



Canadian Food
Inspection Agency

Agence canadienne
d'inspection des aliments

Plant Protection Survey Report

2011-2012

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

In addition to the intensive detection work within the Ministerial Order eradication area, the CFIA conducts systematic grid surveys at 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 can 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 infestation. 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 1237 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 2011-2012.

Province	Municipality	Sites*
British Columbia	Surrey	174
Nova Scotia	Bridgewater, Cornwallis, Wolfville, Truro, Pictou, Port Hawkesbury, & Sydney	73
New Brunswick	Saint John, Miramichi, Bouctouche, Perth-Andover, Plaster Rock, Saint-Leonard, Sainte-Anne-De-Madawaska, & Fredericton	83
Ontario	Belleville	168
	Brampton	159
	Toronto Port	12
	Ingersoll	9
	St Thomas	25
	Aylmer	5
	Strathroy	11
	Burlington	131
Prince Edward Island	Georgetown, Bordon, O'Leary, Alberton, & Tyne Valley	33
Québec	Laval, Sherbrooke, Trois-Rivières, Bécancour, Drummondville, Beauceville, Lac Etchemin, Montmagny, Rimouski, Rivière du Loup, Ste-Luce, Ste-Marie, St-Georges de Beauce, St-Joseph de Beauce.	354

*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

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 (Z)-3-hexenol (8 g). 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 except in British Columbia for a total of 1049 sites (Table 2). New detections were recorded in Prescott-Russell and Manitoulin Island in Ontario, and in the Cities of Montréal and Gatineau (outside of the regulated areas), in Québec.

Table 2. Emerald ash borer survey results for 2011-2012.

Province	Sites	Results
Alberta*	47	No detections
Manitoba*	70	No detections
New Brunswick	30	No detections
Newfoundland and Labrador	7	No detections
Nova Scotia	44	No detections
Ontario	585	New detections in Prescott-Russell and Manitoulin Island
Prince Edward Island	7	No detections
Québec	241	New detections in Montréal and Gatineau (outside the regulated area)
Saskatchewan	18	No detections

*Total number of sites includes contributions by CFIA and collaborators.

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

- Survey map for *A. planipennis*, Alberta
- 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*, Québec
- 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 borer 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 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

Traps 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. Lindgren traps (12-funnel) were placed at each site and each trap was baited with either, i) ultra-high release ethanol + ultra-high release alpha-pinene, ii) ultra-high release ethanol, or iii) ConTech ‘Exotic Bark Beetle’ lure (2-methyl-3-buten-2-ol, cis-verbenol, racemic ipsdienol). Each lure type was replicated three times at each site for a total of nine traps per site. Traps are placed 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 using 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 76 sites (Table 3).

Table 3. Invasive alien forest insects trapping survey results for 2011-2012.

Province	Sites	Results
British Columbia	23	<i>Scolytus schevyrewi</i> (Coleoptera: Scolytinae) (Kelowna) was detected again in 2011. <i>Scolytus jacobsoni</i> (see 2010 report) was targeted within this survey – not detected. A single <i>Amphicerus cornutus</i> (Coleoptera: Bostrichidae) was detected in Vernon. This sub-tropical/tropical species occurs from Texas, Florida and California to South America. No other new detections of non-native insects.
New Brunswick	5	No new detections of non-native pests.
Newfoundland & Labrador	3	No new detections of non-native pests.
Nova Scotia	11	No new detections of non-native pests.
Ontario	16	No new detections of non-native pests. <i>Agrilus planipennis</i> and <i>Popillia japonica</i> were detected within previously regulated areas in southern Ontario.
Québec	18	No new detections of non-native pests. <i>Tomicus piniperda</i> (Coleoptera: Scolytinae) was detected within previously regulated areas.

Maps showing surveyed sites for the invasive alien forests insects 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, Québec

For additional information concerning the rearing survey, contact the Plant Health Surveillance Unit (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 is 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 8 provinces for a total of 7781 sites (Table 4).

Table 4. European gypsy moth Survey results for 2011-2012.

Province	Sites	Results
Alberta*	965	No detections
British Columbia*	4358	A total of 6 moths were captured in 6 traps
Manitoba*	986	A total of 26 moths were captured in 12 traps
New Brunswick	132	A total of 692 moths were captured at 57 traps. Egg masses were detected in Rogersville, Northumberland County.
Newfoundland & Labrador	304	No detections
Nova Scotia	188	A total of 99 moths were captured at 20 sites
Prince Edward Island	401	A total of 1577 moths were captured at 274 sites. Egg masses were detected at Brackley Beach, Queens County.
Saskatchewan*	447	No detections

*Total number of sites includes contributions by CFIA and collaborators.

Maps showing surveyed sites for European gypsy moth:

- 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*, 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, *Tetropium fuscum* [Fabr.]), 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 (NS), and subsequent investigations confirmed that beetles collected in the park as early as 1990 were, in fact, *T. fuscum*. Studies conducted by the Canadian Forest Service (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. BSLB is considered a quarantine pest in Canada. 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. Stands with showing stress from various factors such as wind damage, insect attack, and drought were selected over healthy forests.

Results

The survey was conducted at 823 sites in Atlantic Canada (Table 5). There were 5 new positive locations in Nova Scotia outside of the current Regulated Area in the counties of Halifax, Hants, and Lunenburg. There was also one new positive location detected in Kouchibouguac National Park in Kent County, New Brunswick. This is the first time BSLB has been detected outside of the province of Nova Scotia. One beetle was collected in 1 of the 5 traps set in the park. There are now a total of 65 sites where BSLB has been detected outside the BSLB Containment Area.

As a follow-up to the single find 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. There were 16 trees targeted for

sampling. Wood bolts obtained from these trees were placed in cages for rearing and no BSLB emerged.

Table 5. Brown spruce longhorn beetle survey results for 2011-2012.

Province	Sites	Results
New Brunswick	214	One beetle detected at Kouchibouguac National Park
Newfoundland & Labrador	21	No detections
Nova Scotia	552*	<i>T. fuscum</i> was detected at 20 sites with a total of 48 beetles collected.
Prince Edward Island	36	No detections

*Total number of sites includes contributions by CFIA and collaborators.

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 (2011)

INVASIVE PLANTS SURVEYS

2.1 Woolly cupgrass (*Eriochloa villosa*)

Background

Woolly cupgrass was first discovered in 2000 in an experimental test plot close to St-Hyacinthe, Québec. Since then, its occurrence has been reported in 7 municipalities of Québec (St-Hyacinthe, St-Césaire, Bedford, Standbridge Station, Notre-Dame-de-Standbridge, St-Denis-sur-Richelieu and Pike River).

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

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

The detection survey was conducted at 31 field sites. Woolly cupgrass was found in 19 fields at 8 sites, all of which were new producers in previously positive municipalities.

Table 6. Woolly cupgrass survey results for 2011-2012.

Province	Sites	Results
Québec	31	Detections at 8 sites (19 positive fields), including 8 new positive producers in Pike River, Saint-Denis-sur-Richelieu and Notre-Dame-de-Stanbridge

Maps showing surveyed sites for woolly cupgrass:

- Survey map for *E. villosa*, Québec

2.2 Invasive plant survey

Background

The introduction of the invasive alien species program within CFIA has increased efforts to treat pest plants in the same way that insects and diseases are regulated. A number of plants have been added to the Federal Noxious Weeds list under the *Seeds Act* and are now being considered for inclusion in the Regulated Pest List under the *Plant Protection Act*. The main objectives of this survey are to provide a basis for sound regulatory decisions and information in support of the development of regulatory programs. This survey provides information on the status of invasive plants in Canada and valuable data to develop effective control programs when necessary.

Methodology

The survey was divided into early (June) and late summer (August to early September) surveys to maximize the period during which the presence of inflorescences makes the weeds easier to detect. In early summer, targeted species were jointed goatgrass (*Aegilops cylindrica*), Iberian starthistle (*Centaurea iberica*), and yellow starthistle (*Centaurea solstitialis*). In late summer, targeted species were slender foxtail (*Alopecurus myosuroides*), sessile joyweed (*Alternanthera sessilis*), yellow bluestem (*Bothriochloa ischaemum*), jungle-rice (*Echinochloa colona*), woolly cupgrass (*Eriochloa villosa*), serrated tussock (*Nassella trichotoma*), spring milletgrass (*Milium vernale*), dallis grass (*Paspalum dilatatum*).

The detection survey was conducted at identified high risk sites as well as in waste areas and ditches adjacent to those sites. The high risk sites for this survey were identified as seed and grain storage, handling and processing facilities (e.g. elevators, flour mills, oil crushers, seed cleaners, feed mills including bird seed, etc.) that import grains for cleaning on site, wild bird seed, and/or material from the United States. Visual inspection of high risk and adjacent sites was carried out in areas where auger or conveyer belt dust and debris have settled, loading and unloading sites, and in composting/disposal locations, as well as along driveways and railway tracks, where applicable.

Results

The survey was conducted in 8 provinces for a total of 114 sites (Table 7).

Table 7. Results for the 2011-2012 invasive plant survey in high-risk pathway locations.

Province	Sites	Results
Alberta	5	No detections
British Columbia	9	No detections
Manitoba	20	No detections
Nova Scotia	4	No detections
Ontario	23	Jointed goatgrass (<i>Aegilops cylindrical</i>) detected in Haldimand County.
Prince Edward Island	5	No detections
Québec	28	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, and Québec. 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 September, 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 National survey for ramorum blight was conducted in 3 provinces for a total of 66 sites (Table 8).

Table 8. Ramorum blight survey results for 2011-2012.

Province	Sites	Samples	Results
British Columbia	24	1,179	No detections
Ontario	37	140	No detections
Québec	5	41	No detections

Maps showing surveyed sites for ramorum blight:

- Survey map for *P. ramorum*, British Columbia
- Survey map for *P. ramorum*, Ontario
- Survey map for *P. ramorum*, Québec

3.2 Grapevine virus A

Background

Following the detection of Grapevine virus A (GVA) in imported grapevines from France, a survey was implemented to determine whether GVA was present in blocks planted with vines from the imported lots, and the extent of the infestation, if applicable.

Methodology

Samples of red- and white-fruited varieties were collected in a systematic pattern throughout preselected blocks. Foliage from symptomatic plants was collected and submitted to the lab for analysis.

Results

This survey was conducted in British Columbia and Ontario for a total of 29 sites.

Table 9. Grapevine virus A survey results for 2011-2012.

Province	Sites	Results
British Columbia	21	Two positive detections near Oliver
Ontario	8	No detections

3.3 Greenhouse survey: *Macrolophus melanotoma*, chilli thrips & pea leafminer

Background

Between 2007 and 2009, CFIA held a series of workshops across Canada in order to consult with stakeholders regarding the regulation of greenhouse pests. The consultation indicated stakeholder support for CFIA to regulate those greenhouse pests that pose a significant risk to the Canadian greenhouse industry. The objective of this survey was to determine the distribution of three pests of potential regulatory concern in Canadian greenhouses:

Macrolophus melanotoma, chilli thrips (*Scirtothrips dorsalis*) and pea leafminer (*Liriomyza huidobrensis*).

Methodology

Ornamental greenhouse plants were systematically surveyed for evidence of the target pests using visual inspections and plant beating and fixed intervals. Leaves or plant parts showing characteristics of pea leafminer were sampled for rearing. Target sites consisted of greenhouses producing ornamental and/or vegetable plants. Facilities handling imported material from the U.S. and off-continent for repacking in co-location with greenhouse production were selected in priority as they represent a higher risk of introducing pests.

Results

The greenhouse survey was conducted in 5 provinces for a total of 61 sites.

Table 10. Greenhouse survey results for 2011-2012.

Province	Sites	Samples	Results
British Columbia	14	230	No detections
Nova Scotia	1	21	No detections
Ontario	35	198	No detections
Québec	11	245	No detections

3.4 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 oblong*). Adult oriental fruit

moths were surveyed using pheromone-based Delta traps (Pherocon controlled-release septa). Traps were placed on target hosts by June 15th and were removed by September 20th, 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

A total of 129 sites were surveyed in the Okanagan Valley, on Vancouver Island and on the lower mainland of coastal B.C. No oriental fruit moths were captured in 2011-2012 (Table 11).

Table 11. Oriental fruit moth survey results for 2011-2012.

Province	Location	Sites	Results
British Columbia	Okanagan Valley	60	No detections.
	Vancouver Island	20	No detections.
	Lower Mainland/ Fraser Valley	49	No detections.

