

Submission Number
Do5.2009. 1.148

Date of Submission: December 15, 2009

Submission Author:
Davies Howe Partners
On Behalf of Smart Centres and Calloway REIT

Comments or Requested Change to Draft Official Plan

Analysis and Recommendation

We are counsel to SmartCentres and Calloway REIT, the developers and owners of a number of properties within the Region of York. Among their land holdings, SmartCentres and Calloway REIT currently own existing or planned commercial retail centres in the Town of Aurora, the Town of Markham, the Town of Richmond Hill, the City of Vaughan, and the Town of Whitchurch-Stouffville.

Our clients have reviewed the December 2009 draft of the York Region Official Plan and have identified a number of concerns with the document. Accordingly, the purpose of this letter is to highlight, for Council's consideration, some of our clients' key concerns and objections.

Section 2.1 – Regional Greenlands System

Policy 8 purports to require the submission of an environmental impact statement for "development applications" within 120 metres of the Regional Greenlands System. In our view, the policy should be modified to limit the requirement to situations where a change of use is proposed, requiring *Planning Act* approval. In addition, as part of this study, we do not believe that there should be a requirement to identify "enhancement opportunities".

As defined, *development* includes a change in land use, construction of a building, creating a new lot, etc. this is to ensure consistency with the PPS requirements.

The ROP policies are consistent with the PPS requirements to preclude development and site alteration on adjacent lands to natural heritage features and areas unless the ecological function of the adjacent lands has been evaluated.

Regional Council has established their priorities for the Regional Greenlands System to be updating, linking, and enhancing the system. All development applications requiring an EIS

Section 2.2 – Natural Features

Policies 34 and 35 propose a requirement of a minimum *vegetation protection zone*, or buffer, of 30 metres from *wetlands* shown on Map 4, within which no *development* or *site alteration* would be permitted. In our view, the minimum width of this proposed buffer is excessive and has not been adequately justified as a Region-wide standard.

Section 3.3 – Provision of Human Services

Policy 13 proposes to make it a policy of Regional Council to consider the introduction of social housing and hospital development charges. Aside from any financial or other policy considerations, in our view it is inappropriate to establish, as a municipal policy, consideration of a matter for which there is currently no legislative authority.

provide the an opportunity to examine where enhancement opportunities exist.

A local municipality may provide (as some have) exemptions for certain applications, such as minor variances, simple site plans, etc. from the policy.

Regional Staff have reviewed the applicability of this policy in detail. The three provincial plans; Oak Ridges Moraine, Greenbelt, and Lake Simcoe Protection Plan all require a 30m vegetation protection zone from all wetlands, the ROP requires that the limited number of evaluated wetlands that area outside of these provincial plan areas be afforded the same treatment.

The policy does not require the development charge, it suggests that this will be considered. Any amendments to the Regional development charges will vetted through a public process.

Section 4.3 – Protecting Employment Lands

Policy 1 purports to require that the employment forecasts in Table 1 and the Region's land budget be used as the basis for planning for employment lands. Whereas the employment forecasts in Table 1 form part of the Official Plan and any revision would therefore require a formal amendment, together with a public planning process and right of appeal, the Region's land budget is prepared outside of this context. In fact, we understand that the Region is intending to amend its current land budget at some point in the new year. In our view, it is not appropriate to effectively elevate to official policy status a document that is prepared and may be amended at any time outside of the public planning process.

Further, it is unclear whether *major retail* facilities, as defined in the proposed Official Plan, are to be permitted on employment lands. Policy 2, for example, indicates that employment lands are to be protected for "employment land uses". Retail trade is clearly an "employment land use", apparently accounting for approximately 13% of the Region's total employment in 2008, and the Region has acknowledged that retail trade is an essential component of a healthy economy. At the same time, Policy 6 indicates that *major retail* is not permitted on employment lands, albeit in the context of a "conversion" policy.

An updated land budget report was released in March, 2010. The updated land budget report is based on the forecasts contained in Table 1 of the ROP, forms part of the Region's Growth Plan conformity exercise as required by the Province of Ontario and provides the basis for proposed urban area expansions.

Policy 4.3.8 (formerly 4.3.6) states that major retail facilities are not permitted within employment lands. The policy states:

That the conversion of employment lands to non-employment land uses is not permitted. For the purposes of this policy:

- a. employment lands are lands that are designated for employment uses including land designated as industrial and business park in local official plans; and,
- b. uses not permitted on employment lands include residential, *major retail* and non *ancillary uses*.

It is also unclear what constitutes “employment lands” for the purposes of section 4.3 in general. The term “employment lands” is defined in Policy 6, but expressly only for the purposes of that specific policy.

Further, Policy 6 fails to acknowledge the wide variety of land uses that are already permitted within the Region's numerous employment land use designations, including, in some instances, retail. Thus, to the extent that Policy 6 is intended to limit, or may have the effect of limiting existing retail permissions, our client objects to this proposed policy.

Policy 7 is also problematic. First, like Policy 1, it references the Region's land budget, which is a document that is prepared outside of the public planning process. In addition, it purports to require a "Regional" municipal comprehensive review for the conversion of employment lands to non-employment uses, which is not in keeping with Policy 2.2.6.5 of the *Growth Plan for the Greater Golden Horseshoe* that permits the conversion of employment lands through a "municipal comprehensive review", which may be initiated by a local municipality.

Policy 4.3.8 (formerly 4.3.6) provides guidance to the entire ROP with respect to the definition of employment lands. Further, policies 4.3.2 and 4.3.3 are proposed as Regional modifications, as follows:

4.3.2:

To recognize that employment lands are strategic and vital to the Regional economy and are major drivers of economic activity in the Region.

4.3.3:

To protect, maintain and enhance the long term viability of all employment lands for employment land uses.

The preamble to Section 4.3 recognizes that employment lands are key drivers of economic activity, contain over 50% of the Region's employment and are forecasted to continue to play a significant role in the Region's economy. Policy 4.3.11 (formerly 4.3.10) allows a limited amount of *ancillary uses* on employment lands. Policy 4.3.12 (formerly 4.3.11) requires local municipalities to determine the location, amount and size of *ancillary uses* on employment lands. *Ancillary uses* are defined in the Plan as ‘Small scale retail and commercial uses that primarily serve the business functions on employment lands.’

Policy 4.3.11:

To allow a limited amount of *ancillary uses* on employment lands, provided that the proposed use is designed to primarily service businesses in the employment lands and that *ancillary uses* collectively do not exceed 20% of total employment in the employment land area.

Policy 4.3.12:

To require local municipalities, through official plan policies, to determine the location, amount and size of *ancillary uses* on employment lands that is commensurate with the planned function, size and scale of the overall employment land area.

In terms of existing uses within employment lands, and elsewhere in the Region, policy 8.4.14 (formerly policy 8.4.13) applies which states:

To recognize legally existing and approved land uses as they exist at the time this Plan is approved.

Growth Plan policy 2.2.8.2 indicates that a municipal comprehensive review is to include an analysis of forecasted growth opportunities "within the *regional market area*, as determined by the upper-or single tier municipality,"

The conversion of employment areas to non-employment uses would be considered in the context of a region wide market analysis. ROP Policy 5.1.12 indicates that a regional municipal

The reference to "mixed-use development" in Policy 8 is unclear, as it is an undefined term. In any event, no development proposal within these areas should require a "municipal comprehensive review", in keeping with the direction of Policy 2.2.6.6 of the *Growth Plan*.

In Policy 10, it is unclear how one would define the geographic extent of the "employment land area". Further, we not believe that it is appropriate to limit *ancillary uses* based on the amount of employment, which may be constantly changing and otherwise difficult to quantify.

comprehensive review will be initiated by the Region in consultation with local municipalities.

Policy 4.3.8 is being deleted from the ROP.

The geographic extent of employment lands will be determined by the local municipalities. Local municipalities are required to designate and protect employment lands in their official plans.

Policy 4.3.4 (formerly 4.3.3) is being modified to read as follows:

To require local municipalities to designate and protect employment lands in local municipal official plans.

The Region conducts an annual employment survey of businesses and will be able to monitor ancillary uses within employment lands from the survey data.

The ROP employment policies complement employment land policies in the Growth Plan. Employment Areas are defined in the Growth Plan as "Areas designated in an official plan for clusters of business and economic activities including, but not limited to, manufacturing, warehousing, offices, and associated retail and ancillary facilities. (Provincial Policy Statement, 2005)."

Policy 12 appears to limit the types of uses that may be permitted not only within employment areas, but also adjacent to employment areas on Local Corridors and other major streets, with no apparent land use planning rationale. Moreover, although we maintain that retail facilities are "employment uses", it is not clear whether this policy might be used to attempt to restrict retail facilities from such locations.

Policy 20 is overly restrictive, and fails to recognize that there may be instances where new development on private services may be appropriate.

Growth Plan Policy 2.2.6.5 indicates that major retail uses are considered non-employment land uses.

As indicated above, The ROP complements the Growth plan in promoting a diversified cluster of business activities and economic activities on employment lands including manufacturing, warehousing, offices and associated retail and ancillary facilities. Policy 4.3.8.b (formerly 4.3.6.b) prohibits major retail uses on employment lands. ROP policy 4.4.8 encourages major retail to locate within communities:

To work with local municipalities to identify and designate lands for *major retail* that is integrated within the community.

The Region does not encourage development for industry on private services. ROP policy 7.3.15 states the following:

That *development* within and expansions to the urban uses within Towns and Villages identified on Map 1 will occur on the basis of full municipal water and wastewater treatment services where such facilities currently exist. For existing or previously approved *development* in Towns and Villages, water and wastewater treatment services will be continued where feasible and in keeping with the provisions of local official plans

and this Plan.

ROP policy 7.3.16:

That within the Oak Ridges Moraine, Greenbelt, and Lake Simcoe watershed, all improvements or new water and wastewater infrastructure systems shall conform with the Oak Ridges Moraine Conservation Plan, the Greenbelt Plan or the Lake Simcoe Protection Plan.

Section 4.4 – Planning for Retail

Although the Region has acknowledged the importance of retail trade in the opening paragraph, inadequate attention has been given to the importance of *major retail* facilities and identifying locations where they are to be permitted, both within this Section and elsewhere in the proposed Official Plan (see, for example, Section 5.2, Policy 9; Section 5.3, Policy 10; and Section 5.4, Policy 5). Thus, this

Section should be modified to give clear direction to local municipalities to plan and designate lands for *major retail* uses in appropriate locations.

In addition, it is not clear what is meant by saying that *major retail* facilities should not "detract" from various other areas, nor is it clear what lands are intended to be included within the term "designated or strategic employment lands" in Policy 4.4.1, particularly given the comment in Section 4.3, Policy 2 that "all employment lands identified in local municipal official plans ... are strategic".

1.

As indicated above, ROP policy 4.4.8 states the Region will work with local municipalities to identify and designate lands for major retail uses integrated within the community.

Policy 4.4.1 provides direction to local municipalities with respect to planning for all retail as follows:

To require that new retail be designed to be walkable, transit supportive and integrated into communities and pedestrian and cycling networks, with high-quality urban design.

The Region's land budget work, released in March, 2010 indicates that there is need for an additional 206 hectares of lands for major retail uses in the Region.

The Region has committed to undertake a study

of the Region's retail sector that will help inform future policy and planning for new retail.

Policy 4.4.10:

To undertake a study of the Region's retail sector.

ROP Policy 4.4.6 complements Growth Plan policy 2.2.6.5 by not permitting major retail uses on employment lands, unless considered through a regional municipal comprehensive review.

With respect to Policy 9, it is unclear what is intended by the proposed requirement for a "Regional" impact analysis in terms of the scope of such study, and the justification for the proposed threshold size of 30,000 gross leasable square metres is unknown. Likewise, our clients seek the same clarification as it pertains to the potential requirement for a Regional Impact Analysis as part of an Official Plan Amendment application, as referred to in Table 3, under Section 8.3.

Policy 10 requires the Region to undertake a study of the Region's retail sector, although no specific timeframe for such study is indicated. In any event, we trust that any application for new retail development with the Region would be processed and could be approved prior to the completion of such study. If this is not the Region's intention, please clarify, as our clients may then object to this proposed policy.

Policy 4.4.9 is a continuation of a policy from the Region's previous Official Plan (Policy 3.3.6) approved in 1994. All previous applications proposing retail facilities in excess of 30,000 gross leasable square metres have required a region-wide impact analysis.

As indicated above, the Region has committed to undertake a study of the Region's retail sector that will help inform future policy and planning for new retail.

Applications for new retail development will be subject to approved Official Plan policies at the time of the applications submission.

Section 4.5 – Financial Management

Policy 2 purports to ensure that development proponents provide the funds required to deliver additional services and costs related to growth. As the funding of growth-related capital costs by development proponents is regulated, and in some cases limited, by the *Development Charges Act, 1997*, the proposed policy should explicitly recognize this reality. Likewise, the Region should also be looking to other sources of revenue, including funding from more senior levels of government, to offset the costs of services associated with growth.

Section 5.2 – Sustainable Cities, Sustainable Communities

Policy 19 is inappropriate, insofar as it purports to require new development to adhere to a "guideline" document that is beyond the Official Plan and may be amended without any public planning process and/or right of appeal. Further, we are uncertain what the requirements of the "Guidelines for Community Development in York Region" are, given that we understand that this document has not yet even been completed.

The principle of "growth pays for growth" has long been a principle of growth management in York Region. All services and costs related to growth would be consistent with those prescribed in the Development Charges Act and the Regional Development Charges By-law.

The guideline document will not change the policies of the Regional Official Plan, but provide direction on how to implement the policies of Sections 5.2 and 5.6 (new community areas). To clarify the role of the document, Policy 5.2.19 is being modified as follows:

"That the policies of this Plan are supported by the Guidelines for Community Development in York Region. New development shall meet all required items, and be encouraged to achieve all optional items. ~~The guideline document shall be amended from time to time without amendment to this Plan.~~"

Various policies in Section 5.2, including Policies 20, 21 and 26, purport to require new buildings to achieve certain energy efficiency standards beyond the requirements of the Ontario Building Code and mandate certain methods of construction. The intended method of implementation, as well as the legislative authority for such policies, is unknown. In addition, some of these policies reference proposed standards (e.g. the Model National Energy Code for Buildings) that are outside the scope of the Official Plan and could be amended without any public planning process and/or right of appeal.

Given the above concerns, our clients similarly object to Policies 42 and 43, which purport to require local municipalities to implement the proposed sustainable building policies of the Region's Official Plan and would support even more onerous requirements at the local level.

Section 5.4 – Regional Centres and Corridors

Policies 8 and 9 are overly and unnecessarily restrictive, purporting to prohibit any new buildings that do not front onto the major street and prohibit any amount of surface parking between the main building entrance and the street.

The Region is committed to achieving more sustainable forms of building throughout the Region in terms of energy use and water efficiency.

The Region will work with the local municipalities and the development industry on implementation on these policies. Many local municipalities are already achieving these objectives and others through the development approval process.

The Model National Energy Code for Buildings is the reference code used in the Ontario Building Code.

The Region recognizes that the success of the Regional Centres and key development areas along the regional corridors is very dependent on transit, mixed use development, a high live-work ratio, and a vibrant active street. Clearly, parking is a key component to this, and parking strategies will need to include short, medium, and long term approaches. The Region recognizes that parking is a difficult planning and fiscal issue for the land development industry. It is the Region's intent to work closely with the local municipalities and the industry to find appropriate approaches to parking in these areas.

Section 7.1 – Reducing the Demand for Services

Policy 7 is inappropriate, insofar as it purports to require new development to adhere to a "guideline" document that is beyond the Official Plan and may be amended without any public planning process and/or right of appeal.

This policy is connected to policy 7.1.6 which calls for the updated to the Transit Oriented Development Guidelines (TOD) , which were adopted by Regional Council in September 2006. Any update to the guideline document will be vetted through Regional Council through a public process, providing opportunity for comment and review.

The Guideline is meant to provide a framework to support Regional transit strategies and reduce demand.

Section 7.2 – Moving People and Goods

Policy 49 recognizes that road widenings will generally be taken equally from the centre line of the street. However, clause (b) indicates that there may be circumstances where a greater widening, or even the total widening, may be taken from one side of the street. In these circumstances, the landowner ought to receive compensation for any taking beyond that which would result from an equal widening, and the policy should incorporate language that acknowledges this requirement.

In Policy 50, the proposed requirement for a conveyance to the Region of up to the first 36 metres of a required right-of-way to accommodate a new or realigned Regional road is excessive and has not been properly justified.

The policy states "up to 45m", therefore the entire width may not be required, depending on the circumstances. The Region is protecting this size for implementing public transit rights-of-way and transit lands related facilities. Regional staff will be in contact with the author to discuss the future street widths necessary.

The new Planned Basic Street Widths are a result of the 2006 Regional Council adopted policy defining the Regional Standard for Six Lane Roads. Otherwise referred to as "Towards Great Region Streets – A Pathway to Improvement", the Regional Standard identifies a recommended cross-section which includes a 4 to 6m wide median, a dedicated bicycle lane, a curb lane as an HOV (High Occupancy Vehicle) lane, and two

all purpose lanes. To provide an urban design that supports these design elements and to protect for the long term requirements of existing and future utility corridors the design guidelines recommended increased rights-of way.

The increased rights-of-way were also examined comprehensively through the Region's Transportation Master Plan update. Public consultation on this initiative was coordinated with the Official Plan public engagement over the past year, leading to the adoption of the Transportation Master Plan by Regional Council in November 2009.

These increased rights-of-way have been incorporated into the ROP.

We trust that Council will give due consideration to these comments as it considers adoption of the proposed Official Plan, and request that the appropriate modifications are made in order to address these concerns.

Kindly ensure that we receive notice of any decision made by Council in respect of the proposed Official Plan.

Notices will be sent as required



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Please refer to: **Mark Flowers**
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December 15, 2009

By E-Mail

Chair Bill Fisch and Members of Regional Council
The Regional Municipality of York
17250 Yonge Street
Newmarket, Ontario
L3Y 6Z1

Attention: Mr. Denis Kelly, Regional Clerk

Dear Mr. Kelly:

**Re: Draft York Region Official Plan
Submissions of Behalf of SmartCentres and Calloway REIT**

We are counsel to SmartCentres and Calloway REIT, the developers and owners of a number of properties within the Region of York. Among their land holdings, SmartCentres and Calloway REIT currently own existing or planned commercial retail centres in the Town of Aurora, the Town of Markham, the Town of Richmond Hill, the City of Vaughan, and the Town of Whitchurch-Stouffville.

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Section 2.2 – Natural Features

Policies 34 and 35 propose a requirement of a minimum *vegetation protection zone*, or buffer, of 30 metres from *wetlands* shown on Map 4, within which no *development* or *site alteration* would be permitted. In our view, the minimum width of this proposed buffer is excessive and has not been adequately justified as a Region-wide standard.

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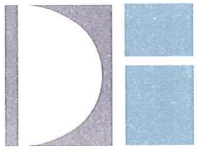
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It is also unclear what constitutes "employment lands" for the purposes of section 4.3 in general. The term "employment lands" is defined in Policy 6, but expressly only for the purposes of that specific policy.



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Further, Policy 6 fails to acknowledge the wide variety of land uses that are already permitted within the Region's numerous employment land use designations, including, in some instances, retail. Thus, to the extent that Policy 6 is intended to limit, or may have the effect of limiting existing retail permissions, our client objects to this proposed policy.

Policy 7 is also problematic. First, like Policy 1, it references the Region's land budget, which is a document that is prepared outside of the public planning process. In addition, it purports to require a "Regional" municipal comprehensive review for the conversion of employment lands to non-employment uses, which is not in keeping with Policy 2.2.6.5 of the *Growth Plan for the Greater Golden Horseshoe* that permits the conversion of employment lands through a "municipal comprehensive review", which may be initiated by a local municipality.

The reference to "mixed-use development" in Policy 8 is unclear, as it is an undefined term. In any event, no development proposal within these areas should require a "municipal comprehensive review", in keeping with the direction of Policy 2.2.6.6 of the *Growth Plan*.

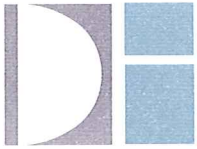
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Policy 20 is overly restrictive, and fails to recognize that there may be instances where new development on private services may be appropriate.

Section 4.4 – Planning for Retail

Although the Region has acknowledged the importance of retail trade in the opening paragraph, inadequate attention has been given to the importance of *major retail* facilities and identifying locations where they are to be permitted, both within this Section and elsewhere in the proposed Official Plan (see, for example, Section 5.2, Policy 9; Section 5.3, Policy 10; and Section 5.4, Policy 5). Thus, this



Section should be modified to give clear direction to local municipalities to plan for and designate lands for *major retail* uses in appropriate locations.

In addition, it is not clear what is meant by saying that *major retail* facilities should not "detract" from various other areas, nor is it clear what lands are intended to be included within the term "designated or strategic employment lands" in Policy 6, particularly given the comment in Section 4.3, Policy 2 that "all employment lands identified in local municipal official plans ... are strategic".

With respect to Policy 9, it is unclear what is intended by the proposed requirement for a "Regional" impact analysis in terms of the scope of such study, and the justification for the proposed threshold size of 30,000 gross leasable square metres is unknown. Likewise, our clients seek the same clarification as it pertains to the potential requirement for a Regional Impact Analysis as part of an Official Plan Amendment application, as referred to in Table 3, under Section 8.3.

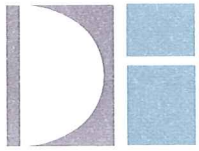
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Given the above concerns, our clients similarly object to Policies 42 and 43, which purport to require local municipalities to implement the proposed sustainable building policies of the Region's Official Plan and would support even more onerous requirements at the local level.

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Kindly ensure that we receive notice of any decision made by Council in respect of the proposed Official Plan.

In the meantime, please do not hesitate to contact us if you have any questions regarding this submission.

Yours truly,

DAVIES HOWE PARTNERS

Mark R. Flowers

copy: Client
Barbara Jeffrey, Region of York

Submission Number
D05.2009. 1.149

Date of Submission: December 16, 2009

Submission Author:
Goodmans
On behalf of Metrus Developments

Comments or Requested Change to Draft Official Plan

Analysis and Recommendation

We represent Metrus Development Inc., which owns lands throughout the Region of York, on a number of projects (including, but not limited to Corsica Development Inc. and Fetlar Holdings Inc.). Further to our letter dated October 13, 2009, we are writing to provide additional comments regarding the revised woodland policies in the current draft of the proposed Regional Official Plan. We would ask that our additional comments be included in the record forwarded to the Province pursuant to Section 17(31) of the *Planning Act*.

As you know, our client has had discussions with Regional staff since early-2009 regarding the draft woodland policies. Through these discussions, it was our client's understanding that the intent of changes made to the woodland policies in the June draft of the proposed Regional Official Plan was to recognize the potential for development. However, as indicated in our previous correspondence, our client is concerned that the unintended effect of the woodland policies, even as revised, could be to prevent otherwise desirable and appropriate development.

Policy 2.2.44 is clearly intended to enable the integration of the Regional Greenlands System enhancement objectives with the intensification and compact community design objectives of the Region's Official Plan and Provincial policies. However, while Policy 2.2.44 would allow for development and site alteration within part or all of a significant woodland, subject to certain criteria, the proposed wording of some of the potentially mandatory criteria could be interpreted as eliminating any discretion in the application of the policies on a site-specific basis. For example:

- Policy 2.2.44.c refers back to Policies 2.2.39.a and 2.2.39.b but does not recognize the separate exemption process that exists under provincial and federal legislation.

Regional staff have been in discussions with Metrus Developments in the context of the application of the Regional Official Plan (December 2009 Approved version) as it relates to the Corsica Development (David Dunlop Observatory lands).

