



NATURAL AREAS INVENTORY

2006-2009

Volume 2



NIAGARA PENINSULA
CONSERVATION
AUTHORITY

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9.0 Checklist of the Vascular Plants of Niagara Regional Municipality Ontario

by

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March 2010

Checklist of the Vascular Plants of Niagara Regional Municipality, Ontario
(M.J. Oldham March 2010)

Introduction

The purpose of this checklist is to summarize information on the distribution and status of vascular plants in the Niagara Peninsula region of Ontario. The checklist primarily covers the Regional Municipality (R.M.) of Niagara, but includes information for each Niagara species on the status in the adjacent municipalities of Haldimand and Hamilton. Three species not known from Niagara R.M., but known from adjacent Haldimand County (Flaccid Sedge, *Carex glaucoidea*; Long-beaked Oak Sedge, *Carex lucorum*; Tall Cinquefoil, *Drymocallis arguta*), are included in the checklist since they are within the Niagara Peninsula Conservation Authority (NPCA) watershed. The author (michael.oldham@ontario.ca) would welcome any comments, additions, or corrections to this checklist.

History of Botanical Exploration in Niagara

The Niagara Peninsula has a long history of botanical exploration, dating back more than two centuries. Peter Kalm visited Niagara Falls in 1750 (Kalm 1771) and his incidental reference to Basswood (*Tilia americana*) is apparently the first English language reference to a plant species from the area. Kalm's Lobelia (*Lobelia kalmii*) and Kalm's St. John's-wort (*Hypericum kalmianum*) were both named by Linnaeus to commemorate Peter Kalm and were likely discovered and collected by Kalm near Table Rock at Niagara Falls (Day 1888). Francois Andre Michaux visited the region in 1806 or 1807 and published on some of the trees including Cucumber Tree (*Magnolia acuminata*), which he observed near Niagara Falls (Michaux 1819). David Douglas visited Niagara Falls in 1823 and collected a number of rare species such as Pink Milkwort (*Polygala incarnata*), Starry Campion (*Silene stellata*), Toothed Tick-trefoil (*Desmodium cuspidatum*, and Woodland Stonecrop (*Sedum ternatum*) (Hooker 1840). In the mid and late 1800s botanists such as Joseph Dalton Hooker, George W. Clinton (1864), David F. Day (1882, 1883, 1886, 1888, 1893), John Macoun (1883-1892, 1893), Robert Cameron (1895, 1896), J. Hoyes Panton (1890), and others visited or worked in the region. Ontario's oldest herbarium specimen that has been located in a Canadian collection is the specimen of Spikenard (*Aralia racemosa*) collected by Francis Masson and deposited in the herbarium of the Canadian Museum of Nature (CAN), which was probably collected in July or August 1800 in the Niagara-on-the-Lake area (Brunton 1985). For an account of the early botanical history of the Niagara Region see Zenkert (1934).

In the early 1900's, the Botanical Section of the Buffalo Museum of Science was active on both the New York and Ontario sides of the Niagara River. Charles A. Zenkert's classic "The Flora of the Niagara Frontier Region: Ferns and Flowering Plants of Buffalo, N.Y., and Vicinity" was published in 1934 and covered all of the current Niagara Regional Municipality as well as the eastern portions of Hamilton and Haldimand. Zenkert's flora has been updated by several later publications (Zenkert and Zander 1975, Zander and Pierce 1979, Eckel 2001). In the 1940's and 1950's A.W. (Bert) Miller conducted extensive botanical studies in Niagara; his

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specimens are primarily at HAM. Gus Yaki explored the Niagara Region in the 1960's and produced a checklist of Niagara plants in 1970 (Yaki 1970).

In the late 1980's, 1990's, and early 2000's a number of natural areas in the Niagara Region had detailed botanical or life science inventories conducted, primarily by the Ontario Ministry of Natural Resources. These inventories included including Short Hills Provincial Park (Gould 1989), Point Abino Area of Natural and Scientific Interest (ANSI) (Macdonald 1990), Wainfleet Bog ANSI (Macdonald 1992), Niagara Gorge ANSI (Varga and Kor 1993), Niagara Section Escarpment ANSI (Varga et al. 1992), Fifteen-Sixteen Mile Creek Valleys ANSI (Jalava et al. 1992), Beamsville Escarpment ANSI (Jalava et al. 1992), Jordan Valley ANSI (Schaefer et al. 1992), Marcy's Woods (Oldham 2000), Niagara Falls (Eckel 2001), and the Niagara River (Oldham 2007). The "Ecological Survey of the Niagara Escarpment Biosphere Reserve" (Riley et al. 1996) provides vascular plant lists for 16 surveyed sites on the Niagara Escarpment within Niagara R.M.

Botanical fieldwork by the author and others at the Ontario Natural Heritage Information Centre or NHIC (Wasył Bakowsky, Sam Brinker) has been conducted in the Niagara Region in 2006, 2007, and 2008 on a variety of projects related to invasive species (Oldham and Brinker 2009b), parkland along the Niagara River (Oldham 2007), and the Niagara Natural Areas Inventory (NAI). A database of botanical records gathered during these and earlier NHIC surveys (e.g. Oldham 2000) contains about 7,500 records. The Niagara Natural Areas Inventory (NAI) database contains records gathered during NAI fieldwork (about 60,000 vascular plant records) and records compiled from other sources (an additional 30,000 vascular plant records). In total more than 100,000 georeferenced and databased vascular plant records were used to compile this checklist. Niagara R.M. specimens were examined at several Ontario (CAN, DAO, HAM, NFO, NHIC, OAC, TRT, TRTE; herbarium acronyms follow Index Herbariorum <http://sciweb.nybg.org/science2/IndexHerbariorum.asp>) and New York (BUF) herbaria and databased Niagara specimen records were provided from HAM and TRT. Not all specimens cited in the checklist have been examined by the author.

Taxonomy and Nomenclature (SCIENTIFIC NAME, COMMON NAME)

Scientific names and family names used in this checklist largely follow the Flora of North America (FNA) for volumes published to date (FNA 1993, 1997, 2000, 2002a, 2002b, 2003a, 2003b, 2003c, 2005, 2006a, 2006b, 2006c, 2007, 2009). For families which have not yet been covered by FNA a variety of sources have been used, primarily Morton and Venn (1990), Newmaster et al. (1998), and Kartesz (1999). Fern families follow Smith et al. (2006). Family level nomenclature primarily follows the Angiosperm Phylogeny Website (<http://www.mobot.org/MOBOT/research/APweb/welcome.html>; Stevens 2001). Commonly used synonyms are provided at the end of the Niagara Notes column; for additional synonymy see Morton and Venn (1990), Newmaster et al. (1998), and Kartesz (1999). Common names follow various sources, frequently Newmaster et al. (1998). Species are listed alphabetically by scientific name.

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Status in Niagara Regional Municipality (NIAG)

Although Zenkert's (1934) Niagara Frontier Region flora contains information on the frequency of species in the area (e.g. very rare, infrequent, common, etc.), these remarks pertain to the entire area covered, much of which is in New York State. John Riley's (1989) "Distribution and Status of the Vascular Plants of Central Region" listed plants known from Niagara-Haldimand (combined) but did not provide a status, except for provincially rare species. Riley et al. (1996) provide an indication of local rarity in the Regional Municipality of Niagara based on a species being considered locally rare in Niagara if known from six or fewer sites in the Regional Municipality.

This checklist indicates status in Niagara Regional Municipality using the following codes and definitions:

R = Rare; known from 10 or fewer recently verified (post 1980) locations in Niagara R.M. Native plants considered rare in Niagara or rare in Ontario appear in boldface in the checklist.

RH = Rare Historic; known from Niagara R.M. but no known records since 1980.

U = Uncommon; known from 11 to 20 recently verified (post 1980) locations in Niagara R.M.

C = Common; known from more than 20 recently verified (post 1980) locations in Niagara R.M.

DD = Data Deficient; native and reliably known from Niagara R.M., but local status unknown usually due to confusion with similar species. Further work is needed to determine status in the region.

I = Introduced; a plant established outside cultivation in Niagara R.M. but not native to the region (i.e. deliberately or accidentally introduced to the area). "I" is followed by one of the above codes to indicate the regional status of introduced plants.

hyb = Hybrid; no Niagara status assigned.

In addition to status in Niagara R.M., this checklist also indicates the status in adjacent City of Hamilton, based on Goodban (2003), and Haldimand-Norfolk Regional Municipality (now Norfolk and Haldimand Counties), based on Sutherland (1987). Vascular plants occurring in adjacent Hamilton and Haldimand are included only if they occur in the portion of these municipalities which is in the Niagara Peninsula Conservation Authority watershed or if they also occur in Niagara Regional Municipality.

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Niagara Comments (NIAGARA NOTES)

Brief notes on the status and distribution of many plants in Niagara are provided. Comments particularly focus on species rare or uncommon in Niagara. Literature references and specimens preserved in herbaria are cited where possible. When specimens are cited only the primary collector's name is provided, to save space. Frequently used scientific names synonyms and other names used for the taxon in the recent Niagara floristic literature are provided.

The following abbreviations and acronyms are used in the NIAGARA NOTES column:

ANSI = Area of Natural and Scientific Interest
ARVPO = Atlas of the Rare Vascular Plants of Ontario (Argus et al. 1982-1987) database
BUF = Buffalo Museum of Science herbarium
CAN = Canadian Museum of Nature, Gatineau, herbarium
DAO = Agriculture Canada, Ottawa, herbarium
det. = determined or verified by (pertaining to a specimen)
et al. = et alii or "and others"
FNA = Flora of North America project (see bibliography)
GH = Gray Herbarium, Harvard University, Boston
HAM = Royal Botanical Gardens, Hamilton, herbarium
MICH = University of Michigan, Ann Arbor, herbarium
MTMG = McGill University herbarium, Montreal
NAI = Niagara Natural Areas inventory project and database
NFO = Niagara Parks Commission, Niagara Falls, herbarium
NHIC = Natural Heritage Information Centre, Ontario Ministry of Natural Resources, Peterborough, herbarium
NPCA = Niagara Peninsula Conservation Authority
OAC = University of Guelph (formerly Ontario Agricultural College) herbarium
R.M. = Regional Municipality
sensu stricto = in the strict sense (i.e. excluding closely related species)
ssp. = botanical subspecies, a subdivision of a species
TRT = Royal Ontario Museum (University of Toronto) herbarium
TRTE = Erindale Campus, University of Toronto, herbarium
Twp. = Township

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var. = botanical variety, a subdivision of a species

WAT = University of Waterloo herbarium

WLU = Wilfred Laurier University, Waterloo, herbarium

X = between a genus and species name indicates a hybrid

= followed by a number indicates a plant collection number (unique identifier assigned by a botanist).

Status in Hamilton (HAMI)

Status in the City of Hamilton is indicated using the following codes and definitions (Goodban 2003):

R = Rare; known 1 to 5 sites in Hamilton, number of sites indicated (= H of Goodban 2003).

U = Uncommon; known from 6 to 10 sites in Hamilton (= h of Goodban 2003).

C = Common; present in Hamilton, but not rare, uncommon, or introduced (i.e. listed in Goodban 2003 with no status indicated).

I = Introduced; not native to Hamilton (Goodban 2003).

I/N = Both Introduced and Native populations occur in Hamilton; no status provided in Goodban (2003).

hyb = Hybrid; occurring in Hamilton, no status assigned (Goodban 2003).

? = Status uncertain, usually due to differing taxonomic concepts.

-- = Not present in Hamilton, according to Goodban (2003).

Status in Haldimand-Norfolk (HANO)

Status in Haldimand-Norfolk Regional Municipality (now Norfolk and Haldimand Counties) is based on Sutherland (1987) using the following codes and definitions:

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R = Rare; known from 1 to 5 sites in Haldimand-Norfolk, number of sites indicated.

VU = Very Uncommon; known from 6 to 8 sites in Haldimand-Norfolk.

U = Uncommon; known from 9 to 15 sites in Haldimand-Norfolk.

C = Common; known from more than 15 sites in Haldimand-Norfolk.

I = Introduced; not native to Haldimand-Norfolk.

X = Present in Haldimand-Norfolk; no status assigned in Sutherland (1987).

? = Status uncertain, usually due to differing taxonomic concepts.

-- = Not present in Hamilton, according to Sutherland (1997).

Canada Status (COSEWIC)

Species at risk (SAR) status assigned by the Committee on the Status of Endangered Wildlife in Canada (COSEWIC), following the most recent COSEWIC (2009) list. Most species listed as at risk by COSEWIC are legally protected under the federal Species At Risk Act (SARA); see <http://www.sararegistry.gc.ca/>. Currently 25 vascular plants known from Niagara R.M. have been assigned to a formal national at risk category by COSEWIC, although Niagara populations of two of these species (Dense Blazing-star, Kentucky Coffee-tree) are thought to be introduced.

END = Endangered. A wildlife species facing imminent extirpation or extinction. [12 native to Niagara taxa]

THR = Threatened. A wildlife species that is likely to become endangered if nothing is done to reverse the factors leading to its extirpation or extinction. [7 native to Niagara taxa]

SC = Special Concern. A wildlife species that may become threatened or endangered because of a combination of biological characteristics and identified threats. [4 native to Niagara taxa]

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Ontario Status (MNR)

Legal provincial species at risk (SAR) status assigned by the Committee on the Status of Species at Risk in Ontario (COSSARO), following the most recent Species At Risk in Ontario (SARO) list (Ontario Ministry of Natural Resources 2009). Endangered (END), Threatened (THR), and Extirpated (EXP) species are legally protected under the province's Endangered Species Act (ESA), 2007. Currently 26 vascular plants known from Niagara R.M. have been assigned to a formal provincial at risk category by COSSARO, although Niagara populations of two of these species (Dense Blazing-star, Kentucky Coffee-tree) are thought to be introduced.

END = Endangered. A species facing imminent extinction or extirpation in Ontario. [13 native to Niagara taxa]

THR = Threatened. A species that is at risk of becoming endangered in Ontario if limiting factors are not reversed. [7 native to Niagara taxa]

SC = Special Concern. A species with characteristics that make it sensitive to human activities or natural events. [4 native to Niagara taxa]

Ontario Rank (SRANK)

Provincial (or subnational) conservation status ranks (S-ranks) are used by the Ontario Natural Heritage Information Centre (NHIC) to set conservation priorities for rare species and natural communities. These ranks are not legal statuses, unlike COSEWIC (SARA) and MNR (ESA 2007) designations. The most important factors considered in assigning provincial ranks are the total number of known, extant sites in Ontario, and the degree to which they are potentially or actively threatened with destruction. Other criteria include the number of known populations considered to be securely protected, the size and population trends of provincial occurrences, and the ability of the taxon to persist at its known sites. Ontario ranks follow Oldham and Brinker (2009a) for native species of provincial conservation concern and the NHIC database for other species. See the NHIC web page (<http://nhic.mnr.gov.on.ca/>) for updated ranks.

S1 = Critically Imperilled—Critically imperilled in Ontario because of extreme rarity (often 5 or fewer occurrences) or because of some factor(s) such as very steep declines making it especially vulnerable to extirpation from the province. [43 taxa, including S1? and S1S2]

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S2 = Imperilled—Imperilled in Ontario because of rarity due to very restricted range, very few populations (often 20 or fewer), steep declines, or other factors making it very vulnerable to extirpation from the province. [78 taxa, including S2?, S2S3, and S1S3]

S3 = Vulnerable—Vulnerable in Ontario due to a restricted range, relatively few populations (often 80 or fewer), recent and widespread declines, or other factors making it vulnerable to extirpation. [70 taxa, including S3? and S3S4]

S4 = Apparently Secure—Uncommon but not rare; some cause for long-term concern due to declines or other factors. [329 taxa, including S4? and S4S5]

S5 = Secure—Common, widespread, and abundant in Ontario. [612 taxa, including S5?]

SH = Possibly Extirpated (Historical)—Species occurred historically in Ontario, and there is some possibility that it may be rediscovered. Its presence in the province has not have been verified in the past 20 or more years. [4 taxa]

SX = Presumed Extirpated—Species is believed to be extirpated from Ontario. Not located despite intensive searches of historical sites and other appropriate habitat, and virtually no likelihood that it will be rediscovered. [6 taxa]

SE = Exotic—Species is believed to be exotic or non-native to Ontario, but occurs (or formerly occurred) and spreads outside of cultivation without direct human assistance. A number following SE indicates roughly how common the species is in Ontario: SE1 = 1-5 sites; SE2 = 6-20 sites; SE3 = 21-80 sites; SE4 = > 80 sites; SE5 = >> 80 sites; SEH = no records in at least 20 years; SEX = extirpated. [552 taxa]

SU = Unrankable—Currently unrankable due to lack of information or due to substantially conflicting information about status or trends. [4 taxa]

? = Inexact or Uncertain—Denotes inexact or uncertain numeric rank.

Rank ranges, e.g. S2S3, indicate that the Ontario rank is either S2 or S3, but that the information currently available is insufficient to determine which rank applies. Rank ranges (e.g. S2S3) are sometimes used to indicate known rank based on number of occurrences (e.g. S2) and predicted rank with additional field surveys (e.g. S3).

Synopsis

Checklist of the Vascular Plants of Niagara Regional Municipality, Ontario
(M.J. Oldham March 2010)

This checklist includes 1,696 vascular plant taxa (species, subspecies, varieties, and hybrids) reliably reported from Niagara Regional Municipality. Of these, 65% are native to Niagara and 35% introduced. The table below provides a breakdown by Niagara status.

NIAG	definition	number	notes
C	common (native)	279	16% (26% of native taxa)
U	uncommon (native)	190	11% (17% of native taxa)
R	rare (native)	439	26% (41% of native taxa)
RH	rare historic (native)	179	11% (16% of native taxa)
	native (total)	1100	65%
IC	introduced (common)	107	6% (19% of introduced taxa)
IU	introduced (uncommon)	78	5% (14% of introduced taxa)
IR	introduced (rare)	313	18% (54% of introduced taxa)
IH	introduced (historic)	80	5% (14% of introduced taxa)
I	introduced (total)	587	35%
DD	data deficient (status undetermined)	13	1% (all native)
hyb	hybrid	18	1% (9 native, 9 introduced)
	provincial conservation concern (S1, S2, S3, SH, SX) and native	172	10% (16% of native taxa)
	Species At Risk (SAR) and native	24	1% (2% of native taxa)
total		1696	

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The table below compares Niagara totals with those of adjacent and nearby jurisdictions. Information sources used are Sutherland (1987), Varga et al. (2000), and Goodban (2003).

	Niagara	Haldimand-Norfolk	Hamilton	Halton	Peel	Toronto	York	Durham	GTA
Total taxa	1696	1398	1410	1301	1346	1403	1132	1250	1870
Introduced	587	307	474	433	504	569	311	428	720
Native	1100	1091	936	868	877	880	821	855	1150
Rare in jurisdiction	440	209	369	334	441	393	406	408	628
Historic (native)	179								
Uncommon	190	389	107	183	63	89	114	124	125
Provincial conservation concern	172	158	83	57	36	72	24	32	126

The Niagara flora is diverse and nationally significant. The reason for this diversity is its southern location and varied habitats including the Niagara Escarpment, the Niagara Gorge, sandy and rocky shorelines and dunes of Lakes Erie and Ontario, the formerly rich aquatic flora of the Niagara and Welland Rivers, sand plains and clay plains, alvars, and peatlands.

The long history of botanical exploration in the Niagara area, particularly near Niagara Falls and along the Niagara River (see above), has resulted in relatively good documentation of the historical flora of the area, allowing for comparisons with the current condition. Unfortunately the Niagara flora has not fared well over the last century or two in the face of extensive human modification of the landscape. About 15% of the native flora (179 taxa) is known only from historical records (> 30 years old) and most of these species are likely extirpated from the region. Particularly hard hit groups of plants in Niagara are aquatics, orchids, and prairie/savannah species. Many rare native plants will follow the same fate without strong conservation actions to preserve them and their habitats. It is quite likely that the Niagara Region has lost a greater proportion of its native flora than any other county or regional municipality in Ontario.

Excluded Species

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A list of 191 excluded taxa was compiled while researching the Niagara checklist. This list appears at the end of the checklist. These species have been reported from Niagara R.M., but without persuasive documentation. Some of the records may be valid but require further confirmation before they can be included in the checklist.

Acknowledgements

The Niagara Peninsula Conservation Authority (NPCA) supported the involvement of the Natural Heritage Information Centre (NHIC) in their Natural Areas Inventory (NAI) project which allowed for this checklist to be compiled. The following NPCA staff were particularly helpful in assisting with botanical surveys in the region and logistical support: Albert Garofalo, Tom Staton, Ryan Kitchen, and Deanna Lindblad. Robert Ritchie and the Niagara Parks Commission, with funding from the federal Habitat Stewardship Fund, provided support for surveys of rare plants in the Niagara Gorge. The Canadian Food Inspection Agency (CFIA) supported field surveys for Jointed Goat-grass (*Aegilops cylindrica*) and other invasive plants in Niagara.

Several NHIC staff assisted with inventory work, in particular Sam Brinker and Wasyl D. Bakowsky. Assistance with fieldwork at some sites was also provided by Ontario Ministry of Natural Resources field staff from the Vineland and Guelph offices (Carrie MacKinnon, Kara Vlasman, Anne Yagi, Rob Tervo), Niagara Parks Commission (Robert Ritchie), Royal Botanical Garden (Carl Rothfels), Canadian Wildlife Service (Kate Hayes), Ontario Power Generation (Wayne F. Weller), and NHIC (Tristan Crawford, Mike McMurtry).

Tony Reznicek (University of Michigan) kindly provided a draft copy of the revised Michigan Flora, which helped with some taxonomic issues, and answered numerous questions related to the Niagara flora. Albert Garofalo reviewed a draft of the Niagara checklist and provided many useful comments. Peter Ball (University of Toronto) checked a number of critical specimens at TRTE and provided other helpful input. Sean Blaney, Dave Bradley, Mark Browning, Dan Brunton, Paul Catling, Ron Drabik, Anthony Goodban, Dan Gregory, Natalie Iwanycki, Jim Pringle, Carl Rothfels, and Anne Yagi also provided comments on a draft of this checklist.

Many botanists assisted by identifying or verifying specimens collected during NAI field surveys, allowing access to specimens in their care, contributing data from their own fieldwork in Niagara, or otherwise provided assistance in compiling this checklist: George Argus (Canadian Museum of Nature), Peter Ball (Erindale College, University of Toronto), Don Britton (University of Guelph), Jenny Bull (Royal Ontario Museum), Paul Catling (Agriculture Canada, Ottawa), Mihai Costea (Wilfred Laurier University), Bill Crins (Ontario Parks), Stephen Darbyshire (Agriculture Canada, Ottawa), Tim Dickinson (University of Toronto), Jennifer Doubt (Canadian Museum

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of Nature), Mary Gartshore (Walsingham), Anthony Goodban (Milton), Dan Gregory (Oakville), Natalie Iwanycki (Royal Botanical Garden), Carole Ann Lacroix (University of Guelph), Deb Metsger (Royal Ontario Museum), Gisele Mitrow (Agriculture Canada, Ottawa), John Morton (University of Waterloo), Jim Phipps (University of Western Ontario), Tony Reznicek (University of Michigan), Don Sutherland (Peterborough), and Steve Varga (Aurora).

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<i>Abies balsamea</i> (L.) Miller	Balsam Fir	IR	Reported from Point Abino (Yaki 1970), where considered introduced by Macdonald (1990).	C	--			S5	PINACEAE
<i>Abutilon theophrasti</i> Medikus	Velvet-leaf	IU	Uncommon weed, often in agricultural areas.	I	I			SE5	MALVACEAE
<i>Acalypha rhomboidea</i> Raf.	Three-seeded Mercury	C	Common. = <i>Acalypha virginica</i> var. <i>rhomboidea</i> .	C	C			S5	EUPHORBIACEAE
<i>Acer campestre</i> L.	Hedge Maple	IR	Rare escape from cultivation (M.J. Oldham #34045, DAO, from Dufferin Islands in 2007). Not listed for Niagara by Zenkert (1934) or Riley (1989).	--	I			SE1	SAPINIDACEAE
<i>Acer negundo</i> L.	Manitoba Maple	C	Common, particularly in floodplains and disturbed areas. A weedy species which is commonly cultivated; some or all regional populations may be non-native.	C	C			S5	SAPINIDACEAE
<i>Acer platanoides</i> L.	Norway Maple	IC	Locally common, but undoubtedly overlooked, in disturbed woods (M.J. Oldham #32404, MICH, in 2006). A commonly planted species.	I	I			SE5	SAPINIDACEAE
<i>Acer pseudoplatanus</i> L.	Sycamore Maple	IR	Rare escape from cultivation (M.J. Oldham #32431, DAO, in 2006).	I	--			SE1	SAPINIDACEAE
<i>Acer rubrum</i> L.	Red Maple	C	Common in floodplains and wooded swamps. Hybridizes with Silver Maple to form <i>Acer x freemanii</i> .	C	C			S5	SAPINIDACEAE
<i>Acer saccharinum</i> L.	Silver Maple	C	Common in wet areas. Often a dominant in wooded swamps. Commonly planted.	C	C			S5	SAPINIDACEAE
<i>Acer saccharum</i> Marshall ssp. <i>nigrum</i> (Michaux f.) Desmarais	Black Maple	U	Widespread but rather local, particularly in floodplain forests. = <i>Acer nigrum</i> .	C	U			S4?	SAPINIDACEAE
<i>Acer saccharum</i> Marshall ssp. <i>saccharum</i>	Sugar Maple	C	Common and widespread in upland woods.	C	C			S5	SAPINIDACEAE
<i>Acer spicatum</i> Lam.	Mountain Maple	U		C	U			S5	SAPINIDACEAE
<i>Acer x freemanii</i> E. Murray	(<i>A. rubrum</i> X <i>A. saccharinum</i>)	hyb	Common in wooded swamps; probably much overlooked.	C	X			S5?	SAPINIDACEAE

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<i>Achillea millefolium</i> L.	Yarrow	C	A common species of open, disturbed areas. The species is probably both native (ssp. <i>lanulosa</i> (Nutt.) Piper) and introduced (ssp. <i>millefolium</i>) in Niagara, but the relative proportion of each is not well known.	I/N	I			S5	ASTERACEAE
<i>Acorus americanus</i> (Raf.) Raf.	Sweet-flag	R	Most reports of <i>A. calamus</i> (a rare introduced European species) are actually this species, though <i>A. calamus</i>, the sterile European triploid, may also occur. The two are very difficult to distinguish (Packer and Ringius 1984).	R2	VU			S4	ACORACEAE
<i>Actaea pachypoda</i> Elliott	White Baneberry	C	Common in woodlands.	C	C			S5	RANUNCULACEAE
<i>Actaea racemosa</i> L.	Black Cohosh	R	Recent records from two sites and several additional historically documented locations. M.J. Oldham #34128 (NHIC) from Four Mile Creek near Niagara-on-the-Lake in 2007. = <i>Cimicifuga racemosa</i>.	I	R3			S2	RANUNCULACEAE
<i>Actaea rubra</i> (Aiton) Willd.	Red Baneberry	C	Common in woodlands.	C	U			S5	RANUNCULACEAE
<i>Actaea x ludovici</i> B. Boivin	(<i>A. pachypoda</i> X <i>A. rubra</i>)	hyb	An uncommon hybrid between two native species.	hyb	--			SE1	RANUNCULACEAE
<i>Adiantum pedatum</i> L.	Northern Maidenhair	U	Uncommon in rich woods.	C	C			S5	PTERIDACEAE
<i>Adlumia fungosa</i> (Aiton) E. Greene ex Britton	Climbing Fumitory	RH	A pre-1975 report from St. Johns Conservation Area (Niagara Falls Nature Club 1975) is the only regional report.	R1	RH			S4	PAPAVERACEAE
<i>Aegilops cylindrica</i> Host	Jointed Goat-grass	IR	Rare weed, first documented from Ontario near Port Colborne in 2006 (M.J. Oldham #32597, DAO, MICH, TRTE).	--	--			SE1	POACEAE
<i>Aegopodium podagraria</i> L.	Goutweed	IR	Rare escape from cultivation (B. Larson #91-199, TRT, from Niagara Section Escarpment ANSI in 1991).	I	I			SE4	APIACEAE
<i>Aesculus glabra</i> Willd. var. <i>glabra</i>	Ohio Buckeye	IR	Rare escape from cultivation (M.J. Oldham #32641, DAO, NHIC, from woods at Paradise Grove in 2006). Probably native in Canada only on Walpole Island (Darbyshire and Oldham 1985).	I	--			S1	SAPINIDACEAE

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<i>Aesculus hippocastanum</i> L.	Horse-chestnut	IU	An uncommon escape from cultivation.	I	--			SE2	SAPINIDACEAE
<i>Agalinis paupercula</i> (A. Gray) Britton	Small-flowered Agalinis	R	Moist Lake Erie shorelines; also known historically from along the Niagara River (W. Scott, TRT, in 1896).	--	VU			S4S5	OROBANCHACEAE
<i>Agalinis tenuifolia</i> (M. Vahl) Raf.	Slender-leaved Agalinis	R	Moist shorelines (M.J. Oldham #34966, DAO, from Fort Erie in 2007).	R1	C			S4S5	OROBANCHACEAE
<i>Agastache nepetoides</i> (L.) Kuntze	Yellow Giant Hyssop	R	Rare in rich woods. J. Jalava #91-187 (TRT) from 15 Mile-16 Mile Creek ANSI Connector in 1991.	R3	R2			S4	LAMIACEAE
<i>Agastache scrophulariifolia</i> (Willd.) Kuntze	Purple Giant Hyssop	RH	Recorded by John Macoun from both Niagara Glen and Queenston Heights. Macoun (CAN) in 1877.	--	--			S1	LAMIACEAE
<i>Ageratina altissima</i> (L.) King & Robinson	White Snakeroot	C	Common in upland woods. = <i>Eupatorium rugosum</i> .	C	U			S5	ASTERACEAE
<i>Agrimonia gryposepala</i> Wallr.	Agrimony	C	Common in woods and scrub.	C	C			S5	ROSACEAE
<i>Agrimonia parviflora</i> Aiton	Small-flowered Agrimony	R	Shrubby old fields, open woods, and edges, particularly in the Fort Erie area where collected as early as 1899 (M. Wilkes, TRT) and seen recently at several sites (e.g. M.J. Oldham #22228, MICH, from Marcy's Woods in 1999). Formerly considered rare in Ontario (Argus et al. 1982-1987).	R1	--			S4	ROSACEAE
<i>Agrimonia pubescens</i> Wallr.	Hairy Agrimony	R	B. Larson #91-611 (TRT) from Beamsville Escarpment ANSI in 1991. A few other records, though similar to <i>A. gryposepala</i> and perhaps somewhat overlooked.	U7	U			S4	ROSACEAE
AGROPYRON	see		ELYMUS, PASCOPYRUM, THINOPYRUM						POACEAE
<i>Agrostemma githago</i> L.	Corn-cockle	IH	Formerly more common in Ontario and Niagara (e.g. "... often encountered in the fields and cultivated ground of the Parks", Hamilton 1943); no recent records.	--	I			SE3	CARYOPHYLLACEAE
<i>Agrostis gigantea</i> Roth	Redtop	IC	Common and widespread. = <i>Agrostis stolonifera</i> var. <i>major</i> .	I	C			SE5	POACEAE

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<i>Agrostis hyemalis</i> (Walt.) B.S.P.	Winter Bent Grass	R	Found on Navy Island 2007 (M.J. Oldham #34717, DAO, MICH, NHIC); 2nd Ontario record (see Oldham et al. 1995). Very similar to <i>A. scabra</i> , which may be the basis for other regional reports (e.g. Jonsson-Ninniss and Middleton 1991).	--	--			S1	POACEAE
<i>Agrostis perennans</i> (Walter) Tuckerman	Autumn Bent Grass	U	Moist or dry woods, frequently on sandy soil. Uncommon to rare in southwestern Ontario.	C	U			S5	POACEAE
<i>Agrostis scabra</i> Willd.	Rough Hair Grass	R	Widespread in southern Ontario in open, usually dry (at least periodically), sites, though much more local in southwestern Ontario, including Niagara.	R4	U			S5	POACEAE
<i>Agrostis stolonifera</i> L.	Creeping Bent Grass	C	Common and widespread, generally in moist, disturbed places. Apparently both native and introduced in S Ontario (see Dore & McNeill 1980). = <i>Agrostos alba</i> , <i>A. palustris</i> .	C	U			S5	POACEAE
<i>Ailanthus altissima</i> (Miller) Swingle	Tree-of-Heaven	IR	Occasional weed, particularly in urban areas.	I	--			SE5	SIMAROUBACEAE
<i>Ajuga reptans</i> L.	Carpet Bugle	IR	Spreading from a lawn edge into adjacent woods at Dufferin Islands (M.J. Oldham #34286, DAO, MICH, NHIC, in 2007). Not listed for Niagara by Zenkert (1934) or Riley (1989).	--	--			SE2	LAMIACEAE
<i>Alcea rosea</i> L.	Hollyhock	IR	Rare escape from cultivation and occasionally persisting around abandoned habitations (Eckel 2001). Reported as early as 1888 (Day 1888, Pantou 1890, Hamilton 1943; TRT). = <i>Althaea rosea</i> .	I	I			SE4	MALVACEAE

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SCIENTIFIC NAME	COMMON NAME	NIAG	NIAGARA NOTES	HAMI	HANO	COSEWIC	MNR	SRANK	FAMILY
<i>Alisma gramineum</i> Lej.	Narrow-leaved Water-plantain	R	Known from several sites along the Niagara River, where first collected by P.M. Eckel and R.H. Zander in 1987 (BUF). Also known from Point Abino (M.J. Oldham #8774, DAO, MICH, NHIC, in 1988). Formerly considered rare in Ontario (Argus et al. 1982-1987), though currently appears to be increasing in several parts of the province (Oldham and Brinker 2009).	--	--			S4	ALISMATACEAE
<i>Alisma subcordatum</i> Raf.	Southern Water-plantain	DD	Both <i>A. subcordatum</i> and <i>A. triviale</i> are known from Niagara, but the relative abundance of each is poorly known. These two species were formerly included in <i>A. plantago-aquatica</i> , which is reported from many Niagara sites (e.g. 383 records from 162 tracts in NAI database). = <i>Alisma plantago-aquatica</i> , in part, of regional reports.	?	?			S4?	ALISMATACEAE
<i>Alisma triviale</i> Pursh	Large-flowered Water-plantain	DD	Both <i>A. subcordatum</i> and <i>A. triviale</i> are known from Niagara, but the relative abundance of each is poorly known. These two species were formerly included in <i>A. plantago-aquatica</i> , which is reported from many Niagara sites (e.g. 383 records from 162 tracts in NAI database). = <i>Alisma plantago-aquatica</i> , in part, of regional reports.	?	?			S5	ALISMATACEAE
<i>Alliaria petiolata</i> (M. Bieb.) Cavara & Grande	Garlic Mustard	IC	A widespread and common aggressive European weed of disturbed woodlands. Has greatly increased in abundance in recent decades; considered rare in the Niagara Frontier Region by Zenkert (1934). = <i>Alliaria officinalis</i> .	I	I			SE5	BRASSICACEAE
<i>Allium canadense</i> L.	Wild Garlic	U	Local in moist wood, thickets, and meadows, particularly on floodplains.	C	C			S5	ALLIACEAE
<i>Allium sativum</i> L.	Garlic	IU	Uncommon escape from cultivation (M.J. Oldham #35259, MICH, NHIC, TRTE, from Port Colborne in 2008).	I	I			SE2	ALLIACEAE

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<i>Allium schoenoprasum</i> L.	Wild Chives	IR	Collected from "Niagara" by W.J. Potter (TRT) in 1908, where presumably an escape from cultivation. Recently collected from Pelham Township (A. Garofalo #5985, HAM, in 2008).	I	--			S4	ALLIACEAE
<i>Allium tricoccum</i> Aiton var. <i>tricoccum</i>	Wild Leek	U	Uncommon in rich woods, particularly along the Niagara Escarpment.	C	C			S5	ALLIACEAE
<i>Allium vineale</i> L.	Field Garlic	IU	Rare escape from cultivation (e.g. S. Varga #427-93, TRT, from Queenston Escarpment ANSI in 1993).	I	I			SE2	ALLIACEAE
<i>Alnus glutinosa</i> (L.) Gaertner	Black Alder	IU	An increasingly common European invasive of shorelines and other moist areas. For more information on the spread of this tree along the Niagara River see Eckel (2003).	I	I			SE4	BETULACEAE
<i>Alnus incana</i> (L.) Moench ssp. <i>rugosa</i> (Duroi) Clausen	Speckled Alder	U	Uncommon in moist areas. Alder swamp is a locally rare vegetation community in Niagara. = <i>Alnus rugosa</i> .	C	U			S5	BETULACEAE
<i>Alopecurus aequalis</i> Sobol.	Short-awned Foxtail	R	Rare and local in moist open areas.	R4	U			S4S5	POACEAE
<i>Alopecurus geniculatus</i> L.	Geniculate Foxtail	IR	Rare weed of moist lawns, ditches, parks, and other open, grassy areas (Oldham et al. 1995). Appears to have increased in abundance in the past few decades (M.J. Oldham #25295, DAO, in 2001).	--	--			SE3	POACEAE
<i>Alopecurus pratensis</i> L.	Meadow Foxtail	IR	Uncommon on roadsides, grassed parks, pastures, especially in moist areas. Perhaps somewhat overlooked due to its superficial resemblance to Timothy (<i>Phleum pratense</i>).	I	I			SE5	POACEAE
<i>ALTHAEA</i>	<i>see</i>		<i>ALCEA</i>						MALVACEAE
<i>Alyssum alyssoides</i> (L.) L.	Pale Alyssum	IR	Rare weed in dry, open ground.	I	I			SE5	BRASSICACEAE
<i>Amaranthus albus</i> L.	Tumbling Pigweed	IR	Rare weed of disturbed open areas. W. Scott (TRT) in 1898.	I	I			SE5	AMARANTHACEAE
<i>Amaranthus blitoides</i> S. Watson	Prostrate Pigweed	IR	Rare weed of disturbed open areas. = <i>Amaranthus graecizans</i> .	I	--			SE4?	AMARANTHACEAE

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<i>Amaranthus blitum</i> L. ssp. <i>emarginatus</i> (Moq. ex Uline & Bray) Carretero et al.	Purple Amaranth	IR	Recently collected from disturbed ground in St. Catharines (C.J. Rothfels #2015, HAM, in 2005) and from Dufferin Islands (M.J. Oldham #35075, DAO, NHIC, WLU, in 2007), where it grew as a lawn weed. Rare introduction in Canada; this variety is not listed for Ontario by Costea and Tardiff (2003). A collection from Fort Erie (P.M. Eckel #8911158, BUF, in 1988, as <i>A. lividus</i>) may belong to ssp. <i>emarginatus</i> or ssp. <i>blitum</i> , which is also a rare introduction in Ontario.	--	--			SE1	AMARANTHACEAE
<i>Amaranthus caudatus</i> L.	Amaranth	IR	A Niagara R.M. collection (W.R. Elliss 1844, OAC, in 1940 from Stamford) cited by Costea and Tardiff (2003). Not listed for Niagara by Zenkert (1934) or Riley (1989).	--	--			SEH	AMARANTHACEAE
<i>Amaranthus cruentus</i> L.	Love-lies-bleeding	IR	C. Schaefer #91-22 (TRT) from Jordan Valley ANSI in 1991 is the only known Niagara record.	--	--			SEH	AMARANTHACEAE
<i>Amaranthus hybridus</i> L.	Smooth Pigweed	IR	Rare weed (H. & R. Axtell, BUF, from Fort Erie in 1967).	I	--			SE5?	AMARANTHACEAE
<i>Amaranthus palmeri</i> S. Wats.	Careless Weed	IR	Single record from Niagara Falls railway yard (M.J. Oldham #34922, WLU, in 2007). Rare weed in Ontario, with no Canadian specimens seen by Costea and Tardiff (2003).	--	--			SE1	AMARANTHACEAE
<i>Amaranthus powellii</i> S. Watson	Green Pigweed	IR	Native to western North America, but an increasingly common agricultural weed in southern Ontario, though still known from few Niagara records (M.J. Oldham #35029, WLU, from Rockway Conservation Area in 2007).	I	I			SE5	AMARANTHACEAE
<i>Amaranthus retroflexus</i> L.	Redroot Pigweed	IC	A common weed of agricultural land and other disturbed open areas.	I	I			SE5	AMARANTHACEAE
<i>Amaranthus tuberculatus</i> (Moq.) J.D. Sauer	Water-hemp	R	Rare in moist open areas. Often on moist mudflats. C. Schaefer #91-21 (TRT) from Jordan Valley ANSI in 1991. = <i>Acnida altissima</i>.	R2	VU			S4	AMARANTHACEAE

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<i>Ambrosia artemisiifolia</i> L.	Common Ragweed	C	A common weed of agricultural areas, roadsides, and other disturbed, open areas. A native species, but always found in disturbed, usually weedy situations.	C	C			S5	ASTERACEAE
<i>Ambrosia trifida</i> L.	Giant Ragweed	C	Common weedy species of disturbed open areas.	R4	U			S5	ASTERACEAE
<i>Amelanchier amabilis</i> Wieg.	Beautiful Serviceberry	RH	A collection from Niagara Glen (J.K. Morton, WAT, in 1971) is the only known Niagara record. = <i>A. sanguinea</i> var. <i>grandiflora</i> .	--	--			S2S3	ROSACEAE
<i>Amelanchier arborea</i> (Michaux f.) Fern.	Downy Serviceberry	C	Common in woodlands.	C	C			S5	ROSACEAE
<i>Amelanchier humilis</i> Wieg.	Low Serviceberry	R	Open limestone flats (alvar) above Niagara Glen (M.J. Oldham #32366, DAO, NHIC, in 2006).	--	R4			S4S5	ROSACEAE
<i>Amelanchier laevis</i> Wieg.	Smooth Juneberry	U	Uncommon in woodlands.	C	?			S5	ROSACEAE
<i>Amelanchier sanguinea</i> (Pursh) DC.	Juneberry	R	Rare in rocky woods; known from several sites along the Niagara Escarpment (e.g. S. Varga #91-82, TRT, from Decew Valley in 1991). Point Abino (TRTE; Macdonald 1990).	U10	VU			S5?	ROSACEAE
<i>Amelanchier spicata</i> (Lam.) K. Koch	Running Serviceberry	R	Rocky areas along the Escarpment and Niagara River (C. Schaefer #91-84, TRT, from 16 Mile Creek ANSI in 1991). = <i>Amelanchier stolonifera</i> .	R3	U			S4?	ROSACEAE
<i>Ammophila breviligulata</i> Fern.	American Beach Grass	R	Found in a few sandy shoreline sites on Lake Erie (e.g. M.J. Oldham #7883, DAO, from Sherkston Beach in 1987). In the Great Lakes region restricted to sandy Great Lakes shorelines (Guire and Voss 1963).	R2	VU			S4	POACEAE
<i>Amorpha fruticosa</i> L.	False Indigo	IR	Collected from a roadside at Windmill Point by J.D. Ambrose in 1983 (UWO). A rare escape from cultivation in southern Ontario.	I	--			SE2	FABACEAE
<i>Amphicarpaea bracteata</i> (L.) Fern.	Hog-peanut	C	Common.	C	C			S5	FABACEAE

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<i>Anagallis arvensis</i> L.	Scarlet Pimpernel	IR	A rare weed of roadsides and other open disturbed areas (M.J. Oldham #18139, MICH, from Montrose Railway Yard, Niagara Falls, in 1995).	I	I			SE4	MYRSINACEAE
<i>Anaphalis margaritacea</i> (L.) Benth. & Hook.f. ex C.B. Clarke	Pearly Everlasting	R	Early reports from the Niagara River area (Cameron 1890, 1895); more recently reported from St. John's Valley (Riley et al. 1996).	R2	U			S5	ASTERACEAE
<i>Anchusa arvensis</i> (L.) M. Bieb.	Blue Bugloss	IH	A rare weed known from several early reports (Cameron 1895, Hamilton 1943). T.J. Ivey (TRT) from Niagara Glen in 1907. = <i>Lycopsis arvensis</i> .	I	--			SE3	BORAGINACEAE
<i>Andromeda polifolia</i> L. var. <i>latifolia</i> Aiton	Bog-Rosemary	RH	Several literature reports, e.g. "'a sphagnous swamp, near Black Creek, Ontario, a few miles south of Chippawa..." (Day 1888); and "...reported from the [Niagara] Parks System" (Hamilton 1943). Mapped from Niagara by Soper and Heimbürger (1982). = <i>Andromeda glaucophylla</i>, <i>A. polifolia</i> var. <i>glaucophylla</i>.	R1	R1			S5	ERICACEAE
<i>ANDROPOGON</i>	<i>see also</i>		<i>SCHIZACHYRIUM</i>						POACEAE
<i>Andropogon gerardii</i> Vitman	Big Bluestem	U	Dry, open ground such as prairies, shorelines, roadsides, and railways.	U9	C			S4	POACEAE
<i>Andropogon virginicus</i> L. var. <i>virginicus</i>	Broom-sedge	R	Dry, open disturbed ground such as old fields, roadsides and railways. First collected in Niagara by P.M. Catling and J.L. Riley (CAN, DAO, TRT) from the Fort Erie railway yard in 1976 (Catling et al. 1977).	--	VU			S4	POACEAE
<i>Anemone acutiloba</i> (DC.) Lawson	Sharp-lobed Hepatica	U	Uncommon in woods. = <i>Hepatica acutiloba</i> .	C	C			S5	RANUNCULACEAE
<i>Anemone americana</i> (DC.) Hara	Round-lobed Hepatica	R	This species is much rarer than <i>A. acutiloba</i> in Niagara. It prefers woods on acidic sand and there are often only a few individuals at a site. = <i>Hepatica americana</i>.	C	C			S5	RANUNCULACEAE
<i>Anemone canadensis</i> L.	Canada Anemone	C	Common	C	U			S5	RANUNCULACEAE

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<i>Anemone cylindrica</i> A. Gray	Long-fruited Thimbleweed	R	Known from several early reports and observed in the Niagara Glen and Whirlpool by S. Varga in 1989 (Varga and Kor 1993).	U9	U			S4	RANUNCULACEAE
<i>Anemone quinquefolia</i> L. var. <i>quinquefolia</i>	Wood Anemone	C	Common.	C	C			S5	RANUNCULACEAE
<i>Anemone virginiana</i> L. var. <i>alba</i> (Oakes) Wood	Thimbleweed	R	Reported from a few sites (e.g. P.M. Eckel, BUF, from the Whirlpool in 1987). = <i>Anemone riparia</i> .	--	--			S4?	RANUNCULACEAE
<i>Anemone virginiana</i> L. var. <i>virginiana</i>	Thimbleweed	C	Common.	C	C			S5	RANUNCULACEAE
ANEMONELLA	see		THALICTRUM						RANUNCULACEAE
<i>Angelica atropurpurea</i> L.	Angelica	R	A few records, mainly along the Niagara River (e.g. "... found in the Parks ... at several marshy places along the River", Hamilton 1943). C.J. Rothfels #1482 (HAM) from Navy Island in 2004.	U6	C			S5	APIACEAE
<i>Anoda cristata</i> (L.) Schldl.	Crested Anoda	IH	Collected near St. Catharines in 1897 (Montgomery 1957).	--	--			SE1	MALVACEAE
<i>Antennaria howellii</i> E. Greene	Pussytoes	R	Status poorly known, though apparently rare. Reported from several sites (e.g. "... in great patches in the grasslands along the Boulevard between Niagara Falls and Paradise Grove" Hamilton 1943; P.M. Eckel, BUF, near Queenston in 1988). Perhaps somewhat overlooked due to the similarity with <i>A. neglecta</i> . = <i>Antennaria neodioica</i> .	R2	C			S5	ASTERACEAE
<i>Antennaria neglecta</i> E. Greene	Pussytoes	C	Common in dry, open situations.	C	--			S5	ASTERACEAE
<i>Antennaria parlinii</i> Fern. ssp. <i>fallax</i> (E. Greene) R.J. Bayer & Stebb.	Plantain-leaved Everlasting	U	Uncommon in dry open ground. = <i>A. plantaginifolia</i> .	C	U			S5	ASTERACEAE
<i>Anthemis arvensis</i> L.	Corn Chamomile	IR	Rare. Reported from several sites near Niagara Falls (e.g. Gregory 2005). M.J. Oldham #34352 (TRTE) from Port Colborne in 2007.	I	I			SE5	ASTERACEAE

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<i>Anthemis cotula</i> L.	Stinking Mayweed	IR	Rare weed of dry, open ground. M.J. Oldham #34904 (TRTE), from Wainfleet Wetlands Conservation Area in 2007.	I	I			SE5	ASTERACEAE
<i>Anthoxanthum odoratum</i> L.	Sweet Vernal Grass	IR	Rare in disturbed open ground. M.J. Oldham #23277 (DAO) from Marcy's Woods in 2000.	--	I			SE4	POACEAE
<i>Anthriscus cerefolium</i> (L.) Hoffm.	Wild Chervil	IH	A rare Eurasian introduction reported from Niagara (TRT) by Scoggan (1978-1979); no subsequent records.	--	--			SE1	APIACEAE
<i>Apera interrupta</i> (L.) Beauv.	Dense Silky-bent	IR	Collected along a railway line in Port Colborne in 2007 (M.J. Oldham #34349, DAO). See Oldham et al. (1985).	--	--			SE2	POACEAE
<i>Apios americana</i> Medikus	Groundnut	U	Uncommon.	U7	C			S5	FABACEAE
<i>Aplectrum hyemale</i> (Muhlenb. ex Willd.) Nutt	Putty-root	RH	Collected from Foster's Flats (Niagara Glen) in 1891 (J. Macoun #2663, CAN) and from the Niagara River Whirlpool in 1898 and 1899 (W. Scott, TRT); no subsequent Niagara reports.	RH	R5			S2	ORCHIDACEAE
<i>Apocynum androsaemifolium</i> L. ssp. <i>androsaemifolium</i>	Spreading Dogbane	C	Common.	C	C			S5	APOCYNACEAE
<i>Apocynum cannabinum</i> L. var. <i>cannabinum</i>	Indian Hemp	C	Common.	C	C			S5	APOCYNACEAE
<i>Apocynum cannabinum</i> L. var. <i>hypericifolium</i> A. Gray	Clasping-leaved Dogbane	R	W. Scott (TRT) from Niagara Falls in 1898. Collected from the Pt. Abino Peninsula by Macdonald (1990). = <i>Apocynum sibiricum</i>.	--	VU			S4?	APOCYNACEAE
<i>Aquilegia canadensis</i> L.	Wild Columbine	U	Uncommon in woodlands.	C	U			S5	RANUNCULACEAE
<i>Aquilegia vulgaris</i> L.	Garden Columbine	IR	Rare escape from cultivation, e.g. M.J. Oldham sight record from Niagara Glen in 2006; near St. Catharines in 1981 A.A. Reznicek in 1981 (pers. comm. 2010).	I	I			SE3	RANUNCULACEAE
<i>Arabidopsis lyrata</i> (L.) O'Kane & Al-Shehbaz	Lyre-leaved Rock-cress	R	Rare on sand dunes and in sandy open woodlands, also on calcareous rock along the Niagara River. M.J. Oldham #23281 (MICH) from Marcy's Woods in 2000. = <i>Arabis lyrata</i>.	--	U			S4	BRASSICACEAE

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<i>Arabidopsis thaliana</i> (L.) Heynh.	Mouse-ear Cress	IR	A rather rare weed, frequently of sandy sites. M.J. Oldham #23260 (TRT) from Marcy's Woods in 2000.	I	I			SE5	BRASSICACEAE
<i>ARABIS</i>	<i>see also</i>		<i>ARABIDOPSIS, BOECHERA, TURRITIS</i>						BRASSICACEAE
<i>Arabis caucasica</i> Schlecht.	Wall Rock-cress	IR	Spreading locally from gardens (P.M. Eckel #13285, BUF, near the Lewiston-Queenston International Bridge). = <i>Arabis alpina</i> ssp. <i>caucasica</i> .	I	--			SE2	BRASSICACEAE
<i>Arabis pycnocarpa</i> M. Hopkins var. <i>adpressipilis</i> (M. Hopkins) Al-Shehbaz	Hairy Rock-cress	RH	Heimbürger (1955) reports collections of var. <i>adpressipilis</i> from Niagara Glen in 1902 (Wm. Scott, TRT) and 1907 (T.J. Ivey, TRT), most other regional reports do not mention which variety is involved. Var. <i>adpressipilis</i> is provincially rare (Oldham and Brinker 2009) and has recently been collected in Hamilton (N. Iwanycki pers. comm.). = <i>Arabis hirsuta</i> var. <i>adpressipilis</i>.	R3	--			S1	BRASSICACEAE
<i>Arabis pycnocarpa</i> M. Hopkins var. <i>pycnocarpa</i>	Hairy Rock-cress	R	Rare, generally in sandy open woods. M.J. Oldham #23260 (TRTE) from Marcy's Woods in 2000. = <i>Arabis hirsuta</i> ssp. <i>pycnocarpa</i> .	R1	R1			S5	BRASSICACEAE
<i>Aralia hispida</i> Vent.	Bristly Sarsaparilla	R	Rare in southwestern Ontario and in Niagara known only from Wainfleet Bog (Macdonald 1992). M.J. Oldham #9267 (TRTE) in 1989.	--	R1			S5	ARALIACEAE
<i>Aralia nudicaulis</i> L.	Wild Sarsaparilla	C	Common in upland woods.	C	C			S5	ARALIACEAE
<i>Aralia racemosa</i> L. ssp. <i>racemosa</i>	Spikenard	U	Uncommon in rich wods.	C	C			S5	ARALIACEAE
<i>Aralia spinosa</i> L.	Hercules' Club	IH	Several early records from the Niagara Falls area (Cameron 1895; W. Scott, TRT, Niagara Falls in 1898). Hamilton (1943; as <i>A. spinosa</i>) reports that it " ... occurs at a few stations in the [Niagara Parks] System". According to Morton and Venn (1990), Ontario reports of <i>A. spinosa</i> are actually <i>A. elata</i> .	--	--			SE1	ARALIACEAE
<i>Arctium lappa</i> L.	Great Burdock	IU	Uncommon in open disturbed ground.	I	I			SE5	ASTERACEAE

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<i>Arctium minus</i> (Hill) Bernh.	Common Burdock	IC	Common weed of open disturbed ground. Both ssp. <i>minus</i> and ssp. <i>nemorosum</i> are reported in the NAI database, with the former being more common (268 reports vs. 14 reports).	I	I			SE5	ASTERACEAE
<i>Arctostaphylos uva-ursi</i> (L.) Sprengel	Bear-berry	RH	Many early reports from the Niagara Falls and Niagara Glen areas (e.g. Clinton 1864, Day 1882, Cameron 1895, Zenkert 1934, Hamilton 1943; T.J. Ivey, TRT, Niagara Glen in 1907), though no recent records. Also known historically from Point Abino (e.g. C.A. Zenkert, BUF, in 1931) though not seen in more recent surveys (e.g. Yaki 1970, Macdonald 1990).	--	R2			S5	ERICACEAE
<i>ARENARIA</i>	<i>see also</i>		<i>MOEHRINGIA</i>						CARYOPHYLLACEAE
<i>Arenaria serpyllifolia</i> L. var. <i>serpyllifolia</i>	Thyme-leaved Sandwort	IU	Uncommon European weed of disturbed open ground.	I	I			SE5	CARYOPHYLLACEAE
<i>ARGENTINA</i>	<i>see</i>		<i>POTENTILLA</i>						ROSACEAE
<i>Arisaema dracontium</i> (L.) Schott	Green Dragon	R	Rare in rich floodplain woods. M.J. Oldham #23293 (TRT) from Frenchman's Creek, Fort Erie, in 2000.	R4	VU	SC	SC	S3	ARACEAE
<i>Arisaema triphyllum</i> (L.) Schott ssp. <i>triphyllum</i>	Jack-in-the-pulpit	C	Common in woods.	C	C			S5	ARACEAE
<i>Aristida dichotoma</i> Michaux	Churchmouse Three-awn	IR	The first Ontario record of this species is an 1880 collection from Port Colborne (J.C. McRae, MTMG), which may have been from a native population, though no habitat data are recorded on the specimen. Refound in Ontario by Catling et al. (1977) in 1976 at a Fort Erie railway yard (P.M. Catling, CAN, DAO, TRT) where still present in 2007 (M.J. Oldham #34863, TRTE). Although this species is a rare native plant in southeastern Ontario (Brownell et al. 1996), there are currently no known native populations in the Niagara area.	--	--			S1	POACEAE

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<i>Aristida oligantha</i> Michaux	Prairie Three-awn	IR	A rare weed along railways (Oldham et al. 1995). Known in Ontario only from the Carolinian Zone, where first collected in 1976 by P.M. Catling and J.L. Riley (CAN, DAO, TRT) in a Fort Erie railway yard (Catling et al. 1977), and still present in 2007 (M.J. Oldham #34864, TRT).	I	--			SE2	POACEAE
<i>ARMORACEA</i>	<i>see also</i>		<i>RORIPPA</i>						BRASSICACEAE
<i>Armoracia rusticana</i> (Lam.) P. Gaertner, Meyer & Scherb.	Horseradish	IR	Rare weed of disturbed areas. M.J. Oldham # 35203 (HAM) in 2008. = <i>Armoracia lapathifolia</i> .	--	I			SE4	BRASSICACEAE
<i>Aronia melanocarpa</i> (Michaux) Elliott	Chokeberry	U	Uncommon in dry or moist woods, thickets, and openings. M.J. Oldham #23299 (MICH), Frenchman's Creek near Fort Erie, in 2000. A taxonomically difficult group, here including <i>Aronia prunifolia</i> and <i>Aronia arbutifolia</i> of regional reports. = <i>Photinia melanocarpa</i> .	C	U			S5	ROSACEAE
<i>Arrhenatherum elatius</i> (L.) P. Beauv. ex J.S. & C. Presl	Tall Oat Grass	IU	Uncommon in open, disturbed ground along roadsides and railways. M.J. Oldham #7843 (DAO) from Fort Erie in 1987.	I	--			SE4	POACEAE
<i>Artemisia absinthium</i> L.	Absinth	IR	A rare weed of roadsides and other open disturbed areas.	I	--			SE3?	ASTERACEAE
<i>Artemisia annua</i> L.	Annual Wormwood	IH	An infrequent introduction which apparently does not persist in Ontario (Montgomery 1957). W. Scott (TRT) from Niagara Falls in 1906.	--	--			SE1	ASTERACEAE
<i>Artemisia biennis</i> Willd.	Biennial Wormwood	IU	Uncommon weed of open disturbed sites, often on shorelines. M.J. Oldham #33902 (DAO, TRTE) from Dufferin Islands in 2006.	I	I			SE5	ASTERACEAE
<i>Artemisia campestris</i> L. ssp. <i>caudata</i> (Michaux) H.M. Hall & Clements	Sagewort Wormwood	R	A rare species of sandy areas along the Lake Erie shoreline. D. Goldman #2372 (HAM) from Marcy's Woods in 2002. = <i>Artemisia caudata</i>.	--	U			S4S5	ASTERACEAE
<i>Artemisia vulgaris</i> L.	Mugwort	IU	Uncommon weed of roadsides and other open disturbed areas.	I	I			SE5	ASTERACEAE

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<i>Asarum canadense</i> L.	Wild-ginger	C	Rare on the Haldimand Clay Plain, frequent only along escarpment woods or sandy ravines and valley slopes. Uncommon-common along the Niagara Escarpment and steep valley slopes of the Fonthill Delta Kame. On the clay plain, it is almost restricted to the Onondaga Escarpment and associated bedrock plains.	C	C			S5	ARISTOLOCHIACEAE
<i>Asclepias exaltata</i> L.	Poke Milkweed	R	Rare in open, often sandy woods. Very localized, and often only a few plants are found at each locality. Reported from four Niagara Escarpment sites by Riley et al. (1996). G.H. Hamilton (NFO, det. M.J. Oldham in 2007) from Niagara Glen in 1943.	C	C			S4	APOCYNACEAE
<i>Asclepias incarnata</i> L. ssp. <i>incarnata</i>	Swamp Milkweed	C	Common in open wet areas.	C	C			S5	APOCYNACEAE
<i>Asclepias quadrifolia</i> Jacq.	Four-leaved Milkweed	RH	Known historically from several sites along the Niagara River (CAN, DAO, MICH, TRT) though no records since 1956. Formerly "very abundant in the open woods opposite the [Niagara] Glen" (Hamilton 1943). Thought to be extirpated in Canada until rediscovered in southeastern Ontario in 2006.	--	--			S1	APOCYNACEAE
<i>Asclepias syriaca</i> L.	Common Milkweed	C	Common in more or less open disturbed areas.	C	C			S5	APOCYNACEAE
<i>Asclepias tuberosa</i> L.	Butterfly-weed	R	Rare in open, dry sandy areas. Most records are in the Niagara Falls area. M.J. Oldham #32892 (DAO) from Niagara Glen in 2006.	U6	C			S4	APOCYNACEAE
<i>Asclepias verticillata</i> L.	Whorled Milkweed	RH	Known from Niagara Falls and the Whirlpool since the late 1800s (Zenkert 1934) and seen there as recently as 1976 (A.A. Reznicek, TRTE). Not relocated during surveys in 1989 (Varga and Kor 1993) or 2006 (Oldham 2007).	--	R1			S4	APOCYNACEAE

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<i>Asclepias viridiflora</i> Raf.	Green Milkweed	RH	No specimens have been located to substantiate literature reports from the late 1800s from Niagara Falls (Macoun 1884) and the Niagara Parks System (Cameron 1895).	--	R2			S2	APOCYNACEAE
<i>Asimina triloba</i> (L.) Dunal	Pawpaw	R	A rare woodland shrub. Although historically recorded from several sites along the Niagara River, Niagara Escarpment and elsewhere in the region (Bowden and Miller 1951), recent records are few (e.g. M.J. Oldham #33974, DAO, from Navy Island in 2006). Many populations have been eliminated from the Niagara Region (Argus et al. 1982-1987).	--	R1			S3	ANNONACEAE
<i>Asparagus officinalis</i> L.	Garden Asparagus	IC	Common weed of open disturbed ground.	I	I			SE5	ASPARAGACEAE
<i>Asplenium platyneuron</i> (L.) Britton, Sterns & Poggenb.	Ebony Spleenwort	R	Rare and local in old fields, conifer plantations, and disturbed woods. Most common on the Niagara Escarpment. Appears to be spreading in the Great Lakes area (Wagner and Johnson 1981). C. Schaefer #91-17 (TRT) from Jordan Valley ANSI in 1991.	U7	U			S4	ASPLENIACEAE
<i>Asplenium rhizophyllum</i> L.	Walking Fern	R	Limestone boulders in woods along the Niagara Escarpment. S. Varga #91-58 (TRT) from Niagara Section Escarpment ANSI in 1991. = <i>Camptosorus rhizophyllum</i> .	U9	--			S4	ASPLENIACEAE
<i>Asplenium trichomanes</i> L. ssp. <i>quadrivalens</i> D.E. Mey.	Tetraploid Maidenhair Spleenwort	R	Limestone boulders and cliffs along the Niagara Escarpment. J. Jalava #91-73 (TRT) from Fifteen Mile Creek ANSI in 1991.	R2	--			S5	ASPLENIACEAE
ASTER	see		DOELLINGERIA, EURYBIA, SOLIDAGO, SYMPHYOTRICHUM						ASTERACEAE

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<i>Astragalus canadensis</i> L.	Canada Milk-vetch	R	Several early reports from the Niagara Falls area (Panton 1890, Cameron 1895, Hamilton 1943). A 2007 sight record (M.J. Oldham et al.) from Thunder Bay Beach on Lake Erie.	R4	R2			S4	FABACEAE
<i>Astragalus neglectus</i> (Torrey & A. Gray) Sheldon	Cooper's Milk-vetch	RH	Several early reports (e.g. Cameron 1895) and collections (e.g. M. Wilkes, TRT, in 1897) from the Niagara Falls, Niagara Glen, and Niagara River Whirlpool areas. No recent records. = <i>Astragalus cooperi</i> .	--	R2			S3	FABACEAE
<i>ATHYRIUM</i>	<i>see also</i>		<i>DEPARIA, DIPLAZIUM</i>						WOODSIACEAE
<i>Athyrium filix-femina</i> (L.) Roth ssp. <i>angustum</i> (Willd.) Clausen	Northeastern Lady Fern	C	A common woodland fern.	C	C			S5	WOODSIACEAE
<i>Atriplex heterosperma</i> Bunge	Russian Atriplex	IR	Locally common weed along Hwy. 401 in the Toronto to Kingston area. Probably increasing and spreading along roadways. First collected in Niagara in 2006 (M.J. Oldham #33946, DAO, Hwy. 405 at Portage Road). = <i>Atriplex micrantha</i> .	--	--			SE4	AMARANTHACEAE
<i>Atriplex patula</i> L.	Spearscale	IU	An uncommon weed of disturbed open sites. Although sometimes considered native (e.g. Morton and Venn 1990) it invariably occurs in disturbed habitats and is treated as a relatively recent introduction from Eurasia by Bassett et al. (1983) and FNA (Vol. 4, 2003). Regional records of <i>Atriplex littoralis</i> and <i>A. dioica</i> (= <i>A. subspicata</i>) require further verification of specimens and may be based on atypical plants of <i>A. patula</i> .	U6	I			SE5	AMARANTHACEAE

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<i>Atriplex prostrata</i> Boucher ex DC.	Halberd-leaved Atriplex	IR	A weedy halophyte of roadsides and other moist open disturbed ground. Known from several early records (e.g. Cameron 1895, Hamilton 1943; W. Scott (TRT) from Niagara Falls in 1898), but no recent reports, though quite likely still present in the region. = <i>Atriplex hastata</i> of regional reports.	R3	--			S5	AMARANTHACEAE
<i>Atriplex rosea</i> L.	Saltbush	IH	The only regional record is a 1911 report from Lincoln County (Montgomery 1957).	--	--			SE1	AMARANTHACEAE
<i>Aureolaria flava</i> (L.) Farw.	Yellow False Foxglove	RH	Rare in rich, sandy upland woods. Known from early records from various sites (Niagara Gorge, Niagara River Whirlpool, Queenston, Jordan Station, Niagara Falls; Cameron 1895, Zenkert 1934, Soper 1962; specimens at CAN, OAC, QK, TRT), though the only relatively recent Niagara record is from 1979 (S. Varga, TRT) at the Niagara Section Escarpment ANSI (Varga et al. 1992). = <i>Gerardia flava</i>.	R3	RH			S2?	OROBANCHACEAE
<i>Aureolaria pedicularia</i> (L.) Raf.	Fern-leaved False Foxglove	RH	Formerly "abundant in the woods at Paradise Grove" (Hamilton 1943), and collected at Niagara-on-the-Lake (perhaps at Paradise Grove) as recently as 1952 (B. Miller, HAM). Also known historically from St. Catharines (W.C. McCalla, CAN, in 1897), Queenston (W. Scott, TRT, in 1898), and Jordan Harbour (J.E. Simmon, TRT, in 1937). No regional reports since 1952. = <i>Gerardia pedicularia</i>.	R1	R4			S2?	OROBANCHACEAE

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<i>Aureolaria virginica</i> (L.) Pennell	Downy False Foxglove	RH	Formerly "very common in the woods between the School and Brock's Monument" (Hamilton 1943). Historically known from Niagara Glen, where last collected in 1939 (NFO, det. M.J. Oldham 2006), and St. Davids where last collected in 1945 (W.J. Cody, DAO, TRT). No regional reports since 1945. = <i>Gerardia virginica</i> .	R2	R1			S1	OROBANCHACEAE
<i>Avena fatua</i> L.	Wild Oats	IR	A rare weed which does not persist for long outside cultivation in southern Ontario. Reported by Panton (1890) from Queen Victoria Park, Niagara Falls, and seen at three sites in Wainfleet Township during NAI fieldwork (NAI database).	--	I			SE3	POACEAE
<i>Avena sativa</i> L.	Cultivated Oats	IH	Rare remnant from cultivation, usually not persisting. The only regional record is a report by Hamilton (1943) "... known to occur in the Parks".	--	C			SE3	POACEAE
<i>Azolla caroliniana</i> Willd.	Mosquito Fern	R	A small free-floating aquatic fern collected by C. Rothfels from Jordan Harbour (HAM) in 2002 and by A. Garofalo from Lyon's Creek in 2007 (HAM). Found in 2006 from Black Creek near the QEW in Fort Erie where the species overwintered and persisted through at least two growing seasons. Since there are no historical records from the Niagara R.M. (though there are from adjacent New York state, Eckel 2001), these records might represent recent colonizations, perhaps due to transport by waterfowl. <i>Azolla</i> is also common in the aquatic garden trade and recent records may be due to throwouts from ponds or aquaria.	R1	--			S1?	SALVINIACEAE

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<i>Baptisia tinctoria</i> (L.) R. Br.	Yellow Wild-indigo	RH	The only verified regional record is a J. Dearness collection (DAO) from Niagara-on-the-lake in 1891.	--	RH			S2	FABACEAE
<i>Barbarea vulgaris</i> R. Br.	Winter Cress	IC	Common weed.	I	I			SE5	BRASSICACEAE
<i>Bartonia virginica</i> (L.) Britton, Sterns & Poggenb.	Virginia Bartonia	R	Known in Niagara only from Wainfleet Bog, where first reported by Yaki (1970) and collected (MTMG) in 1976 and 1989 by I.D. Macdonald (1992). Seen recently at Wainfleet Bog (M. Browning pers. comm. 2010).	--	R1			S2	GENTIANACEAE
<i>Bellis perennis</i> L.	English Daisy	IR	Rare lawn weed. M.J. Oldham #34036 (DAO) from the Niagara Parkway in 2007.	--	--			SE5	ASTERACEAE
<i>Berberis aquifolium</i> Pursh	Oregon Grape	IR	The only regional record is from Fifteen-Sixteen Mile Creek Valleys ANSI in 1991 (J.V. Jalava, TRT; Jalava et al. 1992). = <i>Mahonia aquifolia</i> .	I	--			SE1	BERBERIDACEAE
<i>Berberis thunbergii</i> DC.	Japanese Barberry	IC	Fairly common weed in disturbed woods.	I	I			SE5	BERBERIDACEAE
<i>Berberis vulgaris</i> L.	Common Barberry	IC	Fairly common weed in disturbed woods, though much less common locally than <i>B. thunbergii</i> .	I	I			SE5	BERBERIDACEAE
<i>Berteroa incana</i> (L.) DC.	Hoary False Madwort	IR	Rare weed of disturbed open ground. First Niagara report from Port Colborne in 2007 (M.J. Oldham #34340, DAO).	I	I			SE5	BRASSICACEAE
<i>Betula alleghaniensis</i> Britton	Yellow Birch	C	Common forest tree, often occurring as a co-dominant with Sugar Maple. On moister sites, often with Hemlock. = <i>Betula lutea</i> .	C	C			S5	BETULACEAE

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<i>Betula lenta</i> L.	Cherry Birch	R	An endangered species known in Canada only from Port Dalhousie, where still present, and historically from the Niagara Glen (R. Dell, NFO, in 1953; T. Laviolette, NFO, in 1979; both det. M.J. Oldham 2007). Recent attempts to relocate the species at Niagara Glen have been unsuccessful (Oldham 2007), however the species may still be present in woods along the Niagara River or elsewhere in the Region. See COSEWIC (2006b). Similar to <i>Betula alleghaniensis</i> .	--	--	END	END	S1	BETULACEAE
<i>Betula papyrifera</i> Marshall	Paper Birch	C	Common woodland tree.	C	C			S5	BETULACEAE
<i>Betula pendula</i> Roth	Weeping Birch	IU	An uncommon weed of moist open areas such as abandoned gravel pits. Sometimes also in woodland edges near suburban areas. Occasionally an aggressive weed in natural areas, such as Wainfleet Bog (Jonsson-Ninniss and Middleton 1991).	I	--			SE4	BETULACEAE
<i>Bidens beckii</i> Torrey ex Sprengel	Aquatic Beggarticks	RH	Old records only: Ontario: "Niagara River above the falls. (David F. Day.) Chippewa (MacLagan.)" Macoun (1884). Niagara Parks System, Cameron (1895). "'... reported from the Parks" Hamilton (1943). = <i>Megalodonta beckii</i> .	R1	R1			S5	ASTERACEAE
<i>Bidens cernua</i> L.	Nodding Beggarticks	C	Common in wetlands. Local reports of <i>Bidens laevis</i> (e.g. Day 1888, Panton 1890, Cameron 1895), a species not reliably known from Ontario (Morton and Venn 1990), probably belong here.	C	C			S5	ASTERACEAE

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<i>Bidens connata</i> Muhlenb.	Connate Beggar-ticks	DD	Local status poorly known due to confusion with other <i>Bidens</i> species, particularly <i>B. tripartita</i> within which it is often included (e.g. Morton and Venn 1990). If treated as a single species (<i>Bidens tripartita</i>), this entity is common in Niagara, however if treated as two separate species (as is done in FNA Vol. 21) the relative abundance of <i>B. connata</i> and <i>B. tripartita</i> is poorly known, though both are reliably known to occur in the Region. M.J. Oldham #23153 (MICH) from Marcy's Woods in 1999.	?	?			S4?	ASTERACEAE
<i>Bidens discoidea</i> (Torrey & A. Gray) Britton	Small Beggarticks	R	Rare, but easily overlooked, primarily in wooded swamps. Similar to the more common <i>B. frondosus</i>. Considered rare in Ontario by Argus et al. (1982-1987), but the discovery of additional populations has resulted in its removal from the list of provincially rare plants (Oldham and Brinker 2009).	R3	U			S4	ASTERACEAE
<i>Bidens frondosa</i> L.	Devil's Beggarticks	C	Common in wetlands.	C	C			S5	ASTERACEAE
<i>Bidens trichosperma</i> (Michaux) Britton	Southern Tickseed	R	Rare in open wetlands. M.J. Oldham #8784 (DAO, TRTE) from Wainfleet Bog in 1988. = <i>Bidens coronata</i>.	--	U			S2	ASTERACEAE
<i>Bidens tripartita</i> L.	Beggarticks	DD	Local status poorly known due to confusion with other <i>Bidens</i> species, particularly <i>B. connata</i> with which it is often combined (e.g. Morton and Venn 1990). If treated as a single species (<i>Bidens tripartita</i>), this entity is common in Niagara, however if treated as two separate species (as is done in FNA Vol. 21) the relative abundance of <i>B. connata</i> and <i>B. tripartita</i> is poorly known, though both are reliably known to occur in the Region. M.J. Oldham #23189 (MICH) from near Port Colborne in 1999. = <i>Bidens comosa</i> .	C	C			S5	ASTERACEAE
<i>Bidens vulgata</i> E. Greene	Tall Beggarticks	U	Wetlands.	C	C			S5	ASTERACEAE

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<i>BILDERDYKIA</i>	<i>see</i>		<i>POLYGONUM</i>						POLYGONACEAE
<i>Boechera canadensis</i> (L.) Al-Shehbaz	Sickle-pod	R	Rare in woods, particularly on the Escarpment. B. Larson #91-491 (TRT) from Beamsville Escarpment in 1991. = <i>Arabis canadensis</i> .	U9	VU			S4	BRASSICACEAE
<i>Boechera grahamii</i> (Lehmann) Windham & Al-Shehbaz	Divaricate Rock- cress	R	Rare in rocky woods. Several collections from Niagara Glen at TRT, most recently from 1950. Also known from Point Abino (Macdonald 1990). = <i>Arabis divaricarpa</i> of regional reports.	R3	--			S5	BRASSICACEAE
<i>Boechera laevigata</i> (Muhlenb. ex Willd.) Al-Shehbaz	Smooth Rock-cress	U	Uncommon in woods. Reported from 11 of 16 Niagara Escarpment sites (Riley et al. 1996) and several sites along the Niagara River (Oldham 2007), rare elsewhere and not encountered during NAI surveys (NAI database). = <i>Arabis laevigata</i> .	U6	C			S5	BRASSICACEAE
<i>Boechera stricta</i> (Graham) Al-Shehbaz	Drummond's Rock- cress	R	Old records from the Niagara Falls area and recent records from Point Abino (Macdonald 1990) and Macy's Woods (M.J. Oldham #23280, MICH, in 2000). = <i>Arabis drummondii</i> .	--	R1			S4	BRASSICACEAE
<i>Boehmeria cylindrica</i> (L.) Sw.	False-nettle	C	A fairly common species of moist shaded woods.	C	C			S5	URTICACEAE
<i>Bolboschoenus fluviatilis</i> (Torrey) Sojak	Bulrush	R	Marshes and shorelines, where typically uncommon or rare. Colonies are frequently entirely vegetative making it easily overlooked. M.J. Oldham #32719 (MICH) from Windmill Point in 2006. = <i>Schoenoplectus fluviatilis</i> , <i>Scirpus fluviatilis</i> .	R3	VU			S4	CYPERACEAE
<i>Botrychium dissectum</i> Sprengel	Dissected Grapefern	U	Both the dissected-leaved (forma <i>dissectum</i>) and entire-leaved (forma <i>obliquum</i>) forms are known from Niagara.	U9	C			S5	OPHIOGLOSSACEAE
<i>Botrychium lanceolatum</i> (S. Gmelin) Angstrom ssp. <i>angustisegmentum</i> (Pease & Moore) Clausen	Narrow Triangle Moonwort	R	An 1893 collection from Niagara Falls (R. Cameron, CAN) and reported from Short Hills Sanctuary (Rabenda 1991).	--	R3			S3?	OPHIOGLOSSACEAE

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<i>Botrychium matricariifolium</i> (Doll) A. Braun	Daisy-leaf Moonwort	R	Locally common in woodlands in parts of southern Ontario though apparently rare in Niagara. Reported by Cameron (1895) from Queen Victoria Park, Niagara Falls, though a specimen reportedly collected by Cameron (NFO, ca. 1891; Eckel 2001) could not be located during a 2007 search of the NFO herbarium. The only known recent record is a collection by S. Brinker from woods north of Long Beach Conservation Area in 2008. Small and easily overlooked.	--	C			S4S5	OPHIOGLOSSACEAE
<i>Botrychium multifidum</i> (S. Gmelin) Rupr.	Leather Grapefern	R	Early reports from the Niagara River area (Day 1888, Cameron 1895); more recently reported from North Pelham Valley (Short Hills Wilderness Area) by Campbell (1982), based on a 1979 survey. Observed by I.D. Macdonald at Point Abino (Macdonald 1990). Reported from one site in Wainfleet Township during NAI fieldwork in 2008 (NAI database).	R3	VU			S5	OPHIOGLOSSACEAE
<i>Botrychium oneidense</i> (Gilbert) House	Blunt-lobed Grapefern	R	Post-1980 collection by D.A. Sutherland (#8326) from Niagara Region (pers. comm.). Known from Caistor-Canborough Slough Forest in adjacent Haldimand County (M.E. Gartshore #85-295; TRTE).	R1	U			S3?	OPHIOGLOSSACEAE
<i>Botrychium simplex</i> E. Hitchc.	Least Moonwort	R	Post-1980 collection by D.A. Sutherland (#8555) from Niagara Region (pers. comm.). Known from Caistor-Canborough Slough Forest in adjacent Haldimand County (D.A. Sutherland #7282; TRTE).	R1	VU			S4?	OPHIOGLOSSACEAE
<i>Botrychium virginianum</i> (L.) Sw.	Rattlesnake Fern	U	Scattered in woods throughout the region.	C	C			S5	OPHIOGLOSSACEAE
<i>BRACHYACTIS</i>	<i>see</i>		<i>SYMPHYOTRICHUM</i>						ASTERACEAE

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<i>Brachyelytrum aristosum</i> (Michaux) Trel.	Bearded Shorthusk	DD	Mapped from the region by Dore and McNeill (1980) and collected at Point Abino by I.D. Macdonald in 1988 (Macdonald 1990). Status in the region poorly known due to confusion with <i>B. erectum</i> . = <i>Brachyelytrum erectum</i> var. <i>glabratum</i> .	?	?			S4S5	POACEAE
<i>Brachyelytrum erectum</i> (Schreber) P. Beauv.	Bearded Shorthusk	DD	Status in the region poorly known due to confusion with <i>B. aristosum</i> , which was formerly considered a variety (var. <i>glabratum</i>) of <i>B. erectum</i> . Both taxa are mapped from the region by Dore and McNeill (1980) and a recent collection from Marcy's Woods is <i>B. erectum</i> (M.J. Oldham #22207, DAO, in 1999). If records of both species are combined there are more than 20 recent record for the region (i.e. would be common).	R4	C			S4S5	POACEAE
<i>Brasenia schreberi</i> J. Gmelin	Water-shield	RH	Reported from Wainfleet Bog by Auer (1930) and from the Niagara Peninsula by Heimburger (1955). No recent records.	--	R1			S5	CABOMBACEAE
<i>BRASSICA</i>	<i>see also</i>		<i>SINAPIS</i>						BRASSICACEAE
<i>Brassica juncea</i> (L.) Czernj.	Indian Mustard	IH	Rare weed, with several early records (e.g. W. Scott, TRT, from Queenston Heights in 1896) but no recent reports.	I	--			SE5	BRASSICACEAE
<i>Brassica napus</i> L.	Turnip	IR	Rare weed (M.J. Oldham #34058, DAO, from Port Colborne in 2008).	I	--			SE1	BRASSICACEAE
<i>Brassica nigra</i> (L.) Koch	Black Mustard	IR	Rare weed.	I	I			SE5	BRASSICACEAE
<i>Brassica rapa</i> L.	Field Mustard	IR	Rare weed.	I	--			SE5	BRASSICACEAE
<i>Briza media</i> L.	Quaking Grass	IR	A rare introduction which does not persist; most records are old. Reported from Niagara Gorge by Riley et al. (1996).	--	--			SE1	POACEAE
<i>Bromus ciliatus</i> L.	Fringed Brome	R	Rare in wetlands and moist woods. C.J. Rothfels #1483 (HAM) from Navy Island in 2004.	U6	U			S5	POACEAE
<i>Bromus commutatus</i> Schrader	Hairy Chess	IU	Uncommon weed of open disturbed ground. M.J. Oldham #9265 (DAO) from Wainfleet Bog in 1989.	I	I			SE4	POACEAE

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<i>Bromus erectus</i> Hudson	Upright Brome	IH	A report from Beamer Conservation Area (Putnam 1975) is the only regional record.	--	--			SE1	POACEAE
<i>Bromus hordeaceus</i> L. ssp. <i>hordeaceus</i>	Soft Chess	IR	Rare weed of disturbed open areas. Some or all records may be of ssp. <i>pseudothominii</i> or <i>Bromus</i> x <i>pseudothominei</i> (see Oldham et al. 1995). M.J. Oldham #34338 (DAO) from Port Colborne in 2007.	I	I			SE2?	POACEAE
<i>Bromus hordeaceus</i> L. ssp. <i>pseudothominei</i> P.M. Smith ex H. Scholz	Soft Chess	IR	Rare in disturbed ground (Oldham et al. 1995). M.J. Oldham #8181 (DAO) from Queenston in 1988. Considered to be a hybrid between <i>B. hordeaceus</i> and <i>B. lepidus</i> by some authors. = <i>Bromus</i> x <i>pseudothominii</i> .	hyb	--			SE2	POACEAE
<i>Bromus inermis</i> Leysser	Smooth Brome	IC	Abundant and widespread weed of open areas.	I	I			SE5	POACEAE
<i>Bromus japonicus</i> Thunb. ex Murray	Japanese Brome	IR	Rare weed of open disturbed ground. M.J. Oldham #3556 (DAO, TRTE) from Niagara Falls in 1983.	I	I			SE4	POACEAE
<i>Bromus kalmii</i> A. Gray	Kalm's Brome	RH	Several early reports from the Niagara Gorge (Day 1888, Zenkert 1934, Hamilton 1943) and mapped from the area by Dore and McNeill (1980). No recent records. G. Hamilton (NFO) from near Niagara Falls in 1941 (Eckel 2001).	R3	R1			S4	POACEAE
<i>Bromus latiglumis</i> (Shear) A.S. Hitchc.	Tall Brome	R	Rare, usually in floodplain woods. C. Schaefer #91-36 (TRT) from Jordan Valley ANSI in 1991.	R5	U			S4	POACEAE
<i>Bromus nottowayanus</i> Fern.	Nottoway Brome	RH	A single old specimen (F.W. Johnson, NY, from Niagara Glen in 1922; cited in Wagnon 1952) is the only confirmed Niagara record.	--	--			S1S2	POACEAE
<i>Bromus pubescens</i> Muhlenb. ex Willd.	Canada Brome	U	Uncommon in rich open woods.	U7	U			S4	POACEAE
<i>Bromus secalinus</i> L. ssp. <i>secalinus</i>	Cheat	IR	Rare weed.	I	I			SE4	POACEAE
<i>Bromus sterilis</i> L.	Barren Chess	IR	Collected in 1990 from Wainfleet Bog by I.D. Macdonald (Macdonald 1990).	--	--			SE1	POACEAE

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<i>Bromus tectorum</i> L.	Downy Chess	IU	Uncommon weed of dry, often sandy open ground.	I	I			SE5	POACEAE
<i>Buglossoides arvensis</i> (L.) I.M. Johnston	Corn Gromwell	IR	Rare weed. M.J. Oldham #34348 (DAO) from Port Colborne in 2007. = <i>Lithospermum arvense</i> .	I	I			SE5	BORAGINACEAE
<i>Bulbostylis capillaris</i> (L.) Kunth ex C.B. Clarke	Hair-like Bulbostylis	IR	First found in Niagara in 2007 where observed growing in railway cinders in a Fort Erie railway yard by M.J. Oldham and S. Brinker.	--	--			S4	CYPERACEAE
<i>Butomus umbellatus</i> L.	Flowering-rush	IU	Uncommon wetland weed.	I	I			SE5	BUTOMACEAE
<i>Cakile edentula</i> (Bigelow) Hook. var. <i>lacustris</i> Fern.	Sea Rocket	R	A rare species of sandy Great Lakes shores (Guire and Voss 1963), with var. <i>lacustris</i> being a Great Lakes endemic. In Niagara known from both the Lake Erie and Lake Ontario shores. M.J. Oldham #18121 (TRTE) from Niagara-on-the-Lake in 1995.	R2	U			S4	BRASSICACEAE
<i>Calamagrostis canadensis</i> (Michaux) P. Beauv	Canada Blue-joint	C	An abundant and widespread plant of open wetlands.	C	C			S5	POACEAE
CALAMINTHA	see		CLINOPODIUM						LAMIACEAE
<i>Calla palustris</i> L.	Wild Calla	R	Rare in swamps.	C	U			S5	ARACEAE
<i>Callitriche heterophylla</i> Pursh ssp. <i>heterophylla</i>	Water-starwort	RH	A Macoun collection from "Niagara" in 1901 (GH) is cited by Fassett (1951). No other reports.	--	R2			S2?	PLANTAGINACEAE
<i>Callitriche verna</i> L.	Common Water-starwort	RH	Several early records from the Niagara River (e.g. W. Scott (TRT) from Niagara Falls in 1897) and listed for North Pelham Valley (Short Hills Wilderness Area) by Campbell (1982) based on a 1979 survey; no recent reports. = <i>Callitriche palustris</i> .	U8	--			S5	PLANTAGINACEAE
<i>Calopogon tuberosus</i> (L.) Britton, Sterns & Poggenb.	Grass-pink	RH	Collected by A. Chamot (BUF) at Point Abino in 1880 or 1888 (Macdonald 1990). No other reports. = <i>Calopogon pulchellus</i> .	R1	R1			S4S5	ORCHIDACEAE
<i>Caltha palustris</i> L.	Marsh-marigold	U	Uncommon in wetlands.	C	C			S5	RANUNCULACEAE
<i>Calystegia sepium</i> (L.) R. Br.	Hedge Bindweed	C	Common. Subspecific identity of Niagara plants is uncertain. = <i>Convolvulus sepium</i> .	C	C			S5	CONVOLVULACEAE

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<i>Calystegia spithamea</i> (L.) R. Br. ssp. <i>spithamea</i>	Low Bindweed	RH	Several early records from along the Niagara River (Day 1888, Cameron 1895, Zenkert 1934). No recent reports. = <i>Convolvulus spithameus</i> .	R1	U			S4	CONVOLVULACEAE
<i>Camelina microcarpa</i> Andrz. ex DC.	Small-seeded False Flax	IR	Rare weed. Reported by McIntosh and Catling (1979). M.J. Oldham #34143 (DAO) from Niagara Falls in 2007.	I	I			SE5	BRASSICACEAE
<i>Camelina sativa</i> (L.) Crantz	False Flax	IR	A rare weed known in Ontario primarily from historic records. Reported from the Niagara Parks System by Cameron (1895).	I	--			SE3	BRASSICACEAE
<i>Campanula americana</i> L.	Tall Bellflower	R	Rare in rich woods. Noted as "abundant at the lower end of the Ox-trail, in the [Niagara] Glen" by Hamilton (1943), though not seen in recent surveys (Varga and Kor 1993, Oldham 2007). W. Scott (TRT) from Queenston in 1898.	U9	R1			S4	CAMPANULACEAE
<i>Campanula aparinoides</i> Pursh	Marsh Bellflower	R	Rare. Reported by Panton (1890), Cameron (1895), Zenkert (1934), Hamilton (1943), Macdonald (1990), Jonsson-Ninniss and Middleton (1991), and others, though few recent records. A.C. Garofalo #08-1038 (HAM) from Lyon's Creek in 2008. = <i>Campanula uliginosa</i> .	R5	U			S5	CAMPANULACEAE
<i>Campanula rapunculoides</i> L.	Creeping Bellflower	IR	A rare escape from cultivation, primarily along roadsides.	I	I			SE5	CAMPANULACEAE
<i>Campanula rotundifolia</i> L.	Harebell	R	Several early reports from the Niagara River (Cameron 1895, Zenkert 1934, Hamilton 1943, Yaki 1970). Reported from the Niagara Glen as recently as 1989 (Varga and Kor 1993), though not seen there more recently (Oldham 2007) and no other regional reports. C.A. Zenkert (BUF) from Niagara River Whirlpool in 1931.	U6	U			S5	CAMPANULACEAE

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<i>Campsis radicans</i> (L.) Seemann ex Bureau	Trumpet Creeper	IR	Probably not native in Niagara (e.g. not mapped from Niagara by Argus et al. 1982-1987). Reported from Short Hills Provincial Park by Riley et al. (1996). Niagara Falls railway yard where undoubtedly not native (M.J. Oldham #34940, DAO, in 2007).	--	--			S2?	BIGNONIACEAE
<i>CAMPTOSORUS</i>	<i>see</i>		<i>ASPLENIUM</i>						ASPLENIACEAE
<i>Cannabis sativa</i> L.	Marijuana	IR	A rare weed, seldom persisting from cultivation. Most records are based on recent plantings in natural areas. A.C. Garofalo #08-1138 (HAM) from Short Hills in 2008.	--	I			SE1	CANNABACEAE
<i>Capsella bursa-pastoris</i> (L.) Medik.	Shepherd's-purse	IC	Abundant European weed.	I	I			SE5	BRASSICACEAE
<i>Caragana arborescens</i> Lam.	Siberian Peashrub	IR	Rare escape from cultivation. Single NAI database report from Niagara-on-the-Lake in 2004.	--	--			SE2	FABACEAE
<i>Cardamine bulbosa</i> (Schreber ex Muhl.) Britton, Sterns & Pogg.	Spring Cress	R	Rare in moist woods. B. Larson #91-10 (TRT) from 16 Mile Creek ANSI in 1991.	C	U			S4	BRASSICACEAE
<i>Cardamine concatenata</i> (Michaux) Schwein.	Cut-leaved Toothwort	U	Uncommon in woods; most common on the Niagara Escarpment. = <i>Dentaria laciniata</i> .	C	U			S5	BRASSICACEAE
<i>Cardamine diphylla</i> (Michaux) Wood	Two-leaved Toothwort	U	Uncommon in woods; most common on the Niagara Escarpment. = <i>Dentaria diphylla</i> .	C	C			S5	BRASSICACEAE
<i>Cardamine douglassii</i> (Torrey) Britton	Purple Spring Cress	R	Uncommon in moist woods.	C	U			S4	BRASSICACEAE
<i>Cardamine hirsuta</i> L.	Hairy Bitter-cress	IU	An uncommon weed of open disturbed areas. Small and early flowering, therefore easily overlooked. M.J. Oldham #32347 (TRT) from Niagara Parkway south of Niagara-on-the-Lake in 2006	I	I			SE3	BRASSICACEAE
<i>Cardamine maxima</i> (Nutt.) Alph. Wood	Large Toothwort	R	Rare in woods, primarily on the Niagara Escarpment. Sometimes considered to be of hybrid origin based on <i>C. concatenata</i> and <i>C. diphylla</i>. = <i>Cardamine X maxima</i>, <i>Dentaria X maxima</i>.	C	--			S2S3	BRASSICACEAE

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<i>Cardamine pensylvanica</i> Muhlenb. ex Willd.	Pennsylvania Bitter-cress	U	Uncommon in moist areas; sometimes weedy. J. Jalava #91-81 (TRT) from 15 Mile Creek ANSI in 1991.	C	U			S5	BRASSICACEAE
<i>Cardamine pratensis</i> L.	Cuckoo Flower	R	Moist areas. Some or all records may be based on escapes from cultivation. Not reported in the numerous early botanical surveys of the Niagara Falls area (Eckel 2001). M.J. Oldham #23276 (MICH, TRTE) from Marcy's Woods in 2000.	R1	VU			S5	BRASSICACEAE
CARDARIA	see		LEPIDIUM						BRASSICACEAE
<i>Carduus acanthoides</i> L.	Plumeless Thistle	IR	Reported from Mountainview-Valentino Escarpment by Riley et al. (1996).	I	I			SE5	ASTERACEAE
<i>Carduus crispus</i> L.	Wetted Thistle	IR	A 2008 NAI sight record from Welland Township (NAI database).	--	--			SE1	ASTERACEAE
<i>Carduus nutans</i> L. ssp. <i>nutans</i>	Nodding Thistle	IR	Sight record in 1991 from Fifteen-Sixteen Mile Creek Valleys ANSI (Jalava et al. 1992).	I	I			SE5	ASTERACEAE
<i>Carex albicans</i> Willd. ex Sprengel var. <i>albicans</i>	Sedge	U	Moist or dry sandy woods. Known from about 11 recent sites in the Region. M.J. Oldham #32360 (MICH) from Niagara Glen in 2006. = <i>Carex artitecta</i>.	R4	R1			S3	CYPERACEAE
<i>Carex albicans</i> Willd. ex Sprengel var. <i>emmonsii</i> (Dewey ex Torr.) J. Rettig	Emmons' Sedge	R	Known in the region only from Wainfleet Bog, where it was first discovered in Ontario (Rezicek and Catling 1984). Still present and locally common particularly along trails through the bog. M.J. Oldham #35218 (HAM) from Wainfleet Bog in 2008. = <i>Carex emmonsii</i>.	--	--			S2	CYPERACEAE
<i>Carex albursina</i> E. Sheldon	White-bear Sedge	U	Uncommon in rich upland woods.	C	U			S5	CYPERACEAE
<i>Carex alopecoidea</i> Tuckerman	Foxtail Sedge	R	Rare and local in moist open or lightly wooded areas. M.J. Oldham #32691 (MICH) from Paradise Grove in 2006.	U7	U			S5	CYPERACEAE
<i>Carex amphibola</i> Steudel	Narrow-leaf Sedge	R	Rare in moist woods. M.J. Oldham #92875 (DAO, MICH, TRTE) from Humberstone Marsh in 1989. Very similar to <i>Carex grisea</i> (<i>C. amphibola</i> var. <i>turgida</i>).	--	--			S2	CYPERACEAE

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<i>Carex annectens</i> (E. Bickn.) E. Bickn.	Yellow-fruit Sedge	R	Rare in dry, open ground. The only verified regional report is from (M.J. Oldham #34283, MICH, TRTE, in 2007). A report from Navy Island (Eckel 2001) is based on a misidentified collection of <i>C. vulpinoidea</i> (NFO, det. M.J. Oldham 2007), a very similar species.	--	--			S2	CYPERACEAE
<i>Carex appalachica</i> J. Webber & P.W. Ball	Appalachian Sedge	R	A rare sedge of wooded ravines and upland deciduous woods, most common near Lake Erie. Collected by Macoun (CAN) from the vicinity of Niagara Falls in 1882, though not seen in the area since. Similar to the common species <i>C. radiata</i> and <i>C. rosea</i> (Webber and Ball 1984). M.J. Oldham #32648 (MICH) from Niagara Shores Park on Lake Ontario in 2006.	--	R2			S2S3	CYPERACEAE
<i>Carex aquatilis</i> Wahlenb.	Water Sedge	R	Rare in open wetlands. C.J. Rothfels #1466 (HAM) from Navy Island in 2004.	R3	U			S5	CYPERACEAE
<i>Carex arctata</i> Boott	Compressed Sedge	R	Rare in upland woods. M.J. Oldham #32637 (MICH) from Paradise Grove in 2006.	C	C			S5	CYPERACEAE
<i>Carex aurea</i> Nutt.	Golden-fruit Sedge	U	Uncommon in open, moist ground such as wet meadows, ditches, and quarry bottoms. M.J. Oldham #8180 (MICH) from Queenston in 1988.	C	U			S5	CYPERACEAE
<i>Carex backii</i> F. Boott	Back's Sedge	RH	No specimen has been located to substantiate an early report from the Niagara Parks System (Cameron 1895). Collected from the Niagara Section Escarpment ANSI by P.W. Ball (TRTE; pers. comm. 2010) in 1979.	--	R2			S4S5	CYPERACEAE
<i>Carex bebbii</i> (L. Bailey) Olney ex Fern.	Bebb's Sedge	C	Common, usually in moist, more or less open places.	C	C			S5	CYPERACEAE

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<i>Carex billingsii</i> (O. W. Knight) C. D. Kirschbaum	Billing's Three-seeded Sedge	R	Collected in 1980 from Wainfleet Bog (P.M. Catling, DAO) and unlikely to be found elsewhere in the region. A report of <i>Carex trisperma</i> from Wainfleet Bog (Macdonald 1992) is based on a specimen (TRTE) of <i>Carex billingsii</i> (P.W. Ball, pers. comm. 2010). Recently recognized as a distinct species (Kirschbaum 2007). = <i>Carex trisperma</i> var. <i>billingsii</i> .	R1	--			S4	CYPERACEAE
<i>Carex blanda</i> Dewey	Woodland Sedge	C	A common species, usually in woodlands. Most abundant in the Carolinian Zone, where it is probably the commonest woodland sedge.	C	C			S5	CYPERACEAE
<i>Carex brevior</i> (Dewey) Mackenzie ex Lunell	Short-headed Sedge	RH	No specimens have been located to substantiate early reports from the Niagara River area (Day 1888, Panton 1890, Hamilton 1943), which might be based on misidentifications.	--	VU			S4S5	CYPERACEAE
<i>Carex bromoides</i> Schkuhr ex Willd. ssp. <i>bromoides</i>	Brome-like Sedge	C	Locally common in moist swampy woods.	C	C			S5	CYPERACEAE
<i>Carex brunnescens</i> (Pers.) Poiret ex Lam.	Brownish Sedge	U	Uncommon in moist woods and swamps. M.J. Oldham #23294 (MICH) from Frenchman's Creek, near Fort Erie in 2000.	R5	C			S5	CYPERACEAE
<i>Carex buxbaumii</i> Wahlenb.	Bog Brown Sedge	R	Rare. Point Abino in 1981 (A.A. Reznicek pers. comm. 2010).	--	U			S5	CYPERACEAE
<i>Carex canescens</i> L. ssp. <i>canescens</i>	Hoary Sedge	U	Uncommon in swamps, bogs, and cool, wet woodlands. M.J. Oldham #23316 (MICH) from Long Beach Conservation Area in 2000.	U7	C			S5	CYPERACEAE
<i>Carex cephaloidea</i> (Dewey) Dewey	Thin-leaf Sedge	R	A rare woodland sedge, often on floodplains. S. Varga #93-93 (TRT) from Short Hills Provincial Park in 1993.	R4	U			S5	CYPERACEAE
<i>Carex cephalophora</i> Muhlenb. ex Willd.	Oval-leaf Sedge	C	Common in woods.	C	C			S5	CYPERACEAE
<i>Carex communis</i> L. Bailey var. <i>communis</i>	Common Sedge	C	Common in woods.	C	C			S5	CYPERACEAE

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<i>Carex comosa</i> Boott	Bearded Sedge	U	Common in swamps, marshes, and other wetlands.	C	U			S5	CYPERACEAE
<i>Carex conoidea</i> Schkuhr ex Willd.	Field Sedge	R	A rare and easily overlooked species of prairie remnants and other open, moist places. Known in the region only from Navy Island (Catling & Reznicek, MICH; P.M. Eckel, BUF, in 1998).	--	--			S3	CYPERACEAE
<i>Carex crawei</i> Dewey	Crawe's Sedge	R	Rare on rocky limestone Lake Erie shorelines, nearby quarry bottoms, and prairie remnants along the rim of the Niagara Gorge. M.J. Oldham #32714 (MICH) from Niagara Glen in 2006.	--	R1			S4	CYPERACEAE
<i>Carex crinita</i> Lam.	Fringed Sedge	C	Common in swamps, moist woodlands.	C	C			S5	CYPERACEAE
<i>Carex cristatella</i> Britton ex Britton & Brown	Crested Sedge	U	Uncommon in moist, more or less open areas.	C	C			S5	CYPERACEAE
<i>Carex cryoptolepis</i> Mackenzie	Yellow Sedge	R	Point Abino in 1981 (A.A. Reznicek pers. comm. 2010).	R	R			S4	CYPERACEAE
<i>Carex cumulata</i> (L. Bailey) Mackenzie	Clustered Sedge	R	Known in the region only from Wainfleet Bog (I.D. Macdonald #21039b, TRTE, in 1989), one of very few sites in southwestern Ontario.	--	--			S4	CYPERACEAE
<i>Carex davisii</i> Schwein. & Torrey	Davis' Sedge	R	A rare sedge in Canada, generally in rich, clay floodplain woods. A collection by C.A. Schaefer #92-35 (TRT) from Jordan Valley ANSI in 1992 is the only recent regional record.	--	--			S2	CYPERACEAE
<i>Carex deweyana</i> Schwein.	Short-scale Sedge	U	Uncommon in woods. M.J. Oldham #23265 (MICH) from Marcy's Woods in 2000.	C	C			S5	CYPERACEAE
<i>Carex diandra</i> Schrank	Lesser Panicked Sedge	RH	Reported from the Niagara Parks System by Cameron (1895), with apparently a specimen (R. Cameron from Queen Victoria Park ca. 1890) at NFO (Eckel 2001).	R2	VU			S5	CYPERACEAE
<i>Carex digitalis</i> Willd.	Finger Sedge	U	Uncommon in rich woods. M.J. Oldham #34147 (MICH) from Heartland Forest in 2007.	U8	C			S4S5	CYPERACEAE

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<i>Carex disperma</i> Dewey	Soft-leaf Sedge	R	Early reports from the Niagara Park System (Cameron 1895, Hamilton 1943) are substantiated by an R. Cameron specimen (NFO, M.J. Oldham) from Queen Victoria Park collected ca. 1890 (Eckel 2001). Reported by J.L. Riley in 1986 from Wainfleet Bog (Macdonald 1992). No other regional records.	U6	U			S5	CYPERACEAE
<i>Carex eburnea</i> Boott ex Hooker	Bristle-leaf Sedge	U	An uncommon calciphile of limestone woodland, often with White Cedar; more common on the Escarpment. M.J. Oldham #32358 (NHIC) from Niagara Glen in 2006.	C	VU			S5	CYPERACEAE
<i>Carex flava</i> L.	Yellow-green Sedge	R	Two recent records: A.C. Garofalo #08-887 (HAM) from a dry meadow along the Welland River in 2008; D. Gregory (TRTE) from DeCew Generating Station in 2001. A report by Cameron (1895) is presumably based on an R. Cameron specimen labelled as <i>Carex flava</i> from the late 1800's at NFO which is actually <i>Carex viridula</i> (det. M.J. Oldham 2006).	C	VU			S5	CYPERACEAE
<i>Carex formosa</i> Dewey	Handsome Sedge	RH	W.L. Putnam (DAO, det. M.J. Oldham 1993) from Town of Lincoln in 1978.	R4	R1			S4	CYPERACEAE
<i>Carex garberi</i> Fern.	Elk Sedge	R	Rare on calcareous rocky Lake Erie shorelines, nearby limestone quarry bottoms, and dry prairie remnants along the Niagara Gorge. Usually very local. M.J. Oldham #32306 (MICH) from near the Niagara Whirlpool in 2006.	--	R1			S4	CYPERACEAE
<i>Carex glaucoidea</i> Tuckerman ex Olney	Flaccid Sedge	--	Not currently known from Niagara R.M., but a population at Caistor-Canborough Slough Forest in adjacent Haldimand County (Oldham and Crins 1984, Sutherland 1987) is within the NPCA watershed and one of only two Ontario records. To be looked for in rich woods on the Haldimand Clay Plain.	--	R1			S1	CYPERACEAE

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<i>Carex gracilescens</i> Steudel	Sedge	U	Uncommon in moist woods. Formerly considered provincially rare (Argus et al. 1982-1987), but subsequently found to be more common in Ontario's Carolinian Zone and no longer of provincial conservation concern (Oldham and Brinker 2009). M.J. Oldham #23287 (TRT) from Frenchman's Creek, near Fort Erie, in 2000.	R3	U			S4	CYPERACEAE
<i>Carex gracillima</i> Schwein.	Graceful Sedge	C	Very common and widespread in woodlands.	C	C			S5	CYPERACEAE
<i>Carex granularis</i> Muhlenb. ex Willd.	Meadow Sedge	C	Very common and widespread in a variety of moist to dry, open to lightly wooded habitats.	C	C			S5	CYPERACEAE
<i>Carex grayi</i> Carey	Asa Gray's Sedge	R	Rare in moist woods. W.J. Crins #8692 (TRTE) from Four Mile Creek at Lake Ontario in 1991.	R5	U			S4	CYPERACEAE
<i>Carex grisea</i> Wahlenb.	Sedge	U	Uncommon in moist, often clay, woods. M.J. Oldham #23292 (MICH) from Frenchman's Creek near Fort Erie in 2000. = <i>Carex amphibola</i> var. <i>turgida</i> .	U7	C			S4	CYPERACEAE
<i>Carex gynandra</i> Schwein.	Nodding Sedge	R	A collection by Ian Macdonald #20964 in 1989 (TRTE) from Wainfleet Bog is the only regional record and one of very few southwestern Ontario reports.	--	--			S5	CYPERACEAE
<i>Carex hirsutella</i> Mackenzie	Hirsute Sedge	R	Rare in sandy woods and openings. A few scattered records, mostly historical. M.J. Oldham #32639 (MICH) from Paradise Grove in 2006.	--	VU			S3	CYPERACEAE
<i>Carex hirtifolia</i> Mackenzie	Hairy Sedge	U	Uncommon in rich upland woods. S. Varga #89-93 (TRT) from Short Hills Provincial Park in 1993.	C	C			S5	CYPERACEAE
<i>Carex hitchcockiana</i> Dewey	Hitchcock's Sedge	C	Uncommon in upland woods. M.J. Oldham #32610 (MICH) from Niagara Glen in 2006.	C	U			S5	CYPERACEAE
<i>Carex hystericina</i> Muhlenb. ex Willd.	Porcupine Sedge	C	A common and widespread species of wetlands. T.W. Smith #172 (HAM) from Hamilton Naturalists Club Short Hills Nature Sanctuary in 1999.	C	U			S5	CYPERACEAE

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<i>Carex interior</i> L. Bailey	Inland Sedge	U	Uncommon in wet, usually calcareous areas, such as seepages, and swamps. S. Varga #158-93 (TRT) from Short Hills Provincial Park in 1993.	U10	C			S5	CYPERACEAE
<i>Carex intumescens</i> Rudge	Bladder Sedge	C	Common in moist woodlands.	C	C			S5	CYPERACEAE
<i>Carex jamesii</i> Schwein.	James' Sedge	R	Rare and local in rich woods and slopes, often floodplains. Easily overlooked, and not as rare in southern Ontario as previously thought (e.g. Argus et al. 1982-1987). No longer considered of provincial conservation concern (Oldham and Brinker 2009). M.J. Oldham #34067 (MICH) from near Port Colborne in 2007.	R4	R2			S4	CYPERACEAE
<i>Carex lacustris</i> Willd.	Lake Sedge	C	A large and common sedge of open wetlands.	C	C			S5	CYPERACEAE
<i>Carex laevivaginata</i> (Kukenth.) Mackenzie	Smooth-sheathed Sedge	R	Rare in moist seepages and along cool streams. Similar to the more common <i>Carex stipata</i>. M.J. Oldham #34277 (MICH) from Dufferin Islands in 2007.	R4	C			S4	CYPERACEAE
<i>Carex lasiocarpa</i> Ehrh.	Hairy-fruited Sedge	R	Similar to <i>Carex pellita</i>, but with narrower, inrolled leaves. Rare in the Carolinian Zone in bogs and swamps; more common northward. In Niagara known only from Point Abino where collected in 1988 (Macdonald 1990).	--	VU			S5	CYPERACEAE
<i>Carex laxiculmis</i> Schwein. var. <i>copulata</i> (L. Bailey) Fern.	Sedge	R	Rare in rich woods. M.J. Oldham #22230 (MICH) from Marcy's Woods in 1999. Sometimes considered a <i>C. digitalis</i> X <i>C. laxiculmis</i> hybrid. = <i>Carex</i> x <i>copulata</i>.	R	--			S3	CYPERACEAE
<i>Carex laxiculmis</i> Schwein. var. <i>laxiculmis</i>	Loose-stemmed Sedge	U	Uncommon in rich woods.	C	C			S4	CYPERACEAE
<i>Carex laxiflora</i> Lam.	Distant-flowered Sedge	C	Locally common in woods.	C	C			S5	CYPERACEAE
<i>Carex leptalea</i> Wahlenb. ssp. <i>leptalea</i>	Bristle-stalked Sedge	R	A small and inconspicuous species of swamps, seepages, and bogs. S. Varga #56-93 (TRT) from Short Hills in	C	U			S5	CYPERACEAE

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			1993.						
<i>Carex leptoneura</i> (Fern.) Fern.	Finely-nerved Sedge	R	Rare woodland sedge, probably overlooked and confused with similar woodland sedges (e.g. <i>Carex blanda</i> , <i>Carex laxiflora</i>) to some extent. M.J. Oldham #9276 (MICH, TRTE) from Humberstone Marsh in 1989.	C	U			S5	CYPERACEAE
<i>Carex limosa</i> L.	Mud Sedge	R	A report from "Port Colborne" by Macoun (1883-1892) may have been from Wainfleet Bog though no specimens have been located from the site and the species has not been located in later surveys (e.g. Macdonald 1992).	--	R1			S5	CYPERACEAE
<i>Carex lucorum</i> Willd. ex Link var. <i>lucorum</i>	Long-beaked Oak Sedge	--	Not currently known from Niagara R.M., but a record from Dunnville East Forests in adjacent Haldimand County (Sutherland 1987) is within the NPCA watershed (D.A. Sutherland pers. comm. 2010). Similar to <i>Carex pensylvanica</i> .	--	R3			S4	CYPERACEAE
<i>Carex lupulina</i> Muhlenb. ex Willd.	Hop Sedge	C	Common in moist woodlands.	C	C			S5	CYPERACEAE
<i>Carex lurida</i> Wahlenb.	Sallow Sedge	U	A widespread but uncommon and scattered sedge of wetlands, often in sandy areas. M.J. Oldham #9279a (MICH) from Humberstone Marsh in 1989.	R3	C			S5	CYPERACEAE
<i>Carex magellanica</i> Lam. ssp. <i>irrigua</i> (Wahlenb.) Hulten	Stunted Sedge	R	Known in the region only from Wainfleet Bog where an early collection apparently exists at MTMG and where observed in 1990 by Macdonald (1992). Reported by Macoun (1883-1892) from "Cranberry Marsh, Port Colborne", which may have been Wainfleet Bog. = <i>Carex paupercula</i> .	R1	R2			S5	CYPERACEAE