Map showing surveyed sites for the oriental fruit moth

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

3.5 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 some economically important commodity plants such as fruit trees, ornamental shrubs and roses, field crops, turf grasses, and sod. This survey was conducted to clarify 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

The Japanese beetle survey was conducted in British Columbia and Newfoundland & Labrador for a total of 402 sites (Table 12).

Table 12. Japanese beetle survey results for 2011-2012.

Province	Location	Sites	Results
British Columbia	Interior	85	No detections
	Vancouver Island	39	No detections
	Greater Vancouver/Fraser Valley	220	No detections
Newfoundland and Labrador	Throughout the island of Newfoundland	58	No detections

Maps showing surveyed sites for Japanese beetle:

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

3.6 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

Surveys for blueberry maggot were conducted in blueberry plantations and wild sites that contain host species. Pherocon AM traps, baited with ammonium acetate, were suspended in an inverted “V” shape 10 to 15 cm above lowbush/wild blueberry plants and placed at mid-canopy height in highbush blueberry plantations. Traps were in place prior to the flight period in late-June and were collected at the end of harvest (plantations) or fruit drop (wild sites), in late August or early September. In addition to trapping for adults, fruit sampling was conducted to detect larval specimens. This was done prior to harvesting (plantations) or fruit drop (wild sites).

Results

The blueberry maggot survey was conducted in 4 provinces for a total of 128 sites (Table 13).

Table 13. Blueberry maggot survey results for 2011-2012.

Province	Sites	Results
British Columbia	22	No detections
Newfoundland & Labrador	37	No detections
Ontario	42	Two positive detections at separate production sites in Elgin county and Essex county.
Québec	27	No detections

Maps showing surveyed sites for blueberry maggot:

- 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*, Québec

3.7 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 requirements for fresh fruit and plants of hosts of apple maggot (*Malus* spp., *Crataegus* spp. and some species of *Prunus*) into British Columbia from Mexico, the continental United States, and infested areas of Canada.

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 15th to October 3rd.

Results

Traps for apple maggot were placed at 430 sites in the Okanagan and Creston Valleys and other areas of the southern interior of British Columbia. Apple maggot was not detected in 2011-2012.

Maps showing surveyed sites for apple maggot:

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

3.8 European grapevine moth (*Lobesia botrana*)

Background

European grapevine moth (EGVM) is a significant pest of grape cultivation in Europe was first reported in the United States in the Napa Valley, California in October 2009. Movement of table grapes, vines, and other host material throughout the Pacific Northwest and across North America may provide a pathway for the pest's introduction into Canadian grapevine production. The objective of this survey was to determine whether EGVM is present in Canadian grapevine production areas.

Methodology

Although EGVM feeds on many other hosts, the common grape vine (*Vitis vinifera*) is the primary target of this survey. Target areas for this survey were commercial vineyards, followed by backyard growers in areas of the province where grapes are grown minimally. Trapping for this pest was conducted using green or orange Delta traps, each containing a Pherocon controlled-release septa lure. Traps were set between June 15th and September 20th (or first frost).

Results

The European grapevine moth survey was conducted in British Columbia and Ontario for a total of 175 sites (Table 14). All surveys for EGVM were negative.

Table 14. European grapevine moth survey results for 2011-2012.

Province	Sites	Results
British Columbia	100	No detections
Ontario	75	No detections

Maps showing surveyed sites for European grapevine moth:

- Survey map for *L. botrana*, British Columbia
- Survey map for *L. botrana*, Ontario

3.9 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. It is closely related to the Asian longhorned beetle (*A. glabripennis*) and also can attack and kill 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 off-continent.

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 34 locations in the 4 provinces where this survey was conducted.

Table 15. Citrus longhorned beetle survey results for 2011-2012.

Province	Sites	Results
British Columbia	10	No detections
Nova Scotia	1	No detections
Ontario	17	No detections
Québec	6	No detections

Maps showing surveyed sites for Citrus Longhorned Beetle:

- Survey map for *A. chinensis*, British Columbia
- Survey map for *A. chinensis*, Nova Scotia
- Survey map for *A. chinensis*, Ontario
- Survey map for *A. chinensis*, Québec

3.10 Plum pox virus

For information on the PPV program visit the CFIA PPV page at the link below. Details on the surveys can be found in the Survey Updates section at the bottom of the PPV page:

www.inspection.gc.ca/plants/plant-protection/diseases/plum-pox-virus/eng/1323888514908/1323889333540

4. POTATO PEST SURVEYS

4.1 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

APPENDIX 1 – SURVEY MAPS

Asian longhorned beetle | *Anoplophora glabripennis* | Longicorne asiatique
British Columbia | 2011 | Colombie-Britannique

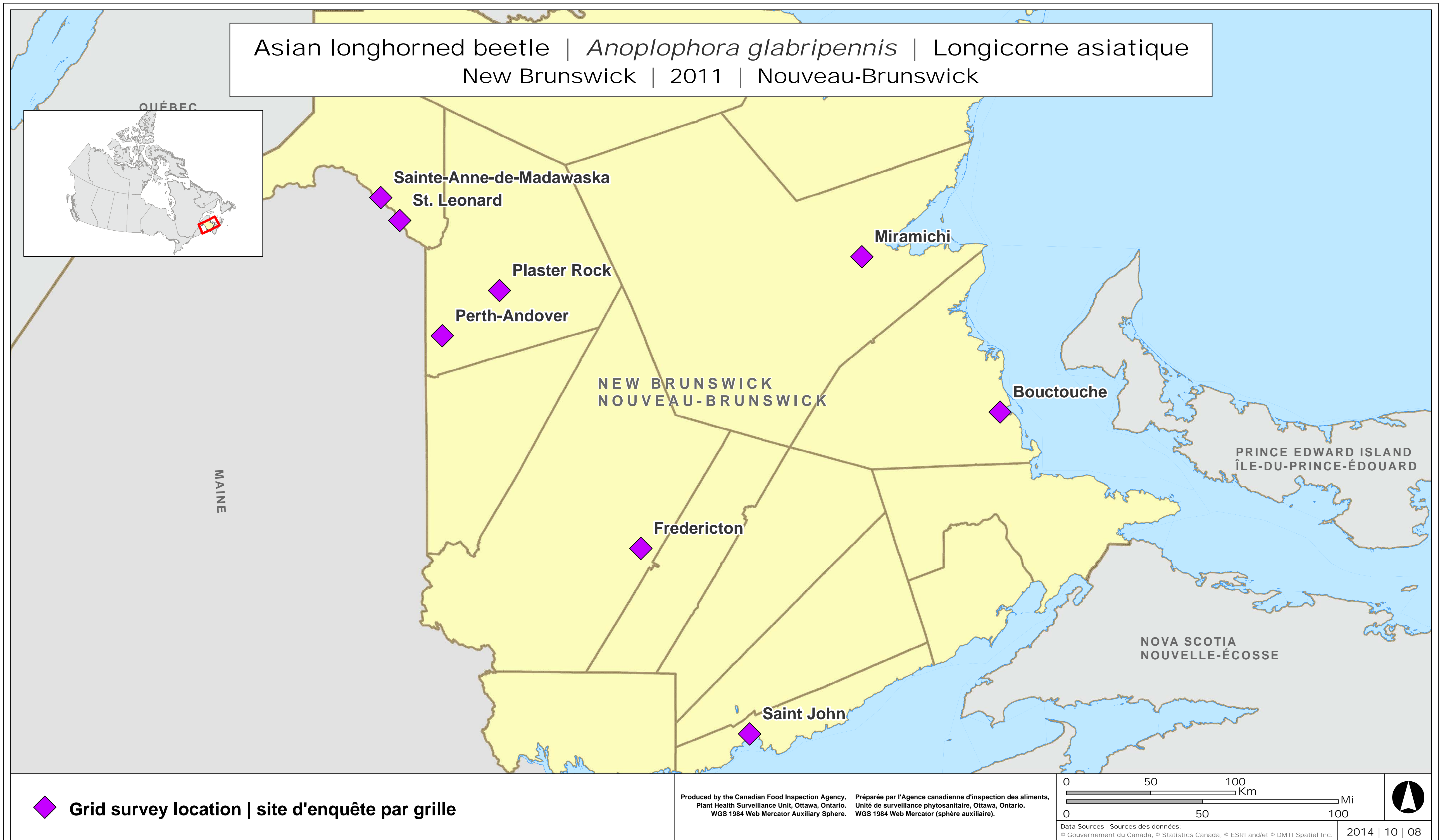
The map displays the province of British Columbia, Canada, with its geographical features and neighboring regions. The province is labeled in both English (BRITISH COLUMBIA) and French (COLOMBIE-BRITANNIQUE). The United States (USA / É-U D'A) and the state of Washington are shown to the south. The city of Vancouver is marked with a black dot, and the city of Victoria is marked with a black dot. The location of the Asian longhorned beetle in Surrey is indicated by a purple diamond. An inset map in the top left corner shows the location of British Columbia within Canada, with a red box highlighting the province's position.

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).

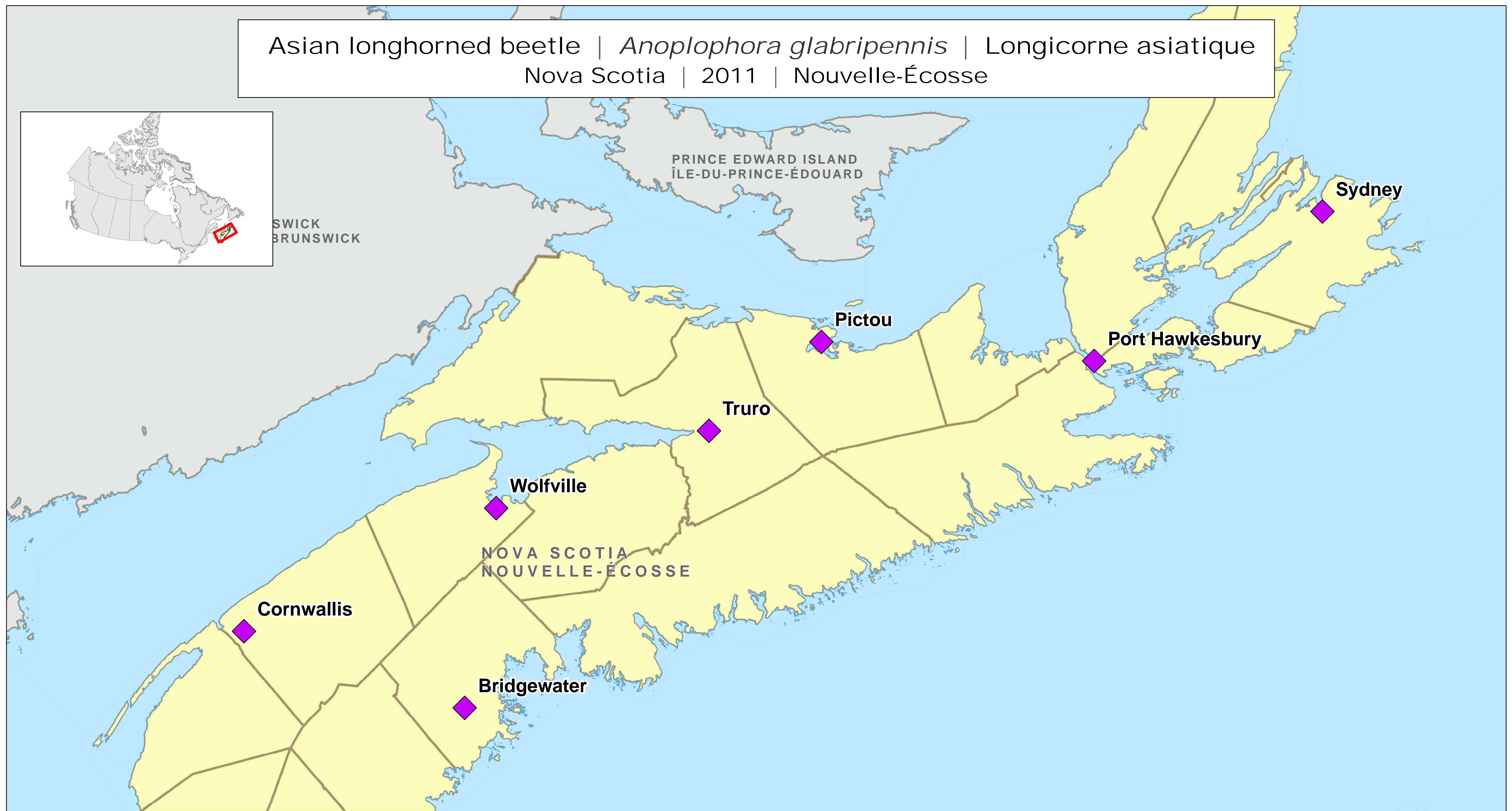
Préparée par l'Agence canadienne d'inspection des aliments,
Unité de surveillance phytosanitaire, Ottawa, Ontario.
WGS 1984 Web Mercator (sphère auxiliaire).