While the applications for the development of the Corsica lands are subject to the transitional provisions (policies 8.4.14-16, formerly 8.4.13-15), Regional Staff have been encouraging Metrus to implement the Council adopted policies, and have been working together to implement the spirit of the adopted ROP.

Yes, it is the intent of York Region to provide criteria which offer some flexibility in the treatment of woodlands within the Urban Area.

The comment references policies which protect woodlands which contain globally or provincially rare plants, animals or communities as designated by the Natural Heritage Information Centre, or as threatened, endangered, or special concern species as identified by the Species at Risk List in Ontario. The requirements for such species and the assessment of the feature and habitat if occurrences of these species or communities are found, are completed by the Province (Ministry of Natural Resources, or their

- Policy 2.2.44.e refers to the concept of a “cultural community”, as defined by the draft Regional Official Plan. Our client’s understanding is that this policy is intended to permit development and/or site alteration within a woodland if all or part of the woodland is a “cultural community”. However, as drafted, this policy is vague in that it could be read to permit development and/or site alteration within woodlands that are only and completely classified as a cultural community.

Given the policy direction of the Province and the Region to achieve appropriate intensification and compact community design within the urban area, we would respectfully request that these policies be modified to more accurately reflect the stated objectives of the draft Regional Official Plan and ensure conformity with Provincial policy.

delegate). The policy does not speak directly to this process, however, it is common practice in the processing of development applications. Yes, the policy provides flexibility to woodlands which are defined as “cultural communities”. A definition of cultural community is provided in the ROP as follows:

A cultural community is defined in the ROP as a “cultural community unit (code of CU) in accordance with the Ministry of Natural Resource Field Guide for Ecological Land Classification for Southern Ontario. These vegetation communities originate from, or are maintained by, anthropogenic influences and culturally based disturbances and often contain a large proportion of non-native species.”



Barristers & Solicitors

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Toronto, Ontario Canada M5B 2M6

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goodmans.ca

Direct Line: 416.597.4299
dbronskill@goodmans.ca

December 16, 2009

Our File No.: 082778

Via Email: regionalclerk@york.ca

Denis Kelly, Regional Clerk
Corporate Services Department
Regional Municipality of York
17250 Yonge Street
Newmarket, ON L3Y 6Z1

Dear Sir:

Re: Region of York Draft Official Plan

We represent Metrus Development Inc., which owns lands throughout the Region of York, on a number of projects (including, but not limited to Corsica Development Inc. and Fetlar Holdings Inc.). Further to our letter dated October 13, 2009, we are writing to provide additional comments regarding the revised woodland policies in the current draft of the proposed Regional Official Plan. We would ask that our additional comments be included in the record forwarded to the Province pursuant to Section 17(31) of the *Planning Act*.

As you know, our client has had discussions with Regional staff since early-2009 regarding the draft woodland policies. Through these discussions, it was our client's understanding that the intent of changes made to the woodland policies in the June draft of the proposed Regional Official Plan was to recognize the potential for development. However, as indicated in our previous correspondence, our client is concerned that the unintended effect of the woodland policies, even as revised, could be to prevent otherwise desirable and appropriate development.

Policy 2.2.44 is clearly intended to enable the integration of the Regional Greenlands System enhancement objectives with the intensification and compact community design objectives of the Region's Official Plan and Provincial policies. However, while Policy 2.2.44 would allow for development and site alteration within part or all of a significant woodland, subject to certain criteria, the proposed wording of some of the potentially mandatory criteria could be interpreted as eliminating any discretion in the application of the policies on a site-specific basis. For example:

- Policy 2.2.44.c refers back to Policies 2.2.39.a and 2.2.39.b but does not recognize the separate exemption process that exists under provincial and federal legislation.

- Policy 2.2.44.e refers to the concept of a “cultural community”, as defined by the draft Regional Official Plan. Our client’s understanding is that this policy is intended to permit development and/or site alteration within a woodland if all or part of the woodland is a “cultural community”. However, as drafted, this policy is vague in that it could be read to permit development and/or site alteration within woodlands that are only and completely classified as a cultural community.

Given the policy direction of the Province and the Region to achieve appropriate intensification and compact community design within the urban area, we would respectfully request that these policies be modified to more accurately reflect the stated objectives of the draft Regional Official Plan and ensure conformity with Provincial policy.

Thank you in advance for including our correspondence in the record being forwarded to the Province. We would be pleased to meet to discuss our concerns in more detail, including options for further revisions.

Yours very truly,

GOODMANS LLP



David Bronskill

DJB/

cc: John Waller

\5794808

Submission Number

D05.2009.1.150

D05.2009 1.154

D05.2009 1.155

Date of Submission:

December 15 2009

January 5, 2010-03-29

January 11, 2010

Submission Author:

Barry Horosko, Bratty and Partners on behalf of 11750 and 11782 Ninth Line Property Inc.

Stuart Dickie, Cornwall Property Consultants

Murray Evans, Evans Planning on behalf of 11750 and 11782 Ninth Line Property Inc.

Comments or Requested Change to Draft Official Plan	Analysis and Recommendation
All three submissions deal with the same property 11750 and 11782 Ninth Line Property Inc. in the Town of Whitchurch-Stouffville. Lands are 2.42 ha (6 acres) in size on the west side of Ninth Line, south of Main Street and north of Reeves way. Lands are designated Town and Village on the current York Regional Plan and appear to be designated Towns and Villages and Natural Linkage Areas in the new Regional Plan. Designation as natural linkage does not reflect current local plan	The Subject lands are within the Towns and Villages designation for the community of Stouffville and are not within the woodlands shown on the Map. Further the properties do not appear to have significant features within their boundaries. Consequently Regional staff has modified Maps 1 and 2 to clarify that the subject lands are not subject to the Greenlands System policies.
Request to receive notice of all meetings, documents and sessions on the ROP	Notice has been given
Not clear on mapping in the new ROP what the designation is on the subject lands - whether Towns and Villages or Regional Greenlands. Please clarify designation	
Properties comprise 2.42 hectares. Development applications	

have been submitted to the Town.

Maps 1 and 2 of the new ROP appear to identify the lands as being within the Regional Greenlands system, so it is not clear whether the Towns and Villages designation applies to the lands.

Section 2.6 of the Plan defers review of the extent and significance of the system to local municipalities. The local official plan does not contemplate the subject lands being within the Greenlands system or environmental protection area.

Towns and Villages designation permits urban development, however policy 5.6.21 of the Plan indicates that any redesignation of lands identified as rural within local community plans is subject to a municipal comprehensive review initiated by the region. This policy does not appear to be consistent within Provincial and Regional growth directives in that the subject land is a small pocket of undeveloped with urban uses and services in close proximity. Request clarifications as to whether Policy 5.6.21 applies to the development proposal for the subject lands.

Policy 5.6.21 (now 5.6.18) is intended to address those situations where Rural lands are within Community Plan boundaries. The need for those lands as urban is subject to a municipal comprehensive review

Regardless however the subject lands are subject to an application for official Plan and zoning amendments and that have already been filed. Policy 8.4.15 (formerly 8.4.14) – Transition indicates that only applications received on/or after the date of the Plan's approval are subject to the policies of the Plan. The applications are therefore transitioned in regard to the new Official Plan and will require assessment under the existing documents

The Town of Whitchurch-Stouffville should determine whether this development is required to satisfy their 2031 land needs and population forecast.



Received December 21, 2009

PLEASE REFER TO:

Barry Horosko (Ext: 339)

Email: bhorosko@bratty.com

Caterina Facciolo (Ext: 293)

Email: cfacciolo@bratty.com

Telephone: (905)760-2700

December 15, 2009

The Regional Municipality of York
Planning and Development Services
17250 Yonge Street

Newmarket, ON L3Y 6Z1

Attention: Bryan W. Tuckey
Commissioner of Planning and Development Services

Dear Mr. Tuckey:

Re: York Region Official Plan – December 2009

We are the solicitors acting on behalf 11750 Ninth Line Property Inc. and 11782 Ninth Line Property Inc. with respect to the above referenced matter.

Our client owns land in the Town of Whitchurch-Stouffville municipally known as 11750 Ninth Line and 11782 Ninth Line (the "Lands"). The Lands are approximately 6 acres in size and located in close proximity to existing residential uses.

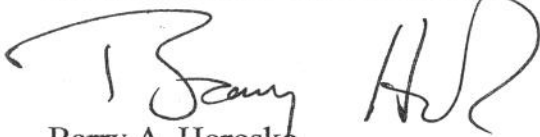
We are writing herein to express our client's concerns with respect to the proposed new land use designation for the Lands. The Lands are presently designated as *Towns and Villages* under the York Region Official Plan. The draft York Region Official Plan – December 2009 proposes to designate the Lands as *Natural Linkage Area*. This proposed designation is inconsistent with the environmental features on the Lands, does not reflect the current local Official Plan designation nor the current zoning for the Lands, and does not represent good planning for the Lands. In this particular case, lands within the vicinity may be suitable to be designated *Natural Linkage Area*, but certainly not these Lands. Our client requests that the proposed land use designation remain as set out in the York Region Official Plan.

Please consider this letter as a formal request to receive notice of all documents, meetings and decisions respecting the Regional Official Plan review process.

We thank you in advance for your consideration of our requests.

Yours truly,

BRATTY AND PARTNERS, LLP



Barry A. Horosko

cc: Sal Crimi, S.C. Land Management Corporation
Murray Evans, Evans Planning
Joanna Fast, Evans Planning
Bruce Macgregor, Region of York
Barbara Jeffrey, Region of York
John Waller, Region of York

From: Stuart Dickie [mailto:sgdickie@rogers.com]
Sent: Tuesday, January 05, 2010 5:29 PM
To: FutureYork
Subject: New Official Plan designation for 11750 and 11782 Ninth Line, Stouffville

York Region Planning Department
futureyork@york.ca

Re: New Official Plan designation for 11750 and 11782 Ninth Line, Stouffville

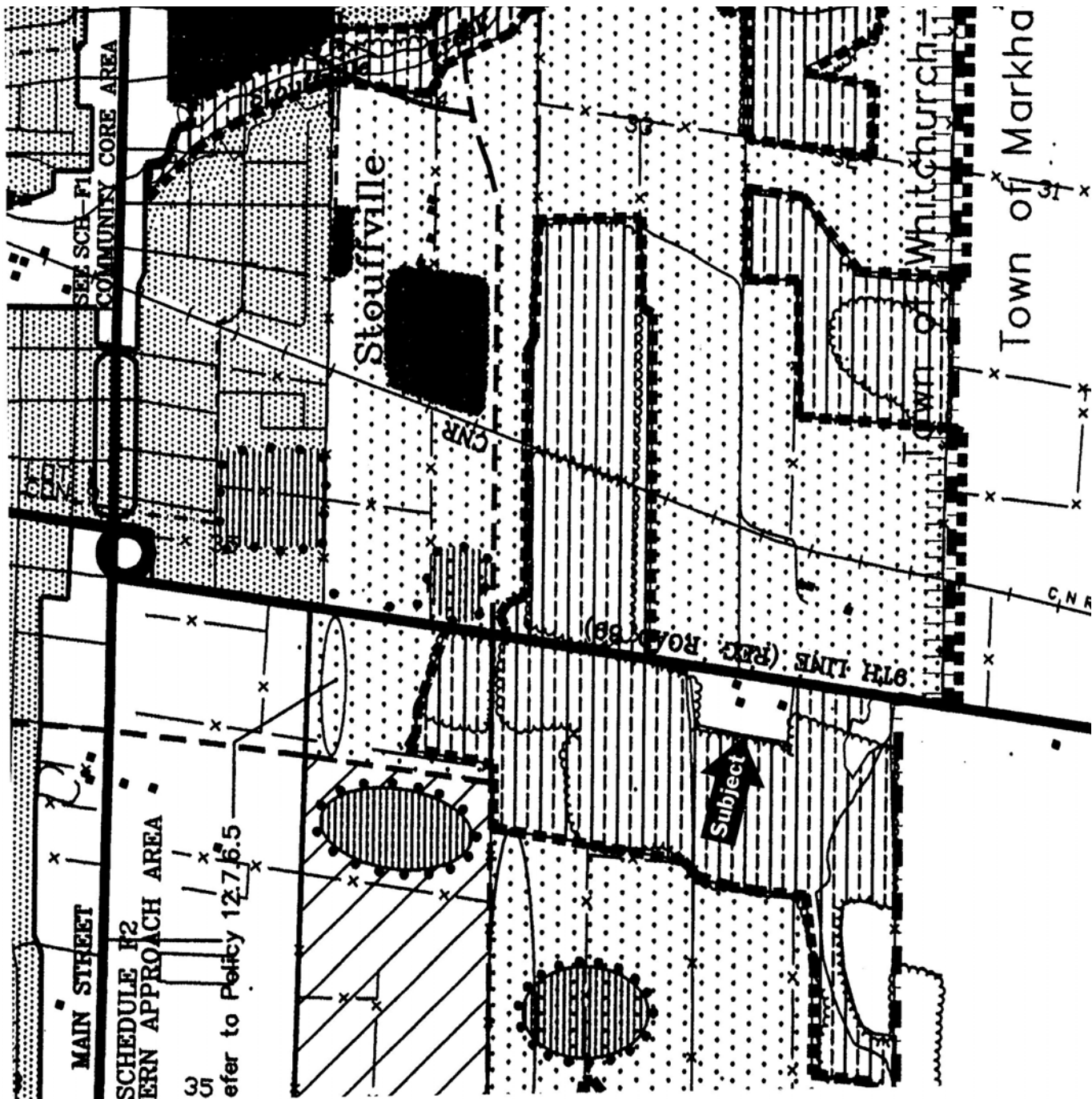
It is not absolutely clear whether the above noted property is designated "Towns and Villages" or "Regional Greenlands" in the Region's Official Plan.

On the Woodlands Map it is shown as "Towns and Villages". But on the Regional Structure Map and the Regional Greenlands Map it appears that it may be "Regional Greenlands".

The attached map from the Stouffville Secondary Plan shows the property's location. Please clarify the designation. I can be reached at 416-252-7878 Ext 22.

Thank you

Stu Dickie
Cornwall Property Consultants
416-252-7878 Ext 22





Received January 11, 2010

D05.2009.1.155

8481 Keele Street, Unit 12
Vaughan, Ontario
L4K 1Z7

Tel: 905-669-6992
Fax: 905-669-8992

January 11, 2010

Regional Municipality of York
Planning Department
17250 Yonge Street, Newmarket,
Ontario, L3Y 6Z1

Attn: Ms. Barbara Jeffrey, Manager, Land Use Policy and Environment Long Range and
Strategic Planning

Dear Ms. Jeffrey,

Re: Applications for Official Plan Amendment and Zoning By-law Amendment
11750 Ninth Line Property Inc. and 11782 Ninth Line Property Inc.
11750 Ninth Line and 11782 Ninth Line
Town of Whitchurch-Stouffville

Further to Mr. Barry Horosko's letter dated December 15, 2009 to Bryan Tuckey and our recent telephone conversation, we provide the following summary of the property's development status and the municipal planning applications which were filed with the Town of Whitchurch-Stouffville.

Evans Planning acts on behalf of 11750 Ninth Line Property Inc. and 11782 Ninth Line Property Inc., the owner of two parcels of land municipally described as 11750 Ninth Line and 11782 Ninth Line in the Town of Whitchurch-Stouffville. The property is located on the west side of Ninth Line, south of Main Street and north of Reeves Way Boulevard. The properties comprise 2.42 hectares and are largely devoid of vegetation. A woodlot encompasses the lands to the north, south and west. To the east is Ninth Line and Medium Density Residential development. An aerial photograph of the subject land is appended to this letter.

Applications have been submitted to the Town of Whitchurch-Stouffville to amend the Official Plan and Zoning By-law to facilitate the development of the 2.42 hectare site with a condominium townhouse development. The applications propose the redevelopment of the subject lands with a residential townhouse development consisting of 134 condominium townhouse units. Units will be accessed by private internal roads and main access to the site is to be provided by a private two lane entrance/exit to Ninth Line. A reduced copy of the proposed site plan is attached hereto.

In association with the development applications, supporting technical reports have been submitted to the Town. Included within these documents is an Environmental Impact Statement

prepared by Groundwater Environmental Management Services Inc. (GEMS) which concluded that the subject land can be developed for urban uses without causing an impact upon the form and function of the neighbouring woodlot.

The following is a summary of the existing and proposed designations within the Town policy documents, a review of the Oak Ridges Moraine designations and an outline of the Regional designations within the existing and new Official Plan documents.

Town of Whitchurch Stouffville Official Plan

The subject lands are located within the limits of the Community of Stouffville Secondary Plan. The Secondary Plan designates the lands as 'Rural Area'. The predominant use of land within this designation is agriculture and related uses. The Urban Serviced Area boundary does not include the subject lands. However, the lands directly to the east of the subject site is within the Service Area.

Townhouse development is not a permitted use within the Rural Area designation of the Community of Stouffville Secondary Plan. As such, an Official Plan amendment has been submitted to redesignate the subject lands from Rural Area to Residential Area. In addition, the proposed amendment would extend the Urban Serviced Area boundary to include the subject lands and allow for a residential density of 55 units per hectare.

Town of Whitchurch Stouffville Zoning By-law

The properties are currently zoned Rural Residential Two (RR2) under Town of Whitchurch-Stouffville Zoning By-law 87-34. The proposed development is not permitted under the provisions of the Zoning By-law. A Zoning By-law Amendment is required to rezone the property to a Residential Multiple (RM) Zone or a New Residential (RN) Zone to facilitate the proposed development. Site specific development standards may be required to allow for development as contemplated by the proposed site plan.

Oak Ridges Moraine Conservation Plan

The subject land falls within the Settlement Area designation of the Oak Ridges Moraine Conservation Plan (ORMCP). Urban development is permitted within this designation.

A wetland and associated woodlot feature surround the subject land to the south, west and north. Section 21(4) of the Plan states that for land located within a Settlement Area, where an Official Plan or Zoning By-law is adopted on the basis of environmental studies or the like, the provisions contained within the Official Plan or Zoning By-law prevails over the minimum vegetation protection zone and minimum area of influence restrictions identified by the ORMCP.

An Environmental Impact Statement has been prepared by Groundwater Environmental Management Services Inc. which recommends that a 10 metre buffer be established from the surrounding wetland/woodlot area and the regional floodline to provide protection and prevent disturbance to adjacent plant and wildlife habitat. The study also recommended that a minimum

vegetation protection zone of the dripline (as identified by Kuntz Forestry Consulting Inc.) plus 1 metre should be established for the remainder of the property to preserve woodlot function and minimize disturbance. In addition the EIS recommended that a 2.0 metre high fence be erected along the boundary of the natural area and that stormwater design should maintain existing surface water input to the surrounding natural area.

Region of York Official Plan

Existing Official Plan

The subject land is located within the Towns and Villages designation on Map 5 to the Regional Official Plan. Furthermore, Map 3 to the Official Plan shows that the land is surrounded by Significant Forested Lands and Map 4 identifies that there is a Regional Greenlands System overlay over these properties.

The Towns and Villages designation permits the urban development of the site. The subject proposal conforms with the policies of the existing Regional Official Plan.

New Official Plan

Maps 1 and 2 to the New Official Plan appear to designate the subject lands as being within a Regional Greenlands System. It is not clear whether the Towns and Villages designation applies to these lands.

Wording in the Plan indicates that urban development within a Regional Greenlands System would not be permitted. Section 2.1 of the New Official Plan states that it is the policy of Council "to protect and enhance the Regional Greenlands system and its functions...and to direct new development or site alteration away from the system." In light that the subject properties do not possess environmental features, it would seem that the designation as shown and policy constraints to development are not warranted.

Section 2.6 of the Plan defers review of the extent and significance of the system to local Municipalities. The Local Official Plan, does not contemplate the subject lands as being within a greenlands system or environmental protection area.

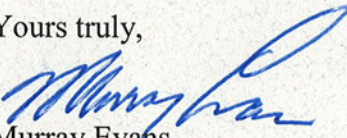
Although Maps 1 and 2 identify the land as being within the Regional Greenlands System. The environmental areas delineated on Map 3 show that the lands are located within the Towns and Villages designation. Urban uses are permitted in this designation.

The Towns and Villages designation permits urban development, the uncertainty is found in Section 5.6.21 of the New Regional Official Plan which indicates that any redesignation of lands identified as Rural within local community plans is subject to a municipal comprehensive review, initiated by the Region. The application of this policy to the subject land does not appear to be consistent with the Provincial and Regional growth directives, in that the subject land is a small "pocket" of undeveloped land with urban uses and services in close proximity. Clearly, the intent of the policy 5.6.21 is to guide extensions of urban land uses into areas which are typically large in scale and are located at the periphery of existing urban development. By doing so, long term design objectives can be assessed to ensure road, sewers, storm ponds and community

facilities can be properly located. In the situation at hand, large tracts of land are not involved, nor are the subject lands located at the edge or periphery of urban development. Existing infrastructure exists and will be utilized. Therefore, long term community building considerations are not relevant to this situation. The use of the subject land for urban purposes, subject to satisfying land and environmental policies, would further the objectives of current Provincial and Regional growth objectives.

I trust that this summary of the relevant policy documents is sufficient for your review. I respectfully request that the Region provide a response as to whether Policy 5.6.21 of the New Official Plan applies to the development proposal for the subject lands. Should you require any additional information, please contact the writer at your earliest convenience.

Yours truly,



Murray Evans

cc. 11750 Ninth Line Property Inc
11782 Ninth Line Property Inc



Submission Number

D05.2009.1.151

D05.2009. 1.174

Date of Submission:

December 24, 2009

March 17, 2010

Submission Author:

Sciberras Consulting Inc. on behalf of Smith Gardens Limited

Comments or Requested Change to Draft Official Plan**Analysis and Recommendation**

Submission 1.151

Our client would like to resolve matters prior to Ministerial approval, of possible.

We hereby request that we and our client be provided written notice of the Minister's decision. Could you kindly ensure that our request forms part of the record forwarded to the Minister.

Submission 1.174

Sciberras Consulting Inc. on behalf of their clients Smith Gardens Limited, owners of 2100 acres in the Holland Marsh Specialty Crop Area in East Gwillimbury have submitted an Environmental Impact Study (EIS) for the lands to assess how best to expand the farming operation in a manner that would avoid, minimize and/or mitigate potential impacts on the natural features and functions.

The Smith family have been the owners of the lands since 1946 and continue to operate the largest family owned farming business in the Holland Marsh, supplying carrots and onions to local, provincial, national and international markets.

York Region and the Province are working in concert to ensure that all interested parties are kept informed about the status of the Regional Official Plan.

This submission will be provided to the Province, however, the Region has also contacted Mr. Davis to recommend that he contact the Province directly to formally request notice of the Province's decision.

Regional staff assisted the Smiths and their consultants in August 2009 following the initial comment on the Draft ROP by hosting a meeting among interested parties from the Province (MNR, MMAH, OMAFRA) the Regional and East Gwillimbury and the LSRCA.

Further the adopted ROP contains policy 6.3.13 as follows:

6.3.13 That within the Holland Marsh Specialty Crop Area, the Region will encourage and support the Province in balancing continued agricultural production and potential expansion with natural heritage values and policies.

Currently the Smith's have some 900 acres in active agriculture and to optimize the size of the farm with evolving and growing demand are seeking the option of expanding onto other lands (some of which were in production pre-Hurricane Hazel) in their current ownership.

Besides the Specialty Crop designation from the Provincial Greenbelt Plan, the majority of the lands are also designated Provincially Significant wetland and an area identified as Environmentally Significant Area by the LSRCA.