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<i>Carex molesta</i> Mackenzie ex Bright	Troublesome Sedge	U	Uncommon in dry, open ground, such as old fields, woodland borders, and grassy roadsides. C. Schaefer #91-15 (TRT) from Jordan Valley ANSI in 1991.	C	U			S4?	CYPERACEAE
<i>Carex muehlenbergii</i> Schkuhr ex Willd. var. <i>muehlenbergii</i>	Muehlenberg's Sedge	R	No specimens have been located to support the report by Cameron (1895) from the Niagara Park System and a more recent report (Eckel 2001, specimen at BUF) should be checked. A Point Abino collection at DAO has been confirmed by S.D. Jones. Several reports from Point Abino, where suitable open sandy habitat is present, though not seen by Macdonald (1990). D. Gregory (TRTE) from Twelve Mile Creek in 2002.	R1	U			S5	CYPERACEAE
<i>Carex normalis</i> Mackenzie	Right-angled Sedge	R	Rare in rich woodlands. Similar to several other species of <i>Carex</i> in Section <i>Ovales</i> , and frequently misidentified. M.J. Oldham #34706 (MICH) from Navy Island in 2007.	U10	U			S4	CYPERACEAE
<i>Carex oligocarpa</i> Schkuhr ex Willd.	Few-flowered Sedge	R	Rare in calcareous woods. Similar to <i>Carex hitchcockiana</i> . M.J. Oldham #32609 (MICH) from Niagara Glen in 2006.	R1	--			S3	CYPERACEAE
<i>Carex oligosperma</i> Michaux	Few-seeded Sedge	R	Known in the region only from Wainfleet Bog (Macdonald 1992). M.J. Oldham #9274a (MICH) from Wainfleet Bog in 1989.	R1	--			S4	CYPERACEAE
<i>Carex ormostachya</i> Wieg.	Necklace Spike Sedge	R	Collected by Dan Gregory (TRTE in 2004) from the Welland River and Power Canal (Gregory 2005). Rare in southwestern Ontario and not otherwise known from Niagara.	--	--			S4	CYPERACEAE
<i>Carex pallescens</i> L.	Pale Sedge	R	Rare in meadows and old fields. Rare in southwestern Ontario. M.J. Oldham #22227 (MICH) from Marcy's Woods in 1999.	R5	--			S5	CYPERACEAE

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<i>Carex peckii</i> Howe	Peck's Sedge	R	Rare woodland sedge. M.J. Oldham #23257 (MICH) from Marcy's Woods in 2000.	R3	R3			S5	CYPERACEAE
<i>Carex pedunculata</i> Muhlenb. ex Willd.	Peduncled Sedge	C	Common woodland sedge.	C	C			S5	CYPERACEAE
<i>Carex pellita</i> Muhlenb.	Woolly Sedge	R	Rare in moist, open areas such as ditches and wet meadows. Known in Niagara from Wainfleet Wetlands (A. Garofalo #07-476, HAM, in 2007) and Navy Island (Eckel 2001). = <i>Carex lanuginosa</i> , <i>C. lasiocarpa</i> var. <i>latifolia</i>	C	C			S5	CYPERACEAE
<i>Carex pensylvanica</i> Lam.	Pennsylvania Sedge	C	Common in open, often somewhat sandy woods.	C	C			S5	CYPERACEAE
<i>Carex plantaginea</i> Lam.	Plantain-leaved Sedge	U	Uncommon in rich woods. B. Larson #91-165 (TRT) from Jordon Valley ANSI in 1991.	C	U			S5	CYPERACEAE
<i>Carex platyphylla</i> J. Carey	Broad-leaved Sedge	U	An uncommon species of rich wooded calcareous slopes, restricted in Niagara Region to the Niagara Escarment. M.J. Oldham #32362 (NHIC) from Niagara Glen in 2006.	C	U			S5	CYPERACEAE
<i>Carex praegracilis</i> W. Boott	Very Slender Sedge	IR	A recently adventive halophyte of saline roadsides and roadside ditches. M.J. Oldham #32435 (MICH) from St. Catharines in 2006.	I	I			SE5	CYPERACEAE
<i>Carex prairea</i> Dewey	Prairie Sedge	R	A collection from a cattail marsh at Short Hills is the only regional report. S. Varga #151-93 (TRT) from Short Hills Provincial Park in 1993	--	VU			S5	CYPERACEAE
<i>Carex prasina</i> Wahlenb.	Drooping Sedge	R	Rare in wooded seeps and along cool streams. S. Varga #120-93 (TRT) from Short Hills Provincial Park in 1993.	R4	C			S4	CYPERACEAE
<i>Carex projecta</i> Mackenzie	Spreading Sedge	R	Rare in wooded swamps. M.J. Oldham #35342 (MICH) from Young Woodlot in 2008.	R5	VU			S5	CYPERACEAE
<i>Carex pseudocyperus</i> L.	Cyperus-like Sedge	U	Uncommon in swamps and other moist open areas.	C	U			S5	CYPERACEAE
<i>Carex radiata</i> (Wahlenb.) Small	Sedge	C	Common woodland sedge. = <i>Carex rosea</i> of many regional reports.	C	U			S5	CYPERACEAE

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<i>Carex retroflexa</i> Muhlenb. ex Willd.	Reflexed Sedge	R	Found at two sites near the Niagara River in 2006; otherwise known in Canada only from Essex County (see Oldham and Crins 1988). M.J. Oldham #32644 (MICH, TRTE) from Paradise Grove in 2006.	--	--			S2	CYPERACEAE
<i>Carex retrorsa</i> Schwein.	Retorse Sedge	U	Uncommon in wetlands.	C	C			S5	CYPERACEAE
<i>Carex richardsonii</i> R. Br.	Richardson's Sedge	RH	J. Macoun (TRT) from "near Niagara" [Falls?] in 1901.	--	R1			S4?	CYPERACEAE
<i>Carex rosea</i> Schkuhr ex Willd.	Sedge	C	Common in woods. = <i>Carex convoluta</i> of many regional reports.	C	C			S5	CYPERACEAE
<i>Carex scabrata</i> Schwein.	Rough Sedge	R	A rare species of wooded streams, seepages, and swampy woodlands, primarily on the Niagara Escarpment. S. Varga #238-93 (TRT) from Effingham Forest ANSI in 1993.	U8	U			S5	CYPERACEAE
<i>Carex scoparia</i> Willd.	Sedge	U	Uncommon. M.J. Oldham #34284 (MICH) from Dufferin Islands in 2007.	U7	C			S5	CYPERACEAE
<i>Carex seorsa</i> Howe	Weak Stellate Sedge	U	Uncommon in wooded swamps. First found in Ontario in Niagara (Reznicek and Catling 1984). M.J. Oldham #23314 (MICH) from Long Beach Conservation Area in 2000.	--	U			S2	CYPERACEAE
<i>Carex sparganioides</i> Muhlenb. ex Willd.	Bur-reed Sedge	U	Uncommon in woodlands.	C	C			S5	CYPERACEAE
<i>Carex spicata</i> Hudson	Spiked Sedge	IC	A European sedge of open, disturbed ground such as roadsides, poor pastures, lawn edges, etc. M.J. Oldham #32627 (MICH) from Brown's Point Park, Niagara River, in 2006	I	I			SE5	CYPERACEAE
<i>Carex sprengelii</i> Dewey ex Sprengel	Sprengel's Sedge	R	Rare in woods. S. Varga #428-93 (TRT) from Queenston Escarpment ANSI in 1993.	R1	R2			S5	CYPERACEAE
<i>Carex squarrosa</i> L.	Squarrose Sedge	RH	Known in Niagara only from an 1898 specimen (J.A. Carroll, CAN) from St. Catharines (ARVPO).	--	--			S2	CYPERACEAE

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<i>Carex sterilis</i> Willd.	Sterile Sedge	R	A rare sedge of calcareous seepages and open fens. Several early reports (e.g. Day 1888, Panton 1890, Macoun 1883-1892, Zenkert 1934, Heimbürger 1955). S. Varga #62-93 (TRT) from Short Hills in 1993.	--	--			S4	CYPERACEAE
<i>Carex stipata</i> Muhlenb. ex Willd.	Awl-fruited Sedge	C	Common in wet places.	C	C			S5	CYPERACEAE
<i>Carex stricta</i> Lam.	Tussock Sedge	U	A large, tussock-forming sedge of open wetlands, uncommon in the Niagara Region. T.W. Smith #170 (HAM) from Short Hills Sanctuary in 1999.	C	C			S5	CYPERACEAE
<i>Carex swanii</i> (Fern.) Mackenzie	Swan's Sedge	U	Uncommon in dry, open ground. M.J. Oldham #32690 (MICH) from Paradise Grove in 2006. Formerly considered provincially rare (Argus et al. 1982-1987).	--	C			S4	CYPERACEAE
<i>Carex sylvatica</i> Hudson	Wood Sedge	IR	A rare European introduction in Ontario, reported from Queenston Heights by Reznicek and Catling (1984) based on a 1980 specimen and still present in the Queenston area (M.J. Oldham #32423, MICH, from Locust Grove Park in 2006).	--	I			SE2	CYPERACEAE
<i>Carex tenera</i> Dewey	Slender Sedge	C	Common in open or lightly wooded areas.	C	C			S5	CYPERACEAE
<i>Carex tetanica</i> Schkuhr ex Willd.	Rigid Sedge	R	Rare in seepages, wet meadows, and prairie remnants. M.J. Oldham #32616 (MICH) from the Niagara River Whirlpool in 2006 is the only regional record.	--	R2			S3	CYPERACEAE
<i>Carex tonsa</i> (Fern.) Bickn. var. <i>rugosperma</i> (Mack.) Crins	Wrinkled-seeded Sedge	R	In or rocky or sandy open ground. Similar to <i>C. umbellata</i> . S. Varga #77-93 (TRT) from Short Hills Provincial Park in 1993. = <i>Carex rugosperma</i> .	R1	VU			S5	CYPERACEAE
<i>Carex tribuloides</i> Wahlenb.	Blunt-broom Sedge	U	Moist woods and swamps.	C	C			S4S5	CYPERACEAE

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<i>Carex trisperma</i> Dewey	Three-fruited Sedge	R	The only regional record appears to be a sight record from boggy woods at Long Beach Conservation Area in 2000 by M.J. Oldham. A report from Wainfleet Bog (Macdonald 1992) is based on a specimen of <i>Carex billingsii</i> (= <i>C. trisperma</i> var. <i>billingsii</i>) at TRTE (P.W. Ball, pers. comm. 2010).	R5	U			S5	CYPERACEAE
<i>Carex tuckermanii</i> Boott ex Dewey	Tuckerman's Sedge	U	Uncommon, swampy woods. Var. <i>niagarensis</i> , described by C.P. Smith (1915) from the mouth of the Niagara River is no longer taxonomically recognized. A.C. Garofalo #07-650 (HAM) from Hunter's Creek Headwaters, City of Niagara Falls, in 2007.	U10	U			S4	CYPERACEAE
<i>Carex umbellata</i> Schkuhr ex Willd.	Umbellate Sedge	R	Rare to uncommon in dry, open ground. Easily confused with <i>Carex tonsa</i> var. <i>rugosperma</i> . M.J. Oldham #32343 (MICH) from near Niagara-on-the-Lake in 2006.	R3	R2			S5	CYPERACEAE
<i>Carex utriculata</i> F. Boott	Beaked Sedge	R	Rare in swamps and moist open wetlands. M.J. Oldham #35359 (MICH) from Baden-Powell Park, City of Niagara Falls, in 2008.	U8	R4			S5	CYPERACEAE
<i>Carex vesicaria</i> L.	Inflated Sedge	R	Observed, though not collected, by I.D. Macdonald (1992) at Wainfleet Bog in 1989. Reported from Navy Island (P.M. Eckel, BUF, in 1998) by Eckel (2001).	--	--			S5	CYPERACEAE
<i>Carex virescens</i> Muhlenb. ex Willd.	Greenish Sedge	R	A rare species of sandy woods and openings in the Carolinian Zone. S. Varga #249-93 (TRT) from Effingham Forest ANSI in 1993.	R1	U12			S3	CYPERACEAE
<i>Carex viridula</i> Michaux ssp. <i>viridula</i>	Greenish Sedge	U	About 11 Niagara sites, all either on the Lake Erie shore, or in quarry bottoms nearby. A.C. Garofalo #07-446 (HAM) from Wainfleet Wetlands in 2007.	R2	U			S5	CYPERACEAE
<i>Carex vulpinoidea</i> Michaux	Fox Sedge	C	Very common and widespread in open, moist sites.	C	C			S5	CYPERACEAE

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<i>Carex willdenowii</i> Schkuhr ex Willd.	Willdenow's Sedge	R	Rare in moist, clay woods. Collected by Macoun #32127 (CAN, US) from 4-mile creek near Niagara-on-the-Lake in 1892 (Naczi et al. 1998; P.W. Ball pers. comm. 2010). S. Varga #37-93 (TRT) from St. Johns Conservation Area in 1993. One of only two recent Ontario records.	--	R1			S1	CYPERACEAE
<i>Carex woodii</i> Dewey	Wood's Sedge	R	Rich woods, primarily in the Carolinian Zone. M.J. Oldham #23268 (MICH) from Marcy's Woods in 2000.	C	C			S4	CYPERACEAE
<i>Carpinus caroliniana</i> Walter ssp. <i>virginiana</i> (Marsh.) Furlow	Blue-beech	C	Common in woods.	R2	C			S5	BETULACEAE
<i>Carum carvi</i> L.	Caraway	IH	Rare weed, reported by Panton (1890) and Putnam (1975).	I	--			SE1?	APIACEAE
<i>Carya cordiformis</i> (Wang.) K. Koch	Bitternut Hickory	C	Common in woods.	C	C			S5	JUGLANDACEAE
<i>Carya glabra</i> (Miller) Sweet	Pignut Hickory	U	Uncommon in sandy upland woods. Includes <i>C. ovalis</i> of some authors.	R3	C			S3	JUGLANDACEAE
<i>Carya laciniosa</i> (Michaux f.) Loudon	Shellbark Hickory	R	Rare in moist woods. M.J. Oldham #33966 (TRTE) from Navy Island in 2006.	--	R3			S3	JUGLANDACEAE
<i>Carya ovata</i> (Miller) K. Koch var. <i>ovata</i>	Shagbark Hickory	C	Common in upland woods.	C	C			S5	JUGLANDACEAE
CASSIA	see		SENNA						FABACEAE
<i>Castanea dentata</i> (Marshall) Borkh.	American Chestnut	U	Has declined significantly from historical numbers due to the introduced fungal disease Chestnut Blight. Mostly surviving as stump sprouts and suckers; mature, fruit-producing trees are very rare. A.C. Garofalo #08-1084 (HAM) from Coyle Creek Headwaters, Pelham Township, in 2008. See COSEWIC (20004a).	R5	C	END	END	S3	FAGACEAE
<i>Castilleja coccinea</i> (L.) Sprengel	Indian Paintbrush	R	Rare in sandy open ground. Reported from the Niagara River Whirlpool by Day (1988) though not seen subsequently in the area. Observed in North Pelham Valley in 1993 (Riley et	RH	R1			S5	OROBANCHACEAE

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			al. 1996)						
<i>Catalpa bignonioides</i> Walt.	Common Catalpa	IR	Occasionally found outside cultivation.	--	--			SE1	BIGNONIACEAE
<i>Catalpa speciosa</i> (Warder ex Barney) Engelm.	Northern Catalpa	IR	Occasional in disturbed woods.	I	--			SE1	BIGNONIACEAE
<i>Caulophyllum giganteum</i> (Farw.) Leconte & Blackwell	Purple-flowered Blue Cohosh	DD	Local status poorly known due to confusion with <i>C. thalictroides</i> , which <i>C. giganteum</i> was formerly considered a variety. <i>Caulophyllum giganteum</i> is probably more common in Niagara than <i>C. thalictroides</i> (e.g. Dore 1964) and most regional reports of the latter are probably based on the former. = <i>Caulophyllum thalictroides</i> var. <i>giganteum</i> .	C	X			S5	BERBERIDACEAE
<i>Caulophyllum thalictroides</i> (L.) Michaux sensu stricto	Blue Cohosh	DD	Local status poorly known due to confusion with <i>C. giganteum</i> . Many local records of <i>Caulophyllum thalictroides</i> probably refer to <i>C. giganteum</i> . Not mapped from Niagara by Dore (1964), though mapped from nearby counties. M.J. Oldham #35122 (HAM) from Nickel Beach in 2008.	C	X			S5	BERBERIDACEAE
<i>Ceanothus americanus</i> L.	New Jersey Tea	R	Rare in sandy woods. S. Varga #414-93 (TRT) from Grimsby Beach Terrace Valley in 1993.	U8	C			S4	RHAMNACEAE
<i>Celastrus orbiculatus</i> Thunb.	Oriental Bittersweet	IR	A rare invasive vine in woodlands. M.J. Oldham #32565 (MICH, TRT) from the Niagara River Whirlpool in 2006	--	I			SE2	CELASTRACEAE
<i>Celastrus scandens</i> L.	Climbing Bittersweet	C	Common	C	C			S5	CELASTRACEAE
<i>Celtis occidentalis</i> L.	Common Hackberry	R	Rare in woods along the Niagara River and occasionally elsewhere. W. Scott (TRT) from Niagara Falls in 1898.	R5	U			S4	CANNABACEAE

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<i>Cenchrus longispinus</i> (Hackel) Fern.	Long-spined Sandbur	R	Rare, mainly on sandy Great Lakes shorelines and sometimes in disturbed ground along railways. M.J. Oldham #33971 (DAO) from Navy Island in 2006	I	C			S4	POACEAE
<i>Centaurea cyanus</i> L.	Cornflower	IH	Rare and known only from historical literature records, e.g. Niagara Park System (Cameron 1895); "... inconspicuous or rarely seen..found in the Niagara Parks" (Hamilton 1943).	I	I			SE1	ASTERACEAE
<i>Centaurea diffusa</i> Lam.	White Knapweed	IR	Only Niagara record is from the Fort Erie railway yard (M.J. Oldham #34865, DAO) in 2007.	--	--			SE1	ASTERACEAE
<i>Centaurea jacea</i> L.	Brown Knapweed	IU	Uncommon in disturbed open areas. S. Varga #433-93 (TRT) from Queenston Escarpment ANSI in 1993.	I	--			SE5	ASTERACEAE
<i>Centaurea nigra</i> L.	Black Knapweed	IU	Uncommon weed. J. Jalava #91-95 (TRT) from 15 Mile Creek ANSI in 1995.	I	I			SE4?	ASTERACEAE
<i>Centaurea nigrescens</i> Willd.	Tyrol Knapweed	IR	Rare. C.J. Rothfels #230 (HAM) from Fort Erie in 2002.	I	--			SE5	ASTERACEAE
<i>Centaurea stoebe</i> L. ssp. <i>micranthos</i> (Gmel. ex Gugler) Hayek	Spotted Knapweed	IU	Uncommon weed of dry, open areas. M.J. Oldham #34921 (DAO) from Niagara Falls railway yard in 2007. = <i>Centaurea maculosa</i> .	I	I			SE5	ASTERACEAE
<i>Centaurea x moncktonii</i> C.E. Britton	(<i>C. jacea</i> X <i>C. nigra</i>)	hyb	Rare weed. B. Miller #405 (HAM) from Ridgemount in 1948. = <i>Centaurea x pratensis</i> .	--	--			SE3?	ASTERACEAE
<i>Centaureum erythraea</i> Rafn.	Common Centaury	IH	Collected at Paradise Grove in 1976 (McIntosh and Catling 1979). = <i>Centaureum umbellatum</i> .	--	--			SE3	GENTIANACEAE
<i>Centaureum pulchellum</i> Hayek ex Hand.-Mazz. et al.	Beautiful Centaury	IR	Rare weed. M.J. Oldham #18141 (MICH, TRTE) from Niagara Falls railway yard in 1995.	I	I			SE3	GENTIANACEAE
<i>Cephalanthus occidentalis</i> L.	Buttonbush	C	Common in wetlands.	C	C			S5	RUBIACEAE

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<i>Cerastium arvense</i> L.	Field Chickweed	R	Early reports from the Niagara Falls area are presumably from native populations (e.g. Cameron 1895, Zenkert 1934), though not seen from the area recently (Oldham 2007). Some more recent reports (e.g. NAI database) may be from non-native populations. J. Macoun (TRT) from Niagara Glen in 1901.	I/N	--			S5	CARYOPHYLLACEAE
<i>Cerastium fontanum</i> Baumg.	Mouse-eared Chickweed	IC	Common weed in a variety of open, usually weedy sites. = <i>Cerastium vulgatum</i> .	I	I			SE5	CARYOPHYLLACEAE
<i>Cerastium glomeratum</i> Thuill.	Chickweed	IR	Rare weed of lawns, campgrounds, and other disturbed open areas. M.J. Oldham #32584 (MICH, WAT) from Dufferin Islands in 2006. = <i>Cerastium viscosum</i> .	--	--			SE1	CARYOPHYLLACEAE
<i>Cerastium nutans</i> Raf. var. <i>nutans</i>	Nodding Chickweed	R	Rare in sandy woods. M.J. Oldham #23254 (MICH, WAT) from Marcy's Woods in 2000.	R2	R1			S4	CARYOPHYLLACEAE
<i>Cerastium pumilum</i> Curtis	Curtis' Mouse-ear Chickweed	IR	Rare weed of disturbed open areas. Similar to <i>C. semidecandrum</i> . M.J. Oldham #32591 (MICH, WAT) from CP railway tracks off Chippewa Parkway in 2006.	I	--			SE2	CARYOPHYLLACEAE
<i>Cerastium semidecandrum</i> L.	Spring Mouse-eared Chickweed	IU	Widespread, but small, early-flowering, and inconspicuous weed of open dry areas. Greatly overlooked. M.J. Oldham #23274 (TRTE) from Marcy's Woods in 2000.	I	I			SE5	CARYOPHYLLACEAE
<i>Cerastium tomentosum</i> L.	Dusty Miller	IR	Rare escape from cultivation. A.C. Garofalo #07-352 (HAM) from Dann Dunes near Port Colborne in 2007.	I	--			SE1	CARYOPHYLLACEAE
<i>Ceratophyllum demersum</i> L.	Common Coontail	R	Rare aquatic, though possibly overlooked.	U8	C			S5	CERATOPHYLLACEAE
<i>Ceratophyllum echinatum</i> A. Gray	Prickly Coontail	R	Known only from Gibson Lake in Thorold where collected by D. Gregory (TRTE) in 2009.	--	--			S3?	CERATOPHYLLACEAE

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<i>Cercis canadensis</i> L.	Redbud	IR	Records from the Niagara River area are based on escapes from cultivation. M.J. Oldham #32419 (DAO) from woods along Niagara Parkway in 2006	--	--			SX	FABACEAE
<i>Chaenorrhinum minus</i> (L.) Lange	Dwarf Snapdragon	IU	Uncommon but widespread weed, often found along railways. A.C. Garofalo #07-464 (HAM) from Wainfleet Wetlands in 2007.	I	I			SE5	PLANTAGINACEAE
<i>Chamaedaphne calyculata</i> (L.) Moench	Leatherleaf	R	Currently known in the region only from Wainfleet Bog, though historical records suggest it was more widespread formerly (Day 1888, Cameron 1895, Zenkert 1934, Hamilton 1943, Macdonald 1990). M.J. Oldham #8941 (CAN) from Wainfleet Bog in 1989.	R2	R1			S5	ERICACEAE
<i>Chamaelirium luteum</i> (L.) A. Gray	Fairywand	RH	Formerly abundant "between Stamford and the Whirlpool" according to Day (1888). In 1943 it was reported as "occasionally observed in the open grasslands near the Whirlpool" (Hamilton 1943). W. Scott (CAN, TRT) from Queenston Heights in 1897. No recent Canadian records (Oldham and Brinker 2009).	I	RH			SX	MELANTHIACEAE
CHAMAESYCE	see		EUPHORBIA						EUPHORBIACEAE
<i>Chamerion angustifolium</i> (L.) Holub	Fireweed	R	Wainfleet Bog where collected by A.W. Miller and observed by Ian Macdonald in 1989 (Macdonald 1992). = <i>Epilobium angustifolium</i> .	U10	U			S5	ONAGRACEAE
<i>Chelidonium majus</i> L.	Celandine	IC	Common weed of disturbed woods.	I	I			SE5	PAPAVERACEAE
<i>Chelone glabra</i> L.	Turtlehead	C	Common in open wet areas.	C	C			S5	PLANTAGINACEAE
CHENOPODIUM	see also		DYSPHANIA						AMARANTHACEAE
<i>Chenopodium album</i> L. var. <i>album</i>	Lamb's-quarters	IC	Common weed.	I	I?			SE5	AMARANTHACEAE

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<i>Chenopodium berlandieri</i> Moq. var. <i>bushianum</i> (Aellen) Cronq.	Village Goosefoot	R	Although apparently a native species, all collections are from somewhat weedy sites. Open, sandy woods. Easily confused with <i>C. album</i> . M.J. Oldham #23202 (MICH, TRTE) from Crystal Beach in 1999. = <i>Chenopodium bushianum</i> .	--	--			S1S2	AMARANTHACEAE
<i>Chenopodium bonus-henricus</i> L.	Good-king-henry	IH	No specimens have been found to substantiate the historic report of Hamilton (1943): "... have been found in the [Niagara] Parks".	--	--			SE1	AMARANTHACEAE
<i>Chenopodium capitatum</i> (L.) Aschers	Strawberry Blite	R	Native to Ontario (Morton and Venn 1990), though often in weedy situations. Several early reports (Cameron 1895, Hamilton 1943; specimen at NFO) and most recently reported by Kaiser (1986a) from Niagara Section Escarpment ANSI.	U6	I			S5	AMARANTHACEAE
<i>Chenopodium foggii</i> Wahlenb.	Fogg's Goosefoot	R	Rare, sandy woods. M.J. Oldham #7832 (DAO, TRTE) from Sherkston Beach in 1987.	--	R1			S2	AMARANTHACEAE
<i>Chenopodium glaucum</i> L. var. <i>glaucum</i>	Oak-leaved Goosefoot	IU	Uncommon in moist, open, disturbed, often saline sites. M.J. Oldham #8771 (DAO, TRTE) from Nickel Beach in 1988.	I	I			SE5	AMARANTHACEAE
<i>Chenopodium leptophyllum</i> (Moq.) Nutt. ex S. Wats.	Narrow-leaved Goosefoot	RH	F.W. Johnson #411 (BUF, det. I.D. Macdonald) from Point Abino in 1924 (Macdonald 1990). Not recorded in the region since.	--	--			S1	AMARANTHACEAE
<i>Chenopodium simplex</i> (Torrey) Raf.	Maple-leaved Goosefoot	R	Disturbed woods. S. Varga #91-68 (TRT) from Niagara Section Escarpment ANSI in 1991. = <i>Chenopodium gigantospermum</i> , <i>C. hybridum</i> .	U7	U			S5	AMARANTHACEAE
<i>Chenopodium strictum</i> Roth	Strict Goosefoot	IH	Niagara Falls in 1892 (CAN, det. Bassett and Crompton).	--	--			SE4	AMARANTHACEAE

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<i>Chenopodium urbicum</i> L.	Urban Goosefoot	IH	Reported by Hamilton (1943) from the Niagara Falls School of Horticulture as a weed in the Iris bed, and collected by B. Miller #762 (TRT) from near Fort Erie in 1952 (Heimbürger 1955).	--	--			SE1	AMARANTHACEAE
<i>Chimaphila maculata</i> (L.) Pursh	Spotted Wintergreen	R	Known historically from the Niagara Parks System (Cameron 1895) and Fort Erie (D.F. Day, BUF, in 1863). Discovered in 2007 during NAI field surveys at Perry Road Woodlot, Wainfleet Township (photo at NHIC). See COSEWIC (2000b).	RH	R1	END	END	S1	ERICACEAE
<i>Chimaphila umbellata</i> (L.) Barton ssp. <i>umbellata</i>	Pipsissewa	R	Rare in dry, oak woods. T.J.W. Burgess (TRT) from Port Colborne in 1882. R. Cameron (NFO, det. M.J. Oldham in 2006) from Queen Victoria Park, Niagara Falls, in 1891. Reported from Spooky Hollow Sanctuary by Campbell (1982) based on a 1979 survey.	R1	C			S5	ERICACEAE
<i>CHRYSANTHEMUM</i>	<i>see</i>		<i>LEUCANTHEMUM, TANACETUM</i>						ASTERACEAE
<i>Chrysosplenium americanum</i> Schwein. ex Hooker	Golden Saxifrage	R	Rare in seepages and moist woods. A.C. Garofalo #08-1147 (HAM) from Short Hills Sanctuary in 2008.	U10	C			S5	SAXIFRAGACEAE
<i>Cichorium intybus</i> L.	Chicory	IC	Common weed.	I	I			SE5	ASTERACEAE
<i>Cicuta bulbifera</i> L.	Bulb-bearing Water-hemlock	C	Common, wetlands.	C	C			S5	APIACEAE
<i>Cicuta maculata</i> L.	Spotted Water-hemlock	C	Common, wetlands.	C	C			S5	APIACEAE
<i>CIMICIFUGA</i>	<i>see</i>		<i>ACTAEA</i>						RANUNCULACEAE
<i>Cinna arundinacea</i> L.	Stout Wood Grass	C	Common, moist woods.	C	C			S4	POACEAE
<i>Cinna latifolia</i> (Trev. ex Goepf.) Griseb. in Ledeb.	Drooping Woodreed	R	Rare woodland grass.	R3	U			S5	POACEAE
<i>Circaea alpina</i> L.	Small Enchanter's-nightshade	R	Rare in cool moist woods, particularly on the Niagara Escarpment.	C	C			S5	ONAGRACEAE
<i>Circaea lutetiana</i> L. ssp. <i>canadensis</i> (L.) Aschers. & Magnus	Enchanter's-nightshade	C	Common in woods. = <i>Circaea quadrisulcata</i> .	C	C			S5	ONAGRACEAE
<i>Cirsium arvense</i> (L.) Scop.	Canada Thistle	IC	Common weed.	I	I			SE5	ASTERACEAE

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<i>Cirsium discolor</i> (Muhlenb. ex Willd.) Sprengel	Field Thistle	RH	Historically known from meadows above the Niagara Gorge (Hamilton 1943), and elsewhere along the Niagara River, though no recent verified reports. W. Scott (TRT) from Niagara Falls in 1906.	--	--			S3	ASTERACEAE
<i>Cirsium muticum</i> Michaux	Swamp Thistle	R	Rare in moist areas. Reported from Short Hills Sanctuary (Campbell 1982), St. John's Conservation Area (Niagara Falls Nature Club 1975), and photographed during NAI fieldwork (NAI database).	R3	C			S5	ASTERACEAE
<i>Cirsium vulgare</i> (Savi) Tenore	Bull Thistle	IC	Common weed.	I	I			SE5	ASTERACEAE
<i>Citrullus colocynthis</i> (L.) Schrader	Watermelon	IR	A rare weed of disturbed shorelines, not persisting. P.M. Eckel (BUF) from Navy Island in 1998 (Eckel 1999, 2001). = <i>Citrullus lanatus</i> .	--	--			SE2	CUCURBITACEAE
<i>Cladium mariscoides</i> (Muhlenb.) Torrey	Twig-rush	RH	Rare, in swamps, fens, and open calcareous wetlands. Known from Point Abino (Zenkert 1934; Johnson, BUF, in 1920s), though not seen during recent surveys (e.g. Macdonald 1990). Reported from near Port Colborne (perhaps Wainfleet Bog, Macdonald 1992) by Day (Zenkert 1934). Reports from elsewhere in the region (NAI database) are unverified.	R2	U			S5	CYPERACEAE
<i>Claytonia caroliniana</i> Michaux	Carolina Spring Beauty	R	Rare in woods, primarily on the Niagara Escarpment (Jalava et al. 1992, Riley et al. 1996). A.C. Garofalo #07-312 (HAM) from Young Woods, City of Niagara Falls, in 2007.	C	--			S5	MONTIACEAE
<i>Claytonia virginica</i> L.	Narrow-leaved Spring Beauty	C	A common early spring woodland wildflower.	C	C			S5	MONTIACEAE

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<i>Clematis orientalis</i> L.	Oriental Clematis	IH	Collected (J. Macoun, TRT) from Port Colborne in 1901 (Montgomery 1957), though this report may refer to another <i>Clematis</i> species since the name has been misused (P.W. Ball pers. comm. 2010).	--	--			SE1	RANUNCULACEAE
<i>Clematis terniflora</i> DC.	Sweet Autumn Clematis	IH	Rare escape from cultivation. Reported from Point Abino (Yaki 1970), though not observed by Macdonald (1990).	--	--			SE1	RANUNCULACEAE
<i>Clematis virginiana</i> L.	Virgin's-bower	U	Uncommon.	C	C			S5	RANUNCULACEAE
<i>CLEOME</i>	<i>see</i>		<i>TARENAYA</i>						CLEOMACEAE
<i>Clinopodium arkansanum</i> (Nuttall) House	Wild Savory	R	Known from limestone points on the Lake Erie shoreline and formerly from along the Niagara River. M.J. Oldham #18256 (MICH) from Grabel Point in 1995. = <i>Calamintha arkansana</i>, <i>Satureja arkansana</i>, <i>S. glabella</i> var. <i>angustifolia</i>.	--	R3			S4S5	LAMIACEAE
<i>Clinopodium vulgare</i> L.	Wild Basil	C	A common weed of old fields, roadsides, and open woods. = <i>Satureja vulgaris</i> .	C	C			S5	LAMIACEAE
<i>Clintonia borealis</i> (Aiton) Raf.	Bluebead Lily	RH	Reported historically from the Niagara Falls area (e.g. Niagara Glen, G.H. Hamilton, Aug. 6, 1943 (NFO), Heimburger 1955; "... in the wet woods on the side of the hills opposite the Falls," Hamilton 1943); no recent reports.	C	C			S5	CONVALLARIACEAE
<i>Coeloglossum viride</i> (L.) Hartman	Long-bracted Green Orchid	RH	Early records from the Niagara Falls area (e.g. Cameron 1895; Cameron, NFO) and Point Abino (cited in Macdonald 1990; BUF), though no recent records. = <i>Dactylorhiza viridis</i> , <i>Habenaria viridis</i> .	--	RH			S4	ORCHIDACEAE
<i>Collinsonia canadensis</i> L.	Horsebalm	C	Common in moist woodlands.	C	C			S4	LAMIACEAE
<i>Colutea arborescens</i> L.	Bladder-senna	IH	Known in the region from one historical record (M. Wilkes, TRT, from Niagara Falls in 1898; Heimburger 1955).	I	--			SE1	FABACEAE
<i>Comandra umbellata</i> (L.) Nutt. ssp. <i>umbellata</i>	Bastard-toadflax	U		C	U			S5	SANTALACEAE

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<i>Comarum palustre</i> L.	Marsh Cinquefoil	R	Wetlands (e.g. Wainfleet Bog, Macdonald 1992). A.C. Garofalo #07-646 (HAM) from Lyon's Creek in 2007. = <i>Potentilla palustris</i> .	R1	U			S5	ROSACEAE
<i>Commelina communis</i> L.	Day-flower	IR	A rare weed or escape from cultivation, e.g. at Point Abino (Macdonald 1990; J. Johnson, BUF, 1920's).	I	U			SE3	COMMELINACEAE
<i>Conioselinum chinense</i> (L.) Britton, Sterns & Poggenb.	Hemlock Parsley	RH	Early reports from the Niagara Falls area (e.g. Cameron 1895, Hamilton 1943). No specimens from Niagara located by Argus et al. (1982-1987)	--	R2			S2	APIACEAE
<i>Conium maculatum</i> L.	Poison Hemlock	IR	Reported from the Niagara Parks System by Cameron (1895), and from Dufferin Islands by Hamilton (1943): "... fortunately is not abundant, although several specimens have been obtained from a marshy place near one of the streams that flow from Dufferin Islands". One recent, unverified report (NAI database).	--	--			SE2?	APIACEAE
<i>Conopholis americana</i> (L.) Wallr.	Squawroot	U	Uncommon in rich woods. B. Larson #91-495 (TRT) from Beamsville Escarpment ANSI in 1991.	R4	VU			S4?	OROBANCHACEAE
<i>Conringia orientalis</i> (L.) Dumort.	Hare's-ear Mustard	IH	Collected at Point Abino by C. Zenkert in 1931, BUF (Macdonald 1990). No recent reports.	--	--			SE2	BRASSICACEAE
<i>Convallaria majalis</i> L.	Lily-of-the-valley	IU	An uncommon escape from cultivation to disturbed woods.	I	I			SE5	CONVALLARIACEAE
<i>CONVOLVULUS</i>	see also		<i>CALYSTEGIA</i>						CONVOLVULACEAE
<i>Convolvulus arvensis</i> L.	Field Bindweed	IC	Common weed.	I	I			SE5	CONVOLVULACEAE
<i>Conyza canadensis</i> (L.) Cronq.	Horseweed	C	Common.	C	C			S5	ASTERACEAE
<i>Coptis trifolia</i> (L.) Salisb.	Goldthread	U	Uncommon in cool, rich, moist woods. = <i>Coptis groenlandica</i> .	C	C			S5	RANUNCULACEAE
<i>Corallorhiza maculata</i> (Raf.) Raf.	Spotted Coral-root	RH	Rare in woods, primarily on the Niagara Escarpment. No recent reports. W.J. Potter (TRT) from Niagara in 1908.	R3	U			S5	ORCHIDACEAE

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<i>Corallorhiza odontorhiza</i> (Willd.) Nutt.	Autumn Coral-root	RH	Early reports from several Niagara River sites; no recent records. W. Scott (TRT) from St. Davids in 1902. A Niagara specimen at DAO is var. <i>pringlei</i> (Freudenstein 1997).	--	R4			S2	ORCHIDACEAE
<i>Corallorhiza trifida</i> Chatel.	Early Coral-root	RH	Reported from the Niagara Parks System by Cameron (1895) and Hamilton (1943). No recent records.	R1	VU			S5	ORCHIDACEAE
<i>Coreopsis grandiflora</i> Hogg ex Sweet	Large-flowered Coreopsis	IR	Rare escape from cultivation. Reported from Welland River and Power Canal, Niagara Falls, by Gregory (2005; TRTE).	I	--			SE2	ASTERACEAE
<i>Coreopsis lanceolata</i> L.	Lance-leaved Coreopsis	IR	Reported by Hamilton (1943) from "marshy places along the [Niagara] river ... not abundant". This report and one in the NAI database may refer to the similar <i>Coreopsis grandiflora</i> .	I	--			S4?	ASTERACEAE
<i>Coreopsis tinctoria</i> Nutt.	Coreopsis	IH	Rare escape from cultivation. Reported by Hamilton (1943): "... occurs in the open meadows opposite the Glen Restaurant ... not abundant". No recent records.	--	--			SE1	ASTERACEAE
<i>Corispermum pallasii</i> Steven	Pallas' Bugseed	R	Sandy Lake Erie shores. A specimen from Fort Erie, T.J.W. Burgess (DAO, det. S.L. Mosyakin 1994) in 1888, was identified by an expert in this difficult genus. A recent collection from Lake Erie shoreline dunes at Marcy's Woods also appears to be this species (M.J. Oldham #23146, MICH, in 1999). = <i>Corispermum hyssopifolium</i> of local reports, in part.	--	--			S1S3	AMARANTHACEAE
<i>Corispermum villosum</i> Rydb.	Hairy Bugseed	R	Point Abino (Macdonald 1990). A collection from near Camelot Beach on the Lake Erie shore (M.J. Oldham #7830, DAO, in 1987) has been identified as this species by S.L. Mosyakin, an expert on the genus. = <i>Corispermum hyssopifolium</i> of local reports, in part.	--	--			S1S3	AMARANTHACEAE

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<i>Cornus alternifolia</i> L.f.	Alternate-leaved Dogwood	C	Common, moist woods.	C	C			S5	CORNACEAE
<i>Cornus amomum</i> Miller ssp. <i>obliqua</i> (Raf.) J.S. Wilson	Silky Dogwood	C	Common. = <i>Cornus obliqua</i> .	C	C			S5	CORNACEAE
<i>Cornus canadensis</i> L.	Bunchberry	RH	Early records from the Niagara Falls area (e.g. Cameron 1895, Hamilton 1943) and from Point Abino (Macdonald 1990; specimens at BUF from the late 1800s) though no recent Niagara records.	U6	C			S5	CORNACEAE
<i>Cornus drummondii</i> C.A. Meyer	Rough-leaved Dogwood	R	Early records from the Niagara River area (e.g. Cameron 1895, Hamilton 1943), though not mapped from Niagara by Soper and Heimburger (1982). G. Hamilton (NFO, det. M.J. Oldham in 2006) from Niagara Glen in 1941. Seen recently by A. Garofalo (pers. comm. 2010) from St. David's Burried Gorge.	--	VU			S4	CORNACEAE
<i>Cornus florida</i> L.	Eastern Flowering Dogwood	U	Locally common in rich woods, but distribution fragmented. Declining throughout its range due to Dogwood Anthracnose. A.C. Garofalo #08-1010 (HAM) from Atlas Wetlands and Slough Forest, Welland Township, in 2008. See COSEWIC (2007a).	U10	C	END	END	S2?	CORNACEAE
<i>Cornus foemina</i> Miller ssp. <i>racemosa</i> (Lam.) J.S. Wilson	Gray Dogwood	C	Common. = <i>Cornus racemosa</i> .	C	U			S5	CORNACEAE
<i>Cornus kousa</i> Hance	Kousa Dogwood	IR	Several shrubs on a wooded slope at Dufferin Islands (M.J. Oldham #34281, MICH, in 2007) where perhaps planted.	--	--			SE1	CORNACEAE
<i>Cornus rugosa</i> Lam.	Round-leaved Dogwood	C	Common.	C	C			S5	CORNACEAE
<i>Cornus sericea</i> L. ssp. <i>sericea</i>	Red-osier Dogwood	U	Uncommon in Niagara and only known from cool, or northern wetlands in a few locations. = <i>Cornus stolonifera</i> .	C	C			S5	CORNACEAE
<i>CORONILLA</i>	<i>see</i>		<i>SECURIGERA</i>						FABACEAE

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<i>Corydalis flavula</i> (Raf.) DC.	Yellow Corydalis	R	Collected at Point Abino in 1948 (A. Stitt, HAM), though not seen there more recently (Macdonald 1990). Rediscovered in the Niagara Region in 2007 (A.C. Garofalo #07-301, HAM) from the Onondaga Escarpment near Wainfleet Bog.	--	--			S2	PAPAVERACEAE
<i>Corylus americana</i> Walter	American Hazel	R	A.C. Garofalo #08-1167 (HAM) from Juard Woods - Ridgeville Swamp, Pelham Township, in 2008.	R2	C			S5	BETULACEAE
<i>Corylus cornuta</i> Marshall ssp. <i>cornuta</i>	Beaked Hazel	R	A.C. Garofalo #08-929 (HAM) from Bill's Bush, Port Colborne, in 2008.	C	U			S5	BETULACEAE
<i>Cotinus coggygria</i> Scop.	Smoke-tree	IR	Rare escape from cultivation (e.g. Yaki 1970).	I	--			SE1	ANACARDIACEAE
<i>Cotoneaster divaricatus</i> Rehd. & Wildon	Spreading Cotoneaster	IR	Rare escape from cultivation. M.J. Oldham #34750 (NHIC, WTU; det. P. Zika 2008) from Niagara Gorge in 2007. Not reported from Ontario by Morton and Venn (1990).	--	--			SE1	ROSACEAE
<i>Cotoneaster horizontalis</i> Dcne.	Rockspray Cotoneaster	IR	Rare escape from cultivation. M.J. Oldham #34752 (NHIC, WTU; det. P. Zika 2008) from Queenston in 2007.	--	--			SE1	ROSACEAE
<i>Crataegus beata</i> Sarg.	Hawthorn	RH	Queenston Heights, W. Scott (TRT) in 1896 and 1898 (ARVPO database).	--	RH			SH	ROSACEAE
<i>Crataegus calpodendron</i> (Ehrh.) Medik.	Pear Hawthorn	U	Mapped from the Canadian side of the Niagara River by Phipps and Muniyamma (1980). M.J. Oldham #22242 (UWO, det. J.B. Phipps) from Marcy's Woods in 1999.	U9	C			S4S5	ROSACEAE
<i>Crataegus chrysocarpa</i> Ashe	Fireberry Hawthorn	R	Mapped from the Canadian side of the Niagara River by Phipps and Muniyamma (1980). M.J. Oldham #22241 (UWO, det. J.B. Phipps) from Marcy's Woods in 1999.	R5	--			S5	ROSACEAE
<i>Crataegus coccinea</i> L. var. <i>coccinea</i>	Pedicelled Hawthorn	R	Early reports from the Niagara River area and several records from Niagara Escarpment natural areas (Riley et al. 1996, as <i>C. pedicellata</i>). S. Varga #467-93 (TRT) from Homer Escarpment ANSI in 1993. = <i>Crataegus pedicellata</i> .	R1	U			S4	ROSACEAE

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<i>Crataegus coccinea</i> L. var. <i>fulleriana</i> (Sarg.) Kruschke	Fuller's Hawthorn	RH	Chippawa, J. Dunbar (A) in 1902, 1903, 1905, 1912; Chippawa, C.S. Sargent (A) in 1902. = <i>Crataegus fulleriana</i> .	R1	VU			S2?	ROSACEAE
<i>Crataegus coccinea</i> L. var. <i>pringlei</i> (Sarg.) Kruschke	Pringle's Hawthorn	R	Mapped from the Canadian side of the Niagara River by Phipps and Muniyamma (1980). = <i>Crataegus pringlei</i> .	U6	C			S5	ROSACEAE
<i>Crataegus coccinioides</i> Ashe	Hawthorn	R	Reported from several Niagara Escarpment natural areas (Riley et al. 1996). S. Varga #431-93 (TRT) from Queenston Escarpment ANSI in 1993. = <i>Crataegus conspecta</i> , <i>C. dilatata</i> .	--	--			S2	ROSACEAE
<i>Crataegus cognata</i> Sarg.	Hawthorn	R	Mapped from the Canadian side of the Niagara River by Phipps and Muniyamma (1980). = <i>Crataegus pruinosa</i> var. <i>cognata</i> .	--	--			S5	ROSACEAE
<i>Crataegus crus-galli</i> L.	Cockspur Hawthorn	C	Common.	R2	U			S5	ROSACEAE
<i>Crataegus dissona</i> Sarg.	Northern Hawthorn	RH	Several collections have been made from Chippawa, Niagara-on-the-Lake, and Niagara Falls, the most recent being a 1977 Niagara Falls collection (UWO) (ARVPO database).	R3	--			S3	ROSACEAE
<i>Crataegus dodgei</i> Ashe	Dodge's Hawthorn	RH	Chippawa, J. Dunbar (A) in 1912 (ARVPO database).	U9	R4			S4	ROSACEAE
<i>Crataegus formosa</i> Sarg.	Hawthorn	R	Niagara Falls, J.B. Phipps (UWO) in 1977 (ARVPO database). Collected from North Pelham Valley in 1993 (Riley et al. 1996; TRT).	R1	--			S2	ROSACEAE
<i>Crataegus holmesiana</i> Ashe	Holmes' Hawthorn	R	Mapped from the Canadian side of the Niagara River by Phipps and Muniyamma (1980). Collected by Dan Gregory (pers. comm.) at Dufferin Islands (TRT, det. P.W. Ball) in 2007.	U6	R1			S4?	ROSACEAE
<i>Crataegus intricata</i> Lange	Copenhagan Hawthorn	RH	"edge of Glen" (Hamilton 1943, as <i>Crataegus boyntoni</i>); J. Dunbar (A) from Chippawa in 1912 (ARVPO database). = <i>Crataegus foetida</i> .	--	R1			SH	ROSACEAE

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<i>Crataegus macracantha</i> Lodd.	Hawthorn	U	Mapped from the Canadian side of the Niagara River by Phipps and Muniyamma (1980). C. Schaefer #91-64 (TRT) from the Jordan Valley ANSI. = <i>Crataegus succulenta</i> var. <i>macracantha</i> .	R4	R1			S5	ROSACEAE
<i>Crataegus macrosperma</i> Ashe	Variable Hawthorn	U	Mapped from the Canadian side of the Niagara River by Phipps and Muniyamma (1980). Locally common on the Niagara Escarpment (Riley et al. 1996; specimens at TRT).	C	C			S5	ROSACEAE
<i>Crataegus mollis</i> (Torrey & A. Gray) Scheele	Downy Hawthorn	C	Common	R2	--			S5	ROSACEAE
<i>Crataegus monogyna</i> Jacq.	English Hawthorn	IC	Common.	I	I			SE5	ROSACEAE
<i>Crataegus pennsylvanica</i> Ashe	Pennsylvania Hawthorn	R	Known from the Niagara Peninsula (J.B. Phipps, 2007, FNA draft). Reported from several Niagara Escarpment natural areas (Riley et al. 1996; TRT). = <i>Crataegus pedicellata</i> var. <i>ellwangeriana</i>.	--	--			S1S2	ROSACEAE
<i>Crataegus populnea</i> Ashe	Hawthorn	R	Reported from two Niagara Escarpment natural areas (Riley et al. 1996). C. Schaefer #91-78 (TRT) from Sixteen Mile Creek ANSI in 1991. = <i>Crataegus compta</i>.	R2	R1			S2?	ROSACEAE
<i>Crataegus pruinosa</i> (Wendl. f.) K. Koch var. <i>parvula</i> (Sarg.) J.B. Phipps	Hawthorn	R	Collected at Queenston Escarpment in 1993 by S. Varga et al. (Riley et al. 1996; TRT). = <i>Crataegus parvula</i>.	--	--			S4S5	ROSACEAE
<i>Crataegus pruinosa</i> (Wendl. f.) K. Koch var. <i>pruinosa</i>	Waxy-fruited Hawthorn	U	Reported from several Niagara Escarpment natural areas (Riley et al. 1996; TRT).	U8	C			S4?	ROSACEAE
<i>Crataegus punctata</i> Jacq.	Dotted Hawthorn	C	Common.	C	C			S5	ROSACEAE
<i>Crataegus scabrifolia</i> Sarg. var. <i>asperifolia</i> (Sarg.) Kruschke	Rough Hawthorn	R	Reported from Fonthill Sandhills Valley, Niagara Escarpment, by Riley et al. (1996). S. Blaney #1310-93 (TRT) from Fonthill Sandhill Valleys ANSI in 1993.	--	U			S3?	ROSACEAE
<i>Crataegus submollis</i> Sarg.	Northern Downy Hawthorn	R	Collected from the Niagara Section Escarpment ANSI (S. Varga #91-7, TRT, in 1991; Varga et al. 1992).	--	--			S4S5	ROSACEAE

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<i>Crataegus succulenta</i> Schrader ex Link	Fleshy Hawthorn	U	Reported from several Niagara Escarpment natural areas (Riley et al. 1996). B. Larson #91-508 (TRT) from Beamsville Escarpment ANSI in 1991.	C	C			S4S5	ROSACEAE
<i>Crepis capillaris</i> (L.) Wallr.	Hawk's-beard	IR	Reported from St. John's Valley by Riley et al. (1996).	I	--			SE1	ASTERACEAE
<i>Crepis pulchra</i> L.	Small-flower Hawksbeard	IH	Collected from two sites along a railway in Niagara Region by W.L. Putnam, the first Ontario record (Cody and Putnam 1986). W.L. Putnam #104 (DAO) from North Grimsby Township in 1972.	--	--			SEH	ASTERACEAE
<i>Crepis tectorum</i> L.	Narrow-leaf Hawksbeard	IR	Observed, though not collected, by M.J. Oldham and S. Brinker at Port Colborne in 2008.	I	I			SE5	ASTERACEAE
<i>Croton capitatus</i> Michaux	Woody Croton	IH	Collected in 1901 by J. Macoun (CAN?) from along railway tracks at Queenston Heights where "scarcely established" (Scoggan 1978-1979). No subsequent reports.	--	--			SE1	EUPHORBIACEAE
<i>Cryptogramma stelleri</i> (S. Gmelin) Prantl	Slender Cliff-brake	RH	No specimens have been found to substantiate historical reports from Niagara Glen and nearby sites along the Niagara River (Macoun 1883-1892, Day 1888, Cameron 1895).	R1	--			S4S5	PTERIDACEAE
<i>Cryptotaenia canadensis</i> (L.) DC.	Honewort	U	Uncommon, woods.	C	C			S5	APIACEAE
<i>CUBELIUM</i>	<i>see</i>		<i>HYBANTHUS</i>						VIOLACEAE
<i>Cucurbita pepo</i> L.	Field Pumpkin	IH	A garden escape, not persisting. Observed at Point Abion in 1988 by I.D. Macdonald (1990). Atkinson #66 (WAT).	--	--			SE1	CUCURBITACEAE
<i>Cuphea viscosissima</i> Jacq.	Blue Waxweed	IH	Reported by Macoun (1883-1892) from "cultivated fields between Hamilton and St. Catharines". = <i>Cuphea petiolata</i> .	--	--			SEH	LYTHRACEAE

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<i>Cuscuta campestris</i> Yuncker	Field Dodder	R	Rare; sometimes weedy. B. Miller #526 (HAM) from Miller Creek, Niagara River, in 1948 (ARVPO database). M.J. Oldham #34876 (WLU, det. M. Costea) from Fort Erie Railway Yard in 2007. Sometimes included in <i>Cuscuta pentagona</i> (e.g. Kartesz 1999) though treated as a separate species by Costea et al. (2006).	--	I			S2	CONVOLVULACEAE
<i>Cuscuta gronovii</i> Willd. ex Schultz	Common Dodder	C	Common.	C	C			S5	CONVOLVULACEAE
<i>Cuscuta polygonorum</i> Engelm.	Smartweed Dodder	R	An 1879 specimen (BUF) is reported from Windmill Point by Zenkert and Zander (1975). Rediscovered in Niagara (and Ontario) by Sam Brinker from Lyons Creek near Chippawa (specimen collected) in 2006 (Dougan and Associates 2007).	--	--			S1	CONVOLVULACEAE
<i>Cycloloma atriplicifolium</i> (Sprengel) J. Coulter	Winged Pigweed	R	Rare on Lake Erie sandy shores and dunes. Occasional in disturbed habitat elsewhere (e.g. Wainfleet Bog; Macdonald 1992). M.J. Oldham #18182 (TRT) from Erie Beach in 1995.	I	I			S4	AMARANTHACEAE
<i>Cydonia oblonga</i> Miller	Quince	IH	W. Scott (TRT) from Queenston in 1897.	--	--			SE1	ROSACEAE
<i>Cymbalaria muralis</i> P. Gaertner, Meyer & Scherb.	Ivy-leaved Toadflax	IR	A rare European weed, collected as recently as 1988 along the Niagara Parkway (P.M. Eckel and R.H. Zander #889024, BUF; Eckel 2001).	--	--			SE1	PLANTAGINACEAE
<i>Cynanchum louiseae</i> Kartesz & Gandhi	Black Swallow-wort	IH	Reported by Montgomery (1957) from Welland County (now part of Niagara Regional Municipality), and by Cameron (1895) and Hamilton (1943) from the Niagara Parks System. = <i>Cynanchum nigrum</i> , <i>Vincetoxicum nigrum</i> .	I	--			SE3	APOCYNACEAE

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<i>Cynanchum rossicum</i> (Kleopov) Borh.	Swallow-wort	IR	Rare weed, though an increasingly common invasive elsewhere in southern Ontario and likely to become more common in Niagara. M.J. Oldham #32595 (DAO) Fort Erie railway yard in 2006. = <i>Cynanchum medium</i> , <i>Vincetoxicum medium</i> , <i>V. rossicum</i> .	I	--			SE5	APOCYNACEAE
<i>Cynanchum vincetoxicum</i> (L.) Pers.	Dog-strangling Vine	IH	Reported from Niagara Falls by Macoun (1906; as <i>Vincetoxicum album</i>) (see Zenkert and Zander 1975). W. Scott (TRT) from Niagara Falls in 1904.	--	--			SE1	APOCYNACEAE
<i>Cynoglossum boreale</i> Fern.	Northern Wild Comfrey	RH	Early reports from the Niagara River area: Niagara Parks System (as <i>C. virginicum</i>; Cameron 1895); "Whirlpool Woods, Niagara Gorge" collector unknown (BUF) in 1891 (Eckel 2001). No recent records.	--	--			S4	BORAGINACEAE
<i>Cynoglossum officinale</i> L.	Hound's-tongue	IR	Rare weed.	I	I			SE5	BORAGINACEAE
<i>Cynosurus cristatus</i> L.	Crested Dogtail	IH	A rare weed. Most Ontario records of this grass are from the late 1800's (Dore and McNeill 1980). R. Cameron (NFO, det. M.J. Oldham in 2006) from Queen Victoria Park, Niagara Falls, ca. 1890 (Eckel 2001).	--	--			SE1	POACEAE
<i>Cyperus bipartitus</i> Torrey	Shining Cyperus	U	About 11 sites, mostly on Lake Erie shore. M.J. Oldham #33880 (DAO) from Dufferin Islands in 2006. = <i>Cyperus rivularis</i> .	R4	C			S5	CYPERACEAE
<i>Cyperus diandrus</i> Torrey	Low Cyperus	R	Three recent sites, one on the Lake Erie shore and two on the Lake Ontario shore. M.J. Oldham #18119 (MICH) from Four Mile Pond, near Niagara-on-the-Lake, in 1995.	R1	R2			S4	CYPERACEAE
<i>Cyperus erythrorhizos</i> Muhlenb.	Red-rooted Cyperus	U	Uncommon on moist shores. M.J. Oldham #33877 (DAO) from Dufferin Islands in 2006.	R4	VU			S4	CYPERACEAE
<i>Cyperus esculentus</i> L.	Yellow Nut Sedge	U	Uncommon on moist shores and open disturbed ground.	C	U			S5	CYPERACEAE

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<i>Cyperus fuscus</i> L.	Brown Flatsedge	IU	Moist, open disturbed ground. First reported from Canada in the Niagara Region by Gillett (1971). M.J. Oldham #8762 (DAO, MICH, TRTE) from Rathfon Point in 1988.	--	I			SE2	CYPERACEAE
<i>Cyperus lupulinus</i> (Sprengel) Marcks ssp. <i>macilentus</i> (Fern.) Marcks	Slender-stemmed Cyperus	RH	The only presumably native Niagara population is a historical record from Point Abino, where collected by C.A. Zenkert (BUF) in 1931, and not seen since (Macdonald 1990). Recently noted in railway yards in Niagara Falls and Fort Erie, where presumably adventive. M.J. Oldham #7852 (BUF, DAO) from Fort Erie railway yard in 1987.	R1	C			S4	CYPERACEAE
<i>Cyperus odoratus</i> L. var. <i>engelmannii</i> (Steud.) J. Rich	Coarse Cyperus	U	Uncommon on moist shorelines. C.A. Schaefer #91-15 (TRT) from Jordan Valley ANSI in 1991 (Schaefer et al. 1992). = <i>Cyperus engelmannii</i> .	R4	U			S5	CYPERACEAE
<i>Cyperus odoratus</i> L. var. <i>odoratus</i>	Fragrant Cyperus	U	Uncommon on moist shorelines. C. Schaefer #91-16 (TRT) from Jordan Valley ANSI in 1991. = <i>Cyperus ferruginescens</i> , <i>C. odoratus</i> var. <i>squarrosus</i> .	?	U			S4	CYPERACEAE
<i>Cyperus schweinitzii</i> Torrey	Schweinitz's Cyperus	R	Rare on Lake Erie sandy shores and dunes. Pt. Abino Peninsula (BUF; Macdonald 1990). I.D. Macdonald #21591 (TRTE) from near Crystal Beach in 1990.	R1	--			S3	CYPERACEAE
<i>Cyperus strigosus</i> L.	Straw-colored Cyperus	U	Moist, open shorelines.	U7	C			S5	CYPERACEAE
<i>Cypripedium acaule</i> Aiton	Pink Moccasin Flower	RH	Collected by A.W. Miller (HAM) from Wainfleet Bog in 1948 and not seen since (Macdonald 1992).	R2	U			S5	ORCHIDACEAE
<i>Cypripedium parviflorum</i> Salisb. var. <i>makasin</i> Farw.	Small Yellow Lady's-slipper	R	Observed in Niagara Glen by S. Varga in 1989 (Varga and Kor 1993). = <i>Cypripedium calceolus</i> var. <i>parviflorum</i> .	C	C			S5	ORCHIDACEAE

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<i>Cypripedium parviflorum</i> Salisb. var. <i>pubescens</i> Willd.	Large Yellow Lady's-slipper	R	Historically known from the Niagara River area (Day 1888, Panton 1890, Cameron 1895, Heimburger 1955; TRT). Reported from two Niagara Escarpment sites (Riley et al. 1996).	R1	VU			S5	ORCHIDACEAE
<i>Cypripedium reginae</i> Walter	Showy Lady's-slipper	R	Observed in North Pelham Valley in 1993 (Riley et al. 1996).	R4	U			S4	ORCHIDACEAE
<i>Cystopteris bulbifera</i> (L.) Bernh.	Bulblet Bladder Fern	U	Uncommon in cool calcareous woods, particularly on the Niagara Escarpment.	C	C			S5	WOODSIACEAE
<i>Cystopteris protrusa</i> (Weath.) Blasdell	Creeping Fragile Fern	R	S. Varga #115-93 (TRT) from Short Hills Provincial Park in 1993; not known elsewhere in the region.	R1	R1			S2	WOODSIACEAE
<i>Cystopteris tenuis</i> (Michaux) Desv.	Mackay's Brittle Fern	U	Uncommon.	C	C			S5	WOODSIACEAE
<i>Dactylis glomerata</i> L.	Orchard Grass	IC	An abundant and widespread grass of roadsides, old fields, and other open, disturbed sites.	I	I			SE5	POACEAE
<i>DACTYLORHIZA</i>	<i>see</i>		<i>COELOGLOSSUM</i>						ORCHIDACEAE
<i>Danthonia compressa</i> Austin	Flat-stemmed Danthonia	R	First collected in the region by W.L. Putnam (DAO) from Ball's Falls Conservation Area in 1971 (ARVPO database). Recently found at two sites in the Niagara Gorge area. M.J. Oldham #32709 (DAO, MICH) from Niagara Glen in 2006.	--	R2			S4	POACEAE
<i>Danthonia spicata</i> (L.) P. Beauv. ex Roemer & Schultes	Poverty Oat Grass	C	Abundant and widespread, usually in open, dry sites.	C	C			S5	POACEAE
<i>Daphne mezereum</i> L.	Daphne	IR	Rare escape from cultivation. M.J. Oldham #34848 (DAO) from Dufferin Islands in 2007.	--	--			SE2	THYMELAEACEAE
<i>Dasiphora fruticosa</i> Raf.	Shrubby Cinquefoil	RH	"at Dufferin Islands, in wet ground, is a small stand," Hamilton (1943). Historically also known from the limestone shore at Point Abino (Zenkert 1934), though not seen there recently (Macdonald 1990). = <i>Potentilla fruticosa</i> .	--	VU			S5	ROSACEAE
<i>Datura stramonium</i> L.	Jimsonweed	IR	Rare weed.	I	I			SE5	SOLANACEAE
<i>Daucus carota</i> L.	Wild Carrot	IC	Abundant weed.	I	I			SE5	APIACEAE

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<i>Decodon verticillatus</i> (L.) Elliott	Swamp Loosestrife	R	Rare; wetlands. A.C. Garofalo #07-633 (HAM) from Ussher's Creek at Niagara River in 2007.	R1	U			S5	LYTHRACEAE
<i>DENDROLYCOPODIUM</i>	see		<i>LYCOPODIUM</i>						LYCOPODIACEAE
<i>Dennstaedtia punctilobula</i> (Michaux) T. Moore	Hay-scented Fern	R	Noted by Zenkert (1934) from the Niagara Glen, though not seen there since (Varga and Kor 1993, Oldham 2007). Reported by Gould (1989) from Short Hills Provincial Park.	R1	U			S5	DENNSTAEDTIACEAE
<i>DENTARIA</i>	see		<i>CARDAMINE</i>						BRASSICACEAE
<i>Deparia acrostichoides</i> (Swartz) M. Kato	Silvery-spleenwort	R	Rare in woods, primarily on the Niagara Escarpment (Riley et al. 1996; TRT). = <i>Athyrium thelypteroides</i> .	U10	U			S4	WOODSIACEAE
<i>Deschampsia caespitosa</i> (L.) P. Beauv. ssp. <i>caespitosa</i>	Tufted Hair Grass	R	Limestone shoreline outcrops along Lake Erie. Point Abino (TRTE; Macdonald 1990). M.J. Oldham #34328 (DAO) from Lake Erie shoreline near Port Colborne in 2007.	--	--			S5	POACEAE
<i>Deschampsia flexuosa</i> (L.) Trin.	Common Hair Grass	R	Rare; woodlands. DAO, TRT.	--	R1			S5	POACEAE
<i>Descurainia sophia</i> (L.) Webb ex Prantl	Flixweed	IR	Rare weed. DAO.	I	I			SE5	BRASSICACEAE
<i>Desmodium canadense</i> (L.) DC.	Showy Tick-trefoil	U		C	C			S4	FABACEAE
<i>Desmodium ciliare</i> (Muhlenb. ex Willd.) DC.	Hairy Small-leaved Tick-trefoil	RH	Collections from Queenston Heights in 1887 (Macoun, CAN) and Niagara Falls in 1891 (Cameron, CAN) are the only Canadian records.	--	--			SX	FABACEAE
<i>Desmodium cuspidatum</i> (Muhlenb. ex Willd.) DC. ex Loudon	Toothed Tick-trefoil	RH	Last collected in the Niagara Gorge area in 1948 (B. Miller, TRT). Reported from Short Hills Sanctuary by Campbell (1982) based on a 1979 survey.	R2	R2			S2S3	FABACEAE
<i>Desmodium glutinosum</i> (Muhlenb. ex Willd.) Alph. Wood	Pointed-leaved Tick-trefoil	U	Uncommon; woods. = <i>Hylodesmum glutinosum</i> .	C	C			S4	FABACEAE

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<i>Desmodium nudiflorum</i> (L.) DC.	Naked-flowered Tick-trefoil	R	Reported from four Niagara Escarpment sites by Riley et al. (1996). Early records from the Niagara River area (Heimbürger 1955, Eckel 2001; TRT) though not seen in the area since 1948 (Varga and Kor 1993). = <i>Hylodesmum nudiflorum</i> .	R3	U			S4	FABACEAE
<i>Desmodium paniculatum</i> (L.) DC. var. <i>dillenii</i> (Darl.) Isely	Tick-trefoil	R	Several early reports from Queenston Heights (Macoun 1883-1892, Day 1888, Heimbürger 1955), though not recorded since 1902 (W. Scott, TRT; Varga and Kor 1993). The only recent record is from Point Abino (M.J. Oldham #23198, MICH, in 1999). = <i>Desmodium dillenii</i> .	R1	U			S4	FABACEAE
<i>Desmodium paniculatum</i> (L.) DC. var. <i>paniculatum</i>	Panicled Tick-trefoil	R	Reported from several Niagara Escarpment sites (Riley et al. 1996).	R3	R2			S4	FABACEAE
<i>Desmodium rotundifolium</i> (Michaux) DC.	Prostrate Tick-trefoil	RH	Several early reports from the Niagara River area (Cameron 1895, Hamilton 1943). W. Scott (TRT) from Queenston Heights in 1896 (Oldham 1983).	--	R5			S2	FABACEAE
<i>Dianthus armeria</i> L.	Deptford Pink	IC		I	I			SE5	CARYOPHYLLACEAE
<i>Dianthus barbatus</i> L.	Sweet William	IR	A rare garden escape. Reported from Point Abino by Macdonald (1990).	--	I			SE1	CARYOPHYLLACEAE
<i>Dianthus deltoides</i> L.	Maiden Pink	IH	T.M.C. Taylor #114 (TRT) from Vineland in 1940 (McIntosh & Catling 1979).	--	--			SE2	CARYOPHYLLACEAE
<i>Dicentra canadensis</i> (Goldie) Walp.	Squirrel-corn	U		C	U			S5	PAPAVERACEAE
<i>Dicentra cucullaria</i> (L.) Bernh.	Dutchman's-breeches	U		U9	U			S5	PAPAVERACEAE

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<i>Dichanthelium acuminatum</i> (Sw.) Gould & C.A. Clark ssp. <i>fasciculatum</i> (Torrey) Freckmann & Lelong	Hairy Panic Grass	U	Local status poorly known due to confusion with similar species. Mapped from several Niagara sites by Dore and McNeill (1980), listed for Point Abino by Macdonald (1990), based on an F.W. Johnson (BUF) collection from the 1920's. = <i>Panicum acuminatum</i> var. <i>fasciculatum</i> , <i>P. lanuginosum</i> var. <i>fasciculatum</i>	C	C			S5	POACEAE
<i>Dichanthelium acuminatum</i> (Sw.) Gould & C.A. Clark ssp. <i>implicatum</i> (Scribn.) Freckmann & Lelong	Panic Grass	C	Local status poorly known due to confusion with similar species. Mapped from several Niagara sites by Dore and McNeill (1980). = <i>Panicum implicatum</i> , <i>P. lanuginosum</i> var. <i>implicatum</i> .	C	X			S5	POACEAE
<i>Dichanthelium acuminatum</i> (Sw.) Gould & C.A. Clark ssp. <i>lindheimeri</i> (Nash) Freckmann & Lelong	Lindheimer's Panic Grass	R	Largely restricted to limestone rocky shorelines along Lake Erie. Point Abino (BUF, TRTE; Macdonald 1990). = <i>Dichanthelium lindheimeri</i> , <i>Panicum lanuginosum</i> var. <i>lindheimeri</i> , <i>P. lindheimeri</i> .	--	R2			S4	POACEAE
<i>Dichanthelium clandestinum</i> (L.) Gould	Hidden Panic Grass	R	Montrose Railway Yard, Niagara Falls, M.J. Oldham #18147 (CAN, DAO) in 1995; collected from edge of scrubby woods (not from immediately adjacent to railway tracks). = <i>Panicum clandestinum</i> .	--	VU			S2	POACEAE
<i>Dichanthelium dichotomum</i> (L.) Gould ssp. <i>dichotomum</i>	Forked Panic Grass	RH	Ontario, Niagara Parks System, Cameron (1895). "... known to occur in the Parks," Hamilton (1943). Reported by Dore and McNeill (1980) to have been collected at Queenston Heights and Niagara Falls, although specimens could not be located by Argus et al. (1982-1987). = <i>Panicum dichotomum</i> var. <i>dichotomum</i> .	RH	VU			S2	POACEAE
<i>Dichanthelium latifolium</i> (L.) Harvill	Broadleaf Panic Grass	R	C.J. Rothfels #2232 (HAM) in 2006. = <i>Panicum latifolium</i> .	R4	C			S4	POACEAE

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<i>Dichanthelium oligosanthes</i> (Schult.) Gould ssp. <i>oligosanthes</i>	Few-flowered Panic Grass	IR	M.J. Oldham #34861 (DAO) from Fort Erie railway yard in 2007, where probably not native. = <i>Panicum oligosanthes</i> var. <i>oligosanthes</i> .	--	?			S4?	POACEAE
<i>Dichanthelium oligosanthes</i> (Schult.) Gould ssp. <i>scribnerianum</i> (Nash) Freckmann & Lelong	Scribner's Few-flowered Panic Grass	R	Reported from Point Abino by Macdonald (BUF, TRTE; 1990) and mapped from two Lake Erie shoreline sites (one of which is likely Point Abino) by Dore and McNeill (1980). = <i>Panicum oligosanthes</i> var. <i>scribnerianum</i> .	--	?			S4	POACEAE
<i>Dichanthelium ovale</i> (Elliott) Gould & C.A. Clark	Panic Grass	RH	A collection from Niagara Falls (J. Voaden, QK) in 1902 (ARVPO database) is the only regional record. The specimen probably belongs to ssp. <i>praecocius</i> , but may belong to ssp. <i>villosissimum</i> . = <i>Dichanthelium villosissimum</i> var. <i>praecocius</i> , <i>Panicum praecocius</i> of regional reports.	--	R2			S3	POACEAE
<i>Dichanthelium xanthophyllum</i> (A. Gray) Freckmann	Yellow Panic Grass	RH	Niagara Parks System, Cameron (1895). Non-specimen record mapped from the Canadian side of the Niagara River by Dore and McNeill (1980). = <i>Panicum xanthophyllum</i> .	--	R2			S4	POACEAE
<i>Diervilla lonicera</i> Miller	Bush-honeysuckle	U		C	C			S5	DIERVILLACEAE
<i>Digitalis grandiflora</i> Miller	Yellow Foxglove	IR	J. Jalava #91-59 (TRT) from Fifteen Mile Creek ANSI in 1991. = <i>Digitalis ambigua</i> .	--	--			SE1	PLANTAGINACEAE
<i>Digitaria cognata</i> (Schultes) Pilger	Fall Witch Grass	IR	Fort Erie railway yard where first reported by Catling et al. (1977). Fort Erie railway yard, M.J. Oldham #23208 (MICH) in 1999. Rare in Ontario but probably entirely introduced in Niagara Region. = <i>Leptoloma cognatum</i> .	--	I			S4	POACEAE
<i>Digitaria ischaemum</i> (Schreber ex Schwein.) Schreber ex Muhlenb.	Smooth Crab Grass	IU	Uncommon, though probably overlooked.	I	I			SE5	POACEAE
<i>Digitaria sanguinalis</i> (L.) Scop.	Large Crab Grass	IU	Uncommon, though probably overlooked.	I	I			SE5	POACEAE

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<i>Dioscorea villosa</i> L.	Wild Yam	U	Uncommon in woodlands. = <i>Dioscorea quaternata</i> .	C	C			S4	DIOSCOREACEAE
<i>Diphasiastrum digitatum</i> Dill. ex A. Braun	Southern Running-pine	U	Uncommon in sandy woods, clearings, and old fields. = <i>Lycopodium complanatum</i> var. <i>flabelliforme</i> , L. <i>flabelliforme</i> .	C	C			S5	LYCOPODIACEAE
<i>DIPLACHNE</i>	<i>see</i>		<i>LEPTOCHLOA</i>						POACEAE
<i>Diplazium pycnocarpon</i> (Sprengel) M. Broun	Narrow-leaved Glade Fern	R	Rare in rich woods primarily on the Niagara Escarpment. A.W. Miller #33 (HAM) from Point Abino in 1950. = <i>Athyrium pycnocarpon</i> .	--	R			S4	WOODSIACEAE
<i>Diplotaxis muralis</i> (L.) DC.	Wall Rocket	IR	P.M. Catling (TRT) from Niagara Gorge in 1976 (McIntosh and Catling 1979). Frequently confused with <i>D. tenuifolia</i> .	I	--			SE1	BRASSICACEAE
<i>Diplotaxis tenuifolia</i> (L.) DC.	Narrow-leaved Wall Rocket	IU	Fort Erie railway yard, M.J. Oldham #18211 (TRTE) in 1995.	I	I			SE5	BRASSICACEAE
<i>Dipsacus fullonum</i> L. ssp. <i>sylvestris</i> (Hudson) Clapham	Common Teasel	IC	Common weed. = <i>Dipsacus sylvestris</i> .	I	I			SE5	DIPSACACEAE
<i>Dipsacus laciniatus</i> L.	Cut-leaved Teasel	IR	Rare roadside weed. Hwy. 504 near Queenston, M.J. Oldham #32924 (DAO) in 2006	--	--			SE1	DIPSACACEAE
<i>Dirca palustris</i> L.	Leatherwood	R	Rare, rich woods.	U10	U			S4?	THYMELAEACEAE
<i>DISPORUM</i>	<i>see</i>		<i>PROSARTES</i>						CONVALLARIACEAE
<i>Doellingeria umbellata</i> (Miller) Nees	Flat-topped White Aster	U	Uncommon. = <i>Aster umbellatus</i> .	R5	U			S5	ASTERACEAE
<i>DRABA</i>	<i>see also</i>		<i>EROPHILA</i>						BRASSICACEAE
<i>Draba reptans</i> (Lam.) Fern.	Carolina Whitlow-grass	RH	A specimen from Point Abino was apparently collected by A.W. (Bert) Miller in the late 1940s or early 1950s (Heimbürger 1955), though the species has not been located there since (Macdonald 1990). No Niagara records are mapped by Argus et al. (1982-1987).	--	--			S2	BRASSICACEAE
<i>Draba verna</i> L.	Whitlow-grass	IC	M.J. Oldham #23310 (TRTE) from near Camelot Beach in 2000. = <i>Erophila verna</i> .	I	I			SE4	BRASSICACEAE

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<i>Drosera rotundifolia</i> L.	Round-leaved Sundew	R	An early report from the Niagara Falls area (Hamilton 1943), otherwise known in the region only from Wainfleet Bog (Macdonald 1992).	R2	U			S5	DROSERACEAE
<i>Drymocallis arguta</i> (Pursh) Rydb.	Tall Cinquefoil	--	Not currently known from Niagara R.M., but a record from Dunnville East Forests in adjacent Haldimand County (Sutherland 1987) is within the NPCA watershed (D.A. Sutherland pers. comm. 2010). = <i>Potentilla arguta</i> .	--	R2			S4	ROSACEAE
<i>Dryopteris carthusiana</i> (Villars) H.P. Fuchs	Spinulose Wood Fern	C	Common in woods and wetlands. = <i>Dryopteris spinulosa</i> .	C	C			S5	DRYOPTERIDACEAE
<i>Dryopteris clintoniana</i> (D.C. Eaton) Dowell	Clinton's Wood Fern	R	Rare in rich woods. F.T. Knapp #7 (HAM, det. D.M. Britton) from near Fonthill in 1942.	C	C			S4	DRYOPTERIDACEAE
<i>Dryopteris cristata</i> (L.) A. Gray	Crested Wood Fern	U	Uncommon in moist woods and swamps. M.J. Oldham #22212 (OAC) from Marcy's Woods in 1999.	C	VU			S5	DRYOPTERIDACEAE
<i>Dryopteris goldiana</i> (Hook. ex Goldie) A. Gray	Goldie's Wood Fern	R	Rare in rich woods (e.g. Niagara Glen, Point Abino). J. Jalava #91-198 (HAM) from Beamsville Escarpment ANSI in 1991.	R4	R6			S4	DRYOPTERIDACEAE
<i>Dryopteris intermedia</i> (Muhlenb. ex Willd.) A. Gray	Evergreen Wood Fern	C	Most common on the Niagara Escarpment.	C	C			S5	DRYOPTERIDACEAE
<i>Dryopteris marginalis</i> (L.) A. Gray	Marginal Wood Fern	U	Locally common in rocky Niagara Escarpment woodlands; rare elsewhere in the region.	C	C			S5	DRYOPTERIDACEAE
<i>Dryopteris x triploidea</i> Wherry	(<i>D. carthusiana</i> X <i>D. intermedia</i>)	hyb	Few records though probably overlooked. C.A. Campbell (HAM) from Short Hills Wilderness Area in 1979.	hyb	C			S3S4	DRYOPTERIDACEAE
<i>Duchesnea indica</i> (Andrz.) Focke	Indian Strawberry	IR	Rare weed in woods and thickets. M.J. Oldham #32896 (DAO) from Niagara Glen in 2006.	--	--			SE1	ROSACEAE
<i>Dulichium arundinaceum</i> (L.) Britton	Three-way Sedge	R	Pt. Abino Peninsula (Macdonald 1990). A.C. Garofalo #07-732 (HAM) from Lyon's Creek in 2007.	U8	VU			S5	CYPERACEAE
<i>Dysphania ambrosioides</i> (L.) Mosyakin & Clemants	Mexican Wormseed	IR	Rare weed. W. Scott (TRT) from Niagara Falls in 1898. = <i>Chenopodium</i>	--	I			SE1	AMARANTHACEAE

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			<i>ambrosioides</i> .						
<i>Dysphania botrys</i> (L.) Mosyakin & Clemants	Jerusalem-oak	IR	An uncommon weed of roadsides and railways. Collected as early as the late 1800s (R. Cameron, NFO, det. M.J. Oldham in 2007) from Queen Victoria Niagara Falls Park. Recent specimens at TRT (McIntosh and Catling 1979). = <i>Chenopodium botrys</i> .	I	--			SE4	AMARANTHACEAE
<i>Dysphania pumilio</i> (R. Brown) Mosyakin & Clemants	Clammy Goosefoot	IR	A collection from a parking lot in St. Catharines (M.J. Oldham #33954, DAO) in 2006 is the first regional report and the second record for Ontario. = <i>Chenopodium pumilio</i> .	--	--			SE1	AMARANTHACEAE
<i>Dyssodia papposa</i> (Vent.) A.S. Hitchc.	Fetid Dogweed	IH	Reported by D.F. Day as a railway weed at Fort Erie (Macoun 1883-1892; as <i>D. chrysanthemoides</i>); no subsequent regional reports.	--	--			SE4	ASTERACEAE
<i>Echinacea purpurea</i> (L.) Moench	Eastern Purple Coneflower	IR	Garden escape. NAI.	--	--			SE1	ASTERACEAE
<i>Echinochloa crusgalli</i> (L.) P. Beauv.	Barnyard Grass	IC	Common weed of disturbed frequently moist ground. Easily confused with other <i>Echinochloa</i> species (see Dore & McNeill 1980).	I	I			SE5	POACEAE
<i>Echinochloa muricata</i> (P. Beauv.) Fern. var. <i>microstachya</i> (Wieg.) Rydb.	Western Barnyard Grass	R	Mostly along shorelines. J. Jalava #91-66 (TRT) from Fifteen Mile Creek ANSI in 1991 (Jalava et al. 1992; as <i>E. wiegandii</i>). = <i>Echinochloa microstachya</i> , <i>E. wiegandii</i> .	U7	?			S4S5	POACEAE
<i>Echinochloa muricata</i> (P. Beauv.) Fern. var. <i>muricata</i>	Barnyard Grass	R	Apparently rare. Distribution and status not well known due to confusion with other <i>Echinochloa</i> species. Riley et al. (1996). J. Jalava #91-400 (TRT) from Fifteen Mile Creek ANSI in 1991 (Jalava et al. 1992).	R4	?			S4	POACEAE
<i>Echinochloa walteri</i> (Pursh) A.A. Heller	Walter's Barnyard Grass	R	Four-Mile Pond, west of Niagara-on-the-Lake, M.J. Oldham #18116 (DAO) in 1995.	--	R2			S3	POACEAE
<i>Echinocystis lobata</i> (Michaux) Torrey & A.	Wild Cucumber	C		C	C			S5	CUCURBITACEAE

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Gray									
<i>Echinops sphaerocephalus</i> L.	Globe-thistle	IR	Pt. Abino Peninsula, Macdonald 1990	--	--			SE4	ASTERACEAE
<i>Echium vulgare</i> L.	Viper's-bugloss	IC		I	I			SE5	BORAGINACEAE
<i>Elaeagnus angustifolia</i> L.	Russian Olive	IR	M.J. Oldham #34928 (DAO, MICH) from Niagara Falls railway yard in 2007.	I	--			SE3	ELAEAGNACEAE
<i>Elaeagnus umbellata</i> Thunb.	Autumn Olive	IU	M.J. Oldham #32589 (MICH) from railway tracks near Chippewa Parkway in 2006.	I	I			SE3	ELAEAGNACEAE
<i>Eleocharis acicularis</i> (L.) Roemer & Schultes	Needle Spike-rush	R	Mudflats and moist shorelines. A.C. Garofalo #07-607 (HAM) from Merrit Road Swamp in 2007.	U6	U			S5	CYPERACEAE
<i>Eleocharis compressa</i> Sullivant	Flattened Spike-rush	R	Single record, limestone Lake Erie shoreline. T. Smith #335 (HAM) from Point Abino in 2001.	R1	--			S4	CYPERACEAE
<i>Eleocharis elliptica</i> Kunth	Elliptic Spike-rush	R	Lake Erie limestone shoreline and nearby quarry bottoms. M.J. Oldham #34309 (MICH) from limestone quarry near Lake Erie shore near Port Colborne in 2007. = <i>Eleocharis tenuis</i> var. <i>borealis</i> .	--	U			S5	CYPERACEAE
<i>Eleocharis erythropoda</i> Steudel	Red-based Spike-rush	U		C	C			S5	CYPERACEAE
<i>Eleocharis flavescens</i> (Poir.) Urban var. <i>olivacea</i> (Torr.) Gleason	Olive-fruited Spike-rush	R	Point Abino only (M.J. Oldham #8775, MICH, TRTE, in 1988). = <i>Eleocharis olivacea</i> .	--	R1			S4	CYPERACEAE
<i>Eleocharis obtusa</i> (Willd.) Schultes	Blunt Spike-rush	C	Common on moist shores.	C	C			S5	CYPERACEAE
<i>Eleocharis palustris</i> (L.) Roemer & J.A. Schultes	Small's Spike-rush	R	Riley et al. (1996). = <i>Eleocharis smallii</i> .	R5	U			S5	CYPERACEAE
<i>Eleocharis quinqueflora</i> (F. Hartmann) Schwartz	Few-flowered Spike-rush	R	Lake Erie limestone shoreline and a nearby quarry bottom. M.J. Oldham #34313 (MICH) from limestone quarry near Lake Erie shore near Port Colborne in 2007. = <i>Eleocharis pauciflora</i> .	--	R1			S5	CYPERACEAE

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<i>Eleocharis rostellata</i> (Torrey) Torrey	Beaked Spike-rush	RH	5.6 km NW of Fort Erie, ditch along railway line, P.M. Catling and K.L. McIntosh (TRT) in 1977 (McIntosh and Catling 1979).	--	--			S3	CYPERACEAE
<i>Eleusine indica</i> (L.) Gaertner	Goose Grass	IR	Four-Mile Pond, west of Niagara-on-the-Lake, M.J. Oldham #18131 (DAO) in 1995.	I	I			SE3	POACEAE
<i>Elodea canadensis</i> Rich. ex Michaux	Canada Water-weed	U		C	C			S5	HYDROCHARITACEAE
<i>Elodea nuttallii</i> (Planchon) H. St. John	Nuttall's Water-weed	RH	J. Macoun #82331 (CAN) from Niagara Falls in 1901. No recent reports.	--	R1			S4	HYDROCHARITACEAE
<i>ELYMUS</i>	see also		<i>AGROPYRON</i> , <i>PASCOPYRUM</i> , <i>THINOPYRUM</i>						POACEAE
<i>Elymus canadensis</i> L.	Canada Wild-rye	U	Mostly from sandy Lake Erie shorelines, sometimes along railways.	R4	U			S4S5	POACEAE
<i>Elymus hystrix</i> L.	Bottlebrush Grass	C	Common, woodlands. = <i>Hystrix patula</i> .	C	C			S5	POACEAE
<i>Elymus repens</i> (L.) Gould	Quack Grass	IC	An abundant weedy grass of disturbed areas. = <i>Agropyron repens</i> , <i>Elytrigia repens</i> .	I	I			SE5	POACEAE
<i>Elymus riparius</i> Wieg.	River Bank Wild-rye	R	Riley et al. (1996). S. Varga #91-100 (TRT) from Decew Valley in 1991.	R5	C			S4?	POACEAE
<i>Elymus trachycaulus</i> (Link) Gould in Shinn. ssp. <i>trachycaulus</i>	Slender Wheat Grass	R	Riley et al. (1996). = <i>Agropyron trachycaulum</i> .	R1	U			S5	POACEAE
<i>Elymus villosus</i> Muhlenb. ex Willd.	Hairy Wild-rye	U	TRT	R2	VU			S4	POACEAE
<i>Elymus virginicus</i> L. var. <i>virginicus</i>	Virginia Wild-rye	C		C	C			S5	POACEAE
<i>Elymus wiegandii</i> Fern.	Wiegand's Wild-rye	RH	Riley et al. (1996).	--	--			S4	POACEAE
<i>ELYTRIGIA</i>	see		<i>ELYMUS</i>						POACEAE
<i>Epifagus virginiana</i> (L.) Barton	Beech-drops	C		C	C			S5	OROBANCHACEAE
<i>EPILOBIUM</i>	see also		<i>CHAMERION</i>						ONAGRACEAE
<i>Epilobium ciliatum</i> Raf. ssp. <i>ciliatum</i>	Willow-herb	C	Reports of ssp. <i>glandulosum</i> (NAI database) require checking.	C	C			S5	ONAGRACEAE
<i>Epilobium coloratum</i> Biehler	Purple-leaved Willow-herb	C		C	VU			S5	ONAGRACEAE

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<i>Epilobium hirsutum</i> L.	Great Hairy Willow-herb	IC		I	I			SE5	ONAGRACEAE
<i>Epilobium leptophyllum</i> Raf.	Narrow-leaved Willow-herb	R	Riley et al. (1996). S. Varga #153-93 (TRT) from Short Hills Provincial Park in 1993.	C	U			S5	ONAGRACEAE
<i>Epilobium parviflorum</i> Schreber	Small-flowered Willow-herb	IU	An increasingly common Eurasian weed recently established in North America. See Eckel (2002). MJO.	I	I			SE4	ONAGRACEAE
<i>Epipactis helleborine</i> (L.) Crantz	Helleborine	IC		I	I			SE5	ORCHIDACEAE
<i>Equisetum arvense</i> L.	Field Horsetail	C		C	C			S5	EQUISETACEAE
<i>Equisetum fluviatile</i> L.	River Horsetail	R	B. Miller #444 (HAM) from near Niagara-on-the-Lake in 1952.	C	U			S5	EQUISETACEAE
<i>Equisetum hyemale</i> L. ssp. <i>affine</i> (Engelm.) Stone	Common Scouring-rush	U	Uncommon in sandy moist ground.	C	C			S5	EQUISETACEAE
<i>Equisetum laevigatum</i> A. Braun	Smooth Scouring-rush	R	Pt. Abino Peninsula (Macdonald 1990). M.J. Oldham # 34333 (MICH) from Lake Erie shoreline near Port Colborne in 2007.	--	VU			S4	EQUISETACEAE
<i>Equisetum pratense</i> Ehrh.	Meadow Horsetail	R	Riley et al. (1996). S. Varga #69-93 (TRT) from Short Hills Wildlife Refuge in 1993.	U7	VU			S5	EQUISETACEAE
<i>Equisetum scirpoides</i> Michaux	Dwarf Scouring-rush	R	"Rare. Whirlpool, Niagara River, Ont. Day (1882). "Near the Whirlpool, Ontario," Day (1888). Ontario, Niagara Parks System, Cameron (1895). "Ontario: near the Whirlpool (Day, Cat. of Niag. Fl.)," Zenkert (1934). "... encountered in the Park," Hamilton (1943). (Eckel 2001). Pt. Abino Peninsula (Macdonald 1990).	R4	U			S5	EQUISETACEAE
<i>Equisetum sylvaticum</i> L.	Wood Horsetail	R		C	C			S5	EQUISETACEAE
<i>Equisetum variegatum</i> Schleicher ex Weber & Mohr ssp. <i>variegatum</i>	Variegated Scouring-rush	R	Riley et al. (1996)	C	C			S5	EQUISETACEAE
<i>Equisetum</i> x <i>mackaii</i> (Newman) Brichan	(<i>E. hyemale</i> X <i>E. variegatum</i> ssp. <i>variegatum</i>)	hyb	Point Abino (OAC, TRTE; Macdonald 1990). B. Miller #633 (HAM) from Rose Hill in 1948. = <i>Equisetum</i> x <i>trachyodon</i> .	hyb	VU			S3?	EQUISETACEAE

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<i>Equisetum x nelsonii</i> (A.A. Eat.) Schaffn. (pro sp.)	(<i>E. laevigatum</i> X <i>E. variegatum</i> ssp. <i>variegatum</i>)	hyb	B. Miller #633 (HAM) from Rose Hill in 1948.	--	--			S2?	EQUISETACEAE
<i>Eragrostis cilianensis</i> (All.) Lutati ex Hubb.	Stink Grass	IR	TRT (Heimbürger 1955). Dore and McNeill (1980)	I	I			SE5	POACEAE
<i>Eragrostis frankii</i> C.A. Meyer ex Steudel	Frank's Love Grass	R	Pt. Abino Peninsula (Macdonald 1990). M.J. Oldham #23161 (DAO) from Marcy's Woods in 1999.	R3	I			S4	POACEAE
<i>Eragrostis minor</i> Host	Little Love Grass	IU	Railway yard near Niagara Falls, M.J. Oldham #3855 (DAO, TRTE) in 1983.	I	I			SE5	POACEAE
<i>Eragrostis pectinacea</i> (Michaux) Nees var. <i>pectinacea</i>	Tufted Love Grass	U	Presumably native on sandy shorelines, widely adventive along roads and railways. M.J. Oldham #34973 (DAO) from Point Abino in 2007.	R3	I			S5	POACEAE
<i>Eragrostis spectabilis</i> (Pursh) Steudel	Purple Love Grass	IR	Two sites (Fort Erie railway yard and Wainfleet Wetlands), where probably non-native. Fort Erie railway yard, Catling & Riley (CAN, DAO, TRT) in 1976 (Catling et al. 1977). Niagara Falls railway yard, M.J. Oldham #18157 (DAO) in 1995.	--	I			S4	POACEAE
<i>Eranthis hyemalis</i> (L.) Salisb.	Winter Aconite	IR	Persisting or escaped from cultivation near Niagara River. M.J. Oldham #32432 (DAO) from Paradise Grove in 2006	--	--			SE1	RANUNCULACEAE
<i>Erechtites hieraciifolius</i> (L.) Raf. ex DC.	Pilewort	C		R5	C			S5	ASTERACEAE
<i>Erigeron annuus</i> (L.) Pers.	Daisy Fleabane	C		C	U			S5	ASTERACEAE
<i>Erigeron philadelphicus</i> L. var. <i>philadelphicus</i>	Philadelphia Fleabane	C		C	C			S5	ASTERACEAE
<i>Erigeron pulchellus</i> Michaux var. <i>pulchellus</i>	Robin's-plantain	R	Riley et al. (TRT; 1996). Point Abino (TRTE; Macdonald 1990).	C	U			S5	ASTERACEAE
<i>Erigeron strigosus</i> Muhlenb. ex Willd.	Spreading Fleabane	R	Status poorly known due to confusion with <i>E. annuus</i>.	C	U			S5	ASTERACEAE
<i>Eriophorum vaginatum</i> L. ssp. <i>spissum</i> (Fern.) Hulten	Cotton-grass	R	Wainfleet Bog only (Macdonald 1992). = <i>Eriophorum spissum</i> .	R1	--			S5	CYPERACEAE
<i>Eriophorum virginicum</i> L.	Tawny Cotton-grass	R	Wainfleet Bog only (Macdonald 1992).	R2	--			S5	CYPERACEAE

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<i>Eriophorum viridicarinarum</i> (Engelm.) Fern.	Cotton-grass	R	Short Hills, Varga (TRT) in 1993	--	R1			S5	CYPERACEAE
<i>Erodium cicutarium</i> (L.) L'Her. ssp. <i>cuticatum</i>	Stork's-bill	IR	McIntosh & Catling (1979).	I	--			SE3	GERANIACEAE
<i>EROPHILA</i>	see		<i>DRABA</i>						BRASSICACEAE
<i>Erucastrum gallicum</i> (Willd.) O.E. Schulz	Dog Mustard	IR	HAM	I	I			SE5	BRASSICACEAE
<i>Erysimum cheiranthoides</i> L. ssp. <i>cheiranthoides</i>	Wormseed Mustard	IU	Riley et al. (1996)	I	I			SE5	BRASSICACEAE
<i>Erysimum repandum</i> L.	Spreading Wallflower	IR	Rare weed. Port Colborne (M.J. Oldham #35113, DAO, HAM, in 2008).	--	--			SE2	BRASSICACEAE
<i>Erythronium albidum</i> Nutt.	White Trout Lily	R	Rare in rich, often floodplain, woods. W. Scott (TRT) from Queenston in 1901.	R4	U			S4	LILIACEAE
<i>Erythronium americanum</i> Ker Gawler ssp. <i>americanum</i>	Yellow Trout Lily	C		C	U			S5	LILIACEAE
<i>Euonymus alata</i> (Thunb.) Siebold	Winged Euonymus	IR	Niagara Gorge ANSI (includes Glen and Whirlpool) (Riley et al. 1996).	I	--			SE2	CELASTRACEAE
<i>Euonymus atropurpurea</i> Jacq. var. <i>atropurpurea</i>	Burning Bush	R	Most records historical (CAN, HAM, TRT; ARVO database).	R3	R3			S3	CELASTRACEAE
<i>Euonymus europaea</i> L.	Spindle-tree	IU	Increasingly common escape from cultivation. M.J. Oldham #32625 (MICH) from Brown's Point Park in 2006	--	--			SE2	CELASTRACEAE
<i>Euonymus fortunei</i> (Turcz.) Hand.-Mazz.	Wintercreeper	IU	Increasingly common escape from cultivation. M.J. Oldham #32345 (DAO) from Niagara Parkway in 2006	I	--			SE1	CELASTRACEAE
<i>Euonymus obovata</i> Nutt.	Running Strawberry-bush	C		C	C			S5	CELASTRACEAE
<i>EUPATORIADELPHUS</i>	see		<i>EUTROCHIUM</i>						ASTERACEAE
<i>EUPATORIUM</i>	see also		<i>AGERATINA, EUTROCHIUM</i>						ASTERACEAE
<i>Eupatorium altissimum</i> L.	Tall Thoroughwort	IR	Railway yard in Niagara Falls, P.M. Catling & K.M. McIntosh (TRT), 1976 (McIntosh and Catling 1979, Oldham 1988). Fort Erie railway tracks, M.J. Oldham #7846 (DAO) in 1987.	I	I			S1	ASTERACEAE
<i>Eupatorium perfoliatum</i> L.	Boneset	C		C	C			S5	ASTERACEAE

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<i>Eupatorium serotinum</i> Michaux	Late-flowering Thoroughwort	IR	M.J. Oldham #34930 (DAO) from Niagara Falls Railway Yard in 2007.	--	--			SE1	ASTERACEAE
EUPHORBIA	<i>see also</i>		CHAMAESYCE						EUPHORBIACEAE
<i>Euphorbia cyparissias</i> L.	Cypress Spurge	IU	Riley, Jalava & Varga 1996	I	I			SE5	EUPHORBIACEAE
<i>Euphorbia davidii</i> Subils	David's Spurge	IR	Previous regional reports of <i>E. dentata</i> are probably this species. M.J. Oldham #34859 (TRTE) from Fort Erie railway yard in 2007.	I	I			SE3?	EUPHORBIACEAE
<i>Euphorbia esula</i> L.	Leafy Spurge	IR	Riley et al (1996)	I	I			SE5	EUPHORBIACEAE
<i>Euphorbia exigua</i> L.	Little Spurge	IH	Collected from an abandoned quarry near Port Colborne by W.L. Putnam (#242, DAO) in 1978. Only known regional record.	--	--			SE1	EUPHORBIACEAE
<i>Euphorbia glyptosperma</i> Engelm.	Engraved Spurge	IR	Reported from the Niagara Parks System (Cameron 1895) and Niagara Gorge ANSI (Riley et al. 1996). = <i>Chamaesyce glyptosperma</i> .	I	I			SE5	EUPHORBIACEAE
<i>Euphorbia helioscopia</i> L.	Sun Spurge	IR	"Queenston," Field Club, 1886. With <i>E. platyphylla</i> , roadsides on the mainland, Day (1888). Ontario, Niagara Park System, Cameron (1895). Queenston, Wm. Scott, Sept. 6, 1898 (TRT) (Heimbürger, 1955). "Niagara Co.: Niagara Falls ... Ontario: Niagara Falls, Queenston," Zenkert (1934).	I	--			SE3	EUPHORBIACEAE
<i>Euphorbia maculata</i> L.	Hairy-fruited Spurge	IU	Rare weed. M.J. Oldham #32933 (DAO) from Dufferin Islands in 2006. = <i>Chamaesyce maculata</i> , <i>C. supina</i> , <i>Euphorbia supina</i> .	I	I			SE5	EUPHORBIACEAE
<i>Euphorbia nutans</i> Lagasca	Eyebane	R	Although considered native to Ontario (Morton and Venn 1990) this species usually occurs in disturbed habitats. M.J. Oldham #33832 (DAO) from the Niagara River Whirlpool in 2006. = <i>Chamaesyce nutans</i>, <i>Euphorbia preslii</i>.	U7	C			S4S5	EUPHORBIACEAE
<i>Euphorbia peplus</i> L.	Petty Spurge	IR	Ontario: Roundhouse, Niagara Falls, Wm. Scott, Sept. 12, 1903 (9077), Heimbürger (1955).	I	--			SE4	EUPHORBIACEAE
<i>Euphorbia platyphyllos</i> L.	Broad-leaved Spurge	IR	Eckel 2001 (Flora of Niagara Falls). MJO.	I	--			SE4	EUPHORBIACEAE

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<i>Euphorbia polygonifolia</i> L.	Seaside Spurge	R	Rare, on open, sandy Lake Erie shores, its typical habitat in the Great Lakes region (Guire and Voss 1963). M.J. Oldham #18191 (MICH) from Windmill Point in 1995. = <i>Chamaesyce polygonifolia</i> .	R1	U			S4	EUPHORBIACEAE
<i>Euphorbia vermiculata</i> Raf.	Hairy-stemmed Spurge	R	Rare; sometimes weedy. Point Abino (TRTE; Macdonald 1990). M.J. Oldham #34970 (DAO) from Thunder Bay beach in 2007. = <i>Chamaesyce vermiculata</i> .	R1	U			S5	EUPHORBIACEAE
<i>Eurybia divaricata</i> (L.) Nesom	White Wood Aster	U	Recent fieldwork in Niagara has documented more than a dozen new populations of this species. Mainly restricted to dry sandy uplands with suitable moisture on the Niagara Escarpment, the Fonthill Kame, St. David's Buried Valley, Onandaga Escarpment, forested Lake Erie dunes, abandoned shorelines of glacial lakes, and occasionally along steep valley slopes associated with large watercourses. M.J. Oldham #33866 (WAT) from Paradise Grove in 2006. See COSEWIC (2000c). = <i>Aster divaricatus</i> .	RH	--	THR	THR	S2	ASTERACEAE
<i>Eurybia macrophylla</i> (L.) Cass. in Cuvier	Large-leaved Aster	C	Common in upland woods. = <i>Aster macrophyllus</i> .	C	C			S5	ASTERACEAE
<i>Eurybia schreberi</i> (Nees) Nees	Schreber's Aster	R	Rare in rich upland woods of the Carolinian Zone. Easily confused with <i>E. macrophylla</i> . M.J. Oldham #32938 (WAT) from Ball's Falls Conservation Area in 2006. = <i>Aster schreberi</i> .	R2	--			S2S3	ASTERACEAE
<i>Euthamia graminifolia</i> (L.) Nutt. ex Cass.	Grass-leaved Goldenrod	C	A common goldenrod, with narrow leaves. = <i>Solidago graminifolia</i> .	C	C			S5	ASTERACEAE
<i>Eutrochium maculatum</i> (L.) Lamont var. <i>maculatum</i>	Spotted Joe-Pye-weed	C	Common in wetlands. = <i>Eupatoriadelphus maculatus</i> , <i>Eupatorium maculatum</i> ssp. <i>maculatum</i> .	C	C			S5	ASTERACEAE

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<i>Eutrochium purpureum</i> (L.) Lamont var. <i>purpureum</i>	Sweet Joe-Pye-weed	R	Rare, rich woods, often on floodplains. S. Varga #91-78 (TRT) from Niagara Section Escarpment ANSI in 1991. = <i>Eupatorium purpureum</i> var. <i>purpureum</i> .	R5	VU			S4	ASTERACEAE
<i>Fagopyrum esculentum</i> Moench	Buckwheat	IH	Rare weed. = <i>Fagopyrum sagittatum</i> .	I	I			SE3	POLYGONACEAE
<i>Fagus grandifolia</i> Ehrh.	American Beech	C	Suffering major dieback from Beech Bark Disease (<i>Nectria</i> species), a fungal disease which is at least partially introduced from Europe. The disease affects larger diameter trees, often killing back the entire canopy of mature beech trees but leaving small diameter understory trees or suckers unaffected. It remains to be seen if this species can set new fruit on the young unaffected trees or if it will only persist from root suckers.	C	C			S5	FAGACEAE
<i>Fallopia cilinodis</i> (Michx.) Holub	Fringed Black Bindweed	R	Collected in 2000 in a dune forest at Point Abino by Sean Blaney (pers. comm. 2010). = <i>Polygonum cilinode</i> .	R1	R			S5	POLYGONACEAE
<i>Fallopia convolvulus</i> (L.) A. Löve	Wild Buckwheat	IU	Uncommon weed. = <i>Bilderdykia convolvulus</i> , <i>Polygonum convolvulus</i> .	I	I			SE5	POLYGONACEAE
<i>Fallopia dumetorum</i> (L.) Holub	Climbing False-buckwheat	IH	A specimen collected by R. Cameron (NFO, det. M.J. Oldham in 2007) from Queen Victoria Niagara Falls Park has the small perianth (< 8 mm) characteristic of <i>F. dumetorum</i> . No recent records. = <i>Polygonum scandens</i> var. <i>dumetorum</i> .	--	--			SEH	POLYGONACEAE
<i>Fallopia japonica</i> (Hout.) Dcne.	Japanese Knotweed	IU	An aggressive introduced species probably spreading in the region. M.J. Oldham #34929 (DAO) from Niagara Falls railway yard in 2007. = <i>Polygonum cuspidatum</i> , <i>Reynoutria japonica</i> .	I	I			SE4	POLYGONACEAE

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<i>Fallopia sachalinensis</i> (F. Schmidt ex Maxim.) Dcne.	Giant Knotweed	IR	Large and well-established colony at Dufferin Islands, spreading into adjacent woods (M.J. Oldham #34958, DAO, in 2007). = <i>Polygonum sachalinense</i> , <i>Reynoutria sachalinensis</i> .	--	--			SE1	POLYGONACEAE
<i>Fallopia scandens</i> (L.) Holub	Climbing False Buckwheat	U	J. Jalava #91-16 (TRT) from 16 Mile Creek ANSI in 1991. = <i>Polygonum scandens</i> .	R2	VU			S4S5	POLYGONACEAE
<i>FESTUCA</i>	<i>see also</i>		<i>SCHEDONORUS</i>						POACEAE
<i>Festuca filiformis</i> Pourret	Hair Fescue	IR	A rare weed of lawns and other disturbed sites. M.J. Oldham #32427 (DAO, MICH) from Paradise Grove in 2006 = <i>Festuca tenuifolia</i> , <i>F. capillata</i> .	--	I			SE2	POACEAE
<i>Festuca rubra</i> L.	Red Fescue	IC	Regional records are probably from introduced populations.	I	I			S5	POACEAE
<i>Festuca subverticillata</i> (Pers.) E. Alexeev	Nodding Fescue	U	An uncommon woodland grass. = <i>Festuca obtusa</i> .	U7	C			S4	POACEAE
<i>Festuca trachyphylla</i> (Hack.) Krajina	Hard Fescue	IR	Rare and local in disturbed, sandy soil of cemeteries and roadsides. = <i>Festuca brevipila</i> , <i>Festuca ovina</i> , <i>F. longifolia</i> .	I	I			SE4	POACEAE
<i>Filipendula ulmaria</i> (L.) Maxim. ssp. <i>ulmaria</i>	Queen-of-the-prairie	IH	"... only rarely found in the fields above the Whirlpool," Hamilton (1943). Dufferin Islands, Hamilton, July 25, 1943 (NFO).(Eckel 2001)	--	--			SE1	ROSACEAE
<i>Floerkea proserpinacoides</i> Willd.	False Mermaid	R	Ontario, Niagara Park System, Cameron (1895). Navy Island, Eckel, May 13, 1998 (BUF). Frenchman's Creek, near Fort Erie, M.J. Oldham #23290 (TRT) in 2000.	U9	U			S4	LIMNANTHACEAE
<i>Foeniculum vulgare</i> Miller	Fennell	IH	"... reported from the Parks," Hamilton (1943); Montgomery (1957)	--	--			SE3?	APIACEAE
<i>Forsythia viridissima</i> Lindley	Forsythia	IR	A rare escape from cultivation. Some or all records may be of <i>Forsythia x intermedia</i> which is the commonest escaped Forsythia in Michigan (A.A. Reznicek pers. comm. 2010). M.J. Oldham #34044 (DAO) from Dufferin Islands in 2007.	--	--			SE2	OLEACEAE
<i>Fragaria vesca</i> L.	Woodland Strawberry	C		C	U			S5	ROSACEAE

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<i>Fragaria virginiana</i> Miller	Wild Strawberry	C		C	C			S5	ROSACEAE
<i>Frangula alnus</i> Mill.	Glossy Buckthorn	IC	Weed in wet areas. = <i>Alnus frangula</i> .	I	I			SE5	RHAMNACEAE
<i>Frasera caroliniensis</i> Walter	American Columbo	R	Rare, most records historical and from the Queenston area (CAN, DAO, TRT): "on the slope of Queenston Heights near the railway" (Macoun 1884); "in a woods about one and one-half miles west of Brock's Monument, Queenston" (Day 1883). "... was formerly common on the slopes of Queenston Heights" (Hamilton 1943). Recent records from Short Hills Provincial Park, Fifteen and Sixteen Mile Creek Valleys. See McIntosh & Catling (1979), COSEWIC (2006a). = <i>Swertia caroliniensis</i> .	R1	R1	END	END	S1	GENTIANACEAE
<i>Fraxinus americana</i> L.	White Ash	C		C	C			S5	OLEACEAE
<i>Fraxinus excelsior</i> L.	European Ash	IR	Rare in disturbed woods. M.J. Oldham #32964 (DAO) from Whirlpool in 2006.	--	--			SE2	OLEACEAE
<i>Fraxinus nigra</i> Marshall	Black Ash	U	A generally uncommon tree of organic or rich wetlands and remaining as an understory tree in open swamps. In Niagara, "The Black Ash, once very abundant in swamps and there outnumbering all other species combined, seems to have fared the worst. It was once the principal source of rail lumber, but the progressive drying out of the land is mainly responsible for its marked decrease. Seedlings of the Black Ash do not compete successfully under drier conditions with those of the White Elm and those of Red and Silver Maples, with the result that these have become the prevailing trees in low ground..." (notes from E.J. Hill in 1895, taken from Waldron 2003)	C	C			S5	OLEACEAE

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<i>Fraxinus pennsylvanica</i> Marshall	Red/Green Ash	C	The dominant successional tree with White Elm in wet ground. Abundant and widespread in young wet woods and regenerating moist fields and forested swamps. Outcompeted by maple species which replace the ash from the regeneration layer after canopy closure. Both var. <i>subintegerrima</i> (Vahl) Fern. (Red Ash) and var. <i>pennsylvanica</i> (Green Ash) are common and widespread in Niagara.	C	C			S5	OLEACEAE
<i>Fraxinus profunda</i> Bush	Pumpkin Ash	R	Rare in wet woods. M.J. Oldham #18109b (MICH, det. A.A. Reznicek) from Culp's Woods near Beamsville in 1995.	--	--			S2	OLEACEAE
<i>Fuirena pumila</i> (Torrey) Sprengel	Dwarf Umbrella-grass	RH	Collected in 1880 from Port Colborne, NIAG, and not seen since in Canada (Reznicek & Catling 1984).	--	--			SX	CYPERACEAE
<i>Fumaria officinalis</i> L.	Fumitory	IR	A.C. Garofalo (HAM) from Wainfleet Township in 2007.	--	--			SE2	PAPAVERACEAE
<i>Gaillardia aristata</i> Pursh	Great-flowered Gaillardia	IR	Pt. Abino Peninsula, Macdonald 1990	I	--			SE1	ASTERACEAE
<i>Galearis spectabilis</i> (L.) Raf.	Showy Orchis	R	Riley et al. 1996; Pt. Abino Peninsula, Macdonald 1990. W. Scott (TRT) from the Niagara River Whirlpool in 1905. = <i>Orchis spectabilis</i>.	R1	R3			S4	ORCHIDACEAE
<i>Galega officinalis</i> L.	Goat's Rue	IR	Rare weed. M.J. Oldham #33856 (DAO, MICH) from near St. Catherines in 2006.	--	--			SE1	FABACEAE
<i>Galeopsis tetrahit</i> L.	Hemp-nettle	IR		I	I			SE5	LAMIACEAE
<i>Galinsoga quadriradiata</i> Ruiz, Lopez & Pavon	Hairy Galinsoga	IR	Riley et al. (1986). = <i>Galinsoga ciliata</i> .	I	I			SE5	ASTERACEAE
<i>Galium aparine</i> L.	Cleavers	C		C	C			S5	RUBIACEAE
<i>Galium asprellum</i> Michaux	Rough Bedstraw	C		C	C			S5	RUBIACEAE
<i>Galium boreale</i> L.	Northern Bedstraw	U		C	U			S5	RUBIACEAE
<i>Galium circaezans</i> Michaux	Wild Licorice	U		C	C			S5	RUBIACEAE
<i>Galium lanceolatum</i> Torrey	Lance-leaved Wild Licorice	U		U9	C			S5	RUBIACEAE
<i>Galium mollugo</i> L.	Wild Madder	IC		I	I			SE5	RUBIACEAE

