

# Plant Protection Survey Report

## 2012-2013

## **PREFACE**

Pest surveys are required to maintain claims of "pest-free" status of an area, to detect new populations of quarantine pests, and to delimit populations of quarantine pests with limited distributions in Canada. Pest surveys are also an integral part of control and eradication programs. Surveys provide information in support of all regulatory programs: import, export, and domestic. In all cases, reliable and accurate pest distribution data provides the basis for sound regulatory decisions.

The Plant Health Surveillance Unit is responsible for planning, coordinating, and administering the national survey program. The Survey Unit also plays a lead role in the design of new surveys and is responsible for the refinement of ongoing survey techniques and tools as new methodologies develop. Other areas of work include the development of information systems to collect, organize, and store survey data and mapping of regulated pest distributions.

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## **1. FOREST PEST SURVEYS**

### **1.1 Asian longhorned beetle (*Anoplophora glabripennis*)**

#### **Background**

The Asian longhorned beetle (ALHB) is an invasive insect that attacks and kills a wide variety of deciduous tree species. This beetle was detected for the first time in Canada in September of 2003. The infestation occurred in an area along the municipal border between the cities of Vaughan and Toronto, Ontario. An eradication program was launched in November of 2003 by the CFIA in cooperation with municipal, regional and provincial agencies as well as Natural Resources Canada-Canadian Forest Service (NRCan-CFS). Details on the progress of the eradication program can be found at the CFIA Forestry page at: [www.inspection.gc.ca/english/plaveg/for/fore.shtml](http://www.inspection.gc.ca/english/plaveg/for/fore.shtml)

In addition to the intensive detection work within the Ministerial Order eradication area, the CFIA conducts systematic grid surveys in a number of larger municipalities across Canada. The primary goal of this survey is to ensure that there are no established populations of ALHB in target urban centres.

#### **Methodology**

Currently, there is no attractant or lure available that could be used to detect adult populations of ALHB. The most reliable detection techniques available are to search either for adults during the flight period or for visible signs and symptoms of its attack on trees.

The grid survey methodology was developed in collaboration with NRCan-CFS. Each city was surveyed using a triangular grid consisting of contiguous survey points. The objective is to detect an infestation with a radius of 750 m or larger in any of the target areas. This size of the grid was chosen because it corresponds to the approximate size of the core infestation in the Greater Toronto Area. Host material present at each site was inspected for signs of ALHB and citrus longhorned beetle (CLHB) infestation (see section 3.7 for information on the CLHB survey). This approach was designed to ensure a high probability of detecting the presence of an advanced infestation at each grid point.

#### **Results**

The ALHB survey was conducted in 6 provinces for a total of 1333 sites (Table 1). No signs or symptoms of Asian longhorned beetle were observed during these surveys.

**Table 1.** Asian longhorned beetle detection grid survey results for 2012-2013.

<b>Province</b>	<b>Municipality</b>	<b>Sites*</b>
British Columbia	City and Township of Langley	215
New Brunswick	Saint John / Grand Bay	43
	Cambelton	32
	Fredericton / Oromocto	34
	Moncton	28
Nova Scotia	Amherst	13
	Dartmouth	31
	Digby	2
	Glace Bay / New Waterford	55
	New Glasgow	6
	Wolfville	5
	Yarmouth	4
Ontario	St. Catharines	65
	Sault Ste. Marie	107
	Thunder Bay	75
	Oakville	58
	Scarborough	128
	Chatham-Kent (Dresden, Blenheim, Wallaceburg and Chatham)	34
	Essex County (Kingsville, Amherstburg and Leamington)	20
	Goderich	4
	Middlesex County (Dorchester, Kilworth, Mount Brydges and Komoka)	20
	Perth County (St. Mary's and Stratford)	26
Prince Edward Island	Summerside	15
Quebec	14 de-amalgamated municipalities on the Island of Montreal	126
	Trois-Rivières	55
	Sorel-Tracy	21
	Granby	21
	Sherbrooke	40
	Pont-Rouge	5
	Donnacona	4
	St-Augustin de Desmaures	12
	Thetford Mines	15
	Plessisville	4
	Disraeli	4
	Boischatel	4
	L'Ange-Gardien	2

\*Includes sites in the predetermined grid survey that were either not accessible or did not contain host trees (maples).

Maps showing surveyed sites for Asian longhorned beetle (ALHB):

- Survey map for *A. glabripennis*, British Columbia
- Survey map for *A. glabripennis*, New Brunswick
- Survey map for *A. glabripennis*, Nova Scotia
- Survey map for *A. glabripennis*, Ontario
- Survey map for *A. glabripennis*, Prince Edward Island
- Survey map for *A. glabripennis*, Québec

## 1.2 Emerald ash borer (*Agrilus planipennis*)

### Background

The emerald ash borer (EAB) was first detected in Canada in Windsor, Ontario in July 2002. Since the initial detection, this species has been found in numerous locations throughout Ontario and also in Québec. The primary goal of this survey is to delimit populations of EAB and provide information in support of regulatory programs that aim to limit the human-assisted spread of EAB in Canada (CFIA policy directive D-03-08: “Phytosanitary Requirements to Prevent the Introduction Into and Spread Within Canada of the Emerald Ash Borer, *Agrilus planipennis* (Fairmaire)”). Detection surveys are conducted to determine whether EAB is present in areas not known to be infested. Additional background information on the pest and regulatory updates can be found on the CFIA Forestry page at: [www.inspection.gc.ca/english/plaveg/for/fore.shtml](http://www.inspection.gc.ca/english/plaveg/for/fore.shtml)

### Methodology

A number of strategies were employed for EAB detection in Canada, including scouting for broad-scale ash decline, visual inspection, and trapping using green prism traps baited with a green leaf volatile, (Z)-3-hexenol. A pheromone, (3Z)-lactone, found to have a synergistic effect with the host volatiles, was added to select survey sites in 2012. Target sites for this survey include areas showing broad-scale ash decline and high risk sites where the pest is most likely to have been introduced through human activities, such as campgrounds, firewood dealers, rest stops along major transportation corridors, urban areas recently planted with host material, sawmills, and holiday destinations. Traps were also deployed within select urban centres using a grid-based approach.

### Results

The survey was conducted in all provinces for a total of 1058 sites (Table 2). New detections were recorded in Ontario, within the Counties of Bruce and Frontenac, and in Quebec, within Laval, Longueuil, MRC Les-Collines-de-l’Outaouais and MRC Papineau.

**Table 2.** Emerald ash borer survey results for 2012-2013.

Province	Sites	Results
Alberta	47	No detections
British Columbia	25	No detections
Manitoba	74	No detections
New Brunswick	33	No detections
Newfoundland and Labrador	7	No detections
Nova Scotia	42	No detections
Ontario	550	Detections in the Counties of Bruce and Frontenac
Prince Edward Island	10	No detections
Quebec	239	Detections in Laval, Longueuil, MRC Les-Collines-de-l'Outaouais and MRC Papineau
Saskatchewan	31	No detections

Maps showing surveyed sites for emerald ash borer (EAB):

- Survey map for *A. planipennis*, Alberta
- Survey map for *A. planipennis*, British Columbia
- Survey map for *A. planipennis*, Manitoba
- Survey map for *A. planipennis*, New Brunswick
- Survey map for *A. planipennis*, Newfoundland and Labrador
- Survey map for *A. planipennis*, Nova Scotia
- Survey map for *A. planipennis*, Ontario
- Survey map for *A. planipennis*, Prince Edward Island
- Survey map for *A. planipennis*, Quebec
- Survey map for *A. planipennis*, Saskatchewan

## 1.3 Invasive Alien Forest Insect Surveys

### Background

The invasive alien forest insect surveys (IAS) are pathway-based surveys designed to detect a broad range of wood borers and bark beetles. The surveys focus on urban areas where the risk of invasive alien insects moved with international wood packaging and dunnage is greatest. There are two components to these surveys. The first survey is a semiochemical trapping program, which targets a variety of wood borers such as those from the following taxa: Scolytinae, Siricidae, Buprestidae and Cerambycidae. The second survey consists of rearing insects collected from declining trees in urban environments. The rearing survey complements the trapping surveys for species or groups of insects that do not readily respond to commercially available semiochemicals, particularly insect borers of hardwoods.

The primary goal of these surveys is to detect new introductions of non-indigenous species not known to be present in Canada. These surveys complement policies directed at the prevention of invasive alien forest insects that may enter North America on commodities that use non-manufactured wood packaging and marine cargo supported by loose wood dunnage (CFIA policy directive D-98-08: “Entry Requirements for Wood Packaging Material into Canada”).

## **Methodology**

### **IAS Trapping Survey**

From 2002 to 2011, traps were baited with three types of lures: the Contech Inc exotic bark beetle lure (2-methyl-3-buten-2-ol, cis-verbenol, racemic ipsdienol); ultra high release ethanol and ultra high release alpha-pinene; or ultra high release ethanol by itself. Based on multiple years of field research by NRCan-CFS in Canada and overseas, the exotic bark beetle and ultra high release ethanol lures were replaced with C6 and C8 ketol lures. Although these chemicals are pheromones for longhorned beetles belonging to the Cerambycinae subfamily, they will also capture other wood boring insects. The rationale for implementing different lures is three-fold: non-indigenous longhorned beetles are frequently intercepted in international wood packaging material; these new chemicals were scientifically field tested in Europe and Asia demonstrating attraction to pests which could be introduced into Canada; and after ten years of using the same lures, similar insects were repeatedly captured in the IAS traps. Due to the high costs associated with synthesizing the ketols, the number of traps per site decreased from nine in previous years to six in 2012.

Lindgren traps (12-funnels) were placed in forested areas within 5 km of high risk sites, including industrial zones receiving large volumes of international commodities, industrial and municipal disposal facilities/landfills, wood packaging disposal facilities, international ports and terminals and freight forwarding facilities. At each site three traps were baited with ultra-high release ethanol + ultra-high release alpha-pinene and three traps were baited with C6 ketol + C8 ketol + ultra-high release ethanol. Traps are placed beginning in March and collected at the end of September.

### **IAS Rearing Survey**

The rearing survey consists of obtaining two log sections from a tree that is targeted for removal by a city’s hazard tree removal program. Trees are selected for sampling based on a pre-determined set of criteria based on signs of decline. Logs are placed in a custom designed rearing facility for up to two years under climate-controlled conditions. Emerging insects are regularly collected from the bolts. Rearing facilities are located in the cities of North Vancouver, Toronto, Halifax Regional Municipality and Montreal.

## **Results**

The IAS trapping survey was conducted in 6 provinces for a total of 68 sites (Table 3).

In Alberta, the IAS trapping survey was conducted by StopDED, Alberta Sustainable Resource Development and various municipalities in collaboration with CFIA. No new invasive forest pest species were detected during this survey.

**Table 3.** Invasive Alien Forest Insects Trapping Survey results for 2012-2013.

Province	Sites	Results
British Columbia	19	No new detections of regulated pests. <i>Xylosandrus crassiusculus</i> (Coleoptera: Scolytinae) (North Vancouver, new provincial record), <i>Hylastes opacus</i> (Coleoptera: Scolytinae) (Port Coquitlam, new provincial record) and <i>Scolytus schevyrewi</i> (Coleoptera: Scolytinae) (Summerland, new city record) were detected. <i>Neoclytus mucronatus</i> (Coleoptera: Cerambycidae) (Surrey, new provincial record) a longhorned beetle native to Ontario and eastern North America was also captured.
New Brunswick	5	No new detections of regulated pests.
Newfoundland and Labrador	3	No new detections of regulated pests.
Nova Scotia	11	No new detections of regulated pests.
Ontario	16	No new detections of regulated pests. <i>Xylosandrus crassiusculus</i> (Coleoptera: Scolytinae) (St. Thomas, new Canadian and provincial records), <i>Scolytus schevyrewi</i> (Coleoptera: Scolytinae) (Hamilton, new city record) and <i>Orchestes alni</i> (Coleoptera: Curculionidae) were detected. <i>Sandalus niger</i> (Coleoptera: Sandalidae), an indigenous cicada parasite which is rarely captured in the IAS traps, was collected in Windsor.
Quebec	18	No new detections of regulated pests.

Maps showing surveyed sites for the invasive alien forest trapping survey:

- Survey map for the invasive alien forest insects, British Columbia
- Survey map for the invasive alien forest insects, New Brunswick
- Survey map for the invasive alien forest insects, Newfoundland and Labrador
- Survey map for the invasive alien forest insects, Nova Scotia
- Survey map for the invasive alien forest insects, Ontario
- Survey map for the invasive alien forest insects, Quebec

For additional information concerning the rearing survey, contact the Plant Health Surveillance Unit ([surveillance@inspection.gc.ca](mailto:surveillance@inspection.gc.ca)).

## 1.4 European gypsy moth (*Lymantria dispar dispar*)

### Background

The European gypsy moth is established in southern areas of Ontario and Quebec, southwestern areas of New Brunswick and Nova Scotia, and in Charlottetown and Summerside, Prince Edward Island. Pheromone-based monitoring surveys are conducted annually in non-regulated



areas of Canada. Surveys are also conducted to verify eradication of the insect in areas where eradication programs have been undertaken. This survey provides information in support of a number of regulatory programs and policies (e.g. CFIA policy directive D-98-09: “Comprehensive policy to control the spread of North American gypsy moth, *Lymantria dispar* in Canada and the United States”).

## Methodology

Trapping was performed using Delta traps baited with (+)-disparlure pheromone. Two systems of trapping can be used depending on the status of the area to survey. Detection trapping is used to determine if European gypsy moth is present in an area currently considered free from the pest, and delimitation trapping is used to determine the extent of a population once a detection has been confirmed. The two systems use different trapping densities. Trapping is focussed on areas where risk of introduction is greatest, e.g., urban and suburban areas, tourist destinations, campsites, provincial parks and some transportation corridors.

## Results

The survey was conducted in 9 provinces for a total of 7272 sites (Table 4).

**Table 4.** European gypsy moth survey results for 2012-2013.

Province	Sites	Results
Alberta	776	No detections
British Columbia	4110	A total of 3 moths were captured in 3 positive traps located in Surrey, Kaslo & Sooke.
Manitoba	808	A total of 11 moths were captured in 6 positive traps located in Winnipeg & Brandon.
New Brunswick	182	A total of 91 moths were collected in 40 positive traps.
Newfoundland & Labrador	206	A total of 13 moths were collected in 10 positive traps. Most of the detections, (11 moths in 8 traps) were made in Bannerman Park, St. John's.
Nova Scotia	182	A total of 55 moths were collected in 21 positive traps. Detections were made in Antigonish County, in the Highlands National Park, and in the Sydney area.
Ontario	200	No detections.
Prince Edward Island	297	A total of 1436 moths were collected at 257 sites. One egg mass, along with larval skins and pupal cases were detected in Howlan, Prince County.
Saskatchewan	511	At total of 2 moths were captured in 2 positive traps located in Regina & Yorkton.

Maps showing surveyed sites for *L. dispar dispar*:

- Survey map for *L. dispar dispar*, Alberta
- Survey map for *L. dispar dispar*, British Columbia
- Survey map for *L. dispar dispar*, Manitoba
- Survey map for *L. dispar dispar*, New Brunswick
- Survey map for *L. dispar dispar*, Newfoundland and Labrador
- Survey map for *L. dispar dispar*, Nova Scotia
- Survey map for *L. dispar dispar*, Ontario
- Survey map for *L. dispar dispar*, Prince Edward Island
- Survey map for *L. dispar dispar*, Saskatchewan

## 1.5 Brown spruce longhorn beetle (*Tetropium fuscum*)

### Background

The brown spruce longhorn beetle (BSLB), an introduced wood-boring pest, is native to north and central Europe and Japan, where it uses stressed and dying conifers, most notably the Norway spruce (*Picea abies*), as hosts. In 1999, the beetle was detected in Point Pleasant Park, Halifax, Nova Scotia (N.S.), and subsequent investigations confirmed that beetles collected in the park as early as 1990 were, in fact, BSLB. Studies conducted by the Canadian Forest Service (NRCan-CFS) since 1999 indicate that the wood-boring beetle is killing slow-growing spruce trees by feeding on the cambium and phloem and eventually girdling the tree. Based on pest risk assessment, BSLB is considered a pest of quarantine significance in Canada and is regulated under the Plant Protection Act. This survey targets areas where BSLB is not known to occur in support of the *Brown Spruce Longhorn Beetle Infested Places Order* and related policies and programs.

### Methodology

Trapping was conducted using IPM intercept panel traps, baited with an ultra-high-release (UHR) ethanol lure, a UHR BSLB lure and a BSLB pheromone lure (fuscumol) developed by NRCan-CFS. Trapping was conducted at priority sites such as sawmills, pulp mills, campgrounds and ports and in general forested areas. Forest stands consisting of at least 50% spruce that is mature or overmature, and greater than 30 cm diameter at breast height, were selected. Stands showing stress from various factors such as wind damage, insect attack, and drought were selected over healthy forests.

### Kouchibouguac National Park Survey

As a follow-up to the single specimen captured in Kouchibouguac National Park a visual survey was completed in the fall of 2011. The areas surveyed included spruce forests near the positive trap and within and adjacent to the main camp ground in the park. Wood bolts from 16 trees were placed in cages for rearing which is complete. No BSLB were detected.

CFIA, with strong cooperation from Parks Canada and NRCan-CFS completed extensive trapping within the park in 2012. Intensive trapping sites were set in Côte-à-Fabien Campground

and at the positive site Salt Marsh Trail. Four intensive trapping sites were set in the South Kouchibouguac Campground. Three of the sites had 9 trap grids and one had 16. Additionally 16 other sites within the park were targeted with either one or two traps/site.

## Results

The survey was conducted in 846 sites in Québec and Atlantic Canada (Table 5). There were 28 new positive locations in Nova Scotia outside of the current regulated Containment Area in the counties of Halifax, Hants, Pictou, Colchester, and Richmond. There are now a total of 93 sites where BSLB has been detected outside the BSLB Containment Area.

**Table 5.** Brown spruce longhorn beetle survey results for 2012-2013.

Province	Sites	Results
New Brunswick	215	No detections
Newfoundland & Labrador	20	No detections
Nova Scotia	543	There were detections at 64 sites with a total of 196 beetles collected.
Prince Edward Island	38	No detections
Quebec	30	No detections

Maps showing surveyed sites for brown spruce longhorn beetle (BSLB):

- Survey map for *T. fuscum*, Eastern Canada
- Survey map for *T. fuscum*, Central Nova Scotia
- Map for *T. fuscum*, Positive Sites Outside the Containment Area (2006-2012)

## 1.6 Thousand canker disease vector survey (*Pityophthorus juglandis*)

### Background

Thousand canker disease (TCD) is a disease complex resulting from the interaction between the fungus *Geosmithia morbida*, and its insect vector, the walnut twig beetle (*Pityophthorus juglandis*). TCD primarily affects black walnut (*Juglans nigra*) and was first documented in the western United States, where it is thought to have been responsible for widespread dieback and mortality of walnut since the mid 1990's. The walnut twig beetle bores through the bark of walnut trees carrying the fungus, which causes canker formation, wilting, branch dieback and tree mortality. Both the bark beetle vector and the fungus are native to the United States and are distributed in 9 western states, as well as Tennessee, Pennsylvania and Virginia. Both the vector and the fungus are not currently known to occur in Canada.

The objective of this survey was to determine if the vector and fungus are present in Canada.

## Methodology

This trapping survey was developed to target the insect vector of TCD, the walnut twig beetle, since it is difficult to detect the presence of the fungal pathogen in the early stages of infection. This survey was conducted in British Columbia and Ontario in woodlots, parks, fencerows, and other forested areas containing black walnut or other walnut species. Sites were prioritized based on their proximity to importers of walnut products such as logs and lumber, from the U.S. Adult walnut twig beetles were surveyed using Lindgren traps (4-funnel), baited with a walnut twig beetle aggregation pheromone, 3-methyl-2-buten-1-ol. Traps were placed in the field by June 1<sup>st</sup> and were collected at the end of August.

## Results

This survey was conducted at 37 sites in British Columbia and Ontario (Table 6). There were no detections of the walnut twig beetle.

**Table 6.** Thousand canker disease vector beetle (*Pityophthorus juglandis*) survey results for 2012-2013.

Province	Sites	Results
British Columbia	17	No detections
Ontario	20	No detections

Maps showing surveyed sites for *P. juglandis*

- Survey map for *P. juglandis*, British Columbia
- Survey map for *P. juglandis*, Ontario

## 1.7 Pine shoot beetle (*Tomicus piniperda*)

### Background

The pine shoot beetle (PSB) is an introduced pest that is native to Europe, Asia, and northern Africa. In Europe it is one of the most destructive shoot-feeding species to attack pines. It was first detected in North America in Ohio, U.S. in 1992. The pest, which is believed to have been introduced through solid wood packing material, has since been detected in the Great Lakes region of Canada and throughout the northeastern U.S.

This survey is being conducted in support of CFIA Policy Directive D-94-22: “Plant Protection Requirements on Pine Plants and Pine Materials to Prevent the Entry and Spread of Pine Shoot Beetle”, and various other policies and programs aimed at preventing the spread of PSB from infested areas within Canada and the United States.

## Methodology

Contech Inc. Lindgren funnel traps, baited with enhanced pine shoot beetle lures, were used to detect adult PSB. Several species of pine were identified as target hosts, including Scots pine (*Pinus sylvestris*), Jack pine (*P. banksiana*), red pine (*P. resinosa*) and eastern white pine (*P. strobus*). Pine forests near high-risk areas were targeted. High-risk areas include: saw mills, pulp mills, pole producers, Christmas tree farms, firewood vendors and nurseries that import pine from infested areas of the U.S., under a compliance agreement described in D-94-22. Traps were placed at survey sites in mid-March and were collected in at the end of May.

## Results

This survey was conducted at 111 sites in 4 provinces (Table 7). Pine shoot beetle was detected in Ontario and Quebec.

**Table 7.** Pine shoot beetle survey results for 2012-2013.

Province	Sites	Results
New Brunswick	27	No detections
Nova Scotia	21	No detections
Quebec	43	30 new detections in 5 new MRCs: Matawinie, Montmagny, L'Islet, Côte-de-Beaupré, & Mékinac
Ontario	20	New detection in city of Sault Ste. Marie

Maps showing surveyed sites for *T. piniperda*

- Survey map for *T. piniperda*, New Brunswick
- Survey map for *T. piniperda*, Nova Scotia
- Survey map for *T. piniperda*, Quebec
- Survey map for *T. piniperda*, Ontario

## 1.8 Hemlock woolly adelgid (*Adelges tsugae*)

### Background

Hemlock woolly adelgid (HWA) is a destructive pest of susceptible species of hemlock (*Tsuga* spp.) that is native to India, Japan, Taiwan, and China. HWA was first reported in North America in British Columbia in 1919, and can now be found in Alaska, Washington, Oregon, and California, resulting in minor damage to both western hemlock (*T. heterophylla*) and mountain hemlock (*T. mertensiana*). HWA was first identified in the eastern United States in Virginia in 1951. Since this time it has steadily spread and is now reported from 19 eastern states. In the eastern U.S., HWA has resulted in significant mortality of both eastern hemlock, (*T. Canadensis*) and Carolina hemlock, (*T. caroliniana*). HWA threatens the existence of these two species in many locations.

In 2012, HWA was detected on four small landscape trees at a private residence in Etobicoke, ON. Following this detection, a delimitation survey was conducted to determine the extent of the population, in order to inform policy decisions on subsequent eradication protocols. Surveys for HWA are conducted in support of CFIA Policy Directive D-07-05: *Phytosanitary requirements to prevent the introduction and spread of the hemlock woolly adelgid (Adelges tsugae Annand) from the United States and within Canada.*

## **Methodology**

A visual survey was conducted on all species of hemlock (*Tsuga* spp.) located within a 500 m radius of the infested site. Target host material was examined for signs and symptoms of HWA.

## **Results**

Delimitation surveys were conducted at all properties falling within a 500 m radius of the infested site, resulting in no additional detections of HWA.

# **1.9 Beech Leaf-mining Weevil (*Orchestes fagi*)**

## **Background**

The beech leaf-mining weevil, (BLW, *Orchestes fagi* (L.)) is primarily a pest of beech (*Fagus* spp.) that can also feed on fruit trees such as apple, peach, and cherry (*Malus* and *Prunus* spp.). BLW is native to Europe where its distribution is widespread and population levels are usually below economic thresholds. However, periodic outbreaks of the pest do occur and can result in defoliation of beech trees and damage to tree fruits by newly emerged adults.

The primary goal of this survey is to determine the distribution of BLW in Canada to help inform the CFIA on regulatory decisions regarding the pest.

## **Methodology**

Adults, larvae and signs of BLW attack were all targeted in this survey. Visual surveys were used to detect signs and symptoms of a BLW infestation, whereas branch beating was used to detect adult beetle specimens. Areas that contained at least 6 beech trees in forest stands, urban parks, and municipal street locations were selected as survey sites. Surveys were conducted from May to the end of July.

## **Results**

This survey was conducted at 36 sites in Nova Scotia. BLW was found to be established in the vicinities of Halifax, Chester Grant, and Sydney, Nova Scotia. It is believed that BLW has been present in the Halifax area since at least 2006 based on observations of beech tree defoliation and related mortality.

Maps showing surveyed sites for *O. fagi*:

- Survey map for *O. fagi*, Nova Scotia

## 2. INVASIVE PLANTS SURVEYS

### 2.1 Woolly cupgrass (*Eriochloa villosa*)

#### Background

Woolly cupgrass is an invasive plant that competes with field crops, such as corn and soybeans. It has become well established in the mid-western United States, where it is an economic concern to corn and soybean farmers due to the reduction in crop yields. Woolly cupgrass was first discovered in Canada in 2000 in an experimental test plot close to St-Hyacinthe, Quebec. Since then, its occurrence has been reported in 7 municipalities of Quebec (St-Hyacinthe, St-Cesaire, Bedford, Standbridge Station, St-Denis-sur-Richelieu, Notre-Dame-de-Stanbridge and Pike River).

This survey was conducted to detect and delimit populations of woolly cupgrass in Quebec.

#### Methodology

Delimitation surveys were conducted at sites where the presence of the weed has been confirmed in the past and also in neighboring fields and ditches. Detection surveys were also conducted targeting fields of oilseeds (canola, flax and soybeans), cereals, pulses (peas and beans), corn and millet. Visual inspection was carried out along field edges / perimeter, field gateways, farm lanes leading to the field and ditches running parallel to the field.

\*Please note that each site represents a variable number of fields surveyed.

#### Results

This survey was conducted in Quebec at 216 sites (Table 8). Detections were made at in 33 fields at 17 sites.

**Table 8.** Woolly Cupgrass survey results for 2012-2013.

Province	Sites	Results
Quebec	216 (696 fields)	Detections at 17 sites (33 fields). Eight sites (13 fields) were located in 6 new municipalities: Ste-Elisabeth, St-Armand, St-Sébastien, Ste-Ursule, St-Justin, Maskinongé. Nine (9) new positive sites (20 fields) in Pike River (partially regulated) were adjacent or close to known infested sites.

Maps showing surveyed sites for *E. villosa*:

- Survey map for *E. villosa*, Quebec

## 2.2 Invasive plant survey – Seed and grain handling facilities

### Background

The introduction of the Invasive Alien Species program within CFIA has increased efforts to regulate many plants as pests in the same way that insects and diseases are regulated. A number of additional plants have been added to the Federal Noxious Weeds list under the *Seeds Act* that are now being considered for inclusion in the list of pests regulated under the *Plant Protection Act*. One of the major pathways of introduction of these invasive alien plants into Canada is through contaminated lots of imported seed and grain.

The main objectives of this survey are to detect new populations of the target plant species and to provide information in support of the development of regulatory policies on invasive alien plants.

### Methodology

Visual surveys were conducted in both early (June) and late summer (August to early September) to maximize the periods when plant inflorescences were present, allowing for more successful detection of the targeted plant species. Jointed Goatgrass, (*Aegilops cylindrical*) and Spring Milletgrass (*Milium vernale*) were targeted in early summer. In late summer, the targeted species were Slender Foxtail (*Alopecurus myosuroides*), Sessile Joyweed (*Alternanthera sessilis*), Yellow Bluestem (*Bothriochloa ischaemum*), Iberian Starthistle (*Centaurea iberica*), Yellow Starthistle (*Centaurea solstitialis*), Jungle-rice (*Echinochloa colona*), Woolly Cupgrass (*Eriochloa villosa*), Serrated Tussock (*Nassella trichotoma*), and Dallis Grass (*Paspalum dilatatum*).

Target sites for this survey included facilities storing, handling or processing imported seed and grain (e.g. elevators, flour mills, oil crushers, seed cleaners, feed mills including bird seed, etc.), as well as the ditches and waste areas adjacent to those sites. Surveys at target sites included visual inspection of areas where auger or conveyer belt dust and debris have settled, in loading and unloading areas, and in composting/disposal areas, as well as along driveways and railway tracks, where applicable.

### Results

The survey was conducted at 120 sites in 8 provinces (Table 9).



**Table 9.** Invasive Plant survey results for 2012-2013.

Province	Sites	Results
Alberta	13	No detections
British Columbia	13	<i>Aegilops cylindrica</i> was detected at one feed establishment site on Vancouver Island
Manitoba	20	No detections
New Brunswick	2	No detections
Nova Scotia	4	No detections
Ontario	23	No detections
Quebec	25	No detections
Saskatchewan	20	No detections

### 3. HORTICULTURE PEST SURVEYS

#### 3.1 Ramorum blight (*Phytophthora ramorum*) - National detection survey

##### Background

Since 2003, ramorum blight has been detected in a number of retail/wholesale nurseries in the southern coastal area of British Columbia. The primary goal of this survey is to provide information on the national status of ramorum blight in Canadian nurseries. More specifically, monitoring of ramorum blight is required to support eradication programs and detect new populations.

##### Methodology

The national survey targeted propagation nurseries in British Columbia, Ontario, Quebec, and Nova Scotia. In addition to those selected for the national survey, facilities where ramorum blight was previously found were monitored according to post-eradication protocols PI-010 (Eradication Protocol for Propagation Nurseries Confirmed with *Phytophthora ramorum*) and PI-011 (Eradication Protocol for Retail Nurseries Confirmed with *Phytophthora ramorum*).

The national ramorum blight survey was conducted from May to November (depending on survey location), with the majority of the inspection conducted during the spring months. The survey covered 30% to 100% of the production and wholesale nurseries in each province depending on the size of the industry. This survey focused primarily on symptomatic high-risk hosts from the genera: *Rhododendron* (includes azalea), *Camellia*, *Pieris*, *Kalmia*, and *Viburnum*. Where there were few or no plants of these five genera present at the facility, host species listed in Appendix 1 of CFIA Policy Directive D-01-01: “Phytosanitary Requirements to Prevent the Entry and Spread of *Phytophthora ramorum*”, were inspected.

## Results

The ramorum blight survey was conducted in 4 provinces for a total of 71 sites (Table 10).

**Table 10.** Ramorum blight survey results for 2012-2013.

Province	Sites	Samples	Results
British Columbia	25	1093	One detection in a nursery on Vancouver island
Nova Scotia	1	5	No detections
Ontario	45	132	No detections
Quebec	3	20	No detections

Maps showing surveyed sites for ramorum blight:

- Survey map for *P. ramorum*, British Columbia
- Survey map for *P. ramorum*, Nova Scotia
- Survey map for *P. ramorum*, Ontario
- Survey map for *P. ramorum*, Quebec

## 3.2 Grapevine virus B

### Background

Grapevine virus B (GVB) is a disease of grapevines which can cause a decrease in fruit quality, yield and lifespan, resulting in economic losses in susceptible varieties. GVB has a worldwide distribution, having been reported from Australia, the United States, Europe, Russia, South America, the Middle East, Asia, India and South Africa. In 2010, GVB was detected in Canada by the Canadian Food Inspection Agency within several lots containing distinct grapevine varieties and rootstocks imported from France.

The objective of this survey was to determine the incidence of GVB within blocks planted with vines from the lots imported in 2010 in order to inform policy decisions on the regulatory status of this virus.

### Methodology

This survey was conducted from mid-August to the end of September. Samples of red- and white-fruited varieties were collected in a systematic pattern throughout preselected blocks and submitted to the lab for analysis. Foliage from symptomatic plants was also collected and submitted to the lab for analysis.

### Results

The survey was conducted at 18 sites in British Columbia and Ontario (Table 11). GVB was detected in Ontario.

**Table 11.** Grapevine virus B survey results for 2012-2013.

Province	Sites	Results
British Columbia	8	No detections
Ontario	10	Detections at 2 sites within the town of Lincoln

### 3.3 Oriental fruit moth (*Grapholita molesta*)

#### Background

The oriental fruit moth is native to China and Korea. It was first detected in Ontario in 1925. It was intercepted and eradicated in 1957 in British Columbia and annual surveys since that time have been negative for this pest. The oriental fruit moth likely spreads to other countries in cocoons on dormant trees or in infested fruit. The principle host is *Prunus* spp.

#### Methodology

Surveys were conducted in orchards, hobby farms, ornamental nurseries and wholesale fruit handlers where target hosts were present (*Prunus persica*, *P. amygdalus*, *P. armeniaca*, *P. avium*, *P. domestica*, other *Prunus* spp., *Malus* spp., and *Cydonia oblonga*). Adult oriental fruit moths were surveyed using pheromone-baited Delta traps (Pherocon controlled-release septa). Traps were placed on target hosts by June 15<sup>th</sup> and were removed by September 20<sup>th</sup>, or the first frost, whichever date was earliest. Target hosts were also visually inspected for visible signs of damage and for presence of larval specimens.

#### Results

This survey was conducted at 125 sites in British Columbia. There were no detections.

Map showing surveyed sites for *Grapholita molesta*

- Survey map for *G. molesta*, British Columbia

### 3.4 Japanese beetle (*Popillia japonica*)

#### Background

The Japanese beetle has been present in Canada since 1939. This species of beetle affects more than 300 plant species, including many economically important commodity plants such as fruit trees, ornamental shrubs and roses, field crops, turf grasses, and sod. This survey was conducted to monitor changes in the distribution of Japanese beetles for regulatory purposes (CFIA Policy Directive D-96-15: “Phytosanitary requirements to prevent the spread of Japanese beetle, *Popillia japonica*, in Canada and the United States”). The main goal of this survey was pest detection in non-infested areas.

#### Methodology

Surveys for Japanese beetle were conducted in high risk areas such as nurseries, sod farms, golf courses, cemeteries, public parks and gardens, food terminals, truck and rail compounds/terminals, airports and border points. Emphasis was placed on sites which import soil or sod from areas known to be infested with Japanese beetle. Japanese beetle adults were surveyed in grassy areas using a specialized funnel trap, baited with a pheromone and an aromatic floral lure. Traps were placed in the field from mid-June to mid-September.

## Results

This survey was conducted at 396 sites in British Columbia and Newfoundland & Labrador (Table 12).

**Table 12.** Japanese beetle survey results for 2012-2013.

Province	Sites	Results
British Columbia	329	No detections
Newfoundland & Labrador	67	Detections of 3 beetles in Cartyville, 1 in Little Rapids and 9 in St. John's

Maps showing surveyed sites for *Popillia japonica*:

- Survey map for *P. japonica*, British Columbia
- Survey map for *P. japonica*, Newfoundland & Labrador

## 3.5 Blueberry maggot (*Rhagoletis mendax*)

### Background

Blueberry maggot is an indigenous pest of commercially grown lowbush and highbush blueberries in the Canadian Maritime Provinces. It is not found in Newfoundland & Labrador or in western Canada. This survey is being conducted in support of policies and programs related to CFIA Policy Directive D-02-04: "Phytosanitary Requirements for the Importation from the Continental United States and for Domestic Movement of Commodities Regulated for Blueberry Maggot".

### Methodology

Trapping surveys were conducted in areas not regulated for blueberry maggot within blueberry plantations and wild sites containing host species. Pherocon AM traps, baited with ammonium acetate, were suspended in an inverted "V" shape and placed at either 10 to 15 cm above lowbush plants within wild blueberry sites or at mid-canopy height within highbush blueberry plantations. Traps were in place prior to the flight period in late-June and were collected at the end of harvest (commercial plantations) or fruit drop (wild sites), in late August or early September.

### Results

This survey was conducted at 104 sites in 4 provinces within Canada (Table 13). Blueberry maggot was detected at 2 new sites within Ontario.

**Table 13.** Blueberry maggot survey results for 2012-2013.

Province	Sites	Results
British Columbia	24	No detections
Newfoundland & Labrador	19	No detections
Ontario	39	New detections in Scotland (Brant County) and Port Burwell (Elgin County)
Quebec	22	No detections

Maps showing surveyed sites for *Rhagoletis mendax*:

- Survey map for *R. mendax*, British Columbia
- Survey map for *R. mendax*, Newfoundland & Labrador
- Survey map for *R. mendax*, Ontario
- Survey map for *R. mendax*, Quebec

### 3.6 Apple maggot (*Rhagoletis pomonella*)

#### Background

Apple maggot is an indigenous pest of apples in Canada. The B.C. Interior is the last major apple growing area of North America free of this pest. The objective of this survey is the early detection of apple maggot in the B.C. Interior and to facilitate eradication should this pest be found. This survey is being conducted in support of policies and programs related to CFIA Policy Directive D-00-07: “Import and domestic phytosanitary requirements to prevent the introduction and spread of apple maggot (*Rhagoletis pomonella* spp. (Walsh)”.