The EIS indicates that

- The southern portions of the Smith Gardens are characterized by a mix of forested and non-forested lands, with the wetlands becoming more forested over time
- Subject lands today host important wetland functions and features and are part of the provincially Significant Wetland associated with the northern end of the Holland Marsh.
- Some principle can provide direction for the identification of areas for expansions:
 - Establish new fields required in wetlands that exhibit more limited features and functions (recognizing that all are part of the PSW)
 - Establish fields in wetlands that have been the subject of historic alteration (evidence of remnant ditching and dykes)
 - Avoid negatively affecting individual in a species, populations and habitat for endangered and/or threatened species
 - Avoid forested areas which have been identified for additional importance related to area sensitive species and deer concentration areas

Regional staff is in the process of reviewing the EIS to give feedback to the consultants, however, neither the Greenbelt Plan nor existing Provincial Policy in the Provincial Policy Statement (PPS) permit the expansion of existing agricultural operations into key natural heritage features. This has been identified to the Smiths and their consultants.

Even if the EIS was ultimately deemed appropriate, a decision to permit the Smiths to expand the operation into the wetland would be required from the Province, either as part of the 5-year review of the PPS or as a special initiative of the Ministry, given that the Holland Marsh is the pre-eminent Muck soil farming area in Ontario.

The issue before the Province for resolution is whether in certain areas, such as this, an emphasis should be placed on food production over natural heritage protection if there is a way to avoid, minimize and/or mitigate potential impacts on the natural features and functions.

This is a difficult issue to resolve and one that is outside of the purview of Regional Council.

No changes to the Regional Plan are recommended, but Regional staff will continue to assist the Smiths and their consultants in their discussion with the Province, where possible and appropriate

Final limits of the proposed fields would benefit from discussion with the Province, East Gwillimbury, Region.

Received December 24, 2009

D05.2009.1.151

Davis Webb LLP
Barristers and Solicitors

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Established in 1916
A. Grenville Davis QC (1916-1973)

Ronald K. Webb QC
Neil G. Davis
Christopher Moon
Ronald S. Sleightholm
Ellen S. Pefhany
Barbara Skupien
James S.G. Macdonald

December 24, 2009

File No.: 24 5053 001

JOHN B. WALLER, MCIP, RPP
Director of Long Range and
Strategic Planning
The Regional Municipality of York
17250 Yonge Street
NEWMARKET, Ontario
L3Y 6Z1

Dear John

RE: The Official Plan for the Regional Municipality of York, 2009
Notice of Adoption by Region Council
File 19-OP-2009

As you know we act for W. J. Smith Gardens Limited. Our client would like to resolve matters prior to Ministerial approval, if possible,

In any event, however, we hereby request that we and our client be provided written notice of the Minister's decision. Could you kindly ensure that our request forms part of the record forwarded to the Minister.

Yours very truly,

DAVIS WEBB LLP



NEIL G. DAVIS
/ma

cc Paul and Ian Smith, W.J. Smith Gardens Limited
cc Angela Sciberras, Sciberras Consulting Inc.



471 Timothy Street, Newmarket, ON L3Y 1P9
T:905-868-8230 • F:905-868-8501
angela@sciberrasconsulting.com

March 17, 2010

Regional Municipality of York
Planning Department
17250 Yonge Street
Newmarket ON L3Y 6Z1

Attention: Ms. Barb Jeffrey, Manager, Land Use Policy and Environment

Dear Barb:

**RE: W. J. Smith Gardens Limited
22655 Yonge Street
Town of East Gwillimbury
SCI File No. 0901**

On behalf of W. J. Smith Gardens Limited, Sciberras Consulting Inc., is pleased to provide you with the following information.

As you may recall W. J. Smith Gardens Limited are the registered owners of approximately 2,100 acres of agricultural land generally located west of 2nd Concession Road, south of Ravenshoe Road, north of Holborn Road and east of the Holland River. The subject lands are located in the Holland Marsh area. The Smith family has been farming in this location since 1946.

The W. J. Smith Gardens property is currently occupied by a single storey office building and several large storage buildings. The subject site is contained within the area known as the "Holland Marsh" and is designated as such within the Province's Greenbelt Plan. The MNR, through aerial mapping interpretation, has designated a considerable portion of the subject site as "provincially significant wetland" which will have a significant impact on the current and future farming operations of the Smith farm.

The Region, through you, hosted a meeting on August 11, 2009 which was attended by W. J. Smith Gardens, its solicitor, environmental consultant and planning consultant; and, representatives of OMAFRA, MNR, MAH, LSRCA, the Region and the Town of East Gwillimbury in order to discuss this issue.

At that time, it was agreed that an Environmental Impact Study, undertaken by Savanta Inc., would be finalized and submitted to those in attendance for review and further consideration.

At the Regional Committee meeting of December 2, 2009 to recommend adoption of the Region's new Official Plan Mr. Neil Davis, Davis Webb LLP, on behalf of W. J. Smith Gardens, made a deputation to request that the Official Plan, as it pertains to the Smith property, be deferred until such time as the EIS was finalized, reviewed and a resolution with respect to the policies affecting the site are resolved.



This request was not supported by Regional Committee; however, the Committee did direct Regional Planning Staff to continue to assist W. J. Smith in this regard.

We are pleased to advise that Savanta has now completed its environmental assessment of the subject site. Enclosed for your review and consideration please find a copy of the "Environmental Impact Study - W. J. Smith Gardens Limited", prepared by Savanta Inc., and dated February 2010.

By copy of this letter we are providing a copy of the EIS to all those in attendance at the August 11, 2009 meeting as well as other interested parties.

We will be following up with you to arrange a meeting for further discussion on this matter and to discuss next steps in reaching a resolution with respect to policies affecting the subject site.

I trust you will find the above information satisfactory; however, should you have any questions or require additional information, please do not hesitate to call.

Yours truly,

SCIBERRAS CONSULTING INC.

Angela Sciberras MCIP, RPP
Principal
Encls.

Cc : Hon. Linda Jeffrey, Minister of Natural Resources
Hon. Carol Mitchell, Minister of Agriculture, Food and Rural Affairs
Hon. Jim Bradley, Minister of Municipal Affairs and Housing
Ms. Julia Munro, MPP York-Simcoe
LSRCA Board of Directors
John Turvey & Ray Valaitis, OMAFRA
Theresa Fancy, MNR
Barb Konyi, MAH
Heather Hood, MAH
Gayle Wood, CAO, LSRCA
Mike Walters, LSRCA
Mayor James Young, Town of East Gwillimbury
Don Sinclair, Town of East Gwillimbury
Dan Stone, Town of East Gwillimbury
Paul & Ian Smith, W. J. Smith Gardens Limited
Neil Davis, Davis Webb LLP
Tom Hilditch, Savanta Inc.
Jamie Reaume, Executive Director, Holland Marsh Growers Assoc.



ENVIRONMENTAL IMPACT STUDY W.J. SMITH GARDENS LIMITED

Report Prepared For:

W.J. Smith Gardens Limited
22655 Yonge Street
Town of East Gwillimbury

PREPARED BY:
SAVANTA INC.

FEBRUARY 2010

File: 6792



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APPENDICES

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1 INTRODUCTION

1.1 Background

The lands that are the subject of this report (Subject Lands) occur within one of two Specialty Crop areas of Ontario, the Holland Marsh. The Holland Marsh farming area is comprised of about 125 farms located on approximately 7000 acres (2833 ha) of organic or muck soils and on another 2500 acres (1011 ha) of adjacent mineral soils. The Holland Marsh, often referred to as “Canada’s Salad Bowl”, plays a significant role in the supply of vegetables to the local Greater Toronto Area (GTA) market as well as to larger export markets. Growers estimate the Holland Marsh has a total economic impact of over \$1 billion annually, including farm-gate value, packaging, processing and transportation.

The Subject Lands, owned by W.J. Smith Gardens Limited (Smith Farms) include 2,100 acres (850 ha) of which about 900 acres (364 ha) are actively farmed and also house an associated administration building and several large storage buildings. The Smith Farms is now the largest, family owned, farming business within the Holland Marsh, providing carrots and onions to local, provincial, national and international markets. Three generations of the Smith family have farmed these lands since the early 1940s. Today, they play a leading role in the support and implementation of the “buy local” initiative established in part by the Holland Marsh Growers’ Association. This local initiative includes the development of a distinct brand (LFP brand, “Holland Marsh Gold”); the LFP program provides a certification program for local sustainable food.

The Town of East Gwillimbury’s current Official Plan designates the Subject Lands as “Agriculture Area” and “Environmental Protection Area”. The Agriculture Area designation permits existing and new agricultural uses while the Environmental Protection Area permits “*existing legally established uses, including agricultural uses*”. The current Region of York Official Plan designates the Subject Lands as “Holland Marsh Area” and “Rural Policy Area”. The Smith Farms plan to expand their farming operations to meet demands from the food distribution and grocery retailer industry and to maintain and enhance the long-term viability and health of their operations.

1.2 Nature of This Assignment

Smith Farms retained a team of specialists, including Savanta Inc. (Savanta), early in 2009. While the current zoning on their lands support ongoing and expanded agriculture, portions of their lands also include important natural features and functions associated with the Holland Marsh Wetland Provincially Significant Wetland and associated/overlapping designations (e.g., ESA, ANSI). The Smith Farms engaged this team to assess how best to expand farming in a manner that would avoid, minimize and/or mitigate potential effects on these natural features and functions.

The interest in expanding the Smith Farm operations comes in part from their recognition that the long-term sustainability of their farming operations will depend upon their ability to optimize the efficiencies of their operations, while servicing a competitive and consolidating food distribution and grocery retailer industry. That industry is dominated by relatively few and larger companies. That industry has created a demand for regular, dependable and high quality produce deliveries in large volumes. Smaller and scattered producers are unable to easily satisfy such demands; this larger supplier role is a niche market that the Smith Farms is well positioned to continue to service. A challenge associated with this market position is the need for consistency of supply. Should the Smith Farms be unable to consistently provide that local, close to market produce, the relatively open borders in Canada and the USA permit the food distributors to seek replacement growers from other provinces and states. The viability of local GTA producers such as Smith Farms and the ability to service this larger volume of close to market produce demand requires an ongoing eye to the maintenance of farm efficiencies and viability.

During detailed discussions with the Smith Farms it was noted that the size of their operation is not optimized to supply this evolving and growing demand for local produce at the scale. The lands that are in use are in constant production, without rest (i.e., fallow or crop rotation). An ability to increase lands under production would:

- Allow the operation to continue to be viable and sustainable as a family operation;
- Meet the increasing demands for local, high quality produce, thus supporting the “buy local” initiative;
- Provide additional supply that will serve to guarantee sustainable volumes of produce to large and consolidating food distributors and grocery retailers;
- Provide an opportunity for the resting and rotation of fields, thus improving the ongoing stewardship and longevity of the soils; and,
- Provide some additional buffer against crop failures (in whole or in part).

This project assesses how the Smith Farms expansion can be undertaken in a manner that will avoid, minimize and or mitigate potential effects on important natural functions and features. Potential environmental effects are discussed along with mitigation and/or restoration opportunities.

1.3 Study Area and Subject Lands

The Subject Lands that are investigated in this report, are those 2100 acres (850 ha) owned by the Smith Farms. These are generally described as those lands located north of Holborn Road, on the west side of 2nd Concession, south of Ravenshoe Road and east of the Holland River, in the Town of East Gwillimbury (Figure 1, **Appendix A**). The Smith Farm lands include almost 900 acres (360 ha) of active farmland and an associated administration building and several large storage buildings. The remaining lands (about 1200 acres or 486 ha) are in natural and/or naturalized condition, with portions of those lands having been the subject of earlier drainage and/or farming efforts.

These lands occur within the East Holland River drainage basin and in particular, within Catchment 13, an area dominated by row crops (34.7%), idle agricultural lands (22.8%) (including portions of the Subject Lands) and forest (12.7%). Drainage patterns are poorly defined and are evident as some continuous and discontinuous ditches and principally as diffuse surface drainage through surface organic deposits (Figure 6.2 in Lake Simcoe Region Conservation Authority 2000). The conservation authority has assessed these drainage basins in terms of water quality and environmental issues in the *East Holland River Subwatershed Plan*. The Subject Lands are underlain by muck soils; those soils have been the focus of marsh farming operations.

From a planning perspective, Sciberras Consulting Inc. have reviewed the various legislation and policies that affect these lands. Key findings of that review are summarized in the following section of this report (1.4).

1.4 The Planning Context

The Subject Lands are affected by several provincial and municipal policies, which have raised some issues with respect to the ability to farm these muck soils in accordance with their Specialty Crop designation. The Smith Farms planning consultant, Sciberras Consulting Inc. (2009) has provided the following summary of the planning context for this report.

The Provincial Policy Statement (2005) (PPS) sets out specific policies for the protection and enhancement of *prime agricultural areas* as identified in Policy 2.3. The PPS specifically states, “*Specialty crop areas shall be given the highest priority for protection, followed by Classes 1, 2 and 3 soils, in this order of priority.*” Policy 2.3.2 states that *Planning authorities shall designate specialty crop areas in accordance with evaluation procedures established by the Province, as amended from time to time.*”

The Subject Lands are designated “Protected Countryside” in the Provincial Greenbelt Plan (Figure 2, **Appendix A**); and, are specifically located within the “Holland Marsh” as shown on Schedule 3 of the Greenbelt. Lands located within the “Holland Marsh” are identified as a “specialty crop area” the boundary of which “*is based on provincial muck soil analysis and current agricultural production*”. A portion of the Subject Lands is also affected by an overlying designation of “Natural Heritage System” in the Greenbelt Plan”. The “Natural Heritage System” includes policies pertaining to environmental features, including but not exclusive of, significant habitat, wetlands, ANSI’s, significant woodlands and wildlife habitats. These overlaying policies between specialty crop areas and environmental features create a conflict in determining how the Province envisaged the Subject Lands being utilized; however, the Plan specifically states that the Natural Heritage System is not a designation in and of itself but “*rather, it functions as an overlay on top of the prime agricultural and/or rural area designations contained within municipal official plans.*”

The “Natural Heritage System” in the Greenbelt Plan allows for the “*full range of existing and new agricultural, agricultural-related and secondary uses and normal farm practices*” subject to the compliance of policies within the Plan.

With respect to Regional and local Municipal policies the Subject Lands are designated as follows:

The current Region of York Official Plan (which is now being updated but is yet to receive Council approval) designates the Subject Lands as “Holland Marsh Area” and “Rural Policy Area”. The portion of Lands designated as “Holland Marsh Area” does not accurately reflect the boundary recently established by the Province in the Greenbelt Plan. It should be noted that the Region’s new draft Official Plan proposes to amend its Land Use Schedule to reflect the boundaries of the Greenbelt Plan thereby including the majority of the Subject Lands within the “Holland Marsh”. Notwithstanding, the “Rural Policy Area” designation also permits and protects for agricultural and related uses. In addition to the designations noted above Schedule 2 – Significant Natural Features, of the Region’s Official Plan identify the Subject Lands as containing an “Environmental Policy Area” and a small portion as “Wetlands”.

The Town of East Gwillimbury’s current Official Plan designates the Subject Lands as “Agriculture Area” and “Environmental Protection Area”. The Agriculture Area designation permits existing and new agricultural uses while the Environmental Protection Area permits *“existing legally established uses, including agricultural uses”*. The portion of land designated “Environmental Protection Area” also has an overlaying designation of “Core Areas” as shown on Schedule B – Natural Heritage System”. The Town’s Official Plan does not currently reflect the Holland Marsh designation of the Greenbelt Plan and proposed designation of the Region of York.

The Town of East Gwillimbury is currently undertaking its Official Plan review. It is expected that, among other things, modifications will be made to the Official Plan to bring it into conformity with provincial and regional policies.

There is clear direction from various provincial Ministries that agricultural lands, specifically “specialty crop areas”, are of importance and their preservation and ability to meet long-term needs is critical. MMAH has stated that *“The greenbelt permanently protects about 100,000 acres of Niagara Peninsula tender fruit and grape specialty crop areas and the entire Holland Marsh specialty crop area of over 15,000 acres, located in York Region and Simcoe County.”* The Ministry of Agriculture Food and Rural Affairs recently completed Canada Land Inventory Soil Capability Mapping (2009), which clearly illustrates the Subject Lands as being within “Organic” soils area and is consistent with the “Holland Marsh” specialty crop area boundaries established in the Greenbelt Plan (Figure 11, **Appendix A**).

The Town of East Gwillimbury’s Zoning By-law 97-50, as amended zones the majority of the Subject Lands as “Open Space (O1)” with an easterly portion of the site zoned “Rural (RU)”, as set out in Map 8, Schedule “A” to By-Law No. 97-50, as amended.

In comparing the Zoning By-law mapping to the Official Plan mapping it should be noted that the “O1” zone generally corresponds with the “EPA” designation while the “RU” zone corresponds with the “Agriculture Area” designation.

Both zones permit agricultural uses; and, there are no specific development standards for agricultural uses within the O1 zone category. From a zoning perspective the entire Smith Farms property would allow active farming.

Based on review and analysis of various provincial policies; and, discussions held with representatives of several Ministries, it is clear that the environmental policies were not intended to prevent agricultural activity or expansion but that any significant features were to be taken into consideration with any new development or site alteration related to agricultural activities. This is complicated by the Lake Simcoe Region Conservation Authority, which regulates changes in land use within the Subject Lands. (Ontario Regulation 179/06).

The issue at hand is two-fold. There are conflicting policies between provincial legislation and regional and municipal policies as a result of timing of the updates of respective official plans; and, the difference in interpretation of provincial policies between ministries based on mapping which makes it unclear as to which use takes priority. This has resulted in the Smith Farms being unable to continue its normal agricultural practices and to optimize operations through expansions into other portions of their substantial holdings.

2 APPROACH

The following field investigations were completed in and around the Subject Lands in 2009. These visits were undertaken to develop a comprehensive, multi-seasonal understanding of the species and communities occurring on the Subject Lands as input to understanding the potential effects associated with any proposed farm expansion. Detailed investigations were completed as noted in Table 1.

Table 1. Field Survey Dates

Field Survey Programs	Dates (2009)	Investigators
Winter / Spring Wildlife	Feb. 21, Apr. 8	Phelps, McRae
Winter Birds	Feb. 21	McRae
Spring birds/migrants	Apr. 8, 9, 27 & 28 May 21 & 22	McRae
Waterfowl (stopover, foraging, breeding, migration)	Apr. 8, 9, & 28	McRae
Amphibian Breeding	Apr. 27 May 21 June 10	Phelps, McRae
Nocturnal birds (owls/rails)	Feb. 21 Apr. 27 May 21 June 10 & 24	McRae
Breeding birds	May 21 & 22 June 10, 11, 24 & 25	McRae
Insects	June 2 & 3 July 20 & 21 Aug. 17, 18 & 19	Kerling (Entomogen Inc.)
Reptiles (snakes, turtles)	Apr. 27 June 11 & 25	Phelps
ELC & Botany	June 5 & 17 July 14 Aug. 19 Sept. 15	Zoladeski

In addition to detailed field investigations of the Subject Lands, other nearby accessible, public lands were investigated on some of those dates. That more broad assessment was helpful in more fully understanding the use of nearby areas by some wildlife dependent upon a range of habitats and areas. Some additional methodology commentary is offered in the following text.

2.1 *Migratory and General Bird Surveys*

Bird surveys were conducted during the winter and spring migration periods. This work focused primarily on documenting the presence of hawks, owls, waterfowl and early-season breeding birds. Additional field work was also carried out along the west bank of the Holland River and the lower shore of Cook's Bay to determine the relative abundance of birds compared to the Subject Lands and the importance and interaction between these adjacent areas. Dawn and dusk surveys were completed to assess bird use (roost, foraging) outside of breeding season in spring and fall season onsite, at the Ducks Unlimited Constructed Wetland and Holland River/Cooks Bay wetlands. All non-breeding bird uses were recorded with focus on waterfowl and herons.

2.2 *Breeding Bird Surveys*

Breeding bird surveys (area searches, point counts) were conducted according to Ontario Breeding Bird Atlas (OBBA 2001-2005). Species names follow the AOU Check-list of North American Birds, 7th edition (1998). For each species, the Natural Heritage Information Centre (NHIC) database and SARO list were searched to determine federal and provincial status.

2.3 *Winter and Early Spring Wildlife*

Winter and early spring wildlife field surveys were completed on February 21 and April 8, 2009 (late season snow). The purpose of the investigation was to establish relative importance of winter wildlife habitat within the study area by recording wildlife tracks, trails, signs, species observations, and other significant habitat details.

Wildlife surveys were conducted at selected transects throughout the study area. Transect locations were determined through inspection of orthophotography, vegetation communities, and ground observation and were distributed across the study area to ensure that the ecological variability was adequately sampled. Transects were concentrated along existing access routes, trails, forest edges, hedgerows, and streams. Various vegetation communities were surveyed as long as habitat was safely accessible by snowshoe.

Winter fieldwork was conducted at least 12-24 hours after snowfall. Wildlife tracks were recorded within 2 m to 3 m on either side of each transect, and all other evidence or 'signs' of wildlife (scat, browse, nests, hibernacula, etc.) were recorded. '*Trails*' are defined as *numerous tracks that are difficult to discern from one another*, which create a trail system. In many cases, trails are used by many different wildlife species. The Significant Wildlife Habitat Technical Guide (OMNR 2000) as well as the RISC (Resources Inventory Standards Committee) species inventory methods manual were used as guidance documents for the survey. The provincial and global statuses of species identified on the Subject Lands were referenced on the Natural Heritage Information Centre (NHIC) database.

2.4 Breeding Amphibians

Breeding amphibian field surveys were completed on April 7, May 21, and June 10, 2009. Locations were determined through inspection of orthophotography, vegetation communities, and ground observation. Surveys were conducted at night, and in accordance to Bird Studies Canada Marsh Monitoring Program (Weeber et al., 2000).

The purpose of the investigation was to establish relative importance of various habitats for amphibian breeding by recording breeding calls, incidental visual species observations, and other habitat details observed. The provincial and global statuses of species were referenced in the Natural Heritage Information Centre (NHIC, 2009) database and on the SARO list.

2.5 Insects

Lepidoptera (Butterfly) and Odonata (Dragonfly) surveys were conducted in representative communities between early June and August. Surveys were completed on warm, sunny and near windless days; specimens were collected by hand or using sweep nets. More detailed methods and sample results are included in **Appendix C** of this report.

2.6 Reptiles

Suitable turtle and snake sunning and basking locations were checked and surrounding areas were surveyed. Incidental wildlife occurrences were also recorded. Snake surveys began during spring emergence, and turtle surveys in the early summer with concentrated efforts during the nesting season.

2.7 Vegetation Communities and Vascular Plants

Vegetation community boundaries were mapped (Figure 3, **Appendix A**) using the Ecological Land Classification (ELC) system developed by Lee et al. (1998). Vegetation types were modified from those in the first approximation of the ELC manual to account for variations in species dominance to better reflect the variability of the site. A complete Ecological Land Classification was completed, with data collection cards compiled for soils, stand characteristics, and management/disturbance.

A botanical inventory was conducted over the course of the spring and summer of 2009. Full species lists of plants encountered are included in Appendix B. The provincial status of plant species is based on Newmaster et al. (1998), with updates from the databases of the Natural Heritage Information Centre (NHIC, 2007). Latin and colloquial names of plant species follow Newmaster et al. (1998).

