pursh (*Convolvulus spithameus* L.)	Low Bindweed	8,11,16	SV(SR)

Status	Species	Common Name	Community Types	Sources
+	*Convolvulus arvensis* L.	Field Bindweed	16	SV(SR)
	HYDROPHYLLACEAE	**WATERLEAF FAMILY**		
	Hydrophyllum virginianum L.	Virginia Waterleaf	9,12	SV(SR)
	BORAGINACEAE	**BORAGE FAMILY**		
+	*Echium vulgare* L.	Viper's-bugloss	16,18	SV(SR)
	Hackelia virginiana (L.) Johnston	Virginia Stickseed		SV(SR),MH(TRT50)
+	*Myosotis laxa* Lehm.	Smaller Forget-me-not	7	SV(SR)
	LAMIACEAE	**MINT FAMILY**		
+	*Galeopsis tetrahit* L.	Hemp-nettle	11	SV(SR)
+	*Leonurus cardiaca* L.	Motherwort	8,11,16	SV(SR)
	Lycopus americanus Muhl.	American Water-horehound	2,3,4,5,7	SV(SR)
	Lycopus uniflorus Michx.	Water-horehound	2,3,4,5,7	SV(SR)
	Mentha arvensis L. var. *glabrata* (Benth.) Fern. (*M. arvensis* L. ssp. *borealis* (Michx.) R.L. Taylor & Macbryde)	Common Mint	3,4	SV(SR)
+	*Mentha* X*piperita* (*pro sp*.)	Peppermint		SV(SR)
	Monarda fistulosa L.	Wild Bergamot	8,16	SV(SR)
+	*Nepeta cataria* L.	Catnip	11,16	SV(SR)
	Prunella vulgaris L.	Heal-all	7,11,16	SV(SR)
	Satureja vulgaris (L.) Fritsch var. *neogaea* Fern. (*Clinopodium vulgare* L.)	Dogmint	11,16	SV(SR)
	Scutellaria galericulata L. (*S. epilobiifolia* A. Ham.)	Common Skullcap	2,3,4	SV(SR)
	Scutellaria lateriflora L.	Mad-dog Skullcap	2,3,4,7	SV(SR)
	SOLANACEAE	**NIGHTSHADE FAMILY**		
+	*Solanum dulcamara* L.	Climbing Nightshade	2,3,4,5,7	SV(SR)
	SCROPHULARIACEAE	**FIGWORT FAMILY**		
+	*Linaria vulgaris* Mill.	Butter-and-eggs	8,11,16	SV(SR)

Status	Species	Common Name	Community Types	Sources
+	*Verbascum thapsus* L.	Common Mullein	8,11,16	SV(SR)
	Veronica americana (Raf.) Schwein.	American Brooklime	3	SV(SR)
+	*Veronica officinalis* L.	Common Speedwell	10,13	SV(SR)
	OROBANCHACEAE	**BROOM-RAPE FAMILY**		
L	*Conopholis americana* (L.) Wallr.	Squawroot	9	SV(TRT95)
	Epifagus virginiana (L.) Bart.	Beech-drops	9,10,12	SV(TRT84)
	LENTIBULARIACEAE	**BLADDERWORT FAMILY**		
L	*Utricularia vulgaris* L.	Common Bladderwort	1,4,5	SV(SR)
	PHRYMACEAE	**LOPSEED FAMILY**		
	Phryma leptostachya L.	Lopseed	9,10,11,12,14,17	SV(SR)
	PLANTAGINACEAE	**PLANTAIN FAMILY**		
	Plantago rugelii Dcne.	Rugel's Plantain	8,11,16	SV(SR)
	RUBIACEAE	**MADDER FAMILY**		
	Galium aparine L.	Cleavers	9,10,11,12	SV(SR)
	Galium lanceolatum Torr.	Lance-leaved Wild Licorice	9,10	SV(SR)
	Galium palustre L.	Marsh Bedstraw	2,3,4	SV(SR)
	Galium trifidum L. var. *trifidum*	Three-cleft Bedstraw	2,3,4	SV(TRT95)
	Galium triflorum Michx.	Sweet-scented Bedstraw	7-15,17	SV(SR)
+	*Galium verum* L.	Yellow Bedstraw	8,16	SV(TRT95)
	Mitchella repens L.	Partridge-berry	9-15,17	SV(TRT84)
	CAPRIFOLIACEAE	**HONEYSUCKLE FAMILY**		
	Diervilla lonicera Mill.	Bush-honeysuckle	8,10,11,13,14,16,17	SV(SR)
	Lonicera canadensis Marsh.	Fly Honeysuckle	9,10,11,12,13,15	SV(TRT84)
	Lonicera dioica L.	Glaucous Honeysuckle	9,10,11,12,13	SV(SR)
+	*Lonicera Xbella* Zabel (*L. tatarica* X *L. morrowi)*	Bell's Honeysuckle	11,16	SV(SR)

Status	Species	Common Name	Community Types	Sources
	Sambucus canadensis L.	Common Elder	3,4,5,6	SV(SR)
	Sambucus pubens Michx. (*S. racemosa* L. ssp. *pubens* (Michx.) House)	Red-berried Elder	9-15,17	SV(SR)
	Symphoricarpos albus (L.) Blake var. *albus*	Snowberry	10	SV(SR)
	Viburnum acerifolium L.	Maple-leaved Viburnum	9-15,17	SV(SR)
L	*Viburnum alnifolium* Marsh.	Hobblebush	12	SV(SR),MH(TRT52)
+	*Viburnum lantana* L.	Wayfaring Tree	11,14	SV(SR)
	Viburnum lentago L.	Nannyberry	4	SV(SR)
+	*Viburnum opulus* L.	Guelder-rose	11	SV(SR)
	Viburnum trilobum Marsh (*Viburnum opulus* L. var. *americanum* Ait.)	Highbush-cranberry	7	SV(SR)
	CUCURBITACEAE	**GOURD FAMILY**		
	Echinocystis lobata (Michx.) T. & G.	Wild Cucumber	5,11	SV(SR)
	LOBELIACEAE	**LOBELIA FAMILY**		
	Lobia inflata L.	Indian Tobacco		SV(SR)
	ASTERACEAE	**ASTER FAMILY**		
+	*Achillea millefolium* L.	Common Yarrow	8,11,16	SV(SR)
	Ambrosia artemisiifolia L.	Common Ragweed	16,18	SV(SR)
	Anaphalis margaritacea (L.) Benth.	Pearly Everlasting	3	SV(SR)
	Antennaria neglecta Greene (incl. *A. neodioica* Greene & *A. canadensis* Greene; *A. howellii* E. Greene)	Pussytoes	10	SV(SR)
+	*Arctium minus* (Hill) Bernh.	Common Burdock	8,11,16	SV(SR)
	Aster cordifolius L.	Heart-leaved Aster	8,10,11,14,16	SV(SR)
	Aster ericoides L. (*Virgulus ericoides* (L.) Rev. & Keen)	Heath Aster	16	SV(SR)
	Aster lanceolatus Willd. (*A. simplex* Willd.)	Tall White Aster	3,4,7	SV(SR)
	Aster lateriflorus (L.) Britt.	One-sided Aster	7,9,15	SV(SR)

Status	Species	Common Name	Community Types	Sources
	Aster macrophyllus L.	Large-leaved Aster	9,10,11,13,14,17	SV(SR)
	Aster novae-angliae L. (*Virgulus n.* (L.) Rev. & Keen.)	New England Aster	16	SV(SR)
	Aster puniceus L.	Red-stemmed Aster	2,3,7	SV(SR)
	Bidens cernus L.	Nodding Beggarticks	2,3,4	SV(SR)
	Bidens frondosus L.	Devil's Beggarticks	2,3,4,7	SV(SR)
	Bidens tripartitus L. (incl. *B. comosa* (A. Gray) Wieg.)	Three-parted Beggarticks	2,3,4,7	SV(SR)
+	*Carduus acanthoides* L.	Plumeless Thistle	16	SV(SR)
+	*Chrysanthemum leucanthemum* L. (*Leucanthemum vulgare* Lam.)	Ox-eye Daisy	8,11,16	SV(SR)
+	*Cichorium intybus* L.	Chicory	16	SV(SR)
+	*Cirsium arvense* (L.) Scop.	Canada Thistle	3,16	SV(SR)
+	*Cirsium vulgare* L.	Bull Thistle	16	SV(SR)
	Conyza canadensis (L.) Cronq. (*Erigeron canadensis* L.)	Horse-weed	16,18	SV(SR)
+	*Crepis tectorum* L.	Narrow-leaved Hawk's Beard	18	SV(TRT95)
	Erigeron annuus (L.) Pers. (incl. ssp. *annuus* & ssp. *strigosus* (Muhl. *ex* Willd.) Wagenitz (*Erigeron strigosus* Muhl. *ex* Willd.))	Annual Fleabane	11,16	SV(SR)
	Erigeron philadelphicus L. ssp. *philadelphicus*	Philadelphia Fleabane	11,16	SV(SR)
	Eupatorium maculatum L.	Spotted Joe-Pye-Weed	3,7	SV(SR)
	Eupatorium perfoliatum L.	Boneset	3,7	SV(SR)
	Eupatorium rugosum Houtt.	White Snakeroot	7	SR(SR)
+	*Hieracium aurantiacum* L.	Orange Hawkweed	16	SV(SR)
+	*Hieracium caespitosum* Dum. (*H. pratense* Tausch)	Yellow Hawkweed	8,11,16,17	SV(SR)
	Lactuca biennis (Moench) Fern.	Tall Blue Lettuce	11	SV(TRT95)
+	*Lactuca serriola* L. (*Lactuca scariola* L.)	Prickly Lettuce	16	SV(SR)
	Prenanthes alba L.	White Lettuce	7	SV(SR)

Status	Species	Common Name	Community Types	Sources
	Prenanthes altissima L.	Tall White Lettuce	9,10,11,12,13,14,15	SV(SR)
	Rudbeckia hirta L. (*R. serotina* Nutt.)	Black-eyed Susan	16	SV(SR)
	Solidago altissima L.	Tall Goldenrod	8,11,16	SV(SR)
PrL	*Solidago arguta Aiton*	Sharp-leaved Goldenrod	10	AG(SR)
	Solidago caesia L.	Blue-stem Goldenrod	9-15,17	SV(SR)
	Solidago canadensis L.	Canada Goldenrod	8,11,16	SV(SR)
	Solidago flexicaulis L.	Zig-zag Goldenrod	7,9,12,15	SV(SR)
	Solidago gigantea Ait. (*S. serotina* Ait. var. *gigantea* (Ait.) Gray)	Late Goldenrod	11,16	SV(SR)
	Solidago graminifolia (L.) Salisb. (*Euthamia graminifolia* (L.) Nutt.)	Narrow-leaf Goldenrod	16	SV(SR)
	Solidago nemoralis Ait.	Gray Goldenrod	16	SV(SR)
	Solidago rugosa Ait.	Rough Goldenrod	7	SV(SR)
+	*Sonchus arvensis* L. (incl. ssp. *arvensis* & ssp. *uliginosa* (Bieb.) Nyman *(S. arvensis* L. var. *glabrescens* Guenth., Grab. & Wimm.; *S. uliginosa* Bieb.)	Perennial Sow-thistle	16	SV(SR)
+	*Taraxacum officinale* Weber	Common Dandelion	11,16,17	SV(SR)
+	*Tragopogon dubius* Scop.	Goat's-beard	16	SV(SR)
+	*Tragopogon pratensis* L.	Meadow Goat's-beard	16	SV(SR)
+	*Tussilago farfara* L.	Sweet Coltsfoot	7,16	SV(SR)

APPENDIX B:
BIRDS OF THE MAPLE UPLANDS & KETTLE WETLANDS AREA OF NATURAL AND SCIENTIFIC INTEREST

A total of 51 bird species have been recorded in the Maple Uplands & Kettle Wetlands ANSI. Forty-nine of these species are breeders. All records are based on 1995 field observations with the exception of Blue-winged Warbler record, which is based on a 1981 sighting during the breeding season and noted in MTRCA (1982). Using standard breeding bird atlas criteria (Cadman et al. 1987), breeding status and evidence levels are presented below. The determination of rarity and sensitivity is noted in the legend.

Species	Breeding Status	Breeding Evidence	Rare/Uncommon TRCA Watershed	Sensitivity
Red-tailed Hawk	o	SH		
Wild Turkey	o	SH	L	S
Killdeer	P	T		
Mourning Dove	o	SH		
Black-billed Cuckoo	o	SM		P2
Great Horned Owl	o	SH		
Ruby-throated Hummingbird	o	SH		P3
Belted Kingfisher	x			
Downy Woodpecker	P	SM, T		
Hairy Woodpecker	o	SM		
Northern Flicker	P	T		
Eastern Wood-Pewee	P	T		S
Alder Flycatcher	P	SM, T		P3, F
Eastern Phoebe	P	SM, T		P3, F
Great Crested Flycatcher	o	SM		
Eastern Kingbird	P	T, A		P3
Tree Swallow	o	SH		
Bank Swallow	o	SH		P2
Blue Jay	o	SM, SH		
American Crow	P	SH, T		
Black-capped Chickadee	o	SH		P4
Red-breasted Nuthatch	o	SH		P3, F
House Wren	P	SM, T		
Veery	P	SM, T		S, P3, F
Wood Thrush	o	SM		P4, F
American Robin	P	SM, T		
Gray Catbird	o	SM		P3
Cedar Waxwing	o	SM, SH		
Red-eyed Vireo	P	SM, T		
Blue-winged Warbler	x		L	
Chestnut-sided Warbler	o	SM	L	S, P1, F
Ovenbird	o	SM		S, P4, F
Mourning Warbler	o	SM		P2, F
Common Yellowthroat	o	SM		
American Redstart	o	SM		P2, F
Scarlet Tanager	o	SM		P2, F
Northern Cardinal	o	SM, SH		
Rose-breasted Grosbeak	o	SM		
Indigo Bunting	o	SM		

Eastern Towhee	P	SM, T	S, P3
Chipping Sparrow	o	SM	
Field Sparrow	o	SM	P3
Vesper Sparrow	P	T, A	P3
Savannah Sparrow	P	T	
Song Sparrow	P	SM, T	
Swamp Sparrow	o	SM	P2
Bobolink	P	T	P2
Red-winged Blackbird	o	SM	
Brown-headed Cowbird	o	SH	
Northern Oriole	o	SM, SH	
American Goldfinch	o	SM, SH	P3

Legend:

Significance for Breeding Species

L Locally rare to uncommon in the Toronto and Region Conservation Authority (TRCA) watershed, being known from 20 or less stations (Lionel Normand 1999).

Sensitivity for Breeding Species

P1-4 Conservation priority forest, wetland and open country bird species for York Region ranging from conservation priority level 1 (highest) to level 4 (lowest) based on Bird Studies Canada (Couturier 1999)

S Species of concern in the TRCA watershed (TRCA 1999)

F Forest bird species with the highest sensitivity to forest cover in southern Ontario based on Canadian Wildlife Service (Cadman 1999)

Breeding Status

P Probable

o Possible

x Observed during breeding season, no breeding evidence

Breeding Evidence

Probable:

A Agitated behaviour of adults around nest

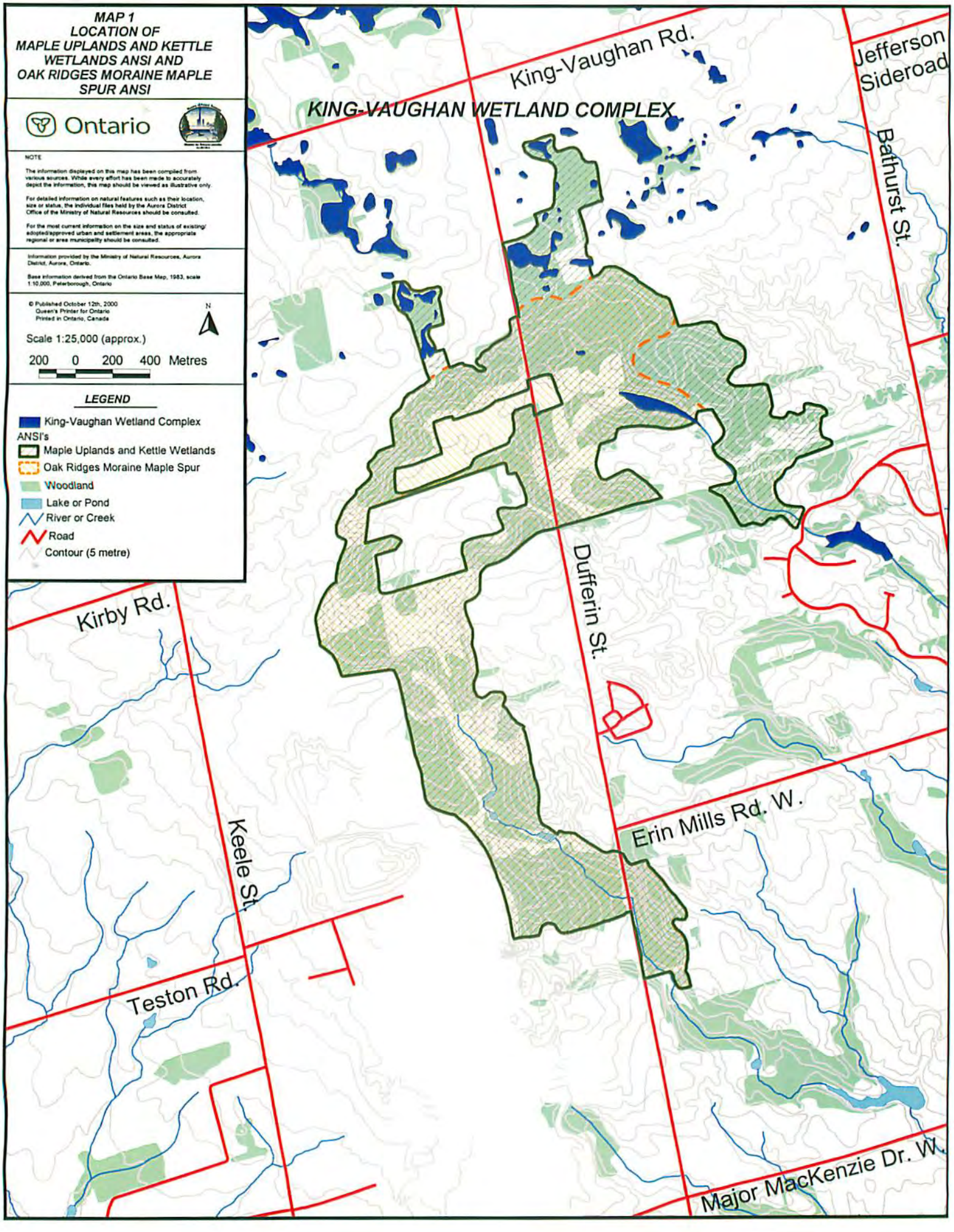
P Adult pair observed

T Permanent territory presumed through registration of territorial behaviour (song, etc.) on at least two days a week or more apart, at the same place

Possible:

SM Singing male observed in suitable nesting habitat

SH Species observed in suitable habitat during breeding season


MAP 1
LOCATION OF
MAPLE UPLANDS AND KETTLE
WETLANDS ANSI AND
OAK RIDGES MORAINE MAPLE
SPUR ANSI
Ontario
NOTE
The information displayed on this map has been compiled from various sources. While every effort has been made to accurately depict the information, this map should be viewed as illustrative only.
For detailed information on natural features such as their location, size or status, the individual files held by the Aurora District Office of the Ministry of Natural Resources should be consulted.
For the most current information on the size and status of existing/adopted/approved urban and settlement areas, the appropriate regional or area municipality should be consulted.
Information provided by the Ministry of Natural Resources, Aurora District, Aurora, Ontario.
Base information derived from the Ontario Base Map, 1983, scale 1:10,000, Peterborough, Ontario
© Published October 12th, 2000
Queen's Printer for Ontario
Printed in Ontario, Canada
N
Scale 1:25,000 (approx.)
200 0 200 400 Metres
LEGEND
King-Vaughan Wetland Complex
ANSI's
Maple Uplands and Kettle Wetlands
Oak Ridges Moraine Maple Spur
Woodland
Lake or Pond
River or Creek
Road
Contour (5 metre)
KING-VAUGHAN WETLAND COMPLEX
King-Vaughan Rd.
Jefferson Sideroad
Bathurst St.
Dufferin St.
Kirby Rd.
Keele St.
Teston Rd.
Erin Mills Rd. W.
Major MacKenzie Dr. W.

PROVINCIALLY SIGNIFICANT
EAST DON RIVER HEADWATER WETLAND COMPLEX SUMMARY

December 2019
GEM Services Inc. on behalf of the City of Vaughan

Ontario Base Maps: 10 17 6150 48600; 6200 48550
National Topographic Series Map: 30 M/13, 30M/14
UTM Reference: 17T PU 621200E 48590800N
Latitude: 43° 52' 30" **Longitude**: 79° 29' 30"
Aerial Photographs: 1:1,000 scale, 2013 Ortho-rectified Digital Imagery, J.D. Barnes and Land Information Ontario
Municipality, Lots & Concessions: Regional Municipality of York, City of Vaughan, former Vaughan Township: Concession 3, Lots 25 – 28 & Concession 2, Lots 25 - 22
Conservation Authority: Toronto and Region (TRCA)
Ownership: 100% public
Wetland Status: Provincially Significant
Number of Wetlands & Area: 11 wetlands, 29.30 ha
Wetland Type: swamp 87 %, marsh 13 %
Wetland Substrate: and mesic/humic organic 53%, clay/loam 46%, sand 1%
Wetland Site Type: palustrine with no inflow 92%, isolated: 6 %, riverine 2%
Dominant Vegetation Form: coniferous trees (c): 66% deciduous trees (h): 5%, dead coniferous trees (dc): 6.%, tall shrubs (ts): 9%, herb (ground cover) (gc): 1%, narrow leaved emergents (ne): 3%, robust emergents (re): 6%, submerged plants (su): 1%, fixed-floating plants (f): 1%, free-floating plants (ff): 1%, unvegetated open water (u): 1%
Wetland Score: Biological Component 105, Social Component 117, Hydrological Component 198, Special Features 250, Total 670
Investigators & Dates Investigated: July/August 2017, June/September 2018 & 2019 Joelle Pecora & Kim Logan (GEM Services Inc.), June 14, 2017 & July 18, 2018 Kim Logan (GEM Services Inc.) & Steve Varga, Thivyah Sivasubramianum, Austeja Vaskeviciute, Melanie Shapiera & Lauren Moretto (OMNRF, Aurora District)
Estimated Field Survey Time: Total person hours - 80
Compilers: Joelle Pecora & Kim Logan

Rationale for Identifying the East Don River Headwater Wetland Complex

The provincially significant East Don River Headwater Wetland Complex is a new complex that has been evaluated in 2019 by GEM Services Inc. on behalf of the City of Vaughan. In addition to fieldwork carried out by GEM Services Inc. staff from 2017 to 2019 the evaluation incorporates the Ecological Land Classification (ELC) vegetation descriptions and mapping carried out by Toronto and Region Conservation Authority (TRCA) staff in 2002, 2009 and 2015. On June 14, 2017 and July 18, 2018, wetlands on City of Vaughan owned lands (Wetland Nos. 1, 2, 3 and a northwest portion of Wetland No. 4) had their outer boundaries delineated by a professional surveyor, with staff from GEM Services Inc., OMNRF, Aurora District, the City of Vaughan and TRCA in attendance. These wetland boundaries were agreed to by all parties and have been incorporated into the wetland complex. In addition, the vegetation communities in these surveyed wetlands were described using the Ontario Wetland Evaluation System (OWES) methodology.

This wetland complex occurs on the Oak Ridges Moraine physiographic region, which is a part of ecodistrict 6E-7 (Chapman and Putnam 1984). The complex is situated in the north-eastern portion of the City of Vaughan, north of Major Mackenzie Drive and bounded by Keele Street to the west and Bathurst Street to the east.

The wetland complex is located on the headwaters of the East Don River, a subwatershed of the Don River watershed. Each individual wetland is located from 33 to 504 metres to its nearest neighbouring wetland, with an average distance of 230 metres between wetlands (wetlands are allowed to be up to 750 metres apart in a wetland complex). Most of the wetlands are hydrologically linked by watercourses within the complex.

The wetland complex largely occurs on public lands with the western portion mainly in the future North Maple Regional Park and the eastern portion in the Maple Nature Reserve and associated parkland. The main wetlands occur in the forested valley tributaries of the East Don River with the remaining smaller wetlands on adjacent tablelands

The wetlands are also linked by intervening forests, hedgerows, and regenerating meadows. Dufferin Street bisects the complex, with a large box culvert at the river providing for wildlife movement. Wildlife has been noted moving between wetlands in the complex and to and from the surrounding uplands.

There are connections to wetlands downstream of the wetland complex along the largely forested river valley corridor of the East Don River, which provides a connection south to Lake Ontario. This valley corridor also provides links to the wetlands and woodlands on the Oak Ridges Moraine, a major east-west corridor.

The wetland complex captures the diversity of wetland types along the headwater reaches of the East Don subwatershed. It mainly consists of large palustrine, groundwater-fed wetlands on humic/mesic organics with areas of clays and loams particularly in the smaller surrounding wetlands. This portion of the subwatershed with its groundwater inputs is currently managed as coldwater (TRCA 2009). The dominant wetland vegetation forms are conifer dominated swamps with scattered narrow-leaved emergent marshes, robust emergent marshes, tall shrub swamps, deciduous swamps, herb marshes and various open water marshes. The wetlands support a diversity of 26 vegetation communities with ten significant species.

Reasons for the Inclusion of Wetland Units Under Two Hectares in Size

There are nine wetlands within the East Don River West Branch Headwater Wetland Complex that are under two hectares in size (Wetland Nos. 1–3, 5-10). Wetlands are considered rare in ecodistrict 6E-7 (OMNR 2014), with an estimate of only 6% wetland coverage. Most of these wetlands, like the nine wetlands in the complex, are under two hectares in size. It is estimated that over 80% of the wetland units on the Moraine are less than two hectares in size, and 60% are under 0.5 hectares. On such landscapes small wetlands provide an important ecological benefit.

Each of the wetlands under two hectares in size were included in the wetland complex for one or more of the following additional reasons:

1) Add to the diversity of a wetland complex that is dominated by conifer swamps by supporting other wetland types and dominant vegetation forms that are uncommon in the wetland complex (Wetland Nos. 6 & 9 support herb marshes, a dominant form which occupies only 1% of the wetland complex, Wetland Nos. 1, 2 & 3 support tall shrub swamps which occur in only 9% of the wetland complex, Wetland No. 8 supports a narrow-leaved emergent marsh a dominant form which occupies only 3% of the complex, Wetland Nos. 2, 4 & 7 support robust emergent marshes found in only 6% of the complex, Wetland No. 10 supports deciduous swamp, a dominant form found in only 5% of the wetland complex).
2) Sustain significant species (Wetland No. 10 is occupied habitat for an endangered fish, the Redside Dace, Wetland Nos. 1 & 2 are a traditional feeding for the provincially threatened Barn Swallow, Wetland Nos. 1 & 5 support the provincially significant Midland Painted Turtle and Wetland No. 7 supports a locally uncommon plant, Star Duckweed (*Lemna triscula*)).
3) Support amphibian breeding (Wetland Nos. 1-3, 5-7).
4) Support native fish (Wetland No. 10).
5) Provide intervening wetland habitat between larger wetlands (Wetland No. 10 occurs between the larger upstream Wetland Nos. 4 & 11 and larger wetlands downstream of the wetland complex.
6) Are hydrologically connected to other wetlands (Wetland Nos. 6-9 outflow into Wetland No. 4 situated on the East Don River and Wetland 10 occurs on the East Don River which flows downstream through other wetlands).

In addition, the nine wetlands that are less than two hectares in size all occur along corridors, with Wetland Nos. 2, 3, 5-9 within or adjacent to tableland woodlots that are part of the East Don River corridor, a major valley corridor from Lake Ontario to the Oak Ridges Moraine. Wetland No. 1, while it is 1.2 kilometres west of this corridor, is linked to the corridor by intervening regenerating fields. Wetland No. 10 occurs in the East Don River valley corridor.