Asian longhorned beetle | *Anoplophora glabripennis* | Longicorne asiatique

Nova Scotia | 2011 | Nouvelle-Écosse



 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).

050100
Km

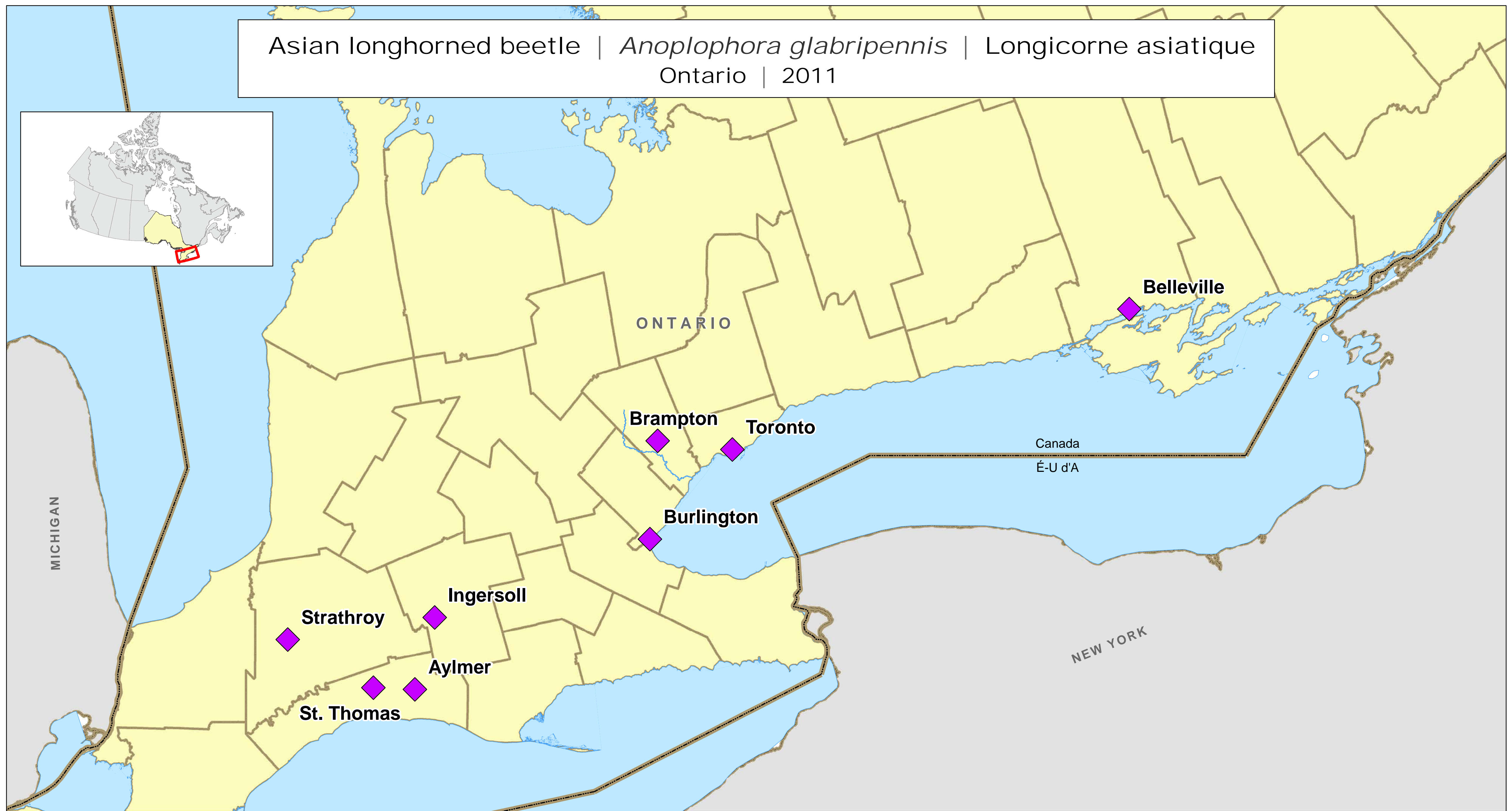
050100
Mi

▲

Data Sources | Sources des données:
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2014 | 10 | 08

Asian longhorned beetle | *Anoplophora glabripennis* | Longicorne asiatique
Ontario | 2011




 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).

050100
Km

050100
Mi

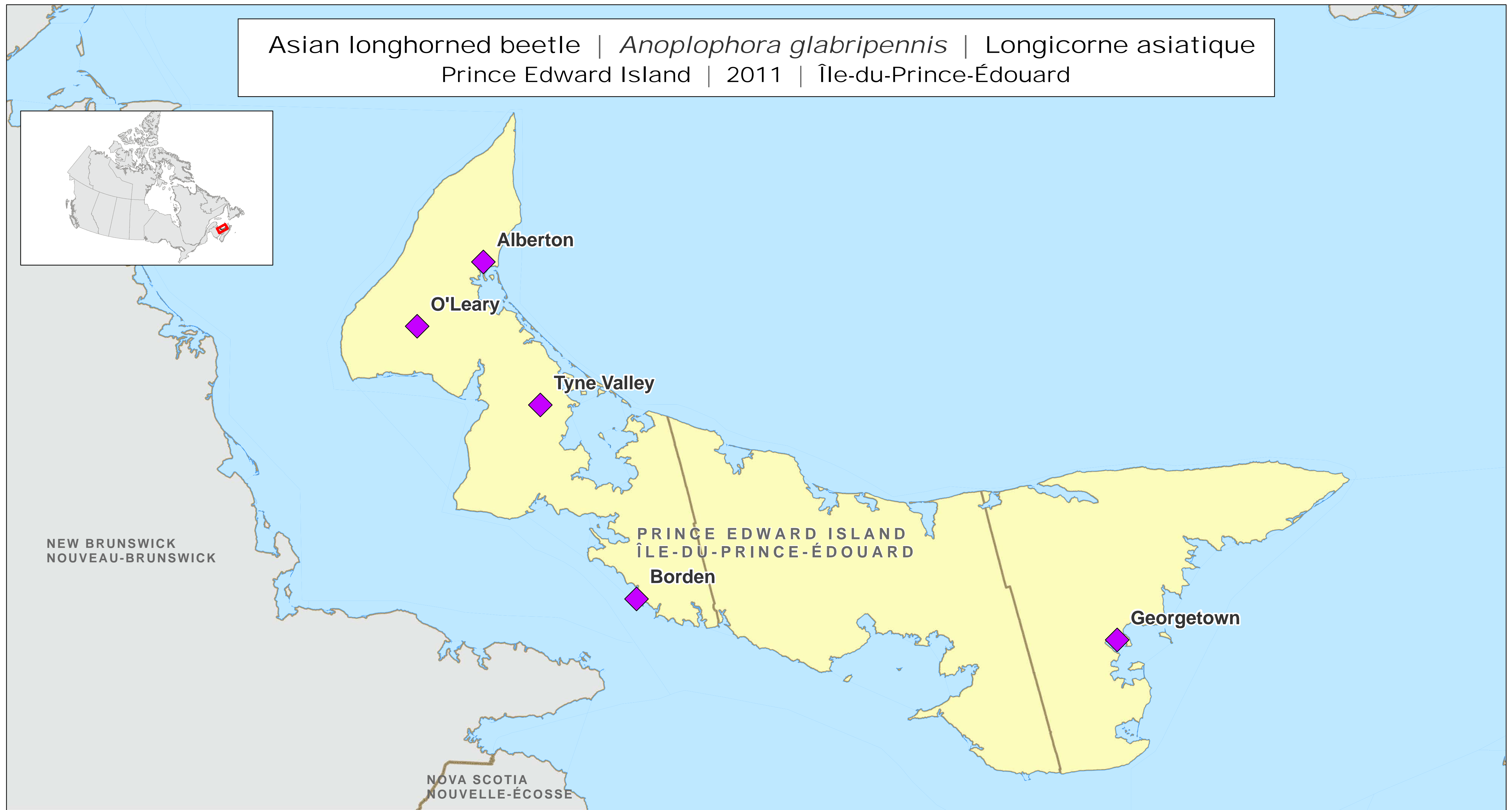


Data Sources | Sources des données:
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2014 | 10 | 08

Asian longhorned beetle | *Anoplophora glabripennis* | Longicorne asiatique

Prince Edward Island | 2011 | Île-du-Prince-Édouard



 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).

02550
Km

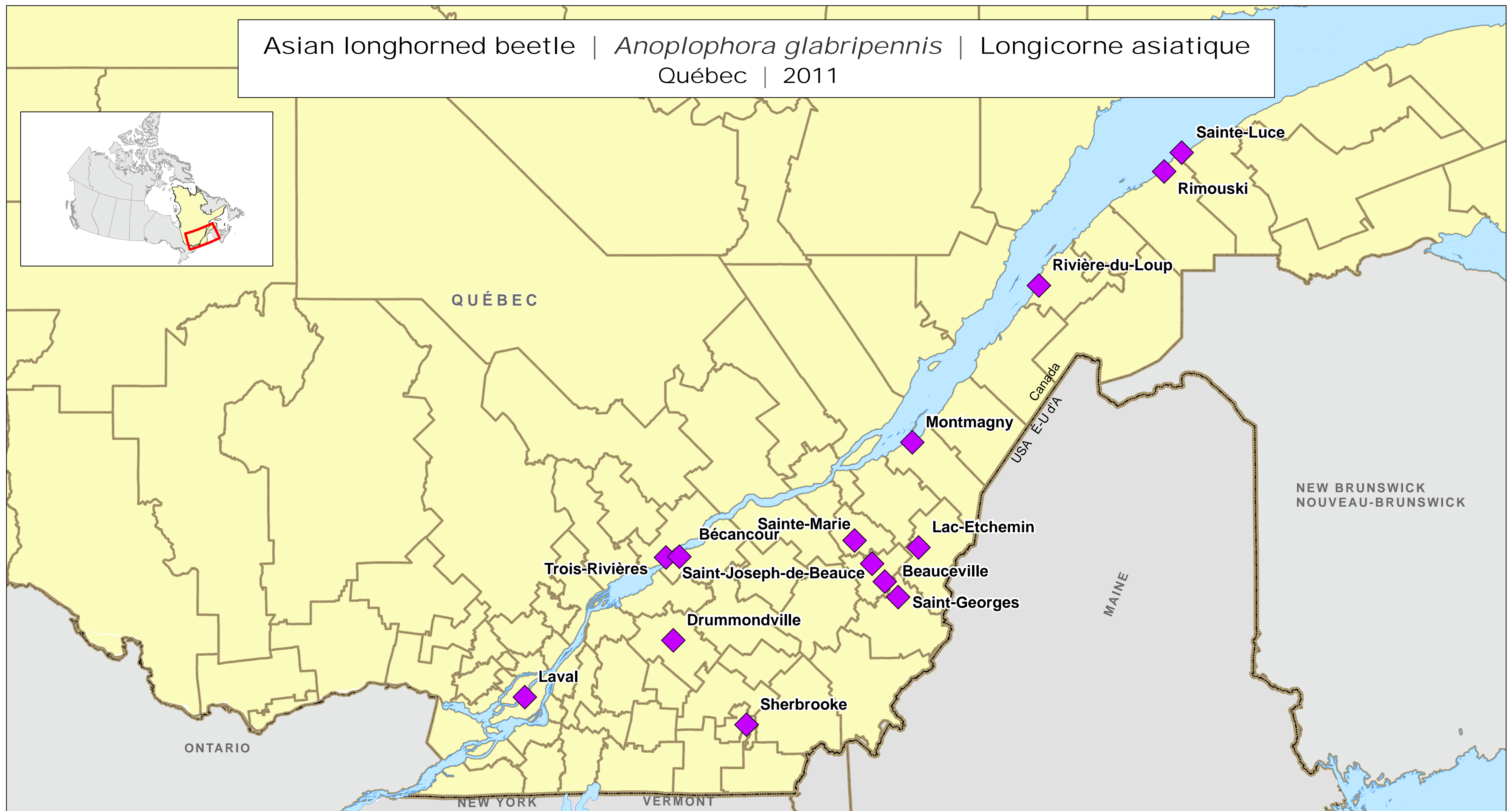
02550
Mi



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Asian longhorned beetle | *Anoplophora glabripennis* | Longicorne asiatique
Québec | 2011



◆ Grid survey location | site d'enquête par grille

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).