#### Methodology

Host trees in organic orchards and on landowner property, as well as wild host trees along transportation routes, were primarily targeted for surveying since they do not receive insecticidal sprays. Trapping for adult flies was conducted with sticky red spheres baited with 10 g of ammonium carbonate crystals (an apple maggot attractant). Traps were placed in host trees from June 15<sup>th</sup> to October 3<sup>rd</sup>.

#### Results

Traps for apple maggot were placed at 428 sites in the Okanagan and Creston Valleys and other areas of the southern interior of BC. No apple maggot specimens were captured in 2012-2013.

Map showing surveyed sites for *Rhagoletis pomonella*:

- Survey map for *R. pomonella*, British Columbia

### 3.7 Citrus longhorned beetle nursery survey (*Anoplophora chinensis*)

#### Background

Citrus longhorned beetle is a serious threat to natural areas as well as fruit trees and woody ornamentals. This pest attacks and kills primarily healthy trees. With a host range of more than 40 hardwood species, it can be extremely difficult and expensive to eradicate. The purpose of this survey was to ensure no citrus longhorned beetle infestations exist in proximity to nurseries that have imported host material from infested areas.

#### Methodology

This survey involved the visual inspection of host material for signs and symptoms of citrus longhorned beetle in the natural environment surrounding target nurseries. Surveys were conducted between August and December, in dry weather, primarily after leaf drop.

#### Results

No evidence of citrus longhorned beetle was detected at any of the 38 locations surveyed in British Columbia, Ontario, and Quebec.

**Table 14.** Citrus longhorned beetle survey results for 2012-2013.

Province	Sites	Results
British Columbia	10	No detections
Ontario	21	No detections
Quebec	6	No detections

Map showing surveyed sites for *Anoplophora chinensis*:

- Survey map for *A. chinensis*, British Columbia
- Survey map for *A. chinensis*, Ontario
- Survey map for *A. chinensis*, Quebec

### 3.8 Apple ermine moth (*Yponomeuta malinellus*)

#### Background

The apple ermine moth (AEM) is a defoliator of apple trees (*Malus* spp.) throughout Europe and Asia, extending as far east as Japan. It was introduced into New York State in 1909, into New Brunswick in 1917 and into Ontario in 1957, but was eradicated in all cases. In Canada, AEM is established in the major apple production areas of the province of British Columbia, including the Okanagan Valley, the Fraser Valley, and southeastern Vancouver Island. AEM has not been detected within Canada east of British Columbia since 1957 and, for regulatory purposes, the entire province is considered infested. This survey is being conducted in support of policies and

programs related to CFIA Policy Directive D-96-02: “Plant Protection Requirements to Prevent the Introduction and Spread of Apple Ermine Moth on *Malus* species”, which is aimed at preventing the introduction and establishment of apple ermine moth into non-infested areas of Canada.

## Methodology

This survey targeted nursery importers of *Malus* spp. nursery stock from regulated areas (as per D-96-02) and unsprayed orchards within 1 km of these importing nurseries. In addition, neglected, abandoned and unsprayed orchards and plantings of ornamental *Malus* spp. in urban and commercial areas were also surveyed. Trapping was conducted from late June to mid-September using Pherocon 1C wing traps, baited with an AEM pheromone embedded in a rubber septum.

## Results

A survey was conducted for apple ermine moth at 100 sites in 5 provinces. No detections were made.

**Table 15.** Apple ermine moth survey results for 2012-2013.

Province	Sites	Results
New Brunswick	6	No detections
Nova Scotia	15	No detections
Ontario	49	No detections
Prince Edward Island	5	No detections
Quebec	25	No detections

Map showing surveyed sites for *Y. malinellus*:

- Survey map for *Y. malinellus*, New Brunswick
- Survey map for *Y. malinellus*, Nova Scotia
- Survey map for *Y. malinellus*, Ontario
- Survey map for *Y. malinellus*, Prince Edward Island
- Survey map for *Y. malinellus*, Quebec

## 3.9 Boxwood blight (*Cylindrocladium buxicola*)

### Background

In the late 1990's a new foliar blight of boxwood (*Buxus* spp.) appeared in the United Kingdom and New Zealand. Further investigation revealed that the causal organism was a newly described *Cylindrocladium* species, *C. buxicola* (= *C. pseudonaviculatum*). In North America, the disease was first discovered in the United States in the fall of 2011 and in a nursery in British Columbia (B.C.) in early December 2011. A pest categorisation has indicated that this organism has the potential to be a quarantine pest. The disease causes severe foliar and twig blight of *Buxus* spp.

Complete defoliation can occur and mortality has been observed in seedlings. The fungus is likely to survive anywhere in Canada where boxwood is grown. Boxwood is a key nursery species in Canada, ranking in the top 10 ornamental products.

The main objective of this survey was to obtain data on the distribution and prevalence of this disease in Canada to determine its pest status and inform U.S.-Canada bilateral discussions on this organism.

### Methodology

Visual surveys for signs and symptoms of infestation were conducted at target nursery facilities (i.e. major producers, importers and distributors of *Buxus* spp.).

### Results

This survey was conducted at 64 sites in British Columbia, Ontario and Quebec (Table 16). Detections were made in all three provinces.

**Table 16.** Boxwood blight survey results for 2012-2013.

Province	Sites	Samples	Results
British Columbia	30	165	Detections at 9 sites near Chilliwack
Ontario	41	294	Detections at 2 sites in Strathroy
Quebec	10	58	Detection in L'Assomption

## 3.10 Plum Pox Virus

In Ontario, samples from PPV-susceptible species were collected along the South and West edge of the plum pox quarantine area to determine if PPV is spreading. In 2012-2013, no PPV detections were identified.

## 4. GRAIN & OILSEED SURVEYS

### 4.1 Khapra beetle (*Trogoderma granarium*)

#### Background

The khapra beetle (*Trogoderma granarium*) is considered one of the world's most destructive pests of grain products. At optimal temperatures, populations can grow at an extremely fast rate leading to damage rates of 30 to 70%. Their wasteful feeding leads to food spoilage and the insects themselves pose a potential human health threat in infested food. In addition, khapra beetle found infesting Canadian grain products could severely affect export markets due to phytosanitary restrictions and increased costs of production through additional treatment measures. Because of this, it is regulated as a quarantine pest in many countries, including



Canada. The khapra beetle is native to India but has become established in many tropical and subtropical countries. It has also been reported in many countries throughout Africa, Asia, and parts of Europe and South America. The khapra beetle is not established in Canada. However, there have been several interceptions on imported products at Canada's borders. All incidents of khapra beetle infestations in North America have led to successful eradication thus far.

The objective of this survey was to obtain further surveillance data on the prevalence of khapra beetle to determine its current pest status and distribution within Canada.

### Methodology

Trapping and visual methods were used to survey for adult and larval khapra beetles. Target sites include facilities where khapra beetle was detected during import inspections or facilities known to be associated with these detections. High risk importers of rice products from India were also targeted. Storgard Beetle Traps (with food bait) were placed between June 1<sup>st</sup> and August 31<sup>st</sup>, when the temperature was above 20° C. Visual surveys were conducted at final trap pickup.

### Results

Khapra beetle surveys were conducted at 19 sites in 5 provinces (Table 17). There were no detections of khapra beetle in any of the surveyed sites.

**Table 17.** Khapra beetle survey results for 2012-2013.

Province	Sites	Results
British Columbia	7	No detections
New Brunswick	1	No detections
Nova Scotia	1	No detections
Ontario	5	No detections
Quebec	5	No detections

Map showing surveyed sites for *T. granarium*:

- Survey map for *T. granarium*, British Columbia
- Survey map for *T. granarium*, New Brunswick
- Survey map for *T. granarium*, Nova Scotia
- Survey map for *T. granarium*, Ontario
- Survey map for *T. granarium*, Quebec

## 4.2 Dwarf bunt (*Tilletia controversa*)

### Background

Dwarf bunt is a disease primarily affecting winter wheat. This disease is caused by the fungus *Tilletia controversa* and can result in severe stunting and reduced crop yields. Dwarf bunt is

reported from many wheat-producing areas of the world and has been detected within Canada in parts of British Columbia and Ontario. Currently, wheat produced in the Prairie Provinces and the Peace River District of Northeastern British Columbia is considered to be free from dwarf bunt. Several countries require phytosanitary certification, in part based on freedom from dwarf bunt. Currently, exports of Western wheat may not be certified for freedom from dwarf bunt if exported via transfer elevators in Eastern Canada due to potential cross contamination from infested Ontario or U.S. grain.

This survey provides is a first step towards monitoring for dwarf bunt in the major wheat production area of Western Canada to verify freedom of the pest.

### **Methodology**

This survey targeted winter wheat harvested from Provincial or prairie regional variety evaluation trials in Alberta, Saskatchewan and Manitoba. CFIA inspectors submitted samples (100 g each) from trial locations in each province. Each sample was representative of a single line or variety.

### **Results**

Eight sites were sampled in Alberta, three in Saskatchewan and one in Manitoba. All samples were negative.

## **5. POTATO PEST SURVEYS**

### **5.1 Potato cyst nematode (*Globodera rostochiensis*, *G. pallida*)**

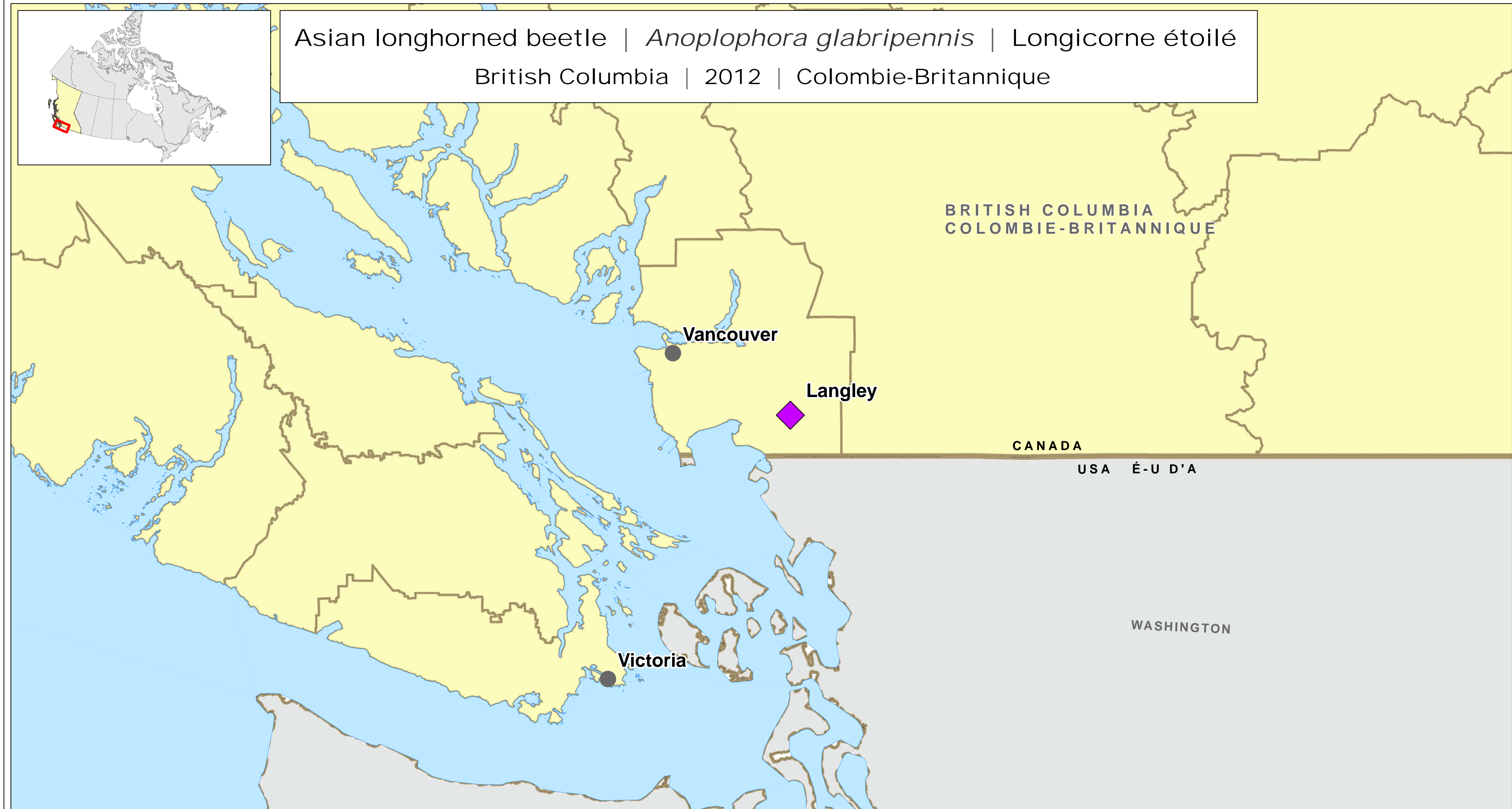
Soil sampling is conducted each year across Canada to monitor this pest. For information on this pest visit the CFIA golden nematode page at the link below:

[www.inspection.gc.ca/english/plaveg/pestrava/gloros/glorose.shtml](http://www.inspection.gc.ca/english/plaveg/pestrava/gloros/glorose.shtml)

## **APPENDIX 1 – SURVEY MAPS**

Asian longhorned beetle | *Anoplophora glabripennis* | Longicorne étoilé

British Columbia | 2012 | Colombie-Britannique



 Grid survey location | site d'enquête par grille

Produced by the Canadian Food Inspection Agency,  
Plant Health Surveillance Unit, Ottawa, Ontario.  
WGS 1984 Web Mercator Auxiliary Sphere.

Préparée par l'Agence canadienne d'inspection des aliments,  
Unité de surveillance phytosanitaire, Ottawa, Ontario.  
WGS 1984 Web Mercator (sphère auxiliaire).

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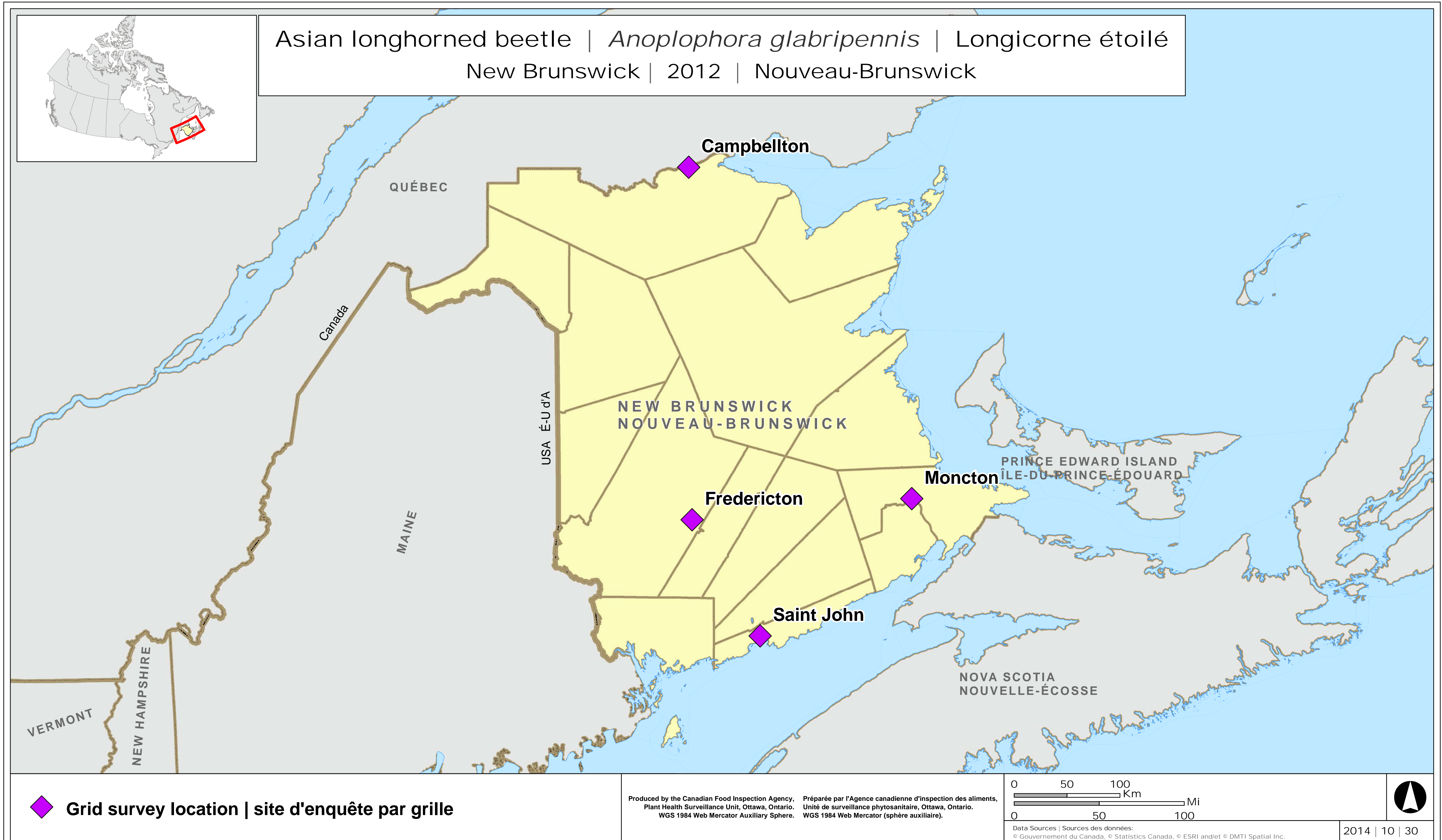
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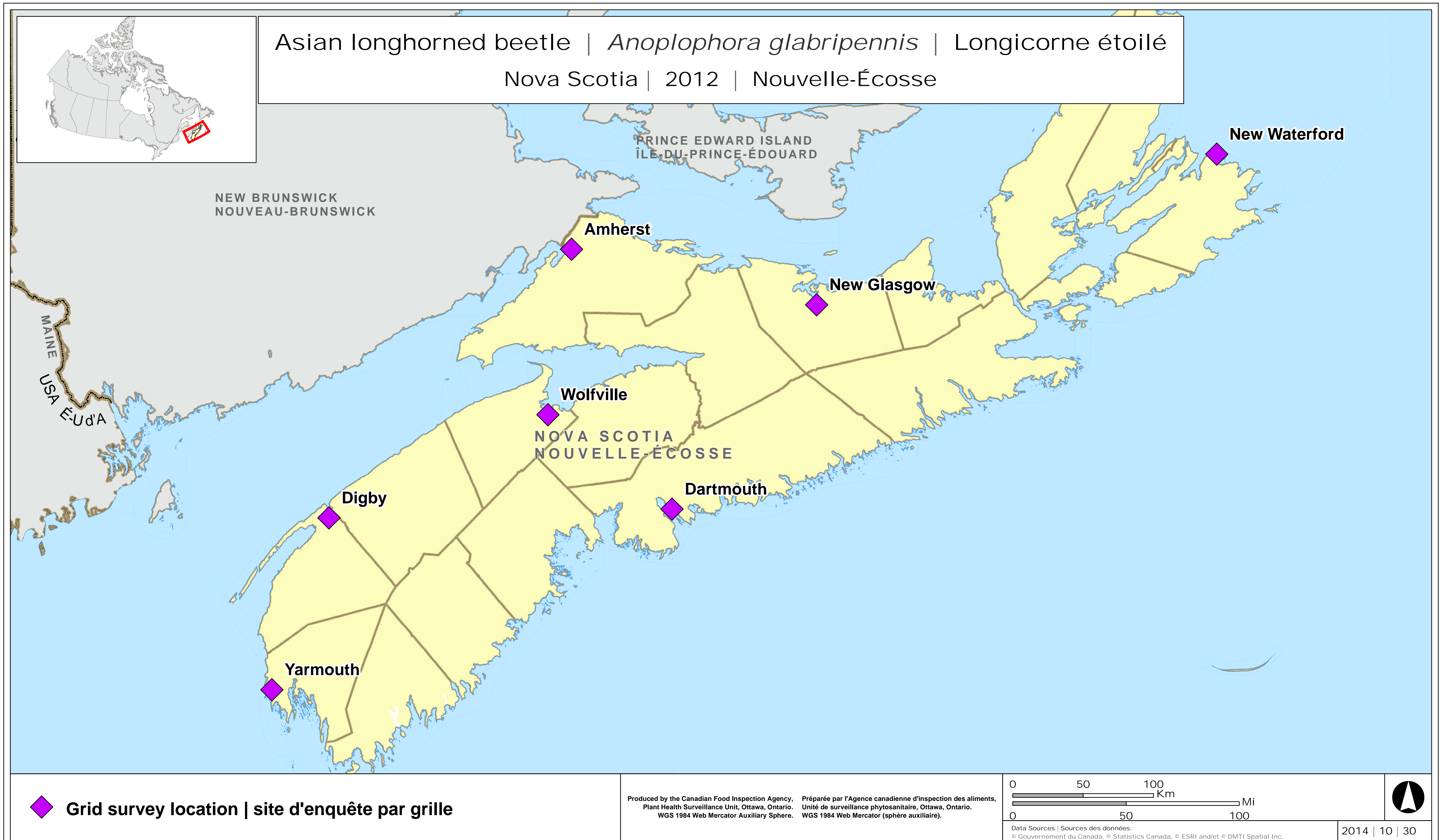
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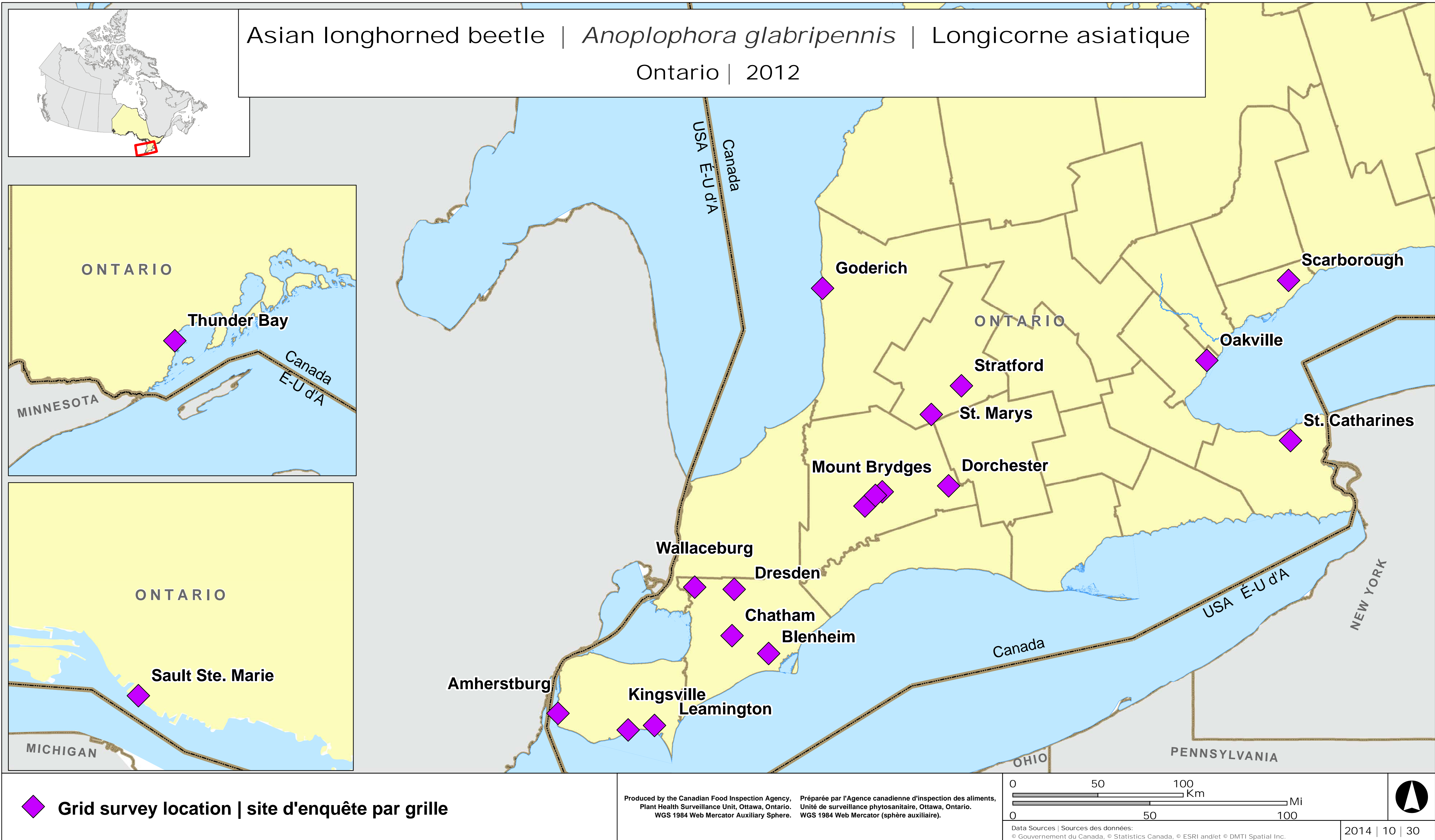




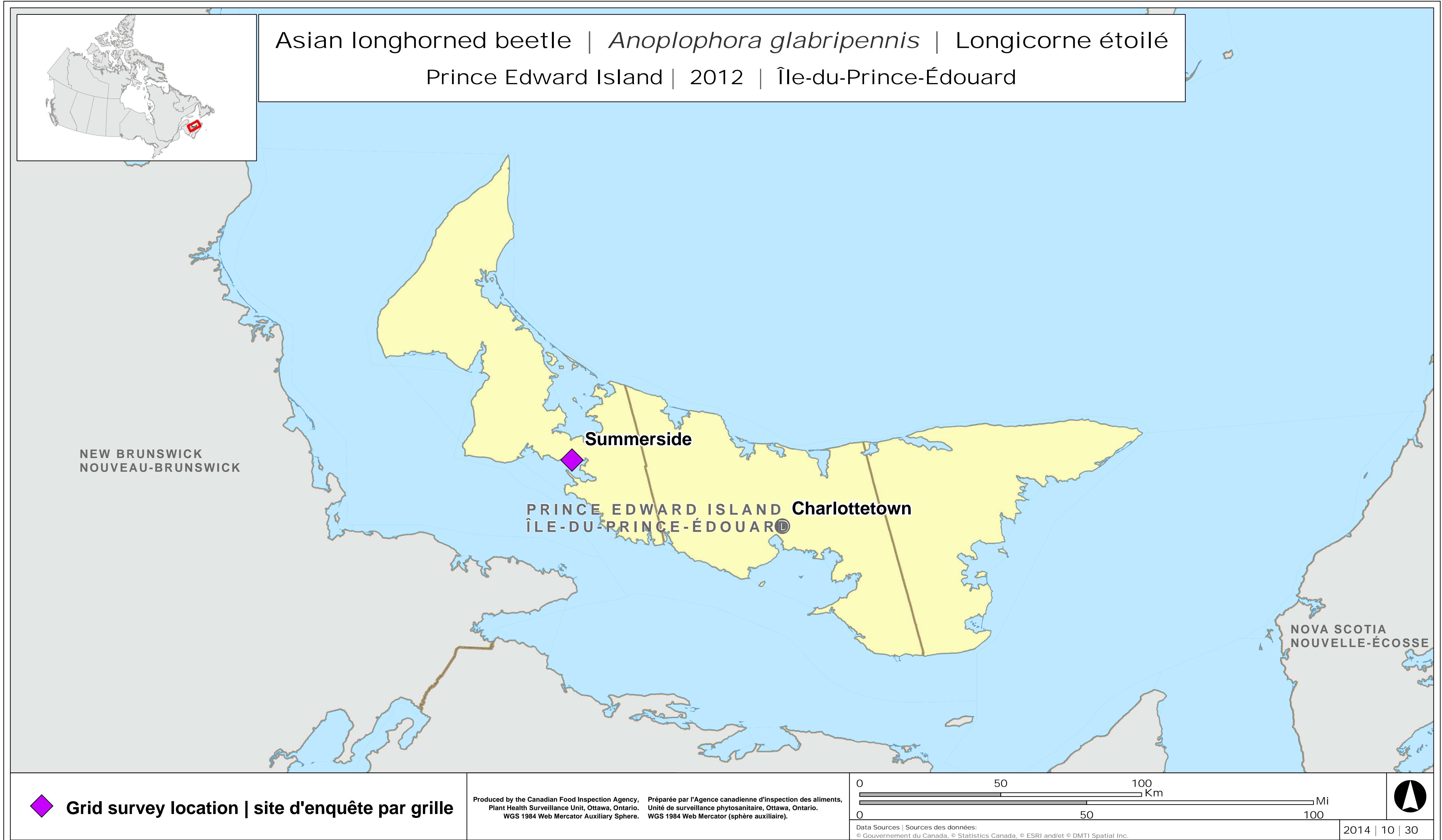


Asian longhorned beetle | *Anoplophora glabripennis* | Longicorne asiatique

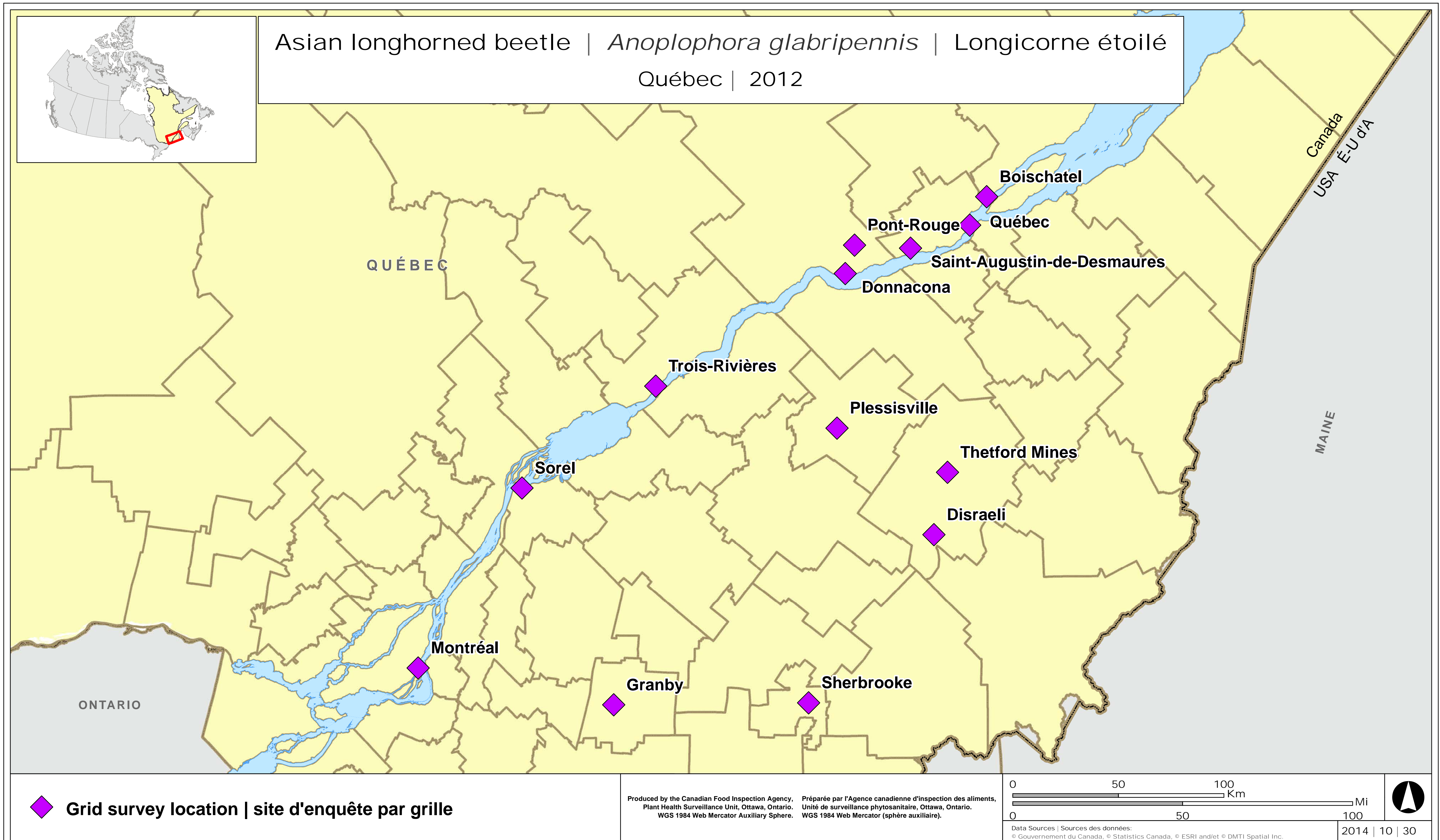
Ontario | 2012





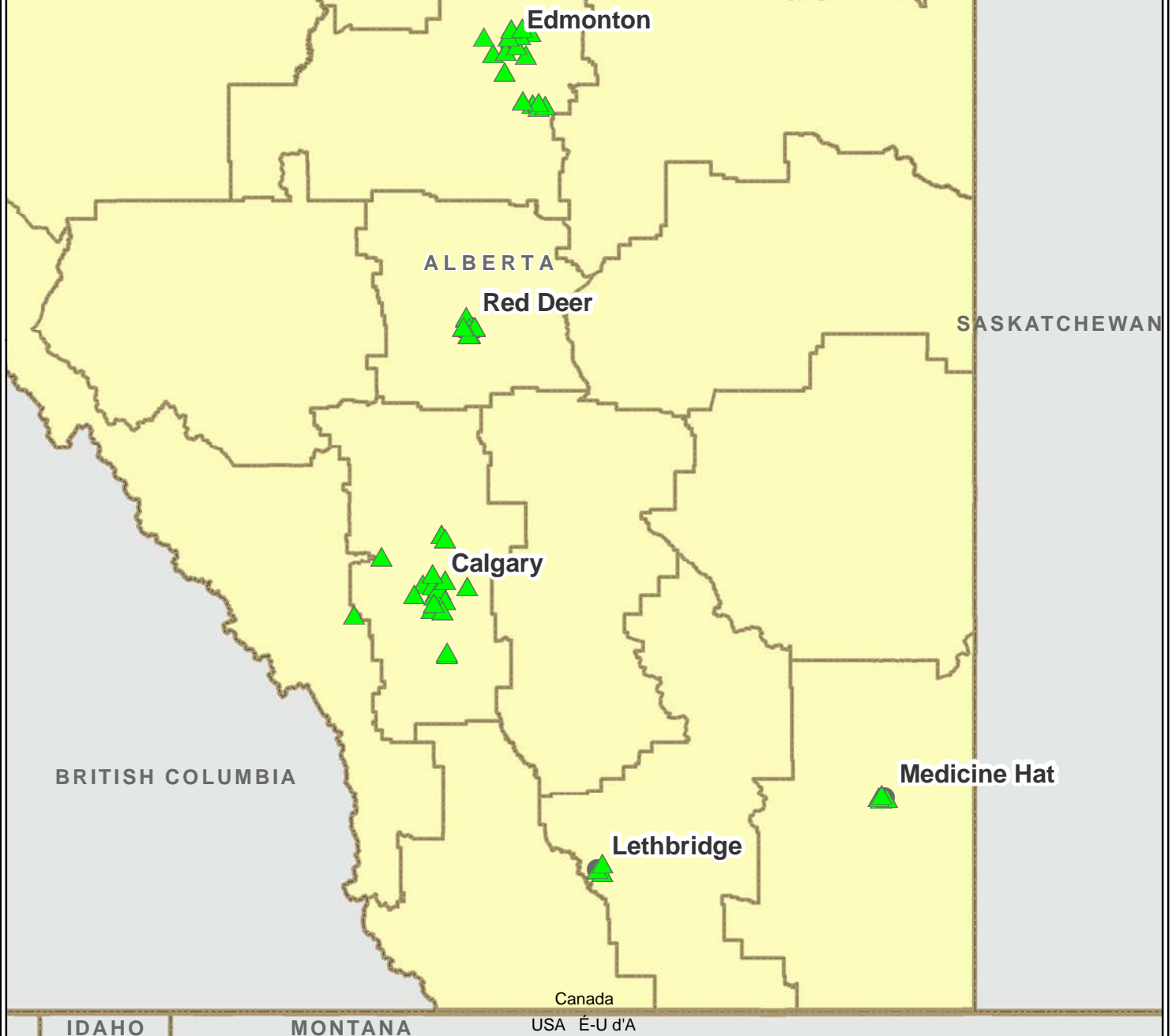








Emerald ash borer | *Agrilus planipennis* | Agrile du frêne  
Alberta | 2012



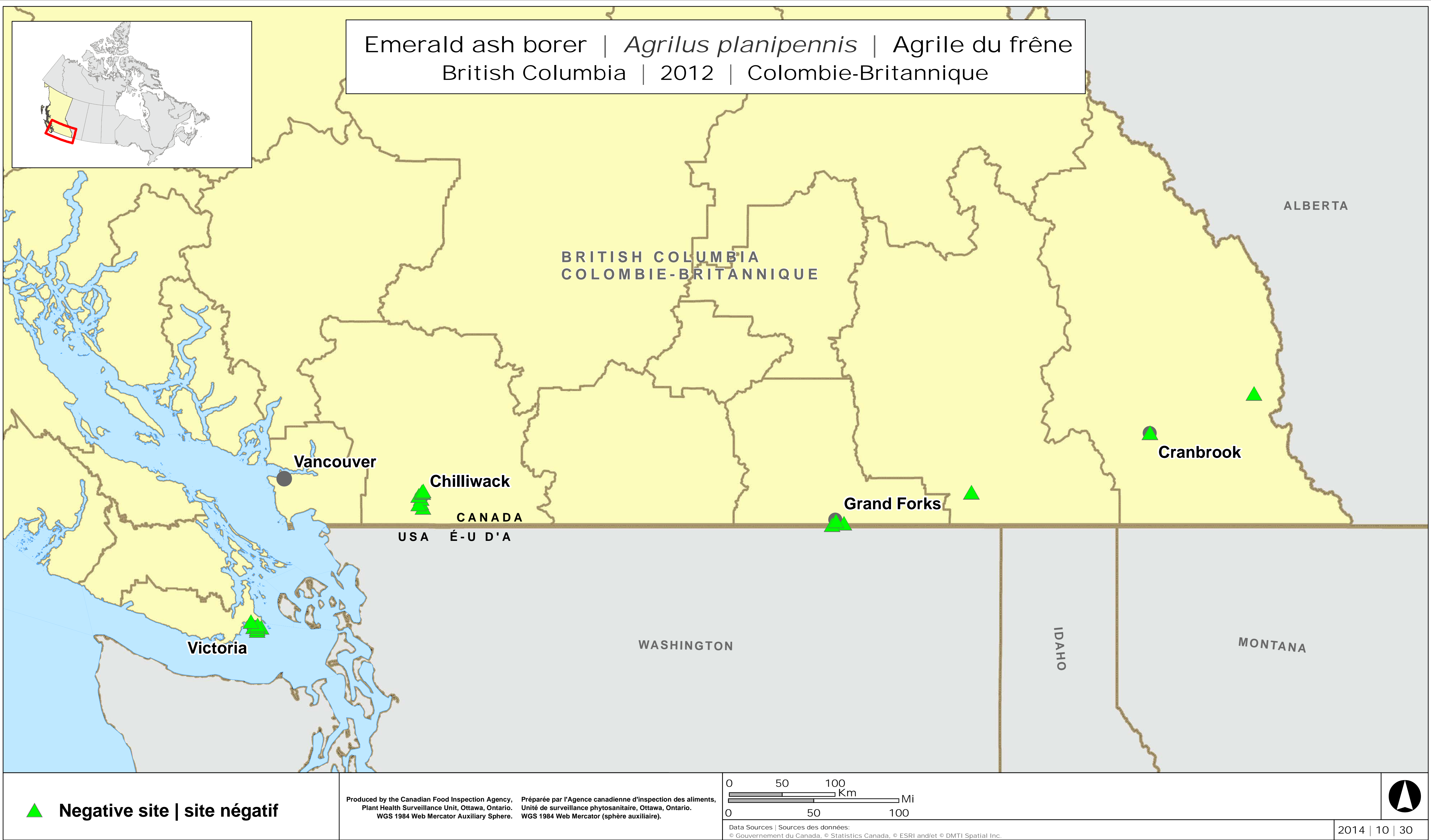
▲ Negative site | site négatif

Produced by the Canadian Food Inspection Agency, Préparée par l'Agence canadienne d'inspection des aliments,  
Plant Health Surveillance Unit, Ottawa, Ontario. Unité de surveillance phytosanitaire, Ottawa, Ontario.  
WGS 1984 Web Mercator Auxiliary Sphere. WGS 1984 Web Mercator (sphère auxiliaire).