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<i>Galium obtusum</i> Bigelow	Obtuse Bedstraw	R	Rare in woodlands, though perhaps somewhat overlooked due to similiarity to other bedstraws.	C	C			S4S5	RUBIACEAE
<i>Galium odoratum</i> L.	Sweet-scented Bedstraw	IR	Railtrail below the Escarpment near Queenston, C.J. Rothfels #1456 (HAM) in 2004.	--	--			SE1	RUBIACEAE
<i>Galium palustre</i> L.	Marsh Bedstraw	C		C	--			S5	RUBIACEAE
<i>Galium pilosum</i> Aiton var. <i>pilosum</i>	Hairy Bedstraw	RH	Several early reports, most recently Pt. Abino Peninsula, though not seen there since the 1920's (Macdonald 1990). Early records from Queenston and Niagara Falls (BUF, TRT; ARVPO database).	--	U			S3	RUBIACEAE
<i>Galium tinctorium</i> L.	Dyer's Bedstraw	R	A small and taxonomically difficult species of wetlands.	C	U			S5	RUBIACEAE
<i>Galium trifidum</i> L.	Bedstraw	U	Poorly known in the region due to confusion with similar species.	C	U			S5	RUBIACEAE
<i>Galium triflorum</i> Michaux	Fragrant Bedstraw	C		C	C			S5	RUBIACEAE
<i>Galium verum</i> L.	Yellow Bedstraw	IU		I	I			S4S5	RUBIACEAE
<i>Gamochaeta purpurea</i> (L.) Cabrera	Purple Cudweed	RH	J. Macoun (CAN) from Port Colborne in 1885. Extirpated in Ontario; one of two provincial records. = <i>Gnaphalium purpureum</i> .	--	--			SX	ASTERACEAE
<i>Gaultheria hispidula</i> (L.) Muhlenb. ex Bigelow	Snowberry	RH	"A sphagnous swamp, near Black Creek, Ontario, a few miles south of Chippewa has produced (this species), Day (1888). Ontario, Niagara Park System (as <i>Chiogenes hispidula</i>), Cameron (1895). (as <i>C. hispidula</i>), "... reported from the Parks System," Hamilton (1943).	R2	R3			S5	ERICACEAE
<i>Gaultheria procumbens</i> L.	Wintergreen	U		C	C			S5	ERICACEAE
GAURA	see		OENOTHERA						ONAGRACEAE
<i>Gaylussacia baccata</i> (Wang.) K. Koch	Black Huckleberry	R	W. Scott (TRT) from Niagara River Whirlpool in 1898.	R4	C			S4	ERICACEAE
GENTIANA	see also		GENTIANELLA, GENTIANOPSIS						GENTIANACEAE
<i>Gentiana andrewsii</i> Griseb. var. <i>andrewsii</i>	Closed Gentian	U		C	U			S4	GENTIANACEAE

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<i>Gentianella quinquefolia</i> (L.) Small	Stiff Gentian	RH	Niagara Falls, J. Macoun (CAN) in 1894 (ARVPO database).	R1	--			S2	GENTIANACEAE
<i>Gentianopsis crinita</i> (Froelich) Ma	Fringed Gentian	R	Found in moist, open, calcareous sites. = <i>Gentiana crinita</i> , <i>Gentianella crinita</i> .	R5	U			S5	GENTIANACEAE
<i>Gentianopsis virgata</i> (Raf.) Holub	Narrow-leaved Fringed Gentian	R	Niagara River, rare. M.J. Oldham #33943 (NHIC) from the Niagara River Whirlpool in 2006. = <i>Gentiana procera</i> , <i>Gentianella crinita</i> ssp. <i>procera</i> , <i>Gentianopsis procera</i> .	--	--			S4	GENTIANACEAE
<i>Geranium carolinianum</i> L.	Carolina Crane's-bill	RH	One record mapped (based on a specimen examined) along the Niagara River by Cody (1982).	--	--			S4	GERANIACEAE
<i>Geranium maculatum</i> L.	Wild Geranium	C		C	C			S5	GERANIACEAE
<i>Geranium pusillum</i> L.	Small-flowered Crane's-bill	IR	An uncommon small weed of lawns and cemeteries.	I	I			SE4	GERANIACEAE
<i>Geranium robertianum</i> L.	Herb Robert	IC		I	C			SE5	GERANIACEAE
GERARDIA	see		AGALINIS, AUREOLARIA						OROBANCHACEAE
<i>Geum aleppicum</i> Jacq.	Yellow Avens	C		C	U			S5	ROSACEAE
<i>Geum canadense</i> Jacq.	White Avens	C		C	C			S5	ROSACEAE
<i>Geum laciniatum</i> Murray	Cut-leaved Avens	C		C	C			S4	ROSACEAE
<i>Geum rivale</i> L.	Water Avens	R	Rare in swamps.	R5	U			S5	ROSACEAE
<i>Geum urbanum</i> L.	Urban Avens	IR	M.J. Oldham #32633 (DAO, MICH) from Paradise Grove in 2006	I	I			SE2SE3	ROSACEAE
<i>Geum vernum</i> (Raf.) Torrey & A. Gray	Spring Avens	R	M.J. Oldham #23270 (MICH) from Marcy's Woods in 2000.	--	--			S4	ROSACEAE
<i>Geum x catlingii</i> J. Bernard & Gauthier	(<i>G. canadense</i> X <i>G. urbanum</i>)	hyb	Four Mile Pond, west of Niagara-on-the-Lake, M.J. Oldham #18124 (MICH) in 1995. C.J. Rothfels specimens (HAM) from Paradise Grove and near Queenston in 2004.	--	--			SE1	ROSACEAE
<i>Glechoma hederacea</i> L.	Gill-over-the-ground	IC		I	I			SE5	LAMIACEAE
<i>Gleditsia triacanthos</i> L.	Honey Locust	R	According to Riley et al. (1996) the "Niagara Gorge station is probably native" and Argus et al. (1982-1987) map several native sites in the Niagara River area. Also commonly planted and persisting/spreading after cultivation.	I	I			S2	FABACEAE

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<i>Glyceria borealis</i> (Nash) Batchelder	Northern Manna Grass	RH	Mapped from the Niagara River area (vicinity of Niagara-on-the-Lake) by Dore and McNeill (1980).	R4	U			S5	POACEAE
<i>Glyceria canadensis</i> (Michaux) Trin.	Rattlesnake Manna Grass	R	Wainfleet Bog, Macdonald 1992	R5	R3			S4S5	POACEAE
<i>Glyceria grandis</i> S. Watson	Tall Manna Grass	C		C	U			S4S5	POACEAE
<i>Glyceria septentrionalis</i> A.S. Hitchc.	Eastern Manna Grass	C	Common; wooded swamps.	C	U			S4	POACEAE
<i>Glyceria striata</i> (Lam.) A.S. Hitchc.	Fowl Manna Grass	C		C	C			S5	POACEAE
<i>Glycine max</i> (L.) Merr.	Soybean	IR	Fort Erie Railway Yard, where probably an ephemeral waif from spilled grain. M.J. Oldham #34858	--	--			SE1	FABACEAE
<i>Glycyrrhiza lepidota</i> Nutt. ex Pursh	Wild Licorice	RH	Reported from the Fort Erie area as early as 1862 by G.W. Clinton (Eckel 2001), though not seen in Niagara since 1967 (F.H. Montgomery, OAC, from Erie Beach, just west of Fort Erie).	--	--			S3	FABACEAE
<i>GNAPHALIUM</i>	<i>see also</i>		<i>GAMOCHAETA</i> , <i>PSEUDOGNAPHALIUM</i>						ASTERACEAE
<i>Gnaphalium uliginosum</i> L.	Low Cudweed	IR	Uncommon in moist open areas, often mudflats.	I	I			SE5	ASTERACEAE
<i>Goodyera pubescens</i> (Willd.) R. Br.	Downy Rattlesnake-plantain	RH	Ontario, Niagara Park System, Cameron (1895). "... a single plant was found at Paradise Grove in (1938)," Hamilton (1943). Ontario: Queen Victoria Park, Cameron, [ca.1890] (NFO).	--	VU			S4	ORCHIDACEAE
<i>Gratiola neglecta</i> Torrey	Hedge-hyssop	U	Uncommon in moist open areas.	U9	U			S4	PLANTAGINACEAE
<i>Grindelia squarrosa</i> (Pursh) Dun.	Broadleaf Gumweed	IH	Heimbürger (1955).	--	--			SE3	ASTERACEAE
<i>Gymnocarpium dryopteris</i> (L.) Newman	Common Oak Fern	RH	Reported from North Pelham Valley by Campbell (1982). Historical report from Niagara Parks System (as <i>Phegopteris dryopteris</i>), Cameron (1895). Mapped from Niagara by Cody and Britton (1989).	C	U			S5	DRYOPTERIDACEAE

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<i>Gymnocladus dioica</i> (L.) K. Koch	Kentucky Coffee Tree	IR	No native Niagara populations mapped by Argus et al. (1982-1987). Occasionally planted with some populations appearing in relatively natural habitats (e.g. at Dufferin Islands). Also planted in natural habitat at Short Hills Sanctuary by G.E. Meyers in the 1960s (A. Garofalo pers. comm. 2010).	I	I?	THR	THR	S2	FABACEAE
<i>HABENARIA</i>	<i>see</i>		<i>DACTYLORHIZA, PLATANThERA</i>						ORCHIDACEAE
<i>Hackelia virginiana</i> (L.) I.M. Johnston	Stickseed	U		C	C			S5	BORAGINACEAE
<i>Hamamelis virginiana</i> L.	Witch-hazel	C		C	C			S5	HAMAMELIDACEAE
<i>Hedeoma pulegioides</i> (L.) Pers.	American Pennyroyal	U		C	U			S4	LAMIACEAE
<i>Hedera helix</i> L.	English Ivy	IR	C.J. Rothfels #1457 (HAM) from railtrail below the Escarpment near Queenston in 2004.	--	--			SE1	ARALIACEAE
<i>HEDYOTIS</i>	<i>see</i>		<i>HOUSTONIA</i>						RUBIACEAE
<i>Helenum autumnale</i> L.	Sneezeweed	R		--	U			S5	ASTERACEAE
<i>Helenum flexuosum</i> Raf.	Purple-headed Sneezeweed	IR	Collected (TRT) at Crescent Beach in 1969 by P.M. Catling (McIntosh and Catling 1979). A.C. Garofalo (HAM)	--	I			SE2?	ASTERACEAE
<i>Helianthemum canadense</i> (L.) Michaux	Frostweed	RH	Niagara Parks System, Cameron (1895). "... very seldom found ... a few specimens have been discovered in the open woods near the Parks School," Hamilton (1943). Ontario: Queen Victoria Park, Cameron, 1891 (NFO). Niagara Gorge ANSI (includes Glen and Whirlpool) (Riley et al. 1996). HAM.	R1	VU			S4	CISTACEAE
<i>Helianthus annuus</i> L.	Common Sunflower	IR	Pt. Abino Peninsula, Macdonald 1990	--	I			SE4	ASTERACEAE
<i>Helianthus decapetalus</i> L.	Thin-leaved Sunflower	R	Point Abino (BUF, TRTE; Macdonald 1990). Riley et al. (1996).	R3	U			S5	ASTERACEAE
<i>Helianthus divaricatus</i> L.	Woodland Sunflower	U		U8	C			S5	ASTERACEAE
<i>Helianthus giganteus</i> L.	Tall Sunflower	RH	Ontario: Dufferin Islands, Hamilton, July 5, 1940 (NFO).	R3	--			S5	ASTERACEAE

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<i>Helianthus maximiliani</i> Schrader	Maximilian's Sunflower	IR	Ontario: Niagara Falls, Wm.Scott, July 15, 1897; Roundhouse, Niagara Falls, Wm.Scott, July 31, 1902 (TRT), Heimburger (1955). M.J. Oldham #7841 (BUF, DAO) from Fort Erie railway yard in 1987.	--	--			SE3?	ASTERACEAE
<i>Helianthus pauciflorus</i> Nutt.	Stiff Sunflower	IH	Old records only: Ontario, Niagara Parks System (as <i>H. rigidus</i>), Cameron (1895). Ont.: Niagara Parks System (as <i>H. rigidus</i>), Cameron (1895). = <i>Helianthus rigidus</i> .	--	--			S2S3	ASTERACEAE
<i>Helianthus petiolaris</i> Nutt. ssp. <i>petiolaris</i>	Sunflower	IR	Rare weed of open disturbed ground. M.J. Oldham #8769 (DAO, MICH, TRTE) from Port Colborne in 1996.	I	--			SE1	ASTERACEAE
<i>Helianthus strumosus</i> L.	Pale-leaved Sunflower	RH	Two records mapped (based on specimens examined) along the Niagara River by Cody (1982). No recent reports.	R3	U			S5	ASTERACEAE
<i>Helianthus tuberosus</i> L.	Jerusalem Artichoke	IU		I	--			SE5	ASTERACEAE
<i>Heliopsis helianthoides</i> (L.) Sweet	Ox-eye	RH	Early records from the Niagara River area (Day 1888, Cameron 1895, Hamilton 1943; TRT, NFO). Recent records (e.g. NAI database) may be based on escapes from cultivation as this species is frequently planted, sometimes for restoration purposes.	R3	R1			S5	ASTERACEAE
<i>Hemerocallis fulva</i> (L.) L.	Orange Day Lily	IC	Locally common along roadsides.	I	I			SE5	HEMEROCALLIDACEAE
<i>Hemerocallis lilioasphodelus</i> L.	Yellow Day-lily	IR	Rare escape or perhaps only persisting after cultivation (NAI database).	--	--			SE2	HEMEROCALLIDACEAE
HEPATICA	see		ANEMONE						RANUNCULACEAE
<i>Heracleum lanatum</i> Michaux	Cow-parsnip	R	A.C. Garofalo (HAM). = <i>Heracleum maximum</i> .	C	U			S5	APIACEAE
<i>Hesperis matronalis</i> L.	Dame's Rocket	IC		I	I			SE5	BRASSICACEAE
<i>Heteranthera dubia</i> (Jacq.) MacMillan	Water Star-grass	R	An inconspicuous aquatic and possibly overlooked to some extent. = <i>Zosterella dubia</i> .	R2	U			S5	PONTEDERIACEAE

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<i>Hibiscus moscheutos</i> L. ssp. <i>moscheutos</i>	Swamp Rose Mallow	R	Rare and local; wetland edges. Formerly more common, e.g. historical collections from Niagara-on-the-Lake (W. Scott, TRT, in 1910) and Queenston (W. Scott, TRT, in 1899). See COSEWIC (2004b). = <i>Hibiscus palustris</i> .	I	R5	SC	SC	S3	MALVACEAE
<i>Hibiscus trionum</i> L.	Flower-of-an-hour	IR	Rare weed. C.J. Rothfels #1869 (HAM) from Smithville in 2005.	I	I			SE4	MALVACEAE
<i>Hieracium aurantiacum</i> L.	Devil's Paintbrush	IU	Uncommon weed of open disturbed areas.	I	C			SE5	ASTERACEAE
<i>Hieracium caespitosum</i> Dum. ssp. <i>caespitosum</i>	King Devil	IC	"... very common about the edge of the Glen" (Hamilton 1943). = <i>Hieracium pratense</i> .	I	C			SE5	ASTERACEAE
<i>Hieracium canadense</i> Michaux	Canada Hawkweed	R		R1	--			SU	ASTERACEAE
<i>Hieracium gronovii</i> L.	Hairy Hawkweed	RH	Niagara Glen in 1896 (NFO, det. M.J. Oldham in 2006; no collector indicated).	--	VU			S3?	ASTERACEAE
<i>Hieracium murorum</i> L.	Hawkweed	IH	Dickson & Alexander	I	--			SE1	ASTERACEAE
<i>Hieracium paniculatum</i> L.	Panicled Hawkweed	R	"Occasional in the woods near Queenston" (Hamilton 1943). Queen Victoria Park, Cameron, [ca. 1890] (NFO). Niagara-on-the-Lake, W. Scott (TRT), 1898 (ARVPO database). S. Varga #91-64 (TRT) from Niagara Section Escarpment ANSI in 1991.	R3	R1			S2	ASTERACEAE
<i>Hieracium pilosella</i> L.	Mouse-ear Hawkweed	IR	Wainfleet Bog, Macdonald 1992	I	I			SE5	ASTERACEAE
<i>Hieracium piloselloides</i> Villars	Yellow Hawkweed	IU	= <i>Hieracium florentinum</i> .	I	I			SE5	ASTERACEAE
<i>Hieracium scabrum</i> Michaux	Rough Hawkweed	RH	Ontario, Niagara Parks System, Cameron (1895). Ontario: Niagara, Wm. Scott, Aug. 27, 1898; Queenston, Wm. Scott, Sept. 7, 1898, Heimburger (1955). "Occasional in the woods near Queenston," Hamilton (1943). Cedar Island, Queen Victoria Park, Cameron, 1893 (NFO).	--	U			S4	ASTERACEAE

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<i>Hieracium venosum</i> L.	Rattlesnake Weed	RH	Historically documented (CAN, DAO, TRT) from Queenston, Niagara Glen, Whirlpool, Paradise Grove, and elsewhere along the Niagara River (Argus et al. 1982-1987, ARVPO database). No recent Niagara reports.	--	R1			S2	ASTERACEAE
<i>Hieracium vulgatum</i> Fries	Common Hawkweed	IR	W.D. Bakowsky #2006-004 from Paradise Grove in 2006. = <i>Hieracium lachenalii</i> .	I	--			SE2?	ASTERACEAE
<i>Hippuris vulgaris</i> L.	Mare's-tail	R	Observed and photographed by D. Gregory (pers. comm. 2010) at Gibson Lake, Thorold, in 2006 and 2009. This species is otherwise very rare or absent from Ontario's Carolinian Zone and this population may have originated from plants dumped into the lake.	--	--			S5	PLANTAGINACEAE
<i>Holcus lanatus</i> L.	Velvet Grass	IR	Rare weed. M.J. Oldham #36621 (DAO) from Brown's Point Park, Niagara Parkway, in 2006.	--	I			SE2	POACEAE
<i>Holosteum umbellatum</i> L.	Jagged-chickweed	IR	Rare, early flowering weed of lawns and other open disturbed areas. M.J. Oldham #32621 (DAO) near Queenston in 2006.	I	I			SE2	CARYOPHYLLACEAE
<i>Hordeum jubatum</i> L. ssp. <i>jubatum</i>	Foxtail Barley	IU	Locally common along salted roadsides.	I	I			SE5	POACEAE
<i>Houstonia canadensis</i> Willd.	Fringed Houstonia	R	Known from several sites on exposed limestone bedrock along the Niagara River. M.J. Oldham #32361 (NHIC) from Niagara Glen in 2006. Scattered throughout southern Ontario, often on alvars. Confused with <i>H. longifolia</i> and sometimes included within it (e.g. Morton & Venn 1990, Riley et al. 1996). Local reports of <i>Houstonia longifolia</i> are probably based on <i>Houstonia canadensis</i> . = <i>Hedyotis canadensis</i> .	--	R2			S4?	RUBIACEAE
<i>Hudsonia tomentosa</i> Nutt. var. <i>tomentosa</i>	Woolly Beach-heather	RH	An historical Pt. Abino Peninsula record (Macdonald 1990) is the only one from southwestern Ontario.	--	--			S3	CISTACEAE

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<i>Humulus lupulus</i> L.	Common Hop	IR	Rare, usually in disturbed sites. It is possible that some regional reports are from native populations. A.C. Garofalo #07-613 (HAM) from Willoughby Marsh in 2007.	I	I			S4	CANNABACEAE
<i>Huperzia lucidula</i> (Michaux) Trevisan	Shining Fir-moss	R	Rare in rich woods. = <i>Lycopodium lucidulum</i> .	C	C			S5	LYCOPODIACEAE
<i>Hybanthus concolor</i> (T. Forster) Sprengel	Green Violet	R	Many reports from the region, primarily along the Niagara Escarpment (e.g. Day 1888, Macoun 1883-1892, Cameron 1895, Zenkert 1934, Heimbürger 1955, McIntosh and Catling 1979, Eckel 2001), though most records are old. = <i>Cubelium concolor</i> .	U6	R2			S2	VIOLACEAE
<i>Hydrastis canadensis</i> L.	Goldenseal	RH	No specimens have been found to substantiate the early literature reports: Niagara Parks System, Cameron (1895). "... is very rare, only infrequently being found in the [Niagara] Glen" Hamilton (1943). A distinctive species not likely to be misidentified.	--	--	THR	THR	S2	RANUNCULACEAE
<i>Hydrocotyle americana</i> L.	Marsh or Water-pennywort	R	Largely restricted to sandy marshes and seepage areas. A.C. Garofalo #08-1155 (HAM) from Short Hills Wilderness area in 2008.	C	C			S5	ARALIACEAE
<i>Hydrophyllum canadense</i> L.	Canada Waterleaf	U	Locally common, woods along the Niagara Escarpment, rare elsewhere.	C	U			S4	BORAGINACEAE
<i>Hydrophyllum virginianum</i> L.	Virginia Waterleaf	C		C	C			S5	BORAGINACEAE
<i>HYLODESMUM</i>	<i>see</i>		<i>DESMODIUM</i>						FABACEAE
<i>Hylotelephium telephium</i> (L.) H. Ohba	Live-forever	IR	Queen Victoria Park, Pantou (1890). Ontario, Niagara Parks System, Cameron (1895). "... well established at Paradise Grove at Niagara-on-the-Lake, where several large patches may be observed," Hamilton (1943). M.J. Oldham #33864 (NHIC) from Paradise Grove in 2006. = <i>Sedum telephium</i> .	I	I			SE2	CRASSULACEAE

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<i>Hyoscyamus niger</i> L.	Henbane	IH	Ontario, Niagara Parks System, Cameron (1895). "... not often encountered in an uncultivated state, although there is a small stand at Fort Erie," Hamilton (1943). Ontario: "the gap," Queen Victoria Park, Cameron, May 31, 1894 (NFO).	--	--			SE1	SOLANACEAE
<i>Hypericum canadense</i> L.	Canada St. John's-wort	RH	Niagara Parks System, Cameron (1895). "Wet places along the Niagara River above the Falls (Day, Cat. Niag. Fl.) A closely related species, <i>H. majus</i> (Gray) Britton, may be here involved," Zenkert (1934). "... reported from the Parks System," Hamilton (1943). Ontario: Cedar Island, Queen Victoria Park, Cameron, 1893 (NFO).	--	R3			S4?	HYPERICACEAE
<i>Hypericum ellipticum</i> L.	Pale St. John's-wort	RH	Reported by Hamilton (1943) from the Niagara Parks System, and by Eckel (2001) from the Niagara Parkway with a specimen at NFO (not examined). Also reported by Campbell (1982) from Spooky Hollow Sanctuary. This is generally a more northern species in Ontario, though Gillett and Robson (1981) show a dot for the Niagara Peninsula.	--	--			S5	HYPERICACEAE
<i>Hypericum kalmianum</i> L.	Kalm's St. John's-wort	RH	Limestone bedrock shorelines along Lake Erie; formerly known from the Niagara River. A.W. Miller #409 (HAM) from Point Abino in 1948. No recent reports.	--	U			S4	HYPERICACEAE
<i>Hypericum majus</i> (A. Gray) Britton	Large St. John's-wort	R	Wainfleet Bog (Macdonald 1992), and one NAI record.	R3	U			S5	HYPERICACEAE
<i>Hypericum mutilum</i> L. ssp. <i>mutilum</i>	Small St. John's-wort	U		R1	U			S4	HYPERICACEAE
<i>Hypericum perforatum</i> L.	Common St. John's-wort	IC		I	I			SE5	HYPERICACEAE
<i>Hypericum punctatum</i> Lam.	Spotted St. John's-wort	C		C	C			S5	HYPERICACEAE

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<i>Hypoxis hirsuta</i> (L.) Coville	Yellow Stargrass	RH	"... a rare plant that is occasionally found in dry, sandy soil near the head of the Glen" (Hamilton 1943). No Niagara specimens mapped by Argus et al. (1982-1987), but a very distinctive species.	RH	--			S3	HYPOXIDACEAE
<i>Hyssopus officinalis</i> L.	Hyssop	IH	"... has long been a favourite for ornamental purposes in the Parks, so that it is not surprising to find a few plants escaped from cultivation" (Hamilton 1943).	--	--			SE2	LAMIACEAE
<i>HYSTRIX</i>	<i>see</i>		<i>ELYMUS</i>						POACEAE
<i>Ilex mucronata</i> (L.) M. Powell, V. Savolainen & S. Andrews	Mountain Holly	R	Wainfleet Bog, Macdonald 1992. Willoughby Marsh (A.A. Reznicek, MICH). = <i>Nemopanthus mucronatus</i> .	R4	VU			S5	AQUIFOLIACEAE
<i>Ilex verticillata</i> (L.) A. Gray	Winterberry	C		C	C			S5	AQUIFOLIACEAE
<i>Impatiens capensis</i> Meerb.	Spotted Touch-me-not	C		C	C			S5	BALSAMINACEAE
<i>Impatiens glandulifera</i> Royle	Himalayan Touch-me-not	IH	B. Miller #135 (HAM) from Fort Erie in 1950.	I	I			SE4	BALSAMINACEAE
<i>Impatiens pallida</i> Nutt.	Pale Touch-me-not	U	Locally common on the Niagara Escarpment, rare elsewhere.	C	C			S5	BALSAMINACEAE
<i>Inula helenium</i> L.	Elecampane	IC		I	I			SE5	ASTERACEAE
<i>Ipomoea hederacea</i> (L.) Jacq.	Morning-glory	IH	Ontario: Niagara, Wm. Scott, Aug. 28, 1897 (5864) (TRT), Heimburger (1955).	I	--			SE1	CONVOLVULACEAE
<i>Ipomoea pandurata</i> (L.) G. Meyer	Wild Potato Vine	RH	Queenston, Wm. Scott (CAN), Aug. 15, 1902 (ARVPO database). Ontario: woods on the grounds of the School of Horticulture, Hamilton (NFO), July 4, 1940.	--	--			S1	CONVOLVULACEAE
<i>Ipomoea purpurea</i> (L.) Roth	Common Morning-glory	IH	"Occasionally seen as a garden escape" (Day 1888). Queen Victoria Park (Panton 1890). "... frequently observed in considerable abundance on hedges and fences" (Hamilton 1943).	I	--			SE2	CONVOLVULACEAE
<i>Iris pseudacorus</i> L.	Yellow-flag	IU		I	I			SE3	IRIDACEAE
<i>Iris versicolor</i> L.	Wild Blue-flag	C		C	C			S5	IRIDACEAE

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<i>Iris virginica</i> L.	Southern Blue-flag	DD	Status poorly known due to confusion with <i>Iris versicolor</i> . M.J. Oldham #22219 (MICH, det. A.A. Reznicek) from Marcy's Woods in 1999.	R2	U			S5	IRIDACEAE
<i>ISANTHUS</i>	<i>see</i>		<i>TRICHOSTEMA</i>						LAMIACEAE
<i>Isoetes echinospora</i> Durieu	Spiny-spored Quillwort	RH	"Occurring in the Niagara River above Niagara Falls (Day, Cat. of Niag. Fl.; four specimens in Gen. Herb [BUF], two coll. by Clinton and two by Day, no date). Not collected in recent years...." (Zenkert 1934).	--	--			S5	ISOETACEAE
<i>Jeffersonia diphylla</i> (L.) Pers.	Twinleaf	R	J. Jalava #91-097 (TRT) from 15 Mile Creek ANSI in 1991.	U10	VU			S4	BERBERIDACEAE
<i>Juglans ailantifolia</i> Carr.	Japanese Walnut	IR	M.J. Oldham #35080 (NHIC) from Dufferin Islands in 2007; mature tree, possibly planted at site.	--	--			SE1	JUGLANDACEAE
<i>Juglans cinerea</i> L.	Butternut	U	Locally common woodland tree, though rapidly declining due to Butternut Canker. See COSEWIC (2003).	C	C	END	END	S3?	JUGLANDACEAE
<i>Juglans nigra</i> L.	Black Walnut	C		C	C			S4	JUGLANDACEAE
<i>Juncus acuminatus</i> Michaux	Tapered Rush	R	Niagara Falls & Morgan Point (ARVPO)	R1	U			S3	JUNCACEAE
<i>Juncus alpinoarticulatus</i> Chaix	Alpine Rush	R	Shores, moist gravel pits, wetland edges. S. Varga #91-76 (TRT) from Niagara Section Escarpment ANSI in 1991.	R2	C			S5	JUNCACEAE
<i>Juncus articulatus</i> L.	Jointed Rush	U	Moist open areas.	C	U			S5	JUNCACEAE
<i>Juncus balticus</i> Willd.	Baltic Rush	U	mostly Lake Erie shoreline sites	R4	U			S5	JUNCACEAE
<i>Juncus brachycephalus</i> (Engelm.) Buchenau	Short-headed Rush	R	Pt. Abino Peninsula (Macdonald 1990).	--	U			S4S5	JUNCACEAE
<i>Juncus bufonius</i> L.	Toad Rush	U		C	C			S5	JUNCACEAE
<i>Juncus canadensis</i> J. Gay ex La Harpe	Canadian Rush	R	Wainfleet Bog (M. Browning pers. comm. 2010).	R1	U			S5	JUNCACEAE
<i>Juncus compressus</i> Jacq.	Round-fruit Rush	IR	Rare weed. M.J. Oldham #32642 (DAO) from Paradise Grove in 2006.	I	I			SE5	JUNCACEAE
<i>Juncus dudleyi</i> Wieg.	Dudley's Rush	C		C	C			S5	JUNCACEAE

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<i>Juncus effusus</i> L.	Soft Rush	C	<i>Juncus pylaei</i> , recognized by some authors, may also occur in Niagara.	C	C			S5?	JUNCACEAE
<i>Juncus gerardii</i> Loisel	Black-grass	IR	Montrose Railway Yard, Niagara Falls, M.J. Oldham #18152 (DAO) in 1995.	I	--			SE3	JUNCACEAE
<i>Juncus marginatus</i> Rostk. sensu stricto	Grass-leaved Rush	R	V.R. Brownell #4552 (DAO) from near Fenwick in 1981 (ARVPO database).	--	U			S3	JUNCACEAE
<i>Juncus nodosus</i> L. var. <i>nodosus</i>	Knotted Rush	R	C.J. Rothfels #1468 (HAM) from Navy Island in 2004.	R6	U			S5	JUNCACEAE
<i>Juncus tenuis</i> Willd.	Path Rush	C		C	C			S5	JUNCACEAE
<i>Juncus torreyi</i> Cov.	Torrey's Rush	U	Uncommon; shorelines and wetlands, sometimes in disturbed sites such as roadside ditches. M.J. Oldham #18137 (DAO) from Four Mile Pond in 1995.	C	U			S5	JUNCACEAE
<i>Juniperus communis</i> L. var. <i>depressa</i> Pursh	Common Juniper	R	Dunes, dry meadows. A.C. Garofalo #07-737 (HAM) from Nickel Beach in 2007.	R3	U			S5	CUPRESSACEAE
<i>Juniperus virginiana</i> L. var. <i>virginiana</i>	Red Cedar	C		C	C			S5	CUPRESSACEAE
<i>Justicia americana</i> (L.) Vahl.	American Water-willow	R	Known from a single patch at Dufferin Islands (formerly more widespread along the Niagara River) and along Lyons Creek from the QEW south to the confluence of the Welland River. A.C. Garofalo #07-694 (HAM) from Lyon's Creek in 2007.	--	R1	THR	THR	S2	ACANTHACEAE
<i>Kalmia angustifolia</i> L. var. <i>angustifolia</i>	Sheep-laurel	R	Wainfleet Bog (Macdonald 1992)	--	--			S5	ERICACEAE
<i>Kalmia polifolia</i> Wangenh.	Bog-laurel	R	Wainfleet Bog (Macdonald 1992)	R1	--			S5	ERICACEAE
<i>Kochia scoparia</i> (L.) Roth ex Schrader	Summer-cypress	IR	A weed of railways and roadsides, particularly in saline areas (e.g. where road salt is applied). M.J. Oldham #33947 (NHIC) from Hwy. 405 at Portage Road in 2006.	I	I			SE5	AMARANTHACEAE
<i>Lactuca biennis</i> (Moench) Fern.	Tall Blue-lettuce	U		U7	U			S5	ASTERACEAE
<i>Lactuca canadensis</i> L.	Canada-lettuce	U		C	C			S5	ASTERACEAE
<i>Lactuca saligna</i> L.	Willow-leaved Lettuce	IR	Rare weed. M.J. Oldham #34006 (DAO) from Bill's Bush in 2006.	--	--			SE1	ASTERACEAE

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<i>Lactuca serriola</i> L.	Prickly-lettuce	IC	= <i>Lactuca scariola</i> .	I	I			SE5	ASTERACEAE
<i>Lamium amplexicaule</i> L.	Henbit	IR	M.J. Oldham #34007 (DAO) from Bill's Bush in 2006.	I	I			SE3	LAMIACEAE
<i>Lamium purpureum</i> L.	Purple Dead-nettle	IR	M.J. Oldham #35299 (HAM, MICH) from Port Colborne in 2007.	I	I			SE3	LAMIACEAE
<i>Laportea canadensis</i> (L.) Wedd.	Wood-nettle	C		C	C			S5	URTICACEAE
<i>Lappula squarrosa</i> (Retz.) Dumort. ssp. <i>squarrosa</i>	Burseed	IR	Rare weed.	I	--			SE5	BORAGINACEAE
<i>Lapsana communis</i> L.	Nipplewort	IC		I	I			SE5	ASTERACEAE
<i>Larix decidua</i> Miller	European Larch	IR	Rare escape from cultivation.	I	--			SE2	PINACEAE
<i>Larix laricina</i> (Du Roi) K. Koch	Tamarack	R		C	C			S5	PINACEAE
<i>Lathyrus japonicus</i> Willd.	Beach Pea	R	Sandy Lake Erie shores. A.C. Garofalo #07-480 (HAM) from Lake Erie shoreline near Sugarloaf Hill in 2007.	--	U			S4	FABACEAE
<i>Lathyrus latifolius</i> L.	Everlasting Pea	IR		I	I			SE4	FABACEAE
<i>Lathyrus ochroleucus</i> Hook.	Pale Vetchling	R	S. Varga #91-87 (TRT) from Decew Valley in 1991.	--	R3			S4	FABACEAE
<i>Lathyrus odoratus</i> L.	Sweet Pea	IH	"... has escaped cultivation, and is found growing along the River bank below Queenston," Hamilton (1943).	--	--			SE1	FABACEAE
<i>Lathyrus palustris</i> L.	Marsh Pea	R		R1	U			S5	FABACEAE
<i>Lathyrus tuberosus</i> L.	Tuberous Vetchling	IR		I	I			SE3	FABACEAE
LEDUM	<i>see</i>		RHODODENDRON						ERICACEAE
<i>Leersia oryzoides</i> (L.) Swartz	Rice Cut Grass	C		C	C			S5	POACEAE
<i>Leersia virginica</i> Willd.	White Grass	C		C	C			S4	POACEAE
<i>Lemna minor</i> L.	Common Duckweed	C		C	C			S5	ARACEAE
<i>Lemna trisulca</i> L.	Star Duckweed	U		U8	U			S5	ARACEAE
<i>Lens culinaris</i> Medikus	Lentil	IH	A rare casual, not persisiting. Collected by Macoun at Niagara Falls in 1901 (Montgomery 1957).	--	--			SE1	FABACEAE
<i>Leontodon autumnalis</i> L. ssp. <i>autumnalis</i>	Fall Hawkbit	IU	Locally common on lawns along the Niagara Parkway.	--	--			SE5	ASTERACEAE

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<i>Leonurus cardiaca</i> L. ssp. <i>cardiaca</i>	Motherwort	IC		I	I			SE5	LAMIACEAE
<i>Lepidium campestre</i> (L.) R. Br.	Field Pepper-grass	IC		I	I			SE5	BRASSICACEAE
<i>Lepidium densiflorum</i> Schrader	Common Pepper-grass	IR		I	C			SE5	BRASSICACEAE
<i>Lepidium draba</i> L.	Hoary Cress	IR	Known from several reports from the Niagara River area, most recently a collection by P.M. Eckel (BUF) from near Niagara Falls in 1988 (Eckel 2001). = <i>Cardaria draba</i> .	--	--			SE2	BRASSICACEAE
<i>Lepidium ruderales</i> L.	Narrow-leaf Pepper-grass	IR	Disturbed ground. M.J. Oldham #35274 (HAM) from Port Colborne in 2008.	I	--			SE3	BRASSICACEAE
<i>Lepidium virginicum</i> L.	Poor-man's Pepper-grass	R		R4	U			S5	BRASSICACEAE
<i>Leptochloa fusca</i> (L.) Kunth	Sprangletop	IR	Montrose Railway Yard, Niagara Falls, Catling and Riley (CAN, DAO, TRT) in 1976 (Catling et al. 1977). Montrose Railway Yard, Niagara Falls, M.J. Oldham #18154 (DAO) in 1995. = <i>Diplachne acuminata</i> , <i>Leptochloa acuminata</i> .	I	--			SE3	POACEAE
<i>LEPTOLOMA</i>	<i>see</i>		<i>DIGITARIA</i>						POACEAE
<i>Lespedeza capitata</i> Michaux	Round-headed Bush-clover	R	Rare in dry open woods and prairies.	C	C			S4	FABACEAE
<i>Lespedeza frutescens</i> (L.) Hornem.	Violet Bush-clover	R	Rare, Niagara River area. M.J. Oldham #33833 (NHIC) from the Whirlpool in 2006. = <i>Lespedeza violacea</i> of regional reports.	--	--			S1	FABACEAE
<i>Lespedeza hirta</i> (L.) Hornem.	Hairy Bush-clover	R	Rare in sandy woods and prairies. R. Kitchen #08-095 (HAM) from St. Davids Waterworks/Firemans Park in 2008.	U6	U			S4	FABACEAE
<i>Lespedeza violacea</i> (L.) Pers.	Wandlike Bush-clover	R	Rare in open woods. M.J. Oldham #33846 (DAO) from Niagara Parkway in 2006. = <i>Lespedeza intermedia</i> of regional reports.	R1	U			S4	FABACEAE
<i>Lespedeza</i> x <i>nuttallii</i> Darl.	(<i>L. hirta</i> X <i>L. intermedia</i>)	hyb	Single record: M.J. Oldham #33861 (DAO) from Paradise Grove in 2006.	--	R1			S1	FABACEAE

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<i>Leucanthemum vulgare</i> Lam.	Ox-eye Daisy	IC	A common weed of open disturbed areas. = <i>Chrysanthemum leucanthemum</i> .	I	I			SE5	ASTERACEAE
<i>Liatris cylindracea</i> Michaux	Cylindric Blazing-star	RH	Ontario, Niagara Parks System, Cameron (1895). "Ontario: gorge of River at Niagara Glen (Johnson)" Zenkert (1934). "... a few specimens have been found on the rocky margins of the Glen," Hamilton (1943). "south end of Niagara Glen," Aug. 25, 1895 (NFO; det. M.J. Oldham in 2006).	--	R4			S3	ASTERACEAE
<i>Liatris spicata</i> (L.) Willd. var. <i>spicata</i>	Spiked Blazing-star	IR	West side of Fort Erie, south side of QEW highway, M.J. Oldham #23200 (MICH), 26 Sept. 1999. Although native elsewhere in southern Ontario, Niagara records are from highly disturbed habitats and not with typical native prairie associates and are likely adventive.	--	--	THR	THR	S3	ASTERACEAE
<i>Ligustrum vulgare</i> L.	European Privet	IC		I	I			SE5	OLEACEAE
<i>Lilium canadense</i> L.	Canada Lily	RH	Niagara Glen, Field Club, 1888. Ontario, Niagara Parks System, Cameron (1895).	--	--			S1?	LILIACEAE
<i>Lilium lancifolium</i> Thunb.	Tiger Lily	IR		I	--			SE1	LILIACEAE
<i>Lilium michiganense</i> Farw.	Michigan Lily	C		C	C			S5	LILIACEAE
<i>Lilium philadelphicum</i> L.	Wood Lily	R	W. Scott (TRT) from Niagara River Whirlpool in 1898.	R2	R1			S5	LILIACEAE
<i>Limonium gerberi</i> Soldano	Carolina Sea-lavender	IR	Collected in 2007 along the QEW Highway in St. Catharines (M.J. Oldham #34745, MICH, det. A.A. Reznicek). Not reported from Ontario by Morton and Venn (1990).	--	--			SE1	PLUMBAGINACEAE
<i>LINARIA</i>	see also		<i>NUTTALLANTHUS</i>						PLANTAGINACEAE
<i>Linaria genistifolia</i> (L.) Miller ssp. <i>dalmatica</i> (L.) Maire & Petitmengin	Dalmatian Toadflax	IR	Rare weed (McIntosh & Catling 1979). = <i>Linaria dalmatica</i> .	I	--			SE3	PLANTAGINACEAE
<i>Linaria vulgaris</i> Miller	Butter-and-eggs	IC		I	I			SE5	PLANTAGINACEAE
<i>Lindera benzoin</i> (L.) Blume	Spicebush	C	Common only on sandy soils of the Fonthill Kame Delta. Rare elsewhere in the Niagara Peninsula.	C	C			S5	LAURACEAE

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<i>Lindernia dubia</i> (L.) Pennell	False Pimpernel	U		C	U			S4	LINDERNIACEAE
<i>Linnaea borealis</i> L. ssp. <i>longiflora</i> (Torrey) Hulten	Twinflower	R	Observed in 1993 at North Pelham Valley (Varga et al. 1996).	R3	VU			S5	LINNAEACEAE
<i>Linum medium</i> (Planchon) Britton var. <i>medium</i>	Stiff Yellow Flax	RH	Ontario: Niagara Falls, John Macoun, July 6, 1901, Heimbürger (1955). Near Clifton; Niagara Falls; J. Macoun (TRT) in 1877 (ARVPO database).	--	--			S3	LINACEAE
<i>Linum perenne</i> L.	Blue Flax	IR	B. Larson #91-154 (TRT) from Beamsville Escarpment ANSI in 1991.	--	--			SE3	LINACEAE
<i>Linum usitatissimum</i> L.	Common Flax	IR		I	--			SE3	LINACEAE
<i>Linum virginianum</i> L.	Virginia Flax	R	Early records only (CAN, DAO, TRT): "Canadian Southern Railway, one mile east of the Great Western Crossing near Niagara Falls (Macoun)" (Macoun 1883). Niagara Parks System, Cameron (1895). ARVPO database.	--	R3			S2	LINACEAE
<i>Liparis liliifolia</i> (L.) Richard ex Lindley	Lily-leaved Twayblade	RH	Collected in 1864 by David Day (BUF) in "wet woods back of Fort Erie". No subsequent Niagara records.	--	--	THR	THR	S2	ORCHIDACEAE
<i>Liparis loeselii</i> (L.) Richard ex Lindley	Loesel's Twayblade	R	A. Chamot (BUF) from Point Abino in 1885 (Macdonald 1990).	C	C			S4S5	ORCHIDACEAE
<i>Liriodendron tulipifera</i> L.	Tulip-tree	C	Locally common in rich woods, usually on sand. Rare on the clay plain.	R3	U			S4	MAGNOLIACEAE
<i>LITHOSPERMUM</i>	<i>see also</i>		<i>BUGLOSSOIDES</i>						BORAGINACEAE
<i>Lithospermum caroliniense</i> (Walter ex J. Gmelin) MacMillan	Puccoon	RH	Early reports and collections (BUF) from Point Abino, and probably seen by Yaki (1970) who reported <i>L. canescens</i> (unknown from Niagara). Not seen by Macdonald (1990).	RH	U			S4	BORAGINACEAE
<i>Lithospermum officinale</i> L.	European Gromwell	IR		I	I			SE5	BORAGINACEAE
<i>Lobelia cardinalis</i> L.	Cardinal Flower	R	Rare, stream and wetland edges. R. Kitchen #08-88 (HAM) from Niagara Falls Municipality in 2008.	C	U			S5	CAMPANULACEAE
<i>Lobelia inflata</i> L.	Indian-tobacco	C		C	C			S5	CAMPANULACEAE

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<i>Lobelia kalmii</i> L.	Kalm's Lobelia	R	Known from two sites along the Lake Erie shoreline (e.g. Point Abino, HAM, TRTE; Macdonald 1990). Also very locally along the Niagara River, e.g. seepy cliff face near Sir Adam Beck Generating Station (TRTE) where seen as recently as 2009 (D. Gregory pers. comm. 2010).	R2	U			S5	CAMPANULACEAE
<i>Lobelia siphilitica</i> L.	Great Lobelia	R	S. Varga #456-93 (TRT) from St. David's Burried Gorge ANSI in 1993.	C	C			S5	CAMPANULACEAE
<i>Lobelia spicata</i> Lam.	Pale-spiked Lobelia	RH	"... found in sandy soil in the Park meadows" Hamilton (1943). Ont.: "Maid-of-the-Mist, Niagara Falls," sight record, Yaki (1970). Niagara Gorge ANSI (includes Glen and Whirlpool) (Riley et al. 1996).	U6	U			S4	CAMPANULACEAE
<i>Lobularia maritima</i> (L.) Desv.	Sweet Alyssum	IR	Fort Erie (Zenkert 1934). Mapped from Niagara by Sabourin (1991).	I	--			SE2	BRASSICACEAE
<i>LOLIUM</i>	see also		<i>SCHEDONORUS</i>						POACEAE
<i>Lolium perenne</i> L.	Perennial Rye Grass	IU		I	I			SE4	POACEAE
<i>Lolium temulentum</i> L.	Darnel Ryegrass	IH	Old reports only: Ontario, Niagara Parks System, Cameron (1895). "... known to occur in the Parks," Hamilton (1943). Queen Victoria Park, Cameron, [ca.1890] (NFO).	--	--			SEH	POACEAE
<i>Lonicera canadensis</i> Bartram	Fly Honeysuckle	C		C	C			S5	CAPRIFOLIACEAE
<i>Lonicera dioica</i> L.	Wild Honeysuckle	C		C	C			S5	CAPRIFOLIACEAE
<i>Lonicera hirsuta</i> Eaton	Hairy Honeysuckle	R	S. Varga #270-93 (TRT) from Mountainview-Valentino Escarpment Terrace ANSI in 1993.	U6	--			S5	CAPRIFOLIACEAE
<i>Lonicera japonica</i> Thunb.	Japanese Honeysuckle	IR	"Escarpment - Queenston Heights," sight record, Yaki (1970). Frenchman's Creek, near Fort Erie, M.J. Oldham #23289 (MICH) in 2000.	--	--			SE2	CAPRIFOLIACEAE
<i>Lonicera maackii</i> (Rupr.) Maxim.	Amur Honeysuckle	IR	M.J. Oldham #32608 (MICH) from Niagara Glen in 2006	I	--			SE2	CAPRIFOLIACEAE
<i>Lonicera morrowii</i> A. Gray	Morrow's Honeysuckle	IU	M.J. Oldham #32578 (MICH) from the Niagara River Whirlpool in 2006	I	I			SE3	CAPRIFOLIACEAE

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<i>Lonicera ruprechtiana</i> Reg.	Manchurian Honeysuckle	IR	C.A. Schaefer #91-58 (TRT) from Jordan Valley ANSI in 1991. Not otherwise reported from Ontario (Morton and Venn 1990).	--	--			SE1	CAPRIFOLIACEAE
<i>Lonicera sempervirens</i> L.	Trumpet Honeysuckle	IH	W.J. Potter (TRT) from Niagara Falls in 1906.	--	--			SE1	CAPRIFOLIACEAE
<i>Lonicera tatarica</i> L.	Tartarian Honeysuckle	IC		I	I			SE5	CAPRIFOLIACEAE
<i>Lonicera x bella</i> Zabel	(<i>L. morrowii</i> X <i>L. tatarica</i>)	hyb	Locally common in disturbed woods.	I	I			SE2	CAPRIFOLIACEAE
<i>Lonicera xylosteum</i> L.	European Fly-honeysuckle	IR	M.J. Oldham #32683 (DAO) from Paradise Grove in 2006	I	I			SE2	CAPRIFOLIACEAE
<i>Lotus corniculatus</i> L.	Birdfoot Trefoil	IC		I	I			SE5	FABACEAE
<i>Ludwigia palustris</i> (L.) Elliott	Water-purslane	C		C	C			S5	ONAGRACEAE
<i>Ludwigia polycarpa</i> Short & Peter	Many-fruited False-loosestrife	R	Known only from Wainfleet Bog, where documented from the area since at least the 1930s (J. Simon, TRT, from Port Colborne in 1937). Collected by I.D. Macdonald (TRTE, TRT, BUF) as recently as 1989 (Macdonald 1992).	--	R1			S2	ONAGRACEAE
<i>Lunaria annua</i> L.	Honesty	IR	Early reports and collections (CAN, TRT) from the Niagara River (Panton 1890, Cameron 1895, Heimburger 1955). S. Blaney #50-93 (TRT) from Homer Escarpment ANSI in 1993.	I	--			SE2	BRASSICACEAE
<i>Lupinus perennis</i> L. ssp. <i>perennis</i>	Wild Lupine	RH	Formerly known from along the Niagara River (Queenston Heights, J. Macoun, June 16, 1884, Heimburger (1955). "Queenston Heights, Ontario," Day (1888). Ontario, Niagara Parks System, Cameron (1895). Parks, Ontario, Hamilton 1943), though no verified reports since the late 1800s. Collected as recently as 1971 near St. Catharines (ARVPO database).	--	R5			S3	FABACEAE
<i>Luzula acuminata</i> Raf.	Pointed Wood-rush	U		C	C			S5	JUNCACEAE

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<i>Luzula campestris</i> (L.) DC.	Common Wood-rush	IR	Rare weed. M.J. Oldham #32342 from Niagara Parkway in 2006.	--	--			SE1	JUNCACEAE
<i>Luzula multiflora</i> (Retz.) Lej. ssp. <i>multiflora</i>	Common Wood-rush	U	M.J. Oldham #32425 (DAO, MICH) from Paradise Grove in 2006	C	U			S5	JUNCACEAE
<i>LYCHNIS</i>	<i>see</i>		<i>SILENE</i>						CARYOPHYLLACEAE
<i>Lycium barbarum</i> L.	Matrimony Vine	IR	Ontario, Queen Victoria Park (as <i>L. vulgare</i>), Panton (1890). Queenston, Wm. Scott, May 24, 1898 (TRT), Heimburger (1955). McIntosh & Catling (1979), Riley et al. (1996). = <i>Lycium halimifolium</i> .	I	--			SE2	SOLANACEAE
<i>LYCOPERSICON</i>	<i>see</i>		<i>SOLANUM</i>						SOLANACEAE
<i>LYCOPodium</i>	<i>see also</i>		<i>DIPHASIASTRUM, HUPERZIA</i>						LYCOPODIACEAE
<i>Lycopodium clavatum</i> L.	Common Club-moss	R	Wainfleet Bog, Macdonald 1992	R4	U			S5	LYCOPODIACEAE
<i>Lycopodium dendroideum</i> Michaux	Prickly Tree Club-moss	R	Wainfleet Bog (Macdonald 1992). = <i>Dendrolycopodium dendroideum</i> , <i>Lycopodium obscurum</i> var. <i>dendroideum</i> .	R4	U			S5	LYCOPODIACEAE
<i>Lycopodium hickeyi</i> W.H. Wagner, Beitel & Moran	Hickey's Tree Club-moss	R	M.J. Oldham #35219 (MICH) from Wainfleet Bog in 2008. = <i>Dendrolycopodium hickeyi</i> , <i>Lycopodium obscurum</i> var. <i>hickeyi</i> .	--	--			S4	LYCOPODIACEAE
<i>Lycopodium obscurum</i> L.	Flat-branched Tree Club-moss	U	Local in woods. = <i>Dendrolycopodium obscurum</i> .	U9	C			S4	LYCOPODIACEAE
<i>LYCOPSIS</i>	<i>see</i>		<i>ANCHUSA</i>						BORAGINACEAE
<i>Lycopus americanus</i> Muhlenb. ex Bartram	American Water-horehound	C		C	C			S5	LAMIACEAE
<i>Lycopus europaeus</i> L.	European Water-horehound	IU		I	I			SE5	LAMIACEAE
<i>Lycopus rubellus</i> Moench	Taper-leaf Water-horehound	R	M.J. Oldham #34899 (MICH, WAT) from Perry Road Woodlot in 2007.	--	U			S2S3	LAMIACEAE
<i>Lycopus uniflorus</i> Michaux	Bugleweed	C		C	C			S5	LAMIACEAE
<i>Lycopus virginicus</i> L.	Virginia Water-horehound	R	Ontario, Niagara Parks System, Cameron (1895). "... found in the Parks," Hamilton (1943). M.J. Oldham #33936 (DAO) from Niagara Glen in 2006.	R1	--			S2	LAMIACEAE
<i>Lysimachia ciliata</i> L.	Fringed Loosestrife	C		C	C			S5	MYRSINACEAE

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<i>Lysimachia nummularia</i> L.	Moneywort	IC		I	I			SE5	MYRSINACEAE
<i>Lysimachia punctata</i> L.	Spotted Loosestrife	IH	A rare garden escape. "... very abundant on the gravelly bank at the head of the Whirlpool," Hamilton (1943).	--	I			SE3	MYRSINACEAE
<i>Lysimachia quadriflora</i> Sims	Prairie Loosestrife	R	3 recent sites, all on Lake Erie shoreline (M.J. Oldham #18181 (TRT) in 1995), formerly along the Niagara River.	--	R2			S4	MYRSINACEAE
<i>Lysimachia quadrifolia</i> L.	Whorled Loosestrife	R	Pt. Abino Peninsula (Macdonald 1990).	R3	U			S4	MYRSINACEAE
<i>Lysimachia terrestris</i> (L.) Britton, Sterns & Poggenb.	Swamp Candles	R	(as <i>L. stricta</i>), "wet grounds near Clifton, Ontario," Day (1888). Ontario, Queen Victoria Park (as <i>L. stricta</i> Ait.), Panton (1890). Ontario, Niagara Parks System (as <i>L. stricta</i>), Cameron (1895). "... grows near Government Docks," Hamilton (1943). Queen Victoria Park, Cameron, 1890 (NFO); Niagara-on-the-Lake, Williams, July 25, 1963 (NFO). Recent records from Lower Twelve Mile Creek (Gregory 2003) and Wainfleet Bog (Macdonald 1992).	U6	U			S5	MYRSINACEAE
<i>Lysimachia thyrsiflora</i> L.	Tufted Loosestrife	U		C	U			S5	MYRSINACEAE
<i>Lythrum hyssopifolium</i> L.	Hyssop Loosestrife	IR	Collected in 2007 from a disturbed quarry bottom at Wainfleet Wetlands (M.J. Oldham #34902, DAO). A very rare introduction in Ontario (Blaney et al. 1997).	--	--			SE1	LYTHRACEAE
<i>Lythrum salicaria</i> L.	Purple Loosestrife	IC	An aggressive European weed of wetlands.	I	I			SE5	LYTHRACEAE
<i>Maclura pomifera</i> (Raf.) C. Schneider	Osage-orange	IR	"... not very common in the Parks, although there are several good specimens between Queenston and Niagara-on-the-Lake" (Hamilton 1943). Niagara-on-the-Lake, Helder, Sept. 1970 (NFO); Niagara-on-the-Lake, Wright, June 14, 1975 (NFO).	I	I			SE2	MORACEAE

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<i>Magnolia acuminata</i> (L.) L.	Cucumber-tree	R	An endangered Carolinian tree species reported historically from the vicinity of Niagara Falls (Day 1888, Hamilton 1943) and currently known from a few sites in Pelham Township.	--	R5	END	END	S2	MAGNOLIACEAE
MAHONIA	see		BERBERIS						BERBERIDACEAE
<i>Maianthemum canadense</i> Desf.	Wild Lily-of-the-valley	C	Both var. <i>canadense</i> and var. <i>interius</i> reported from the Point Abino Peninsula by Macdonald (1990).	C	C			S5	CONVALLARIACEAE
<i>Maianthemum racemosum</i> (L.) Link ssp. <i>racemosum</i>	False Solomon's-seal	C	Common. = <i>Smilacina racemosa</i> .	C	C			S5	CONVALLARIACEAE
<i>Maianthemum stellatum</i> (L.) Link	Starry False Solomon's-seal	U	Only rarely found on edges of wetlands and frequent on forested dunes. = <i>Smilacina stellata</i> .	C	C			S5	CONVALLARIACEAE
<i>Maianthemum trifolium</i> (L.) Sloboda	Three-leaved False Solomon's-seal	R	Wainfleet Bog (Macdonald 1992), where seen recently by Mark Browning (pers. comm.). = <i>Smilacina trifolia</i> .	U6	U			S5	CONVALLARIACEAE
<i>Malaxis monophyllos</i> (L.) Sw. var. <i>brachypoda</i> (A. Gray) F. Morris & E.A. Eames	White Adder's-mouth	RH	Historical record from Dufferin Island (R. Cameron, CAN, in 1894; Heimbürger 1955). = <i>Malaxis brachypoda</i> .	U6	R3			S4	ORCHIDACEAE
<i>Malcomia maritima</i> (L.) R. Br.	Virginia Stock	IH	Collected by R. Cameron (NFO) at Queen Victoria Niagara Falls Park in the late 1800s. No recent reports.	--	--			SEH	BRASSICACEAE
<i>Malus baccata</i> (L.) Borkh.	Siberian Crabapple	IR	Reported by Gregory (TRTE; 2005a) from Welland River, City of Niagara Falls.	--	--			SE1	ROSACEAE
<i>Malus coronaria</i> (L.) Miller	Wild Crab	U		C	C			S4	ROSACEAE
<i>Malus pumila</i> Miller	Apple	IC	A fairly common escape from cultivation. = <i>Pyrus communis</i> , <i>P. malus</i> .	I	I			SE5	ROSACEAE
<i>Malus sieboldii</i> (Regel.) Rehd.	Toringo Crabapple	IR	M.J. Oldham #34867 (DAO) from Fort Erie Railway Yard in 2007.	--	--			SE1	ROSACEAE
<i>Malva moschata</i> L.	Musk Mallow	IR	A. Garofalo #08-883 (HAM) from the Welland River in 2008.	I	I			SE5	MALVACEAE
<i>Malva neglecta</i> Wallr.	Common Mallow	IU		I	I			SE5	MALVACEAE

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<i>Malva sylvestris</i> L.	High Mallow	IH	Heimburger (1955) reported a specimen "Fort Erie, M. Wilkes, Aug. 7, 1899."	--	--			SE1	MALVACEAE
<i>Malva verticillata</i> L.	Large-whorl Mallow	IH	Day 1886. = <i>Malva crispa</i>	--	--			SE1	MALVACEAE
<i>Marrubium vulgare</i> L.	Common Horehound	IH	Several historical reports: Queenston, Wm. Scott, Sept. 25, 1909 (Heimburger 1955). Niagara Park System (Cameron 1895). "... not common in the Parks System, but a small patch occurs near the School for Gardeners" (Hamilton 1943). "[Niagara] Glen," sight record, Yaki (1970).	--	--			SE2	LAMIACEAE
<i>MATRICARIA</i>	<i>see also</i>		<i>TRIPLEUROSPERMUM</i>						ASTERACEAE
<i>Matricaria discoidea</i> DC.	Pineapple Weed	IR	Rare weed. = <i>Matricaria matricarioides</i> .	I	I			SE5	ASTERACEAE
<i>Matteuccia struthiopteris</i> (L.) Todaro	Ostrich Fern	C	Generally common in rich, often floodplain, woods. This is the species commonly harvested for fiddleheads.	C	C			S5	ONOCLEACEAE
<i>Medeola virginiana</i> L.	Indian Cucumber-root	C	Uncommon in rich woodlands.	C	C			S5	CONVALLARIACEAE
<i>Medicago lupulina</i> L.	Black Medick	IC		I	I			SE5	FABACEAE
<i>Medicago sativa</i> L. ssp. <i>sativa</i>	Alfalfa	IC		I	I			SE5	FABACEAE
<i>Melampyrum lineare</i> Desr.	Cow-wheat	U		R4	C			S4S5	OROBANCHACEAE
<i>Melilotus alba</i> Medikus	White Sweet-clover	IC		I	I			SE5	FABACEAE
<i>Melilotus altissima</i> Thuill.	Tall Sweet-clover	IH	Zenkert & Zander 1975	--	--			SE1	FABACEAE
<i>Melilotus officinalis</i> (L.) Pallas	Yellow Sweet-clover	IC		I	I			SE5	FABACEAE
<i>Melissa officinalis</i> L. ssp. <i>officinalis</i>	Common Balm	IR	Ontario, Niagara Park System, Cameron (1895). Queenston, Wm. Scott, Aug. 20, 1898; June 28, 1896; Queenston, J. White, Aug. 1, 1911; Niagara Falls, T. J. W. Burgess, Aug. 23, 1879 (TRT), Heimburger (1955). M.J. Oldham #33853 (DAO) from Lakeshore Park near Four-mile Creek in 2006.	I	--			SE1	LAMIACEAE
<i>Menispermum canadense</i> L.	Moonseed	U	Most common on the Niagara Escarpment.	C	U			S4	MENISPERMACEAE
<i>Mentha arvensis</i> L.	Field Mint	C	Common in wetlands.	C	C			S5	LAMIACEAE
<i>Mentha spicata</i> L.	Spearmint	IR	"below fall's view," Queen Victoria Park, Cameron, 1890 (NFO).	I	--			SE4	LAMIACEAE

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<i>Mentha x gracilis</i> Sole	(<i>M. arvensis</i> X <i>M. spicata</i>)	hyb	Navy Island, P.M. Eckel (BUF) in 1998 (Eckel 2001). M.J. Oldham #34066 (DAO, MICH) from weedy roadside near Wainfleet Bog in 2007.	--	--			SE1	LAMIACEAE
<i>Mentha x piperita</i> L.	(<i>M. aquatica</i> X <i>M. spicata</i>)	hyb	R. Kitchen #08-098 (HAM) from St. Davids Waterworks/Firemans Park in 2008.	I	I			SE4	LAMIACEAE
<i>Menyanthes trifoliata</i> L.	Bogbean	R	Wainfleet Bog, Macdonald 1992	R2	R3			S5	MENYANTHACEAE
<i>Mertensia virginica</i> (L.) Pers. ex Link	Virginia Bluebells	R	Rare; floodplains. Some records may represent escape from cultivation. B. Larson #91-163 (TRT) from Jordan Valley ANSI in 1991.	R1	R4			S3	BORAGINACEAE
<i>Micranthes pensylvanica</i> (L.) Haworth	Swamp Saxifrage	RH	Back from Long Beach, Wainfleet township (Zenkert 1934); only southern Ontario record. = <i>Saxifraga pensylvanica</i> .	--	--			S1	SAXIFRAGACEAE
<i>Micranthes virginensis</i> (Michaux) Small	Early Saxifrage	U	Uncommon, rocky areas, sandy woods. = <i>Saxifraga virginensis</i> .	C	VU			S5	SAXIFRAGACEAE
<i>Milium effusum</i> L.	Wood Millet	R	S. Varga (TRT) from Fonthill Sandhill Valleys ANSI	R4	C			S4S5	POACEAE
<i>Mimulus alatus</i> Aiton	Sharp-winged Monkey-flower	R	Rare along creeks. C.J. Rothfels #261 (HAM) from Fort Erie in 2002.	--	R1			S2	PHYRMACEAE
<i>Mimulus ringens</i> L.	Square-stemmed Monkey-flower	C		C	C			S5	PHYRMACEAE
<i>Mirabilis nyctaginea</i> (Michaux) MacMillan	Wild Four-o'clock	IR	Rare weed, mainly along railways and roadsides. M.J. Oldham #35283 (HAM) from Brookfield Road at CNR railway tracks	I	I			S4	NYCTAGINACEAE
<i>Miscanthus sinensis</i> Andersson	Plume Grass	IR	A. Garofalo (HAM).	--	--			SE1	POACEAE
<i>Mitchella repens</i> L.	Partridge-berry	C		C	C			S5	RUBIACEAE
<i>Mitella diphylla</i> L.	Bishop's-cap	U		C	C			S5	SAXIFRAGACEAE
<i>Mitella nuda</i> L.	Naked Mitrewort	R	Wainfleet Bog, Macdonald 1992	R4	U			S5	SAXIFRAGACEAE
<i>Moehringia lateriflora</i> (L.) Fenzl	Grove Sandwort	C	Common. = <i>Arenaria lateriflora</i> .	U6	U			S5	CARYOPHYLLACEAE
<i>Mollugo verticillata</i> L.	Carpetweed	IR	M.J. Oldham #32927 (DAO) from Dufferin Islands in 2006.	--	U			SE5	MOLLUGINACEAE

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<i>Monarda didyma</i> L.	Oswego Tea	RH	Early records only: Ontario: Niagara Falls, Mr. Cameron (TRT), July 14, 1904; Niagara Falls, Wm. Scott, Aug. 26, 1903; Queenston, Wm. Scott, Aug. 14, 1897 (TRT), Heimburger (1955). "... is to be found in a few wet places in the Glen and at Dufferin Islands" (Hamilton 1943).	R1	R1			S3	LAMIACEAE
<i>Monarda fistulosa</i> L.	Wild Bergamot	C		C	C			S5	LAMIACEAE
<i>Monotropa hypopitys</i> L.	Pinesap	R	Reported from three Niagara Escarpment sites by Riley et al. (1996) and several NAI collections.	U9	U			S4	MONOTROPACEAE
<i>Monotropa uniflora</i> L.	Indian Pipe	C		C	C			S5	ERICACEAE
<i>Morus alba</i> L.	White Mulberry	IC		I	I			SE5	MORACEAE
<i>Morus rubra</i> L.	Red Mulberry	R	Rare and local, in rich woods. Historically known from "rich woods throughout the forest bordering on Lake Erie. Not uncommon from Niagara town along the river to the Whirlpool (Macoun). One young tree noticed near the water's edge below Niagara Falls (David F. Day)" (Macoun 1886). Known currently from Niagara Glen, Balls Falls, and a few other sites. Sometimes confused with the introduced White Mulberry (<i>Morus alba</i>), which can also have red fruits.	R4	--	END	END	S2	MORACEAE
<i>Muhlenbergia asperifolia</i> (Nees & Meyen ex Trin.) Parodi	Scratch Grass	IR	in 1976 on open alkaline soil in a railway yard near Niagara Falls (Catling et al. 1978), Dore & McNeill (1980). Fort Erie, railway tracks, M.J. Oldham #7851 (BUF, DAO) in 1987	I	--			SE3	POACEAE
<i>Muhlenbergia frondosa</i> (Poiret) Fern.	Wire-stemmed Muhly	C		U6	C			S4	POACEAE
<i>Muhlenbergia glomerata</i> (Willd.) Trin.	Marsh Wild-timothy	RH	Reported from North Pelham Valley by Campbell (1982), based on a 1979 survey.	R1	R4			S5	POACEAE

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<i>Muhlenbergia mexicana</i> (L.) Trin.	Satin Grass	C	Var. <i>mexicana</i> is common throughout southern Ontario, often in disturbed sites, while the awned var. <i>filiformis</i> is less common (Dore & McNeill 1980). These varieties are not recognized by FNA.	C	C			S5	POACEAE
<i>Muhlenbergia schreberi</i> J.F. Gmelin	Nimble Will	U		R3	C			S4	POACEAE
<i>Muhlenbergia tenuiflora</i> (Willd.) Britton, Sterns & Poggenb.	Slender Satin Grass	R	Two nearby colonies (Niagara Glen and Whirlpool; M.J. Oldham #33937 (DAO) in 2006).	R2	R1			S2	POACEAE
<i>Muscari botryoides</i> (L.) P. Mill.	Common Grape-hyacinth	IR	NAI database, A.C. Garofalo (HAM)	I	I			SE3	HYACINTHACEAE
<i>Myosotis arvensis</i> (L.) Hill	Field Scorpion Grass	IH	Niagara Park System, Cameron (1895). Ontario: Niagara, W. J. Potter, 1908 (TRT), Heimbürger (1955). "... near the edge of the Glen, below the Restaurant...[this plant] is to be found in early May" (Hamilton 1943).	I	--			SE4	BORAGINACEAE
<i>Myosotis laxa</i> Lehm.	Smaller Forget-me-not	C		C	C			S5	BORAGINACEAE
<i>Myosotis scorpioides</i> L.	True Forget-me-not	IU		I	I			SE5	BORAGINACEAE
<i>Myosotis stricta</i> Link	Forget-me-not	IU	M.J. Oldham #32418 (MICH) from Niagara Parkway in 2006. See Eckel (2000).	I	I			SE4	BORAGINACEAE
<i>Myosotis sylvatica</i> Hoffm.	Forget-me-not	IR	Reported from Fonthill Sandhills Valley, Niagara Escarpment, by Riley et al. (1996). S. Blaney #1312-93 (TRT) from Fonthill Sandhill Valleys ANSI in 1993.	I	I			SE4	BORAGINACEAE
<i>Myosotis verna</i> Nutt.	Early Forget-me-not	R	"Niagara Gorge," both sides, Field Club, 1894. Ontario, Niagara Park System, Cameron (1895). Queenston Heights, John Macoun, May 18, 1901; W. J. Potter, 1908 (TRT); Niagara, Wm. Scott, July 3, 1897, Heimbürger (1955). (as <i>M. virginica</i>), "... at the edge of the old track-way ... blooms in early June," Hamilton (1943).	R1	--			S4?	BORAGINACEAE
<i>Myosoton aquaticum</i> (L.) Moench	Giant Chickweed	IR	Rare weed. M.J. Oldham #8783 (DAO, WAT) from Wainfleet Bog in 1988.	--	--			SE3	CARYOPHYLLACEAE

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<i>Myriophyllum heterophyllum</i> Michaux	Water-milfoil	RH	Old records only: "In pools, near Niagara River, above Clifton, Ont. July (1882)," Day (1883). Ontario: "Lakes and rivers, apparently rare. ... Niagara Falls. (MacLagan.)" Macoun (1883). "Pools near Clifton, Ontario," Day (1888). Ontario, Queen Victoria Park, Panton (1890). Ontario, Niagara Park System, Cameron (1895). "in pools along the upper River and at Dufferin Islands" (Hamilton 1943).	--	R1			S4?	HALORAGACEAE
<i>Myriophyllum sibiricum</i> Komarov	Northern Water-milfoil	RH	Old records only: "Niagara River above the Falls in shallow and quiet places," Day (1888). Ontario, Queen Victoria Park, Panton (1890). Ontario, Niagara Park System, Cameron (1895). Ontario: Dufferin Island, 12" water, Miller (586), Aug. 25, 1948, Heimbürger (1955). = <i>Myriophyllum exalbescentis</i> , <i>M. spicatum</i> var. <i>exalbescentis</i> .	R3	--			S5	HALORAGACEAE
<i>Myriophyllum spicatum</i> L.	European Water-milfoil	IR	Probably overlooked. C.J. Rothfels (HAM)	I	I			SE5	HALORAGACEAE
<i>Najas flexilis</i> (Willd.) Rostkov & W. Schmid	Bushy Naiad	R	Two recent sites (Wainfleet Wetlands & Navy Island).	R4	C			S5	HYDROCHARITACEAE
<i>Najas minor</i> All.	Brittle Naiad	IR	New to Niagara in 2007 (M.J. Oldham #34907, TRT, MICH, from Wainfleet Wetlands).	I	--			SE2	HYDROCHARITACEAE
<i>Narcissus poeticus</i> L.	Poet's Narcissus	IR	M.J. Oldham photo in 2007 (Paradise Grove)	--	--			SE1	AMARYLLIDACEAE
<i>Narcissus pseudonarcissus</i> L.	Daffodil	IR	Occasionally persisting after cultivation, even in woodland situations, but usually not spreading.	--	--			SE2	AMARYLLIDACEAE
<i>Nasturtium microphyllum</i> (Boenn.) Reichb.	Water Cress	IU	Most local reports of <i>N. officinale</i> probably belong here.	I	?			SE5	BRASSICACEAE
<i>Nelumbo lutea</i> Willd.	American Lotus	RH	Reported from near the mouth of the Welland Canada (Macoun 1882-1893); no supporting specimen located by Argus et al. (1982-1987).	--	R2			S2	NELUMBONACEAE
<i>NEMOPANTHUS</i>	see		<i>ILEX</i>						AQUIFOLIACEAE

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<i>NEOBECKIA</i>	<i>see</i>		<i>RORIPPA</i>						BRASSICACEAE
<i>Nepeta cataria</i> L.	Catnip	IC	Common weed.	I	I			SE5	LAMIACEAE
<i>Nicandra physalodes</i> L.	Apple-of-Peru	IH	Old reports only: Niagara Park System, Cameron (1895). (Ontario, Parks) Hamilton (1943).	I	--			SE1	SOLANACEAE
<i>Nicotiana rustica</i> L.	Wild Tobacco	IH	Old report only: Niagara Park System, Cameron (1895).	--	--			SE1	SOLANACEAE
<i>Nuphar advena</i> (Aiton) Aiton f.	Yellow Pond-lily	R	Rare. F. Marie-Victorin (DAO) from Welland River in 1932. = <i>Nuphar lutea</i> ssp. <i>advena</i> .	R2	U			S3	NYMPHAEACEAE
<i>Nuphar microphylla</i> (Pers.) Fern.	Small Pond-lily	RH	Eckel 2001 (Flora of Niagara Falls); specimen from Chippewa (Scott in 1896, DAO) cited in Padgett (2007). = <i>Nuphar lutea</i> ssp. <i>pumila</i> , <i>N. pumila</i> .	--	--			S3	NYMPHAEACEAE
<i>Nuphar variegata</i> Durand in Clinton	Bullhead Lily	U	= <i>Nuphar luteum</i> .	C	U			S5	NYMPHAEACEAE
<i>Nuttallanthus canadensis</i> (L.) D. Sutton	Oldfield Toadflax	R	Known in the region only from Wainfleet Bog where it occurs in disturbed formerly peat mined areas. M.J. Oldham #23173 (MICH) from Wainfleet Bog in 1999. = <i>Linaria canadensis</i> .	--	--			S1	PLANTAGINACEAE
<i>Nymphaea odorata</i> Aiton	Fragrant Water-lily	U	Both ssp. <i>odorata</i> and ssp. <i>tuberosa</i> (= <i>N. tuberosa</i>) have been reported from Niagara and can be difficult to distinguish. = <i>Nymphaea tuberosa</i> .	R3	U			S5	NYMPHAEACEAE
<i>Nyssa sylvatica</i> Marshall	Black-gum	U	Uncommon and local in sandy woods, often around the edges of woodland sloughs.	R2	C			S3	NYSSACEAE
<i>Oenothera biennis</i> L.	Hairy Yellow Evening-primrose	C	The local status of this species is difficult to assess, since few members of this group have been reliably identified to species.	C	VU			S5	ONAGRACEAE

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<i>Oenothera fruticosa</i> L. ssp. <i>glauca</i> (Michaux) Straley	Sundrops	RH	The only native Ontario record mapped by Argus et al. (1982-1987) is a 1903 collection (DAO) from Fort Erie. Another report requires further checking: Niagara, W. J. Potter, 1908 (TRT), Heimburger (1955). Sometimes cultivated, so some records could be based on garden escapes.	--	--			SX	ONAGRACEAE
<i>Oenothera gaura</i> W.L. Wagner & Hoch	Biennial Gaura	R	Rare, often in disturbed sites. Most records are from along the Lake Erie shoreline on exposed bedrock outdrops. M.J. Oldham #18170 (MICH) from near Fort Erie in 1995. = <i>Gaura biennis</i> .	--	--			S2	ONAGRACEAE
<i>Oenothera oakesiana</i> (A. Gray) Robbins ex S. Wats. & Coult.	Oakes' Evening-primrose	RH	Historic specimen record (TRT) from Niagara Falls (Riley et al. 1996).	--	--			S4?	ONAGRACEAE
<i>Oenothera parviflora</i> L.	Small-flowered Evening-primrose	DD	Probably fairly common, but easily confused with similar species, and few specimens have been reliably identified.	C	C			S5?	ONAGRACEAE
<i>Oenothera perennis</i> L.	Sundrops	U	Uncommon in meadows and other open areas, sometimes in disturbed situations.	C	U			S4S5	ONAGRACEAE
<i>Oenothera pilosella</i> Raf. ssp. <i>pilosella</i>	Pilose Evening-primrose	R	A.C. Garofalo #07-928 (HAM) from City of Niagara Falls in 2007; perhaps a garden escape.	--	--			S2	ONAGRACEAE
<i>Onobrychis viciifolia</i> Scop.	Sainfoin	IH	Rare garden escape. Queen Victoria Park, [Niagara Falls] (as <i>O. sativa</i>), Panton (1890). Pt. Abino Peninsula, Macdonald 1990	--	--			SE1	FABACEAE
<i>Onoclea sensibilis</i> L.	Sensitive Fern	C		C	C			S5	ONOCLEACEAE
<i>Onopordum acanthium</i> L.	Scotch Thistle	IH	Queenston Heights, Wm. Scott, July 13, 1894, Heimburger (1955). "Frequent throughout the Parks" Hamilton (1943). Hydro Property near School of Horticulture, Rollson, Sept. 15, 1963 (NFO).	I	I			SE4	ASTERACEAE

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<i>Ophioglossum pusillum</i> Raf.	Northern Adder's-tongue	R	Queen Victoria Park [Niagara Falls], Cameron, 1893 (NFO). Collected at Point Abino in 1888 (BUF) and 1890 (BUF), though not seen there more recently (Yaki 1970, Macdonald 1990). Wainfleet Bog in 1981 (A.A. Reznicek pers. comm. 2010). = <i>Ophioglossum vulgatum</i> .	--	U			S4S5	OPHIOGLOSSACEAE
<i>ORCHIS</i>	<i>see</i>		<i>GALEARIS</i>						ORCHIDACEAE
<i>Origanum vulgare</i> L.	Wild Marjoram	IR	M.J. Oldham #32918 (DAO) from Niagara Parkway in 2006.	I	--			SE5	LAMIACEAE
<i>Ornithogalum nutans</i> L.	Nodding Star-of-Bethlehem	IH	Collected by J.H. Soper in 1950 in low wet woods in Stamford Township (Montgomery 1956).	--	--			SE1	HYACINTHACEAE
<i>Ornithogalum umbellatum</i> L.	Star-of-Bethlehem	IR	Rare escape from cultivation. S. Varga #1313-93 (TRT) from Fonthill Sandhill Valleys ANSI in 1993.	I	I			SE3	HYACINTHACEAE
<i>Orobanche uniflora</i> L.	One-flowered Cancer-root	R	Niagara Glen 2006 sight record (Oldham 2007).	R2	R1			S4	OROBANCHACEAE
<i>Orthilia secunda</i> (L.) House	One-sided Pyrola	RH	Historical records only, e.g. Niagara River Whirlpool, W. Scott, TRT, in 1898. = <i>Pyrola secunda</i> .	R1	U			S5	ERICACEAE
<i>ORYZOPSIS</i>	<i>see also</i>		<i>PIPTATHERUM</i>						POACEAE
<i>Oryzopsis asperifolia</i> Michaux	Rough-leaved Mountain-rice	U	Woods. Common northward, locally rare in the south.	C	C			S5	POACEAE
<i>Osmorhiza claytonii</i> (Michaux) C.B. Clarke	Sweet-cicely	C		C	C			S5	APIACEAE
<i>Osmorhiza longistylis</i> (Torrey) DC.	Long-styled Sweet-cicely	C		U8	C			S5	APIACEAE
<i>Osmunda cinnamomea</i> L.	Cinnamon Fern	C		C	C			S5	OSMUNDACEAE
<i>Osmunda claytoniana</i> L.	Interrupted Fern	U	Very uncommon fern. Only known from the Fonthill area in Red Maple - Hemlock mixed woods and some Niagara Escarpment sites.	C	C			S5	OSMUNDACEAE
<i>Osmunda regalis</i> L. var. <i>spectabilis</i> (Willd.) Gray	American Royal Fern	C		C	C			S5	OSMUNDACEAE
<i>Ostrya virginiana</i> (Miller) K. Koch	Hop-hornbeam	C		C	C			S5	BETULACEAE

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<i>Oxalis dillenii</i> Jacq.	Dillen's Wood-sorrel	U	Nomenclature is confused relative to <i>Oxalis stricta</i> . Perhaps not native to Ontario. = <i>Oxalis stricta</i> of some regional reports (e.g. Riley et al. 1996).	C	U			S5?	OXALIDACEAE
<i>Oxalis stricta</i> L.	European Wood-sorrel	C	A common weed of open, disturbed areas. = <i>Oxalis fontana</i> of some regional reports (e.g. Riley et al. 1996).	C	U			S5	OXALIDACEAE
<i>Packera aurea</i> (L.) A. Löve & D. Löve	Golden Ragwort	R	Early records from the Niagara River area. More recently reported from North Pelham Valley (Spooky Hollow Sanctuary) by Campbell (1982) and from St. John's Valley (Riley et al. 1996). P.W. Ball #83204 (TRTE) from 20-mile Creek at Jordan in 1983. = <i>Senecio aureus</i> .	U8	C			S5	ASTERACEAE
<i>Packera paupercula</i> (Michx.) A. Löve & D. Löve	Balsam Ragwort	RH	Early reports from the Niagara River area: Niagara Parks System (as <i>Senecio aureus</i> var. <i>balsamitae</i>), Cameron (1895). "... near the Glen," Hamilton (1943). Whirlpool, W. J. Potter (TRT) in 1908, (Heimbürger 1955, Varga and Kor 1993). No recent regional records. = <i>Senecio pauperculus</i> .	--	--			S5	ASTERACEAE
<i>Panax quinquefolius</i> L.	American Ginseng	R	Rare in rich upland woods. Harvested in some areas for its root, and has declined markedly due to this and habitat loss. See COSEWIC (2000a).	R2	U	END	END	S3	ARALIACEAE
<i>Panax trifolius</i> L.	Dwarf Ginseng	R	Known mainly from early reports (e.g. Panton 1890, Cameron 1895; J. Macoun (CAN) from the Whirlpool in 1901). Reported "growing in the Glen" by Hamilton (1943), though not seen there subsequently (Varga and Kor 1993, Oldham 2007). Photographed by A.C. Garofalo (pers. comm. 2010) in a slough forest in West Lincoln at Grassie Tupelo Swamp near the Grimsby-Hamilton border.	R2	U			S4	ARALIACEAE
<i>PANICUM</i>	see also		<i>DICHANTHELIUM</i>						POACEAE

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<i>Panicum capillare</i> L.	Witch Grass	C	A common grass of disturbed open ground, and a major weed of agricultural land.	C	C			S5	POACEAE
<i>Panicum depauperatum</i> Muhlenb.	Impoverished Panic Grass	RH	A record (of var. <i>involutum</i>) is mapped from the Niagara River by Dore and McNeill (1980).	--	C			S4	POACEAE
<i>Panicum dichotomiflorum</i> Michaux	Fall Panic Grass	IU	A weed of agricultural fields, roadsides, railways, and other disturbed, open ground.	I	I			SE5	POACEAE
<i>Panicum flexile</i> (Gattinger) Scribner	Wiry Witch Grass	R	Local in moist calcareous meadows, shorelines, and quarry bottoms. Pt. Abino Peninsula (Macdonald 1990). M.J. Oldham #23184 (DAO) from Wainfleet Wetlands Conservation Area in 1999.	--	U			S4	POACEAE
<i>Panicum gattingeri</i> Nash	Gattinger's Witch Grass	R	Apparently native on floodplains, but quite weedy and found on roadsides, field edges, and other disturbed sites (Oldham et al. 1995). A single regional record: Fort Erie, M.J. Oldham #23201 (DAO, MICH) in 1999.	--	R1			S4	POACEAE
<i>Panicum linearifolium</i> Scribner	Narrow-leaved Panic Grass	R	Mapped from two sites in Niagara (var. <i>linearifolium</i>) by Dore and McNeill (1980). S. Varga #91-75 (TRT) from Niagara Section Escarpment ANSI in 1991.	R5	C			S4S5	POACEAE
<i>Panicum miliaceum</i> L.	Proso Millet	IR	Rare weed. M.J. Oldham #32925 (DAO) from Dufferin Islands in 2006.	I	I			SE4	POACEAE
<i>Panicum tuckermanii</i> Fern.	Tuckerman's Witch Grass	R	Moist shorelines. Similar to <i>P. capillare</i> and easily overlooked. M.J. Oldham #8781 (DAO, MICH, TRTE) from Point Abino in 1988. Known elsewhere in the Region only from Windmill Point. Included by some authors in <i>P. philadelphicum</i> (e.g. FNA), but recognized here following Darbyshire and Cayouette (1995).	--	R2			S4	POACEAE

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<i>Panicum virgatum</i> L.	Switch Grass	U	Known from several sites along the Lake Erie and Niagara River shoreline and an occasional weed along roadsides and railways.	R3	C			S4	POACEAE
<i>Papaver somniferum</i> L.	Opium Poppy	IH	Niagara Parks System (Cameron 1895).	I	--			SE1	PAPAVERACEAE
<i>Parietaria pensylvanica</i> Muhlenb. ex Willd.	Pellitory	R	Moist calcareous woods and ledges; occasionally weedy. M.J. Oldham #32705 (DAO) from the Whirlpool in 2006.	R1	VU			S4	URTICACEAE
<i>Parnassia glauca</i> Raf.	Grass-of-Parnassus	R	Known from the Niagara River (specimens at TRT), where seen as recently as 2006 (M.J. Oldham) at the Whirlpool. Collected at Point Abino in the 1920s by F.W. Johnson (BUF; House 1930), though not seen there since (Yaki 1970, Macdonald 1990).	R2	U			S5	PARNASSIACEAE
<i>Paronychia fastigiata</i> (Raf.) Fern. var. <i>fastigiata</i>	Forked Chickweed	RH	W.L. Putnam #247 (DAO) from West Lincoln Township in 1974 (ARVPO database). Only regional record.	--	R1			S1	CARYOPHYLLACEAE
<i>Parthenocissus inserta</i> (A. Kerner) Fritsch	Virginia Creeper	C	Our most common Virginia Creeper, usually in more open situations than <i>P. quinquefolia</i> . Frequently found in a vegetative state and difficult to distinguish from <i>P. quinquefolia</i> . = <i>Parthenocissus vitacea</i> .	C	C			S5	VITACEAE
<i>Parthenocissus quinquefolia</i> (L.) Planchon ex DC.	Virginia Creeper	U	Uncommon in woods. More southern than the very similar <i>P. inserta</i> . Many reports of <i>P. quinquefolia</i> are probably referable to <i>P. inserta</i> .	--	VU			S4?	VITACEAE
<i>Parthenocissus tricuspidata</i> (Siebold & Zucc.) Planch.	Boston Ivy	IR	Reported from Homer Escarpment by Riley et al. (1996).	--	--			SE1	VITACEAE
<i>Pascopyrum smithii</i> (Rydb.) A. Löve	Western Wheat Grass	IR	M.J. Oldham #32981 (DAO) from the Whirlpool in 2006. = <i>Agropyron smithii</i> , <i>Elymus smithii</i> .	--	I			SE2	POACEAE
<i>Pastinaca sativa</i> L.	Wild Parsnip	IU	Uncommon weed, reported as early as 1890 from Queen Victoria Park, Niagara Falls (Panton 1890, as <i>Peucedanum sativum</i>).	I	I			SE5	APIACEAE
<i>Pedicularis canadensis</i> L.	Wood-betony	R	Reported from several Niagara Escarpment sites (Riley et al. 1996).	U10	U			S5	OROBANCHACEAE

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<i>Pedicularis lanceolata</i> Michaux	Swamp Lousewort	R	Early reports from several sites along the Niagara River (e.g. Day 1888, Panton 1890, Cameron 1895, Heimbürger 1955). Reported from North Pelham Valley (Spooky Hollow Sanctuary) by Campbell (1982). M.J. Oldham #33895 (DAO) from Dufferin Islands in 2006.	--	--			S4	OROBANCHACEAE
<i>Pellaea atropurpurea</i> (L.) Link	Purple-stemmed Cliff-brake	R	Well known from the Niagara Gorge with many reports and collections (e.g. BUF, TRT), and still present (2006, M.J. Oldham) in the Niagara Glen. Reported from three Niagara Escarpment sites by Riley et al. (1996).	--	--			S3	PTERIDACEAE
<i>Pellaea glabella</i> Mett. ex Kuhn ssp. <i>glabella</i>	Smooth Cliff-brake	R	Cliffs and boulders along the Niagara Escarpment. Reported from four Niagara Escarpment sites by Riley et al. (1996). J. Jalava #91-87 (TRT) from 15 Mile Creek ANSI in 1991.	R2	--			S4	PTERIDACEAE
<i>Peltandra virginica</i> (L.) Schott & Endl.	Arrow Arum	R	Creek margins. M.J. Oldham #35354 (HAM) Baden-Powell Park, City of Niagara Falls, in 2008. See Laking (1951).	R1	R2			S2	ARACEAE
<i>Penstemon digitalis</i> Nutt. ex Sims	Foxglove Beard-tongue	U	About 1 km S of Whirlpool parking lot along Niagara Parkway, C.J. Rothfels #2228 (HAM) in 2006.	C	U			S4S5	PLANTAGINACEAE
<i>Penstemon hirsutus</i> (L.) Willd.	Hairy Beard-tongue	U		C	VU			S4	PLANTAGINACEAE
<i>Penthorum sedoides</i> L.	Ditch Stonecrop	C		C	U			S5	PENTHORACEAE
<i>Persicaria amphibia</i> (L.) S.F. Gray	Water Smartweed	U	Scattered sites. Intraspecific taxa not recognized in FNA Vol. 5. = <i>Polygonum amphibium</i> .	C	C			S5	POLYGONACEAE
<i>Persicaria arifolia</i> (L.) Haraldson	Halberd-leaved Tear-thumb	U	Scattered in swamps and floodplains. A.C. Garofalo #07-693 (HAM) from Boyer's Creek, Niagara Falls, in 2007. = <i>Polygonum arifolium</i> .	R1	R2			S3	POLYGONACEAE

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<i>Persicaria hydropiper</i> (L.) Spach	Water-pepper	IC	Common in wetlands. Generally considered introduced (e.g. Morton and Venn 1990) though perhaps at least partly native. = <i>Polygonum hydropiper</i> .	I	I?			SE5	POLYGONACEAE
<i>Persicaria hydropiperoides</i> (Michx.) Small	Mild Water-pepper	R	Rare in wetlands. C. Schaefer #91-112 (TRT) from 16 Mile Creek ANSI in 1991. = <i>Polygonum hydropiperoides</i>.	C	U			S5	POLYGONACEAE
<i>Persicaria lapathifolia</i> (L.) S.F. Gray	Pale Smartweed	C	Common in wetlands. = <i>Polygonum lapathifolium</i> .	C	C			S5	POLYGONACEAE
<i>Persicaria maculosa</i> S.F. Gray	Lady's-thumb	IC	Common, shorelines and other moist disturbed areas. = <i>Polygonum persicaria</i> .	I	I			SE5	POLYGONACEAE
<i>Persicaria orientalis</i> (L.) Spach	Prince's Feather	IH	Rare escape from cultivation. Several early reports: Niagara Park System, Cameron (1895). Parks, Ontario, Hamilton (1943). Ontario: [Niagara] Parkway, Chippewa, Oldengarm, Sept. 14, 1961 (NFO). = <i>Polygonum orientale</i> .	--	I			SE3	POLYGONACEAE
<i>Persicaria pensylvanica</i> (L.) Gomez	Pinkweed	C	Common in wetlands. <i>Polygonum pensylvanicum</i> .	C	U			S5	POLYGONACEAE
<i>Persicaria punctata</i> S.F. Gray	Smartweed	C	Swampy woods and moist shorelines. = <i>Polygonum punctatum</i> .	C	U			S5	POLYGONACEAE
<i>Persicaria sagittata</i> (L.) H. Gross	Arrow-leaved Tear-thumb	C	Common in wetlands. = <i>Polygonum sagittatum</i> .	C	U			S4	POLYGONACEAE
<i>Persicaria virginiana</i> (L.) Gaertner	Jumpseed	C	Common in woods. = <i>Polygonum virginianum</i> , <i>Tovara virginiana</i> .	C	C			S4	POLYGONACEAE
<i>Petasites frigidus</i> (L.) Fries	Sweet Coltsfoot	RH	Dufferin Islands, Soper (TRT 14389) in 1950 (Varga and Kor 1993; as <i>P. palmatus</i>). = <i>Petasites palmatus</i>.	R1	--			S5	ASTERACEAE
<i>Petasites japonicus</i> (Siebold & Zucc.) Maxim	Japanese Coltsfoot	IR	Known from Dufferin Islands since at least the 1940s and still present (M.J. Oldham #32936, DAO, in 2006). Originally reported as <i>P. hybridus</i> or <i>P. vulgaris</i> (Montgomery 1957, Eckel 2001), but subsequently reidentified as <i>P. japonicus</i> .	--	--			SE1	ASTERACEAE
<i>PEUCEDANUM</i>	see		<i>PASTINACA</i>						APIACEAE
<i>Phalaris arundinacea</i> L.	Reed Canary Grass	C	Some or all populations may be introduced.	C	C			S5	POACEAE

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<i>Phalaris canariensis</i> L.	Canary Grass	IR	M.J. Oldham #32934 (DAO) from Dufferin Islands in 2006.	I	--			SE2	POACEAE
<i>Phedimus spurius</i> (M. von Bieberstein) 't Hart	Two-row Stonecrop	IR	D.F. Brunton #7922 (TRT) from Niagara Glen in 1988. = <i>Sedum spurium</i> .	--	--			SE1	CRASSULACEAE
<i>Phegopteris connectilis</i> (Michaux) Watt	Northern Beech Fern	RH	Niagara Parks System (as <i>Phegopteris polypodioides</i>), Cameron (1895). (As <i>Dryopteris phegopteris</i>) Queenston, Wm. Scott, Sept. 7, 1898 (TRT 25166; 25184), Heimbürger (1955). No recent reports. = <i>Thelypteris phegopteris</i> .	R1	--			S5	THELYPTERIDACEAE
<i>Phegopteris hexagonoptera</i> (Michaux) Fee	Broad Beech Fern	R	Rare and apparently declining in rich woods. A.C. Garofalo #08-1073 (HAM) from Short Hills in 2008. = <i>Thelypteris hexagonoptera</i> .	R3	U	SC	SC	S3	THELYPTERIDACEAE
<i>Phellodendron amurense</i> Rupr.	Amur Corktree	IR	Rare in woods. M.J. Oldham #32891 (MICH, det. A.A. Reznicek 2008) from Niagara Glen in 2007. Not reported for Ontario by Morton and Venn (1990).	--	--			SE1	RUTACEAE
<i>Philadelphus coronarius</i> L.	Mock-orange	IR	Rare escape from cultivation. C. Schaefer #91-102 (TRT) from Jordan Valley ANSI in 1991.	I	--			SE1	HYDRANGEACEAE
<i>Phleum pratense</i> L.	Timothy	IC	A very common weedy grass.	I	I			SE5	POACEAE
<i>Phlox divaricata</i> L.	Blue Phlox	U	Uncommon overall, and rare on the clay plain. Mostly confined to rocky or rich woods.	C	C			S4	POLEMONIACEAE
<i>Phlox paniculata</i> L.	Garden Phlox	IR	A rare escape from cultivation. Reported from Point Abino by Macdonald (1990).	I	I			SE3	POLEMONIACEAE
PHOTINIA	see		ARONIA						ROSACEAE
<i>Phragmites australis</i> (Cav.) Trin. ex Steudel ssp. <i>americanus</i> Saltonstall, P.M. Peterson & Soreng	American Common Reed	DD	The native subspecies (ssp. <i>americanus</i>) is known with certainty (based on specimens from several Ontario herbaria identified by P.M. Catling, pers. comm. 2010) from Wainfleet Bog (e.g. W.J. Cody #12478, DAO, in 1962) and may be rare and declining in the region. Most records from the region are not identified to the subspecies level.	--	--			S5?	POACEAE

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<i>Phragmites australis</i> (Cav.) Trin. ex Steudel ssp. <i>australis</i>	European Common Reed	IC	The introduced and highly invasive European subspecies (ssp. <i>australis</i>) is widespread in Niagara in disturbed moist ground (e.g. M.J. Oldham #33842, DAO, from Niagara River Whirlpool in 2006). Spreading rapidly at Wainfleet Bog (M. Browning pers. comm. 2010). Most records from the region are not identified to the subspecies level.	C	C			SE5	POACEAE
<i>Phryma leptostachya</i> L.	Lopseed	U		C	C			S4S5	PHRYMACEAE
<i>Physalis alkekengi</i> L.	Chinese Lantern	IR	A rare escape from cultivation (Zenkert & Zander 1975).	I	I			SE2	SOLANACEAE
<i>Physalis grisea</i> (Waterf.) M. Martínez	Ground-cherry	IH	Historical record, Queenston, TRT (Riley et al. 1996). = <i>Physalis pubescens</i> .	--	--			SE1	SOLANACEAE
<i>Physalis heterophylla</i> Nees	Clammy Ground-cherry	R	Reported from three Niagara Escarpment sites by Riley et al. (1996).	C	C			S4	SOLANACEAE
<i>Physalis subglabrata</i> Mackenzie & Bush	Smooth Ground-cherry	RH	1952 specimen at TRT from Homer Escarpment (Riley et al. 1996). = <i>Physalis longifolia</i> var. <i>subglabrata</i> , <i>P. virginiana</i> var. <i>subglabrata</i> .	R2	R4			S4?	SOLANACEAE
<i>Physalis virginiana</i> Miller var. <i>virginiana</i>	Ground-cherry	R	NAI database.	--	--			SU	SOLANACEAE
<i>Physocarpus opulifolius</i> (L.) Maxim.	Ninebark	U	Locally common along the Niagara River.	C	U			S5	ROSACEAE
<i>Physostegia virginiana</i> (L.) Benth. ssp. <i>virginiana</i>	False Dragonhead	R	Rare and local; most sites are along the Lake Erie shoreline. A.C. Garofalo #06-091 (HAM) from Wainfleet Wetlands in 2006.	R2	R2			S4	LAMIACEAE
<i>Phytolacca americana</i> L.	Pokeweed	C		U7	C			S4	PHYTOLACCACEAE
<i>Picea abies</i> (L.) Karsten	Norway Spruce	IC	An uncommon escape from cultivation. Frequently persists after cultivation and most Niagara records may be of plants persisting after cultivation rather than spreading from cultivation.	I	I			SE3	PINACEAE
<i>Picea glauca</i> (Moench) Voss	White Spruce	IU	Uncommon escape from cultivation.	I/N	R1			S5	PINACEAE

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<i>Picea mariana</i> (Miller) Britton, Sterns & Poggenb.	Black Spruce	RH	Known historically from Wainfleet Bog (Macdonald 1992) and Willoughby Marsh (A.A. Reznicek, pers. comm. 2010).	R2	R1			S5	PINACEAE
<i>Picris echioides</i> L.	Bristly Ox-tongue	IH	Known from an old collection from Niagara Falls (Montgomery 1957).	I	--			SEX	ASTERACEAE
<i>Picris hieracioides</i> L. ssp. <i>hieracioides</i>	Ox-tongue	IU	Local in disturbed ground.	I	--			SE5	ASTERACEAE
<i>Pilea fontana</i> (Lunell) Rydb.	Black-seeded Clearweed	U	Rare in moist, often shaded sites. Perhaps overlooked due to confusion with <i>P. pumila</i> . S. Varga #91-93 (TRT) from Decew Valley in 1991. See Eckel (1983).	C	U			S4	URTICACEAE
<i>Pilea pumila</i> (L.) A. Gray	Clearweed	C		C	C			S5	URTICACEAE
<i>Pinus banksiana</i> Lambert	Jack Pine	IR	Rare escape from cultivation.	I	I			S5	PINACEAE
<i>Pinus nigra</i> Arnold	Austrian Pine	IR	Rare escape from cultivation.	I	--			SE2	PINACEAE
<i>Pinus resinosa</i> Aiton	Red Pine	IR	Rare escape from cultivation.	I/N	I			S5	PINACEAE
<i>Pinus strobus</i> L.	Eastern White Pine	C		C	C			S5	PINACEAE
<i>Pinus sylvestris</i> L.	Scots Pine	IC	Escape from cultivation.	I	I			SE5	PINACEAE
<i>Piptatherum racemosum</i> (Sm.) Eaton	Mountain-rice	U	Rich deciduous woods; quite local. = <i>Oryzopsis racemosa</i> .	U8	U			S4	POACEAE
<i>Plantago arenaria</i> Waldst. & Kit.	Flaxseed Plantain	IR	Fort Erie railway yard, M.J. Oldham #18174 (MICH) in 1995 = <i>Plantago indica</i> , <i>P. psyllium</i> .	I	I			SE4	PLANTAGINACEAE
<i>Plantago lanceolata</i> L.	English Plantain	IC		I	I			SE5	PLANTAGINACEAE
<i>Plantago major</i> L.	Common Plantain	IC		I	I			SE5	PLANTAGINACEAE
<i>Plantago rugelii</i> Dcne.	Rugel's Plantain	C		C	C			S5	PLANTAGINACEAE
<i>Platanthera aquilonis</i> Sheviak	Tall Northern Green Orchid	RH	Historically "frequently found in the [Niagara] Glen and at Dufferin Islands" (Hamilton 1943), though no recent records from either site (Varga and Kor 1993, Oldham 2007). Most recently reported from North Pelham Valley (Spooky Hollow Sanctuary) by Campbell (1982) based on a 1979 survey. = <i>Platanthera hyperborea</i> of regional reports.	R3	VU			S5	ORCHIDACEAE

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<i>Platanthera blephariglottis</i> (Willd.) Lindley	White Fringed-orchid	RH	Mapped from Niagara by Whiting and Catling (1986), though no specimens seen by them. Reported from the Niagara Parks System by Cameron (1895) and Hamilton (1943; "...reported from the Parks, but not recently found").	--	RH			S4	ORCHIDACEAE
<i>Platanthera flava</i> (L.) Lindley var. <i>herbiola</i> (R. Br. ex Ait. f.) Luer	Tubercled Orchid	RH	R. Cameron (CAN) from "near the Whirlpool, Niagara" in 1894 is the only regional specimen record. No recent reports.	--	VU			S3	ORCHIDACEAE
<i>Platanthera hookeri</i> (Torrey ex Gray) Lindley	Hooker's Orchid	RH	Several historic records from the Niagara River area including an 1891 J. Macoun collection (CAN), but no recent reports.	--	RH			S3	ORCHIDACEAE
<i>Platanthera lacera</i> (Michaux) G. Don var. <i>lacera</i>	Ragged Fringed-orchid	RH	Historical record from Niagara Falls (R. Cameron, CAN, in 1893). No records since 1903 (W. Scott, TRT, from Queenston Quarry).	U8	U			S4S5	ORCHIDACEAE
<i>Platanthera orbiculata</i> (Pursh) Lindley var. <i>orbiculata</i>	Large Round-leaved Orchid	RH	Mapped from the general vicinity of Niagara Falls by Whiting and Catling (1986) based on a specimen examined.	--	--			S4?	ORCHIDACEAE
<i>Platanthera psycodes</i> (L.) Lindley	Small Purple Fringed-orchid	RH	R. Cameron (CAN) from Niagara Falls in 1893 is the only known regional specimen record. No recent reports.	R5	U			S5	ORCHIDACEAE
<i>Platanus occidentalis</i> L.	Sycamore	U	Primarily on floodplains.	R4	U			S4	PLATANACEAE
<i>Platanus x acerifolia</i> (Aiton) Willd.	London Plane-tree	hyb	An occasional escape from cultivation or perhaps just persisting after cultivation (e.g. Gregory 2005a). Not reported as escaping cultivation in North America by FNA Vol. 3 (1997). Reputedly a hybrid between <i>P. occidentalis</i> and <i>P. orientalis</i> . = <i>Platanus hybrida</i> .	--	--			SE1	PLATANACEAE
<i>Poa alsodes</i> A. Gray	Woodland Poa	R	Rich woods.	U8	U			S4	POACEAE
<i>Poa annua</i> L.	Annual Blue Grass	IC		I	I			SE5	POACEAE

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<i>Poa bulbosa</i> L.	Bulbous Poa	IR	A weed of lawns in parks and cemeteries, also found in campgrounds and roadsides. Apparently spreading in Ontario (Oldham et al. 1995). M.J. Oldham #32367 from Niagara Glen in 2006.	I	I			SE3	POACEAE
<i>Poa compressa</i> L.	Canada Blue Grass	IC	Although sometimes considered native (e.g. Morton and Venn 1990), this species is considered entirely introduced to North America by FNA and generally occurs in weedy situations.	C	I			S5	POACEAE
<i>Poa nemoralis</i> L.	Wood Blue Grass	IC	A European species locally established in disturbed woodlands. M.J. Oldham #32623 (DAO) from Brown's Point Park, Niagara Parkway, in 2006.	I	I			SE3	POACEAE
<i>Poa palustris</i> L.	Fowl Meadow Grass	C	Common in wetlands.	C	C			S5	POACEAE
<i>Poa pratensis</i> L. ssp. <i>pratensis</i>	Kentucky Blue Grass	IC	Very common weed, perhaps in part native.	I	I			S5	POACEAE
<i>Poa saltuensis</i> Fern. & Wieg. ssp. <i>languida</i> (Hitchc.) A. Haines	Languid Poa	RH	Rare in dry upland woods. Several early records (e.g. Macoun 1883-1892, Cameron 1895, Hamilton 1943) from the Niagara River area and reported from Port Davidson, Niagara Region, based on a specimen examined by Dore and McNeill (1980). No recent reports. = <i>Poa languida</i>.	R4	U			S3	POACEAE
<i>Poa trivialis</i> L.	Rough Blue Grass	IU	Uncommon weed of moist areas.	I	I			SE3	POACEAE
<i>Podophyllum peltatum</i> L.	May-apple	C	Rich woods.	C	C			S5	BERBERIDACEAE
<i>Pogonia ophioglossoides</i> (L.) Juss.	Rose Pogonia	RH	Reported from North Pelham Valley (Spooky Hollow Sanctuary) by Campbell (1982) based on a 1979 survey.	--	R1			S4S5	ORCHIDACEAE
<i>Polanisia dodecandra</i> (L.) DC. ssp. <i>dodecandra</i>	Clammy-weed	U	Uncommon on beaches, sandy roadsides and along railways. Perhaps native on Lake Erie beaches, though some or all populations in the Niagara area may be adventive. M.J. Oldham #18183 (TRT) from Erie Beach in 2007. = <i>Polanisia graveolens</i> .	R2	U			S4	CLEOMACEAE

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<i>Polygala incarnata</i> L.	Pink Milkwort	RH	"Said by Douglas (1823) to have been found in rocky places on the Niagara River near the Falls" (Macoun 1883-1892, 1888). No substantiating specimen located (though the species is distinctive) and no subsequent records from the Region.	--	--	END	END	S1	POLYGALACEAE
<i>Polygala paucifolia</i> Willd.	Fringed Polygala	RH	Observed by S. Walshe (1970) and I.D. Macdonald (1976) at Point Abino (Macdonald 1990) and mapped from there by Gillett (1978). No recent records.	U8	C			S5	POLYGALACEAE
<i>Polygala sanguinea</i> L.	Field Milkwort	R	Two NAI survey collections. A.C. Garofalo #08-1019 (HAM) from Pelham Township in 2008.	--	--			S3	POLYGALACEAE
<i>Polygala senega</i> L.	Seneca Snakeroot	R	Rare and local along the Niagara River, though many historical reports. P.M. Eckel (BUF) from Whirlpool Woods in 1986. Reported from three Niagara Escarpment sites by Riley et al. (1996).	U8	VU			S4	POLYGALACEAE
<i>Polygala verticillata</i> L.	Whorled Milkwort	R	Scattered records. Small and inconspicuous. M.J. Oldham #33963 (DAO) from Navy Island in 2006.	R3	U			S4	POLYGALACEAE
<i>Polygonatum biflorum</i> (Walter) Elliott	Solomon's-seal	R	Rare in rich woods.	R1	U			S4	CONVALLARIACEAE
<i>Polygonatum pubescens</i> (Willd.) Pursh	Hairy Solomon's-seal	C		C	C			S5	CONVALLARIACEAE
<i>POLYGONUM</i>	<i>see also</i>		<i>FALLOPIA, PERSICARIA</i>						POLYGONACEAE
<i>Polygonum achoreum</i> Blake	Striate Knotweed	R	Although considered native to Ontario (e.g. Morton and Venn 1990), this species generally occurs in weedy situations. Easily overlooked due to its similarity to other small <i>Polygonum</i> species. A few regional reports (e.g. Macdonald 1992). C.J. Rothfels #339 (HAM) from Jordan Harbour in 2002.	R4	U			S5	POLYGONACEAE
<i>Polygonum aviculare</i> L. ssp. <i>aviculare</i>	Prostrate Knotweed	IU	Scattered regional records, some of which may belong to related species in the <i>Polygonum aviculare</i> complex.	?	--			SE5	POLYGONACEAE

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<i>Polygonum aviculare</i> L. ssp. <i>depressum</i> (Meisner) Arcangeli	Knotweed	IR	A small, weedy knotweed easily confused with similar species. Point Abino (Macdonald 1990). = <i>Polygonum arenastrum</i> .	I	C			SE5	POLYGONACEAE
<i>Polygonum aviculare</i> L. ssp. <i>neglectum</i> (Besser) Arcangeli	Knotweed	R	Apparently rare in Niagara though easily confused with other small <i>Polygonum</i> species. Specimen at TRTE det. P.W. Ball. = <i>Polygonum neglectum</i> .	--	--			S4?	POLYGONACEAE
<i>Polygonum erectum</i> L.	Erect Knotweed	RH	Collected at St. Catharines and Queenston in the late 1800s (CAN, TRTE; ARVPO database). No verified recent records. Very similar to other small knotweeds.	RH	--			S1	POLYGONACEAE
<i>Polygonum ramosissimum</i> Michaux ssp. <i>ramosissimum</i>	Yellow-flower Knotweed	IR	Native to Ontario (Morton and Venn 1990) but in Niagara known only from a railway yard in Niagara Falls (M.J. Oldham #34919, DAO, MICH, in 2007), where presumably introduced.	RH	--			S4	POLYGONACEAE
<i>Polymnia canadensis</i> L.	Leafcup	R	Niagara River, where still present at the Niagara Glen and Whirlpool, and Point Abino. J. Jalava #439-93 (TRT) from Queenston Escarpment ANSI in 1993.	U6	--			S4	ASTERACEAE
<i>Polypodium virginianum</i> L.	Rock Polypody	U	Uncommon and local in rocky or sandy woods. = <i>Polypodium vulgare</i> .	U8	R5			S5	POLYPODIACEAE
<i>Polystichum acrostichoides</i> (Michaux) Schott	Christmas Fern	C	Common in woods.	C	C			S5	DRYOPTERIDACEAE
<i>Polystichum lonchitis</i> (L.) Roth	Holly Fern	RH	"Found sparingly at Foster's Flats (Niagara Glen), below the Whirlpool, Niagara Falls, Ontario" (Macoun 1883-1892). Seen as recently as 1948 (B. Miller, HAM) and 1950 (A.H. Savage, NFO, det. M.J. Oldham in 2006) in Niagara Gorge, but there are no more recent reports (Varga and Kor 1993, Oldham 2007), and the more recent specimens may represent a reintroduction (Mills 1985).	--	--			S4	DRYOPTERIDACEAE
<i>Pontederia cordata</i> L.	Pickerel-weed	R	Wetlands.	I?	U			S5	PONTEDERIACEAE