Rationale for Wetland Vegetation Communities Under 0.5 Hectares in Size

All wetlands in the complex have been mapped at the scale of 1:1,000, providing for a more accurate and detailed delineation of boundaries for the wetlands and their associated wetland communities. Boundary delineations were done using 2013 ortho-rectified aerial imagery.

A total of 20 vegetation community polygons in the wetland complex are under 0.5 hectares in size. Six of these are single vegetation communities in wetlands less than 0.5 hectares in size. The others have been mapped and identified because they represent major divisions in wetland types such as between marsh and swamp types, or between dominant vegetation forms such as tall shrub swamp, ground cover marsh, narrow-leaved emergent, robust emergent marsh, submerged, fixed-floating and free-floating open water marsh, and unvegetated open water. These vegetation divisions reflect differences in plant species and often in animal communities.

Biological Component

The East Don River Headwater Wetland Complex has a score of 105 for its biological component. It consists of 11 wetlands covering a total of 29.3 hectares.

Approximately 53% of the wetland complex is situated on humic/mesic organics with the remaining 46% on clays/loams and 1% on sand.

About 92 % of the wetland complex is palustrine with the largest wetlands (Wetland Nos. 4 & 11) fed by groundwater outflows that support the permanently flowing headwaters of the East Don River. The small tableland wetlands of Wetland Nos. 6-9 outflow in the spring into the large Wetland No. 4. The small Wetland Nos. 1-3 & 5 are isolated with no apparent outflows and occupy another 6% of the complex. The remaining 2% is riverirne (Wetland No. 10).

The East Don wetlands sustain 26 different vegetation communities with approximately 87% of the complex swamp types, and 13% marsh types. These wetlands have a moderate level of complexity or interspersion.

Most frequent are conifer dominated swamps which are confined to the large Wetland No. 4 and cover 66% of the wetland complex. They are dominated by conifer trees of Eastern White Cedar (*Thuja occidentalis*) often with scattered deciduous trees of Yellow Birch (*Betula alleghaniensis*) and understories of Mountain Maple (*Acer spicatum*), Sensitive Fern (Onoclea sensibilis), Spotted Jewelweed (*Impatiens capensis*) and Bulblet Fern (*Cystopteris bulbifera*). These swamps typically occur on organic seepage areas that are fed by groundwater outflows. In one area, covering 6.3% of the complex the cedars have died crating a layer of dead white cedar among the scattered living cedar trees and saplings.

Much less frequent are two deciduous swamp communities of Green Ash (*Fraxinus pennsylvanica*) and Reddish Willow (*Salix xrubens*) covering 6% of the complex.

Occupying 9% of the complex are tall shrub (thicket) swamps of Red-osier Dogwood (*Cornus sericea*), Missouri Willow (*Salix eriocephala*), Interior Willow (*Salix exigua*) and one community of European Alder (*Alnus glutinosa*).

Narrow-leaved emergent (graminoid) marshes and a one graminoid dominated open swamp cover 3% of the wetland complex. The marshes are dominated by Reed Canary Grass (*Phalaris arundinacea*) and Field Horsetail (*Equisetum arvense*). The open swamp community is dominated by Reed Canary Grass, with a scattering of Bebb's Willow (*Salix bebbiana*) shrubs and Manitoba Maple (*Acer negundo*) trees.

Herb or ground cover marshes of Panicled Aster (*Symphyotrichum lanceolatum*) cover 1% of the wetland complex. It is frequently associated with Spotted Joe Pye Weed (*Eutrochium maculatum*) and Coltsfoot (*Tussilago farfara*).

Robust emergent marshes cover 6% of the wetland complex. These communities are dominated by Broad-leaved Cattail (*Typha latifolia*), Narrow-leaved Cattail (*Typha angustifolia*) Hybrid Cattail (*Typha* x*glauca*) and, in two communities, the invasive European Common Reed (*Phragmites australis* ssp. *australis*).

Open water marsh communities make up the remaining 4% of the wetland complex. A submerged community has Sago Pondweed (*Stuckenia pectinata*), while a free-floating community has Turion Duckweed (*Lemna turionifera*) and there is a fixed-floating community of White Water-lily (*Nymphaea odorata*). Finally, there is a small unvegetated open water pond.

The East Don also supports a diversity of adjacent upland habitats including deciduous, mixed and conifer forests on tableland woodlots and valley slopes, in addition to regenerating meadows and hedgerows.

The wetlands and adjacent uplands at the East Don support a diversity of 483 vascular plant species (GEMS 2017-2019, GEMS & OMNRF 2017-2018, TRCA 2002-2015, Varga et al. 2000). There are ten reptile and amphibian species including Eastern Red-backed Salamander, American Toad, Tetraploid Grey Treefrog, Spring Peeper, Wood Frog, Northern Leopard Frog, Green Frog, Common Snapping Turtle, Midland Painted Turtle and Eastern Gartersnake and 58 breeding bird species in the wetlands and surrounding uplands (GEMS 2017-2019, GEMS & OMNRF 2017-2018, TRCA 2001-2015, Varga et al. 2000). The watercourses in and around the

wetlands support seventeen fish species (OMNR 1972–2003).

Adjacent uplands are important for many wetland species at the East Don and are critical for the maintenance of its wetland functions. The populations of American Toad, Tetraploid Gray Treefrog, Spring Peeper and Wood Frog rely on the wetlands for breeding, but forage and hibernate in upland forests and, in some cases, meadows. Green Frogs can forage near their wetlands, and Northern Leopard Frogs forage in fields a considerable distance from their wetlands. They also move between wetlands, hibernating in the bottom of deeper permanent ponds, and breeding in more shallow wetlands. Green Frogs Midland Painted Turtles and Common Snapping Turtles are largely found in the more permanent wetland ponds. The turtles will move from wetland to wetland during the year, and female turtles lay their eggs in uplands in proximity to a wetland.

Social Component
The East Don River Headwater Wetland Complex has a score of 117 for its social component.

The wetlands in the complex are largely in public ownership. The westernmost Wetland Nos. 1 to 3 and the northwest portion of Wetland No. 4 occur on public lands that will become part of the future North Maple Regional Park. East of Dufferin Street, Wetland Nos. 4 to 9 are part of the Maple Nature Reserve and associated parkland. Its trails and lookouts in and around the wetlands get high use for nature enjoyment by visitors from the surrounding residential community. Other uses, such as timber harvesting, trapping, and hunting, are not permitted and there is no fishing.

Non-research reports have been carried out on the state of the Don River watershed (MTRCA 1994, TRCA 2009) and on the Maple Uplands & Kettle Wetlands Life Science and Maple Spur Earth Science Areas of Natural and Scientific Interest (ANSI) that cover the western portion of the wetland complex (Varga et al. 2000).

The East Don wetlands are generally in good condition. Dufferin Street divides up the wetland complex, however there is a major box culvert at the river that continues to provide a wildlife connection.

Seven ponds once occurred in Wetland No.4 that have either been dug-out of the wetland and/or have water control structures. These are small ponds, a fraction of a hectare in size, except for the 2.75 ha former mill pond of Redlemeier Pond. To minimize the impacts of these ponds to coldwater fish habitat agencies are proposing the removal of dams and the restoration of watercourses and wetlands in the former ponds. In 2017, TRCA had to carry out emergency de-watering of the Redelmeier Pond, make repairs to a failed water control structure and remove toppled trees from the slumping earthen dam (TRCA 2018). Since then there have been public open houses to discuss various future options for the pond. The option chosen recommends removing the earthen dam and water control structure and restoring the watercourse and marsh on the former bed of the pond (Cliff Coppolino pers. comm. 2019). In 2019, TRCA has removed the control structures on two small ponds just upstream of the Redelmeier Pond. These former pond beds are now coming into cattail marsh (Cliff Coppolino pers. comm. 2019).

Wetland Nos. 1 to 3 have developed on lands that where once used as a source of capping material for a landfill site to the south. Wetland No. 5 was created to make up for the loss of a nearby wetland. These four wetlands now support a diversity of wetland vegetation communities and amphibian breeding, with Wetland No. 1 also having a population of Midland Painted Turtles.

Invasive plants occur in some of the wetlands including Purple Loosestrife (*Lythrum salicaria*), True Forget-me-not (*Myosotis scorpioides*), European Common Reed (*Phragmites australis* ssp. *australis*), Common Buckthorn (*Rhamnus cathartica*) and European Buckthorn.

Hydrological Component
The East Don River Headwater Wetland Complex has a high score of 198 for its hydrological component. The wetlands contribute flood attenuation, short term water quality improvement, long term nutrient trapping, and groundwater recharge and discharge.

The wetlands constitute 81% of all the water detention or storage areas in the East Don River upstream catchment area, which covers 654 hectares.

The complexes' largest wetlands are a major headwater source for the East Don River. The numerous seeps in Wetland Nos. 4 & 11 appear to be originating from the upper aquifers of the Oak

Ridges Moraine and are responsible for providing permanent year-round flows to the East Don River.

Special Features
The East Don River Headwater Wetland Complex has the maximum score of 250 for its special features.

The East Don wetlands occur on the Oak Ridges Moraine physiographic region, within ecodistrict 6E-7. The OMNRF has subdivided the province into 71 ecodistricts, which are characterised by similar physiography and climate. Ecodistrict 6E-7 is on the southern edge of the deciduous-coniferous forest ecoregion 6E. This ecodistrict encompasses two physiographic regions: Oak Ridges Moraine (the largest moraine in southern Ontario) and the glacial tills of the South Slope that gradually rise to meet the Moraine. This wetland complex is situated on a southerly spur of the Oak Ridges Moraine known as the Maple Spur (Varga et al. 2000).

Wetlands are considered rare in ecodistrict 6E-7 (OMNRF 2014) with wetlands covering about 6% of the surface area. On the Oak Ridges Moraine there are numerous small kettle wetlands and, on its margins, larger groundwater discharge wetlands that provide base flows to watercourses draining to the south into Lake Ontario and to the north into Lake Simcoe and the Kawartha Lakes. The smaller kettle wetlands also play a critical role in the overall health of the Moraine's ecosystem.

The East Don wetlands are noted for their significant species, with ten in total (see Table 1). These include occupied habitat for an endangered fish, the Redside Dace, a traditional feeding area for the threatened Barn Swallow, breeding areas for the provincially significant Eastern Wood-pewee, Wood Thrush and Midland Painted Turtle and five locally significant plant species.

The Province has designated the East Don River in Wetland No. 4 as recovery habitat and, the river in Wetland No. 10 as occupied habitat for the endangered Redside Dace. The threatened Barn Swallow has been observed feeding over Wetland Nos. 1 and 2 and the surrounding meadows in 2017, 2018 and 2019. The special concern Eastern Wood-pewee and Wood Thrush both occur in the conifer dominated swamps and surrounding upland forests of Wetland No. 4 and the Midland Painted Turtle was found in ponds at Wetland Nos. 1 & 4 and in Wetland No. 5. The locally rare plants occur in a variety of communities in Wetland No. 4.

Table 1. Significant species

Reproductive Habitat for an Endangered or Threatened Species
Status: Based on Regulation 230/08 under the *Endangered Species Act*: E- provincially endangered species based on Species at Risk in Ontario List
Source: provincial mapping of Redside Dace occupied habitat on the East Don River
Location: The wetland in which the species occurs is indicated by wetland number from W1 to W11
1. *Clinostomus elongatus* (Redside Dace) E; W10

Traditional Migration or Feeding Habitat for an Endangered or Threatened Species
Status: Based on Regulation 230/08 under the *Endangered Species Act*: T- provincially threatened species based on Species at Risk in Ontario List
Source: G- observed feeding over the wetlands and surrounding meadows by Joelle Pecora & Kim Logan GEM Services Inc. in 2017, 2018 and 2019)
Location: The wetland in which the species occurs is indicated by wetland number from W1 to W11
1. *Hirundo rustica* (Barn Swallow) T; G W1, 2

Provincially Significant Animal Species
Status: SC- provincial species of special concern, N- species tracked by the OMNRF Natural Heritage Information Centre (NHIC)
Source: T- observations in 2001 & 2002 Paul Prior (TRCA), Z- observations in 2015 by Gavin Miller, Dell Tune & Sue Hayes (TRCA), G- Kim Logan & Joelle Pecora (GEM Services Inc.), M- July 4, 2018 observations by Kim Logan (GEM Services Inc.) & Steve Varga, Melanie Shapiera & Lauren Moretto (OMNRF, Aurora District)
Location: The wetland in which the species occurs is indicated by wetland number from W1 to W11
1. *Chrysemsys picata marginata* (Midland Painted Turtle) N; G W1, 4; Z W5
2. *Contopus virens* (Eastern Wood-pewee) N, SC; T, Z, M W4
3. *Hylocichla mustelina* (Wood Thrush) N, SC; G, T W4

Locally Significant Plant Species (Rare in Ecodistrict 6E-7)
Status: Rare in Ecodistrict 6E-7, being known from 20 or less locations (Varga et al. 2004)
Source: T- Natalie Iwanicki and Gavin Miller Toronto and Region Conservation Authority (2002, 2009, 2015), G- GEM Services Inc.
Location: The wetland in which the species occurs is indicated by wetland number from W1 to W11
1. *Carex alopecoidea* (Foxtail Wood Sedge) T W4
2. *Carex aquatilis* (Water Sedge) T W4
3. *Nymphaea odorata* (White Water-lily) G W4
4. *Solidago patula* (Rough-leaved Goldenrod) T W4
5. *Stellaria longifolia* (Long-leaved Stitchwort) T W4

Locally Uncommon Plant Species (Uncommon in Ecodistrict 6E7)*
Status: Uncommon in Ecodistrict 6E-7, being known from 21 to 40 or less locations (Varga et al. 2004)

Source: T- Natalie Iwanicki and Gavin Miller Toronto and Region Conservation Authority (2002, 2009, 2015), G- GEM Services Inc., V- June 14, 2017 Kim Logan (GEM Services Inc.) & Steve Varga, Thivyah Sivasubramianum & Austeja Vaskeviciute (OMNRF, Aurora District)
Location: The wetland in which the species occurs is indicated by wetland number from W1 to W11

1. *Aralia racemosa* (Spikenard) T W4
2. *Carex laevivaginata* (Smooth-sheathed Sedge) T W4, 11
2. *Carex scabrata* (Rough Sedge) T W4, 11
3. *Chrysosplenium americanum* (Golden Saxifrage) T W4
4. *Dryopteris clintoniana* (Clinton's Wood Fern) T W4
4. *Equisetum scirpoides* (Dwarf Horsetail) T W4
5. *Equisetum sylvaticum* (Woodland Horsetail) T W4
6. *Lemna trisulca* (Star Duckweed) T W7, 11
7. *Pilea fontana* (Spring Clearweed) T W11
8. *Spirodela polyrhiza* (Greater Duckweed) T W11
9. *Stuckenia pectinata* (Sago Pondweed) V W2; T W4
10. *Veronica americana* (American Speedwell) T W4

*Locally uncommon plant species provided are not assigned points in the wetland scoring record but are provided as one of the reasons for the inclusion of wetland units less than two hectares in size.

The East Don wetlands are important for wildlife. Its swamps and associated upland forests support area-sensitive forest bird species (Couturier 1999, Cadman 1999, OMNR 2000) such as Eastern Wood-pewee, Ovenbird, Wood Thrush, Veery, Scarlet Tanager, American Redstart, Pileated Woodpecker, Hairy Woodpecker, Red-breasted Nuthatch, Pine Warbler, Black-throated Green Warbler and Brown Creeper (TRCA 2001-2015, GEMS 2017-2019, OMNRF & GEMS 2017-2018).

Furthermore, the wetland ponds provide a stopover for migrating waterfowl and support breeding Wood Duck, as well as the more common Mallard and Canada Goose (TRCA 2001-2015). Other wetland birds breeding in the East Don wetlands include: Belted Kingfisher, Swamp Sparrow, Spotted Sandpiper, and the more frequent Yellow Warbler, Common Yellowthroat and Red-winged Blackbird.

The East Don wetlands also support breeding populations of amphibians at Wetland Nos. 1-7 & 11. Three of the amphibians, including Wood Frog, Spring Peeper, and Tetraploid Gray Treefrog, are considered sensitive species because they are becoming uncommon in the TRCA watershed and are exhibiting declines in abundance. These declines are probably attributable to the loss of wetland habitat, adjacent upland forest and meadow habitat, and a loss of connecting corridors. These frogs require spring-flooded wetlands for breeding and forested habitats for feeding and hibernating, and they need to be able to travel between these habitats. Other more common species breeding in the wetlands include American Toad, Green Frog, and Northern Leopard Frog.

The East Don River supports locally significant coldwater fish spawning and nursery habitat and migration habitat. Species in and around the wetlands include: Brown Trout, Brook Trout, Rainbow Trout, Pumpkinseed, White Sucker, Largemouth Bass, Yellow Perch, Eastern Blacknose Dace, Northern Redbelly Dace, Longnose Dace, Creek Chub, Spottail Shiner, Common Shiner, Fathead Minnow, Bluntnose Minnow, Mottled Sculpin and Brook Stickleback (OMNR 1972–2003). There was once a warmwater fisheries with Smallmouth Bass in Redelmeier Pond but they were removed to another pond outside the wetland complex when it had to be de-watered because of an imminent dam failure in 2017. The East Don River in the wetland complex is considered recovery habitat for the endangered Redside Dace and downstream of the Redelmeier dam it is Redside Dace occupied habitat. With the anticipated removal of the Redelmeier dam and the 2019 removal of several small upstream dams it is anticipated that Redside Dace may begin to use this recovery habitat.

Conclusion

The East Don River Headwater Wetland Complex is provincially significant with a total score of 670 points and a score of 250 points for special features. A wetland that scores 600 or more points or has 200 or more points in either the biological or special features component is deemed to be provincially significant.

The East Don's 11 wetlands comprise a wetland complex, noted for its groundwater-fed and kettle wetlands and its significant species.

Recommendations

Major wetland functions to be maintained at the East Don River Headwater Wetland Complex include: its diversity of wetlands, its diversity of species, its groundwater seeps, its association of wetlands and uplands, and its wildlife corridors.

To ensure that wetland functions are maintained, it is important to maintain water quality, quantity, and seasonal duration to the wetlands. Alterations to water regimes could have impacts on wetland communities and their resident species.

To maintain species and community diversity, the interconnected network of wetlands and uplands should be maintained and strengthened to the extent possible. Adjacent uplands for East Don species include the surrounding forests, as well as hedgerows and regenerating meadows.

The resident populations of Wood Frog, Tetraploid Gray Treefrog, and Spring Peeper are dependent on upland forests for hibernating and foraging, and they can travel a considerable distance to get to resident forests. As a result, it is also critical that travel corridors be maintained between their forest habitats and their breeding ponds. The presence of forest bird species also necessitates maintaining swamps and associated forests. Many of these forest birds can experience declines following urban development (Friesen et al. 1995).

Adjacent regenerating upland meadows and hedgerows could be utilized by wetland species such as nesting waterfowl, which can nest several hundred metres from a wetland. The resident Green Frogs, Northern Leopard Frogs, and American Toads will forage in them.

Wildlife corridors in the East Don wetlands need to be maintained and strengthened. Studies have shown the importance of wildlife corridors in maintaining diversity and resiliency in an ecosystem (Riley and Mohr 1994, OMNR 2000a, 2001). In addition to the travel corridors between breeding ponds and upland habitats, there are also wildlife corridors along the forested East Don River valley and its tributaries.

The Don River is a major north-south corridor from Lake Ontario to the Oak Ridges Moraine, which is the longest east-west corridor in southern Ontario (OMNR 2000b, 2001).

Encouragement should be given to increasing forest cover in and around the East Don wetlands. Restoration should be focused around the wetlands, the tableland woodlots, connecting hedgerows, and along the tributary streams.

Invasive species also need to be controlled; particularly European Common Reed, which is starting to spread in several wetlands and may have important biological impacts. This tall grass is largely restricted to a portion of Wetland No. 3 and along wetland edge on the eastern side of Dufferin Street.

Support the continued efforts to improve coldwater fish habitat in the wetland complex by removing dams and restoring watercourses and wetlands to the former beds of their ponds. Particularly encourage the future restoration efforts on the former bed of the Redelmeier Pond. Once the pond bed has been restored to wetland consideration should be given to adding it to the East Don River Headwater Wetland Complex.

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East Don River Headwater Wetland Complex

Wetland Evaluation 2014, 3rd Edition, Version 3.3

December 2019

Comments

Attached documents include:

1) Provincially Significant Wetland Complex summary
2) Rationale for identifying this wetland complex, reasons for the inclusion of wetland units under 2 ha in size, and rationale for wetland vegetation communities under 0.5 ha in size
3) List of vegetation communities in the Wetland Complex
4) Map of interspersion for the Wetland Complex
5) Map of catchment area and detention area for Wetland Complex
6) List of significant species in the Wetland Complex
7) Fish records in and around the Wetland Complex
8) List of vascular plant species in the Wetland Complex & adjacent lands
9) List of mammal, herpetofauna, and bird species in the Wetland Complex & adjacent lands
10) Map of the Wetland Complex

Additional Information

Include relevant information that can not be entered in the wetland data record (Ex. Sections that have not been completed.)

Official Name:	East Don River Headwater Wetland Complex					
Evaluation Edition:	3rd 2014	Class:	\	\		
Wetland Significance:	Month/Year Last Evaluated			December 2019		
	Month/Year Last Updated					
Special Planning Considerations:				**Scores**		
Wetland Area:	29.30 ha			Biological:	105	
Other Detention Areas:	7.00 ha			Social:	117	
Catchment Area:	654.30 ha			Hydrological:	198	
Coastal Unit Area:	0.00 ha			Special Features:	250	
OMNRF Source:				Overall:	670	
Information Source:	GEM Services Inc.; TRCA ELC mapping, species occurrences					
Submitted by:	GEM Services Inc. on behalf of the City of Vaughan			Date	December 2019	

General Information

Wetland Evaluator(s)

Name:	Kim Logan	Affiliation:	GEMS
Name:	Joelle Pecora	Affiliation:	GEMS
Name:	Steve Varga, Thivyah Sivasubramianum	Affiliation:	MNRF
Name:	Austeja Vaskeviciute, Melanie Shapiera,	Affiliation:	MNRF
Name:	& Lauren Moretto	Affiliation:	MNRF

Date(s) wetland visited (in field): Multiple days in summer of 2017, 2018 and 2019

Date evaluation completed: December 2019

Estimated time devoted to completing the field survey in person hours: 80 hours

Weather Conditions

i) at time of field work: sunny, warm, clear

ii) summer conditions in general: very warm, moderately rainy

WETLAND EVALUATION DATA AND SCORING RECORD

i) Wetland Name: East Don River Headwater Wetland Complex

ii) MNR Administrative Region: Southern
MNR District: Aurora
MNR Area Office:

iii) Conservation Authority Jurisdiction: Toronto and Region Conservation Authority

iv) County of Regional Municipality: Regional Municipality of York

v) Township/Geographic Twp and/or Local Municipality: City of Vaughan

vi) Lots & Concessions: former Vaughan Township: Concession 3, Lots 25 - 28 & Concession 2, Lots 22 - 25

vii) Ecodistrict/Ecoregion: 6E-7

viii) Map and Air Photo References:

a) Latitude: 43 52' 30" Longitude: 79 29' 30"

b) UTM grid reference:

Zone: 17T Block: PU E: 621200 N: 48590800

c) National Topographic Series:

Map name(s): Bolton & Markham

Map number(s): 30M13 & 30M14

Edition:
Scale: 1:50,000

d) Aerial photographs:

Date(s) photo taken: 2013, 2018 Scale: 1:1,000
Flight & plate numbers: Spring 2013 Ortho-rectified Digital Imagery, J.D. Barnes and Land Information Ontario, 2018 Google Earth

e) Ontario Base Map numbers & scale: 10 17 6150 48600; 10 17 6200 48550 scale 1:10,000

ix) Wetland Size
(circle appropriate category, a or b)

a) Single contiguous wetland area:

Total wetland size = **29.30** ha

b) Wetland complex comprised of **11** individual wetlands:

Wetland Unit No.	1	0.70
Wetland Unit No.	2	1.24
Wetland Unit No.	3	0.10
Wetland Unit No.	4	21.99
Wetland Unit No.	5	0.13
Wetland Unit No.	6	0.03
Wetland Unit No.	7	0.08
Wetland Unit No.	8	0.21
Wetland Unit No.	9	0.04
Wetland Unit No.	10	0.51
Wetland Unit No.	11	4.26
Wetland Unit No.		
Wetland Unit Totals:		29.30

Total Wetland Size = **29.30** ha

Documentation requirements for evaluated wetland complexes:

: a statement of rationale for identifying a wetland complex;
: a statement of rationale for identifying any wetland complex less than 2 ha in total size;
: a statement of rationale for any vegetation community less than 0.5 ha in size;
: adherence to the wetland complexing rules (750 m; “watershed rule”; lacustrine wetlands); and
: written documentation of the reasons for including wetland units smaller than 2 ha.

See Attached Sheets 3A

East Don River Headwater Wetland Complex

Rationale for Identifying the East Don River Headwater Wetland Complex

The provincially significant East Don River Headwater Wetland Complex is a new complex that has been evaluated in 2019 by GEM Services Inc. on behalf of the City of Vaughan. In addition to fieldwork carried out by GEM Services Inc. staff from 2017 to 2019 the evaluation incorporates the Ecological Land Classification (ELC) vegetation descriptions and mapping carried out by Toronto and Region Conservation Authority (TRCA) staff in 2002, 2009 and 2015. On June 14, 2017 and July 18, 2018, wetlands on City of Vaughan owned lands (Wetland Nos. 1, 2, 3 and a northwest portion of Wetland No. 4) had their outer boundaries delineated by a professional surveyor, with staff from GEM Services Inc., OMNRF, Aurora District, the City of Vaughan and TRCA in attendance. These wetland boundaries were agreed to by all parties and have been incorporated into the wetland complex. In addition, the vegetation communities in these surveyed wetlands were described using the Ontario Wetland Evaluation System (OWES) methodology.

This wetland complex occurs on the Oak Ridges Moraine physiographic region, which is a part of ecodistrict 6E-7 (Chapman and Putnam 1984). The complex is situated in the north-eastern portion of the City of Vaughan, north of Major Mackenzie Drive and bounded by Keele Street to the west and Bathurst Street to the east.

The wetland complex is located on the headwaters of the East Don River, a subwatershed of the Don River watershed. Each individual wetland is located from 33 to 504 metres to its nearest neighbouring wetland, with an average distance of 230 metres between wetlands (wetlands are allowed to be up to 750 metres apart in a wetland complex). Most of the wetlands are hydrologically linked by watercourses within the complex.

The wetland complex occurs largely on public lands with the western portion mainly in the future North Maple Regional Park and the eastern portion in the Maple Nature Reserve and associated parkland. The main wetlands occur in the forested valley tributaries of the East Don River with the remaining smaller wetlands on adjacent tablelands

The wetlands are also linked by intervening forests, hedgerows, and regenerating meadows. Dufferin Street bisects the complex, with a large box culvert at the river providing for wildlife movement. Wildlife has been noted moving between wetlands in the complex and to and from the surrounding uplands.

There are connections to wetlands downstream of the wetland complex along the largely forested river valley corridor of the East Don River, which provides a connection south to Lake Ontario. This valley corridor also provides links to the wetlands and woodlands on the Oak Ridges Moraine, a major east-west corridor.

The wetland complex captures the diversity of wetland types along the headwater reaches of the East Don subwatershed. It mainly consists of large palustrine, groundwater-fed wetlands on humic/mesic organics with areas of clays and loams particularly in the smaller surrounding wetlands. This portion of the subwatershed with its groundwater inputs is currently managed as coldwater (TRCA 2009). The dominant wetland vegetation forms are conifer dominated swamps with scattered narrow-leaved emergent marshes, robust emergent marshes, tall shrub swamps, deciduous swamps, herb marshes and various open water marshes. The wetlands support a diversity of 26 vegetation communities with ten significant species.

Reasons for the Inclusion of Wetland Units Under Two Hectares in Size

There are nine wetlands within the East Don River West Branch Headwater Wetland Complex that are under two hectares in size (Wetland Nos. 1–3, 5-10). Wetlands are considered rare in ecodistrict 6E-7 (OMNR 2014), with an estimate of only 6% wetland coverage. Most of these wetlands, like the nine wetlands in the complex, are under two hectares in size. It is estimated that over 80% of the wetland units on the Moraine are

less than two hectares in size, and 60% are under 0.5 hectares. On such landscapes small wetlands provide an important ecological benefit.