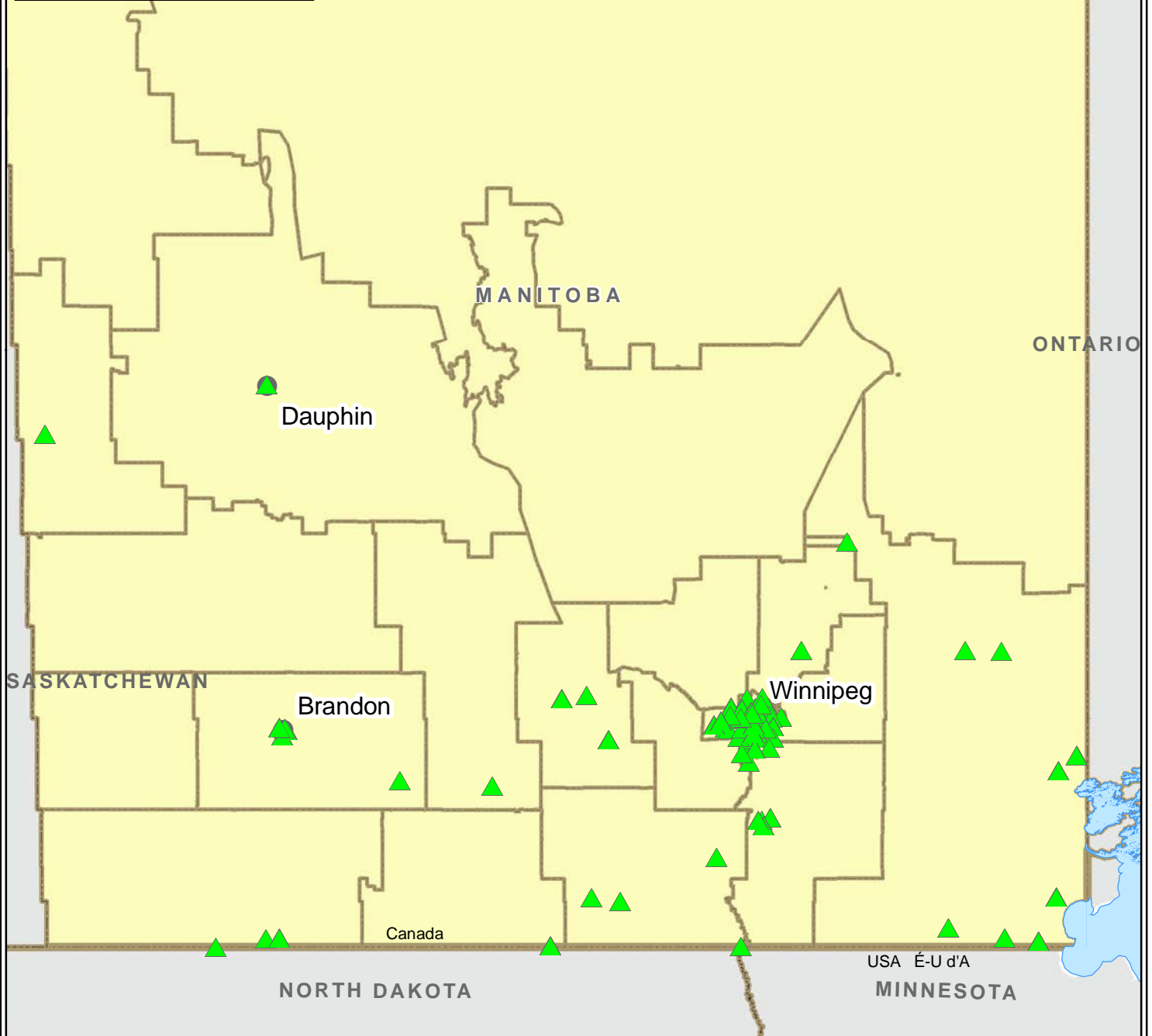
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Emerald ash borer | *Agrilus planipennis* | Agrile du frêne  
Manitoba | 2012



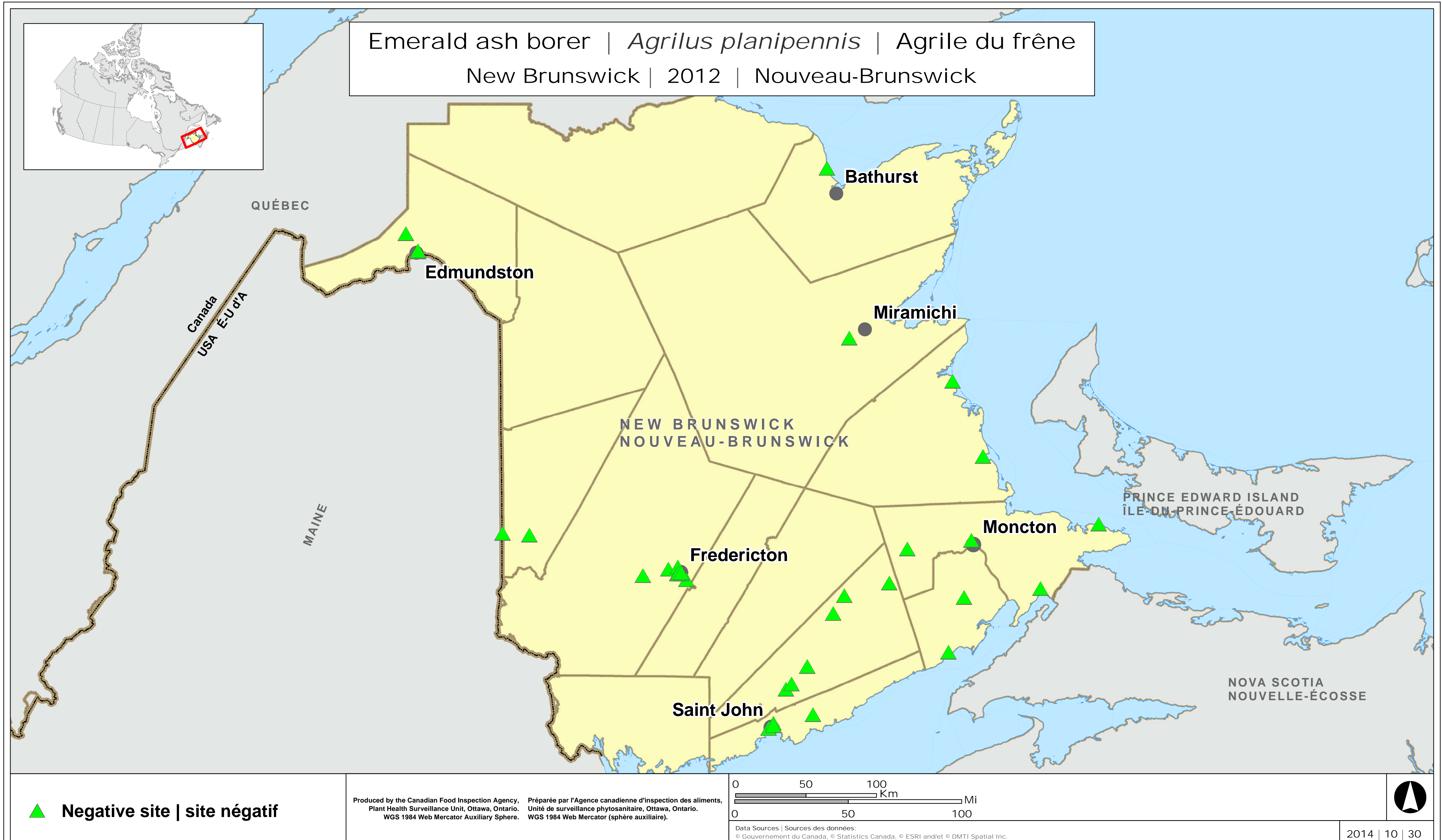
▲ Negative site | site négatif

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WGS 1984 Web Mercator Auxiliary Sphere. WGS 1984 Web Mercator (sphère auxiliaire).

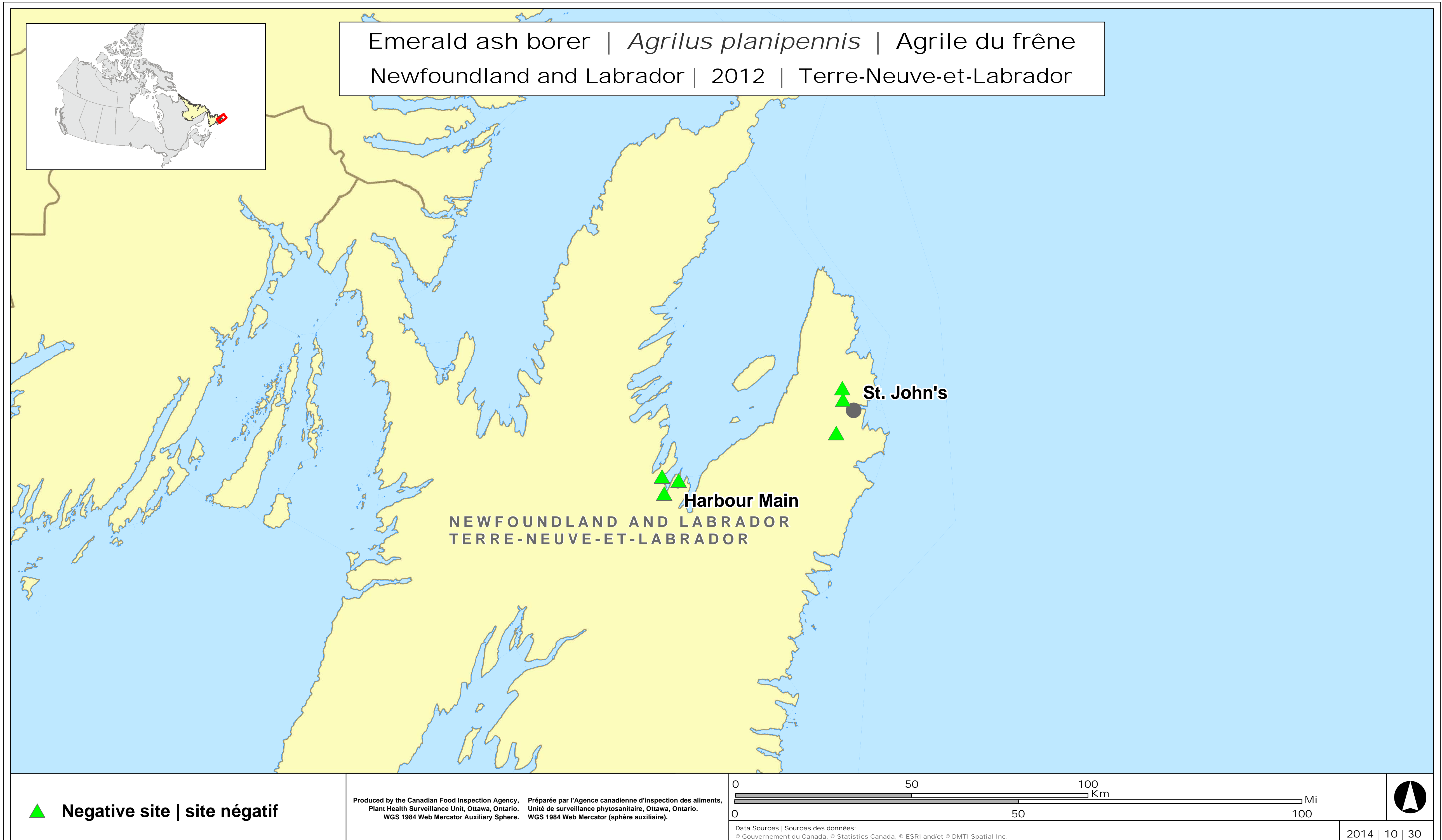
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2014 | 10 | 30

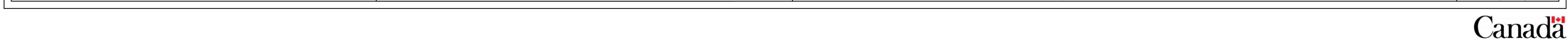




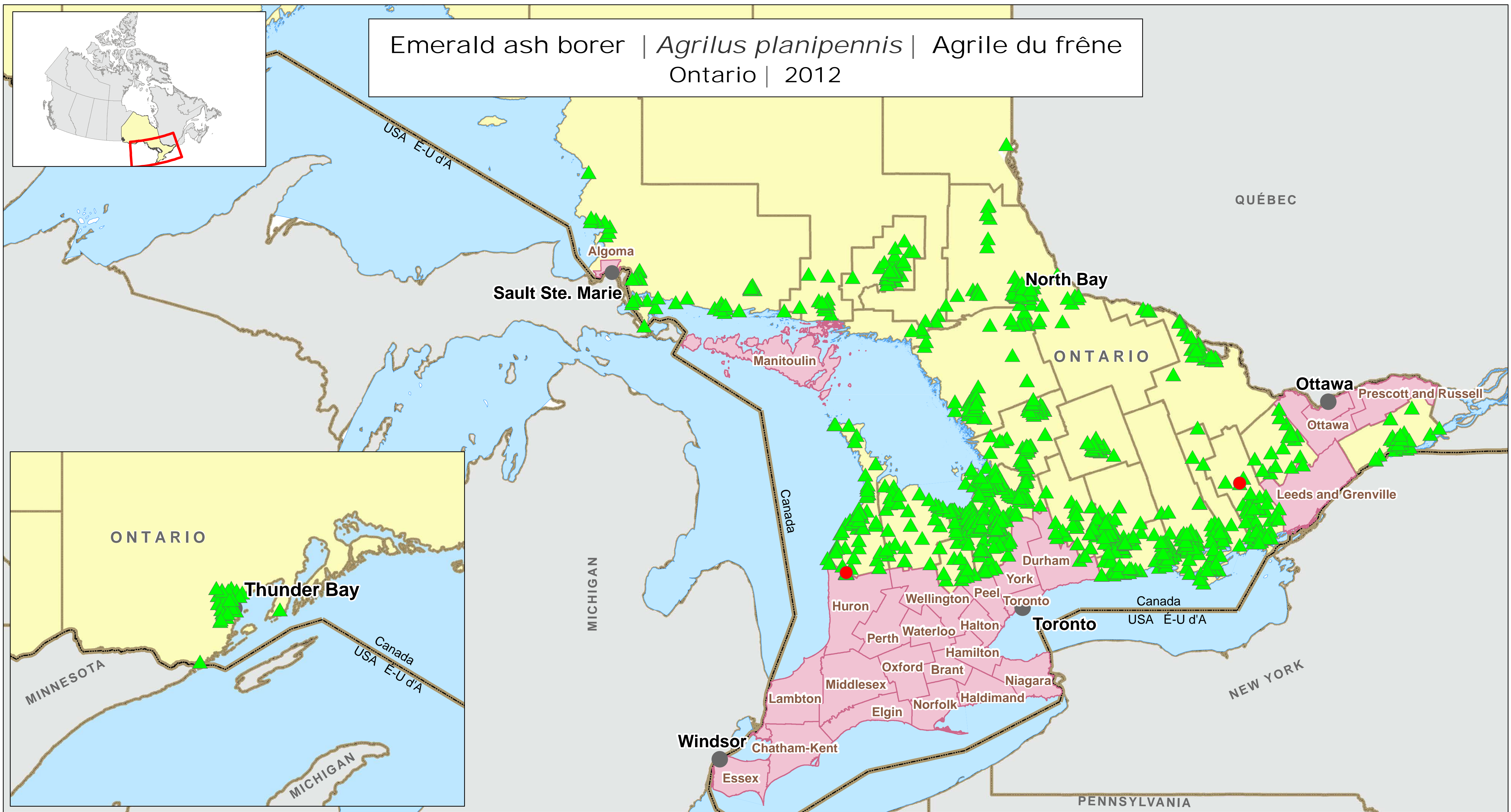












Emerald ash borer | *Agrilus planipennis* | Agrile du frêne  
Ontario | 2012

- Positive site | site positif
- Negative site | site négatif
- Regulated Area | Région réglementée

Produced by the Canadian Food Inspection Agency, Plant Health Surveillance Unit, Ottawa, Ontario. WGS 1984 Web Mercator Auxiliary Sphere. / Préparée par l'Agence canadienne d'inspection des aliments, Unité de surveillance phytosanitaire, Ottawa, Ontario. WGS 1984 Web Mercator (sphère auxiliaire).

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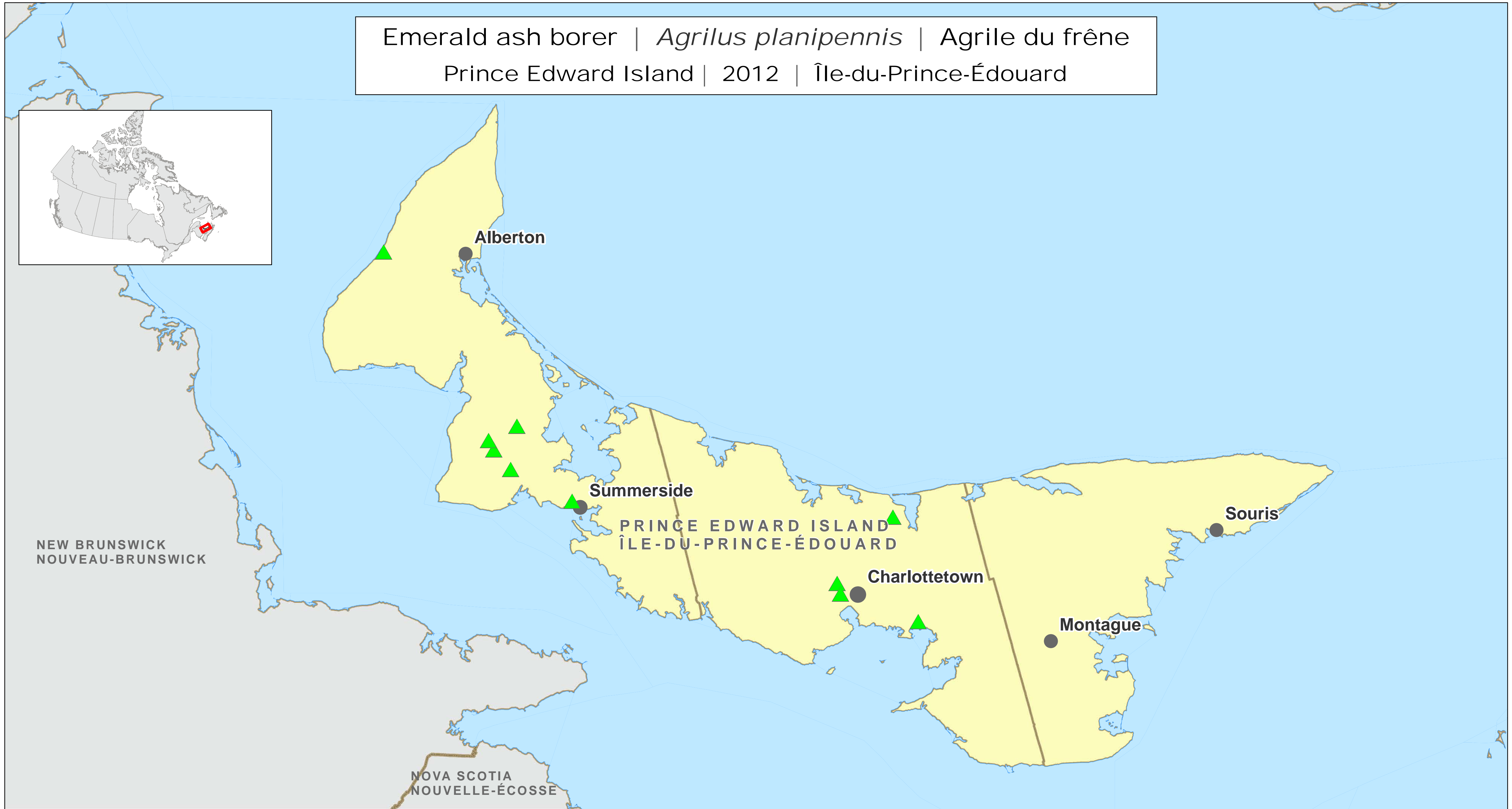
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Data Sources | Sources des données:

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2014 | 10 | 24





 Negative site | site négatif

Produced by the Canadian Food Inspection Agency,  
Plant Health Surveillance Unit, Ottawa, Ontario.  
WGS 1984 Web Mercator Auxiliary Sphere.

Préparée par l'Agence canadienne d'inspection des aliments,  
Unité de surveillance phytosanitaire, Ottawa, Ontario.  
WGS 1984 Web Mercator (sphère auxiliaire).

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Data Sources | Sources des données:

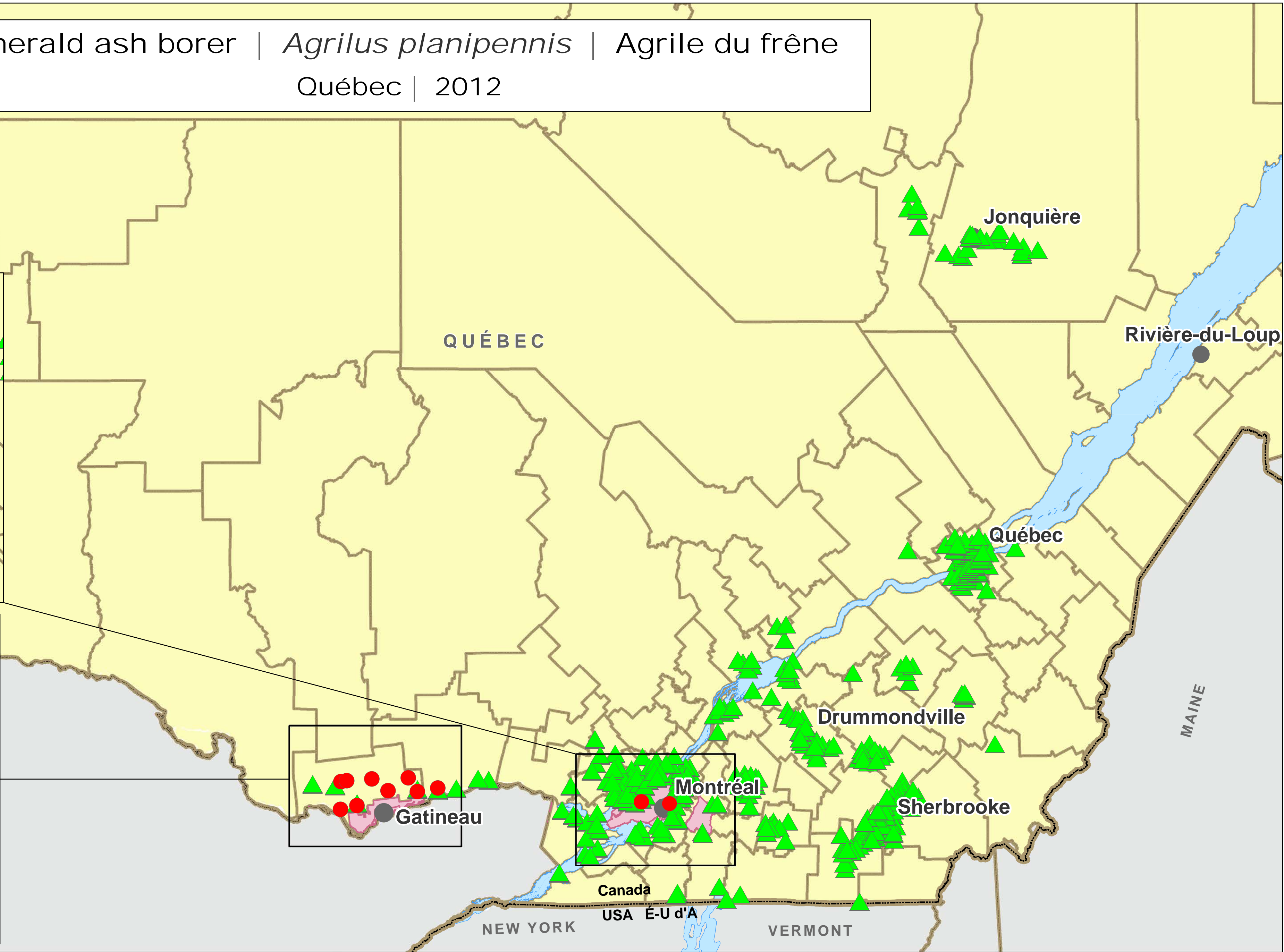
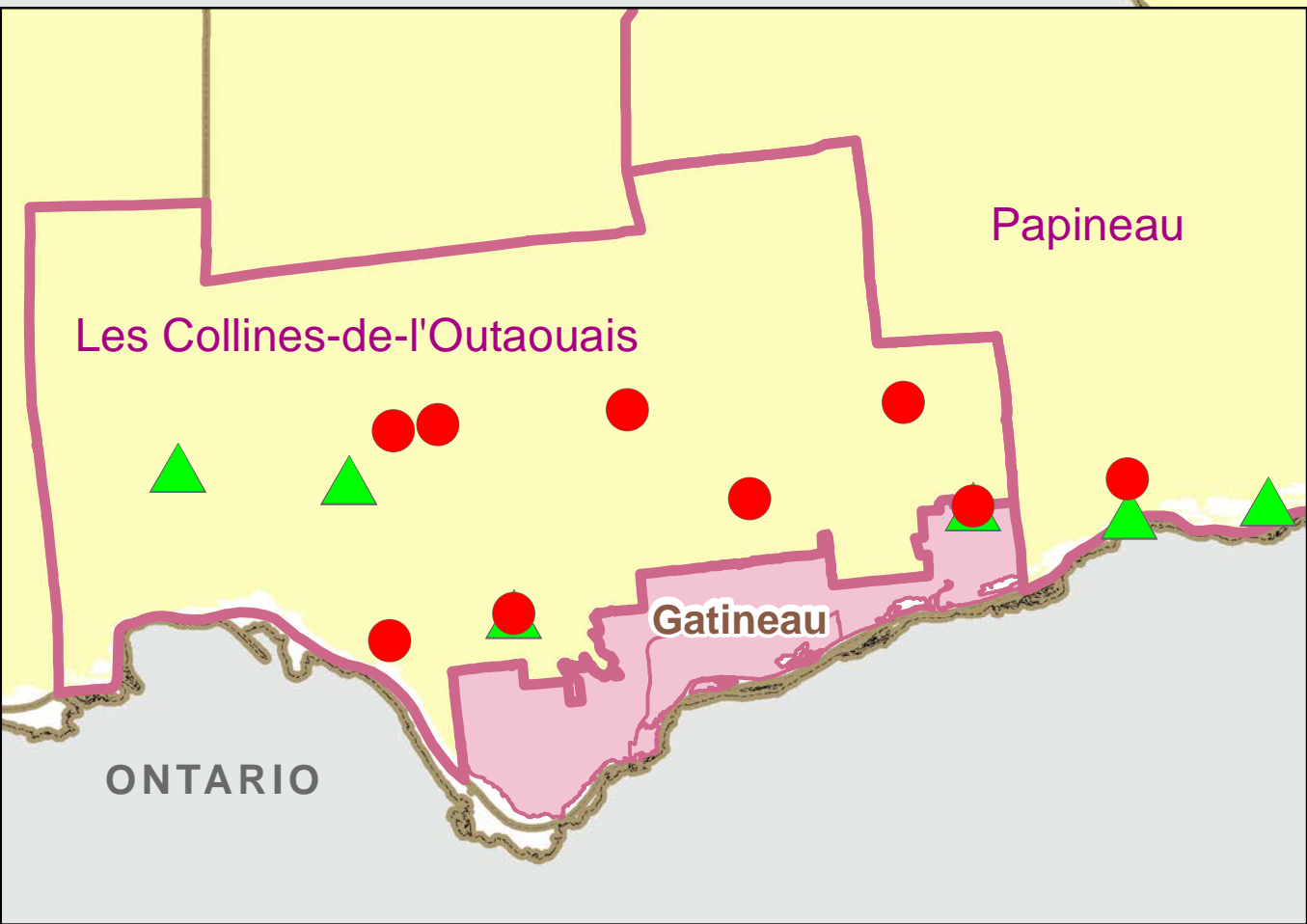
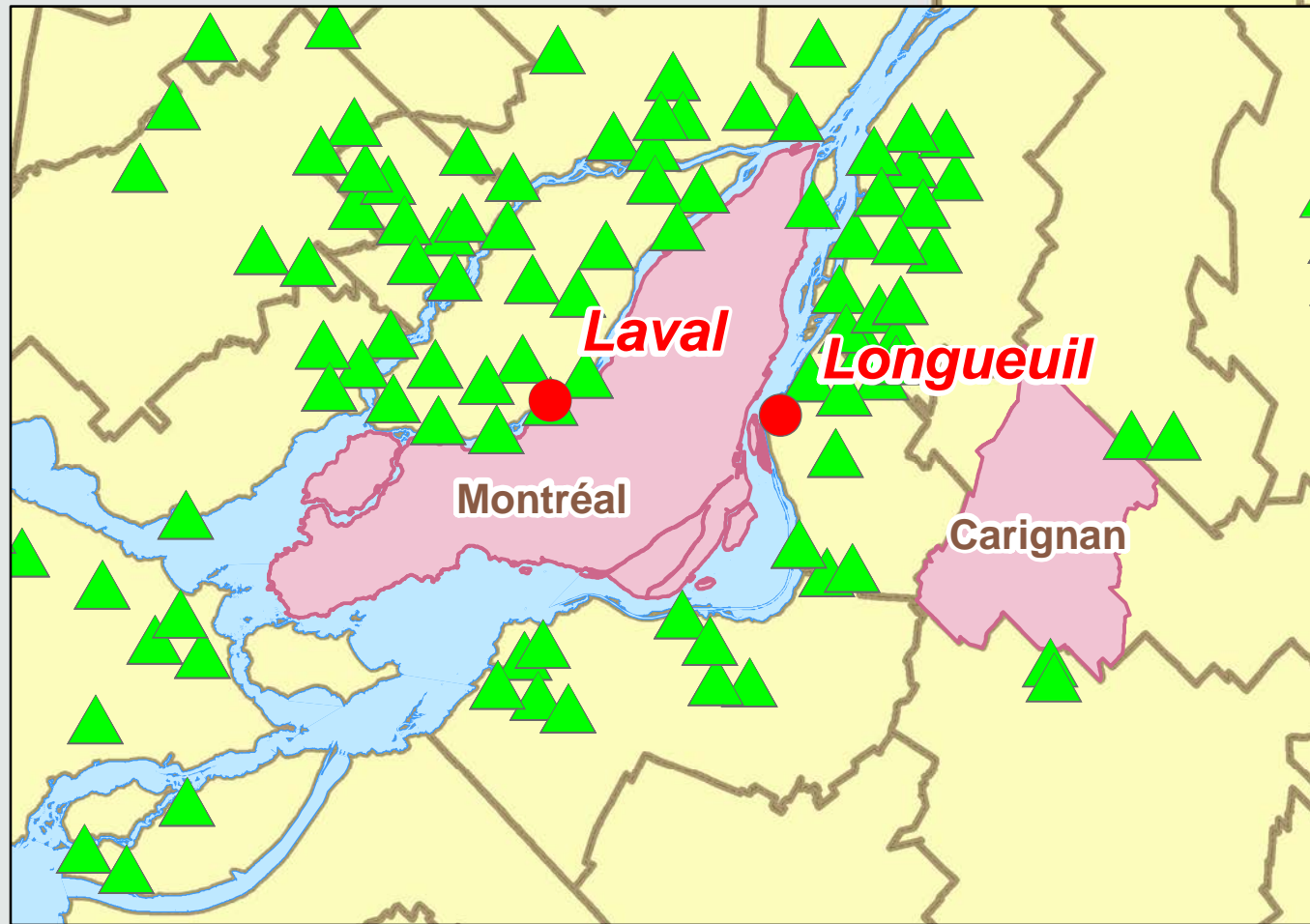
© Gouvernement du Canada, © Statistics Canada, © ESRI and/et © DMTI Spatial Inc.