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<i>Populus alba</i> L.	White Poplar	IU	Spreads by suckering from planted individuals. Locally a problem weed.	I	I			SE5	SALICACEAE
<i>Populus balsamifera</i> L. ssp. <i>balsamifera</i>	Balsam Poplar	R		C	U			S5	SALICACEAE
<i>Populus deltoides</i> Bartram ex Marshall ssp. <i>deltoides</i>	Eastern Cottonwood	C		C	C			S5	SALICACEAE
<i>Populus grandidentata</i> Michaux	Large-toothed Aspen	C		C	C			S5	SALICACEAE
<i>Populus nigra</i> L.	Lombardy Poplar	IR		I	--			SE2	SALICACEAE
<i>Populus tremuloides</i> Michaux	Trembling Aspen	C		C	C			S5	SALICACEAE
<i>Populus x canadensis</i> Moench	(<i>P. deltoides</i> X <i>P. nigra</i>)	hyb	Seen at Point Abino by J. Kaiser (in 1986) and I.D. Macdonald (in 1976), though not since Macdonald (1990).	I	I			SE1	SALICACEAE
<i>Portulaca grandiflora</i> Hook.	Rose Moss	IH	Early records only: Queen Victoria Park, Pantou (1890). Ontario, Niagara Park System, Cameron (1895). "... an undesirable ... plentiful in gardens and cultivated areas of the Parks" (Hamilton 1943). Queen Victoria Park, Cameron, [ca. 1890] (NFO) (Eckel 2001).	--	--			SE1	PORTULACACEAE
<i>Portulaca oleracea</i> L.	Common Purslane	IU	An uncommon weed of disturbed open ground.	I	I			SE5	PORTULACACEAE
<i>POTAMOGETON</i>	see also		<i>STUCKENIA</i>						POTAMOGETONACEAE
<i>Potamogeton alpinus</i> Balbis	Alpine Pondweed	RH	Reported (as <i>P. tenuifolius</i>) from "Niagara River above the Falls" by Morong (NY) in 1886 (Zenkert 1934), but not specifying Ontario.	--	--			S5	POTAMOGETONACEAE
<i>Potamogeton amplifolius</i> Tuckerman	Large-leaved Pondweed	RH	Old records only: "Niagara River (Rev. Thomas Morong)," Day (1888). "Not rare in deep and still water, but seldom collected. ... Niagara River, on the Canadian side. (Tuckerman.)" (Macoun 1883-1892).	U6	VU			S5	POTAMOGETONACEAE
<i>Potamogeton crispus</i> L.	Curly-leaved Pondweed	IC		I	I			SE5	POTAMOGETONACEAE

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<i>Potamogeton epihydrus</i> Raf.	Ribbon-leaf Pondweed	R	Pt. Abino Peninsula (Macdonald 1990). J. Jalava #91-47 (TRT) from 15 Mile Creek ANSI in 1991.	U7	RH			S4S5	POTAMOGETONACEAE
<i>Potamogeton foliosus</i> Raf. <i>ssp. foliosus</i>	Leafy Pondweed	R	Early reports: Niagara Park System (as <i>P. pauciflorus</i>), Cameron (1895). Ontario: Queenston, Scott, Aug. 28, 1847, Heimbürger (1955). Var. <i>niagarensis</i> Tuckerman, which is no longer taxonomically recognized (FNA Vol. 23), was described from Niagara Falls. Few recent reports (e.g. Gregory 2003 from Sir Adam Beck Complex, Niagara Falls; Dougan and Associates 2007 from Lyon's Creek).	R2	R1			S5	POTAMOGETONACEAE
<i>Potamogeton friesii</i> Rupr.	Pondweed	RH	Early reports only: Niagara Park System (as <i>Potamogeton mucronatus</i>), Cameron (1895). Queen Victoria Park, Cameron, [ca. 1890] (NFO) (Eckel 2001).	RH	R1			S4	POTAMOGETONACEAE
<i>Potamogeton gramineus</i> L.	Variable-leaved Pondweed	RH	Early records from Point Abino (e.g. F.W. Johnson in the 1920s, BUF; Macdonald 1990). No recent reports.	--	U			S5	POTAMOGETONACEAE
<i>Potamogeton illinoensis</i> Morong	Illinois Pondweed	RH	Historical records from Niagara Falls and Queenston (TRT) (Riley et al. 1996). Recent reports (e.g. NAI database) require verification. According to Ogden (1943), Hagstrom (1916) cites a <i>P. illinoensis</i> X <i>P. perfoliatus</i> specimen from Queenston, NIAG, without mentioning collector or date.	--	R1			S4	POTAMOGETONACEAE
<i>Potamogeton natans</i> L.	Floating Pondweed	U	Quiet or slow-flowing waters. D. Gregory (TRT) from the Welland River (Gregory 2005a).	U9	C			S5	POTAMOGETONACEAE
<i>Potamogeton nodosus</i> Poiret	Knotty Pondweed	R	Early Niagara River report (Eckel 2001). D. Gregory (TRT) from the Welland River (Gregory 2005a).	R3	R1			S5	POTAMOGETONACEAE

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<i>Potamogeton perfoliatus</i> L.	Perfoliate Pondweed	RH	Early Niagara River records (Cameron 1895, Hamilton 1943) and collected at Point Abino by F.W. Johnson in 1924 (BUF; Zenkert 1934, Macdonald 1990). No recent reports.	R1	RH			S4	POTAMOGETONACEAE
<i>Potamogeton praelongus</i> Wulfen	White-stemmed Pondweed	RH	Earlyl Niagara River records: "Niagara. Provancher, Flore Canadienne, p. 627," Day (1888). Ontario, Niagara Park System, Cameron (1895). "... in the Parks (Ontario)," Hamilton (1943). Queen Victoria Park, Cameron, [ca. 1890] (NFO) (Eckel 2001).	--	--			S4S5	POTAMOGETONACEAE
<i>Potamogeton pusillus</i> L. ssp. <i>pusillus</i>	Small Pondweed	RH	Early Niagara River reports: "Niagara River" Day (1888). Ontario, Niagara Park System, Cameron (1895). "... in the Parks (Ontario)," Hamilton (1943). Queen Victoria Park, Cameron, [ca. 1890] (NFO). Reported from Wainfleet Bog by Auer (1930; in Macdonald 1992).	U10	C			S4S5	POTAMOGETONACEAE
<i>Potamogeton pusillus</i> L. ssp. <i>tenuissimus</i> Mert. & Koch	Small Pondweed	R	S. Varga #91-617 (TRT) from Jordan Valley ANSI in 1991 (Schaefer et al. 1992). = <i>Potamogeton berchtoldii</i> .	R2	--			S4S5	POTAMOGETONACEAE
<i>Potamogeton richardsonii</i> (A. Bennett) Rydb.	Richardson's Pondweed	R	Formerly "according to Muenscher the dominant species in eastern end of Lake Erie and in Niagara River" (Zenkert 1934; specimens at BUF). Recently reported from the Welland River (Gregory 2005a).	--	U			S5	POTAMOGETONACEAE
<i>Potamogeton strictifolius</i> A. Bennett	Slender Pondweed	RH	Early reports: "Rare. Queenstown Ontario (1896) (W. Scott, Cornell Univ. Herb., according to Fernald; in Eckel 2001).	--	RH			S4	POTAMOGETONACEAE
<i>Potamogeton zosteriformis</i> Fern.	Flat-stemmed Pondweed	R	Early reports from the Niagara River (Cameron 1895) and more recently from Wainfleet Bog (Auer 1930, in Macdonald 1992), Point Abino (Macdonald 1990), Welland River (Gregory 2005a).	R4	VU			S5	POTAMOGETONACEAE
<i>POTENTILLA</i>	see also		COMARUM, DASIPHORA,						ROSACEAE

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			<i>DRYMOCALLIS</i>						
<i>Potentilla anserina</i> L. ssp. <i>anserina</i>	Silverweed	C	Sandy shorelines and sometimes disturbed areas inland. = <i>Argentina anserina</i> .	U8	C			S5	ROSACEAE
<i>Potentilla argentea</i> L.	Silvery Cinquefoil	IR		I	I			SE5	ROSACEAE
<i>Potentilla inclinata</i> Villars	Downy Cinquefoil	IR	Rare weed. Reported from Wainfleet Bog by Macdonald (1992). M.J. Oldham #34935 (DAO, TRTE) from Niagara Falls railway yard in 2007.	I	I			SE4	ROSACEAE
<i>Potentilla norvegica</i> L.	Rough Cinquefoil	IC		I	I			S5	ROSACEAE
<i>Potentilla recta</i> L.	Rough-fruited Cinquefoil	IC		I	I			SE5	ROSACEAE
<i>Potentilla reptans</i> L.	Trailing Cinquefoil	IR	Rare weed. M.J. Oldham #33897 (DAO) from Dufferin Islands in 2006.	--	--			SE2	ROSACEAE
<i>Potentilla simplex</i> Michaux	Common Cinquefoil	C		C	C			S5	ROSACEAE
<i>Potentilla supina</i> L. ssp. <i>paradoxa</i> (Nutt.) Sojak	Strange Cinquefoil	R	Rare on sandy shores. M.J. Oldham #18132 (TRTE) from Four Mile Pond, near Niagara-on-the-Lake in 1995. = <i>Potentilla paradoxa</i>.	R1	R1			S4	ROSACEAE
<i>Prenanthes alba</i> L.	White-lettuce	U	Less common in Niagara than <i>P. altissima</i> .	C	C			S5	ASTERACEAE
<i>Prenanthes altissima</i> L.	Tall White-lettuce	C		C	U			S5	ASTERACEAE
<i>Proboscidea louisiana</i> (Miller) Thell.	Louisiana Unicorn-plant	IH	Collected by R. Cameron (CAN) at Niagara Falls in 1892 (Montgomery 1957).	--	--			SEX	MARTYNIACEAE
<i>Prosartes lanuginosa</i> (Michaux) D. Don	Yellow Mandarin	R	Rare, rich woods. = <i>Disporum lanuginosum</i>.	C	C			S4	CONVALLARIACEAE
<i>Proserpinaca palustris</i> L.	Mermaid-weed	R	Pt. Abino Peninsula (Macdonald 1990). A. Garofalo #07-308 (HAM) from Young Woods in 2007. Seen recently at Wainfleet Bog (M. Browning pers. comm. 2010).	R4	U			S4	HALORAGACEAE
<i>Prunella vulgaris</i> L.	Heal-all	C	Most regional reports are the native ssp. <i>lanceolata</i> , although the introduced ssp. <i>vulgaris</i> has been reported also.	C	C			S5	LAMIACEAE
<i>Prunus americana</i> Marshall	Wild Plum	R	Rare in woods. S. Varga #13-93 (TRT) from DeCew Falls Escarpment and Valley ANSI in 1993.	U10	U			S4	ROSACEAE

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<i>Prunus avium</i> (L.) L.	Sweet Cherry	IC	Common in disturbed woods.	I	I			SE4	ROSACEAE
<i>Prunus cerasifera</i> Ehrh.	Chery Plum	IR	Rare escape from cultivation. M.J. Oldham #35309 (TRTE, det. P.W. Ball in 2009) from near Port Colborne in 2008.	--	--			SE1	ROSACEAE
<i>Prunus cerasus</i> L.	Sour Cherry	IR	A rare escape from cultivation. Niagara Park System, Cameron (1895). "Escape," Parks, Ontario, Hamilton (1943). "Dufferin Islands," sight record, Yaki (1970). W. Scott (TRT) from Queenston Heights in 1897.	I	--			SE1	ROSACEAE
<i>Prunus domestica</i> L.	Common Plum	IR	A rare escape from cultivation. Ssp. <i>domestica</i> and ssp. <i>institia</i> have both been reported from the Region. M.J. Oldham #34851 (TRTE; ssp. <i>institia</i> , det. P.W. Ball in 2009) from Dufferin Islands in 2007.	I	--			SE2	ROSACEAE
<i>Prunus mahaleb</i> L.	Perfumed Cherry	IR		I	I			SE2	ROSACEAE
<i>Prunus nigra</i> Aiton	Canada Plum	R	Less common in Niagara than <i>P. americana</i> (G.E. Meyers pers. comm. to A.C. Garofalo).	C	U			S4	ROSACEAE
<i>Prunus pensylvanica</i> L.f.	Pin Cherry	R	Wainfleet Bog (Macdonald 1992).	C	C			S5	ROSACEAE
<i>Prunus persica</i> (L.) Batsch	Peach	IR	"[Niagara] Parks, escape" (Hamilton 1943). "[Niagara] Glen" sight record (Yaki (1970). Pt. Abino Peninsula (Macdonald 1990). W. Scott (TRT) from Queenston in 1901.	--	--			SE1	ROSACEAE
<i>Prunus pumila</i> L. var. <i>pumila</i>	Sand Cherry	R	A declining shrub in the lower Great Lakes region (Catling and Larson 1997). M.J. Oldham #23194 (DAO) from Point Abino in 1999.	--	VU			S3	ROSACEAE
<i>Prunus serotina</i> Ehrh.	Wild Black Cherry	C		C	C			S5	ROSACEAE
<i>Prunus virginiana</i> L. var. <i>virginiana</i>	Choke Cherry	C		C	C			S5	ROSACEAE
<i>Pseudognaphalium obtusifolium</i> (L.) Hilliard & Burt	Fragrant Cudweed	R	Rare. = <i>Gnaphalium obtusifolium</i>.	R2	C			S5	ASTERACEAE

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<i>Ptelea trifoliata</i> L. var. <i>trifoliata</i>	Common Hoptree	R	Largely restricted to sandy shoreline sites on Lake Erie; also reported from the Niagara River (Hamilton 1943), Niagara Glen (Varga and Kor 1993), and Navy Island (Eckel 2001). See COSEWIC (2000b).	I	R1	THR	THR	S3	RUTACEAE
<i>Pteridium aquilinum</i> (L.) Kuhn var. <i>latiusculum</i> (Desv.) Underw. ex Heller	Eastern Bracken	C		C	C			S5	DENNSTAEDTIACEAE
<i>Pterospora andromedea</i> Nutt.	Pine-drops	RH	Niagara Park System, Cameron (1895). "Niagara River near the Whirlpool (Day, Cat. Niag. Fl.). Rare and probably extinct in our region," Zenkert (1934). A species which has declined throughout southern Ontario, south of the Precambrian Shield.	RH	RH			S2	ERICACEAE
<i>Puccinellia distans</i> (Jacq.) Parl. ssp. <i>distans</i>	Reflexed Saltmarsh Grass	IU	An uncommon weed of major roadways and railways, where deicing salt has been used.	I	I			SE5	POACEAE
<i>Pycnanthemum tenuifolium</i> Schrader	Narrow-leaved Mountain-mint	RH	Niagara Falls, Wm. Scott, Aug. 1, 1899 (TRT), Heimbürger (1955). Crescent Beach, Lake Erie, Catling (TRT) in 1969. = <i>Pycnanthemum flexuosum</i> .	--	RH			S3	LAMIACEAE
<i>Pycnanthemum virginianum</i> (L.) Durand & Jackson ex Fern. & Robinson	Virginia Mountain-mint	R	A.C. Garofalo #07-710 (HAM) from Boyer's Creek in 2007.	U6	U			S4	LAMIACEAE
<i>Pyracantha coccinea</i> M. Roemer	Scarlet Firethorn	IR	Reported by D. Gregory (TRTE) from the Sir Adam Beck Complex, Niagara Falls (Gregory 2003b). Rare escape from cultivation. Not reported for Ontario by Morton and Venn (1990).	--	--			SE1	ROSACEAE
<i>Pyrola americana</i> Sweet	Round-leaved Pyrola	RH	Collected in the late 1800s from Point Abino by A. Chamot (BUF; Macdonald 1990). Also early records from the Niagara River (Niagara Park System, Cameron 1895; "... (has) been reported" [from the Niagara Parks], Hamilton 1943). = <i>Pyrola rotundifolia</i> var. <i>americana</i> .	--	U			S4?	ERICACEAE

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<i>Pyrola asarifolia</i> Michaux ssp. <i>asarifolia</i>	Pink Pyrola	RH	Old records only: "(as <i>P. rotundifolia</i> var. <i>incarnata</i>) Ontario, Niagara Park System, Cameron (1895). (as <i>P. rotundifolia</i> var. <i>asarifolia</i> . Ontario, Niagara Park System, Cameron (1895). "... (has) been reported (Ontario, Parks) Hamilton (1943) (Eckel 2001).	R2	R1			S5	ERICACEAE
<i>Pyrola chlorantha</i> Sw.	Greenish Pyrola	RH	Early reports only: "Niagara Falls (Clinton). Near the Whirlpool on the Candian side" (Day 1888). Ontario, Niagara Park System, Cameron (1895). "Ontario: below the Whirlpool, Niagara River (Clinton, Gen. Herb.)," Zenkert (1934). "... representatives prefer a boggy habitat and so are not abundant in the Parks ... reported," Hamilton (1943).	R1	U			S4S5	ERICACEAE
<i>Pyrola elliptica</i> Nutt.	Shinleaf	R	Early records from Point Abino (e.g. F.W. Johnson in the 1920s, BUF; Macdonald 1990) and the Niagara River (Cameron 1895; TRT, Heimbürger 1955). A.C. Garofalo #08-1021 (HAM) from Coyle Creek Headwaters in 2008.	C	C			S5	ERICACEAE
<i>PYRUS</i>	see also		<i>MALUS</i>						ROSACEAE
<i>Pyrus communis</i> L.	Pear	IC		I	I			SE4	ROSACEAE
<i>Quercus alba</i> L.	White Oak	C		C	C			S5	FAGACEAE
<i>Quercus bicolor</i> Willd.	Swamp White Oak	C		C	C			S4	FAGACEAE

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<i>Quercus macrocarpa</i> Michaux	Bur Oak	U	Classic, text-book Bur Oak is very uncommon to rare in Niagara and restricted to shallow soil sites which are inundated with water and dry out later in the year. Swamp White Oak outcompetes Bur Oak almost always in Niagara on the Haldimand Clay Plain. Hybrids are known to occur and are likely more common than pure Bur Oak in Niagara, however, these hybrids lean heavily toward Swamp White Oak characteristics. True Bur Oak with corky, winged twigs, good fruit, and distinct leaf shapes are very hard to find (A.C. Garofalo pers. comm. 2010).	C	C			S5	FAGACEAE
<i>Quercus muhlenbergii</i> Engelm.	Chinquapin Oak	U	Uncommon in woods, particularly on the Niagara Escarpment.	C	VU			S4	FAGACEAE
<i>Quercus palustris</i> Muenchh.	Pin Oak	C	Locally common in moist woods and roadsides. Formerly considered provincially rare (Argus et al. 1982-1987).	--	--			S4	FAGACEAE
<i>Quercus rubra</i> L.	Northern Red Oak	C		C	C			S5	FAGACEAE
<i>Quercus shumardii</i> Buckley	Shumard Oak	R	Distribution and status in Niagara poorly known and perhaps not present in the region at all. According to P.W. Ball (pers. comm. 2010) "I have material [TRTE] of some of the trees that are supposedly this species. In my view they are <i>Q. palustris</i> X <i>Q. rubra</i>. Both parents are present on the site. The acorns and cups are too small for <i>Q. shumardii</i> and the buds are red-brown." See Meyers (1983, 1984), COSEWIC (1999).	--	--	SC	SC	S3	FAGACEAE
<i>Quercus velutina</i> Lam.	Black Oak	U	Uncommon, restricted to the driest locations on the Fonthill Kame, St. Davids Buried Valley, Dunville Sand Plain and Niagara Escarpment. Very rare on the Haldimand Clay Plain (A.C. Garofalo pers. comm. 2010).	C	C			S4	FAGACEAE

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<i>Quercus x schuettei</i> Trel.	(<i>Q. bicolor</i> X <i>Q. macrocarpa</i>)	hyb	Locally common in moist woods.	hyb	--			SU	FAGACEAE
<i>Ranunculus abortivus</i> L.	Kidney-leaved Buttercup	C		C	C			S5	RANUNCULACEAE
<i>Ranunculus acris</i> L.	Common Buttercup	IC		I	I			SE5	RANUNCULACEAE
<i>Ranunculus bulbosus</i> L.	Bulbous Buttercup	IU	Locally common introduction to roadsides and other open disturbed areas. M.J. Oldham #32429 (NHIC) from Paradise Grove in 2006.	I	--			SE3	RANUNCULACEAE
<i>Ranunculus fascicularis</i> Muhlenb. ex Bigelow	Early Buttercup	RH	Historical reports only: Ontario: "... Chippewa (MacLagan.) ... Niagara Falls, Ont. (Macoun.)" Macoun (1883). "... not common, but is occasionally encountered in the woods near Queenston" (Hamilton 1943). Reported from two Niagara Escarpment sites based on earlier surveys (Riley et al. 1996).	R2	R2			S4	RANUNCULACEAE
<i>Ranunculus flabellaris</i> Raf.	Yellow Water Buttercup	RH	Early reports from Wainfleet Bog but not seen by Macdonald (1992).	U6	U			S4?	RANUNCULACEAE
<i>Ranunculus hispidus</i> Michaux var. <i>caricetorum</i> (Greene) T. Duncan	Swamp Buttercup	U	Wetlands. = <i>Ranunculus septentrionalis</i> .	C	C			S5	RANUNCULACEAE
<i>Ranunculus hispidus</i> Michaux var. <i>hispidus</i>	Hispid Buttercup	R	Local in dry, upland, usually oak dominated woods. S. Varga #19-93 (TRT) from Short Hills Provincial Park in 1993.	R4	VU			S3	RANUNCULACEAE
<i>Ranunculus longirostris</i> Godr.	White Water Crowfoot	R	Dufferin Islands (Hamilton 1943), Wainfleet Bog (Macdonald 1992). The white-flowered aquatic buttercups are a taxonomically confused group with various interpretations. Niagara reports of <i>Ranunculus aquatilis</i> (which probably does not occur in North America) are probably mostly <i>R. longirostris</i> , with the possibility of <i>R. trichophyllus</i> also (P.W. Ball pers. comm. 2010). = <i>Ranunculus aquatilis</i> and <i>R. subrigidus</i> of regional reports.	R4	U			S4S5	RANUNCULACEAE

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<i>Ranunculus pensylvanicus</i> L.f.	Bristly Crowfoot	C		C	C			S5	RANUNCULACEAE
<i>Ranunculus recurvatus</i> Poiret var. <i>recurvatus</i>	Hooked Buttercup	C		C	C			S5	RANUNCULACEAE
<i>Ranunculus repens</i> L.	Creeping Buttercup	IR	Rare weed; most records from Niagara River area.	I	I			SE5	RANUNCULACEAE
<i>Ranunculus rhomboideus</i> Goldie	Prairie Buttercup	RH	A 1936 specimen (OAC) was collected from dry hills at Fenwick. No other regional reports.	--	R3			S4	RANUNCULACEAE
<i>Ranunculus sardous</i> Crantz	Hairy Buttercup	IR	Rare weed. M.J. Oldham #34354 (HAM, MICH, NHIC) from Port Colborne in 2007. Only recent Ontario record.	--	--			SE1	RANUNCULACEAE
<i>Ranunculus sceleratus</i> L. var. <i>sceleratus</i>	Cursed Crowfoot	C		C	U			S5	RANUNCULACEAE
<i>Raphanus raphanistrum</i> L.	Wild Radish	IR	"... often found in the fields about the [Niagara] Parks School," Hamilton (1943). M.J. Oldham #34964 (DAO) from Fort Erie in 2007.	--	I			SE3	BRASSICACEAE
<i>Raphanus sativus</i> L.	Radish	IH	Niagara Parks System (Cameron 1895). Cameron's manuscript was beset with typographical errors: the epithet here was spelled "sations" (Eckel 2001).	--	--			SE1	BRASSICACEAE
<i>Reseda alba</i> L.	White Mignonette	IH	Collected at Niagara Falls in the early 1900's (Montgomery 1957).	--	--			SEH	RESEDACEAE
<i>REYNOUTRIA</i>	<i>see</i>		<i>FALLOPIA</i>						POLYGONACEAE
<i>RHAMNUS</i>	<i>see also</i>		<i>FRANGULA</i>						RHAMNACEAE
<i>Rhamnus alnifolia</i> L'Her.	Alder-leaved Buckthorn	R	Swampy woods. A.C. Garofalo #08-1129 (HAM) from Pelham Township in 2008.	C	U			S5	RHAMNACEAE
<i>Rhamnus cathartica</i> L.	Common Buckthorn	IC	Common weed in old fields and disturbed open woods.	I	I			SE5	RHAMNACEAE
<i>Rhododendron groenlandicum</i> (Oeder) Kron & Judd	Labrador-tea	R	Wainfleet Bog (Macdonald 1992). = <i>Ledum groenlandicum</i>.	R3	--			S5	ERICACEAE

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<i>Rhodotypos scandens</i> (Thunb.) Makino	jetbead	IR	Rare escape from cultivation to disturbed woods. Niagara Glen, Beekma, June 8, 1968 (NFO). Erie Beach, Fort Erie, M.J. Oldham #18185 (MICH) in 1995.	--	--			SE1	ROSACEAE
<i>RHUS</i>	<i>see also</i>		<i>TOXICODENDRON</i>						ANACARDIACEAE
<i>Rhus aromatica</i> Aiton	Fragrant Sumac	R	Restricted to the Niagara River, where still present in the Glen - Whirlpool area (CAN, BUF, TRT).	R2	R2			S5	ANACARDIACEAE
<i>Rhus glabra</i> L.	Smooth Sumac	RH	Reported from Queenston Heights by Macoun (1883-1892) and from the Niagara Parks System by Cameron (1895). Soper and Heimbürger (1982) map the species from one site on the Niagara River.	--	R1			S5	ANACARDIACEAE
<i>Rhus typhina</i> L.	Staghorn Sumac	C	Common, fields, woodland edges. = <i>Rhus hirta</i> .	C	C			S5	ANACARDIACEAE
<i>Rhynchospora alba</i> (L.) M. Vahl	White Beak-rush	R	Point Abino (Macdonald 1990) and Wainfleet Bog (M. Browning pers. comm. 2010).	--	R2			S5	CYPERACEAE
<i>Rhynchospora capillacea</i> Torrey	Hair-like Beak-rush	R	Point Abino (F.W. Johnson, BUF, in 1920s; Macdonald 1990). Niagara Gorge (Whirlpool) only (M.J. Oldham #32978, MICH, from the Niagara River Whirlpool in 2006).	--	U			S4?	CYPERACEAE
<i>Ribes alpinum</i> L.	Alpine Currant	IR	Rare escape from cultivation. Recently recorded from Dufferin Islands (M.J. Oldham #34275, MICH, in 2007) and Marcy's Woods (S. Blaney pers. comm.). Not listed for Ontario by Morton and Venn (1990).	--	--			SE1	GROSSULARIACEAE
<i>Ribes americanum</i> Miller	Wild Black Currant	C		C	C			S5	GROSSULARIACEAE
<i>Ribes aureum</i> Pursh var. <i>villosum</i> DC.	Golden Currant	IH	Early recored only: Ontario, Niagara Parks System (as <i>Ribes aureum</i>), Cameron (1895). Not mapped from Niagara by Soper and Heimbürger (1982). = <i>Ribes odoratum</i> .	I	--			SE4	GROSSULARIACEAE
<i>Ribes cynosbati</i> L.	Prickly Gooseberry	C		C	C			S5	GROSSULARIACEAE

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<i>Ribes hirtellum</i> Michaux	Swamp Gooseberry	R	Rare in moist woods. Most records historical: (as <i>R. oxycanthoides</i>) "wet places near Clifton, Ontario," Day (1888). Ontario, Niagara Parks System (as <i>R. oxycanthoides</i>), Cameron (1895). "... at Dufferin Islands ... is observed occasionally" (Hamilton 1943). S. Varga #70-93 (TRT) from Short Hills Wildlife Refuge ANSI in 1993.	U9	U			S5	GROSSULARIACEAE
<i>Ribes rubrum</i> L.	Garden Red Currant	IC	Locally common escape from cultivation. = <i>Ribes sativum</i> .	I	I			SE5	GROSSULARIACEAE
<i>Ribes triste</i> Pallas	Swamp Red Currant	R	Some reports (e.g. NAI database) may refer to the similar introduced species <i>Ribes rubrum</i> .	C	U			S5	GROSSULARIACEAE
<i>Robinia pseudo-acacia</i> L.	Black Locust	IC		I	I			SE5	FABACEAE
<i>Robinia viscosa</i> Vent. ex Vauq.	Clammy Locust	IR	Niagara Parks System, Cameron (1895). Ontario: Whirlpool, Niagara Falls, Wm. Scott, June 21, 1898, Heimburger (1955). "Common near Brock's Monument" Hamilton (1943). Point Abino (Macdonald 1990).	I	--			SE3	FABACEAE
<i>Rorippa aquatica</i> (Eaton) E.J. Palmer & Steyermark	Lake Cress	RH	Collected by Clinton (BUF) in the 1800s from Frenchman's Creek, a tributary of the Niagara River (Zenkert 1934). No more recent reports. = <i>Armoracia aquatica</i> , <i>A. lacustris</i> , <i>Neobeckia aquatica</i> .	--	--			S3	BRASSICACEAE
<i>Rorippa palustris</i> (L.) Besser	Marsh Yellow Cress	U	Both ssp. <i>fernaldiana</i> and ssp. <i>hispida</i> have been reported and collected (HAM) from Niagara, though the relative distribution and status of each is poorly known. An uncommon species of wetlands.	C	C			S5	BRASSICACEAE
<i>Rorippa sylvestris</i> (L.) Besser	Creeping Yellow Cress	IR	C.J. Rothfels #340 (HAM) from Jordan Harbour in 2002.	I	I			SE5	BRASSICACEAE

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<i>Rosa blanda</i> Aiton	Smooth Wild Rose	C	A hybrid between <i>Rosa acicularis</i> and <i>R. blanda</i> (<i>Rosa</i> x <i>housei</i> Erlanson) is reported from Navy Island (BUF) in 1998 by P.M. Eckel (2001). This hybrid is not reported from Ontario by Morton and Venn (1990) or Kartesz (1999).	C	U			S5	ROSACEAE
<i>Rosa canina</i> L.	Dog Rose	IR	A rare escape from cultivation. Similar to <i>R. eglanteria</i> , but lacking glands on the foliage. M.J. Oldham #34934 (TRTE) from Niagara Falls railway yard in 2007.	I	--			SE2	ROSACEAE
<i>Rosa carolina</i> L. ssp. <i>carolina</i>	Carolina Rose	C		C	U			S4	ROSACEAE
<i>Rosa multiflora</i> Thunb. ex Murray	Multiflora Rose	IC	Locally common introduced invasive shrub.	I	I			SE4	ROSACEAE
<i>Rosa palustris</i> Marshall	Swamp Rose	C		C	C			S5	ROSACEAE
<i>Rosa rubiginosa</i> L.	Sweetbrier	IR	Rare escape from cultivation. = <i>Rosa eglanteria</i> , <i>R. micrantha</i> .	I	I			SE4	ROSACEAE
<i>Rubus allegheniensis</i> Porter	Common Blackberry	C		C	C			S5	ROSACEAE
<i>Rubus bifrons</i> Vest	Himalayan Blackberry	IR	A rare escape from cultivation. M.J. Oldham #34271 (DAO) from Dufferin Islands in 2007. = <i>Rubus armeniacus</i> , <i>R. procerus</i> .	--	--			SE1	ROSACEAE
<i>Rubus canadensis</i> L.	Smooth Blackberry	DD	Status poorly known due to confusion with similar species.	--	--			S4?	ROSACEAE
<i>Rubus flagellaris</i> Willd.	Northern Dewberry	U		R5	C			S4	ROSACEAE
<i>Rubus hispidus</i> L.	Swamp Dewberry	C		U6	C			S4S5	ROSACEAE
<i>Rubus idaeus</i> L. ssp. <i>idaeus</i>	Red Raspberry	IR	Rare escape from cultivation. "Common in the wooded areas of the Parks" (Hamilton 1943).	I	--			SE1	ROSACEAE
<i>Rubus idaeus</i> L. ssp. <i>melanolasius</i> (Dieck) Focke	Wild Red Raspberry	C	= <i>Rubus idaeus</i> ssp. <i>strigosus</i> , <i>R. strigosus</i> .	C	C			S5	ROSACEAE
<i>Rubus occidentalis</i> L.	Black Raspberry	C		C	C			S5	ROSACEAE
<i>Rubus odoratus</i> L.	Purple-flowering Raspberry	C	Confined to rocky escarpment sites or rich woods. Rare on the Haldimand Clay Plain	C	C			S5	ROSACEAE
<i>Rubus pensilvanicus</i> Poiret	Raspberry	R	Pt. Abino Peninsula (TRTE; Macdonald 1990).	R1	R1			SU	ROSACEAE

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<i>Rubus pubescens</i> Raf.	Dwarf Raspberry	C		C	C			S5	ROSACEAE
<i>Rubus setosus</i> Bigelow	Bristly Raspberry	R	Wainfleet Bog (Macdonald 1992). Mapped and mentioned from the Niagara River area by Soper and Heimbürger (1982).	R1	--			S4?	ROSACEAE
<i>Rudbeckia hirta</i> L.	Black-eyed Susan	C		C	C			S5	ASTERACEAE
<i>Rudbeckia laciniata</i> L.	Cut-leaved Coneflower	R	Reported from three Niagara Escarpment sites by Riley et al. (1996). M.J. Oldham #33862 (NHIC) from Paradise Grove in 2006. Some reports may be based on introductions.	U8	C			S5	ASTERACEAE
<i>Rudbeckia triloba</i> L.	Thin-leaved Coneflower	IR	Rare weed. C.J. Rothfels #342 (HAM) from Jordan Harbour in 2002.	I	I			SE4	ASTERACEAE
<i>Rumex acetosella</i> L.	Sheep Sorrel	IC		I	I			SE5	POLYGONACEAE
<i>Rumex brittanica</i> L.	Great Water Dock	R	Reported from St. Johns Valley by Riley et al. (1996) and from Lower Twelve Mile Creek by Gregory (2003a). = <i>Rumex orbiculatus</i> .	C	C			S4S5	POLYGONACEAE
<i>Rumex crispus</i> L.	Curly Dock	IC		I	I			SE5	POLYGONACEAE
<i>Rumex longifolius</i> DC.	House Dock	IH	Ontario: Roundhouse, Niagara Falls, Wm. Scott, June 17, 1899 (TRT, as <i>Rumex domesticus</i>), Heimbürger (1955). = <i>Rumex domesticus</i> .	--	--			SE1	POLYGONACEAE
<i>Rumex obtusifolius</i> L. ssp. <i>obtusifolius</i>	Bitter Dock	IU		I	I			SE5	POLYGONACEAE
<i>Rumex occidentalis</i> S. Wats.	Western Dock	IH	Heimbürger (1955) cited a specimen (TRT) of William Scott's collected at the Roundhouse, Niagara Falls, July 17, 1899. = <i>Rumex fenestratus</i> .	--	--			S5	POLYGONACEAE
<i>Rumex verticillatus</i> L.	Water Dock	R	J. Jalava #91-145 (TRT) from 16 Mile Creek ANSI in 1991.	C	U			S4	POLYGONACEAE
<i>Rumex</i> x <i>crispo-obtusifolius</i> Meissner	(<i>R. crispus</i> X <i>R. obtusifolius</i>)	hyb	A rare, but probably overlooked, hybrid between two common introduced species. Reported from entrance to Hydro facility, just N of Niagara Glen, in seepage on gorge crest, P.M. Eckel (BUF) in 1987 (Eckel 2001).	--	--			SE2?	POLYGONACEAE

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<i>Sagina procumbens</i> L.	Pearlwort	IR	A rare weed often in sidewalk cracks. M.J. Oldham #34959 (DAO) from Dufferin Islands in 2007.	I	I			SE4	CARYOPHYLLACEAE
<i>Sagittaria latifolia</i> Willd.	Common Arrowhead	C	Common in a variety of shallow wetland habitats.	C	C			S5	ALISMATACEAE
<i>Sagittaria rigida</i> Pursh	Stiff Arrowhead	RH	Early records from along the Niagara River, e.g. 'Niagara Parks System (as <i>S. heterophylla</i>), Cameron (1895). "... in the ponds of the System and along the Niagara River," Hamilton (1943).	--	U			S4?	ALISMATACEAE
<i>Salix alba</i> L.	White Willow	IU	Uncommon escape from cultivation. Both var. <i>alba</i> and var. <i>vitellina</i> have been reported from the Niagara Region.	I	I			SE4	SALICACEAE
<i>Salix amygdaloides</i> Andersson	Peach-leaved Willow	C		C	U			S5	SALICACEAE
<i>Salix atrocinerea</i> L.	Rusty Willow	IR	Rare weed. M.J. Oldham #34724 (CAN, det. G.W. Argus in 2009) from Dufferin Islands in 2007. = <i>Salix cinerea</i> ssp. <i>oleifolia</i> .	--	--			SE1	SALICACEAE
<i>Salix bebbiana</i> Sarg.	Bebb's Willow	C		C	C			S5	SALICACEAE
<i>Salix cinerea</i> L.	Large Gray Willow	IR	Rare weed. M.J. Oldham #33837 (CAN, det. G.W. Argus in 2009) from Niagara River Whirlpool in 2006.	--	--			SE2	SALICACEAE
<i>Salix cordata</i> Michaux	Heart-leaved Willow	RH	Lake Erie sandy shoreline sites. Known only from Point Abino where collected by F.W. Johnson (BUF) in the 1920s (House 1930) and seen by A.W. Miller in 1948 (Macdonald 1990). No recent reports from the Niagara Region.	R2	R1			S4S5	SALICACEAE
<i>Salix discolor</i> Muhlenb.	Pussy Willow	C		C	C			S5	SALICACEAE
<i>Salix eriocephala</i> Michaux	Heart-leaved Willow	C		C	C			S5	SALICACEAE
<i>Salix humilis</i> Marshall	Upland Willow	R	M.J. Oldham #9264 (CAN, det. G.W. Argus) from Wainfleet Bog in 1989. Niagara Glen in 1989 (Varga and Kor 1993). C. Schaefer #91-29 (TRT) from 16 Mile Creek ANSI in 1991.	R2	VU			S5	SALICACEAE

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<i>Salix interior</i> Rowlee	Sandbar Willow	C	Widespread and common throughout southern Ontario on shores and other moist open areas. = <i>Salix exigua</i> ssp. <i>interior</i> .	C	C			S5	SALICACEAE
<i>Salix lucida</i> Muhlenb.	Shining Willow	R	Wainfleet Bog (Macdonald 1992). Mapped from several Niagara sites by Soper and Heimbürger (1982).	C	U			S5	SALICACEAE
<i>Salix myricoides</i> Muhlenb.	Blue-leaved Willow	RH	Mapped from the vicinity of Point Abino by Soper and Heimbürger (1982), though not seen there and no records located by Macdonald (1990).	--	R1			S3	SALICACEAE
<i>Salix nigra</i> Marshall	Black Willow	C		C	U			S4?	SALICACEAE
<i>Salix pedicellaris</i> Pursh	Bog Willow	RH	Collected F.W. Johnson (BUF) in the 1920s from Point Abino (House 1930) and mapped from there by Soper and Heimbürger (1982). Not seen at Point Abino in more recent surveys or reported elsewhere in the region.	R1	R3			S5	SALICACEAE
<i>Salix pentandra</i> L.	Bay-leaved Willow	IR	Rare escape from cultivation. C. Schaefer #91-54 (TRT) from Jordan Valley ANSI in 1991.	I	--			SE2	SALICACEAE
<i>Salix petiolaris</i> J.E. Smith	Slender Willow	U	Moist to wet, open thickets in meadows, along floodplains, shores. = <i>Salix gracilis</i> .	C	C			S5	SALICACEAE
<i>Salix purpurea</i> L.	Basket Willow	IU	An increasingly common weedy willow of moist, open areas such as floodplains, lakeshores and pond margins.	I	I			SE4	SALICACEAE
<i>Salix serissima</i> (L. Bailey) Fern.	Autumn Willow	R	Wainfleet Bog (Macdonald 1992). B. Larson #91-500 (TRT) from Beamsville Escarpment ANSI in 1991.	R5	U			S5	SALICACEAE
<i>Salix x fragilis</i> L.	(<i>S. alba</i> X <i>S. euxina</i>)	hyb	Common in moist areas. What has been called Crack Willow has recently been determined to be a hybrid (Belyaeva 2009). = <i>Salix fragilis</i> , <i>S.x rubens</i> .	I	I			SE5	SALICACEAE
<i>Salsola collina</i> Pallas	Slender Russian-thistle	IR	Rare but overlooked weed, often along railways. Fort Erie railway yard, M.J. Oldham #18175 (MICH, TRTE) in 1995.	I	--			SE4	AMARANTHACEAE

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<i>Salsola tragus</i> L.	Russian-thistle	IR	Rare weed in open, disturbed ground and sandy shores. "...occasionally found on dry soil near the Parks School" (Hamilton 1943). Ontario: Queenston Village, high land, Miller (655), Aug. 18, 1952; Roundhouse, Niagara Falls, Wm. Scott, Sept. 24, 1898 (Heimbürger 1955). Fort Erie railway yard, M.J. Oldham #18179 (MICH) in 1995. = <i>S. pestifer</i> , <i>S. kali</i> var. <i>tenuifolia</i> .	I	I			SE5	AMARANTHACEAE
<i>Sambucus canadensis</i> L.	Common Elder	C		C	C			S5	ADOXACEAE
<i>Sambucus racemosa</i> L. ssp. <i>pubens</i> (Michaux) House	Red-berried Elder	C	Common, woods. = <i>Sambucus pubens</i> .	C	C			S5	ADOXACEAE
<i>Samolus parviflorus</i> Raf.	Water Pimpernel	R	Uncommon, primarily in moist open ground. M.J. Oldham #33878 (DAO) from Dufferin Islands in 2006. = <i>Samolus floribundus</i>, <i>S. valerandi</i> ssp. <i>parviflorus</i>.	C	VU			S4	THEOPHRASTACEAE
<i>Sanguinaria canadensis</i> L.	Bloodroot	C		C	C			S5	PAPAVERACEAE
<i>Sanguisorba minor</i> Scop.	Garden Burnet	IR	Rare weed. M.J. Oldham #32369 (MICH) from Niagara Glen in 2006.	I	--			SE4	ROSACEAE
<i>Sanicula canadensis</i> L. var. <i>canadensis</i>	Canada Snakeroot	R	Reported from two Niagara Escarpment natural areas (Riley et al. 1996).	U10	U			S4	APIACEAE
<i>Sanicula marilandica</i> L.	Black Snakeroot	C		C	C			S5	APIACEAE
<i>Sanicula odorata</i> (Raf.) Pryer & Phillippe	Yellow Snakeroot	U	M.J. Oldham #9282 (TRTE, det. P.W. Ball) from Willoughby Marsh in 1989. = <i>Sanicula gregaria</i> .	U9	C			S5	APIACEAE
<i>Sanicula trifoliata</i> Bickn.	Large-fruited Snakeroot	R	S. Varga #347-92 (TRT) from Thirty Mile Creek Terrace Valley ANSI in 1992.	C	U			S4	APIACEAE
<i>Saponaria officinalis</i> L.	Bouncing Bet	IC		I	I			SE5	CARYOPHYLLACEAE

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<i>Sarracenia purpurea</i> L. <i>ssp. purpurea</i>	Pitcher-plant	RH	Niagara Parks System, Cameron (1895). Ontario: Niagara Glen, Ronald File, June 15, 1929 (TRT), Heimburger (1955). "... very rare ... a few specimens having been reported from a marshy spot between Queenston and Niagara-on-the-Lake," Hamilton (1943). Reported from Wainfleet Bog (A.W. Miller, HAM, in 1948), though no recent records (Macdonald 1992). Also historically known from Point Abino (BUF; Macdonald 1990).	R2	RH			S5	SARRACENIACEAE
<i>Sassafras albidum</i> (Nutt.) Nees	Sassafras	C		C	C			S4	LAURACEAE
<i>SATUREJA</i>	<i>see also</i>		<i>CLINOPODIUM</i>						LAMIACEAE
<i>Satureja hortensis</i> L.	Savory	IR	"... a few stands are occasionally encountered where it has escaped from cultivation," Hamilton (1943).	I	--			SE2	LAMIACEAE
<i>Saururus cernuus</i> L.	Lizard's-tail	R	Rare along rivers, streams, and occasionally in low, wet woods. A. Garofalo #07-641 (HAM) from Ussher's Creek in 2007.	R3	--			S3	SAURURACEAE
<i>SAXIFRAGA</i>	<i>see</i>		<i>MICRANTHES</i>						SAXIFRAGACEAE
<i>Schedonorus arundinaceus</i> (Schreber) Dumort.	Tall Fescue	IC	A robust grass, common on disturbed, grassy roadsides. = <i>Festuca arundinacea</i> , <i>Lolium arundinaceum</i> .	I	I			SE5	POACEAE
<i>Schedonorus pratensis</i> (Hudson) P. Beauv.	Meadow Fescue	IC	Common on disturbed, grassy roadsides. = <i>Festuca pratensis</i> , <i>Lolium pratensis</i> .	I	I			SE5	POACEAE
<i>Schizachne purpurascens</i> (Torrey) Swallen	Purple Melic Grass	R	Rare in woods. M.J. Oldham #9289 (DAO) from Willoughby Marsh in 1989.	C	C			S5	POACEAE
<i>Schizachyrium littorale</i> (Nash) E.P. Bicknell	Shore Bluestem	R	Dry sandy shores. Very similar to <i>S. scoparium</i> and sometimes considered a variety of it. Point Abino (BUF, TRT; Macdonald 1990). M.J. Oldham #18196 (DAO) from Windmill Point in 1995. = <i>Andropogon scoparius</i> var. <i>littoralis</i> , <i>Schachyrium scoparium</i> var. <i>littorale</i> .	--	?			S2?	POACEAE

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<i>Schizachyrium scoparium</i> (Michaux) Nees	Little Bluestem	R	Dry open ground. = <i>Andropogon scoparius</i> .	R4	C			S4	POACEAE
<i>Schoenoplectus acutus</i> (Muhlenb. ex Bigelow) A. & D. Löve	Hard-stemmed Bulrush	R	Navy Island (P.M. Eckel, BUF, in 1998) (Eckel 2001). = <i>Schoenoplectus lacustris</i> ssp. <i>acutus</i> , <i>Scirpus acutus</i> .	U8	U			S5	CYPERACEAE
<i>Schoenoplectus pungens</i> (M. Vahl) Palla	Threesquare	R	Moist shorelines, mostly along Lake Erie shoreline. M.J. Oldham #18135 (MICH) from Four Mile Pond near Niagara-on-the-Lake in 1995. = <i>Scirpus pungens</i> .	R5	C			S5	CYPERACEAE
<i>Schoenoplectus purshianus</i> (Fern.) M.T. Strong	Weak-stalked Bulrush	RH	Specimens from Queenston formerly identified as <i>Schoenoplectus</i> (or <i>Scirpus</i>) <i>smithii</i> (e.g. Argus et al. 1982-1987) have been redetermined to this species by S. Galen-Smith (e.g. W. Scott, TRT, from Queenston Heights in 1896). = <i>Scirpus purshianus</i> .	--	--			S1?	CYPERACEAE
<i>Schoenoplectus smithii</i> (A. Gray) Sojak	Smith's Bulrush	R	Rare on moist shorelines. M.J. Oldham #23178 (MICH, det. A.A. Reznicek) from Point Abino in 1999. = <i>Scirpus smithii</i> .	--	R1			S3	CYPERACEAE
<i>Schoenoplectus tabernaemontani</i> (Gmelin) Palla	Soft-stem Bulrush	C	Common in wetlands. = <i>Schoenoplectus lacustris</i> ssp. <i>validus</i> , <i>Schoenoplectus validus</i> , <i>Scirpus validus</i> .	C	C			S5	CYPERACEAE
<i>Scilla sibirica</i> Haw. ex Andr.	Scilla	IR	A rare escape from cultivation. Extensive population on moist, wooded slopes by road to Skylon Tower behind colored lights facility. P.M. Eckel 8807 (BUF) in 1988 (Eckel 2001).	I	--			SE2	HYACINTHACEAE
<i>SCIRPUS</i>	<i>see also</i>		<i>BOLBOSCHOENUS</i> , <i>SCHOENOPECTUS</i>						CYPERACEAE
<i>Scirpus atrovirens</i> Willd.	Dark Green Bulrush	C		C	C			S5	CYPERACEAE
<i>Scirpus cyperinus</i> (L.) Kunth	Wool-grass	C		C	U			S5	CYPERACEAE
<i>Scirpus hattorianus</i> Makino	Mosquito Bulrush	R	Rare in sandy open woods and edges. Easily confused with <i>S. atrovirens</i> and probably overlooked. M.J. Oldham #33865 (DAO) from Paradise Grove in 2006.	--	--			S4	CYPERACEAE

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<i>Scirpus microcarpus</i> Presl	Red-sheathed Bulrush	R	Rare, frequently in seepages. Reported from two Niagara Escarpment sites (Jalava et al. 1992, Riley et al. 1996). = <i>Scirpus rubrotinctus</i> .	R3	--			S5	CYPERACEAE
<i>Scirpus pendulus</i> Muhlenb. ex Willd.	Nodding Bulrush	U	A. Garofalo #08-452 (HAM) from Eagle Marsh - Wainfleet Wetlands in 2008.	C	C			S5	CYPERACEAE
<i>Scleranthus annuus</i> L.	Annual Knawel	IR	Rare in open disturbed ground. M.J. Oldham #34334 (DAO) from near Port Colborne in 2008.	--	I			SE5	CARYOPHYLLACEAE
<i>Scrophularia lanceolata</i> Pursh	Lance-leaved Figwort	R	S. Varga #438-93 (TRT) from Queenston Escarpment ANSI in 1993. Also reported from Fonthill Sandhills Valley (TRT; Riley et al. 1996).	--	--			S4	SCROPHULARIACEAE
<i>Scrophularia marilandica</i> L.	Carpenter's-square	R	Rare, primarily on the Niagara Escarpment. J. Jalava #91-402 (TRT) from Fifteen Mile Creek ANSI in 1991.	U10	U			S4	SCROPHULARIACEAE
<i>Scutellaria galericulata</i> L.	Common Skullcap	U	= <i>Scutellaria epilobiifolia</i> .	C	C			S5	LAMIACEAE
<i>Scutellaria lateriflora</i> L.	Mad-dog Skullcap	C		C	C			S5	LAMIACEAE
<i>Scutellaria parvula</i> Michaux var. <i>parvula</i>	Small Skullcap	R	Rare on alvars and quarry bottoms. Various records from the Niagara River area (Day 1888, Pantou 1890, Cameron 1895, Hamilton 1943, Heimbürger 1955, Yaki 1970) and seen near Niagara Glen as recently as 1989 (Varga and Kor 1993) though not since (Oldham 2007). M.J. Oldham #34912 (DAO) from Wainfleet Wetlands in 2007.	--	R3			S4	LAMIACEAE
<i>Secale cereale</i> L.	Cultivated Rye	IR	Rare weed. M.J. Oldham #35266 (DAO) from Port Colborne in 2008.	--	--			SE3	POACEAE
<i>Securigera varia</i> (L.) Lassen	Crown-vetch	IU	Frequently planted along roadsides and spreading. = <i>Coronilla varia</i> .	I	I			SE5	FABACEAE
<i>SEDUM</i>	see also		<i>HYLOTELEPHIUM</i> , <i>PHEDIMUS</i>						CRASSULACEAE
<i>Sedum acre</i> L.	Mossy Stonecrop	IU		I	I			SE5	CRASSULACEAE
<i>Sedum album</i> L.	Stonecrop	IR	M.J. Oldham #22240 (MICH, det. A.A. Reznicek) from Marcy's Woods in 1999.	--	--			SE1	CRASSULACEAE

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<i>Sedum sarmentosum</i> Bunge	Live-forever	IR	"[Niagara] Glen" sight record (Yaki 1970). C.J. Rothfels #2240 (HAM) in 2006.	I	--			SE1	CRASSULACEAE
<i>Sedum ternatum</i> Michaux	Wild Live-forever	IR	Now known in Ontario recently only as a garden escape (e.g. J. Jalava #91-77, TRT, from Fifteen Mile Creek ANSI in 1991), it may have been native originally in the Niagara area, where it was collected in a natural setting in 1923 (FNA Vol. 8) and reported by George Douglas as early as the mid 1800s (Day 1888).	--	--			SE1	CRASSULACEAE
<i>Selaginella eclipses</i> Buck	Buck's Meadow Spike-moss	R	Local in moist ground where easily overlooked or confused with a moss. Included in <i>S. apoda</i> Fern. by Morton and Venn (1990), but recognized by FNA (1993). M.J. Oldham #32718 (DAO) from Windmill Point in 2006. = <i>Selaginella apoda</i> of local reports.	R1	U			S4	SELAGINELLACEAE
<i>SENECIO</i>	<i>see also</i>		<i>PACKERA</i>						ASTERACEAE
<i>Senecio jacobaea</i> L.	Stinking Willie	IH	Niagara Falls, Wm. Scott, Aug. 26, 1903 (TRT), Heimbürger (1955).	I	--			SE1	ASTERACEAE
<i>Senecio viscosus</i> L.	Sticky Groundsel	IR	Rare weed. M.J. Oldham #18178 (MICH) from Fort Erie railway yard in 1995.	I	--			SE3	ASTERACEAE
<i>Senecio vulgaris</i> L.	Common Groundsel	IU	Uncommon weed.	I	I			SE5	ASTERACEAE
<i>Senna hebecarpa</i> (Fern.) H.S. Irwin & Barneby	Wild Senna	RH	Niagara Falls, W. Scott, July 23, 1898; M. Wilkes, Aug. 21, 1899, both at TRT, (ARVPO database). No recent reports. = <i>Cassia hebecarpa</i>, <i>C. marilandica</i>, <i>Senna marilandica</i>.	--	--			S1	FABACEAE
<i>Setaria faberi</i> R. Herrm.	Giant Foxtail	IU	A common weed of agricultural fields, roadsides and railways in southwestern Ontario. Fort Erie railway yard, Catling and Riley (CAN, DAO, TRT) in 1976 (Catling et al. 1977).	I	I			SE4	POACEAE
<i>Setaria italica</i> (L.) P. Beauv.	Foxtail Millet	IH	A rare weed, seldom persisting. Queenston, William Scott (TRT) in 1894 (Heimbürger 1955).	--	--			SE1	POACEAE

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<i>Setaria pumila</i> (Poiret) Schultes	Yellow Foxtail	IC	Common. = <i>Setaria glauca</i> .	I	I			SE5	POACEAE
<i>Setaria viridis</i> (L.) P. Beauv.	Green Foxtail	IC		I	I			SE5	POACEAE
<i>Shepherdia canadensis</i> (L.) Nutt.	Soapberry	R	Most records from the Niagara River and Escarpment areas. M.J. Oldham #18212 (TRT) from Two Mile Pond near Niagara-on-the-Lake in 1995.	R5	RH			S5	ELAEAGNACEAE
<i>Sicyos angulatus</i> L.	Bur Cucumber	R	Most recent records are from the Lake Erie shore (e.g. M.J. Oldham #34881, NHIC, from Oakwood Beach in 2007), though reported from Paradise Grove in 1997 (BUF) by Eckel (2001).	R4	U			S5	CUCURBITACEAE
<i>Sida hermaphrodita</i> (L.) Rusby	Virginia Mallow	R	Single site in disturbed open ground. A globally vulnerable species. T.W. Smith #352 (HAM) in 2001.	--	I		END	S1	MALVACEAE
<i>Silene antirrhina</i> L.	Sleepy Catchfly	R	Old records from the Niagara Glen area: "Niagara Glen" (Zenkert 1934). "... occasionally found in Niagara Glen" (Hamilton 1943). Queen Victoria Park, Cameron, 1891 (NFO), where observed as recently as 1989 (Varga and Kor 1993).	R1	U			S5	CARYOPHYLLACEAE
<i>Silene armeria</i> L.	Sweet William Catchfly	IR	A rare garden escape. Pt. Abino Peninsula (Macdonald 1990).	--	--			SE2	CARYOPHYLLACEAE
<i>Silene coronaria</i> (L.) Clairville	Rose Campion	IR	Rare garden escape. Pt. Abino Peninsula (Macdonald 1990). = <i>Lychnis coronaria</i> .	I	I			SE3	CARYOPHYLLACEAE
<i>Silene csereii</i> Baumg.	Balkan Catchfly	IR	Rare weed. QEW highway, ca. 5 km N of Stevensville, M.J. Oldham #23489 (TRT) in 2000.	I	--			SE4	CARYOPHYLLACEAE
<i>Silene dioica</i> (L.) Clairv.	Red Campion	IR	Rare escape from cultivation. Niagara Parks System (as <i>L. diurna</i>), Cameron (1895). "... has been reported as occurring in the Parks System, but has not been found in recent years" (Hamilton 1943). M.J. Oldham #23279 (WAT, det. J.K. Morton) from Marcy's Woods in 2000.	--	--			SE1	CARYOPHYLLACEAE

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<i>Silene latifolia</i> Poiret	White Cockle	IR	Queen Victoria Park (as <i>L. vespertina</i>), Panton (1890). Ontario, Niagara Parks System (as <i>L. vespertina</i>), Cameron (1895). "... grows in clumps along the roadways and in the fields," Hamilton (1943). Point Abino (Macdonald 1990). = <i>Lychnis alba</i> , <i>Silene alba</i> , <i>S. pratensis</i> .	I	I			SE5	CARYOPHYLLACEAE
<i>Silene noctiflora</i> L.	Night-flowering Catchfly	IR	Niagara, W. J. Potter, 1908 (2148), Heimburger (1955). Dufferin Islands, Hamilton, July 31, 1943 (NFO) (Eckel 2001). Pt. Abino Peninsula (Macdonald 1990)	I	I			SE5	CARYOPHYLLACEAE
<i>Silene vulgaris</i> (Moench) Garcke	Bladder Campion	IC	Pt. Abino Peninsula, Macdonald 1990. = <i>Silene cucubalis</i> .	I	I			SE5	CARYOPHYLLACEAE
<i>Silphium laciniatum</i> L. var. <i>laciniatum</i>	Compass Plant	IR	Rare weed. Fort Erie railway yard, M.J. Oldham #18176 (MICH) in 1995.	--	--			S1	ASTERACEAE
<i>Silphium perfoliatum</i> L. var. <i>perfoliatum</i>	Cup Plant	IR	Rare escape from cultivation. A.C. Garofalo (photo) from Short Hills Sanctuary in 2008.	--	--			S2	ASTERACEAE
<i>Sinapis alba</i> L.	White Mustard	IR	Rare weed. M.J. Oldham #35273 (HAM) from Port Colborne in 2008.	--	--			SE2	BRASSICACEAE
<i>Sinapis arvensis</i> L.	Charlock	IR	M.J. Oldham #34294 (DAO) from Port Colborne in 2007. = <i>Brassica kaber</i> .	I	I			SE5	BRASSICACEAE
<i>Sisymbrium altissimum</i> L.	Tumble Mustard	IR	Pt. Abino Peninsula, Macdonald 1990. M.J. Oldham #35270 (NHIC) from Port Colborne in 2008.	I	I			SE5	BRASSICACEAE
<i>Sisymbrium loeselii</i> L.	False London Rocket	IR	Rare weed. M.J. Oldham #34345 (DAO) from Port Colborne in 2007.	I	--			SE2	BRASSICACEAE
<i>Sisymbrium officinale</i> (L.) Scop.	Hedge Mustard	IR	M.J. Oldham #32695 (DAO) from Paradise Grove in 2006	I	I			SE5	BRASSICACEAE
<i>Sisyrinchium angustifolium</i> Miller	Narrow-leaved Blue-eyed Grass	U	M.J. Oldham #32684 (DAO) from Paradise Grove in 2006. = <i>Sisyrinchium graminoides</i> .	--	--			S4	IRIDACEAE
<i>Sisyrinchium montanum</i> E. Greene	Little Blue-eyed Grass	C		C	C			S5	IRIDACEAE
<i>Sisyrinchium mucronatum</i> Michaux	Blue-eyed Grass	R	Rare on limestone Lake Erie shoreline sites. M.J. Oldham #32721 (NHIC) from Windmill Point in 2006.	--	--			S4S5	IRIDACEAE

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<i>Sium suave</i> Walter	Water-parsnip	C		C	U			S5	APIACEAE
<i>SMILACINA</i>	<i>see</i>		<i>MAIANTHEMUM</i>						CONVALLARIACEAE
<i>Smilax herbacea</i> L.	Carrion-flower	C	Some reports (e.g. NAI database) may refer to the similar <i>S. lasioneura</i> .	C	C			S4	SMILACACEAE
<i>Smilax hispida</i> Muhlenb. ex Torrey	Bristly Greenbrier	C	Common. = <i>Smilax tamnoides</i> var. <i>hispida</i> .	C	C			S4	SMILACACEAE
<i>Smilax lasioneura</i> Hook.	Carrion-flower	U	Local status poorly known due to confusion with <i>S. herbacea</i> . = <i>Smilax herbacea</i> var. <i>lasioneura</i> .	R1	VU			S4	SMILACACEAE
<i>Smilax rotundifolia</i> L.	Round-leaved Greenbrier	R	Rare in sandy woods. P.G. O'Hara (HAM) from City of Niagara Falls in 2002. See COSEWIC (2007b).	--	R	THR	THR	S2	SMILACACEAE
<i>Solanum carolinense</i> L.	Horse-nettle	IR	M.J. Oldham #34984 (DAO) from Forks Creek Woodlot in 2007.	--	VU			SE3	SOLANACEAE
<i>Solanum dulcamara</i> L.	Climbing Nightshade	IC		I	I			SE5	SOLANACEAE
<i>Solanum lycopersicum</i> L.	Tomato	IR	Non-persistent weed. "Although this plant will not be persistent, the frequency of hiker's and fishermen and their lunches may insure future finds in this area [Niagara Falls]." (Eckel 2001). = <i>Lycopersicon esculentum</i> .	--	--			SE1	SOLANACEAE
<i>Solanum ptycanthum</i> Dunal ex DC.	Eastern Black Nightshade	U	A weed of disturbed ground. Most or all local reports of <i>S. nigrum</i> refer to this species.	C	C			S5	SOLANACEAE
<i>Solanum rostratum</i> Dunal	Buffalo Bur	IH	Historic reports only: Niagara Parks System, Cameron (1895). "... occasionally, in the fields and gardens of the Parks" (Hamilton 1943).	--	--			SE1	SOLANACEAE
<i>SOLIDAGO</i>	<i>see also</i>		<i>EUTHAMIA</i>						ASTERACEAE
<i>Solidago altissima</i> L. ssp. <i>altissima</i>	Late Goldenrod	C		C	C			S5	ASTERACEAE

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<i>Solidago arguta</i> Aiton ssp. <i>arguta</i>	Sharp-leaved Goldenrod	R	Dry, open woods. "Chippawa (Macoun on the authority of Dr. MacLagan)," Day (1888). Queenston, Wm. Scott, Aug. 20, 1897 ... [Ontario] Niagara, W. J. Potter, 1908 (TRT), Heimbürger (1955). "Niagara gorge at the Whirlpool" (Zenkert 1934). Reported from Point Abino, though not seen there recently (Macdonald 1990). S. Varga #86-93 (TRT) from Short Hills Provincial Park in 1993.	R4	R1			S3	ASTERACEAE
<i>Solidago bicolor</i> L.	Silverrod	U	M.J. Oldham #18149 (WAT) from Four Mile Pond near Niagara-on-the-Lake in 1995.	U9	U			S4?	ASTERACEAE
<i>Solidago caesia</i> L. var. <i>caesia</i>	Blue-stem Goldenrod	C	Woods.	C	C			S5	ASTERACEAE
<i>Solidago canadensis</i> L.	Canada Goldenrod	C	Both var. <i>canadensis</i> and var. <i>hargeri</i> are mapped from Niagara by Semple et al. (1999), though the relative distribution and status of each in the region is poorly known.	C	C			S5	ASTERACEAE
<i>Solidago flexicaulis</i> L.	Zig-zag Goldenrod	C	Shaded woods, often in calcareous areas.	C	C			S5	ASTERACEAE
<i>Solidago gigantea</i> Aiton	Tall Goldenrod	C		C	C			S5	ASTERACEAE
<i>Solidago hispida</i> Muhlenb.	Hairy Goldenrod	R	Ontario: one mile south of Queenston, high land, Miller (TRT), Sept. 24, 1952; Whirlpool, Wm. Scott, Sept. 3, 1898, Heimbürger (1955). Not seen at the Niagara Gorge ANSI since 1952 (includes Glen and Whirlpool) (Riley et al. 1996, Oldham 2007).	R5	U			S5	ASTERACEAE
<i>Solidago juncea</i> Aiton	Early Goldenrod	C	Dry, open areas.	C	C			S5	ASTERACEAE
<i>Solidago nemoralis</i> Aiton ssp. <i>nemoralis</i>	Gray Goldenrod	C		C	C			S5	ASTERACEAE
<i>Solidago ohioensis</i> Riddell	Ohio Goldenrod	RH	Collected from Point Abino by A.W. Miller #803 (HAM) in 1948 (Macdonald 1990); not seen in the Region since.	--	R3			S4	ASTERACEAE
<i>Solidago patula</i> Muhlenb. ex Willd. ssp. <i>patula</i>	Rough-leaved Goldenrod	R	Rare; swamps. A.C. Garofalo #08-1068 (HAM) from Short Hills, Pelham Twp., in 1008.	C	C			S5	ASTERACEAE

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<i>Solidago ptarmicoides</i> (Nees) B. Boivin	Upland White Goldenrod	R	Rare on limestone in the Niagara Glen and Whirlpool area (BUF; Eckel 2001) where seen as recently as 2006 (M.J. Oldham). = <i>Aster ptarmicoides</i> , <i>Solidago asteroides</i> .	R1	R1			S5	ASTERACEAE
<i>Solidago rigida</i> L. ssp. <i>rigida</i>	Stiff Goldenrod	IH	Although mapped as a native occurrence by Argus et al. (1982-1987), the sole Niagara record (W.L. Putnam, DAO, in 1978) was collected along a railway in the Town of Lincoln where it is more likely to have been introduced.	R2	--			S3	ASTERACEAE
<i>Solidago rugosa</i> Aiton ssp. <i>aspera</i> (Aiton) Cronquist	Rough Goldenrod	C		C	C			S5	ASTERACEAE
<i>Solidago sempervirens</i> L. ssp. <i>sempervirens</i>	Seaside Goldenrod	IR	Rare roadside halophytic weed. M.J. Oldham #33951 (WAT) from Hwy. 405 in 2006.	I	--			SE2	ASTERACEAE
<i>Solidago squarrosa</i> Muhlenb. ex Nutt.	Stout Goldenrod	R	Niagara Parks System, Cameron (1895). "Niagara Glen," Hamilton (1943). Dufferin Islands, Henderson, Aug. 27, 1966 (NFO). Just north of Niagara Glen in 1989 (Ontario Hydro 1990, in Varga and Kor 1993).	RH	--			S5	ASTERACEAE
<i>Solidago uliginosa</i> Nutt.	Bog Goldenrod	RH	"Steep gravelly banks. Niagara Falls. (Burgess.)" Macoun (1884). Ontario: Niagara, T. J. W. Burgess, Aug. 21, 1879 (TRT), Heimbürger (1955). Niagara Parks System (as <i>S. neglecta</i>), Cameron (1895). (as <i>S. uniligulata</i> var. <i>neglecta</i>), "Ontario: Niagara River at the Glen (Johnson)" Zenkert (1934). (As <i>S. uniligulata</i>), "... swampy places along the Niagara River," Hamilton (1943). No recent records.	R4	--			S5	ASTERACEAE
<i>Sonchus arvensis</i> L. ssp. <i>arvensis</i>	Perennial Sow-thistle	IC		I	I			SE5	ASTERACEAE
<i>Sonchus arvensis</i> L. ssp. <i>uliginosus</i> (Bieb.) Nyman	Sow-thistle	IR	M.J. Oldham #34729 (TRTE) from Dufferin Islands in 2007. = <i>Sonchus uliginosus</i> .	I	I			SE5	ASTERACEAE
<i>Sonchus asper</i> (L.) Hill ssp. <i>asper</i>	Spiny-leaved Sow-thistle	IC		I	I			SE5	ASTERACEAE

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<i>Sonchus oleraceus</i> L.	Annual Sow-thistle	IU		I	--			SE5	ASTERACEAE
<i>Sorbaria sorbifolia</i> (L.) A. Braun	False Spiraea	IR	Rare garden escape. A. Garofalo #08-1072 (HAM) from Short Hills in 2008.	--	I			SE3	ROSACEAE
<i>Sorbus americana</i> Marshall	American Mountain-ash	RH	Historical reports only: Niagara Parks System (as <i>Pyrus americana</i>), Cameron (1895). "... a few trees occur near the Whirlpool," Hamilton (1943). Queen Victoria Park, Cameron, 1891 (NFO). Mapped from the Niagara River area by Soper and Heimburger (1982).	--	--			S5	ROSACEAE
<i>Sorbus aria</i> (L.) Crantz	European Beam Tree	IR	Rare escape from cultivation. J. Jalava #316-93 (TRT) from Queenston Escarpment ANSI in 1993. Perhaps <i>Sorbus intermedia</i> rather than <i>S. aria</i> .	--	--			SE1	ROSACEAE
<i>Sorbus aucuparia</i> L.	European Mountain-ash	IC		I	--			SE4	ROSACEAE
<i>Sorghastrum nutans</i> (L.) Nash	Indian Grass	R	Known from the Niagara River area since the late 1880s and seen at the Whirlpool as recently as 2006 (Oldham 2007). Point Abino (BUF; Macdonald 1990).	R4	U			S4	POACEAE
<i>Sparganium americanum</i> Nutt.	American Bur-reed	R	Queen Victoria Park, Panton (1890, as <i>S. simplex</i>) Ontario, Niagara Parks System, Cameron (1895, as <i>S. simplex</i>) "... grows at Dufferin Islands" (Hamilton 1943).	R4	R3			S4?	TYPHACEAE
<i>Sparganium angustifolium</i> (Engelm.) Morong	Branching Bur-reed	RH	W.L. Putnam #123 (DAO, det. V.L. Harms) from Chippewa Creek Conservation Area in 1973 (ARVPO database).	--	--			S1	TYPHACEAE
<i>Sparganium eurycarpum</i> Engelm. ex A. Gray	Giant Bur-reed	C		C	C			S5	TYPHACEAE
<i>Spartina pectinata</i> Link	Tall Cord Grass	R	Rare, shorlines and sometimes in open disturbed ground. C.J. Rothfels #1459 (HAM) from Navy Island in 2004.	R3	R2			S4	POACEAE
<i>SPECULARIA</i>	see		TRIODANIS						CAMPANULACEAE

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<i>Spergularia media</i> (L.) C. Presl ex Griseb.	Sand-spurrey	IR	A halophytic weed of disturbed saline habitats, particularly roadside ditches. M.J. Oldham #32970 (MICH) from the Whirlpool (roadside) in 2006.	I	--			SE3	CARYOPHYLLACEAE
<i>Spergularia rubra</i> (L.) J. & K. Presl	Purple Sand-spurrey	IR	A.C. Garofalo #08-849 (HAM) from McKenny Road Woods in 2008.	I	--			SE3?	CARYOPHYLLACEAE
<i>Spergularia salina</i> J. & K. Presl.	Saltmarsh Sand-spurrey	IR	A halophytic weed of disturbed saline habitats, particularly roadside ditches. M.J. Oldham #32969 (MICH) from the Whirlpool (roadside) in 2006. = <i>Spergularia marina</i> .	I	--			SH	CARYOPHYLLACEAE
<i>Sphenopholis intermedia</i> (Rydb.) Rydb.	Slender Wedge Grass	C		C	C			S4S5	POACEAE
<i>Sphenopholis nitida</i> (Biehler) Scribner	Wedge Grass	RH	near Niagara Falls, in woods, J. Macoun (CAN) in 1892 (ARVPO database).	RH	RH			S1	POACEAE
<i>Spiraea alba</i> Duroi	Meadow-sweet	C		C	C			S5	ROSACEAE
<i>Spiraea latifolia</i> (Ait.) Borkh.	Broad-leaved Meadow-sweet	RH	Mapped from the vicinity of the Niagara River by Soper and Heimbürger (1982). Rare in southwestern Ontario. Often included in <i>S. alba</i> . = <i>Spiraea alba</i> var. <i>latifolia</i> .	?	?			S5	ROSACEAE
<i>Spiraea prunifolia</i> Siebold & Zucc.	Spiraea	IH	Reported from Niagara by Riley et al. (1996) based on Heimbürger (1955).	--	--			SE1	ROSACEAE
<i>Spiranthes cernua</i> (L.) Rich.	Nodding Ladies'-tresses	R	"In the same places as <i>S. latifolia</i> : wet places near Clifton, Ontario," Day (1888). Ontario, Queen Victoria Park, Panton (1890). Ontario, Niagara Parks System, Cameron (1895). "... have not been recently observed (Parks, Ontario)," Hamilton (1943). Wainfleet Bog though not seen by Macdonald (1992). Point Abino (BUF; Macdonald 1990).	U10	C			S5	ORCHIDACEAE

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<i>Spiranthes lacera</i> (Raf.) Raf. var. <i>gracilis</i> (Bigelow) Luer	Southern Slender Ladies'-tresses	R	"The variety <i>gracilis</i> is rare throughout Ontario, the station at Paradise Grove being the only one presently known in the province, although it was once found in Elgin, Kent and Lambton Counties" (McIntosh and Catling 1979). Photographed by P.M. Catling in 1980 (TRT) at Paradise Grove and not recorded since. = <i>Spiranthes gracilis</i> .	--	RH			S1	ORCHIDACEAE
<i>Spiranthes lucida</i> (H. Eaton) Ames	Shining Ladies'-tresses	R	Rare, mainly on the Lake Erie shoreline, but also seepages of the Niagara River Whirlpool. M.J. Oldham #32717 (NHIC) from Windmill Point in 2006.	R2	VU			S4	ORCHIDACEAE
<i>Spiranthes magnicamporum</i> Sheviak	Great Plains Ladies'-tresses	R	Reported from Sir Adam Beck complex (Gregory 2003a) and Welland River and Power Canal (Gregory 2005a), near Niagara Falls, with supporting specimens at TRTE.	--	R1			S3?	ORCHIDACEAE
<i>Spiranthes ochroleuca</i> (Rydb.) Rydb.	Yellow Ladies'-tresses	R	Collected by B. Miller (HAM) from Fort Erie in 1948 and from near Fenwick by P.M. Catling (TRT) in 1978 (ARVPO, Argus et al. 1982-1987).	--	R2			S2	ORCHIDACEAE
<i>Spiranthes romanzoffiana</i> Cham.	Hooded Ladies'-tresses	RH	Queen Victoria Park, Cameron, [ca. 1890] (NFO). Niagara Parks System, Cameron (1895). "... have not been recently observed (Parks, Ontario)," Hamilton (1943). No recent reports.	R2	R2			S5	ORCHIDACEAE
<i>Spirodela polyrhiza</i> (L.) Schleiden	Greater Duckweed	R	Rare; wetlands. M.J. Oldham #25297 (MICH) from Wainfleet Bog in 2001.	C	U			S5	ARACEAE
<i>Sporobolus compositus</i> (Poir.) Merr.	Rough Dropseed	R	Rare and apparently native in Niagara Glen - Whirlpool area (M.J. Oldham #33835, DAO, from the Whirlpool in 2006), also an occasional weed along roadsides. = <i>Sporobolus asper</i> .	--	I			S4	POACEAE
<i>Sporobolus cryptandrus</i> (Torrey) A. Gray	Sand Dropseed	U	A grass of dry, often sandy ground. Found in sandy areas along Lake Erie, and along sandy roadsides and railways.	R5	C			S4	POACEAE

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<i>Sporobolus neglectus</i> Nash	Overlooked Dropseed	R	An inconspicuous grass of roadsides and dry open areas. Probably much overlooked. Frequently grows with <i>S. vaginiflorus</i> , which appears to be more common in our area. Montrose Railway Yard, Niagara Falls, M.J. Oldham #18153 (DAO) in 1995.	C	VU			S4	POACEAE
<i>Sporobolus vaginiflorus</i> (Torrey ex A. Gray) Torrey ex A. Wood	Ensheathed Dropseed	U	An inconspicuous grass of roadsides and dry open areas. Probably much overlooked. M.J. Oldham #33838 (DAO) from the Niagara River Whirlpool in 2006.	C	C			S4	POACEAE
<i>Stachys byzantina</i> K. Koch	Wooly Hedge-nettle	IR	Rare escape from cultivation. M.J. Oldham #32914 (NHIC) from Niagara Parkway near Niagara Gorge in 2006.	--	--			SE1	LAMIACEAE
<i>Stachys palustris</i> L.	Marsh Hedge-nettle	IH	Niagara Parks System (Cameron 1895). Ontario: Niagara, W. J. Potter, 1908, Heimbürger (1955). "... very rare plant in this locality; a few specimens have been located at Fort Erie" (Hamilton 1943).	I	I			SE5	LAMIACEAE
<i>Stachys tenuifolia</i> Willd.	Rough Hedge-nettle	R	Navy Island, wet island borders, N & NE shores, Eckel, July 28, 1998 (BUF) (Eckel 2001). Ontario: Navy Island, Wm. Scott, July 10, 1897; Niagara Falls, W.C. McCalla, July 21, 1897, Heimbürger (1955). = <i>Stachys hispida</i> .	R2	U			S4S5	LAMIACEAE
<i>Staphylea trifolia</i> L.	Bladdernut	U	Uncommon, only frequent along the Niagara Escarpment and on forested sand dunes.	C	C			S4	STAPHYLEACEAE
<i>Stellaria graminea</i> L.	Grass-leaved Stitchwort	IU		I	I			SE5	CARYOPHYLLACEAE
<i>Stellaria longifolia</i> Muhlenb. ex Willd.	Long-leaved Chickweed	C		C	C			S5	CARYOPHYLLACEAE
<i>Stellaria longipes</i> Goldie	Stitchwort	RH	Niagara Parks System, Cameron (1895). Parks, Ontario, Hamilton (1943). Queen Victoria Park, Cameron, [ca. 1890] (NFO) (Eckel 2001).	R1	R1			S5	CARYOPHYLLACEAE
<i>Stellaria media</i> (L.) Villars	Common Chickweed	IC		I	I			SE5	CARYOPHYLLACEAE

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<i>Stellaria pallida</i> (Dumort.) Crepin	Lesser Chickweed	IR	Rare weed. Similar to <i>S. media</i> and easily overlooked. M.J. Oldham #32368 (MICH, WAT) from Niagara Glen in 2006.	--	--			SE1	CARYOPHYLLACEAE
<i>Streptopus lanceolatus</i> (Aiton) Reveal	Rose Twisted-stalk	RH	Early report only: Queen Victoria Park, Panton (1890). = <i>Streptopus roseus</i>.	C	U			S5	CONVALLARIACEAE
<i>Strophostyles helvula</i> (L.) Elliott	Trailing Wild Bean	R	Sandy shoreline sites on Lake Erie and Lake Ontario. Four Mile Pond, west of Niagara-on-the-Lake, M.J. Oldham #18134 (TRTE) in 1995.	RH	U			S4	FABACEAE
<i>Stuckenia filiformis</i> Pers.	Filiform Pondweed	RH	Early reports from the Niagara River area (Eckel 2001); no recent records. = <i>Potamogeton filiformis</i> .	--	R1			S5	POTAMOGETONACEAE
<i>Stuckenia pectinata</i> L.	Sago Pondweed	R	Reported from Fifteen-Sixteen Mile Creek Valleys ANSI (Jalava et al. 1992; J. Jalava #91-62, TRT, in 1991), Jordan Valley ANSI (Schaefer et al. 1992; S. Varga #91-616, TRT, in 1991), and the Niagara River area (Eckel 2001). = <i>Potamogeton pectinatus</i> .	C	C			S5	POTAMOGETONACEAE
<i>Suaeda calceoliformis</i> (Hook.) Moq.	Sea-blite	IR	Rare halophyte of salted roadsides. M.J. Oldham #23212 (DAO, MICH, TRT) from near Niagara Falls in 1999.	I	--			S2	AMARANTHACEAE
<i>SWERTIA</i>	<i>see</i>		<i>FRASERA</i>						GENTIANACEAE
<i>Symphoricarpos albus</i> (L.) S.F. Blake	Snowberry	U	Most common on dry sites on the Niagara Escarpment.	C	U			S5	CAPRIFOLIACEAE
<i>Symphoricarpos orbiculatus</i> Moench	Coralberry	IH	A rare escape from cultivation. Niagara Parks System (as <i>S. vulgaris</i>), Cameron (1895). "Dufferin Islands," sight record, Yaki (1970).	--	I			SE1	CAPRIFOLIACEAE
<i>Symphyotrichum ciliolatus</i> (Lindl.) Löve & Löve	Rayless Annual Aster	IR	An uncommon halophytic weed of highway ditches. Probably increasing in our area. Montrose Railway Yard, Niagara Falls, M.J. Oldham #18151 (WAT) in 1995. = <i>Aster brachyactis</i> , <i>Brachyactis ciliata</i> .	I	--			S3?	ASTERACEAE
<i>Symphyotrichum cordifolium</i> (L.) Nesom	Heart-leaved Aster	C	Common in upland woods. = <i>Aster cordifolius</i> .	C	C			S5	ASTERACEAE

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<i>Symphyotrichum dumosum</i> (L.) Nesom	Bushy Aster	R	Mapped from two Niagara sites by Semple et al. (2002), though not mapped from the region by Argus et al. (1982-1987). = <i>Aster dumosus</i> .	--	R1			S2	ASTERACEAE
<i>Symphyotrichum ericoides</i> (L.) Nesom ssp. <i>ericoides</i>	Heath Aster	C	Common. = <i>Aster ericoides</i> , <i>Virgulus ericoides</i> .	C	C			S5	ASTERACEAE
<i>Symphyotrichum firmum</i> (Nees) Nesom	Glossy-leaved Aster	DD	Locally status poorly known due to confusion with <i>S. puniceum</i> . M.J. Oldham #33896 (WAT) from Dufferin Islands in 2006. = <i>Aster firmus</i> , <i>A. puniceus</i> var. <i>firmus</i> .	--	?			S4?	ASTERACEAE
<i>Symphyotrichum laeve</i> (L.) Löve & Löve	Smooth Aster	U	Largely restricted to sandy dry sites and Niagara Escarpment and Gorge rim = <i>Aster laevis</i> .	C	U			S5	ASTERACEAE
<i>Symphyotrichum lanceolatum</i> (Willd.) Nesom	Panicled Aster	C	Vars. <i>lanceolatum</i> , <i>interior</i> , and <i>latifolium</i> mapped from Niagara by Semple et al. (2002). = <i>Aster lanceolatus</i> , <i>A. simplex</i> .	C	C			S5	ASTERACEAE
<i>Symphyotrichum lateriflorum</i> (L.) Löve & Löve	Calico Aster	C	Var. <i>lateriflorum</i> is mapped from Niagara by Semple et al. (2002), though no varieties are recognized in FNA. = <i>Aster lateriflorus</i> , <i>A. vimineus</i> .	C	C			S5	ASTERACEAE
<i>Symphyotrichum novae-angliae</i> (L.) Nesom	New England Aster	C	Common. = <i>Aster novae-angliae</i> , <i>Virgulus novae-angliae</i> .	C	C			S5	ASTERACEAE
<i>Symphyotrichum ontarionis</i> (Wieg.) Nesom var. <i>ontarionis</i>	Ontario Aster	R	Reported from Niagara Gorge (as <i>Aster ontarionis</i> ; TRT) by Varga and Kor (1993). Var. <i>ontarionis</i> is mapped from the Niagara River area by Semple et al. (2002). = <i>Aster ontarionis</i> var. <i>ontarionis</i> .	--	--			S4	ASTERACEAE
<i>Symphyotrichum oolentangiense</i> (Riddell) Nesom	Azure Aster	R	Mapped from Niagara by Semple et al. (2002). Reported from Sir Adam Beck complex by Gregory (2003a) = <i>Aster azureus</i> , <i>A. oolentangiensis</i> .	C	U			S4	ASTERACEAE
<i>Symphyotrichum pilosum</i> (Willd.) Nesom var. <i>pilosum</i>	Hairy Aster	C	Common. = <i>Aster pilosus</i> var. <i>pilosus</i> .	C	U			S5	ASTERACEAE

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<i>Symphyotrichum pilosum</i> (Willd.) Nesom var. <i>pringlei</i> (A. Gray) Nesom	Pringle's Aster	R	Moist calcareous shores (e.g. Point Abino, Macdonald 1990). M.J. Oldham #35965 (WAT) from Fort Erie in 2007. = <i>Aster pilosus</i> var. <i>pringlei</i> .	--	--			S4	ASTERACEAE
<i>Symphyotrichum puniceum</i> (L.) Löve & Löve	Purple-stemmed Aster	C	A locally common wetland species. Local status poorly known due to confusion with <i>S. firmum</i> . = <i>Aster puniceus</i> .	C	C			S5	ASTERACEAE
<i>Symphyotrichum subulatum</i> (Michaux) Nesom	Annual Salt-marsh Aster	IR	Rare halophyte of salted roadsides. M.J. Oldham #33945 (WAT) from Portage Road near Niagara Falls in 2006. = <i>Aster subulatus</i> .	--	--			SE2	ASTERACEAE
<i>Symphyotrichum urophyllum</i> (Lindl. in DC.) Nesom	Arrow-leaved Aster	U	Mapped from several Niagara sites by Semple et al. (2002). = <i>Aster sagittifolius</i> , <i>A. urophyllum</i> .	C	C			S4	ASTERACEAE
<i>Symphyotrichum x amethystinum</i> (Nutt.) Nesom	(<i>A. ericoides</i> X <i>A. novae-angliae</i>)	hyb	A rare hybrid between two common asters in our area. M.J. Oldham #33989 (WAT) from Niagara Parkway in 2006. = <i>Aster x amethystinus</i> .	hyb	R			S3?	ASTERACEAE
<i>Symphytum officinale</i> L. ssp. <i>officinale</i>	Common Comfrey	IR	Rare weed. Pt. Abino Peninsula, Macdonald 1990	I	I			SE5	BORAGINACEAE
<i>Symplocarpus foetidus</i> (L.) Salisb. ex Barton	Skunk-cabbage	C	Largely absent from the Haldimand Clay Plain.	C	C			S5	ARACEAE
<i>Syringa vulgaris</i> L.	Common Lilac	IC		I	I			SE5	OLEACEAE
<i>Taenidia integerrima</i> (L.) Drude	Yellow-pimpernel	R	Rare in open woods. R. Kitchen #08-28 (HAM) from West Lincoln Township in 2008.	U9	U			S4	APIACEAE
<i>Tanacetum parthenium</i> (L.) Schultz-Bip.	Fever-few	IR	Rare weed. M.J. Oldham #34347 (DAO) from Port Colborne in 2007. = <i>Chrysanthemum parthenium</i> .	--	--			SE2	ASTERACEAE

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<i>Tanacetum vulgare</i> L.	Tansy	IR	Rare weed. "Near the Cantilever Bridge on the Canadian side," Day (1888). Ontario, Queen Victoria Park, Panton (1890). Ontario, Niagara Parks System, Cameron (1895). "... several patches of this species along the Boulevard," Hamilton (1943). Queen Victoria Park, Cameron, 1891 (NFO); Hydro Property near School of Horticulture, Powers, Sept. 1970's (NFO).	I	I			SE5	ASTERACEAE
<i>Taraxacum erythrospermum</i> Andr. ex Besser	Red-seeded Dandelion	IR	Rare weed. = <i>Taraxacum laevigatum</i> .	I	I			SE5	ASTERACEAE
<i>Taraxacum officinale</i> G. Weber	Common Dandelion	IC		I	I			SE5	ASTERACEAE
<i>Taraxacum palustre</i> (Lyons) DC.	Marsh Dandelion	IR	A weed of ditches and other open, moist often calcareous areas. Appears to be spreading in southern Ontario. M.J. Oldham #32348 (TRT) from Niagara Parkway in 2006	I	I			SE5	ASTERACEAE
<i>Tarenaya hassleriana</i> (Chodat) H.H. Iltis	Spider Flower	IR	Rare escape from cultivation. A.C. Garofalo #07-669 (HAM) from near Willoughby Marsh in 2007. = <i>Cleome hassleriana</i> .	I	--			SE1	CLEOMACEAE
<i>Taxus canadensis</i> Marshall	Canada Yew	U	Generally common in woodlands though declining in parts of southwestern Ontario due to heavy browsing by White-tailed Deer.	C	VU			S5	TAXACEAE
<i>Teucrium canadense</i> L. ssp. <i>canadense</i>	Wild Germander	R	C.J. Rothfels #1465 (HAM) from Navy Island in 2004.	U6	U			S5?	LAMIACEAE
<i>Teucrium canadense</i> L. ssp. <i>occidentale</i> (Bickn.) Shinnars	American Germander	RH	(var. <i>occidentale</i> (Gray) McClint. & Epl.) Ontario, Niagara Parks System, Cameron (1895). (as <i>T. occidentale</i>) "common along the Upper Niagara River and at Navy Island ... occupying the same habitat ... (as var. <i>canadense</i>)" Hamilton (1943).	R1	--			SU	LAMIACEAE
<i>Thalictrum dioicum</i> L.	Early Meadow-rue	C		C	C			S5	RANUNCULACEAE
<i>Thalictrum pubescens</i> Pursh	Tall Meadow-rue	C	= <i>Thalictrum polygamum</i> .	C	C			S5	RANUNCULACEAE

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<i>Thalictrum revolutum</i> DC.	Skunk Meadow-rue	RH	"near Drummondville, Niagara Falls (Macoun)" Day (1888). J. Smith #2085 (OAC) from Jordan Station in 1937 (ARVPO database).	--	R4			S2	RANUNCULACEAE
<i>Thalictrum thalictroides</i> (L.) Eames & B. Bo	Rue-anemone	R	A rich woodland spring wildflower, of rich floodplain woods and mesic to dry-mesic upland woods. M.J. Oldham #32346 (DAO) from Niagara Parkway south of Niagara-on-the-Lake in 2006 = <i>Anemonella thalictroides</i> .	R2	U			S3	RANUNCULACEAE
<i>Thaspium barbinode</i> (Michaux) Nutt.	Hairy-jointed Meadow Parsnip	RH	Very rare plant of woodlands and thickets. Historical records from the Niagara River area, e.g. "prevalent in the Niagara Glen" (Hamilton 1943, Eckel 2001). Most recently collected at Point Abino by M. Landon (OAC) in 1951 (ARVPO database).	--	--			SH	APIACEAE
<i>Thaspium trifoliatum</i> (L.) A. Gray var. <i>aureum</i> Britt.	Meadow Parsnip	RH	Queen Victoria Park (as <i>Thaspium aureum</i>), Pantou (1890). "Niagara Gorge," both sides, Field Club, 1894. Niagara Parks System (Cameron 1895, as <i>T. aureum</i>). No Niagara specimens located by Argus et al. (1982-1987)	--	--			S2	APIACEAE
<i>THELYPTERIS</i>	<i>see also</i>		<i>PHEGopteris</i>						THELYPTERIDACEAE
<i>Thelypteris noveboracensis</i> (L.) Nieuwl.	New York Fern	C		C	C			S4S5	THELYPTERIDACEAE
<i>Thelypteris palustris</i> Schott var. <i>pubescens</i> (Lawson) Fern.	Marsh Fern	C		C	C			S5	THELYPTERIDACEAE
<i>Thinopyrum ponticum</i> (Podp.) Z.W. Liu & R.R.-C. Wang	Tall Wheatgrass	IR	QEW Highway at Hwy. 47, southwest of Chippawa, M.J. Oldham #8048 (DAO) in 1988 (Oldham et al. 1995). = <i>Agropyron elongatum</i> , <i>Elymus elongatus</i> ssp. <i>ponticus</i> .	--	--			SE2	POACEAE
<i>Thlaspi arvense</i> L.	Penny Cress	IC		I	I			SE5	BRASSICACEAE
<i>Thuja occidentalis</i> L.	White Cedar	U	Confined to the Niagara Escarpment cliffs and talus.	C	C			S5	CUPRESSACEAE

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<i>Thymelaea passerina</i> (L.) Coss. & Germ.	Thymelaea	IR	Rare weed. Reported from Sir Adam Beck complex and Welland River area by Gregory (2003a, 2005a; TRTE). Montrose Railway Yard, Niagara Falls, M.J. Oldham #18146 (DAO, MICH, TRTE) in 1995. Not listed for Ontario by Morton and Venn (1990).	--	--			SE1	THYMELAEACEAE
<i>Tiarella cordifolia</i> L.	Foamflower	C		C	C			S5	SAXIFRAGACEAE
<i>Tilia americana</i> L.	Basswood	C		C	C			S5	MALVACEAE
<i>Tilia cordata</i> Miller	Linden	IH	Rare weed. Niagara Parks System, Cameron (1895). "Dufferin Islands," sight record, Yaki (1970).	I	--			SE1	MALVACEAE
<i>TOFIELDIA</i>	<i>see</i>		<i>TRIANTHA</i>						MELANTHIACEAE
<i>Torilis japonica</i> (Houtt.) DC.	Hedge Parsley	IR	A. Garofalo #08-1012 (HAM) from Coyle Creek Headwaters in 2008.	I	I			SE4	APIACEAE
<i>Torreyochloa pallida</i> (Torrey) Church var. <i>pallida</i>	Torrey's Manna Grass	RH	Wainfleet Bog, where collected by H. and R. Axtell in 1967 (BUF) and not seen since (Macdonald 1992).	R1	R1			S2S3	POACEAE
<i>Toxicodendron radicans</i> (L.) Kuntze ssp. <i>negundo</i> (Greene) Gillis	Climbing Poison-ivy	C	A climbing vine of woodlands. = <i>Rhus radicans</i> ssp. <i>negundo</i> , <i>Toxicodendron radicans</i> ssp. <i>negundo</i> .	C	C			S5	ANACARDIACEAE
<i>Toxicodendron rydbergii</i> (Rydb.) Greene	Rydberg's Poison-ivy	C	A trailing vine or small shrub, common in thickets, woodland borders and openings. = <i>Rhus radicans</i> ssp. <i>rydbergii</i> , <i>Rhus rydbergii</i> , <i>Toxicodendron radicans</i> ssp. <i>rydbergii</i> .	C	C			S5	ANACARDIACEAE
<i>Toxicodendron vernix</i> (L.) Kuntze	Poison Sumac	R	Rare in swampy woods. More common in adjacent Haldimand County. = <i>Rhus toxicodendron</i>.	R3	C			S4	ANACARDIACEAE
<i>Tragopogon dubius</i> Scop.	Goat's-beard	IU	= <i>Tragopogon major</i> .	I	I			SE5	ASTERACEAE
<i>Tragopogon porrifolius</i> L.	Common Salsify	IR	M.J. Oldham #35295 (MICH) from Port Colborne in 2008. An apparent hybrid with <i>T. pratensis</i> was also collected at Port Colborne (M.J. Oldham #35994, MICH) growing with the putative parents.	I	I			SE4?	ASTERACEAE
<i>Tragopogon pratensis</i> L. ssp. <i>pratensis</i>	Yellow Goat's-beard	IC		I	--			SE5	ASTERACEAE

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<i>Triadenum fraseri</i> (Spach) Gleason	Marsh St. John's-wort	U	Unommon in wetlands. = <i>Hypericum fraseri</i> , <i>Triadenum virginicum</i> ssp. <i>fraseri</i> .	R5	C			S5	HYPERICACEAE
<i>Triadenum virginicum</i> (L.) Raf.	Marsh St. John's-wort	R	Collected by I.D. Macdonald (BUF) from Wainfleet Bog in 1989 (Macdonald 1992) and seen in the bog recently by Mark Browning (pers. comm. 2010). = <i>Hypericum virginicum</i> .	--	--			S3	HYPERICACEAE
<i>Triantha glutinosa</i> (Michaux) Baker	False Asphodel	RH	"... only a very few specimens have been observed at Dufferin Islands," Hamilton (1943). = <i>Tofieldia glutinosa</i> .	--	R1			S4?	MELANTHIACEAE
<i>Trichostema brachiatum</i> L.	False Pennyroyal	R	Known from an alvar near Marcy's Woods (M.J. Oldham #23157, MICH, in 1999), an abandoned quarry at Wainfleet Wetlands Conservation Area (M. Browning pers. comm. 2010), and disturbed gravel in a railway yard in Niagara Falls (M.J. Oldham #18208, DAO, MICH, TRT, in 1995). = <i>Isanthus brachiatus</i> .	U10	R1			S4	LAMIACEAE
<i>Tridens flavus</i> (L.) A. Hitchc.	Purpletop	IR	Montrose Railway Yard, Niagara Falls, Catling and McIntosh (CAN, DAO, TRT) in 1976 (Catling et al. 1977); still present in 1995 (M.J. Oldham #18158, DAO). Disturbed open sandy ground at Crystal Beach near Fort Erie (M.J. Oldham #33998, DAO, in 2006).	--	I			SE1	POACEAE
<i>Trientalis borealis</i> Raf. ssp. <i>borealis</i>	Starflower	C		C	C			S5	MYRSINACEAE
<i>Trifolium arvense</i> L.	Rabbit-foot Clover	IR	A rare weed of sandy, open, disturbed ground. S. Varga #461-93 (TRT) from St.Davids Burried Gorge ANSI in 1993.	I	I			SE4	FABACEAE
<i>Trifolium aureum</i> Pollich	Hop Clover	IR		I	I			SE5	FABACEAE
<i>Trifolium campestre</i> Schreber	Low Hop Clover	IR	= <i>Trifolium procumbens</i> .	I	I			SE5	FABACEAE
<i>Trifolium dubium</i> Sibth.	Small Clover	IR	M.J. Oldham #32576 from the Whirlpool in 2006.	--	I			SE4	FABACEAE

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<i>Trifolium hybridum</i> L. ssp. <i>elegans</i> (Savi) Aschers. & Graebner	Alsike Clover	IC		I	I			SE5	FABACEAE
<i>Trifolium incarnatum</i> L.	Crimson Clover	IH	Queenston, Wm. Scott, May 28, 1898, Heimbürger (1955).	--	--			SEH	FABACEAE
<i>Trifolium pratense</i> L.	Red Clover	IC		I	I			SE5	FABACEAE
<i>Trifolium repens</i> L.	White Clover	IC		I	I			SE5	FABACEAE
<i>Triglochin maritima</i> L.	Arrow-grass	IR	Collected from a moist, saline roadside ditch at St. Catharines (M.J. Oldham #32436, MICH, TRT, in 2006), where presumably non-native.	--	VU			S5	JUNCAGINACEAE
<i>Triglochin palustris</i> L.	Marsh Arrow-grass	R	Early records from the Niagara River, though not seen in the area recently. "Wet ground above Clifton, Ontario. Of unusual size" Day (1888). Ontario, Niagara Parks System, Cameron (1895). Queen Victoria Park, Cameron, [ca.1890] (NFO). M.J. Oldham #23190 (MICH) from Wainfleet Wetlands in 1999.	--	VU			S5	JUNCAGINACEAE
<i>Trillium erectum</i> L.	Red Trillium	C	Common in woodlands. White-flowered plants are occasionally found.	C	C			S5	TRILLIACEAE
<i>Trillium flexipes</i> Raf.	Bent Trillium	RH	A 1950 collection (J.K. Shields #4393, TRT) from "rocky woods", Niagara Glen, is mapped by Argus et al. (1982-1987), although the specimen "shows some evidence of past introgression with <i>T. erectum</i> [Red Trillium]". Not refound in 1989 or 2006 surveys, despite exhaustive spring searching through suitable habitat (Varga and Kor 1993, Oldham 2007).	--	--	END	END	S1	TRILLIACEAE
<i>Trillium grandiflorum</i> (Michaux) Salisb.	White Trillium	C		C	C			S5	TRILLIACEAE
<i>Trillium undulatum</i> Willd.	Painted Trillium	RH	"occasionally found in the area [Niagara Parks]" (Hamilton 1943). Queen Victoria Park, Cameron, [ca.1890] (NFO) (Eckel 2001).	--	R1			S5?	TRILLIACEAE

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<i>Triodanis perfoliata</i> (L.) Nieuwl.	Venus' Looking-glass	RH	Formerly "infrequently found in open woodlands of the Niagara Parks System" (Hamilton 1943), though not seen in the area since (Varga and Kor 1993, Oldham 2007). Point Abino (TRT; Macdonald 1990). Mapped from two sites along the Niagara River by Cody (1982). = <i>Specularia perfoliata</i> .	--	R3			S4	CAMPANULACEAE
<i>Triosteum aurantiacum</i> E. Bickn.	Horse-gentian	U	Largely restricted to sites with calcareous bedrock. = <i>Triosteum perfoliatum</i> var. <i>aurantiacum</i> .	C	U			S5	CAPRIFOLIACEAE
<i>Triplasis purpurea</i> (Walter) Chapman	Sand Grass	R	Mapped from Niagara-on-the-Lake by Dore and McNeill (1980). Historically known from Point Abino (A.W. Miller, HAM, TRT, in 1948), though not seen there recently (Macdonald 1990). Recent records only from sandy shoreline sites along Lake Erie. M.J. Oldham #7834 (DAO) from Sherkston Beach in 1987.	R1	R1			S4?	POACEAE
<i>Tripleurospermum inodorum</i> (L.) Schultz-Bip.	Scentless False Mayweed	IR	Rare weed. M.J. Oldham #33825a (DAO) from Niagara Parkway in 2006. = <i>Matricaria inodora</i> , <i>Matricaria perforata</i> .	I	--			SE3?	ASTERACEAE
<i>Triticum aestivum</i> L.	Cultivated Wheat	IR	M.J. Oldham #34355 (DAO) from along railway tracks in Port Colborne in 2007; probably an ephemeral weed from spilled grain.	I	--			SE1	POACEAE
<i>Tsuga canadensis</i> (L.) Carriere	Eastern Hemlock	C		C	C			S5	PINACEAE
<i>Turritis glabra</i> L.	Tower Mustard	R	Several early literature reports (Day 1888, Panton 1890, Cameron 1895) and reported from the North Pelham Valley by Riley et al. (1996). = <i>Arabis glabra</i> .	R5	U			S5	BRASSICACEAE
<i>Tussilago farfara</i> L.	Coltsfoot	IC		I	I			SE5	ASTERACEAE
<i>Typha angustifolia</i> L.	Narrow-leaved Cattail	C	Generally considered native, although some authors suggest that it is introduced from Europe.	C	C			S5	TYPHACEAE
<i>Typha latifolia</i> L.	Common Cattail	C		C	C			S5	TYPHACEAE

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<i>Typha x glauca</i> Godron	(<i>T. angustifolia</i> X <i>T. latifolia</i>)	hyb	Pt. Abino Peninsula (Macdonald 1990).	C	C			S4?	TYPHACEAE
<i>Ulmus americana</i> L.	American Elm	C		C	C			S5	ULMACEAE
<i>Ulmus glabra</i> Hudson	Scotch Elm	IR	Near Frenchman's Creek, Fort Erie, M.J. Oldham #7844 (TRTE, det. P.W. Ball) in 1987.	--	--			SE1	ULMACEAE
<i>Ulmus pumila</i> L.	Siberian Elm	IU		I	--			SE3	ULMACEAE
<i>Ulmus rubra</i> Muhlenb.	Slippery Elm	U	Very uncommon to rare tree in Niagara. Strongly confined to the Niagara and Onondaga Escarpments (A.C. Garofalo pers. comm. 2010).	C	U			S5	ULMACEAE
<i>Ulmus thomasi</i> Sarg.	Rock Elm	R	Rare in woods, often floodplains, regenerating rocky fields, and hedgerows. Seldom common when found. Niagara Parks System (as <i>U. racemosa</i>), Cameron (1895). (As <i>U. racemosa</i>) "a newly felled tree, noticed near Fort Erie, Ont., April (1883)," Day (1883). "... to be found in the Glen," Hamilton (1943). J. Jalava #91-122 (TRT) from 15 Mile Creek ANSI in 1991.	C	VU			S4?	ULMACEAE
<i>Urtica dioica</i> L. ssp. <i>dioica</i>	European Stinging Nettle	IR	"suprisingly abundant on a piece of old farmland at Navy Island, where nearly an acre of this plant may be seen. Isolated specimens have been observed in the woods to the rear of the greenhouses in Queen Victoria Park," Hamilton (1943). "Dufferin Islands," sight record, Yaki (1970).	I	--			SE2	URTICACEAE
<i>Urtica dioica</i> L. ssp. <i>gracilis</i> (Aiton) Selander	American Stinging Nettle	C	Common and widespread in moist, shaded woodlands and thickets. Frequently a dominant on wooded floodplains. = <i>Urtica gracilis</i> , <i>U. procera</i> .	C	C			S5	URTICACEAE

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<i>Utricularia cornuta</i> Michaux	Horned Bladderwort	RH	"Rather rare. Niagara Falls, Canadian side, Clinton," Day (1882). "Wet grounds near Clifton, Ontario. Not common now. 'Abundant on the Table Rock' (1818) Nuttall, Gen. Am. Pl., vol. 1, p. 14," Day (1888). Ontario, Niagara Parks System, Cameron (1895). No recent records.	--	R1			S5	LENTIBULARIACEAE
<i>Utricularia gibba</i> L.	Humped Bladderwort	RH	Niagara Parks System, Cameron (1895). Ontario: Queen Victoria Park, Wm. Scott, July 16 - , Heimbürger (1955). Ontario, Parks, Hamilton (1943). Queen Victoria Park, Cameron, [ca.1890] (NFO). No recent reports.	--	R1			S4	LENTIBULARIACEAE
<i>Utricularia vulgaris</i> L.	Common Bladderwort	U	Niagara Parks System, Cameron (1895). "... occurs at a few places along the Niagara River," Hamilton (1943). Black Creek (Niagara River effluent). Amiel Chamot, June 1888 (BUF). = <i>Utricularia macrorhiza</i> .	U7	C			S5	LENTIBULARIACEAE
<i>Uvularia grandiflora</i> Smith	Large-flowered Bellwort	C		C	U			S5	CONVALLARIACEAE
<i>Uvularia perfoliata</i> L.	Perfoliate Bellwort	R	Rare in woods. S. Varga #614-93 (TRT) from South Beamsville Slope ANSI in 1993.	RH	R1			S1	CONVALLARIACEAE
<i>Uvularia sessilifolia</i> L.	Merrybells	C		R3	U			S4	CONVALLARIACEAE
<i>Vaccinium angustifolium</i> Aiton	Lowbush Blueberry	U		C	C			S5	ERICACEAE
<i>Vaccinium corymbosum</i> L.	Highbush Blueberry	C		C	C			S4	ERICACEAE
<i>Vaccinium macrocarpon</i> Aiton	Large Cranberry	R	Pt. Abino Peninsula (Macdonald 1990). Recently observed at one location in Wainfleet Bog (M. Browning pers. comm. 2010).	R1	R1			S4S5	ERICACEAE
<i>Vaccinium myrtilloides</i> Michaux	Velvet-leaf Blueberry	R	Two Niagara Escarpment sites (Riley et al. 1996). A. Garofalo #08-788 (HAM) from Bayer's Creek Headwaters in 2008.	R1	U			S5	ERICACEAE

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<i>Vaccinium oxycoccus</i> L.	Small Cranberry	R	Wainfleet Bog (Macdonald 1992). J.D. Ambrose #3011 (TRT) from Wainfleet Bog in 1983. Seen recently in Wainfleet Bog by Mark Browning (pers. comm. 2010).	R3	--			S5	ERICACEAE
<i>Vaccinium pallidum</i> Aiton	Dryland Blueberry	U	Uncommon in dry upland woods. A.C. Garofalo #07-386 (HAM) from Young Woods in 2007. = <i>Vaccinium vacillans</i> .	C	C			S4	ERICACEAE
<i>Vaccinium stamineum</i> L.	Deerberry	R	Rare and declining in open woods in the Niagara Falls area. Perhaps now restricted to a single small population near the Whirlpool. M.J. Thompson (HAM) from Niagara Gorge in 2000.	--	--	THR	THR	S1	ERICACEAE
<i>Valeriana officinalis</i> L.	Common Valerian	IR	A. Garofalo #08-885 (HAM) from Welland River in 2008.	I	I			SE3	VALERIANACEAE
<i>Valeriana uliginosa</i> (Torrey & A. Gray) Rydb.	Marsh Valerian	RH	(as <i>V. dioica</i> var. <i>uliginosa</i>) "Meadows, Niagara Falls, Ont. (Millman.)" Macoun (1886). Not mapped from Niagara by Argus et al. (1982-1987). No recent reports. = <i>Valeriana sitchensis</i> ssp. <i>uliginosa</i> .	--	RH			S2	VALERIANACEAE
<i>Valerianella chenopodiifolia</i> (Pursh) DC.	Goose-foot Corn-salad	RH	Point Abino only (Macdonald 1990). G.A. Snyder (OAC) from Point Abino in 1917.	--	--			S1	VALERIANACEAE
<i>Valerianella locusta</i> (L.) Betcke	Corn-salad	IR	Navy Island, P.M. Eckel (BUF) in 1998 (Eckel 2001). M.J. Oldham #34066 (DAO, MICH) from weedy roadside near Wainfleet Bog in 2007.	--	--			SE1	VALERIANACEAE
<i>Vallisneria americana</i> Michaux	Tape-grass	U		R2	C			S5	HYDROCHARITACEAE
<i>Verbascum blattaria</i> L.	Moth Mullein	IU		I	I			SE5	SCROPHULARIACEAE
<i>Verbascum thapsus</i> L.	Common Mullein	IC		I	I			SE5	SCROPHULARIACEAE
<i>Verbena hastata</i> L.	Blue Vervain	C		C	C			S5	VERBENACEAE
<i>Verbena simplex</i> Lehm.	Dwarf Vervain	RH	Queenston Heights, July 15, 1901 (CAN), Heimbürger (1955).	R3	RH			S4	VERBENACEAE
<i>Verbena stricta</i> Vent.	Hoary Vervain	R	"while rare, has been found on the gravelly, rocky land near Queen Victoria Park," Hamilton (1943). Homer Escarpment in 1993 (Riley et	--	R1			S4	VERBENACEAE

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			al. 1996).						
<i>Verbena urticifolia</i> L.	White Vervain	C		C	C			S5	VERBENACEAE
<i>Vernonia gigantea</i> (Walter) Trel. ex Branner	Giant Ironweed	RH	W. Scott, Niagara-on-the-Lake (DAO, TRT) and Queenston (TRT), 1898 (ARVPO database). Records of this species should be closely checked to make sure they are not the similar <i>Vernonia missurica</i> . = <i>Vernonia altissima</i> .	--	--			S1?	ASTERACEAE
<i>Veronica americana</i> (Raf.) Schwein. ex Benth	American Brooklime	R	Niagara Parks System, Cameron (1895). "Dufferin Islands," Hamilton (1943). Chippewa River, T. J. Hale, 1861 (BUF); Dufferin Islands, Hamilton, June 20, 1939 (NFO) (Eckel 2001). M.J. Oldham #33890 (DAO) from Dufferin Islands in 2006. = <i>Veronica beccabunga</i> var. <i>americana</i> .	C	--			S5	PLANTAGINACEAE
<i>Veronica anagallis-aquatica</i> L.	Water Speedwell	IR	"Wet grounds near Clifton, Ontario," Day (1888). Ontario, Queen Victoria Park, Pantou (1890). Ontario: Dufferin Islands, swamp, Miller (582), Aug. 25, 1948, Heimbürger (1955). "Dufferin Islands," sight record, Yaki (1970). M.J. Oldham #34852 (TRTE) from Dufferin Islands in 2007.	I	I			SE5	PLANTAGINACEAE
<i>Veronica arvensis</i> L.	Corn Speedwell	IU		I	I			SE5	PLANTAGINACEAE
<i>Veronica chamaedrys</i> L.	Bird's-eye Speedwell	IR	Niagara Parks System, Cameron (1895). Brock's Monument, Queenston, John Macoun, July 6, 1901 (TRT), Heimbürger (1955). "Queenston" Hamilton (1943). M.J. Oldham #32428 (MICH) from Paradise Grove in 2006	--	I			SE3	PLANTAGINACEAE
<i>Veronica longifolia</i> L.	Long-leaved Speedwell	IR	Dufferin Islands, north, low land, Miller (787), Sept. 25, 1949, Heimbürger (1955) (Eckel 2001). Pt. Abino Peninsula, Macdonald 1990	I	I			SE3	PLANTAGINACEAE
<i>Veronica officinalis</i> L.	Common Speedwell	IC		I	I			SE5	PLANTAGINACEAE
<i>Veronica peregrina</i> L. ssp. <i>peregrina</i>	Purslane Speedwell	U		U8	C			S5	PLANTAGINACEAE