Each of the wetlands under two hectares in size were included in the wetland complex for one or more of the following additional reasons:

1) Add to the diversity of a wetland complex that is dominated by conifer swamps by supporting other wetland types and dominant vegetation forms that are uncommon in the wetland complex (Wetland Nos. 6 & 9 support herb marshes, a dominant form which occupies only 1% of the wetland complex, Wetland Nos. 1, 2 & 3 support tall shrub swamps which occur in only 9% of the wetland complex, Wetland No. 8 supports a narrow-leaved emergent marsh a dominant form which occupies only 3% of the complex, Wetland Nos. 2, 4 & 7 support robust emergent marshes found in only 6% of the complex, Wetland No. 10 supports deciduous swamp, a dominant form found in only 5% of the wetland complex).
2) Sustain significant species (Wetland No. 10 is occupied habitat for an endangered fish, the Redside Dace, Wetland Nos. 1 & 2 are a traditional feeding for the provincially threatened Barn Swallow, Wetland Nos. 1 & 5 support the provincially significant Midland Painted Turtle and Wetland No. 7 supports a locally uncommon plant, Star Duckweed (*Lemna triscula*)).
3) Support amphibian breeding (Wetland Nos. 1-3, 5-7).
4) Support native fish (Wetland No. 10).
5) Provide intervening wetland habitat between larger wetlands (Wetland No. 10 occurs between the larger upstream Wetland Nos. 4 & 11 and larger wetlands downstream of the wetland complex.
6) Are hydrologically connected to other wetlands (Wetland Nos. 6-9 outflow into Wetland No. 4 situated on the East Don River and Wetland 10 occurs on the East Don River which flows downstream through other wetlands).

In addition, the nine wetlands that are less than two hectares in size all occur along corridors, with Wetland Nos. 2, 3, 5-9 within or adjacent to tableland woodlots that are part of the East Don River corridor, a major valley corridor from Lake Ontario to the Oak Ridges Moraine. Wetland No. 1, while it is 1.2 kilometres west of this corridor, is linked to the corridor by intervening regenerating fields. Wetland No. 10 occurs in the East Don River valley corridor.

Rationale for Wetland Vegetation Communities Under 0.5 hectares in Size

All wetlands in the complex have been mapped at the scale of 1:1,000, providing for a more accurate and detailed delineation of boundaries for the wetlands and their associated wetland communities. Boundary delineations were done using 2013 ortho-rectified aerial imagery.

A total of 20 vegetation community polygons in the wetland complex are under 0.5 hectares in size. Six of these are single vegetation communities in wetlands less than 0.5 hectares in size. The others have been mapped and identified because they represent major divisions in wetland types such as between marsh and swamp types, or between dominant vegetation forms such as tall shrub swamp, ground cover marsh, narrow-leaved emergent, robust emergent marsh, submerged, fixed-floating and free-floating open water marsh, and unvegetated open water. These vegetation divisions reflect differences in plant species and often in animal communities.

1.0 BIOLOGICAL COMPONENT

1.1 Productivity

1.1.1 Growing Degree-Days/Soils

Refer to page 43 of manual for further explanation.

1. Determine the correct GDD value for your wetland (use Figure 5).
2. Circle the appropriate GDD value from the evaluation table below.
3. Determine the Fractional Area (FA) of the wetland for each soil type.
4. Multiply the fractional area of each soil type by the applicable score-factor in the evaluation table.
5. Sum the scores for each soil type to obtain the final score (maximum score is 30 points).

Note: In wetland complexes the evaluator should aim at determining the fractional area occupied by the categories for the complex as a whole.

Growing Degree- Days	Clay- Loam	Silt-Marl	Lime- stone	Sand	Humic-Mesic	Fibric	Granite
<2800	15	13	11	9	8	7	5
2800-3200	18	15	13	11	9	8	7
3200-3600	**22**	18	15	**13**	**11**	9	7
3600-4000	26	21	18	15	13	10	8
>4000	30	25	20	18	15	12	8

Soil Type	FA of wetland in soil type		Enter appropriate score-factor from above table			
clay/loam:	0.47	X	22	=	10.3	(10.15 ha)
silt/marl:	0.00	X	0	=	0.0	(0.00 ha)
limestone:	0.00	X	0	=	0.0	(0.00 ha)
sand:	0.01	X	13	=	0.1	(3.60 ha)
humic/mesic:	0.53	X	11	=	5.8	(15.55 ha)
fibric:	0.00	X	0	=	0.0	(0.00 ha)
granite:	0.00	X	0	=	0.0	(0.00 ha)
Total					16.3	

GDD/ Soils Score 16
(maximum 30 points)

1.1.2 Wetland Type

(Fractional Area = area of wetland type/ total wetland area)

	Fractional Area			Score	
Bog	0.00	X	3 =	**0.0**	(0.00 ha)
Fen	0.00	X	6 =	**0.0**	(0.00 ha)
Swamp	0.87	X	8 =	**7.0**	(25.37 ha)
Marsh	0.13	X	15 =	**2.0**	(3.93 ha)
Total			=	**8.9**	

Wetland Type Score **9**
(maximum 15 points)

1.1.3 Site Type

(Fractional Area = area of site type/ total wetland area)

	Fractional Area			Score	
Isolated	0.06	X	1 =	**0.06**	(1.72 ha)
Palustrine (permanent or intermittent flow)	0.92	X	2 =	**1.84**	(27.07 ha)
Riverine	0.02	X	4 =	**0.08**	(0.51 ha)
Riverine (at rivermouth)	0.00	X	5 =	**0.00**	(0.00 ha)
Lacustrine (at rivermouth)	0.00	X	5 =	**0.00**	(0.00 ha)
Lacustrine (on enclosed bay,with barrier beach)	0.00	X	3 =	**0.00**	(0.00 ha)
Lacustrine (exposed to lake)	0.00	X	2 =	**0.00**	(0.00 ha)
			Subtotal:	**1.98**	

Site Type Score **2**
(maximum 5 points)

1.2 Biodiversity

1.2.1 Number of Wetland Types

(Check only one)

	one	=	9 points
x	two	=	13
	three	=	20
	four	=	30

Number of Wetland Types Score 13
(maximum 30 points)

1.2.2. Vegetation Communities

Use the data sheet provided in Appendix 4 to record and score vegetation communities (the completed form must be attached to this data record)

Scoring (circle only one option for each of the columns below):

Total # of communities with 1-3 forms	
1 =	1.5 points
2 =	2.5
3 =	3.5
4 =	4.5
5 =	5
6 =	5.5
7 =	6
8 =	6.5
9 =	7
10 =	7.5
11 =	8
+ 0.5 for each additional community	
=	11.0
Total of 17 Communities	

Total # of communities with 4-5 forms	
1 =	2 points
2 =	3.5
3 =	5
4 =	6.5
5 =	**7.5**
6 =	8.5
7 =	9.5
8 =	10.5
9 =	11.5
10 =	12.5
11 =	13
+ 0.5 for each additional community	
=	7.5
Total of 5 Communities	

Total # of communities with 6 or more forms	
1 =	3 points
2 =	5
3 =	7
4 =	**9**
5 =	10.5
6 =	12
7 =	13.5
8 =	15
9 =	16.5
10 =	18
11 =	19
+ 0.5 for each additional community	
=	9.0
Total of 4 Communities	

See vegetation community sheet 6A

Subtotal: 27.5

Vegetation Communities Score 27
(maximum 45 points)

1.2.2. Vegetation Communities - East Don River Headwater Wetland Complex

Wet-land Unit #	Field #, Date & Source	Map Code	Vegetation Forms	Dominant Species[1], Secondary Species[2],Tertiary Species3 (% cover by form) (size in hectares; site type: I- isolated, P-palustrine with no inflow, Pi- palustrine with inflow; soil type; g-depth to mottling & G- depth to gley in centimeters (cm) when present; wt- depth to water table in cm, O- depth of organics in cm if present; ow- estimated percent permanent open water; presence of seepage; wildlife records, significant species & comments: PT- provincially threatened, PS- provincially significant species, LR- locally significant (locally rare) and LU-locally uncommon plant species in ecodistrict 6E7 (Varga et al., 2004), M- June 14, 2017 observations of Steve Varga, Thivyah Sivasubramianum & Austeja Vaskeviciute (OMNRF Aurora District) & Kim Logan (GEM Services Inc.), S- GEM Services Inc. staff observations in 2017, 2018 & 2019, V- July 18, 2018 observations of Steve Varga, Melanie Shapiera & Lauren Moretto (OMNRF, Aurora District), Timothy Law (Ontario Streams) & Kim Logan (GEM Services Inc.); G- 2018 observations of Kim Logan & Joelle Pecora (GEM Services Inc.); P- Paul Prior (TRCA) observations 2001, I- Natalie Iwanicki (TRCA) observations 2001, T- Gavin Miller (TRCA) observations 2009 & 2015, Z- Sue Hayes & Dell Tune (TRCA) observations 2015)
1	2017-1 MNRF, GEMS	tsS1-A	ts*,gc,ne	ts: Salix exigua[1], Salix eriocephala[1], Cornus sericea2 (50); gc: Galium asprellum[1], Symphyotrichum lanceolatum[2], Lythrum salicaria[2], Utrica dioica[2] (70); re: Typha angustifolia[1], Phragmites australis ssp. australis1 (25) (0.7; I; clay: A Horizon- silty clay with organics 15 cm & Horizon B- gravel 15 cm then silty clay; g-10; G-0; 0-2; ow-10; wildlife: S- Midland Painted Turtles with 2 adults & 28 juveniles (1-2 years old), Green Frog call level 1 (4 individuals), Gray Treefrog call level 2 (10-20 individuals), 3 Mallards calling in pond, M- several calling Green Frogs, one female and two male Mallards, Eastern Kingbird, Common Yellowthroat, Red-winged Blackbird & Northern Oriole calling on territory during the breeding season, Tree Swallow feeding over wetland and pond, amphipods (scuds), pond snails, beetles, red mites, mayfly nymphs, damselfly nymphs, water striders, midges, true bugs; Significant species: S- Midland Painted Turtle (PS), Barn Swallow feeding over several years (PT); comments: this community rings the edge of a 1.67 hectare open water pond over 2 metres deep)
2	2017-2 MNRF, GEMS	tsS1-A	ts*,gc,ne	ts: Salix exigua[1], Salix eriocephala[1] (60) ; gc: Symphyotrichum lanceolatum[1], Lotus corniculatus[1], Symphyotrichum novae-angliae2, Lythrum salicaria2 (25) ; ne: Equisetum arvense[1], Equisetum hyemale[2], Poa palustris[2] (60) (0.31; I; clay: clay 30 cm+; g-0; G-30; ow-0)

2	2017-3 MNRF, GEMS	reM1-A	re*	re: Typha latifolia[1], Typha angustofolia[1], Phragmites australis ssp. australis[1] (70); (0.68; I; clay: clay 30+ cm; g-0; G-30; ow-0; wildlife: M- Red-winged Blackbirds, pond snails, fingernail clams, beetles)
2	2017-4 MNRF, GEMS	suW2	su*	su: Stuckenia pectinata[1] (70); (0.25; I; clay: clay 30+ cm; g-0; G-30; ow-90; wildlife: M- damselfly, damselfly nymph, fingernail clams, American Toad tadpoles, dragonfly, beetle larvae, S- full chorus (call level 3) of Spring Peepers and Gray Treefrogs, 1 Green Frog calling, 1 Wood Frog calling, 2 ducks, American Woodcock; significant species: M- Stuckenia pectinata (LU))
3	2018-5 MNRF, GEMS	tsS1-B	ts*,gc,ne	ts: Salix exigua (70); gc: Lythrum salicaria[1], Symphyotrichum laceolatum[2] (25); ne: Phalaris arundinacea (40) (0.1; I; clay: A Horizon- sandy clay 40+ cm; g-10; G-25; wt-0; ow-0)
4	2018-6 MNRF, GEMS	hS2	h*,ts,gc,ne	h: Fraxinus pennsylvanica[1], Salix xrubens[2], Acer rubrum[2], Betula alleghaniensis[2], Ulmus americana[2] (80); ts: Rhamnus cathartica[1], Cornus sericea[1], Acer spicatum[1] (50); gc: Impatiens capensis[1], Onoclea sensibilis[2], Matteuccia struthiopteris[2] (30) (0.94; P; clay: A Horizon- sandy clay 40+ cm; g-10; G-25; ow-0; seepage; wildlife: Wood Frog, water striders in stream; significant species: V- Carex scabrata (LU))
4	2018-7 MNRF, GEMS	tsS3	h,ts*,gc,ne	h: Salix xrubens[1], Populus balsamifera[1], Populus tremuloides[2] (25); ts: Cornus sericea (60); gc: Onoclea sensibilis[1], Impatiens capensis[1], Eutrochium maculatum[2], Lythrum salicaria[2] (70); ne: Equisetum arvense (25) (0.38; P; sand: A Horizon- sandy clay 20 cm & B Horizon- sand 20+ cm; g-30; G-30; wt-5; ow-0; seepage; wildlife: V- Common Yellowthroat calling on territory during breeding season)
4	2018-3 GEMS	fW3	re,f*	re: Typha angustifolia; f: Nymphaea odorata (0.2; P; clay: A Horizon- clay 40+ cm; G-0; wt-0; ow-100, seepage; wildlife: V- Green Frog calling, dragonfly nymph/exigua, backswimmers, fingernail clams, pond snails, minnows; S- Midland Painted Turtle, Garter Snake, Great Blue Heron feeding, dragonflies; significant species: G- Nymphaea odorata (LS), Midland Painted Turtle (PS))
4	2018-9, 11 MNRF, GEMS	cS4	h,c*,ts,gc	h: Betula alleghaniensis (25); c: Thuja occidentalis[1], Tsuga canadensis[1] (45); ts: Acer spicatum (30); gc: Onoclea sensibilis[1], Impatiens capensis[2] (70) (3.22; P; sand: A Horizon- sandy clay 20 cm & B Horizon- sand 20+ cm; g-30; G-30; wt-5; ow-0; seepage; significant species: V- Eastern Wood-pewee (PS) calling on territory during breeding season)
4	2018-10 MNRF, GEMS	uW4	u*	u: unvegetated open water (0.12; P; clay: A Horizon- clay 40+ cm; G-0; wt-0; ow-100; seepage; wildlife: V- Green Frog calling, backswimmers, pond snails, dragonfly nymph, Creek Chub)
4	2001-58729 TRCA, 2018-5 GEMS	neM5	gc,re,ne*	gc: Impatiens capensis1, Lythrum salicaria2, Lycopus uniflorus2; re: Typha angustifolia; ne: Phalaris arundinacea1, Equisetum arvense1, Carex stipata2 (0.61; P; clay; ow-0; wildlife: G- Gray Catbird)
4	2018-5 GEMS	fW6	f*	f: Nymphaea odorata (0.37; P; clay; ow-100; significant species: G- Nymphaea odorata (LS))

4	2001-58882 TRCA, 2018-2 GEMS	cS5	c*,ts,ls,gc,m,ne	c: Thuja occidentalis; ts: Thuja occidentalis; ls: Thuja occidentalis; gc: Onoclea sensibilis, Impatiens capensis; m: mosses; ne: Equisetum arvense (2.15; P; clay: A Horizon- silty clay loam; B- Horizon sandy clay, g-10, G-25; O-15; seepage; ow-0; Wildlife: K- Common Yellowthroat; Significant species: T- Carex aquatilis (LS), Wood Thrush (PS))
4	2018-1 GEMS	tsS6	h,dh,ts*,ls,gc,ne	h: Betula sp.; dh: Fraxinus sp. (10); ts: Salix sp.; ls: Salix sp.; gc: Impatiens capensis; ne: grasses (0.66; P; mesic organic; O-45, g-5, G-5, wt-40; ow-0; seepage; wildlife: G- White Admiral)
4	2018-6 GEMS	dcS7	h,dc*,ts,ls,gc,re	h: Salix sp., Populus sp., Betula sp.; ch: dead Thuja occidentalis (70); ts: Salix sp.; ls: Salix sp.; gc: Impatiens capensis, Onoclea sensibilis; re: Typha sp. (1.85; P; clay; ow-0; seepage; wildlife: G- Monarch)
4	2009-69536 TRCA	reM7	gc,re*	re: Phramites australis ssp. australis1, Typha angustifolia2; gc: Impatiens capensis1, Tussilago farfara1 (0.43; P; clay; ow-0)
4	2009-695555	cS8	h,c*,ts,gc,m,ne	h: Tilia americana1, Betula alleghaniensis2; c: Thuja occidentalis1, Tsuga canadensis2; ts: Thuja occidentalis1, Acer spicatum2, Cornus sericea2; gc: Cystopteris bulbifera1, Tussilago farfara2; ne: Equisetum arvense (1.38; P; mesic organic; O-40+; ow-0; seepage; Significant species: T- Carex alopecoidea (LS), Stellaria longifolia (LS), Carex laevivaginata (LU), Carex scabrata (LU), Dryopteris clintoniana (LU), Equisetum sylvaticum (LU), Z- Eastern Wood-Pewee(PS))
4	2009-69500 TRCA	neM8	gc,ne*	gc: Solidago altissima, Mentha spicata, Myosotis scorpioides; ne: Equisetum arvense (0.08; P; loam: sandy loam; 0-15; seepage; ow-0; Significant species: T- Stellaria longifolia (LS), Carex laevivaginata (LU), Carex scabrata (LU))
4	2009-69515, 2015-43294 TRCA	cS8	h,c*,ts,gc,m,ne	h: Betula alleghaniensis1, Ulmus americana2, Populus blasmifera2; c: Thuja occidentalis1, Tsuga canadensis2; ts: Thuja occidentalis1, Ulmus americana2, Tilia americana2; gc: Impatiens capensis1, Cystopteris bulbifera1, Laportea canadensis2; m: mosses; ne: Equisetum arvense1, Carex scabrata2 (8.91; P; humic organic; O-40+; ow-0; seepage; Significant species: T- Carx alopecoidea (LS), Solidago patula (LS), Aralia racemosa (LU), Carex laevivaginata (LU), Carex scabrata (LU), Chrysosplenium americanum (LU), Dyopteris clintoniana (LU), Equisetum scirpoides (LUI), Pilea fontana (LU), Veronica americana (LU), Z- Eastern Wood-Pewee (PS))
4	2015-43268 TRCA	reM9	gc,re*,ne	gc: Impatiens capensis, Epilobium hirstum2, Lythrum salicaria3, Bidens cernua3, Pilea pumila3; re: Typha latifolia; ne: Phalaris arundinacea1, Leersia oryzoides2 (0.43; P; humic organic, O-40+; ow-0: Significant species: T- Hydrocotyle americana (LU))
4	2015-43251 TRCA	tsS1-C	ts*,gc,ne	ts: Alnus glutinosa; gc: Symphyotrichum lanceolatum1, Solidago altissima1, Bidens cernua1, Impatiens capensis2; ne: Phalaris arundinacea (0.08; P; clay; ow-0)

4	TRCA	reM1	re*	re: Typha sp. (0.08; P; clay; ow-0; Comment: former open water pond with submerged plants, its control structure has been removed in 2019 and the drained pond is now developing into a cattail marsh, wetland shrubs have been planted along the former pond edge)
4	MNRF	reM1	re*	re: Typha sp. (0.08; P; clay; ow-0; Comment: community based on air-photo interpretation)
5	2015-43278 TRCA	reM12	m,re*,ff	m: mosses; re: Typha xglauca; ff: Lemna turionifera (0.13; I; clay; ow-10; wildlife: Z- Spring Peeper (call level 1), Wood Frog (call level 1), Green Frog (call level 2), Swamp Sparrow; Significant Species: Z- Midland Painted Turtle (PS))
6	2009-69558 TRCA	gcM13	gc*	gc: various herbaceous species (0.23; P; loam; ow-0; Wildlfie: T: Wood Frog)
7	2009-69519 TRCA	reM14	re*,ff	re: Typha latifolia; ff: Lemna trisulca1, Riccia fluitans2 (0.08; P; loam; ow-40; Significant species: T- Lemna trisulca (LU); Wildlife: T- Green Frog (call level 1), Z- Spring Peeper (call level 3), Wood Frog (call level 1))
8	2015-43249	neS12	h,ts,ne*	h: Acer negundo1, Populus balsamifera2 (30); ts: Salix bebbiana1, Salix discolor2, Cornus sericea3 (30); ne: Phalaris arundinacea (60+) (0.21; P; loam; ow-0); Wildlife: Z - Eastern Kingbird, Grey Catbird)
9	2015-43254 TRCA	gcM11	gc*,ne	gc: Symphyotrichum lanceolatum1, Eutrochium maculatum2; ne: Phalaris arundinacea (0.04; P; loam; ow-0)
10	2015-43275 TRCA	hS9	h*,dh,gc,ne	h: Salix xrubens; dh: dead Fraxinus sp.; gc: Impatiens capensis1, Eutrochium maculatum2, Symphyotrichum puniceum2, Pilea pumila3; ne: Equisetum arvense (0.51; R; humic organic; O-40+; ow-0)
11	2015-43240 TRCA	cS10	h,c*,gc,ne	h: Betula alleghaniensis1, Populus sp.1; c: Thuja occidentalis1, Tsuga canadensis2; gc: ferns1, Impatiens capensis2, Eutrochium maculatum2; ne: Equisetum arvense (3.68; P; humic organic; O-40+; seepage; ow-0: Significant species: Carex laevivaginata (LU), Carex scabrata (LU), T- Pilea fontana (LU), Z- Grey Catbird, Eastern Wood-Pewee (PS))
11	2015-43227 TRCA	reM1-B	re*	re: Typha xglauca (0.04; P; humic organic; O-40+; ow-0); Wildlife: Z- Green Frog calling
11	2015-43227 TRCA	ffW10	ff*	ff: Lemna turionifera1, Spirodela polyrhiza2, Riccia fluitans (60+) (0.03; P; clay; ow-100: Wildlife: Z- Hooded Merganser; Significant species: T- Spirodela polyrhiza (LU))
11	2015-43244 TRCA	tsS11	ts*	ts: Cornus sericea1, Salix discolor2, Salix bebbiana3 (0.3; P; clay; ow-0)
11	2015-43248 TRCA	neM5	gc,re,ne*	gc: Eutrochium maculatum1, Symphyotrichum lanceolatum2; re: Typha latifolia; ne: Phalaris arundinacea (0.09; P; clay; ow-0)
11	2015-43235 TRCA	gcM11	gc*,ne	gc: Symphyotrichum lanceolatum1, Tussilago farfara1, Solidago altissima2, Euthamia graminifolia3; ne: Equisetum arvense (0.12; P; clay; ow-0) Wildlife: Z - Grey Catbird

Legend

Vegetation Forms:

h- deciduous trees
c- coniferous trees
dh- dead deciduous trees
dc- dead coniferous trees
ts- tall shrubs
ls- low shrubs
gc- herb (ground cover)
m- mosses
re- robust emergents
ne- narrow-leaved emergents
f- free floating plants
ff- fixed-floating plants
su- submerged plants
u- unvegetated
*- dominant form

Map Codes:

W- open water marsh
M- marsh
S- swamp

Wetland Name: East Don River Headwater Wetland Complex

Wetland Size (ha): 29.3

Vegetation Form	% area in which form is dominant	
h	**4.92**	(1.44 ha)
c	**66.04**	(19.35 ha)
dh	0.00	(0.00 ha)
dc	**6.31**	(1.85 ha)
ts	**8.60**	(2.52 ha)
ls	0.00	(0.00 ha)
ds	0.00	(0.00 ha)
gc	**1.09**	(0.32 ha)
m	0.00	(0.00 ha)
ne	**3.38**	(0.99 ha)
be	0.00	(0.00 ha)
re	**6.25**	(1.83 ha)
ff	**0.89**	(0.26 ha)
f	**1.26**	(0.37 ha)
su	**0.85**	(0.25 ha)
u (unvegetated)	**0.41**	(0.12 ha)
Total = 100%	100.00	

1.2.3 Diversity of Surrounding Habitat

Check all appropriate items. Only habitat within 1.5 km of the wetland boundary and at least 0.5 ha in size is to be scored.

1	row crop
	pasture
1	abandoned agricultural land
1	deciduous forest
1	coniferous forest
1	mixed forest*
	abandoned pits and quarries
	open lake or deep river
	fence rows with cover, or shelterbelts
1	terrain appreciably undulating, hilly, or with ravines
1	creek flood plain
7	Subtotal

** "Mixed forest" is defined as either 25% coniferous trees distributed singly or in clumps in deciduous forest, or 25% deciduous treesdistributed singly or in clumps in coniferous forest. Note that Forest Resource Inventory (FRI) maps can be misleading since 25% conifer within a unit could be entirely concentrated around a lake.*

Score 1 point for each feature checked, up to a maximum of 7 points.

Diversity of Surrounding Habitat Score (maximum 7 points) **7**

1.2.4 Proximity to Other Wetlands

Check highest appropriate category. (Note: if the wetland is lacustrine, score option #1 at 8 points).

	Hydrologically connected by surface water to other wetlands (different dominant wetland type) or to open lake or deep river within 1.5 km	8 points
	Hydrologically connected by surface water to other wetlands (same dominant wetland type) within 0.5 km	8
	Hydrologically connected by surface water to other wetlands (different dominant wetland type), or to open lake or deep river from 1.5 to 4 km away	5
	Hydrologically connected by surface water to other wetlands (same dominant wetland type) from 0.5 to 1.5 km away	5
	Within 0.75 km of other wetlands (different dominant wetland type) or open water body, but not hydrologically connected by surface water	5
2	Within 1 km of other wetlands, but not hydrologically connected by surface water	2
	No wetland within 1 km	0

Name and distance (from wetland) of wetlands/water bodies scored above:

within 1 km of other wetlands, but on a different tributary of the East Don River

Proximity to other Wetlands Score (maximum 8 points) **2**

1.2.5 Interspersion

Number of Intersections = **70**

	Number of Intersections *(Check only one)*		
	26 or less	=	3 points
	27 to 40	=	6
	41 to 60	=	9
12	61 to 80	=	12
	81 to 100	=	15
	101 to 125	=	18
	126 to 150	=	21
	151 to 175	=	24
	176 to 200	=	27
	>200	=	30

Interspersion Score (maximum 30 points) **12**

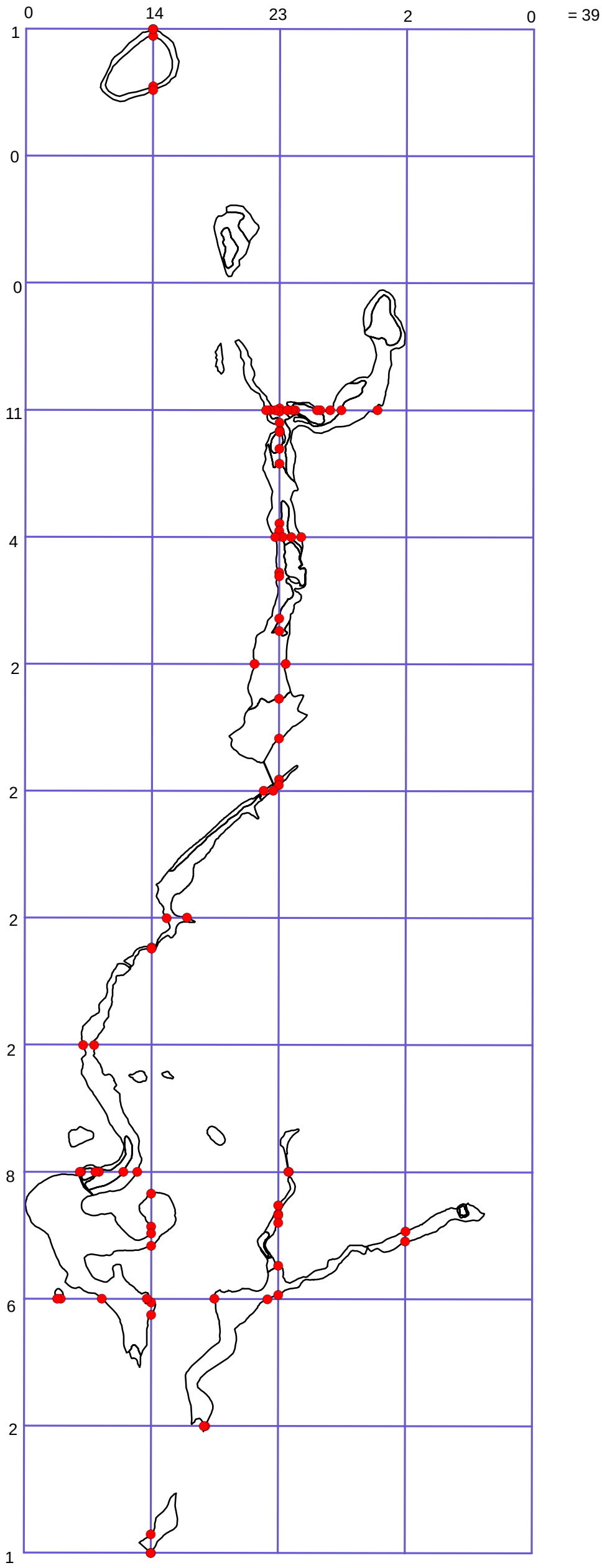
1.2.6 Open Water Types

Note: this attribute is only to be scored for permanently flooded open water within the wetland (adjacent lakes do not count). Check one option only.