Vegetation community and plant species were evaluated using standard methods to determine their significance. The provincial significance of vegetation communities was based on the draft rankings assigned by the Natural Heritage Information Centre (Bakowsky, 1996). Local significance of plants was determined from Goodban (2003). Identification of potentially sensitive plant species is based on assignment of a coefficient of conservatism (CC) to each native species in southern Ontario (Oldham et al., 1995). The value of CC, ranging from 0 (low)

to 10 (high), is based on a species' tolerance of disturbance and fidelity to a specific natural habitat. Species with a CC value of 9 or 10 generally exhibit a high degree of fidelity to a narrow range of habitat parameters.

Potential sensitivity of natural heritage features, ecosystem attributes, and communities was evaluated through an assessment of vegetation communities (age, habitat quality, degree of disturbance, weediness) and sensitive species (plants with a high CC value, area-sensitive bird species).

3 FINDINGS – CHARACTERIZATION OF THE SUBJECT LANDS

Existing ecological features and planning interests attached to the Subject Lands include:

- Holland Marsh Wetland Provincially Significant Wetland (MNR);
- Holland Marsh Lowlands Area Earth Science Site (MNR);
- Holland River Marsh Area of Natural and Scientific Interest (MNR);
- Interior Woodland (LSRCA);
- “Holland Marsh” Greenbelt (Province of Ontario);
- Protected Countryside Greenbelt (Province of Ontario);
- Organic Soils; Canada Land Inventory Agricultural Capability (OMAFRA);
- Agricultural Policy Area and Rural Policy Area designations (Region of York Official Plan);
- Environmental Policy Area and Wetlands (Region of York Official Plan);
- Agriculture Area & Environmental Protection Area designations (Town of East Gwillimbury Official Plan);
- Rural (RU1) and Open Space (O1) zoning (Town of East Gwillimbury Zoning By-law)

This impact study considers those that relate more to the natural heritage components of the landscape. The Subject Lands were the target of quite detailed field investigations, limited only by the difficulties and danger associated with accessing portions of deeper marsh community. Generally speaking, limited historical technical data were available for these lands. This appears to be the first extensive study of the ecology of the Subject Lands.

3.1 ***Vegetation Communities***

The Subject Lands are clearly differentiated into actively farmed crop fields north of the main dyke, and various natural wetland ecosystems south of the dyke, mostly falling into three groups of deciduous swamp, thicket swamp and marsh (Figure 3, **Appendix A**). In the northeast portion of the Subject Lands (surrounded by actively farmed fields) there is a small remnant area of meadow marsh, thicket and treed swamp; this patch has been subjected to more recent tree clearing to return the patch to agriculture.

Eleven vegetation communities are present on the Subject Lands including deciduous swamp, thicket swamp, meadow marsh and shallow marsh communities (Table 2). None of the vegetation communities are listed as rare in the NHIC database.

Table 2: ELC Vegetation Types

ELC TYPE	DESCRIPTION
DECIDUOUS SWAMP (SWD)	
SWD2-3* Green Ash-Silver Maple-Poplar Mineral Deciduous Swamp	Occurs in the southeast corner of the Subject Lands, this compact unit contains a rich and diverse community of green ash, silver maple, trembling aspen, black ash and white elm, with the oldest aspens dying out. Tree composition is variable across this type and is labelled as SWD2-3 for convenience. Water pooling is extensive in the spring, with some pools persisting well into early summer. The woody understorey consists of tree saplings and true shrubs, such as wild black currant, common buckthorn, riverbank grape, inserted Virginia-creeper and dwarf raspberry. Herb cover is rich and varies in dominance and diversity over the growing season, with such species as fowl meadow grass, graceful sedge, bladder sedge, radiate sedge, reed-canary grass, sensitive fern, woolly blue violet, false nettle, and calico and Ontario aster, the latter particularly common here.
SWD6-3 Swamp Maple Organic Deciduous Swamp	A young stand of swamp maple, probably logged, as many trees appear to be resprouts from stumps. In the relatively well-developed shrub layer grow wild red raspberry, riverbank grape and inserted Virginia-creeper. Spotted touch-me-not, sensitive fern, reed-canary grass and marsh fern are the main ground cover herbs.
SWD7-3* Willow Organic Deciduous Swamp	Occurs infrequently amidst willow thickets, this open-canopy community consists of reddish willow trees, with rich shrub and herb understoreys. This wet unit has standing water up to 50 cm deep in the spring. The shrub layer is composed of slender willow, Missouri willow and red osier dogwood. The numerous herbs include narrow-leaved cattail, spotted touch-me-not, water horsetail, hemlock water-parsnip, reed-canary grass and water smartweed.
SWAMP THICKET (SWT)	
SWT3-1 Alder Organic Thicket Swamp	This is a rich, tall shrub thicket along the banks of Holland River. The cover of speckled alder, 4-5 m high, is mixed with just slightly shorter swamp birch and other shrubs—red osier dogwood, narrow leaved meadowsweet, slender willow, Bebb's willow and marsh rose. The herb layer is two- or more-tiered and includes broad-leaved cattail, blue-joint

ELC TYPE	DESCRIPTION
	grass, fowl meadow grass and spotted Joe-pye-weed (tall herbs), and marsh fern, sensitive fern and various sedges (medium and short herbs). Water is frequently at surface, forming shallow pools, and the topography is hummocky.
SWT3-2 Willow Organic Thicket Swamp	This widespread community is composed of fairly open and coalescing patches of slender willow. The rich herbaceous cover amongst the willow clusters includes narrow-leaved cattail, reed-canary grass, lake-bank sedge and spotted touch-me-not.
SWT3-15* Willow-Dogwood Organic Thicket Swamp	This thicket type is characterized by the dominant tall shrub cover of slender willow, red osier dogwood, silky dogwood and scattered presence of swamp birch. The rich herb layer in the intervening spaces between the shrub clumps is composed of tall white aster, marsh fern, spotted touch-me-not, Canada thistle, Canada goldenrod, tall goldenrod and spotted Joe-pye-weed.
SWT3-16* Alder-Dogwood-Willow Organic Thicket Swamp	This is a dense thicket of 3-5 m tall speckled alder, willows and red osier dogwood. The structure is complex, with many overlapping layers. Micro-topography is hummocky, with pools filled with mud or stagnant water, connected by an intricate network of channels. The numerous herbs are represented by broad-leaved cattail, lake-bank sedge, sensitive fern, blue-joint grass, spotted touch-me not, hemlock water-parsnip, marsh fern, cypress-like sedge and spotted Joe-pye-weed.
MEADOW MARSH (MAM)	
MAM3-9 Forb Organic Meadow Marsh	Likely a regeneration community following clearcut, this is a very diverse and species-rich meadow marsh type, but somewhat dry due to nearby ditches. Many species form intermixing patches, creating a heterogeneous carpet of several tall and medium herbs, for example tall white aster, spotted touch-me-not, Canada thistle, Canada goldenrod, tall goldenrod, glaucous cattail, narrow-leaved cattail, sensitive fern, marsh fern and marsh vetchling.
SHALLOW MARSH (MAS)	
MAS3-1 Cattail Organic Shallow Marsh	Glaucous cattail and narrow-leaved cattail form the main canopy, 2.0 to 2.2 m tall. The other herbs occasionally grow in shorter layers, for example spotted Joe-pye-weed, swamp milkweed, narrow-leaved willow-herb, cypress-like sedge,

ELC TYPE	DESCRIPTION
	blue-joint grass, sensitive fern, marsh fern and spotted touch-me-not. The soil is saturated, with water at, or just above, the surface. In a few places, there are inclusions of other graminoid types, for example dominated by aquatic sedge and bluejoint grass.
MAS3-13* Cattail-Sedge-Reed Canary Grass Organic Meadow Marsh	This is the major open marsh community type south of the dyke. The graminoid cover is homogeneous, although complex. Cattail is the dominant species forming the tall herb layer, with a medium layer composed of various combinations of grasses and forbs, such as reed-canary grass, lake-bank sedge, spotted touch-me-not, purple-stemmed aster and tufted loosestrife. Several inclusions are possible amongst the predominant cattail matrix. Thus, there are small areas dominated by lake-bank sedge, and areas composed exclusively of cattail to the exclusion of other species.
MAS3-14* Cattail-Meadowsweet Organic Shallow Marsh	This is a version of cattail marsh occurring along the better drained, 10-15 m wide, zone along Holland River. This band of land also benefits from seasonal river floods, which enrich community soils. Broad-leaved cattail dominates the tall (2 m) herb layer, along with blue-joint grass. Just below is a layer of scattered shrubs, mostly narrow-leaved meadowsweet, slender willow and marsh cinquefoil. Medium (1.5 m) herbs include spotted Joe-pye-weed, perfoliate thoroughwort, lake-bank sedge, aquatic sedge, spotted touch-me-not and, close to the ground, marsh fern.

*type not listed in Southern Ontario ELC

The MNR Holland Marsh PSW map shows "fens" along the river as several connected polygons and one separate one. All of these fen areas were examined in detail. While they did include some "fen" plant species, no typical fen vegetation types were found at those locations. It is possible that fen conditions were misidentified in original studies some time ago or that they were characterized as fen based upon the presence of a few indicator species. The ELC classification system has developed since the earliest vegetation work completed by the province in these areas; more current interpretations of these features with the ELC system do not characterize them as fen.

Those MNR identified connected fen polygons were determined in the field to be appropriately characterized as tall thicket swamp (SWT3-1 Alder Organic Thicket Swamp). The few fen species present included dwarf birch, meadowsweet, rush aster (*Aster borealis*) and perhaps marsh rose. No herb fen indicator plants were present. The Alder Organic Thicket Swamp, is complex structurally and floristically rich, and grades away from the river to less diverse and rich

into SWT3-16 (Alder-Dogwood-Willow Thicket Swamp) with dwarf birch and meadowsweet being absent. The latter community occurs on stagnant water with no apparent flow patterns.

In summary, the Subject Lands do not contain rare vegetation communities such as fen communities, which are typically sedge or shrub dominated with a peaty (*Sphagnum*) groundcover.

3.2 Vascular Plants

One-hundred-and-ninety species of vascular plants were recorded from the Subject Lands during the inventories. Of that number, 144 (or 76%) species are native, and 44 (or 24%) species are exotic. The high proportion of the native species reflects the dominance of natural habitats (marshes and swamps) and limited extent of semi-natural habitats, such as edges of fields and roadsides.

The majority of the native species, 135 (or 96%) are ranked S5 (Secure – common, widespread and abundant in Ontario), with six species (or 4%) ranked S4 (Apparently Secure – uncommon, but not rare in Ontario).

Those six S4 species observed were:

- Ontario Aster (*Aster ontarionis* var. *ontarionis*);
- Canada tick-trefoil (*Desmodium canadense*);
- Great Water Dock (*Rumex orbiculatus*);
- Larger Straw Sedge (*Carex normalis*);
- Wood Reed Grass (*Cinna arundinacea*); and
- Floating Manna Grass (*Glyceria septentrionalis*).

Twenty-seven species are considered rare or uncommon locally, i.e. in York Region, according to Varga (2000):

- Royal fern (*Osmunda regalis* var. *spectabilis*) – Uncommon (U);
- Rush aster (*Aster borealis*) – Rare (R3);
- Ontario aster (*Aster ontarionis* var. *ontarionis*) – Rare (R6);
- Biennial lettuce (*Lactuca biennis*) – Rare (R10);
- Swamp birch (*Betula pumila*) – Rare (R5);
- Pennsylvania bitter-cress (*Cardamine pennsylvanica*) – Uncommon (U);
- Hispid yellow-cress (*Rorippa palustris* ssp. *hispida*) – Uncommon (U);
- Marsh bellflower (*Campanula aparinoides*) – Uncommon (U);
- Long-leaved chickweed (*Stellaria longifolia*) – Rare (R7);
- Hedge bindweed (*Calystegia sepium* ssp. *americanum*) – Uncommon (U);
- Gronovius dodder (*Cuscuta gronovii*) – Uncommon (U);
- Silky dogwood (*Cornus amomum* ssp. *obliqua*) – Rare (R7);
- Canadian tick-trefoil (*Desmodium canadense*) – Rare (R10);
- Marsh vetchling (*Lathyrus palustris*) – Rare (R3);
- Fraser's St. John's-wort (*Triadenum fraseri*) – Uncommon (U);
- Greater bladderwort (*Utricularia vulgaris*) – Uncommon (U);
- Narrow-leaved willow-herb (*Epilobium leptophyllum*) – Uncommon (U);

- Marsh cinquefoil (*Potentilla palustris*) – Uncommon (U);
- Marsh rose (*Rosa palustris*) – Rare (R6);
- Cleavers (*Galium aparine*) – Uncommon (U);
- Hoary willow (*Salix candida*) – Rare (R6);
- Turtlehead (*Chelone glabra*) – Uncommon (U);
- Aquatic sedge (*Carex aquatilis*) – Rare (R6);
- Slender sedge (*Carex lasiocarpa*) – Rare (R13);
- Canada waterweed (*Elodea canadensis*) – Uncommon (U);
- Wood reed grass (*Cinna arundinacea*) – Rare (R9); and,
- Floating manna grass (*Glyceria septentrionalis*) – Rare (R10).

With the exception of Canadian tick-trefoil (one roadside location near Holland River) and Canada waterweed (abundant in ditches), all of the above species occur in open marshes, thicket swamps or treed swamps south of the main dyke.

In summary, no plant species defined as Provincially Endangered, Threatened or Special Concern were identified on the Subject Lands. Twenty-nine plant species observed are accorded a locally rare or uncommon designation. A complete list of vascular plant species observed during the surveys is included in **Appendix B**.

3.3 Winter Wildlife/Incidental

During the snow-tracking survey and incidental surveys, a total of 13 species of mammal were identified on the Subject Lands and on immediately adjacent lands (**Appendix A**, Figures 4 & 5). These included Coyote (*Canis latrans*), White-tailed Deer (*Odocoileus virginianus*), Weasel species (*Mustela sp.*), American Mink (*Mustela vison*), Muskrat (*Ondatra zibethicus*), Beaver (*Castor canadensis*), Northern Raccoon (*Procyon lotor*), Red Fox (*Vulpes vulpes*), North American River Otter (*Lontra canadensis*), Eastern Grey Squirrel (*Sciurus carolinensis*), Vole species, Mouse Species (*Peromyscus sp.*) and Porcupine (*Erethizon dorsatum*). According to the Natural Heritage Information Centre (NHIC 2009), all species are considered provincially and globally common (S5/G5).

As expected the larger natural areas south of the dyke had higher levels of wildlife activity. In the drainage ditch immediately south of the dyke there were a high number of mink, muskrat and beaver tunnels/holes, a high number of Deer tracks all along the drainage ditch, high number of small mammal holes/tunnels, moderate number of mink tracks and low number of coyote and weasel tracks. Incidental surveys observed muskrat and American beaver in the drainage ditch. A treed swamp community at the southeastern most portion of the Subject Lands (west of 2nd Concession and north of Holborn Road) had Low to moderate number of Coyote, Raccoon, Grey Squirrel, American Beaver, Fox, Mink, Vole, unknown small mammal, and a moderate number of Porcupines observed.

A complete list of wildlife species observed during these surveys is included in **Appendix B**.

In summary, all winter wildlife observed are considered to be common and widespread and would be expected to occur in these natural areas.

3.4 *Birds*

Field observations completed over multiple seasons and at different times of day, revealed an importance attached to the Subject Lands (Figure 6, **Appendix A**), for a variety of wildlife functions, including:

- Waterbird and waterfowl stopover;
- Waterfowl breeding; and
- Raptor breeding, hunting, perching.

In the spring, the agricultural fields are one of the first areas to thaw and provide open water. These early flooded fields are relied upon by “puddle” ducks, terns, gulls and migrant and breeding shorebirds. These open water areas for bird concentrations likely vary from year to year, depending upon when and where the nutrient rich puddles form.

Species observed in the spring of 2009, in the agricultural fields included Mallard, American Black Duck, Northern Pintail, American Wigeon, Green-winged Teal, Blue-winged Teal, Canada Goose, Caspian Tern, Ring-billed Gull, Herring Gull, Greater and Lesser Yellowlegs, Least Sandpiper, Pectoral Sandpiper, Spotted Sandpiper and Kildeer. The ditches along the agricultural fields are frequently used by Great Blue Heron as hunting grounds, where they capture large carp. Osprey also hunt in these ditches, and were observed on numerous occasions trying to nest on a mobile irrigation unit.

The large area of natural wetland at the south end of the Subject Lands support several species of interest, including wading birds, marsh birds, tern, gnatcatcher and waterfowl. There is a large population of territorial American Bittern, with at least 5 males on the Subject Lands and several more on adjacent lands. Two territorial Sedge Wrens, one seen building a nest in the main wetland and the other along the canal that makes up the southern boundary were a noteworthy species. Waterfowl, both in migration and during the breeding season, also heavily use the wetland. Because of the safety and accessibility issues in the marsh, duck nest searches were not practical. It is suspected, given the relatively dry nature of this marsh, that it would be a significant area for duck nests - more so than a typical cattail marsh. Waterfowl were seen frequently flying in and out of the Subject Lands from adjacent areas suggesting an important relationship between the Subject Lands and adjacent lands. The wetland channels along the Holland River, on the western margins of the Subject Lands, are being used by Black Tern (SC) and Forster's Tern, part of a small outlying population that nests just outside the Subject Lands on Cook's Bay. The forest swamp along the southern boundary of the Subject Lands was habitat to two male Blue-gray Gnatcatchers, at the northern limit of their range.

There were no notable bird observations in the small wetland area in the northeast corner of the Subject Lands, where vegetation clearing has occurred in favour of farming.

Fieldwork completed in 2009 revealed that the Subject Lands and adjacent lands (marshes of Holland River and Cooks Bay) are an important area for birds of prey. Osprey and one pair of Bald Eagle are nesting off-site. These species over-fly the Subject Lands and are expected to feed on the fisheries associated with the Holland River and Cooks Bay in particular. The eagle

nests more than 1 km from the Smith Farm Lands and is not expected to depend upon the Subject Lands for important aspects of their life cycle. Northern Harrier is a common migrant and multiple pairs have territories on the Subject Lands as well as in adjacent wetlands. A Peregrine Falcon (Threatened) was observed hunting birds over the marsh - likely a spring migrant passing through. Three Short-eared Owls (SC) were observed over the main marsh in early April; nesting was not confirmed but is possible, given the presence of suitable habitat. At least one Snowy Owl wintered in the agricultural fields at the north end of the subject lands. Nocturnal work has located one pair of Great Horned Owls in the woods along the southern boundary, as well as a number of Eastern Screech Owls.

Two bird species listed as Endangered or Threatened under Ontario's Endangered Species Act were observed either on the Subject Lands or on adjacent lands. They are:

- Bald Eagle [Ontario Southern Population (south of French and Mattawa River)-Endangered] – Nesting more than 1 km from the Smith Farm lands and not dependent upon the Subject Lands; and
- Peregrine Falcon (S3B, Ontario Threatened) – Spring Migrant, Thicket and Swamp wetland in the large wetland complex at the south end of the Smith Farm Lands and not dependent upon the Subject Lands.

Two bird species observed are listed as Special Concern under Ontario's Endangered Species Act:

- Black Tern (S3B, Ontario Special Concern Species) – Nests along edge of Holland River, on the western margins of the Subject Lands; and
- Short-eared Owl (S2N, S4B, Ontario Special Concern) - Thicket and Swamp wetland in the large wetland area at the south end of the Subject Lands.

Twelve migratory birds (breeding and non-breeding) with S2, S3 or S4 rankings were observed on the Subject Lands or on adjacent lands. There were eight species of apparently secure (uncommon but not rare) migratory breeders (S4B), two vulnerable (restricted range) migratory breeders (S3B), one imperiled (rare and restricted) migratory breeder (S2B) and one imperiled (rare and restricted) non-breeding migrant (S2N).

Four of these species occur along the edges of the Holland River:

- Sedge Wren (S4B) – along edge of Holland River and thicket and swamp wetland in the wetlands at the south end of the Subject Lands
- Marsh Wren (S4B) – along edge of Holland River on the western margins of the Subject Lands;
- Black Tern (S3B) - along edge of Holland River on the western margins of the Subject Lands;
- Forster's Tern (S2B) - along edge of Holland River on the western margins of the Subject Lands; and,

Three occur in the more forested swamp portions of the southern wetland:

- Yellow-billed Cuckoo (S4B) – Forested swamp at southeastern corner of Subject Lands;

- Yellow-throated Vireo (S4B) - Forested swamp at southeastern corner of Subject Lands;
- Blue-gray Gnatcatcher (S4B) - Forested swamp at southeastern corner of Subject Lands;

The remaining 5 species occur within the more open thicket and swamp southern portions of the Subject Lands:

- American Bittern (S4B) - Thicket and swamp wetland in the wetlands at the south end of the Subject Lands;
- Northern Harrier (S4B) - Thicket and swamp wetland in the wetlands at the south end of the Subject Lands;
- Sora (S4B) - Thicket and swamp wetland in the wetlands at the south end of the Subject Lands;
- Peregrine Falcon (S3B); Spring migrant; Thicket and swamp wetland in the large wetland complex at the south end of the Subject Lands;
- Short-eared Owl (S2N, S4B) - Thicket and swamp wetland in the wetlands at the south end of the Subject Lands.

The Subject Lands provide habitat for 5 other bird species that might be considered to be rare or uncommon at a local scale:

- Virginia Rail - Thicket and swamp wetland in the wetlands at the south end of the Subject Lands.
- Osprey - Agricultural fields on the Subject Lands;
- Snowy Owl - Agricultural fields on the Subject Lands, winter;
- Eastern Screech Owl - Forested swamp at southeastern corner of Subject Lands; and,
- Great Horned Owl - Forested swamp at southeastern corner of Subject Lands.

In summary, 4 species listed under Ontario's Endangered Species Act (2007), were observed on the Subject Lands. One endangered and one threatened bird species were observed, and; two species of Special Concern were observed. Neither of the Endangered or Threatened species is dependent upon the Subject Lands. Of the two Special Concern species, the Black Tern is reliant upon the wetlands close to and along the Holland River edges, and the Short-eared owl occurs in habitat south of the main dyke. Other species considered to be provincially or regionally rare or uncommon, occur outside of the currently farmed lands on the Subject Lands.

3.5 Breeding Amphibians

Six species are present on the Subject Lands and on adjacent lands; Spring Peeper (*Pseudacris crucifer*), Gray Treefrog (*Hyla versicolor*), Wood Frog (*Rana sylvatica*), Northern Leopard Frog (*Rana pipiens*), Green Frog (*Rana clamitans*) and American Toad (*Bufo americanus*). According to the Natural Heritage Information Centre (NHIC 2009), all species are considered provincially secure and globally very common (S5/G5).

The marsh provides breeding habitat for Spring Peeper and Grey Tree Frog; full choruses of these species were heard throughout the marsh. The wetland complex provides good habitat

for Wood Frog breeding, based on the relatively moderate number of calls recorded. Green Frogs were widely distributed and were observed calling in lower numbers. Northern Leopard Frogs and American Toads were less abundant throughout the study area. However, a chorus of American Toads was heard just south of the Subject Lands. Only a few toads were heard calling within the small, forested wetland fragment in the northeastern portion of the Subject Lands. Leopard Frogs, American Toads and Spring Peepers were also observed northeast and adjacent to the Subject Lands.

Overall, the majority of amphibians were concentrated south of the dyke, in the large wetland on the Subject Lands. Increased activity was associated with the northeast corner of the large marsh on the Subject Lands and south of the Subject Lands along Holborn Road. While the central portion of the southern wetland was less accessible (safety issues) it is also expected to contain relatively large populations of amphibians.

In summary, six amphibian species were observed breeding in the natural features on the Subject Lands. The vegetation communities in which the species were observed breeding, and are proposed for farm expansion are also present west and east of the proposed expansion within the Subject Lands and likely continue offsite east and south of these lands.