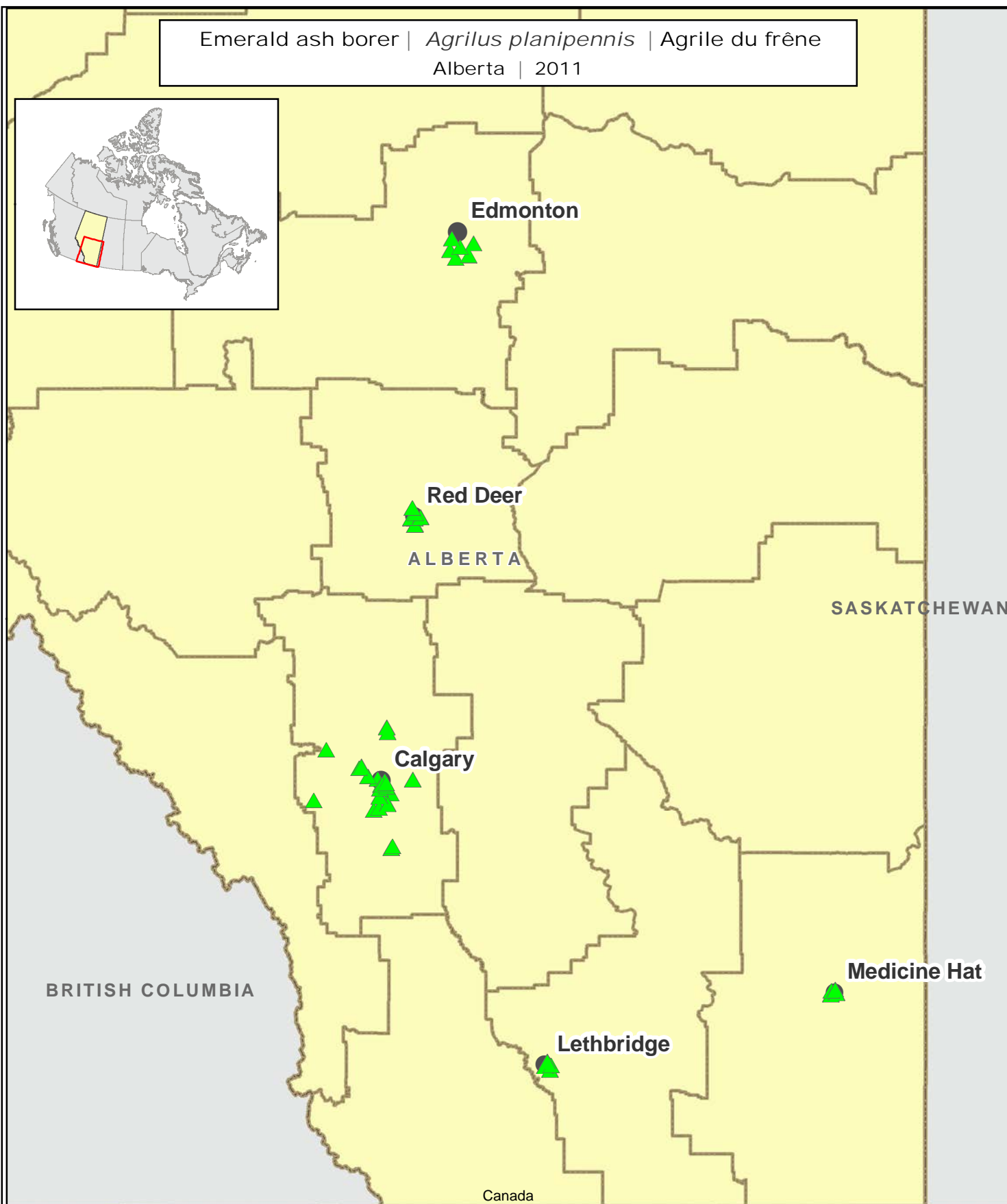
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0 50 100 Mi

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2014 | 10 | 21

Emerald ash borer | *Agrilus planipennis* | Agrile du frêne
Alberta | 2011



▲ Negative site | site négatif

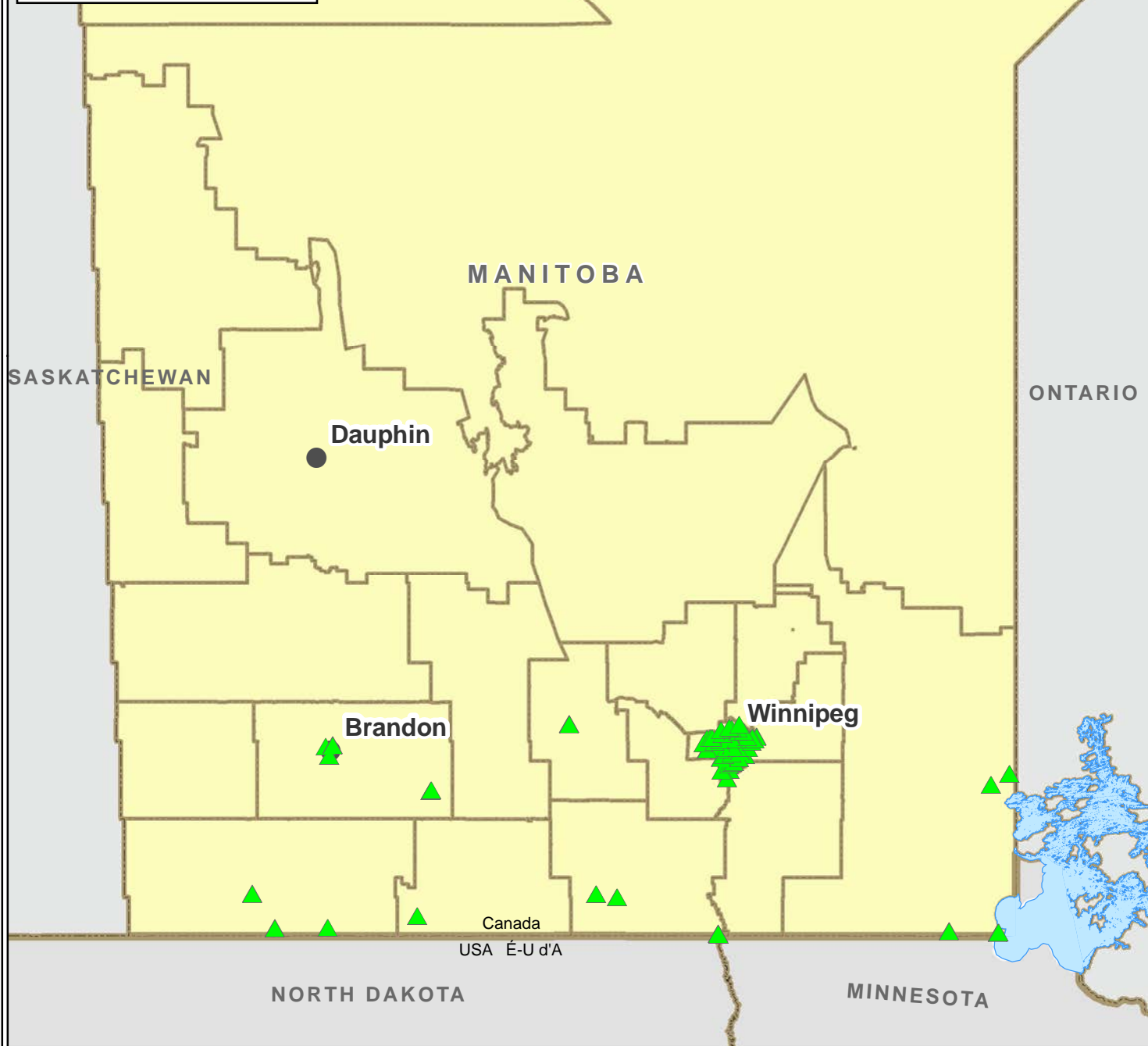
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Plant Health Surveillance Unit, Ottawa, Ontario. Unité de surveillance phytosanitaire, Ottawa, Ontario.
WGS 1984 Web Mercator Auxiliary Sphere. WGS 1984 Web Mercator (sphère auxiliaire).

0 50 100 Km
0 50 100 Mi
Data Sources | Sources des données:
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2014 | 10 | 08