	Open Water Type	Characteristic	Points
8	type 1	Open water occupies < 5 % of wetland area	8
	type 2	Open water occupies 5-25% of wetland (occurring in central area)	8
	type 3	Open water occupies 5-25% (occurring in various-sized ponds, dense patches of vegetation or vegetation in diffuse stands)	14
	type 4	Open water occupies 26-75% of wetland (occurring in a central area)	20
	type 5	Open water occupies 26-75% of wetlands (small ponds and embayments are common)	30
	type 6	Open water occupies 76%-95% of wetland (occurring in large central area; vegetation is peripheral)	8
	type 7	Open water occupies 76-95% of wetland (vegetation in patches or diffuse open stands)	14
	type 8	Open water occupies more than 95% of wetland area	3
	no open water		0

Open water occupies **3.41 % (1.00 ha) of wetland complex.** **Open Water Type Score** (maximum 30 points) **8**

EAST DON RIVER HEADWATER WETLAND COMPLEX
INTERSPERSION GRID = 80



Legend

- Intersections (80)
- Grid
- East Don River Headwater Wetland Complex

1:12,000

0 145 290 580 870 1,160 Meters

1.3 Size (Biological Component)

Total Size of Wetland = 29.30 ha

Sum of scores from Biodiversity Subcomponent

1.2.1
+1.2.2
+1.2.3
+1.2.4
+1.2.5
+1.2.6

69

Wetland Size (ha)	Total Score for Biodiversity Subcomponent									
	<37	37-48	49-60	**61-72**	73-84	85-96	97- 108	109-120	121- 132	>132
<20 ha	1	5	7	8	9	17	25	34	43	50
20-40	5	7	8	**9**	10	19	28	37	46	50
41-60	6	8	9	10	11	21	31	40	49	50
61-80	7	9	10	11	13	23	34	43	50	50
81-100	8	10	11	13	15	25	37	46	50	50
101-120	9	11	13	15	18	28	40	49	50	50
121-140	10	13	15	17	21	31	43	50	50	50
141-160	11	15	17	19	23	34	46	50	50	50
161-180	13	17	19	21	25	37	49	50	50	50
181-200	15	19	21	23	28	40	50	50	50	50
201-400	17	21	23	25	31	43	50	50	50	50
401-600	19	23	25	28	34	46	50	50	50	50
601-800	21	25	28	31	37	49	50	50	50	50
801-1000	23	28	31	34	40	50	50	50	50	50
1001-1200	25	31	34	37	43	50	50	50	50	50
1201-1400	28	34	37	40	46	50	50	50	50	50
1401-1600	31	37	40	43	49	50	50	50	50	50
1601-1800	34	40	43	46	50	50	50	50	50	50
1801-2000	37	43	47	49	50	50	50	50	50	50
>2000	40	46	50	50	50	50	50	50	50	50

Size Score (Biological Component) 9
(maximum 50 points)

2.0 SOCIAL COMPONENT

2.1 Economically Valuable Products

2.1.1 Wood Products

Check the option that best reflects the total area (ha) of forested wetland (i.e., areas where the dominant vegetation form is h or c). Note that this is the area of all the forested vegetation communities, not total wetland size.

Do not include areas where harvest is not permitted. Check only one option.

Area of wetland used for scoring 2.1.1:

h:	1.44	c:	19.35

	<5 ha	=	0
	5 -25 ha	=	3
	26 -50 ha	=	6
	51- 100 ha	=	9
	101-200 ha	=	12
	>200 ha	=	18

Source of information:

commercial harvesting not permitted, scores 0

Wood Products Score (maximum 18 points) **0**

2.1.2 Wild Rice

(Check only one)

	Present (minimum size 0.5 ha)	=	6 points
0	Absent	=	0
	Harvest not permitted	=	0

Source of information:

not present based on TRCA, GEMS fieldwork

Wild Rice Score (maximum 6 points) **0**

2.1.3 Commercial Bait Fish

(Check only one)

	Present	=	12 points
	Absent	=	0
0	Fishing not permitted	=	0

Source of information:

commerical bait fish trapping not permitted

Commercial Fish Score 0
(maximum 12 points)

2.1.4 Furbearers

Only species recognized as furbearers under the Fish & Wildlife Conservation Act may be scored here. Score 3 points for each furbearer species listed, up to a maximum of 12 points.

		Name of furbearer	Source of information
1		Commerical trapping not	
2		permitted	
3			
4			
5			
6			
	0	Subtotal	

Furbearer Score 0
(maximum 12 points)

2.2 Recreational Activities

Sources of information and reasons for scoring a wetland under high or moderate use below, must be included below.

Circle one score for each of the activities listed. Score is cumulative – add score for hunting, nature enjoyment and fishing together for final score.

Intensity of Use	Type of Wetland-Associated Use						
		Hunting		Nature Enjoyment/ Ecosystem Study		Fishing	
	High	40 points		40 points	40	40 points	
	Moderate	20		20		20	
	Low	8		8		8	
	Not possible/ Not Known	0		0		0	
	Subtotals		0		40		0
						Total	40

Sources of information (include evidence/criteria forming basis for score and any relevant reference used to obtain that information):
- e.g., Hunting scored at 20 points: 5 hunting blinds observed; hunters using area frequently monitored for compliance (source: D. Black, MNR Conservation Officer)

Hunting: not permitted

Nature: trails present in and around the eastern portion of the wetland complex used by general public for nature enjoyment (high use)

based on TRCA staff observations

Fishing: no longer observed in the field by GEM Sevices Inc. or TRCA staff

Redelmeier Pond once had low fishing use, but pond has been de-watered in 2018

0

Recreational Activities Score 40
(maximum 80 points)

2.3 Landscape Aesthetics

2.3.1 Distinctness

(Check only one)

	Clearly distinct	=	3 points
0	Indistinct	=	0

Landscape Distinctness Score 0
(maximum 3 points)

2.3.2 Absence of Human Disturbance

(Check only one)

	Human disturbances absent or nearly so	=	7 points
4	One or several localized disturbances	=	4
	Moderate disturbance; localized water pollution	=	2
	Wetland intact but impairment of ecosystem quality intense in some areas	=	1
	Extreme ecological degradation, or water pollution severe and widespread	=	0

Details regarding type, extent and location of disturbance scored:

Dufferin Street divides the wetland complex. Residential development around the eastern portion of the wetland complex,. Some introduced plants such as European Comon Reed present along Duffrein Street

Source of information:

GEMS observations

Absence of Human Disturbance Score 4
(maximum 7 points)

2.4 Education and Public Awareness

2.4.1 Educational Uses

Check highest appropriate category.

	Frequent	=	20 points
	Infrequent	=	12
0	No visits	=	0

Details regarding the type and frequency of education uses scored above:

no visitors observed, cannot easily enter the site yet

Source of information:

0

field investigations

Educational Uses Score 0

(maximum 20 points)

2.4.2 Facilities and Programs

Check all appropriate options, score highest category checked.

	Staffed interpretation centre	=	8 points
4	No interpretation centre or staff but a system of self-guiding trails or brochures available	=	4
	Facilities such as maintained paths (e.g., woodchips) boardwalks, boat launches or observation towers but no brochures or other interpretation	=	2
	No facilities or programs	=	0

Additional Notes/Comments:

Maintained paths in and around the eastern portion of the wetland complex.

Trail guides/ brochures available online

Source of information:

GEMS observations, TRCA staff observations

Facilities and Programs Score 4

(maximum 8 points)

2.4.3 Research and Studies

Check all that apply; score highest category checked.

	Long term research has been done	=	2 points
	Research papers published in refereed scientific journal or as a thesis	=	10
5	One or more (non-research) reports have been written on some aspect of the wetland's flora, fauna,hydrology etc.	=	5
	No research or reports	=	0
5	Subtotal:		

List of reports, publications, research studies etc. scored above:

See "Additional Reports"

Research and Studies Score 5
(maximum 12 points)

2.5 Proximity to Areas of Human Settlement

Name of Settlement: Vaughan (Maple)

Distance of wetland from settlement: within settlement

Population of settlement: 306,233 (2016) (Source: StatCan census data)

Circle only the highest score applicable

Distance of wetland to settlement	population >10,000		population 2,500-10,000		population <2,500 or cottage community	
Within or adjoining settlement	40 points	40	26 points		16 points	
0.5 to 10 km from settlement	26		16		10	
10 to 60 km from settlement	12		8		4	
>60 km from settlement	5		2		0	
Total		40		0		0

Proximity to Human Settlement Score 40
(maximum 40 points)

2.4.3 Research and Studies
Additional Reports
Varga, S., J. Fraser & L. Normand. March 1997, updated September 2000. Inventory of Life Science Maple
and Kettle Wetlands and Earth Science Oak Ridges Moraine Maple Spur Areas of Natural and Scientific Interest,
City of Vaughan, Ontario. Ontario Ministry of Natural Resources, Aurora District. 38 pp. + map.
TRCA. 2009. Don River Watershed Plan: Beyond Forty Steps. Toronto, Ontario: Canada. Toronto and
Region Conservation Authority. 211 pp + appendices.
MTRCA. 1994. Forty Steps to a New Don. The Report ofthe Don Watershed Task Force. Downsview, Ontario:
Canada. Metropolitan Toronto and Region Conservation Authority.

2.6 Ownership

FA of wetland held by or held under a legal contract by a conservation body (as defined by the Conservation Land Act) for wetland protection		x	10	=	0.00
FA of wetland occurring in provincially or nationally protected areas (e.g., parks and conservation reserves)		x	10	=	0.00
FA of wetland area in Crown/ public ownership, not as above	1.00	x	8	=	8.00
FA of wetland area in private ownership, not as above		x	4	=	0.00

Source of information:

based on City of Vaughan

Ownership Score 8
(maximum 10 points)

2.7 Size (Social Component)

Total Size of Wetland = 29.30 ha Sum of scores from Subcomponents 2.1, 2.2, and 2.5 = 80

Circle the appropriate score from the table below.

	Total for Size Dependent Score									
	<31	31-45	46-60	61-75	**76-90**	91-105	106-120	121-135	136-150	>150
<2 ha	1	2	4	8	10	12	14	14	14	15
2 - 4ha	1	2	4	8	12	13	14	14	15	16
5 - 8ha	2	2	5	9	13	14	15	15	16	16
9 - 12ha	3	3	6	10	14	15	15	16	17	17
13-17	3	4	7	10	14	15	16	16	17	17
18-28	4	5	8	11	15	16	16	17	17	18
29-37	5	7	10	13	**16**	17	18	18	19	19
38-49	5	7	10	13	16	17	18	18	19	20
50-62	5	8	11	14	17	17	18	19	20	20
63-81	5	8	11	15	17	18	19	20	20	20
82-105	6	9	11	15	18	18	19	20	20	20
106-137	6	9	12	16	18	19	20	20	20	20
138-178	6	9	13	16	18	19	20	20	20	20
179-233	6	9	13	16	18	20	20	20	20	20
234-302	7	9	13	16	18	20	20	20	20	20
303-393	7	9	14	17	18	20	20	20	20	20
394-511	7	10	14	17	18	20	20	20	20	20
512-665	7	10	14	17	18	20	20	20	20	20
666-863	7	10	14	17	19	20	20	20	20	20
864-1123	8	12	15	17	19	20	20	20	20	20
1124-1460	8	12	15	17	19	20	20	20	20	20
1461-1898	8	13	15	18	19	20	20	20	20	20
1899-2467	8	14	16	18	20	20	20	20	20	20
>2467	8	14	16	18	20	20	20	20	20	20

Size Score (Social Component) 16

2.8 Aboriginal Values and Cultural Heritage

Either or both Aboriginal or Cultural Values may be scored. However, the maximum score permitted for 2.8 is 30 points.

Full documentation of sources must be attached to the data record.

2.8.1 Aboriginal Values

	Significant	=	30 points
	Not Significant	=	0
0	Unknown	=	0
0	Total:		

Additional Comments/Notes:

unknown

2.8.2 Cultural Heritage

	Significant	=	30 points
0	Not Significant	=	0
	Unknown	=	0
0	Total:		

Additional Comments/Notes:

not present

Aboriginal Values/ Cultural Heritage Score **0**
(maximum 30 points)

3.0 HYDROLOGICAL COMPONENT

3.1 Flood Attenuation

Check one of the following four options.

	If wetland is a single contiguous coastal wetland, [a] score 0 points for this section.
	If all wetland units of a wetland complex are coastal wetland units, [a] score 0 points for this section.
	If wetland or wetland complex is entirely isolated in site type, [a] score 100 points automatically.
X	Wetland not as above – proceed through 'steps' A through L below.

(A)	Total wetland area	=	29.3	ha		
(B)	Size of wetland's catchment	=	654.30	ha		
(C)	Size of other detention areas in catchment	=	7.00	ha		
(D)	Size of 'isolated' portions of wetland	=	1.72	(FA =	0.06	)
(E)	Size of coastal units of wetland complex	=	0.00	(FA =	0.00	)

Points for Isolated Portion of Wetland (If not applicable, enter '0'):

(F)	(FA of D) x 100 pts	=	5.87	pts

Points for Coastal Portion(s) of Wetland (if not applicable, enter '0')

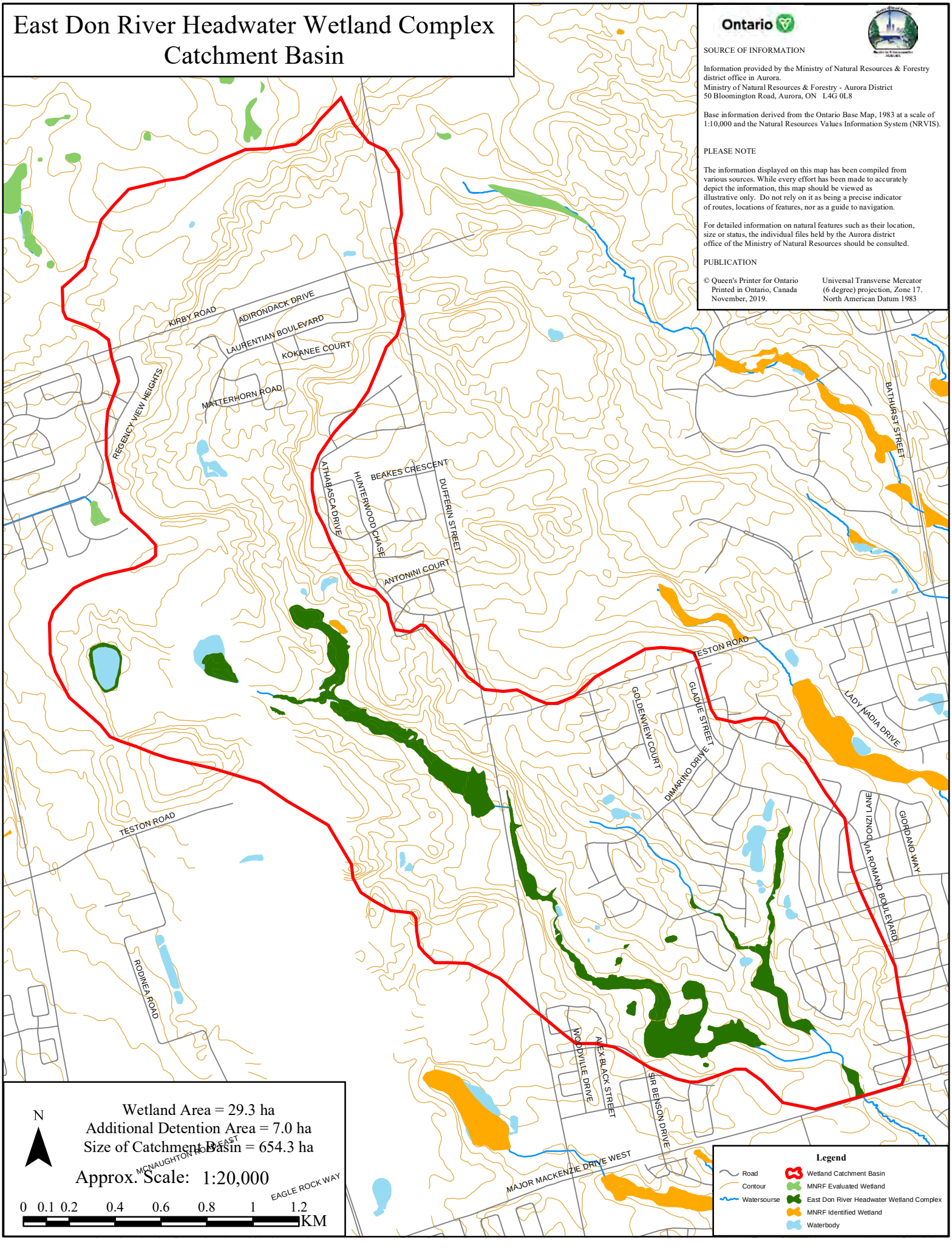
(G)	(FA of E) x 100 pts	=	0.00	pts

(H)	Size of wetland minus the isolated and coastal portions	=	{A – D – E}	=	27.58	ha	
(I)	Number of points available to score 'rest' of wetland	=	{100 – F – G}	=	94.13	pts	
(J)	Total area of upstream detention areas	=	{A + C }	=	36.30	ha	
(K)	Upstream Detention Factor	{(H/J) x 2}	=	1.52	=	1.00	(maximum 1.0)
(L)	Attenuation Factor	{(H/B) x 10}	=	0.42	=	0.42	(maximum 1.0)

Flood Attenuation Final Score = {[((K + L) /2) x I] + F} = **66.90**

Flood Attenuation Score 67
(maximum l00 points)

East Don River Headwater Wetland Complex Catchment Basin



Ontario

SOURCE OF INFORMATION

Information provided by the Ministry of Natural Resources & Forestry district office in Aurora.
Ministry of Natural Resources & Forestry - Aurora District
50 Bloomington Road, Aurora, ON L4G 0L8

Base information derived from the Ontario Base Map, 1983 at a scale of 1:10,000 and the Natural Resources Values Information System (NRVIS).

PLEASE NOTE

The information displayed on this map has been compiled from various sources. While every effort has been made to accurately depict the information, this map should be viewed as illustrative only. Do not rely on it as being a precise indicator of routes, locations of features, nor as a guide to navigation.

For detailed information on natural features such as their location, size or status, the individual files held by the Aurora district office of the Ministry of Natural Resources should be consulted.

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Universal Transverse Mercator (6 degree) projection, Zone 17. North American Datum 1983

N

Wetland Area = 29.3 ha
Additional Detention Area = 7.0 ha
Size of Catchment Basin = 654.3 ha

Approx. Scale: 1:20,000

0 0.1 0.2 0.4 0.6 0.8 1 1.2 KM

Legend

- Road
- Contour
- Watersourse
- Wetland Catchment Basin
- MNRF Evaluated Wetland
- East Don River Headwater Wetland Complex
- MNRF Identified Wetland
- Waterbody

3.2 Water Quality Improvement

Step 1: Determination of maximum initial score

	Wetland on one of the 5 defined large lakes or 5 major rivers (Go to Step 5A)
x	All other wetlands (Go through Steps 2, 3, 4, and 5B)

Step 2: Determination of watershed improvement factor (WIF)

Calculation of WIF is based on the fractional area (FA) of each site type that makes up the total area of the wetland.

(FA= area of site type/total area of wetland)		Fractional Area					
FA of isolated wetland	=	0.06	x	0.5	=	0.03	(1.72 ha)
FA of riverine wetland	=	0.02	x	1	=	0.02	(0.51 ha)
FA of palustrine wetland with no inflow	=	0.92	x	0.7	=	0.65	(27.07 ha)
FA of palustrine wetland with inflows	=	0.00	x	1	=	0.00	(0.00 ha)
FA of lacustrine on lake shoreline	=	0.00	x	0.2	=	0.00	(0.00 ha)
FA of lacustrine at lake inflow or outflow	=	0.00	x	1	=	0.00	(0.00 ha)
			Sub Total:			0.70	

Sum (WIF cannot exceed 1.0) **0.70**

Step 3: Determination of catchment land use factor (LUF)

(Choose the first category that fits upstream landuse in the catchment)

	Over 50% agricultural and/or urban	=	1.0
0.8	Between 30 and 50% agricultural and/or urban	=	0.8
	Over 50% forested or other natural vegetation	=	0.6

LUF (maximum 1.0) **0.80**

Step 4: Determination of pollutant uptake factor (PUT)

Calculation of PUT is based on the fractional area (FA) of each vegetation type that makes up the total area of the wetland. Base assessment on the dominant vegetation form for each community except where dead trees or shrubs dominate. In that case base assessment on the domininant live vegetation. (FA = area of vegetation type/total area of wetland)

FA of wetland with live trees, shrubs, herbs or mosses (c,h,ts,ls,gc,m)	0.87	x	0.75	=	0.65	(25.48 ha)
FA of wetland with emergent,submergent or floating vegetation (re,be,ne,su,f,ff)	0.13	x	1	=	0.13	(3.70 ha)
FA of wetland with little or no vegetation (u)	0.00	x	0.5	=	0.00	(0.12 ha)
		Subtotal:			0.78	

Sum (PUT cannot exceed 1.0) **0.78**

Step 5: Calculation of final score

	Wetland on large lakes or major rivers	0
x	All other wetlands -calculate as follows	
	Initial score	60
	Water quality improvement factor (WIF)	0.70
	Land use factor (LUF)	0.80
	Pollutant uptake factor (PUT)	0.78
	Final score: 60 x WIF x LUF x PUT =	26.11

Short Term Water Quality Improvement Score 26
(maximum 60 points)

3.2.2 Long Term Nutrient Trap

Step 1:

	Wetland on large lakes or 5 major rivers	=	0 points
x	All other wetlands (proceed to Step 2)		

Step 2: Choose only one of the following settings that best describes the wetland being evaluated

	Wetland located in a river mouth	=	10 points
10	Wetland is a bog, fen or swamp with more than 50% of the wetland being covered with organic soil	=	10
	Wetland is a bog, fen or swamp with less than 50% of the wetland being covered with organic soil	=	3
	Wetland is a marsh with more than 50% of the wetland covered with organic soil	=	3
	None of the above	=	0

Long Term Nutrient Trap Score 10
(maximum 10 points)

3.2.3 Groundwater Discharge

Circle the characteristics that best describe the wetland being evaluated and then sum the scores. If the sum exceeds 30 points, assign the maximum score of 30). Note: for wetland type, wetland type scored does not have to the dominant type in the wetland.

Percentage of Wetland Area: 4.48 %

Wetland Characteristics	Potential for Discharge						
		None to Little		Some		High	
	Wetland type	Bog = 0		Swamp/Marsh = 2	2	Fen = 5	
	Topography	Flat/rolling = 0		Hilly = 2	2	Steep = 5	
	Wetland Area: Upslope Catchment Area	Large (>50%) = 0		Moderate (5-50%) = 2		Small <(5%) = 5	5
	Lagg Development	None found = 0		Minor = 2		Extensive = 5	
	Seeps	None = 0		= or < 3 seeps = 2		> 3 seeps = 5	5
	Surface marl deposits	None = 0		= or < 3 sites = 2		> 3 sites = 5	
	Iron precipitates	None = 0		= or < 3 sites = 2		> 3 sites = 5	
	Located within 1 km of a major aquifer	N/A = 0		N/A = 0		Yes = 10	10
	Totals		0		4		20

Additional Comments/Notes:

Oak Ridges Moraine aquifers

Groundwater Discharge Score 24
(maximum 30 points)

3.3 Carbon Sink

Check only one of the following:

	Bog, fen or swamp with more than 50% coverage by organic soil	=	5 points
	Bog, fen or swamp with between 10 to 49% coverage by organic soil	=	2
	Marsh with more than 50% coverage by organic soil	=	3
0	Wetlands not in one of the above categories	=	0

Carbon Sink Score 0
(maximum 5 points)

3.4 Shoreline Erosion Control

Step 1:

	Wetland entirely isolated or palustrine	=	0 points
x	Any part of the wetland riverine or lacustrine	=	Go to step 2

Step 2:

Choose the one characteristic that best describes the shoreline vegetation
see page 109 for description of "shoreline".)

15	Trees and shrubs	=	15 points
	Emergent vegetation	=	8
	Submergent vegetation	=	6
	Other shoreline vegetation	=	3
	No vegetation	=	0

Shoreline Erosion Control Score 15
(maximum 15 points)

3.5 Groundwater Recharge

3.5.1 Site Type

Wetland > 50% lacustrine (by area) or located on one of the five major rivers				=	0 points	
Wetland not as above. Calculate final score as follows:						
=	FA of isolated or palustrine wetland	=	0.98	x 50	=	49.0
=	FA of riverine wetland	=	0.02	x 20	=	0.4
=	FA of lacustrine wetland (wetland <50% lacustrine)	=	0.00	x 0	=	0.0
				Subtotal:		49.4

Groundwater Recharge/Wetland Site Type Score (maximum 50 points) **49**

3.5.2 Soil Recharge Potential

Circle only one choice that best describes the soils in the area surrounding the wetland being evaluated (the soils within the wetland are not scored here).

		Group A, B, C (sands, gravels, loams)		Group D (clays, substrates in high water tables, shallow substrates over impervious materials such as bedrock)	
Dominant Wetland Type	Lacustrine or major river	0		0	
	Isolated	10		5	
	Palustrine	7	7	4	
	Riverine (not on a major river)	5		2	
	Totals		7		0

Groundwater Recharge/Wetland Soil Recharge Potential Score (maximum 10 points) **7**

4.0 SPECIAL FEATURES COMPONENT

4.1 Rarity

4.1.1 Wetland Types

Ecodistrict	Rarity within the Landscape (4.1.1.1)	Rarity of Wetland Type (4.1.1.2)			
		Marsh	Swamp	Fen	Bog
6E-1	60	40	0	80	80
6E-2	60	40	0	80	80
6E-3	40	10	0	40	80
6E-4	60	40	0	80	80
6E-5	20	40	0	80	80
6E-6	40	20	0	80	80
6E-7	**60**	**10**	**0**	80	80
6E-8	20	20	0	80	80
6E-9	0	20	0	80	80
6E-10	20	0	20	80	80
6E-11	0	30	0	80	80
6E-12	0	30	0	60	80
6E-13	60	10	0	80	80
6E-14	40	20	0	40	80
6E-15	40	0	0	80	80
7E-1	60	0	60	80	80
7E-2	60	0	0	80	80
7E-3	60	0	0	80	80
7E-4	80	0	0	80	80
7E-5	60	20	0	80	80
7E-6	80	30	0	80	80

4.1.1.1 Rarity within the Landscape

Choose appropriate score from 2nd column above.

Rarity within the Landscape Score 60
(maximum 80 points)

4.1.1.2 Rarity of Wetland Type

Score is cumulative, based on presence/absence. Circle all appropriate scores from above table and sum.

Rarity of Wetland Type Score 10
(maximum 80 points)

4.1.2 Species

4.1.2.1 Reproductive Habitat for an Endangered or Threatened Species

Under the "Activity" column, when scoring animal species, record what the animal was doing when observed (e.g., nesting, courtship, singing, etc).