See **Appendix A**, Figure 7 for Amphibian Breeding Results map for Subject Lands and adjacent areas.

3.6 Reptiles

Painted turtles (*Chrysemys picta*) were observed (Figure 8, **Appendix A**) along the dyke north of the wetland, south along Holborn Road, at the northern boundary of the lands, and west along the river. These turtles were widely dispersed and were present in low numbers. They are considered to be secure (common, widespread and abundant) in Ontario. No other reptile species were observed on the Subject Lands.

A population of snakes (approximately 12) were encountered in one visit along Holborn Road, well south of the Subject Lands. The snakes were moving through thick dead vegetation and therefore species verification was difficult. Based on the brief observation of the snakes and a review of the habitat, the species encountered was likely Eastern Gartersnakes (*Thamnophis sirtalis sirtalis*). Eastern Ribbon Snake (*Thamnophis sauritus*), a Special Concern species in Ontario, is similar in colouration and size and occupies similar habitat.

In summary, Painted turtles were observed on the Subject Lands and a population of snakes, likely garter snakes – a widespread and common species were observed south of the Subject Lands.

3.7 Insects

Fourty-three Lepidoptera and Odonates were observed on the Subject Lands (Figure 9, **Appendix A**). Of these, 6 are S4 species (“locally uncommon but secure”), one is an S2/S3 specie (Unicorn Clubtail), and one is a Special Concern specie (Monarch butterfly). The

Monarch was observed using/moving across the main dyke separating the farmland from the southern wetland.

The Unicorn clubtail is a species found in ponds and slow-moving streams with muck bottoms and with little emergent vegetation. In this case, it was observed flying over open water without duckweed, and over the adjacent cattail marsh. It tends to land on clear ground, preferring exposed soil. This fits with the observation of this specie, on the mown dyke with its patches of bare ground. The water was relatively clear and there is suitable vegetation available for oviposition and plenty of insects available to prey on. The identification of the collected specimen was verified by the provincial specialist in this area of study, Mr. Colin Jones (NHIC Project Zoologist, MNR).

Those species deemed to be locally rare or uncommon are listed in the attached Entomogen report (Appendix C).

In summary, there is one Special Concern species, six S4 species, one S2/S3 species and one locally rare insect species on the Subject Lands. Habitat for all but one of these species is known to occur in the natural area of the Subject Lands outside of the proposed expansion area. For the remaining species, Baltimore checkerspot (S4), suitable homogeneous meadow marsh habitat is limited on the western portion of the Subject Lands, but may occur south of the Subject Lands.

4 DISCUSSION REGARDING AGRICULTURAL OPERATIONS AND PROPOSED EXPANSION

The Holland Marsh farmlands were established on the organic muck soils that underlie the majority of the Smith Farms lands, around the early 1900s. This broad specialty crop area was established by rerouting the Holland River around the outside of the marsh and by draining wetlands internal to those main canals with a series of dykes and ditches. Beginning with feasibility testing in the early 1900s, an extensive network of canals and drains was initiated in 1925 and completed by 1930. The system of some 28 km of dykes and canals was heavily damaged from Hurricane Hazel. That 1954 storm led to the repair and the rebuilding of the damaged dyke and canal system later that year and into 1955. In the case of the Smith Farms, the storm pushed some actively farmed fields into an idle state as dykes and ditches were restored.

A series of historic aerial photos are presented in **Appendix D** to this report. These photos depict the gradual expansion of farming operations on the Subject Lands during the past 50 years. The photos also reveal some earlier cut lines representative of ditches cut in the marsh to further the earlier expansion of arable muck soils. Those cut lines are the most apparent historic ditches, while other smaller and/or shallower ditch features are detectable on the ground. These older dykes and ditches confirm that some of these lands were subject to earlier drainage/farming efforts and were left idle in favour of focusing on lands made more accessible with the construction of Ravenshoe Road. Figure 10 (**Appendix A**) also illustrates the remnants of those historic drainage efforts.

Smith Farms intends to expand their operations further onto the muck soils to optimize their agricultural endeavours. This coincides with a growing interest in the production and availability of safe and secure food supplies. There is also a strong interest in the availability and sustainability of close to market or local food supplies. These factors point towards the importance of fostering, promoting and sustaining the farming businesses currently in operation on the Holland Marsh muck soils.

At the same time, there is significant interest in the conservation and enhancement of important areas of natural heritage features and functions. The Holland Marsh farming area includes some extensive wetland areas (e.g., Pottageville Swamp, Dunkerron Forest, Holland Marsh Wetland, etc.). These wetlands provide a wide range of wetland functions and are habitat to many species of fish, plants and wildlife, some of which are species of conservation concern in Ontario.

Today, the southern portions of the Smith Farms are characterized by a mix of forested and non-forested wetlands. It appears that these wetlands have become more forested over time, with an increasing level of canopy cover expanding northwards as depicted on these photo mosaics. The Subject Lands today are host to important wetland functions and features and are

a part of the Provincially Significant Wetland associated with the northern end of the Holland Marsh lowlands.

The following principles provided some direction for the identification of areas for the expansion of farming to limit environmental effects:

- Establish new fields required in wetland areas that exhibit more limited features and functions, recognizing that all of these areas are part of provincially significant wetland designated lands;
- Establish fields in wetland areas that have been subject to some historic alteration;
- Avoid negatively affecting individuals, populations or habitat for endangered and/or threatened species; and,
- Avoid forested areas, which have been identified for additional importance related to area sensitive/interior species and deer concentration areas.

Smith Farms proposes to expand into some areas that were affected by early agricultural use (as evidenced by remnant ditching and dykes). The expansion area was identified by the LSRCA as "Idle Agricultural Lands" (East Holland Watershed Report, Schedule 6.1, Land Use). Idle agricultural lands appear to exclude lands that fit the definition of forest in that report. Figure 10 illustrates the area that would be defined as more suitable for active agriculture given these considerations. This approach locates the expanded farm fields further from the Holland River and its associated wetland communities (e.g., those that possess some "fen-like" characteristics).

Expansion would also be directed largely outside of deciduous swamp that has been defined by the LSRCA as interior woodland and by the MNR as part of broad winter deer concentration areas. That woodland extends outside of the Subject Lands, some distance to both the north and south, as part of a larger forest system. The final limits of the proposed fields would benefit from some discussion with the province, Region of York and Town of East Gwillimbury.

5 POTENTIAL EFFECTS WITH FARMLAND EXPANSION

The detailed field investigations completed on and around the Smith Farms identified a range of species and habitats within the wetlands associated with the Subject Lands. Beyond vegetation and wildlife habitat, these wetlands perform other important functions. The LSRCA State of the Watershed Report for the East Holland River (2000), for example, notes that these (Holland Marsh) wetlands, “...are essential natural elements of the East Holland River Subwatershed providing environmental, economic and social benefits. Wetlands control and store surface water to assist in flood control and groundwater recharge. Wetlands also act as sediment traps to improve water quality and act as habitat for a wide variety of flora and fauna.”

The Subject Lands are defined in mapping and in text in that LSRCA report as containing: ESA, regulated floodplain, ANSI, PSW and some forest interior (100m – 200m buffer). A range of these features, designations and wetland functions may be affected by the expansion of farmland into wetland areas on the Smith Farms.

The following are key effects expected with the establishment of additional farm fields in existing wetland areas. It is assumed that new fields would be created in a similar manner to existing cells, with external ditches, dykes and ongoing pumping to maintain an optimal water level within the soils.

- Direct removal of PSW wetland area and associated habitat;
- Modified surface water drainage for the farm field footprints (i.e., pumped water conveyed through drainage ditches around new fields). Current surface drainage through these wetland areas is diffuse; these diffuse patterns are expected to remain in retained wetland areas after the establishment of new fields;
- Potentially modified water quality with fertilizer and pesticide inputs (aside the LSRCA is engaged in ongoing efforts to assist in the reduction of phosphorous loading from the dyked farmlands; also referred to as polders);
- Reduced habitat areas for amphibians and waterfowl;
- Reductions in some common vegetation communities and species;
- Increased habitat areas (new drainage ditches and associated dykes) for feeding by waterbirds, raptors and some odonates, for basking turtles and for movement and denning of some mammals; and,
- Increased areas for spring flooded field waterfowl and waterbird use.

These points are further discussed in the following, according to broad topics.

5.1 Water

The new fields will displace organic soils with poorly defined and diffuse surface drainage patterns. These wetland systems are broadly termed riverine, surface water driven wetlands with a clear connection to and relationship with the Holland River. Based upon observations of existing dyke/ditch systems, it appears that new ditch installation/reinstatement will cause a

localized drying effect on the fringes of the retained organic mat, as water wicks towards the ditches. This will cause the localized establishment of plants that are more tolerant of drier soil conditions and may offer an opportunity for the local colonization of wetland edges with invasives. The spread of these species will be confined to a narrow band by increasing soil moisture further from the ditch edges. Water conveyance will accelerate through the pumping and discharge of water from the fields to optimize the water table for crop growing conditions. The discharged water has the potential to contribute various constituents to these ditches (e.g., nutrients, herbicides).

The farming practice currently employed is one intended to limit the infiltration of these constituents onto the soils and thus to the discharged water. Smith Farms has been actively managing their existing fields to limit the addition of supplements to that required, based upon foliar tests. Herbicides are used in a spot application manner, only as required. The Smith Farms has been actively engaged with, and supportive of testing of a variety of field management practices (i.e., test plots on their lands with research led and completed by the Muck Crop Research Station, University of Guelph, Plant Agriculture Department).

In addition to water-related effects predicted above, the western margins of the Subject Lands, along the Holland River are also subject to impacts from offsite activities (e.g., motor boat-caused wave action; lake level fluctuation and resultant erosion of cattail fringes). The LSRCA has identified these impacts as unrelated to agriculture; these effects will continue regardless of the farm expansion, but do offer some opportunities for localized ecological restoration.

Mitigation measures to address direct and indirect water effects are discussed in section 6 of this report.

5.2 Vegetation and Wildlife

The new fields will displace wetland, comprised principally of thicket swamp and organic meadow marsh. These features are habitat to a range of plant and wildlife species; those species that are dependent upon these ELC types will be displaced. The proposed fields will not remove any ELC type; similar vegetation communities exist within, and around, the remaining wetlands.

No endangered or threatened species of plant or wildlife regulated under the *Endangered Species Act, 2007*, will be negatively affected by the proposal. One endangered and one threatened species (Bald eagle and Peregrine falcon respectively) were observed in flight over the Smith Farms lands. Neither depends upon the Subject Lands for important life cycle functions.

There are also two bird species of Special Concern and one insect species of Special Concern that were recorded/observed from the Subject Lands (listed but not regulated for protection under the province's Endangered Species Act). Black Tern (S3B, Ontario Special Concern Species) nests along edge of Holland River, on the western margins of the Subject Lands and will not be affected by the farm expansion, given a large proposed setback from the river. Short-

leaved Owl (S2N, S4B, Ontario Special Concern) was recorded from the thicket and swamp wetland areas at the south end of the Subject Lands. The reliance of this species on this type of wetland community is atypical as it is more commonly considered to be a grassland habitat-dependent species. Depending upon its use of the Subject Lands, this species may be affected by farm field expansion. Monarch was observed moving across the dykes separating the existing farmland from wetland. This species moves broadly across the landscape and was not determined to be dependent upon the Subject Lands. It will not be negatively affected by the farm field expansion and habitat creation on the proposed dykes could establish important plant materials to support this species.

Other species, outside of those listed by the Ontario Endangered Species Act, that might be affected are considered to be rare or uncommon at the provincial, regional or local scale. Sections 3.2, 3.3 and 3.6 address these in more detail. Of these other species, one that is considered to be significant at a provincial level is the Unicorn Clubtail. This odonate appears to use the dykes and associated open water in ditches; the proposed farming expansion provides additional habitat (dykes and ditches) will be created, increasing amount of habitat for this provincially rare species.

Other species that may be affected are regionally rare or uncommon and/or provincially uncommon. None appears to be restricted to the Subject - the large tracts of adjacent land that provide similar habitat characteristics. We expect that populations of rare and uncommon species will remain in the surrounding landscape.

5.3 *Linkages and Connectivity*

The intended expansion of farm fields, following the general guidance offered in this report in terms of areas preferred for expansion, will result in the retention of substantial and connected areas of wetland on both the western and eastern limits of the proposed fields. The ditches will increase and afford movement by some species of mammals and some reptiles based upon observations of existing ditches and dykes.

The proposed expansion of farmland will leave a substantial natural heritage system intact in the general landscape. The opportunity for movement of wildlife through this system will remain intact.

6 MITIGATION AND RESTORATION OPPORTUNITIES

Beyond limiting potential effects through the preferred placement of new farm fields, there are other measures that will contribute to minimizing effects and others that will restore impacted areas both within and outside of the Subject Lands. These include:

- Winter vegetation removal and construction of dykes and ditches to limit effects on existing biota;
- Installation of habitat enhancement structures on existing and proposed dykes/ditches (e.g., basking logs and ledges, wetland plantings to optimize odonate habitat requirements); and,
- Ongoing refinements to crop management methods to minimize fertilizer and pesticide inputs.

Smith Farms currently operates in a responsible manner with limited use of pesticides and fertilizer based upon results of routine monitoring of soil and foliage fertility levels. They have continued to participate in research and development undertaken by the University of Guelph, offering their lands for testing new plant strains, different crop methods and soil amendments.

A review of operations suggests that there are minor additional steps that could complement the measures that are already in place. These include those that will enhance ecological conditions without introducing risks associated with required compliance with the province's HACCP program and related initiatives. The Hazard Analysis & Critical Control Points (HACCP) program requires that wildlife interactions with croplands be avoided to eliminate the opportunity for contamination of the produce during any stage of production. The encouragement of wildlife use and habitat restoration within fields (e.g., hedgerow installation, ditch restoration) would be contrary to those HACCP requirements.

Restoration opportunities do, however, exist both within and immediately adjacent to the Subject Lands. These include:

- Increased riparian buffer widths adjacent to the Holland River in the very northwestern corner of the Subject Lands;
- Potential research and testing of modified drainage ditches to increase bioretention and nutrient treatment functions, without negatively constraining drainage and/or causing HACCP issues;
- Introduction of open water areas and increased interspersions of open water and wetland communities in retained areas of marsh, to increase habitat diversity and to promote some waterfowl use;
- Maintenance of some open soil areas on the dyke system to favour unicorn clubtail; and,
- Introduction of specialized habitat features to increase use for specific targeted wildlife functions (e.g., hibernacula, basking areas for turtles and snakes, nesting platform construction for raptors, etc.,).

Beyond physical habitat restoration, there is the potential for a number of enhancement opportunities on the Subject Lands. Smith Farms is interested in continuing its involvement in agricultural research and education and is agreeable to working with public agencies to explore additional agricultural and ecological opportunities. The expansion of the existing farming operation, along with the creation of additional agricultural, outreach and education activities within this area of the Holland Marsh presents an opportunity for overall benefits. There is an opportunity for collaboration between Smith Farms and local, regional and provincial governments in providing opportunities, which could add substantial value to the local and area resources. Discussions in this regard are recommended.

7 CONCLUDING REMARKS

The Smith Farms holdings include 2100 acres (850 ha) of which about 900 acres (364 ha) are actively farmed. They are now the largest, family owned, farming business within the Holland Marsh, providing carrots and onions to local, provincial, national and international markets.

The Smith Farms plan to expand their farming operations to meet demands from the food distribution and grocery retailer industry and to maintain and enhance the long-term viability and health of their operations. Sciberras Consulting Inc. provided an overview of the planning context for this report and noted that the existing Town of East Gwillimbury's Official Plan and Zoning By-law permit this expansion.

The Greenbelt Plan defines the Subject Lands, including both arable and wetland areas as Specialty Area Crop lands. The Holland Marsh is one of only two such areas designated in Ontario (Niagara tender fruit lands are the other). The province has interests in ensuring that the local agricultural productive capacity is maintained and/or increased and that the industry is maintained in a sustainable manner. Similarly, the province has an interest in conserving significant wetlands. Savanta was retained in early 2009 to work with the Smith Farms team of experts to provide guidance to and to assess the implications of the farm expansion into the wetland areas.

This report discusses the character and sensitivity of the Smith Farm lands and provides direction to areas where expansion would have relatively less effect (e.g., away from fen-like communities along the river and away from treed swamp which possess a relatively higher degree of biodiversity, hosts some forest-dependent and some area-dependent birds and provides some winter deer concentration habitat).

This report also responds to the proposed expansion in terms of potential effects, mitigation recommendations and net effects. The proposed farm expansion would occur in an area where wetland functions are less diverse and where some historic drainage/ditching disturbances have already occurred.

More specifically, some predicted effects include:

- Removal of some PSW wetland area;
- Ditch edge drying effects associated with the installation of new dykes/ditches;
- Modified surface water drainage for the farm field footprints (i.e., pumped water conveyed through drainage ditches around new fields). Current diffuse surface drainage patterns are expected to remain in retained wetland areas;
- Reductions in habitat areas for common and widespread species of amphibians and waterfowl;
- Reductions in some common vegetation communities and populations of regionally and locally rare and/or uncommon species;

- Increased habitat areas (new drainage ditches and associated dykes) for feeding by waterbirds, raptors and some odonates, for basking turtles and for movement and denning of some mammals; and,
- Increased areas for spring flooded field waterfowl and waterbird use.

The implementation of mitigation and restoration efforts will help to limit predicted negative environmental effects. Some aspects of the existing wetlands can be enhanced for certain functions (e.g., waterfowl, turtles), through enhancements in retained wetland areas (e.g., increased open water pockets and interspersed levels).

The wetland removal will not affect species listed as Endangered or Threatened by the province's Endangered Species Act. Effects are expected on some species considered to be provincially and/or regionally/locally uncommon or rare however, these impacts are anticipated to be minor – likely resulting in a reduction in local populations of some species within the Subject Lands. On the broad landscape scale, there would remain substantial habitat for these species. In certain instances (e.g., Unicorn Clubtail) an opportunity exists to increase population sizes through habitat management.

Habitat management also offers an opportunity to increase populations of some waterfowl and amphibian species for which some habitat will be removed by this proposal. The introduction of more open water, for example, will facilitate these population increases and likely increases in local biodiversity.

This Smith Farms expansion will lead to effects on wetland features and functions that will be mitigated through the deliberate selection of the expansion area and through the implementation of mitigation measures presented in this report. Those mitigation measures should be subject to additional planning and design dialogue with resource agencies to optimize outcomes.

Given the competing interests on these lands (i.e., agriculture and wetland conservation), this report offers a pathway towards the achievement of a balance of social, economic and environmental interests. With an expansion of farming, the Smith Farm lands will continue to contribute to increased marsh-wide crop production and to the long-term sustainability of the Smith Farms operations. Approximately 208 ha of the Provincially Significant Wetland will be retained on the Smith Farm lands (71 ha of marsh/meadow marsh and 137 ha of thicket and treed swamp wetland). In the implementation of this plan, there are opportunities for the enhancement of wetland areas within the Holland Marsh and for the establishment of enhancements that relate more broadly to research, education and outreach purposes. Smith Farms have expressed their willingness to discuss these opportunities with public agencies.

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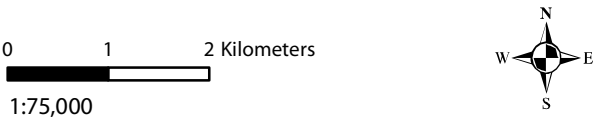
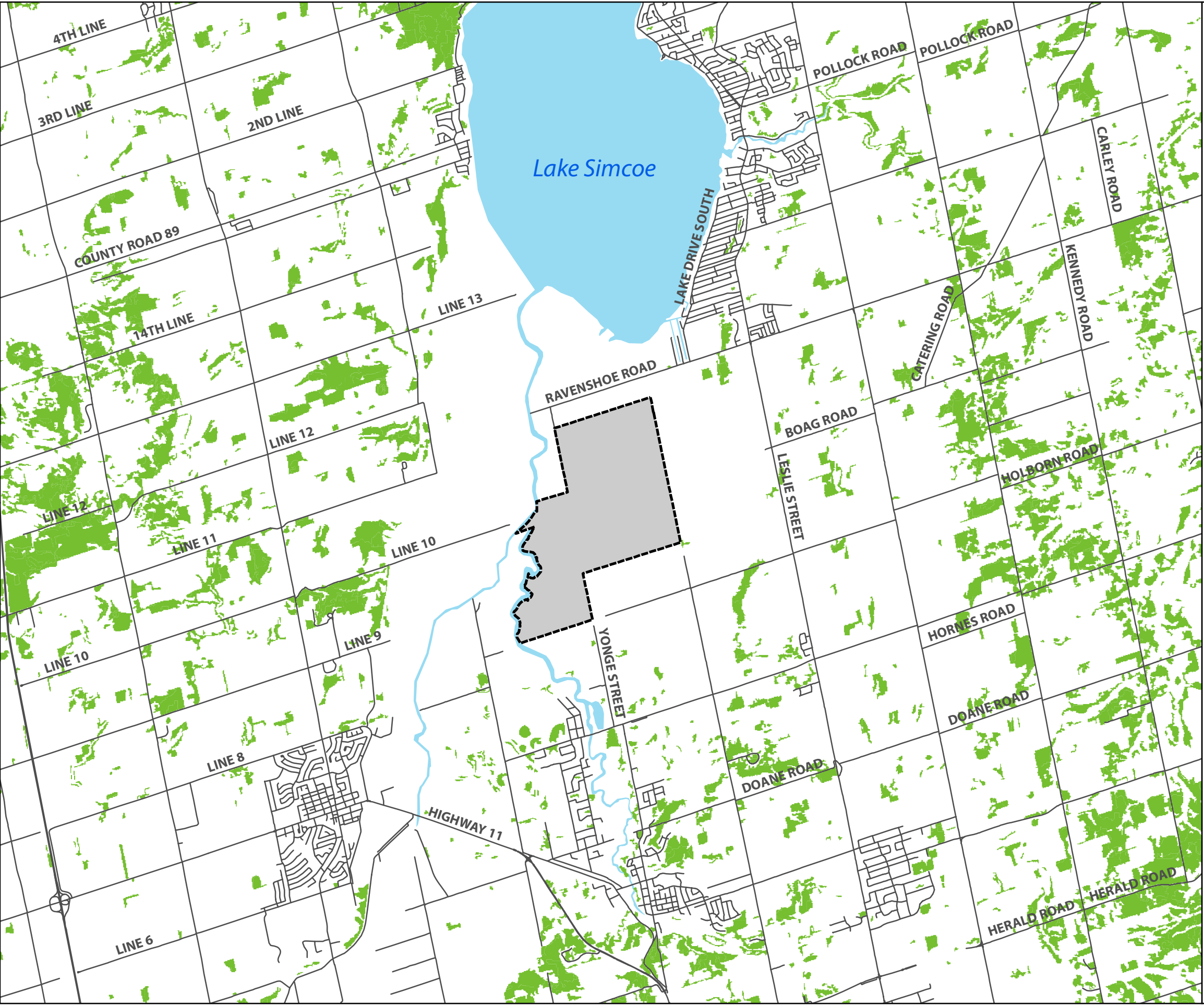
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APPENDIX A

Figures

Figure 1	Location of Subject Lands
Figure 2	Landscape Context
Figure 3	Ecological Land Classification
Figure 4	Holland Marsh 2009 Winter Wildlife Observations
Figure 5	Holland Marsh 2009 Mammal Observations
Figure 6	Holland Marsh 2009 Bird Observations
Figure 7	Holland Marsh 2009 Amphibian Observations
Figure 8	Holland Marsh 2009 Reptile Observations
Figure 9	Holland Marsh 2009 Insect Observations
Figure 10	Farm Expansion, Restoration/Mitigation Opportunities
Figure 11	Canada Land Inventory Soils