Emerald ash borer | *Agrilus planipennis* | Agrile du frêne
Manitoba | 2011

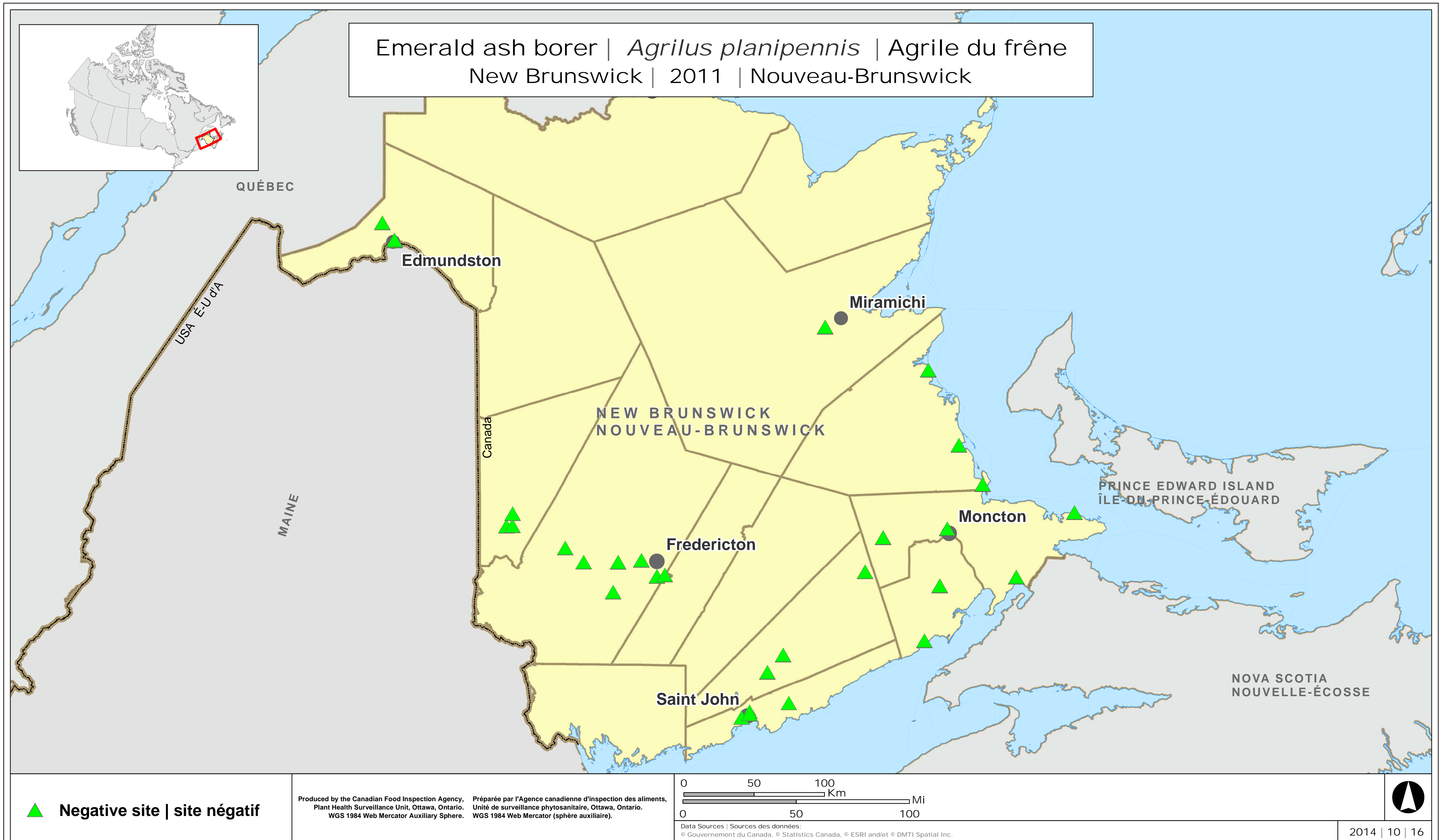


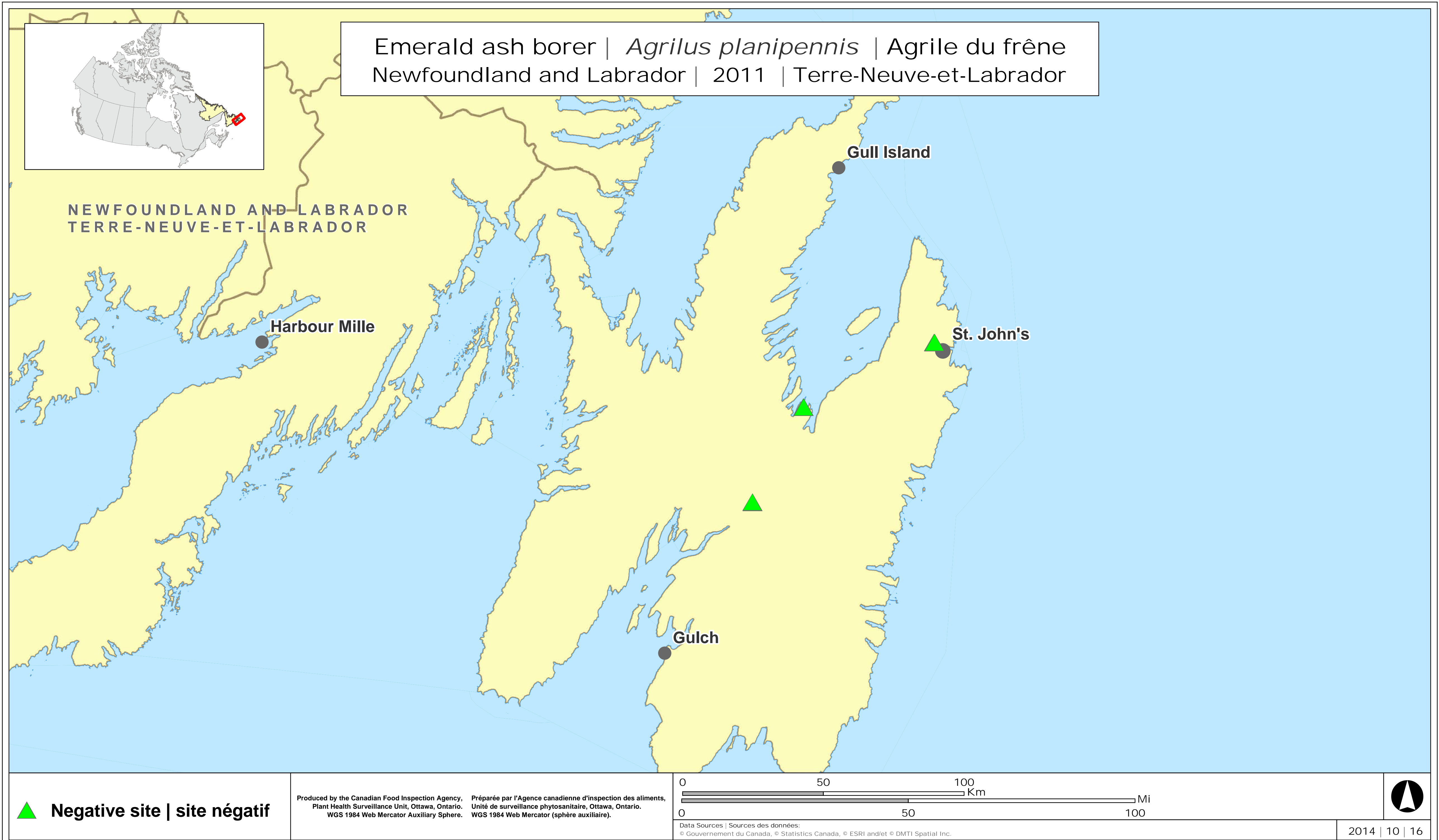
▲ Negative site | site négatif

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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Data Sources | Sources des données:
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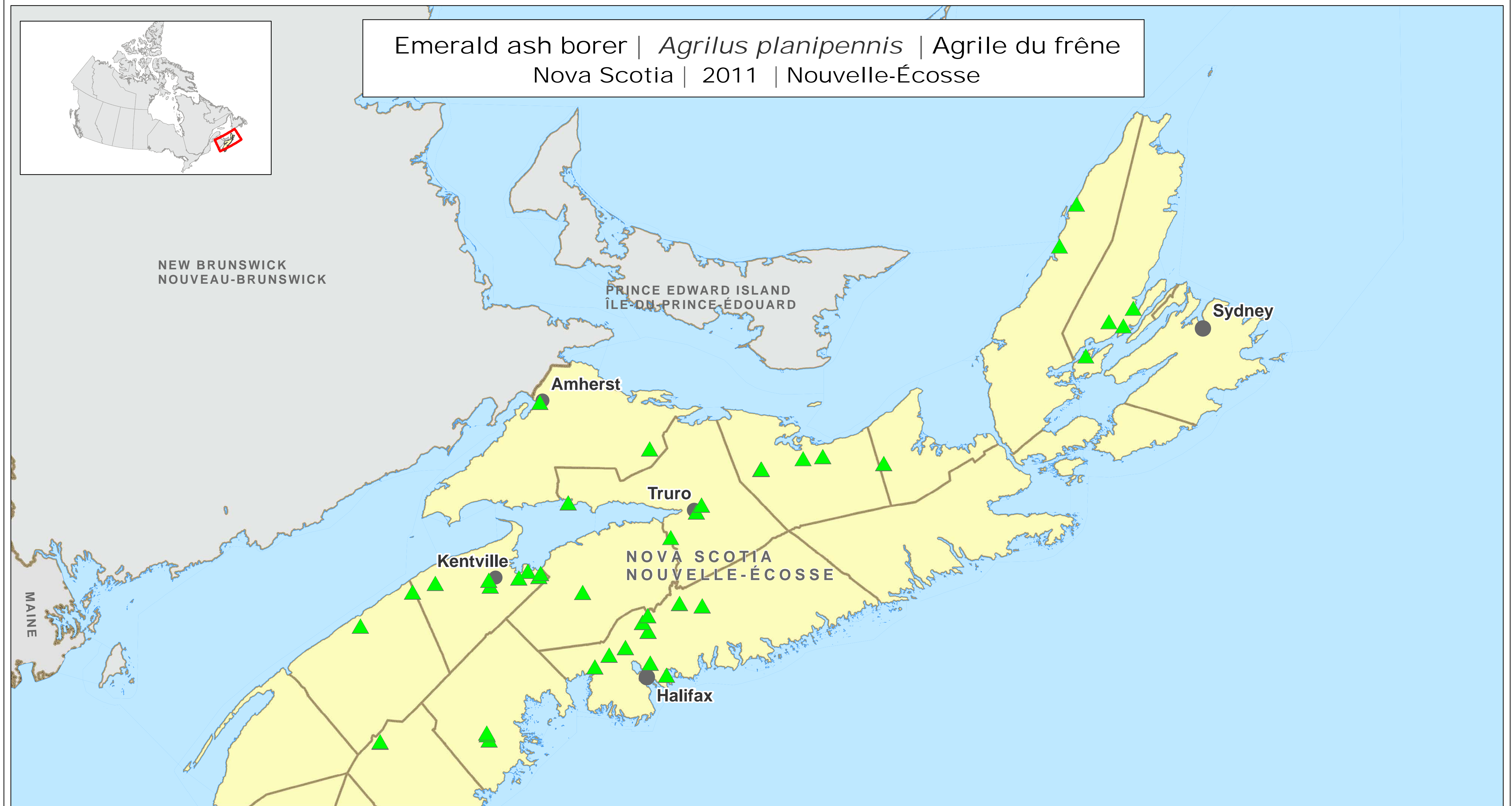
2014 | 10 | 08





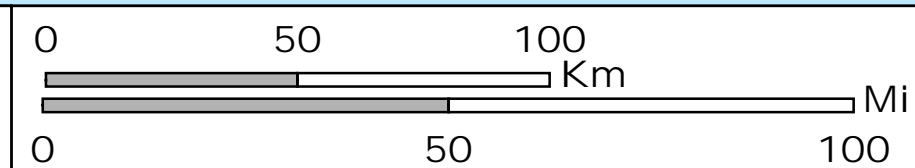


Emerald ash borer | *Agrilus planipennis* | Agrile du frêne
Nova Scotia | 2011 | Nouvelle-Écosse



▲ Negative site | site négatif

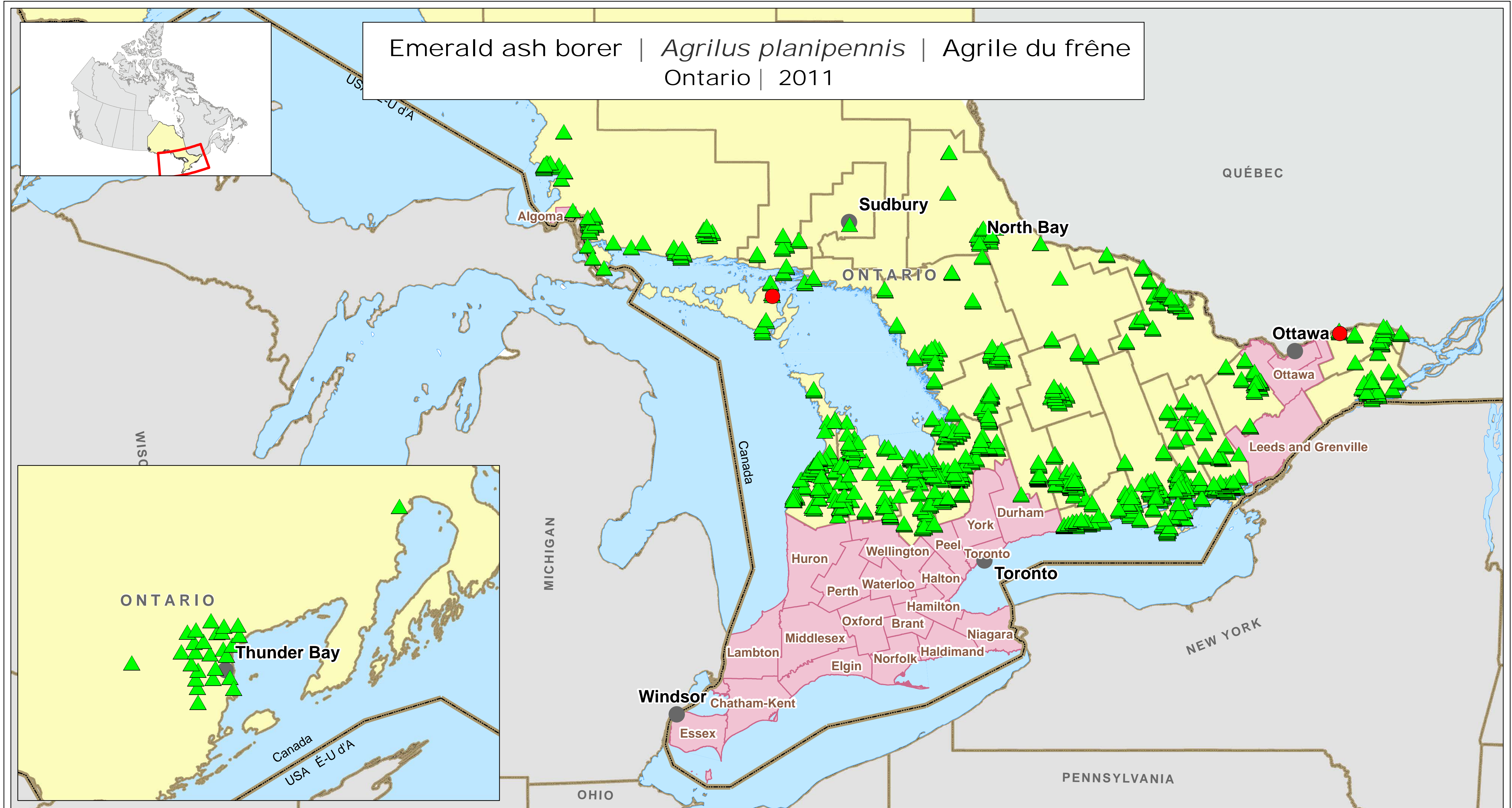
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Plant Health Surveillance Unit, Ottawa, Ontario.
WGS 1984 Web Mercator Auxiliary Sphere.