	Common Name	Scientific Name	Activity	Date Observed	Info Source
250	Redside Dace	Clinostomus elongatus			MECP
	see attached sheet 30A				
250	Total				

For each species score 250 points. (Score is cumulative, no maximum score)

Additional Notes/Comments:

Redside Dace is mapped by MECP as having occupied habitat along the Eat Don River upstream to the former Redelmeier dam, which includes Wetland No. 10, therefore it is assumed it is within the wetland complex

Reproductive Habitat for Endangered or Threatened Species **250**
(no maximum score)

4.1.2.2 Traditional Migration or Feeding Habitat for an Endangered or Threatened Species

Under the "Activity" column, when scoring animal species, record what the animal was doing when observed (e.g., nesting, courtship, singing, feeding, resting etc). Dates that species has been recorded using the wetland must be included in the table below.

	Common Name	Scientific Name	Activity	Date Observed	Info Source
	see attached sheet 30A				
150	Total				

For one species score 150 points; for each additional species score 75 points. (Score is cumulative)

Additional Notes/Comments:

Traditional Habitat for Endangered or Threatened Species **150**
(no maximum score)

4.1.2.3 Provincially Significant Animal Species

	Common Name	Scientific Name	Activity	Date Observed	Info Source
	see attached sheet 30A				
95	Total				

Additional Notes/Comments:

One	species	= 50 points	9	species	= 140	17	species	= 160
2	species	= 80	10	species	= 143	18	species	= 162
3	**species**	**= 95**	11	species	= 146	19	species	= 164
4	species	= 105	12	species	= 149	20	species	= 166
5	species	= 115	13	species	= 152	21	species	= 168
6	species	= 125	14	species	= 154	22	species	= 170
7	species	= 130	15	species	= 156	23	species	= 172
8	species	= 135	16	species	= 158	24	species	= 174
						25	species	= 176

Add one point for every species past 25 (for example, 26 species = 177 points, 27 species = 178 points etc.)

Provincially Significant Animal Species 95
(no maximum score)

4.1.2.4 Provincially Significant Plant Species

	Common Name	Scientific Name	Activity	Date Observed	Info Source
0	Total				

Additional Notes/Comments:

none observed

One	species	= 50 points	9	species	= 140	17	species	= 160
2	species	= 80	10	species	= 143	18	species	= 162
3	species	= 95	11	species	= 146	19	species	= 164
4	species	= 105	12	species	= 149	20	species	= 166
5	species	= 115	13	species	= 152	21	species	= 168
6	species	= 125	14	species	= 154	22	species	= 170
7	species	= 130	15	species	= 156	23	species	= 172
8	species	= 135	16	species	= 158	24	species	= 174
						25	species	= 176

Add one point for every species past 25 (for example, 26 species = 177 points, 27 species = 178 points etc.)

Provincially Significant Plant Species **0**
(no maximum score)

4.1.2.5 Regionally Significant Species

	Common Name	Scientific Name	Activity	Date Observed	Info Source
0	Total				

One	species	= 20 points	4	species	= 45	7	species = 58
2	species	= 30	5	species	= 50	8	species = 61
3	species	= 40	6	species	= 55	9	species = 64
						10	species = 67

For each significant species over 10 in wetland, add 1 point.

Regionally Significant Species Score 0
(no maximum score)

4.1.2.6 Locally Significant Species

	Common Name	Scientific Name	Activity	Date Observed	Info Source
	see attached sheet 30A				
38	Total				

One	species	= 10 points	4	species	= 31	7	species = 43
2	species	= 17	**5**	**species**	**= 38**	8	species = 45
3	species	= 24	6	species	= 41	9	species = 47
						10	species = 49

For each significant species over 10 in wetland, add 1 point.

Locally Significant Species Score 38
(no maximum score)

Significant Species – East Don River Headwater Wetland Complex

4.1.2.1 Reproductive Habitat for an Endangered or Threatened Species
Status: Based on Regulation 230/08 under the *Endangered Species Act*: E- provincially endangered species based on Species at Risk in Ontario List
Source: provincial mapping of Redside Dace occupied habitat on the East Don River
Location: The wetland in which the species occurs is indicated by wetland number from W1 to W11
1. *Clinostomus elongatus* (Redside Dace) E; W10

4.1.2.2 Traditional Migration or Feeding Habitat for an Endangered or Threatened Species
Status: Based on Regulation 230/08 under the *Endangered Species Act*: T- provincially threatened species based on Species at Risk in Ontario List
Source: G- observed feeding over the wetlands and surrounding meadows by Joelle Pecora & Kim Logan GEM Services Inc. in 2017, 2018 and 2019)
Location: The wetland in which the species occurs is indicated by wetland number from W1 to W11
1. *Hirundo rustica* (Barn Swallow) T; G W1, 2

4.1.2.3 Provincially Significant Animal Species
Status: SC- provincial species of special concern, N- species tracked by the OMNRF Natural Heritage Information Centre (NHIC)
Source: T- observations in 2001 & 2002 Paul Prior (TRCA), Z- observations in 2015 by Gavin Miller, Dell Tune & Sue Hayes (TRCA), G- Kim Logan & Joelle Pecora (GEM Services Inc.), M- July 4, 2018 observations by Kim Logan (GEM Services Inc.) & Steve Varga, Melanie Shapiera & Lauren Moretto (OMNRF, Aurora District)
Location: The wetland in which the species occurs is indicated by wetland number from W1 to W11
1. *Chrysemsys picata marginata* (Midland Painted Turtle) N; G W1, 4; Z W5
2. *Contopus virens* (Eastern Wood-pewee) N, SC; T, Z, M W4
3. *Hylocichla mustelina* (Wood Thrush) N, SC; G, T W4

4.1.2.6 Locally Significant Plant Species (Rare in Ecodistrict 6E-7)
Status: Rare in Ecodistrict 6E-7, being known from 20 or less locations (Varga et al. 2004)
Source: T- Natalie Iwanicki and Gavin Miller Toronto and Region Conservation Authority (2002, 2009, 2015), G- GEM Services Inc.
Location: The wetland in which the species occurs is indicated by wetland number from W1 to W11
1. *Carex alopecoidea* (Foxtail Wood Sedge) T W4
2. *Carex aquatilis* (Water Sedge) T W4
3. *Nymphaea odorata* (White Water-lily) G W4
4. *Solidago patula* (Rough-leaved Goldenrod) T W4
5. *Stellaria longifolia* (Long-leaved Stitchwort) T W4

Locally Uncommon Plant Species (Uncommon in Ecodistrict 6E7)*
Status: Uncommon in Ecodistrict 6E-7, being known from 21 to 40 or less locations (Varga et al. 2004)
Source: T- Natalie Iwanicki and Gavin Miller Toronto and Region Conservation Authority (2002, 2009, 2015), G- GEM Services Inc., V- June 14, 2017 Kim Logan (GEM Services Inc.) & Steve Varga, Thivyah Sivasubramianum & Austeja Vaskeviciute (OMNRF, Aurora District)
Location: The wetland in which the species occurs is indicated by wetland number from W1 to W11
1. *Aralia racemosa* (Spikenard) T W4
2. *Carex laevivaginata* (Smooth-sheathed Sedge) T W4, 11
2. *Carex scabrata* (Rough Sedge) T W4, 11
3. *Chrysosplenium americanum* (Golden Saxifrage) T W4
4. *Dryopteris clintoniana* (Clinton's Wood Fern) T W4
4. *Equisetum scirpoides* (Dwarf Horsetail) T W4
5. *Equisetum sylvaticum* (Woodland Horsetail) T W4
6. *Lemna trisulca* (Star Duckweed) T W7, 11
7. *Pilea fontana* (Spring Clearweed) T W11
8. *Spirodela polyrhiza* (Greater Duckweed) T W11
9. *Stuckenia pectinata* (Sago Pondweed) V W2; T W4

10. *Veronica americana* (American Speedwell) T W4

*Locally uncommon plant species provided are not assigned points in the wetland scoring record but are provided as one of the reasons for the inclusion of wetland units less than two hectares in size. one of the reasons for the inclusion of wetland units less than two hectares in size.

4.2 Significant Features and Habitats

4.2.1 Colonial Waterbirds

Record all available information. Score the highest applicable category. Include additional information as possible (e.g., nest locations, etc).

Activity	Species	Info Source	Points	
Currently nesting			= 50	
Known to have nested within the past 5 years			= 25	
Active feeding area (great blue heron excluded)			= 15	
None known			= 0	
Total:				0

Additional Notes/Comments:

not observed by GEMS or TRCA

Colonial Waterbird Nesting Score 0
(maximum 50 points)

4.2.2 Winter Cover for Wildlife

Score highest appropriate category. Include rationale/sources of information.

	Provincially significant	=	00 points
	Significant in Ecoregion	=	50
	Significant in Ecodistrict	=	25
10	Locally significant	=	10
	Little or poor winter cover	=	0
10			

Species/habitat/vegetation community scored (e.g., winter deer cover in hemlock swamp, S3 and S4b):

ponds for painted turtle hibernation and winter deer area in the conifer and mixed swamps

Source of information:

significant wildlife habitat technical guide, GEMS & TRCA observatios

Winter Cover for Wildlife Score 10
(maximum 100 points)

4.2.3 Waterfowl Staging and/or Moulting Areas

Check highest level of significance for both staging and moulting; add scores for staging and for moulting together for final score. However, maximum score for evaluation under this section is 150 points.

	Staging		Moulting	
Nationally/internationally significant	= 150	points	= 150	points
Provincially significant	= 100		= 100	
Significant in the Ecoregion	= 50		= 50	
Significant in Ecodistrict	= 25		= 25	
Known to occur	= 10	**10**	= 10	
Not possible/Unknown	= 0		= 0	
Subtotal:		**10**		**0**
Total:		**10**		

Species/habitat/vegetation community scored (e.g., approx 20 mallards in W3):

ducks observed staging in open water marshes and ponds within the wetland complex

Source of information:

GEMS observations

Waterfowl Staging/ Moulting Score **10**
(maximum 150 points)

4.2.4 Waterfowl Breeding

Check highest level of significance.

	Nationally/ internationally significant	=	150 points
	Provincially significant	=	100
	Significant in the Ecoregion	=	50
	Significant in Ecodistrict	=	25
10	Habitat Suitable	=	10
	Habitat not suitable	=	0

Species/habitat/vegetation community scored (e.g., mallard in W3):

open water marshes in the weltand complex provide suitable habitat

Source of information:

GEMS observations

Waterfowl Breeding Score **10**
(maximum 100 points)

4.2.5 Migratory Passerine, Shorebird or Raptor Stopover Area

Check highest level of significance.

	Nationally/ internationally significant	=	150 points
	Provincially significant	=	100
	Significant in Ecoregion	=	50
	Significant in Ecodistrict	=	25
10	Known to occur	=	10
	Not possible/ Unknown	=	0

Species/habitat/vegetation community scored:

species passing through (Red-winged blackbirds etc.)

Source of information:

GEMS observations

Passerine, Shorebird or Raptor Stopover Score **10**
(maximum 100 points)

4.2.6 Fish Habitat

4.2.6.1 Spawning and Nursery Habitat

Area Factors for Low Marsh, High Marsh and Swamp Communities.

No. of ha of Fish Habitat	Area Factor
< 0.5 ha	0.1
0.5- 4.9	0.2
5.0- 9.9	0.4
10.0- 14.9	0.6
15.0 -19.9	0.8
20.0+ ha	1.0

Step 1:

[ ]	Fish habitat is not present within the wetland	Go to Step 7, Score 0 points
[x]	Fish habitat is present within the wetland	Go to Step 2

Step 2: Choose only one option

[x]	Significance of the spawning and nursery habitat within the wetland is known	Go to Step 3
[ ]	Significance of the spawning and nursery habitat within the wetland is not known	Go through Steps 4, 5 and 6

Step 3: Select the highest appropriate category below, attach documentation:

[ ]	Significant in Ecoregion	Go to Step 7,	l00 points
[ ]	Significant in Ecodistrict	Go to Step 7,	50
[ ]	Locally Significant Habitat (5.0+ ha)	Go to Step 7,	25
[x]	Locally Significant Habitat (<5.0 ha)	Go to Step 7,	15

Subtotal: 15

Source of information:

MNRF Management Biologist & Aurora Fish Files (see attached sheets 33A)

Step 4: Low Marsh = the 'permanent' marsh area, from the existing water line out to the outer boundary of the wetland.

[ ]	Low marsh not present	Go to Step 5
[ ]	Low marsh present	Continue through Step 4, scoring as noted below

Fish Records in and Around the East Don River Headwater Wetland Complex					
Based on records from the East Don River and its tributaries in the Don River watershed (MNRF Aurora District fish file records)					
Locality of Station	**Fish Dot**	**Date (d/m/y)**	**Collectors**	**Caught**	**Species**
500 metres east of Dufferin Street in Wetland No. 4	111	10/07/1972	Anderson Taylor	15	Brook Trout
50 metres east of Dufferin Street in Wetland No. 4	1	03/07/1984	D. Martin	87	Northern Redbelly Dace
			S. Smith	60	Eastern Blacknose Dace
		04/08/1992	Wichert	39	Brown Trout
				2	Brook Trout
				8	Pumpkinseed
		06/08/1992	Wichert	1	Rainbow Trout
				15	Pumpkinseed
				3	Brown Trout
				1	Brook Trout
				50	Northern Redbelly Dace
				79	Eastern Blacknose Dace
				24	Brook Stickleback
		19/04/1993	N/A	1	Northern Redbelly Dace
				23	Eastern Blacknose Dace
				4	Brook Stickleback
		25/08/1994	Slessor	1	Northern Redbelly Dace
			Semonsly	111	Eastern Blacknose Dace
				10	Brook Stickleback
Westside of Dufferin Street in Wetland No. 4	116	27/05/1984	N/A	41	Eastern Blacknose Dace
				33	Northern Redbelly Dace
		18/07/1985	Steedman	15	Northern Redbelly Dace
				8	Eastern Blacknose Dace
Just east of Dufferin	131	22/05/1984	Steedman	41	Eastern Blacknose Dace
				33	Northern Redbelly Dace
Aound both sides of Dufferin Street, in Wetland No. 4	15	18/07/1985	N/A	15	Northern Redbelly Dace
				8	Eastern Blacknose Dace
		25/10/1991	W. Ramshaw	68	Northern Redbelly Dace
			A. Brown	92	Eastern Blacknose Dace

Totten Sims Hubicki report (172)		11/06/1992	Slessor	22 4	Eastern Blacknose Dace Brook Stickleback
		27/07/1998	Jogn Clayton Georgina Fodor Jason Darisi	41 3	Eastern Blacknose Dace Brook Stickleback
West of Dufferin Street in Wetland No. 4		25/11/2003	Sean Stuart Mark Cece	27 28	Brook Stickleback Northern Redbelly Dace
Located in the eastern tributary of the East Don River in Wetland No. 11	148	10/08/1992	Wichert	9	Mottled Sculpin
Located on the north side of Major Mackenzie Drive in the East Don River in Wetland No. 10	6	07/10/1991	A. Brown W. Ranshaw	240 77 11 5 105 35	Creek Chub White Sucker Largemouth Bass Pumpkinseed Eastern Blacknose Dace Longnose Dace
		15/10/1997	J. Harrison G.Fodor	62 24 17 2 2 2 14 52 65	White Sucker Creek Chub Common Shiner Largemouth Bass Brook Stickleback Fathead Minnow Bluntnose Minnow Longnose Dace Blacknose Dace
		13/08/1998	Geogina Fodor Jason Darisi	51 42 31 233 11 3 37 3 27	Blacknose Dace Bluntnose Minnow Common Shiner Creek Chub Fathead Minnow Largemouth Bass Longnose Dace Pumpkinseed White Sucker

Located on the south side of Major Mackenzie Drive in the East Don River just south of Wetland No. 10	29	12/07/1984	D. Martin	14	White Sucker
			S. Smith	2	Bluntnose Minnow
				14	Eastern Blacknose Dace
				3	Longnose Dace
				34	Creek Chub
				3	Yellow Perch
		06/08/1992	Wichert	153	Creek Chub
				37	Longnose Dace
				23	White Sucker
				64	Eastern Blacknose Dace
				7	Pumpkinseed
				21	Bluntnose Dace
				1	Yellow Perch
				1	Brook Stickleback
		06/07/1994	C. Hopkins	156	Creek Chub
			H. Orr	59	White Sucker
			Tim C.	9	Pumpkinseed
			John T.	84	Eastern Blacknose Dace
				5	Largemouth Bass
				9	Spottail Shiner
				19	Longnose Dace
		25/10/1995	T. Couey	43	White Sucker
			S. Wurts	139	Creek Chub
			P. Donnelly	17	Common Shiner
			W. Whitehouse	3	Pumpkinseed
				1	Fathead Minnow
				1	Largemouth Bass
				21	Blacknose Dace
				1	Spottail Shiner
				3	Longnose Dace
		13/08/1998	Georgina Fodor	27	Longnose Dace
			Jason Darisi	21	Common Shiner
				41	Eastern Blacknose Dace
				32	Bluntnose Minnow
				7	Fathead Minnow
				223	Creek Chub
				17	White Sucker
				3	Pumpkinseed
				3	Largemouth Bass

Scoring of Low Marsh:

1. Check the appropriate **Vegetation Group** (see Appendix 7) for each Low Marsh community. (Based on the one most clearly dominant plant species of the dominant form in each Low Marsh vegetation community.)
2. Sum the areas (ha) of the vegetation communities assigned to each **Vegetation Group.**
3. Use these areas to assign an **Area Factor** for each checked **Vegetation Group**.
4. Multiply the **Area Factor** by the **Multiplication Factor** for each row to calculate Score.
5. Sum all numbers in Score column to get **Total Score for Low Marsh**.

Scoring for Presence of Key Vegetation Groups Low Marsh						
Vegetation Group Number	Vegetation Group Name	Present as a Dominant Form (check)	Total Area (ha)	Area Factor (from Table 8)	Multiplication Factor	Score
1	Tallgrass				6	**0.0**
2	Shortgrass-Sedge				11	**0.0**
3	Cattail-Bulrush-Burreed				5	**0.0**
4	Arrowhead-Pickerelweed				5	**0.0**
5	Duckweed				2	**0.0**
6	Smartweed-Waterwillow				6	**0.0**
7	Waterlily-Lotus				11	**0.0**
8	Waterweed-Watercress				9	**0.0**
9	Ribbongrass				10	**0.0**
10	Coontail-Naiad-Watermilfoil				13	**0.0**
11	Narrowleaf Pondweed				5	**0.0**
12	Broadleaf Pondweed				8	**0.0**
			Subtotal Score			**0.0**
			Total Score for Low Marsh (maximum 75 points)			**0.0**

No. of ha of Fish Habitat	Area Factor
< 0.5 ha	0.1
0.5- 4.9	0.2
5.0- 9.9	0.4
10.0- 14.9	0.6
15.0 -19.9	0.8
20.0+ ha	1.0

Step 5: High Marsh = the 'seasonal' marsh area, from the water line to the inland boundary of marsh wetland type. This is essentially what is commonly referred to as a wet meadow, in that there is insufficient standing water to provide fisheries habitat except during flood or high water conditions.

☐ High marsh not present — Go to Step 6

☐ High marsh present — Continue through Step 5, scoring as noted below

Scoring of High Marsh:

1. Check the appropriate **Vegetation Group** (see Appendix 7) for each High Marsh community. (Based on the one most clearly dominant plant species of the dominant form in each High Marsh vegetation community.)
2. Sum the areas (ha) of the vegetation communities assigned to each **Vegetation Group.**
3. Use these areas to assign an **Area Factor** (from Table 8) for each checked **Vegetation Group**.
4. Multiply the **Area Factor** by the **Multiplication Factor** for each row to calculate Score.
5. Sum all numbers in Score column to get **Total Score for High Marsh**.

Scoring for Presence of Key Vegetation Groups High Marsh						
Vegetation Group Number	Vegetation Group Name	Present as a Dominant Form (check)	Total Area (ha)	Area Factor (from Table 8)	Multiplication Factor	Score
1	Tallgrass	x			6	**0.0**
2	Shortgrass-Sedge				11	**0.0**
3	Cattail-Bulrush-Burreed	x			5	**0.0**
4	Arrowhead-Pickerelweed				5	**0.0**
		Subtotal Score				**0.0**
		Total Score for High Marsh (maximum 25 points)				**0.0**

Continue to Step 6

No. of ha of Fish Habitat	Area Factor
< 0.5 ha	0.1
0.5- 4.9	0.2
5.0- 9.9	0.4
10.0- 14.9	0.6
15.0 -19.9	0.8
20.0+ ha	1.0

Step 6:

Scoring of Swamp:
1. Determine the total area (ha) of seasonally flooded swamp communities within the wetland containing fish habitat and record below.
2. Determine the total area (ha) of permanently flooded swamp communities within the wetland containing fish habitat and record below.
3. Use these areas to assign an **Area Factor** (from Table 8).
4. Multiply the Area Factor by the **Multiplication Factor** for each row to calculate Score.
5. Sum all numbers in Score column to get **Total Score for Swamp**.

Scoring Swamps for Fish Habitat (Seasonally flooded; Permanently flooded)					
Swamp Containing Fish Habitat	Present (check)	Total Area (ha)	Area Factor (from Table 8)	Multiplication Factor	Score
Seasonally Flooded Swamp	x			10	0.0
Permanently Flooded Swamp	x			10	0.0
	Subtotal Score				0.0
	Total Score for Swamp (maximum 20 points) Continue to Step 7				0.0

Step 7: CALCULATION OF FINAL SCORE

NOTE: Scores for Steps 4, 5 and 6 are only recorded if Steps 1 and 3 have not been scored.

A. Score from Step 1 (fish habitat not present)	=	0
B. Score from Step 3 (significance known)	=	15
C. Score from Step 4 (Low Marsh)	=	0
D. Score from Step 5 (High Marsh)	=	0
E. Score from Step 6 (Swamp)	=	0
Subtotal:		15

Calculation of Final Score for Spawning and Nursery Habitat = A or B or Sum of C, D, and E

Score for Spawning and Nursery Habitat (maximum 100 points) **15**

4.2.6.2 Migration and Staging Habitat

Step 1:

[ ]	Staging or Migration Habitat is not present in the wetland	Go to Step 4, Score 0 points
[X]	Staging or Migration Habitat is present in the wetland significance of the habitat is known	Go to Step 2
[ ]	Staging or Migration Habitat is present in the wetland significance of the habitat is not known	Go to Step 3

Step 2: Select the highest appropriate category below. Ensure that documentation is attached to the data record.

[ ]	Significant in Ecoregion	Score 25 points in Step 4
[ ]	Significant in Ecodistrict	Score 15 points in Step 4
[10]	Locally Significant	Score 10 points in Step 4
[5]	Fish staging and/or migration habitat present, but not as above	Score 5 points in Step 4

Source of information:

MNRF Aurora District Management Biologist

Step 3: Select the highest appropriate category below based on presence of the designated site type (i.e. does not have to bethe dominant site type). Refer to Site Types recorded earlier (section 1.1.3). Attach documentation.

[ ]	Wetland is riverine at rivermouth or lacustrine at rivermouth	Score 25 points in Step 4
[ ]	Wetland is riverine,within 0.75 km of rivermouth	Score 15 points in Step 4
[ ]	Wetland is lacustrine,within 0.75 km of rivermouth	Score 10 points in Step 4
[ ]	Fish staging and/or migration habitat present, but not as above	Score 5 points in Step 4

Step 4: Enter a score from only one of the three above Steps.

Score for Staging and Migration Habitat (maximum 25 points) **10**

4.3 Ecosystem Age

		Fractional Area			Scoring
Bog	=	0.00	x	25 =	0.0
Fen, on deeper soils; floating mats or marl	=	0.00	x	20 =	0.0
Fen, on limestone rock	=	0.00	x	5 =	0.0
Swamp	=	0.87	x	3 =	2.6
Marsh	=	0.13	x	0 =	0.0
				Subtotal:	2.6

Ecosystem Age Score 3
(maximum 25 points)

4.4 Great Lakes Coastal Wetlands

Choose one only. Only coastal wetland units may be scored.

	wetland < 10 ha	=	10 points
	wetland 10 - 50 ha	=	25
	wetland 51 - 100 ha	=	50
	wetland > 100 ha	=	75

Great Lakes Coastal Wetland Score 0
(maximum 75 points)

5.0 DOCUMENTATION OF WETLAND FEATURES NOT INCLUDED IN THE EVALUATION

5.1 Invasive Species

Attach documentation of invasive species found in wetland (include location information and a coarse estimate of abundance [F = few, C = fairly common, A = abundant]):

C- phragmities in Wetland No. 3, other small occurences within other wetlands (garlic mustard, manitoba maple, buckthorn)

5.2 Vernal Pools

Documentation of information on vernal pools encountered during the wetland evaluation but not included as part of the evaluated wetland.

none encounted during evaluation but some known to occur based on previous investigations

5.3 Species of Special Interest

5.3.1 Osprey

Check all that apply:

	Present and nesting
	Known to have nested in last 5 yr
	Feeding area for osprey
x	Not as above

5.3.2 Common Loon

Check all that apply:

	Nesting in wetland
	Feeding at edge of wetland
	Observed or heard on lake or river adjoining the wetland
x	Not as above

5.4 Important Drinking Water Area

Wetland located within:
(check all that apply)

	Wellhead Protection Area
	Intake Protection Zone
x	Significant Recharge Area
x	Vulnerable Aquifer Area

Source of information:

York Region Official Plan Maps 6,7,13,and 14

Additional Comments:

5.5 Area of Wetland Restoration Potential

Check all that apply. Attach additional pages if necessary.

[x] Area of wetland restoration potential adjacent to evaluated wetland unit(s)

[ ] Area of wetland restoration potential within 750m of evaluated wetland unit(s), but not adjacent

[ ] Area of wetland restoration potential encountered elsewhere

[x] Area currently functioning as wetland (e.g., showing signs of degradation but still mapped as wetland).