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<i>Veronica persica</i> Poiret	Persian Speedwell	IR	M.J. Oldham #8047 (DAO, TRTE) from Bay Beach near Point Abino in 1988.	I	I			SE4	PLANTAGINACEAE
<i>Veronica polita</i> Fries	Gray Field Speedwell	IR	M.J. Oldham #32370 (MICH) from Niagara Glen in 2006.	I	--			SE4	PLANTAGINACEAE
<i>Veronica scutellata</i> L.	Marsh Speedwell	U		C	C			S5	PLANTAGINACEAE
<i>Veronica serpyllifolia</i> L. ssp. <i>serpyllifolia</i>	Thyme-leaved Speedwell	IC		I	I			SE5	PLANTAGINACEAE
<i>Viburnum acerifolium</i> L.	Maple-leaved Viburnum	C		C	C			S5	ADOXACEAE
<i>Viburnum cassinoides</i> L.	Wild-raisin	R	Wainfleet Bog, Macdonald 1992	R3	U			S5	ADOXACEAE
<i>Viburnum dentatum</i> L. var. <i>lucidum</i> Aiton	Southern Arrow-wood	C	Wet woods and thickets. Niagara distribution is restricted to wetlands north of Lake Erie. Not found north of Niagara Escarpment. = <i>Viburnum recognitum</i> .	C	C			S4	ADOXACEAE
<i>Viburnum lantana</i> L.	Wayfaring Tree	IU		I	--			SE2	ADOXACEAE
<i>Viburnum lentago</i> L.	Nannyberry	C		C	C			S5	ADOXACEAE
<i>Viburnum opulus</i> L.	European Highbush-cranberry	IC		I	I			SE4	ADOXACEAE
<i>Viburnum rafinesquianum</i> Schultes	Downy Arrow-wood	U		C	C			S5	ADOXACEAE
<i>Viburnum trilobum</i> Marshall	Highbush-cranberry	C	= <i>Viburnum opulus</i> var. <i>americanum</i> , <i>V. opulus</i> ssp. <i>trilobum</i> .	C	U			S5	ADOXACEAE
<i>Vicia americana</i> Muhlenb. ex Willd.	Vetch	R	Reported from three Niagara Escarpment sites by Riley (1996).	RH	--			S5	FABACEAE
<i>Vicia caroliniana</i> Walt.	Carolina Vetch	R	Historical records from several Niagara sites (CAN, TRT; Argus et al. 1982-1987). The only recent record is from DeCew Falls ANSI in 1993 (S. Varga #03-93, TRT).	R1	RH			S2	FABACEAE
<i>Vicia cracca</i> L.	Cow Vetch	IC		I	I			SE5	FABACEAE
<i>Vicia sativa</i> L. ssp. <i>nigra</i> (L.) Ehrh.	Common Vetch	IC	= <i>Vicia angustifolia</i> .	I	I			SE5	FABACEAE
<i>Vicia tetrasperma</i> (L.) Schreber	Sparrow Vetch	IU		I	I			SE5	FABACEAE
<i>Vicia villosa</i> Roth	Hairy Vetch	IR	B. Larson #91-200 (TRT) from Jordan Valley ANSI in 1991.	I	I			SE5	FABACEAE
<i>Vinca minor</i> L.	Common Periwinkle	IU		I	I			SE5	APOCYNACEAE

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<i>VINCETOXICUM</i>	<i>see</i>		<i>CYNANCHUM</i>						APOCYNACEAE
<i>Viola affinis</i> Le Conte	Le Conte's Marsh Violet	R	I.D. Macdonald (HAM, TRTE) from Wainfleet Bog in 1990 (Macdonald 1992). = <i>Viola sororia</i> var. <i>affinis</i> .	C	U			S4?	VIOLACEAE
<i>Viola arvensis</i> Murray	Field Pansy	IR	M.J. Oldham #34054 (DAO) from Port Colborne in 2007.	I	I			SE4	VIOLACEAE
<i>Viola blanda</i> Willd.	Sweet White Violet	U	Reported from seven Niagara Escarpment sites (Riley et al. 1996). S. Varga #128-93 (TRT) from Short Hills Provincial Park in 1993. = <i>Viola incognita</i> .	U8	C			S4S5	VIOLACEAE
<i>Viola canadensis</i> L. var. <i>canadensis</i>	Canada Violet	U		C	U			S5	VIOLACEAE
<i>Viola cucullata</i> Aiton	Marsh Violet	U		C	C			S5	VIOLACEAE
<i>Viola labradorica</i> Schrank	Dog Violet	U	A.C. Garofalo #07-396 (HAM) from Onondaga Escarpment, Wainfleet Bog, in 2007. = <i>Viola conspersa</i> .	C	C			S5	VIOLACEAE
<i>Viola lanceolata</i> L.	Lance-leaved Violet	R	Wainfleet Bog (Macdonald 1992).	--	--			S4	VIOLACEAE
<i>Viola macloskeyi</i> F. Lloyd ssp. <i>pallens</i> (Banks ex DC.) M. Baker	Smooth White Violet	R	Pt. Abino Peninsula (Macdonald 1990). = <i>Viola pallens</i> .	U7	U			S5	VIOLACEAE
<i>Viola odorata</i> L.	Sweet Violet	IR	"... has escaped from cultivation and is common on the banks at the rear of Queen Victoria Park," Hamilton (1943). "Dufferin Islands," sight record, Yaki (1970). wet base of wooded slope, Horseshoe Falls, Eckel April 23, 1988 (BUF) (Eckel 2001).	I	I			SE2	VIOLACEAE
<i>Viola palmata</i> L.	Wood Violet	RH	Queen Victoria Park, Panton (1890). Recent records unverified (NAI database). No Niagara specimens located by Argus et al. (1982-1987), but known from the Haldimand Clay Plain in nearby Haldimand County.	--	U			S2	VIOLACEAE
<i>Viola pedata</i> L. var. <i>pedata</i>	Bird's-foot Violet	RH	"in the [Niagara] Parks" (Hamilton 1943). Collections from 1891 (J. Dearness, DAO) and 1902 and 1906 (W. Scott, TRT) from Niagara-on-the-Lake (ARVPO database). See	--	R1	END	END	S1	VIOLACEAE

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			COSEWIC (2002a).						
<i>Viola pubescens</i> Aiton	Yellow Violet	C	Common. Includes <i>Viola eriocarpa</i> , <i>V. pennsylvanica</i> .	C	C			S5	VIOLACEAE
<i>Viola renifolia</i> A. Gray	Kidney-leaved Violet	R	Queenston Heights, Wm. Scott, May 24, 1895 (TRT), Heimbürger (1955).	R5	U			S5	VIOLACEAE
<i>Viola rostrata</i> Pursh	Long-spurred Violet	U		C	C			S5	VIOLACEAE
<i>Viola rotundifolia</i> Michaux	Round-leaved Violet	RH	Niagara Falls, R. Cameron (CAN) in 1892 and Jordan Station, J. Dearness (DAO) in 1892 and J. Macoun (CAN) in 1901 (ARVPO database). Niagara Parks System, Cameron (1895). "... in the (Glen) woods" Hamilton (1943).	--	--			S1	VIOLACEAE
<i>Viola sororia</i> Willd.	Common Blue Violet	C	Including <i>Viola septentrionalis</i> .	C	C			S5	VIOLACEAE
<i>Viola striata</i> Aiton	Striped Violet	RH	Niagara, John Macoun, May 20, 1901, Heimbürger (1955), though not mapped from Niagara by Argus et al. (1982-1987).	--	--			S3	VIOLACEAE
<i>Viola tricolor</i> L.	Johnny-jump-up	IR	Niagara Parks System, Cameron (1895).	I	--			SE2	VIOLACEAE
<i>Vitis aestivalis</i> Michaux var. <i>aestivalis</i>	Summer Grape	C		C	C			S4	VITACEAE
<i>Vitis labrusca</i> L.	Fox Grape	IU	Although collected as early as the late 1800s, probably not native to the Niagara region (Day 1888).	I	I?			S1	VITACEAE
<i>Vitis riparia</i> Michaux	Riverbank Grape	C		C	C			S5	VITACEAE
<i>Vulpia myuros</i> (L.) K.C. Gmel	Rat-tail Six-weeks Fescue	IR	Rare weed (Oldham et al. 1995). M.J. Oldham #34703 (DAO) from Navy Island in 2007.	--	--			SE1	POACEAE
<i>Vulpia octoflora</i> (Walter) Rydb. var. <i>glauca</i> (Nutt.) Fern.	Six-weeks Fescue	RH	Niagara Glen, J. Dearness (DAO, MTMG) in 1902 (ARVPO database)	--	RH			S2	POACEAE
<i>Waldsteinia fragarioides</i> (Michaux) Tratt.	Barren Strawberry	U		C	U			S5	ROSACEAE
<i>Wolffia borealis</i> (Engelm.) Landolt	Dotted Water-meal	R	Small and easily overlooked floating aquatic. = <i>Wolffia punctata</i> .	R2	X			S4S5	ARACEAE
<i>Wolffia columbiana</i> Karsten	Water-meal	R	Small and easily overlooked floating aquatic. <i>Wolffia arrhiza</i> of Macdonald (1990).	R4	U			S4S5	ARACEAE

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<i>Woodwardia virginica</i> (L.) Smith	Virginia Chain Fern	R	Wainfleet Bog (Macdonald 1992). M.J. Oldham #9263 (OAC) from Wainfleet Bog in 1989. A.A. Reznicek (MICH) in Willoughby Marsh in 1989.	R2	--			S4	BLECHNACEAE
<i>Xanthium strumarium</i> L.	Cocklebur	C		C	C			S5	ASTERACEAE
<i>Yucca filamentosa</i> L.	Adam's Needle	IR	A rare escape from cultivation, reported from Point Abino by Macdonald (1990). The report may refer to <i>Yucca flacida</i> (see FNA Vol. 26).	--	--			SE1?	AGAVACEAE
<i>Zannichellia palustris</i> L.	Horned Pondweed	R	A.C. Garofalo #08-886 (HAM) from the Welland River in 2008.	R2	--			S4	POTAMOGETONACEAE
<i>Zanthoxylum americanum</i> Miller	Northern Prickly-ash	C		C	C			S5	RUTACEAE
<i>Zea mays</i> L.	Corn	IR	Observed (M.J. Oldham) in the Fort Erie Railway Yard in 2007, where probably an ephemeral introduction from spilled grain	--	I			SE1	POACEAE
<i>Zigadenus elegans</i> Pursh ssp. <i>glaucus</i> (Nutt.) Hulten	White Camass	R	"Abundant, limestone cliffs and ledges of gorge of Niagara River near the Whirlpool" (Zenkert 1934). "occurs on the wet, limestone ledges of the Glen just below the Gardener's School" (Hamilton 1943). No reports from the Niagara River area since 1943 (Varga and Kor 1993, Oldham 2007). B. Larson #91-603, TRT, from Beamsville Escarpment ANSI in 1991 (Jalava et al. 1992). = <i>Zigadenus</i> <i>glaucus</i> .	--	R1			S4	MELANTHIACEAE
<i>Zizania aquatica</i> L. var. <i>aquatica</i>	Southern Wild Rice	R	Rare; wetlands.	--	U			S3	POACEAE
<i>Zizania palustris</i> L.	Northern Wild Rice	R		R1	?			S4	POACEAE
<i>Zizia aurea</i> (L.) W.D.J. Koch	Golden Alexanders	R	"occasionally found in marshy places along the Niagara River" (Hamilton 1943). "Navy Island", sight record, Yaki (1970). S. Blaney #56-93 (TRT) from Short Hills Provincial Park in 1993.	R4	U			S5	APIACEAE
<i>ZOSTERELLA</i>	<i>see</i>		<i>HETERANTHERA</i>						PONTEDERIACEAE

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<i>Acorus calamus</i> L.	European Sweet-flag	A 1975 Wm. Putnam record (NAI database) and other reports of <i>A. calamus</i> from the Niagara area probably refer to the native <i>A. americanus</i> , though it is possible the European <i>A. calamus sensu stricto</i> is present also. See Packer and Ringius (1984).			ACORACEAE
<i>Agalinis purpurea</i> (L.) Pennell	Purple Agalinis	Reports of <i>A. purpurea</i> (e.g. NAI database) are probably based on <i>A. paupercula</i> . = <i>A. purpurea</i> var. <i>paupercula</i> .			SCROPHULARIACEAE
<i>Agastache foeniculum</i> (Pursh) Kuntze	Blue Giant Hyssop	A 1976 literature report (NAI database) may be based on a misidentification or short-lived escape from cultivation.			LABIATAE
<i>Agrimonia eupatoria</i> L.	European Agrimony	A rare introduction in Ontario known in Niagara only from early literature reports (Panton 1890, Cameron 1895); no specimens seen.			ROSACEAE
<i>Agropyron canina</i> (L.) Beauv.	Velvet Bent	Several early literature reports (Macoun 1883-1892, Panton 1890, Cameron 1895), though no recent records. Not accepted as occurring outside of cultivation in Ontario (Dore and McNeill 1980, Morton and Venn 1990). Early Ontario reports may be based on <i>Elymus trachycaulus</i> (Morton and Venn 1990).			POACEAE
<i>Agrostis capillaris</i> L.	Colonial Bent Grass	In Ontario a rare escape from cultivation, in lawns and roadside plantings; perhaps not persisting. Several old literature reports (as <i>A. tenuis</i> ; Panton 1890, Cameron 1895, Hamilton 1943); listed for NIAG-HALD by Riley 1989). = <i>A. tenuis</i> .			POACEAE
<i>Amelanchier alnifolia</i> (Nutt.) Nutt. ex M. Roemer	Saskatoon Serviceberry	Records of this western species from Niagara (e.g. NAI database) probably refer to other species in the genus.			ROSACEAE
<i>Amelanchier canadensis</i> (L.) Medik.	Canada Serviceberry	Reported from the Niagara Parks System by Cameron (1895), though the species is not accepted as occurring in Ontario by Morton and Venn (1990) and others.			ROSACEAE
<i>Angelica venenosa</i> (Greenway) Fern.	Hairy Angelica	Reported by Hamilton (1943) as having been "found in the [Niagara] Parks". However no Niagara specimens have been located and the species is otherwise known in Ontario only from a single Windsor specimen (Oldham and Brinker 2009). = <i>A. villosa</i> .			APIACEAE
<i>Artemisia ludoviciana</i> Nutt.	White Sagebrush	"... reported from the [Niagara] Parks" (as <i>Artemisia gnaphaloides</i>) Hamilton (1943). No other reports and no specimens seen.			ASTERACEAE
<i>Asclepias purpurascens</i> L.	Purple Milkweed	A rare species of prairies and sandy woodland openings. One report in the Niagara NAI database, but no specimens located. Rare in Ontario and not mapped from areas near Niagara by Argus et al. (1982-1987).			APOCYNACEAE

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<i>Asplenium scolopendrium</i> L. var. <i>americanum</i> (Fern.) Kartesz & Gandhi	American Hart's-tongue Fern	Apparently planted in the vicinity of Niagara Falls and/or Niagara Glen in the late 1800s, the basis for a number of early literature reports (Day 188, Cameron 1895, Zenkert 1934, Hamilton 1943). "The plants at Niagara Falls, which are probably extirpated, may have been planted there" (Argus et al. 1982-1987). W. Scott (TRT) from Niagara Falls in 1895. = <i>Phyllitis scolopendrium</i> , <i>Scolopendrium vulgare</i>	SC	SC	ASPLENIACEAE
<i>Barbarea verna</i> (Miller) Aschers	Spring Winter-cress	Reported by Day (1888, as <i>Barbarea praecox</i>) from "Brock's Monument, Ontario (Macoun)". This report possibly in error since not mentioned in Macoun's (1883-1892) "Catalogue of Canadian Plants". No subsequent reports from the region.			BRASSICACEAE
<i>Betula populifolia</i> Marshall	Gray Birch	Regional reports (e.g. Brady et al. 1980, Jonsson-Ninniss and Middleton 1991) may be based on <i>Betula pendula</i> .			BETULACEAE
<i>Betula pubescens</i> Ehrhart	European White Birch	Reports (as <i>Betula alba</i>) by Cameron (1895) and Yaki (1970) are probably based on plantings.			BETULACEAE
<i>Betula x sandbergii</i> Britton	(<i>B. papyrifera</i> X <i>B. pumila</i>)	No specimens have been examined to substantiate reports from Wainfleet Bog (Jonsson-Ninniss and Middleton 1991), and not observed during the ANSI inventory (Macdonald 1992). A hybrid between <i>B. papyrifera</i> and <i>B. pumila</i> , the latter not known from Niagara.			BETULACEAE
<i>Bidens aristosa</i> (Michaux) Britton	Tickseed Beggar-ticks	A 2007 report from Welland (NAI database) is unconfirmed. This introduced species is otherwise known in Ontario only from Windsor.			ASTERACEAE
<i>Bidens laevis</i> (L.) Britton, Sterns & Poggenb.	Smooth Bur-marigold	Local reports (e.g. Day 1888, Panton 1890, Cameron 1895), a species not reliably known from Ontario (Morton and Venn 1990), are probably based on <i>Bidens cernua</i> .			ASTERACEAE
<i>Blephilia ciliata</i> (L.) Benth.	Downy Woodmint	A 1976 report (NAI database) is dubious and perhaps based on a similar species (e.g. <i>Clinopodium vulgare</i> or <i>Prunella vulgaris</i>).			LABIATAE
<i>Boechera retrofracta</i> (Graham) A. Löve & D. Löve	Holboell's Rock-cress	Reported "... in the [Niagara] Glen" by Hamilton (1943; as <i>Arabis holboellii</i>). No specimens seen and not otherwise known from southwestern Ontario (Oldham 1993); not known from New York state (Mitchell and Tucker 1997). = <i>Arabis holboellii</i> var. <i>retrofracta</i> .			BRASSICACEAE
<i>Botrychium lunaria</i> (L.) Sw.	Common Moonwort	No specimens have been located to substantiate early literature reports from the Niagara Parks System (Cameron 1895) and Niagara Falls ("found growing in open spaces in the woods near the School for Apprentice Gardeners"; Hamilton 1943). This species is not otherwise reported from southwestern Ontario (Cody and Britton 1989).			OPHIOGLOSSACEAE

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<i>Bromus racemosus</i> L.	Brome	Reports of this species (e.g. "known to occur in the Parks"; Hamilton 1943) are probably based on <i>Bromus commutatus</i> (Dore and McNeill 1980, Eckel 2001).			POACEAE
<i>Calystegia pubescens</i> Lindley	Japanese Bindweed	Reported from the Niagara Region, Ontario, by Montgomery (1957) based on Zenkert (1934). However the only mention of the species from the Niagara Region by Zenkert (1934) is from Niagara County, New York State. No known records from Niagara R.M., Ontario.			CONVOLVULACEAE
<i>Cardamine parviflora</i> L.	Small-flowered Bitter-cress	Two sight records in the NAI database. Not otherwise reported from the region.			BRASSICACEAE
<i>Carex adusta</i> Boott	Sedge	A Macoun (1883-1892) record from "woods near Niagara Falls, Ont." is probably based on another member of the difficult Ovales group of <i>Carex</i> .			CYPERACEAE
<i>Carex careyana</i> Torrey ex Dewey	Carey's Sedge	A rare species of rich, usually Beech-Sugar Maple, woods in the Carolinian Zone. Several records in the Niagara NAI database require further verification. An 1893 collection from Queen Victoria Park by R. Cameron (NFO) is cited by Eckel (2001). The only specimen labeled <i>Carex careyana</i> in NFO located in 2006 is an R. Cameron collection from the Whirlpool in 1893 which is actually <i>Carex deweyana</i> (det. M.J. Oldham 2006). Not mapped from the Niagara River area by Argus et al. (1982-1987).			CYPERACEAE
<i>Carex debilis</i> Michaux var. <i>rudgei</i> Bailey	White-edge Sedge	No specimens have been located to substantiate early reports from the Niagara River area (Day 1888, Pantou 1890). Recently collected by P.M. Eckel (BUF) from the base of Brock's Monument in 1988 (Eckel 2001). Specimen should be checked to ensure it is not the introduced <i>Carex sylvatica</i> which is present in the Queenston area.			CYPERACEAE
<i>Carex echinata</i> Murray ssp. <i>echinata</i>	Little Prickly Sedge	A species of acidic wetlands, rare or absent in the Carolinian Zone, locally common on the Canadian Shield. Very similar to related sedges, such as <i>C. interior</i> and <i>C. sterilis</i> . Reports and collections from the Niagara Region (e.g. Cameron 1895, Heimburger 1955) are based on specimens which are probably the similar <i>Carex interior</i> (e.g. R. Cameron, NFO, det. M.J. Oldham 2007, from Queen Victoria Park in ca. 1890; W. Scott, TRT, from Niagara Falls in 1897; cited in Eckel 2001). Not mapped from the Niagara Peninsula or anywhere in the Carolinian Zone of Ontario by Reznicek and Ball (1980).			CYPERACEAE

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<i>Carex festucacea</i> Schkuhr ex Willd.	Fescue Sedge	The only regional reports (Cameron 1895, Eckel 2001) are based on a R. Cameron specimen (NFO, det. M.J. Oldham 2007) from Queen Victoria Park (ca. 1890, Eckel 2001) which appears to be a collection of the very similar <i>Carex tenera</i> .			CYPERACEAE
<i>Carex flava</i> L.	Yellow Sedge	A collection from a dry meadow along the Welland River is the only verified record (A. Garofalo #08-887, HAM, in 2008). A report by Cameron (1895) is presumably based on an R. Cameron specimen labelled as <i>Carex flava</i> from the late 1800's at NFO which is actually <i>Carex viridula</i> (det. M.J. Oldham 2006).			CYPERACEAE
<i>Carex haydenii</i> Dewey	Cloud Sedge	A report from the Niagara Park System (as <i>Carex stricta</i> var. <i>decora</i>) by Cameron (1895) seems unlikely. No specimens labeled <i>Carex haydenii</i> were located in a search of NFO in 2006 by M.J. Oldham.			CYPERACEAE
<i>Carex hormathodes</i> Fern.	Sedge	A specimen cited by Eckel (2001) from the Niagara River Whirlpool (W. Scott, TRT, in 1898), is presumably misidentified or mislabelled since this species is not otherwise known from Ontario (Morton and Venn 1990).			CYPERACEAE
<i>Carex lucorum</i> Willd. ex Link var. <i>lucorum</i>	Long-beaked Oak Sedge	A report in the Niagara NAI database requires confirmation.			CYPERACEAE
<i>Carex lupuliformis</i> Sartwell ex Dewey	False Hop Sedge	Reports in the Niagara NAI database require further verification.	END	END	CYPERACEAE
<i>Carex straminea</i> Willd.	Sedge	Reported from the Niagara Parks System by Cameron (1895). An R. Cameron specimen from Queen Victoria Park at NFO is labelled as <i>Carex straminea</i> but is too young for positive identification and probably belongs to another member of Carex Section Ovaes (det. M.J. Oldham, 2006). <i>Carex straminea</i> is not reliably reported from Ontario (Morton and Venn 1990).			CYPERACEAE
<i>Carex torta</i> Boott ex Tuckerman	Sedge	Several unverified early reports: "near Clifton, Ontario" (Day 1888); "Ontario, Queen Victoria Park" (Panton 1890), though no specimens have been located to support these records. No Ontario records in about a century.			CYPERACEAE
<i>Carex trichocarpa</i> Muhlenb. ex Willd.	Hairy-fruited Sedge	A large and rare sedge of riverbanks and floodplain meadows. No specimens have been located to substantiate several early literature reports, e.g. "near Clifton, Ontario" (Day 1888); "Ontario, Queen Victoria Park" (Panton 1890); Ontario: "whirlpool," Queen Victoria Park (Cameron 1893).			CYPERACEAE

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<i>Carya tomentosa</i> (Poiret) Nutt.	Mockernut Hickory	Local reports (e.g. Macoun 1883-1892, Panton 1890, Cameron 1895, Hamilton 1943) are probably based on other species of <i>Carya</i> . <i>Carya tomentosa</i> is not confirmed from Ontario (Morton and Venn 1990).			JUGLANDACEAE
<i>Celtis tenuifolia</i> Nutt.	Dwarf Hackberry	Several shrubs discovered in 2009 by Mary Gartshore from along the rim of the Niagara Gorge may be this species or possibly a similar species escaped from cultivation.	THR	THR	ULMACEAE
<i>Cerastium velutinum</i> Raf.	Long-hairy Chickweed	A recent record (NAI database) is probably based on another <i>Cerastium</i> species. <i>Cerastium velutinum</i> is rare in Ontario and not known from areas near Niagara (Oldham and Brinker 2009). = <i>Cerastium arvense</i> var. <i>velutinum</i> .			CARYOPHYLLACEAE
<i>Cirsium altissimum</i> (L.) Sprengel	Tall Thistle	Reported by Panton (1890) from Queen Victoria Park, Niagara Falls, and a Pease collection from Queenston in 1884 is apparently at BUF (Eckel 2001), however this species is not reliably known from Ontario (Morton and Venn 1990).			ASTERACEAE
<i>Cirsium pumilum</i> (Nutt.) Sprengel	Pasture Thistle	Reports from Niagara (e.g. Eckel 2001, NAI database) are unlikely, as this species (var. <i>hillii</i>) is not known in Ontario from the Carolinian Zone.	THR	THR	ASTERACEAE
<i>Commelina microcarpus</i> L.	Day-flower	A report of <i>Commelina microcarpus</i> L., Day-flower, by Riley et al. (1996) from Homer Escarpment is presumably based on <i>Commelina communis</i> .			COMMELINACEAE
<i>Cornus mas</i> L.	Cornelian Cherry	Reported from Dufferin Islands based on B. Miller #48 (TRT?) from 1952 (Heimbürger 1955). Not known from outside cultivation in Ontario (Morton and Venn 1990).			CORNACEAE
<i>Crataegus compacta</i> Sarg.	Hawthorn	A record in the NAI database requires verification.			ROSACEAE
<i>Crataegus dilatata</i> Sarg.	Hawthorn	Queenston, Macoun (CAN) in 1891; Niagara-on-the-Lake, Phipps (UWO) in 1977 (ARVPO database). Local records are placed in <i>Crataegus coccinioides</i> (J.B. Phipps, 2007, FNA draft).			ROSACEAE
<i>Crataegus disperma</i> Ashe	Hawthorn	Queenston, W. Scott (TRT) in 1901. Considered to be an intersectional hybrid (J.B. Phipps, 2007, FNA draft).			ROSACEAE
<i>Crataegus flabellata</i> (Bosc ex Spach) K. Koch	Fan-shaped Hawthorn	Local reports (e.g. Soper and Heimbürger 1982, Eckel 2001, NAI database) probably refer to other <i>Crataegus</i> species, since <i>C. flabellata</i> is not known west of Toronto (Phipps and Muniyamma 1980; J.B. Phipps pers. com. 1993).			ROSACEAE
<i>Crataegus persimilis</i> Sarg.	Hawthorn	Niagara-on-the-Lake, several specimens at UWO collected between 1977 and 1981 (ARVPO database). Considered to be an intersectional hybrid (J.B. Phipps, 2007, FNA draft).			ROSACEAE

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<i>Cypripedium candidum</i> Muhlenb. ex Willd.	Small White Lady's-slipper	An early report from Crystal Beach is mentioned by (Whiting and Catling 1986), but is apparently not supported by a specimen.	END	END	ORCHIDACEAE
<i>Dalibarda repens</i> L.	Dewdrop	Early reports require confirmation. Ontario, Niagara Park System, Cameron (1895). Ontario: Queen Victoria Park, Cameron (NFO), 1891 (Eckel 2001).			ROSACEAE
<i>Desmodium canescens</i> L.	Tick-trefoil	No specimen has been located to substantiate a report (Yaki 1970) from North Pelham Valley (Riley et al. 1996). Not mapped from Niagara by Argus et al. (1982-1987).			FABACEAE
<i>Desmodium pauciflorum</i> (Nutt.) DC.	Few-flowered Tick-trefoil	Early Niagara reports (Eckel 2001) probably refer to other <i>Desmodium</i> species.			FABACEAE
<i>Dichanthelium boreale</i> (Nash) Freckmann	Northern Panic Grass	Listed for NIAG-HALD by Riley (1989), probably based on occurrence at Caistor-Canborough Slough Forest in Haldimand. Not mapped for Niagara by Dore and McNeill (1980). = <i>Panicum boreale</i> .			POACEAE
<i>Diphasiastrum complanatum</i> (L.) Holub	Northern Running-pine	Local reports (e.g. Cameron 1895, Hamilton 1943) probably refer to <i>D. digitatum</i> . = <i>Lycopodium complanatum</i> .			LYCOPODIACEAE
<i>Diphasiastrum tristachyum</i> Pursh	Blue Ground-cedar	A local report (NAI database) probably refers to <i>D. digitatum</i> . = <i>Lycopodium tristachyum</i> .			LYCOPODIACEAE
<i>Drosera intermedia</i> Hayne	Spatulate-leaved Sundew	No specimen has been located to substantiate a report by Hamilton (1943, as <i>D. longifolia</i>), "... reported in the Parks, but ... not recently observed".			DROSERACEAE
<i>Dryopteris filix-mas</i> (L.) Schott ssp. <i>brittonii</i> Fras.-Jenk. & Widen	Male Fern	No specimens have been found to substantiate the early literature report by Cameron (1895).			DRYOPTERIDACEAE
<i>Eleocharis geniculata</i> (L.) Roemer & J.A. Schultes	Bent Spike-rush	Unverified report (see Macdonald 1990, Point Abino).	END	END	CYPERACEAE
<i>Eleocharis intermedia</i> (Muhlenb.) J.A. Schultes	Intermediate Spike-rush	No specimen could be found at NFO (M.J. Oldham in 2006) to substantiate an early report: Ontario: Niagara Glen, G. Hamilton (NFO), July 20, 1941 (Eckel 2001).			CYPERACEAE
<i>Enemion biternatum</i> Raf.	False Rue-anemone	Recent report to NHIC requires further verification. = <i>Isopyrum biternatum</i> .	THR	THR	RANUNCULACEAE
<i>Epilobium ciliatum</i> Raf. ssp. <i>glandulosum</i> (Lehm.) Hoch & Raven	Glandular Willow-herb	Reports of ssp. <i>glandulosum</i> (NAI database) require checking.			ONAGRACEAE
<i>Epilobium palustre</i> L.	Swamp Willow-herb	Unverified early literature reports: Ontario, Queen Victoria Park, Pantou (1890). var. <i>lineare</i> Gray. Near Clifton, Ontario, Day (1888). (As <i>Epilobium densum</i> Raf.) Ontario: near Clifton, Niagara Falls (Day, Cat. Niag. Fl.) Zenkert (1934) (Eckel 2001).			ONAGRACEAE

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<i>Epilobium strictum</i> Muhlenb. ex Sprengel	Downy Willow-herb	Unverified early literature reports: (as <i>E. molle</i>), "in wet places near Clifton, Ontario," Day (1888). Ontario, Queen Victoria Park (as <i>E. molle</i>), Panton (1890). (Eckel 2001).			ONAGRACEAE
<i>Equisetum palustre</i> L.	Marsh Horsetail	Unverified early literature reports: "'Wet places above Clifton, Ontario," Day (1888). Ontario, Niagara Parks System, Cameron (1895). "Apparently rare Wet places above (Clifton) Niagara Falls, Ontario (Day, Cat. of Niag. Fl.)," Zenkert (1934). "... encountered in the Park," Hamilton (1943). (Eckel 2001). A Niagara record mapped in Britton and Cody (1989).			EQUISETACEAE
<i>Equisetum x ferrissii</i> Clute	(<i>E. hyemale</i> X <i>E. laevigatum</i>)	listed for NIAG-HALD by Riley (1989); source?			EQUISETACEAE
<i>Eragrostis hypnoides</i> (Lam.) Britton, Sterns & Poggenb.	Moss-like Love Grass	Lsted for NIAG-HALD by Riley (1989), source?			POACEAE
<i>Eragrostis pilosa</i> (L.) Beauv.	Pilose Love Grass	Johnson (BUF) requires verification, Point Abino, see Macdonald 1990 (as <i>E. multicaulis</i>).			POACEAE
<i>Erigeron hyssopifolius</i> Michaux	Hyssop-leaved Fleabane	NAI reports certainly in error			ASTERACEAE
<i>Eriophorum gracile</i> W.D.J. Koch	Slender Cotton-grass	Report in NAI database probably based on a different <i>Eriophorum</i> species.			CYPERACEAE
<i>Erythronium propulans</i> Gray	Dwarf Trout Lily	Eckel 2001 (Flora of Niagara Falls) - probaly in error			LILIACEAE
<i>Euonymus americanus</i> L.	Strawberry-bush	Early reports unverified: Ontario: "Niagara," (Macoun), Day (1888). Ont.: Niagara Glen, Field Club, 1888. Ontario, Queen Victoria Park, Panton (1890). "According to Macoun (Cat. of Can. Pl.) at Niagara, Ontario," Zenkert (1934). Eckel 2001 (Flora of Niagara Falls)			CELASTRACEAE
<i>Eurybia conspicua</i> (Lindl.) Nesom	Western Showy Aster	A specimen cited by Eckel (2001; as <i>Aster conspicuus</i>) from Niagara Falls (W. Scott, TRT, in 1900), is presumably misidentified or mislabelled since this species is not otherwise known from Ontario (Morton and Venn 1990, Semple et al. 1992) or New York state (Mitchell and Tucker 1997). = <i>Aster conspicuus</i> .			ASTERACEAE
<i>Festuca gigantea</i> L.	Giant Fescue	Unverified early report: "... known to occur in the Parks," Hamilton (1943).			POACEAE
<i>Festuca ovina</i> Biehler	Sheep Fescue	Eckel 2001 (Flora of Niagara Falls), unverified			POACEAE
<i>Gaylussacia frondosa</i> (L.) Torrey & A. Gray	Blue Huckleberry	Top of wooded bank, below Whirlpool, Canada (Clinton, Gen. Herb.)," Zenkert (1934). record is <i>G. baccata</i> according to Eckel 2001 (Flora of Niagara Falls)			ERICACEAE

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<i>Gentiana alba</i> Muhlenb. ex Nutt.	White Prairie Gentian	Niagara record unverified: Ontario, Niagara Park System, Cameron (1895). = <i>Gentiana flavida</i> .	END	END	GENTIANACEAE
<i>Gentiana clausa</i> Raf.	Blind Gentian	Reported by Zenkert & Zander (1975) based on a H. & R. Axtell collection from Fort Erie in 1967 (BUF). Not otherwise reported from Ontario or Canada.			GENTIANACEAE
<i>Geum macrophyllum</i> Willd.	Large-leaved Avens	Regional reports (e.g. NAI database) are unlikely.			ROSACEAE
<i>Geum triflorum</i> Pursh	Prairie Smoke	Regional reports (e.g. NAI database) are unlikely.			ROSACEAE
<i>Geum virginianum</i> L.	Virginia Avens	Regional reports (e.g. NAI database) are unlikely.			ROSACEAE
<i>Glyceria fluitans</i> (L.) R. Br.	Float Grass	"Niagara Falls ... Macoun, Cat. Can. Pls. IV p. 231," Heimbürger (1955). Ontario, Niagara Park System, Cameron (1895). "... known to occur in the Parks" Hamilton (1943). all Ontario records rejected by Dore and McNeill (1980) and Morton and Venn (1990).			POACEAE
<i>Glyceria maxima</i> (Hartman) Holmb.	English Watergrass	Only unverified reports (NAI database).			POACEAE
<i>Goodyera repens</i> (L.) R. Br. var. <i>ophioides</i> Fern.	Dwarf Rattlesnake-plantain	Ontario, Niagara Park System, Cameron (1895).			ORCHIDACEAE
<i>Gratiola virginiana</i> L.	Virginia Hedge-hyssop	Eckel 2001 (Flora of Niagara Falls) - probaly in error			SCROPHULARIACEAE
<i>Helianthus grosseserratus</i> M. Martens	Saw-tooth Sunflower	Ontario, Niagara Parks System, Cameron (1895); unverified			ASTERACEAE
<i>Helianthus microcephalus</i> Torrey & Gray	Small-flowered Sunflower	Eckel 2001 (Flora of Niagara Falls), unverified			ASTERACEAE
<i>Hieracium umbellatum</i> L.	Hawkweed	Local reports (e.g. NAI database) are unlikely. = <i>Hieracium scabriusculum</i> .			ASTERACEAE
<i>Hieracium x floribundum</i> Wimmer & Graeb.	Hawkweed	Reported by Yaki (1970) as a sight record by Mr. W. P. Putnam from Niagara Glen. NAI database. Records unverified.			ASTERACEAE
<i>Houstonia caerulea</i> L.	Bluets	Eckel 2001 (Flora of Niagara Falls), unverified.			RUBIACEAE
<i>Houstonia purpurea</i> L.	Purple Bluets	Early records are unlikely and probably based on <i>H. canadensis</i> . "Below the Whirlpool," Day (1901). "... common in the fields and along the roadway between the Niagara Glen and Queenston, where it forms great patches" Hamilton (1943). (as <i>Houstonia purpurea</i>) "[Niagara] Glen" sight record, Yaki (1970). Ontario: Niagara Falls, Irwin, June 5, 1963 (NFO) (Eckel 2001). Not reliably known from Ontario (Morton and Venn 1990). = <i>Hedyotis purpurea</i> .			SCROPHULARIACEAE
<i>Hypericum mutilum</i> L. ssp. <i>boreale</i> (Britt.) J.M. Gillett	Boreal St John's-wort	NAI database record is unlikely. = <i>Hypericum boreale</i> .			HYPERICACEAE

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<i>Juglans regia</i> L.	English Walnut	Unverified report in NAI database.			JUGLANDACEAE
<i>Juncus filiformis</i> L.	Filiform Rush	Early reports are unlikely: Ontario, Niagara Parks System, Cameron (1895). Parks, Ontario, Hamilton (1943).			JUNCACEAE
<i>Juniperus horizontalis</i> Moench	Creeping Juniper	Unverified early report: (as <i>J. sabina</i> var. <i>procumbens</i>), Ontario, Niagara Parks System (Cameron 1895).			CUPRESSACEAE
<i>Knautia arvensis</i> (L.) Coult.	Bluebuttons	Unverified NAI database record.			ASTERACEAE
<i>Lamium album</i> L.	White Dead-nettle	Unverified report in NAI database, based on Brady et al.			LAMIACEAE
<i>Lespedeza virginica</i> (L.) Britton	Slender Bush-clover	Early reports are unverified: Ontario: Queenston Heights, Wm. Scott, Sept. 5, 1896 (TRT), Heimburger (1955).	END	END	FABACEAE
<i>Leucophysalis grandiflora</i> (Hook.) Rydb.	Large White-flowered Ground Cherry	An unverified early literature report. Ontario, Niagara Parks System, Cameron (1895). = <i>Physalis grandiflora</i> .			SOLANACEAE
<i>Ligustrum obtusifolium</i> Siebold & Zucc.	Border Privet	"Escarpment - Queenston Heights" (Yaki 1970). Not listed for Ontario by Morton and Venn (1990).			OLEACEAE
<i>Lilium michauxii</i> Poiret	Michaux's Lily	Cameron (1895) - probably in error or from cultivation			LILIACEAE
<i>Linum striatum</i> Walt.	Ridged Yellow Flax	Early unverified record: Ontario, Niagara Parks System, Cameron (1895).			LINACEAE
<i>Listera convallarioides</i> (Sw.) Nutt. ex Elliott	Broad-lipped Twayblade	Unverified early report: Ontario, Niagara Parks System, Cameron (1895). "... reported by Cameron as occurring in the Parks in (1894). They have not been found recently," Hamilton (1943). Queen Victoria Park, Cameron, [ca.1890] (NFO). Record not accepted by Whiting and Catling (1986).			ORCHIDACEAE
<i>Lithospermum canescens</i> (Michaux) Lehm.	Hoary Puccoon	A Yaki (1970) sight record from Point Abino is probaby based on confusion with <i>L. caroliniense</i> (Macdonald 1990). An NAI database record is unlikely.			BORAGINACEAE
<i>Lithospermum latifolium</i> Michaux	American Gromwell	An unverified early report: Ontario, Queen Victoria Park, Panton (1890).			BORAGINACEAE
<i>Lolium perenne</i> L. var. <i>aristatum</i> Willd.	Italian Rye Grass	listed for NIAG-HALD by Riley (1989), details unknown. No Niagara dots in Dore and McNeill (1980).			POACEAE
<i>Lonicera oblongifolia</i> (Goldie) Hook.	Swamp Fly-honeysuckle	An NAI database record is unlikely. No Niagara records mapped by Soper and Heimburger (1982).			CAPRIFOLIACEAE
<i>Lonicera sempervirens</i> L.	Trumpet Honeysuckle	Unverified early reports: Niagara Parks System, Cameron (1895). "... reported from the System" Hamilton (1943). Excluded from the flora of the Niagara Frontier Region by Zander and Pierce (1979).			CAPRIFOLIACEAE
<i>Lunaria rediviva</i> L.	Honesty	Mapped from Niagara by Sabourin (1991), though not accepted for Ontario by Morton and Venn (1990).			BRASSICACEAE

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<i>Magnolia tripetala</i> (L.) L.	Umbrella Magnolia	Cameron (1895) - probably in error or planted. Not otherwise reported from Ontario (Morton and Venn 1990).			MAGNOLIACEAE
<i>Marsilea quadrifolia</i> L.	European Water-clover	Unverified NAI database record.			MARSILIACEAE
<i>Matricaria recutita</i> L.	Wild Chamomile	Unverified NAI database record.			ASTERACEAE
<i>Melanthium virginicum</i> L.	Bunchflower	Ontario, Niagara Park System, Cameron (1895). Ontario: Queen Victoria Park, Cameron, [ca.1890] (NFO) (Eckel 2001). Not listed as a floristic element in the Niagara Frontier Region by Zander and Pierce (1979). Listed as rare in New York State by Mitchell (1986). It is excluded from the Ontario flora by Morton and Venn (1990) as an Ontario report was not confirmed.			LILIACEAE
<i>Miscanthus sacchariflorus</i> (Maxim.) Hackel	Plume Grass	listed for NIAG-HALD by Riley (1989), basis unknown			POACEAE
<i>Monarda clinopodia</i> L.	White Bergamot	"... only rarely ... found; although several fine specimens were obtained from the open woods between the School for Gardeners and Brock's Monument," Hamilton (1943). Ontario: "woods to east of School of Horticulture," Hamilton, July 20, 1939 (NFO). Not confirmed for Ontario (Morton and Venn 1990).			LAMIACEAE
<i>Monarda media</i> Willd.	Purple Bergamot	A specimen labelled <i>Monarda media</i> in NFO requires further study. Sometimes treated as a hybrid, <i>Monarda</i> x <i>media</i> , between <i>M. didyma</i> and <i>M. fistulosa</i> .			LAMIACEAE
<i>Moneses uniflora</i> (L.) A. Gray	One-flowered Pyrola	Unverified reports only: Niagara Parks System, Hamilton (1943), NAI database			PYROLACEAE
<i>Muhlenbergia racemosa</i> (Michx.) BSP.	Green Muhly	Reports from the Niagara area (e.g. Zander and Pierce 1979) are probably in error (Eckel 1988) and due to confusion with <i>M. glomerata</i> . No southern Ontario records are mapped by Dore and McNeill (1980) or Argus et al. (1982-1987).			POACEAE
<i>Muhlenbergia sylvatica</i> (Torrey) Torrey ex A. Gray	Woodland Muhly	Local reports and specimens require further study: "Foster's Flat, Ontario (Clinton)," Day (1888). Ontario, Niagara Park System, Cameron (1895). "Niagara Glen (Day, Cat. of Niag. Fl.)," Zenkert (1934). "... known to occur in the Parks," Hamilton (1943). Queen Victoria Park, Cameron, [ca.1890] (NFO)			POACEAE
<i>Myrica gale</i> L.	Sweet Gale	Unverified reports in NAI database			MYRICACEAE

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SCIENTIFIC NAME	COMMON NAME	NIAGARA NOTES	COSEWIC	MNR	FAMILY
<i>Myriophyllum verticillatum</i> L.	Whorled Water-milfoil	Unverified early reports: Niagara Park System, Cameron (1895). "... pools along the upper River and at Dufferin Islands ... have been reported," Hamilton (1943).). "Dufferin Islands," sight record, Yaki (1970).			HALORAGACEAE
<i>Nasturtium officinale</i> R. Br. ex Aiton	Water Cress	Old reports may refer to <i>Nasturtium microphyllum</i> , which is more common in Ontario: "Also abundant at Niagara, above the Falls. (Macoun.)" Macoun (1883). "Near the river's edge above the Falls. Clifton, Ontario," Day (1888). Ontario, Queen Victoria Park, Pantan (1890). Ontario, Niagara Park System, Cameron (1895). Ontario: Niagara Falls, Wm. Scott, June 25, 1898 (6716), Heimbürger (1955). Queen Victoria Park, Cameron, [ca.1890] (NFO). No confirmed regional reports of <i>N. officinale</i> .			BRASSICACEAE
<i>Oclemena acuminata</i> (Michaux) Greene	Whorled Wood Aster	Two records in the Niagara NAI database are probably in error, since not otherwise known anywhere near Niagara (Semple et al. 2002). = <i>Aster acuminatus</i> .			ASTERACEAE
<i>Oenothera cruciata</i> (S. Wats.) Munz.	Northern Evening-primrose	Report requires checking: Ontario: Niagara, Wm. Scott, July 15, 1898 (TRT), Heimbürger (1955).			ONAGRACEAE
<i>Oxalis corniculata</i> L.	Creeping Yellow Wood-sorrel	NAI database records require verification.			OXALIDACEAE
<i>Oxalis montana</i> Raf.	Irish Shamrock	NAI database records unlikely. = <i>Oxalis acetosella</i> ssp. <i>montana</i> .			OXALIDACEAE
<i>Panicum sphaerocarpon</i> Ell. var. <i>sphaerocarpon</i>	Round-fruited Panic Grass	Llisted for NIAG-HALD by Riley (1989), basis unknown.			POACEAE
<i>Persicaria careyi</i> (Olney) Greene	Carey's Smartweed	Reports from Wainfleet Bog are discounted by Macdonald (1992) and no specimens from Niagara were located by Argus et al. (1982-1990). = <i>Polygonum careyi</i> .			POLYGONACEAE
<i>Picea pungens</i> Engelm.	Colorado Spruce	Rare escape from cultivation. Yaki (1970) Dufferin Islands sight record, but perhaps planted there.			PINACEAE
<i>Plantago media</i> L.	Hoary Plantain	Unverified early reports: "Niagara" Provancher, Flore Canadienne, p. 474. Not seen by us," Day (1888). Ontario, Queen Victoria Park, Pantan (1890); (Eckel 2001).			PLANTAGINACEAE
<i>Platanthera dilatata</i> (Pursh) Lindl. ex Beck	Leafy White Orchid	An NAI database record is unlikely. No Niagara records mapped by Whiting and Catling (1986).			ORCHIDACEAE
<i>Platanthera grandiflora</i> (Bigelow) Lindley	Large Purple Fringed-orchid	An early literature report (1882, in Zenkert 1934) has never been confirmed and no supporting specimen has been found at BUF or elsewhere (see Macdonald 1990).			ORCHIDACEAE

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SCIENTIFIC NAME	COMMON NAME	NIAGARA NOTES	COSEWIC	MNR	FAMILY
<i>Poa saltuensis</i> Fern. & Wieg.	Two-rayed Poa	Listed as rare in Niagara by Riley et al. (1996), but not reported from any Escarpment sites in Niagara Region.			POACEAE
<i>Polemonium reptans</i> L.	Greek Valerian	Reported by Cameron (1895) and Hamilton (1943; "rather rare in the Parks") from the Niagara Parks System, but no other Ontario or Canadian records.			POLEMONIACEAE
<i>Polygonum agnaticum</i>		Cameron (1895) report is in error (Eckel 2001). No such name, perhaps <i>Polygonum amphibium</i> .			POLYGONACEAE
<i>Polygonum tenue</i> Michaux var. <i>tenue</i>	Slender Knotweed	An unverified Niagara report. Not mapped from Niagara by Argus et al. (1982-1987).			POLYGONACEAE
<i>Polystichum braunii</i> (Spenner) Fee	Braun's Holly Fern	Presumably this is the species indicated by Cameron's (1895) reference to <i>Aspidium aculeatum</i> for the Niagara Park System, Ontario (Eckel 2001). No specimens located and not mapped from the area by Argus et al. (1982-1987).			DRYOPTERIDACEAE
<i>Potamogeton diversifolius</i> Raf.	Waterthread Pondweed	Early Niagara River reports (see Eckel 2001), but not listed for Ontario by Morton and Venn (1990).			POTAMOGETONACEAE
<i>Potamogeton robbinsii</i> Oakes	Robbins' Pondweed	Reported from the "Niagara River" by Day (1888).			POTAMOGETONACEAE
<i>Potamogeton spirillus</i> Tuckerman	Dimorphous Pondweed	A report from Wainfleet Bog by Auer (1930; in Macdonald 1992) is unlikely.			POTAMOGETONACEAE
<i>Potentilla canadensis</i> L.	Cinquefoil	Frequently confused with <i>P. simplex</i> and early reports require verification: "Niagara Gorge," both sides, Field Club, 1894 (in Eckel 2001). Ontario, Niagara Park System, Cameron (1895). "...occasionally found in the open grassland along the river," Hamilton (1943). "Dufferin Islands," sight record, Yaki (1970).			ROSACEAE
<i>Prunus pumila</i> L. var. <i>susquehannae</i> (Willd.) Jaeger	Susquehanna Cherry	Reports from Point Abino (see Macdonald 1990) probably refer to var. <i>pumila</i> .			ROSACEAE
<i>Pseudognaphalium macounii</i> (Greene) Kartesz	Clammy Cudweed	Ontario, Niagara Park System (as <i>G. decurrens</i>), Cameron (1895). (As <i>G. decurrens</i>), "... grows near the road at the edge of the woods below the School," Hamilton (1943). = <i>Gnaphalium viscosum</i> of authors, <i>Gnaphalium macounii</i> .			ASTERACEAE
<i>Quercus coccinea</i> Muench.	Scarlet Oak	Niagara and Ontario reports are unconfirmed (Morton and Venn 1990).			FAGACEAE
<i>Quercus ellipsoidalis</i> E. Hill	Hill's Oak	Niagara reports are unconfirmed. Not mapped from the region by Argus et al. (1982-1987).			FAGACEAE
<i>Quercus prinoides</i> Willd.	Dwarf Chinquapin Oak	reports are <i>Q. muehlenbergii</i> - see Eckel 2001 (Flora of Niagara Falls)			FAGACEAE
<i>Quercus prinus</i> L.	Chestnut Oak	Eckel 2001 (Flora of Niagara Falls) - requires confirmation			FAGACEAE

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<i>Quercus stellata</i> Wangeh.	Post Oak	ERROR see Eckel 2001 (Flora of Niagara Falls)			FAGACEAE
<i>Ranunculus flammula</i> L. var. <i>reptans</i> (L.) E. Meyer	Creeping Spearwort	An early report for the Niagara Parks System (Cameron 1895) is unverified. = <i>Ranunculus reptans</i> .			RANUNCULACEAE
<i>Ribes glandulosum</i> Grauer	Skunk Currant	Unverified early reports: 'Niagara Parks System (as R. prostratum), Cameron (1895). "... only occasionally," Hamilton (1943). Not mapped from the Carolinian Zone by Soper and Heimbürger (1982).			GROSSULARIACEAE
<i>Ribes lacustre</i> (Pers.) Poir.	Bristly Black Gooseberry	Local records (e.g. NAI database) unlikely. Not mapped from the Carolinian Zone by Soper and Heimbürger (1982).			GROSSULARIACEAE
<i>Rosa acicularis</i> Lindl. ssp. <i>sayi</i> (Schwein.) W.H. Lewis	Prickly Rose	Local records (e.g. NAI database) unlikely. Not mapped from the Carolinian Zone by Soper and Heimbürger (1982).			ROSACEAE
<i>Rubus parviflorus</i> Nutt.	Thimbleberry	Local reports (e.g. Brady et al. 1980) presumably in error. This species is not mapped from south of the Bruce Peninsula in Ontario (Soper and Heimbürger 1982).			ROSACEAE
<i>Rumex sanguineus</i> L.	Wood Dock	Old report requires verification: Niagara Parks System, Cameron (1895). Queen Victoria Park, Cameron, Aug. 1966 (NFO) (Eckel 2001).			POLYGONACEAE
<i>Rumex thyrsiflorus</i> Fingerhuth	Narrow-leaved Sorrel	Local reports (e.g. NAI database) perhaps in error for <i>Rumex acetosella</i> . = <i>Rumex acetosa</i> ssp. <i>thyrsiflorus</i> .			POLYGONACEAE
<i>Sagittaria graminea</i> Michaux var. <i>graminea</i>	Grass-leaved Arrowhead	Listed for NIAG-HALD by Riley (1989), basis unknown. NAI database report probably in error.			ALISMATACEAE
<i>Salix babylonica</i> L.	Weeping Willow	Eckel 2001 (Flora of Niagara Falls)			SALICACEAE
<i>Salix candida</i> Fluegge ex Willd.	Hoary Willow	Reported from Wainfleet Bog, though not seen by Macdonald (1992). A calciphile which is unlikely at this location. Not mapped from the Niagara Peninsula by Soper and Heimbürger (1982).			SALICACEAE
<i>Salix pyrifolia</i> Anderss.	Balsam Willow	D. Gregory (HAM, TRTE) from an alder thicket at DeCew Generating Station, St. Catharines, in 2001 (though not listed in Gregory 2003a). Specimen identity should be double-checked. Rare in southwestern Ontario.			SALICACEAE
<i>Scirpus expansus</i> Fern.	Bulrush	Queen Victoria Park, Cameron, [ca. 1890] (NFO). Niagara Parks System (as <i>S. sylvaticus</i>), Cameron (1895).			CYPERACEAE
<i>Scirpus pedicellatus</i> Fern.	Stalked Bulrush	Local reports (e.g. NAI database) unverified.			CYPERACEAE
<i>Sericocarpus linifolius</i> (L.) Britton, Sterns & Poggenb.	Narrow-leaf White-top Aster	Cameron (1895) - probably in error, not otherwise known from Ontario			ASTERACEAE
<i>Silene stellata</i> (L.) Aiton f.	Starry Campion	Old report requires verification: Niagara Parks System, Cameron (1895).			CARYOPHYLLACEAE

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<i>Solanum nigrum</i> L.	Black Nightshade	Regional reports (e.g. NAI database) are probably based on <i>Solanum ptychanthum</i> .			SOLANACEAE
<i>Solidago ulmifolia</i> Muhlenb. ex Willd. var. <i>ulmifolia</i>	Elm-leaved Goldenrod	Regional reports (e.g. Heimburger 1955, NAI database) require verification.			ASTERACEAE
<i>Sorbus decora</i> (Sarg.) Schneid.		Regional reports (e.g. Brady et al. 1980) unlikely.			ROSACEAE
<i>Sparganium angustifolium</i> Michaux	Many-Stalked Bur-reed	WL Putnam # 123 in 1973 (DAO, det VL Harms) requires checking			SPARGANIACEAE
<i>Sparganium emersum</i> Rehmman	Green-fruited Bur-reed	Local reports require verification. = <i>Sparganium chlorocarpum</i> .			SPARGANIACEAE
<i>Spergula arvensis</i> L.	Corn-spurrey	Literature report which doesn't specifically mention Niagara: "Occasionally occurs as a weed on the cultivated land of this region (Ontario)," Hamilton (1943).			CARYOPHYLLACEAE
<i>Stachys aspera</i> Michaux	Showy Mountain-ash	A report by Panton (1890) from Queen Victoria Park, Niagara Falls, is unverified. Not accepted for Ontario by Morton and Venn (1990).			LAMIACEAE
<i>Stuckenia vaginata</i> Turcz.	Bigsheath Pondweed	Early reports from the Niagara River (Eckel 2001), with specimens apparently at TRT. Local reports of <i>Stuckenia vaginata</i> are probably based on <i>S. filiformis</i> ssp. <i>occidentalis</i> (or hybrids of <i>S. filiformis</i> and <i>S. pectinata</i>). = <i>Potamogeton vaginatus</i> .			POTAMOGETONACEAE
<i>Symphyotrichum ciliatum</i> (Ledeb.) Nesom	Fringed Blue Aster	NAI database records require confirmation. Not mapped from Niagara by Semple et al. (2002). = <i>Aster ciliolatus</i> .			ASTERACEAE
<i>Symphyotrichum lowrieianum</i> (Porter) Nesom	Lowrie's Aster	Reported from "woods above Whirlpool" by Yaki (1970), but not otherwise known from Ontario (Semple et al. 2002). Probably a misidentification of <i>S. cordifolium</i> . = <i>Aster lowrieianus</i> .			ASTERACEAE
<i>Symphyotrichum praealtum</i> (Poirot) Nesom	Willow Aster	A report from Paradise Grove requires further verification. Not mapped from Niagara by Semple et al. (2002). Paradise Grove natural regeneration area, just S of village, Fort George S boundary: open Acer rubrum grass field, Quercus alba moist old woods. Edge, near river rd. to 6 ft. P. M. Eckel s.n. Oct. 6, 1997 (BUF) (Eckel. 2001). = <i>Aster praealtus</i> .	THR	THR	ASTERACEAE
<i>Symphyotrichum prenanthoides</i> (Muhlenb. in Willd.) Nesom	Crooked-stemmed Aster	Early unverified reports: "near Clifton, Ontario," Day (1888). Ontario, Queen Victoria Park, Panton (1890). "... of the Parks," Hamilton (1943). Not mapped from Niagara by Semple et al. (2002). = <i>Aster prenanthoides</i> .	THR	THR	ASTERACEAE

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<i>Symphyotrichum tradescanti</i> (L.) Nesom	Tradescant's Aster	Reported from "...cultivated ground at the School for Apprentice Gardeners [Niagara Falls]" by Hamilton (1943), though not otherwise known from Ontario (Semple et al. 2002). Probably a misidentification of <i>S. lateriflorum</i> or <i>S. ontarione</i> . = <i>Aster tradescanti</i> .			ASTERACEAE
<i>Symphyotrichum undulatum</i> (L.) Nesom	Wavy-leaved Aster	Reported by Panton (1890), Cameron (1895), and Hamilton (1943) from the Niagara Falls area, but not reliably known from Ontario (Morton and Venn 1990). = <i>Aster undulatus</i> .			ASTERACEAE
<i>Thalictrum dasycarpum</i> Fischer & Ave-Lall.	Purple Meadow-rue	Early records only; perhaps confused with <i>T. pubescens</i> . "(as <i>T. purpurascens</i>) "near Clifton, Canada" Day (1888). Ontario, Queen Victoria Park (as <i>T. purpurascens</i>), Panton (1890).			RANUNCULACEAE
<i>Thuja orientalis</i> L.	Oriental Arborvitae	Called <i>Platycladus orientalis</i> (L.) Franko by Kartesz (1999) and mapped for North America (as an introduction) only from Florida and Puerto Rico.			CUPRESSACEAE
<i>Trillium cernuum</i> L.	Nodding Trillium	An early report, "occasionally found in the area [Niagara Parks]" (Hamilton 1943), may be based on <i>Trillium flexipes</i> .			LILIACEAE
<i>Triosteum perfoliatum</i> L.	Perfoliate Tinker's Weed	Early reports may refer to <i>T. aurantiacum</i> . Niagara Glen, Hamilton, July 3, 1941 (NFO). "[Niagara] Glen," sight record, Yaki (1970).			CAPRIFOLIACEAE
<i>Ulmus minor</i> P. Mill.	Smooth-leaved Elm	Reported by Eckel (2001) from Dufferin Islands. According to FNA (1997), <i>Ulmus minor</i> in the strict sense is not confirmed as occurring outside cultivation in North America.			ULMACEAE
<i>Vaccaria hispanica</i> (P. Mill.) Rauschert	Cow-cockle	NAI database record require confirmation.			CARYOPHYLLACEAE
<i>Veratrum viride</i> Aiton	American False-hellebore	Day (1888), not otherwise reported from Ontario			LILIACEAE
<i>Veronica agrestis</i> L.	Field Speedwell	Early reports may refer to the similar <i>V. polita</i> . Niagara Parks System, Cameron (1895). "Fort Erie," Hamilton (1943). Queen Victoria Park, Cameron, [ca.1890] (NFO).			SCROPHULARIACEAE
<i>Vicia hirsuta</i> (L.) S.F. Gray	Hairy Vetch	Single unverified local report (NAI database).			FABACEAE
<i>Vicia sepium</i> L.	Hedge Vetch	Single unverified local report (see Riley et al. 1996).			FABACEAE
<i>Viola palustris</i> L.	Marsh Violet	Early reports unlikely: Niagara Parks System, Cameron (1895). "... in the Parks," Hamilton (1943). Queen Victoria Park, Cameron, 1891 (NFO).			VIOLACEAE
<i>Viola rafinesquii</i> E. Greene	Wild Pansy	Unverified early report: Queen Victoria Park, Cameron, [ca.1890] (NFO).			VIOLACEAE
<i>Xanthium spinosum</i> L.	Spiny Cocklebur	Unverified report (Brady et al. 1980).			ASTERACEAE

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<i>Zizia aptera</i> (Gray) Fern.	Heart-leaved Alexanders	(as <i>Zizia cordata</i>) "Niagara Gorge," both sides, Field Club, 1894 (Eckel 2001). No supporting specimens located and not otherwise known from this part of Ontario (Argus et al. 1982-1987).			APIACEAE

10.0 List of Regionally Rare Plants as taken from Oldham 2010

Common Names	Scientific Name
Sweetflag	<i>Acorus americanus</i>
Yellow Giant Hyssop	<i>Agastache nepetoides</i>
Small-flowered Agrimony	<i>Agrimonia parviflora</i>
Soft Agrimony	<i>Agrimonia pubescens</i>
Rough Hair Grass	<i>Agrostis scabra</i>
Narrow-leaved Water-plantain	<i>Alisma gramineum</i>
Short-awned Foxtail	<i>Alopecurus aequalis</i>
Water-hemp	<i>Amaranthus tuberculatus</i>
Giant Ragweed	<i>Ambrosia trifida</i>
Round-leaved Serviceberry	<i>Amelanchier sanguinea</i>
Low Serviceberry	<i>Amelanchier spicata</i>
Beach Grass	<i>Ammophila breviligulata</i>
Pearly Everlasting	<i>Anaphalis margaritacea</i>
White Thimbleweed	<i>Anemone virginiana</i> var. <i>alba</i>
Purple-stem Angelica	<i>Angelica atropurpurea</i>
Sicklepod	<i>Arabis canadensis</i>
Drummond's Rock Cress	<i>Arabis drummondii</i>
Tower Mustard	<i>Arabis glabra</i>
Lyre-leaved Rock Cress	<i>Arabis lyrata</i>
Bristly Sarsaparilla	<i>Aralia hispida</i>
Green Dragon	<i>Arisaema dracontium</i>
Sagewort Wormwood	<i>Artemisia campestris</i> ssp. <i>caudata</i>
Poke Milkweed	<i>Asclepias exaltata</i>
Butterfly Weed	<i>Asclepias tuberosa</i>
Pawpaw	<i>Asimina triloba</i>
Ebony Spleenwort	<i>Asplenium platyneuron</i>
Walking Fern	<i>Asplenium rhizophyllum</i>
Calcic Maidenhair Spleenwort	<i>Asplenium trichomanes</i> ssp. <i>quadrivalens</i>
Schreber's Aster	<i>Aster schreberi</i>
Smooth False Foxglove	<i>Aureolaria flava</i>
Mosquito Fern	<i>Azolla caroliniana</i>
Yellow Indigo	<i>Baptisia tinctoria</i>
Yellow Bartonias	<i>Bartonia virginica</i>
Cherry Birch	<i>Betula lenta</i>
Tall Swamp Beggar-ticks	<i>Bidens coronata</i>
Small Beggar-ticks	<i>Bidens discoidea</i>
Leathery Grape Fern	<i>Botrychium multifidum</i>
Long-awned Wood Grass	<i>Brachyelytrum erectum</i>
Water-shield	<i>Brasenia schreberi</i>
Tall Brome	<i>Bromus latiglumis</i>
Sea-rocket	<i>Cakile edentula</i>
Tall Bellflower	<i>Campanula americana</i>
Marsh Bellflower	<i>Campanula aparinoides</i>
White Spring Cress	<i>Cardamine bulbosa</i>
Pink Spring Cress	<i>Cardamine douglassii</i>

Common Names	Scientific Name
Hybrid Toothwort	Cardamine x maxima
Sharp-scaled Oak Sedge	Carex albicans var. albicans
Blunt-scaled Oak Sedge	Carex albicans var. emmonsii
Brown-headed Fox Sedge	Carex alopecoidea
Appalachian Sedge	Carex appalachica
Water Sedge	Carex aquatilis
Drooping Wood Sedge	Carex arctata
Back's Sedge	Carex backii
Early Fen Sedge	Carex crawei
Clustered Sedge	Carex cumulata
Awned Graceful Sedge	Carex davisii
Lesser Panicked Sedge	Carex diandra
Two-seeded Sedge	Carex disperma
False Golden Sedge	Carex garberi
Slender Wood Sedge	Carex gracilescens
Common Bur Sedge	Carex grayi
Nodding Sedge	Carex gynandra
James' Sedge	Carex jamesii
Smooth-sheathed Sedge	Carex laevivaginata
Spreading Wood Sedge	Carex laxiculmis var. copulata
Few-nerved Wood Sedge	Carex leptonervia
Mud Sedge	Carex limosa
Distant Sedge	Carex lucorum
Sallow Sedge	Carex lurida
Stunted Sedge	Carex magellanica ssp. irrigua
Larger Straw Sedge	Carex normalis
Few-fruited Sedge	Carex oligocarpa
Few-seeded Sedge	Carex oligosperma
Necklace-like Spiked Sedge	Carex ormostachya
Pale Sedge	Carex pallescens
Peck's Sedge	Carex peckii
Broad-leaved Wolly Sedge	Carex pellita
Drooping Sedge	Carex prasina
Necklace Sedge	Carex projecta
Reflexed Sedge	Carex retroflexa
Rough Sedge	Carex scabrata
Swamp Star Sedge	Carex seorsa
Long-beaked Sedge	Carex sprengelii
Fen Star Sedge	Carex sterilis
Three-seeded Sedge	Carex trisperma
Early Oak Sedge	Carex umbellata
Beaked Sedge	Carex utriculata
Inflated Sedge	Carex vesicaria
Ribbed Sedge	Carex virescens
Purple-tinged Sedge	Carex woodii
Pignut Hickory	Carya glabra

Common Names	Scientific Name
Big Shellbark Hickory	<i>Carya laciniosa</i>
American Chestnut	<i>Castanea dentata</i>
Indian Paintbrush	<i>Castilleja coccinea</i>
Hackberry	<i>Celtis occidentalis</i>
Sandbur	<i>Cenchrus longispinus</i>
Common Coontail	<i>Ceratophyllum demersum</i>
Leatherleaf	<i>Chamaedaphne calyculata</i>
Little Ground Rose	<i>Chamaesyce nutans</i>
Seaside Spurge	<i>Chamaesyce polygonifolia</i>
Strawberry Blite	<i>Chenopodium capitatum</i>
Maple-leaved Goosefoot	<i>Chenopodium simplex</i>
Golden Saxifrage	<i>Chrysosplenium americanum</i>
Drooping Woodreed	<i>Cinna latifolia</i>
Dwarf Enchanter's Nightshade	<i>Circaea alpina</i>
Field Thistle	<i>Cirsium discolor</i>
Swamp Thistle	<i>Cirsium muticum</i>
Twig-rush	<i>Cladium mariscoides</i>
Carolina Spring Beauty	<i>Claytonia caroliniana</i>
Hemlock-parsley	<i>Conioselinum chinense</i>
Squawroot	<i>Conopholis americana</i>
Pallas Bugseed	<i>Corispermum pallasii</i>
Bunchberry	<i>Cornus canadensis</i>
Eastern Flowering Dogwood	<i>Cornus florida</i>
Pale Corydalis	<i>Corydalis flavula</i>
American Hazelnut	<i>Corylus americana</i>
Fireberry Hawthorn	<i>Crataegus chrysocarpa</i>
Hawthorn	<i>Crataegus conspecta</i>
Cockspur Hawthorn	<i>Crataegus crus-galli</i>
Broad-leaf Hawthorn	<i>Crataegus dilatata</i>
Long-spined Hawthorn	<i>Crataegus macracantha</i>
Downy Hawthorn	<i>Crataegus mollis</i>
Pedicelled Hawthorn	<i>Crataegus pedicellata</i>
Emerson's Hawthorn	<i>Crataegus submollis</i>
Winged Pigweed	<i>Cycloloma atriplicifolium</i>
Brook Nut Sedge	<i>Cyperus bipartitus</i>
Red-rooted Nut Sedge	<i>Cyperus erythrorhizos</i>
Pink Moccasin Flower	<i>Cypripedium acaule</i>
Flat-stem Oat Grass	<i>Danthonia compressa</i>
Swamp Loosestrife	<i>Decodon verticillatus</i>
Silvery Spleenwort	<i>Deparia acrostichoides</i>
Common Hairgrass	<i>Deschampsia flexuosa</i>
Panicled Tick-trefoil	<i>Desmodium paniculatum</i> var. <i>paniculatum</i>
Leatherwood	<i>Dirca palustris</i>
Yellow Mandarin	<i>Disporum lanuginosum</i>
Round-leaved Sundew	<i>Drosera rotundifolia</i>
Clinton's Wood Fern	<i>Dryopteris clintoniana</i>

Common Names	Scientific Name
Goldie's Wood Fern	<i>Dryopteris goldiana</i>
Three-way Sedge	<i>Dulichium arundinaceum</i>
Needle Spike-rush	<i>Eleocharis acicularis</i>
Elliptic Spike-rush	<i>Eleocharis elliptica</i>
Few-flowered Spike-rush	<i>Eleocharis pauciflora</i>
Small's Spike-rush	<i>Eleocharis smallii</i>
Canada Wild Rye	<i>Elymus canadensis</i>
Riverbank Wild Rye	<i>Elymus riparius</i>
Slender Wheat Grass	<i>Elymus trachycaulus</i> ssp. <i>trachycaulus</i>
Downy Wild Rye	<i>Elymus villosus</i>
Fireweed	<i>Epilobium angustifolium</i>
Narrow-leaved Willow-herb	<i>Epilobium leptophyllum</i>
Water Horsetail	<i>Equisetum fluviatile</i>
Meadow Horsetail	<i>Equisetum pratense</i>
Sandbar Love Grass	<i>Eragrostis frankii</i>
Pilewort	<i>Erechtites hieracifolia</i>
Lesser Daisy Fleabane	<i>Erigeron strigosus</i>
Sheathed Cottongrass	<i>Eriophorum vaginatum</i> ssp. <i>spissum</i>
Virginia Cottongrass	<i>Eriophorum virginicum</i>
Thin-leaved Cottongrass	<i>Eriophorum viridi-carinatum</i>
Burning Bush	<i>Euonymus atropurpurea</i> var. <i>atropurpurea</i>
Purple Joe-pye-weed	<i>Eupatorium purpureum</i> var. <i>purpureum</i>
False Mermaid	<i>Floerkea proserpinacoides</i>
Pumpkin Ash	<i>Fraxinus profunda</i>
Stiff Marsh Bedstraw	<i>Galium tinctorium</i>
Biennial Gaura	<i>Gaura biennis</i>
Black Huckleberry	<i>Gaylussacia baccata</i>
Fringed Gentian	<i>Gentianopsis crinita</i>
Spring Avens	<i>Geum vernum</i>
Honey Locust	<i>Gleditsia triacanthos</i>
Rattlesnake Manna Grass	<i>Glyceria canadensis</i>
Fragrant Cudweed	<i>Gnaphalium obtusifolium</i>
Sneezeweed	<i>Helenium autumnale</i>
Thin-leaved Sunflower	<i>Helianthus decapetalus</i>
Sweet Ox-eye	<i>Heliopsis helianthoides</i>
Cow-parsnip	<i>Heracleum lanatum</i>
Water Star-grass	<i>Heteranthera dubia</i>
Swamp Rose-mallow	<i>Hibiscus moscheutos</i> ssp. <i>moscheutos</i>
Panicled Hawkweed	<i>Hieracium paniculatum</i>
Shining Clubmoss	<i>Huperzia lucidula</i>
Golden Seal	<i>Hydrastis canadensis</i>
Pale St. John's-wort	<i>Hypericum ellipticum</i>
Larger Canadian St. John's-wort	<i>Hypericum majus</i>
Dwarf St. John's-wort	<i>Hypericum mutilum</i> ssp. <i>mutilum</i>
Southern Blue-flag	<i>Iris virginica</i>
Twinleaf	<i>Jeffersonia diphylla</i>

Common Names	Scientific Name
Butternut	<i>Juglans cinerea</i>
Sharp-fruited Rush	<i>Juncus acuminatus</i>
Alpine Rush	<i>Juncus alpinoarticulatus</i>
Wire Rush	<i>Juncus balticus</i>
Canada Rush	<i>Juncus canadensis</i>
Water Willow	<i>Justicia americana</i>
Bog Laurel	<i>Kalmia polifolia</i>
Tamarack	<i>Larix laricina</i>
Beach Pea	<i>Lathyrus japonicus</i>
Pale Vetchling	<i>Lathyrus ochroleucus</i>
Marsh Vetchling	<i>Lathyrus palustris</i>
Labrador Tea	<i>Ledum groenlandicum</i>
Virginia Pepper-grass	<i>Lepidium virginicum</i>
Round-headed Bush-clover	<i>Lespedeza capitata</i>
Hairy Bush-clover	<i>Lespedeza hirta</i>
Violet Bush-clover	<i>Lespedeza violacea</i>
Wood Lily	<i>Lilium philadelphicum</i>
Blue Toadflax	<i>Linaria canadensis</i>
Slender Yellow Flax	<i>Linum virginianum</i>
Loesel's Twayblade	<i>Liparis loeselii</i>
Tulip Tree	<i>Liriodendron tulipifera</i>
Kalm's Lobelia	<i>Lobelia kalmii</i>
Hairy Honeysuckle	<i>Lonicera hirsuta</i>
Many-fruited Ludwigia	<i>Ludwigia polycarpa</i>
Common Clubmoss	<i>Lycopodium clavatum</i>
Prickly Tree Clubmoss	<i>Lycopodium dendroideum</i>
Virginia Water-horehound	<i>Lycopus virginicus</i>
Linear-leaved Loosestrife	<i>Lysimachia quadriflora</i>
Swamp Candles	<i>Lysimachia terrestris</i>
Cucumber Magnolia	<i>Magnolia acuminata</i>
Three-leaved Solomon's Seal	<i>Maianthemum trifolium</i>
White Adder's-mouth	<i>Malaxis monophyllos</i> ssp. <i>brachypoda</i>
Cow-wheat	<i>Melampyrum lineare</i>
Common Bogbean	<i>Menyanthes trifoliata</i>
Virginia Bluebells	<i>Mertensia virginica</i>
Wood Millet	<i>Milium effusum</i>
Naked Mitrewort	<i>Mitella nuda</i>
Red Mulberry	<i>Morus rubra</i>
Niblewill	<i>Muhlenbergia schreberi</i>
Slender Naiad	<i>Najas flexilis</i>
Mountain-holly	<i>Nemopanthus mucronatus</i>
Large Yellow Pond-lily	<i>Nuphar advena</i>
Small Yellow Pond-lily	<i>Nuphar microphylla</i>
Black Gum	<i>Nyssa sylvatica</i>
Prairie Evening-primrose	<i>Oenothera pilosella</i> ssp. <i>pilosella</i>
One-flowered Cancer Root	<i>Orobanche uniflora</i>

Common Names	Scientific Name
Ginseng	<i>Panax quinquefolius</i>
Narrow-leaved Panic Grass	<i>Panicum linearifolium</i>
Switch Grass	<i>Panicum virgatum</i>
Wood-betony	<i>Pedicularis canadensis</i>
Swamp Lousewort	<i>Pedicularis lanceolata</i>
Purple-stem Cliff-brake	<i>Pellaea atropurpurea</i>
Smooth Cliff-brake	<i>Pellaea glabella</i> ssp. <i>glabella</i>
Sweet Coltsfoot	<i>Petasites frigidus</i>
Broad Beech Fern	<i>Phegopteris hexagonoptera</i>
Clammy Ground-cherry	<i>Physalis heterophylla</i>
Virginia False Dragonhead	<i>Physostegia virginiana</i>
White Spruce	<i>Picea glauca</i>
Black Spruce	<i>Picea mariana</i>
Sycamore	<i>Platanus occidentalis</i>
Grove Blue Grass	<i>Poa alsodes</i>
Rose Pogonia	<i>Pogonia ophioglossoides</i>
Fringed Polygala	<i>Polygala paucifolia</i>
Field Milkwort	<i>Polygala sanguinea</i>
Seneca Snakeroot	<i>Polygala senega</i>
Whorled Milkwort	<i>Polygala verticillata</i>
Smooth Solomon's Seal	<i>Polygonatum biflorum</i>
Striate Knotweed	<i>Polygonum achoreum</i>
Halberd-leaved Tearthumb	<i>Polygonum arifolium</i>
Mild Water Pepper	<i>Polygonum hydropiperoides</i>
Climbing False Buckwheat	<i>Polygonum scandens</i>
Small-flowered Leaf-cup	<i>Polymnia canadensis</i>
Rock Polypody	<i>Polypodium virginianum</i>
Pickereel-weed	<i>Pontederia cordata</i>
Ribbon-leaf Pondweed	<i>Potamogeton epihydrus</i>
Illinois Pondweed	<i>Potamogeton illinoensis</i>
Long-leaved Pondweed	<i>Potamogeton nodosus</i>
Sago Pondweed	<i>Potamogeton pectinatus</i>
Richardson's Pondweed	<i>Potamogeton richardsonii</i>
Flat-stem Pondweed	<i>Potamogeton zosteriformis</i>
Marsh Cinquefoil	<i>Potentilla palustris</i>
Marsh Mermaid-weed	<i>Proserpinaca palustris</i>
American Plum	<i>Prunus americana</i>
Sand Cherry	<i>Prunus pumila</i> var. <i>pumila</i>
Shumard Oak	<i>Quercus shumardii</i>
White Water Crowfoot	<i>Ranunculus aquatilis</i> var. <i>diffusus</i>
Yellow Water Buttercup	<i>Ranunculus flabellaris</i>
Hairy Buttercup	<i>Ranunculus hispidus</i> var. <i>hispidus</i>
Poison Sumac	<i>Rhus vernix</i>
Smooth Gooseberry	<i>Ribes hirtellum</i>
Swamp Red Currant	<i>Ribes triste</i>
Northern Dewberry	<i>Rubus flagellaris</i>

Common Names	Scientific Name
Bristly Raspberry	<i>Rubus setosus</i>
Great Water Dock	<i>Rumex orbiculatus</i>
Swamp Dock	<i>Rumex verticillatus</i>
Sessile-fruited Arrowhead	<i>Sagittaria rigida</i>
Sage-leaved Willow	<i>Salix candida</i>
Upland Willow	<i>Salix humilis</i>
Shining Willow	<i>Salix lucida</i>
Autumn Willow	<i>Salix serissima</i>
Water Pimpernel	<i>Samolus valerandi</i> ssp. <i>parviflorus</i>
Short-styled Snakeroot	<i>Sanicula canadensis</i> var. <i>canadensis</i>
Large-fruited Snakeroot	<i>Sanicula trifoliata</i>
Lizard's Tail	<i>Saururus cernuus</i>
Little Bluestem	<i>Schizachyrium scoparium</i>
Hardstem Bulrush	<i>Scirpus acutus</i>
River Bulrush	<i>Scirpus fluviatilis</i>
Mosquito Bulrush	<i>Scirpus hatterianus</i>
Small-fruited Bulrush	<i>Scirpus microcarpus</i>
Common Three-square	<i>Scirpus pungens</i>
Carpenter's Square	<i>Scrophularia marilandica</i>
Golden Ragwort	<i>Senecio aureus</i>
Balsam Ragwort	<i>Senecio pauperculus</i>
Buffalo Berry	<i>Shepherdia canadensis</i>
One-seeded Bur Cucumber	<i>Sicyos angulatus</i>
Slender Blue-eyed Grass	<i>Sisyrinchium mucronatum</i>
Hairy-nerved Carrion Flower	<i>Smilax lasioneura</i>
Common Greenbrier	<i>Smilax rotundifolia</i>
Sharp-leaved Goldenrod	<i>Solidago arguta</i> var. <i>arguta</i>
American Mountain-ash	<i>Sorbus americana</i>
Nuttall's Bur-reed	<i>Sparganium americanum</i>
Freshwater Cord Grass	<i>Spartina pectinata</i>
Nodding Ladies' Tresses	<i>Spiranthes cernua</i>
Great Plains Ladies' Tresses	<i>Spiranthes magnicamporum</i>
Hooded Ladies' Tresses	<i>Spiranthes romanzoffiana</i>
Sand Dropseed	<i>Sporobolus cryptandrus</i>
Small Rush Grass	<i>Sporobolus neglectus</i>
Rough Hedge-nettle	<i>Stachys hispida</i>
Rose Twisted Stalk	<i>Streptopus roseus</i>
Trailing Wild Bean	<i>Strophostyles helvula</i>
Yellow Pimpernel	<i>Taenidia integerrima</i>
Fraser's St. John's-wort	<i>Triadenum fraseri</i>
Marsh St. Johnswort	<i>Triadenum virginicum</i>
False Pennyroyal	<i>Trichostema brachiatum</i>
Clasping Bellwort	<i>Triodanis perfoliata</i>
Sand Grass	<i>Triplasis purpurea</i>
Rock Elm	<i>Ulmus thomasii</i>
Perfoliate Bellwort	<i>Uvularia perfoliata</i>

Common Names	Scientific Name
Sessile-leaved Bellwort	<i>Uvularia sessilifolia</i>
Velvetleaf Blueberry	<i>Vaccinium myrtilloides</i>
Tape-grass	<i>Vallisneria americana</i>
Narrow-leaved Vervain	<i>Verbena simplex</i>
Hoary Vervain	<i>Verbena stricta</i>
American Speedwell	<i>Veronica americana</i>
Wild Raisin	<i>Viburnum cassinoides</i>
Purple Vetch	<i>Vicia americana</i>
Carolina Vetch	<i>Vicia caroliniana</i>
Le Conte's Violet	<i>Viola affinis</i>
Lance-leaved Violet	<i>Viola lanceolata</i>
Smooth White Violet	<i>Viola macloskeyi</i> ssp. <i>pallens</i>
Kidney-leaf Violet	<i>Viola renifolia</i>
Round-leaved Violet	<i>Viola rotundifolia</i>
Dotted Water Meal	<i>Wolffia borealis</i>
Columbia Water Meal	<i>Wolffia columbiana</i>
Virginia Chain Fern	<i>Woodwardia virginica</i>
Horned Pondweed	<i>Zannichellia palustris</i>
White Camass	<i>Zigadenus elegans</i> ssp. <i>glaucus</i>

Table 1. Species whose abundance does not change with the seasons in Niagara

	A	B	C	D
1	Common Name	Scientific Name	Abundance/occurrence 1966-2006	Notes
2	Canada Goose	<i>Branta canadensis</i>	Very common permanent resident	A few spring transients
3	Mute Swan	<i>Cygnus olor</i>	Rare permanent resident	
4	Chukar	<i>Alectoris chukar</i>	Occasional	All sightings are probably escaped birds.
5	Gray Partridge	<i>Perdix perdix</i>	Extirpated	Last known sighting 1995.
6	Ring-necked Pheasant	<i>Phasianus colchicus</i>	Introduced, rare permanent resident	
7	Ruffed Grouse	<i>Bonasa umbellus</i>	Rare and local permanent resident	
8	Wild Turkey	<i>Meleagris gallopavo</i>	Uncommon permanent resident	
9	Northern Bobwhite	<i>Colinus virginianus</i>	Extirpated	All recent sightings are probably escaped birds.
10	Rock Pigeon	<i>Columba livia</i>	Very common permanent resident	
11	Eastern Screech-Owl	<i>Otus asio</i>	Uncommon permanent resident	
12	Great Horned Owl	<i>Bubo virginianus</i>	Uncommon permanent resident	
13	Long-eared Owl	<i>Asio otus</i>	Rare permanent resident	
14	Red-bellied Woodpecker	<i>Melanerpes carolinus</i>	Uncommon permanent resident	
15	Downy Woodpecker	<i>Picoides pubescens</i>	Common permanent resident	
16	Hairy Woodpecker	<i>Picoides villosus</i>	Uncommon permanent resident	
17	Pileated Woodpecker	<i>Dryocopus pileatus</i>	Rare and local permanent resident	
18	Blue Jay	<i>Cyanocitta cristata</i>	Very common permanent resident	A few spring transients
19	Black-capped Chickadee	<i>Poecile atricapilla</i>	Common permanent resident	
20	Tufted Titmouse	<i>Baeolophus bicolor</i>	Rare permanent resident	
21	Carolina Wren	<i>Thryothorus ludovicianus</i>	Uncommon permanent resident	
22	Northern Mockingbird	<i>Mimus polyglottos</i>	Uncommon permanent resident	
23	European Starling	<i>Sturnus vulgaris</i>	Very common permanent resident	
24	Northern Cardinal	<i>Cardinalis cardinalis</i>	Common permanent resident	
25	House Finch	<i>Carpodacus mexicanus</i>	Common permanent resident	A few spring transients
26	House Sparrow	<i>Passer domesticus</i>	Very common permanent resident	

Table 2. Species which are occasional or extremely rare in Niagara.

	A	B	C	D
1	Common Name	Scientific Name	Abundance/occurrence 1966-2006	Notes
2	Fulvous Whistling-Duck	<i>Dendrocygna bicolor</i>	Hypothetical	One record 1962
3	Greater White-fronted Goose	<i>Anser albifrons</i>	Extremely rare visitor	
4	Ross's Goose	<i>Chen rossii</i>	Occasional visitor	
5	Eurasian Wigeon	<i>Anas penelope</i>	Extremely rare visitor	
6	Cinnamon Teal	<i>Anas cyanoptera</i>	Hypothetical	One record 1953
7	Eurasian Teal	<i>Anas carolinensis</i>	Extremely rare visitor	
8	Tufted Duck	<i>Aythya fuligula</i>	Extremely rare visitor	
9	Common Eider	<i>Somateria mollissima</i>	Extremely rare visitor	
10	Barrow's Goldeneye	<i>Bucephala islandica</i>	Occasional visitor	
11	Smew	<i>Mergellus albellus</i>		One record 1960
12	Pacific Loon	<i>Gavia pacifica</i>	Extremely rare visitor	
13	Yellow-billed Loon	<i>Gavia adamsii</i>	Extremely rare visitor	
14	Eared Grebe	<i>Podiceps nigricollis</i>	Occasional visitor	
15	Western Grebe	<i>Aechmophorus occidentalis</i>	Extremely rare visitor	
16	Black-capped Petrel	<i>Pterodroma hasitata</i>	Extremely rare visitor	
17	Wilson's Storm-Petrel	<i>Oceanites oceanicus</i>	Extremely rare visitor	
18	Northern Gannet	<i>Morus bassanus</i>	Occasional visitor	
19	American White Pelican	<i>Pelecanus erythrorhynchos</i>	Extremely rare visitor	
20	Brown Pelican	<i>Pelecanus occidentalis</i>	Extremely rare visitor	
21	Great Cormorant	<i>Phalacrocorax carbo</i>	Extremely rare visitor	
22	Snowy Egret	<i>Egretta thula</i>	Occasional visitor	
23	Little Blue Heron	<i>Egretta caerulea</i>	Extremely rare visitor	
24	Tricolored Heron	<i>Egretta tricolor</i>	Extremely rare visitor	
25	Cattle Egret	<i>Bubulcus ibis</i>	Occasional visitor	
26	Yellow-crowned Night-Heron	<i>Nyctanassa violacea</i>	Extremely rare visitor	
27	Glossy Ibis	<i>Plegadis falcinellus</i>	Extremely rare visitor	
28	Black Vulture	<i>Coragyps atratus</i>	Extremely rare visitor	
29	Swallow-tailed Kite	<i>Elanoides forficatus</i>	Extremely rare visitor	
30	Mississippi Kite	<i>Ictinia mississippiensis</i>	Extremely rare visitor	
31	Swainson's Hawk	<i>Buteo swainsoni</i>	Extremely rare visitor	
32	Ferruginous Hawk	<i>Buteo regalis</i>	Extremely rare visitor	
33	Gyr Falcon	<i>Falco rusticolus</i>	Extremely rare visitor	
34	Prairie Falcon	<i>Falco mexicanus</i>	Extremely rare visitor	
35	Yellow Rail	<i>Coturnicops noveboracensis</i>	Extremely rare visitor	
36	King Rail	<i>Rallus elegans</i>	Extremely rare visitor	

Table 2. Species which are occasional or extremely rare in Niagara.

	A	B	C	D
1	Common Name	Scientific Name	Abundance/occurrence 1966-2006	Notes
37	Purple Gallinule	<i>Porphyrio martinica</i>	Extremely rare visitor	One record 1937
38	Piping Plover	<i>Charadrius melodus</i>	Extremely rare visitor	
39	American Oystercatcher	<i>Haematopus palliatus</i>	Extremely rare visitor	
40	Black-necked Stilt	<i>Himantopus mexicanus</i>	Extremely rare visitor	
41	American Avocet	<i>Recurvirostra americana</i>	Extremely rare visitor	
42	Wandering Tattler	<i>Heterosceles incanus</i>	Extremely rare visitor	
43	Spotted Redshank	<i>Tringa erythropus</i>	Extremely rare visitor	
44	Willet	<i>Catoptrophorus semipalmatus</i>	Occasional visitor	
45	Eskimo Curlew	<i>Numenius borealis</i>		Extinct, no Niagara records
46	Slender-billed Curlew	<i>Numenius tenuirostris</i>		One record 1925
47	Hudsonian Godwit	<i>Limosa haemastica</i>	Occasional visitor	
48	Marbled Godwit	<i>Limosa fedoa</i>	Extremely rare visitor	
49	Western Sandpiper	<i>Calidris mauri</i>	Occasional visitor	
50	Curlew Sandpiper	<i>Calidris ferruginea</i>	Extremely rare visitor	
51	Ruff	<i>Philomachus pugnax</i>	Occasional visitor	
52	Wilson's Phalarope	<i>Phalaropus tricolor</i>	Occasional visitor	
53	Red-necked Phalarope	<i>Phalaropus lobatus</i>	Extremely rare visitor	
54	Red Phalarope	<i>Phalaropus fulicarius</i>	Extremely rare visitor	
55	Laughing Gull	<i>Larus atricilla</i>	Occasional visitor	
56	Mew Gull	<i>Larus canus</i>	Extremely rare visitor	
57	California Gull	<i>Larus californicus</i>	Occasional visitor	
58	Slaty-backed Gull	<i>Larus schistisagus</i>	Extremely rare visitor	
59	Ross's Gull	<i>Rhodostethia rosea</i>	Extremely rare visitor	
60	Ivory Gull	<i>Pagophila eburnea</i>	Extremely rare visitor	
61	Sooty Tern	<i>Sterna fuscata</i>	Extremely rare visitor	
62	Least Tern	<i>Sterna antillarum</i>		One record 1958
63	Arctic Tern	<i>Sterna paradisaea</i>	Extremely rare visitor	
64	Great Skua	<i>Stercorarius skua</i>	Hypothetical	
65	Long-tailed Jaeger	<i>Stercorarius longicaudus</i>	Extremely rare visitor	
66	Dovekie	<i>Alle alle</i>	Extremely rare visitor	
67	Thick-billed Murre	<i>Uria lomvia</i>		Two records 1950 and 1951
68	Razorbill	<i>Alca torda</i>	Extremely rare visitor	
69	Ancient Murrelet	<i>Synthliboramphus antiquus</i>	Extremely rare visitor	

Table 2. Species which are occasional or extremely rare in Niagara.

	A	B	C	D
1	Common Name	Scientific Name	Abundance/occurrence 1966-2006	Notes
70	Barn Owl	<i>Tyto alba</i>	Extremely rare visitor	Last bred in Niagara 1989
71	Northern Hawk Owl	<i>Surnia ulula</i>		One record 2007
72	Barred Owl	<i>Strix varia</i>	Extremely rare visitor	
73	Great-Gray Owl	<i>Strix nebulosa</i>	Extremely rare visitor	
74	Passenger Pigeon	<i>Ectopistes migratorius</i>		Extinct, last seen in Niagara in 1891, a male shot at Sherkston.
75	Rufous Hummingbird	<i>Selasphorus rufus</i>	Extremely rare visitor	
76	Selasphorus Hummingbird	<i>Selasphorus sp.</i>	Extremely rare visitor	
77	American Three-toed Woodpecker	<i>Picoides dorsalis</i>	Extremely rare visitor	
78	Black-backed Woodpecker	<i>Picoides arcticus</i>	Extremely rare visitor	
79	Western Kingbird	<i>Tyrannus verticalis</i>	Extremely rare visitor	
80	Loggerhead Shrike	<i>Lanius ludovicianus</i>	Occasional transient	Bred in Niagara in the early 1960s, last known sighting 1990
81	Bell's Vireo	<i>Vireo bellii</i>	Extremely rare visitor	
82	Gray Jay	<i>Perisoreus canadensis</i>	Hypothetical	
83	Black-billed Magpie	<i>Pica hudsonia</i>	Hypothetical, one record	Record status questionable
84	Common Raven	<i>Corvus corax</i>	Extremely rare visitor	
85	Cave Swallow	<i>Petrochelidon fulva</i>	Extremely rare visitor	
86	Boreal Chickadee	<i>Poecile hudsonica</i>	Extremely rare visitor	
87	Rock Wren	<i>Salpinctes obsoletus</i>	Extremely rare visitor	
88	Bewick's Wren	<i>Thryomanes bewickii</i>	Extremely rare visitor	
89	Northern Wheatear	<i>Oenanthe oenanthe</i>		One record 1949
90	Townsend's Solitaire	<i>Myadestes townsendi</i>	Extremely rare visitor	
91	Varied Thrush	<i>Ixoreus naevius</i>	Extremely rare visitor	
92	Sage Thrasher	<i>Oreoscoptes montanus</i>	Extremely rare visitor	
93	Bohemian Waxwing	<i>Bombycilla garrulus</i>	Occasional winter visitor	
94	Black-throated Gray Warbler	<i>Dendroica nigrescens</i>	Extremely rare visitor	
95	Yellow-throated Warbler	<i>Dendroica dominica</i>	Extremely rare visitor	
96	Kentucky Warbler	<i>Oporornis formosus</i>	Extremely rare visitor	

Table 2. Species which are occasional or extremely rare in Niagara.

	A	B	C	D
1	Common Name	Scientific Name	Abundance/occurrence 1966-2006	Notes
97	Summer Tanager	<i>Piranga rubra</i>	Extremely rare visitor	
98	Western Tanager	<i>Piranga ludoviciana</i>	Extremely rare visitor	
99	Green-tailed Towhee	<i>Pipilo chlorurus</i>		One record 1954
100	Spotted Towhee	<i>Pipilo maculatus</i>	Extremely rare visitor	
101	Clay-colored Sparrow	<i>Spizella pallida</i>	Occasional visitor	
102	Lark Sparrow	<i>Chondestes grammacus</i>	Extremely rare visitor	
103	Lark Bunting	<i>Calamospiza melanocorys</i>	Extremely rare visitor	
104	Henslow's Sparrow	<i>Ammodramus henslowii</i>	Extremely rare visitor	
105	Le Conte's Sparrow	<i>Ammodramus leconteii</i>	Hypothetical	
106	Harris's Sparrow	<i>Zonotrichia querula</i>	Extremely rare visitor	
107	Black-headed Grosbeak	<i>Pheucticus melanocephalus</i>	Hypothetical	
108	Painted Bunting	<i>Passerina ciris</i>	Extremely rare visitor	
109	Dickcissel	<i>Spiza americana</i>	Occasional visitor	
110	Western Meadowlark	<i>Sturnella neglecta</i>	Extremely rare visitor	
111	Yellow-headed Blackbird	<i>Xanthocephalus xanthocephalus</i>	Extremely rare visitor	
112	Brewer's Blackbird	<i>Euphagus cyanocephalus</i>	Extremely rare visitor	
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Table 3. Species whose abundance changes with the seasons in Niagara.

	A	B	C	D	E	F
1	Common Name	Scientific Name	Spring transients	Summer	Fall transients	Winter
2	Snow Goose	<i>Chen caerulescens</i>	Rare transient		Rare transient	Occasional straggler
3	Brant	<i>Branta bernicla</i>	Transient	Extremely rare straggler	Rare transient	Ocasional straggler
4	Cackling Goose	<i>Branta hutchinsii</i>			Rare transient	Rare straggler
5	Trumpeter swan	<i>Cygnus buccinator</i>				Rare visitor
6	Tundra Swan	<i>Cygnus columbianus</i>	Uncommon transient		Uncommon transient	Uncommon to rare resident
7	Wood Duck	<i>Aix sponsa</i>	Uncommon transient	Uncommon resident	Uncommon transient	Occasional straggler
8	Gadwall	<i>Anas strepera</i>	Transient	Occasional resident	Transient	Rare straggler
9	American Wigeon	<i>Anas americana</i>	Uncommon transient	Rare resident	Uncommon transient	Rare straggler
10	American Black Duck	<i>Anas rubripes</i>	Transient	Uncommon resident	Transient	Uncommon resident
11	Mallard	<i>Anas platyrhynchos</i>	Transient	Common resident	Transient	Uncommon resident
12	Blue-winged Teal	<i>Anas discors</i>	Uncommon transient	Rare resident	Transient	Extremely rare straggler
13	Northern Shoveler	<i>Anas clypeata</i>	Uncommon transient	Occasional resident	Uncommon transient	Occasional straggler
14	Northern Pintail	<i>Anas acuta</i>	Uncommon transient	Extremely rare resident	Uncommon transient	Rare straggler
15	Green-winged Teal	<i>Anas crecca</i>	Uncommon transient	Occasional resident	Uncommon transient	Occasional straggler
16	Canvasback	<i>Aythya valisineria</i>				Very common resident
17	Redhead	<i>Aythya americana</i>	Uncommon transient	Occasional resident or straggler	Uncommon transient	Rare to uncommon resident
18	Ring-necked Duck	<i>Aythya collaris</i>	Uncommon transient		Uncommon transient	Rare straggler
19	Greater Scaup	<i>Aythya marila</i>				Very common resident
20	Lesser Scaup	<i>Aythya affinis</i>	Uncommon transient		Uncommon transient	Uncommon resident
21	King Eider	<i>Somateria spectabilis</i>				Rare visitor
22	Harlequin Duck	<i>Histrionicus histrionicus</i>				Rare visitor
23	Surf Scoter	<i>Melanitta perspicillata</i>	Rare transient		Uncommon transient	Rare resident

Table 3. Species whose abundance changes with the seasons in Niagara.

	A	B	C	D	E	F
1	Common Name	Scientific Name	Spring transients	Summer	Fall transients	Winter
24	White-winged Scoter	<i>Melanitta fusca</i>	Common transient	Occasional visitor	Very common transient	Common resident
25	Black Scoter	<i>Melanitta nigra</i>	Rare transient		Uncommon transient	Rare resident
26	Long-tailed Duck	<i>Clangula hyemalis</i>	Uncommon transient	Rare visitor	Uncommon transient	Very common resident
27	Bufflehead	<i>Bucephala albeola</i>	Common transient	Occasional visitor	Common transient	Very common resident
28	Common Goldeneye	<i>Bucephala clangula</i>		Rare visitor		Very common resident
29	Hooded Merganser	<i>Lophodytes cucullatus</i>	Uncommon transient	Rare visitor and resident	Uncommon transient	Uncommon resident
30	Common Merganser	<i>Mergus merganser</i>		Rare resident or visitor		Very common resident
31	Red-breasted Merganser	<i>Mergus serrator</i>	Very common transient	Rare resident or visitor	Very common transient	Very common resident
32	Ruddy Duck	<i>Oxyura jamaicensis</i>	Uncommon transient	Rare summer straggler	Uncommon transient	Rare straggler
33	Red-throated Loon	<i>Gavia stellata</i>	Rare or uncommon transient	Extremely rare straggler	Rare or uncommon transient	Rare straggler
34	Common Loon	<i>Gavia immer</i>	Uncommon transient	Occasional straggler	Uncommon transient	Rare straggler
35	Pied-billed Grebe	<i>Podilymbus podiceps</i>	Transient	Rare resident	Transient	Rare straggler
36	Horned Grebe	<i>Podiceps auritus</i>	Uncommon transient	Rare visitor	Uncommon transient	Rare visitor
37	Red-necked Grebe	<i>Podiceps grisegena</i>	Rare transient		Rare transient	Rare straggler
38	Double-crested Cormorant	<i>Phalacrocorax auritus</i>		Very common resident		Rare straggler
39	American Bittern	<i>Botaurus lentiginosus</i>		Rare and local resident		Extremely rare straggler
40	Least Bittern	<i>Ixobrychus exilis</i>		Rare and local resident		
41	Great Blue Heron	<i>Ardea herodias</i>		Uncommon resident		Rare straggler
42	Great Egret	<i>Ardea alba</i>		Rare resident		
43	Green Heron	<i>Butorides virescens</i>		Uncommon resident		
44	Black-crowned Night-Heron	<i>Nycticorax nycticorax</i>		Uncommon resident		Occasional straggler
45	Turkey Vulture	<i>Cathartes aura</i>	Common transient	Uncommon resident	Transient	Occasional straggler
46	Osprey	<i>Pandion haliaetus</i>	Uncommon transient	Occasional transient	Transient	Extremely rare straggler

Table 3. Species whose abundance changes with the seasons in Niagara.

	A	B	C	D	E	F
1	Common Name	Scientific Name	Spring transients	Summer	Fall transients	Winter
47	Bald Eagle	<i>Haliaeetus leucocephalus</i>	Uncommon transient	Rare resident		Rare resident
48	Northern Harrier	<i>Circus cyaneus</i>	Common transient	Rare resident		Rare resident
49	Sharp-shinned Hawk	<i>Accipiter striatus</i>	Common transient	Uncommon resident	Transient	Uncommon resident
50	Cooper's Hawk	<i>Accipiter cooperii</i>	Common transient	Uncommon resident	Transient	Uncommon resident
51	Northern Goshawk	<i>Accipiter gentilis</i>	Uncommon transient		Occasional transient	Occasional resident
52	Red-shouldered Hawk	<i>Buteo lineatus</i>	Common transient	Rare resident		Occasional resident
53	Broad-winged Hawk	<i>Buteo platypterus</i>	Common transient	Occasional straggler	Common transient	
54	Red-tailed Hawk	<i>Buteo jamaicensis</i>	Common transient	Uncommon resident	Common transient	Uncommon resident
55	Rough-legged Hawk	<i>Buteo lagopus</i>	Common transient			Rare resident
56	Golden Eagle	<i>Aquila chrysaetos</i>	Rare transient			
57	American Kestrel	<i>Falco sparverius</i>	Common transient	Uncommon resident	Transient	Uncommon resident
58	Merlin	<i>Falco columbarius</i>	Uncommon transient			Rare straggler
59	Peregrine Falcon	<i>Falco peregrinus</i>	Rare transient	Rare resident		Rare resident
60	Virginia Rail	<i>Rallus limicola</i>		Rare and local resident		Extremely rare straggler
61	Sora	<i>Porzana carolina</i>		Uncommon resident		
62	Common Moorhen	<i>Gallinula chloropus</i>	Transient	Rare and local resident	Transient	
63	American Coot	<i>Fulica americana</i>	Uncommon transient	Rare and local resident	Uncommon transient	Rare straggler
64	Sandhill Crane	<i>Grus canadensis</i>	Rare transient	Extremely rare resident	Transient	
65	Black-bellied Plover	<i>Pluvialis squatarola</i>	Transient	Uncommon transient	Uncommon transient	Extremely rare straggler
66	American Golden-Plover	<i>Pluvialis dominica</i>	Transient	Uncommon transient	Uncommon transient	
67	Semipalmated Plover	<i>Charadrius semipalmatus</i>	Transient	Common transient	Common transient	
68	Killdeer	<i>Charadrius vociferus</i>		Common resident		Occasional straggler
69	Spotted Sandpiper	<i>Actitis macularia</i>		Common resident		
70	Solitary Sandpiper	<i>Tringa solitaria</i>	Transient	Uncommon transient	Uncommon transient	
71	Greater Yellowlegs	<i>Tringa melanoleuca</i>	Transient	Uncommon transient	Uncommon transient	

Table 3. Species whose abundance changes with the seasons in Niagara.

	A	B	C	D	E	F
1	Common Name	Scientific Name	Spring transients	Summer	Fall transients	Winter
72	Lesser Yellowlegs	<i>Tringa flavipes</i>	Transient	Common transient	Common transient	
73	Upland Sandpiper	<i>Bartramia longicauda</i>		Rare resident		
74	Whimbrel	<i>Numenius phaeopus</i>	Rare transient	Rare transient	Rare transient	
75	Ruddy Turnstone	<i>Arenaria interpres</i>	Transient	Uncommon transient	Uncommon transient	
76	Red Knot	<i>Calidris canutus</i>	Transient	Rare transient	Rare transient	
77	Sanderling	<i>Calidris alba</i>	Transient	Common transient	Common transient	
78	Semipalmated Sandpiper	<i>Calidris pusilla</i>	Transient	Common transient	Common transient	
79	Least Sandpiper	<i>Calidris minutilla</i>	Transient	Common transient	Common transient	
80	White-rumped Sandpiper	<i>Calidris fuscicollis</i>	Transient	Uncommon transient	Uncommon transient	
81	Baird's Sandpiper	<i>Calidris bairdii</i>		Uncommon transient	Uncommon transient	
82	Pectoral Sandpiper	<i>Calidris melanotos</i>	Transient	Common transient	Common transient	
83	Purple Sandpiper	<i>Calidris maritima</i>	Extremely rare transient		Rare transient	Rare straggler
84	Dunlin	<i>Calidris alpina</i>	Transient	Common transient	Common transient	Rare straggler
85	Stilt Sandpiper	<i>Calidris himantopus</i>	Extremely rare transient	Rare transient	Rare transient	
86	Buff-breasted Sandpiper	<i>Tryngites subruficollis</i>		Rare transient	Rare transient	
87	Short-billed Dowitcher	<i>Limnodromus griseus</i>	Transient	Uncommon transient	Uncommon transient	
88	Long-billed Dowitcher	<i>Limnodromus scolopaceus</i>			Rare transient	
89	Wilson's Snipe	<i>Gallinago delicata</i>		Uncommon resident		Extremely rare straggler
90	American Woodcock	<i>Scolopax minor</i>		Uncommon resident		Extremely rare straggler
91	Franklin's Gull	<i>Larus pipixcan</i>			Occasional transient	Occasional straggler
92	Little Gull	<i>Larus minutus</i>	Uncommon transient		Rare transient	Rare transient

Table 3. Species whose abundance changes with the seasons in Niagara.

	A	B	C	D	E	F
1	Common Name	Scientific Name	Spring transients	Summer	Fall transients	Winter
93	Black-headed Gull	<i>Larus ridibundus</i>	Occasional transient		Occasional transient	Occasional transient
94	Bonaparte's Gull	<i>Larus philadelphia</i>	Transient	Rare straggler	Transient	Very common resident
95	Ring-billed Gull	<i>Larus delawarensis</i>		Very common resident		Very common resident
96	Herring Gull	<i>Larus smithsonianus</i>		Uncommon resident		Very common resident
97	Thayer's Gull	<i>Larus thayeri</i>			Uncommon transient	Uncommon transient
98	Iceland Gull	<i>Larus glaucoides</i>	Rare transient		Uncommon transient	Uncommon resident
99	Lesser Black-backed Gull	<i>Larus fuscus</i>	Rare transient		Uncommon transient	Uncommon transient
100	Glaucous Gull	<i>Larus hyperboreus</i>	Rare transient		Rare transient	Rare resident
101	Great Black-backed Gull	<i>Larus marinus</i>		Rare resident		Uncommon resident
102	Sabine's Gull	<i>Xema sabini</i>			Occasional transient	Occasional transient
103	Black-legged Kittiwake	<i>Rissa tridactyla</i>			Occasional transient	Occasional transient
104	Caspian Tern	<i>Sterna caspia</i>		Uncommon resident		
105	Black Tern	<i>Chlidonias niger</i>	Rare transient	Last bred (1988)	Rare transient	
106	Common Tern	<i>Sterna hirundo</i>	Transient	Uncommon resident	Transient	
107	Forster's Tern	<i>Sterna forsteri</i>	Rare transient		Rare transient	
108	Pomarine Jaeger	<i>Stercorarius pomarinus</i>			Rare transient	
109	Parasitic Jaeger	<i>Stercorarius parasiticus</i>			Rare transient	
110	Mourning Dove	<i>Zenaida macroura</i>		Very common resident		Common resident
111	Yellow-billed Cuckoo	<i>Coccyzus americanus</i>		Uncommon resident		
112	Black-billed Cuckoo	<i>Coccyzus erythrophthalmus</i>		Uncommon resident		
113	Snowy Owl	<i>Nyctea scandiaca</i>				Rare transient
114	Short-eared Owl	<i>Asio flammeus</i>		Rare and local resident		Rare resident
115	Boreal Owl	<i>Aegolius funereus</i>				Occasional transient
116	Northern Saw-whet Owl	<i>Aegolius acadicus</i>		Occasional resident		Rare resident
117	Common Nighthawk	<i>Chordeiles minor</i>	Rare transient	Rare resident	Rare transient	
118	Whip-poor-will	<i>Caprimulgus vociferus</i>		Rare and local resident		

Table 3. Species whose abundance changes with the seasons in Niagara.

	A	B	C	D	E	F
1	Common Name	Scientific Name	Spring transients	Summer	Fall transients	Winter
119	Chimney Swift	<i>Chaetura pelagica</i>	Common transient	Uncommon resident	Uncommon transient	
120	Ruby-throated Hummingbird	<i>Archilochus colubris</i>	Transient	Uncommon resident	Transient	
121	Belted Kingfisher	<i>Ceryle alcyon</i>		Uncommon resident		Rare straggler
122	Red-headed Woodpecker	<i>Melanerpes erythrocephalus</i>	Transient	Rare and local resident	Transient	
123	Yellow-bellied Sapsucker	<i>Sphyrapicus varius</i>	Uncommon transient	Occasional summer straggler	Transient	Occasional straggler
124	Northern Flicker	<i>Colaptes auratus</i>	Common transient	Common resident	Transient	Rare straggler
125	Olive-sided Flycatcher	<i>Contopus cooperi</i>	Occasional transient		Transient	
126	Eastern Wood-Pewee	<i>Contopus virens</i>	Transient	Common resident	Transient	
127	Yellow-bellied Flycatcher	<i>Empidonax flaviventris</i>	Rare transient		Transient	
128	Acadian Flycatcher S	<i>Empidonax virescens</i>	Occasional transient	Rare resident and straggler	Extremely rare transient	
129	Alder Flycatcher	<i>Empidonax alnorum</i>	Transient	Uncommon resident	Transient	
130	Willow Flycatcher	<i>Empidonax traillii</i>	Transient	Uncommon resident	Transient	
131	Least Flycatcher	<i>Empidonax minimus</i>	Uncommon transient	Uncommon resident	Transient	
132	Eastern Phoebe	<i>Sayornis phoebe</i>	Transient	Common resident	Transient	Extremely rare straggler
133	Great Crested Flycatcher	<i>Myiarchus crinitus</i>	Transient	Common resident	Transient	
134	Eastern Kingbird	<i>Tyrannus tyrannus</i>	Transient	Common resident	Transient	
135	Northern Shrike	<i>Lanius excubitor</i>				Rare resident
136	White-eyed Vireo	<i>Vireo griseus</i>	Occasional straggler	Occasional straggler and resident	Extremely rare transient	
137	Yellow-throated Vireo	<i>Vireo flavifrons</i>	Rare transient	Rare and local resident	Rare transient	
138	Blue-headed Vireo	<i>Vireo solitarius</i>	Uncommon transient	Extremely rare resident	Transient	
139	Warbling Vireo	<i>Vireo gilvus</i>	Common transient	Common resident	Transient	
140	Philadelphia Vireo	<i>Vireo philadelphicus</i>	Rare transient		Transient	
141	Red-eyed Vireo	<i>Vireo olivaceus</i>	Transient	Common resident	Transient	
142	American Crow	<i>Corvus brachyrhynchos</i>	Transient	Common resident	Transient	Common resident
143	Horned Lark	<i>Eremophila alpestris</i>	Transient	Common resident	Transient	Uncommon resident
144	Purple Martin	<i>Progne subis</i>	Transient	Very common resident	Transient	
145	Tree Swallow	<i>Tachycineta bicolor</i>	Transient	Very common resident	Transient	
146	Northern Rough-winged Swallow	<i>Stelgidopteryx serripennis</i>	Transient	Uncommon resident	Transient	Extremely rare straggler

Table 3. Species whose abundance changes with the seasons in Niagara.