2014 | 10 | 30





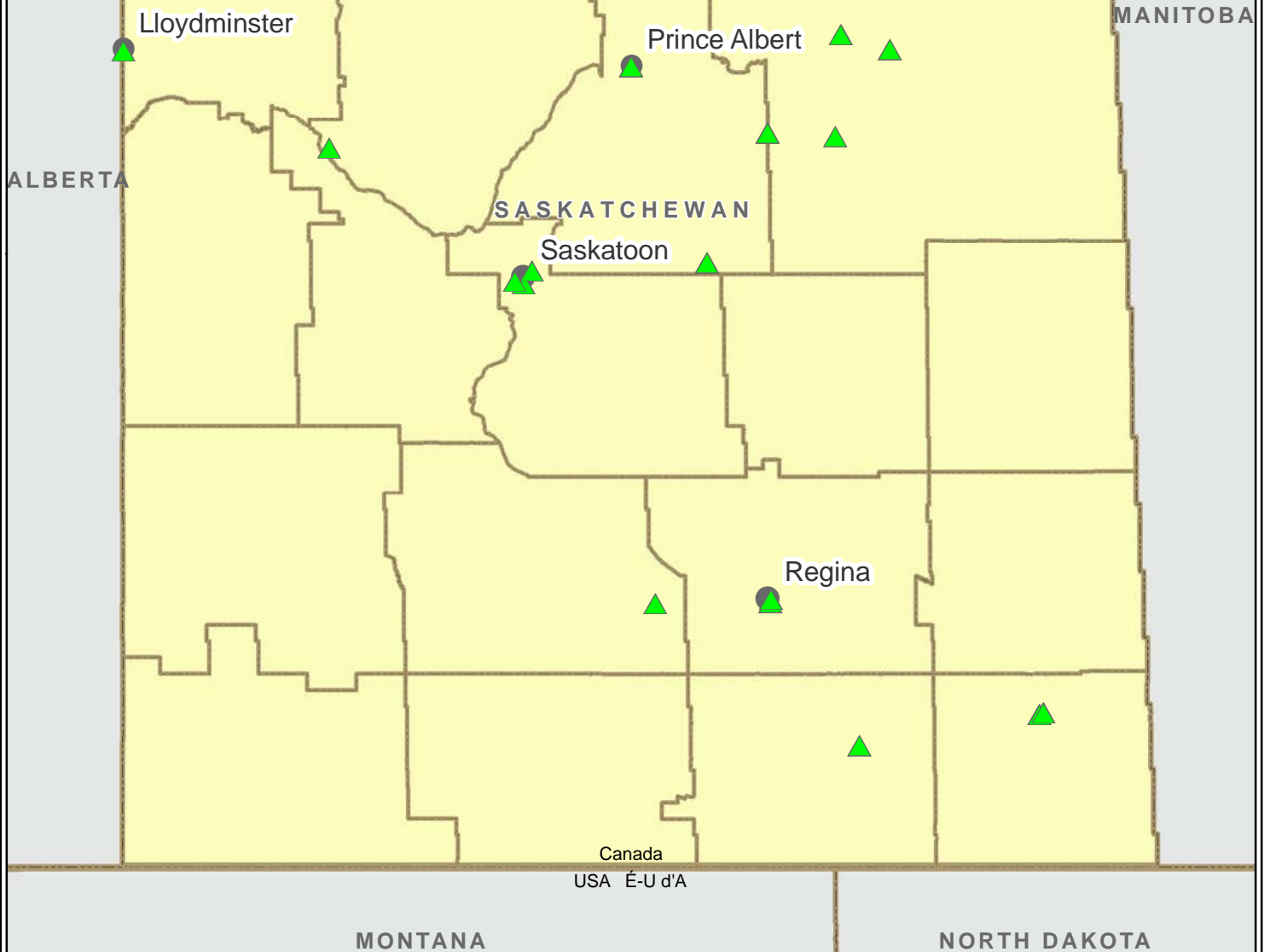
Emerald ash borer | *Agrilus planipennis* | Agrile du frêne  
Québec | 2012



- Positive site | site positif
- Negative site | site négatif
- Regulated Area | Région réglementée



Emerald ash borer | *Agrilus planipennis* | Agrile du frêne  
Saskatchewan | 2012

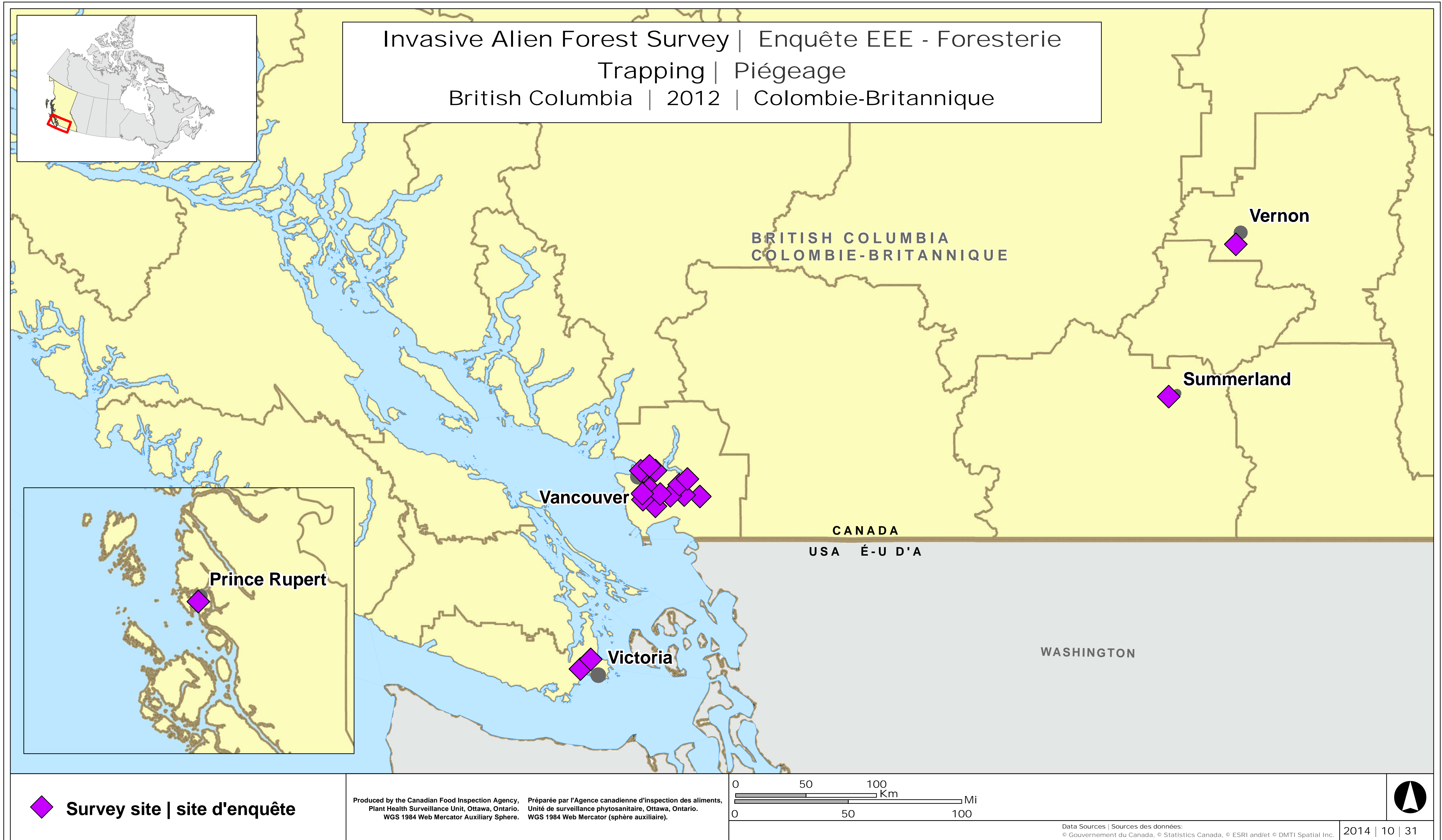


▲ Negative site | site négatif

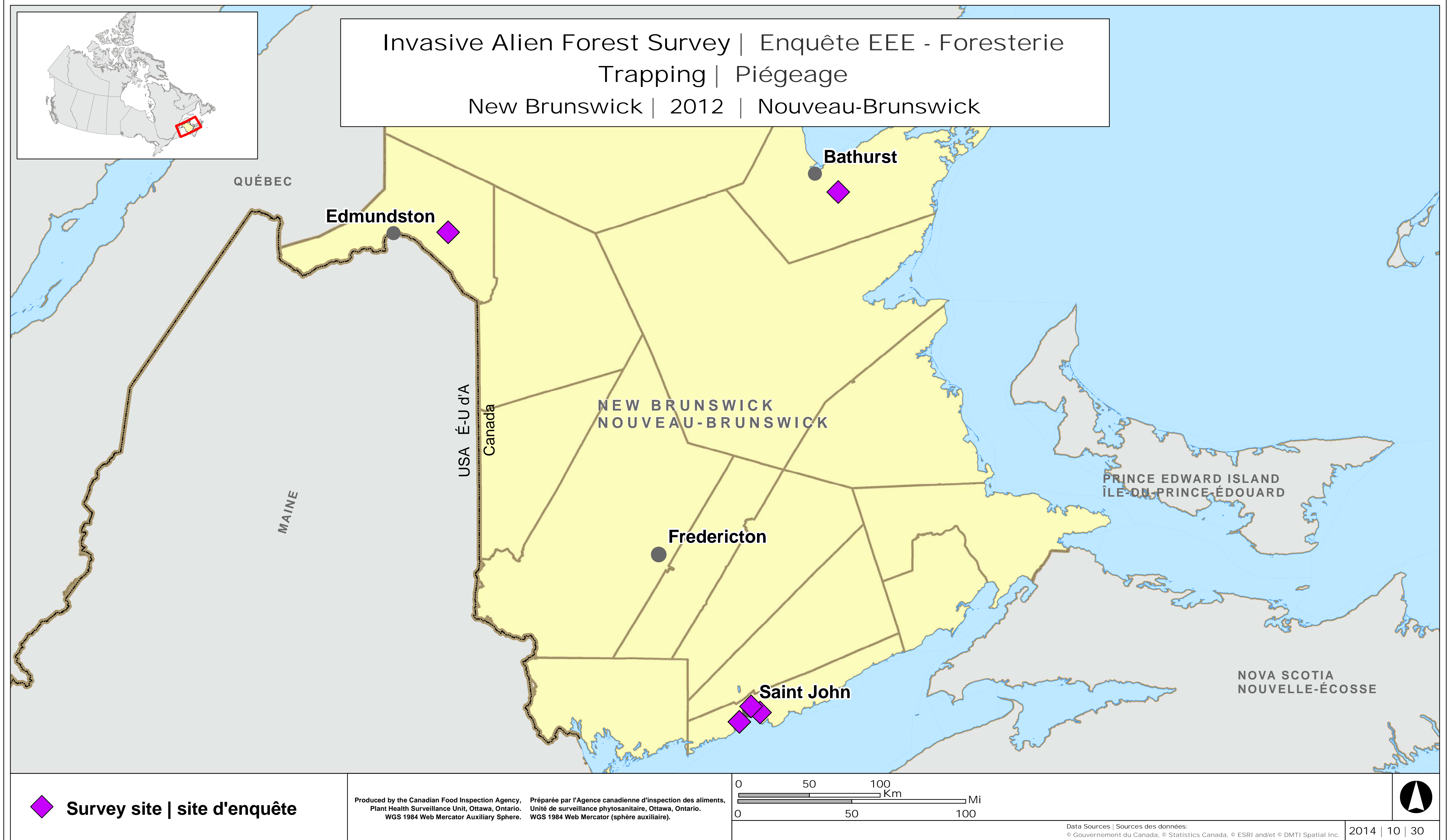
Produced by the Canadian Food Inspection Agency. Préparée par l'Agence canadienne d'inspection des aliments.  
Plant Health Surveillance Unit, Ottawa, Ontario. Unité de surveillance phytosanitaire, Ottawa, Ontario.  
WGS 1984 Web Mercator Auxiliary Sphere. WGS 1984 Web Mercator (sphère auxiliaire).

0 50 100 Km  
0 50 100 Mi  
Data Sources | Sources des données:  
© Gouvernement du Canada, © Statistics Canada,  
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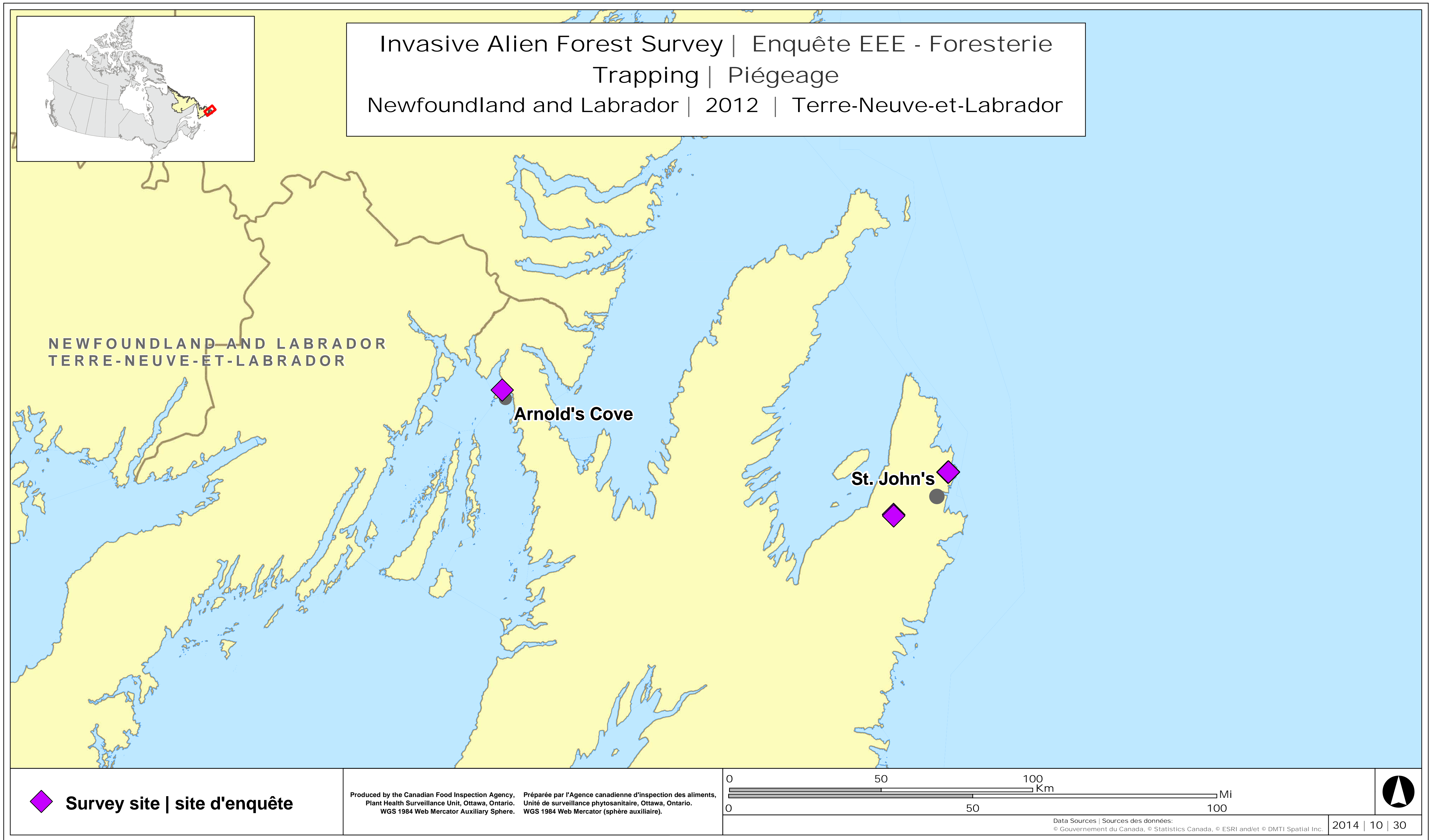




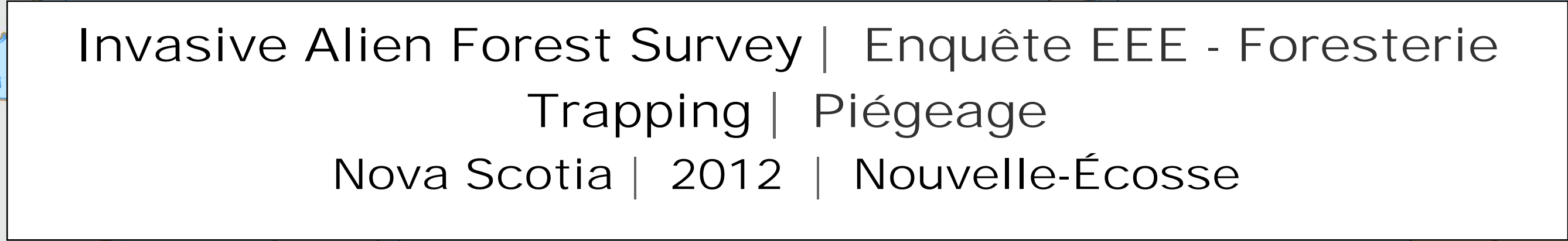






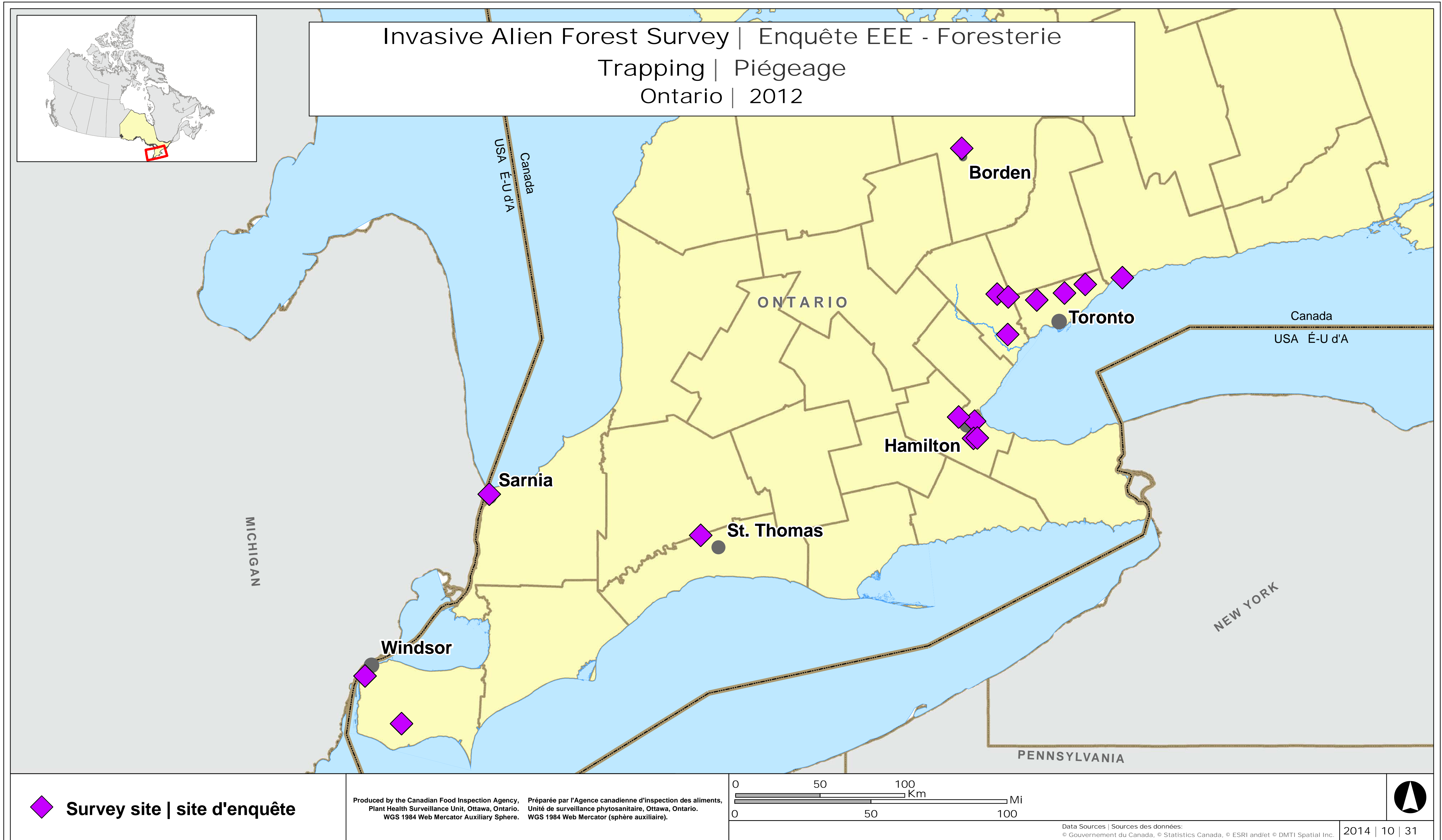






2014 | 10 | 31





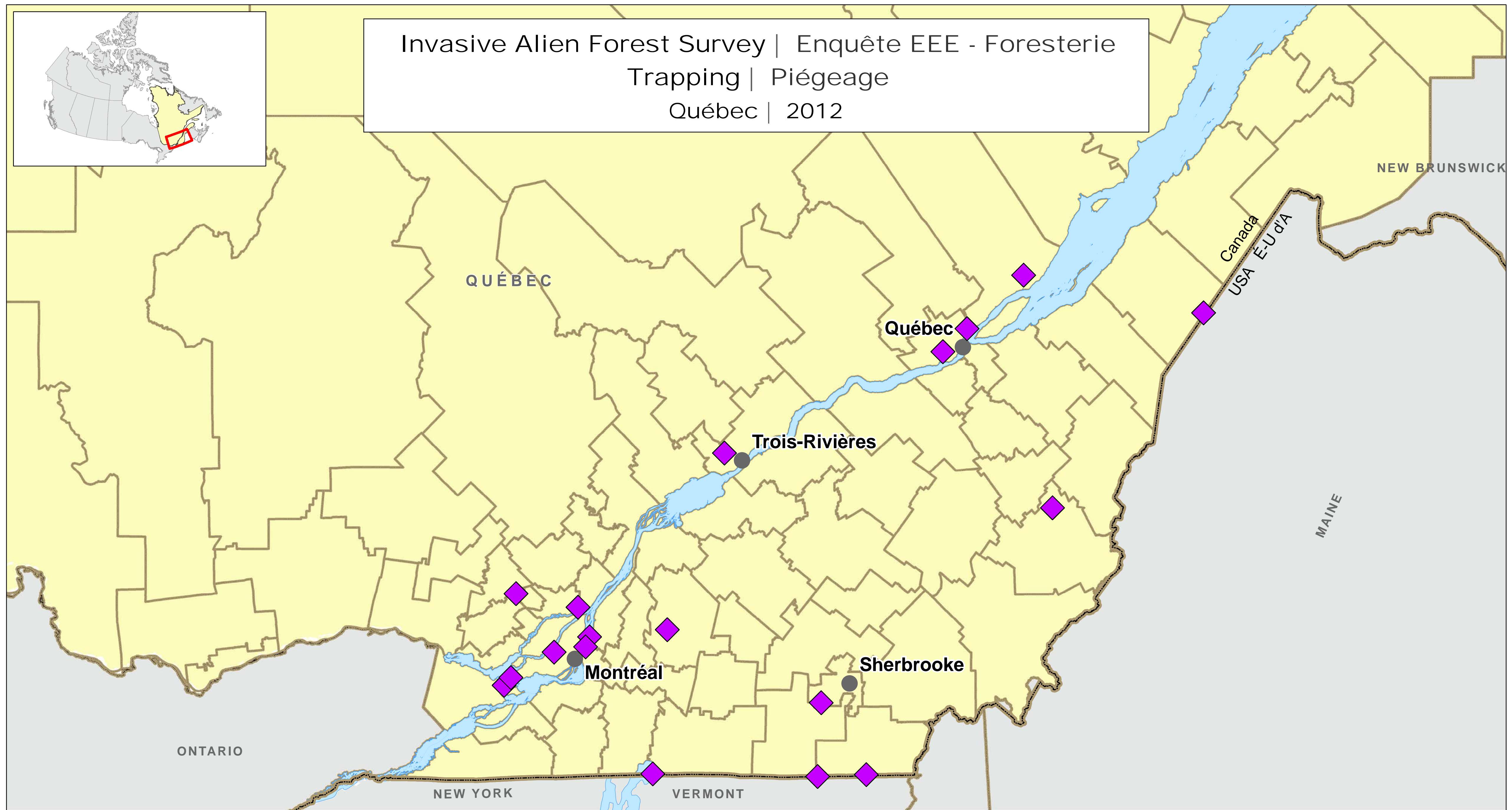




# Invasive Alien Forest Survey | Enquête EEE - Foresterie

## Trapping | Piégeage

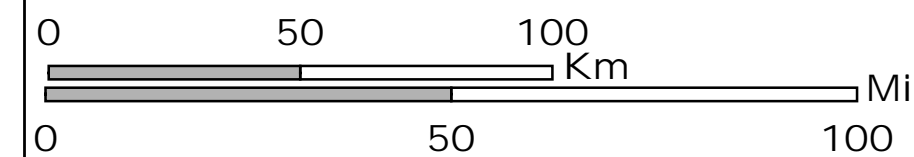
### Québec | 2012



◆ Survey site | site d'enquête

Produced by the Canadian Food Inspection Agency,  
Plant Health Surveillance Unit, Ottawa, Ontario.  
WGS 1984 Web Mercator Auxiliary Sphere.

Préparée par l'Agence canadienne d'inspection des aliments,  
Unité de surveillance phytosanitaire, Ottawa, Ontario.  
WGS 1984 Web Mercator (sphère auxiliaire).

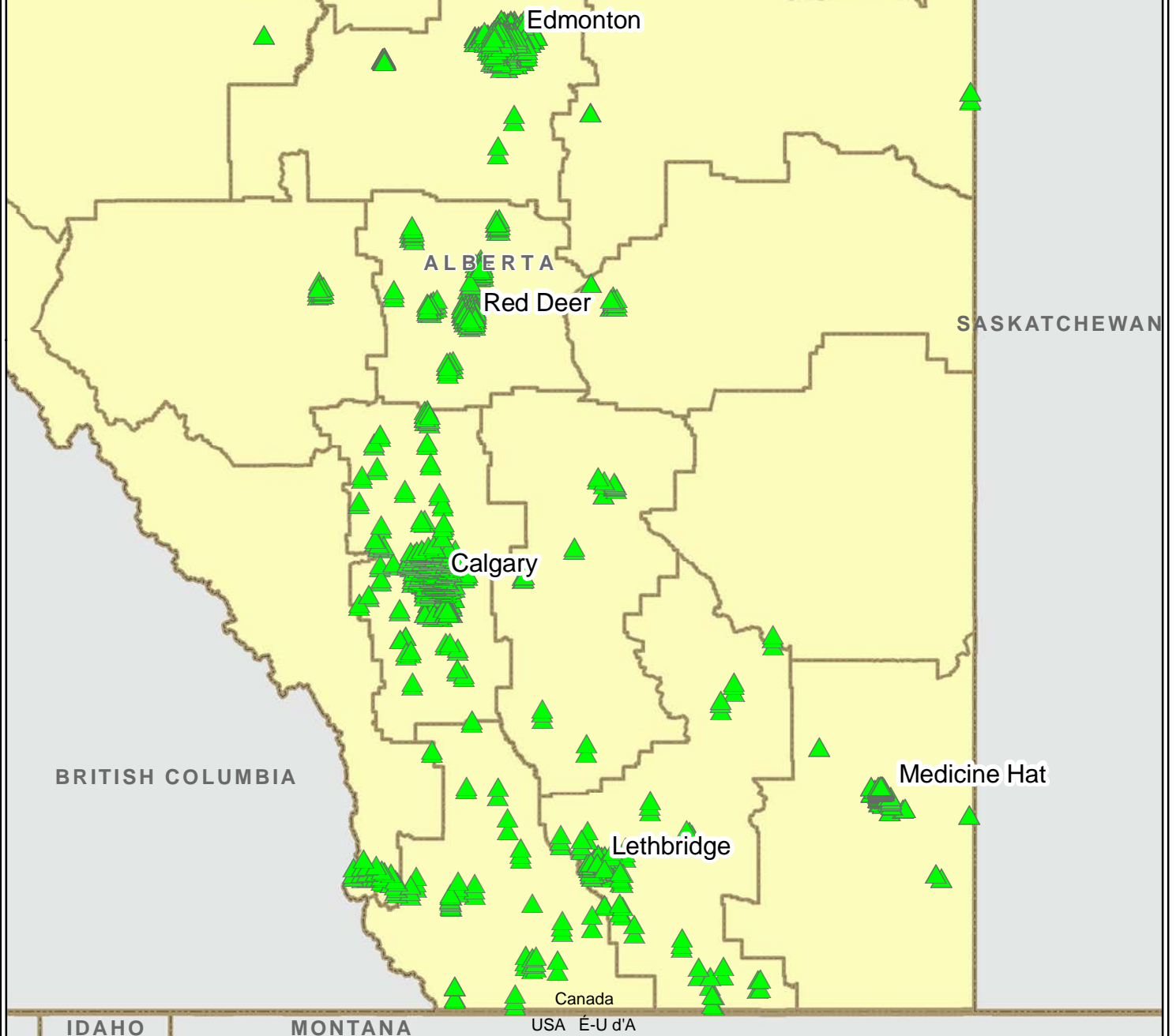


Data Sources | Sources des données:  
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2014 | 10 | 30



European gypsy moth | *Lymantria dispar dispar* | Spongieuse européenne  
Alberta | 2012



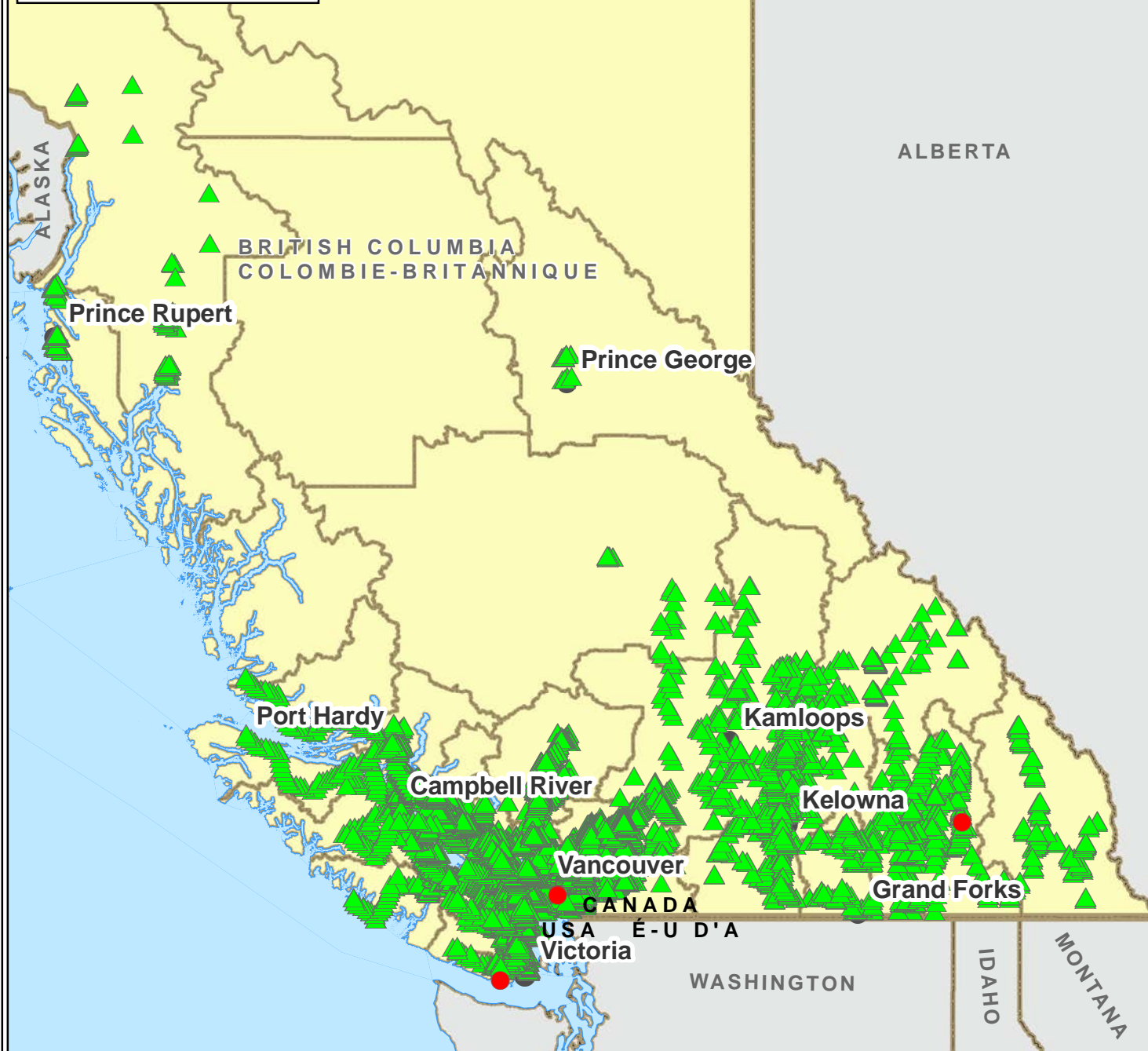
▲ Negative site | site négatif

Produced by the Canadian Food Inspection Agency, Préparée par l'Agence canadienne d'inspection des aliments,  
Plant Health Surveillance Unit, Ottawa, Ontario. Unité de surveillance phytosanitaire, Ottawa, Ontario.  
WGS 1984 Web Mercator Auxiliary Sphere. WGS 1984 Web Mercator (sphère auxiliaire).

0 50 100 Km  
0 50 100 Mi  
Data Sources | Sources des données:  
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European gypsy moth | *Lymantria dispar dispar* | Spongieuse européenne  
British Columbia | 2012 | Colombie-Britannique



▲ Negative site | site négatif

Produced by the Canadian Food Inspection Agency. Préparée par l'Agence canadienne d'inspection des aliments.  
Plant Health Surveillance Unit, Ottawa, Ontario. Unité de surveillance phytosanitaire, Ottawa, Ontario.  
WGS 1984 Web Mercator Auxiliary Sphere. WGS 1984 Web Mercator (sphère auxiliaire).

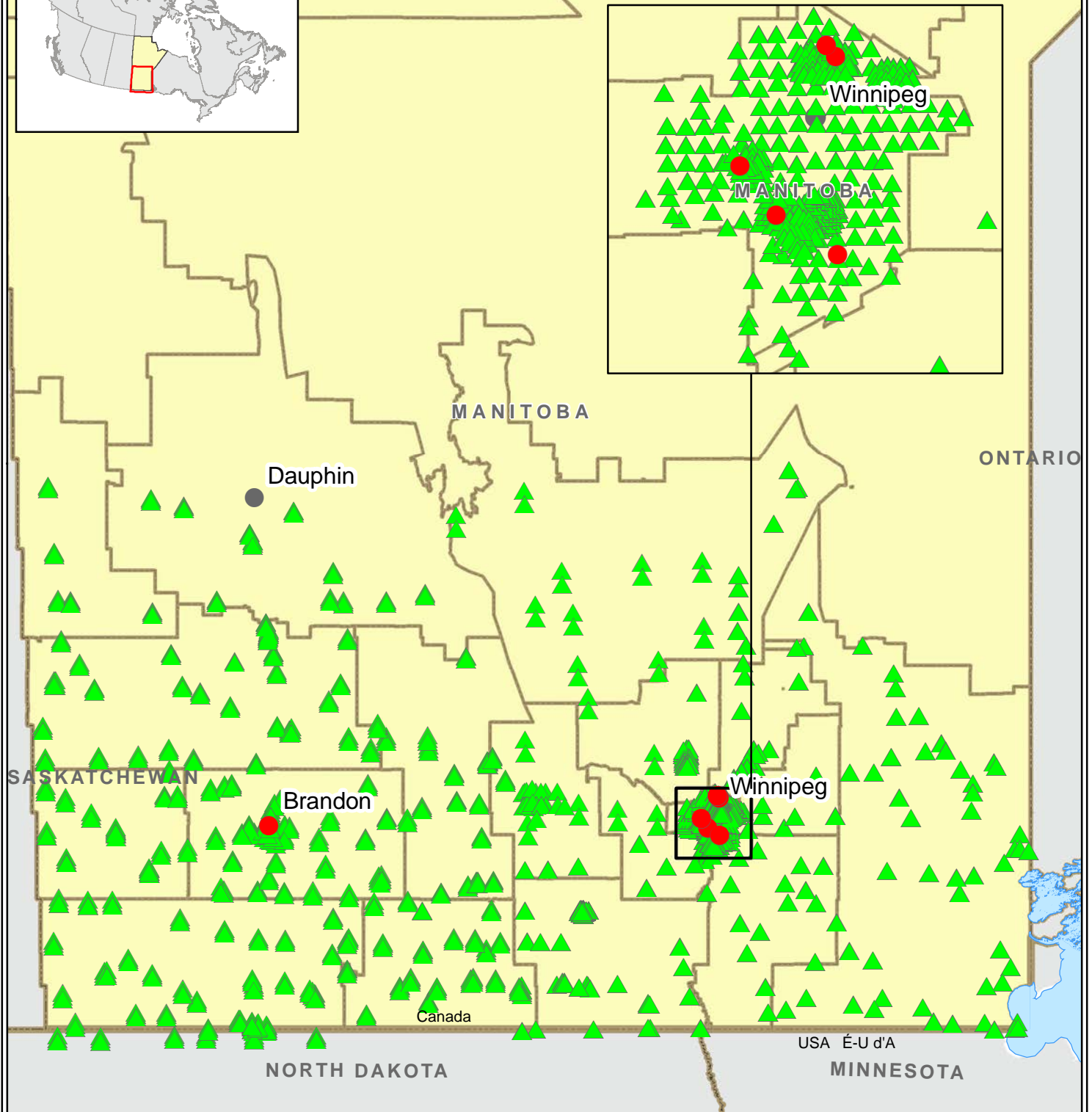
0 50 100  
Km  
0 50 100  
Mi

Data Sources | Sources des données:  
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2014 | 10 | 30

European gypsy moth | *Lymantria dispar dispar* | Spongieuse européenne  
Manitoba | 2012



- Positive site | site positif
- ▲ Negative site | site négatif

Produced by the Canadian Food Inspection Agency, Préparée par l'Agence canadienne d'inspection des aliments,  
Plant Health Surveillance Unit, Ottawa, Ontario. Unité de surveillance phytosanitaire, Ottawa, Ontario.  
WGS 1984 Web Mercator Auxiliary Sphere. WGS 1984 Web Mercator (sphère auxiliaire).