[ ] Adjacent Wetland Unit (if applicable): _____

[ ] GPS Coordinates of Site: _____

Description of site (e.g., current land use, wetland characteristics of site, etc) and why it is identified as an area of restoration potential:

Wetland Unit 2 has a large colony of phragmities with smaller amount in Wetland Unit 1. It is proposed to remove this invasive species

The potential for wetland restoration is high because the North Maple Regional Park is being developed around Wetland Units 1, 2 and 3

Additional Notes/Comments (e.g., adjacent lands, etc)

Flora in and around the East Don River Headwater Wetland Complex

Legend: **Observers**: **M1**- Steve Varga (OMNR Maple District) 1995 observations, **M2**- June 14, 2017 observations of Steve Varga, Thivyah Siva & Austeja Vaskeviciute (OMNRF Aurora District) & Kim Logan (GEM Services Inc.) & July 18, 2018 observations of Steve Varga, Melanie Shapiera & Lauren Moretto (OMNRF, Aurora District), Timothy Law (Ontario Streams) & Kim Logan (GEM Services Inc.); **G**- Joelle Pecora & Kim Logan (GEM Services Inc) 2017 & 2018 observations; **T1**- Natalie Iwanicki (TRCA) observations May 13, June 1, 12, 14, July 18, 30, August 13, 2001; **T2**- Gavin Miller (TRCA) observations 2009, **T3**- Gavin Miller (TRCA) observations 2015; **Status**: **X**- introduced taxa, **P**- planted species, **N**- common native species, **PE**- provincially endangered, **LR-** locally rare & **LU**- locally uncommon native species in Ecodistrict 6E7 based on Varga et al. 2004; *****- plants marked with an asterisk occur in the wetland complex

Latin Name	Common Name	Observer	Status
*Abies balsamea**	Balsam Fir*	M1,T2	N
*Acer negundo**	Manitoba maple *	M1, G, T2,T3	N
*Acer rubrum**	red maple *	M1, G, T2,T3	N
Acer platanoides	Norway maple	T2,T3	X
*Acer saccharinum**	silver maple*	T3	N
*Acer saccharum**	sugar maple *	M1, G, T2,T3	N
*Acer spicatum**	mountain maple*	M1,M2, T3	N
*Acer Xfreemanii**	hybrid swamp maple*	T3	N
Achillea millefolium	common yarrow	G, T2,T3	X
Actaea pachypoda	white baneberry *	M1, G, T2,T3	N
Actaea rubra	red baneberry	M1, T2,T3	N
Actaea Xludovici	hybrid baneberry	T3	N
Adiantum pedatum	northern maidenhair fern	T3	N
Aegopodium podagraria	goutweed	T2	X
*Ageratina altissima**	white snakeroot*	M1, T2,T3	N
*Agrimonia gryposepala**	hooked agrimony *	G, T2,T3	N
*Agrostis gigantea**	redtop grass*	M1, G, T2,T3	X
*Agrostis stolonifera**	creeping bent grass*	M1, T2,T3	X
*Ailanthus altissima**	tree of heaven *	G	X
*Alisma triviale**	water-pantain*	T2,T3	N
Alliaria petiolata	garlic mustard	M1, G, T2,T3	X
Allium tricoccum	wild leek	T3	N
Amorpha fruticosa	shrubby false indigo	T2	X
Amphicarpaea bracteata	hog-peanut	M1, T2,T3	N
Anemone acutiloba	sharp-lobed hepatica	M1, T1,T2,T3	N
Anemone americana	round-lobed hepatica	T1	N
Anemone canadensis	Canada anemone *	G, T3	N
Anemone virginiana	common thimbleweed	M1, T2,T3	N
Antennaria howellii ssp. *howellii*	Howell's pussytoes	T2,T3	N
*Alnus glutinosa**	european alder*	T3	X

*Alnus incana**	speckled alder *	M1, G, T2,T3	N
Ambrosia artemisiifolia	common ragweed	M1, G, T2,T3	X
Amelanchier arborea	downy serviceberry	T2,T3	N
Amelanchier interior	serviceberry complex	T3	N
Apocynum androsaemifolium	spreading dogbane	M1, T2,T3	N
Apocynum cannabinum	indian hemp	T2,T3	N
Aquilegia canadensis	columbine	M1, T1,T2,T3	N
*Aralia nudicaulis**	wild sarsaparilla *	M1, G, T2,T3	N
*Aralia racemosa**	Spikenard*	M1, T2,T3	LU*
Arctium minus	common burdock	M1, T2,T3	X
Arenaria serpyllifolia	thyme-leaved sandwort	T2	X
Arisaema triphyllum	Jack-in-the-pulpit	M1, G, T2,T3	N
Asarum canadense	wild ginger	M1, G, T2,T3	N
Ascelpias exaltata	poke milkweed	M1	LR
*Asclepias incarnata**	swamp milkweed*	T3	N
Asclepias syriaca	common milkweed	M1, G, T2,T3	N
Asparagus officinalis	asparagus	T3	X
*Athyrium filix-femina**	northeastern lady fern*	M1, T2,T3	N
Barbarea vulgaris	winter cress	T3	X
Berberis thunbergii	Japanese barberry	M1, T2,T3	X
*Betula alleghaniensis**	yellow birch*	M1,M2, T2,T3	N
*Betula papyrifera**	paper birch *	M1, G, T2,T3	N
*Bidens cernua**	nodding bur-marigold*	M1, T2,T3	N
*Bidens frondosa**	common beggar's-ticks*	T2,T3	N
*Boehmeria cylindrica**	false nettle*	T3	N
Bromus commutatus	upright chess	T3	X
*Bromus inermis**	smooth bromegrass*	M1, G, T2,T3	X
Bromus japonicus	Japanese chess	T3	X
Bromus racemosus	spiked brome	T3	X
Bromus tectorum	downy chess	T2	X
*Calamagrostis canadensis**	Canada blue joint*	T3	N
*Caltha palustris**	marsh marigold*	T2,T3	N
*Campanula rapunculoides**	creeping bellflower *	G, T2	X
Cardamine concatenata	cut-leaf toothwort	T2	N
Cardamine diphylla	broad-leaved toothwort	T3	N
*Cardamine pensylvanica**	Pennsylvania bitter cress*	T2	LU*
Carduus acanthoides	plumeless thistle	T3	X
Carduus nutans	nodding thistle	T2,T3	X
Carex albursina	white-bear sedge	T2	N
*Carex alopecoidea**	foxtail wood sedge	T2,T3	LR*
*Carex aquatlis**	water sedge*	T1	LR*
Carex arctata	nodding wood sedge	M1, T3	N
*Carex aurea**	golden sedge*	T2,T3	LU*

Carex backii	Back's sedge	T2	LR
*Carex bebbii**	Bebb's sedge*	T3	N
Carex blanda	common wood sedge	M1	N
Carex cephalophora	oval-headed sedge	T2,T3	LU
Carex communis	fibrous-rooted sedge	M1, T1,T2,T3	N
*Carx cristatella**	crested sedge*	M1	N
Carex deweyana	Dewey's sedge	M1, T2,T3	N
Carex digitalis	narrow-leaved wood sedge	M1	LR
*Carex disperma**	two-seeded sedge*	T1,T2,T3	N
*Carex granularis**	meadow sedge	T2,T3	N
Carex hitchcockiana	hitchcock sedge	T2	LU
Carex houghtoniana	Houghton's sedge	T3	LR
*Carex hystericina**	purcupine sedge*	T2,T3	N
*Carex interior**	inland sedge	M1, T2	N
*Carex laevivaginata**	smooth-sheathed sedge*	M1, T2,T3	N
Carex laxiflora	loose-flowered sedge	M1, T2,T3	LU
*Carex leptalea**	bristle-stalked sedge	T3	N
Carex leptonervia	few-nerved sedge	T2,T3	N
Carex peckii	Peck's sedge	T2,T3	N
*Carex pedunculata**	pedunculed sedge	M1, T3	N
Carex pensylvanica	Pennsylvania sedge	M1, G, T3	N
Carex platyphylla	borad-leaved sedge	M1, T1,T2,T3	LU
*Carex projecta**	necklace sedge*	M1	N
*Carex pseudocyperus**	cyperus-like sedge*	T2	N
*Carex radiata**	straight-styled sedge*	M1, T2,T3	N
*Carex retrorsa**	retrorse sedge*	T3	N
Carex rosea	curly-styled sedge	M1, T2,T3	N
*Carex scabrata**	rough sedge*	M1, T1,T2,T3	LU*
Carex sparganoides	bur-reed sedge	T2,T3	N
Carex spicata	spiked sedge	T2,T3	X
*Carex stipata**	awl-fruited sedge*	M2, T2,T3	N
*Carex vulpinoidea**	fox sedge	T2,T3	N
Carya cordiformis	bitternut hickory	M1, G, T2,T3	N
Caulophyllum giganteum	giant cohosh	M1, G, T2,T3	N
Celastrus orbiculatus	oriental bittersweet	T2,T3	X
Centaurea stoebe ssp. *micranthos*	spotted knapweed	T3	X
Cerastium fontanum	mouse-ear chickweed	T2,T3	X
*Ceratophyllum demersum**	common coontail	T3	LU*
Chelidonium majus	celandine	T2	X
Chenopodium album	lamb's quarters	T3	X
Chrysosplenium americanum	golden saxifrage	M1, T2,T3	LU*
Cichorium intybus	common chicory	M1, G, T2,T3	X
*Cicuta bulbifera**	bulb-bearing water-hemlock*	M1,T2,T3	N

*Cinna latifolia**	nodding wood reed*	T3	N
Circaea alpina	smaller enchanter's nightshade	T3	N
Circaea canadensis (C. lutiana)*	enchanter's nightshade *	M1, G, T2,T3	N
Cirsium arvense	Canada thistle	M1, G, T2,T3	X
Cirsium vulgare	bull thistle	G, T2,T3	X
Claytonia caroliniana	Carolina spring-beauty	T2,T3	LU
Clematis virginiana	virgin's bower	T2,T3	N
Clintonia borealis	blue-bead lily	G, T1,T2,T3	N
Convallaria majalus	lily-of-the-valley	T3	X
Convolvus arvensis	field bindweed	G, T3	X
*Cornus alternifolia**	alternate-leaf dogwood *	M1,G, T2,T3	N
Cornus racemosa	grey dogwood	T2	N
Cornus rugosa	round-leaved dogwood	G, T2	N
*Cornus sericea**	red-osier dogwood*	M2,T2,T3	N
Corylus cornuta	beaked hazel	M1,T2	N
Crataegus holmesiana	Holmes' hawthorn	T3	LU
Crataegus macracantha	long-spined hawthorn	T2,T3	N
Crataegus macrosperma	variable hawthorn	T3	LU
Crataegus monogyna	English hawthorn	T2,T3	N
Crataegus punctata	dotted hawthorn	T2,T3	N
Crataegus Xninae-celottiae	English - dotted hybrid hawthorn	T3	X
Crepis tectorum	narrow-leaved hawk's beard	T3	X
*Cystopteris bulbifera**	bulblet fern*	M1, T2,T3	N
Cystopteris tenuis	Mackay's brittle fern	T1	LU
Dactylis glomerata	orchardgrass	M1, G, T2,T3	X
Danthonia spicata	poverty oat grass	T3	N
Daucus carota	wild carrot	M1, G, T2,T3	X
Desmodium canadense	showy tick-trefoil	T3	N
Desmodium glutinosum	pointed-leaf tick-trefoil	M1, G, T2	N
Dicentra canadensis	squirrel-corn	T2	LU
Diervilla lonicera	bush-honeysuckle	M1, T2,T3	N
Diphaiastrum digitatum	ground-cedar	T1	LU
Dipsacus fullonum	teasel	G	X
Dirca palustris	leatherwood	M1,T2	LU
Dryopteris carthusiana	spinulosa wood fern	M1, T2,T3	N
*Dryopteris clintoniana**	clinton's wood fern*	T1,T2,T3	LU*
*Dryopteris cristata**	crested wood fern*	T1,T3	N
*Dryopteris intermedia**	evergreen wood fern*	M1, T2,T3	N
Dryopteris marginalis	marginal wood fern	M1, T2,T3	N
Dryopteris Xtriploidea	hybrid wood fern	T3	N
Echinochloa crus-galli	barnyard grass	T3	X
Echinocystis lobata	wild cucumber	T2	N
Echium vulgare	viper's bugloss	T3	X

Elaeagnus umbellata	autumn olive	T2,T3	X
*Eleocharis erythropoda**	creeping spike-rush*	T2,T3	N
Elymus repens	quackgrass	M1, G, T2,T3	X
*Elymus virginicus**	Virginia wild rye*	T3	N
Epifagus virginiana	beech-drops	M1, T2,T3	N
*Epilobium ciliatum**	sticky willow-herb*	M1, T2,T3	N
Epilobium coloratum	purple-leaved willow-herb*	T3	LR*
*Epilobium hirsutum**	greater wilow-herb*	T2,T3	X
*Epilobium parviflorum**	small-flowered willow-herb	M1, T2,T3	X
Epipactis helleborine	helleborine	M1, T2,T3	X
Eragrostis minor	little love grass	T3	
*Equisetum arvense**	field horsetail*	M1,M2,G,T2,T3	N
*Equisetum fluviatile**	water horsetail	T3	N
*Equisetum hyemale**	scouring rush*	M2, T2,T3	N
*Equisetum scirpoides**	dwarf horsetail*	M1, T2,T3	LU*
*Equisetum sylvaticum**	woodland horestail*	T2	LU*
*Equisetum variegatum**	variegated horsetail*	T1,T3	LU*
Erigeron annuus	daisy fleabane	M1, G, T2,T3	N
Erigeron canadensis	horse-weed	T3	N
Erigeron philadelphicus	Philadelphia fleabane	T2,T3	N
Erucastrum gallicum	dog mustard	T3	X
Erysimum cheiranthoides	wormseed mustard	T3	X
*Erythronium americanum**	trout lily *	M1, G, T2,T3	N
Euonymus europaeus	European spindle-tree	T2,T3	X
*Eupatorium perfoliatum**	boneset*	M1, T2,T3	N
Eurybia macrophylla	big-leaved aster	M1, T2,T3	N
*Euthamia graminifolia**	grass-leaved goldenrod*	T2,T3	N
*Eutrochium maculatum**	spotted Joe-pye-weed*	M1,M2, T2,T3	N
*Fagus grandifolia**	American beech *	M1, G, T2,T3	N
Fallopia convolvulus	black bindweed	T2	X
Festuca rubra	red fescue	T2,T3	N
*Fragaria vesca**	woodland strawberry *	M1, G, T2,T3	N
Fragaria virginiana	wild strawberry	M1, T2,T3	N
*Fraxinus americana**	white ash *	M1, G, T2,T3	N
*Fraxinus nigra**	black ash*	M1, T1,T2,T3	N
*Fraxinus pennsylvanica**	green ash*	M2,T2,T3	N
Galeopsis tetrahit	hemp-nettle	T3	X
Galium aparine	cleavers	T3	LU
*Galium asprellum**	rough bedstraw*	M2	LU*
Galium boreale	northern bedstraw	T2	LR
Galium palustre	marsh bedstraw	T2,T3	N
Galium triflorum	sweet-scented bedstraw	M1, T2,T3	N
*Galium verum**	yellow bedstraw *	G, T2,T3	X

Geranium robertianum	herb Robert	T2	X
*Geum aleppicum**	yellow avens*	T3	N
Geum canadense	white avens	M1, T2,T3	N
Geum urbanum	urban avens	T2,T3	X
Glechoma hederacea	creeping Charlie	T3	X
*Glyceria grandis**	tall manna grass*	T2,T3	N
*Glyceria striata**	fowl manna grass*	M1, T2,T3	N
*Gymnocarpium dryopteris**	oak fern*	M1, T1,T2,T3	N
Hackelia virginiana	Virginia stickseed	M1, T3	LU
Hamamelis virginiana	witch-hazel	M1, G, T1,T2	LR
Hemerocallis fulva	orange day-lily	T2,T3	X
Hesperis matronalis	dame's rocket	M1, G, T3	X
Hieracium aurantiacum	orange hawkweed	T2	X
Hieracium caespitosum	yellow hawkweed	M1, T2,T3	X
Hieracium piloselloides	smooth yellow hawkweed	T3	X
Hordeum jubatum	foxtail barley	G	X
Hydrophyllum virginianum	Virginia waterleaf	T2,T3	N
Hygrocybe miniata	vermilion waxcup	G	N
*Hydrocotyle americana**	marsh pennywort*	M1,T3	LU*
Hypericum perforatum	St. John's wort	G, T2,T3	N
*Impatiens capensis**	spotted jewelweed *	M1, G, T2,T3	N
Inula helenium	elecampane	M1, T2	X
Juglans cinerea	butternut	T2, T3	PE
*Juglans nigra**	black walnut *	G, T2,T3	N
*Juncus bufonius**	toad rush*	T3	N
*Juncus dudleyi**	Dudley's rush*	T2,T3	N
*Juncus effusus**	soft rush*	T3	N
Juncus tenuis	path rush	T2,T3	N
Lactuca serriola	prickly lettuce	T2,T3	X
Lathyrus sylvestris	narrow-leaved everlasting pea	T3	X
Lathyrus tuberosus	tuberous vetchling	T3	X
Leucanthemum vulgare	oxeye daisy	M1, G,T2, T3	X
*Lemna minor**	common duckweed*	M1,M2, T2	N
*Lemna triscula**	star duckweed*	T2	LU*
*Lemna turionifera**	turion duckweed*	T3	N
Lepidium campestre	field pepper-grass	T2,T3	X
*Laportea canadensis**	wood nettle*	M1, T2,T3	N
*Leersia oryzoides**	cut grass*	M1, T2,T3	N
*Lemna turionifera**	turion duckweed*	T2	N
Leonurus cardiaca	motherwort	T2,T3	X
*Linaria vulgaris**	yellow toadflax *	G, T3	X
Lobelia inflata	Indian tobacco	M1, T2	N
Lolium perenne	perennial rye	M1, T3	X

Lolium pratense	meadow fescue	T2,T3	X
Lonicera canadensis	fly honeysuckle	G, T3	N
Lonicera dioica	wild honeysuckle	T2,T3	N
Lonicera morrowii	Morrow's honeysuckle	T2,T3	X
Lonicera tatarica	Tartarian honeysuckle	T2,T3	X
Lonicera Xbella	Bell's honeysuckle	T2,T3	X
*Lotus corniculatus**	birdsfoot trefoil *	G,M2, T2,T3	X
*Lycopus americanus**	cut-leaved water-horehound*	T2,T3	N
*Lycopus europaeus**	European water-horehound*	T3	X
*Lycopus uniflorus**	northern bugleweed*	M1,M2, T2	N
*Lysimachia nummularia**	moneywort*	T2,T3	X
*Lythrum salicaria**	purple-loosestrife*	M1, G, T2,T3	X
*Maianthemum canadense**	Canada mayflower *	M1, G, T2,T3	N
*Maianthemum racemosum**	false Solomon's seal *	M1, G, T2,T3	N
Malus pumila	apple	M1, G, T2,T3	X
Matricaria discoidea	pineappleweed	G	X
*Mattuccia struthiopteris**	ostrich fern*	M1,M2, T2,T3	N
Medeola virginianum	indian cucumber-root	T2,T3	LU
Medicago lupulina	black medick	T2,T3	X
Medicago sativa ssp. *falcata*	yellow alfalfa	T3	X
Medicago sativa ssp. *sativa*	alfalfa	T3	X
Melilotus albus	white sweet clover	M1, T2,T3	X
Melilotus officinalis	yellow sweet clover	T2	X
*Mentha canadensis**	wild mint*	T2	N
*Mentha spicata**	spearmint*	T2	X
Mentha Xpiperita	peppermint	M1	X
*Mitella diphylla**	mitrewort*	M1, T2,T3	N
*Mitella nuda**	naked mitrewort*	M1, T1,T2,T3	N
Moehringia lateriflora	grove stitchwort	T2	LR
*Monarda fistulosa**	wild bergamot *	M1, G, T2,T3	N
Monotropa hypopithys	pinesap	T2,T3	LU
Monotropa uniflora	indian pipe	G, T1,T3	N
Muhlenbergia mexicana	common muhly grass	M1, T2,T3	N
*Myosotis laxa**	smaller forget-me-not*	M1, T2	N
*Myosotis scorpioides**	large forget-me-not*	T2,T3	X
Myosotis sylvatica	woodland forget-me-not	T2	X
*Myosoton aquaticum**	giant chickweed*	T2,T3	X
*Najas flexilis**	bushy naiad*	T3	LU*
*Nasturtium microphyllum**	small-leaved watercress*	M1, T2,T3	X
*Nymphaea odorata**	white water lily *	G	LR*
*Onoclea sensibilis**	sensitive fern *	M1, G, T3	N
Oenothera biennis	common evening-primrose	M1, T2,T3	N
Oenothera parviflora	smaller evening-primrose	T3	N

*Osmunda cinnamomea**	cinnamon fern*	T3	N
Osmorhiza claytonii	sweet cicely	T1	N
Oryzopsis asperifolia	mountain rice-grass	M1, T1,T2,T3	N
*Ostrya virginiana**	ironwood *	M1, G, T2,T3	N
Oxalis stricta	common yellow wood-sorrel	T2,T3	X
Panicum capillare	panic grass	T3	N
Parthenocissus vitacea	Virginia creeper	M1, G, T2,T3	N
Persicaria hydropiper	water-pepper	T3	X
Persicaria maculosa	lady's thumb	T3	X
*Phalaris arundinacea**	reed canary grass *	M1,M2,G,T2,T3	N
Phegopteris connectilis	northern beech fern	T2	LR
Phleum pratense	Timothy-grass	M1, G, T2,T3	X
*Phragmites australis ssp. australis**	European common reed *	G, T2,T3	X
*Pilea fontana**	spring clearweed*	M1, T2,T3	LU*
*Pilea pumila**	dwarf clearweed*	M1, T2,T3	N
Phryma leptostachya	lopseed	M1, T2,T3	N
Physalis heterophylla	clammy ground-cherry	T3	LU
Picea abies	Norway spruce	T2,T3	P
*Picea glauca**	white spruce*	T2	P
*Picea mariana**	black spruce*	T2	P
Picris hieracioides	hawkweed oxtongue	T2	X
Pinus resinosa	red pine	M1, T2,T3	P
Pinus sylvestris	Scots pine	T2,T3	N
*Pinus strobus**	white pine *	m1, G, T3	N
Plantago lanceolata	English plantain	T2,T3	X
Plantago major	common plantain	T3	X
Plantago rugelii	red-stemmed plantain	T2,T3	N
Poa compressa	flat-stemmed blue grass	M1, T2,T3	X
Poa nemoralis	woodland spear grass	T2,T3	X
*Poa palustris**	fowl meadow-grass*	M1,M2, T2,T3	N
Poa pratensis	Kentucky blue grass	T2,T3	X
*Podophyllum peltatum**	mayapple *	G, T2,T3	N
Polygala paucifolia	fringed polygala	T1	LU
Polygonum achoreum	striate knotweed	T3	X
Polypodium virginianum	rock polypody	T1	LU
Polystichum acrostichoides	Christmas fern	M1, G, T1,T2,T3	N
Polygonatum pubescens	downy solomon's-seal	M1, T2,T3	N
*Populus alba**	white poplar *	G, T2,T3	X
*Populus balsamifera**	balsam poplar*	M1,M2, T2,T3	N
Populus deltoides	eastern cottonwood	G, T2,T3	N
*Populus grandidentata**	large-tooth aspen *	M1, G, T2,T3	N
*Populus tremuloides**	trembling aspen *	M1,M2,G,T2,T3	N
Populus Xheimburgeri	Heimburger's poplar	T3	X

Populus Xrouleauiana	Rouleau's poplar	T3	X
*Potamogeton crispus**	curly pondweed*	T3	N
*Potamogeton foliosus**	leafy pondweed*	T3	LU*
Potentilla norvegica	rough cinquefoil	T2	X
Potentilla recta	sulphur cinquefoil	T2,T3	X
Prenanthes alba	white wood lettuce	M1, T2	LU
Prenanthes altissima	tall wood lettuce	M1, T2,T3	N
Prunella vulgaris ssp. *lanceolata*	heal-all	T2,T3	N
Prunus avium	mazzard cherry	T2,T3	X
Prunus nigra	Canada plum	T3	LR
*Prunus serotina**	black cherry *	M1, G,T2,T3	N
*Prunus virginiana**	chokecherry *	M1, G,T2,T3	N
*Pteridium aquilinum**	bracken fern *	M1, G,T2,T3	N
Pyrola elliptica	shinleaf pyrola	T1,T2,T3	N
Quercus alba	white oak	G, T3	LU
*Quercus rubra**	red oak *	M1, G, T2,T3	N
Ranunculus abortivus	kidney-leaved buttercup	M1, T2,T3	N
Ranunculus acris	tall buttercup	M1, T2,T3	X
*Ranunculus hispidus var. caricetorum**	swamp buttercup*	T2,T3	N
Ranunculus recurvatus	hooked buttercup	T2,T3	N
*Ranunculus sceleratus**	cursed crowfoot*	T2,T3	N
Reynoutria japonica var. *japonica*	Japanese knotweed	T2,T3	X
*Rhamnus cathartica**	common buckthorn*	M1,M2,G,T2,T3	X
*Rhus typhina**	staghorn sumac *	M1, G, T2,T3	N
*Ribes americanum**	wild black currant*	M1, T2,T3	N
Ribes cynosbati	prickly gooseberry	M1, T2,T3	N
Ribes rubrum	garden red currant	T2,T3	X
*Ribes triste**	swamp red currant	T2	N
*Robinia pseudoacacia**	black locust *	M1, G, T2,T3	N
Rorippa palustris ssp. *palustris**	Fernald's marsh cress*	T2	N
Rosa blanda	smooth wild rose	T2,T3	N
Rosa multiflora	multiflora rose	T2,T3	X
Rubus alleghaniensis	common blackberry	M1, T2,T3	N
Rubus idaeus	red raspberry	M1, G, T2,T3	N
*Rubus occidentalis**	black raspberry *	M1, G,T2,T3	N
Rubus odoratus	purple-flowering raspberry	M1, T2,T3	N
*Rubus pubescens**	dwarf raspberry*	M1, T2,T3	N
Rudbeckia hirta	black-eyed Susan	M1, T2,T3	N
*Rudbeckia triloba**	brown-eyed Susan *	G	X
Rumex crispus	curly dock	G,T2,T3	X
*Sagittaria latifolia**	common arrowhead*	T2,T3	N
*Salix alba**	white willow*	T2,T3	X
*Salix amygdaloides**	peach-leaved willow*	M2, T2,T3	N

*Salix bebbiana**	bebb's willow *	M1, G, T2,T3	N
*Salix discolor**	pussy willow*	M1, T2,T3	N
*Salix eriocephala**	missouri willow*	M2, T2,T3	N
*Salix exigua**	interior willow*	M2, T3	N
*Salix fragilis**	crack willow *	G,T3	X
*Salix petiolaris**	slender willow *	G	N
Salix x *sepulcralis**	weeping willow*	T3	X
*Sambucus canadensis**	common elderberry*	T2,T3	N
Sambucus racemosa	red elderberry	M1, G, T2,T3	N
Sanguinaria canadensis	bloodroot *	G, T2,T3	N
*Schoenoplectus tabernaemontani**	soft-stemmed bulrush*	T2,T3	N
*Scirpus atrovirens**	black-fruited bulrush*	T2,T3	N
*Scirpus cyperinus**	woolly bulrush*	T3	N
*Scirpus microcarpus**	barber-pole bulrush*	T2	N
*Scutellaria lateriflora**	mad-dog skullcap*	T3	N
Securigera varia	crown vetch	T3	X
Setaria pumila	yellow foxtail	T3	X
Setaria viridis	green foxtail	T3	X
Silene latifolia	evening lychnis	T2	X
Silene vulgaris	bladder campion	T2	X
Sinapis arvensis	charlock	T3	X
Smilax herbacea	carrion-flower	T3	N
*Solanum dulcamara**	bittersweet nightshade *	M1, G, T2,T3	N
*Solidago altissima**	tall goldenrod *	M1, G, T2,T3	N
*Solidago canadensis**	Canada goldenrod *	M1, G, T2	N
Solidago caesia	blue-stemmed goldenrod	M1, T2,T3	N
Solidago flexicaulis	zig-zag goldenrod	M1, T2,T3	N
*Solidago gigantea**	late goldenrod*	T2,T3	N
Solidago juncea	early goldenrod	T2,T3	N
Solidago nemoralis	grey goldenrod	T2,T3	N
*Solidago patula**	rough-leaved goldenrod*	T3	LR*
*Solidago rugosa**	rough-stemmed goldenrod*	M1, T2,T3	N
Sonchus arvensis ssp. *arvensis*	glandular perennial sow-thistle	T2,T3	X
Sonchus oleraceus	annual sow-thistle	T2	X
Sorbaria sorbifolia	false spiraea	T2	X
Sorbus aucuparia	European mountain-ash	M1, T2,T3	X
*Sphagnum sp.**	sphagnum moss sp.*	G	N
Spiraea alba	narrow-leaved meadowsweet	T1,T3	N
*Spirodela polyrhiza**	greater duckweed*	T3	LU*
*Stellaria longifolia**	long-leaved stitchwort*	T2	LR*
*Streptopus lancoelatus**	rose twisted-stalk*	M1, T1,T3	N
*Stuckenia pectinata**	sago pondweed*	G, T3	LU*
Symphoricarpus albus var. *albus*	snowberry	M1	LU