	A	B	C	D	E	F
1	Common Name	Scientific Name	Spring transients	Summer	Fall transients	Winter
147	Bank Swallow	<i>Riparia riparia</i>	Transient	Very common resident	Transient	
148	Cliff Swallow	<i>Petrochelidon pyrrhonota</i>	Transient	Uncommon resident	Transient	
149	Barn Swallow	<i>Hirundo rustica</i>	Transient	Very common resident	Transient	
150	Red-breasted Nuthatch	<i>Sitta canadensis</i>	Uncommon transient	Rare resident	Uncommon transient	Uncommon resident
151	White-breasted Nuthatch	<i>Sitta carolinensis</i>	Common transient	Uncommon resident	Common transient	Common resident
152	Brown Creeper	<i>Certhia americana</i>	Uncommon transient	Uncommon resident	Transient	Rare resident
153	House Wren	<i>Troglodytes aedon</i>	Transient	Common resident	Transient	Extremely rare straggler
154	Winter Wren	<i>Troglodytes troglodytes</i>	Uncommon transient	Rare and local resident	Transient	Rare resident
155	Sedge Wren	<i>Cistothorus platensis</i>	Transient	Rare and local resident	Transient	
156	Marsh Wren	<i>Cistothorus palustris</i>	Transient	Uncommon resident	Transient	
157	Golden-crowned Kinglet	<i>Regulus satrapa</i>	Common transient	Extremely rare resident	Transient	Uncommon resident
158	Ruby-crowned Kinglet	<i>Regulus calendula</i>	Common transient	Extremely rare resident	Transient	Occasional straggler
159	Blue-gray Gnatcatcher	<i>Poliophtila caerulea</i>	Transient	Uncommon resident	Transient	Extremely rare straggler
160	Eastern Bluebird	<i>Sialia sialis</i>	Transient	Uncommon resident	Transient	Rare resident
161	Veery	<i>Catharus fuscescens</i>	Uncommon transient	Uncommon resident	Transient	
162	Gray-cheeked Thrush	<i>Catharus minimus</i>	Rare transient		Transient	
163	Swainson's Thrush	<i>Catharus ustulatus</i>	Uncommon transient		Transient	
164	Hermit Thrush	<i>Catharus guttatus</i>	Uncommon transient		Transient	Occasional winter straggler
165	Wood Thrush	<i>Hylocichla mustelina</i>	Transient	Uncommon resident	Transient	Extremely rare straggler
166	American Robin	<i>Turdus migratorius</i>	Transient	Very common resident	Transient	Uncommon resident
167	Gray Catbird	<i>Dumetella carolinensis</i>	Transient	Common resident	Transient	Occasional straggler
168	Brown Thrasher	<i>Toxostoma rufum</i>	Transient	Uncommon resident	Transient	Occasional straggler
169	American Pipit	<i>Anthus rubescens</i>	Uncommon transient		Uncommon transient	Occasional straggler
170	Cedar Waxwing	<i>Bombycilla cedrorum</i>	Transient	Common resident	Transient	Uncommon resident
171	Blue-winged Warbler	<i>Vermivora pinus</i>	Uncommon transient	Uncommon resident	Transient	
172	Golden-winged Warbler	<i>Vermivora chrysoptera</i>	Rare transient	Extremely rare resident	Transient	
173	Tennessee Warbler	<i>Vermivora peregrina</i>	Common transient		Transient	
174	Orange-crowned Warbler	<i>Vermivora celata</i>	Rare transient		Transient	Extremely rare straggler
175	Nashville Warbler	<i>Vermivora ruficapilla</i>	Common transient	Rare and local resident	Transient	Extremely rare straggler

Table 3. Species whose abundance changes with the seasons in Niagara.

	A	B	C	D	E	F
1	Common Name	Scientific Name	Spring transients	Summer	Fall transients	Winter
176	Northern Parula	<i>Parula americana</i>	Uncommon transient	Extremely rare straggler	Transient	
177	Yellow Warbler	<i>Dendroica petechia</i>	Transient	Common resident	Transient	Extremely rare straggler
178	Chestnut-sided Warbler	<i>Dendroica pensylvanica</i>	Common transient	Uncommon resident	Transient	
179	Magnolia Warbler	<i>Dendroica magnolia</i>	Common transient		Transient	
180	Cape May Warbler	<i>Dendroica tigrina</i>	Rare transient		Transient	
181	Black-throated Blue Warbler	<i>Dendroica caerulescens</i>	Common transient	Extremely rare straggler	Transient	
182	Yellow-rumped Warbler	<i>Dendroica coronata</i>	Very common transient		Very common transient	Rare winter straggler
183	Black-throated Green Warbler	<i>Dendroica virens</i>	Common transient	Extremely rare straggler	Transient	
184	Blackburnian Warbler	<i>Dendroica fusca</i>	Uncommon transient	Extremely rare straggler	Transient	
185	Pine Warbler	<i>Dendroica pinus</i>	Uncommon transient		Transient	Occasional straggler
186	Prairie Warbler	<i>Dendroica discolor</i>	Occasional straggler	Extremely rare summer straggler		
187	Palm Warbler	<i>Dendroica palmarum</i>	Common transient		Transient	Extremely rare straggler
188	Bay-breasted Warbler	<i>Dendroica castanea</i>	Uncommon transient		Transient	
189	Blackpoll Warbler N/S	<i>Dendroica striata</i>	Uncommon transient		Transient	
190	Cerulean Warbler S	<i>Dendroica cerulea</i>	Rare transient	Rare and local resident (last known breeding 1983)		
191	Black-and-white Warbler	<i>Mniotilta varia</i>	Uncommon transient	Extremely rare straggler	Transient	
192	American Redstart	<i>Setophaga ruticilla</i>	Common transient	Uncommon resident	Transient	Extremely rare straggler
193	Prothonotary Warbler	<i>Protonotaria citrea</i>	Occasional transient	Extremely rare summer straggler	Extremely rare transient	
194	Worm-eating Warbler	<i>Helmitheros vermivorus</i>	Occasional transient			
195	Ovenbird N/S	<i>Seiurus aurocapilla</i>	Uncommon transient		Transient	
196	Northern Waterthrush	<i>Seiurus noveboracensis</i>	Uncommon transient		Transient	

Table 3. Species whose abundance changes with the seasons in Niagara.

	A	B	C	D	E	F
1	Common Name	Scientific Name	Spring transients	Summer	Fall transients	Winter
197	Louisiana Waterthrush	<i>Seiurus motacilla</i>	Occasional straggler	Extremely rare straggler (last known breeding 1960)	Extremely rare transient	
198	Connecticut Warbler	<i>Oporornis agilis</i>	Occasional transient		Transient	
199	Mourning Warbler	<i>Oporornis philadelphia</i>	Uncommon transient	Uncommon resident	Transient	
200	Common Yellowthroat	<i>Geothlypis trichas</i>	Common transient	Common resident	Transient	Extremely rare straggler
201	Hooded Warbler	<i>Wilsonia citrina</i>		Rare and local resident	Extremely rare transient	
202	Wilson's Warbler	<i>Wilsonia pusilla</i>	Uncommon transient		Transient	
203	Canada Warbler	<i>Wilsonia canadensis</i>	Uncommon transient	Occasional resident	Transient	
204	Yellow-breasted Chat	<i>Icteria virens</i>	Occasional transient	Rare and local resident		Extremely rare straggler
205	Scarlet Tanager	<i>Piranga olivacea</i>	Transient	Uncommon resident	Transient	
206	Eastern Towhee	<i>Pipilo erythrophthalmus</i>	Transient	Uncommon resident	Transient	Occasional straggler
207	American Tree Sparrow	<i>Spizella arborea</i>				Common resident
208	Chipping Sparrow	<i>Spizella passerina</i>	Transient	Common resident	Transient	Occasional straggler
209	Field Sparrow	<i>Spizella pusilla</i>	Transient	Uncommon resident	Transient	Occasional straggler
210	Vesper Sparrow	<i>Pooecetes gramineus</i>	Transient	Uncommon resident	Transient	Extremely rare straggler
211	Savannah Sparrow	<i>Passerculus sandwichensis</i>	Transient	Very common resident	Transient	Occasional straggler
212	Grasshopper Sparrow	<i>Ammodramus savannarum</i>	Occasional transient	Common and local resident	Transient	
213	Fox Sparrow	<i>Passerella iliaca</i>	Rare transient		Rare transient	Occasional straggler
214	Song Sparrow	<i>Melospiza melodia</i>	Transient	Very common resident	Transient	Uncommon resident
215	Lincoln's Sparrow	<i>Melospiza lincolnii</i>	Rare transient	Occasional resident	Rare transient	
216	Swamp Sparrow	<i>Melospiza georgiana</i>	Transient	Uncommon resident	Transient	Rare straggler
217	White-throated Sparrow	<i>Zonotrichia albicollis</i>	Very common transient	Occasional straggler	Very common transient	Uncommon resident
218	White-crowned Sparrow	<i>Zonotrichia leucophrys</i>	Common transient		Common transient	Uncommon resident
219	Dark-eyed Junco	<i>Junco hyemalis</i>				Common resident
220	Lapland Longspur	<i>Calcarius lapponicus</i>				Rare transient
221	Snow Bunting	<i>Plectrophenax nivalis</i>				Uncommon transient
222	Rose-breasted Grosbeak	<i>Pheucticus ludovicianus</i>	Transient	Common resident		Extremely rare straggler

Table 3. Species whose abundance changes with the seasons in Niagara.

	A	B	C	D	E	F
1	Common Name	Scientific Name	Spring transients	Summer	Fall transients	Winter
223	Indigo Bunting	<i>Passerina cyanea</i>	Transient	Common resident		
224	Bobolink	<i>Dolichonyx oryzivorus</i>	Transient	Uncommon resident	Transient	
225	Red-winged Blackbird	<i>Agelaius phoeniceus</i>	Transient	Very common resident	Transient	Uncommon resident
226	Eastern Meadowlark	<i>Sturnella magna</i>	Transient	Uncommon resident	Transient	Occasional straggler
227	Rusty Blackbird	<i>Euphagus carolinus</i>	Uncommon transient		Uncommon transient	Rare resident
228	Common Grackle	<i>Quiscalus quiscula</i>	Transient	Very common resident	Transient	Uncommon resident
229	Brown-headed Cowbird	<i>Molothrus ater</i>	Transient	Very common resident	Transient	Uncommon resident
230	Orchard Oriole	<i>Icterus spurius</i>	Transient	Uncommon-rare resident	Transient	
231	Baltimore Oriole	<i>Icterus galbula</i>	Common transient	Common resident	Transient	Extremely rare straggler
232	Pine Grosbeak	<i>Pinicola enucleator</i>				Occasional transient
233	Purple Finch	<i>Carpodacus purpureus</i>	Rare transient	Occasional resident		Rare resident
234	Red Crossbill	<i>Loxia curvirostra</i>				Occasional transient, last record 1980
235	White-winged Crossbill	<i>Loxia leucoptera</i>				Occasional transient
236	Common Redpoll	<i>Carduelis flammea</i>				Rare transient
237	Hoary Redpoll	<i>Carduelis hornemanni</i>				Occasional transient
238	Pine Siskin	<i>Carduelis pinus</i>				Uncommon transient
239	American Goldfinch	<i>Carduelis tristis</i>		Common resident		Uncommon resident
240	Evening Grosbeak	<i>Coccothraustes vespertinus</i>				Occasional transient

Table 4. Numbers of squares reporting possible, probable and confirmed breeding for the first and second Atlases.

No.	Species Name	First Atlas			Second Atlas			% Change	Second Atlas Comments
		POSS	PROB	CONF	POSS	PROB	CONF		
11	Tundra Swan								*The bird was observed in the summer of 2002. The exact date is unknown. It is possible that it was a Trumpeter Swan.
12	Wood Duck	2	4	13	2	4	17	24	
13	Gadwall			2		1		-50	*A pair of birds were observed on May 1, 2003 in 17PH45 . A single bird was observed on July 16, 2004 in 17PH47.
15	American Wigeon			1		1		0	*A pair of birds were observed on May 1, 2003 in 17PH45. Single birds were observed on April 27, 2001 in 17PH59 and June 11, 2002 in 17PH75.
16	American Black Duck	1	1	6	1	3	5	14	
17	Mallard		2	22		1	24	4	
18	Blue-winged Teal		2	9	3	4	4	-27	
20	Northern Shoveler				1		2	NEW	Fledged young were observed on the Vanderliek pond north of Bismark(17PH26) and fledged young were observed on the Lake Erie shore in 17PH64.
23	Green-winged Teal	2	2		2				*A single bird was observed on May 30, 2004 in 17PH35. A single bird was observed in May of 2002 in 17PH44.
25	Redhead			1				LOST	*Confirmed in first atlas but not observed in the second atlas.
34	White-winged Scoter								*A single bird was observed in the old canals near Allenberg north of Highway 20 on July 13, 2003.(17PH47)
41	Hooded Merganser	1			2				*A single bird was observed on June 23 in 17PH47. A single bird was observed on June 20, 2002 at Navy Island (17PH66). A single bird was observed on May 27, 2001 in 17PH48.
42	Common Merganser								*Three birds were observed on a point count on June 20, 2002 at the end of the control weir above Niagara Falls.(17PH57)
43	Red-breasted Merganser								*Navy Island July 2, 2004.(17PH66)
44	Ruddy Duck	1							*Possible in the first atlas but not observed in the second atlas.

Table 4. Numbers of squares reporting possible, probable and confirmed breeding for the first and second Atlases.

No.	Species Name	First Atlas			Second Atlas			% Change	Second Atlas Comments
		POSS	PROB	CONF	POSS	PROB	CONF		
45b	Gray Partridge		2	1				LOSS	Confirmed in one square in the first atlas but not observed in the second atlas. The last birds observed in the region were seen near Sann Road north of the QEW in January of 1988.
46	Ring-necked Pheasant	2	8	14	4	8	7	-32	It is not clear if any of these birds are native or have been released recently.
47a	Chukar								*Observed in 17PH27(2004) and 17PH27(2005). These are presumably released birds and were rejected in the atlas.
47	Ruffed Grouse	2	4	9		9	1	-23	
53	Wild Turkey				2	4	18	Gain	Substantial Increase in Breeding Squares. Turkeys from New York and Vermont were reintroduced by the MNR(AY) into Short Hills Provincial Park (17PH37) in 1986
54	Northern Bobwhite			1	1			LOSS	*A single bird was observed on March 25, 2005 in 17PH55. It was not found on subsequent visits to the area. This bird was confirmed in the first atlas in one square.
57	Common Loon								*A single bird was observed on a point count on June 13, 2003 at Point Abino.(17PH54)
59	Pied-billed Grebe	2	1	3		3	3	50	
76	Double-crested Cormorant			1			3	200	A colony of birds has existed on Mohawk Island for some years (17PH24). Recently (2003) a few birds nested at the mouth of the canal on the west side of the piers (17PH48). Cormorants were first observed nesting on the breakwall at Port Colburne in 2004 (17PH44).
79	American Bittern	3	2	1	3	2		LOSS	*Probable are a calling bird in 17PH35 in 2001 in the breeding season and a calling bird at Mud Lake(17PH45) in 2001 in the breeding season.
80	Least Bittern	2	1	1		1	1	0	Birds bred at Mud Lake (17PH45) and the Glendale Lagoons (17PH47).
81	Great Blue Heron	12		3	12		6	100	Confirmed in 17PH24,25,26,27,37 and 54. Confirmed in three squares in the first atlas.

Table 4. Numbers of squares reporting possible, probable and confirmed breeding for the first and second Atlases.

No.	Species Name	First Atlas			Second Atlas			% Change	Second Atlas Comments
		POSS	PROB	CONF	POSS	PROB	CONF		
82	Great Egret								*Observed in 9 squares. These birds first nested on Motor Island, located on the U.S. side of the Niagara River, in 1995. In 1995 there were two nests. In 2005 there were approximately 20 nests. We searched for, but did not find, evidence of breeding in Region 11.
86	Cattle Egret								*A single bird was observed in a field with cattle just west of the intersection of Regional Road 3 and King Street in 17PH24 in the summer of 2004. A single bird showed up at the same location on June 22, 2005 and a second bird showed up on June 27. The last date either bird was seen was on the morning of July 3. No birds were found in the afternoon or on subsequent dates.
87	Green Heron	6	3	15	6	9	9	0	
88	Black-crowned Night-Her	4		3			2	-33	Colonies have been on the small islands above Niagara Falls for many years. In 2004 birds nested on the breakwall at Port Colburne(17PH44). Double-crested Cormorants pushed them out in 2005.
95	Turkey Vulture	4	12	2	6	12	6	29	
96	Osprey								*A single bird was observed on a point count not far from Lake Ontario near Niagara-on-the Lake on May 25, 2005.(17PH59). In 2004 a pair of Osprey built a nest on the feeder canal in Port Maitland just west of Region 11
99	Bald Eagle	1					1	GAIN	A pair of birds nested at the north end of Navy Island (17PH66) in the summer of 2005. According to the MNR(AY) Bald Eagles last nested on Navy Island in 1952.
100	Northern Harrier	4	4	8	6	6	4	-17	
101	Sharp-shinned Hawk		2		7	4	9	550	Substantial Increase in Breeding Squares
102	Cooper's Hawk				3	3	16	Gain	
103	Northern Goshawk								*A single bird was observed on August 1, 2002 in 17PH46. A pair of birds were recorded by MNR in April of 2000 at Ball's Falls(17PH37).

Table 4. Numbers of squares reporting possible, probable and confirmed breeding for the first and second Atlases.

No.	Species Name	First Atlas			Second Atlas			% Change	Second Atlas Comments
		POSS	PROB	CONF	POSS	PROB	CONF		
104	Red-shouldered Hawk	2			2	1	1	Gain	A pair of birds nested in the woodlot on the abandoned firing range in Niagara-on-the Lake(17PH59) for the entire atlas period. A bird was observed for several weeks in 17PH54. A pair of Red-shouldered Hawks were first observed in Fonthill(17PH36) about 1990 when a housing subdivision was set up in an area they had nested in for some years (dates unknown) They last last nested in Fonthill in 1998.
105	Broad-winged Hawk				1				*A single bird was observed in 17PH25 on June 1, 2002. It was not seen on subsequent visits to the square that year.
107	Red-tailed Hawk		3	21	1	3	20	-4	
112	American Kestrel	1	3	20	3	5	14	-17	
115	Peregrine Falcon						3	Gain	The first nest of these birds in the Niagara Peninsula in many years was below Niagara Falls on the rockface by the Refractory Restaurant in 1998 (17PH57). A pair of birds nested in downtown St. Catharines in 2001. A pair of birds first nested in the grain elevators at the Port Colborne entrance to the Welland canal in 2003 (17PH44). they are still nesting in 2006.
120	Virginia Rail	3	2	3	2	8		60	*Easily heard in suitable habitat.
121	Sora	1	5	2	4	4	4	14	
123	Common Moorhen	2	1	4	1		2	-60	Birds on territory on Glendale Lagoons (17PH47) and fledged young on the ponds at Port Weller east 17PH48).
124	American Coot	2		4	3		4	0	Confirmed in St.David's Lagoons (17PH58), the Port Weller east pond (17PH48), the Glendale Lagoons(17PH47) and the ponds west of the pond on Cement Plant Road.(17PH34)
125	Sandhill Crane				1	1	1	Gain	A pair of birds was observed in 17PH65 in 2001. A pair of these birds was first noted in 1995 in the square. No one has searched for the nest of these birds. During the atlas there were sightings outside the square so it is possible that there is more than one pair in Region 11.
134	Killdeer			24	1	1	23	0	

Table 4. Numbers of squares reporting possible, probable and confirmed breeding for the first and second Atlases.

No.	Species Name	First Atlas			Second Atlas			% Change	Second Atlas Comments
		POSS	PROB	CONF	POSS	PROB	CONF		
138	Spotted Sandpiper	1	6	17	1	11	13	4	
145	Upland Sandpiper		6	10	2	6	4	-38	
172	Wilson's Snipe	2	12	4	4	12	2	-13	
173	American Woodcock		9	11	1	18	4	10	
181	Bonaparte's Gull								*Late dates June 10(17PH24) and June 12(17PH48). On June 15 of 2006 there were 15 birds loafing along the shoreline in 17PH34.
184	Ring-billed Gull			3	1		5	67	Colonies at Mohawk Island (17PH24), the Port Colburne breakwall and the east pair of the Welland canal (17PH44), Lock1 on the Welland Canal(17PH48) and above Niagara Falls on a small island (17PH57). Four pairs nested on a small island below Queenston in 17PH58.
186	Herring Gull	1		2			4	100	Small numbers of breeding birds at the mouth of the Welland canal by Lock 1(17PH48) and the islands in the river above Niagara Falls(17PH57). Larger colonies at Mohawk Island (17PH24) and the Port Colburne breakwall (17PH44).
192	Great Black-backed Gull	1					1	Gain	Single pair nested on the Port Colburne breakwall (17PH44). Observed 1999, 2001 and 2002.
199	Caspian Tern	1					1	not Niagara region	Caspian Terns were present on Mohawk Island (17PH24) during the entire atlas period.
200	Black Tern	1	1	2				LOSS	*Confirmed in the first atlas. Not observed in the breeding months in the second atlas. Last observed breeding at Mud Lake(17PH45) in 1982.
202	Common Tern	2		1			2	100	A colony of Common terns has bred on the Port Colburne breakwall for many years (17PH44). Recently the bulk of the birds have left Port Colburne. A few birds have nested on the breakwall above the control weir on the Niagara River (17PH57)
218	Rock Pigeon		3	22		6	17	-8	
222	Mourning Dove		1	24		3	22	0	
226	Yellow-billed Cuckoo	4	5	3	3	8	3	38	
227	Black-billed Cuckoo	6	8	6	9	6	7	-7	

Table 4. Numbers of squares reporting possible, probable and confirmed breeding for the first and second Atlases.

No.	Species Name	First Atlas			Second Atlas			% Change	Second Atlas Comments
		POSS	PROB	CONF	POSS	PROB	CONF		
229	Barn Owl			2	1			LOSS	*A single bird was observed flying overhead in Port Colburne in July (exact date unknown) 2001.(17PH44). The last known breeding record for this species was an unsuccessful attempt by a pair of Barn Owls to breed just outside of Smithville in 1989. (This is just west of Region 11) It may be in the Niagara region?
230	Eastern Screech-Owl	1	9	13	4	12	8	-9	
231	Great Horned Owl	1	3	20		6	18	4	
237	Long-eared Owl	1	1	3	1	2	1	-25	Confirmed in the Chippewa Creek Conservation Area in 2001(17PH26). A pair of birds was observed in a coniferous woodlot on the Niagara parkway in 2003 (17PH66). A probable breeder was observed on several occasions in 17PH65.
238	Short-eared Owl	1		2		2		LOSS	*A displaying bird was observed in 17PH35 on April 11, 2001. It was not seen on subsequent visits. The fields where it was seen were first cultivated in 2002. This was a site where Short-eared Owls had been present for many years in the winter before the atlas began. They were not seen following the cultivation. In the summer of 2004 birds were observed in 17PH27 and a single bird was observed in April of 2005 in 17PH27. Confirmed in two squares in the first atlas.
240	Northern Saw-whet Owl			1				LOST	*Confirmed in the first atlas but not observed in the second atlas.
242	Common Nighthawk	4	3	6	2	5		-44	*Probable birds were reported from 17PH59 in 2001, 17PH54 and 17PH55 in 2002, 17PH57 in 2003 and 17PH47 in 2004.
245	Whip-poor-will	2	1	2	1	1		-67	*Birds calling in summer of all atlas years in the Wainfleet Bog (17PH35) and in 2004 in 17PH45, a square which also contains a part of the Wainfleet Bog.
247	Chimney Swift	1	8	16	7	6	9	-38	
250	Ruby-throated Hummingbird	1	10	13		12	12	4	
253	Belted Kingfisher	1	5	18	6	6	12	-22	
255	Red-headed Woodpecker		4	20	2	1	10	-54	
256	Red-bellied Woodpecker	1	3	1		5	19	500	Substantial Increase in Breeding Squares

Table 4. Numbers of squares reporting possible, probable and confirmed breeding for the first and second Atlases.

No.	Species Name	First Atlas			Second Atlas			% Change	Second Atlas Comments
		POSS	PROB	CONF	POSS	PROB	CONF		
257	Yellow-bellied Sapsucker				2				*A bird was observed on July 11, 2002 in 17PH65. A second bird was observed on June 8, 2005 in 17PH26.
258	Downy Woodpecker	1	1	23		1	24	4	
259	Hairy Woodpecker		3	21		4	20	0	
262	Northern Flicker			24	1	4	20	0	
263	Pileated Woodpecker		1		3	2	1	200	A pair of these birds have been in Abino Woods (17PH54) for many years. First observed (JEB) winter 1970. A nest with young was found in 2002. A pair of birds was observed in 17PH24 in 2005. A bird was seen on several occasions about 100 meters in from the south end of Townline Road in the Wainfleet Bog (17PH35) from March to May by the MNR in 2005.
266	Eastern Wood-Pewee		4	20	1	9	14	-4	
268	Acadian Flycatcher	1	1		2	1		0	*A single bird was found on June 18, 2001 in 17PH45. It was last found on June 28 and not found after that date. A single bird was found in 17PH47 on June 11 and June 14 of 2003. A single bird was found on June 1, 2005 in 17PH57 and not found a week later when the site was revisited.
269	Alder Flycatcher	1	7	3	4	13		30	* Easily found in suitable habitat.
270	Willow Flycatcher		9	13	1	16	7	5	
271	Least Flycatcher	2	14	3	7	8	4	-29	
274	Eastern Phoebe	2	4	11	1	6	18	60	
278	Great Crested Flycatcher		6	18		13	11	0	
284	Eastern Kingbird			24		3	21	0	
290	White-eyed Vireo		2		1				*A single bird was observed on June 15, 2001 in 17PH54. Calling birds were found north of Biederman Road in 17PH35 for some years following the first atlas. The last known bird was heard in the summer of 1993. It was not heard in 1995(JEB).
293	Yellow-throated Vireo	2	8	2	2	5		-50	*Probable in 17PH26,36,45,46,65
295	Blue-headed Vireo						1		From atlas data I find 17PH34 Blue-headed Vireo CF CONF 1 , but I was not aware of this record until I received my copy of the atlas.
296	Warbling Vireo	2	11	12		12	13	9	

Table 4. Numbers of squares reporting possible, probable and confirmed breeding for the first and second Atlases.

No.	Species Name	First Atlas			Second Atlas			% Change	Second Atlas Comments
		POSS	PROB	CONF	POSS	PROB	CONF		
297	Philadelphia Vireo								*A single bird was observed in Paradise Grove, Niagara-on-the-Lake on June 3, 2002. It was not found on subsequent visits.
298	Red-eyed Vireo		7	17	1	10	14	0	
300	Blue Jay	1		24		1	24	4	
304	American Crow			24		3	22	4	
307	Horned Lark	1	7	16	2	12	9	-9	
308	Purple Martin			25			25	0	
309	Tree Swallow	3		22	1	1	23	9	
311	Northern Rough-winged Swallow		2	21	6	4	15	-17	
312	Bank Swallow	1		17		3	15	6	
313	Cliff Swallow				2	2	8	Gain	Substantial Increase in Breeding Squares
315	Barn Swallow	1		24		1	24	4	
317	Black-capped Chickadee	1		24		4	21	4	
319	Tufted Titmouse	4	3	2	4	5	12	240	Substantial Increase in Breeding Squares
320	Red-breasted Nuthatch	1	1		3	5	3	700	Substantial Increase in Breeding Squares
321	White-breasted Nuthatch		8	16		10	14	0	
322	Brown Creeper	3	3	2	5	3	1	-20	Confirmed in 17PH64.
324	Carolina Wren	2	2	5	2	8	13	200	Substantial Increase in Breeding Squares
326	House Wren			24		2	23	4	
327	Winter Wren	2	2		3	3	2	150	Confirmed in 17PH27,17PH44 and 17PH57. Probable in 17PH24 and 17PH54.
328	Sedge Wren		1	1	1	3		50	*A singing male was observed July 11, 2004 in 17PH24. A visit a week later revealed that the field had been plowed and the bird was not refound. On June 23 and July 7, 2002 a bird was found in 17PH27. It was not refound in subsequent years.. In the summer of 2001 a bird was found repeatedly in 17PH44 and on June 17 and June 24, 2003 a bird was found in 17PH58.
329	Marsh Wren	1	6	4	1	3	3	-40	

Table 4. Numbers of squares reporting possible, probable and confirmed breeding for the first and second Atlases.

No.	Species Name	First Atlas			Second Atlas			% Change	Second Atlas Comments
		POSS	PROB	CONF	POSS	PROB	CONF		
330	Golden-crowned Kinglet							1 Gain	Norway Spruce grove in 17PH44 on firelane beside lake between Pinecrest and Weaver. (647395E,4747947N) First observed June 12 then again June 20, 2005. Later in July observed feeding a cowbird on a branch and a young kinglet on the nest. A singing male was present on June 21, 2006 in the woodlot. An abandoned gas pump is at the roadside. The wood runs for 110 meters along the road and extends about 80 meters north of the road at its deepest point. Similar trees are to the west in another grove.
332	Blue-gray Gnatcatcher		7	2	5	3	6	0	
335	Eastern Bluebird	2	2	6	1		22	175	Substantial Increase in Breeding Squares
338	Veery	1	8	8	6	6	5	-31	
343	Wood Thrush		9	15	1	10	13	-4	
346	American Robin			25			25	0	
348	Gray Catbird		2	23		1	24	0	
349	Northern Mockingbird		5	14	2	4	17	11	
351	Brown Thrasher	1	5	18	4	6	14	-13	
352	European Starling			25			25	0	
356	Cedar Waxwing		10	15	1	8	16	-4	
358	Blue-winged Warbler			1	3	3	3	500	Substantial Increase in Breeding Squares
359	Golden-winged Warbler	1	2			1		-50	*A singing male was first observed on territory on June 20 and June 27, 2002 in 17PH46. The bird was not found in subsequent years in the square.
362	Nashville Warbler		1	1	1	2		0	*Singing males were found in the Wainfleet Bog (17PH25) in all years of the atlas. A single bird was observed in Niagara-on-the Lake on May 23, 2005 carrying nesting material but was not observed subsequently. A single bird was observed on a point count on June 18, 2995 in 17PH37/
364	Northern Parula				1				*A single bird was observed on Navy Island on July 4, 2002.(17PH66). The bird was not observed on a visits on June 25, 2002 and July 31, 2002
365	Yellow Warbler		1	24			25	0	
366	Chestnut-sided Warbler	2			4	5	4	Gain	

Table 4. Numbers of squares reporting possible, probable and confirmed breeding for the first and second Atlases.

No.	Species Name	First Atlas			Second Atlas			% Change	Second Atlas Comments
		POSS	PROB	CONF	POSS	PROB	CONF		
367	Magnolia Warbler				1				*A single bird was observed on June 18, 2002 in 17PH46. The bird was not observed one week later when the site was visited.
369	Black-throated Blue Warbler				1	1			*A singing male was found on June 16, 2001 in 17PH27. It was last found on June 24 and not found subsequent to that date. A singing male was found on June 15, 2001 in 17PH54.
372	Black-throated Green W	1			2				*A single bird was observed on June 26, 2003 in 17PH46.
375	Blackburnian Warbler	1							*Possible first atlas but not observed in the breeding months in the second atlas.
377	Pine Warbler				1				*A single bird was observed on June 9, 2005 at Niagara Shores in Niagara-on -the-Lake. (17PH 59). The bird was not observed on a later visit on June 16, 2002.
379	Prairie Warbler					1			*A singing male was first observed on June 6, 2001 in the Wainfleet Bog (17PH35). It was last seen on June 15 and was not found on June 21 and subsequent visits to the square.
382	Blackpoll Warbler								*A single bird was observed on June 13, 2003 in 17PH54. A single bird was observed on June 9, 2003 and again on June 16, 2003 in 17PH65. It was not heard on June 17, 2003.
383	Cerulean Warbler	3	1		2				*A single bird responded to a tape on June 25, 2005 in 17PH24. The bird did not respond one week later. (Not Niagara region) A single bird was heard on July 3 and July 7, 2002 on Abino Hills Road in 17PH54.
384	Black-and-white Warbler				2				*A bird was found June 14, 2001 in 17PH46. Birds were found on June 15, 2001 and June 10, 2002 in 17PH54.
385	American Redstart	2	8	8	3	11	6	6	
389	Ovenbird	5	7	2	6	11		22	*Easily heard in suitable habitat.
390	Northern Waterthrush		1		2				*Single birds were observed on June 9, 2003 in 17PH55 and 17PH56. On a visit a week later to 17PH55 the bird was not found.
391	Louisiana Waterthrush	1	1						*Probable in the first atlas. A search of suitable habitat in the second atlas yielded no birds.

Table 4. Numbers of squares reporting possible, probable and confirmed breeding for the first and second Atlases.

No.	Species Name	First Atlas			Second Atlas			% Change	Second Atlas Comments
		POSS	PROB	CONF	POSS	PROB	CONF		
394	Mourning Warbler	2	7	1	2	7	2	13	
396	Common Yellowthroat	1	8	15		9	15	4	
397	Hooded Warbler		1		4	2	7	800	Substantial Increase in Breeding Squares
399	Canada Warbler	3				2			* A single bird was found in 17PH 35 on June 6, 2001 and again on June 15. It was not refound on June 21, 2001. A single bird was found in 17PH44 on June 8, 2005 and again on June 15, 2004. Calling birds were found north of Biederman Road in 17PH35 for some years following the first atlas. The last known bird was heard in the summer of 1993. It was not heard in 1995.
401	Yellow-breasted Chat		3	1	1	1		-75	*A bird was observed May 28, 2003 and again June 3 in 17PH65. It was not found on subsequent visits to the area. A singing male was observed on June 11, 2005 in 17PH38. It was not found later that day or on subsequent days.
403	Scarlet Tanager	2	12	6	3	12	4	-11	
407	Eastern Towhee	1	13	9	2	10	5	-32	
411	Chipping Sparrow	1		24	1	2	22	0	
414	Field Sparrow	1	6	15	1	13	9	5	
415	Vesper Sparrow		8	15	3	15	3	-22	
419	Savannah Sparrow		1	23	1	5	18	-4	
420	Grasshopper Sparrow	3	3	3	2	1	3	-33	Confirmed in 17PH45 and 17PH46. The area to the east of the Welland canal is ideal habitat for these birds. It was cleared during the building of the current canal and as yet has not been developed in many location so it is open grassland. Confirmed in 17PH57. Probable in 17PH56.
422	Henslow's Sparrow				1				*A single bird was heard on the evening of June 7, 2002 at the intersection of Minor Road and Highway 3 in Port Colborne(17PH45). The bird was not found that evening and attempts to find the bird the following days were unsuccessful. The last known report of this bird in the Niagara region was in 1968 by Harold Lancaster who observed a bird in 1968 by Cement Road pond in 17PH44 about 1 km south of the 2002 sighting.

Table 4. Numbers of squares reporting possible, probable and confirmed breeding for the first and second Atlases.

No.	Species Name	First Atlas			Second Atlas			% Change	Second Atlas Comments
		POSS	PROB	CONF	POSS	PROB	CONF		
426	Song Sparrow		1	24		2	23	0	
427	Lincoln's Sparrow			1			1	0	A single nest was found by MNR at the north-east edge of the trees surrounding Wainfleet Bog (17PH45) in 2003.
428	Swamp Sparrow	2	6	7	3	12	4	23	
429	White-throated Sparrow		1						*Probable in first atlas but not observed in the breeding months in the second atlas.
439	Northern Cardinal	1		24		2	23	4	
440	Rose-breasted Grosbeak	1	1	21	1	2	21	5	
444	Indigo Bunting	1	8	16	1	8	15	-4	
448	Bobolink	1	4	18	1	12	11	5	
449	Red-winged Blackbird			25			25	0	
450	Eastern Meadowlark		3	21		7	16	-4	
455	Common Grackle			25			25	0	
457	Brown-headed Cowbird			25	1	2	22	-4	
458	Orchard Oriole	1	1	3	2	9	4	225	Substantial Increase in Breeding Squares
461	Baltimore Oriole			25			25	0	
466	Purple Finch	1	3	2	3	2		-60	*Dates are June 13, 2003, May 27, 2004 and May 2004 in 17PH54. May 28 or May 29, 2002 in 17PH55. May 27, 2004 in 17PH59 and July 19, 2002 in 17PH65.
468	House Finch	1	4	18		6	19	14	
473	Pine Siskin			1	1	1		0	*A single bird was observed on May 26, 2001 in 17PH57. 4 adult birds were observed on May 1 and May 3, 2004 in 17PH54. A pair of birds were first observed in January of 2005 in 17PH59. The birds were last seen on May 29, 2005. The male was singing in May of 2005.
475	American Goldfinch		5	20		7	18	0	
477	House Sparrow			25			25	0	

11.0 BIRDS OF THE NIAGARA REGION

John E. Black and Kayo J. Roy

The Niagara Region is particularly rich in the number and variety of birds it supports. These abundant birds include those that live here the entire year, those that stay here only during the summer or winter and those that migrate through the Region to and from their breeding grounds. In this article we first discuss the more than 365 species that have been found in Niagara over the years. We indicate how often these birds can be observed (abundance) and the time of year they can be seen (occurrence.) We then discuss birds that breed in the Niagara Region and how widespread this breeding is. Unfortunately, some breeding birds have been negatively affected by the West Nile Virus, which arrived here in 2002. We conclude with some remarks on its impact in Niagara.

We have used many sources of data in preparing the lists of Niagara birds presented here. Two early publications stand out: *Birds of the Niagara Frontier Region* by Beardslee and Mitchell (1965) and *Bird Life of Canada's Niagara Frontier* by Sheppard (1970). See also the update by Mitchell and Andrie (1970).

These books report very thoroughly on birds in Niagara prior to 1965. However, after that date information on Niagara bird life exists mostly in the form of scattered articles, nature club publications and field notes. In fact, it was this lack of a single volume containing bird data beyond 1965 that prompted us to write *Niagara Birds* (Black and Roy, forthcoming), a book that focuses on the period from 1966 to 2006.



Red-headed Woodpecker



Common Tern

SOURCES OF DATA

The many sources of data that were consulted, both in preparing the list of birds of the region described here and in the preparation of *Niagara Birds*, are as follows:

Buffalo Ornithological Society (BOS)

The society provided us with verified accounts in their published noteworthy records and with the accumulated results of their bird counts held in Niagara in April, May and October.

Audubon Christmas Bird Counts

Data from annual counts held in four different locations are available. The Buffalo Count (1966 to 2006) and the St. Catharines Count (1982 to 2006) were completed each year in the period from mid-December to Christmas day. The Niagara Falls Count (1966 to 2006) and the Port Colborne Count (1986 to 2006) were completed each year between Boxing Day and the first week of January.

Ontario Breeding Bird Atlas

During two five-year periods—the first from 1981 to 1985 and the second from 2001 to 2005—hundreds of volunteers participated in an ambitious undertaking to map the distribution and abundance of breeding birds in Ontario. These two projects have generated valuable data leading to a more comprehensive understanding of breeding birds in the province. The results are compiled in the *Atlas of Breeding Birds of Ontario* (Cadman et al. 1987) and the *Atlas of Breeding Birds of Ontario, 2001-2005* (Cadman et al. 2007).



Great Blue Heron

Other sources

The accepted records of the Ontario Bird Records Committee provided fully documented data of rare birds observed in the region. Additional publications referenced include *Ontario Birds*, *Birders Journal* as well as the National Audubon's publications *American Birds*, *Field Notes* and *North American Birds* and the American Birding Association's publication *Birding*.

The Breeding Bird Survey, the Grimsby Spring Hawk Watch, the Hamilton Naturalists Club Noteworthy Records, the Natural Heritage Information Centre, the Ontario Shorebird Survey and articles on the birds of Niagara by (Black 1997), Cheskey et al. (2003) McCracken et al. (1996), Riley et al. (1996) and Wood (2004) were consulted. Data from local birders were also used in constructing the tables, mainly from John Black 1966-2006, Harold Lancaster 1966-1978, Kayo Roy 1983-2006, Dan Salisbury 1966-1971, Alan J. Smith 1955-2006 and the contributors to the BOS Noteworthy Records, such as Robert Andrie, Harold Axtell, Gordon Bellerby and a great many others.

No discussion of the birds of Niagara would be complete without a list of locations that are particularly rich in birds. These include the Adam Beck overlook on the Niagara River in Niagara Falls, the Beamer Memorial Conservation Area in Grimsby, the Grimsby sewage lagoons, the Harold Mitchell Nature Reserve in Long Beach, Malcomson Eco-Park and the Port Weller piers at the mouth of the Welland Canal in St. Catharines, Morgan's Point in Burnaby, the mouth of the Niagara River in Niagara-on-the-Lake, Mud Lake in Port Colborne, the Smithville sewage lagoons, the Wainfleet Bog and Erie Beach and Waverley Beach in Fort Erie. This is only a short list of birding hotspots. Many more are described in our book *Niagara Birds*.



Virginia Rail

ABUNDANCE AND OCCURRENCE

Tables 1, 2 and 3 present lists of all the species of birds that have been observed in Niagara, along with estimates of their abundance and occurrence. Note that the entries here are those presently planned for *Niagara Birds*; some minor changes may occur prior to the publication of the book.

The birds are listed in the order approved by the American Ornithological Union (AOU), and the English and Latin names of the species conform to those in the AOU checklist, 7th edition (AOU 1998 and all supplements through 2006).

The data are organized by seasons.

Spring Season: March through May.

Summer Season: June to mid—August.

Fall Season: mid - August through November.

Winter Season: December through February.

The scheme used for describing abundance and occurrence is taken in part from the Annotated Checklist of the Birds of Ontario (James 1991). Where the abundance of a species has changed over the years, the abundance in the table will be based on the period from 2001 to 2006. Note that the absence of a spring or fall transient abundance in the table does not mean the bird does not migrate through our region in the spring or fall but only that its migration is difficult to recognize or has not been studied. On occasion, the presence of many birds residing in the region makes it difficult to recognize which birds are transients.



Mute Swan



American Robin

Abundance

Very Common - observed annually on most days at many locations, often in large numbers.

Common - observed annually on most days at many locations in small numbers.

Uncommon - observed annually on many days at a few locations in small numbers.

Rare	- observed annually or almost annually at a few locations in very small numbers, often on only a few days, and with difficulty unless at a known location.
Occasional	- not observed annually though always anticipated; often only a single individual observed.
Extremely rare	- an extraordinary observation with five or fewer Niagara records; the probability of recurrence very low.
Extirpated	- formerly resident in Niagara; no longer observed.
Extinct	- formerly observed in Niagara; no longer exists anywhere

Occurrence

Resident	- regularly spends one or more seasons in Niagara.
Transient	- regularly migrates through Niagara, traveling to their breeding grounds in the spring or returning to their wintering grounds in the fall.
Straggler	- remains in Niagara after migration, usually in small numbers.
Visitor	- irregularly wanders into Niagara, usually in small numbers.
Introduced	- have had human assistance in establishing themselves on the North American continent.
Hypothetical	- identification uncertain; possibly an escaped captive bird.

BREEDING BIRDS

Table 4 presents breeding bird results obtained in Atlas Region 11, which covers an area that closely conforms to that of the Niagara Region except for two small departures along the western boundary¹. Atlas Region 11 was divided into 25 squares, each 10 km X 10 km. In Table 4 the number of these squares reporting possible breeding, probable breeding or confirmed breeding of each species in the two atlases is given. In addition, data from the second Atlas for those species which are not known to breed in Region 11 or which bred infrequently are included. The breeding evidence levels are defined as follows:

Possible	- the atlaser saw or heard the species singing during the breeding season in suitable nesting habitat.
Probable	- the atlaser observed a pair of birds, territorial behavior, a courtship display, an adult visit to a probable nest site, agitated behavior, anxiety calls of an adult, a brood patch on an adult or nest building.
Confirmed	- the atlaser observed a distraction display, adults entering or leaving a nest cavity, an adult carrying a fecal sac or

food for young, a nest containing eggs or a nest with young, a used nest or egg shells or recently fledged young.



Wood Duck

WEST NILE VIRUS

A dead Blue Jay turned into the Niagara Region Public Health Department on 11 September 2001 was the first Niagara bird to test positive for the West Nile Virus (West Nile Virus Summary Report (2001-2004, 2005)). Of the 78 Blue Jays turned in for testing to the Niagara Region Public Health Department between 2002 and 2006, two were found to be positive (West Nile Virus Summary Report (2001 – 2004, 2005, 2006)). During the years 2002 to 2006, a total of 130 American Crows found dead and turned into the Niagara Region Public Health Department were tested for the presence of the West Nile Virus, and 29 tested positive (West Nile Virus Summary Report (2001 – 2004, 2005, 2006))

There is some evidence that the numbers of American Crows seen on the April, May and October BOS counts have declined since the appearance of West Nile in the Niagara Region between 2002 and 2006. There is also anecdotal evidence from birders that crow numbers were down in the Niagara Region during the summer months from 2002 to 2006, although they seemed to be returning to normal numbers by 2008.

Very common on the Christmas Bird Counts, crows have been seen on all such counts since 1966. The largest number observed was 11,050 on the St. Catharines Christmas Bird Count in 1994. Large count numbers were obtained by counting the birds in a roost area in St. Catharines. The count numbers then plunged from 3,568 birds in 2001 to 697 birds in 2002 and then to 105 in 2003 and had not recovered by 2006. This large drop from 2001 to 2002 in crow numbers presumably reflected the toll of the West Nile Virus. However, it did not necessarily reflect the deaths of resident Niagara crows. The 3,568 crows of 2001, if distributed over the 25 squares studied in the second Ontario Breeding Bird Atlas, would yield 143 birds per square. Since atlasers might, at most, see a twenty to thirty crows in an atlas square, this tells us that many of the overwintering crows in 2001 were from outside the Niagara Region.

CONCLUDING REMARKS

The Niagara Region is an important breeding ground and wintering area for many birds. These birds include both those that reside here permanently and the many migrants that breed here in the summer or spend their winters here. In the summer months, as a result of construction on the Welland Canal some years ago, there is now a large area east of the canal and south of Welland that supports grassland species such as Grasshopper Sparrow and Upland Sandpiper. In the winter months, the Niagara River is a particularly important area, supporting as it does many thousands of gulls and ducks. However, the continuation of these locations and of that of other habitats for birds, cannot be taken for granted. In order for the Region to continue its sustaining role of habitat provider appropriate conservation measures must be implemented and maintained.

There is anecdotal evidence that birds migrating south in the fall move west, rather than crossing Lake Ontario, when they reach its north shore. As a consequence of this 'lake avoidance' it can be conjectured that fewer migrants pass over or through the Niagara Region in the fall than in the spring. A radar comparison of the spring and fall migration might demonstrate the truth of this conjecture.

ACKNOWLEDGEMENTS

We are grateful to the many Niagara area birders for contributing their personal bird records for our use and to the members of the Buffalo Ornithological Society who helped in ways too numerous to enumerate here. We are also pleased to acknowledge the help of Donald Sutherland of the Natural Heritage Information Centre, Guy Morrison, who provided the Ontario Shorebird Survey and Bob Curry who made available the Hamilton Naturalists Club Noteworthy Records.

The colour bird photographs included in this document are courtesy of Kayo J. Roy.

FOOTNOTES

¹ The Atlas boundary lies slightly east of the Niagara Region boundary at the shore of Lake Ontario and slightly west of the Niagara Region boundary at the shore of Lake Erie. As a consequence, results from a small area in the northwest corner of the Niagara Region are excluded from Table 4, and those from a small area outside the Niagara Region in the southwest are included. The authors have found that including data from those parts of the Niagara Region located in the adjacent Hamilton atlas region did not change the picture of breeding birds reported here in any substantial way. Note: point counts were made at many locations in Niagara during the second Atlas. The reader is referred to the *Ontario Atlas of Breeding Birds, 2001-2005* (Cadman et al. 2007) for the results of the point counts.

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Niagara Region Natural Areas Inventory
Reptile and Amphibian Study 2006 to 2008



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Recommended Citation:

Yagi A.R, A.Brant and R.Tervo. 2009. Niagara Region Natural Areas Inventory Reptile and Amphibian Study 2006 to 2008. Ontario Ministry of Natural Resources and Land Care Niagara unpublished report for the Natural Areas Inventory prepared for the Niagara Peninsula Conservation Authority 78pp incl. separate Map Appendix.

Acknowledgements:

The authors wish to thank our funding partners Niagara Peninsula Conservation Authority, Ministry of Natural Resources and Land Care Niagara. We also wish to thank all of the Niagara landowners who allowed us access to their property and especially our many dedicated observers and volunteers. They were; Devin Mills, David Denyes, Katharine Yagi, Tim Seburn, Michael Oldham, Wayne Weller, Tony Van Oostrom, George Moldowan, Cathy Blott, Wm Radford, Ryan McLean, Sarah Tucker, Erica Yagi, Leanne Yagi, Heather Yagi, Mark Browning, Jill Garret, Albert Garofalo, Tom Staton, Bob Curry, Sarah Phelps, Tara Metzger, Susan Barbetti and Walt Cornwell. We also wish to thank Michael Oldham, Wayne Weller and Joad Durst for editing this report.

Dedication:



This report is dedicated to the memory of Rob Tervo (1971-2008), who passed away suddenly leaving us with countless observations of reptiles and amphibians in the Niagara Area. He was an integral part of the OMNR Niagara Area Species at Risk Team and a member of the Fowler's toad and Ontario Dusky Salamander Recovery teams. We could not have completed this project without him.

Cover Photograph is a collage of Rob Tervo's reptile and amphibian pictures taken over the last 10 years. It was compiled and designed by Amy Brant. From bottom left to top right they are; Wood Turtle, Blue-spotted salamander, Five-lined Skink, Milksnake, Red-spotted Newt (eft), Gray ratsnake, Spring Salamander, Fowler's toad, Eastern Massasauga rattlesnake, Spotted turtle, Eastern Ribbonsnake and Wood frog.

Inside all photographs are of Rob's work except where otherwise indicated.

This photograph of Rob was taken by Jeremy Rouse during the Natural Heritage Forum field trip in October, 2008.

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1.0 Introduction

The Niagara Region Reptile and Amphibian (Herp) study is part of the Natural Areas Inventory (NAI) study coordinated by the Niagara Peninsula Conservation Authority (2006 – 2008) for watershed planning purposes. The Ministry of Natural Resources and Land Care Niagara are partners in this initiative.

The Niagara Region is an ecologically diverse area complicated by a high density of roads with a population of over 400,000 people located in extreme south eastern Ontario. This region's climate and unique habitat features are ideally suited for reptiles and amphibians. However, the human fragmented landscape is a challenge for many of these species because they are ectothermic, have complex life cycles that require specialized habitat features and they must move about the landscape between these features during the active season to maintain populations in the long term. There are unique physiographic areas that define many of the species distribution. The Niagara River is recognized as being a natural dispersal barrier for many reptiles and amphibians preventing recolonization from Western New York State (Yagi and Tervo, 2008a and b).

There are 30 native reptiles and 29 native amphibians in Ontario (NHIC, 2008) and the Niagara Region has observational records for 44 native (75%) and 2 exotic species- Pond slider (Red-eared) and the Eastern Box turtle. There are 25 Species at Risk (SAR) reptiles and amphibians in Ontario and Niagara has local records for 20 (80%) SAR (NHIC, 2008). There are 2 Canadian extirpated species, 5 endangered, 9 threatened and 4 designated as special concern found in the Niagara Region (Table 1). Most SAR species are not widespread but associated with unique features such as organic basins, complex slough patterned swamp wetlands, groundwater discharge areas, escarpments, kames and shorelines. The remaining species found in the Niagara NAI study area (Figure 1) are considered common in Ontario but may still have a limited distribution within the study area and may be considered regionally significant. In addition, the Western Chorus frog, has a declining range in Great Lakes/St. Lawrence – Canadian Shield region and has been designated threatened (COSEWIC, 2008) for that region. At the present time this species remains widespread and locally common in the study area but is recommended for continual monitoring for signs of decline as seen in eastern Canada. Those species that are widespread in the region are successfully moving about the landscape and completing their life cycle.

The purpose of this report is to summarize the historic and current known distribution of reptiles and amphibians in the Niagara Region, to identify species of conservation concern and to summarize important data gaps to consider for watershed planning purposes. Species of conservation concern include all designated SAR species and species which have a localized distribution and/or based upon our local knowledge demonstrate declining trends in the Niagara NAI study area.

2.0 Methods

All historic information from NHIC, Ontario Herpetofaunal Summary(OHS) and OMNR Niagara area field records were compiled and entered into a GIS database for viewing using ARC MAP software ©. Misplaced points were corrected based upon the location descriptions provided in the respective database by the Management Biologist. For species with limited distribution, specific search areas were determined and targeted for field studies. Landowner permission was obtained by the NPCA and MNR for access to all private land areas visited.

Anurans which include frogs and toads were identified using calling surveys from roadways during the breeding season and incidental observations during field surveys. In addition intentional searches for the Fowler's toad were completed along the Lake Erie shoreline at night.

Salamanders, newts, snakes and lizards were identified using coverboard surveys, incidental observations in specific habitat areas and from road kills. Turtles were observed during specific boat and canoe surveys, along roads, incidentally during field surveys, specific targeted area surveys and road kills.

Date, time, location, UTM and photographs were collected to document species presence. All data were inputted into a GIS database and distribution maps were compiled for each species. Spatial data gaps were visually identified based upon historic survey effort. Species expected and not found were also identified for further search effort. A list of suspect historic records is also provided. A list of regionally significant species was determined for species considered common in the province but have a locally restricted distribution or are of conservation concern in the Niagara NAI study area (Figure 1).

Common and scientific names follow the Crother list (Crother et al, 2000; 2001; 2003; 2008).

Definitions:

Global and provincial status definitions are used throughout the document as per Committee on the Status of Wildlife in Canada (COSEWIC) and Committee on the Status of Species at Risk in Ontario (COSSARO/SARO) (<http://nhic.mnr.gov.on.ca/MNR/nhic/glossary.cfm>). The following terms are used to describe the distribution and significance in the Niagara study area (Figure 1). The term "abundant" was not used because we did not assess abundances for the purpose of this study.

Widespread	Any species that is widely distributed in the study area
Localized	Any species that is not widely distributed (found in ≤ 6 townships)
Regionally Significant	Any species of local conservation concern. They are either not widely distributed in the study area due to specialized habitat requirements or based upon our local knowledge demonstrate declining trends.
Extirpated	Any species with local historic records which is now considered no longer present in the study area
Introduced	Locally found species that are thought to be not native to the study area
Data Deficient	Insufficient local data available to determine regional status
SAR	Any species currently designated extirpated, endangered, threatened or special concern by COSEWIC or COSSARO

Study Area:

The Hamilton portion of the watershed and the westerly portion of West Lincoln were intensively surveyed for a five year period as part of the Hamilton Natural Areas Inventory (1990-1995). This study focused on the remaining portion of the Niagara Peninsula Conservation Authority watershed which is predominantly Niagara Region and north of the Grand River in Haldimand region. The NAI study area

consists of 12 Niagara Regional Municipality townships and a part of the City of Hamilton (portions of the former townships of Ancaster, Glanbrook and Stoney Creek) and north and west portion of the County of Haldimand (formerly the municipalities of Dunnville and Haldimand) (Figure 1).

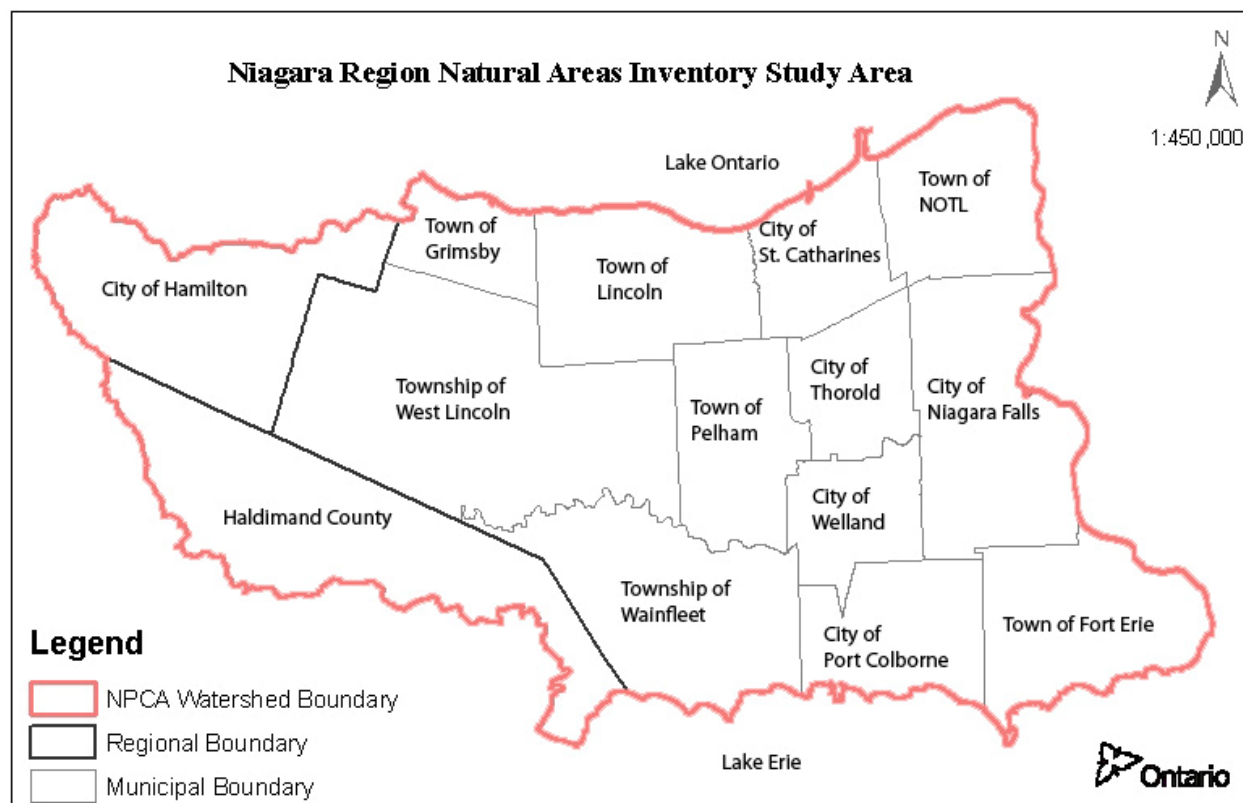


Figure1: Niagara Region Natural Areas Inventory Study Area (NOTL = Niagara-on-the Lake)

3.0 Results

3.1 Correction to Historic Data

Several reptile and amphibian species have been misidentified or inadvertently added to historic records for particular natural areas. For example, the Eastern Fox Snake (*Elaphe gloydi*) was recorded as present in the Jordan Valley ANSI (Schaefer et al, 1992) and Niagara Section Escarpment ANSI (Varga et. al., 1992). The source of Jordan Valley report was credible and based upon a description of a very large “king snake”. Given the habitat of where it was observed it is more likely a Gray ratsnake (*Elaphe spiloides*) or Milksnake (*Lampropeltis triangulum*) observation. The Niagara Escarpment report is an Ontario Herpetofaunal Summary (OHS) record (Weller and Oldham, 1986; Plourde et al, 1989; Riley et al., 1992) which was later identified as a milksnake. The furthest east records of the Fox snake are from Rock Point Provincial Park and Port Maitland (MNR files). However, since released captives can show up anywhere, any observational record of this species in Niagara should be recorded and investigated.

The Gray ratsnake’s (a.k.a Black ratsnake) Niagara range includes the Fonthill Kame Moraine of central and North Pelham and along the escarpment and valleys of Twelve Mile Creek, Fifteen and Sixteen Mile

Creek, Twenty Mile Creek and Jordan Harbour. It is also occasionally sighted near the Welland Canal in the Port Robinson area, although not recently. Some historic reports have not identified this species as present in Niagara (Weller and Oldham, 1986) or Riley et. al (1992) although historic records and physical evidence exists in NHIC/OHS database and local MNR files (Table 1). An observation was also incorrectly added to the Wainfleet Bog list which is now believed to be from the nearby Mud Lake area. Several other references inconsistencies exist for the study area however the most up to date list of herpetofaunal species for the NAI study area is located in Table 1.

Table 1: Summary of Background Records of Herpetofaunal Species from the Niagara Study Area. Last Column Confirms the species as locally found in Niagara during the NAI study.

(X- not found or reported; Ex = extirpated; intro = introduced; revised = updated historic records; √ = present in study area; blank= not discussed)

Common Name	Data Source					Confirmation
	Weller and Oldham 1986	Plourde et. al 1989	Riley et. al. 1992	NHIC / OHS records	Local MNR files	Niagara NAI Local Species
AMPHIBIANS OF NIAGARA AREA						
Wood Frog	√	√		√	√	√
Western Chorus Frog	√	√		√	√	√
Spring Peeper	√	√		√	√	√
Gray Tree frog	√	√		√	√	√
Northern Leopard Frog	√	√		√	√	√
Pickrel Frog	X	X		√	√	√
Green Frog	√	√		√	√	√
American Bullfrog	√	√		√	√	√
American Toad	√	√		√	√	√
Fowler's Toad	X	√	X	√	√	√
Red-spotted Newt	√	√		√	√	√
Northern Dusky Salamander		√	√	√	√	√
Allegheny Mountain Dusky Salamander				√ updated	√	√
Northern Spring Salamander		Ex		√	√ Ex	X
Eastern Red-backed Salamander	√	√		√	√	√
Four-toed Salamander	X	√	X	√	√	√
Common Mudpuppy	√			√	√	√
Blue-spotted Salamander	X	√		√	√	√
Jefferson Salamander	X	√		X	X	X
Jefferson X Blue-spotted Salamander, Jefferson genome dominates	√			√	√	√
Spotted Salamander	√	√		√	√	√

Common Name	Data Source					Confirmation
	Weller and Oldham 1986	Plourde et. al 1989	Riley et. al. 1992	NHIC / OHS records	Local MNR files	Niagara NAI Local Species
REPTILES OF NIAGARA AREA						
Five-lined Skink	X	√	X	√	√	√
Northern Red-bellied Snake	√	√		√	√	√
Northern Brownsnake	X	√		√	√	√
Northern Ring-necked snake	√	√	√	√	√	X
Eastern Gartersnake	√	√		√	√	√
Northern Ribbonsnake	√	√		√	√	√
Queen Snake	X	X	X	X	√	X
Smooth Greensnake	√	√		√	√	√
Northern Watersnake	√	√		√	√	√
Eastern Milksnake	√	√		√	√	√
Eastern Hog-nosed Snake	X	X	X	√	√	√
Gray Ratsnake (formerly BlackRratsnake)	X	√	X	revised	√	√
Eastern Fox snake	√	√	√	√ revised	√ intro	√ intro
Eastern Massasauga rattlesnake	√	√	√	√	√	√
Timber Rattlesnake	X	Ex		√	√ Ex	X
Midland Painted Turtle	√	√		√	√	√
Spotted Turtle	X	√		√	√	√
Blanding's Turtle	√	√		√	√	√
Wood Turtle	X	X		√	√	X
Northern Map Turtle	X	X		√	√	√
Eastern Box Turtle	√	√		√	√ intro	X
Red-eared Slider	X	X		√ intro	√ intro	√ intro
Eastern Musk Turtle	X	X		√	√	X
Eastern Spiny Softshell	X	√		√	X	X
Eastern Snapping Turtle	√	√		√	√	√

The Fowler's toad (*Anaxyrus fowleri*) is only found in close proximity to the Lake Erie shoreline, however historic observational and ROM records report this species as present in the Wainfleet Bog (MacDonald, 1992) and from the Welland River in the City of Welland. However, the bog records were confirmed to be American toad (*Anaxyrus americanus*) (D. Green pers. com.). The Welland River records were confirmed visually and audibly as Fowler's toad by MNR staff (A. Yagi pers. com.). However since natural dispersal from Lake Erie to the location where they were found is impossible, they were determined to be transplanted individuals from nearby Lake Erie. After one season they were no longer heard at this location.

The Northern Dusky salamander (*Desmognathus fuscus*) was first believed to occur in two sites in the Niagara Gorge (Kamstra, 1991). However recent field studies by MNR staff with genetic confirmation by McGill University confirmed the presence of the Allegheny Mountain Dusky (*Desmognathus ochropheus*) at one location and *D.fuscus* in the other (Yagi and Mills 2004; Markel and Green 2005; Yagi and Tervo 2008a; and, Yagi and Tervo 2008b).

The Eastern box turtle observations were from released captives confirmed by Tim Seburn (pers. com.). The Mink frog (*Lithobates septentrionalis*) is not found in southwestern Ontario, any credible observations are likely transplanted or introduced individuals or misidentified Green frogs. Lamond (1994) reported observations of Mink frog in Hamilton-Wentworth one year following a documented release. After which they were no longer heard. The Niagara Region ESA study contains lists of herpetofaunal species (Brady, 1980); however many common and scientific names are incorrect and they contain some erroneous observations and should not be used in the NAI database (Appendix 1 Table 3). In addition to the MNR databases (local, OHS and NHIC), other good sources of herpetile information that overlap with this study area include Haldimand-Norfolk NAI study (Gartshore et al, 1987) and Hamilton NAI (Lamond 1994; Heagy and McHattie 1995).

There are no confirmed Butler's Garter snake (*Thamnophis butleri*) observations for the Niagara study area although Ecologistics (1976) indicates this species as present in the Hamilton Area. This is a Species At Risk and is known to occur in the extreme southwestern portion of Ontario near Windsor and Sarnia.

3.2 Review of Available Data

A total of 6,062 historic observations (1867 to 2002) were compiled from known sources and are spatially represented in Figure 2. About 30% of the area was adequately sampled for most reptile and amphibian species during the Hamilton Natural Areas Inventory (1990- 1995) and the Ontario Herpetofaunal Summary studies (1980's) (Figure 2). Some spot checking was necessary to determine the continual

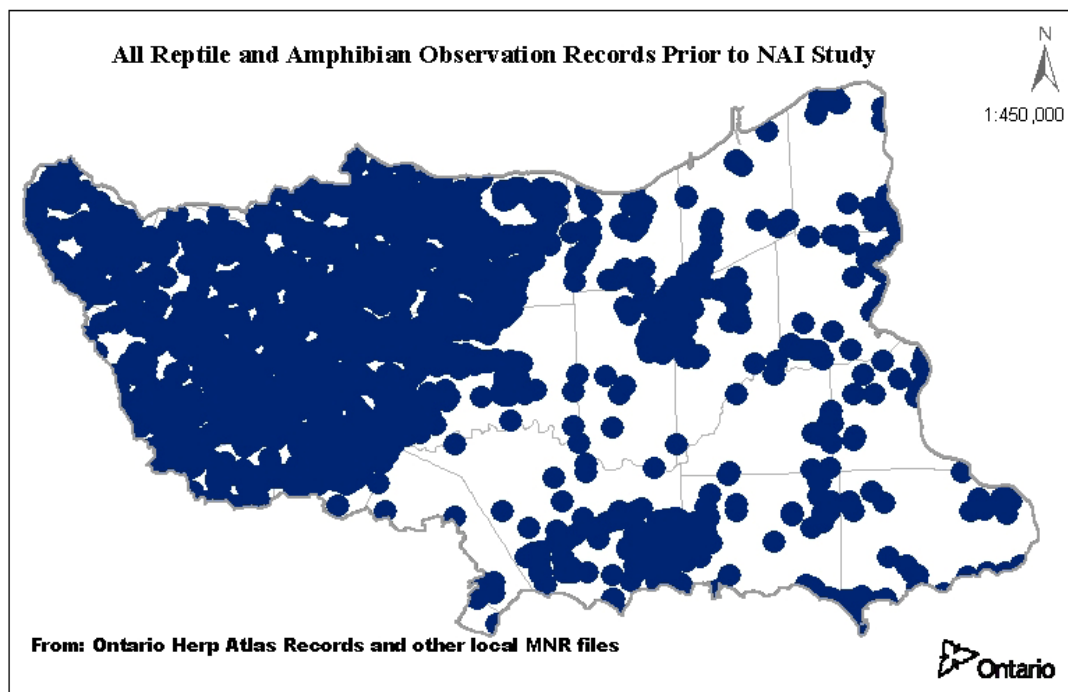


Figure 2: Reptile and Amphibian records from NHIC, OHS and local MNR files

presence of uncommon or difficult to find (i.e. cryptic) species. The remaining majority of the study area had a low density of observations and was considered under sampled especially in the southern municipalities of Wainfleet, Dunnville, Port Colborne, Fort Erie, eastern portion of West Lincoln, Pelham, Welland, Thorold and Niagara Falls. The majority of these observations occurred in the 1980's and 1990 time period with only 773 observations prior to 1980 (Figure 3).

Birds Studies Canada Marsh Amphibian monitoring data may help fill some spatial data gaps for several anuran species and should be incorporated into the NAI database when it becomes available.

3.3 NAI Data

In the past ten years, most reptile and amphibian records were collected, to help meet the recovery planning objectives of several Species at Risk namely Fowler's toad, Eastern Massasauga rattlesnake, Spotted Turtle, Northern Dusky and Allegheny Mountain Dusky salamanders. These five studies go beyond just presence and absence data because they involve detailed radio telemetry, coverboard and repeated mark recapture studies to establish habitat use, relative abundance and population trends through time. This has biased the total observations towards the predominance of species at risk. This does not mean that species at risk are more common in the Niagara region but merely reflects the past project targets and funding emphasis (Figure 3).

A total of 8,708 observations was collected during the NAI study period (2006 – 2008) an additional 5,321 records collected from 1995 to 2005 of local SAR records and were also included in the NAI database (Figure 4). In addition to the five detailed SAR studies, another 146 observations of seven other SAR were made during this study. A total of 3,290 observations were made of 27 (non SAR) reptiles and amphibians. From a spatial standpoint the NAI observations reflect the emphasis put toward filling the southern and eastern spatial gaps previously observed (Figure 2). The majority of NAI observations were oriented toward the municipalities in the south and eastern portion of the study area (Figure 5).

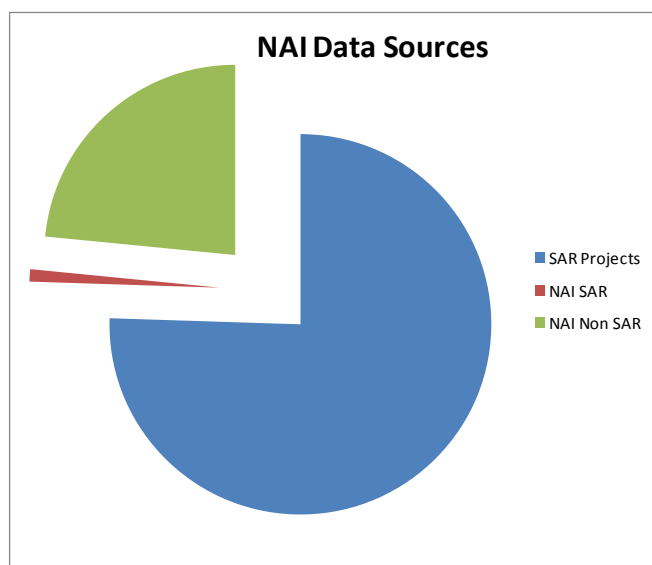


Figure 3: The Proportion of Species at Risk data represented from SAR projects and NAI projects.

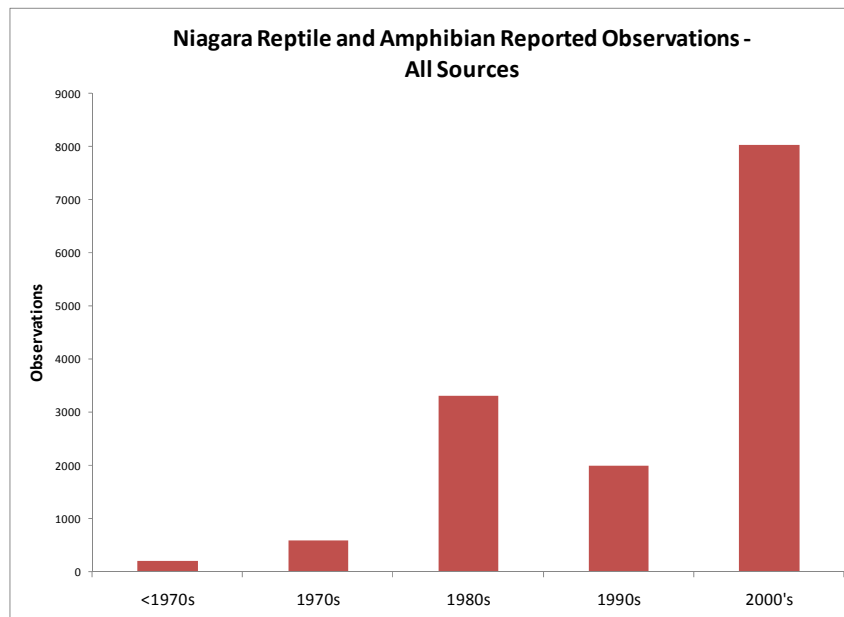


Figure 4: Summary of All Reptile and Amphibian Observations from the study area. over time.

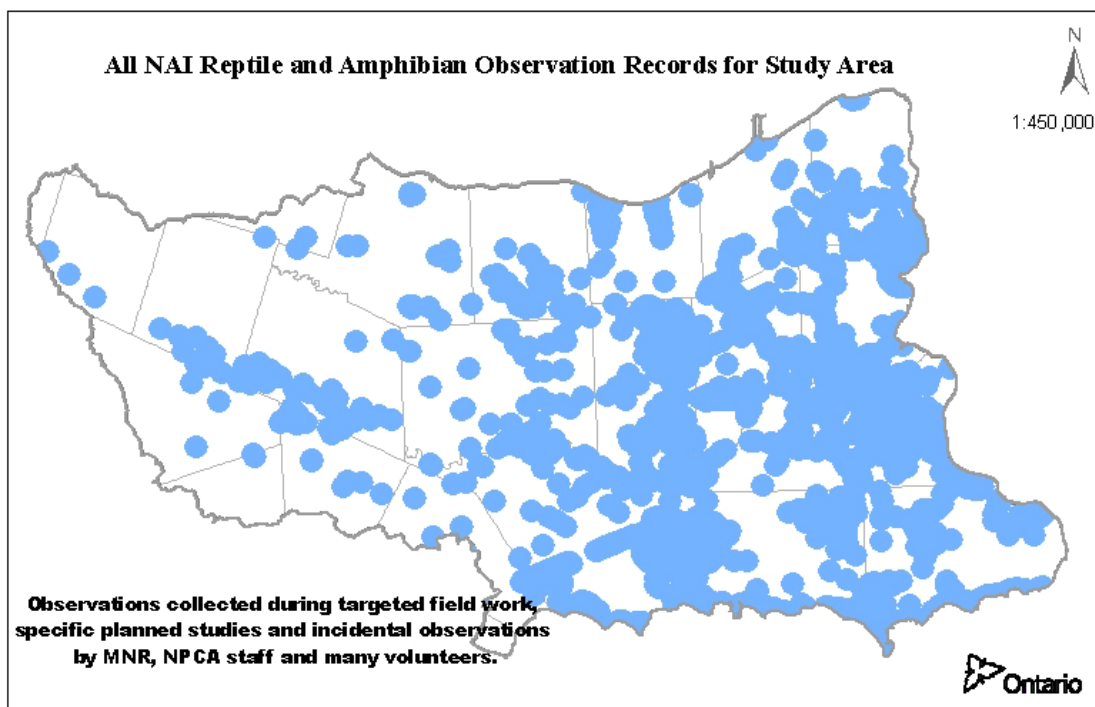


Figure 5: NAI observations collected during targeted field work, specific planned studies and incidental observations by MNR, NPCA and many volunteers.

3.4 Species Accounts

Amphibians:

Species of the class *Amphibia* include frogs, toads, salamanders and newts. They are animals that typically metamorphose from an aquatic gill breathing life stage to a terrestrial air breathing animal (Petranka 1998; Fisher et al 2007). Therefore their complex life cycles require both aquatic and terrestrial habitats and the ability to move between these habitats to maintain their respective populations. Since they must use both water and land habitats they are excellent indicators of landscape quality and connectivity.

Global (GRANK) or National status (COSEWIC) and Provincial (SRANK) or COSSARO status definitions for each species are provided above the Niagara NAI study area results (NHIC 2008).

Anura: Frogs and Toads

Wood Frog (*Lithobates sylvatica*):

Global Rank:	Very common; demonstrably secure under present conditions.
Provincial Rank:	Secure—Common, widespread, and abundant in the province.
Niagara NAI:	Widespread- 10 of 12 Niagara RM townships + Haldimand and Hamilton
Map #	1



The Wood frog is a true frog of the “northern woods”. They have the most northern distribution of any amphibian in the world (Fisher et al 2007). Their call is unique and sounds like a duck quacking. It is our first of the season callers which were readily identified in March and early April in ephemeral ponds, swamps and slough forest communities widespread in rural areas throughout the region. Periodically they were heard as late as May in the interior of Wainfleet Bog. They were not found within urban areas such as City of St. Catharines, City of Welland and Niagara Falls. The townships north of the escarpment were under sampled. They require temporary vernal forested pools that are predator free for successful reproduction. They are freeze tolerant and can hibernate in the moist forest floor under leaves and logs nearby and within vernal pools (Fisher et al 2007). Populations are sustained at a regional level through juvenile dispersal mechanisms.

Western Chorus Frog (Pseudacris triseriata):

- National Status: Great Lakes/St. Lawrence –
Canadian Shield population:
COSEWIC Threatened
- Western Chorus Frog – Carolinian
population: Not at Risk
- Provincial Rank: Apparently Secure—Uncommon but
not rare; some cause for long-term
concern due to declines or other
factors.
- Niagara NAI: Widespread- reconfirmed 12 Niagara
RM townships + Haldimand
- Map # 2



The Western Chorus frog is a small tree frog easily distinguished from other anurans by its unique call which sounds like a finger nail being dragged over a comb (Behler and King 1998). It is Niagara's second earliest calling species which is most often heard from shallow temporary pools in open fields, ditches and woodlands throughout the Niagara NAI study area. This species is freeze tolerant and requires both terrestrial and aquatic habitats in close proximity. Terrestrial habitat consists mostly of humid grassy fields, moist woods, or meadows. For reproduction and tadpole development, this species requires seasonally dry, temporary ponds that are devoid of predators such as fish (COSEWIC 2008). This species is vulnerable to habitat fragmentation and poor water quality which is deemed the limiting factors for the Great Lakes/St. Lawrence – Canadian Shield population. In the Niagara NAI study area, ongoing annual monitoring is recommended to establish long term trends.

Spring Peeper (Pseudacris crucifer):

- Global Rank: Very common; demonstrably secure
under present conditions.
- Provincial Rank: Secure—Common, widespread, and
abundant in the province.
- Niagara NAI: Widespread- confirmed in 11 of 12
Niagara RM townships + Haldimand
and Hamilton
- Map # 3



The Spring peeper is a very small tree frog with a distinguished breeding call which sounds like “peep peep”- hence their name (Behler and King 1998). They have a characteristic ‘X’ pattern on their back. This early spring caller has an extended calling period well into June. Large choruses are heard through out the Niagara NAI study area including many urban areas. They require temporary forested vernal pools

that are predator free for successful breeding. They are freeze tolerant and hibernate in the forest floor under log debris and leaves. Populations are sustained at a regional level through juvenile dispersal mechanisms.

Gray Treefrog (Hyla versicolor):

Global Rank:	Very common; demonstrably secure under present conditions.
Provincial Rank:	Secure—Common, widespread, and abundant in the province.
Niagara NAI:	Widespread-reconfirmed 8 of 12 Niagara RM townships + Haldimand
Map #	4



This is the largest of Niagara’s tree frogs, rarely seen but often heard in the forested areas of Niagara. They are camouflage experts with variable colours ranging from green, to gray to brown. They have bright yellow patches on the underside of their legs. Breeding calls of this species sound like a bird “chirping” and are heard at night in late spring into late summer. They are freeze tolerant nocturnal tree dwellers that breed later than the other native tree frogs and therefore require permanent water in or near forested habitats. They hibernate in the forest floor under leaves, logs and tree roots.

They were re-confirmed calling in 8 townships sampled. The remaining townships were under sampled for this species but they are likely present in similar habitat.

Northern Leopard Frog (Lithobates pipiens):

National Rank:	Very common; demonstrably secure under present conditions. (Except for BC population- END)
Provincial Rank:	Secure—Common, widespread, and abundant in the province.
Niagara NAI:	Widespread- reconfirmed all 12 Niagara RM townships + Haldimand + Hamilton
Map #	5



The Northern Leopard frog is a large frog which does not breed until 3 years of age. They are early spring callers easily distinguished from other frogs by a call which sounds like a person “snoring” with a “chuckling” sound at the end (Behler and King 1998). They breed successfully in semi permanent to permanent ponds (pond may dry up in August) and tadpoles transform within 3 months. They are not freeze tolerant and normally hibernate in the bottom of ponds. Populations are sustained at a regional

level through adult and juvenile dispersal behaviors. They were re-confirmed in all townships surveyed (NB north Grimsby was not sampled for this species) during this study.

Pickerel Frog (*Lithobates palustris*):

Global Rank: Very common; demonstrably secure under present conditions.

Provincial Rank: Apparently Secure—Uncommon but not rare;

Niagara NAI: Localized

Verified in 2 of 7 historic locations and only 2 of 12 Niagara RM townships.

Map # 6



This true frog's habitat is limited to clear, cool waters of spring-fed ponds, groundwater discharge areas, meadows, streams and backwaters (Plourde et al 1989). It looks similar to the Northern Leopard frog except that it has distinctive rectangular dorsal spots instead of circular spots (Behler and King 1998). Its' call is described as a low-pitched vibrant croak or "snoring" similar to the Leopard frog but without the ending "chuckling" sound. The habitat for this species is limited in distribution in Niagara which likely contributes to its poor representation during this study. One record was confirmed in discharge areas along the Niagara escarpment and recently (April 09) from within the new beaver ponds in the Wainfleet Bog. This species likely inhabits other escarpment seeps, Upper Twelve Mile Creek ponds, wetlands and stream areas. They hibernate in nonfreezing discharge ponds. Additional monitoring is recommended for the Niagara NAI study area.

Green Frog (*Lithobates clamitans*):

Global Rank: Very common; demonstrably secure under present conditions.

Provincial Rank: Secure—Common, widespread, and abundant in the province.

Niagara NAI: Widespread- reconfirmed in all 12 Niagara RM townships + Haldimand and Hamilton

Map # 7



The Green frog is a large green coloured frog commonly found in permanent ponds and streams. They look like the Bullfrog- but are smaller, have two dorsolateral ridges down the length of their body, often with irregular dorsal spots and a very large tympanum (eardrum) directly behind the eye (Behler and King 1998). They reproduce most successfully in ponds without predatory fish. They begin calling in late May to early June and can be heard well into July. Their call sounds like a plucked banjo string. Tadpoles can remain in larval stage over 1 year but many metamorphose by late summer. Juveniles disperse overland to

nearby ponds. They hibernate by burrowing into the mud bottom of ponds. They were re-confirmed in all townships surveyed (NB north Grimsby was not sampled for this species) during this study.

American Bullfrog (Lithobates catesbeianus):

Global Rank: Very common; demonstrably secure under present conditions.

Provincial Rank: Apparently Secure—Uncommon but not rare;

Niagara NAI: Widespread- most historic watersheds reconfirmed. Found in 9 of 12 Niagara RM townships + Haldimand and Hamilton

Map # 8



The Bullfrog is the largest frog in Ontario and is commonly found in permanent ponds and marshes. Its call is a deep bass “barroom” sound. It is usually green with a bright yellow throat (Behler and King 1998). It is commonly found along the shorelines of large permanent water bodies, ponds, swamps, lakes and marshes. Adult males begin calling in June and July. Tadpoles remain in larval stage for two years or more depending upon water temperatures. They hibernate in the bottom of these water bodies. The Bullfrog is widely distributed in the study area however the historic distribution within Upper Twenty Mile Creek watershed was re-surveyed in 2008 and no observations were made. This observation may be a reflection of the previous year’s extreme summer/fall drought conditions.

American Toad (Anaxyrus americanus):

Global Rank: Very common; demonstrably secure under present conditions.

Provincial Rank: Secure—Common, widespread, and abundant in the province.

Niagara NAI: Widespread- 11 of 12 Niagara RM townships and cities surveyed + Haldimand

Map # 9



The American toad is a large toad commonly found throughout the Niagara region. It begins calling in late May into June. Its call is a long “trill” readily distinguished from other toads and frogs. This species is larger than the Fowler’s toad, dark brown with large warts (one or two) within each dorsal blotch (Behler and King 1998; Fisher et al 2007). There are no large warts on their legs and the under belly is spotted. This species breeds in a variety of water types including, shorelines, streams, ponds and ditches.

It is also commonly found in urban gardens hunting a variety of insects and other invertebrates. They hibernate below the frost line in moist burrows.

Fowler's toad (Anaxyrus fowleri):

National Status: Threatened

Provincial
Status: Threatened

Niagara NAI: Localized: restricted range from
Long Beach Wainfleet to Fort
Erie. Confirmed in 3 of 12
Niagara RM townships

Map # 10



The Fowler's toad is a smaller toad restricted in Canada to three populations along Lake Erie shoreline known as Rondeau, Long Point and Niagara (COSEWIC 1999; Green 1989; Green 1999; Green et al 2008). It is an early successional species that inhabits open beaches, dunes, rocky pools, nearshore ponds, and marshes. It breeds in rocky pools, creek outlets in sandy beach areas, sand bottom pools and ponds (COSEWIC 1999). In Niagara they begin calling in mid to late May and continue into June (Yagi and Tervo 2008c). Eggs hatch after 7 days and tadpoles develop in nearshore areas for 40 to 60 days and emerge as metamorphs in late July and early August. Both adult and juvenile Fowler's toads hibernate below the frost line and above the water table in sand dunes and beach areas from mid October to mid May. Juveniles breed at age 1 or 2, most breed only once. Detailed observational records, population estimates and habitat use information have been recorded for the Niagara population since 2001 (Yagi and Mills 2003; Yagi and Tervo 2006a; Yagi and Tervo 2006b and 2005; Planck and Blott 2006).

Fowler's toads are present in most shoreline beach areas in Wainfleet, Port Colborne and Fort Erie but have not been found west of Long Beach CA to the Grand River. They are present in James N. Allen provincial Park (Yagi and Tervo 2006b). Their populations naturally fluctuate with Lake Erie water level cycles and their abundances decline in heavily used beach areas. Human impacts to the toad's habitat threaten the Niagara area population. These threats include dune and beach stabilization; excessive disturbances of dunes, beaches and nearshore areas; pollution and loss of breeding sites, dispersal barriers (piers and groynes) along shoreline (Green et al. 2008). Dunes that have not been protected by shorewalls are critical for the longevity of this population. These areas include James N. Allen, Morgan's Point, Nickel Beach, Sherkston and Point Abino.

Museum specimens previously collected from the Wainfleet Bog were American toad (MacDonald 1992; D. Green pers. com.). American toads have a characteristic spotted belly with large single warts within each spot (Figure 6 a&b). Fowler's toads have a white or cream coloured belly with two or more small warts within each spot (Figure 6 e&f). Very rarely, hybrids are found which have characteristics of both species (Figure 6 c&d).

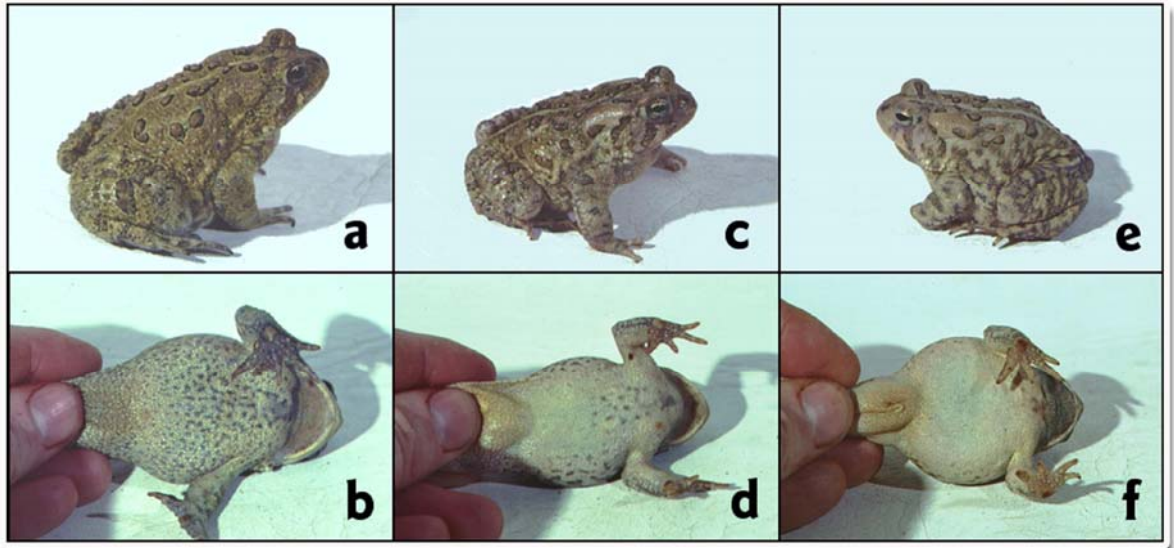


Figure 6: Identification of American Toad (*Anaxyrus americanus*) a,b; Fowler's toad (*Anaxyrus fowleri*) e, f; and Rare Hybrid c&d (Photograph courtesy of D. Green)

Urodela: Newts and Salamanders

Red-spotted Newt (Notophthalmus v. viridescens)

Global Status:	Very common; demonstrably secure under present conditions.
Provincial Status:	Secure—Common, widespread, and abundant in the province.
Niagara NAI:	Localized (confirmed in 4 sites- 3 Niagara RM townships + Haldimand)
Map #	11



Red Eft



Red-spotted Newt

The Red-spotted newt is the only newt found in the Niagara region. It inhabits forested areas with permanent to semi permanent clear vegetated ponds (Behler and King 1998). It has a complex life cycle involving three phases; aquatic larvae, aquatic adult stage and a terrestrial phase called an “eft” (Fisher et al 2007). They have an elaborate breeding behavior or courtship ritual. The courtship involves a unique form of amplexus. Males will deposit a sperm packet on the bottom of the pond and the female will proceed to pick it up with her cloaca, later using the sperm to fertilize her eggs. She lays one fertilized egg at a time (up to 400) on submergent vegetation in clear pools and ponds. There is no parental care, larvae hatch in 3 to 8 weeks and remain as larvae up to 3 months. They then metamorphose into the terrestrial “eft” stage. After 3 years they metamorphose again into an aquatic adult (Petranka 1998). When there is no permanent water, adults are known to aestivate during drought conditions and overwinter on land and enter vernal pools to breed in the spring. Otherwise adults overwinter in permanent water and are often seen foraging under the ice in winter.

This species was confirmed in four locations during this study although specific searches were not conducted north of the escarpment or in West Lincoln.

Northern Dusky Salamander (Desmognathus fuscus)

National Status: Not at Risk

Provincial Status: Endangered (1 site in province)

Niagara NAI: Localized (1 site only ; 1 township) historic Fort Erie site not confirmed

Map # 12



This stream salamander species was reverified in Niagara in 1989 by James Kamstra and Wayne Weller. Although widely distributed in north eastern USA, New Brunswick and southern Quebec it has an extremely restricted range in Ontario- to one site in the Niagara Gorge. Its status in Ontario is therefore endangered (Austen and Oldham 1999). It is a lungless salamander, meaning it derives oxygen by diffusion through its skin. In order for this to happen, the skin must remain moist. It is therefore never far from water. They only inhabit high quality groundwater discharge areas which are limited in distribution within the gorge (Yagi and Tervo 2008a).

Allegheny Mountain Dusky Salamander (Desmognathus ochrophaeus)

National Status: Endangered (only found in PQ and ON)

Provincial Status: Endangered (1 site in province)

Niagara NAI: Localized (1 site only ; 1 township)

Map # 13



This stream salamander is an endangered species in Ontario and Quebec (Oldham 2007; COSEWIC 2007). It was first found in Ontario in 1989 but was thought to be another population of Northern Dusky. In 2004, a specimen was examined by Devin Mills, Rob Tervo and Anne Yagi, photographed and tail clippings taken from it, which were genetically analyzed by McGill University to confirm this new species for Ontario (Markel and Green 2005). It is very unusual to verify a new species in this day and age in such a highly populated area, but looking at the pictures of the two specimens together you can see why this happened. Both salamanders have similar colour, white patch from the corner of their eye to the jaw and big eyes on the top of their head. The Allegheny Mountain Dusky salamander has a dorsal stripe with dark chevron markings along its back and its tail is rounded and thin whereas the Northern Dusky has a transparent underside with tiny grey flecks and the tail is flat across the top for swimming (Petranka 1998). Although located far apart from each other, both species have similar threats to their habitat which include loss in groundwater quality and flow, as well as excessive trampling of habitat by hikers.

Stormwater runoff from adjacent lands has caused mudslides nearby dusky seeps demanding the need for watershed stewardship activities such as protection and restoration of first order streams, planting mudslides, wetland creation and restricting the use of pesticides and herbicides along the parkway (Yagi and Tervo 2008b).

Spring Salamander (Gyrinophilus porphyriticus)

National Status: Special Concern (only in PQ and ON)

Provincial Status: Extirpated

Niagara NAI: Not found- Extirpated from all Local Historic sites

Map # 14



This is the largest of the stream salamanders (over 8 inches length) (Fisher et al 2007), which was thought to occur in Niagara. Historic NHIC records refer to “across from Buffalo” in Fort Erie however there are few remaining groundwater discharge areas in this township (COSEWIC 2002; NHIC 2008). Other high quality groundwater discharges in escarpment areas were searched for salamanders and no Spring salamanders were found.

Eastern Red-backed Salamander (Plethodon cinereus)

Global Rank: Very common; demonstrably secure under present conditions.

Provincial Rank: Secure—Common, widespread, and abundant in the province.

Niagara NAI: Widespread-reconfirmed 9 of 12 Niagara RM townships + Haldimand

Map # 15



This is the most terrestrial of all Ontario’s lungless salamanders and their larvae is not aquatic (Petranka 1998). Nevertheless they breathe through their skin and therefore they must remain moist. They are often found in similar habitats as the spring salamanders and can be confused with them. However their terrestrial adaptations allow them to exist in much drier conditions and are therefore more widespread. They are smaller and their eyes more to the side then on top of their head. They can be either dark red brown with flecks, orange or a grey colour called “lead phase” (Behler and King 1998). They are found in the damp forested areas in Niagara under leaf litter, rocks and logs and areas that have not been overly

trampled by cattle. They are susceptible to fertilizer, herbicide and pesticide runoff and their presence would indicate a high quality forest floor ecosystem.

Four-toed Salamander (Hemidactylium scutatum)

Global Rank: Very common; demonstrably secure under present conditions.

Provincial Rank: Apparently Secure—Uncommon but not rare.

Niagara NAI: Localized (1 site confirmed of 9 historic) Haldimand only

Map # 16



This species is a small secretive salamander, orange to reddish brown with a white under belly with black spots (Fisher et al 2007). It is named after the hind limbs which have characteristic four toes. It is a habitat specialist found in areas with sphagnum moss, mossy forests and grassy beaver meadows surrounded by drier forested habitat (Petranka 1998). It reproduces in wetland ponds and spends the summer under leaf litter in the forest. It overwinters below the frost line in terrestrial burrows created by rotting roots or animal burrows. In the Niagara NAI study area it was confirmed in one location, but is likely in West Lincoln Slough forests, Wainfleet Bog (MacDonald 1992), Point Abino and Willoughby Marsh.

AQUATIC SALAMANDER

Common Mudpuppy (Necturus m. maculosus)

Global Rank: Very common; demonstrably secure under present conditions.

Provincial Rank: Apparently Secure—Uncommon but not rare.

Niagara NAI: Localized (several Welland River sites confirmed) 2 of 12 Niagara RM townships + Hamilton

Map # 17



The only permanently aquatic salamander in Ontario (Behler and King 1998) is usually found in large clear water bodies of Niagara such as in the Welland River Between the two canals and the Old Welland Canal in the City of Welland, the Dain City portion of the Old Welland Canal, the Lake Erie Shoreline including Gravelly Bay, Lorraine Bay and Point Abino bay. There are also a few observations further upstream in the Welland River where the conditions are more turbid. The recent outbreak of botulism toxins in Lake Erie were suspected to cause a large die off of mudpuppy in the Point Abino Bay area a few years ago. Environment Canada suspects that non-native species, such as zebra mussels and gobies,

play a role in increasing the food web availability of such toxins. This species is entirely aquatic and is vulnerable to pollution, as well as accidental harvest by ice fisherman.

MOLE SALAMANDERS

Mole salamanders are named as a group because of their burrowing terrestrial nature and adults with well developed lungs (Petranka 1998).

Blue-spotted Salamander (Ambystoma laterale)

Global Rank:	Very common; demonstrably secure under present conditions.
Provincial Rank:	Apparently Secure—Uncommon but not rare;
Niagara NAI:	Localized (9 sites confirmed in 6 of 12 Niagara RM townships)
Map #	18 and 20



The Blue-spotted salamander is an attractive blue-black colour with characteristic blue and white flecks on its sides (Behler and King 1998). In Niagara it is found under logs, and leaf litter in moist forested areas with vernal pools and no predatory fish. They were found in the slough forests and swamps of Fort Erie, Niagara Falls, Port Colborne, Wainfleet, West Lincoln and Haldimand.. Search effort was poor in West Lincoln and North of the escarpment toward Lake Ontario; however several new sites were confirmed in Fort Erie, Wainfleet and Niagara Falls. They have an aquatic larval phase and a terrestrial adult phase. They are nocturnal and congregate in spring in forested vernal pools to breed. They are normally asociated with loose sandy or loamy soils (Petranka 1998). This species has declined with deforestation and agricultural or urban development (Petranka 1998). They do not breed successfully in acidic conditions suggesting acid rain could limit their distribution in northern Ontario (Petranka 1998). Threats to this species include wetland filling and draining, introduction of fish to breeding ponds, pollutants, such as insecticides and herbicides, and loss of adult habitat (Lipps 2005). They are often killed on roads during spring migration. They are therefore sensitive to fertilizer, herbicide and pesticide runoff and would not be found in forests with tightly compacted soils or those which are trampled by cattle or high pedestrian traffic areas (Ontario Vernal Pool Association). Their presence would indicate a high quality forest floor ecosystem. They are listed as a species on conservation concern in most northeastern United States (New Jersey, New Hampshire, Connecticut, Ohio and Vermont).

Jefferson Salamander (Ambystoma jeffersonianum)

National Status: Threatened

Provincial Status: Threatened

Niagara NAI: No records exist for the Niagara study area

Map # None



This salamander is lighter than the Blue-spotted, typically dark grey, brown or black with tiny flecks of blue or silver on the sides and the vent is grey. They are larger, ranging from 11 to 18cm long as adults, and slender with longer toes than the Blue Spotted salamander (Behler and King 1998). They are nocturnal and migrate in very early spring just after the snow melts. They are competent burrowers and hibernate below the frost line in those burrows. The burrows are usually close to the breeding ponds. They breed in vernal pools and permanent ponds that do not contain predatory fish. In fragmented landscapes there may be a considerable migration from hibernation to breeding ponds and many may be killed on roads during this migration (Fisher et al 2007). There are no confirmed records of pure Jefferson salamanders for the study area.

Blue-spotted-Jefferson (A. laterale-jeffersonianum) Complex

Map# 19 and 20

In Ontario, a complex of ambystomid salamanders exist that have various polyploid genetic representations of pure Blue-spotted (LL) and pure Jefferson (JJ) DNA. This results almost entirely in unisexual females with many different combinations of the genomes of these species (LLJ, LJJ, LJJJ). Their chromosomes came, at one time from the diploid species (LJ) but there is no evidence of ongoing hybridization (COSEWIC 2007). The polyploidy process is called gynogenesis. Eggs from polyploidy females are clones of the female and can only hatch when the female picks up a spermatophore deposited by a diploid male; either blue-spotted (LL) or jefferson (JJ). However; the male's haploid DNA is not usually incorporated into the offspring's DNA and the offspring remain as genetic clones of the mother. At higher temperatures the sperm nucleus is more likely to be incorporated into the egg, resulting in an offspring with elevated ploidy (Bogart *et al* 1989). For example, if sperm from an *A. jeffersonianum* is incorporated into a LJJ egg, the resulting embryo would be a tetraploid LJJJ. Hence, the presence of LJJ and LJJJ embryos in the same egg mass is very strong indirect evidence that *A. jeffersonianum* is present in the population (COSEWIC 2000). Genetic analysis is the best method to differentiate individuals within this complex.

One LLJ was confirmed in Niagara Falls in 2008 of 8 samples tested and 3 unconfirmed members of the complex were identified using physical characteristics as per (Weller et al, 1976). These sites were in St. Catharines, Thorold and south Niagara Falls. Historic sites include the Twenty Mile Creek Watershed and West Lincoln which were not well sampled during this study period.

Spotted Salamander (Ambystoma maculatum)

Global Rank:	Very common; demonstrably secure under present conditions.
Provincial Rank:	Apparently Secure—Uncommon but not rare.
Niagara NAI:	Localized (1 site of 10 historic confirmed during study - Haldimand only)
Map #	21



This is a large terrestrial salamander (10 to 18cm long) that is black with characteristic yellow spots although sometimes they are just black (Petranka 1998). They migrate in early spring to breed in vernal ponds and permanent ponds that are fish predator free. They spend most of their life in underground burrows but may be found in leaf litter and under logs. In Niagara this species was verified in one location in Haldimand during this study although this species was under sampled. It is likely present in the townships of Lincoln, West Lincoln, Thorold and Pelham where it was previously identified (NHIC 2008) provided the forested habitat remains suitable.

Reptiles Snakes Lizards and Turtles

Squamata: Lizards and Snakes

Common Five-lined Skink (Plestiodon fasciatus)

National Status:	Endangered Carolinian Population
Provincial Status:	Special Concern
Niagara NAI:	Localized (1 site confirmed during study in Haldimand)
Map #	22



Ontario's only lizard is divided into two separate designatable units by COSEWIC who determined the Carolinian population's status as endangered and the Canadian Shield population status as special concern (COSEWIC 2007). The provincial designation remains as special concern. This species inhabits forested areas with both wetland and upland features and loose soils for digging (Fisher et al 2007). It hibernates in terrestrial sites below the frost line in burrows. In Niagara it was confirmed in one location. Other sites were searched several times based upon observational reports of skinks but none were found. Previous surveys found this species associated with the Niagara escarpment and Short Hills Area of North Pelham where additional searches are recommended.

Northern Red-bellied Snake (Storeria occipitomaculata)

Global Rank:	Very common; demonstrably secure under present conditions.
Provincial Rank:	Secure—Common, widespread, and abundant in the province.
Niagara NAI:	Localized (3 sites in 2 Niagara RM townships + Haldimand)
Map #	23



This is a small insectivorous snake with characteristic red under belly and light blotches behind the head that may look like a collar (Behler and King 1998). It may appear, grey, brown or black or orange depending upon the habitat it is hiding in. It is secretive and not readily observed. It is found in wetlands, bogs and forested areas; under logs, rocks, brush piles and leaves (Fisher et al 2007). It was confirmed in 3 locations during this study although it is likely found in more areas, due to its secretive nature a detailed search effort is required to confirm.

Northern Brownsnake (Storeria d. dekayi)

Global Rank:	Very common; demonstrably secure under present conditions.
Provincial Rank:	Secure—Common, widespread, and abundant in the province.
Niagara NAI:	Widespread (15 sites confirmed during study in 5 of 12 Niagara RM townships + Haldimand)
Map #	24



This is a small light brown coloured snake with a characteristic light dorsal stripe and parallel rows of spots (Behler and King 1998). It is predominantly insectivorous and is found in a wide range of habitats such as wetlands, roadside ditches, rocky areas and wooded areas (Fisher et al 2007). It was confirmed in 15 sites across the region during this study period. There is a lack of search effort north of the escarpment along Lake Ontario and not necessarily a decline in historic range. More detailed search effort is required to confirm this species in the remaining townships.

Northern Ring-necked Snake (Diadophis punctatus edwardsii)

Global Rank: Very common;
demonstrably secure under
present conditions.

Provincial Rank: Apparently Secure—
Uncommon but not rare.

Niagara NAI: Localized (0 sites of 2
historic confirmed during
study)

Map # 25



This is a small snake, dark grey or black with an orange, yellow under belly and a characteristic collar at the base of its head (Behler, and. King. 1998). It inhabits moist woods usually hiding under logs and forest debris (Fisher et. al. 2007). It was not seen in the study area during this study period but was found nearby in Haldimand region.

Eastern Gartersnake (Thamnophis s. sirtalis)

Global Rank: Very common; demonstrably
secure under present conditions.

Provincial Rank: Secure—Common, widespread,
and abundant in the province.

Niagara NAI: Widespread (>30 sites
confirmed in 11 of 12
townships + Haldimand and
Hamilton)

Map # 26



This is the most common and widely distributed snake species in Niagara. It is typically long and slender with lateral stripes or spots but may also have no stripes or completely black “melanistic” (Fisher et. al. 2007). One such individual was seen prior to the study along the sand dunes of Lake Erie. As in the photograph above the colour red is sometimes present. They are known to hibernate communally and the presence of large numbers of them in close proximity in early spring is an indication that you are nearby their wintering site. They are found in wetlands, hedgerows, moist forests, ravines, suburban areas and agricultural fields. They are often killed on roads as they are moving back and forth among habitat features.

Northern Ribbonsnake (Thamnophis sauritus septentrionalis)

National Status:	Special Concern; except Nova Scotia which is Threatened
Provincial Status:	Special Concern
Niagara NAI:	Localized (5 sites confirmed in 3 of 12 Niagara RM townships + Haldimand)
Map #	27



The Northern Ribbon snake is a slender attractive snake which looks similar to the more common garter snake but it is predominantly black with three contrasting yellow stripes, one mid-dorsal and remaining two on scale rows 3 and 4 and has a distinct white half moon spot in front of the eye (Fisher et. al. 2007). It is a secretive species associated with wetlands and edges of fields. They hibernate in terrestrial sites communally in an underground burrow below the frost line with their own or other snake species (COSEWIC, 2002). This species was confirmed in 5 sites in the study area. Additional detailed surveys are required to confirm this species presence in remaining townships.

Queen Snake (Regina septemvittata)

National Status:	Threatened
Provincial Status:	Threatened
Niagara NAI:	Data Deficient (0 sites confirmed during study)
Map #	28



The Queen snake is a specialized crayfish consumer and inhabits cold to cool water clear streams where it can be found under rocks or basking on banks or in shrubbery (Fisher et. al. 2007). It is not well known in the Niagara NAI study area where there are no NHIC records (COSEWIC 2000; NHIC 2008). However there are anecdotal references to this species in the local MNR fisheries assessment files (1970's) from the Creek valleys of Twelve Mile, and Fifteen Mile. Further searching for this rare, secretive snake is needed.

Smooth Greensnake (Opheodrys vernalis)

Global Rank:	Very common; demonstrably secure under present conditions.
Provincial Rank:	Apparently Secure— Uncommon but not rare.
Niagara NAI:	Localized (1 site confirmed in 1 of 12 Niagara RM townships)
Map #	29



The Smooth Greensnake is readily identified in the field because of its unique bright green colouration (Behler and King 1998). However their colour and secretive nature make them difficult to find in the grassy meadows and open wetlands which they favour (Fisher et al 2007). They are insectivorous and hibernate below the frost line, in underground terrestrial sites with other snakes. Conservation concerns are possible because use of insecticides in field areas may be harming this species food supply and may explain their decline in southwestern Ontario. In Niagara they were confirmed in 1 township during this study. More survey effort is needed especially in West Lincoln and Haldimand to determine presence or absence.

Northern Watersnake (Nerodia s. sipedon)

Global Rank:	Very common; demonstrably secure under present conditions.
Provincial Rank:	Secure—Common, widespread, and abundant in the province.
Niagara NAI:	Widespread (16 sites confirmed during study- 7 of 12 Niagara RM townships + Haldimand)
Map #	30



This large mottled coloured snake is found along shorelines, rivers, creeks and wetlands in the Niagara Area (Behler, and King, 1998). This species was found in all surveyed townships; however no surveys were conducted in West Lincoln, Grimsby and Lincoln. During the active season this species is aquatic and most often seen basking on rocks near the shoreline. It hibernates below the frost line in terrestrial cavities, burrows, karsts and rocky crevasses. They are communal hibernators therefore finding a large number of them together in early spring means you are likely near a hibernaculum. Unfortunately they are often mistaken for venomous snake and are killed (Fisher et.al.2007). They feed predominantly on fish and frogs.

Eastern Milksnake (Lampropeltis t. triangulum)

National Status:	Special Concern
Provincial Status:	Special Concern
Niagara NAI:	Localized (10 sites confirmed in 7 of 12 Niagara RM townships)
Map #	31



The Eastern Milksnake is a mottled snake with a greyish brown background and reddish brown blotches with black borders and a light colored “V”shaped or “Y”shaped patch behind their head (Behler and King 1998). They are egg layers that use rotting logs, compost piles and manure piles as egg laying sites and therefore are found around barns. They eat small mammals and small snakes. They are also found in field areas, wetlands and edges of moist forested areas (COSEWIC 2002). During this study they were confirmed in 10 locations within 6 townships. Due to their secretive nature, ongoing search effort is needed throughout the region.

Eastern Hog-nosed Snake (Heterodon platirhinos)

National Status:	Threatened
Provincial Status:	Threatened
Niagara NAI:	Localized (1 sites of 3 historical confirmed in 1 of 12 Niagara RM townships)
Map #	32



This secretive snake is typically large with brown mottles resembling a rattlesnake, water snake or fox snake. It has an upturned snout and flat head (Behler and King 1998). It has a unique behavior when threatened it spreads its neck out like a cobra and then it rolls over to play “dead”. It is not venomous but if bitten it can produce swelling (COSEWIC 2007). This threatened species is a specialized toad eater and therefore can tolerate the skin toxins produced by toads. It is not well known in the Niagara NAI study area but occasional sightings of “cobra-like” snakes are convincing observations. In Niagara they are occasionally found in sandy habitats, dunes and beaches along the Lake Erie shoreline. It hibernates below the frost line in sand dunes. One specimen (dead neonate) was collected by MNR staff in 2002 near Point Abino, where this species was previously reported (MacDonald 1990; T.Seburn pers. com.).