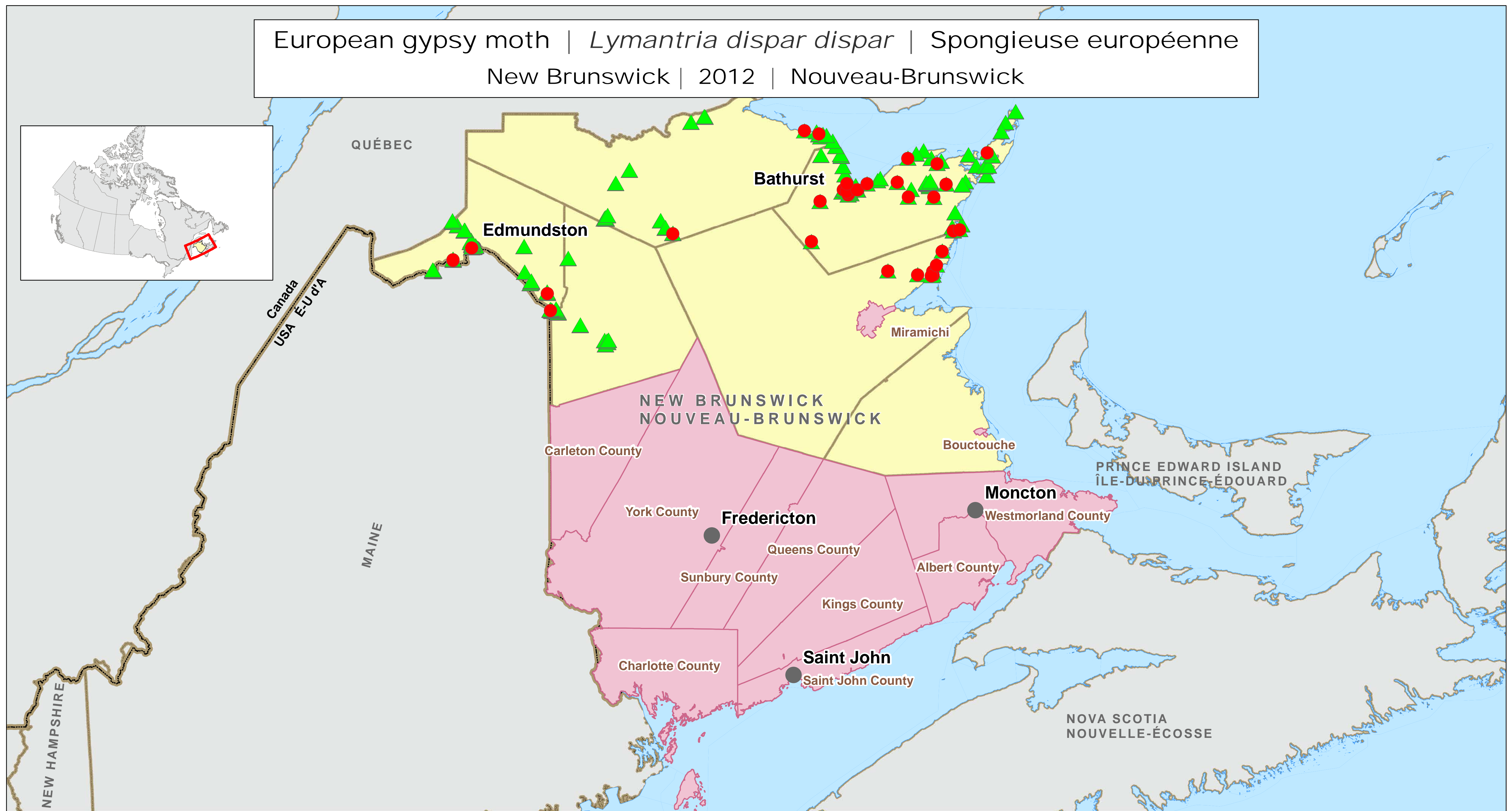
0 50 100 Km  
0 50 100 Mi  
Data Sources | Sources des données:  
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European gypsy moth | *Lymantria dispar dispar* | Spongieuse européenne

New Brunswick | 2012 | Nouveau-Brunswick



- Positive site | site positif
- ▲

 Negative site | site négatif
- Regulated Area | Région réglementée

Produced by the Canadian Food Inspection Agency,  
Plant Health Surveillance Unit, Ottawa, Ontario.  
WGS 1984 Web Mercator Auxiliary Sphere.

Préparée par l'Agence canadienne d'inspection des aliments,  
Unité de surveillance phytosanitaire, Ottawa, Ontario.  
WGS 1984 Web Mercator (sphère auxiliaire).


0 50 100 Km

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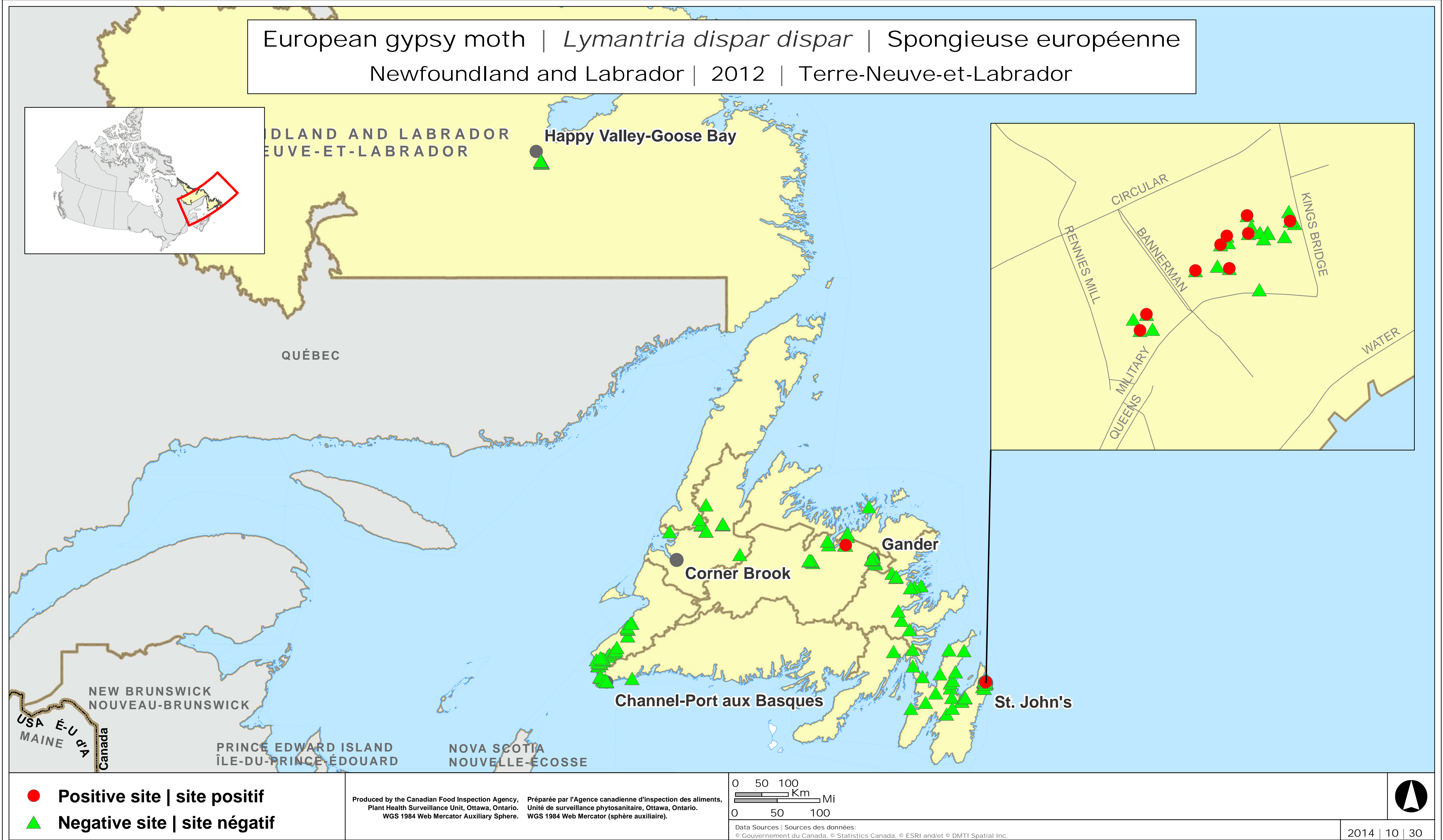
Data Sources | Sources des données:

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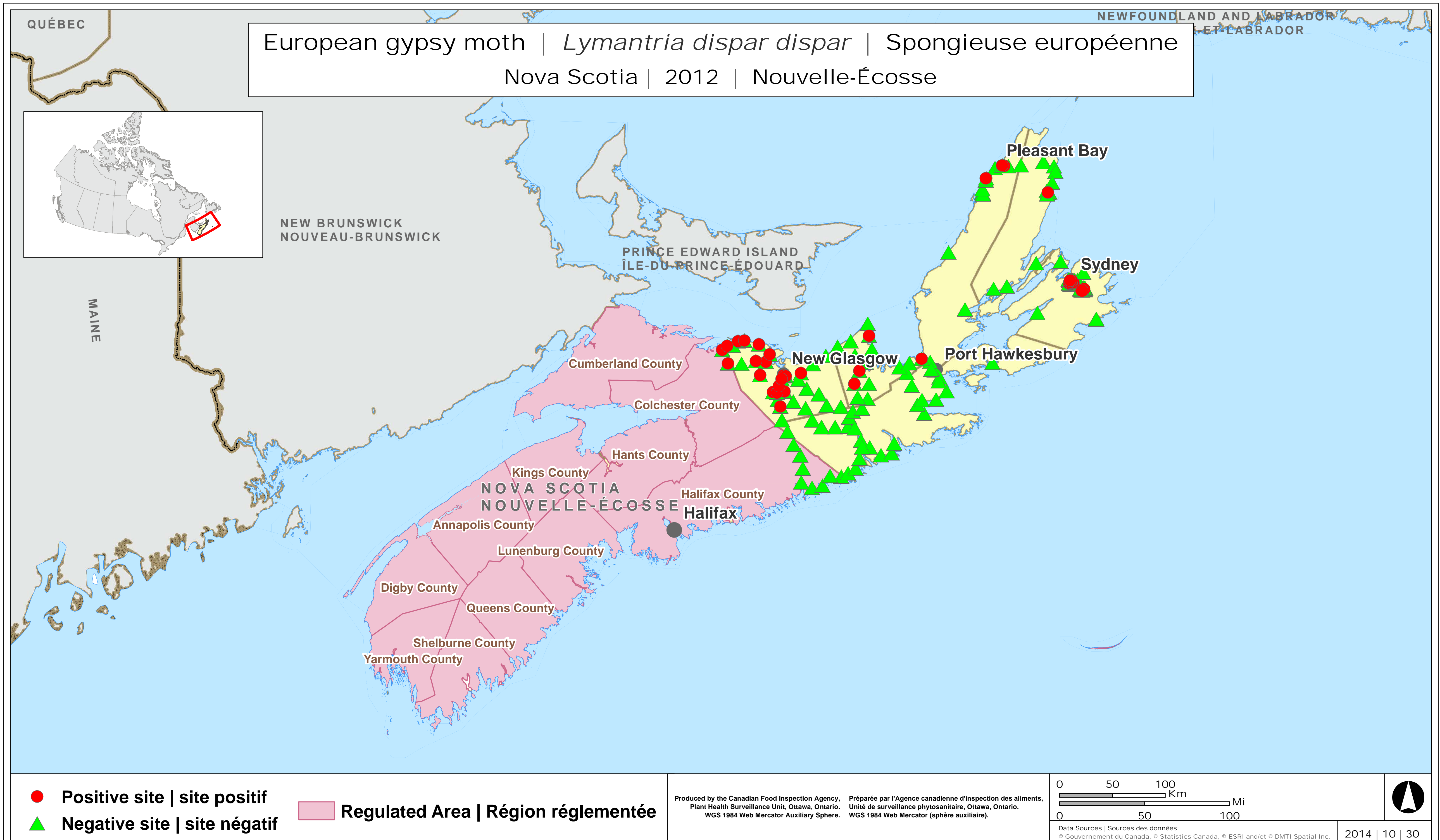
2014 | 10 | 30



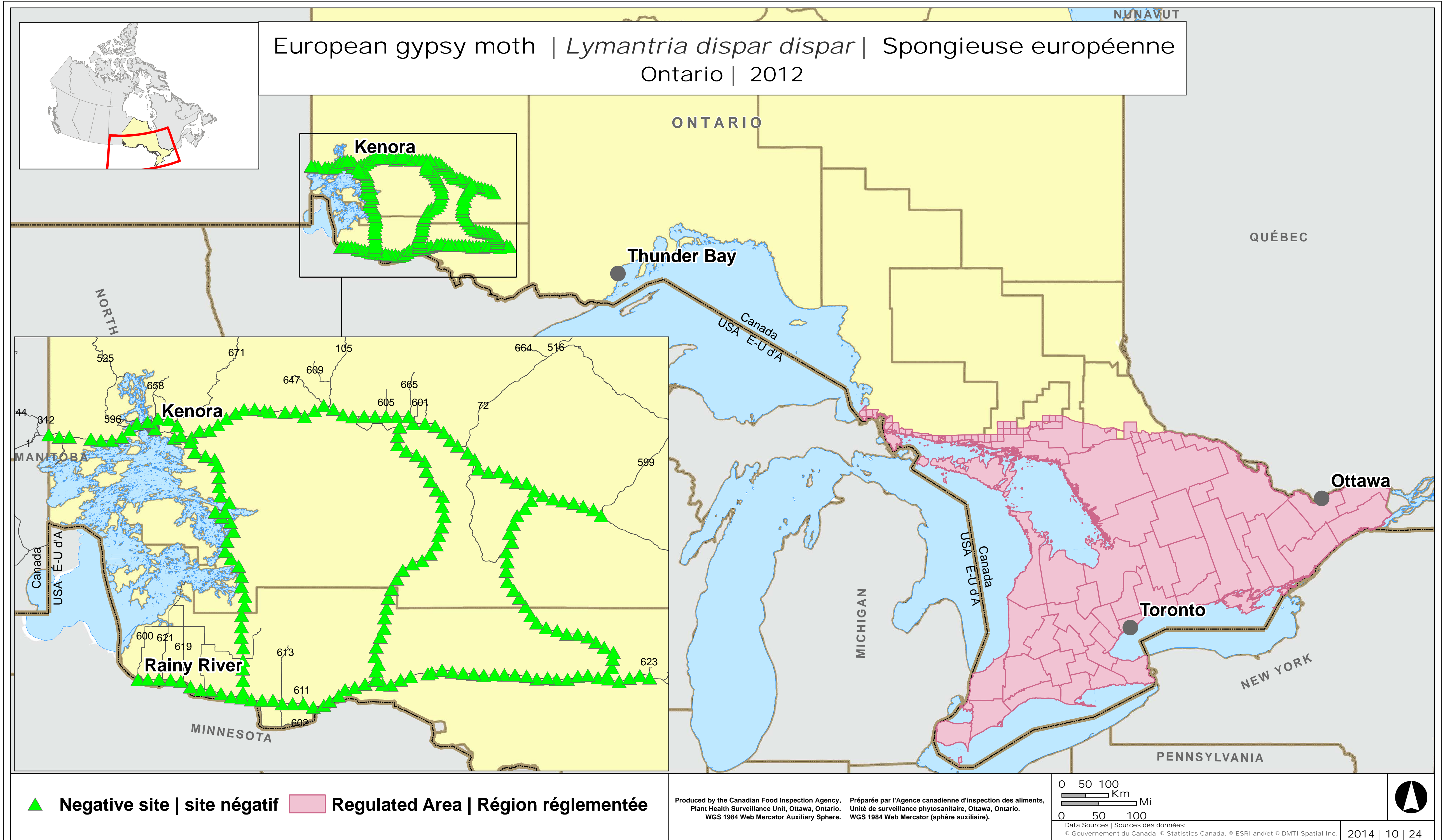








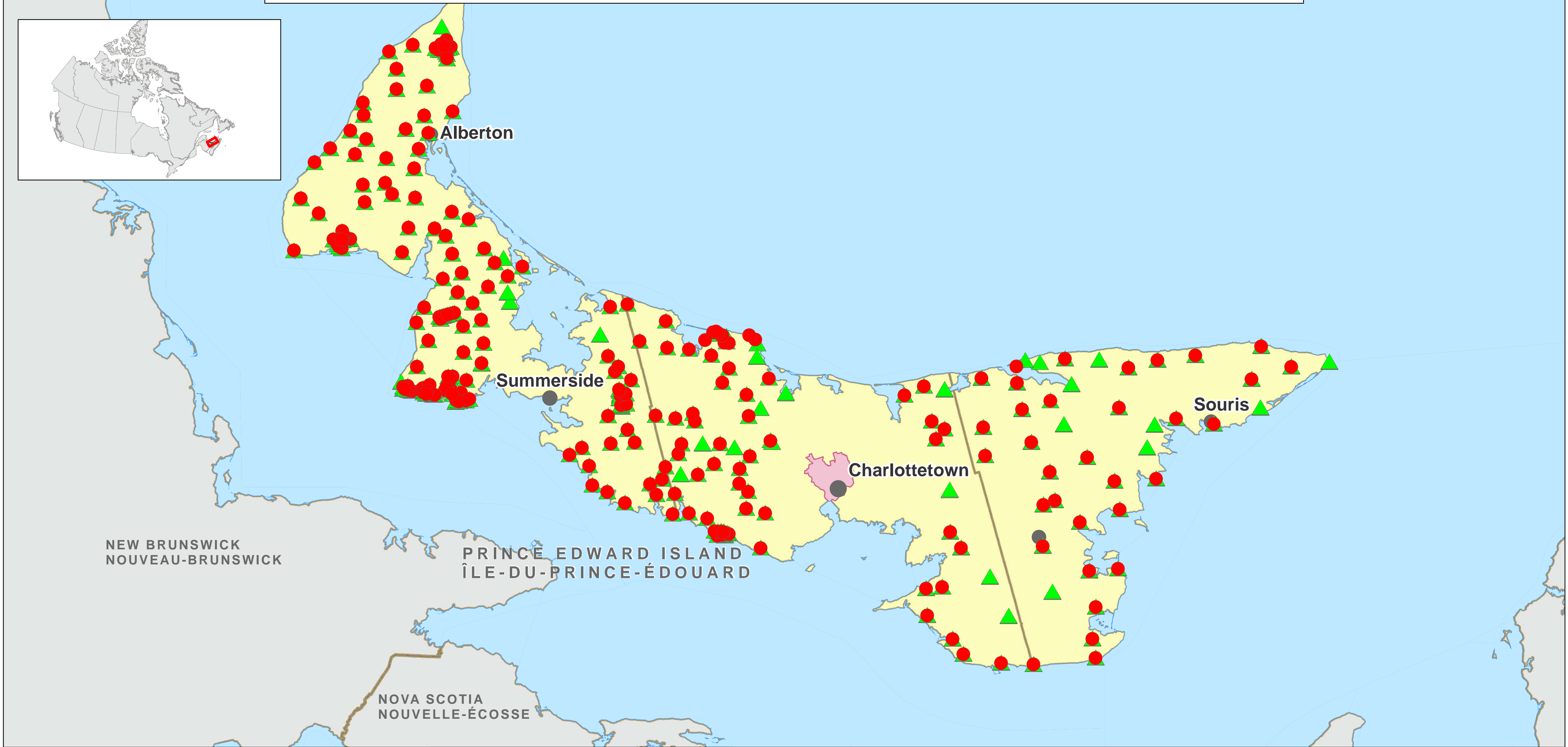









European gypsy moth | *Lymantria dispar dispar* | Spongieuse européenne

Prince Edward Island | 2012 | Île-du-Prince-Édouard



-  Positive site | site positif
-  Negative site | site négatif
-  Regulated Area | Région réglementée

Produced by the Canadian Food Inspection Agency,  
Plant Health Surveillance Unit, Ottawa, Ontario.  
WGS 1984 Web Mercator Auxiliary Sphere.

Préparée par l'Agence canadienne d'inspection des aliments,  
Unité de surveillance phytosanitaire, Ottawa, Ontario.  
WGS 1984 Web Mercator (sphère auxiliaire).

050100

Km

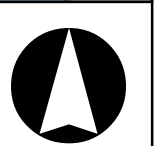
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Mi

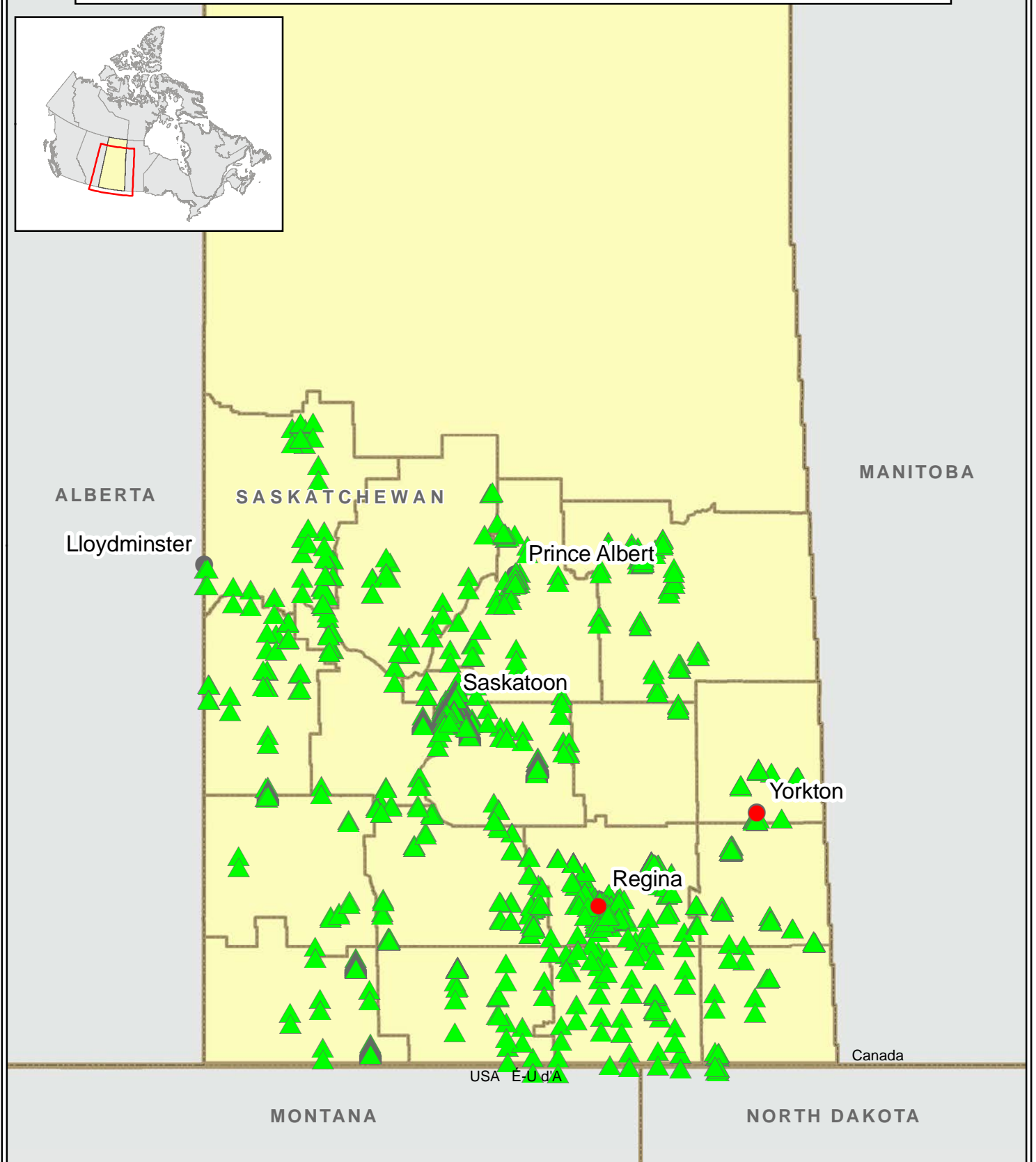
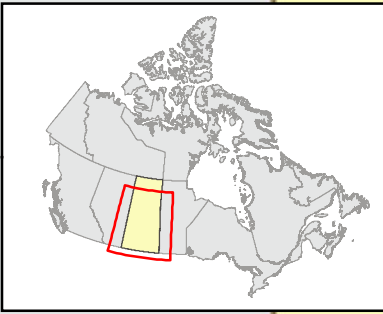
Data Sources | Sources des données:

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2014 | 10 | 30



European gypsy moth | *Lymantria dispar dispar* | Spongieuse européenne  
Saskatchewan | 2012



- Positive site | site positif
- ▲ Negative site | site négatif

Produced by the Canadian Food Inspection Agency, Préparée par l'Agence canadienne d'inspection des aliments  
Plant Health Surveillance Unit, Ottawa, Ontario. Unité de surveillance phytosanitaire, Ottawa, Ontario.  
WGS 1984 Web Mercator Auxiliary Sphere. WGS 1984 Web Mercator (sphère auxiliaire).

0 50 100 Km  
0 50 100 Mi  
Data Sources | Sources des données:  
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2012

Brown spruce longhorn beetle  
 Longicorne brun de l'épinette

Eastern Canada  
 Canada est



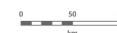
**Survey Site / Site d'enquête**

-  BSLB Detected  
LBE détecté
-  BSLB Not Detected  
LBE pas détecté
-  BSLB Containment Area  
Zone de confinement LBE

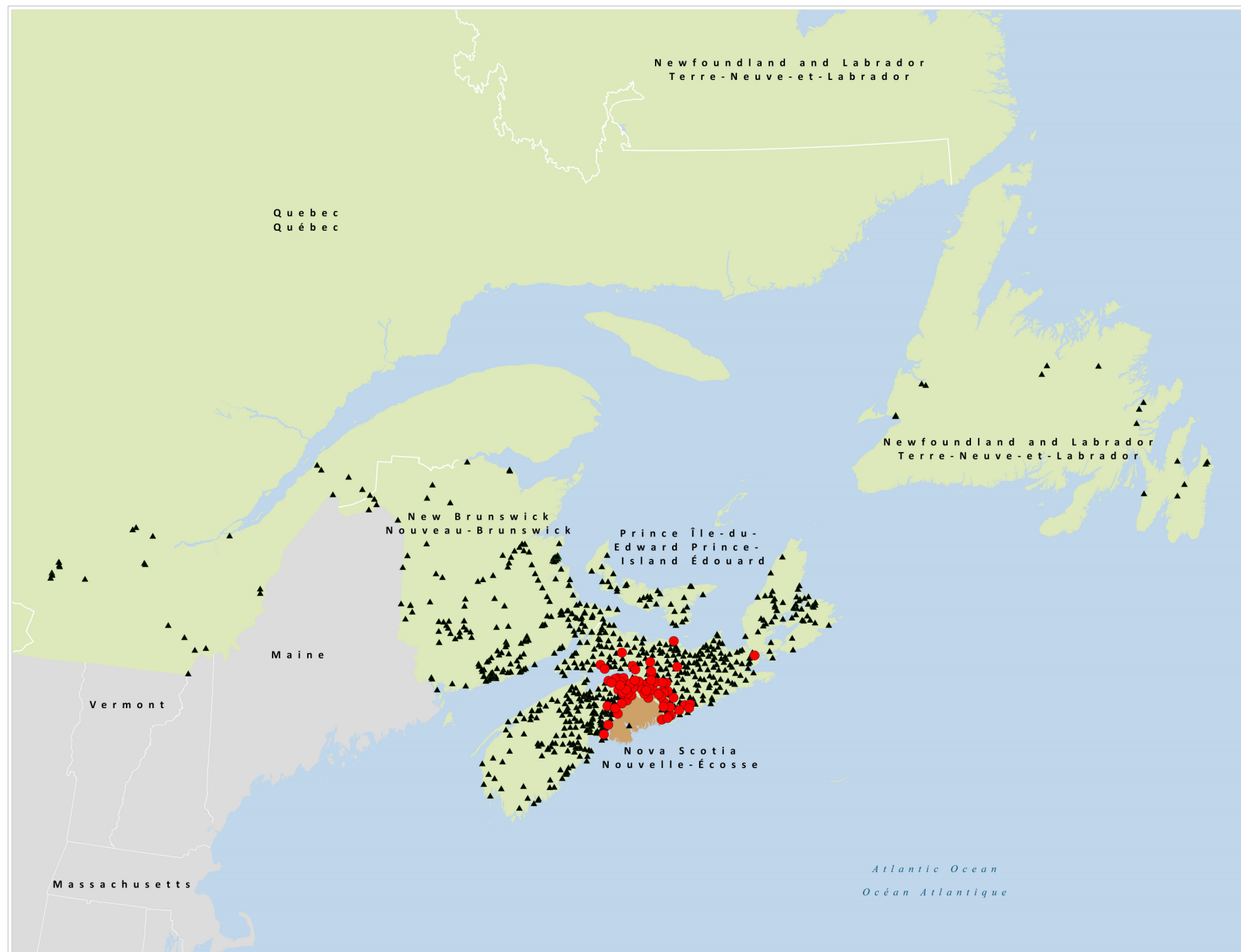
While this map may not be free from error or omission,  
 care has been taken to ensure the best possible quality.  
 The CFIA makes no representations or warranties,  
 either expressed or implied,  
 as to the accuracy of the information presented and  
 the client assumes the entire risk as to the use  
 of any or all information.

Même si cette carte n'est peut-être pas  
 libre de toute erreur ou omission,  
 toutes les précautions ont été prises  
 pour en assurer la meilleure qualité possible.  
 L'ACIA n'offre aucune garantie explicite ou implicite  
 quant à l'exactitude de l'information présentée;  
 les clients acceptent pleinement les risques  
 liés à l'utilisation d'une partie ou  
 de l'ensemble de cette information.

Date: 3 DEC 2012



Atlantic Ocean  
 Océan Atlantique





2012




Brown spruce longhorn beetle  
 Longicorne brun de l'épinette

Positive Sites  
 Outside Containment Area

Sites positifs  
 à l'extérieur de la  
 zone de confinement

(up to / jusqu'au: 3 DEC 2012)

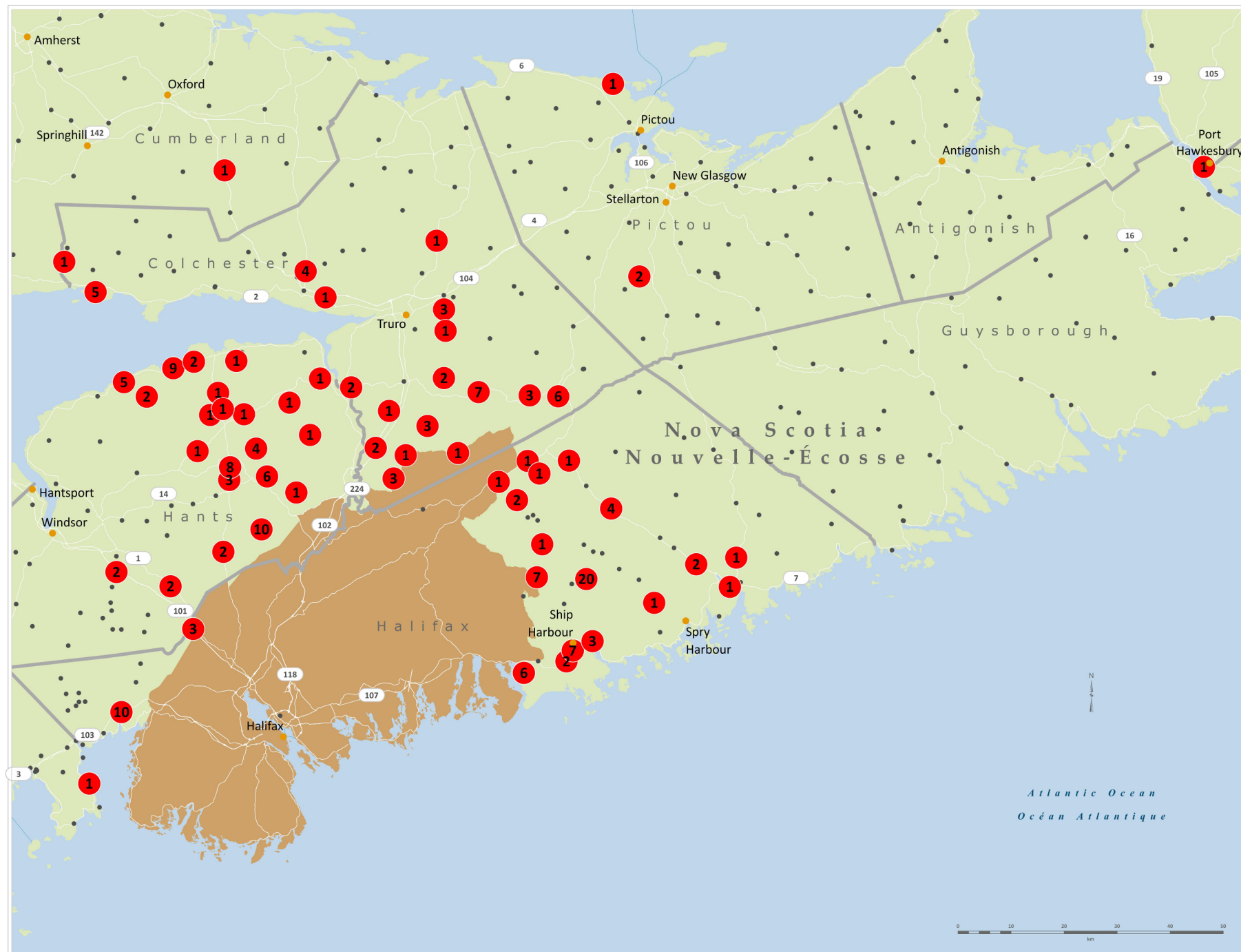
**Survey Site / Site d'enquête**

-  BSLB Detected / LBE détecté
-  BSLB Not Detected / LBE pas détecté
-  BSLB Containment Area / Zone de confinement LBE

While this map may not be free from error or omission,  
 care has been taken to ensure the best possible quality.  
 The CFIA makes no representations or warranties,  
 either expressed or implied,  
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 the client assumes the entire risk as to the use  
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Même si cette carte n'est peut-être pas  
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 toutes les précautions ont été prises  
 pour en assurer la meilleure qualité possible.  
 L'ACIA n'offre aucune garantie explicite ou implicite  
 quant à l'exactitude de l'information présentée;  
 les clients acceptent pleinement les risques  
 liés à l'utilisation d'une partie ou  
 de l'ensemble de cette information.

Date: 3 DEC 2012



1 / 1 / 2006 - 9 / 24 / 2012

Brown Spruce Longhorn Beetle  
Longicorne brun de l'épinette

Positive Sites  
Outside Containment Area

Sites positifs  
à l'extérieur de la  
zone de confinement

Legend / Légende

Year - Année	Label - Étiquette
2006	(1)
2007	(2 - 19)
2008	(20 - 27)
2009	(28 - 46)
2010	(47 - 59)
2011	(60 - 65)
2012	(66 - 93)

While this map may not be free from error or omission, care has been taken to ensure the best possible quality. The CFIA makes no representations or warranties, either expressed or implied, as to the accuracy of the information presented and the client assumes the entire risk as to the use of any or all information.

Même si cette carte n'est peut-être pas libre de toute erreur ou omission, toutes les précautions ont été prises pour en assurer la meilleure qualité possible. L'ACIA n'offre aucune garantie explicite ou implicite quant à l'exactitude de l'information présentée; les clients acceptent pleinement les risques liés à l'utilisation d'une partie ou de l'ensemble de cette information.