Symphyotrichum cordifolium	heart-leaved aster	M1, T2,T3	N
Symphyotrichum ericoides	heath aster	T2,T3	N
Symphyotrichum laevis	smooth aster	T2	LR
*Symphyotrichum lancoelatum**	panicled aster*	M2, T3	N
*Symphyotrichum lateriflorum**	calico aster*	M1, T2	N
*Symphyotrichum novae-angliae**	New England aster*	M1, M2, T3	N
*Symphyotrichum puniceum**	swamp aster*	M1, T2,T3	N
Symphyotrichum Xamethystinum	amethyst aster	T2,T3	N
Syringa vulgaris	common lilac	T2,T3	X
*Tanacetum vulgare**	tansy *	G	X
Taraxacum officinale	comon dandeliion	M1, T2,T3	X
Taxus canadensis	Canada yew	M1	N
Thalictrum dioicum	early meadowrue	M1, G, T3	N
*Thalictrum pubescens**	tall meadow rue*	T2,T3	N
Thlaspi arvense	penny-cress	T3	X
Thelypteris noveboracensis	New York fern	T3	LR
*Thelypteris palustris**	marsh fern*	T2,T3	N
Thuja occidentalis	easter white cedar *	M1,M2, G, T3	N
*Tiarella cordifolia**	foam-flower*	M1, T2,T3	N
*Tilia americana**	american basswood*	M1, T2,T3	N
*Toxicodendron rydbergii**	poison ivy *	M1, G, T2	N
Tragopogon dubius	lemon-yellow goat's beard	T3	X
Tragopogon pratense	meadow goat's-beard	G, T3	X
Tripleurospermum inodorum	scentless chamomile	T2,T3	X
*Trientalis borealis**	starflower*	T1,T3	N
Trifolium hybridum	alsike clover	G, T2,T3	X
Trifolium pratense	red clover	T2,T3	X
*Trifolium repens**	white clover *	G, T2,T3	X
*Trillium erectum**	red trillium*	M1, T1,T2,T3	N
*Trillium grandiflorum**	white trillium *	M1, G, T2,T3	N
Tsuga canadensis	eastern hemlock *	M1, G, T2,T3	N
Tussilago farfara	coltsfoot	M1, G, T2,T3	X
*Typha angustifolia**	narrow-leaved cattail *	M1, G, T2,T3	N
*Typha latifola**	common cattail*	M1,M2, T2,T3	N
*Typha Xglauca**	hybrid cattail*	T3	N
*Ulmus americana**	white elm*	M1,M2, T2,T3	N
Ulmus glabra	Scotch elm	T2,T3	X
Ulmus pumila	Siberian elm	G	X
*Urtica dioica ssp. gracilis**	American stinging nettle*	M2, T2,T3	N
Uvularia grandiflora	large-flowered bellwort	M1, T1,T2	N
Valeriana officinalis	valerian	G, T2	X
Verbascum thapsus	great mullein	G, T2,T3	X
*Verbena urticifolia**	white vervain*	T2	N

*Veronica americana**	American speedwell*	M1, T2,T3	LU*
Veronica officinalis	common speedwell	M1, T2,T3	X
Veronica serpyllifolia	thyme-leaved speedwell	T2	X
Veronica verna	spring speedwell	T2	X
Viburnum acerifolium	maple-leaved viburnum	M1, G, T2	N
Viburnum lantana	wayfaring tree	M1, T2,T3	X
Viburnum opulus	European highbush cranberry	M1, T2,T3	X
Vicia cracca	cow vetch	M1, G, T2,T3	X
Vicia tetrasperma	slender vetch	T3	X
Vinca minor	common periwinkle	T2,T3	X
Vinceotoxicum rossicum	dog-strangling vine	T2,T3	X
Viola arvensis	field pansy	T2	X
*Viola blanda**	sweet white violet*	M1	N
*Viola cucullata**	marsh blue violet*	T2	N
Viola labradorica	dog violet	T2,T3	N
*Viola macloskeyi**	northern white violet*	T3	LU*
Viola odorata	sweet violet	T3	X
Viola pubescens var. *pubescens*	downy yellow violet	M1, T2,T3	N
*Viola sororia**	common blue violet*	M1, T2,T3	N
Viola rostrata	long-spurred violet	T1	N
*Vitis riparia**	riverbank grape *	M1, G, T2,T3	N
*Xanthium strumarium**	cocklebur*	T3	N

Fauna in and around the East Don River Headwater Wetland Complex

Legend: **Observers**: **M**- June 14, 2017 observations of Steve Varga, Thivyah Siva & Austeja Vaskeviciute (OMNRF Aurora District) & Kim Logan (GEM Services Inc.) & July 18, 2018 observations of Steve Varga, Melanie Shapiera & Lauren Moretto (OMNRF, Aurora District), Timothy Law (Ontario Streams) & Kim Logan (GEM Services Inc.); **G**- Erin Donkers, Matthew Colucci, Joelle Pecora & Kim Logan (GEM Services Inc.) 2017, 2018 & 2019 observations; **T1**- Mike King & Gavin Miller (TRCA) 2009 observations; **T2**- Paul Prior (TRCA) 2001 & 2002 observations; **T3**-Gavin Miller, Dell Tune & Sue Hayes (TRCA) 2015 observations; **Status**: PT- provinically threatened, **PS** provincially significant species tracked by the Natural Heritage Information Centre, Breeding Bird Status: B- breeding bird, C- confirmed breeder, p- probable breeder, o- possible breeder, v-summer visitor, *****- fauna marked with an asterisk occur in the wetland complex, +- fauna marked with a plus sign no longer occur in the wetland complex

Latin Name	Common Name	Observer	Status
Accipiter striatus	Sharp-shinned Hawk *	T2	B
Agelaius phoeniceus	Red-winged Blackbird *	G	B
Amphipoda sp.	scuds *	G	
Anas platyrhynchos	Mallard *	G	B
Anaxyrus americanus	American Toad *	T1, T3	
Anisoptera sp.	dragonfly *	G	
Ardea herodias	Great Blue Heron *	G	v
Buteo jamaicensis	Red Tailed Hawk	G	B
Cardinalis cardinalis	Cardinal	G	B
Catharus fuscescens	Veery *	T2	B
Certhia americania	Brown Creeper *	T1, T2, T3	B, p
Ceryle alcyon	Belted Kingfisher *	T1	B, o
Charadrius vociferus	Killdeer*	G	B
Chelydra serpentina	Common Snapping Turtle +	T3	PS+
Chironomidae sp.	midges *	G	
Chrysemys picta marginata	Midland Painted Turtle *	G, T3	PS
Colaptes auratus	Northern Flicker	T1	B, p
Coleoptera sp.	beetles *	G	
Contopus virens	Eastern Wood-pewee *	M, G, T1,T2	PS, B, p
Corvus corax	Raven	G	B
Cyanocitta cristata	Blue Jay	G	B
Danaus plexippus	Monarch Butterfly *	G	
Dolichonyx oryzivorus	Bobolink	G, T2	B
Dryocopus pileatus	Pileated Woodpecker *	G, T1	B, p
Dumetella carolinensis	Grey Catbird *	G, T3	B, p
Empidonax traillii	Wilow Flycatcher *	G	B
Ephemeroptera sp.	mayfly *	G	
Geothlypis trichas	Common Yellowthroat *	G	B, o
Gerridae sp.	water striders *	G	
Haemorhous mexicanus	House Finch *	G	B

Hemiptera sp.	true bugs *	G	
Hirundo rustica	Barn Swallow *	G	PT, B, p
Hyla versicolor	Gray Treefrog *	G, T3	
Hylocichla mustelina	Wood Thrush *	T1	PS, B, p
Icterus galbula	Northern Oriole *	G	B
Icterus galbula	Baltimore Oriole *	G	B
Limenitis arthemis	White Admiral *	G	
Lithobates clamitans	Green Frog *	G, T1, T3	
Lithobates pipiens	Northern Leopard Frog *	T1	
Lithobates sylvaticus	Wood Frog *	G, T1, T3	B, p
Lophodytes cucullatus	Hooded Merganser*	T3	B, C+
Lymnaea stagnalis	Pond Snails *	G	
Melanerpes carolinus	Red-bellied Woodpecker*	T3	B, o
Meleagris gallopavo	Wild Turkey *	G, T1	B, C
Melospiza georgiana	Swamp Sparrow*	T3	B, p
Melospiza melodia	Song Sparrow *	G	B
Mimus polyglottos	Northern Mockingbird	G	B
Molothrus ater	Brown Headed Cowbird *	G	B
Myiarchus crinitus	Great Crested Flycatcher *	T1, T3	B, p
Notonectidae sp.	backswimmer *	G	
Odocoileus virginianus	White-tailed Deer *	T1, T2	
Passer montanus	Tree Sparrow *	G	B
Passerculus sandwichensis	Savannah Sparrow	G	B
Passerina cyanea	Indigo Bunting *	G, T1, T3	B, p
Picoides villosus	Hairy Woodpecker *	T1	B, o
Piranga olivacea	Scarlet Tanager *	T1, T2, T3	B, o
Pisidium moitessierianum	Fingernail Clams *	G	
Plethodon cinereus	Eastern Red-backed Salamander	T3	
Podilymbus podiceps	Pied-billed Grebe *	G	B
Poecile atricapillus	Black Capped Chickadee *	G	B
Pseudacris crucifer	Spring Peeper *	G, T3	
Quiscalus quiscula	Common Grackle *	G	B
Sciuridae sp.	Black/Grey Squirrel	G	
Scolopax minor	American Woodcock *	G, T2	B
Seiurus aurocapillus	Ovenbird *	T2	B
Setophaga americana	Northern Parula *	G	B
Setophaga pinus	Pine Warbler *	T1, T2	B. p
Setophaga ruticilla	American Redstart *	T2	B
Setophaga virens	Black-throated Green Warbler*	T2	B
Sitta canadensis	Red-breasted Nuthatch*	T1	B, o
Sitta carolinensis	White-breasted Nuthatch	T1	B, C
Sphyrapicus varius	Yellow-bellied Sapsucker	G	B
Spinus tristis	American Goldfinch *	G	B

Spizella pallida	Clay Coloured Sparrow *	G	B
Storeria occipitomaculata	Red-bellied Snake *	T1	
Sturnella magna	Eastern Meadowlark *	G	B
Sturnus vulgaris	European Starling *	G	B
Tachycineta bicolor	Tree Swallow *	G	B
Tamias striatus	Eastern Chipmunk *	T1	
Tetranychus urticae	red mites *	G	
Thamnophis sirtalis sirtalis	Eastern Gartersnake *	G	
Toxostoma rufum	Brown Thrasher*	G	B
Turdus migratorius	American Robin *	G	B
Tyrannus tyrannus	Eastern Kingbird *	G, T3	B, p
Vireo olivaceus	Red-eyed Vireo *	T1, T3	B, p
Zygoptera sp.	damselfly *	G	

WETLAND EVALUATION SCORING RECORD

Wetland Name: East Don River Headwater Wetland Complex

1.0 BIOLOGICAL COMPONENT

1.1 PRODUCTIVITY

16	1.1.1 Growing Degree-Days/Soils
9	1.1.2 Wetland Type
2	1.1.3 Site Type

1.2 BIODIVERSITY

13	1.2.1 Number of Wetland Types
27	1.2.2 Vegetation Communities
7	1.2.3 Diversity of Surrounding Habitat
2	1.2.4 Proximinty to Other Wetlands
12	1.2.5 Interspersion
8	1.2.6 Open Water Type

9	1.3 SIZE (Biological Component)
105	Subtotal
105	TOTAL (Biological Component)

2.0 SOCIAL COMPONENT

2.1 ECONOMICALLY VALUABLE PRODUCTS

0	2.1.1 Wood Products
0	2.1.2 Wild Rice
0	2.1.3 Commerical Fish (Bait Fish and/or Coarse Fish)
0	2.1.4 Furbearers

40	2.2 RECREATIONAL ACTIVITIES

2.3 LANDSCAPE AESTHETICS

0	2.3.1 Distinctness
4	2.3.2 Absence of Human Disturbance

2.4 EDUCATION AND PUBLIC AWARENESS

0	2.4.1 Educational Uses
4	2.4.2 Facilities and Programs
5	2.4.3 Research and Studies

40	2.5 PROXIMITY TO AREAS OF HUMAN SETTLEMENT
8	2.6 OWNERSH1P
16	2.7 SIZE (Social Component)
0	2.8 ABORIGINAL AND CULTURAL VALUES

2.8.1 Aboriginal Values
2.8.2 Cultural Heritage

117	Subtotal
117	TOTAL (Social Component)

3.0 HYDROLOGICAL COMPONENT

67	3.1 FLOOD ATTENUATION
	3.2 WATER QUALITY IMPROVEMENT
26	3.2.1 Short Term Water Quality Improvement
10	3.2.2 Long Term Nutrient Trap
24	3.2.3 Groundwater Discharge
0	3.3 CARBON SINK
15	3.4 SHORELINE EROSION CONTROL
	3.5 GROUNDWATER RECHARGE
49	3.5.1 Site Type
7	3.5.2 Soils
198	Subtotal
198	TOTAL (Hydrological Component)

4.0 SPECIAL FEATURES COMPONENT

4.1 RARITY

4.1.1 Wetland Types

60	4.1.1.1	Rarity within the Landscape
10	4.1.1.2	Rarirty of Wetland Type

4.1.2 Species

250	4.1.2.1	Reproductive Habitat for an Endangered or Threatened Species
150	4.1.2.2	Traditional Migration or Feeding Habitat for an Endangered or Threatened Species
95	4.1.2.3	Provincially Significant Animal Species
0	4.1.2.4	Provincially Significant Plant Species
0	4.1.2.5	Regionally Significant Species
38	4.1.2.6	Locally Significant Species

4.2 SIGNIFICANT FEATURES OR HABITATS

0	4.2.1	Colonial Waterbirds
10	4.2.2	Winter Cover for Wildlife
10	4.2.3	Waterfowl Staging and/or Moulting Areas
10	4.2.4	Waterfowl Breeding
10	4.2.5	Migratory Passerine, Shorebird or Raptor Stopover Area
	4.2.6	Fish Habitat
15	4.2.6.1	Spawning and Nursery Habitat
10	4.2.6.2	Migration and Staging Habitat

3	4.3 ECOSYSTEM AGE
0	4.4 GREAT LAKES COASTAL WETLANDS
671	Subtotal
250	TOTAL (Special Features Component)

SUMMARY OF EVALUATION RESULT

105	1.0	TOTAL FOR BIOLOGICAL COMPONENT
117	2.0	TOTAL FOR SOCIAL COMPONENT
198	3.0	TOTAL FOR HYDROLOGICAL COMPONENT
250	4.0	TOTAL FOR SPECIAL FEATURES COMPONENT
670		TOTAL WETLAND SCORE

FOR OMNRF USE ONLY

OMNRF Reviewer (Name & Position)	Steve Varga, District Management Biologist, OMNRF Aurora District
Reviewer Comments	
OMNRF Approver (Name & Position)	Joad Durst, Resources Management Supervisor, OMNRF Aurora District
Approval Date	December, 2019

Appendix B Photographic Record



Photo 1: Fisheries Site 1 - Dam outfall and fish passage barrier at upstream edge of survey area



Photo 2: Fisheries Site 1 - Abundant woody debris and riparian vegetation within the wooded reach of the channel



Photo 3: Fisheries Site 1 - Abundant sediment within the reach



Photo 4: Fisheries Site 1 - Dense riparian vegetation



Photo 5: Fisheries Site 1 - Marsh habitat at downstream end of survey area



Photo 6: Fisheries Site 1 - Iron staining and evidence of groundwater seeps



Photo 7: Fisheries Site 1 - Blacknose Dace captured downstream of the dam



Photo 8: Fisheries Site 2 - Upstream of Teston Road showing the vegetated channel leading to the culvert



Photo 9: Fisheries Site 2 - Small shallow channel through dense vegetation upstream of Teston Road



Photo 10: Fisheries Site 2 - Dense Phragmites at culvert inlet upstream of Teston Road



Photo 11: Fisheries Site 2 - Culvert outlet downstream of Teston Road



Photo 12: Fisheries Site 2 - Channel reach downstream of Teston Road



Photo 13: Fisheries Site 2 - Soft sediment and still water downstream of Teston Road



Photo 14: Fisheries Site 2 - Pedestrian bridge on private property with blocked CSP culverts



Photo 15: Fisheries Site 3 - Sediment fences flanking the culvert inlet and channel within the right-of-way



Photo 16: Fisheries Site 3 - Culvert inlet and headwall upstream of Teston Road



Photo 17: Fisheries Site 3 - Dry cobble channel and landscape fabric upstream of the culvert inlet



Photo 18: Fisheries Site 3 - Dry channel upstream of the right-of-way



Photo 19: View of Eastern Garter Snake observed within Dry-Fresh Hardwood – Hemlock Mixed Forest (FOM3-1) community within the Technically Preferred Alternative limits



Photo 20: View of Raccoons observed within Fresh-Moist Hemlock – White Pine Coniferous Forest (FOC3-A) community within the Technically Preferred Alternative limits



Photo 21: View of White-tailed Deer tracks observed on gravel road within the Native Forb Meadow (CUM1-A) community within the Technically Preferred Alternative limits



Photo 22: View of Raccoon tracks observed within the Jewelweed Mineral Meadow Marsh (MAM2-9) community within the Technically Preferred Alternative limits



Photo 23: View of Midland Painted Turtle hatchling observed in proximity to the Technically Preferred Alternative limits adjacent to a Duckweed Floating-leaved Shallow Aquatic (SAF1- 3) community, north and west of Dufferin Street



Photo 24: View of an American Toad observed in forest tract along East Don River, west of Dufferin Street and north of the Technically Preferred Alternative



Photo 25: View of Native Forb Meadow (CUM1-A) community providing habitat for Threatened Eastern Meadowlark and Bobolink, north of Teston Road near Rodinea Road, in Vaughan Landfill site



Photo 26: View of Duckweed Floating-leaved Shallow Aquatic (SAF1-3) community at BBS 10 where a Snapping Turtle (Special Concern) was observed basking, north of Technically Preferred Alternative limits



Photo 27: View of Deer trails within Native Forb Meadow (CUM1-A) community east of Keele Street, in proximity to Technically Preferred Alternative limits



Photo 28: View of Deer beds within Native Forb Meadow (CUM1-A) community east of Keele Street, in proximity to Technically Preferred Alternative limits



Photo 29: View of Dry-Fresh Hardwood – Hemlock Mixed Forest (FOM3-1) community, extending into Technically Preferred Alternative limits



Photo 30: View of White Cedar - Conifer Mineral Coniferous Swamp (SWC1-2) community, extending into Technically Preferred Alternative limits



Photo 31: View of Fresh-Moist Hemlock Coniferous Forest (FOC3-1) and Jewelweed Mineral Meadow Marsh (MAM2-9) communities, within Technically Preferred Alternative limits



Photo 32: View Duckweed Floating-leaved Shallow Aquatic (SAF1- 3) and Jewelweed Mineral Meadow Marsh (MAM2-9) communities, extending into Technically Preferred Alternative limits

Appendix C Fisheries Field Data Sheets

WATERCOURSE FIELD COLLECTION FORM

GENERAL INFORMATION			
Project # 1902618OO	Project Description: TESTON RD		Date: AUG 18 2022
Is Stream Realignment required for this section: O Yes O No O Unknown			
Collectors: H WILTON B GOTTFRIED		Time Started: 9:30	Time Finished: 11:33
Weather Conditions: SUN, 27°			
Air Temp (°C): 27°	Water Temp (°C): 21,9	Conductivity (µS/cm): 1,90 mS/cm	Velocity (m/s): N/m / 6 sec.
Photos Numbers And Descriptions: /		Turb → 0,0 NTu D.O → 4,1 mS/L @ 49% pH → 5.64 (?).	

LOCATION			
Name of Waterbody: DON RIVER TRIB	Drainage System: DON RIVER	Crossing #: SITE # 1	Station #: /
Location Of Crossing: W OF TESTON @ DUFFERIN			
GPS Coordinates: 43,878460, -79.495878		MTO Chainage: /	
Township: VAUGHAN		MNRF District: AURORA	

LAND USE AND POLLUTION

Surrounding Land Use:	Sources of Pollution:
DEVELOPMENT, NATURAL	- Potential U/S source of erosion + sedimentation (development?)

EXISTING STRUCTURE TYPE

Bridge	Box Culvert	Open Foot Culvert	CSP	N/A
○	○	○	○	○

Other (Describe)	Size: (w x h) m^2
⊘ FUTURE BRIDGE	opening of dam is ~1.3m.

SECTION TYPE AND MORPHOLOGY

Section (Reach) Identifier:	Section Location: (Include On Habitat Map)
D/S of pond outlet	
Associated Wetland: HEADWATERS + POND U/S	

Stream / River	Channelized	Permanent	Intermittent	Ephemeral
○	○	⊘	○	○

Total Section (Reach) Length (m): ~200m

Sub-Sections:	Run	Pool	Riffle	Flats	Culvert	Other
	⊘	○	○	○	○	○
Percentage of Area:	100					
Mean wetted depth (m)	0.03					
Mean wetted width (m)	0.4					
Mean bankfull depth (m)	~0.12					
Mean bankfull width (m)	3.8m					
Substrate (type & %)	Silt, Gr, Bo,					

Bedrock (Br)	*Boulder (Bo)*	*Cobble (Co)*	*Gravel (Gr)*	*Sand (Sa)*	*Silt (Si)*	*Clay (Cl)*	*Muck (Mu)*	*Detritus (D)*

BANK STABILITY				
	Stable	Slightly Unstable	Moderately Unstable	Unstable
Left Bank	O	O	✓	O
Right Bank	O	✓	O	O
	Deposition Zone	Protected Bank	Vulnerable Bank	Eroding Bank
Left Bank	O	O	O	✓
Right Bank	O	O	✓	O

HABITAT

In-Stream Cover (% surface area):

Undercut banks:	Boulders:	Cobbles:	Organic Debris:	None
/	/	/	5	✓

Vascular Macrophytes:	Woody Debris:
Instream: 10 → wetland habitat	Instream: 55
Overhanging: 20	Overhanging: 5

Shore Cover (% stream shaded):

100-90%	89-60%	59-30%	29-1%	None
O	✓	O	O	O

Vegetation Type:

Vegetation Type (%)	Submergent:	Floating:	Emergent:	None
			10	✓
Predominant Species:	/	/	Reed canary grass	

MIGRATORY OBSTRUCTIONS		
Permanent DAM AT POND	Seasonal /	None /

POTENTIAL CRITICAL HABITAT		
Spawning /	Groundwater Iron staining ~~present~~ present D/S of dam (~ 100m -) in wetland area	Other /

POTENTIAL ENHANCEMENT OPPORTUNITIES

- Silt deposition noted ~ 50-80m D/S of dam where gradient declines. Appears unnaturally compared to native substrates. (↓ sediment input)
- remove 0.35m barrier @ Pond outfall.

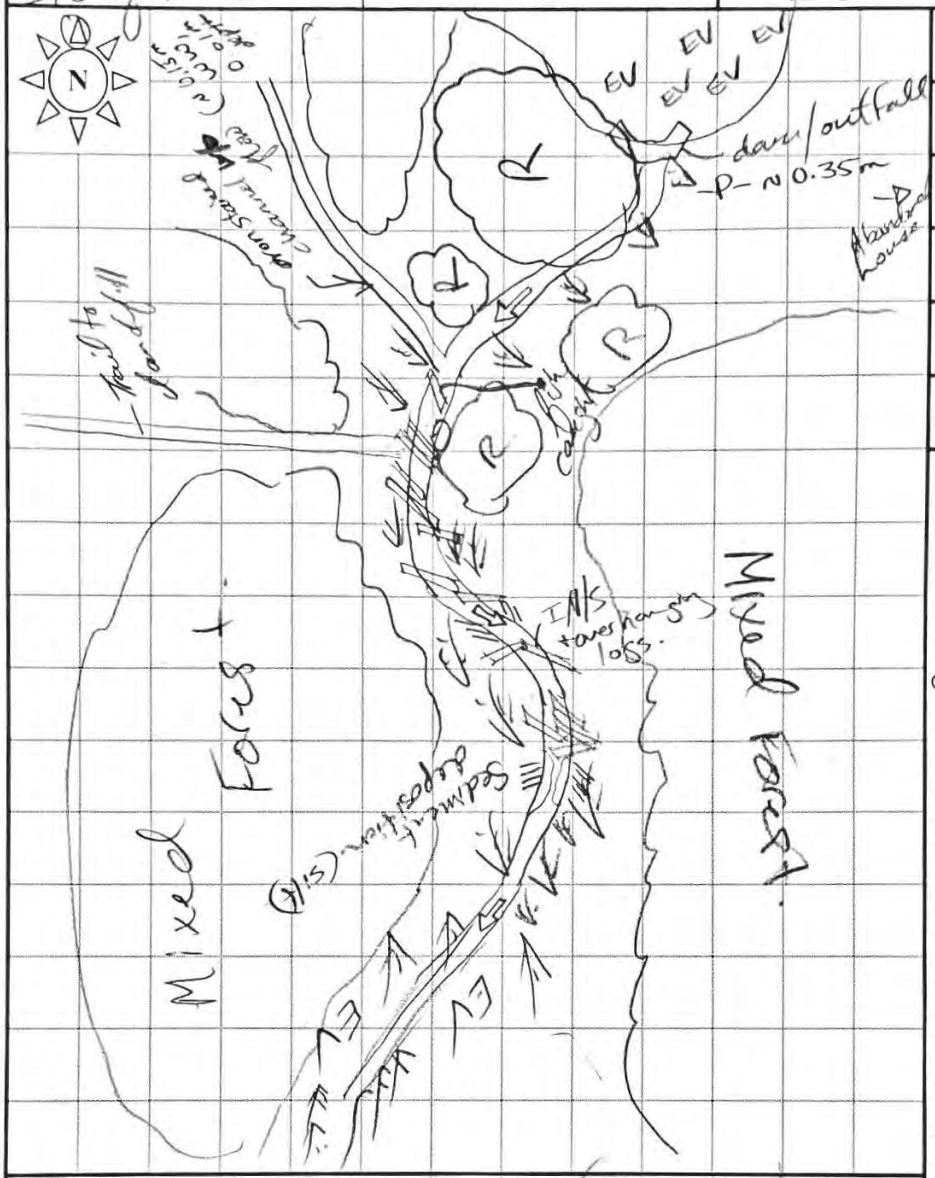
ADDITIONAL COMMENTS

- D/S OF PRIVATE POND + DAM. NO ACCESS TO PROPERTY NORTH OF PROPOSED BRIDGE
- defined flow through mixed forest before opening into wetland habitat D/S.
- pond is dense w/ m/s veg (pickerel weed)
- 1 Blacknose Dace caught u/s of stream crossing. 25 mm TL
- 1 additional small fish (likely same sized dace) observed.

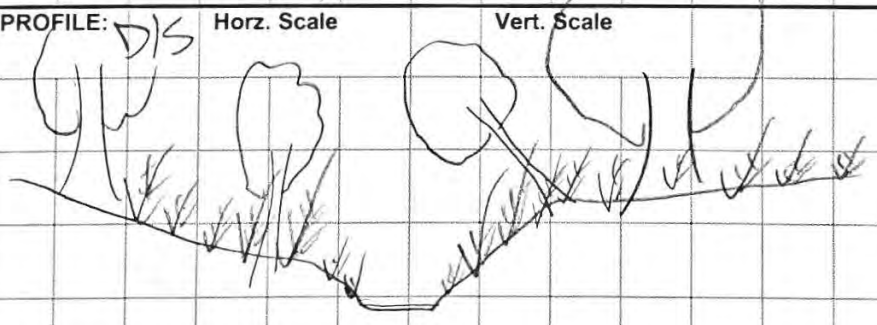
Additional Notes Appended? Ø No O Yes Number of Pages _____

202 seconds shocking.