Data Sources | Sources des données:
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Emerald ash borer | *Agrilus planipennis* | Agrile du frêne
 Ontario | 2011



 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.

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

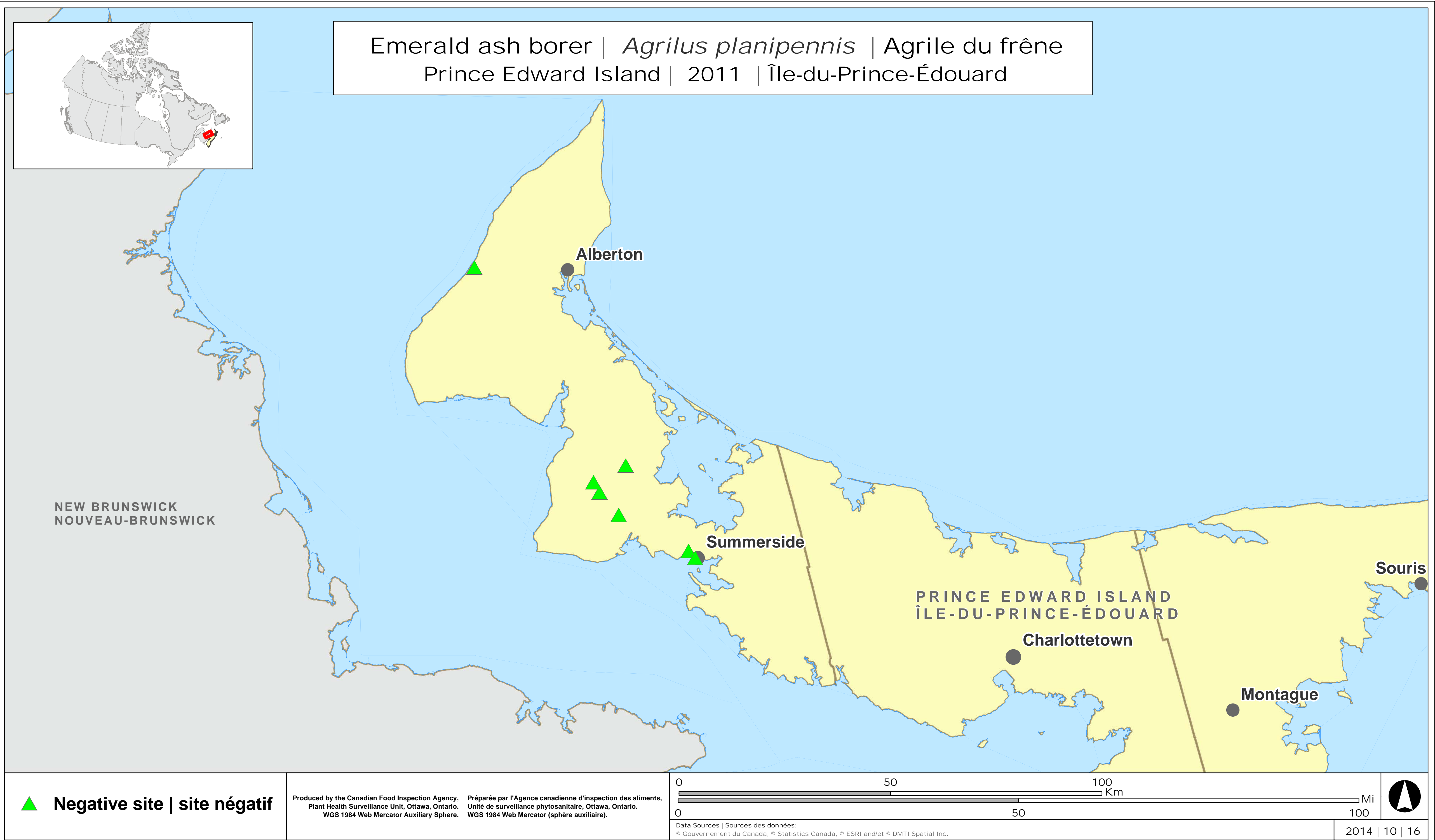
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Km

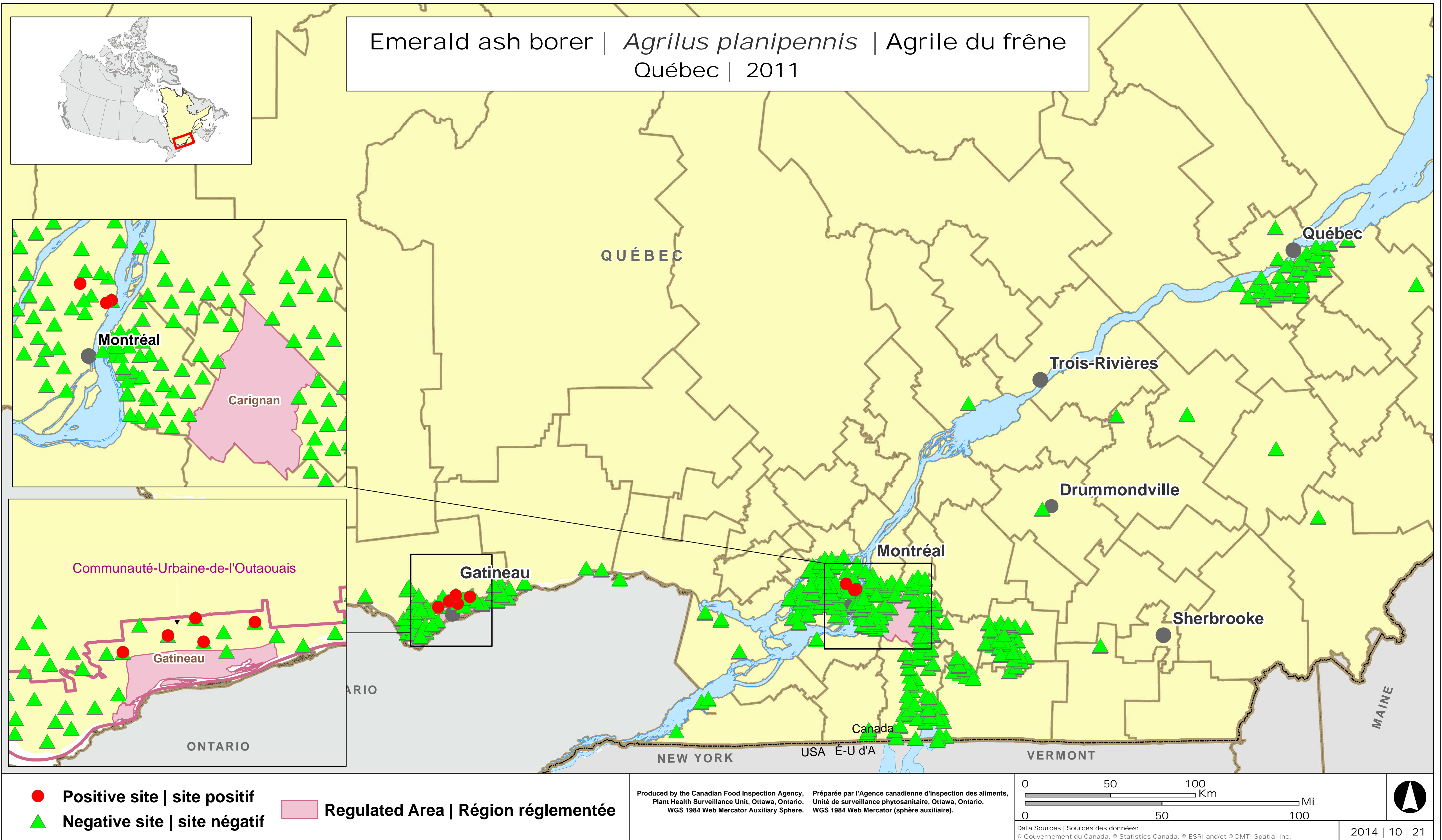
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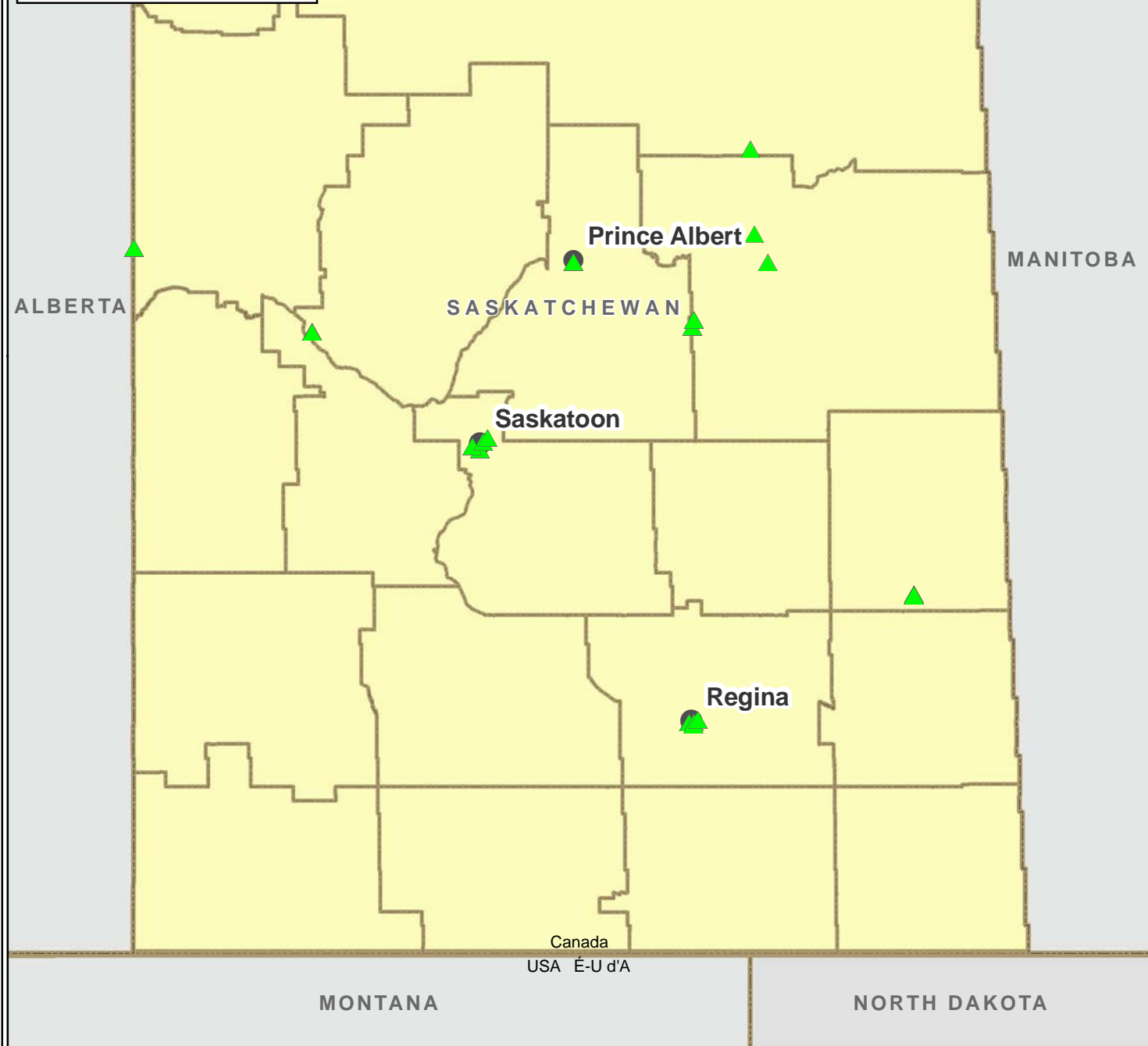
2014 | 10 | 16