Holland Marsh – W.J. Smith Farm



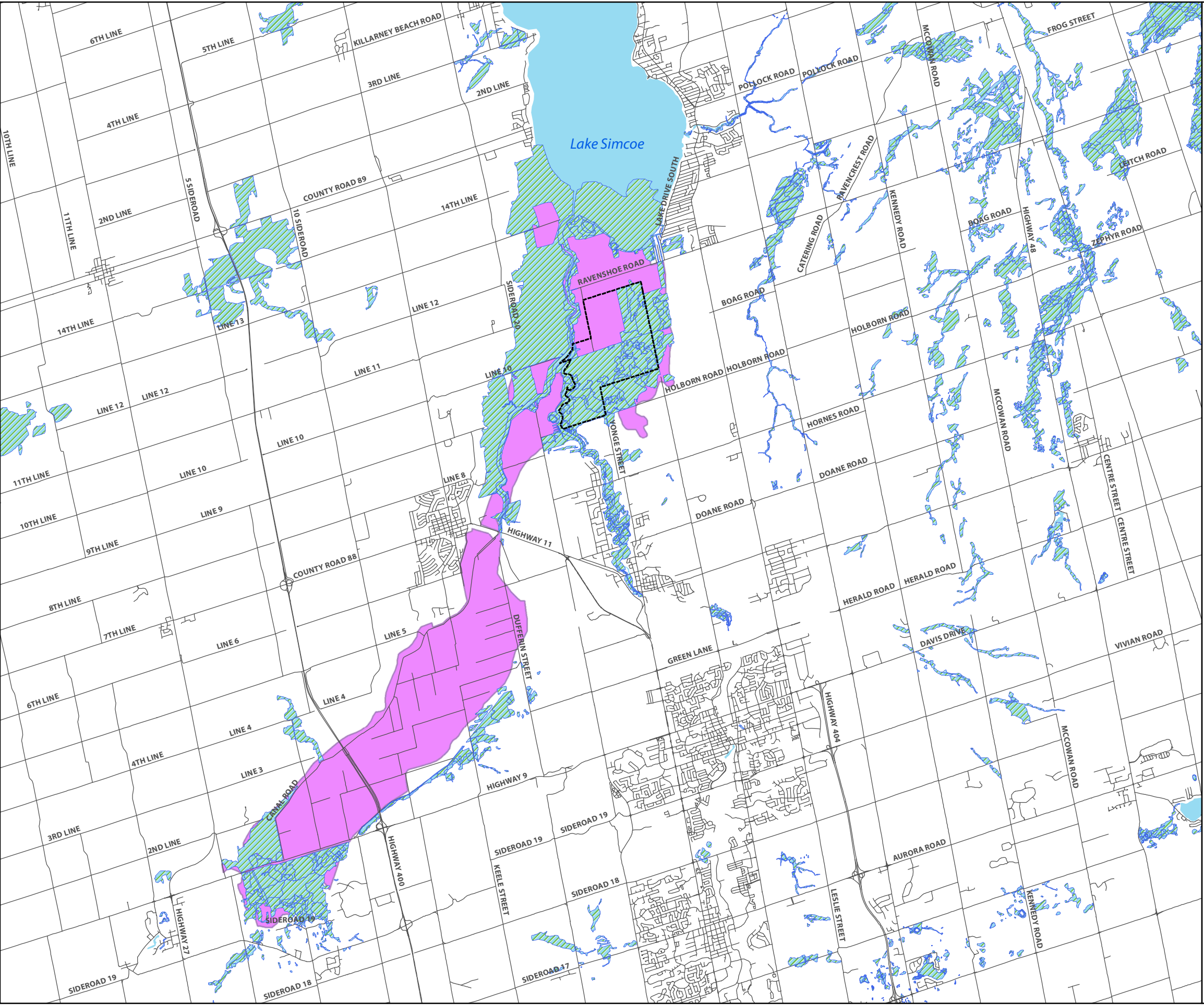
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 Subject Lands

Holland Marsh

Figure No. 1
Location of Subject Lands





0 1 2 3 Kilometers
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Holland Marsh – W.J. Smith Farm

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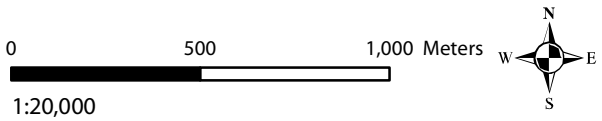
- Subject Lands
- Provincially Significant Wetlands
- Greenbelt Holland Marsh Designation (Schedule 3, Greenbelt Plan)

Holland Marsh

Figure No. 2
Landscape Context



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Revised: October 12, 2009



Legend

Subject Lands

Winter wildlife transect location

Area 1
Vole and mice (tracks)
Small mammal (holes/browse)

Area 2
Coyote and weasel (tracks)
Mink (tracks)
Mink, muskrat and beaver (holes/tunnels)
Deer along drainage (tracks)
Small mammal (holes/tunnels)
Dead American beaver observed along bank of drainage ditch
Musk rats observed in drainage ditch

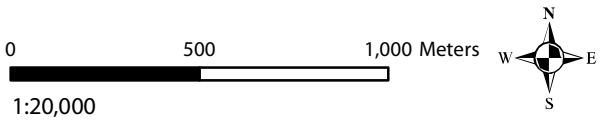
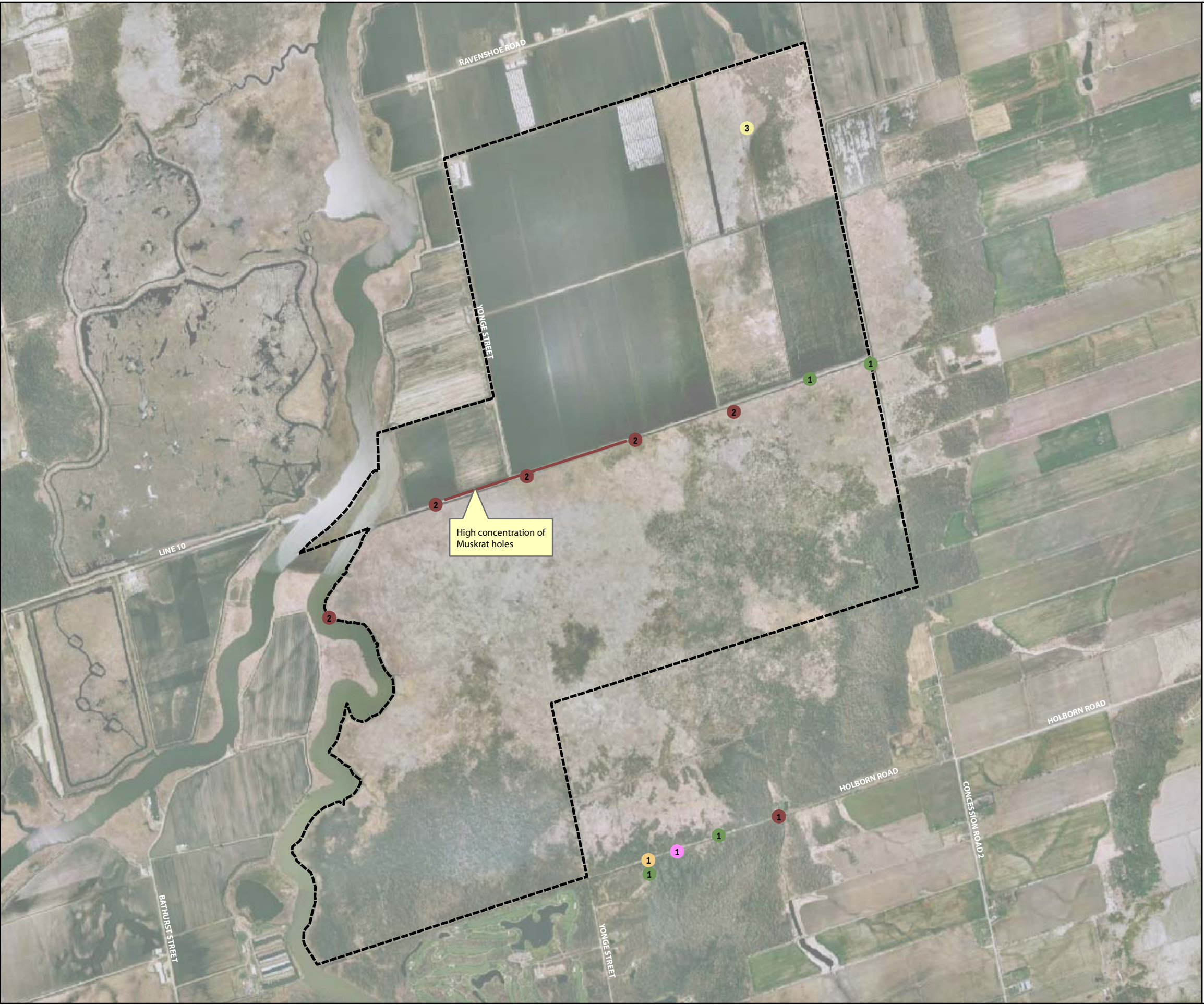
Area 3
Raccoon, fox, mink
Coyote, grey squirrel, American beaver, vole, unknown small mammal, porcupine (tracks)
Porcupines observed in trees

Area 4
Porcupines observed
Weasel and coyote (tracks)
Small mammal (tracks/browse)
Grey squirrel and porcupine (tracks)

Level of Activity
Low
Moderate
High

Holland Marsh
Figure No. 4
Holland Marsh 2009
Winter Wildlife Observations



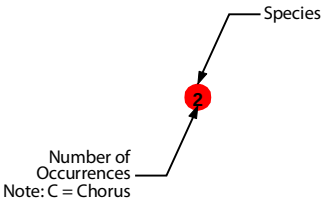


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Subject Lands

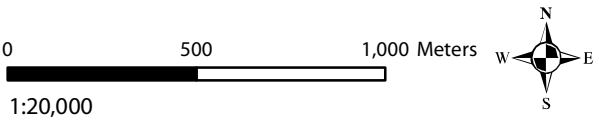
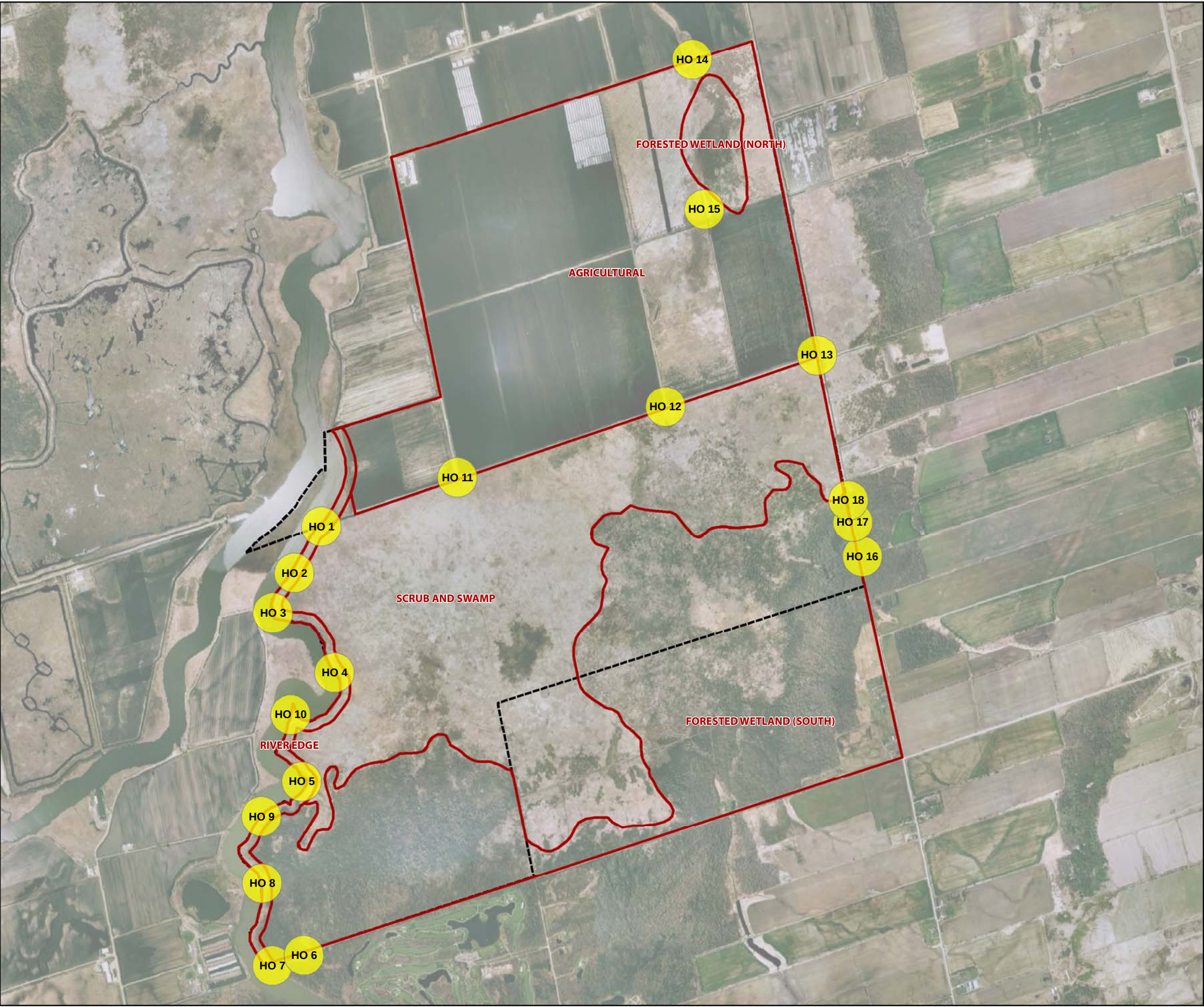
Mammals (visual observations)

- American Beaver
- Coyote Pup
- Mink
- Muskrat
- River Otter



Holland Marsh
Figure No. 5
Holland Marsh 2009
Mammal Observations





Holland Marsh – W.J. Smith Farm

Agricultural
Waterfowl, gull and shorebird staging in migration when flooded.
Great Blue Heron (foraging in ditches)
Osprey (attempted nesting on irrigation system)
Snowy Owl (winter)

Forested Wetland (North)
No notable observations

Forested Wetland (South)
Red-tailed Hawk (1 pair)
Yellow-billed Cuckoo (1 pair)
Eastern Screech Owl (4+ pairs)
Great Horned Owl (1 pair)
Yellow-throated Vireo (2 pairs)
Blue-gray Gnatcatcher (3 pairs)

River Edge
Osprey (nesting just off site)
Bald Eagle (nesting off site)
Forster's Tern
Black Tern
Sedge Wren (2 pairs)
Marsh Wren (common)

Scrub and Swamp
American Bittern (6+ pairs)
Northern Harrier (3+ pairs)
Peregrine Falcon (migrant)
Virginia Rail
Sora
Short-eared Owl (migrant)
Sedge Wren (multiple pairs)
Large numbers of roosting blackbirds during migration.

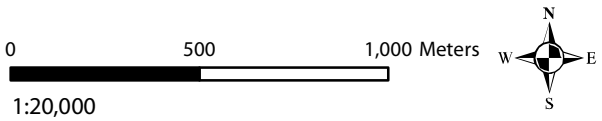
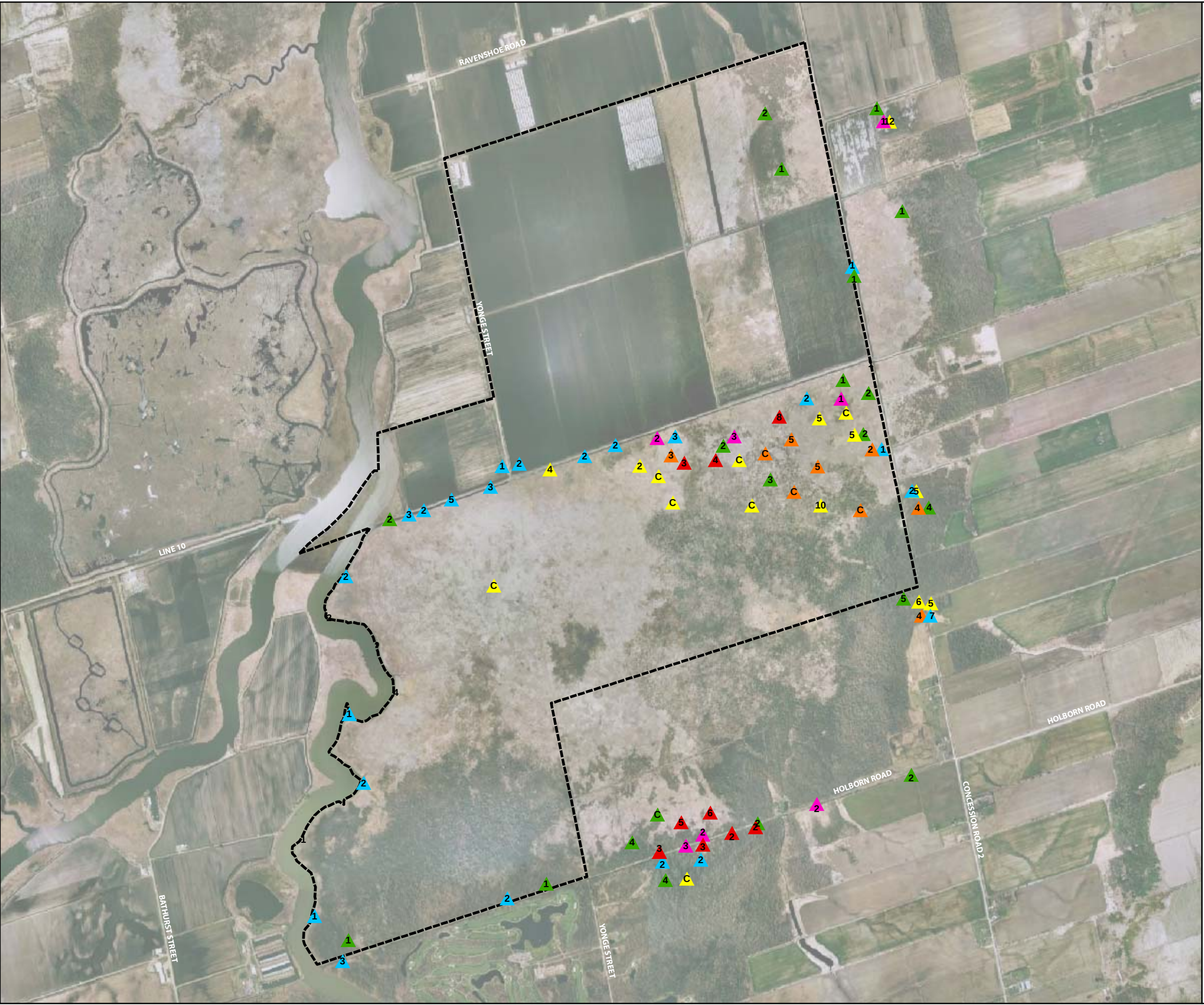
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- Subject Lands
- Bird Habitats
- Observation Locations

Holland Marsh

Figure No. 6
Holland Marsh 2009
Bird Observations





Legend

Subject Lands

Amphibians

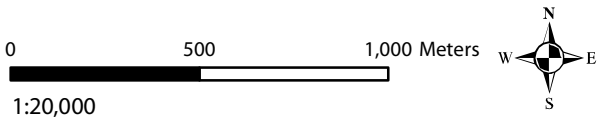
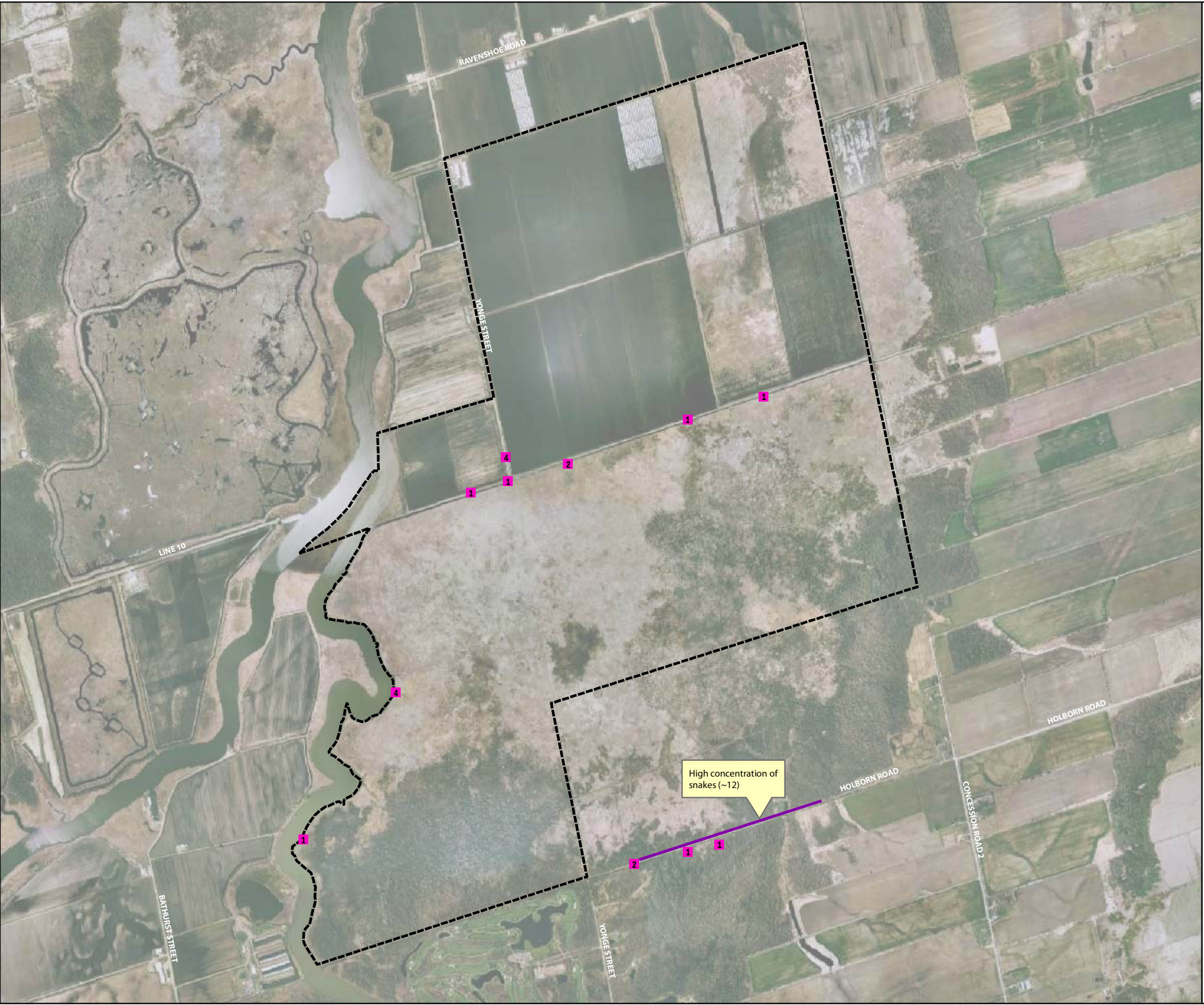
- American Toad
- Green Frog
- Northern Leopard Frog
- Spring Peeper
- Tree Frog
- Wood Frog

Number of Occurrences
Note: C = Chorus

Species

Holland Marsh
Figure No. 7
Holland Marsh 2009
Amphibian Observations





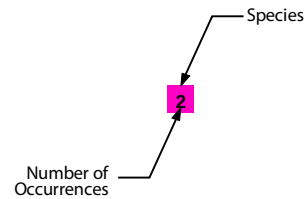
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Subject Lands