Gray Ratsnake (Pantherophis spiloides)

(a.k.a Black ratsnake)

National Status:	Endangered Carolinian Population
Provincial Status:	Threatened
Niagara NAI:	Localized (1 sites of 7 historic confirmed during study; 1 of 12 Niagara RM townships)
Map #	33



The Gray Ratsnake was known previously as the Black Ratsnake and is the largest snake species in Ontario (COSEWIC 2007). Sightings that report a large black snake in trees or in garden sheds confirms the presence of this species. It is very secretive and spends the majority of its active season hiding in trees, cavities and sheds. It is more probable to find one in early spring when they emerge from communal hibernation sites or when they breed or egg lay. They hibernate in terrestrial sites below the frost line in karsts, rock crevasses, burrows and old foundations (Yagi and Tervo 2006; COSEWIC 2007). They have large home ranges and in fragmented landscapes like Niagara they must cross roads and therefore often killed. We had one confirmation of this species in the escarpment area of Fifteen Mile Creek and anecdotal evidence of observations in Port Robinson and Humberstone within the last 5 years. The previous documentation of this species in Wainfleet Bog is incorrect (NHIC). Historic accounts found this species in the Upper Twenty Mile Creek, Upper Fifteen Mile, Short Hills Provincial Park and Niagara Escarpment areas. Further search effort is needed in these areas.

Eastern Fox Snake (Pantherophis gloydi)

National Status:	Endangered
Provincial Status:	Threatened
Niagara NAI:	Introduced
Map #	No Map



The Eastern Foxsnake is a large brown and black mottled snake and is not considered to be a Niagara species but it is included here because of past misidentification reports and a recent incident where it was discovered along the Niagara parkway in Fort Erie. The juvenile snake likely arrived in Fort Erie on board

a logging truck which was delayed at the border. The snake was captured and transported to the Toronto Zoo where they use it in their snake education program. The nearest observation records of the species are from Rock Point and James N. Allen Provincial Parks in Haldimand. These observations are considered outliers from the normal range of this species which is considered to be further west along Lake Erie and Lake Huron shorelines (COSEWIC 2008). Two ANSI reports mistakenly listed this species as present in escarpment areas (Schaefer et al 1992; Varga et al 1992).

Eastern Massasauga Rattlesnake (Sistrurus c. catenatus)

National Status: Threatened

Provincial Status: Threatened

Niagara NAI: Localized (1 sites of 2 confirmed during study; 2 of 12 Niagara RM townships)

Map # **34 Data Sensitive**



The Eastern Massasauga rattlesnake is the only remaining venomous snake in Ontario. It is found in four disjunct populations known as Bruce Peninsula, Georgian Bay, Windsor and Niagara where it inhabits one location (COSEWIC 2002). It is recognizable because of its mottled coloration; rattle at the end of its tail and triangular shaped head (COSWEIC 2002). In Niagara this species was heavily persecuted and its habitat was almost eliminated until a large portion of land was purchased by the Nature Conservancy, Province of Ontario and the Niagara Peninsula Conservation Authority in 1996 (Frohlich 1997; Yagi and Frohlich, 1998; OMNR 2001; Yagi and Tervo 2003; Yagi and Tervo 2005). It is a very secretive snake and difficult to find. Detailed population and radio telemetry studies completed in the last 10 years have demonstrated that this species does not remain on publicly owned land during the active season, resulting in human related mortalities (Yagi and Tervo 2005). Additional conservation efforts are needed to stop the decline of this population.

Timber Rattlesnake (Crotalus horridus)

National Status: Extirpated

Provincial Status: Endangered

Niagara NAI: Localized likely extirpated
(0 sites of 3 historic-confirmed during study)

Map # 35



The Timber Rattlesnake once inhabited the Niagara Gorge and is now considered extirpated from Canada (COSEWIC 2001). The last confirmed collection of the species in Canada was in the Niagara Gorge in 1941 (Env. Can. 2007). Anecdotal reports of aggressive human persecution and the release of pigs into the gorge is believed to have caused the local extirpation of this species. Since there were other unconfirmed observations in the 1960's and 1970's and they are a long lived species, historic areas were revisited just prior to this study period and no Timber rattlesnakes were found (Yagi and Mills 2004). A large aggregation of Northern Water snakes in early spring suggests that hibernation sites may remain suitable for large bodied snake species. However, no reintroduction is planned because of a lack of remaining habitat in the tableland areas outside of the gorge where the snakes were known to move during the summer months (Env. Can. 2007). The closest population to the Niagara Gorge is in Western New York State, where it occurs in low numbers.

Testudinata: Turtles and Tortoises

The vast majority of Ontario's freshwater turtles are Species at Risk. They are especially vulnerable to any increase in adult mortality because they are long lived and have a late age of sexual maturity. Juvenile recruitment can also be poor because there is no parental care of nest sites and egg predation is high especially in agricultural and urban areas where raccoon populations are also high. Some species of turtles have large home ranges and must move large distances to find suitable nesting sites. Adult mortality is escalated in areas with high road densities (Seburn 2007).

Midland Painted Turtle (Chrysemys picta marginata)

Global Rank:	Very common; demonstrably secure under present conditions.
Provincial Rank:	Secure—Common, widespread, and abundant in the province.
Niagara NAI:	Widespread (>50 sites confirmed during study in 12 of 12 Niagara RM townships + Haldimand and Hamilton)
Map #	36



The most common turtle species in Niagara is the Midland Painted Turtle. It is found along shorelines, large waterbodies, ponds, creeks and wetlands throughout the study area. It is adapted to hibernate in the mud of ponds that may have cold but not freezing conditions and they have adapted to very low oxygen and anoxia conditions for up to 5 months (Behler and King 1998; Ernst et al 1994). This turtle uses the calcium carbonate deposits in their shell to buffer the acid build up in their tissues during anaerobic metabolism (glycolysis) of carbohydrate stores in their tissues. The young of year are also freeze tolerant meaning they can remain in the shallow nest all winter and their tissues can freeze. This adaptation allows them to inhabit a wide variety of habitats (Ernst et al 1994). During the active season they are mostly found near or in water often basking on logs and floating debris. They nest in terrestrial sites in open sandy or loose soils with south facing slopes. They are often killed on roads during the nesting season.

Spotted Turtle (Clemmys guttata)

National Status: Endangered

Provincial Status: Endangered

Niagara NAI: Localized (1 sites of 2 historic confirmed during study; 2 of 12 Niagara RM townships)

Map # **37 (Data Sensitive)**



The Spotted Turtle (*Clemmys guttata*) is an endangered species in Canada (COSEWIC 2004). This means that it is at risk of becoming extirpated from Canada if threats are not reversed. Major threats to this species include habitat loss and the illegal harvest for the pet trade industry (Seburn 2007). This species inhabits wetlands including marshes, fens and bogs which are declining in quality, distribution and abundance throughout their range. Their current range in Canada is restricted to small disjunct populations in Ontario. The Niagara population of Spotted turtles has undergone severe range restriction since European settlement. This decline has been attributed to habitat fragmentation, wetland drainage activities, peat mining, road mortality and pet trade over harvest. As part of population recovery efforts, the Ministry of Natural Resources has undertaken detailed population mark/recapture and radio telemetry studies since 1998. In addition to this work nearly 75% of the remaining habitat is now under public ownership and a significant effort is underway to restore and improve wetland habitat. In order to halt the population decline to facilitate recovery, the annual adult and juvenile survivorship must be stabilized or increased. This constitutes the recovery goal for this population.

Blanding's Turtle (Emydoidea blandingii)

National Status: Threatened

Provincial Status: Threatened

Niagara NAI: Localized (4 sites of 11 historic confirmed during study; 4 of 12 Niagara RM townships)

Map # 38



This species has large home ranges requiring movement between habitat features used during their life cycle. These features include ponds or sloughs for hibernation, wetlands, creeks and nesting sites (COSEWIC 2005; Seburn 2007). It was recently found basking in wetland slough forest ponds, walking along roadsides and ditches in the southern townships of Niagara region. Niagara historic range and present observations closely match therefore distribution has not overly changed except for the Lake Ontario tributaries where there are no recent observations to report. The areas of Jordan Harbour and Estuaries of Fifteen and Sixteen Mile were surveyed by boat in 2008 and this species was not observed. Observations in Fort Erie are also lacking for this species; however it is probably still present.

Wood Turtle (Glyptemys insculpta)

National Status: Threatened

Provincial Status: Endangered

Niagara NAI: Localized probably extirpated (1 historic site needs searching in 1 township)

Map # **39 Data Sensitive**



This endangered species was observed in Fort Erie in the late 1980's, however the area was not searched during this survey period. Since they are a long-lived species it is possible that a few individuals may still be around but it is unlikely that a viable population exists (Smith pers com; COSEWIC 2007). As with the Box turtle, it is also possible that the observations were from released individuals as this was a popular pet trade species (M.Oldham pers. com.). Further field work is needed to verify this occurrence record.

Northern Map Turtle (Graptemys geographica)

National Status: Special Concern

Provincial Status: Special Concern

Niagara NAI: Localized (2 sites of 6 historic confirmed during study; 1 of 12 Niagara RM townships + Haldimand)

Map # 40



This highly aquatic species is generally found during the active season along the shorelines of large bodies of water (COSEWIC 2002; Seburn 2007). Historic records for this species in Niagara are poorly documented and several records were found unreported from live trap fish surveys. It is known to occur along the lower Niagara River, Lake Ontario and Lake Erie shorelines as well as the confluence of the shoreline and larger creeks, drains and canals. It may also be found in the upper Niagara River, eastern Welland River and Chippawa channel areas. This turtle nests in loose soil or sandy terrestrial sites associated with the shoreline and hibernates in water deep enough so that it does not freeze and remains well oxygenated with little current and no ice scour.

Eastern Box Turtle (Terrapene c. carolina)

National Status: Data Deficient

Provincial Status: Data Deficient

Niagara NAI: Introduced (0 sites of 1 historic)

Map # 41



The two Niagara records were from Fort Erie where anecdotal reports are that the turtles were released from captivity (T.Seburn pers. com.). No further records are known and this species has not been seen in the wild since (NHIC 2008) .

Red-eared Slider (Trachemys scripta scripta)

Global Rank: Very common; demonstrably secure under present conditions.

Provincial Rank: Introduced

Niagara NAI: Introduced (6 sites of 1 historic; 7 of 12 Niagara RM townships) increasing trend of observations

Map # 42



The Red-eared slider is not a native Canadian turtle (Ernst et al 1994; Behler and King 1998). It is commonly purchased from pet stores and illegally released by pet owners into ponds and Niagara waterways. This species does hibernate successfully in the Niagara NAI study area and successful breeding was documented recently in southwestern Ontario (S. Gillingwater pers. com.) and therefore they would likely be successful breeders in Niagara. There is the potential for displacement of native turtles and disease transfer into wild populations which can be catastrophic to local populations. Numbers of this species are increasing in the study area.

Eastern Musk Turtle (Sternotherus odoratus)

Global Status: Threatened

Provincial Status: Threatened

Niagara NAI: Localized (0 sites of 1 historic)

Map # 43



This small (8 - 13cm) aquatic, secretive, nocturnal turtle is also known as “Stinkpot” because it emits a musky odor when it feels threatened (Ernst et al 1994). Although no sites were confirmed during this survey, this species was not specifically targeted by sampling at night when it is most active. The most recent observation was near Port Colborne in 1979 and again in the early 2000’s (J.Kamstra pers. com.) and likely a population still exists in this area. It is found in shallow weedy ponds and lakes with muddy bottoms where it spends most of its active season in the water. The major threat to this species is loss of habitat from shoreline development and drainage of wetlands. They nest on top of abandoned muskrat lodges and rotting logs and hibernate in the bottom of these ponds. They are highly aquatic and require interconnected water linkages to move between wetland ponds. They do not move over dry terrestrial habitat to disperse (COSEWIC 2002; Seburn 2007) .

Eastern Spiny Softshell (Apalone s. spinifera)

Global Status:	Threatened
Provincial Status:	Threatened
Niagara NAI:	Localized (0 sites of 1 historic Niagara RM township)
Map #	44



This aquatic turtle is a river or shallow lake species found basking on mudflats, sandbars and wetland vegetation. It hides very well in soft substrates by burying itself in the mud and extending its nose above the water to breathe (Ernst et al 1994). It hibernates in the bottom of river pools or bays and estuaries with sandy substrates that do not freeze or scour and remain well oxygenated. They have large home ranges and move very long distances and return to habitually used hibernation areas. They are vulnerable to encounters with boat motors and fishing gear (COSEWIC 2002; Seburn 2007).

This species was previously recorded for Jordan Harbour but was not found during this survey. Additional search effort is required for this species.

Eastern Snapping Turtle (Chelydra s. serpentina)

National Status:	Special Concern
Provincial Status:	Under review
Niagara NAI:	Widespread (11 of 12 Niagara RM townships + Haldimand and Hamilton)
Map #	45



This is the largest freshwater turtle in Canada which inhabits slow moving water with a soft mud bottom and dense aquatic vegetation found along rivers, estuaries, shorelines and wetlands. They have adapted to survive anoxic conditions during hibernation which has probably aided their wide distribution in North America (Ernst et al 1994). Although widespread in the province several notable declines and local extirpations have been documented and this species is now listed as special concern (COSEWIC 2008). Nesting sites are terrestrial areas with loose soils and often along roadways and railway beds. Adult females are often killed on roads during the nesting period. They are found in developed areas (e.g. golf

course ponds, irrigation canals and storm water ponds); it is unlikely that populations could persist in such habitats (COSEWIC 2008). Snapping Turtles are also tolerant of highly polluted waterways (e.g. Hamilton Harbour, Ontario), however environmental contamination is known to limit reproductive success. In general, Snapping Turtle habitat is diminishing in both quantity and quality in Canada with losses primarily due to drainage of wetlands for agriculture and urban purposes.

During this study Snapping turtles were found in several large creeks and rivers such as the Welland River, Jordan Harbour, Fifteen and sixteen Mile Estuary, Lyons Creek and Feeder Canal. They were also observed in several golf course ponds, drains and wetlands and several were found crossing roads or as road kill.

4.0 Spatial Analysis: Data Gaps

Municipality

The combination of NAI and other data sources reveals some areas that still remain under sampled in the study area (Figure 7). These blank areas which show up as white spaces do not necessarily mean there are no reptiles and amphibians inhabiting these areas, especially for species known to be widespread (Table 4). These spatial gaps emphasize the need for a mechanism such as the continuation of the Ontario Herpetofaunal Summary (OHS) and / or keeping the NAI database an “open file” to capture species information so that future land use decisions reflect the best available information. Species at Risk and uncommon species are more difficult to find and therefore need additional targeted studies. The municipalities of Fort Erie, Port Colborne, western part of Wainfleet and Pelham, eastern portion of West Lincoln, south Welland and Lincoln need additional sampling effort (Figure 7).

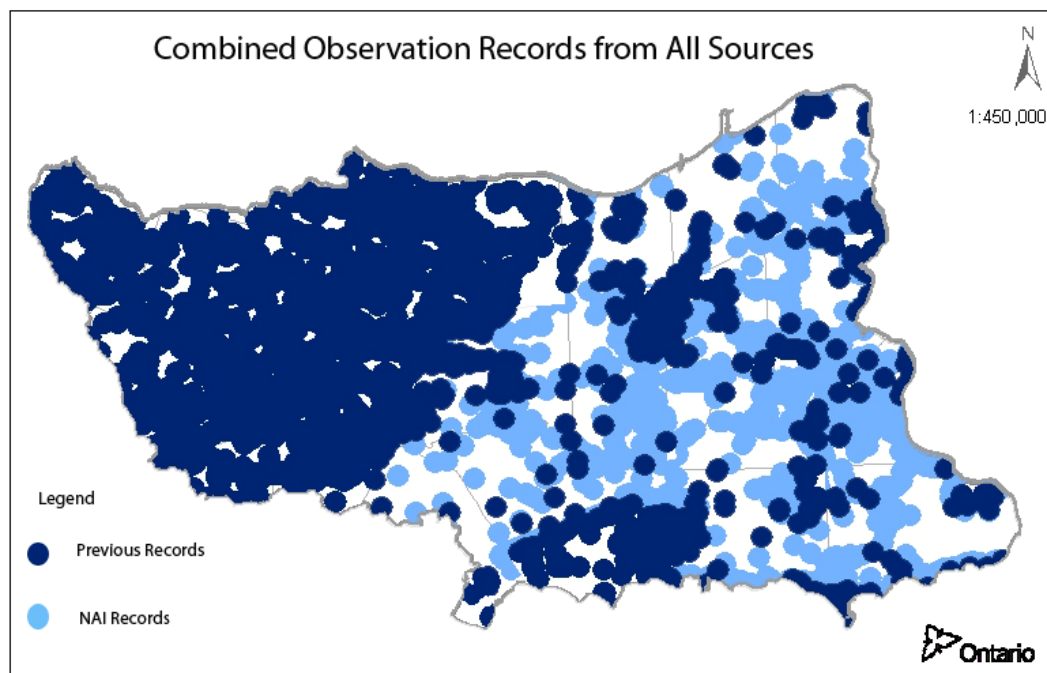


Figure 7: Reptile and Amphibian Records for the Study Area (NAI and Previous sources).

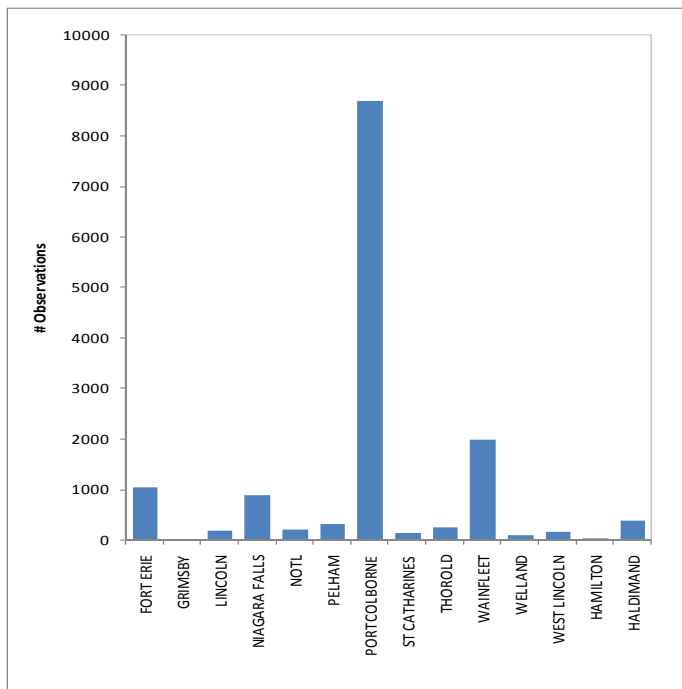


Figure 8a: Total Niagara NAI Herp Observations by Township from all data sources.

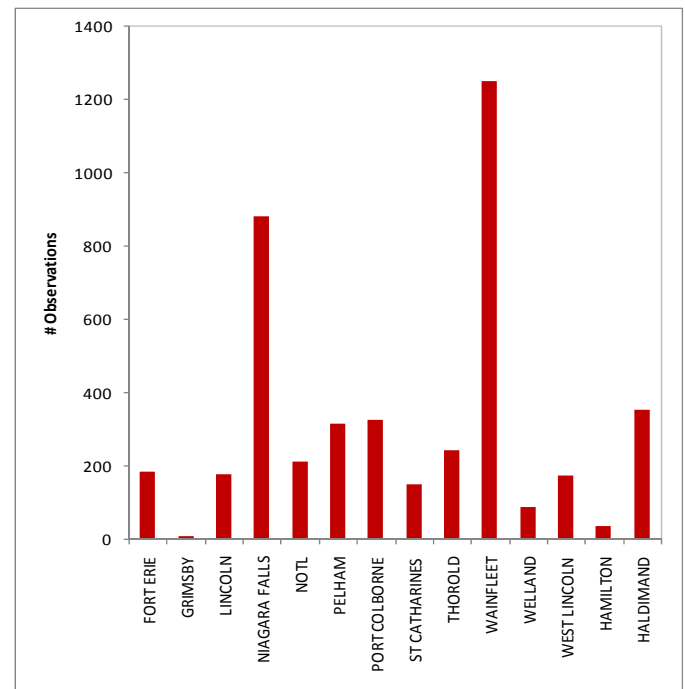


Figure 8b: NAI Herp Observations by Township minus Fowler's toad Observations

The majority of NAI observations were skewed towards the City of Port Colborne because of an intensive SAR sampling project for Fowler's toad. For this project weekly sampling of all life stages occurs in a given sample area and accounts for over 8,000 records collected from 2001 to 2008 (Figure 8a). When Fowler's toad records are removed from this analysis the number of observations better reflects the survey effort for each township (Figure 8b). The highest number of herp records occurred in the Township of Wainfleet followed by the City of Niagara Falls which also reflects the municipalities with the highest search effort and SAR focus (Figure 8b).

Present Land Use Designations

A spatial gap analysis of NAI reptile and amphibian point observations was also conducted to determine if the observations were contained within protected lands such as designated Wetlands, Woodlands, Agreement Forests, ANSI's, Crown lands, Conservation Areas, Niagara Escarpment (including Niagara Parks Commission), Green Belt and the Draft Places to Grow Plan (Figure 9).

The land use designation which currently offers the most protection to reptiles and amphibians in Niagara is the "Draft Places to Grow" plan which included over 50% of the observations. This mapping exercise used all available NHIC data and mapped ANSI's, wetlands and other important habitats such as shorelines and water bodies to establish a Natural Heritage Framework. This land use planning designation has not been approved under the Natural Heritage policies of the Planning Act. The next highest level of inclusion is mapped wetlands, where nearly 14% of observations were within these designated lands. However, only some of these wetlands are provincially significant and therefore have

protection under the Planning Act. All mapped wetlands are also managed under regulation 155/06 of the Conservation Authorities Act which allows for some protection and modification of non-Provincially Significant Wetlands (non PSW). MNR Crown lands and CA properties included nearly 8 % of these observations. Since some of these areas are also wetlands they are also represented under that category. Less than 2% of the observations are included within the newly designated “Green Belt Plan”. This may reflect either a lack of sample effort or a low number of reptile and amphibian species in this area.

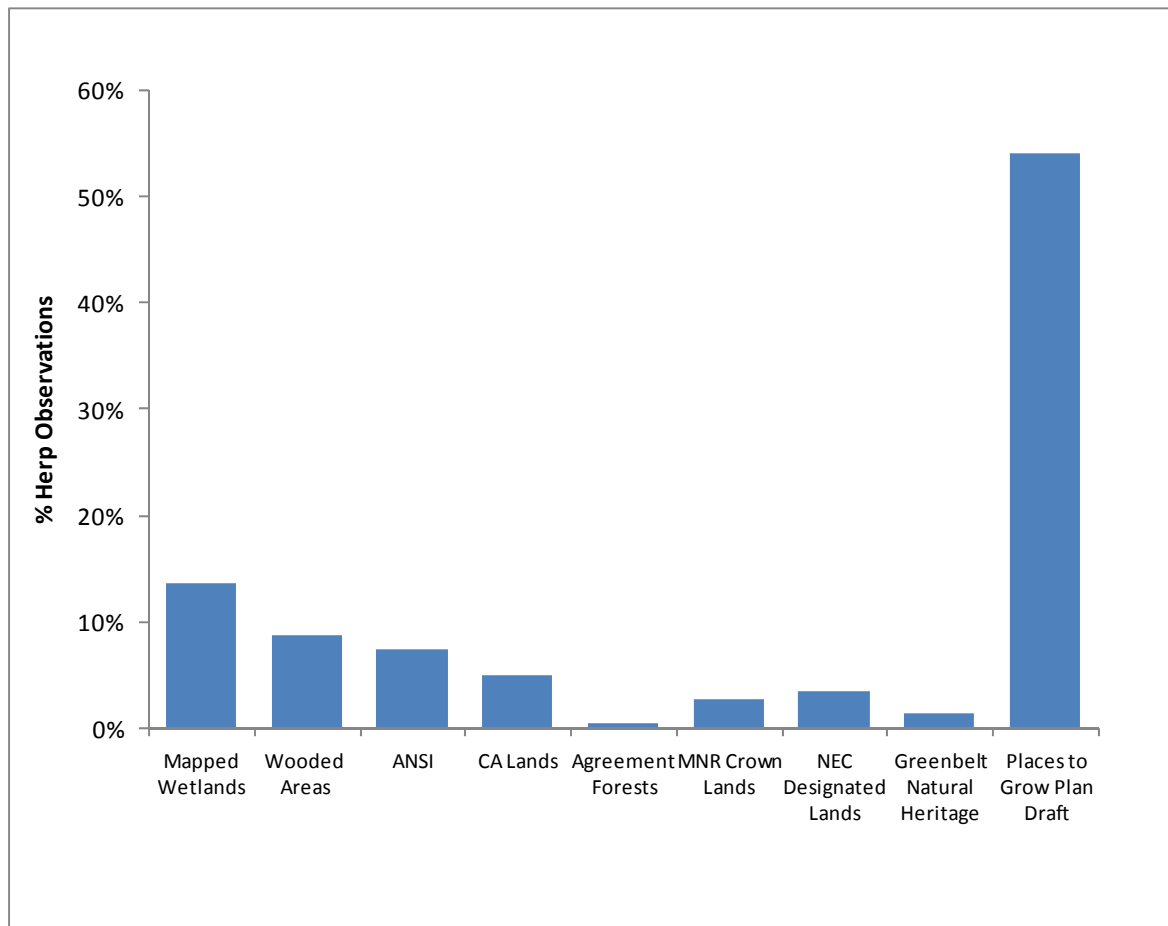


Figure 9: Reptile and Amphibian Observations within Designated Lands

5.0 Discussion and Recommendations

Regionally Significant Reptiles and Amphibians

In addition to Species at Risk, several reptile and amphibian species have a very localized distribution or are not widespread in this region and should be considered regionally significant at this time. In nearby Hamilton, seven species were listed as uncommon; Red-spotted Newt, Blue-spotted Salamander, American Bullfrog, Northern Watersnake, Red-bellied Snake and the Smooth Greensnake. Another three species are considered rare; Four-toed Salamander, Pickerel Frog and Northern Ring-necked Snake. In Niagara seven species and one hybrid meet the definition of limited distribution or few observations (Table 2). It is possible that these species are not observed because they are difficult to sample (i.e. cryptic), therefore this list should remain open for status updates when new information becomes available.

Data Gaps

The Niagara Region Natural Areas Inventory Reptile and Amphibian study was carried out for a limited three field seasons. Additional data collected immediately prior to the study were added to the NAI database. Historic records from NHIC/OHS helped provide additional spatial and species data for the study area. Never-the-less, spatial and species gaps are still evident. A mechanism or process is recommended to continue to update the database to provide the best available information to decision makers regarding land use changes.

Recommendations

1. Maintain a local NAI database and copy all species point observation records to NHIC for provincial updates.
2. Update distribution maps and establish spatial trends over time.
3. Use standardize methods for determining the presence/absence of reptile and amphibian species which have seasonal and spatial optima.
4. Use more than one method to establish presence or absence of a species. For example, calling surveys are most commonly used to establish presence or absence of anurans; however this only establishes where breeding males are located. This is only one part of the life cycle. Calling surveys need to be backed up by field surveys for tadpoles, metamorphs and adults post reproductive period to establish habitat linkage information. In addition, early calling species are often missed unless studies begin in early March. Another method called coverboard sampling is excellent to determine the presence of some salamander and most snake species- however they must be given at least one year minimum to weather on the site before sampling adequately reflects a species presence. Minnow traps are another excellent technique for capturing mole salamanders and many frog species when they are in breeding ponds. Specific protocols and permits are required for all surveyings requiring capture, trapping, DNA sampling or handling. Please contact the local MNR office for more information.
5. Since many aquatic systems in Niagara are precipitation driven, the timing of sampling of many herp species should coincide with the optimum seasonal distribution of water. Use more than 1 year to establish presence or absence of a species especially following drought years.
6. Repeat Western Chorus frog surveys regularly to ascertain trends.
7. Birds Studies Canada Marsh Amphibian monitoring data may help fill some spatial data gaps for several anuran species and should be incorporated into the NAI database when it becomes available.

Table 2: Recommended Niagara Regionally Significant species in addition to COSEWIC or COSSARO/SARO designations of Species at Risk

COMMON NAME	SCIENTIFIC NAME	RATIONALE
American Bullfrog	<i>Lithobates catesbeianus</i>	Localized distribution need permanent water/marsh sites. Species distribution decreased with drought conditions in 20 Mile Creek Watershed.
Pickerel Frog	<i>Lithobates palustris</i>	Localized Distribution based upon specialized habitat need cold, clear groundwater discharge areas. Verified in 2 of 7 historic locations and only 2 of 12 Niagara RM townships.
Red-spotted Newt	<i>Notophthalmus v. viridescens</i>	Localized Distribution Verified in 4 sites – 3 of 12 Niagara RM townships + Haldimand
Four-toed Salamander	<i>Hemidactylium scutatum</i>	Localized Distribution based upon specialized habitat need of sphagnum moss hummocks. Verified in 1 site of 9 historic- Haldimand only
Blue-spotted Salamander	<i>Ambystoma laterale</i>	Localized Distribution -should be present in most slough forest and swamp wetland communities. Habitat fragmentation and habitat quality may limit their distribution. Verified in 9 sites - 6 of 12 Niagara RM townships.
Blue-spotted/ Jefferson Complex	<i>Ambystoma laterale-jeffersonianum</i> (Jefferson genome dominates)	LJJ or LJJJ May indicate presence of SAR Jefferson salamander
Spotted Salamander	<i>Ambystoma maculatum</i>	Localized Distribution and very few observations in Niagara Verified in 1 site of 10 historic - Haldimand only
Northern Ring-necked Snake	<i>Diadophis punctatus edwardsii</i>	Localized Distribution and only confirmed occurrence in Niagara may be historic Verified in 0 sites of 2 historic
Northern Red-bellied	<i>Storeria occipitomaculata</i>	Localized Distribution-Verified in 3 sites in 2

COMMON NAME	SCIENTIFIC NAME	RATIONALE
Snake	<i>occipitomaculata</i>	Niagara RM townships + Haldimand)
Smooth Greensnake	<i>Opheodrys vernalis</i>	Localized Distribution Veified in 1 site only- 1 of 12 Niagara RM townships)

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Personal Communication

Tim Seburn is a member of the Bert Miller Nature Club in Fort Erie, Fowler's toad Recovery Team and Chair of the Town of Fort Erie Environmental Committee

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Scott Gillingwater is a member of the Ontario Turtle Recovery team and has completed many field studies of turtle species in Southwestern Ontario, where he first photographed a successful hatch of a red-eared slider.

Michael J. Oldham Botanist/Herpetologist for the Ontario Ministry of Natural Resources Natural Heritage Information Centre; member of several recovery teams including Fowler's toad and Ontario Dusky Salamander Recovery teams.

Appendix 1:

Table 3: Species incorrectly identified to exist in the Niagara Study in the references indicated

Common Name	Scientific Name	Significance Niagara Region	Ecologistics 1976 (for Hamilton)	Brady 1980 (R.M.Niagara)
OTHER REPORTS				
Mink Frog	<i>Rana septentrionalis</i>	Not Local	Intro	
Butler's Gartersnake	<i>Thamnophis butleri</i>	SAR-Not Local	√	
Spotted Gartersnake	<i>Thamnophis sirtalis sirtalis</i>	Same as Eastern Gartersnake		√
Northern Banded Watersnake	<i>Nerodia sipedon sipedon</i>	Same as Northern Watersnake		√
Muhlenburg's Turtle (Bog Turtle)	<i>Clemmys muhlenbergii</i>	Not an Ontario Species		√
Smooth-scaled Green snake	<i>Opheodrys vernalis</i>	Same as Smooth Greensnake		√
Storer's snake	<i>Storeria occipito maculata</i>	Same as Northern Red-bellied snake		√

Table 4: List of Niagara NAI Area Reptile and Amphibian species and their National, Provincial and Local (study area) Significance

Common Name	Scientific Name	Global GRANK	Provincial SRANK	COSEWIC	SARO*	Significance Niagara NAI Area
AMPHIBIANS OF NIAGARA REGION						
Wood Frog	<i>Rana sylvatica</i>	G5 (1996-10-18)	S5 (1994-10-19)			Widespread
Western Chorus Frog	<i>Pseudacris triseriata</i>	G5 (1996-10-18)	S4 (2001-02-20)	NAR/ THR Eastern Ont and Que	NAR	Widespread
Spring Peeper	<i>Pseudacris crucifer</i>	G5 (1996-10-18)	S5 (1988-10-24)			Widespread
Gray Treefrog	<i>Hyla versicolor</i>	G5 (1996-10-18)	S5 (1988-10-24)			Widespread
Northern Leopard Frog	<i>Rana pipiens</i>	G5 (1996-10-18)	S5 (1988-10-24)	NAR	NAR	Widespread
Pickerel Frog	<i>Rana palustris</i>	G5 (1996-10-18)	S4 (1997-11-21)	NAR	NAR	Regionally Significant
Green Frog	<i>Rana clamitans</i>	G5 (1996-10-18)	S5 (1995-12-20)			Widespread
American Bullfrog	<i>Rana catesbeiana</i>	G5 (1996-10-18)	S4 (1989-11-09)			Widespread
American Toad	<i>Bufo americanus</i>	G5 (1996-10-17)	S5 (1988-10-24)			Widespread
Fowler's toad	<i>Bufo fowleri</i>	G5 (1996-10-09)	S2 (1988-10-24)	THR	THR	SAR-Locally found
Red-spotted Newt	<i>Notophthalmus viridescens viridescens</i>	G5T5 (1996-11-01)	S5 (1995-01-01)			Widespread
Northern Dusky Salamander	<i>Desmognathus fuscus</i>	G5 (1996-09-26)	S1 (1989-05-02)	NAR	END	SAR-Locally found
Allegheny Mountain Dusky Salamander	<i>Desmognathus ochrophaeus</i>	G5	S1	END	END	SAR-Locally found
Spring Salamander	<i>Gyrinophilus porphyriticus</i>	G5 (1996-10-10)	SX (1988-10-14)	SC	EXP	SAR-Local-extirpated
Eastern Red-backed Salamander	<i>Plethodon cinereus</i>	G5 (1996-10-11)	S5 (1988-10-24)			Widespread
Four-toed Salamander	<i>Hemidactylium scutatum</i>	G5 (1996-10-10)	S4 (1999-11-01)	NAR	NAR	Regionally Significant
Mudpuppy	<i>Necturus maculosus</i>	G5 (1996-10-11)	S4 (1988-10-24)	NAR	NAR	Widespread
Blue-spotted Salamander	<i>Ambystoma laterale</i>	G5 (1996-09-26)	S4 (1994-07-15)			Regionally Significant
Jefferson Salamander	<i>Ambystoma jeffersonianum</i>	G4 (2002-11-21)	S2 (1990-09-26)	THR	THR	SAR-Locally found

Common Name	Scientific Name	Global GRANK	Provincial SRANK	COSEWIC	SARO*	Significance Niagara NAI Area
Jefferson X Blue-spotted Salamander, Jefferson genome dominates	Ambystoma hybrid population (jeffersonianum genome dominates)	HYB	S2 (2002-01-03)			Regionally Significant
Spotted Salamander	Ambystoma maculatum	G5 (1996-09-26)	S4 (1988-10-24)			Regionally Significant
REPTILES OF NIAGARA REGION						
Five-lined Skink	Eumeces fasciatus	G5 (1996-10-28)	S3 (1995-12-12)	END	SC	SAR-Locally found-DD
Northern Red-bellied Snake	Storeria occipitomaculata occipitomaculata	G5T5 (1996-10-31)	S5 (1988-10-24)			Regionally Significant
Dekay's Brownsnake	Storeria dekayi	G5 (1996-10-30)	S5 (1988-10-24)	NAR	NAR	Widespread
Ring-necked snake	Diadophis punctatus	G5 (1996-10-29)	S4 (1994-07-15)			Regionally Significant
Eastern Gartersnake	Thamnophis sirtalis sirtalis	G5T?	S5 (1997-04-04)			Widespread
Eastern Ribbonsnake	Thamnophis sauritus	G5 (1997-02-26)	S3 (2002-05-07)	SC	SC	SAR-Locally found
Queen Snake	Regina septemvittata	G5 (1996-10-30)	S2 (1988-10-24)	THR	THR	SAR-DD
Smooth Greensnake	Opheodrys vernalis	G5 (1996-10-30)	S4 (1990-09-21)			Regionally Significant
Northern Watersnake	Nerodia sipedon sipedon	G5T5 (1996-10-31)	S5 (1988-10-24)	NAR	NAR	Widespread
Milksnake	Lampropeltis triangulum	G5 (1996-10-30)	S3 (2002-05-07)	SC	SC	SAR-Locally found
Eastern Hog-nosed snake	Heterodon platirhinos	G5 (1996-10-30)	S3 (1988-10-24)	THR	THR	SAR-Locally found-DD
Gray ratsnake (a.k.a Black ratsnake)	Elaphe spiloides	G5 (1996-10-29)	S3 (1988-10-24)	END	THR	SAR-Locally found-DD
Eastern Foxsnake	Elaphe gloydi	G3 (1996-10-31)	S3 (01-Nov-99)	END	THR	SAR-Not Local
Massasauga	Sistrurus catenatus	G3G4 (1996-10-31)	S3 (1994-07-15)	THR	THR	SAR-Locally found SAR-Local- probably extirpated
Timber Rattlesnake	Crotalus horridus	G4 (1997-09-29)	SX (1988-10-24)	EXP	END	
Spiny Softshell	Apalone spinifera	G5 (1996-10-23)	S3 (1990-03-09)	THR	THR	SAR-Locally found-DD
Snapping Turtle	Chelydra serpentina	G5 (1996-10-31)	S3 (1989-11-09)	SC	Under review	SAR-Locally found
Eastern Box Turtle	Terrapene carolina	G5 (1996-10-21)	SU (2002-10-14)	DD	DD	Introduced
Blanding's Turtle	Emydoidea blandingii	G4 (1997-09-23)	S3 (2003-11-11)	THR	THR	SAR-Locally found
Midland Painted Turtle	Chrysemys picta marginata	G5T5 (1996-10-	S5 (1995-01-01)			Widespread

Common Name	Scientific Name	Global GRANK 31)	Provincial SRANK	COSEWIC	SARO*	Significance Niagara NAI Area
Spotted Turtle	<i>Clemmys guttata</i>	G5 (1996-10-21)	S3 (1990-03-09)	END	END	SAR-Locally found
Wood Turtle	<i>Glyptemys insculpta</i>	G4 (1996-10-21)	S2 (1995-09-18)	THR	END	SAR-DD
Northern Map Turtle	<i>Graptemys geographica</i>	G5 (1996-10-21)	S3 (2002-05-07)	SC	SC	SAR-Locally found
Stinkpot	<i>Sternotherus odoratus</i>	G5 (1996-10-23)	S3 (2002-05-07) SE1 (1995-12-20)	THR	THR	SAR-Locally found-DD
Pond Slider (Red eared)	<i>Trachemys scripta</i>	G5 (1996-10-21)				Introduced

*SARO Species at Risk Ontario produces and updates the list of Species at Risk in Ontario

Legend for Above Table 4

Code	Definition	Code	Definition	Code	Definition
SC	Special concern	NAR	Not at Risk	DD	Data deficient
THR	threatened	Local	A species found locally in study area	NIAC	Not in any category
END	endangered	SAR	Species at Risk	SRANKS	See NHIC definitions
EXP	Extirpated-no longer found locally	Introduced	Not a local or Ontario species	GRANKS	See NHIC definitions

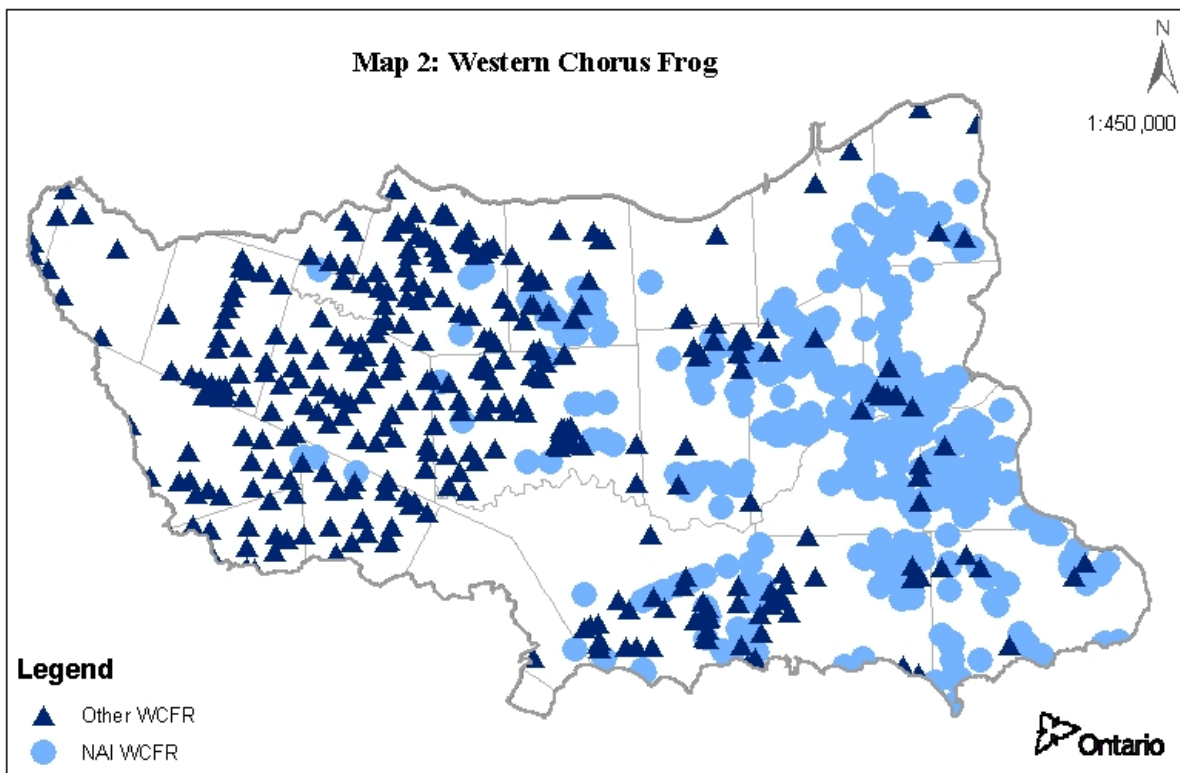
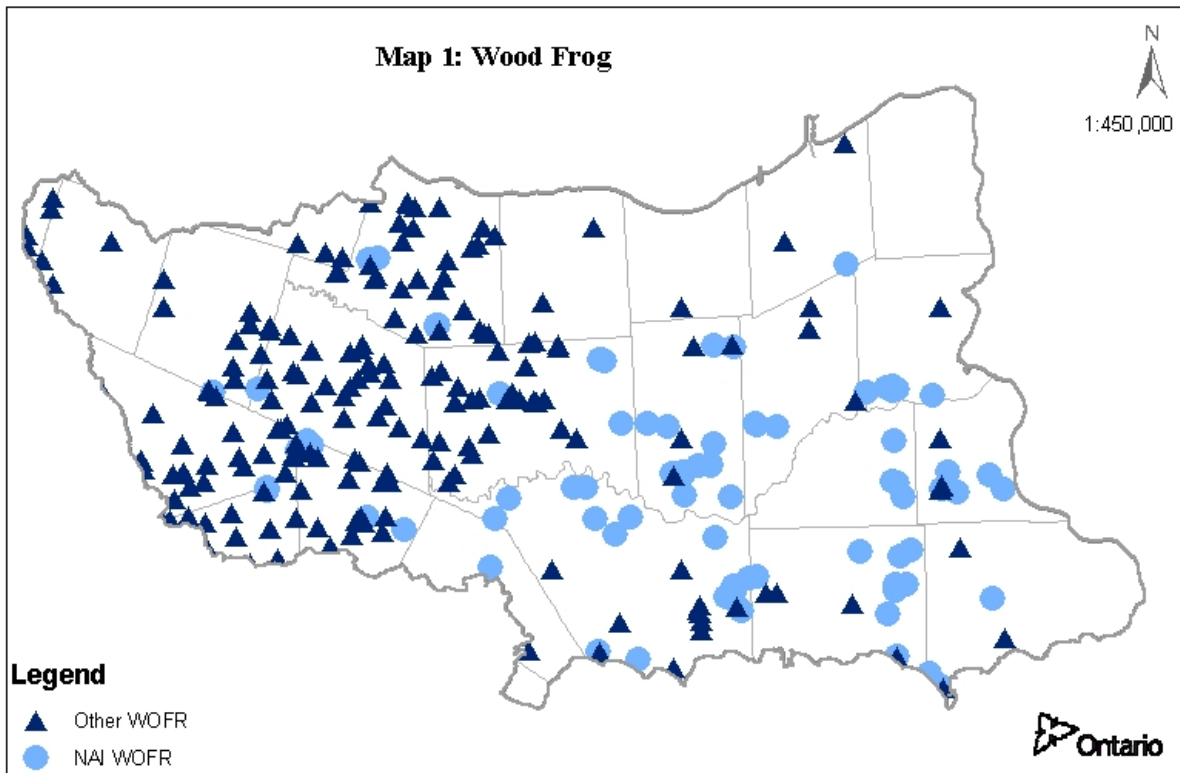


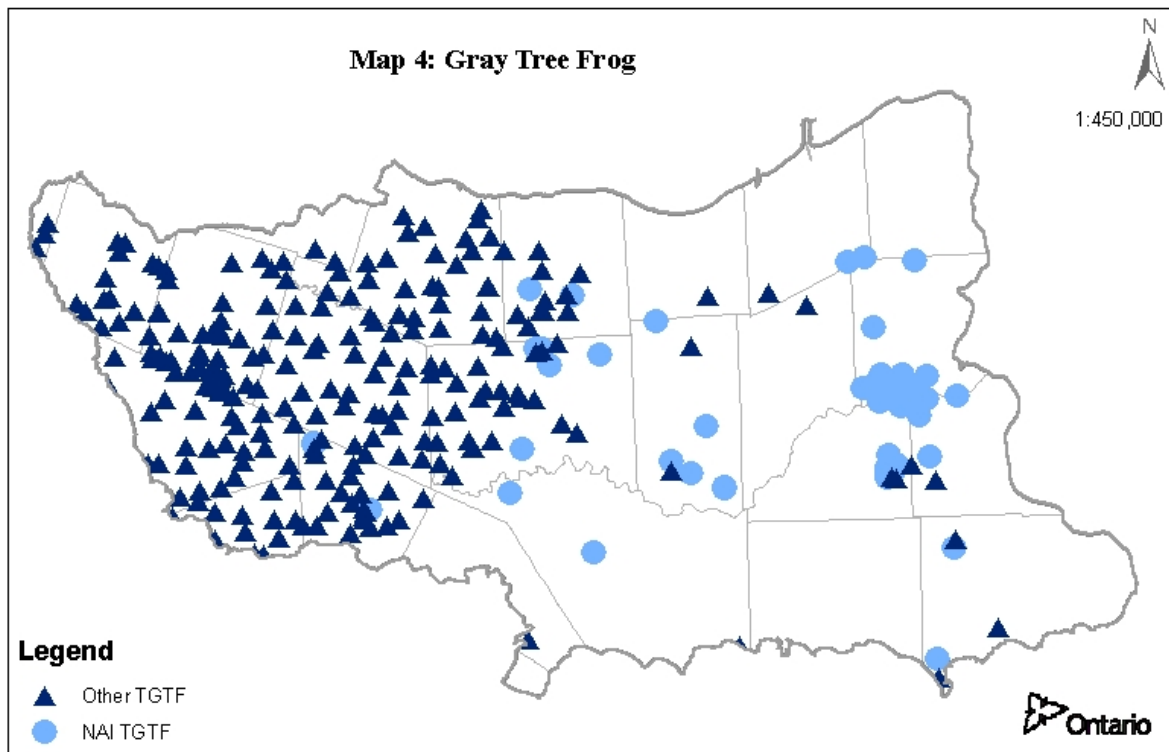
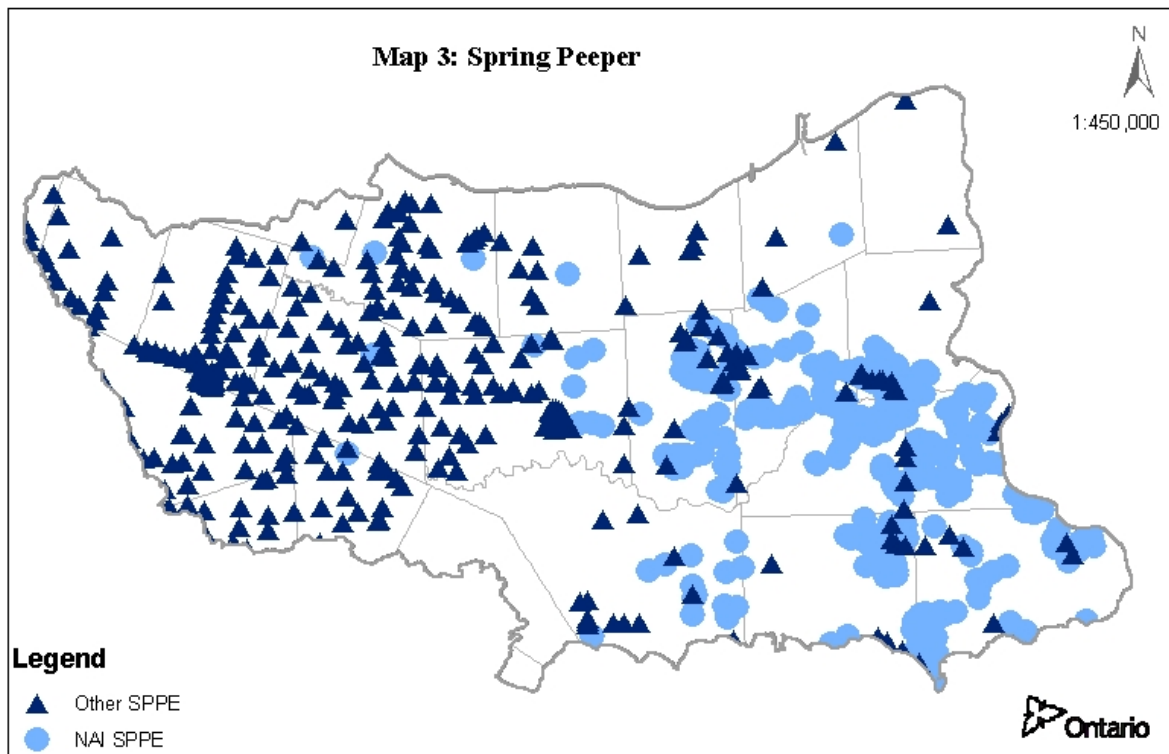
APPENDIX 2: Species Observation Maps (Not Data Sensitive)

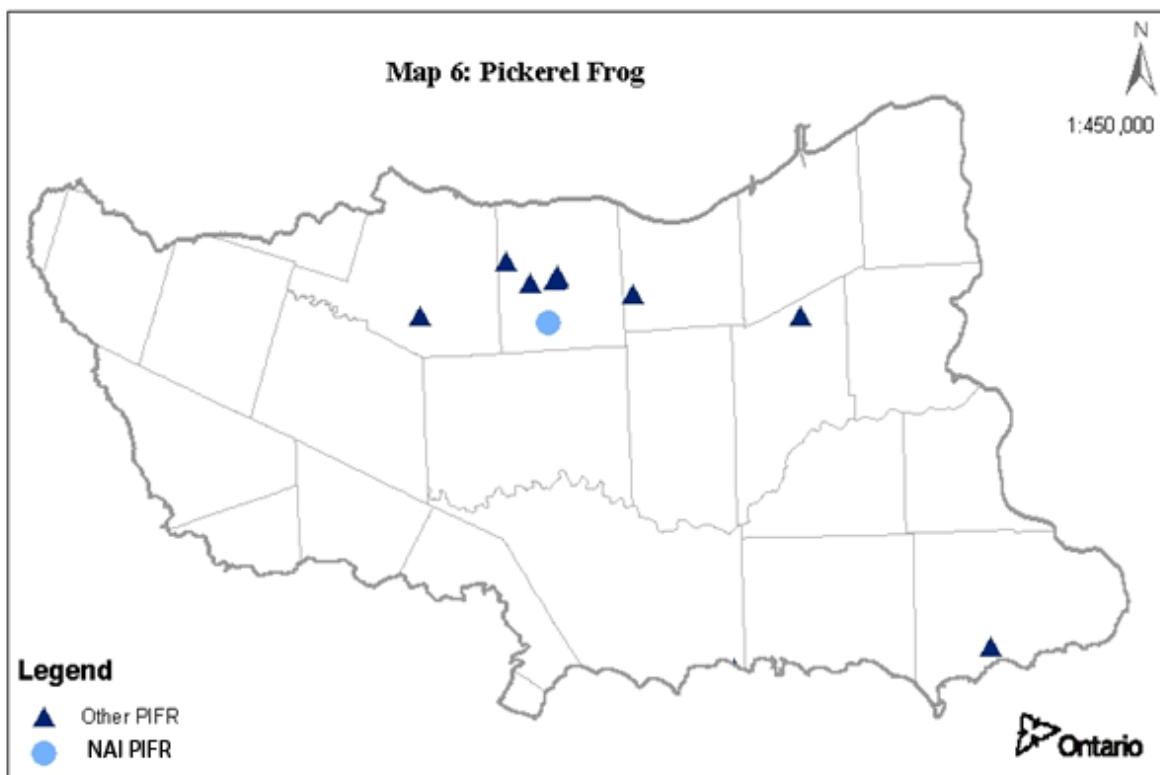
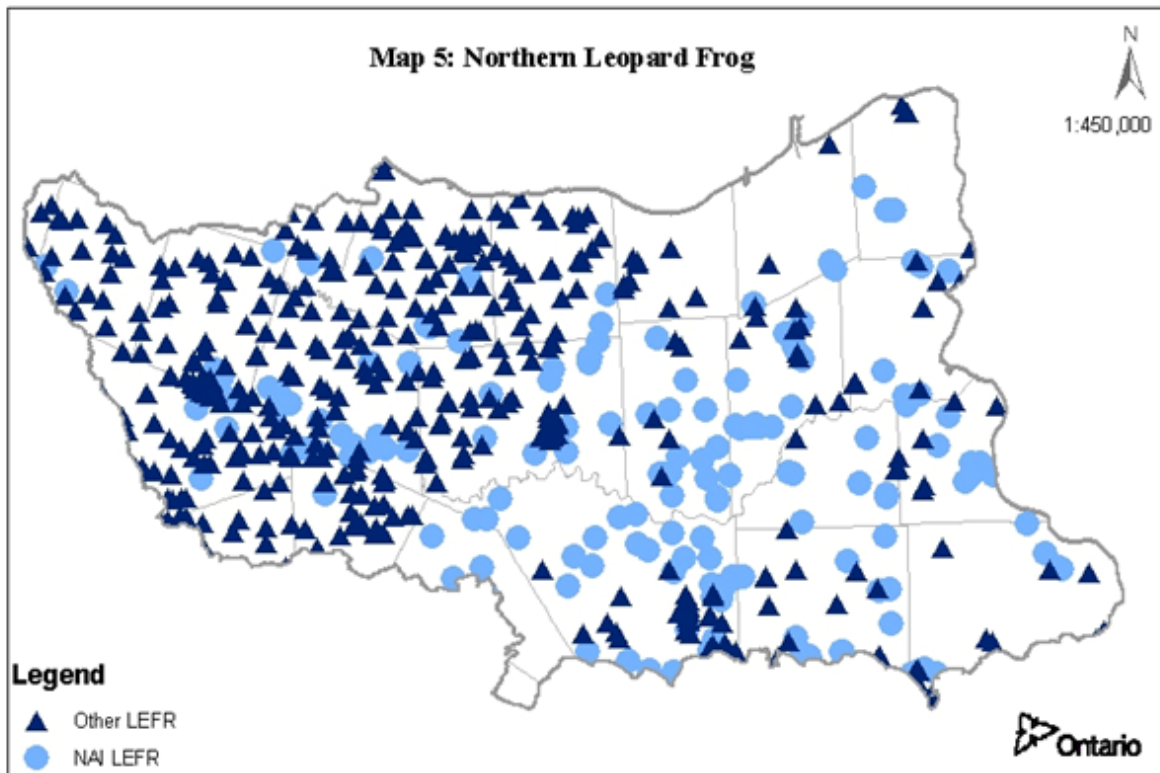


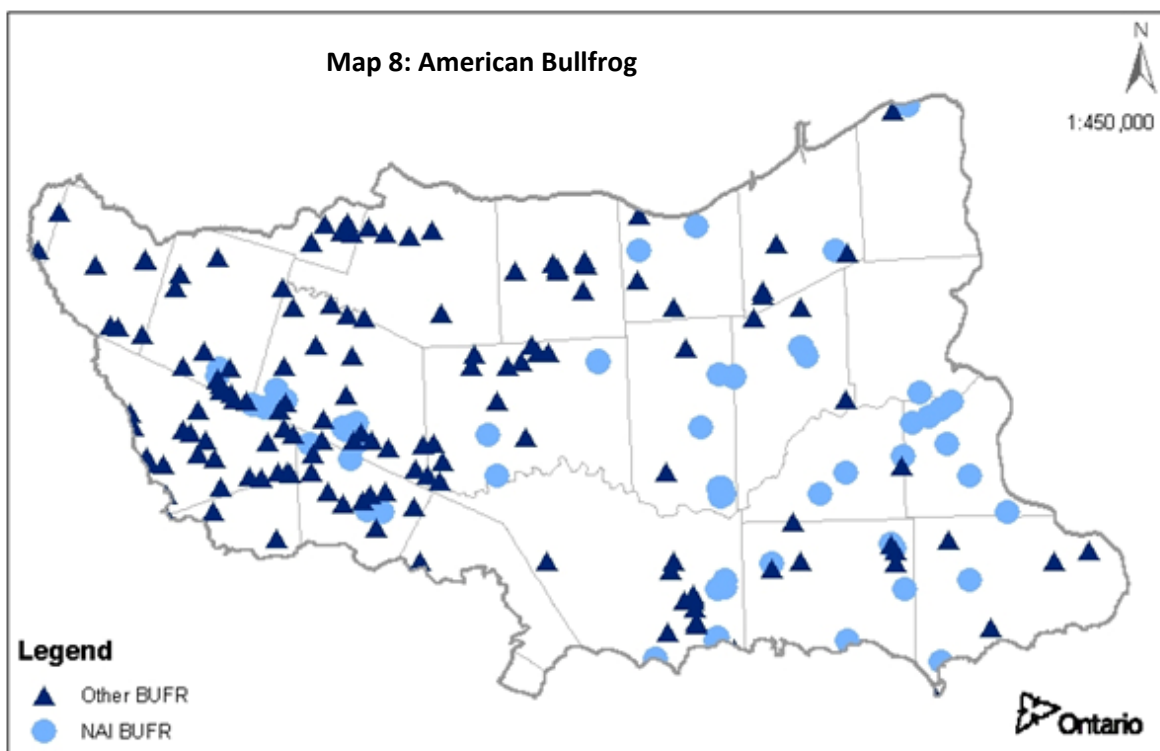
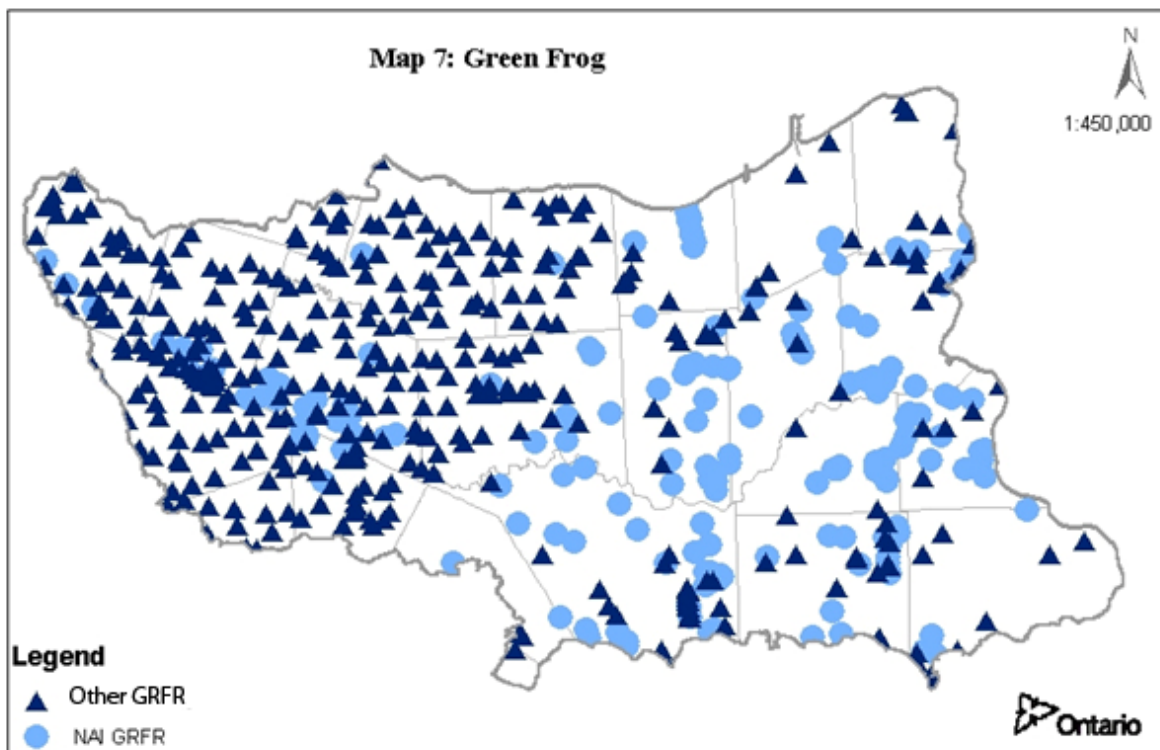
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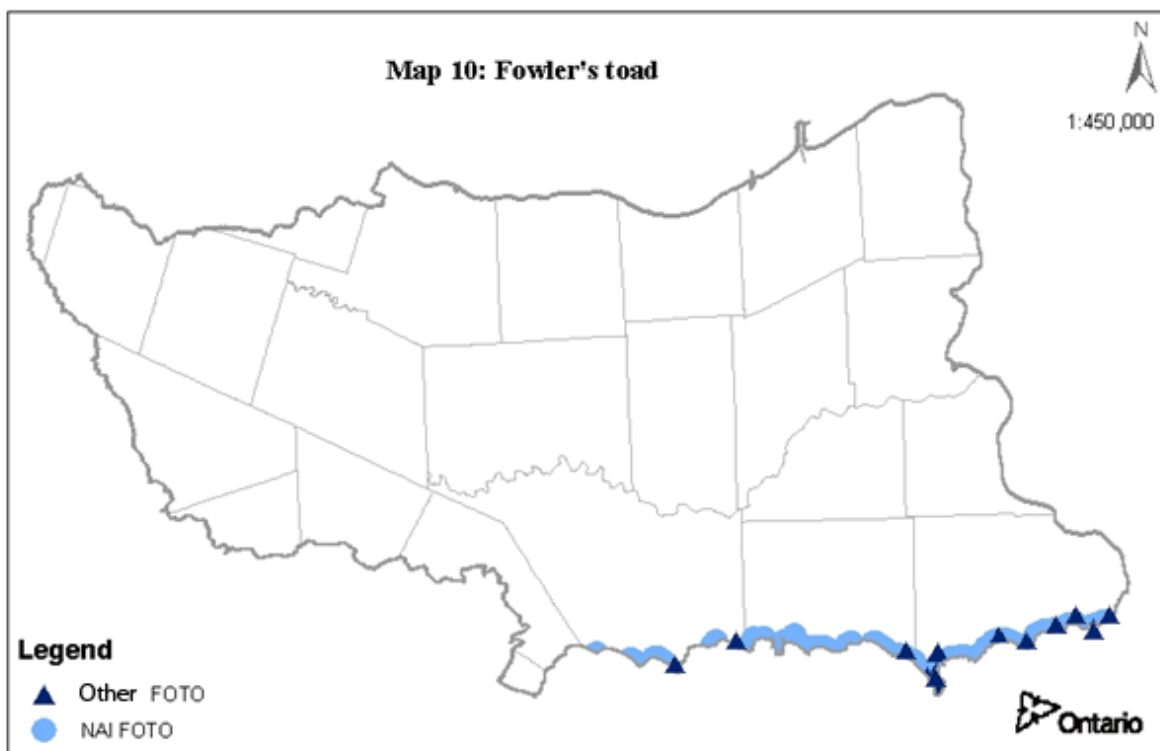
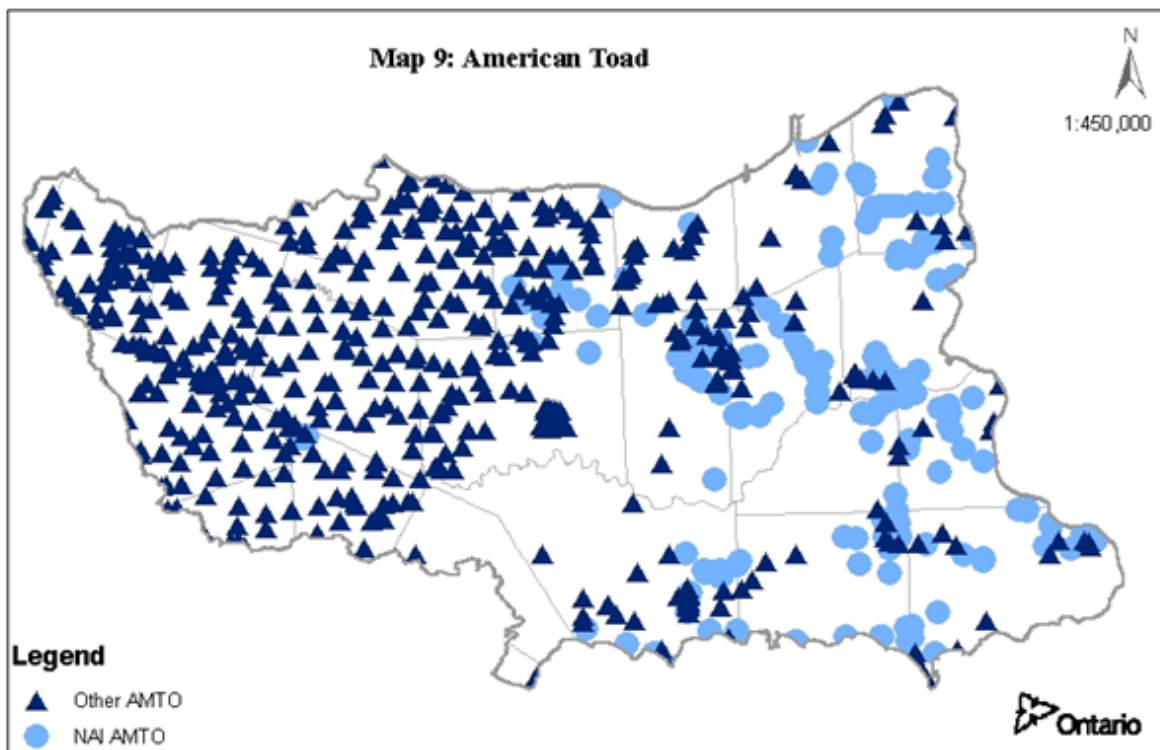
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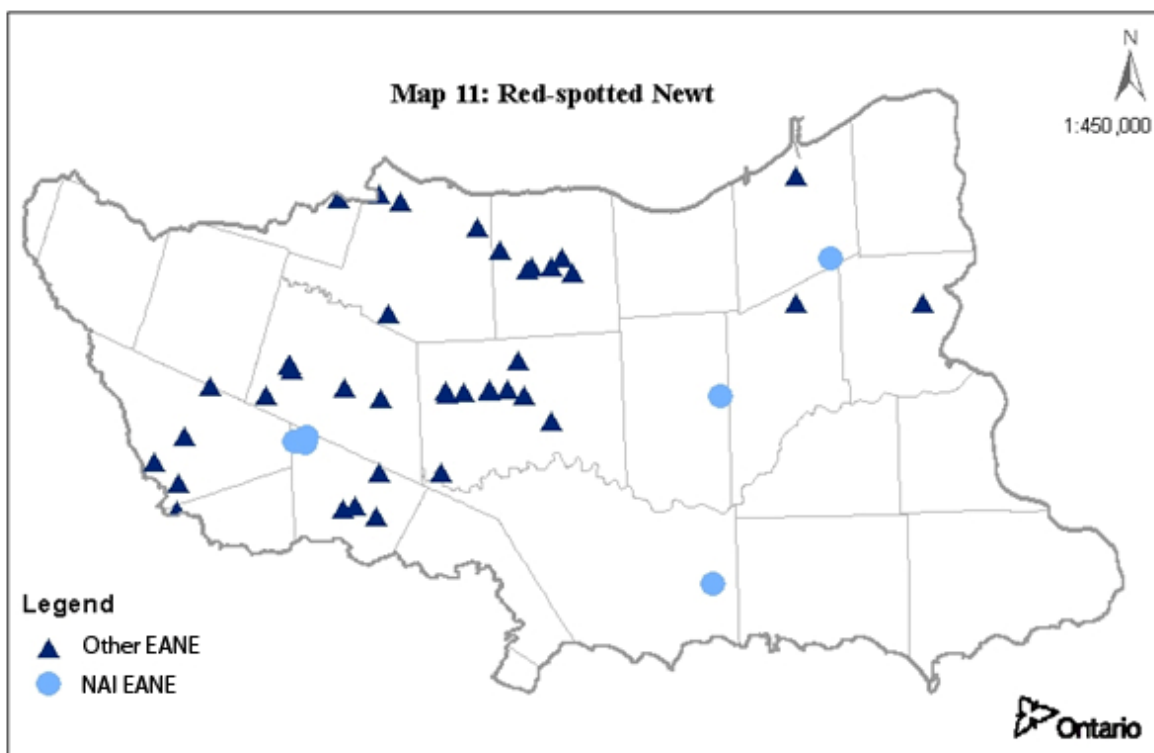


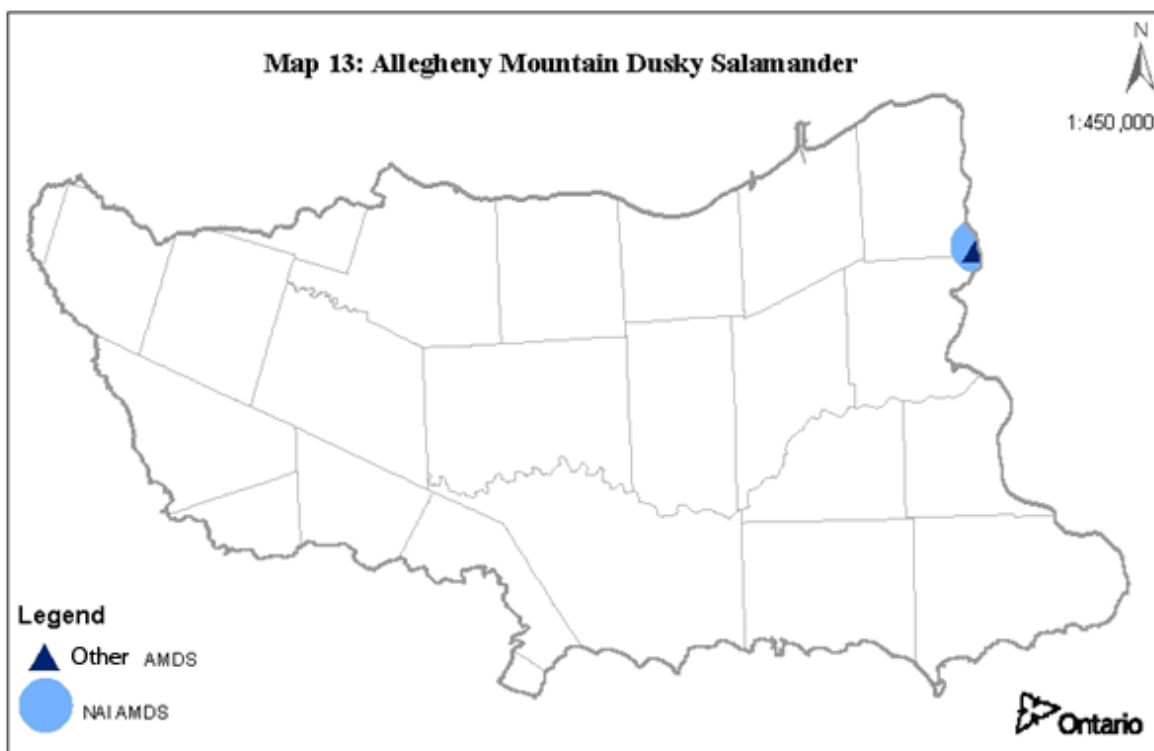
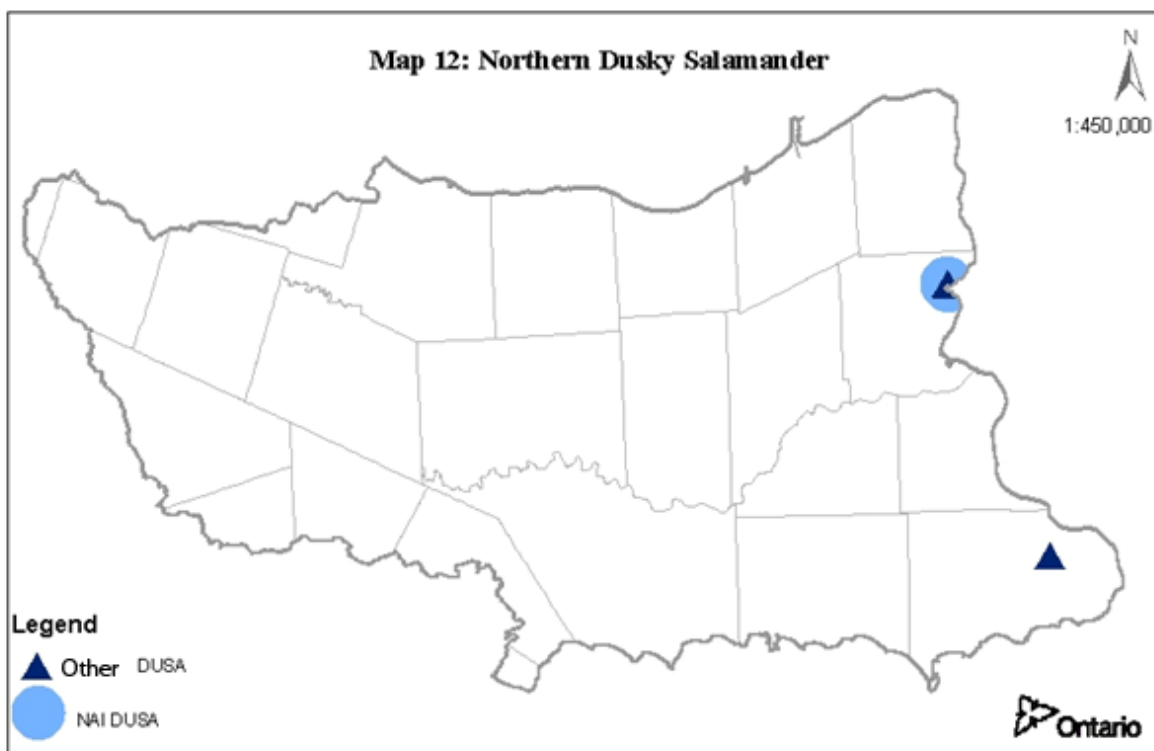


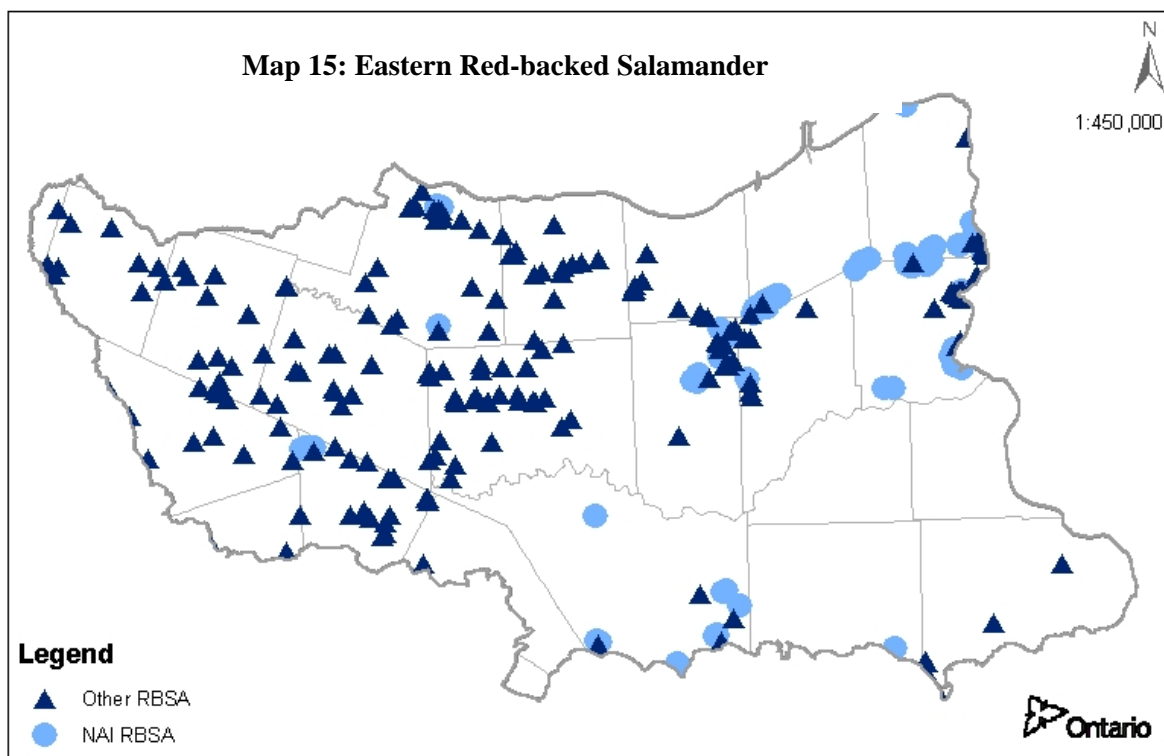
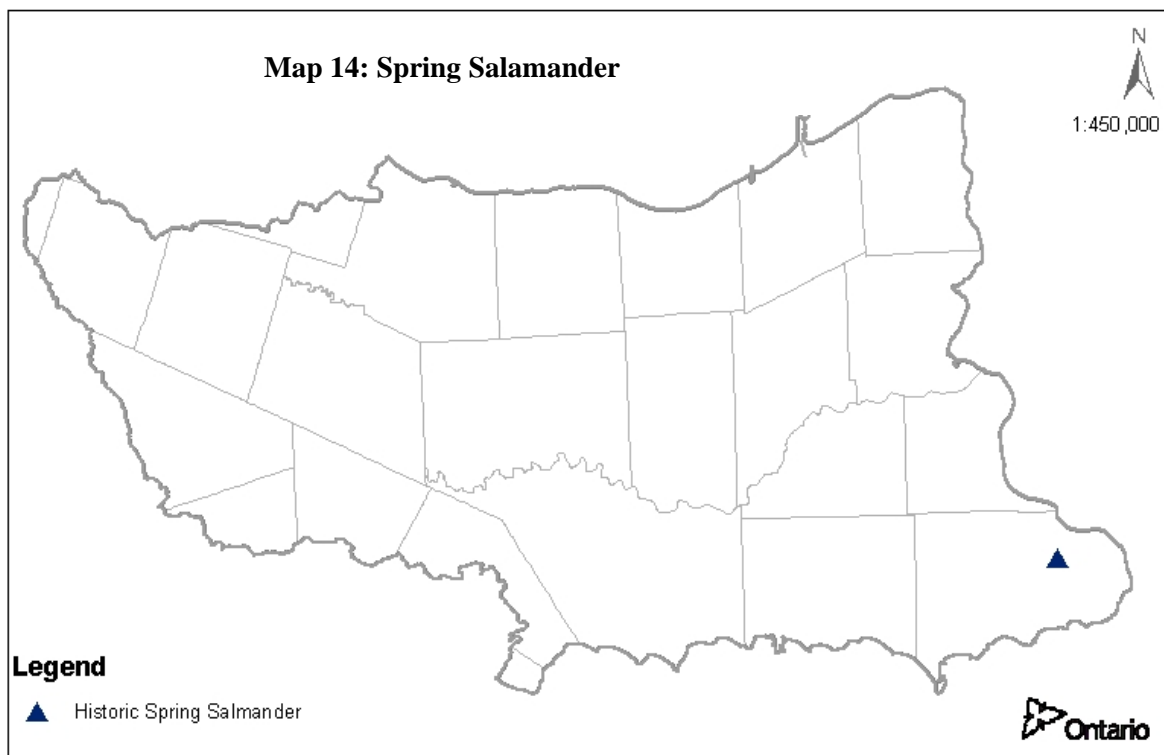


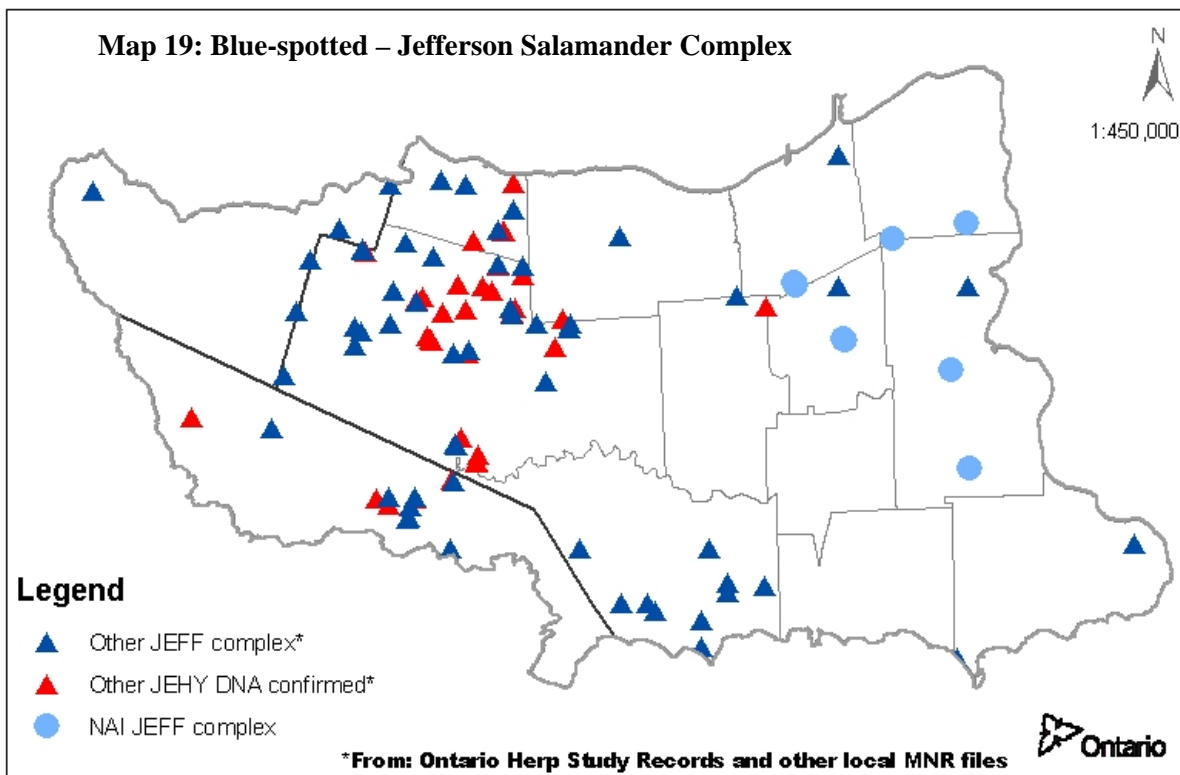
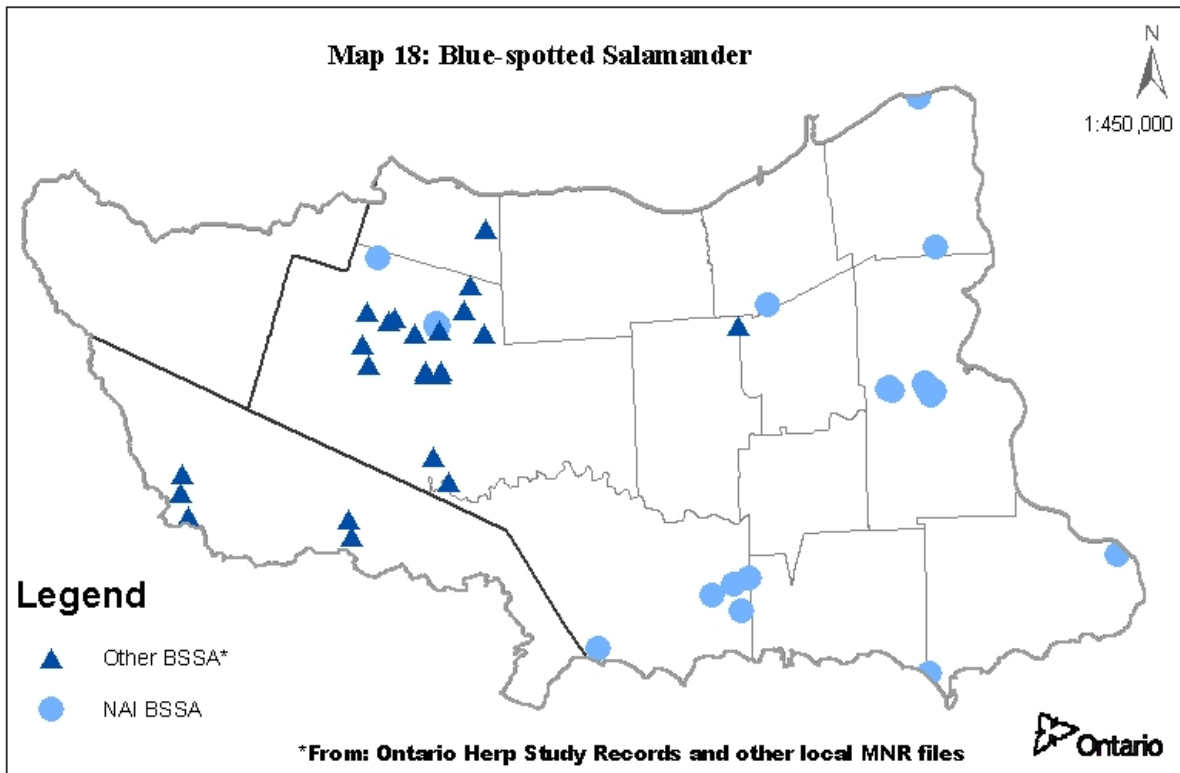


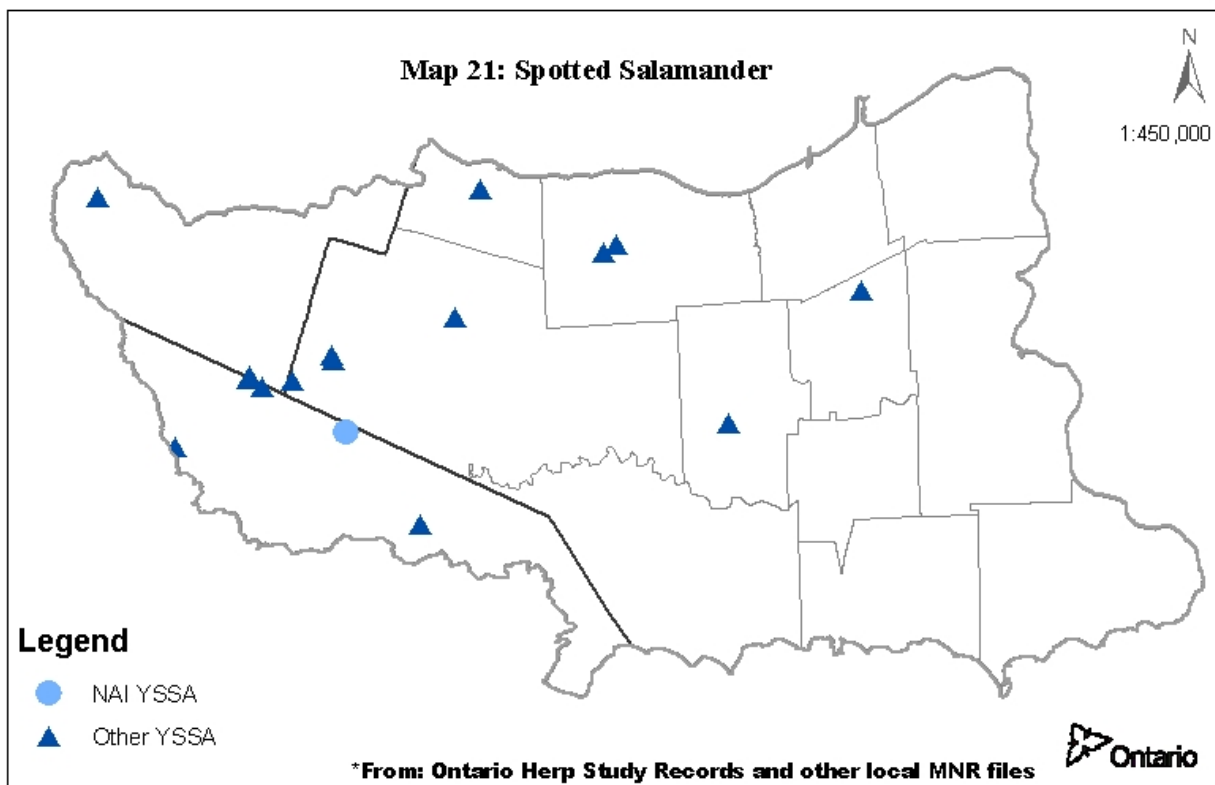
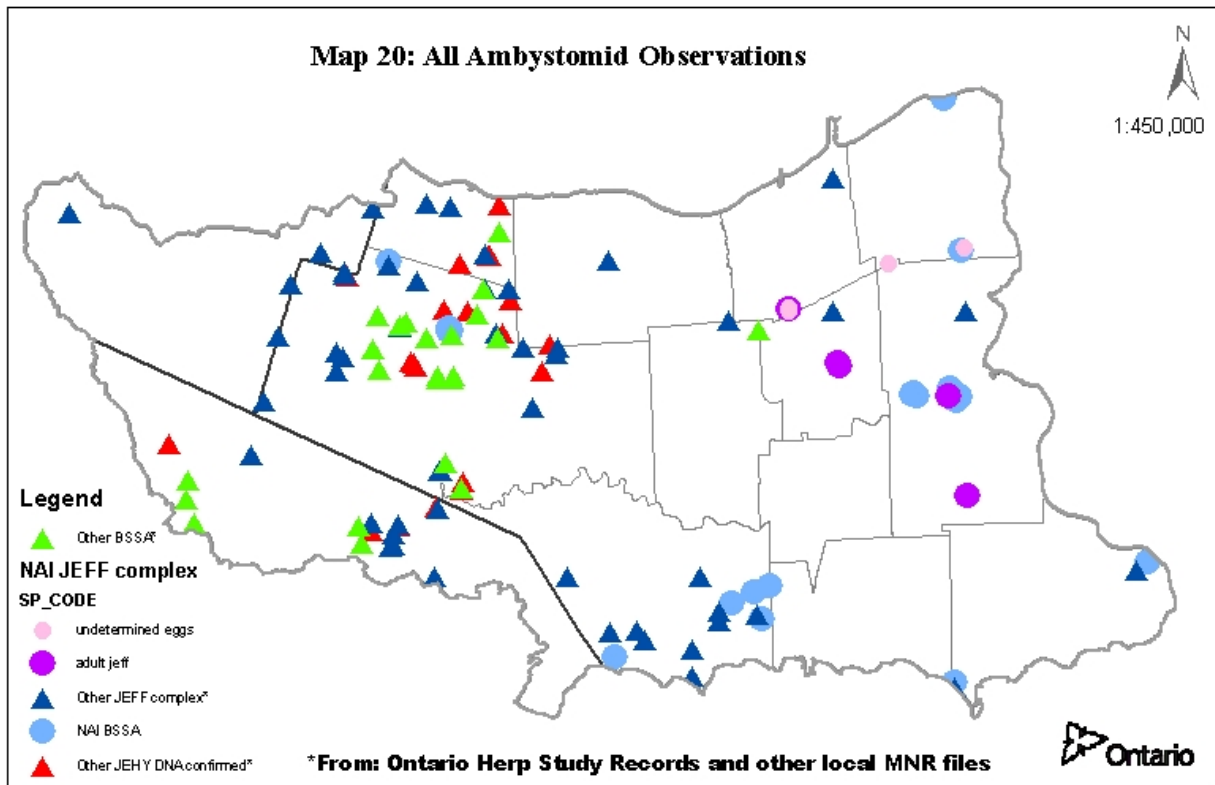


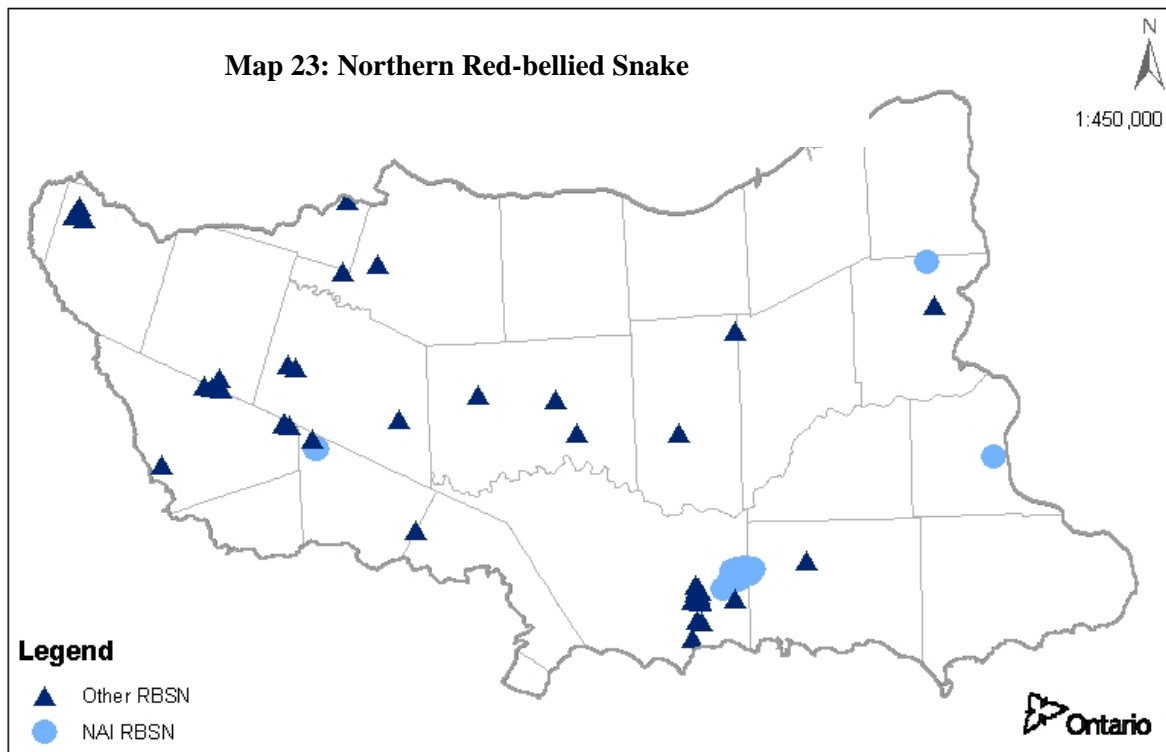
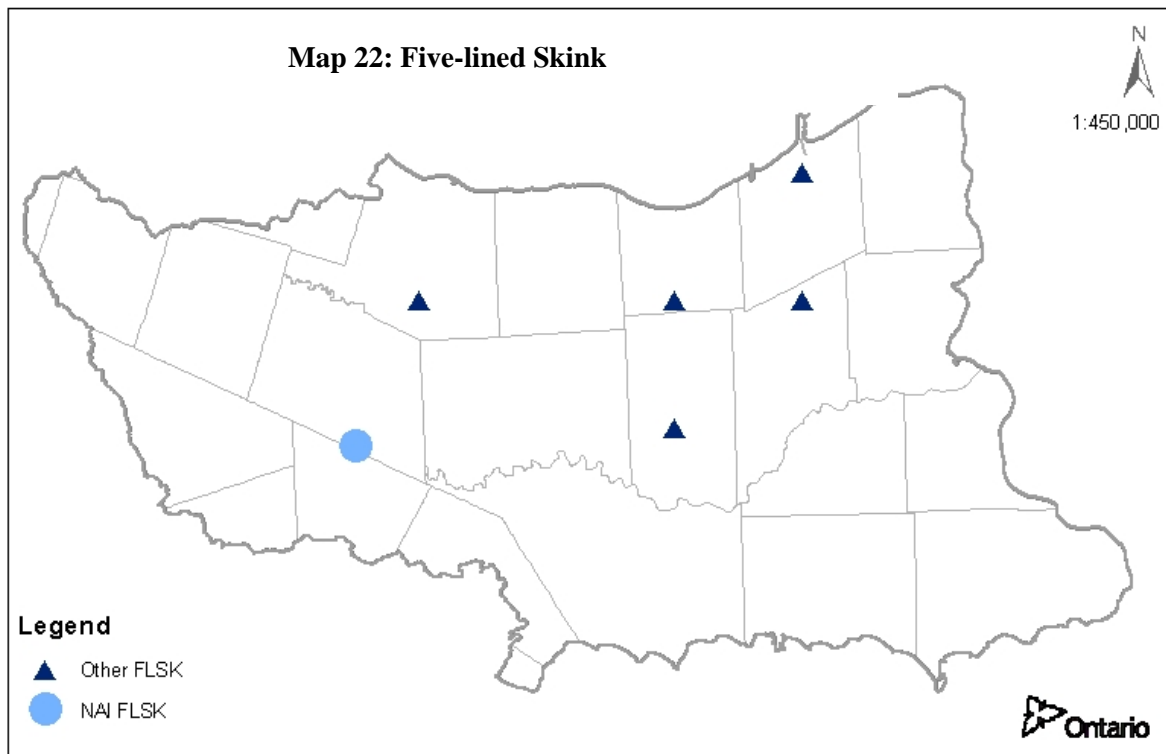


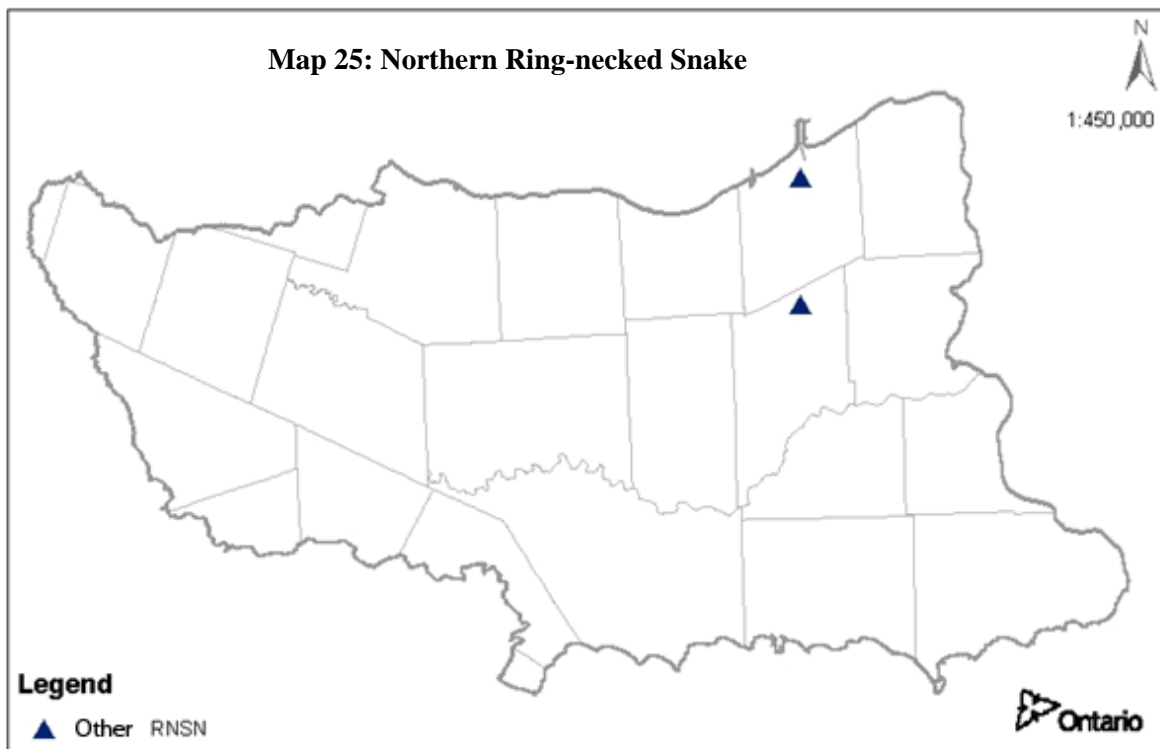
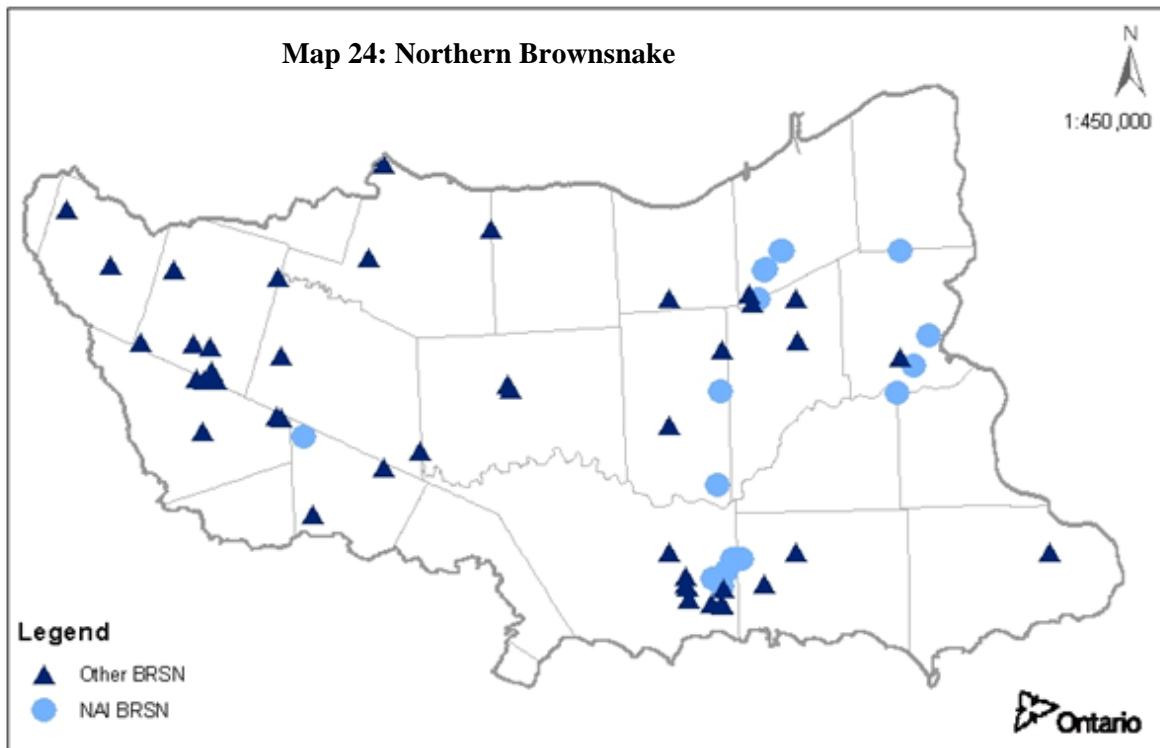


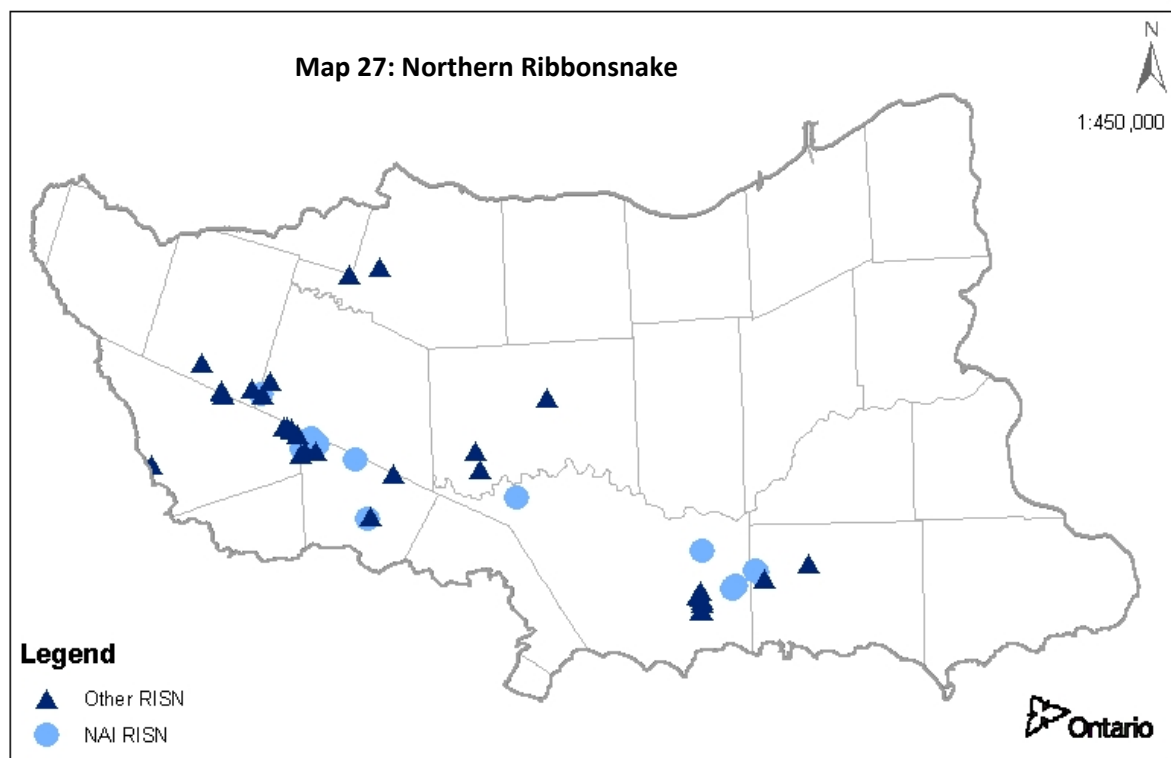
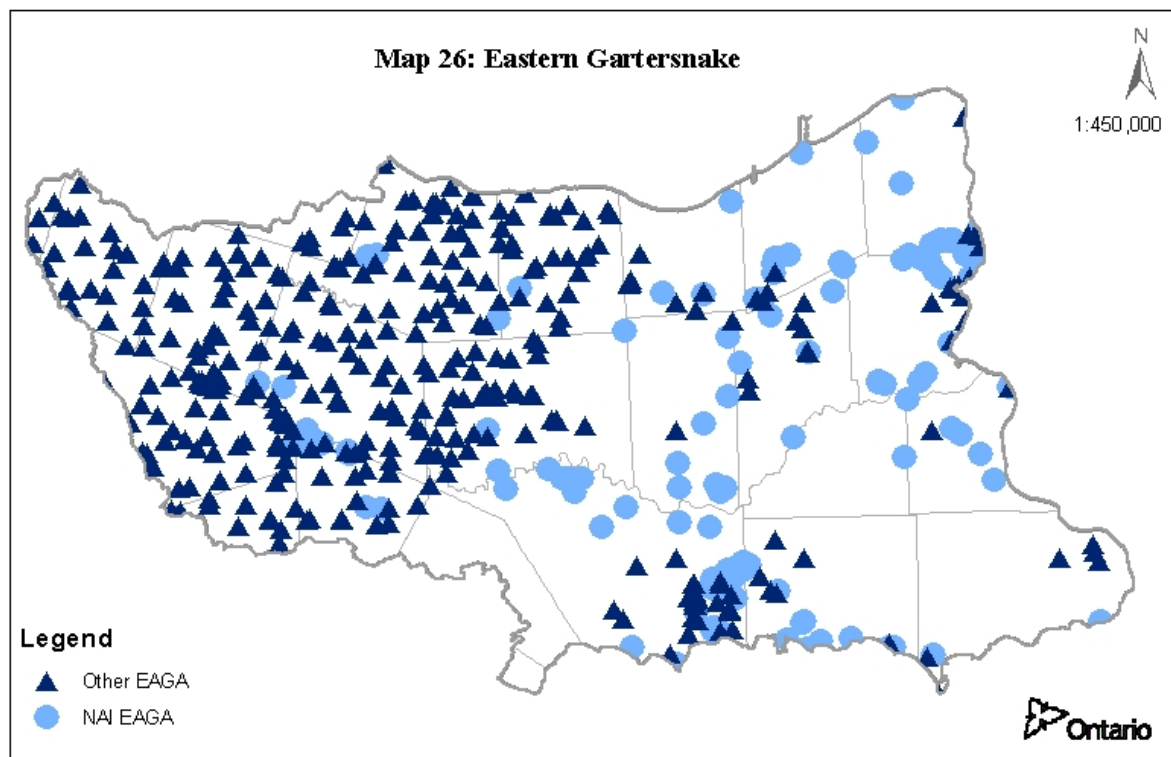


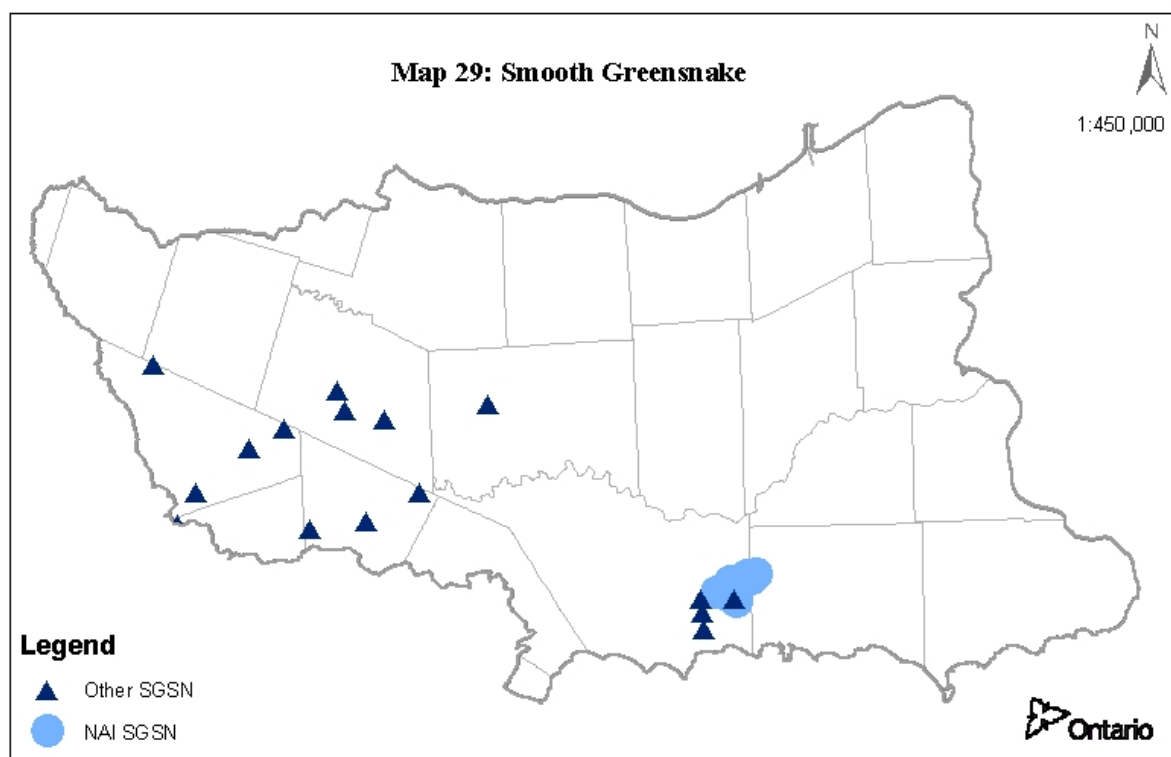
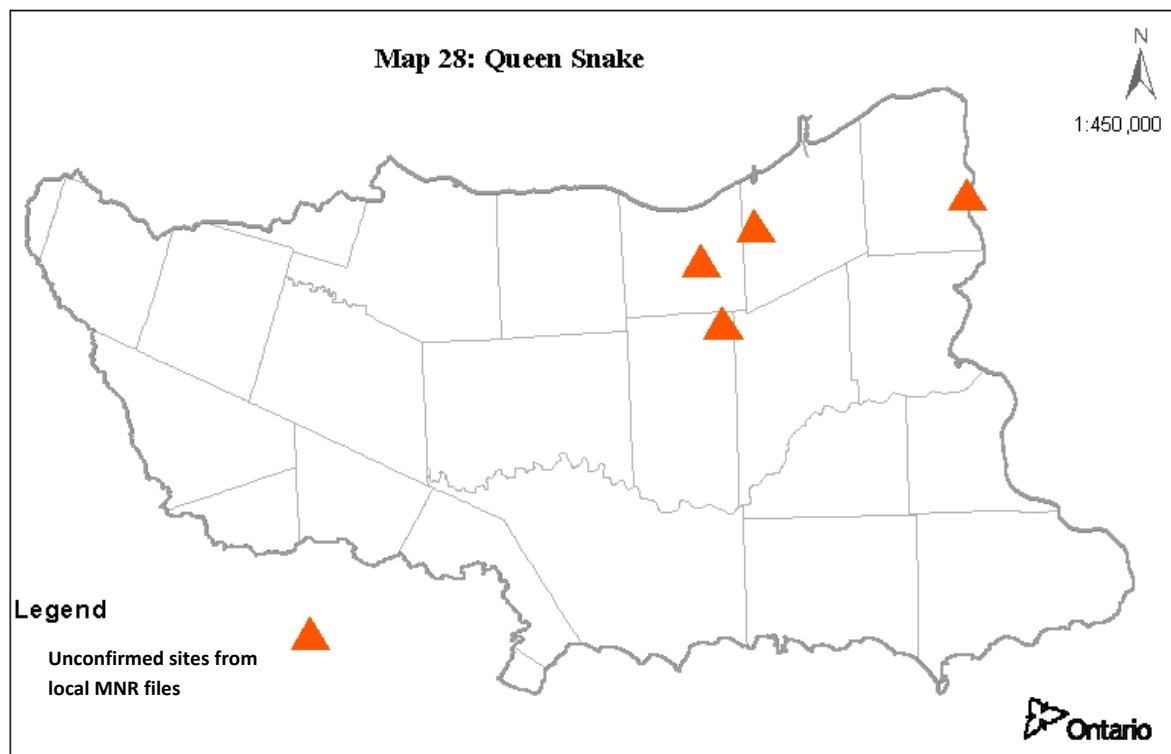