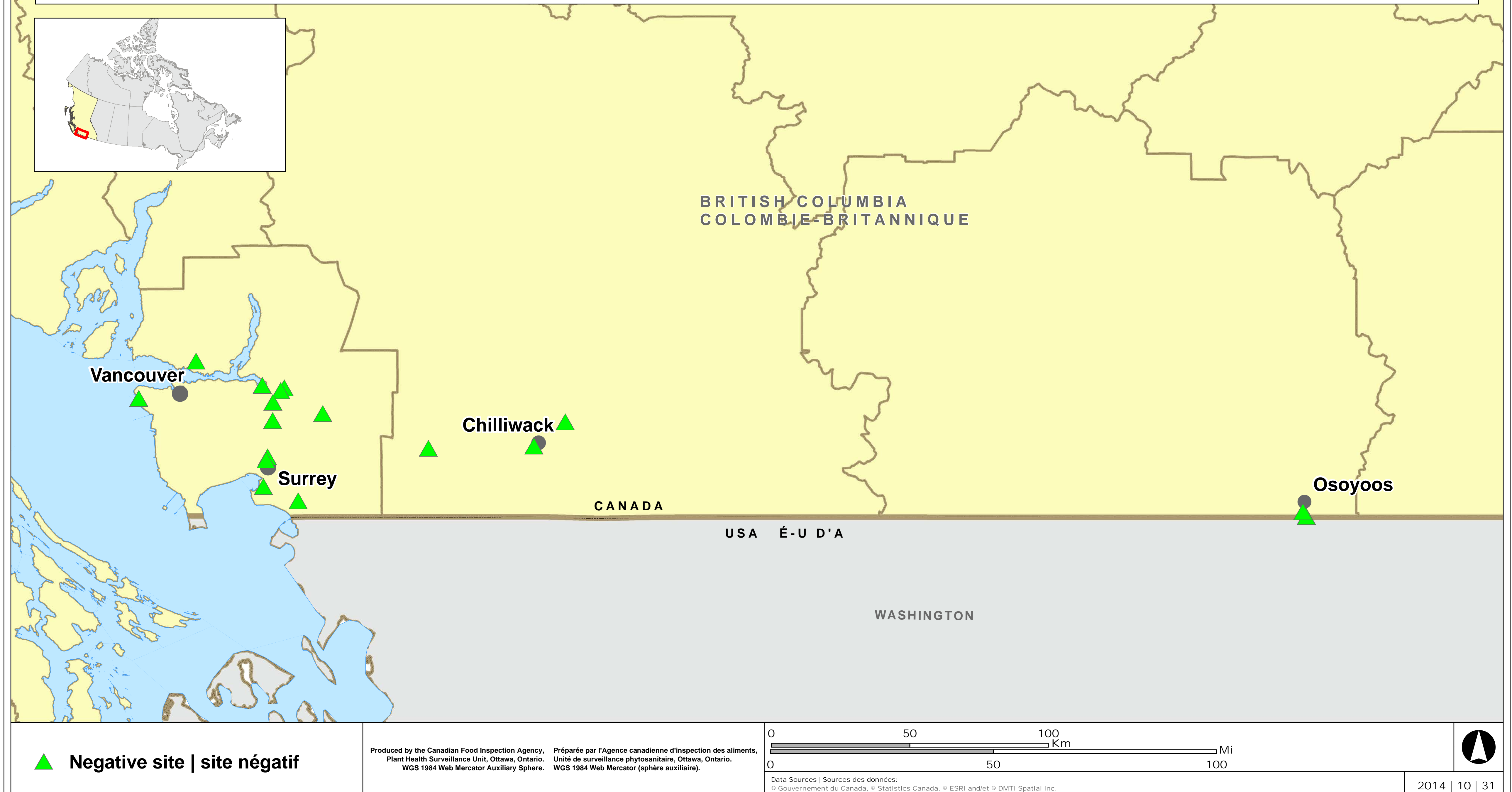
Date: 24 SEPT 2012





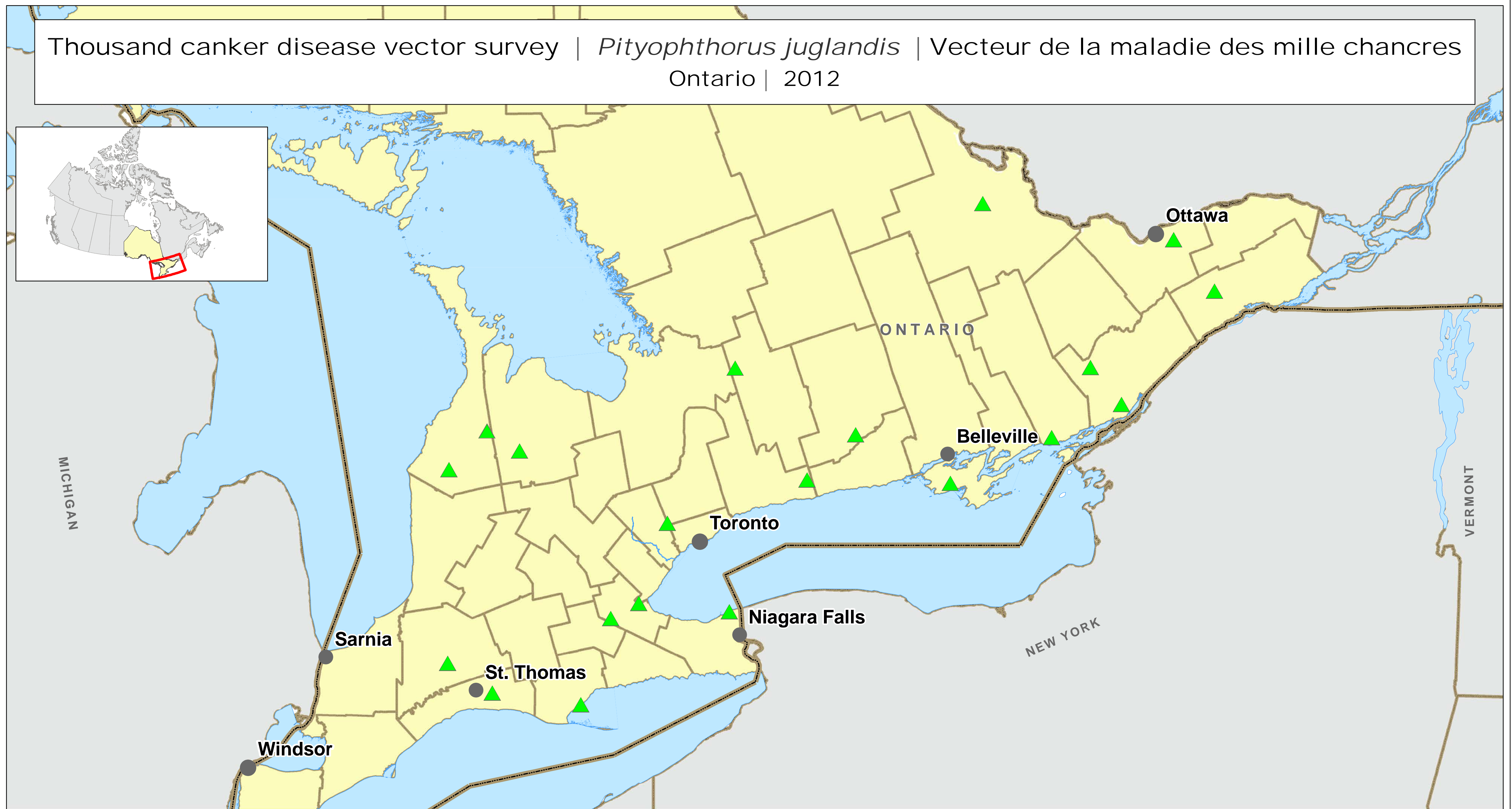
Thousand canker disease vector survey | *Pityophthorus juglandis* | Vecteur de la maladie des mille chancres

British Columbia | 2012 | Colombie-Britannique



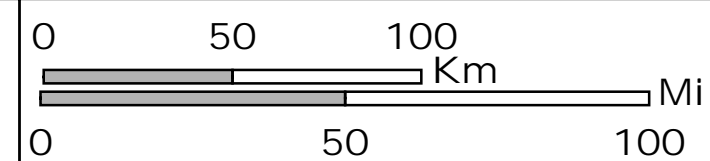


# Thousand canker disease vector survey | *Pityophthorus juglandis* | Vecteur de la maladie des mille chancres Ontario | 2012

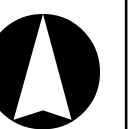


▲ Negative site | site négatif

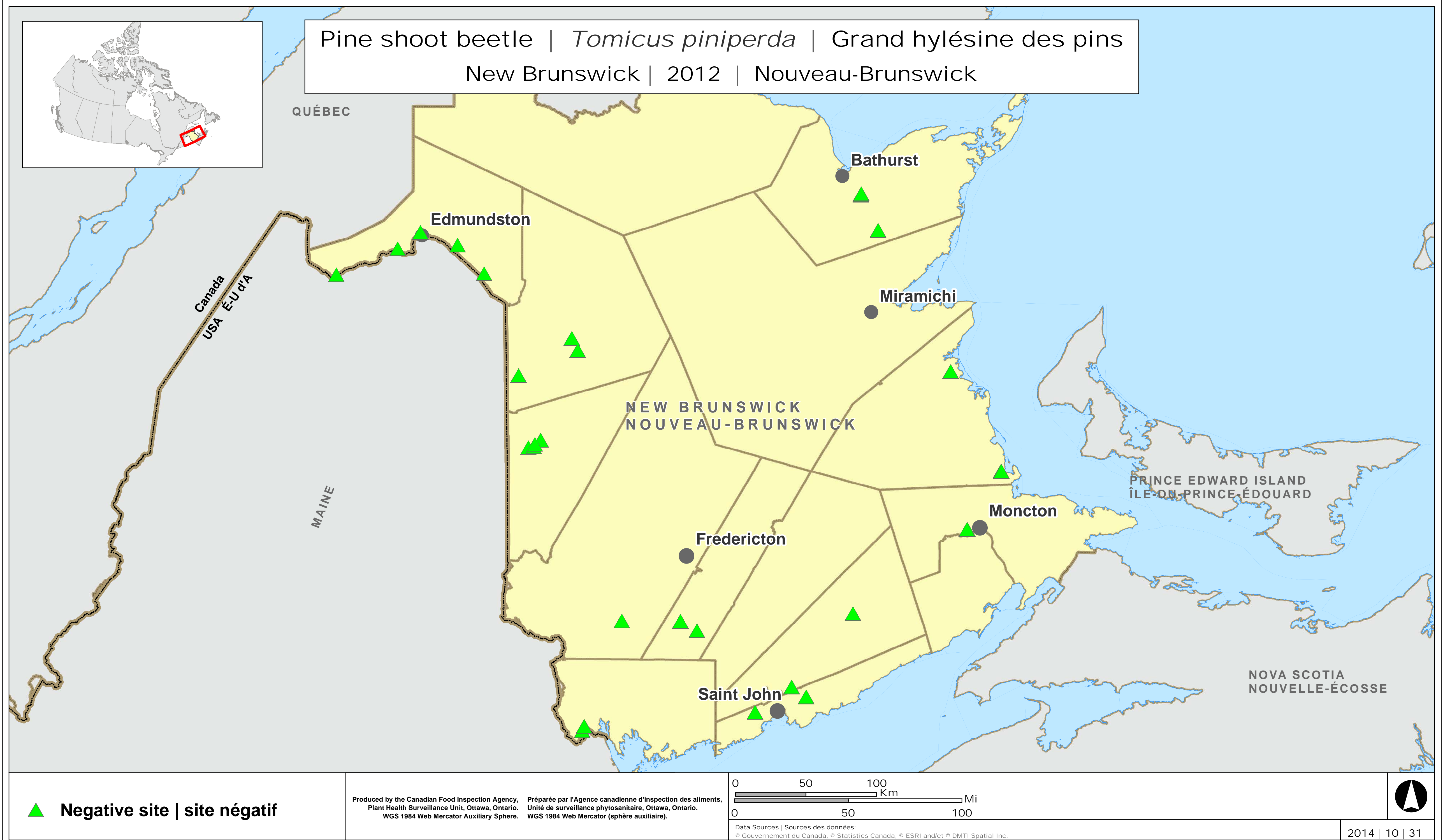
Produced by the Canadian Food Inspection Agency, Plant Health Surveillance Unit, Ottawa, Ontario. Préparée par l'Agence canadienne d'inspection des aliments, Unité de surveillance phytosanitaire, Ottawa, Ontario.  
WGS 1984 Web Mercator Auxiliary Sphere. WGS 1984 Web Mercator (sphère auxiliaire).



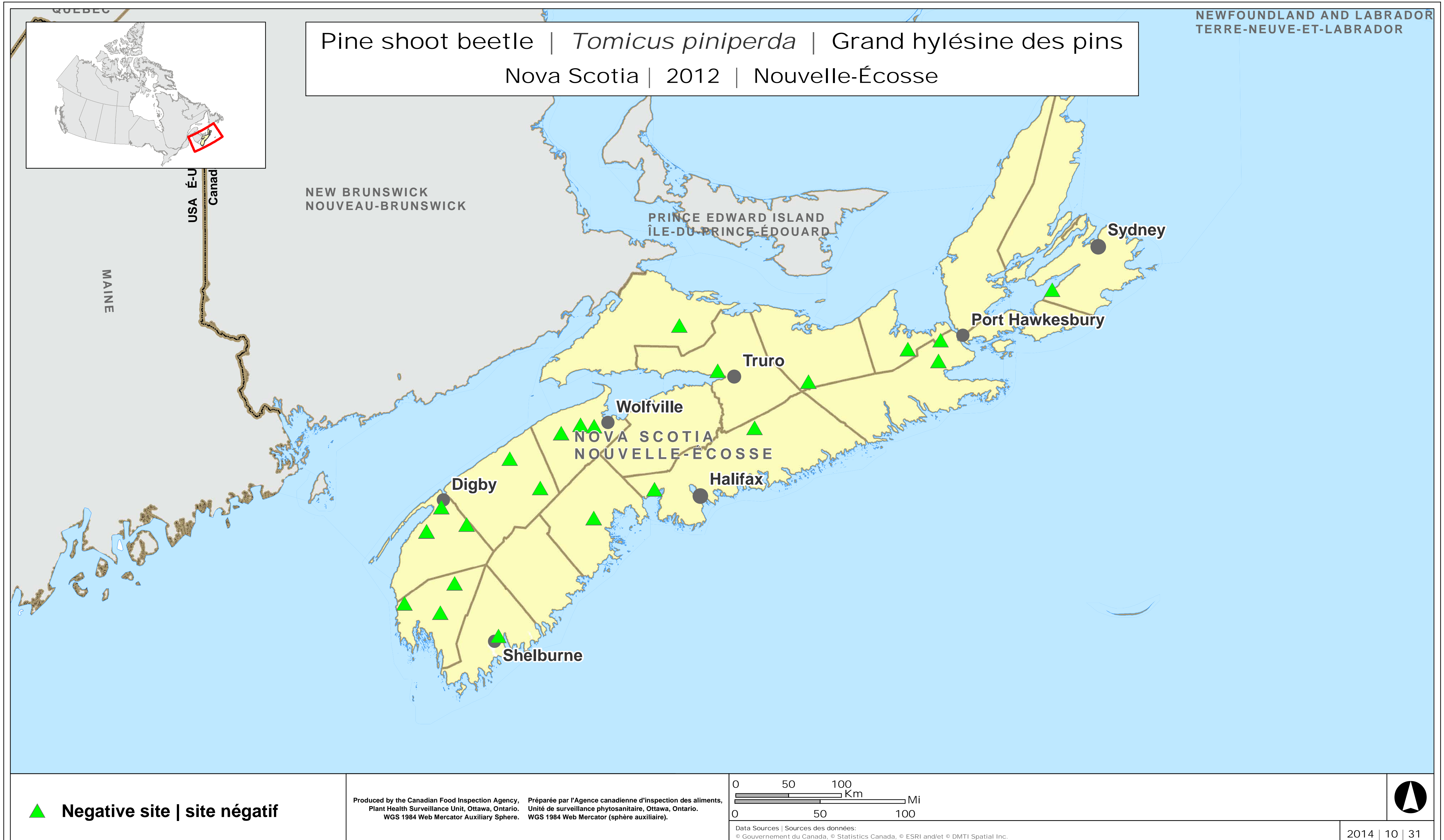
Data Sources | Sources des données:  
© Gouvernement du Canada, © Statistics Canada, © ESRI and/et © DMTI Spatial Inc.





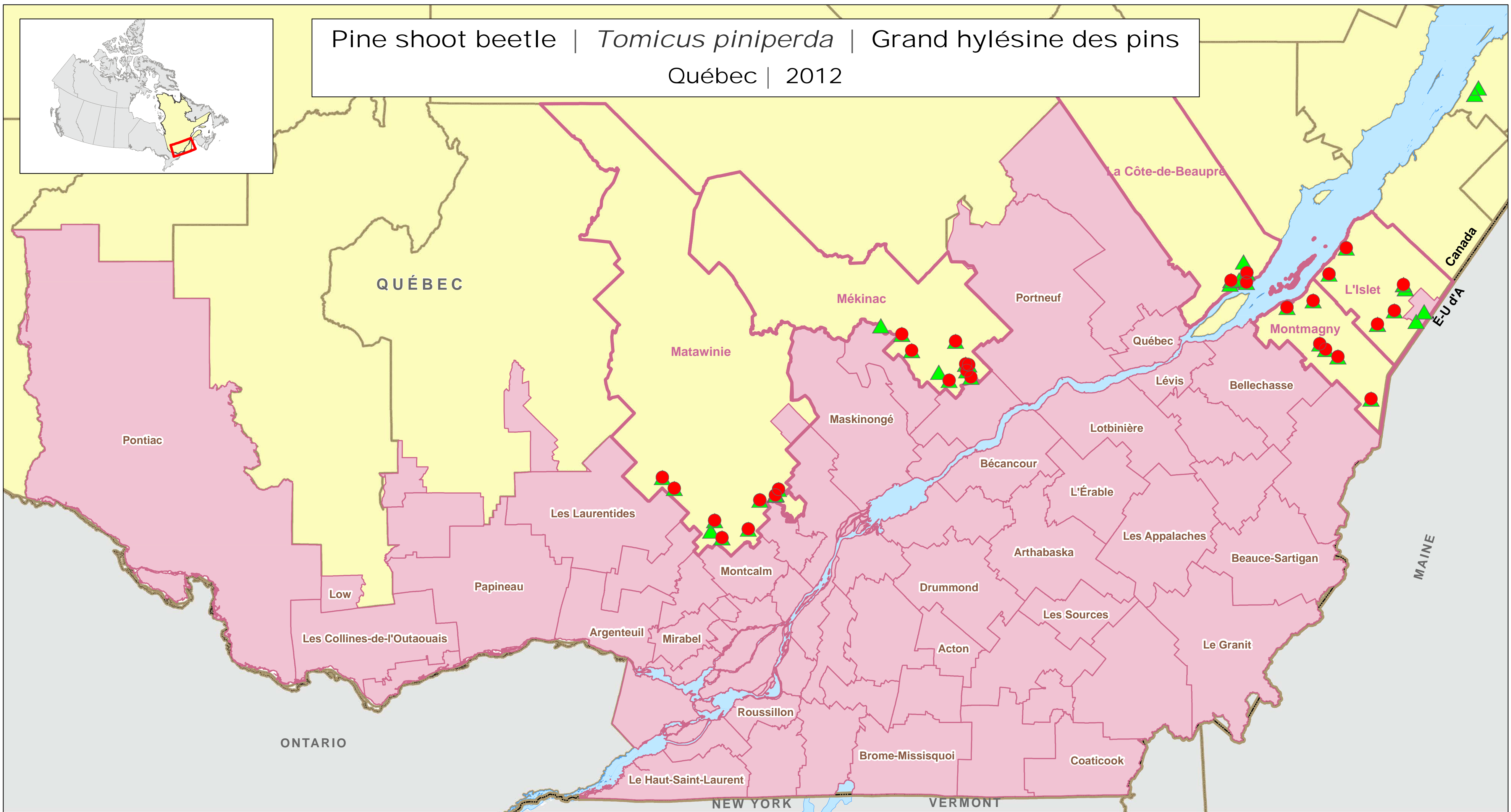








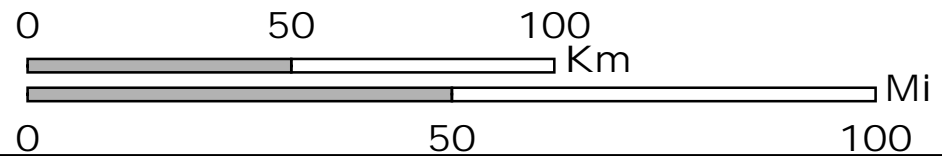
Pine shoot beetle | *Tomicus piniperda* | Grand hylésine des pins  
Québec | 2012



● Positive site | site positif  
▲ Negative site | site négatif

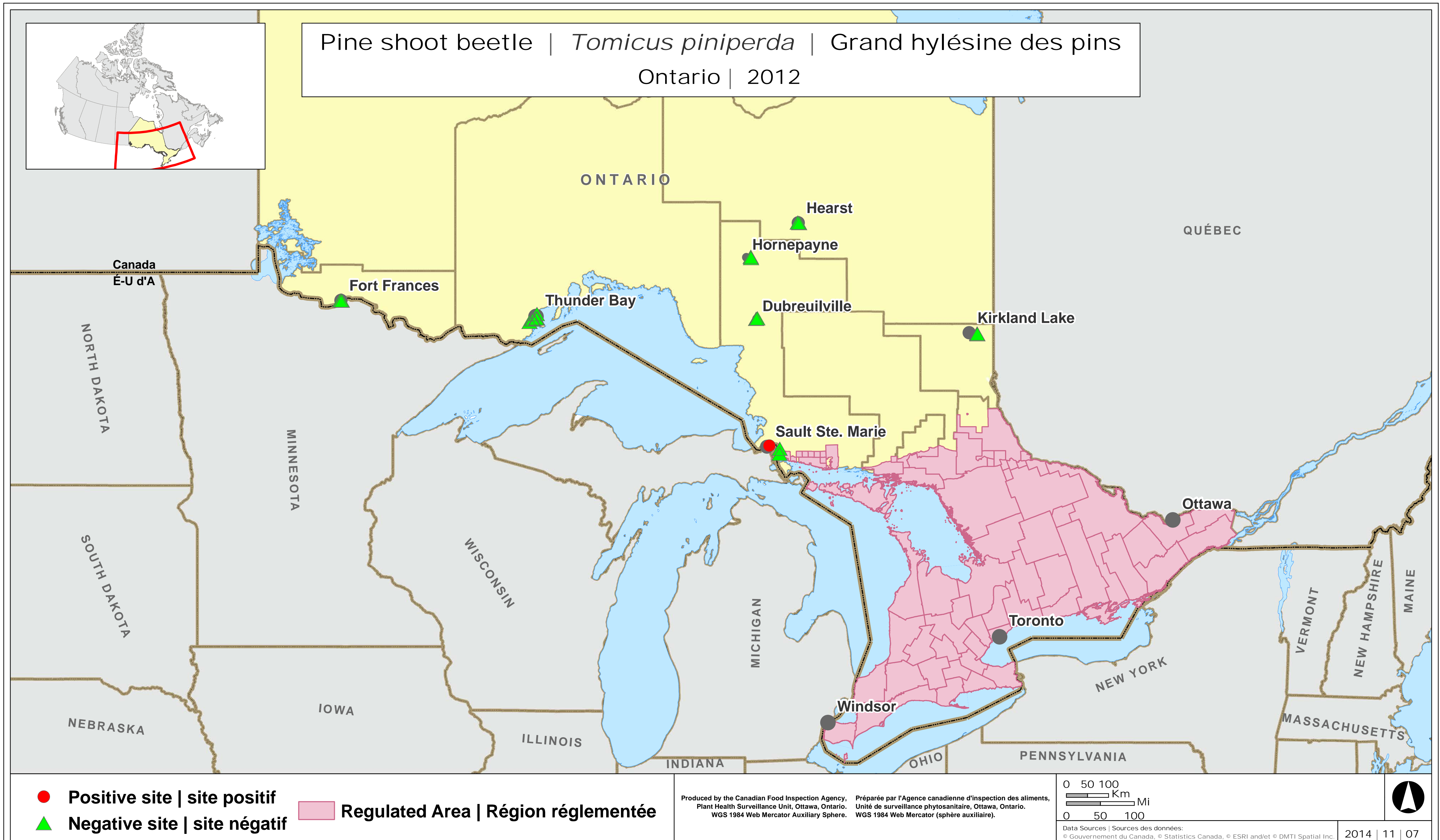
Regulated Area | Région réglementée

Produced by the Canadian Food Inspection Agency, Plant Health Surveillance Unit, Ottawa, Ontario. / Préparée par l'Agence canadienne d'inspection des aliments, Unité de surveillance phytosanitaire, Ottawa, Ontario.

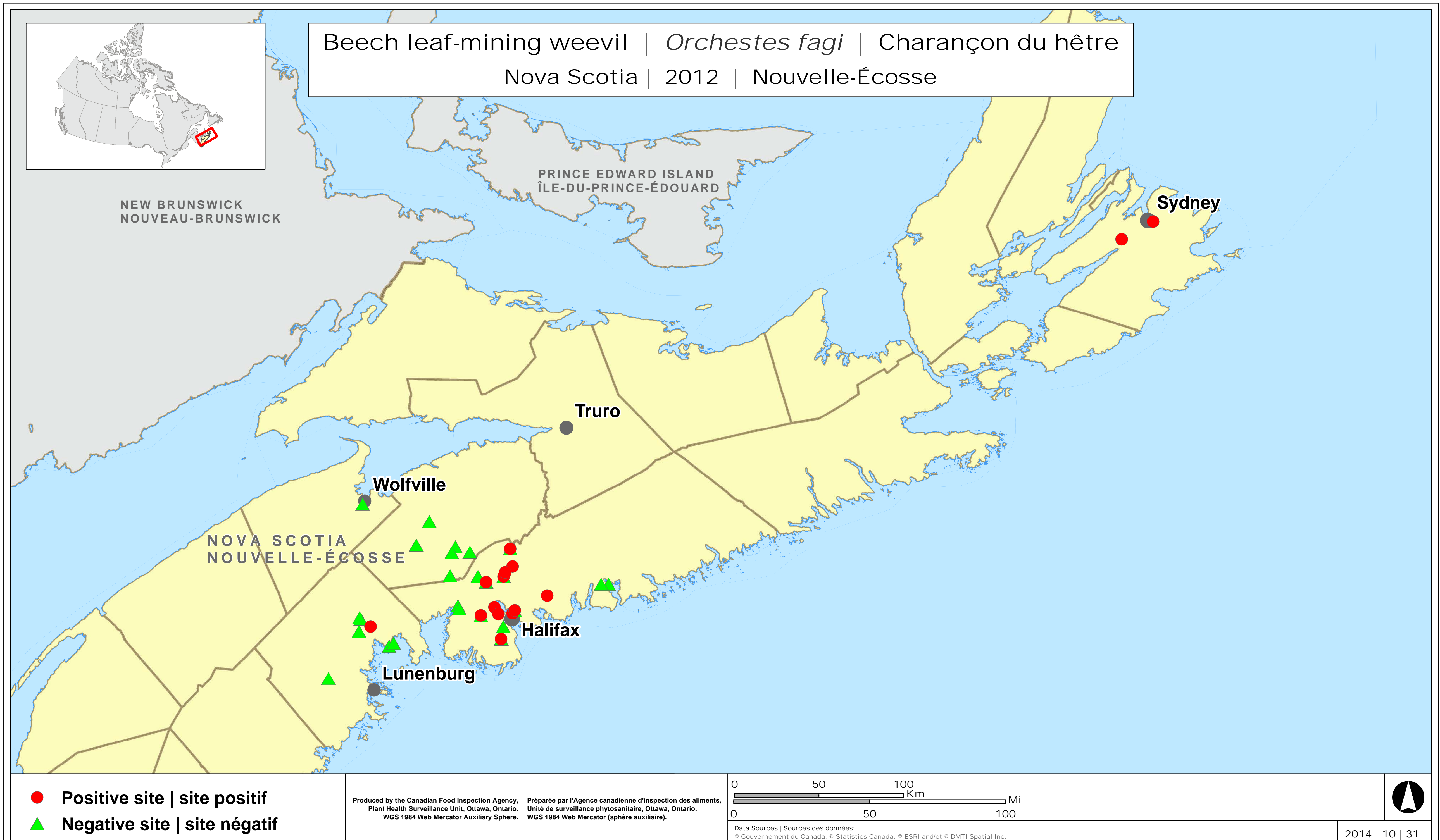


Data Sources | Sources des données:  
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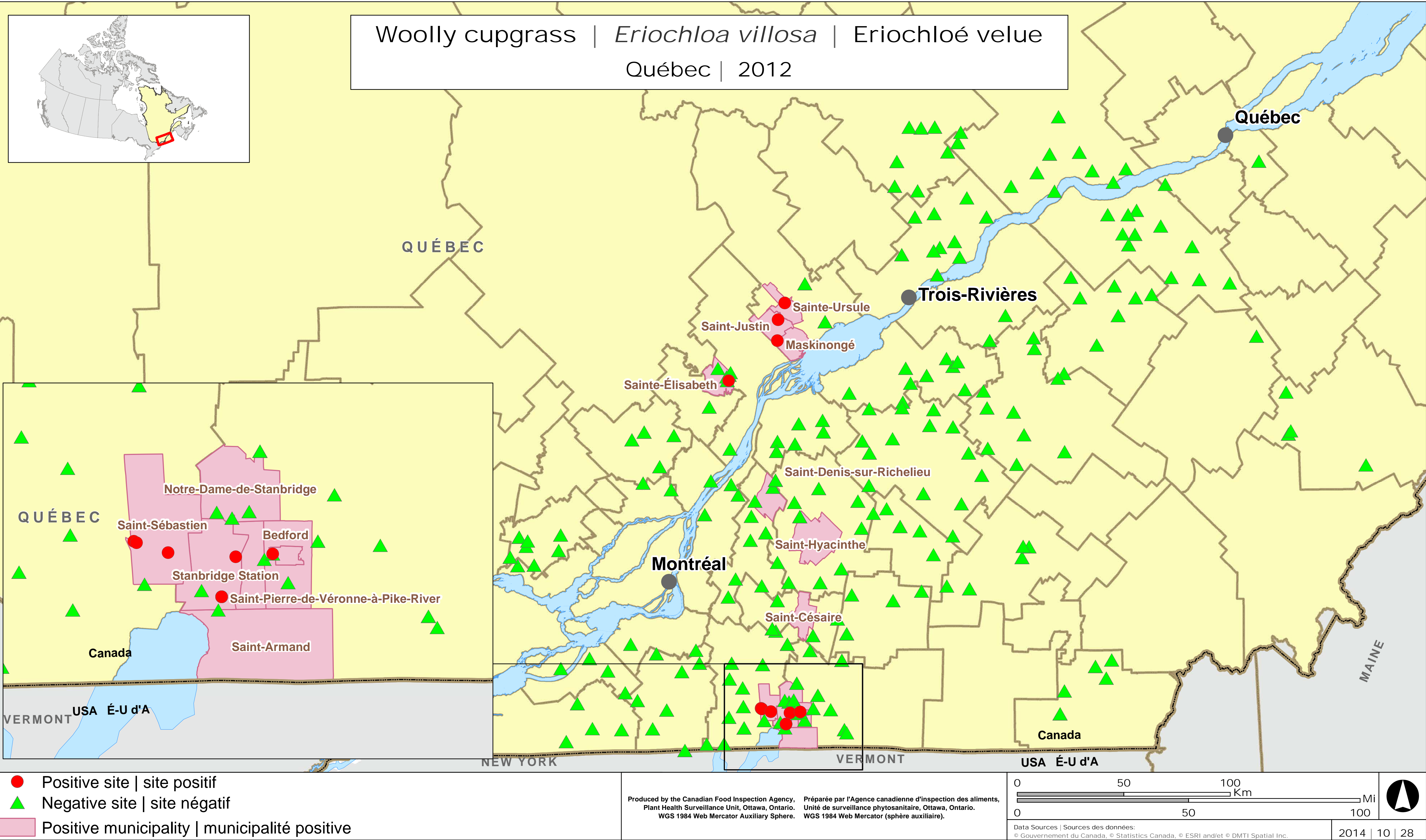




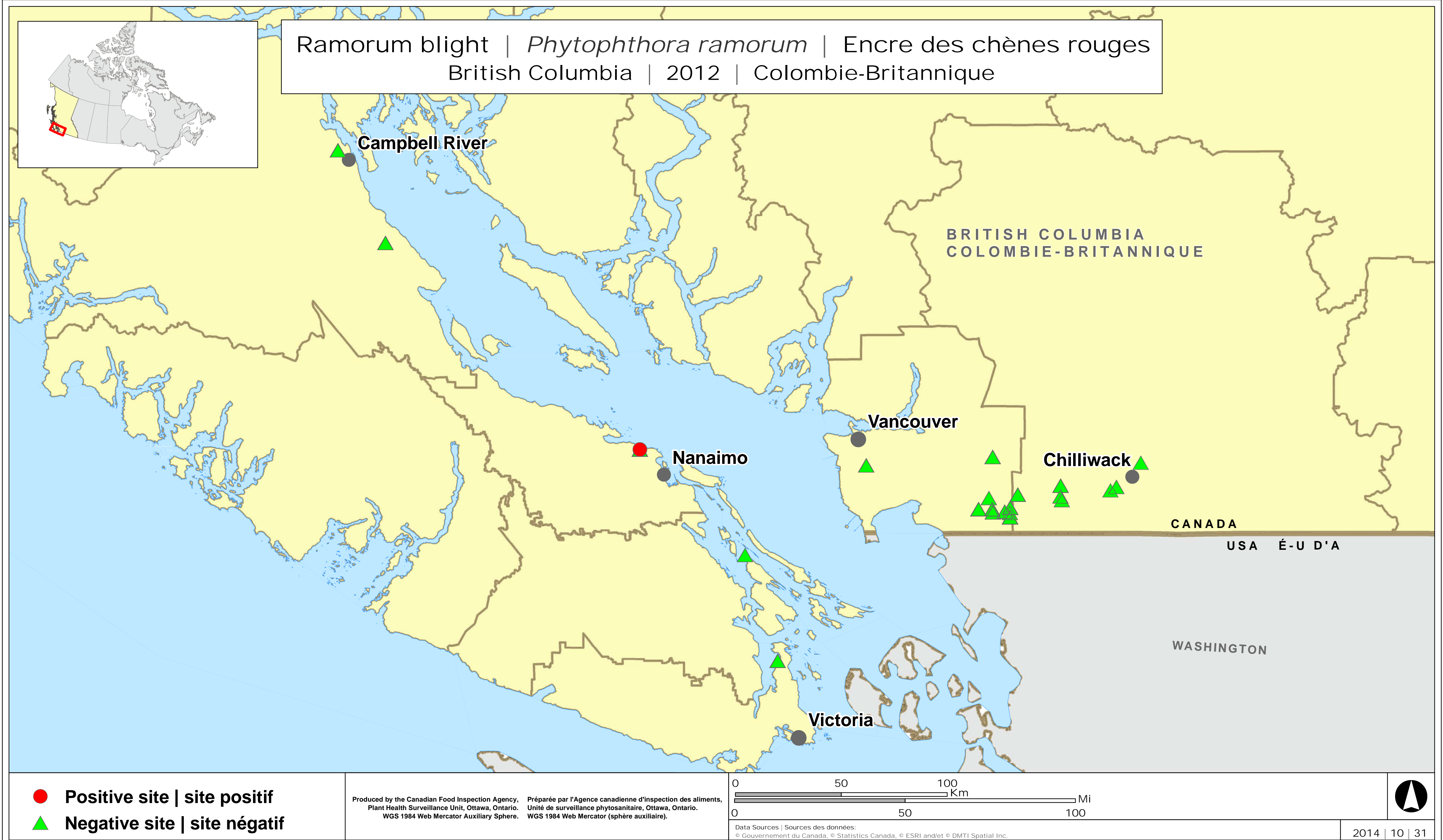




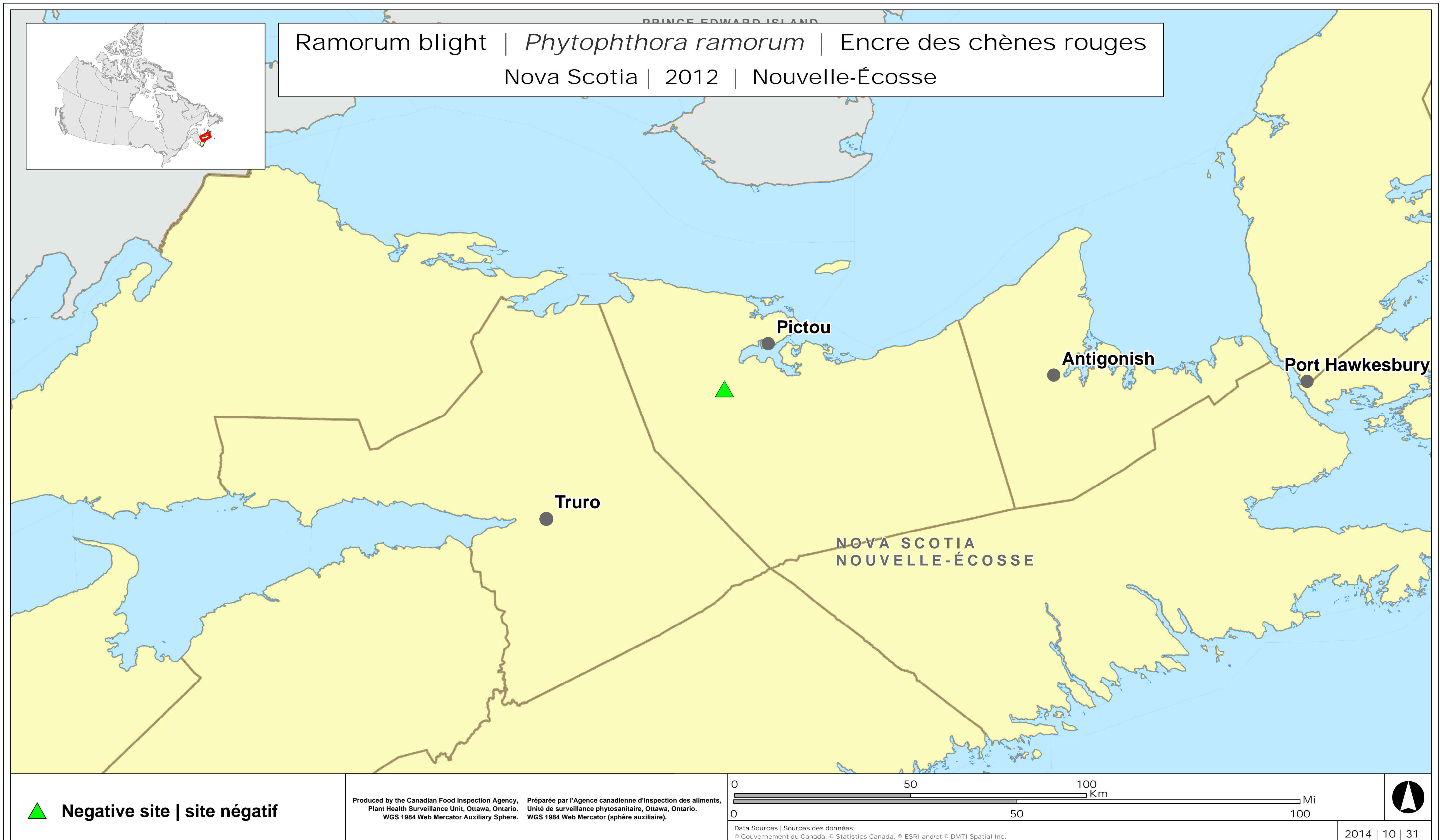
Woolly cupgrass | *Eriochloa villosa* | Eriochloé velue  
Québec | 2012