Reptiles

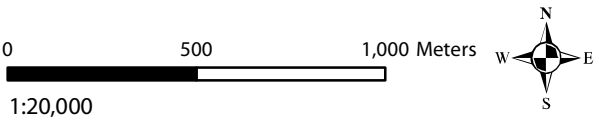
Painted Turtle

Snakes



Holland Marsh
Figure No. 8
Holland Marsh 2009
Reptile Observations



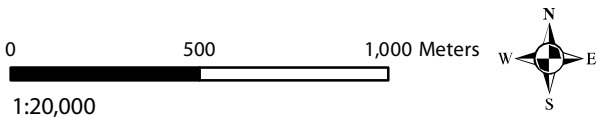
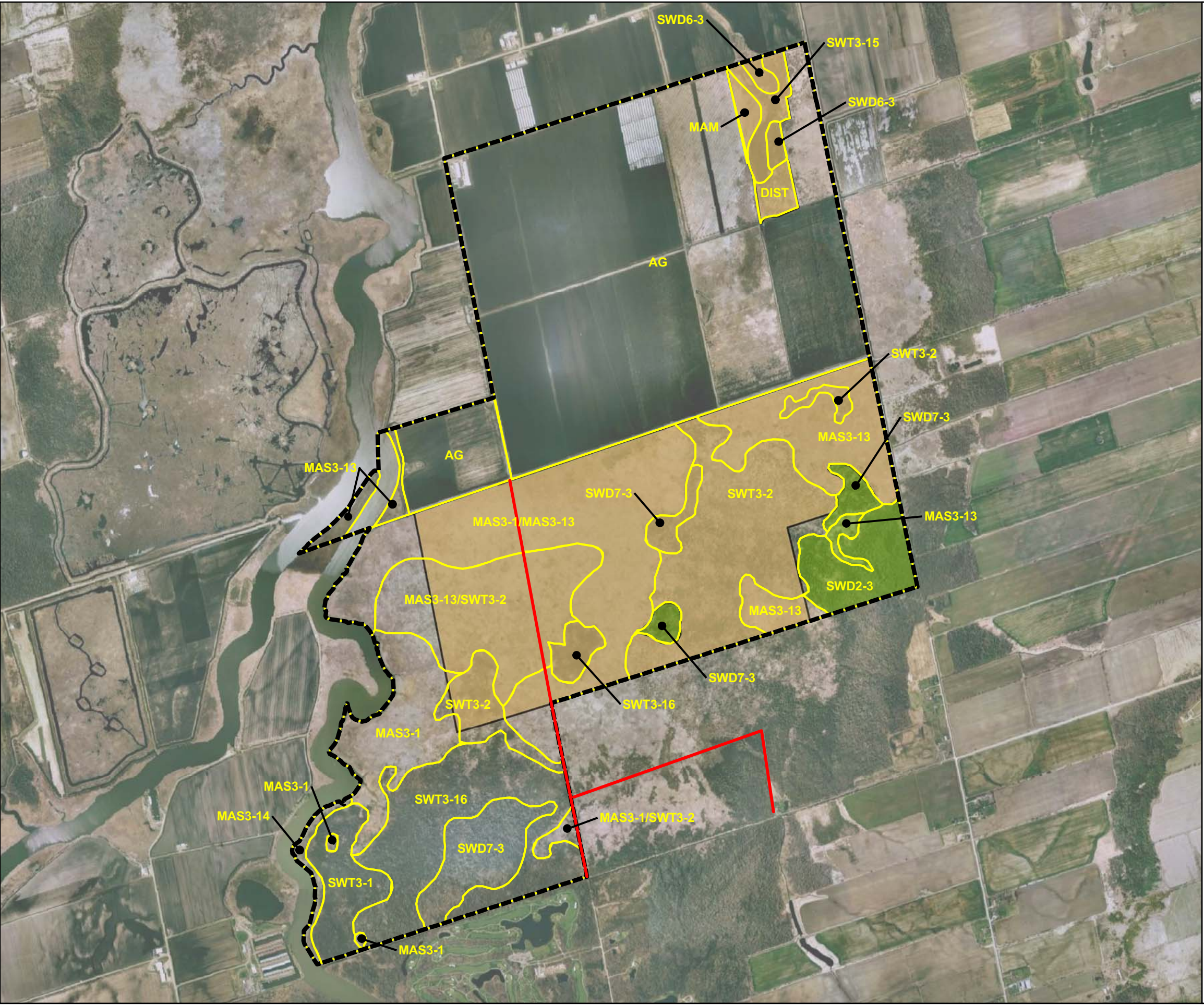


- Holland Marsh – W.J. Smith Farm
Insect Survey Legend
- AREA A**
Two Baltimore Checkerspot (S4, locally uncommon), two Monarchs Special Concern, (S4B/S2N, locally common) and Pearl Crescents (S4, locally common) were observed in a meadow area to the east of the marsh.
- AREA B**
Three Monarchs Special Concern, (S4B/S2N, locally common) were observed along the dyke separating the marsh from the agricultural field.
- AREA C**
Stream Bluet (S5, locally rare), Fragile Forktail (S4, locally uncommon) and Common Baskettail (S4, locally uncommon) were observed at various points throughout the marshy area in the main drainage streams.
- AREA D**
Pearl Crescents (S4, locally common) were observed along the dyke.
- AREA E**
Buttercup/Crocus Geometer Moths (S4) were observed.
- AREA F**
One Monarch Special Concern, S4B/S2N, locally common) was observed at the dyke near Yonge Street.

Legend
[Dashed Box] Subject Lands

Holland Marsh
Figure No. 9
Insect Observations





Legend

- Subject Lands
- Proposed Agricultural Expansion
- Woodland - Priority for Retention
- Early Ditches and Dykes

ELC TYPES:

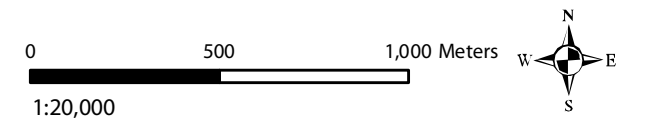
- | | |
|----------|---|
| SWD2-3* | Green Ash-Silver Maple-Poplar Mineral Deciduous Swamp |
| SWD6-3 | Swamp Maple Organic Deciduous Swamp |
| SWD7-3* | Willow Organic Deciduous Swamp |
| SWT3-1 | Alder Organic Thicket Swamp |
| SWT3-2 | Willow Organic Thicket Swamp |
| SWT3-15* | Willow-Dogwood Organic Thicket Swamp |
| SWT3-16* | Alder-Dogwood-Willow Organic Thicket Swamp |
| MAM3-9 | Forb Organic Meadow Marsh |
| MAS3-1 | Cattail Organic Shallow Marsh |
| MAS3-13* | Cattail-Sedge-Reed Canary Grass Organic Meadow Marsh |
| MAS3-14* | Cattail-Meadowsweet Organic Shallow Marsh |
| DIST | Disturbed |
| AG | Agriculture |

*type not listed in Southern Ontario ELC

Holland Marsh

Figure No. 10
Proposed Farm Expansion





Legend

Study Area

Canada Land Inventory Classes

- CLASS 1
- CLASS 2
- CLASS 4
- CLASS 5
- MUCK

Holland Marsh

Figure 11
Canada Land Inventory Soils



Map Document: (S:\8077 - SAV 6792 Holland Marsh\GIS\MXD\Holland Marsh soil di.mxd)
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APPENDIX B

SPECIES LISTS

- 2009 Botanical Inventory List
- 2009 Winter Wildlife/Incidental Wildlife Observations
 - 2009 Amphibian & Reptile Observations

2009 Botanical Inventory List

Species Latin Name	Species Common Name	Coefficient of Conservatism	Wetness Index	Weediness Index	Provincial Status S-Rank	OMNR Status	COSEWIC Status	Global Status G-Rank	Local Status York
Reference		Varga 2000							
PTERIDOPHYTES		FERNS and ALLIES							
Dryopteridaceae		Wood Fern Family							
<i>Athyrium filix-femina</i> var. <i>angustum</i>	Northern Lady Fern	4	0		S5			G5T5	X
<i>Dryopteris carthusiana</i>	Spinulose Wood Fern	5	-2		S5			G5	X
<i>Dryopteris cristata</i>	Crested Wood Fern	7	-5		S5			G5	X
<i>Matteuccia struthiopteris</i> var. <i>pennsylvanica</i>	Ostrich Fern	5	-3		S5			G5	X
<i>Onoclea sensibilis</i>	Sensitive Fern	4	-3		S5			G5	X
Equisetaceae		Horsetail Family							
<i>Equisetum arvense</i>	Field Horsetail	0	0		S5			G5	X
<i>Equisetum fluviatile</i>	Water Horsetail	7	-5		S5			G5	X
Osmundaceae		Royal Fern Family							
<i>Osmunda regalis</i> var. <i>spectabilis</i>	Royal Fern	7	-5		S5			G5T	U
Thelypteridaceae		Marsh Fern Family							
<i>Thelypteris palustris</i> var. <i>pubescens</i>	Marsh Fern	5	-4		S5			G5T?	X
DICOTYLEDONS		DICOTS							
Aceraceae		Maple Family							
<i>Acer negundo</i>	Manitoba Maple	0	-2		S5			G5	X

Species Latin Name	Species Common Name	Coefficient of Conservatism	Wetness Index	Weediness Index	Provincial Status S-Rank	OMNR Status	COSEWIC Status	Global Status G-Rank	Local Status York
<i>Acer rubrum</i>	Red Maple	4	0		S5			G5	X
<i>Acer saccharinum</i>	Silver Maple	5	-3		S5			G5	X
<i>Acer x freemanii</i>	Freeman's Maple								XSR
Amaranthaceae	Amaranth Family								
<i>Amaranthus powellii</i>	Powell's Amaranth		5	-1	SE5			G5	X
Anacardiaceae	Sumac or Cashew Family								
<i>Rhus rydbergii</i>	Western Poison-ivy	0	0		S5			G5T	X
Apiaceae	Carrot or Parsley Family								
<i>Cicuta bulbifera</i>	Bulb-bearing Water-hemlock	5	-5		S5			G5	X
<i>Cryptotaenia canadensis</i>	Honewort	5	0		S5			G5	X
<i>Daucus carota</i>	Wild Carrot		5	-2	SE5			G?	X
<i>Sium suave</i>	Hemlock Water-parsnip	4	-5		S5			G5	X
Asclepiadaceae	Milkweed Family								
<i>Asclepias incarnata ssp. incarnata</i>	Swamp Milkweed	6	-5		S5			G5T5	X
<i>Cynanchum rossicum</i>	Swallow-wort				SE5			G?	X
Asteraceae	Composite or Aster Family								
<i>Arctium minus ssp. minus</i>	Common Burdock		5	-2	SE5			G?T?	X
<i>Artemisia biennis</i>	Biennial Wormwood		-2	-1	SE5			G5	XSR
<i>Aster borealis</i>	Rush Aster	10	-5		S5			G5	R3
<i>Aster lanceolatus ssp. lanceolatus</i>	Tall White Aster	3	-3		S5			G5T?	X
<i>Aster lateriflorus var. lateriflorus</i>	Calico Aster	3	-2		S5			G5T5	X

Species Latin Name	Species Common Name	Coefficient of Conservatism	Wetness Index	Weediness Index	Provincial Status S-Rank	OMNR Status	COSEWIC Status	Global Status G-Rank	Local Status York
<i>Aster novae-angliae</i>	New England Aster	2	-3		S5			G5	X
<i>Aster ontarionis</i> var. <i>ontarionis</i>	Ontario Aster	6	0		S4?			G5T	R6
<i>Aster puniceus</i> var. <i>puniceus</i>	Purple-stemmed Aster				S5			G5T?	X
<i>Bidens frondosa</i>	Devil's Beggar-ticks	3	-3		S5			G5	X
<i>Bidens tripartita</i>	European Beggar-ticks	4	-3		S5			G5	X
<i>Cirsium arvense</i>	Canada Thistle		3	-1	SE5			G?	X
<i>Erigeron annuus</i>	Daisy Fleabane								
<i>Erigeron philadelphicus</i> ssp. <i>philadelphicus</i>	Philadelphia Fleabane	1	-3		S5			G5T?	X
<i>Eupatorium perfoliatum</i>	Perfoliate Thoroughwort	2	-4		S5			G5	X
<i>Eupatorium rugosum</i>	White Snakeroot	5	3		S5			G5	X
<i>Eupatorium maculatum</i> ssp. <i>maculatum</i>	Spotted Joe-pye-weed	3	-5		S5			G5T5	X
<i>Lactuca biennis</i>	Biennial Lettuce	6	0		S5			G5	R10
<i>Lactuca serriola</i>	Prickly Lettuce		0	-1	SE5			G?	X
<i>Senecio vulgaris</i>	Common Groundsel		5	-1	SE5			G?	
<i>Solidago altissima</i> var. <i>altissima</i>	Tall Goldenrod	1	3		S5				X
<i>Solidago canadensis</i>	Canada Goldenrod	1	3		S5			G5	X
<i>Solidago gigantea</i>	Giant Goldenrod	4	-3		S5			G5	X
<i>Sonchus arvensis</i> ssp. <i>arvensis</i>	Field Sow-thistle				SE5			G?T?	X
<i>Sonchus oleraceus</i>	Common Sow-thistle		3	-1	SE5			G?	X
<i>Taraxacum officinale</i>	Common Dandelion		3	-2	SE5			G5	X
<i>Tussilago farfara</i>	Coltsfoot		3	-2	SE5			G?	X
Balsaminaceae		Touch-me-not Family							
<i>Impatiens capensis</i>	Spotted Touch-me-not	4	-3		S5			G5	X
Betulaceae		Birch Family							

Species Latin Name	Species Common Name	Coefficient of Conservatism	Wetness Index	Weediness Index	Provincial Status S-Rank	OMNR Status	COSEWIC Status	Global Status G-Rank	Local Status York
<i>Alnus incana</i> spp. <i>rugosa</i>	Speckled Alder	6	-5		S5			G5T5	X
<i>Betula pumila</i>	Swamp Birch	9	-5		S5			G5	R5
Boraginaceae	Borage Family								
<i>Myosotis laxa</i>	Smaller Forget-me-not	6	-5		S5			G5	X
Brassicaceae	Mustard Family								
<i>Alliaria petiolata</i>	Garlic Mustard		0	-3	SE5			G5	X
<i>Barbarea vulgaris</i>	Yellow Rocket		0	-1	SE5			G?	X
<i>Capsella bursa-pastoris</i>	Shepherd's Purse		1	-1	SE5			G?	X
<i>Cardamine pensylvanica</i>	Pennsylvania Bitter-cress	6	-4		S5			G5	U
<i>Erysimum cheiranthoides</i> ssp. <i>cheiranthoides</i>	Wormseed Mustard		3	-1	SE5				X
<i>Hesperis matronalis</i>	Dame's Rocket		5	-3	SE5			G4G5	X
<i>Lepidium campestre</i>	Field Cress		5	-1	SE5			G?	XSR
<i>Rorippa palustris</i> ssp. <i>hispida</i>	Hispid Yellow-cress				S5			G5T5	U
Campanulaceae	Bellflower Family								
<i>Campanula aparinoides</i>	Marsh Bellflower	7	-5		S5			G5	U
Caprifoliaceae	Honeysuckle Family								
<i>Lonicera canadensis</i>	American Fly Honeysuckle	6	3		S5			G5	X
<i>Lonicera tatarica</i>	Tartarian Honeysuckle		3	-3	SE5			G?	X
<i>Sambucus canadensis</i>	Common Elderberry	5	-2		S5			G5	X
<i>Viburnum trilobum</i>	High Bush Cranberry	5	-3		S5			G5T5	X
Caryophyllaceae	Pink Family								
<i>Cerastium fontanum</i>	Larger Mouse-ear		3	-1	SE5			G?	X

Species Latin Name	Species Common Name	Coefficient of Conservatism	Wetness Index	Weediness Index	Provincial Status S-Rank	OMNR Status	COSEWIC Status	Global Status G-Rank	Local Status York
	Chickweed								
<i>Silene latifolia</i>	Bladder Campion				SE5			G?	X
<i>Stellaria graminea</i>	Grass-leaved Stitchwort		5	-2	SE5			G?	X
<i>Stellaria longifolia</i>	Long-leaved Chickweed	2	-4		S5			G5	R7
<i>Chenopodium album</i> var. <i>album</i>	Lamb's Quarters		1	-1	SE5			G5T5	X
<i>Chenopodium capitatum</i>	Strawberry-blite	4	5		S5			G5	
Convolvulaceae		Morning-glory Family							
<i>Calystegia sepium</i> ssp. <i>americanum</i>	Hedge Bindweed	2	0		SU			G4G5T?	U
<i>Cuscuta gronovii</i>	Gronovius' Dodder	4	-3		S5			G5	U
Cornaceae		Dogwood Family							
<i>Cornus amomum</i> ssp. <i>obliqua</i>	Silky Dogwood	5	-4		S5			G5T?	R7
<i>Cornus stolonifera</i>	Red-osier Dogwood	2	-3		S5			G5	X
Dipsacaceae		Teasel Family							
<i>Dipsacus fullonum</i> ssp. <i>sylvestris</i>	Wild Teasel		5	-1	SE5			G?T?	X
Fabaceae		Pea Family							
<i>Desmodium canadense</i>	Canadian Tick-trefoil	5	1		S4			G5	R10
<i>Lathyrus palustris</i>	Marsh Vetchling	6	-3		S5			G5	R3
<i>Melilotus alba</i>	White Sweet-clover		3	-3	SE5			G?	X
<i>Vicia cracca</i>	Tufted Vetch		5	-1	SE5			G?	X
Geraniaceae		Geranium Family							
<i>Geranium robertianum</i>	Herb-robert		5	-2	SE5			G5	X

Species Latin Name	Species Common Name	Coefficient of Conservatism	Wetness Index	Weediness Index	Provincial Status S-Rank	OMNR Status	COSEWIC Status	Global Status G-Rank	Local Status York
Grossulariaceae	Currant Family								
<i>Ribes americanum</i>	Wild Black Currant	4	-3		S5			G5	X
<i>Ribes cynosbati</i>	Prickly Gooseberry	4	5		S5			G5	X
<i>Triadenum fraseri</i>	Fraser's St. John's-wort	7	-5		S5			G4G5	U
Haloragaceae	Water-milfoil Family								
<i>Myriophyllum spicatum</i>	Eurasian Water-milfoil		-5	-3	SE5			G?	X
Lamiaceae	Mint Family								
<i>Glechoma hederacea</i>	Creeping Charlie		5	-2	SE5			G?	X
<i>Lycopus americanus</i>	Cut-leaved Water-horehound	4	-5		S5			G5	X
<i>Lycopus uniflorus</i>	Northern Water-horehound	5	-5		S5			G5	X
<i>Mentha arvensis ssp. borealis</i>	American Wild Mint	3	-3		S5				X
<i>Scutellaria galericulata</i>	Hooded Skullcap	6	-5		S5			G5	X
<i>Scutellaria lateriflora</i>	Mad-dog Skullcap	5	-5		S5			G5	X
<i>Utricularia vulgaris</i>	Greater Bladderwort	4	-5		S5			G5	U
Lythraceae	Loosestrife Family								
<i>Lythrum salicaria</i>	Purple Loosestrife		-5	-3	SE5			G5	X
Nymphaeaceae	Water-lily Family								
<i>Nymphaea odorata</i>	Fragrant Water-lily				S5			G5	
Oleaceae	Olive Family								
<i>Fraxinus nigra</i>	Black Ash	7	-4		S5			G5	X
<i>Fraxinus pennsylvanica</i>	Red Ash	3	-3		S5			G5	X

Species Latin Name	Species Common Name	Coefficient of Conservatism	Wetness Index	Weediness Index	Provincial Status S-Rank	OMNR Status	COSEWIC Status	Global Status G-Rank	Local Status York
Onagraceae	Evening-primrose Family								
<i>Circaea lutetiana</i> ssp. <i>canadensis</i>	Yellowish Enchanter's Nightshade	3	3		S5			G5T5	X
<i>Epilobium leptophyllum</i>	Narrow-leaved Willow-herb	7	-5		S5			G5	U
<i>Oenothera parviflora</i>	Small-flowered Evening- primrose	1	3		S5?			G?	X
Plantaginaceae	Plantain Family								
<i>Plantago major</i>	Common Plantain		-1	-1	SE5			G5	X
Polygonaceae	Smartweed Family								
<i>Polygonum amphibium</i>	Water Smartweed	5	-5		S5			G5	X
<i>Polygonum lapathifolium</i>	Pale Smartweed	2	-4		S5			G5	X
<i>Polygonum persicaria</i>	Lady's-thumb		-3	-1	SE5			G?	X
<i>Rumex orbiculatus</i>	Great Water Dock	6	-5		S4S5			G5	X
Primulaceae	Primrose Family								
<i>Lysimachia ciliata</i>	Fringed Loosestrife	4	-3		S5			G5	X
<i>Lysimachia thyrsiflora</i>	Tufted Loosestrife	7	-5		S5			G5	X
Ranunculaceae	Buttercup Family								
<i>Anemone canadensis</i>	Canada Anemone	3	-3		S5			G5	X
<i>Caltha palustris</i>	Marsh-marigold	5	-5		S5			G5	X
<i>Clematis virginiana</i>	Virgin's-bower	3	0		S5			G5	X
<i>Ranunculus abortivus</i>	Kidney-leaf Buttercup	2	-2		S5			G5	X
<i>Ranunculus aquatilis</i> var. <i>diffusus</i>	White Water-crowfoot				S5			G5T	
<i>Ranunculus hispidus</i> var. <i>caricetorum</i>	Swamp Buttercup	5	-5		S5			G5T5	X

Species Latin Name	Species Common Name	Coefficient of Conservatism	Wetness Index	Weediness Index	Provincial Status S-Rank	OMNR Status	COSEWIC Status	Global Status G-Rank	Local Status York
<i>Ranunculus recurvatus</i> var. <i>recurvatus</i>	Hooked Buttercup	4	-3		S5			G5	X
<i>Ranunculus repens</i>	Creeping Buttercup		-1	-1	SE5			G?	X
<i>Ranunculus sceleratus</i> var. <i>sceleratus</i>	Cursed Buttercup	2	-5		S5			G5T5	
<i>Thalictrum pubescens</i>	Tall Meadow-rue	5	-2		S5			G5	X
Rhamnaceae		Buckthorn Family							
<i>Rhamnus cathartica</i>	Common Buckthorn		3	-3	SE5			G?	X
Rosaceae		Rose Family							
<i>Agrimonia gryposepala</i>	Tall Hairy Agrimony	2	2		S5			G5	X
<i>Fragaria virginiana</i> ssp. <i>virginiana</i>	Scarlet Strawberry	2	1		SU			G5T?	X
<i>Geum canadense</i>	White Avena	3	0		S5			G5	X
<i>Potentilla norvegica</i> ssp. <i>norvegica</i>	Cinquefoil				SU			G5T?	X
<i>Potentilla palustris</i>	Marsh Cinquefoil	7	-5		S5			G5	U
<i>Prunus virginiana</i> ssp. <i>virginiana</i>	Choke Cherry	2	1		S5			G5T?	X
<i>Rosa palustris</i>	Marsh Rose	7	-5		S5			G5	R6
<i>Rubus idaeus</i> ssp. <i>melanolasius</i>	Wild Red Raspberry	0	-2		S5			G5T	X
<i>Rubus pubescens</i>	Dwarf Raspberry	4	-4		S5			G5	X
<i>Spiraea alba</i>	Narrow-leaved Meadow-sweet	3	-4		S5			G5	X
Rubiaceae		Madder Family							
<i>Galium aparine</i>	Cleavers	4	3		S5			G5	U
<i>Galium mollugo</i>	White Bedstraw		5	-2	SE5			G?	X
<i>Galium palustre</i>	Marsh Bedstraw	5	-5		S5			G5	X
<i>Galium trifidum</i> ssp. <i>trifidum</i>	Small Bedstraw	5	-4		S5			G5T?	X