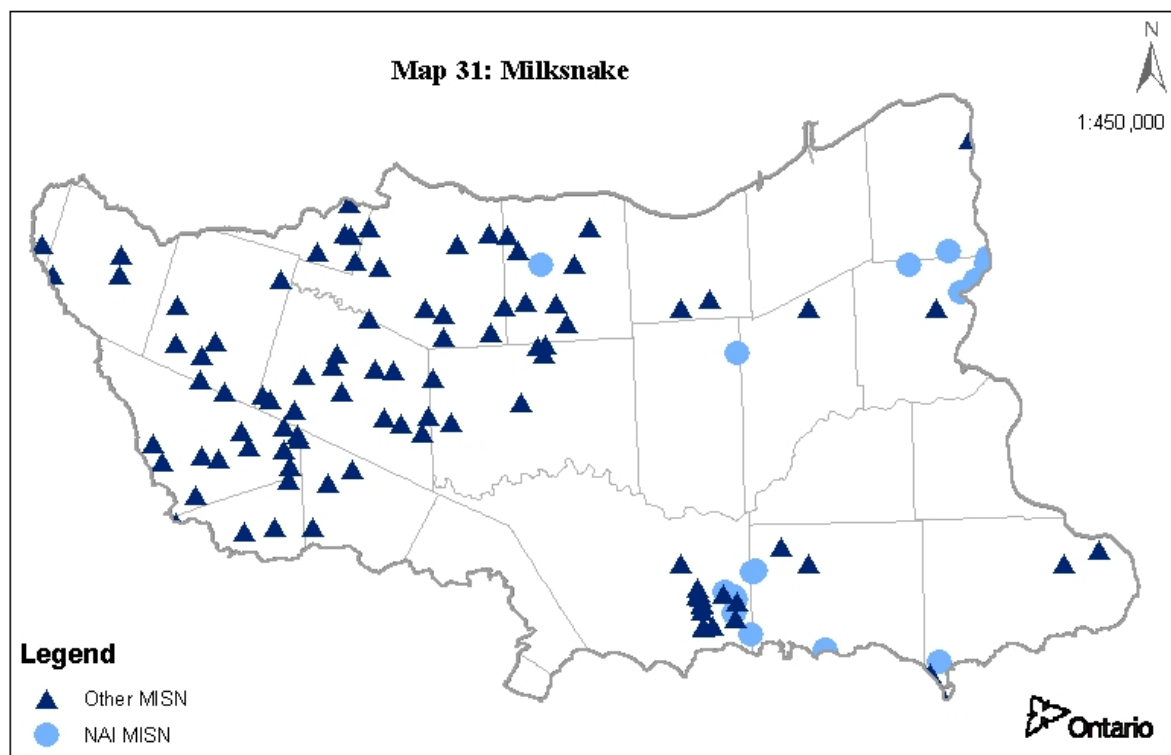
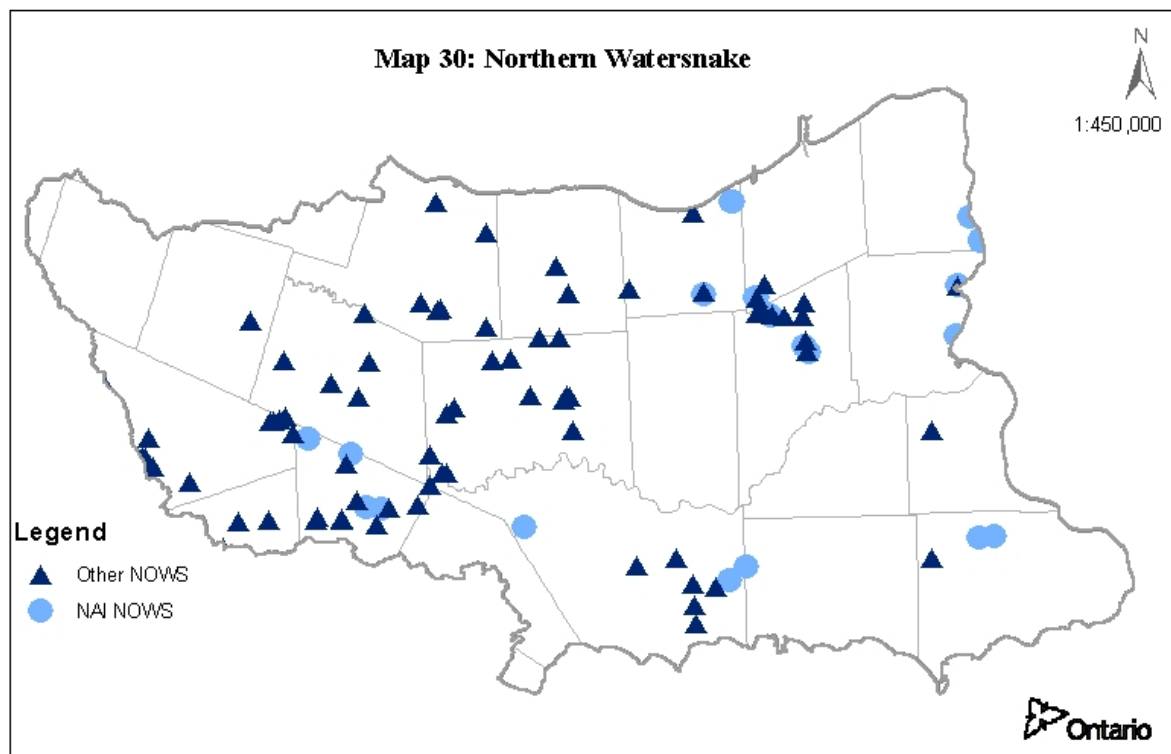


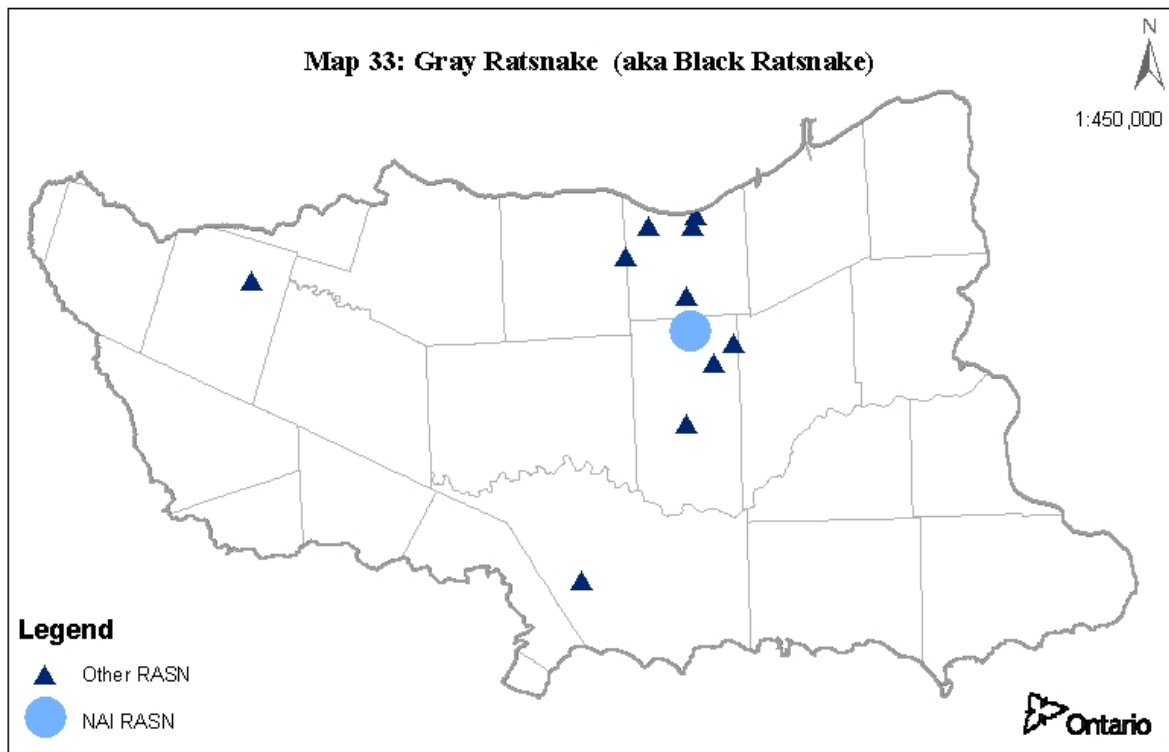
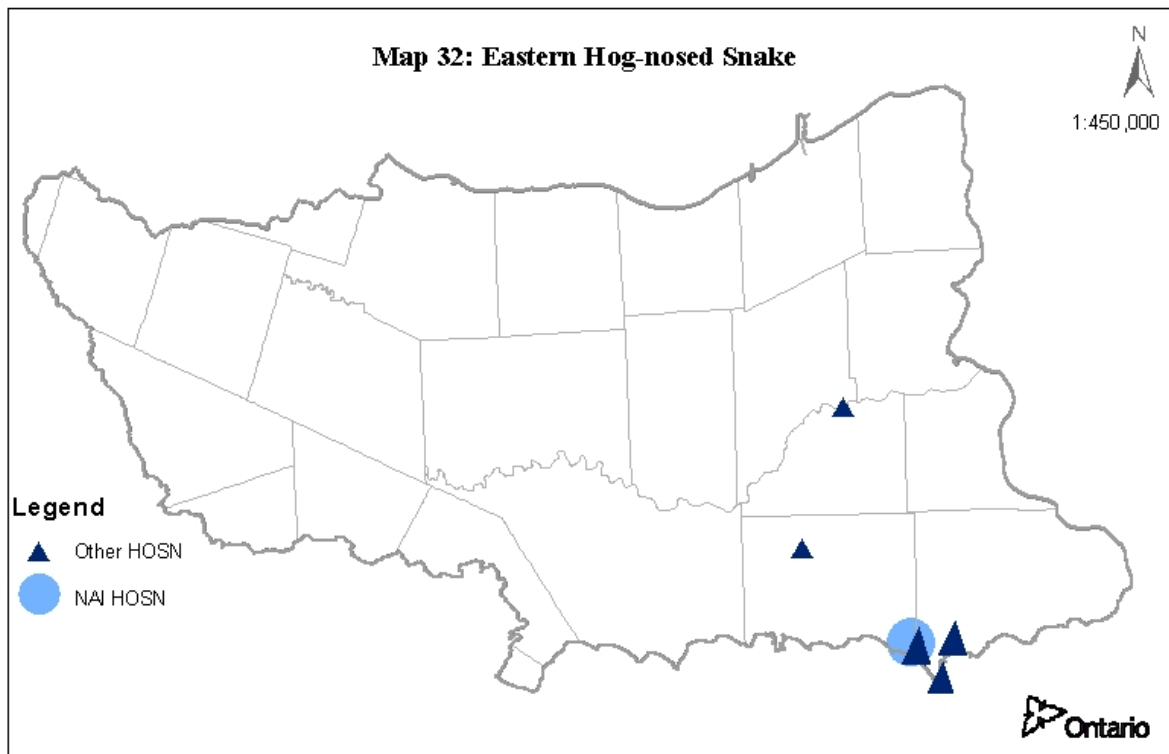


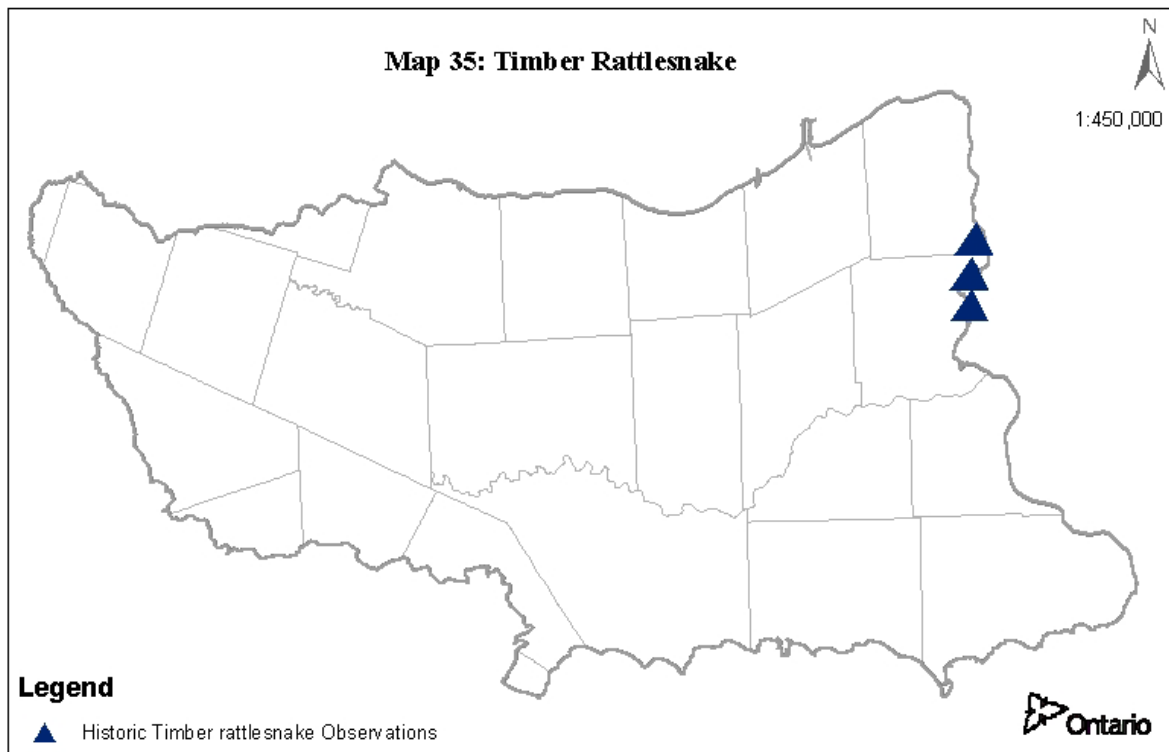
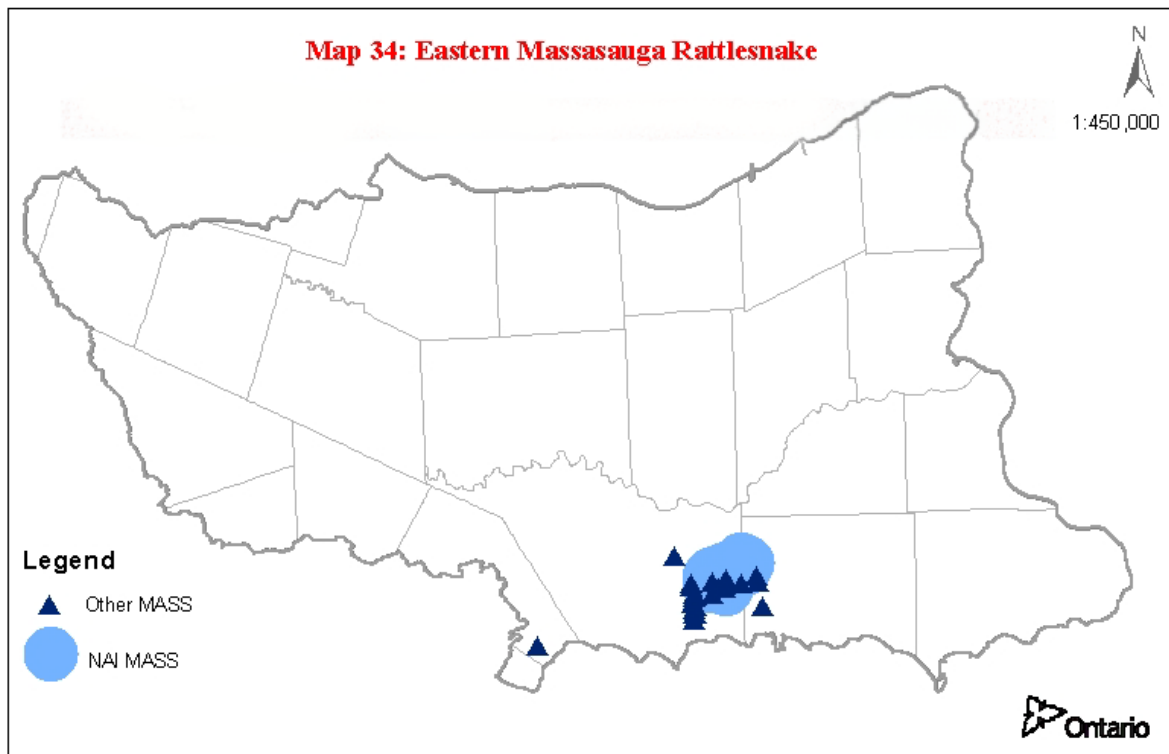


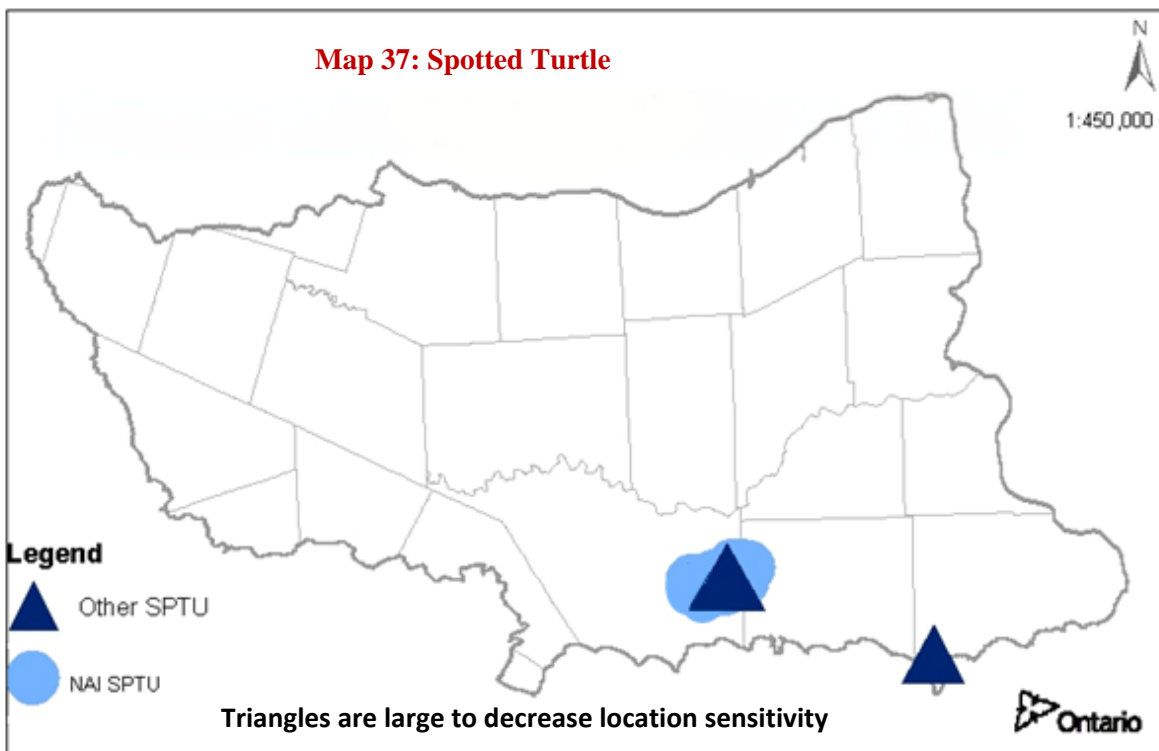
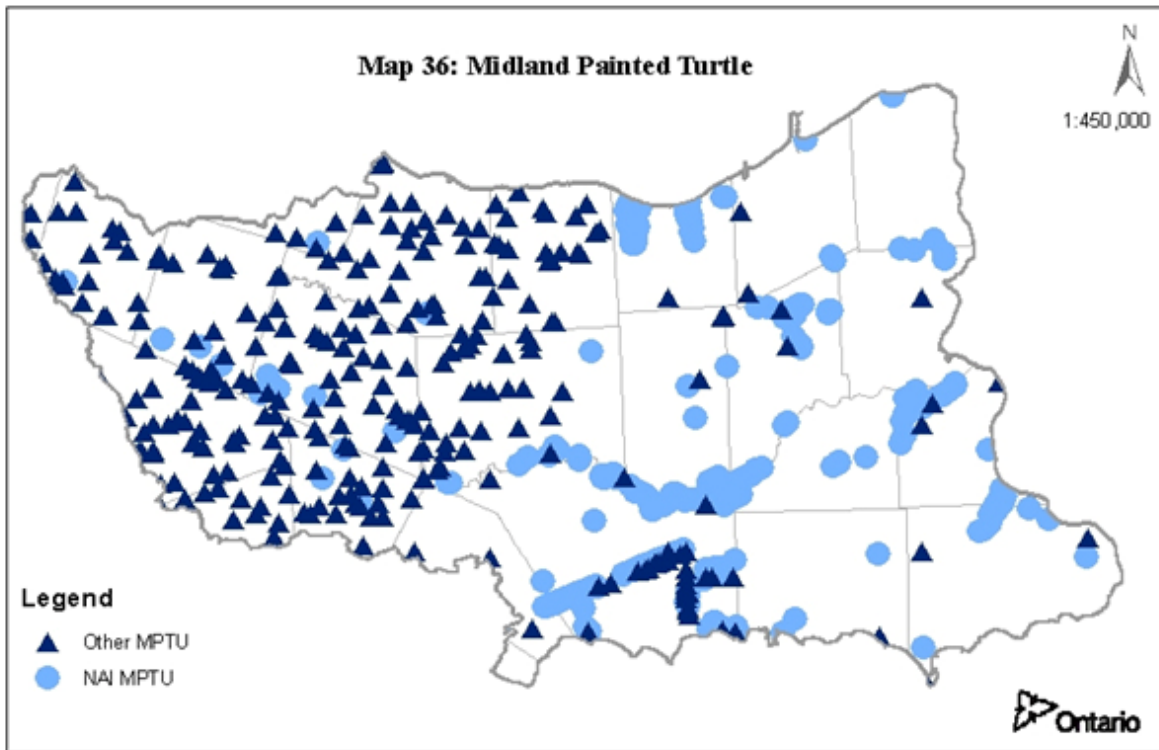


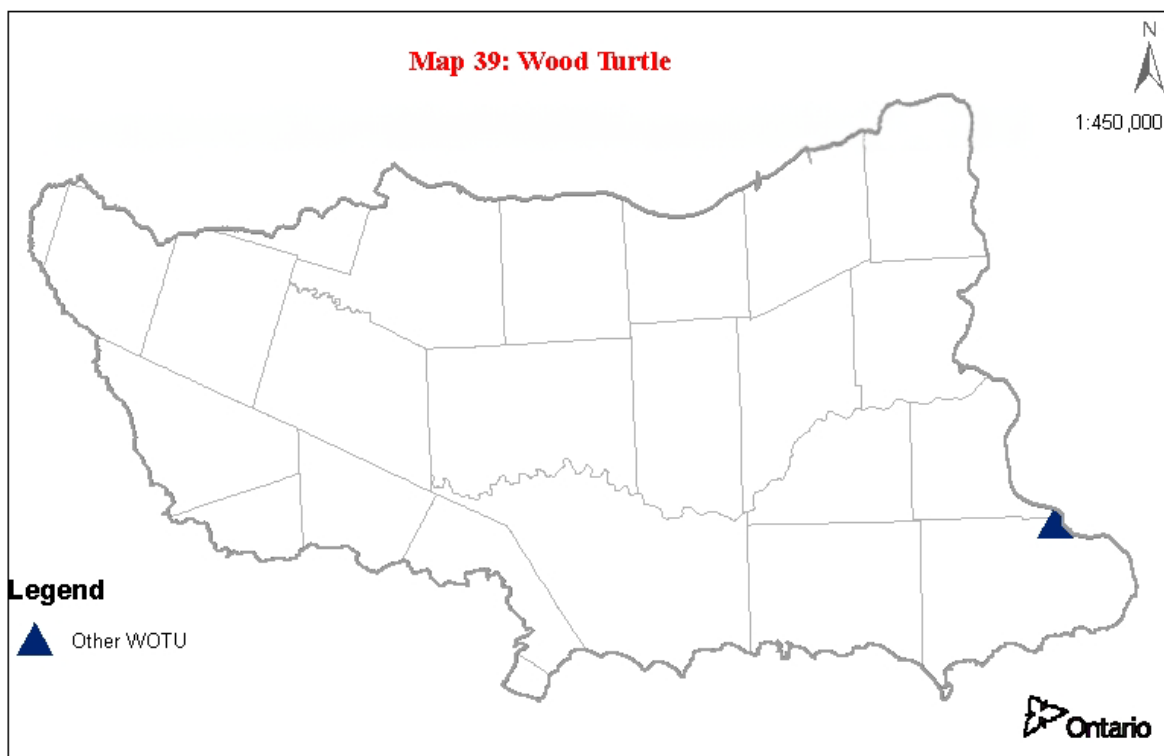
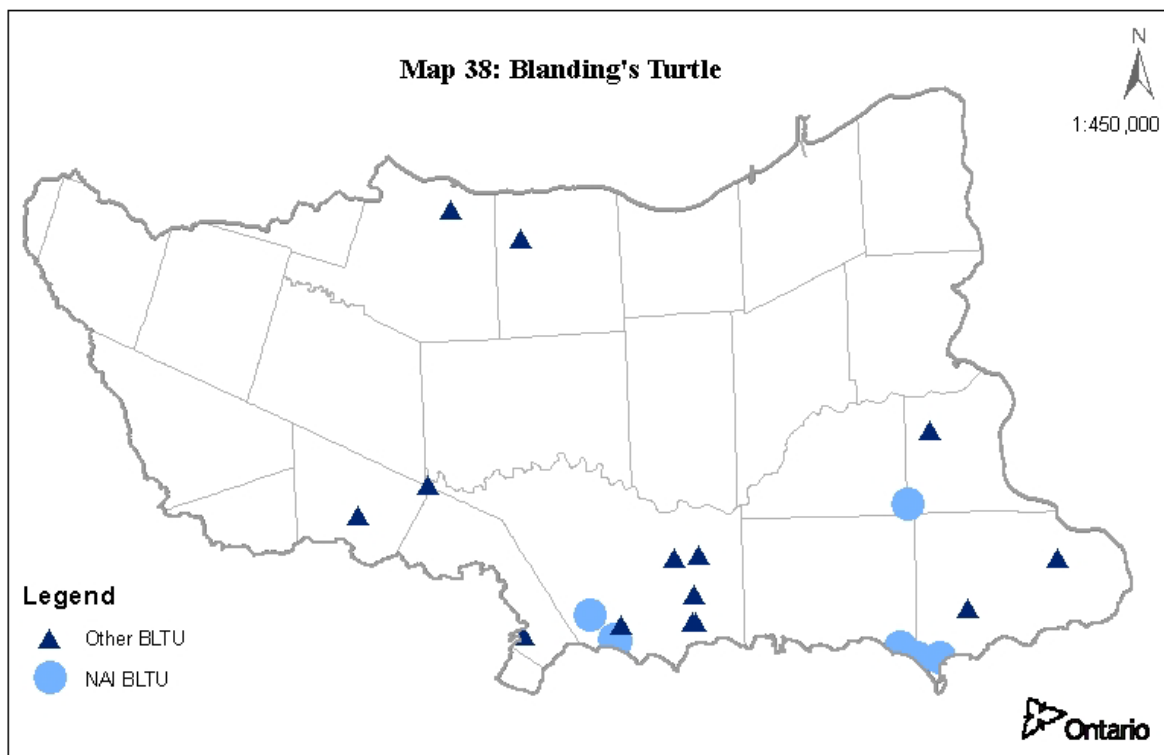


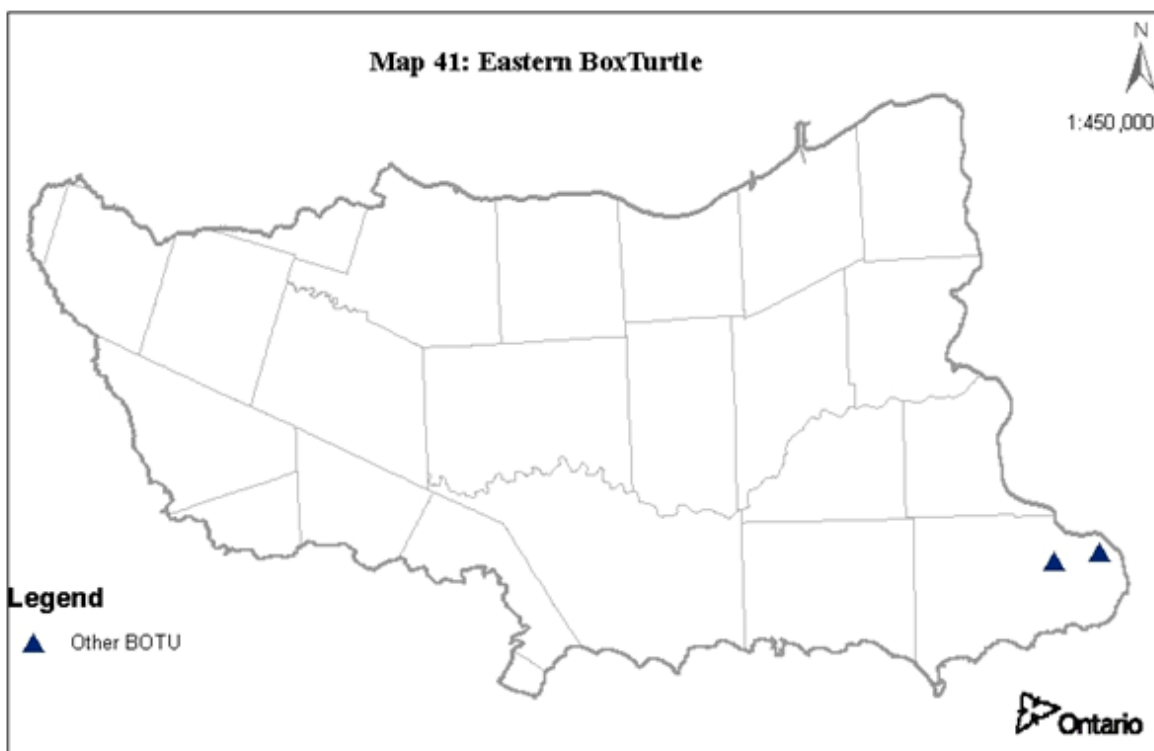
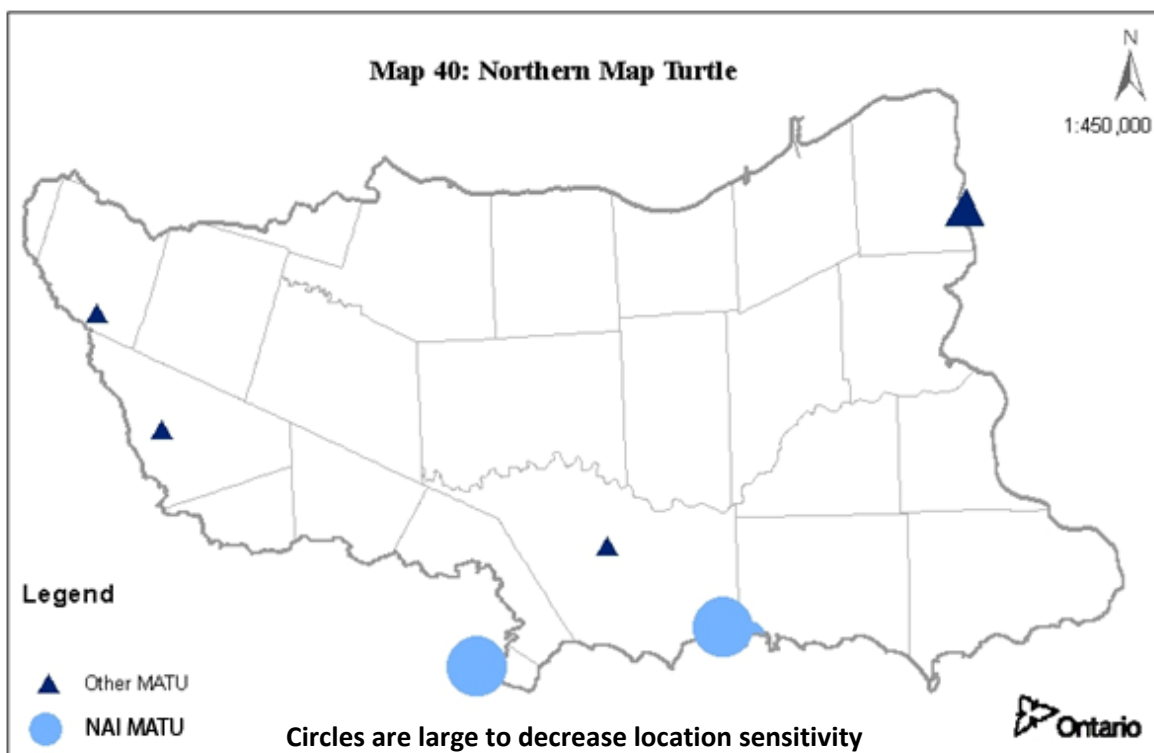


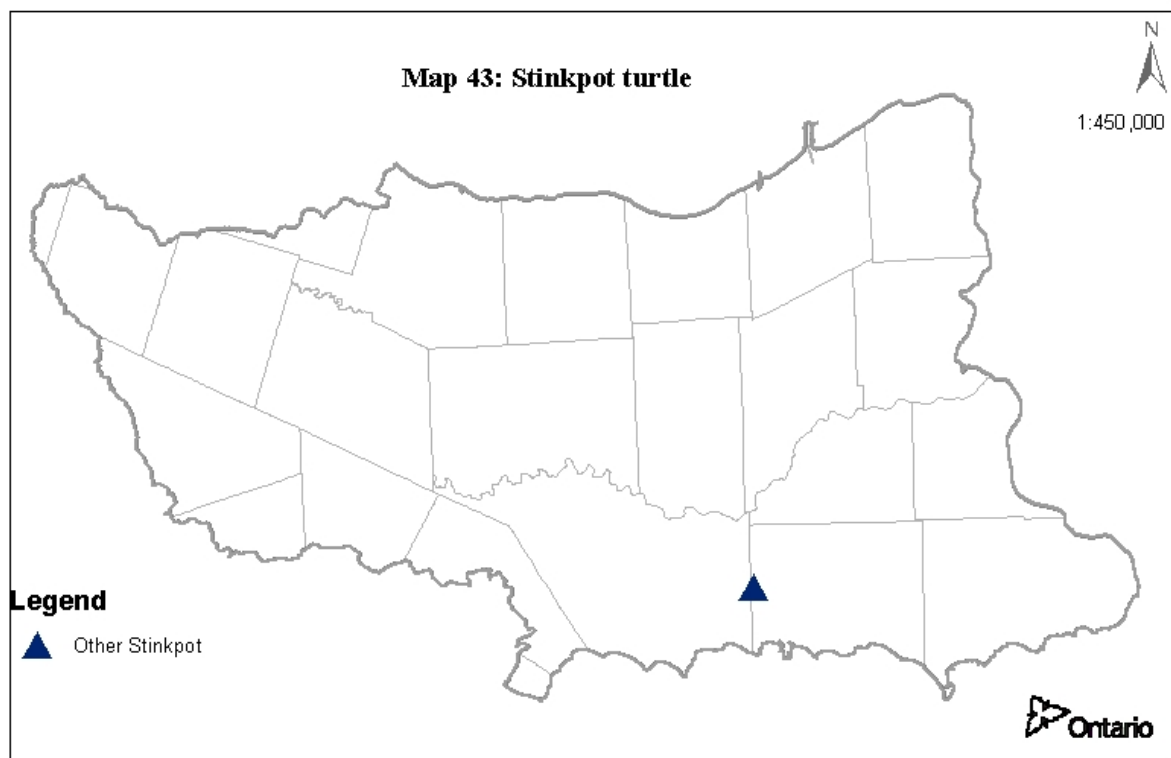
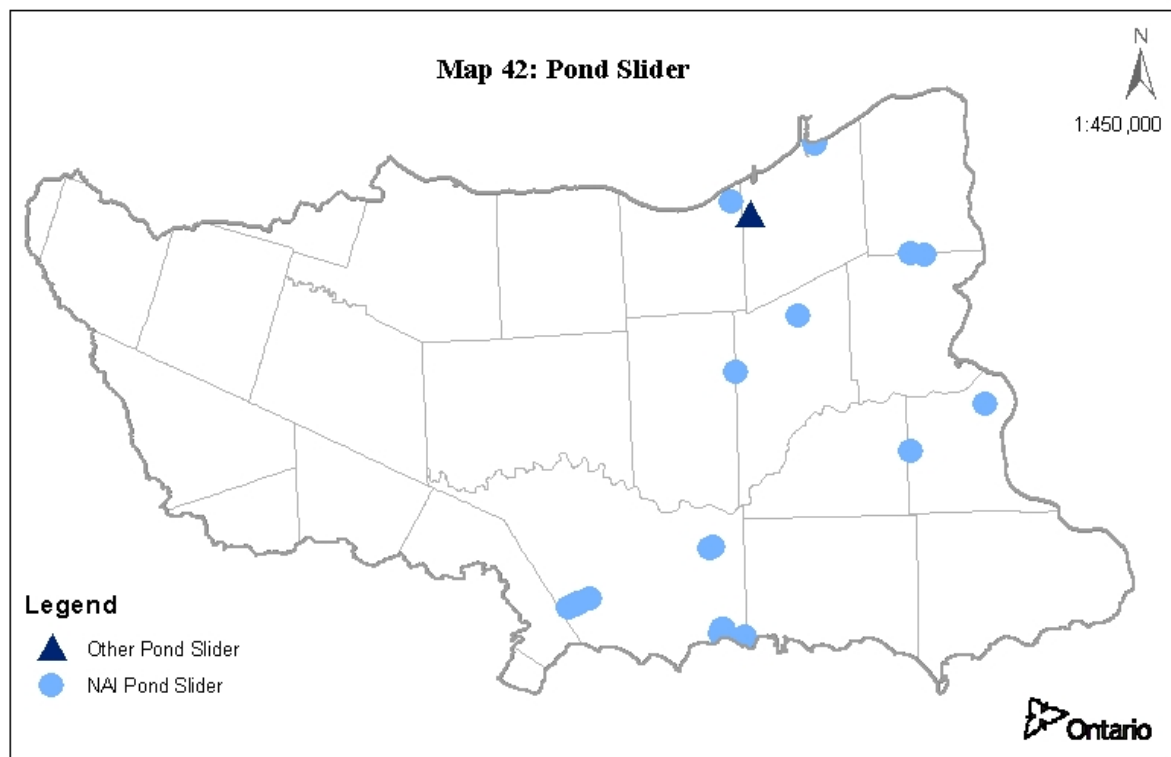


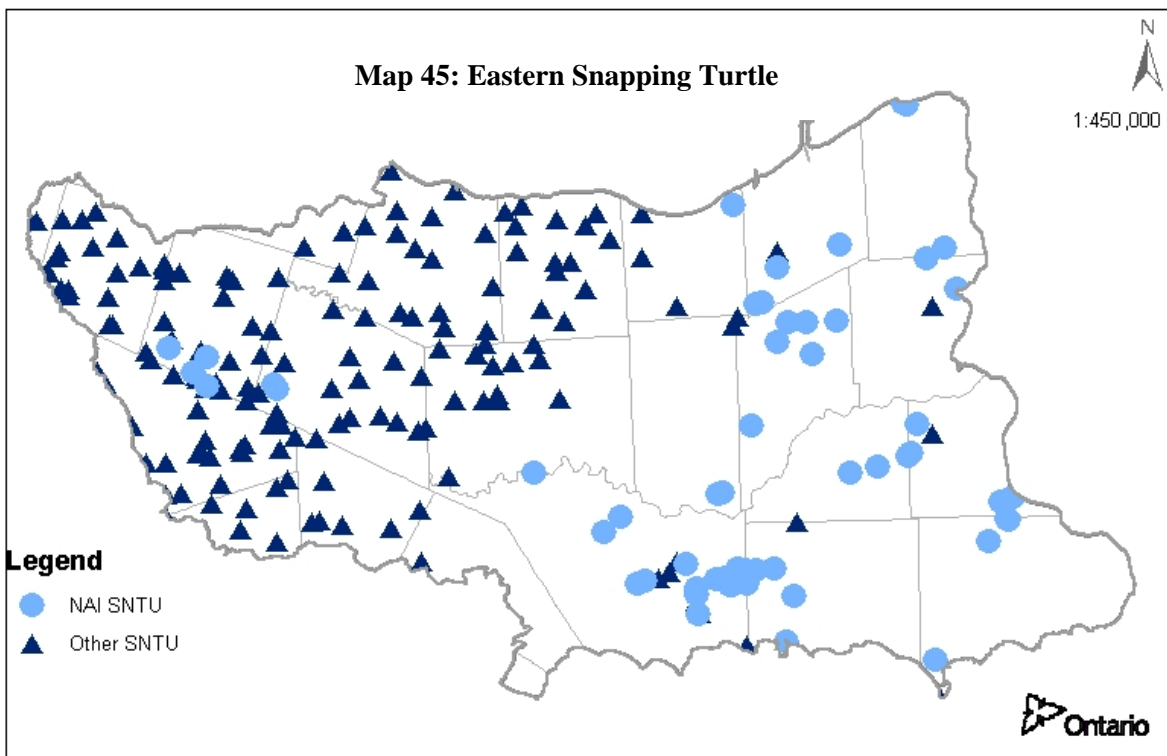
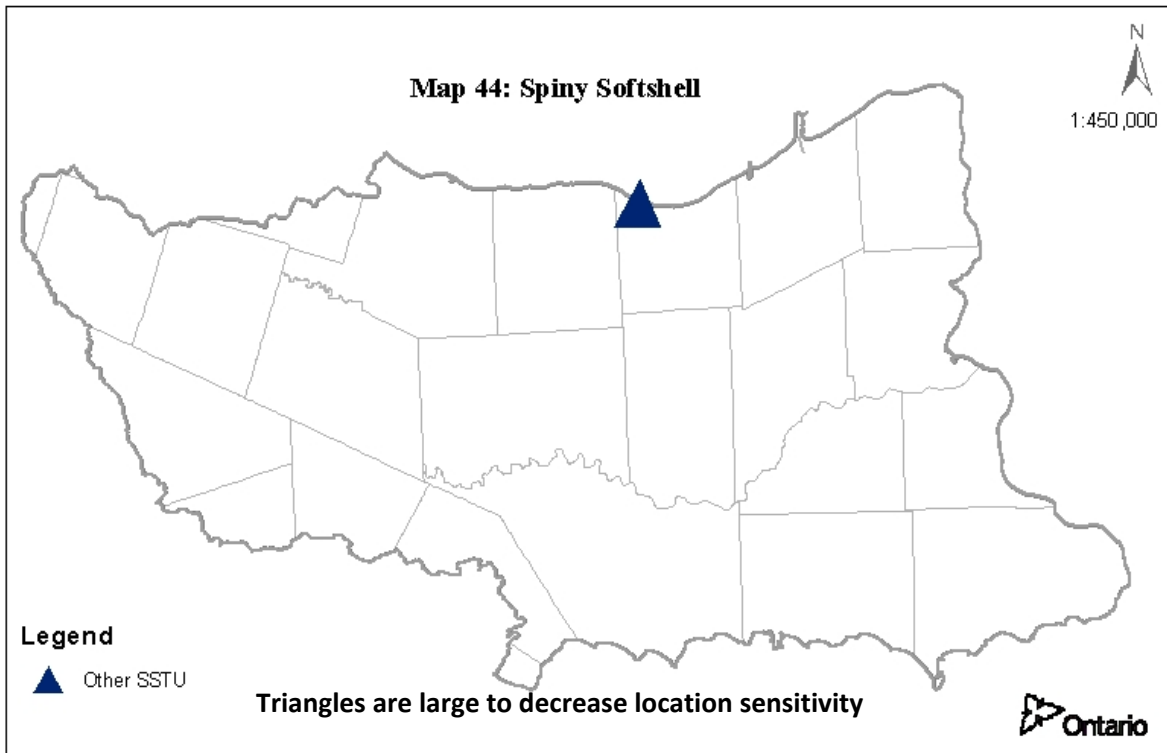












13.0 A PRELIMINARY LIST OF THE BUTTERFLIES (LEPIDOPTERA) OF NIAGARA REGION, ONTARIO

Robert Curry



This list of butterflies is based primarily on fieldwork in study sites designated by the Niagara Peninsula Conservation Authority in the summer of 2007 as part of the Niagara Natural Heritage Areas Inventory (NAI). As it is based almost exclusively on the observations of one researcher (Curry) in this one summer it cannot be regarded as complete. Furthermore, 2007 was an extreme drought year, the second in succession, which doubtless reduced the abundance of butterflies and probably the number of species encountered. In the NPCA Wildlife Summary database there are a few additional records submitted by others during 2007. In addition there are a few more records in the database from earlier years. All these are included to determine status on the following checklist.

OTHER SOURCES OF INFORMATION

Records for number of species not found in 2007 were plotted as dots in Lincoln and Welland counties (now Niagara) maps in *The Ontario Butterfly Atlas* (Holmes et al. 1991). These records dating before 1991 are herein regarded as **historical**.

ABUNDANCE DESIGNATIONS

The Abundance of Niagara butterflies is based on the number of known stations in the region. A station is defined as a population that is separated from any other population by at least one kilometre. For example in some large sites such as Upper 12-Mile Creek or Wainfleet Bog there may be two or even three stations.

The following terms and definitions are used to describe the abundance (area-wide status) of Niagara butterflies.

Common: currently known to be present at more than 10 stations.

Uncommon: currently known to be present at 5 to 10 stations.

Rare: currently known to be present at fewer than 5 stations.

These definitions are quite arbitrary and, no doubt, additional fieldwork would result in more stations being found and the definitions being modified. Nevertheless, they indicate the relative status of each species and point the way to recommendations about habitat preservation for diurnal Lepidoptera in Niagara.



ONTARIO STATUS

The Natural Heritage Information Centre (NHIC) of the Ontario Ministry of Natural Resources maintains detailed listings of the status of Ontario butterflies. All species are ranked using the following labels:

- S1 extremely rare in Ontario
- S2 very rare in Ontario
- S3 rare to uncommon in Ontario
- S4 common in Ontario
- S5 very common in Ontario
- SNA not ranked – usually introduced or vagrant species

The NHIC provincial rank is indicated for each species on the list.

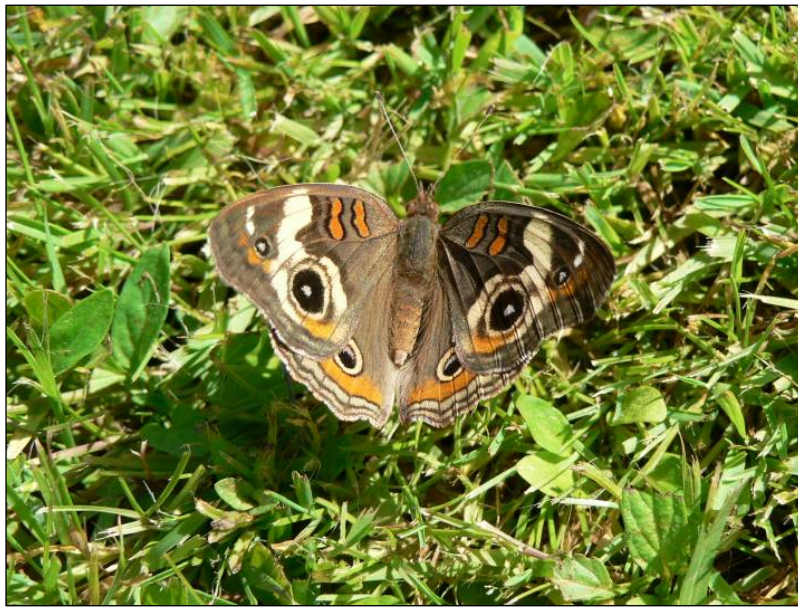
All S1 to S3 species are considered **Provincially Significant** and are marked as **PS** in the heading of the species accounts.

SUMMARY OF THE STATUS OF NIAGARA BUTTERFLIES

Common	29
Uncommon	7
Rare	18
Extirpated?	1
<u>Historical</u>	<u>13</u>
TOTAL	68

RECOMMENDATIONS

- more field surveys are necessary to determine the true status of many Niagara butterflies
- a search of museum collections would find additional records of Niagara butterflies
- search the Toronto Entomologists Association annual summaries of butterflies encountered in Ontario from 1969 to the present



SPECIES CHECKLIST

Silver-spotted Skipper [*Epargyreus clarus*] S4
Uncommon ---- 7 stations

Northern Cloudywing [*Thorybes pylades*] S5
Historical

Dreamy Duskywing [*Erynnis icelus*] S5
Rare ---- 1 station (Wainfleet Bog).

Juvenal's Duskywing [*Erynnis juvenalis*] S5
Common

Wild Indigo Duskywing [*Erynnis baptisiae*] S1 (S3 proposed) PS
Common. The Wild Indigo Duskywing was until quite recently an uncommon species throughout its eastern North American range. Its native foodplant is Wild Indigo (*Baptisia tinctoria*) but it has adapted to the introduced Crown Vetch (*Coronilla varia*). Consequently, over the past 20 years this species has dramatically extended its range north and east and is found along road embankments and waste places wherever crown vetch is found. While it was found in only three sites in 2007, such waste places were seldom checked and it is no doubt widespread in the region.

Common Sootywing [*Pholisora catullus*] S5
Historical. This is a species of waste places; larval foodplants include Lamb's Quarters. Such habitats were not visited during the NAI so Common Sooty-Wing likely still occurs in Niagara.

Least Skipper [*Ancyloxypha numitor*] S5
Common

European Skipper [*Thymelicus lineola*] SNA INT
Common (introduced)

Peck's Skipper [*Polites peckius*] S5
Common

Tawny-edged Skipper [*Polites peckius*] S5
Historical. Found in dry old fields, a habitat type not common in Niagara. Nevertheless it probably still occurs in a few places.

Crossline Skipper [*Polites origenes*] S5
Historical. Like the previous species it may still occur in dry grassland habitats in Niagara.

Long Dash [*Polites mystic*] S5
Rare ---- 3 stations

Northern Broken-Dash [*Wallengrenia egeremet*] S5
Common

- Little Glassywing [*Pompeius verna*]** **S5**
Rare ---- 1 station (Harold S. Bradshaw Memorial Park).
- Delaware Skipper [*Anatryton logan*]** **S5**
Uncommon ---- 5 stations
- Hobomok Skipper [*Poanes hobomok*]** **S5**
Common
- Broad-winged Skipper [*Poanes viator*]** **S5**
Rare ---- 3 stations. The larval food plants are sedges (*Carex* sp.) although there is some evidence that it now feeds on Common Reed (*Phragmites australis*) so it may be more widespread in Niagara (Wormington 2006).
- Dion Skipper [*Euphes dion*]** **S5**
Rare ---- 2 stations. This and the following species are both obligate sedge feeders (*Carex* sp.). As sedge meadows are exceedingly scarce in Niagara so are the associated butterflies.
- Black Dash [*Euphes conspicua*]** **S5**
Rare ---- 1 station (Upper 12-Mile Creek).
- Dun Skipper [*Euphes vestris*]** **S5**
Uncommon ---- 7 stations
- Pipevine Swallowtail [*Battus philenor*]** **SNA**
Historical. A rare immigrant.
- Black Swallowtail [*Papilio polyxenes*]** **S5**
Common
- Giant Swallowtail [*Papilio cresphontes*]** **S2(S4 proposed)**
Rare ---- 1 station (Cement Road Quarry Ponds)
- Eastern Tiger Swallowtail [*Papilio glaucus*]** **S5**
Common
- Spicebush Swallowtail [*Papilio troilus*]** **S4**
Common
- Cabbage White [*Pieris rapae*]** **SNA INT**
Common (introduced)
- Common Sulphur [*Colias philodice*]** **S5**
Common
- Orange Sulphur [*Colias eurytheme*]** **S5**
Common
- American (Little) Copper [*Lycaena phlaeas*]** **S4**
Rare ---- 4 stations

Bronze Copper [*Lycaena hyllus*] S5

Rare ---- 3 stations

Bog Copper [*Epidemia epixanthe*] S4S5

Extirpated? A once healthy population of this Cranberry feeder existed in the Wainfleet Bog. It may still exist but none was found in the extreme drought year, 2007. A serious attempt should be made to find this species in the bog.

Acadian Hairstreak [*Satyrrium acadicum*] S4

Rare ---- 4 stations

Coral Hairstreak [*Satyrrium titus*] S4

Rare ---- 3 stations

Edward's Hairstreak [*Satyrrium edwardsii*]

S4(S3 proposed) PS

Rare ---- 1 station (Haldimand Sloughs)

Banded Hairstreak [*Satyrrium calanus*] S4

Common

Hickory Hairstreak [*Satyrrium caryaevorum*]

S3S4

PS

Rare ---- 4 stations

Striped Hairstreak [*Satyrrium liparops*] S5

Uncommon ---- 5 stations

Eastern Tailed Blue [*Cupido (Everes) comyntas*] S5

Common. Found in alfalfa fields and waste places.

Spring Azure [*Celastrina ladon*] S5

Common. Only found three times in 2007 but spring was advanced and the early flight season was almost over before the majority of field visits took place.

Summer Azure [*Celastrinaneglecta*] S5

Common

Variegated Fritillary [*Euptoieta claudia*] SNA

Historical. A rare immigrant, it likely occurs in Niagara from time to time.

Great Spangled Fritillary [*Speyeria cybele*] S5

Common

Aphrodite Fritillary [*Speyeria aphrodite*] S5

Historical

Silver-bordered Fritillary [*Boloria selene*] S5

Historical

Meadow Fritillary [*Boloria bellona*] S5

Historical

- Harris's Checkerspot [*Charidryas harrisii*]** **S4**
Historical
- Pearl Crescent [*Phyciodes tharos*]** **S5**
Common
- Northern Crescent [*Phyciodes cocyta*]** **S5**
Common
- Baltimore Checkerspot [*Euphydryas phaeton*]** **S4**
Rare ---- 1 station (M.J.Oldham [FE-11-00-00-0] in database)
- Question Mark [*Polygonia interrogationis*]** **S5**
Common
- Eastern Comma [*Polygonia comma*]** **S5**
Common
- Compton Tortoiseshell [*Nymphalis vaualbum*]** **S5**
Historical. Periodically irrupts southward so it may re-occur at any time.
- Mourning Cloak [*Nymphalis antiopa*]** **S5**
Common
- Milbert's Tortoiseshell [*Nymphalis milberti*]** **S5**
Historical. Periodically irrupts southwards from the boreal forest.
- American Lady [*Vanessa virginiensis*]** **S5**
Uncommon. A regular immigrant and colonist.
- Painted Lady [*Vanessa cardui*]** **S5**
Historical. An irregular, sometimes common, immigrant to Ontario.
- Red Admiral [*Vanessa atalanta*]** **S5**
Common
- Common Buckeye [*Junonia coenia*]** **SNA**
Rare immigrant that probably occurs annually. Recorded at two stations in 2007.
- White Admiral [*Limenitis arthemis arthemis*]** **S5**
Rare ---- 4 stations. This strikingly marked subspecies is much more common northward in Ontario. Consequently, it was surprising to find it at four stations in Niagara. Often called Banded Purple.
- Red-spotted Purple [*Limenitis arthemis astyanax*]** **S5**
Common. This is the dominant form in Niagara.
- Viceroy [*Limenitis archippus*]** **S5**
Uncommon ---- 6 stations

Northern Pearly-Eye [*Enodia anthedon*] S4

Uncommon ---- 7 stations

Eyed Brown [*Satyrodes eurydice*] S5

Rare ---- 3 stations. This is a common species in large parts of Ontario; its larval foodplants are sedges, which explains its rare status in Niagara.

Appalachian Brown [*Satyrodes appalachia*] S4

Rare ---- 4 stations. This species, also a sedge feeder, favours more shaded areas and can be found at small patches of sedges along roadside ditches in woodlands.

Little Wood-Satyr [*Megisto cymela*] S5

Common

Common Ringlet [*Coenonympha tullia*] S5

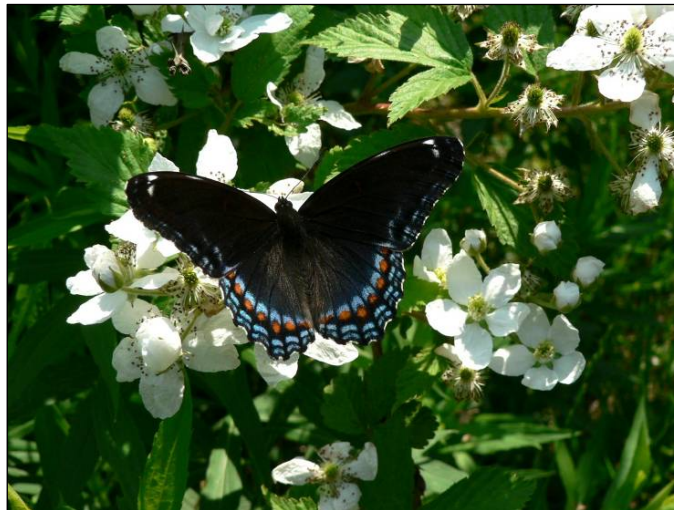
Common

Common Wood-Nymph [*Cercyonis pegala*] S5

Common

Monarch [*Danaus plexippus*] S4

Common



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14.0 A PRELIMINARY LIST OF THE DRAGONFLIES AND DAMSELFLIES (ODONATA) OF NIAGARA REGION, ONTARIO

Robert Curry



This list of Odonata is based primarily on fieldwork in study sites designated by the Niagara Peninsula Conservation Authority in the summer of 2007 as part of the Niagara Natural Areas Inventory (NAI). As it is based almost exclusively on the observations of one researcher (Curry) in this one summer it cannot be regarded as complete. Furthermore, 2007 was an extreme drought year, the second in succession, which dried up standing water and creeks thereby reducing both the abundance and variety of Odonate species.

OTHER SOURCES OF INFORMATION

The *Ontario Odonate Atlas* (NHIC 2005) plots the occurrence of all species in Ontario. These records are based on specimens in institutions as well as photographs and sight observations. At least 21 Odonate species that were not encountered in 2007 are known to have occurred in Niagara. These are plotted on maps in the *Ontario Odonate Atlas* (NHIC 2005). Thirteen species are historical i.e., specimen records obtained prior to 1984. Another eight species have been recorded (specimens, photographs or sight records) since 1983 but were not encountered in the course of the 2007 field surveys.

ABUNDANCE DESIGNATIONS

The Abundance of Niagara Odonata is based on the number of known stations in the region plus other records since 1983. A station is defined as a population that is separated from any other population by at least one kilometre. For example in some large sites such as Upper 12-Mile Creek or Wainfleet Bog there may be two or even three stations.

The following terms and definitions are used to describe the abundance (area-wide status) of Niagara Odonata.

Common: currently known to be present at more than 10 stations.

Uncommon: currently known to be present at 5 to 10 stations.

Rare: currently known to be present at fewer than 5 stations.

These definitions are quite arbitrary and, no doubt, additional fieldwork would result in more stations being found and the definitions being modified. Nevertheless, they indicate the relative status of each species and point the way to recommendations about habitat preservation for Odonata in Niagara. In some cases an abundance label was applied that was not strictly based upon the number of stations where it was encountered. The reason for this is explained in the species accounts.



ONTARIO STATUS

The Natural Heritage Information Centre (NHIC) of the Ontario Ministry of Natural Resources maintains detailed listings of the status of Ontario butterflies. All species are ranked using the following labels:

- S1 extremely rare in Ontario
- S2 very rare in Ontario
- S3 rare to uncommon in Ontario
- S4 common in Ontario
- S5 very common in Ontario
- SNA not ranked – usually introduced or vagrant species

The NHIC provincial rank is indicated for each species on the list.

All S1 to S3 species are considered **Provincially Significant** and are marked as **PS** in the heading of the species accounts.

SUMMARY OF THE STATUS OF NIAGARA ODONATA

Common	22
Uncommon	10
Rare	25
<u>Historical</u>	<u>13</u>
TOTAL	70

The high number of species (8) that are apparently new to Niagara reflects the lack of field study of these taxa. The high number of “historical” species (13) may reflect the limited aspect of the fieldwork upon which this checklist is based. However, it also may be a function of habitat deterioration. Many of the missed species require clear highly oxygenated waters, something that is no longer prevalent in Niagara.



RECOMMENDATIONS

- more field surveys are necessary to determine the true status of many Niagara Odonata
- search the Ontario Odonata Database maintained by the Natural Heritage Information Centre (NHIC), Ontario Ministry of Natural Resources, in Peterborough, Ontario for all Niagara records

SPECIES CHECKLIST

Ebony Jewelwing [*Calopteryx aequabilis*] S5

Uncommon ---- 5 stations

American Rubyspot [*Hetaerina americana*] S4

Rare ---- at least one station in the Atlas, post 1983

Spotted Spreadwing [*Lestes congener*] S5

Historical ---- 1 record

Common Spreadwing [*Lestes disjunctus disjunctus*] S5

Rare ---- 3 stations

Emerald Spreadwing [*Lestes dryas*] S5

Rare ---- 2 stations

Sweetflag Spreadwing [*Lestes forcipatus*] S4

Historical ---- 1 record from extreme NW Niagara. This species may still occur but is easily overlooked.

Elegant Spreadwing [*Lestes inaequalis*] S4

Rare ---- 1 station (NE Wainfleet Bog) and one historical record.

Slender Spreadwing [*Lestes tectangularis*] S5

Rare ---- 1 station (Wainfleet Bog), where it is common. Commonly encountered elsewhere in the region in the recent past, it likely still occurs.

Lyre-tipped Spreadwing [*Lestes unguiculatus*] S5

Rare ---- 1 post 1983 sighting in the Atlas

Swamp Spreadwing [*Lestes vigilax*] S4

Historical ---- 1 record

Eastern Red Damsel [*Amphiagrion saucium*] S4

Rare ---- 3 stations

Blue-fronted Dancer [*Argia apicalis*] S4

Common

Violet Dancer [*Argia fumipennis violacea*] S5

Common

Powdered Dancer [*Argia moesta*] S5 NEW

Rare ---- only found in the Beaverdams /L. Gibson area, where numerous. This species likes fast-flowing waters.

Taiga Bluet [*Coenagrion resolutum*] S5

Rare ---- 1 post-1983 record

Rainbow Bluet [*Enallagma antennatum*] S4

Common

Azure Bluet [*Enallagma aspersum*] S3 PS

Uncommon ---- 1 station in 2007 (apparently widespread in the Wainfleet Bog ditch system) and 4 other post-1983 records

Boreal Bluet [*Enallagma boreale*] S5

Historical ---- 1 record

Tule Bluet [*Enallagma carunculatum*] S5

Common ---- found on or near the Lake Erie shore and the Niagara River

Familiar Bluet [*Enallagma civile*] S5

Common

Northern Bluet [*Enallagma annexum*] S4

Uncommon ---- about 7 post-1983 records but not encountered in 2007

Marsh Bluet [*Enallagma erbi*] S5

Uncommon ---- one 2007 station and about 8 records in total

Stream Bluet [*Enallagma exsulans*] S5

Common

Skimming Bluet [*Enallagma geminatum*] S4

Common

Hagen's Bluet [*Enallagma hageni*] S5

Uncommon ---- about 7 post-1983 records

Orange Bluet [*Enallagma signatum*] S4

Common

Citrine Forktail [*Ischnura hastata*] S2 PS

Historical ---- one record from Point Abino. This species should be searched for in late summer at seeps and springs, including at the historical site.

Fragile Forktail [*Ischnura posita*] S4

Common

Eastern Forktail [*Ischnura verticalis*] S5

Common

Sedge Sprite [*Nehalennia irene*] S5

Rare ---- 1 station (Wainfleet Bog)

ANISOPTERA – DRAGONFLIES

Lance-tipped Darner [*Aeshna constricta*] S5

Historical ---- 2 records

Spatterdock Darner [*Aeshna mutata*] S1 PS NEW

Rare ---- 1 station (St. John's CA, Upper 12-Mile Creek). This species is found in southwestern Ontario but a station at Puslinch Lake, Wellington (personal observation) suggest that it may be expanding its range north and east.

Shadow Darner [*Aeshna umbrosa umbrosa*] S5

Rare ---- 1 station (Wainfleet Bog) and 2 historical records

Common Green Darner [*Anax junius*] S5

Common

Comet Darner [*Anax longipes*] SNA NEW

Rare ---- 1 station. This impressive insect was observed patrolling over the pond at St. John's CA, Upper 12-Mile Creek on 17 June 2007 and five days later on 22 June. There are only a handful of records for the province.

Springtime Darner [*Basiaeschna janata*] S5

Rare ---- 1 station (Welland River at Chippewa Creek CA) and 2 historical records

Swamp Darner [*Epiaeschna heros*] S2S3 PS

Uncommon ---- 5 stations

Cyrano Darner [*Nasiaeschna pentacantha*] S5

Historical ---- 2 records

Unicorn Clubtail [*Arigomphus villosipes*] S2S3 PS

Uncommon ---- 6 stations and 2 additional post-1983 records. This species is becoming increasingly common in southern Ontario.

Midland Clubtail [*Gomphus fraternus fraternus*] S4

Historical ---- 1 record

Pronghorn Clubtail [*Gomphus graslinellus*] S3 NEW PS

Rare ---- 1 station (St. John's CA., Upper 12-Mile Creek).

Dusky Clubtail [*Gomphus spicatus*] S5

Historical ---- 1 record

Arrow Clubtail [*Stylurus spiniceps*] S2

Historical ---- 1 record from extreme NW Niagara

Delta-spotted Spiketail [*Cordulegaster diastatops*] S4 NEW

Rare ---- 2 stations (both, Upper 12-Mile Creek)

Common Baskettail [*Epitheca cynosura*] S5

Common

Prince Baskettail [*Epitheca princeps princeps*] S5

Rare ---- 1 station (Haldimand Sloughs) and 1 historical record

Spiny Baskettail [*Epitheca spinigera*] S5

Historical ---- 1 record, Niagara-on-the-Lake. May have been overlooked in 2007

Williamson's Emerald [*Somatochlora williamsoni*] S4 NEW

Rare ---- 3 stations

Calico Pennant [*Celithemis elisa*] S5

Uncommon ---- 4 stations, 2 more since 1983 and 2 more historical

Halloween Pennant [*Celithemis eponina*] S4

Rare ---- 2 site records

Eastern Pondhawk [*Erythemis simplicicollis*] S5

Common

Dot-tailed Whiteface [*Leucorrhinia intacta*] S5

Uncommon

Belted Whiteface [*Leucorrhinia proxima*] S5

Historical ---- 1 record

Widow Skimmer [*Libellula luctuosa*] S5

Common

Twelve-spotted Skimmer [*Libellula pulchella*] S5

Common

Four-spotted Skimmer [*Libellula quadrimaculata*] S5

Rare ---- 2 records one historical and one post-1983. This is a common species in areas to the north of Niagara.

Painted Skimmer [*Libellula semifasciata*] S2 PS

Rare ---- 2 stations (Pelham/W. Lincoln Forest, and Wainfleet Bog where there is a colony, and one historical record, Niagara-on-the-Lake. Painted Skimmer is a southern species that may be expanding north into Ontario.

Blue Dasher [*Pachydiplax longipennis*] S5

Common

Wandering Glider [*Pantala flavescens*] S4

Uncommon ---- 2 stations (Morgan's Point and nearby Wainfleet Wetlands) and 6-7 post-1983 records

Spot-winged Glider [*Pantala hymenaea*] S4

Rare ---- 1 post-1983 record

Eastern Amberwing [*Perithemis tenera*] S4

Common ---- 8 stations and 6-7 additional records since 1983

Common Whitetail [*Plathemis (Libellula) lydia*] S5

Common

Variegated Meadowhawk [*Sympetrum corruptum*] S3 NEW

Rare ---- 1 station (Wainfleet Wetlands).

Saffron-bordered Meadowhawk [*Sympetrum costiferum*] S4 NEW

Rare ---- 1 station (Wainfleet Wetlands)

Cherry-faced Meadowhawk [*Sympetrum internum*] S5

Rare ---- 1 post-1983 record

White-faced Meadowhawk [*Sympetrum obtrusum*] S5

Probably uncommon to common. Only noted at one station (plus one post-1983 and one historical record) but the *Sympetrum* species are late season flyers, with the main flight season after the 2007 field season surveys were completed.

Ruby Meadowhawk [*Sympetrum rubicundulum*] S5

Common ---- detected at 3 stations and, in addition, about 8 post-1983 records

Band-winged Meadowhawk [*Sympetrum semicinctum*] S4

Historical ---- 1 record

Autumn Meadowhawk [*Sympetrum vicinum*] S5

Common. This, the latest flying odonate is common throughout southern Ontario.

Black Saddlebags [*Tamea lacerata*] S4

Common



References

Natural Heritage Information Centre, Ontario Ministry of Natural Resources. (2005).

Ontario Odonata Atlas. Retrieved October 1, 2009, from

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15.0 Lichens and Bryophytes of Niagara Region

Roman Olszewski

Lichens and bryophytes (mosses and hepatics) are often neglected in regional animal and plant inventories. That is unfortunate. Mosses are usually abundant (sometimes the dominating) plants in a community while lichens are natural indicators of the cleanliness of our atmosphere. By simply observing the presence and abundance of lichens, one can estimate the air quality in a given location. By having access to a distributional record of lichen species over time one can determine trends in the quality of the atmospheric environment. The present study will allow us to establish a baseline of data from which future research will benefit. Hepatics, or liverworts and hornworts, as they are more commonly known, are a comparatively small and usually less conspicuous group of plants but, as anyone who has observed them under a microscope will attest, they are beautiful organisms that should be known and conserved if only for their beauty.

There was considerable interest in plants of all kinds in the Niagara region in the late 19th and early 20th centuries. The Buffalo Society of Natural Sciences put out *The Plants of Buffalo and Its Vicinity* in 1882 (Day 1882). R. Cameron (1895) published a list of plants “which have been found growing without cultivation” in the Niagara gorge area, including those from sites on both sides of the border. John Macoun, the famous Irish-born Canadian explorer and naturalist, visited the area around the same time and collected and cataloged plants, including lichens and bryophytes. His collections were published in 1892 and 1901.

In combination with present floristic studies, these historical records are important, for they tell us how the flora has changed over the last 100 years. For example, Macoun collected the lichen *Sticta pulmonaria*, now called *Lobaria pulmonaria*, or lungwort, in the Niagara Glen. This species requires an old-growth forest type habitat. It has disappeared from the Niagara area, and from much of southern Ontario. *Teloschistes chrysophthalmus*, the gold-eye lichen, was reported in Cameron (1895) to have been collected in Queen Victoria Park at Niagara Falls. Since then, that species has only been sighted in Ontario a few times, the last sighting having been made about 20 years ago in Prince Edward County on the north side of Lake Ontario. It was a small specimen.

In her recently-published *Preliminary Cryptogamic (Moss, Lichen and Liverwort) Flora of the Canadian and American Gorge at Niagara Falls*, Patricia Eckel (2004) presents a very useful summary of both historical records and of recent observations and collections of lichens, mosses and liverworts in that very specific part of the region. Many of the species listed have not been collected or observed in their original localities since the Cameron or Macoun days but that could be due to insufficient collecting. (There aren't many lichenologists or bryologists around!) The localities given by Eckel for some of the lichens, mosses and liverworts thought to have disappeared from the area should be revisited and thoroughly searched.

In the lists to follow, the species names are presented in alphabetical order. The names and authorities for the epithets usually follow Esslinger (2008) for the lichens and the *Bryophyte Names Authority List (Bryotax)*, *Tropicos* and the *USDA Plants Database* for mosses and hepatics. Every attempt was made to convert older names to the currently accepted names. Several lists are included for each of the groups of plants, starting with my own collections. These are followed by lists published by Wong & Brodo (1992) for lichens, Ireland and Ley (1992) for the mosses and by Eckel (2004) for all three plant groups. In the list based on Eckel, species are annotated with either a reference to a report in a previous paper or to collections and sightings made by Eckel or her fellow researcher Richard Zander.

Only a few lichens have widely used common names. (Lichenologists prefer to use the scientific names). Several of the more common mosses also have English or French names but these too are seldom used by bryologists. When reading this report, it would be beneficial to have handy a copy of *Lichens of North America* (Brodo et al, 2001) and/or *Macrolichens of New England* (Hinds & Hinds, 2007) and *Liverworts of New England* (Lincoln, 2008). These books contain excellent colour photographs of most of the species mentioned here.

The Lichens

I started collecting lichens in Niagara Regional Municipality in 1990. At the time there were 32 species reported for the Region in Wong & Brodo (1992). My research through to the present day has confirmed the presence of all but six of the 32 species. The six species not recorded are: *Cladonia subcariosa* (as *C. polycarpoides* in Wong & Brodo), *Lecanora caesiorubella* subsp. *caesiorubella*, *Lobaria quercizans*, *Myelochroa aurulenta*, *Peltigera ponojensis* and *Pertusaria consocians*. More significantly, my research has yielded another 117 species and one variety. In total, based on my collections and reports in Wong and Brodo and Eckel (with the exception of two dubious taxa in list L3) there are, or were, 142 species and 1 variety of lichens in Niagara R.M.

Of my collections, 68 species and 1 variety occur in only one or two of the 12 municipalities in Niagara Regional Municipality. These represent 58% of the total. Some of the species, although rare in the region as a whole, are locally abundant. Examples are *Cladonia caespiticia*, *C. deformis*, *C. incrassata* and *Placynthiella oligotropa*, all fairly common to frequent at the Wainfleet Bog Conservation Area. Other species, mostly microlichens such as *Micarea prasina*, the *Caloplaca*'s and *Verrucaria*'s, are likely quite common throughout the region but are overlooked and consequently undercollected. Some species, such as *Acarospora fuscata*, *Xanthoparmelia cumberlandia* and *X. viriduloumbrina* prefer acid rock surfaces and will only appear where a suitable granitic glacial erratic boulder lies. *Xanthoria elegans* has only been found on gravestones in one cemetery. *Peltigera didactyla* and *Cladonia symphyocarpia* were found once, on the ground in a sandy area in a graveyard in Pelham. The area has been bulldozed over to make way for more plots. Not long ago I returned to the only locality in Niagara in which *Punctelia bolliana*, the Eastern speckled shield lichen, was known to exist, only to find that the host tree had been cut down, probably to make the intersection on which it was located safer for drivers. It is sad to see biodiversity decline before your very eyes.

Some species that are very common in southern Ontario and to the north are barely registered in Niagara. Only two specimens of *Evernia mesomorpha*, the boreal oakmoss lichen, have been collected or observed. One of these two localities has been removed due to urban development. *Usnea subfloridana* is another very common species north of the highly populated areas in Ontario, but in our study area the species is represented by a single plant in the City of Welland. Many of these species are pollution sensitive and therefore will not do well here. Others, however, have adapted nicely to urban conditions and can be found on trees throughout the Region in abundance. These include: *Candelaria concolor*, *Candelariella efflorescens*, *Melanelixia subaurifera*, *Parmelia sulcata*, *Physcia adscendens*, *P. aipolia*, *P. millegrana* (the most common species), *Physconia detersa* and *Xanthoria fallax*. Several species are very common on trees and/or on moss over rocks in forested or rural areas: *Amandinea punctata*, *Candelariella efflorescens*, *Cladonia grayi*, *C. pyxidata*, *C. subulata*, *Flavopunctelia flaventior*, *Graphis scripta*, *Lecanora symmicta*, *Lepraria lobificans*, *Phaeophyscia adiastrata*, *P. pusilloides*, and *P. rubropulchra* fall into this category.

Two species on my list are rare in Ontario. *Trypethelium virens* and *Strangospora pinicola*. The former is a crust found recently at Short Hills Provincial Park. Wong and Brodo (1992) show it as occurring in Northumberland and Hastings Counties and Carlton-Ottawa Regional Municipality. However, except for one recent discovery in Ottawa-Carleton, all of these collections are historical, going back to Macoun's days (1901). Day (1883) includes the species as having been found within the vicinity (defined as 50 miles radius) of Buffalo. For our modern specimen in Niagara, as in the other Ontario localities, the preferred habitat is the bark of the beech tree in undisturbed areas. Beech is now being threatened with a fungal parasite, which can only be more bad news for *Trypethelium*.

Strangospora pinicola is also a crust, albeit a less conspicuous one. It was found on an old fence post in a rural part of the Town of Port Credit. Wong and Brodo (1992) list one Ontario locality for the species – Haldimand & Norfolk Regional Municipality.

One species on the list is new to Ontario – *Parmotrema reticulatum*. It was found during a Natural Heritage Areas Inventory outing on the trunk and branches of trees in the otherwise rather ordinary Wainfleet Wetlands Conservation Area. This is a mainly southeastern United States species with a northern outpost in northern Michigan.

Further intensive searches will no doubt produce additional new or otherwise interesting species to the region.

Lichen Lists

All species collected by me and listed below are backed up by voucher specimens kept in my personal herbarium. Specimens are available for examination upon request.

The taxa are placed in alphabetical order. Following the species, subspecies or variety name and authority are the growth form, substrate and Niagara municipality in which the plants were found.

The meanings of codes used in the main list are as follows:

Growth form:

cru = crustose (thin thallus, firmly attached to substrate at all points)

fol = foliose (leaf-like thallus, distinctly dorsi-ventral)

fru = fruticose (stalked or bush-shaped, no obvious upper and lower surface)

squ = squamulose (scale-like thallus, lifting at the edges)

Substrate:

cor = corticolous (growing on bark)

lig = lignicolous (growing on wood)

mus = muscicolous (growing on mosses)

sax = saxicolous (growing on rocks)

terr = terricolous (growing on soil, sand or peat)

Municipalities:

FE = Town of Fort Erie
GR = Town of Grimsby
LI = Town of Lincoln
NF = City of Niagara Falls
NL = Town of Niagara-on-the-Lake
PC = City of Port Colborne
PE = Town of Pelham
SC = City of St. Catharines
TH = City of Thorold
WA = Township of Wainfleet
WE = City of Welland
WL = Township of West Lincoln

A “-C” following a municipality code indicates that the locality was reported in Wong & Brodo (1992).

“cf.” is an abbreviation derived from the Latin *confer* meaning “compare”. It is used to indicate uncertainty about the identification.



Trypethelium virens

List L1. Lichen species in collections made by R. Olszewski during the period 1990 – 2009.

Acarospora fuscata (Schrader) Arnold cru,sax WA,WE
Acrocordia conoidea (Fries) Körber cru,sax LI

Amandinea punctata (Hoffm.) Coppins & Scheid. cru,cor GR,LI,NF,PC,PE,WA,WL
Anisomeridium polypori (Ellis & Everh.) M.E. Barr cru,lig NL,PE,TH
Arthonia caesia (Flotow) Körber cru,cor FE,PC,PE,TH,WA,
Aspicilia laevata (Ach.) Arnold cru,sax LI
Bacidia coprodes (Körber) Lettau cru,sax NF,TH
Caloplaca cerina (Ehrh. ex Hedwig) Th. Fr. cru,cor WA
Caloplaca citrina (Hoffm.) Th. Fr. cru,sax LI,NF
Caloplaca feracissima H. Magn. Cru,sax NF-C,PC,SC,WA,WE
Caloplaca flavorubescens (Hudson) J.R. Laundon cru,sax PC,WA
Caloplaca flavovirescens (Wulfen) Dalla Torre & Sarnth. cru,sax LI,NF,NL
Caloplaca holocarpa (Hoffm. ex Ach.) A.E. Wade cru,lig WA,WK
Caloplaca microphyllina (Tuck.) Hasse cru,lig GR
Caloplaca sideritis (Tuck.) Zahlbr. cru,sax NF, LI(cf.)
Candelaria concolor (Dickson) Stein fol,cru FE,GR,LI,NF,NL,PC,PE,SC,TH,WA,WE,WL
Candelariella aurella (Hoffm.) Zahlbr. cru,sax NL,PC,WA,WE
Candelariella efflorescens R.C. Harris & W.R. Buck cru,cor/lig GR,LI,NL,PE,TH,WL
Candelariella xanthostigma (Ach.) Lettau cru,lig WL
Cladonia caespiticia (Pers.) Flörke fru,mus NL,WA
Cladonia cariosa (Ach.) Sprengel fru,mus GR
Cladonia cervicornis subsp. *verticillata* (Hoffm.) Ahti fru,ter/lig PE,TH,WE,WL
Cladonia coniocraea (Flörke) Sprengel fru,cor FE,PC-C,SC,TH,WA,WL
Cladonia cristatella Tuck. fru,mus/lig/ter FE,NF-C,PE,TH,WA,WE
Cladonia deformis (L.) Hoffm. fru,ter/lig WA
Cladonia fimbriata (L.) Fr. fru,ter FE,LI,NF-C,WA,WL
Cladonia furcata (Hudson) Schrader fru,ter LI,NL-C,PE,SC,TH,WL
Cladonia grayi G. Merr. ex Sandst. fru/ter PE,TH,WA
Cladonia humilis (With.) J.R. Laundon fru,mus/ter NF-C,PC,PE,SCWA,WE
Cladonia incrassata Flörke fru,mus/ter WA
Cladonia macilenta var. *bacillaris* (Genth) Schaerer fru,ter FE,NF-C,PC,PE,WA,WL
Cladonia macilenta Hoffm. fru WA
Cladonia multiformis G. Merr. fru FE,WA
Cladonia parasitica (Hoffm.) Hoffm. fru,lig FE,WL
Cladonia peziziformis (With.) J.R. Laundon fru,ter FE
Cladonia phyllophora Hoffm. fru PC
Cladonia pleurota (Flörke) Schaerer fru WA
Cladonia pyxidata (L.) Hoffm. fru,ter FE,GR,LI,NL,WE,WL
Cladonia ramulosa (With.) J.R. Laundon fru FE,NF,PC-C,WE
Cladonia scabriuscula (Delise) Leighton fru PC,PE,WA,WE
Cladonia subulata (L.) F.H. Wigg fru,ter FE,NF-C,PC,PE,SC,TH,WA,WL
Cladonia symphyocarpia (Flörke) Fr. PE
Collema bachmanianum (Fink) Degel. fol,ter TH
Cyphelium tigillare (Ach.) Ach. cru,lig NF-C,PE,WL
Dermatocarpon luridum (With.) J.R. Laundon fol,sax LI
Diplotomma epipolium (Ach.) Arnold cru,sax NL
Endocarpon pusillum Hedw. squ,sax GR,NF
Evernia mesomorpha Nyl. fru,cor LI,WE
Flavoparmelia baltimorensis (Gyelnik & Fóris) Hale fol,sax LI
Flavoparmelia caperata (L.) Hale fol,cor FE,LI-C,SC,TH,WE,WL
Flavopunctelia flaventior (Stirton) Hale fol,cor/lig FE,GR,LI,PC,PE,TH,WE,WL
Flavopunctelia soledica (Nyl.) Hale fol PE

Graphis scripta (L.) Ach. cru,cor GR,LI,SC,TH,WL
Hypocenomycetes scalaris (Ach.) M. Choisy fol LI,NF,PE,TH,WL
Hypogymnia physodes (L.) Nyl. squ,lig FE,NF-C,TH,WE,
Lecania cyrtella (Ach.) Th. Fr. cru NL
Lecania naegelii (Hepp) Diederich & van den Boom cru PC,WA
Lecanora dispersa (Pers.) Sommerf. cru,sax TH,WA,WE
Lecanora hagenii (Ach.) Ach. cru,lig TH
Lecanora polytropa (Hoffm.) Rabenh. cru, sax WE
Lecanora saligna (Schrader) Zahlbr. cru NF-C,PC
Lecanora symmicta (Ach.) Ach. cru,cor FE,LI,NF,PC,PE,WA,WE,WL
Lecanora thysanophora R.C. Harris cru,cor FE,LI,PE,WA
Lecidella stigmataea (Ach.) Hertel & Leuckert cru TH
Lepraria lobificans Nyl. cru,cor/sax,lig/mus FE,GR,LI,NF,NL,PC,PE,SC,TH,WA,WL
Leptogium cyanescens (Rabenh.) Körber fol LI
Leptogium lichenoides (L.) Zahlbr. fol GR,LI,NL
Melanelixia subaurifera (Nyl.) O. Blanco fol,cor FE,GR,NF,PC,PE,TH,WA,WE,WL
Micarea prasina Fr. cru,lig TH
Myxobilimbia sabuletorum (Schreber) Lettau cru,mus GR,LI,NF,SC
Ochrolechia arborea (Kreyer) Almb. cru WL
Parmelia sulcata Taylor fol,cru FE,GR,LI,NF,NL,PC,PE,SC,TH,WA,WE,WL
Parmotrema reticulatum (Taylor) M. Choisy fol,lig WA
Peltigera canina (L.) Willd. fol LI,SC,WL
Peltigera didactyla (With.) J. R. Laundon fol PE
Peltigera elisabethae Gyelnik fol LI
Peltigera evansiana Gyelnik fol,lig GR,WL
Peltigera lepidophora (Nyl. ex Vainio) Bitter fol,lig GR,LI
Peltigera praetextata (Flörke ex Sommerf.) Zopf fol,mus/sax LI,TH
Peltigera rufescens (Weiss) Humb. fol LI
Pertusaria pustulata (Ach.) Duby cru,cor TH
Phaeophyscia adiascola (Essl.) Essl. fol,mus GR,LI,NF,NL,PE,TH
Phaeophyscia hirtella Essl. fol FE
Phaeophyscia pusilloides (Zahlbr.) Essl. fol,cor FE,GR,LI,NF,NL,PC,PE, SC,TH,WA,WE
Phaeophyscia rubropulchra (Degel.) Essl.) fol,cor FE,GR,LI,NF,NL,PC,PE,SC,TH,WA,
 WE,WL
Physcia adscendens (Fr.) H. Olivier fol,cor FE,GR,LI,NF,NL,PC,PE,SC,TH,WA,WE,WL
Physcia aipolia (Humb.) Fürnr. fol,cor FE,GR,LI,NL,PC,PE,TH,WA,WE,WL
Physcia dubia (Hoffm.) Lettau fol,cor LI,PC-C,PE
Physcia millegrana Degel. fol,cor FE,GR,LI,NF,NL,PC,PE,SC,TH,WA,WE,WL
Physcia stellaris (L.) Nyl. fol,cor TH,WL
Physciella chloantha (Ach.) Essl. fol,cor FE,LI,NL,SC,WA,WL
Physconia deterosa (Nyl.) Poelt fol,cor FE,GR,LI,NF,NL,PC,SC,TH,WE,WL
Physconia enteroxantha (Nyl.) Poelt fol,cor GR,PC,WA
Placidium squamulosum (Ach.) Breuss GR,WA
Placynthiella icmalea (Ach.) Coppins & P. James cru,ter WL
Placynthiella oligotropa (J.R. Laundon) Coppins & P. James cru,ter WA
Placynthium nigrum (Hudson) Gray fol,mus/sax LI,NF
Porpidia albocaerulescens (Wulfen) Hertel & Knoph cru,sax GR,NF,SC
Porpidia crustulata (Ach.) Hertel & Knoph cru,sax TH
Protoblastenia rupestris (Scop.) Steiner cru,sax LI,NF,PC,WA,WE
Punctelia bolliana (Müll. Arg.) Krog fol PE

Punctelia rudecta (Ach.) Krog fol,cor GR,LI,NL,SC,TH,WL
Sargogyne regularis Körber cru
Scoliosporum chlorococcum (Stenh.) Vezda cru FE,NF,NL,PC-C
Strangospora pinicola (A. Massal.) Körber cru,lig PC
Thelidium sp. cru LI
Trapelia placodioides Coppins & P. James cru GR,LI,PC,TH,
Trapeliopsis flexuosa (Fr.) Coppins & P. James cru,lig WA
Trypethelium virens Tuck. ex Michener cru,cor TH
Tuckermannopsis americana (Sprengel) Hale fol WE
Usnea subfloridana Stirton fru,cor WE
Verrucaria calkinsiana Servit cru,sax PC,WE
Verrucaria fuscella (Turner) Winch cru,sax NL
Verrucaria muralis Ach. cru,sax LI,NL
Verrucaria nigrescens Pers. cru,sax LI
Xanthomendoza fallax (Hepp ex Arnold) Søchting, Kärnefelt & S. Kondr. fol,cor
FE,NF,NL,PC,PE,WA,WE,WL
Xanthoparmelia cumberlandia (Gyelnik) Hale fol,sax WA,WE
Xanthoparmelia viriduloumbrina fol,sax (Gyelnik) Lendemer fol TH
Xanthoria elegans (Link) Th. Fr. fol,sax(anthropogen) PE

List L2. Other species reported for Niagara in Wong & Brodo (1992) but not collected by R. Olszewski

Cladonia subcariosa Nyl. (as *C. polycarpoides*) PE or TH?
Lecanora caesiorubella Ach. subsp. *caesiorubella* NF
Lobaria quercizans Michaux NF
Myelochroa aurulenta (Tuck.) Elix & Hale PC
Peltigera ponojensis Gyelnik LI
Pertusaria consocians Dibben LI

List L3. Additional Niagara Gorge (on the Canadian side, in NF) species reported in Eckel (2004) but not included in Wong & Brodo (1992) nor collected by R.Olszewski.

Anaptychia crinalis (Schaerer) Vezda (as *A. setifera*) Collected by R.C. Harris in 1985
Bacidia schweinitzii (Fr. ex E. Michener) A. Schneider (as *Biatora schweinitzii*) in Macoun (1901)
Bacidia polychroa (Th. Fr.) Körber (as *B. fusco-rubella*) in Macoun (1901)
Bryoria chalybeiformis (L.) Brodo & D. Hawksw. (as *Alectoria jubata* var. *chalybeiformis*) in Cameron (1895). Records in Ontario = *Bryoria furcellata* (Fr.) Brodo & Hawksw. (Brodo, 2009).
Cladonia rangiferina (L.) F.H. Wigg in Cameron (1985)
Dermatocarpon miniatum (L.) W. Mann Collected by P.M. Eckel in 1985
Evernia prunastri (L.) Ach. in Cameron (1985)
Heterodermia speciosa (Wulfen) Trevisan (as *Physcia speciosa*) in Cameron (1895)
Lecanora allophana Nyl. (as *L. subfusca*) in Cameron (1895). Old records under this name are not necessarily *L. allophana* (Brodo, 2009).
Lecanora pallida (Schreb.) Schaer. in Macoun (1901) = *L. albella* (Pers.) Ach.
Lobaria amplissima (Scop.) Forss (as *Sticta amplissima*) in Cameron (1895)
Lobaria pulmonaria (L.) Hoffm. (as *Sticta pulmonaria*) in Cameron (1895)
Melanelia soledata (Ach.) Goward & Ahti (as *Parmelia olivacea* var. *soledata*) in Cameron

(1895)

Peltigera aphthosa (L.) Willd. in Cameron (1895)

Physcia tenella (Scop.) DC. (as *P. hispida*) in Cameron (1895) Possibly *P. adscendens* but not

tenella (Brodo, 2009).

Physconia distorta (as *P. pulverulenta*) but “misidentifications for North America” Esslinger (2008). Possibly *Physconia subpallida* (Brodo, 2009).

Ramalina americana Hale (as *R. calicaris* var. *fastigiata*) in Cameron (1895)

Ramalina fraxinea (L.) Ach. (as *R. calicaris* var. *fraxinea*) in Cameron (1895) Most likely not *fraxinea* (Brodo, 2009).

Teloschistes chrysophthalmus (L.) Th. Fr. in Cameron (1895)

Tuckermannopsis ciliaris (Ach.) Gyelnik (as *Cetraria ciliaris*) in Cameron (1895)

Usnea barbata var. *hista* but *U. barbata* “misidentifications for North America” Esslinger (2009) Perhaps “hirta” (Brodo, 2009)?

Xanthoria polycarpa (Hoffm.) Th. Fr. ex Rieber (as *Teloschistes polycarpus* in Cameron (1895) Probably *X. hasseana* (Brodo 2009).

List L4. Lichens from eastern Haldimand-Norfolk R.M. – Ruigrock Track (in NHA study area.)

Candelaria concolor (Dickson) Stein

Cladonia cristatella Tuck.

Cladonia humilis (With.) J.R. Laundon

Flavoparmelia caperata (L.) Hale

Parmelia sulcata Taylor

Phaeophyscia rubropulchra (Degel.) Essl.

Physcia millegrana Degel.

Physconia detersa (Nyl.) Poelt

Punctelia rudecta (Ach.) Krog

The Mosses

Most of the mosses represented in my list below are based on collections made incidentally during lichen-hunting outings. I have recently, however, made a more concerted effort at capturing the bryological diversity in a few parks and conservation areas such as Heartland Forest, Short Hills, Louth and Wainfleet Bog. These localities are noted, where applicable, by the species names in the lists of mosses and hepatics collected by me. Many specimen packets await examination and no doubt contain some rarer species or otherwise interesting specimens.

A much more complete listing of moss species, also presented below, is compiled from Ireland and Ley's *Atlas of Ontario Mosses* (1992). This publication provides maps with dots to denote localities for every moss species reported for Ontario. Where it was unclear from the position of a dot as to whether the species was located in the area of this study, the listing by county in *Checklist of the Mosses of Ontario* (Ireland & Cain, 1975) was consulted.

Of the 59 species that I have collected and identified to date, 10 are not shown by a dot for Niagara in Ireland and Ley: *Atrichum angustatum*, *A. crispulum* (= *A. oerstedianum* in Ireland and Ley), *A. undulatum*, *Brachythecium campestre*, *Bryum pallescens*, *Calliergon cordifolium*, *Fissidens fontanus*, *Hygroamblystegium fluviatile* (= *Amblystegium fluviatile* in Ireland and Ley), *Hylocomium pyrenaicum* and *Pylaisiella polyantha*. All but *A. undulatum* and *H. pyrenaicum* are found in adjacent or nearby counties or regional municipalities and so their presence in Niagara is not unexpected.

When the taxa in the three lists below are added we have a total of 198 species and 2 varieties in the Region. However, a quick scan of the distribution maps in Ireland and Ley will reveal numerous other species occurring nearby. It is likely that many of these will be found in Niagara following more intensive searches.

All species collected by me and listed below are backed up by voucher specimens kept in my personal herbarium. Specimens are available for examination upon request.

Moss Lists

List M1. Moss species in collections made by R. Olszewski during the period 1990 – 2009.

Anomodon attenuatus (Hedwig) Hübener Heartland Forest, Louth CA, Short Hills PP
Anomodon rostratus (Hedwig) Schimper Louth CA, Short Hills PP
Anomodon viticulosus ((Hedwig) Hooker & Taylor Balls Falls CA, Louth CA, Short Hills CA
Atrichum altecristatum (Renauld & Cardot) B.B. Smyth & L.C.D. Smyth Paradise Grove
Atrichum angustatum (Bridel) Bruch. & Schimper Paradise Grove
Atrichum crispulum Beschereille Heartland Forest, Louth CA, Wainfleet Bog CA
Atrichum undulatum (Hedwig) Palisot de Beauvois Short Hills PP
Aulacomnium palustre (Hedwig) Schwägrichen Heartland Forest, Wainfleet Bog CA
Brachythecium campestre (C. Müll.er) B.S.G. Paradise Grove
Brachythecium populeum (Hedwig) B.S.G. Paradise Grove, Short Hills PP
Brachythecium rivulare W.P. Schimper in B.S.G. Heartland Forest
Brachythecium rutabulum (Hedwig) Schimper Wainfleet Bog CA
Brachythecium salebrosum (Web & D. Mohr) B.S.G. Beamers Falls CA, Louth CA,
Wainfleet Bog CA, Short Hills CA
Bryum argenteum Hedwig Wainfleet Bog CA
Bryum capillare Hedwig Heartland Forest
Bryum pallescens Scheicher ex Schwägrichen Quarry Road Pits
Callicladium haldanianum (Greville) H. Crum Short Hills PP
Calliergon cordifolium (Hedwig) Kindberg Heartland Forest
Campylium chrysophyllum (Bridel) J. Lange Heartland Forest, Louth CA
Ceratodon purpureus (Hedwig) Bridel Wainfleet Bog CA
Climacium americanum Bridel Heartland Forest, Louth CA
Dicranum scoparium Hedwig Caves Springs CA
Dicranum viride (Sullivant & Lesquereux) Lindberg Heartland Forest
Entodon cladorrhizans (Hedwig) C. Müller Heartland Forest, Wainfleet Bog CA
Eurhynchium hians (Hedwig) Sande-Lac Paradise Grove
Fissidens fontanus (Bachelot de la Pylaie) Steudel Louth CA
Fissidens taxifolius Hedwig Beamers Falls CA, Heartland Forest, Louth CA, Paradise Grove,
Short Hills CA

Hedwigia ciliata (Hedwig) Palisot de Beauvois Louth CA, Paradise Grove
Herzogiella turfacea (Lindberg) Palisot de Beauvois Louth CA
Hygroamblystegium fluviatile (Hedwig) Loeske Louth CA
Hygroamblystegium tenax (Hedwig) Jennings Short Hills PP
Hylocomium pyrenaicum (Spruce) Lindberg Heartland Forest
Hypnum lindbergii Mitten
Hypnum pallescens (Hedwig) Palisot de Beauvois Heartland Forest, Louth CA
Leptodictyum riparium (Hedwig) Warnstorf Heartland Forest
Leucobryum glaucum (Hedwig) Angström Heartland Forest, Louth CA
Mnium marginatum (Withering) Bridel ex Palisot de Beauvois Louth CA
Orthotrichum anomalum Hedwig Louth CA
Orthotrichum pumilum Swartz Wainfleet Bog CA
Physcomitrium pyriforme (Hedwig) Hampe
Plagiomnium cuspidatum (Hedwig) T.J. Kopponen Heartland Forest, Louth CA, Paradise Grove, Short Hills PP, Wainfleet Bog CA
Plagiothecium cavifolium (Bridel) Iwatsuki Short Hills PP
Plagiothecium latebricola B.S.G. Heartland Forest
Platygyrium repens (Bridel) B.S.G. Heartland Forest, Short Hills PP
Pohlia cruda (Hedwig) Lindberg Wainfleet Bog CA
Pohlia nutans (Hedwig) Lindberg Wainfleet Bog CA
Polytrichastrum ohioense (Renault & Cardot) G.L. Smith Heartland Forest, Louth CA, Willoughby Swamp CA
Polytrichum commune Hedwig Paradise Grove
Polytrichum juniperum Hedwig Wainfleet Bog CA
Polytrichum strictum Bridel Wainfleet Bog CA
Pylaisiella polyantha (Hedwig) Grout Heartland Forest, Paradise Grove
Rhodobryum ontariense (Kindberg) Kindberg Louth CA
Rhytidiadelphus triquetrus (Hedwig) Warnstorf Caistorville
Schistidium rivulare (Bridel) Podpera Short Hills CA
Sphagnum fimbriatum Wilson & Hooker Heartland Forest, Wainfleet Bog CA
Sphagnum palustre Linnaeus Wainfleet Bog CA
Taxiphyllum deplanatum (Bruch & Schimper ex Sullivant) Fleischer Louth CA
Tetraphis pellucida Hedwig Heartland Forest, Wainfleet Bog CA
Thuidium delicatulum (Hedwig) Schimper var. *delicatulum* Heartland Forest, Louth CA, Short Hills CA, Wainfleet Bog CA

List M2: Other mosses reported for Niagara Regional Municipality in *Atlas of Ontario Mosses* (Ireland and Lay, 1992).

Abietinella abietinum (Hedwig) Fleischer
Aloina brevirostris (Hooker & Greville) Kindberg
Amblystegium serpens (Hedwig) B.S.G.
Amblystegium serpens var. *juratzkanum* (W.P. Schimper) Renaud & Cardot
Amblystegium varium (Hedwig) Lindberg
Anomodon minor (Hedwig) Fürnrohr
Aulacomnium heterostichum (Hedwig) Bruch & W.P. Schimper
Bartramia pomiformis Hedwig
Brachythecium acuminatum (Hedwig) Rau & Hervey.
Brachythecium laetum (Bridel) Schimper
Brachythecium plumosum (Hedwig) B.S.G.

Brachythecium turgidum (C.J. Hartman) Kindberg
Brachythecium velutinum (Hedwig) B.S.G.
Brotherella recurvans (Michaux) Fleischer
Bryhnia graminicolor (Bridel) Grout
Bryoerythrophyllum recurvirostrum (Hedwig) P.C. Chen
Bryum caespiticium Hedwig
Bryum lisae var. *cuspidatum* (= *creberrimum*?) (Bruch & W.P. Schimper) Margadant
Bryum pseudotriquetrum (Hedwig) P.G. Gartner, B. Meyer & Scherbius
Campylium hispidulum (Bridel) Mitten
Climacium dendroides (Hedwig) Weber & D. Mohr
Conardia compacta (C. Müller) C. Müller
Cratoneuron filicinum (Hedwig) Spruce
Cyrto-hypnum pygmaeum (W.P. Schimper in B.S.G.) W.R. Buck & H. Crum
Desmatodon porteri P. James in Austin
Dicranella heteromalla (Hedwig) Schimper
Dicranella varia (Hedwig) Schimper
Dicranum flagellare Hedwig
Dicranum fulvum Hooker
Dicranum montanum Hedwig
Dicranum polysetum Swartz
Didymodon fallax (Hedwig) R.H. Zander
Didymodon rigidulus Hedwig
Didymodon rigidulus var. *gracilis* (Schleicher ex Hooker & Greville) R.H. Zander
Didymodon tophaceus (Bridel) Lisa
Diphyscium foliosum (Hedwig) D. Mohr
Distichium capillaceum (Hedwig) Bruch & Schimper
Ditrichum pallidum (Hedwig) Hampe
Drepanocladus aduncus (Hedwig) Warnstorf
Encalypta procera Bruch
Entodon seductrix (Hedwig) Müller
Ephemerum spinulosum Bruch & W.P. Schimper in W.P. Schimper
Eucladium verticillatum Bruch & Schimper
Eurhynchium praelongum (Hedwig) Schimper
Eurhynchium pulchellum (Hedwig) Jennings
Fissidens bryoides Hedwig
Fissidens dubius Palisot de Beauvois
Fissidens obtusifolius Wilson
Fontinalis dalecarlica B.S.G.
Fontinalis hypnoides C.J. Hartman
Forsstroemia trichomitria (Hedwig) Lindberg
Funaria hygrometrica Hedwig
Grimmia pilifera Palisot de Beauvois
Grimmia plagiopodia Hedwig
Gymnostomum aeruginosum Smith
Helodium paludosum (Austin) Brotherus
Homomallium adnatum (Hedwig) Brotherus
Hymenostylium recurvirostre (Hedwig) Dixon
Hyophila involuta (Hooker) A. Jaeger
Hypnum fertile Sendtner
Hypnum imponens Hedwig

Hypnum pretense J. Koch ex Spruce
Leptodictyum humile (Palisot de Beauvois) Ochyra
Leptodictyum riparium (Hedwig) Warnstorff
Leskea obscura Hedwig
Leskeella nervosa (Bridel) Loeske
Leucodon brachypus Bridel
Mnium ambiguum H.L.H. Müller
Mnium spinulosum B.S.G.
Myurella sibirica (C. Müller) Reimers
Orthotrichum cupulatum G.F. Hoffmann ex Bridel
Orthotrichum strangulatum Palisot de Beauvois
Oxystegus tenuirostris (W.J. Hooker & Taylor) A.J.E. Smith
Palustriella commutata (Hedwig) Ochyra
Phascum cuspidatum Hedwig
Philonotis fontana (Hedwig) Bridel
Plagiomnium ciliare (C. Müller) T. Koponen
Plagiomnium affine var. *rugicum* (Laurer) Margadant & During = ?
Plagiomnium medium (Bruch & W.P. Schimper) T. Koponen
Plagiomnium rostratum (Schrader) T. Koponen
Plagiothecium denticulatum (Hedwig) W.P. Schimper in B.S.G.
Platydictya confervoides (Bridel) H. Crum
Pohlia wahlenbergii (Weber & D. Mohr) Andrews in Grout
Polytrichum longisetum Swartz ex Bridel
Pottia truncata (Hedwig) Bruch & W.P. Schimper
Ptychomitrium incurvum (Schwägrichen) Spruce
Seligeria recurvata (Hedwig) B.S.G.
Sphagnum capillifolium (Ehrhart) Hedwig
Sphagnum tenerum Sullivant
Sphagnum compactum Lamarck & de Candolle
Sphagnum fuscum (Schimper) H. Klinggräff
Sphagnum papillosum Lindberg
Thamnobryum alleghaniense (C. Müller) Nieuwland
Thelia asprella (B.S.G.) Sullivant & Lesquereux
Thuidium recognitum (Hedwig) Lindberg
Timmia megapolitana Hedwig
Tortella fragilis (Hooker & Wilson) Limpricht
Tortella humilis (Hedwig) Jennings
Tortella tortuosa (Hedwig) Limpricht
Tortula mucronifolia Schwägrichen
Tortula muralis Hedwig
Tortula ruralis (Hedwig) P.G. Gartner, B. Meyer & Scherbius
Weissia controversa Hedwig

List M3: Other taxa included in Eckel's Niagara Gorge mosses

Aloina rigida (Hedwig) Limpricht in Cameron (1895)
Amblystegium trichopodium (Schultz) C.J. Hartman = ? P. Eckel: collection 1998
Amphidium lapponicum (Hedwig) W.P. Schimper in Macoun (1901)
Anomodon rugelii (C.Müller) Keissler P.Eckel & R. Zander: collection 1998
Barbula convoluta Hedwig P. Eckel: collection 1991

Barbula unguiculata Hedwig P. Eckel - several collections
Bryhnia novae-angliae (Sullivant & Lesquereux ex Sullivant) Grout P. Eckel: collection 1998
Bryohaplocladium microphyllum (Hedwig) R. Watanabe & Z. Iwatsuki Eckel: collection 1998
Bryum tortifolium Funck ex Bridel = ? in Macoun & Kindberg (1892)
Campylium stellatum (Hedwig) var. *stellatum* in Cameron (1895)
Desmatodon obtusifolius (Schwägrichen) Schimper C. Peck in Day (1888)
Dicranum fuscescens Turner P. Eckel & R. Zander: collection 1998
Didymodon fallax var. *reflexus* (Bridel) R.H. Zander in Cameron (1895)
Didymodon vinealis (Bridel) R.H. Zander "doubtful record" in Macoun & Kindberg (1892)
Drummondia prorepens (Hedwig) E.G. Britton
Fissidens adianthoides Hedwig observed by R. Zander
Fissidens grandifrons Bridel in Macoun (1901)
Forsstroemia trichomitria (Hedwig) Lindberg R. Zander: collection in 1986
Herzogiella striatella (Bridel) Iwatsuki in Macoun 1901
Hylocomium splendens (Hedwig) B.S.G. in Cameron 1895
Hypnum curvifolium Hedwig in Cameron 1895
Leptobryum pyriforme (Hedwig) Wilson in Cameron 1895
Leskea polycarpa Hedwig var. *polycarpa* Eckel & Zander: collection in 1998
Mnium orthorrhynchum Bruch & Schimper in Crum (1981)
Mnium thomsonii Schimper Eckel – observation
Orthotrichum obtusifolium Bridel in Cameron 1895
Orthotrichum ohioense Sullivant & Lesquereux ex Austin Eckel & Zander: collection in 1991
Orthotrichum speciosum Nees ex Sturm in Cameron 1895
Plagiopus oederiana (Swartz) Limpricht in Cameron 1895
Pleuridium subulatum (Hedwig) Rabenhorst P. Eckel: collection in 1991
Pohlia annotina (Hedwig) Lindberg in Cameron 1895
Pohlia atropurpurea (Wahlenberg) H. Lindberg in Cameron 1895
Pylaisiella intricata (Hedwig) Grout in Cameron 1895
Sanionia uncinata (Hedwig) Loeske in Cameron 1895
Schistidium apocarpum (Hedwig) Bruch & Schimper in Cameron 1895
Seligeria campylopoda Kindberg ex Macoun & Kindberg Zander: collection in 1971
Warnstorfia fluitans (Hedwig) Loeske P. Eckel: collection 1998
Weissia brachycarpa (Nees & Hornschuch) Juratzka Eckel: collection in 1981

The Hepatics (Liverworts)

Based on the two lists below the total current count of species for the Niagara region is 16.

List H1. Species in collections made by R. Olszewski during the period 1990 – 2009.

Conocephalum conicum (Linnaeus) Underwood Louth CA, Caves Springs CA
Lophocolea heterophylla (Schrader) Dumortier Heartland Forest
Nowellia curvifolia (Dickson) Mitten St. John's CA
Pallavicinia leyellii (Hook) S. Gray Heartland Forest
Plagiochila porelloides (Torrey ex Nees) Lindenberg Louth CA
Porella platyphylla (Linnaeus) Pfeiffer Caves Springs CA, Louth CA, Woodend CA
Ptilidium pulcherrimum (G.H. Weber) Hampe Heartland Forest
Radula complanata (Linnaeus) Dum. Louth CA
Ricciocarpus natans (Linnaeus) Corda = ? Heartland Forest

List H2. Other records of Hepatics from the Niagara Gorge – Canadian side.

Frullania eboracensis Gottsche in Macoun but supported by recent specimen in US gorge.
Marchantia polymorpha Linnaeus observed by R. Zander
Plagiochila asplenioides (Linnaeus) Dumort
Preissia quadrata (Scopoli) Nees in Macoun 1901
Reboulia hemisphaerica (Linnaeus) Raddi in Cameron 1895
Riccia fluitans Linnaeus in Macoun 1901
Trichocolea tomentella Nees in Day 1883

Acknowledgements.

I thank Dr. Irwin Brodo (lichens) and Deanna Lindblad for kindly reviewing my draft and offering suggestions for improvement. I also thank the personnel of Niagara Peninsula Conservation Authority, Short Hills Provincial Park and Heartland Forest Park for granting me permission to collect voucher specimens on their lands.

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