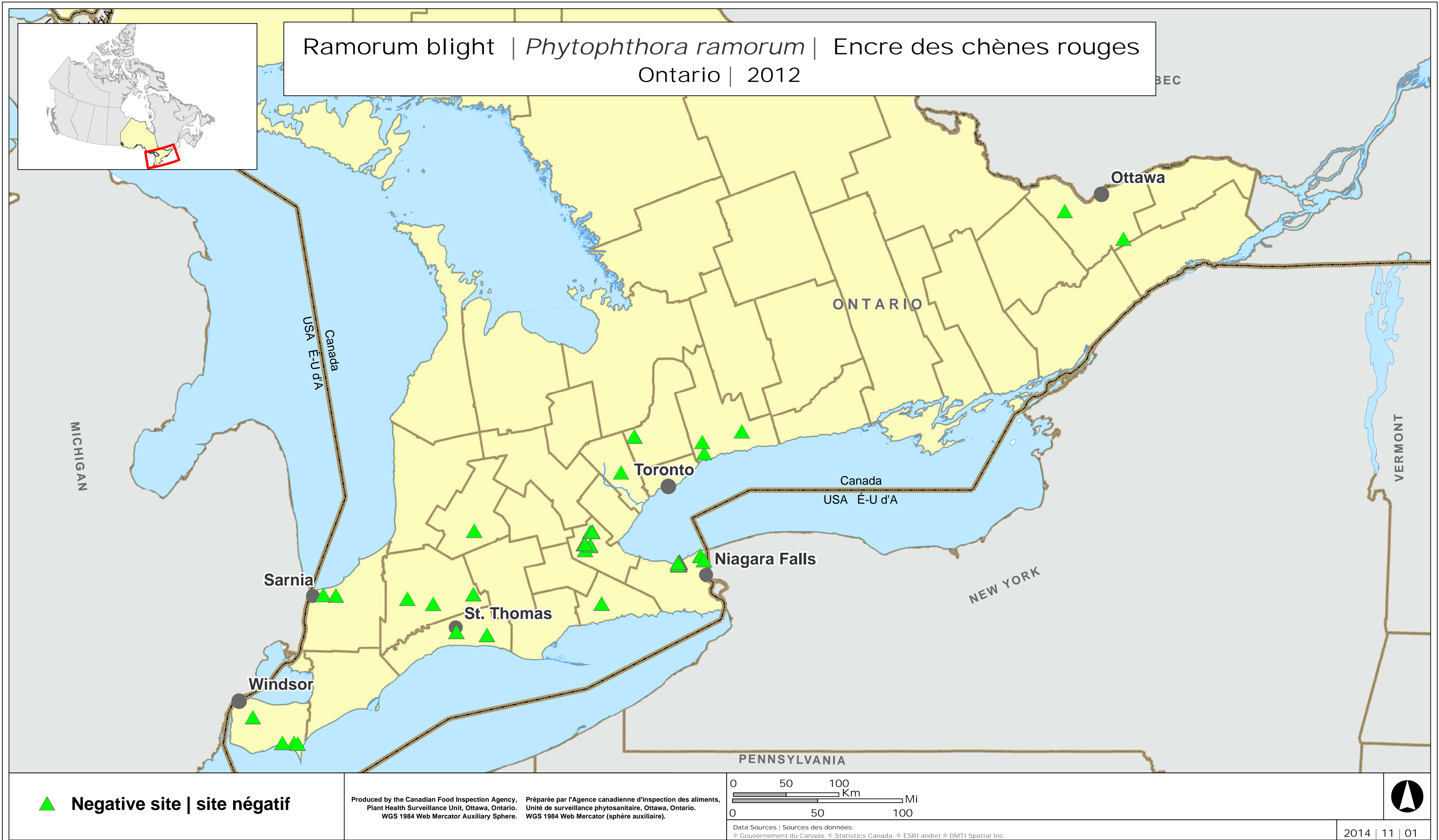




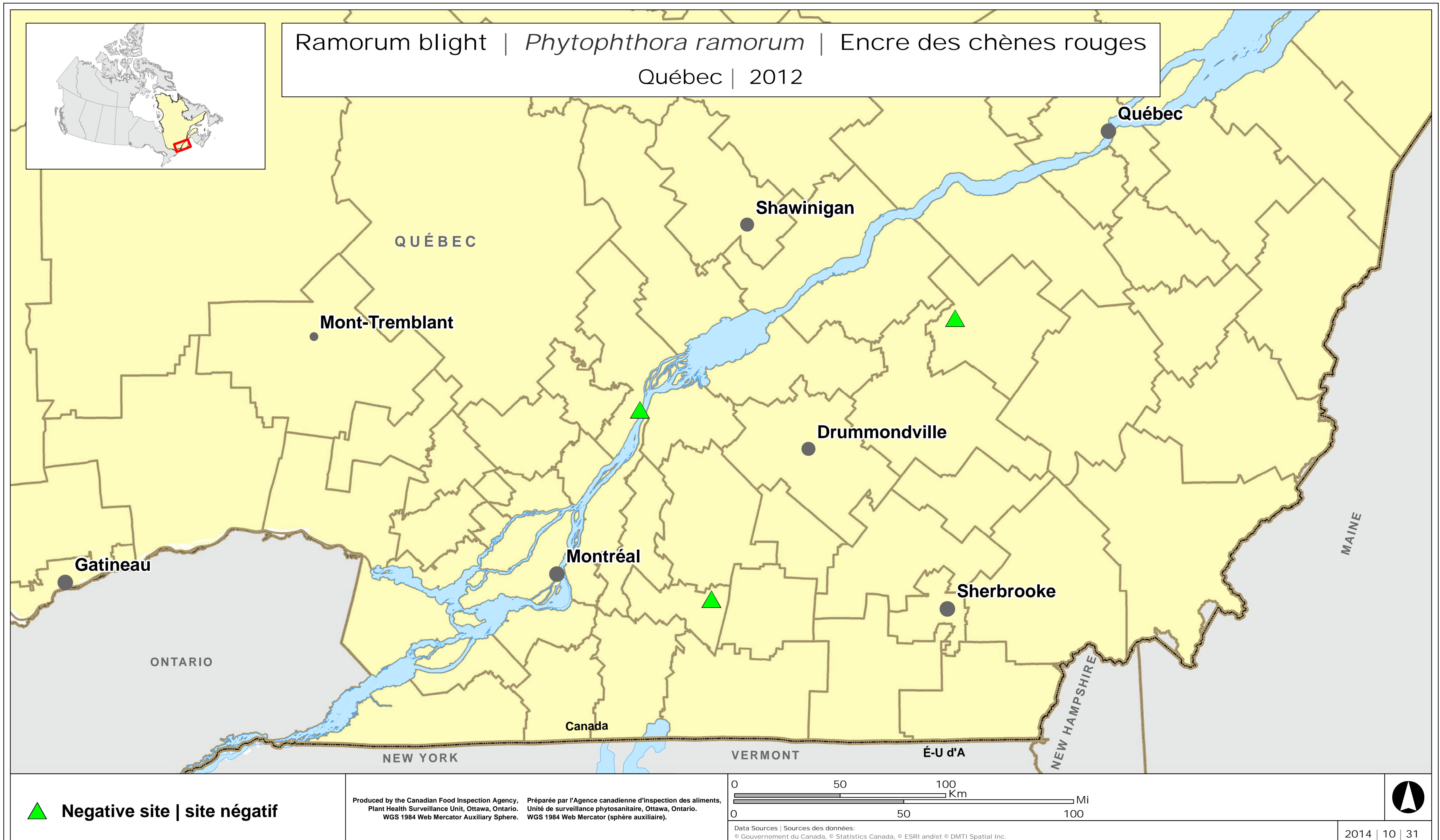




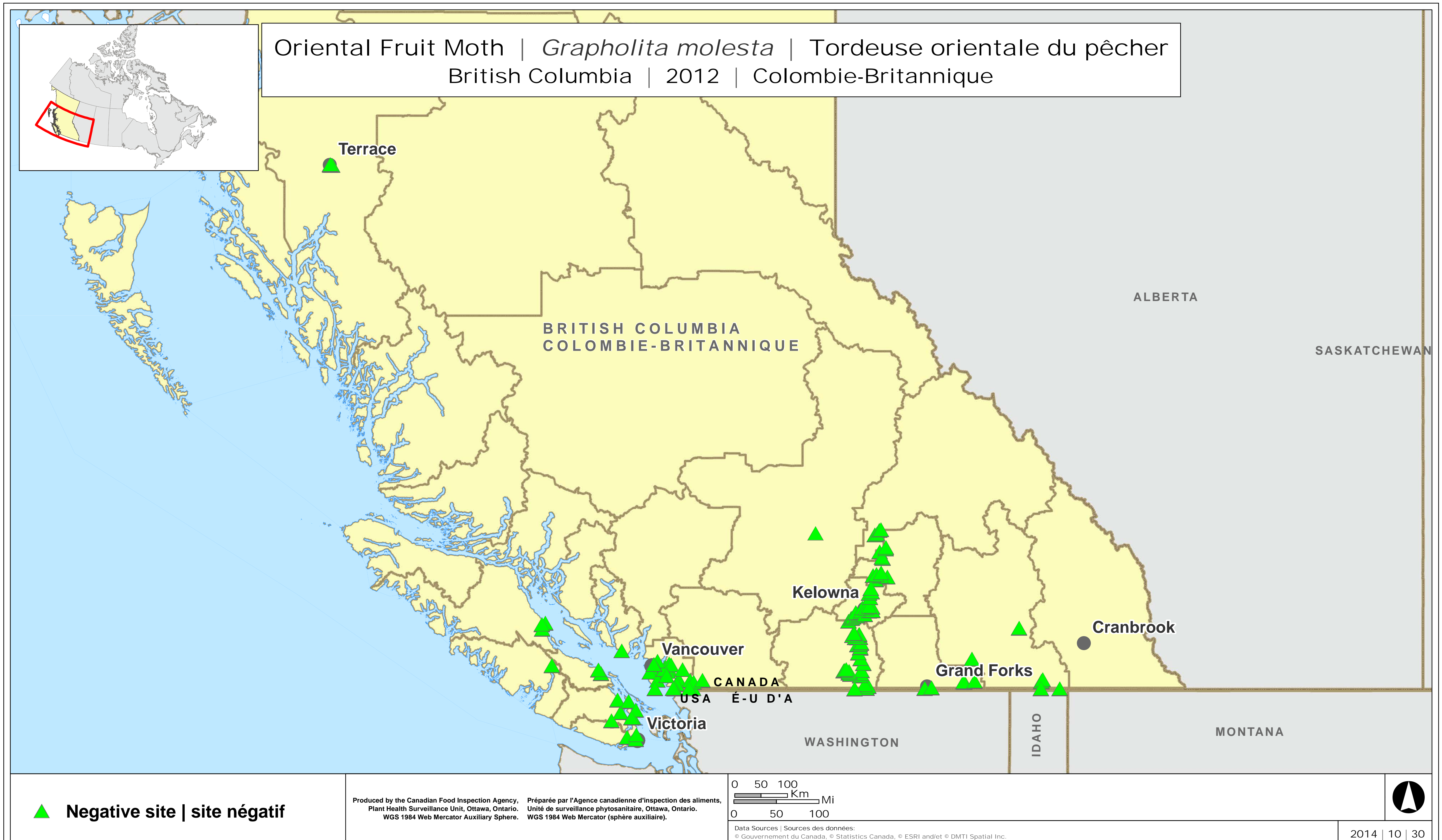








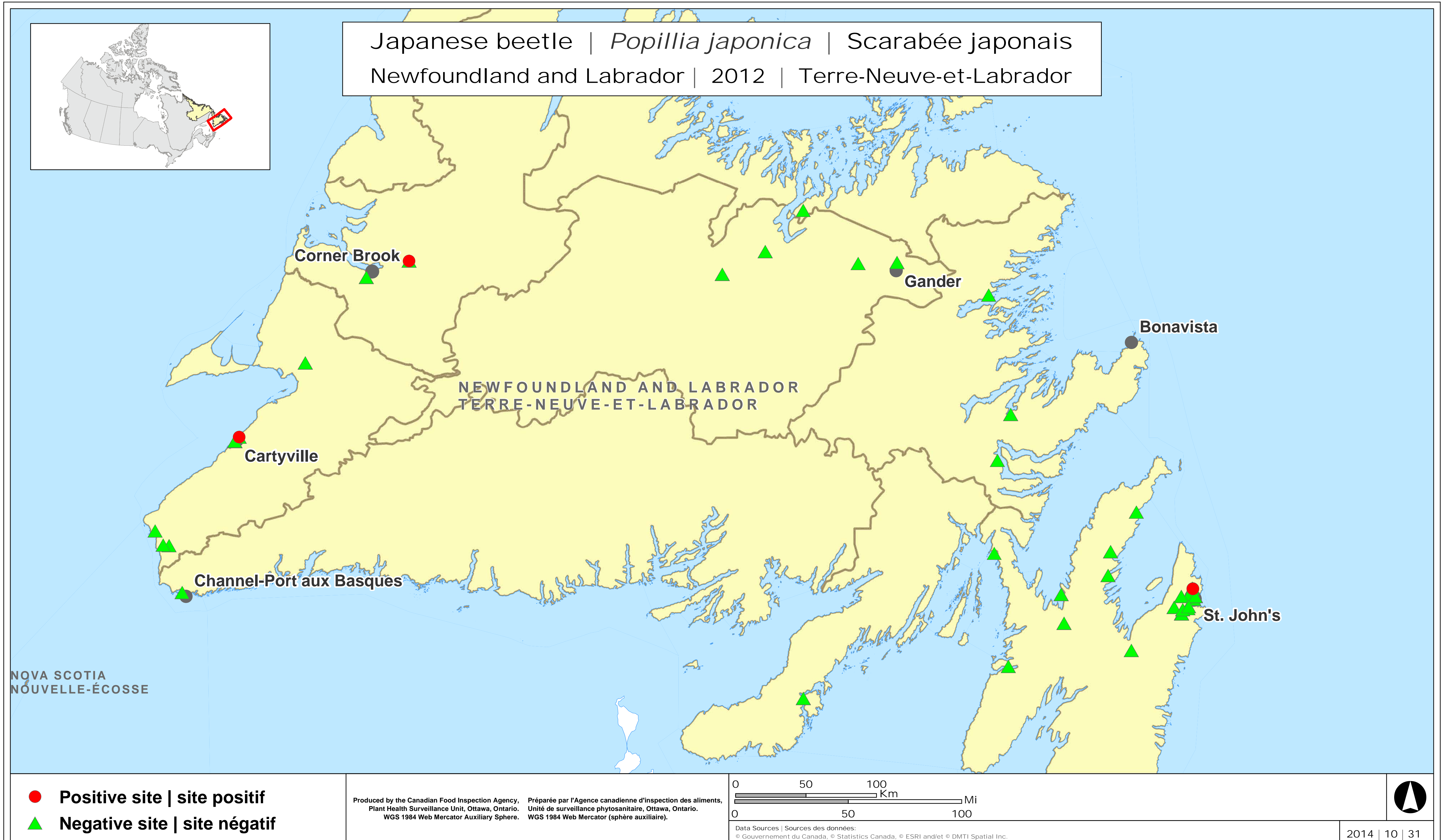




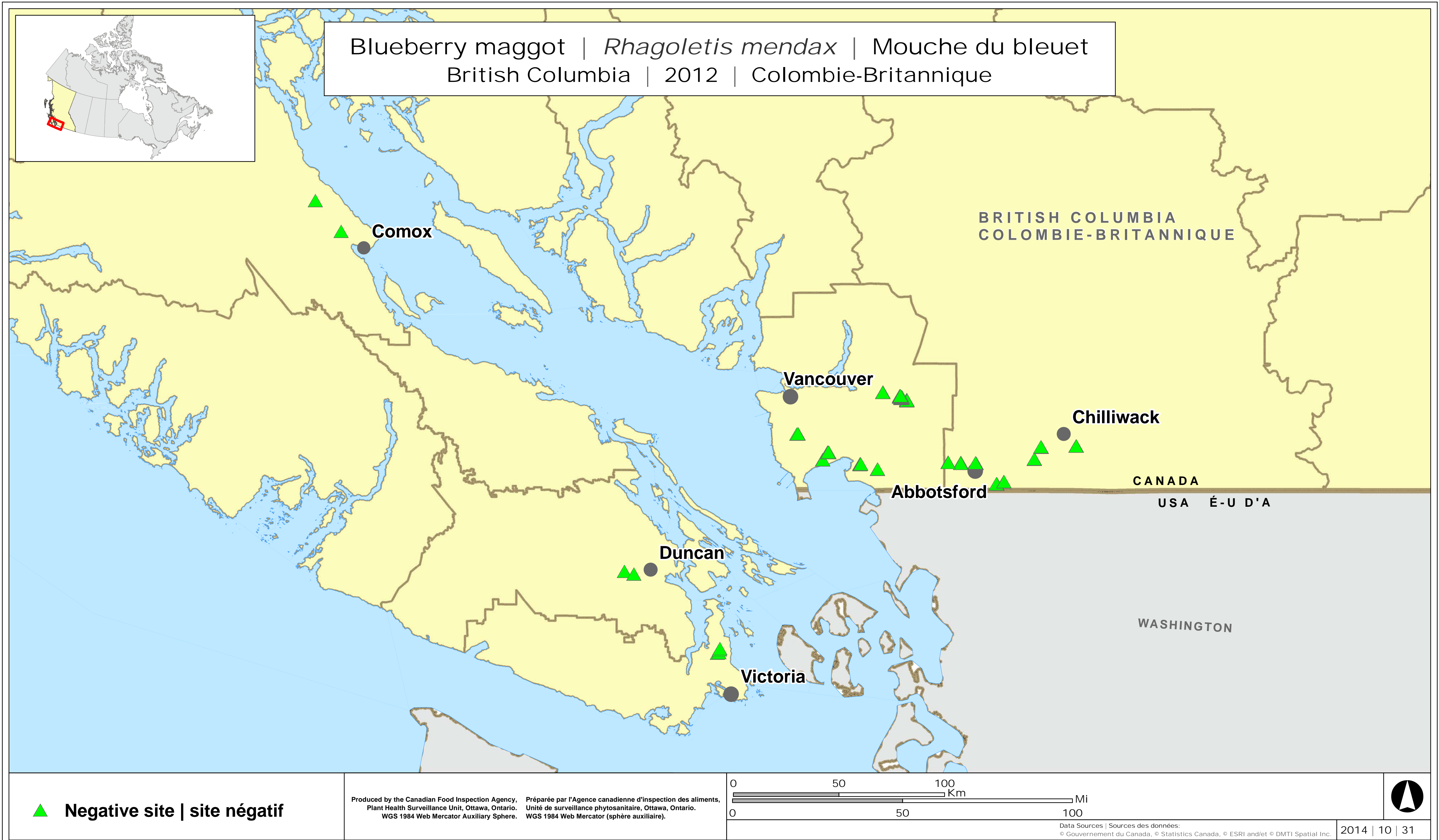








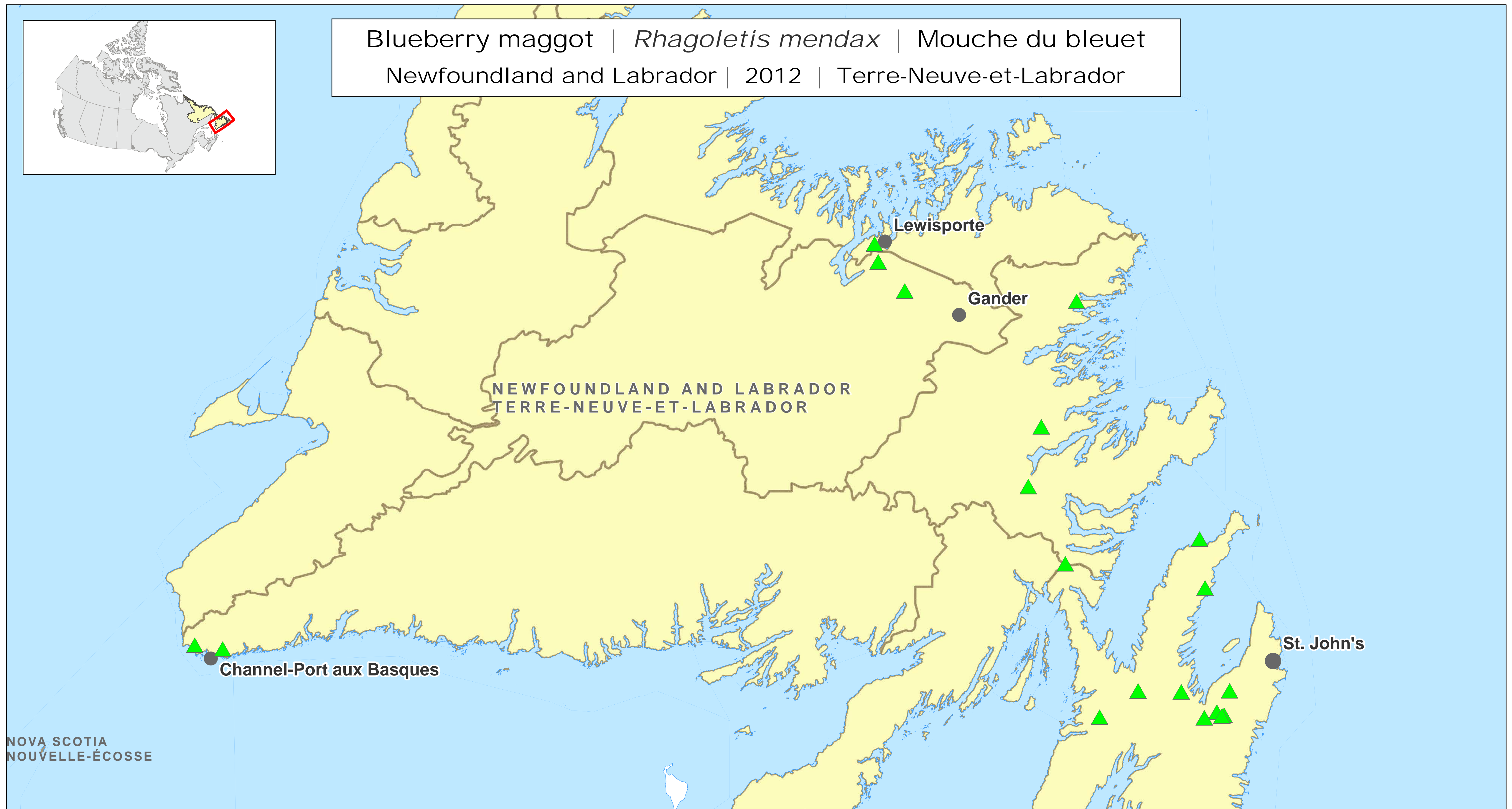






Blueberry maggot | *Rhagoletis mendax* | Mouche du bleuët

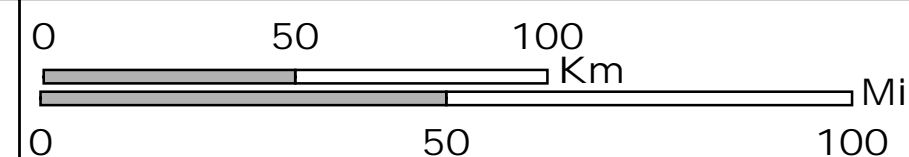
Newfoundland and Labrador | 2012 | Terre-Neuve-et-Labrador



 Negative site | site négatif

Produced by the Canadian Food Inspection Agency,  
Plant Health Surveillance Unit, Ottawa, Ontario.  
WGS 1984 Web Mercator Auxiliary Sphere.

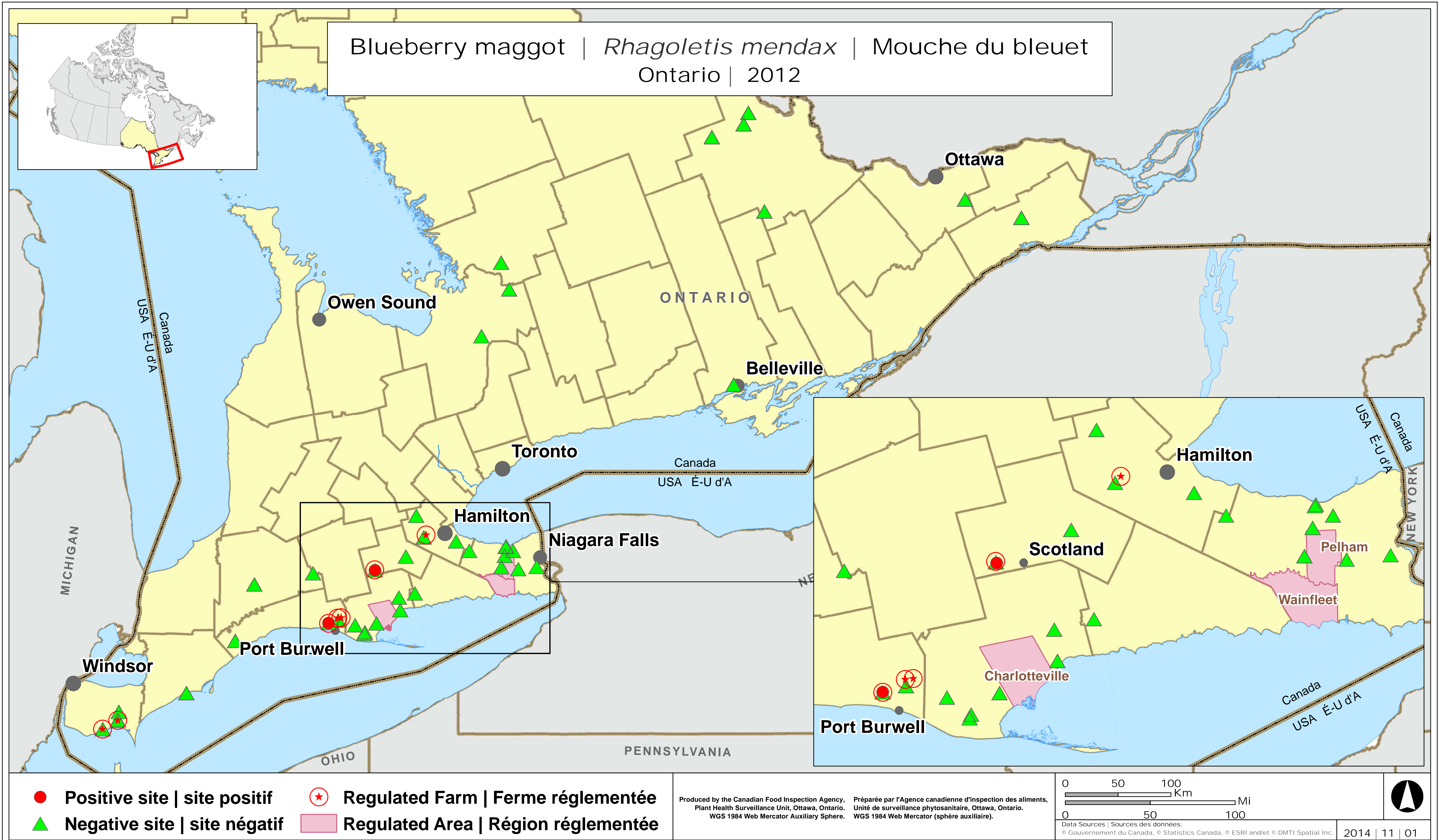
Préparée par l'Agence canadienne d'inspection des aliments,  
Unité de surveillance phytosanitaire, Ottawa, Ontario.  
WGS 1984 Web Mercator (sphère auxiliaire).



Data Sources | Sources des données:  
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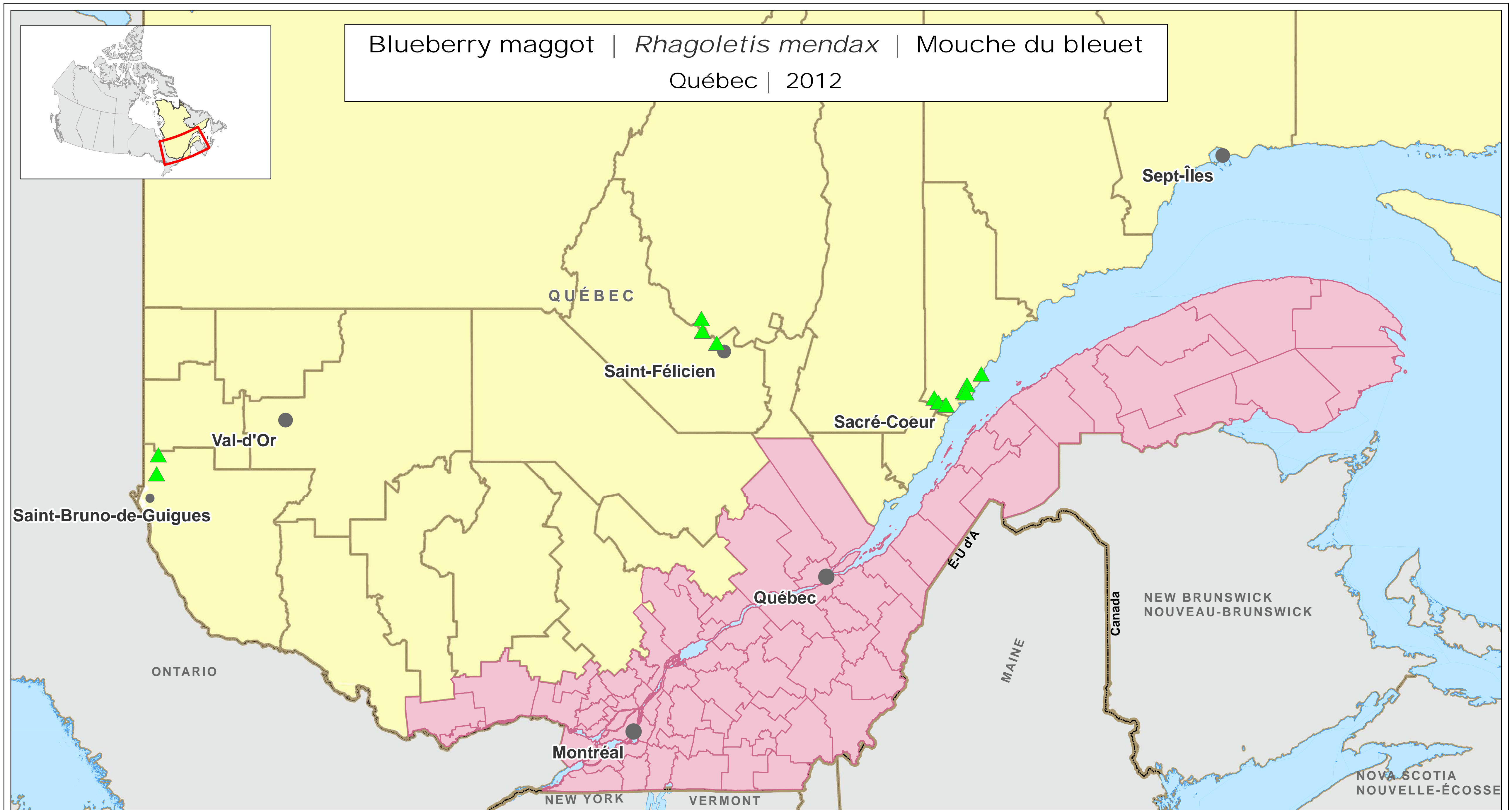








Blueberry maggot | *Rhagoletis mendax* | Mouche du bleuët  
Québec | 2012



▲ Negative site | site négatif      ■ Regulated Area | Région réglementée

Produced by the Canadian Food Inspection Agency, Plant Health Surveillance Unit, Ottawa, Ontario.  
WGS 1984 Web Mercator Auxiliary Sphere.

Préparée par l'Agence canadienne d'inspection des aliments, Unité de surveillance phytosanitaire, Ottawa, Ontario.  
WGS 1984 Web Mercator (sphère auxiliaire).

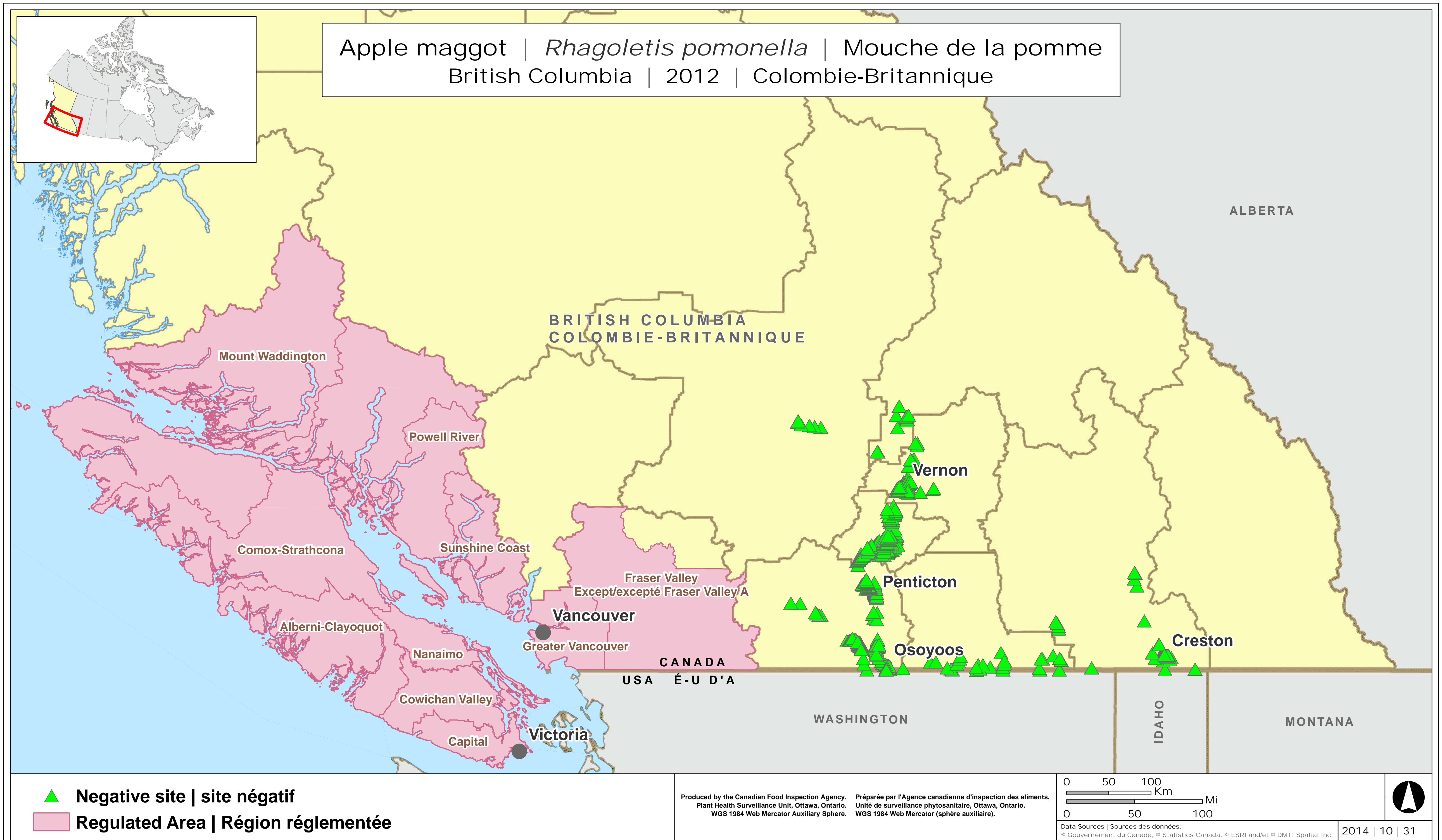
0 50 100 Km  
0 50 100 Mi

Data Sources | Sources des données:  
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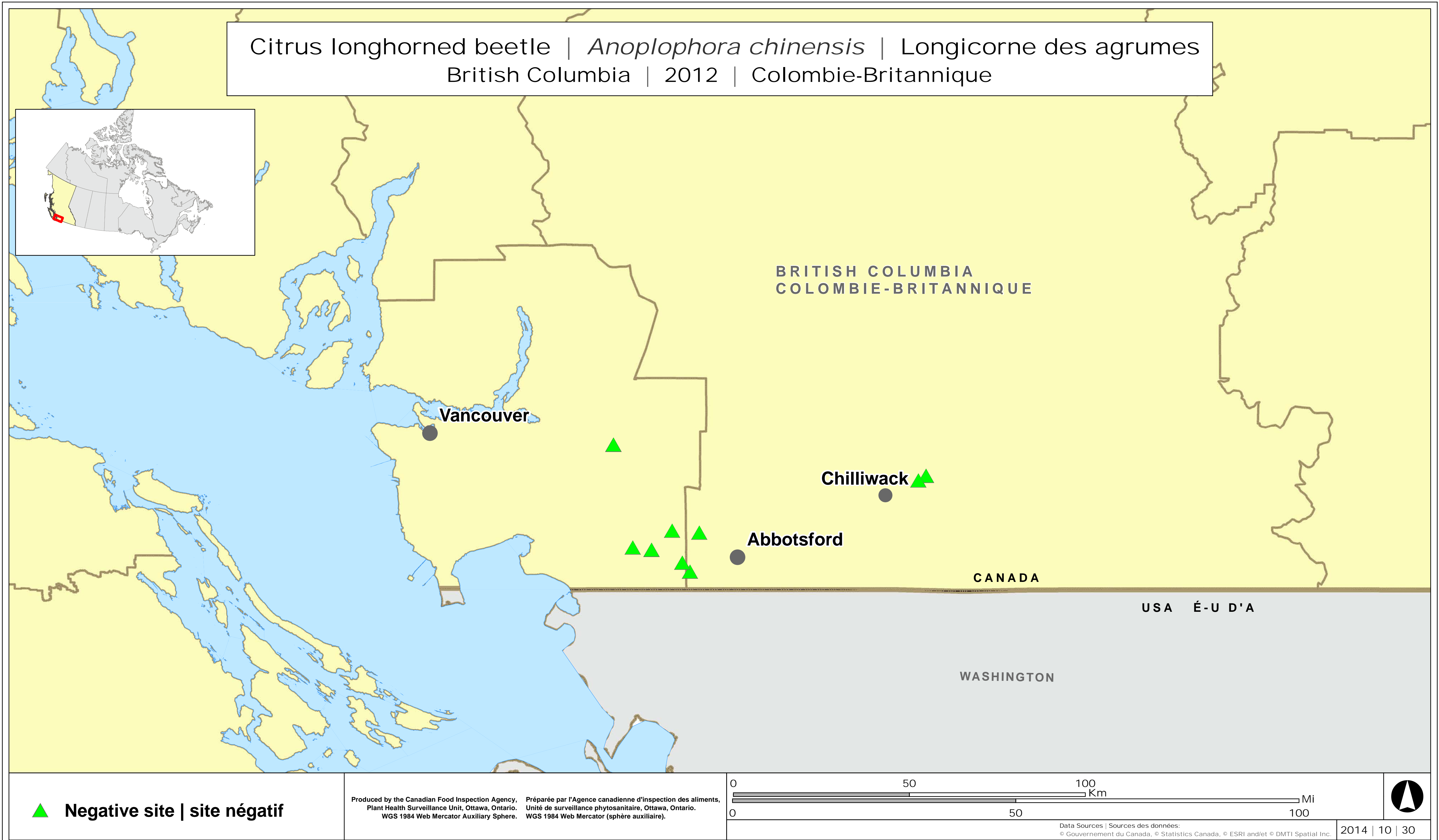
2014 | 10 | 22