SECTION IDENTIFIER:	SECTION LOCATION:	SECTION LENGTH (m):	SCALE (cm / m):
D/S of Pond		~ 200.	NTS



PROFILE: D/S Horz. Scale Vert. Scale



PROJECT #:	190261800
MAPPER:	B. Goffried
NAME OF WATERBODY:	Trib to West Don River
CROSSING #:	SITE #1
STATION #:	D/S of Dam.
DATE: YY-MMM-DD	22-Aug-18

LEGEND

10d depth (cm)
6w width

➡ Riffle
⇨ Run/Glide
⬭ Pool
▓ Island/Bar
⁘ Fine Substrate
Gravel Substrate
oOooO Cobble /Boulder
*** * *** Debris

CT Cattail
SV/FV Submergent/Float Veg
EV Emergent Vegetation
W Watercress
Fe Iron Staining
/////// Eroded Bank
xxx Riprap/Other Stabilization
⊂⊃ Instream Log/Tree
^^^ Dam/Weir/Obstruction
® Riparian Tree

⊢► Seep/Spring
-------- Undercut Bank
— Barrier to Fish Movement
-S- Seasonal Barrier
-x--x- Fence line
⊔ Culvert

WATERCOURSE FIELD COLLECTION FORM

GENERAL INFORMATION			
Project # 19026180O	Project Description: TESTON RD		Date: AUG 18/22
Is Stream Realignment required for this section: O Yes O No O Unknown			
Collectors: H.WILTON B. GOTTFRIED		Time Started: 13:45	Time Finished: 14:00
Weather Conditions: SUN, PARTIAL CLOUD			
Air Temp (°C): 29	Water Temp (°C):	Conductivity (µS/cm):	Velocity (m/s):
Photos Numbers And Descriptions:			

LOCATION			
Name of Waterbody: TRIB OF WEST DON RIVER	Drainage System: DON RIVER	Crossing #: SITE #2 U/S	Station #:
Location Of Crossing: TESTON RD JUST WEST OF BATHURST			
GPS Coordinates: VAUGHAN		MTO Chainage:	
Township: 43.882284, -79.477120		MNRF District: AURORA	

LAND USE AND POLLUTION

Surrounding Land Use:	Sources of Pollution:
TESTON RD, NATURAL	RUNOFF, LITTER

EXISTING STRUCTURE TYPE

Bridge	Box Culvert	Open Foot Culvert	CSP	N/A
O	⊗	O	O	O

Other O (Describe)	Size: (w x h) m^2
	7.5m x 1.5m

SECTION TYPE AND MORPHOLOGY

Section (Reach) Identifier:	Section Location: (Include On Habitat Map)
U/S	
Associated Wetland	

Stream / River	Channelized	Permanent	Intermittent	Ephemeral
O	O	⊗	O	O

Total Section (Reach) Length (m): 50

Sub-Sections:	Run	Pool	Riffle	Flats	Culvert	Other
	⊗	O	O	O	O	O
Percentage of Area:	100					
Mean wetted depth (m)	0.10					
Mean wetted width (m)	0.15					
Mean bankfull depth (m)	N/A					
Mean bankfull width (m)	N/A					
Substrate (type & %)	MUD					

Bedrock (Br)	*Boulder (Bo)*	*Cobble (Co)*	*Gravel (Gr)*	*Sand (Sa)*	*Silt (Si)*	*Clay (Cl)*	*Muck (Mu)*	*Detritus (D)*
							50	50

BANK STABILITY				
	Stable	Slightly Unstable	Moderately Unstable	Unstable
Left Bank	⊘	O	O	O
Right Bank	⊘	O	O	O
	Deposition Zone	Protected Bank	Vulnerable Bank	Eroding Bank
Left Bank N/A	O	O	O	O
Right Bank N/A	O	O	O	O

HABITAT				
In-Stream Cover (% surface area):				
Undercut banks:	Boulders:	Cobbles:	Organic Debris:	None O
Vascular Macrophytes: 100 Instream: CATTAILS Overhanging: PHRAG			Woody Debris: Instream: Overhanging:	
Shore Cover (% stream shaded):				
100-90% ⊘	89-60% O	59-30% O	29-1% O	None O
Vegetation Type:				
Vegetation Type (%)	Submergent:	Floating:	Emergent: 100	None O
Predominant Species:			CATTAILS PHRAG	

MIGRATORY OBSTRUCTIONS		
Permanent LOW FLOW, THICK VEG	Seasonal	None

POTENTIAL CRITICAL HABITAT		
Spawning	Groundwater IRON STAINING	Other

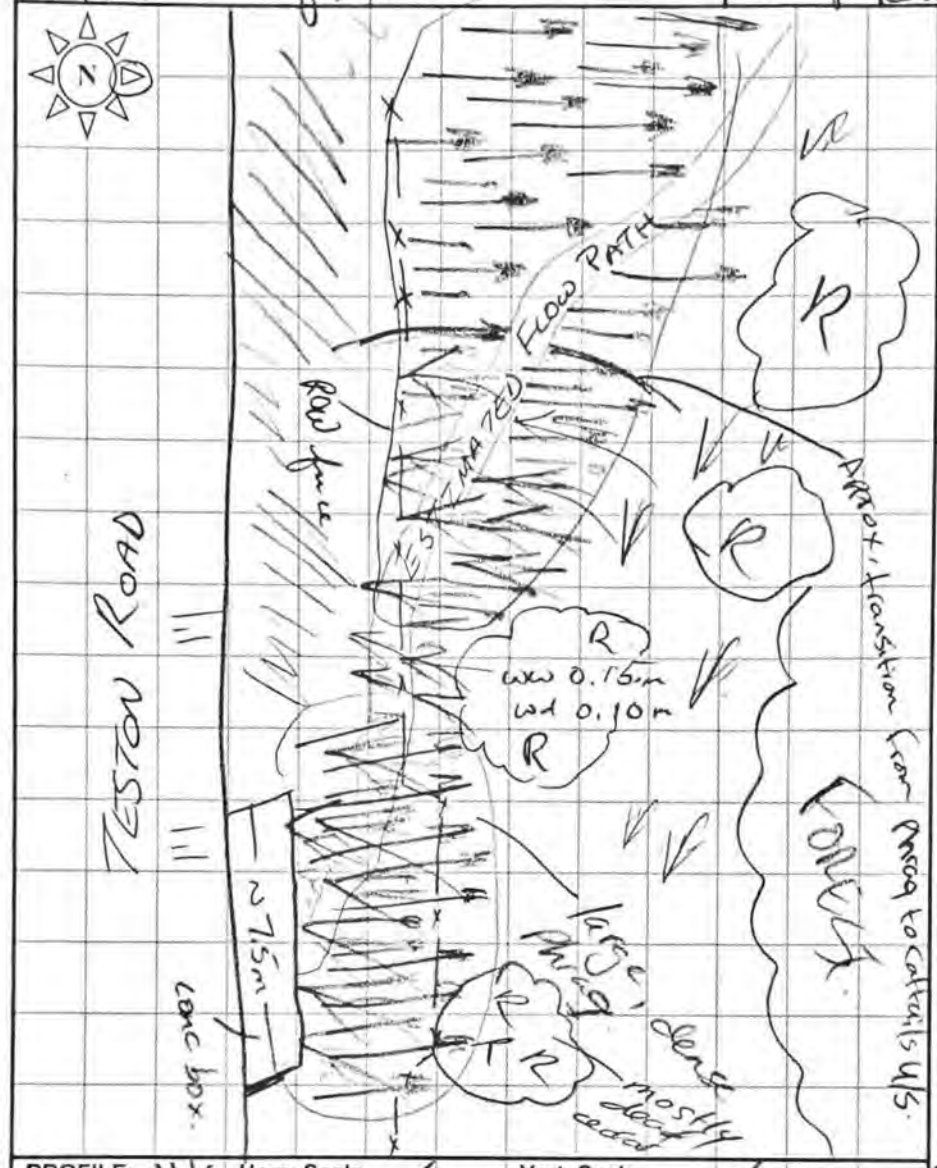
POTENTIAL ENHANCEMENT OPPORTUNITIES

ADDITIONAL COMMENTS

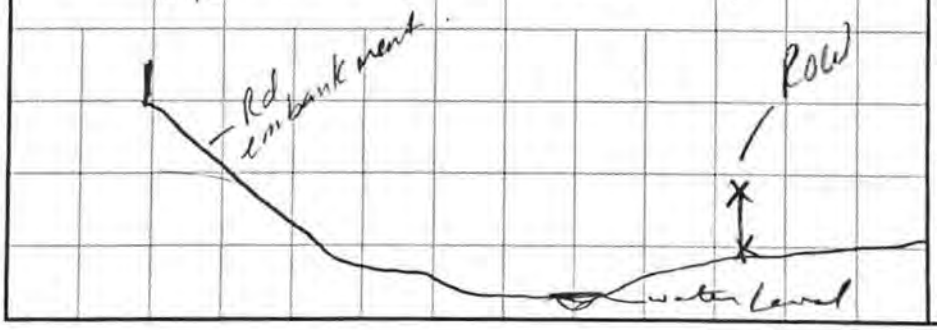
- Small incised channel in cattails + phrag
- No fishing completed in thick vegetation
- not likely direct habitat w/in vegetation, possible U/S out of ROW
- SURVEY limited to ROW ~15m of channel

Additional Notes Appended? Ø No O Yes Number of Pages _____

SECTION IDENTIFIER:	SECTION LOCATION:	SECTION LENGTH (m):	SCALE (cm / m):
U/S (North) of Teston Rd -		15m of channel to ROW	/



PROFILE: U/S Horz. Scale / Vert. Scale /



PROJECT #:	19026/800
MAPPER:	B. Gottfried
NAME OF WATERBODY:	Trib of West Don River
CROSSING #:	2
STATION #:	/
DATE: YY-MMM-DD	22-Aug-18

LEGEND

- **10d** depth (cm)
- **6w** width
- ➡ Riffle
- ⇨ Run/Glide
- ⬭ Pool
- ▇ Island/Bar
- Fine Substrate
- ### Gravel Substrate
- **oOooO** Cobble /Boulder
- * * * Debris
- **CT** Cattail
- **SV/FV** Submergent/Float Veg
- **EV** Emergent Vegetation
- **W** Watercress
- **Fe** Iron Staining
- /////// Eroded Bank
- **xxx** Riprap/Other Stabilization
- ⊂⊃ Instream Log/Tree
- ^^^ Dam/Weir/Obstruction
- ® Riparian Tree
- ⊢► Seep/Spring
- -------- Undercut Bank
- — Barrier to Fish Movement
- **-S-** Seasonal Barrier
- **-x--x-** Fence line
- ⌴ Culvert

WATERCOURSE FIELD COLLECTION FORM

GENERAL INFORMATION			
Project #: 19026180O	Project Description: Teston Rd.		Date: Aug 18/22
Is Stream Realignment required for this section: O Yes O No O Unknown			
Collectors: B. Cottfried / H. Wilton		Time Started: 2:08 (14:08)	Time Finished: 15:00
Weather Conditions: Sunny, Hot.			
Air Temp (°C): 28°C	Water Temp (°C): 17.2.	Conductivity (µS/cm): 1.34 mS/cm	Velocity (m/s): Nil.
Photos Numbers And Descriptions: D.O → 5.4 mg/L @ 58% Turb → 0.0 NTu. pH → 5.85 (?)			

LOCATION			
Name of Waterbody: Trib to west Don River	Drainage System: DON RIVER	Crossing #: 2. D/S	Station #: /
Location Of Crossing: East of Dufferin & Teston Rd.			
GPS Coordinates: 43.882000, -79.476795		MTO Chainage: /	
Township: VAUGHAN		MNRF District: Aurora	

LAND USE AND POLLUTION

Surrounding Land Use:	Sources of Pollution:
Teston Rd, Residential, Forest	Road + private property runoff.

EXISTING STRUCTURE TYPE

Bridge	Box Culvert	Open Foot Culvert	CSP	N/A
O	✓	O	O	O

Other O
(Describe)

Size: (w x h) m^2
~7.5m x 1.5m

~7m wide private bridge w/ 3 CSPs (2 partially blocked) + 3rd appears offline

SECTION TYPE AND MORPHOLOGY

Section (Reach) Identifier:
D/S of Teston Rd.

Associated Wetland
N/A.

Section Location:
(Include On Habitat Map)
between outlet + ROW

Stream / River	Channelized	Permanent	Intermittent	Ephemeral
✓	O	✓ ?	O	O

Total Section (Reach) Length (m): 200

Sub-Sections:	Run	Pool	Riffle	Flats	Culvert	Other
	O	O	O	✓	O	O
Percentage of Area:				100		
Mean wetted depth (m)				0.07		
Mean wetted width (m)				0.8		
Mean bankfull depth (m)				~0.17		
Mean bankfull width (m)				~4		
Substrate (type & %)				(Si) D		

Bedrock (Br)	*Boulder (Bo)*	*Cobble (Co)*	*Gravel (Gr)*	*Sand (Sa)*	*Silt (Si)*	*Clay (Cl)*	*Muck (Mu)*	*Detritus (D)*

BANK STABILITY				
	Stable	Slightly Unstable	Moderately Unstable	Unstable
Left Bank	✓	O	O	O
Right Bank	✓	O	O	O
	Deposition Zone	Protected Bank	Vulnerable Bank	Eroding Bank
Left Bank	O	✓	O	O
Right Bank	O	✓	O	O

HABITAT				
In-Stream Cover (% surface area):				
Undercut banks: /	Boulders: /	Cobbles: /	Organic Debris: 10	None O

Vascular Macrophytes:	Woody Debris:
Instream: 15	Instream: 5
Overhanging: 25	Overhanging: 3

Shore Cover (% stream shaded):				
100-90% O	89-60% O	59-30% ✓	29-1% O	None O

Vegetation Type:				
Vegetation Type (%)	Submergent:	Floating:	Emergent:	None O
Predominant Species:	/	Duckweed (Pond)	Cattails (Broadleaf) terrestrial species	

MIGRATORY OBSTRUCTIONS		
Permanent	Seasonal · lack of flow/depth · triple CSP is also barrier	None
/		/

POTENTIAL CRITICAL HABITAT		
Spawning	Groundwater	Other
/	/	/

POTENTIAL ENHANCEMENT OPPORTUNITIES

↑ flow

↓ seasonal barriers @ triple CSP crossing of private bridge

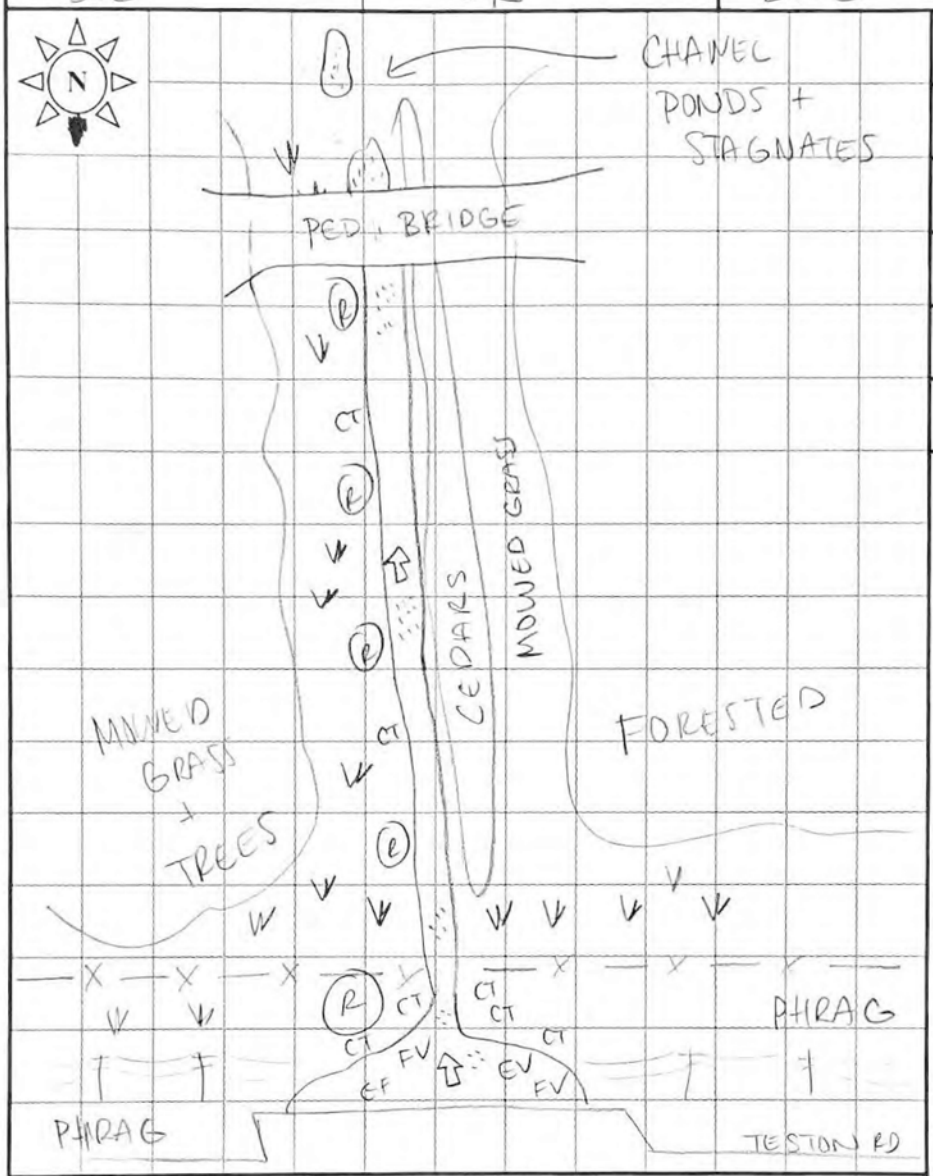
↑ riparian ~~OD~~ lawn is cut ~8m from RUB on private property

ADDITIONAL COMMENTS

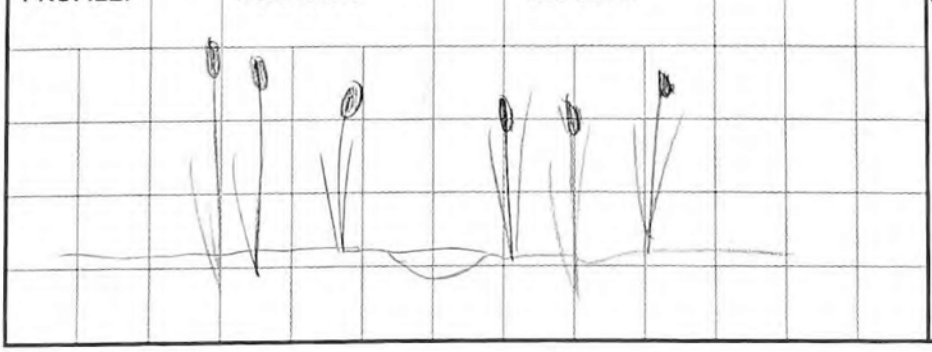
- defined channel w/ dense riparian + overhanging cover (particularly D/S of private bridge)
- Cannot efish D/S due to NDMNRF restriction due to Redside Dace
- limited to No flow (stagnant conditions w/ surface film)
- Abundant thin wooden slats deposited in/s, D/S of ROW

Additional Notes Appended? ⊗ No ○ Yes Number of Pages _____

SECTION IDENTIFIER:	SECTION LOCATION:	SECTION LENGTH (m):	SCALE (cm / m):
D/S	D/S	200	NTS



PROFILE: Horz. Scale Vert. Scale



PROJECT #:	1902 61800
MAPPER:	H WIGTON
NAME OF WATERBODY:	TRIB OF WILSON RIVER
CROSSING #:	SITE # 2
STATION #:	—
DATE: YY-MMM-DD	22 - AUG - 12

LEGEND

10d depth (cm)
6w width

➡ Riffle
⇨ Run/Glide
⬭ Pool
▓ Island/Bar
▒ Fine Substrate
Gravel Substrate
oOooO Cobble /Boulder
* * * Debris

CT Cattail
SV/FV Submergent/Float Veg
EV Emergent Vegetation
W Watercress
Fe Iron Staining
/////// Eroded Bank
xxx Riprap/Other Stabilization
⬭ Instream Log/Tree
^^^ Dam/Weir/Obstruction
® Riparian Tree
├► Seep/Spring
-------- Undercut Bank
— Barrier to Fish Movement
-S- Seasonal Barrier
-x--x- Fence line
└┘ Culvert

W = TERR GRASS + SHRUB

WATERCOURSE FIELD COLLECTION FORM

GENERAL INFORMATION			
Project # 19026180O	Project Description: Teston Rd.		Date: Aug 18/22
Is Stream Realignment required for this section: O Yes O No ✓ Unknown			
Collectors: B. Gottfried / H. Wilton		Time Started: 12:45	Time Finished: 1:28
Weather Conditions: Sunny, hot.			
Air Temp (°C): 27	Water Temp (°C): /	Conductivity (µS/cm): /	Velocity (m/s): /
Photos Numbers And Descriptions: /			

LOCATION			
Name of Waterbody: Trib to West Don River	Drainage System:	Crossing #: Site 3	Station #: /
Location Of Crossing: west of Bathurst st			
GPS Coordinates: 43.884090, -79.468193		MTO Chainage: /	
Township: /		MNRF District: Aurora	

LAND USE AND POLLUTION

Surrounding Land Use:	Sources of Pollution:
Teston Rd, deciduous Forest	road runoff.

EXISTING STRUCTURE TYPE

Bridge	Box Culvert	Open Foot Culvert	CSP	N/A
O	O	O	O	O

Other ✓ (Describe)	Size: (w x h) m^2
~1.4m Concrete pipe →	

SECTION TYPE AND MORPHOLOGY

Section (Reach) Identifier:	Section Location: (Include On Habitat Map)
U/S	North of Teston Rd.
Associated Wetland: N/A.	

Stream / River	Channelized	Permanent	Intermittent	Ephemeral
✓	O	O	✓ ?	✓

Total Section (Reach) Length (m): 10m

Sub-Sections:	Run	Pool	Riffle	Flats	Culvert	Other
	O	O	O	O	O	✓
Percentage of Area:						DRY
Mean wetted depth (m)						
Mean wetted width (m)						
Mean bankfull depth (m)						~0.2
Mean bankfull width (m)						~1.1m
Substrate (type & %)	(Co), Si, Bo					

Bedrock (Br)	*Boulder (Bo)*	*Cobble (Co)*	*Gravel (Gr)*	*Sand (Sa)*	*Silt (Si)*	*Clay (Cl)*	*Muck (Mu)*	*Detritus (D)*

BANK STABILITY				
	Stable	Slightly Unstable	Moderately Unstable	Unstable
Left Bank	O	✓	O	O
Right Bank	O	✓	O	O
	Deposition Zone	Protected Bank	Vulnerable Bank	Eroding Bank
Left Bank	O	O	✓	O
Right Bank	O	O	✓	O

HABITAT

In-Stream Cover (% surface area):

Undercut banks:	Boulders:	Cobbles:	Organic Debris:	None
✓	10	30	5	O

Vascular Macrophytes:	Woody Debris:
Instream: 5	Instream: 5
Overhanging: 15	Overhanging: 0

Shore Cover (% stream shaded):

100-90%	89-60%	59-30%	29-1%	None
O	O	O	✓	O

Vegetation Type:

Vegetation Type (%)	Submergent:	Floating:	Emergent:	None ✓
Predominant Species:			~~tree~~ species terrestrial	

MIGRATORY OBSTRUCTIONS		
Permanent	Seasonal dry, 0.25m gradient drop ~2.5m u/s of inlet	None

POTENTIAL CRITICAL HABITAT		
Spawning	Groundwater	Other

POTENTIAL ENHANCEMENT OPPORTUNITIES

- remove seasonal gradient barrier.
- remove u/s filter fabric.

→ No Access beyond ROW. D/S side is underground.

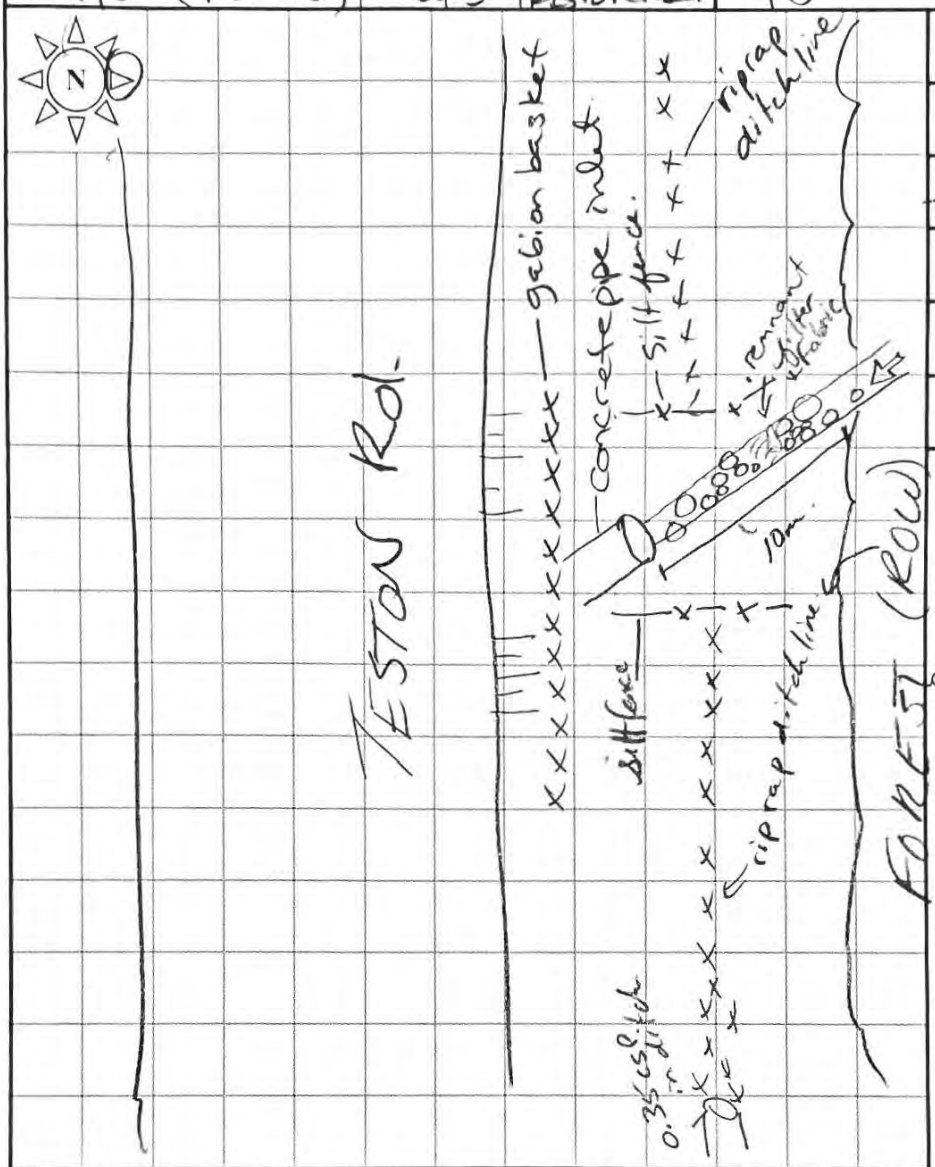
ADDITIONAL COMMENTS

From inlet to ROW limit, cobble substrate is predominant. Beyond ROW, silt in less defined, low gradient channel is predominant (channel may braid u/s of ROW)

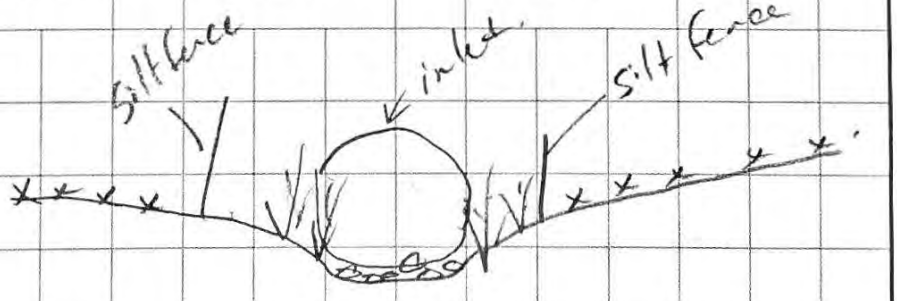
- old remnant filter fabric is in u/s ~2m u/s of inlet.
- Cobble in culvert.
- silt fence present on both sides of channel

Additional Notes Appended? O No O Yes Number of Pages _____

SECTION IDENTIFIER:	SECTION LOCATION:	SECTION LENGTH (m):	SCALE (cm / m):
U/S (North)	U/S Teston Rd.	10	NTS



PROFILE: Horz. Scale Vert. Scale



PROJECT #: 19046800
MAPPER: B. Gottfried
NAME OF WATERBODY: Trib to West Don
CROSSING #: 3
STATION #: /
DATE: YY-MMM-DD 22-Aug-18

LEGEND

10d depth (cm)
6w width

➡ Riffle
⇨ Run/Glide
⬭ Pool
▇ Island/Bar
Fine Substrate
Gravel Substrate
oOooO Cobble /Boulder
*** Debris

CT Cattail
SV/FV Submergent/Float Veg
EV Emergent Vegetation
W Watercress
Fe Iron Staining
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® Riparian Tree

⊢► Seep/Spring
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— Barrier to Fish Movement
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⊔ Culvert