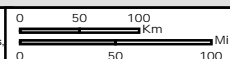


Emerald ash borer | *Agrilus planipennis* | Agrile du frêne
Saskatchewan | 2011



▲ Negative site | site négatif

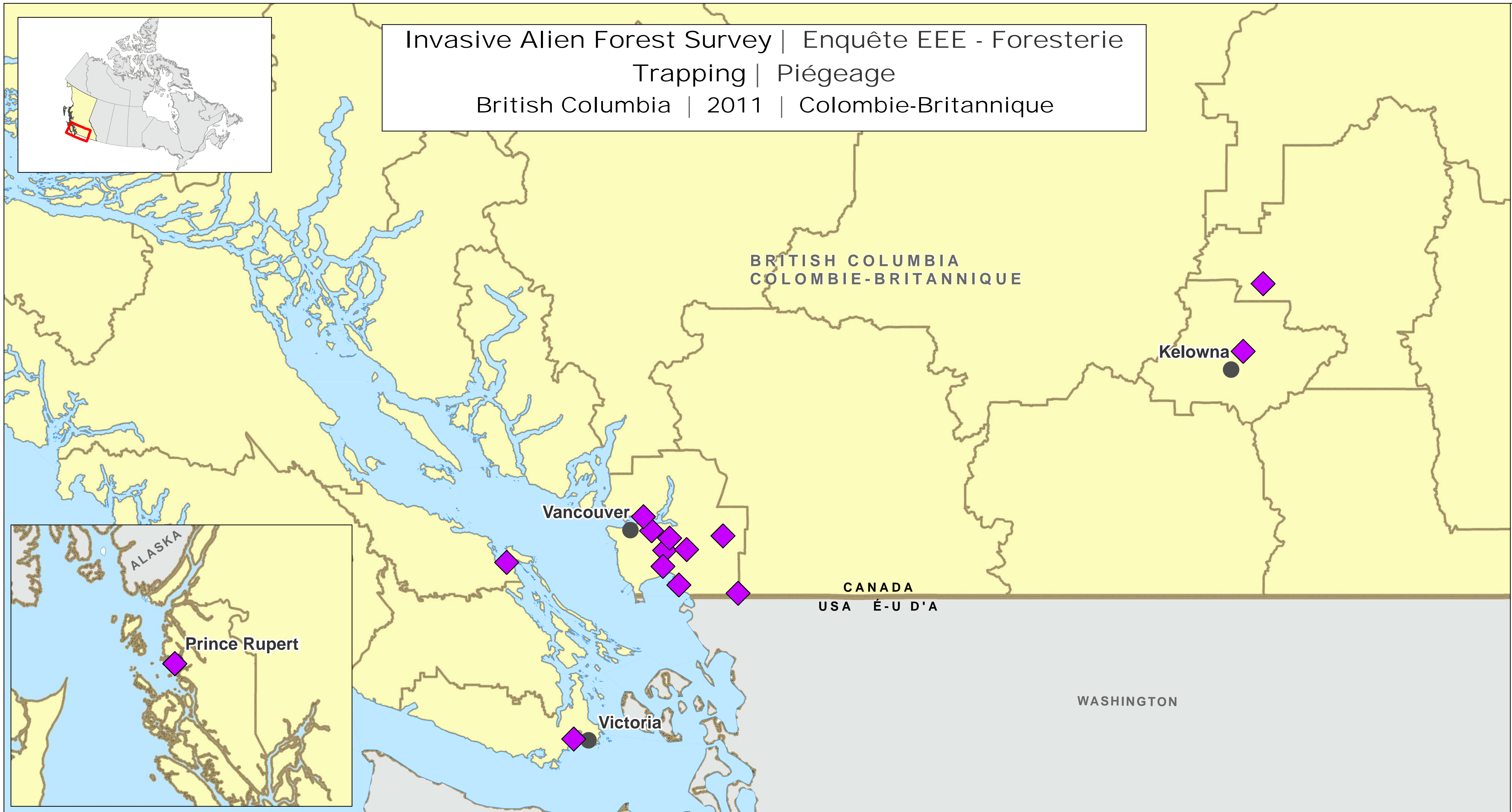
Produced by the Canadian Food Inspection Agency, Préparée par l'Agence canadienne d'inspection des aliments,
Plant Health Surveillance Unit, Ottawa, Ontario. Unité de surveillance phytosanitaire, Ottawa, Ontario.
WGS 1984 Web Mercator Auxiliary Sphere. WGS 1984 Web Mercator (sphère auxiliaire).



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2012 | 08 | 10



◆ Survey site | site d'enquête

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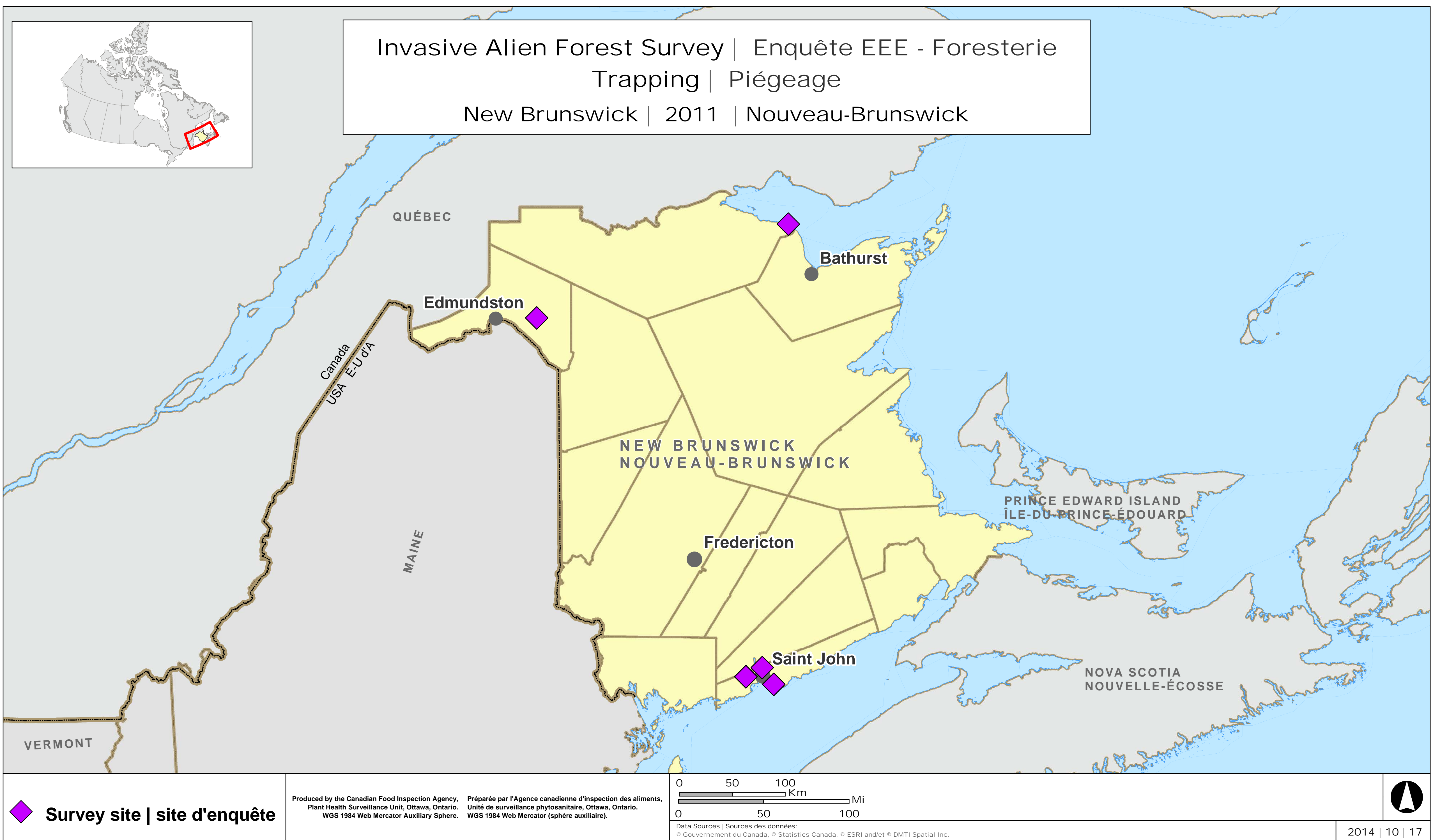
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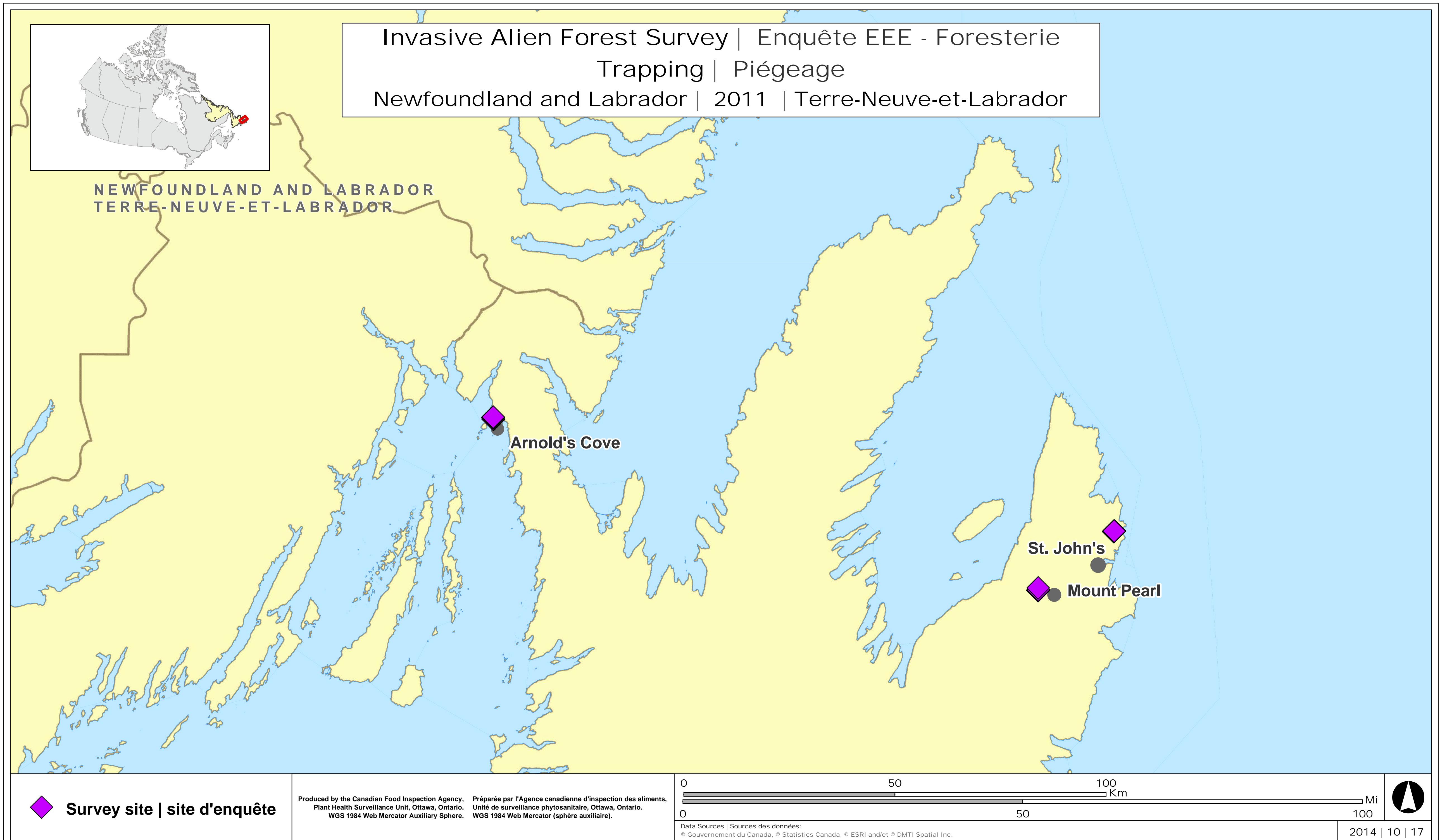
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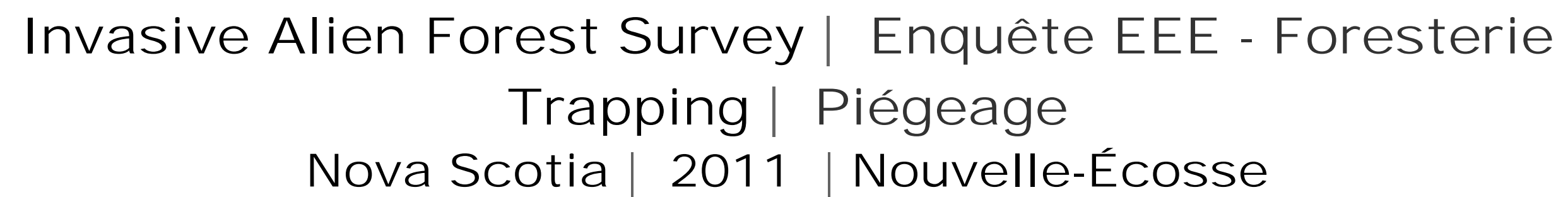
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2014 | 08 | 10