Apple maggot | *Rhagoletis pomonella* | Mouche de la pomme  
British Columbia | 2012 | Colombie-Britannique



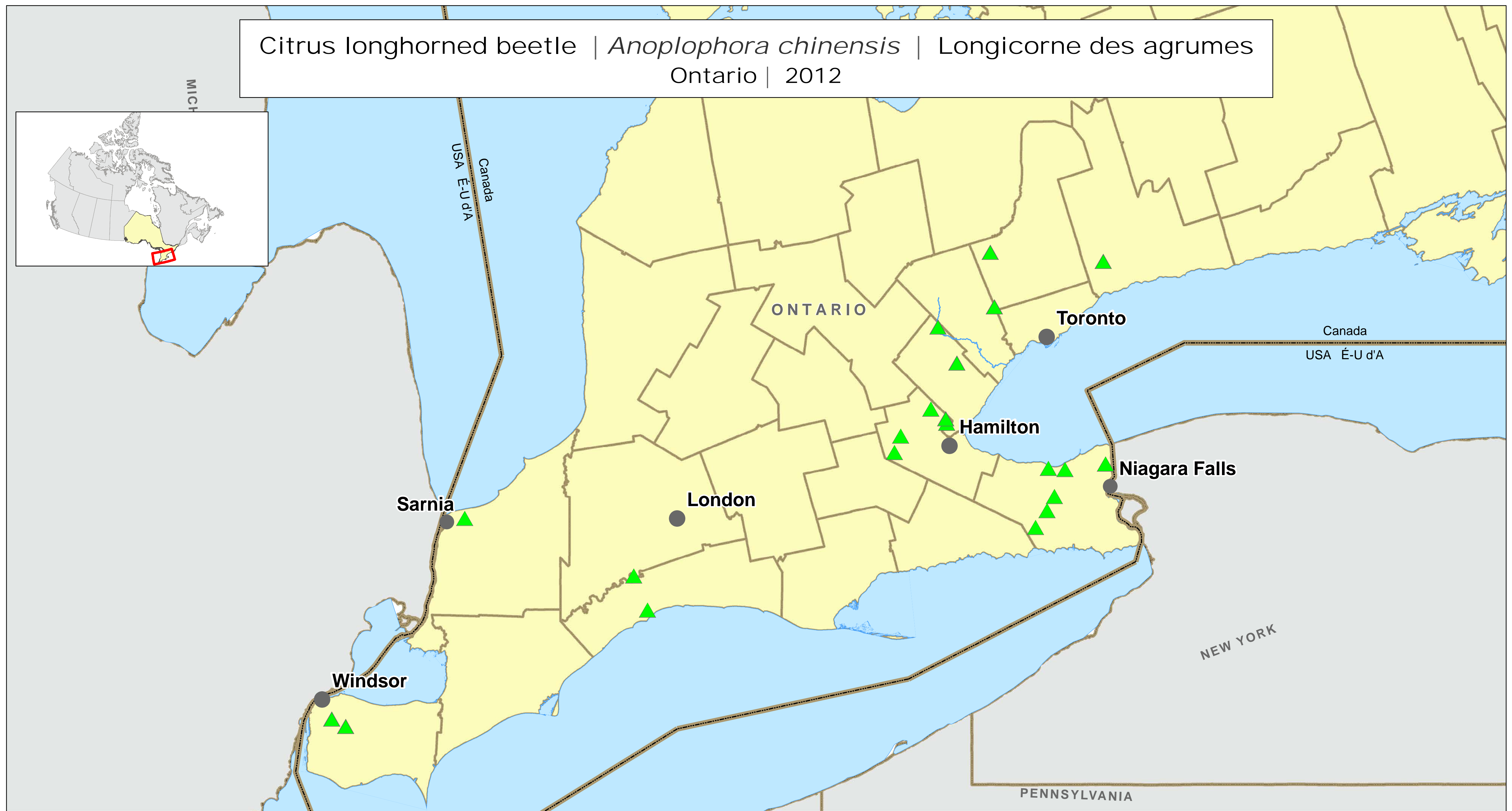






Citrus longhorned beetle | *Anoplophora chinensis* | Longicorne des agrumes

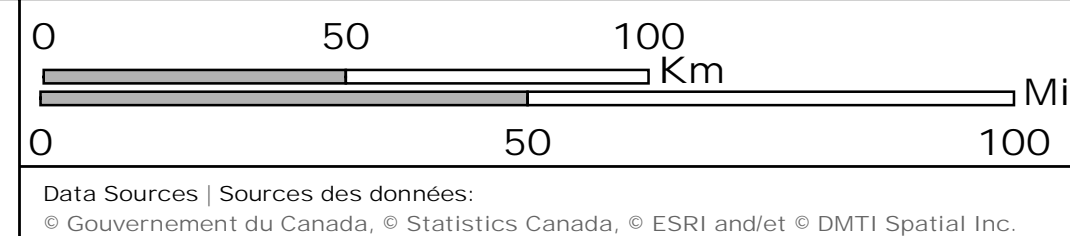
Ontario | 2012



▲ Negative site | site négatif

Produced by the Canadian Food Inspection Agency,  
Plant Health Surveillance Unit, Ottawa, Ontario.  
WGS 1984 Web Mercator Auxiliary Sphere.

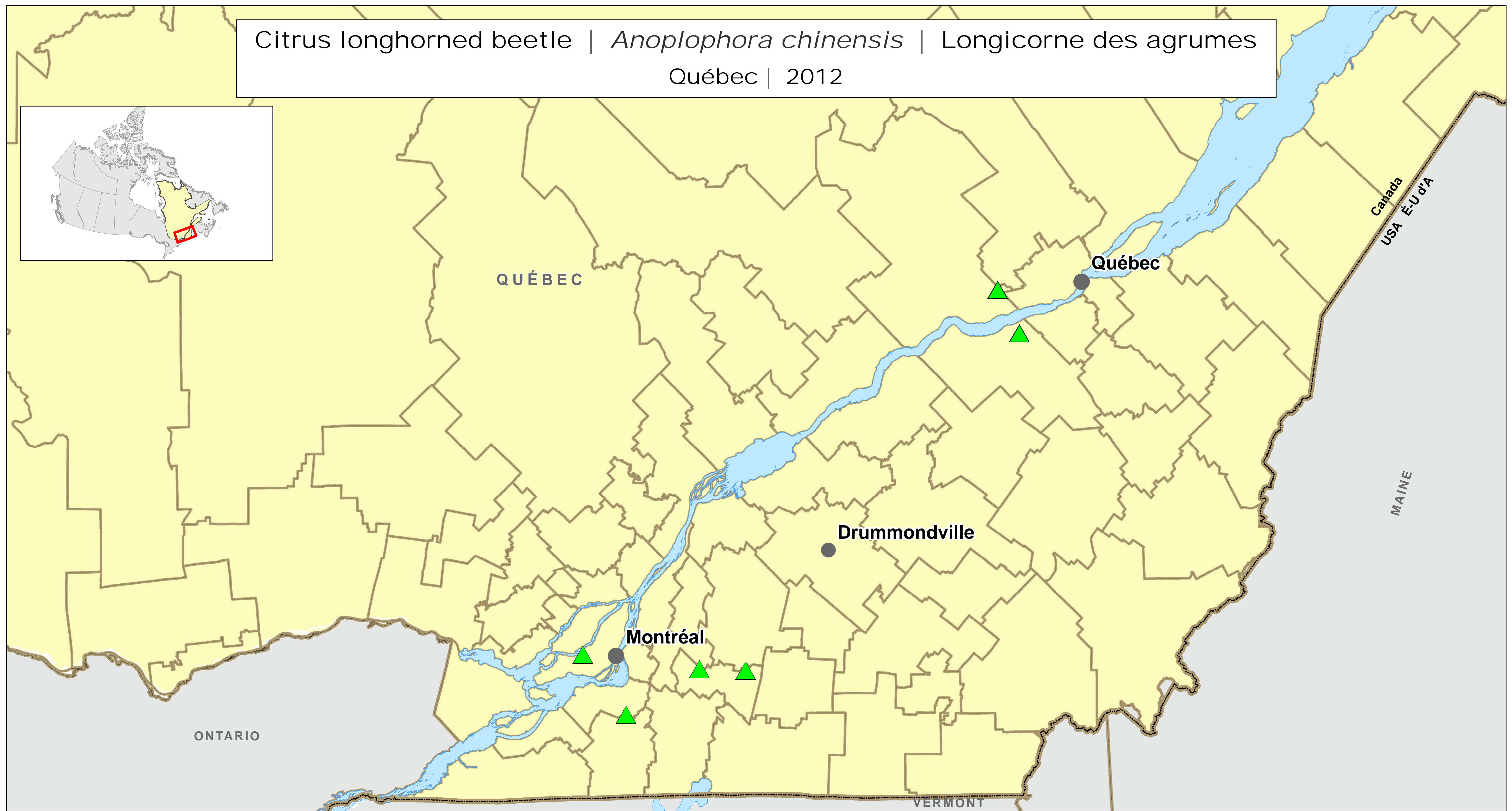
Préparée par l'Agence canadienne d'inspection des aliments,  
Unité de surveillance phytosanitaire, Ottawa, Ontario.  
WGS 1984 Web Mercator (sphère auxiliaire).





Citrus longhorned beetle | *Anoplophora chinensis* | Longicorne des agrumes

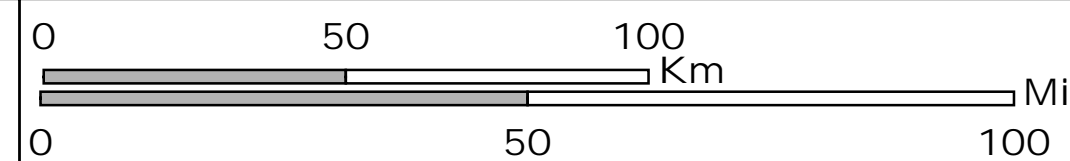
Québec | 2012



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WGS 1984 Web Mercator Auxiliary Sphere.

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Unité de surveillance phytosanitaire, Ottawa, Ontario.  
WGS 1984 Web Mercator (sphère auxiliaire).



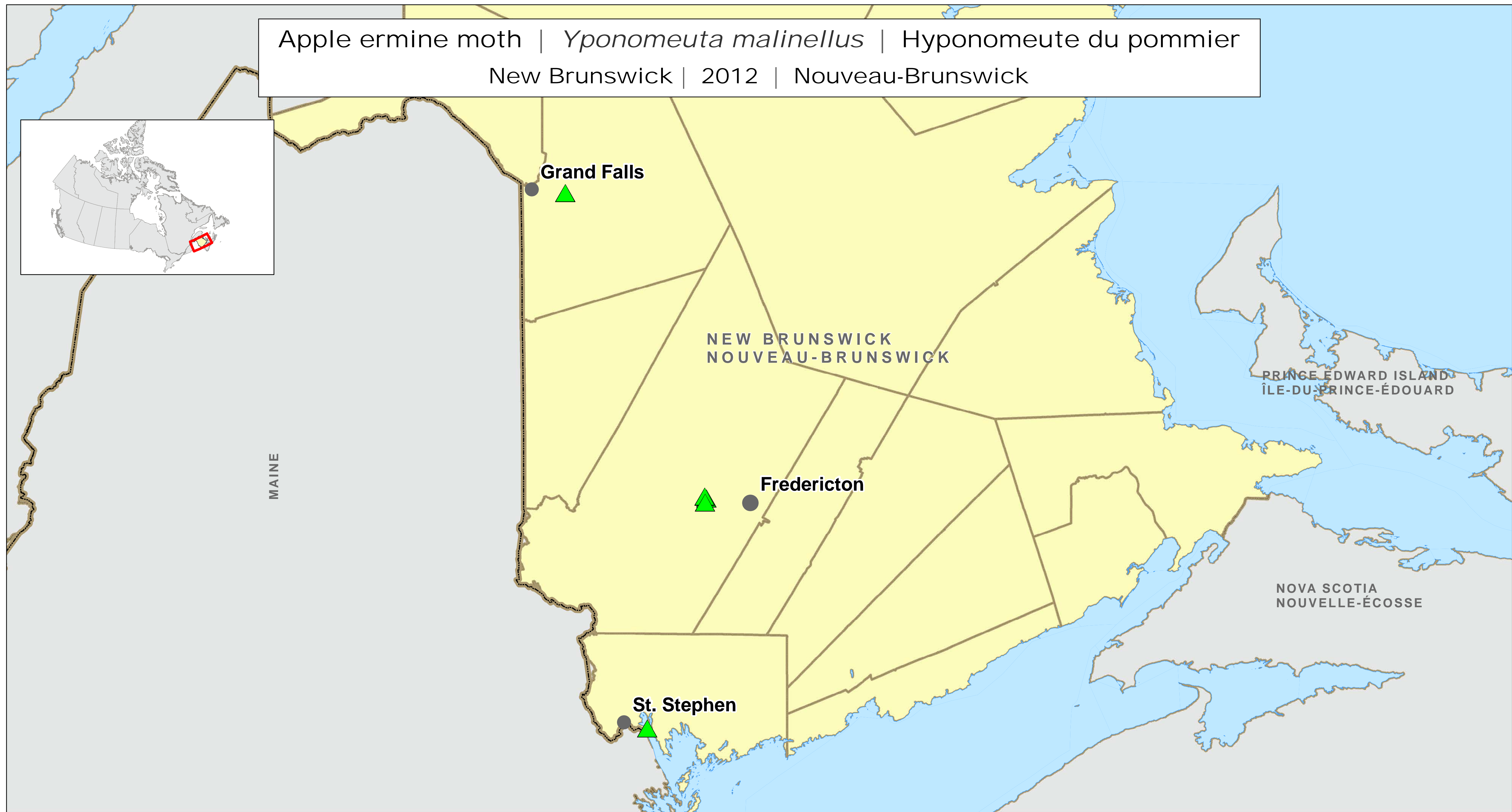
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Apple ermine moth | *Yponomeuta malinellus* | Hyponomeute du pommier

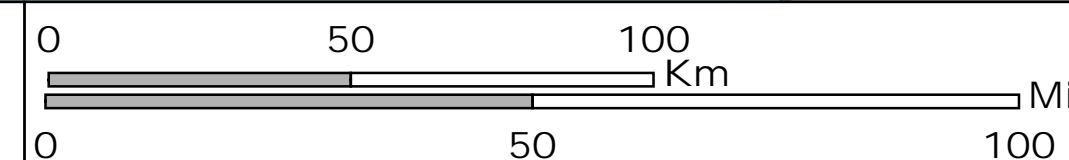
New Brunswick | 2012 | Nouveau-Brunswick



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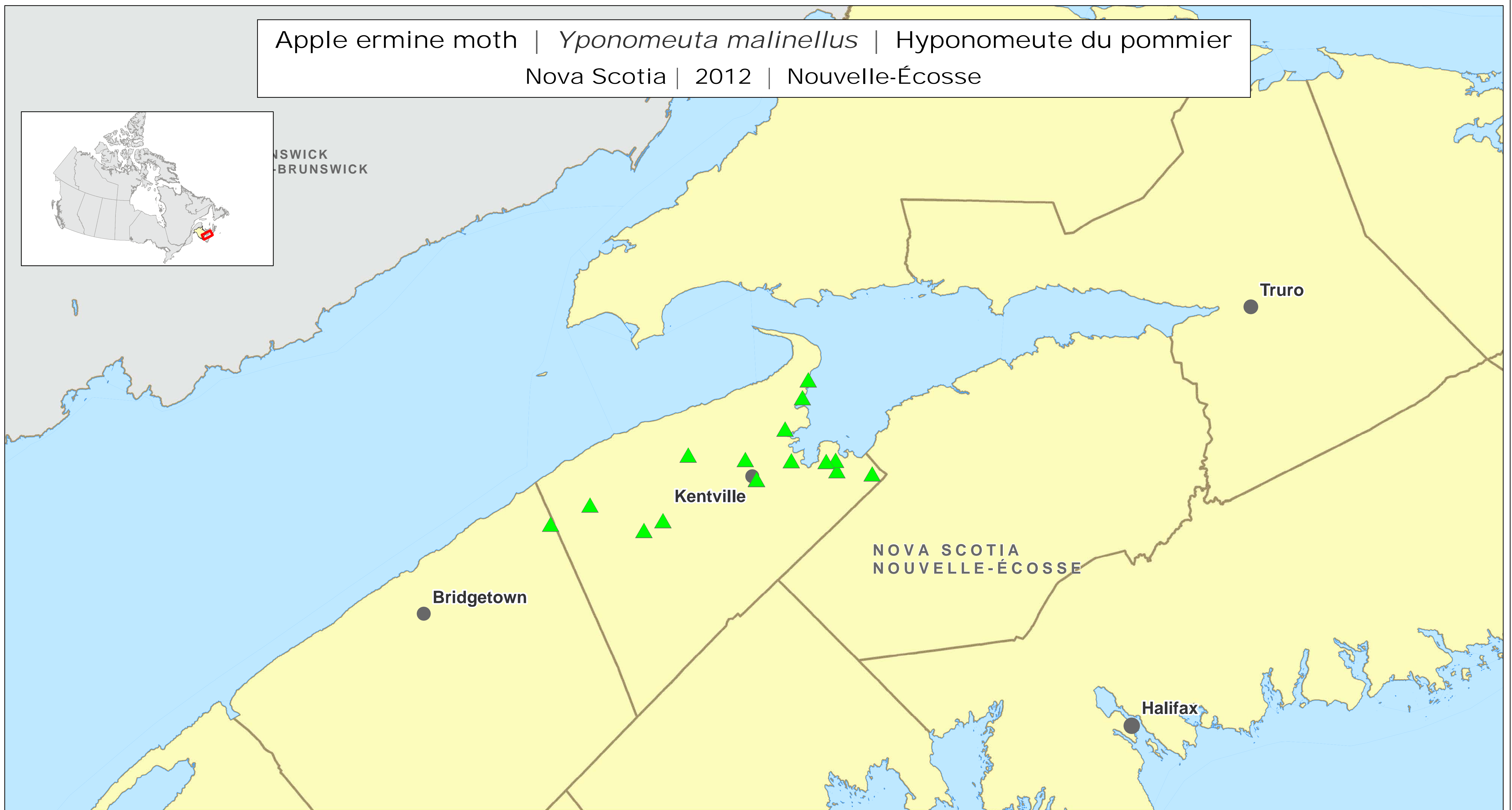
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Apple ermine moth | *Yponomeuta malinellus* | Hyponomeute du pommier

Nova Scotia | 2012 | Nouvelle-Écosse



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WGS 1984 Web Mercator (sphère auxiliaire).

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Data Sources | Sources des données:

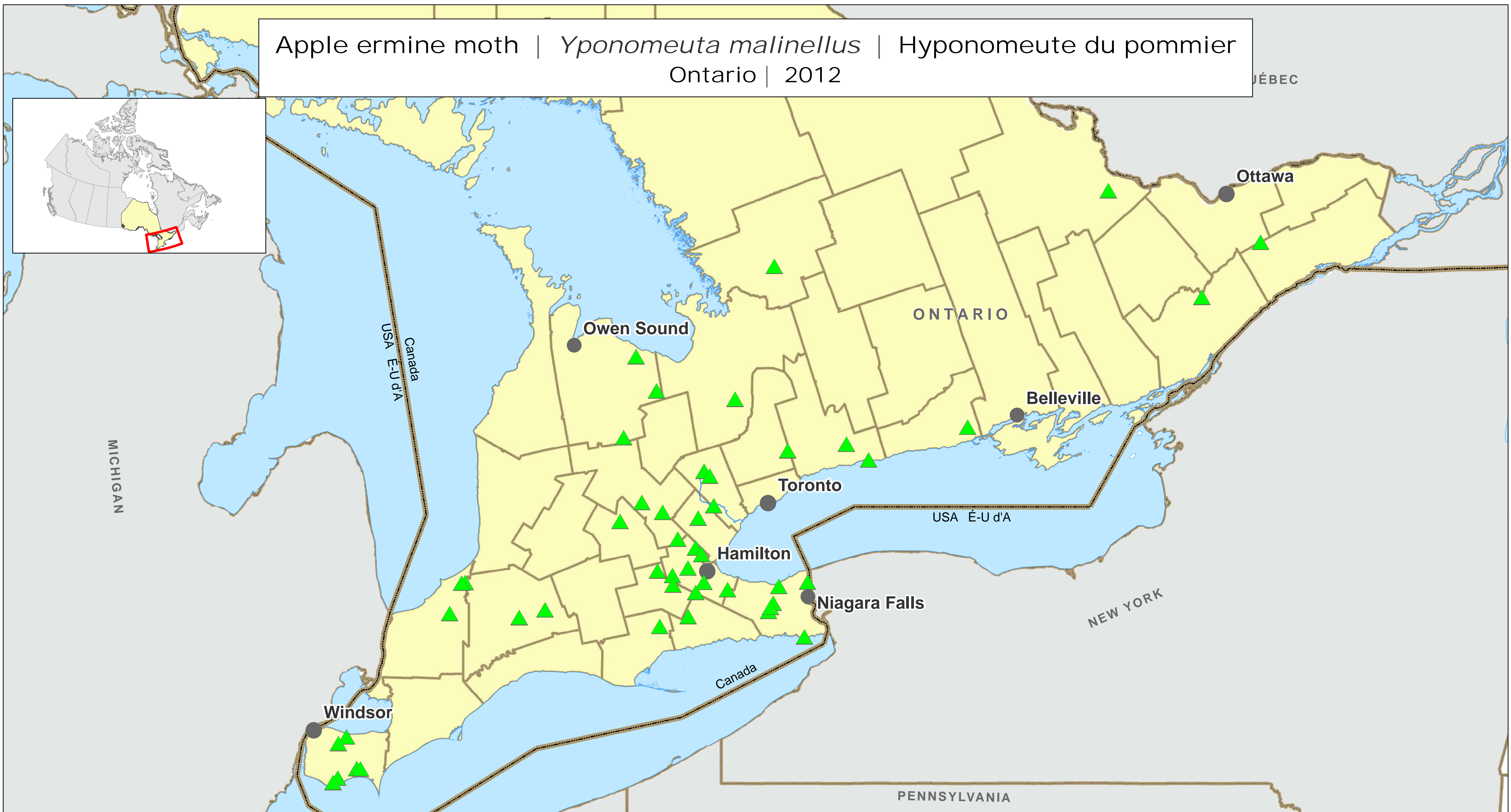
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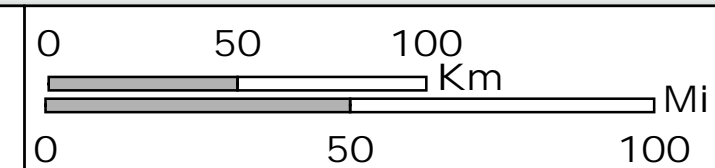


Apple ermine moth | *Yponomeuta malinellus* | Hyponomeute du pommier  
Ontario | 2012



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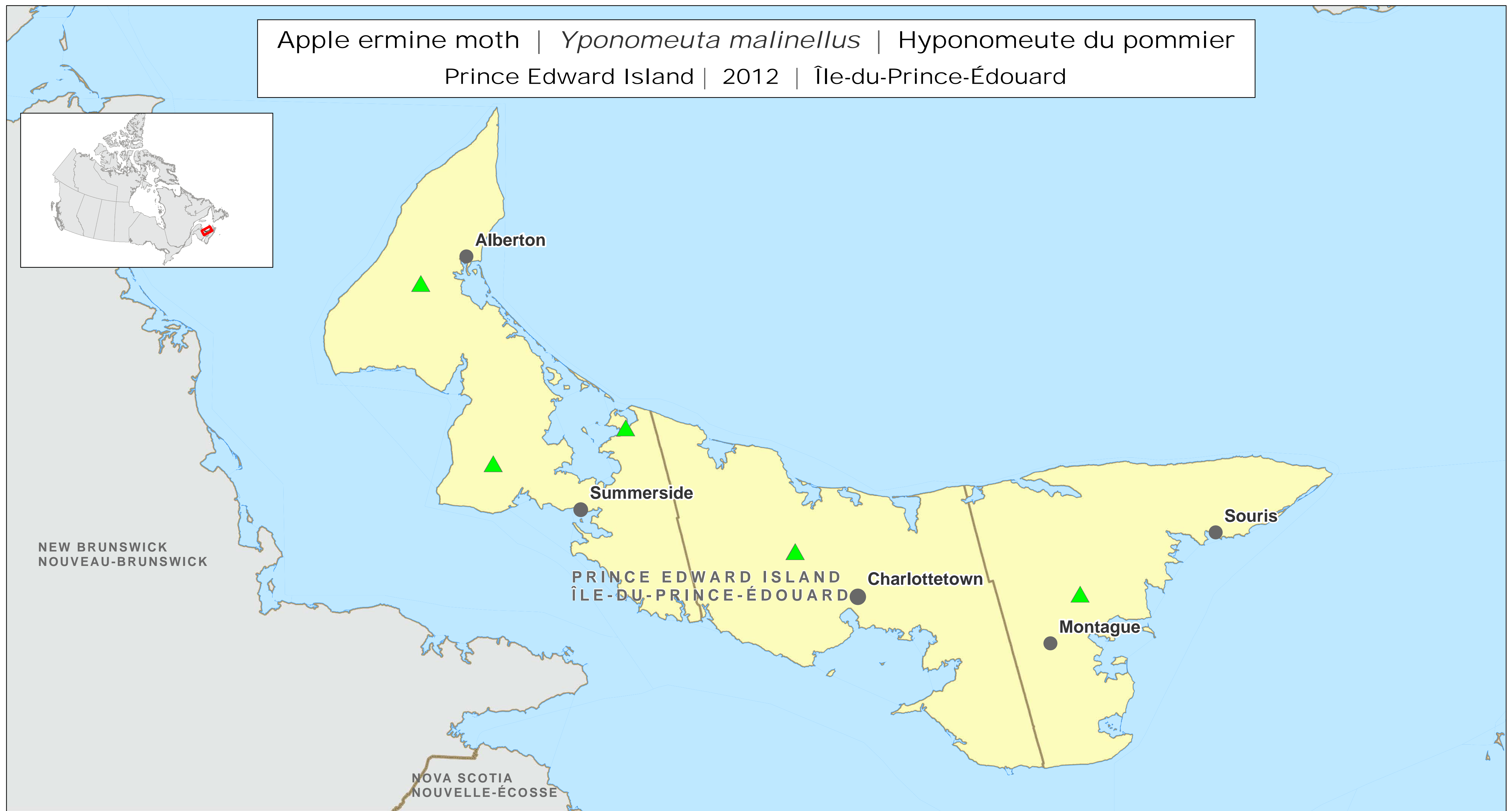
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Apple ermine moth | *Yponomeuta malinellus* | Hyponomeute du pommier

Prince Edward Island | 2012 | Île-du-Prince-Édouard



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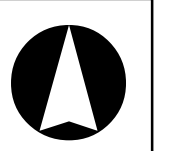
Préparée par l'Agence canadienne d'inspection des aliments,  
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WGS 1984 Web Mercator (sphère auxiliaire).

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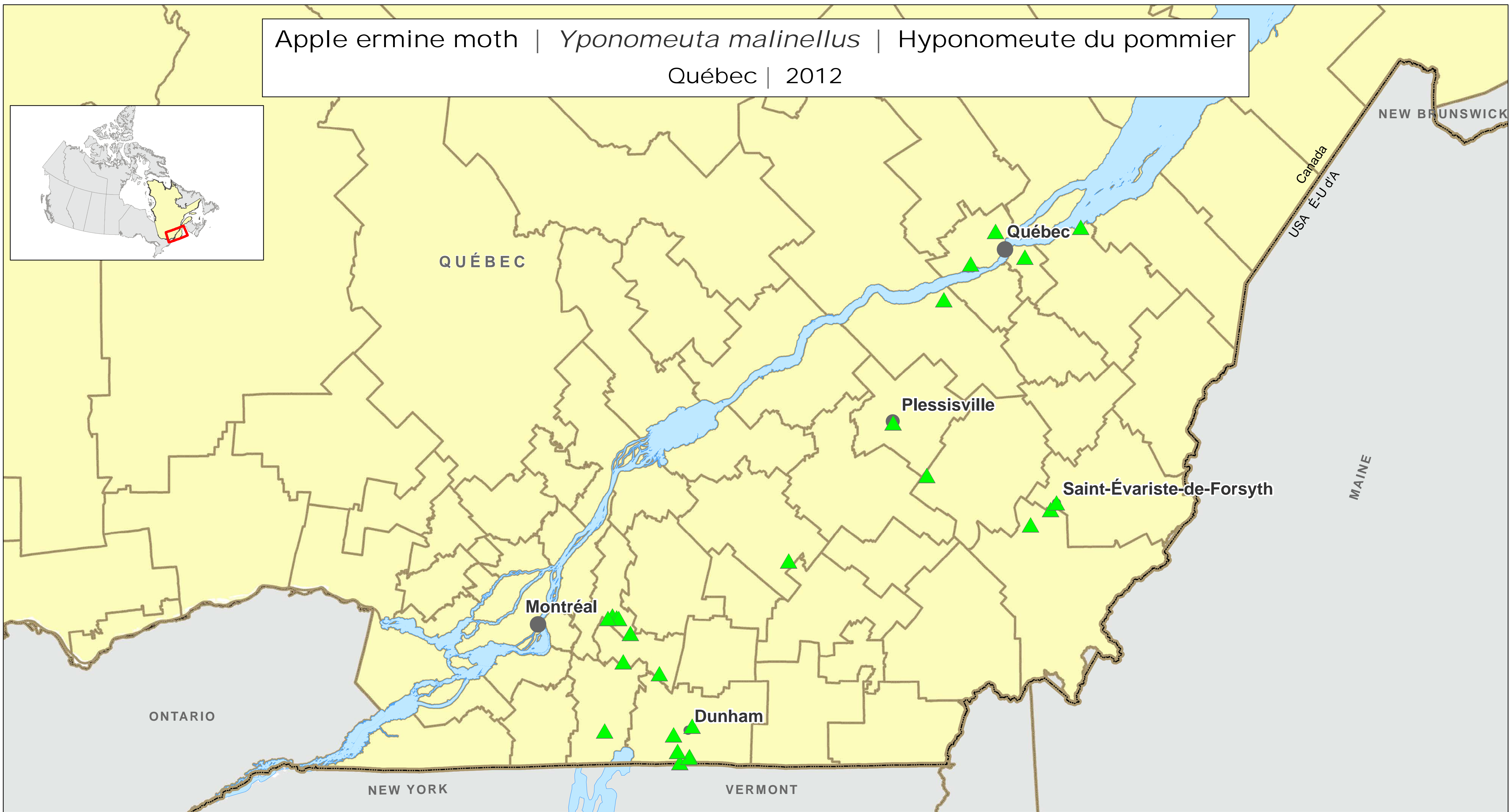
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Apple ermine moth | *Yponomeuta malinellus* | Hyponomeute du pommier

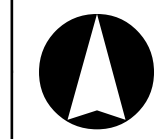
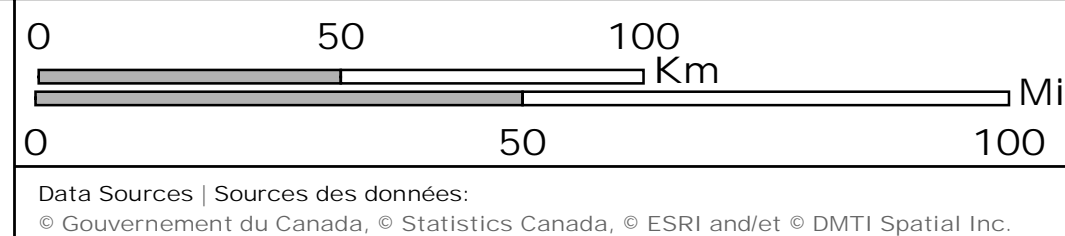
Québec | 2012



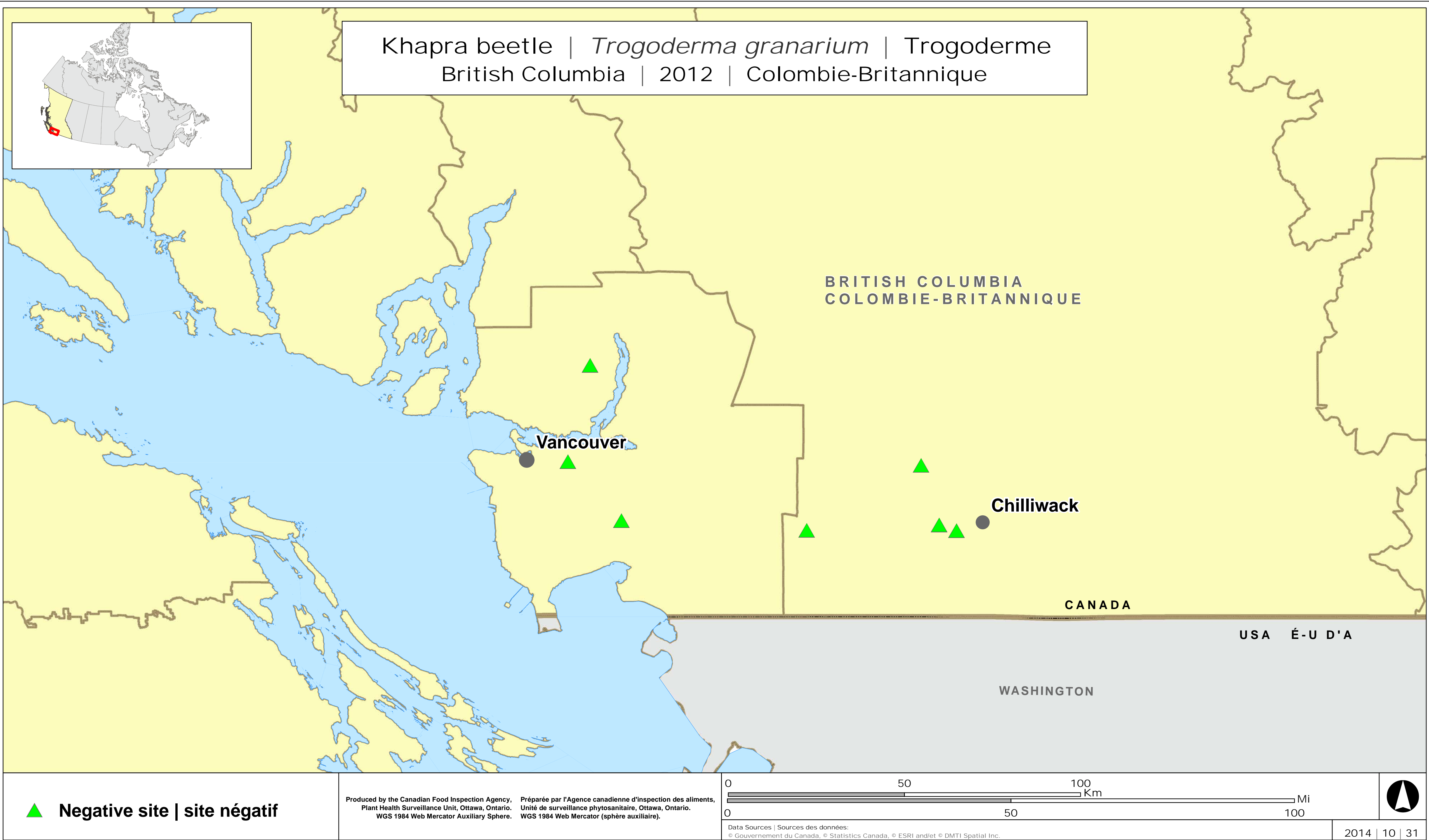
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