Species Latin Name	Species Common Name	Coefficient of Conservatism	Wetness Index	Weediness Index	Provincial Status S-Rank	OMNR Status	COSEWIC Status	Global Status G-Rank	Local Status York
Salicaceae Willow Family									
<i>Populus tremuloides</i>	Trembling Aspen		0		S5			G5	X
<i>Salix species</i>	Willow species								
<i>Salix bebbiana</i>	Long-beaked Willow	4	-4		S5			G5	X
<i>Salix candida</i>	Hoary Willow	10	-5		S5			G5	R6
<i>Salix eriocephala</i>	Missouri Willow	4	-3		S5			G5	X
<i>Salix fragilis</i>	Crack Willow		-1	-3	SE5			G?	
<i>Salix lucida</i>	Shining Willow	5	-4		S5			G5	X
<i>Salix petiolaris</i>	Slender Willow	3	-4		S5			G4	X
<i>Salix x rubens</i>	Reddish Willow		-4	-3	SE4			HYB	X
Scrophulariaceae Figwort Family									
<i>Chelone glabra</i>	Turtlehead	7	-5		S5			G5	U
<i>Linaria vulgaris</i>	Butter-and-eggs		5	-1	SE5			G?	X
<i>Verbascum thapsus</i>	Common Mullein		5	-2	SE5			G?	X
Solanaceae Nightshade Family									
<i>Solanum dulcamara</i>	Bitter Nightshade		0	-2	SE5			G?	X
Ulmaceae Elm Family									
<i>Ulmus americana</i>	White Elm	3	-2		S5			G5?	X
Urticaceae Nettle Family									
<i>Boehmeria cylindrica</i>	False Nettle	4	-5		S5			G5	X
<i>Urtica dioica ssp. dioica</i>	European Stinging Nettle		-1	-1	SE2			G5T?	X
<i>Urtica dioica ssp. gracilis</i>	American Stinging Nettle	2	-1		S5			G5T?	XSR

Species Latin Name	Species Common Name	Coefficient of Conservatism	Wetness Index	Weediness Index	Provincial Status S-Rank	OMNR Status	COSEWIC Status	Global Status G-Rank	Local Status York
Verbenaceae Vervain Family									
<i>Verbena urticifolia</i>	White Vervain	4	-1		S5			G5	X
Violaceae Violet Family									
<i>Viola sororia</i>	Woolly Blue Violet				S5			G5	X
Vitaceae Grape Family									
<i>Parthenocissus inserta</i>	Inserted Virginia-creeper	3	3		S5			G5	X
<i>Vitis riparia</i>	Riverbank Grape	0	-2		S5			G5	X
MONOCOTYLEDONS MONOCOTS									
Alismataceae Water-plantain Family									
<i>Alisma plantago-aquatica</i>	Common Water-plantain	3	-5		S5			G5	X
Araceae Arum Family									
<i>Arisaema triphyllum</i> ssp. <i>triphyllum</i>	Small Jack-in-the-pulpit	5	-2		S5			G5T5	X
Cyperaceae Sedge Family									
<i>Carex aquatilis</i>	Aquatic Sedge	7	-5		S5			G5	R6
<i>Carex blanda</i>	Woodland Sedge	3	0		S5			G5?	X
<i>Carex deweyana</i>	Dewey's Sedge	6	4		S5			G5	X
<i>Carex gracillima</i>	Graceful Sedge	4	3		S5			G5	X
<i>Carex granularis</i>	Meadow Sedge	3	-4		S5			G5	X
<i>Carex intumescens</i>	Bladder Sedge	6	-4		S5			G5	X
<i>Carex lacustris</i>	Lake-bank Sedge	5	-5		S5			G5	X
<i>Carex lasiocarpa</i>	Slender Sedge	8	-5		S5			G5	R13

Species Latin Name	Species Common Name	Coefficient of Conservatism	Wetness Index	Weediness Index	Provincial Status S-Rank	OMNR Status	COSEWIC Status	Global Status G-Rank	Local Status York
<i>Carex leptoneura</i>	Finely-nerved Sedge	5	0		S5			G4	X
<i>Carex lupulina</i>	Hop Sedge	6	-5		S5			G5	X
<i>Carex normalis</i>	Larger Straw Sedge	6	-3		S4			G5	
<i>Carex pseudo-cyperus</i>	Cypress-like Sedge	6	-5		S5			G5	X
<i>Carex radiata</i>	Radiate Sedge	4	5		S5			G4	X
<i>Carex stipata</i>	Awl-fruited Sedge	3	-5		S5			G5	X
<i>Carex vulpinoidea</i>	Fox Sedge	3	-5		S5			G5	X
<i>Cyperus esculentus</i>	Yellow Nut-grass	1	-3		S5			G5	X
<i>Scirpus cyperinus</i>	Wool-grass	4	-5		S5			G5	X
Hydrocharitaceae		Frog's-bit Family							
<i>Elodea canadensis</i>	Canada Waterweed	4	-5		S5			G5	U
Iridaceae		Iris Family							
<i>Iris versicolor</i>	Multi-coloured Blue-flag	5	-5		S5			G5	X
Lemnaceae		Duckweed Family							
<i>Lemna minor</i>	Lesser Duckweed	2	-5		S5			G5	X
Poaceae		Grass Family							
<i>Calamagrostis canadensis</i>	Blue-joint Grass	4	-5		S5			G5	X
<i>Cinna arundinacea</i>	Wood Reed Grass	7	-3		S4			G5	R9
<i>Dactylis glomerata</i>	Orchard Grass		3	-1	SE5			G?	X
<i>Echinochloa crus-galli</i>	Common Barnyard Grass		-3	-1	SE5			G?	X
<i>Elymus virginicus</i> var. <i>virginicus</i>	Virginia Wild Rye	5	-2		S5			G5T?	XU
<i>Eragrostis pectinacea</i> var. <i>pectinacea</i>	Tufted Love Grass	0	0		S5			G5T?	
<i>Glyceria septentrionalis</i>	Floating Manna Grass	8	-5		S4			G5	R10

Species Latin Name	Species Common Name	Coefficient of Conservatism	Wetness Index	Weediness Index	Provincial Status S-Rank	OMNR Status	COSEWIC Status	Global Status G-Rank	Local Status York
<i>Glyceria striata</i>	Fowl Meadow Grass	3	-5		S5			G5	X
<i>Muhlenbergia mexicana</i> var. <i>mexicana</i>	Mexican Satin Grass	1	-3		S5			G5T?	X
<i>Panicum capillare</i>	Witch Grass	0	0		S5			G5	X
<i>Phalaris arundinacea</i>	Reed Canary Grass	0	-4		S5			G5	X
<i>Phragmites australis</i>	Common Reed	0	-4		S5			G5	X
<i>Poa palustris</i>	Fowl Meadow Grass	5	-4		S5			G5	X
<i>Poa pratensis</i> ssp. <i>pratensis</i>	Kentucky Bluegrass	0	1		S5			G5T	X
<i>Puccinellia distans</i>	Spreading Goose Grass		-5	-1	SE5			G5	X
<i>Setaria pumila</i>	Yellow Foxtail		0	-1	SE5			G?	X
Potamogetonaceae		Pondweed Family							
<i>Potamogeton crispus</i>	Curly-leaved Pondweed		-5	-1	SE5			G5	X
Typhaceae		Cattail Family							
<i>Typha angustifolia</i>	Narrow-leaved Cattail	3	-5		S5			G5	X
<i>Typha latifolia</i>	Broad-leaved Cattail	3	-5		S5			G5	X
<i>Typha x glauca</i>	Glaucous Cattail	3	-5		S5			HYB	X

STATISTICS

Species Richness

Total Number of Species:	190	
Native Species:	144	76%
Exotic Species	46	24%
S1-S3 Species	0	0%
S4 Species	6	4%

Species Latin Name	Species Common Name	Coefficient of Conservatism	Wetness Index	Weediness Index	Provincial Status S-Rank	OMNR Status	COSEWIC Status	Global Status G-Rank	Local Status York
S5 Species	135	96%							
Floristic Quality Indices									
Mean Co-efficient of Conservatism (CC)	4.1								
CC 0 - 3 lowest sensitivity	51	38%							
CC 4 - 6 moderate sensitivity	67	49%							
CC 7 - 8 high sensitivity	15	11%							
CC 9 - 10 highest sensitivity	3	2%							
Floristic Quality Index (FQI)	48								
Weedy and Invasive Species									
Mean Weediness Index	-1.7								
-1 low potential invasiveness	24	56%							
-2 moderate potential invasiveness	10	23%							
-3 high potential invasiveness	9	21%							
Wetland Species									
Mean Wetness Index	-1.6								
upland	17	9%							
facultative upland	21	12%							
facultative	32	18%							
facultative wetland	58	32%							
obligate wetland	52	29%							

2009 Winter Wildlife/Incidental Wildlife Observations (NHIC, 2009)

Common Name	Scientific Name	Global Status (G Rank)	Provincial Status (S Rank)	COSEWIC Status	OMNR Status
Coyote	<i>Canis latrans</i>	G5	S5	N/A	N/A
White-tailed Deer	<i>Odocoileus virginianus</i>	G5	S5	N/A	N/A
Weasel species	<i>Mustela sp.</i>	G5	N/A	N/A	N/A
American Mink	<i>Mustela vison</i>	G5	S4	N/A	N/A
Muskrat	<i>Ondatra zibethicus</i>	G5	S5	N/A	N/A
Beaver	<i>Castor canadensis</i>	G5	S5	N/A	N/A
Northern Raccoon	<i>Procyon lotor</i>	G5	S5	N/A	N/A
Red Fox	<i>Vulpes vulpes</i>	G5	S5	N/A	N/A
North American River Otter	<i>Lontra Canadensis</i>	G5	S5	N/A	N/A
Eastern Grey Squirrel	<i>Sciurus carolinensis</i>	G5	S5	N/A	N/A
Porcupine	<i>Erethizon dorsatum</i>	G5	S5	N/A	N/A
Mouse species	<i>Peromyscus sp.</i>	G5	S5	N/A	N/A
Vole species	N/A	G5	N/A	N/A	N/A
Unknown small mammal sp.	N/A	N/A	N/A	N/A	N/A

2009 Amphibian & Reptile Observations (NHIC, 2009)

Common Name	Scientific Name	Global Status (G Rank)	Provincial Status (S Rank)	COSEWIC Status	OMNR Status
Painted Turtle	<i>Chrysemys picta</i>	G5	S5	N/A	N/A
Eastern Ribbonsnake	<i>Thamnophis sauritus</i>	G5	S3	SC	SC
Eastern Gartersnake	<i>Thamnophis sirtalis sirtalis</i>	G5T5	S5	N/A	N/A
Spring Peeper	<i>Pseudacris crucifer</i>	G5	S5	N/A	N/A
Gray Treefrog	<i>Hyla versicolor</i>	G5	S5	N/A	N/A
Wood Frog	<i>Rana sylvatica</i>	G5	S5	N/A	N/A
Northern Leopard Frog	<i>Rana pipiens</i>	G5	S5	NAR	NAR
Green Frog	<i>Rana clamitans</i>	G5	S5	N/A	N/A
American Toad	<i>Bufo americanus</i>	G5	S5	N/A	N/A

APPENDIX C

Holland Marsh Insect Surveys, Final Report 2009

October 5th | 09



Savanta Inc.

Holland Marsh Insect Surveys, Final Report 2009
Project # 6792

Prepared by: Candice Kerling, Ecologist

Prepared for: Heather Whitehouse, Project Manager

All Lepidoptera and Odonate surveys have been completed for the Holland Marsh property. The conditions for surveys were as follows:

Insect Survey #1 June 2 and 3rd 2009

Surveyors: C. Kerling and D. Luebbert (Entomogen Inc.)

June 2 – Weather: Sunny, hot and humid with no wind

Temperature: 13-17° C

June 3 – Weather: Sunny, hot and humid with no wind

Temperature: 13-20° C

Insect Survey #2 July 20 & 21st, 2009

Surveyors: C. Kerling and S. Hokkanen (Entomogen Inc.)

July 20 – Weather: Sunny, warm with no wind.

Temperature: 18-25° C

July 21 – Weather: Sunny, warm with no wind.

Temperature: 18-24° C

Insect Survey #3 August 17, 18 & 19th 2009

Surveyors: C. Kerling and A. Sharp (Entomogen Inc.)

August 17 – Weather: Sunny, warm with no wind, turning to overcast

Temperature: 30-33° C

August 18 – Weather: Sunny, warm with no wind.

Temperature: 25-30° C

August 19 – Weather: Sunny and warm, low wind

Temperature: 25-28° C

Insect surveys were done on warm, sunny, near windless days. Specimens were collected by hand or using sweep nets. Type specimens were collected, and photographs were taken for identification purposes. Most species observed are apparently secure (uncommon but not rare) or secure based on the Natural Heritage Information Centre rankings, in addition to a S2S3 species – the Unicorn Clubtail (*Arigomphus villosipes*).

Colin Jones of the NHIC confirmed the identification of a Unicorn Clubtail type specimen, and 2 others were observed at the site. The Unicorn Clubtail is locally uncommon, but the provincial rank of S2S3 denotes its status as a tracked, imperiled/vulnerable species due to a restricted range, few populations (20-80), recent and widespread declines, and other factors making it vulnerable to extirpation.

The Unicorn Clubtail is found in ponds and slow flowing streams with mucky bottoms and little emergent vegetation. The habitat that the specimens were observed matches this description, seen flying over the water in areas not covered by vegetation in addition to flying over the adjacent cattail marsh. Adults will frequently land on the ground in clear areas, preferring exposed soil. The type specimen was collected while resting on the mowed dyke.

Other insects of interest and locally rare species (according to the Halton Region Checklist) observed include:

Stream Bluet – *Enallagma exulans* (S5, locally rare)

Common Baskettail – *Epithea cynosura* (S4, locally uncommon)

Fragile Forktail – *Ischnura posita* (S4, locally uncommon)

Sweetflag Spreadwing – *Lestes forcipatus* (S4, locally rare)

Williamson's Emerald – *Somatochlora villisepes* (S4, locally rare)

Monarch Butterflies – *Danaus plexippus* (S4B, S2N, common)
Baltimore Checkerspot – *Euphydryas phaeton* (S4, locally uncommon)
Pearl Crescent – *Phyciodes tharos* (S4, locally common)

Dragonflies are strong fliers, and can travel kilometers away from where they emerge. The common baskettail (*Epitheca cynosura*) feed away from water at a height of greater than six feet above the water. The territory of males range from 10 to 30 feet along shorelines. Nymphs of this species live in water with slender reeds and rushes which they perch on. Williamson's Emerald (*Somatochlora villisepes*) is a locally rare, S4 dragonfly that patrol over shaded water, flying high when their habitat is in the sunlight. The nymphs from this species prefer small, shaded streams with undercut banks in which they can perch.

Damselflies are weak fliers, and tend to stay very close to where they emerge. The stream bluet (*Enallagma exulans*) is usually found along rivers and streams around emergent vegetation. Adults tend to stay local to one spot along the shore. Adults have also been observed perching on the ground or rocks emerging from the water. The fragile forktail (*Ischnura posita*) is a small damselfly that inhabits ditches and small, slow moving streams and ponds with abundant emergent vegetation. They were seen at the site resting on lily pads and floating debris. The sweetflag spreadwing (*Lestes forcipatus*) is associated with temporary ponds and occasionally marshy areas and slow flowing streams. They stick to bordering and emergent vegetation but occasionally travel some distance from the water to sit in clearings.

Pearl crescents (*Phyciodes tharos*) are butterflies that are found in edge areas, wooded areas, roadsides, and fields. They prefer aster, thistle, and low grasses where they perch. The Baltimore checkerspot (*Euphydryas phaeton*) is often found in damp meadows and prefers turtlehead, false foxglove and English plantain. Crocus or buttercup geometer moths (*Xanthotype spp*) usually inhabit mixed and deciduous forests; adults are nocturnal and come to light, but are also active during the day and are easily flushed from shrubs in the forest understory. Larvae feed on a variety of trees and shrubs.

Table 1. Holland Marsh Odonata survey results, 2009.

Species	Common Name	S-rank	Local Rank	# Observed	Date
<i>Anax junius</i>	Common Green Darner	S5	Common	>15	2009.06.03, 04 2009.07.20,21 2009.08.17,18,19
<i>Aeshna canadensis</i>	Canada Darner	S5	Uncommon	20	2009.08.17,18,19
<i>Aeshna constricta</i>	Lance-tipped Darner	S5	Common	20	2009.08.17,18,19
<i>Arigomphus villosipes</i>	Unicorn Clubtail	S2S3	Uncommon	3 (1 verified)	2009.07.21
<i>Enallagma carunculatum</i>	Tule Bluet	S5	Uncommon	10	2009.08.17,18,19
<i>Enallagma civile</i>	Familiar Bluet	S5	Common	>50	2009.07.20,21 2009.08.17,18,19
<i>Enallagma ebrium</i>	Marsh Bluet	S5	Common	>10	2009.06.03
<i>Enallagma exsulans</i>	Stream Bluet	S5	Rare	>10	2009.06.03
<i>Enallagma spp.</i>	Unknown Bluet ♀	-	-	1	2009.06.03
<i>Epitheca cynosura</i>	Common Baskettail	S5	Uncommon	5	2009.06.03
<i>Erythemis simplicicollis</i>	Eastern Pondhawk	S5	Common	8	2009.08.17,18,19
<i>Ischnura posita</i>	Fragile Forktail	S4	Uncommon	>20	2009.06.02 2009.07.20,21
<i>Ischnura verticalis</i>	Eastern Forktail	S5	Common	>100	2009.06.02 2009.07.20,21 2009.08.17,18,19
<i>Leucorrhinia intacta</i>	Dot-tailed Whiteface	S5	Common	16	2009.06.03 2009.07.20,21
<i>Lestes forcipatus</i>	Sweetflag Spreadwing	S4	Rare	14	2009.08.17,18,19
<i>Lestes rectangularis</i>	Slender Spreadwing	S5	Common	25	2009.08.17,18,19
<i>Libellula luctosa</i>	Widow Skimmer	S5	Common	13	2009.06.02 2009.07.20,21

					2009.08.17,18,19
<i>Libellula pulchella</i>	Twelve-spotted Skimmer	S5	Common	>25	2009.07.20,21 2009.08.17,18,19
<i>Pachydiplax longipennis</i>	Blue Dasher	S5	Common	8	2009.07.20,21 2009.08.17,18,19
<i>Plathemis lydia</i>	Common Whitetail	S5	Common	3	2009.06.02 2009.07.20,21
<i>Somatochlora williamsoni</i>	Williamson's Emerald	S4	Rare	3 (1 verified)	2009.08.17
<i>Sympetrum internum</i>	Cherry-faced Meadowhawk	S5	Common	>75	2009.07.20,21 2009.08.17,18,19
<i>Sympetrum obtrusum</i>	White-faced Meadowhawk	S5	Common	>75	2009.07.20,21 2009.08.17,18,19
<i>Sympetrum rubicundulum</i>	Ruby Meadowhawk	S5	Common	>75	2009.07.20,21 2009.08.17,18,19

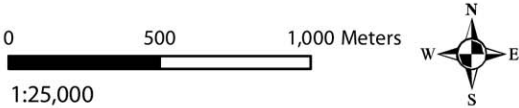
Table 2. Holland Marsh Lepidoptera survey results, 2009.

Species	Common Name	S-rank	Local Rank	# Observed	Date
<i>Alypia octomaculata</i>	8 Spotted Forester	S5	-	2	2009.08.17,19
<i>Boloria selene</i>	Silver-bordered Fritillary	S5	Uncommon	8	2009.08.17,18,19
<i>Cercyonis pegala</i>	Common Wood Nymph	S5	Common	>20	2009.06.02 2009.07.20,21
<i>Coenonympha tullia</i>	Common Ringlet	S5	Common	>25	2009.06.02 2009.07.20,21 2009.08.17,18,19
<i>Colias philodice</i>	Common Sulphur	S5	Common	>50	2009.06.02 2009.07.20,21
<i>Ctenuchia virginica</i>	Virginia Ctenuchia Moth	S5	Common	>25	2009.08.17,18,19
<i>Danaus plexippus</i>	Monarch	S4B, S2N	Common	10	2009.06.02 2009.07.20,21 2009.08.17,18,19
<i>Euphydryas phaeton</i>	Baltimore Checkerspot	S4	Uncommon	2	2009.07.20,21
<i>Limenitis archippus</i>	Viceroy	S5	Common	1	2009.08.17
<i>Limenitis arthemis arthemis/asthyanx</i> hybrid	White Admiral/ Red-spotted Purple hybrid	S5	Common	1	2009.08.19
<i>Lycaena hyllus</i>	Bronze Copper	S5	-	>15	2009.08.17,18,19
<i>Megisto cymela</i>	Little Wood Satyr	S5	Common	>10	2009.07.20,21
<i>Nymphalis antiopa</i>	Mourning Cloak	S5	Common	4	2009.07.20,21
<i>Phyciodes tharos</i>	Pearl Crescent	S4	Common	10	2009.07.20,21
<i>Pieris rapae</i>	Cabbage White	SNA	Common	>50	2009.06.02 2009.07.20,21

					2009.08.17,18,19
<i>Satyroides eurydice</i>	Eyed Brown	S5	Common	>30	2009.07.20,21 2009.08.17,18,19
<i>Thymelicus lineola</i>	European Skipper	SNA	Common	>25	2009.07.20,21
<i>Vanessa cardui</i>	Painted Lady	S5	Common	5	2009.08.17,18,19
<i>Xanthotype spp.</i>	Buttercup/Crocus Geometer Moth	S4	-	3	2009.07.20,21
	Unknown micromoth (damaged)	-	-	3	2009.06.03
	Unknown micromoth (damaged)	-	-	1	2009.07.20

APPENDIX D

Historical Aerial Photographs



Legend

 Study Area

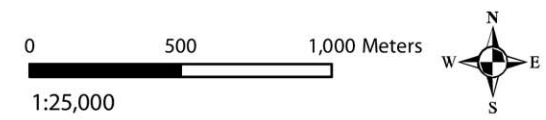
1955 Photo Montage



Holland Marsh

Historical Aerial Photography





Legend

 Study Area

1962 Photo Montage

 Red: Band_1

 Green: Band_2

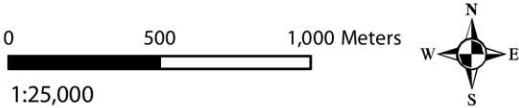
 Blue: Band_3

Holland Marsh

Historical Aerial Photography



File: H:\SAVANTA\8077 - SAV 6792 Holland Marsh\gis\Holland Marsh historic aerial photos.mxd
Revised: May 13, 2009



Legend

 Study Area

1965 Photo Montage

 Red: Band_1

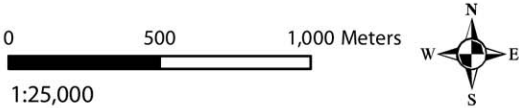
 Green: Band_2

 Blue: Band_3

Holland Marsh

Historical Aerial Photography





Legend

 Study Area

1969 Photo Montage

 Red: Band_1

 Green: Band_2

 Blue: Band_3

Holland Marsh

Historical Aerial Photography