PRINCE EDWARD ISLAND
ÎLE-DU-PRINCE-ÉDOUARD



Sydney

Port Hawkesbury

Truro

Kentville

NOVA SCOTIA
NOUVELLE-ÉCOSSE

Halifax

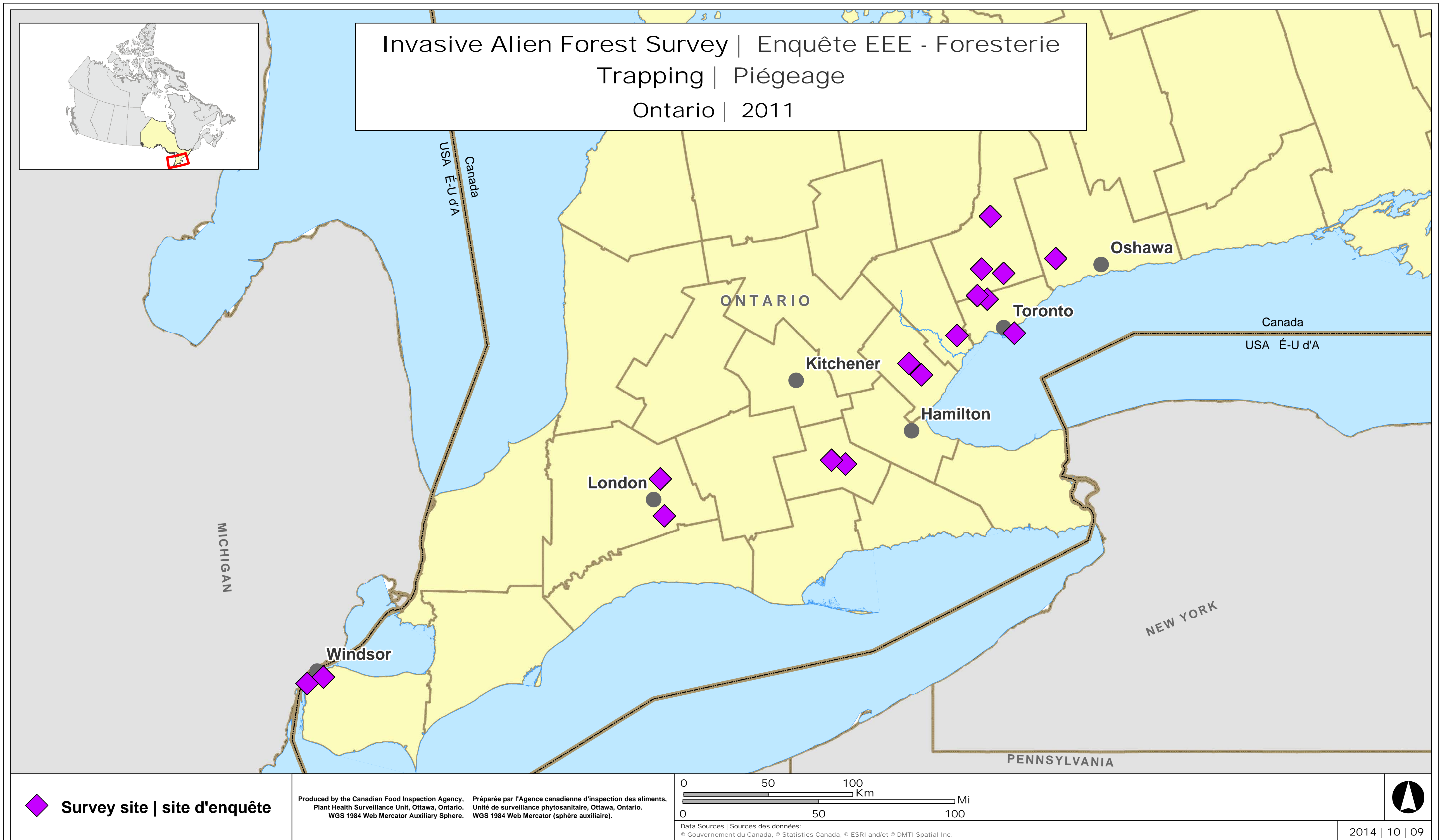
Lunenburg

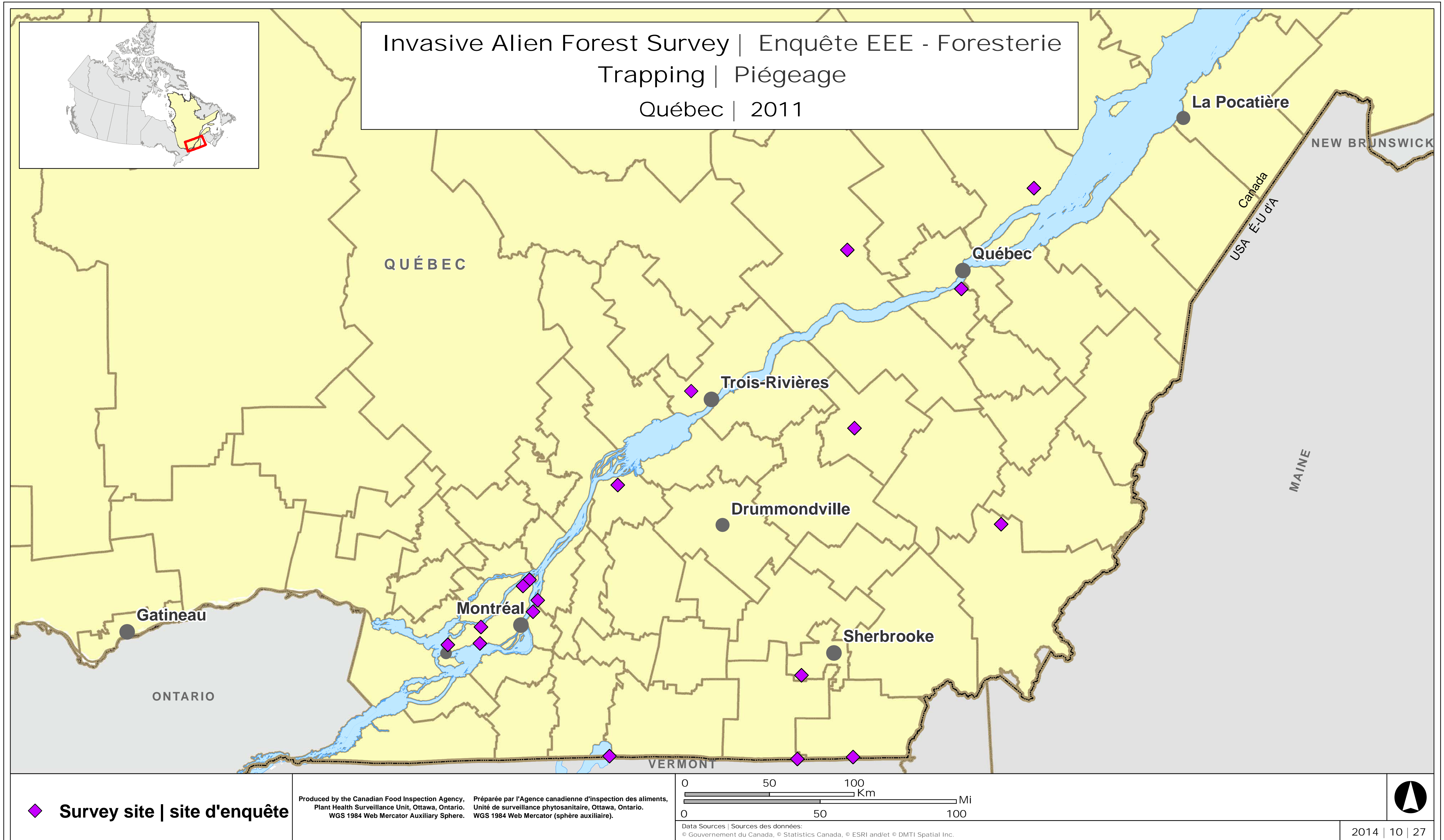


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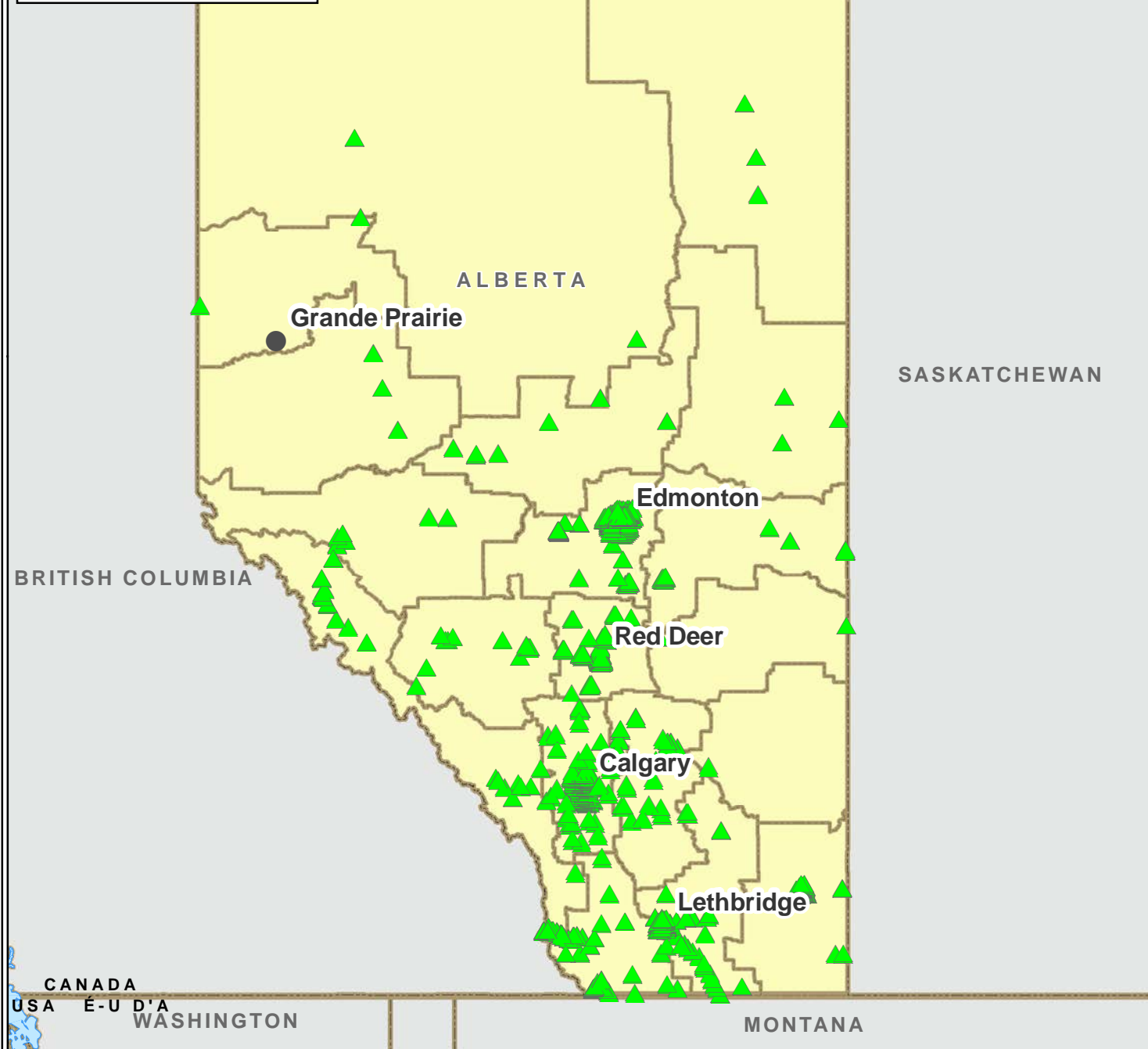
Préparée par l'Agence canadienne d'inspection des aliments,
Unité de surveillance phytosanitaire, Ottawa, Ontario.
WGS 1984 Web Mercator (sphère auxiliaire).







European gypsy moth | *Lymantria dispar dispar* | Spongieuse européenne
Alberta | 2011



▲ Negative site | site négatif

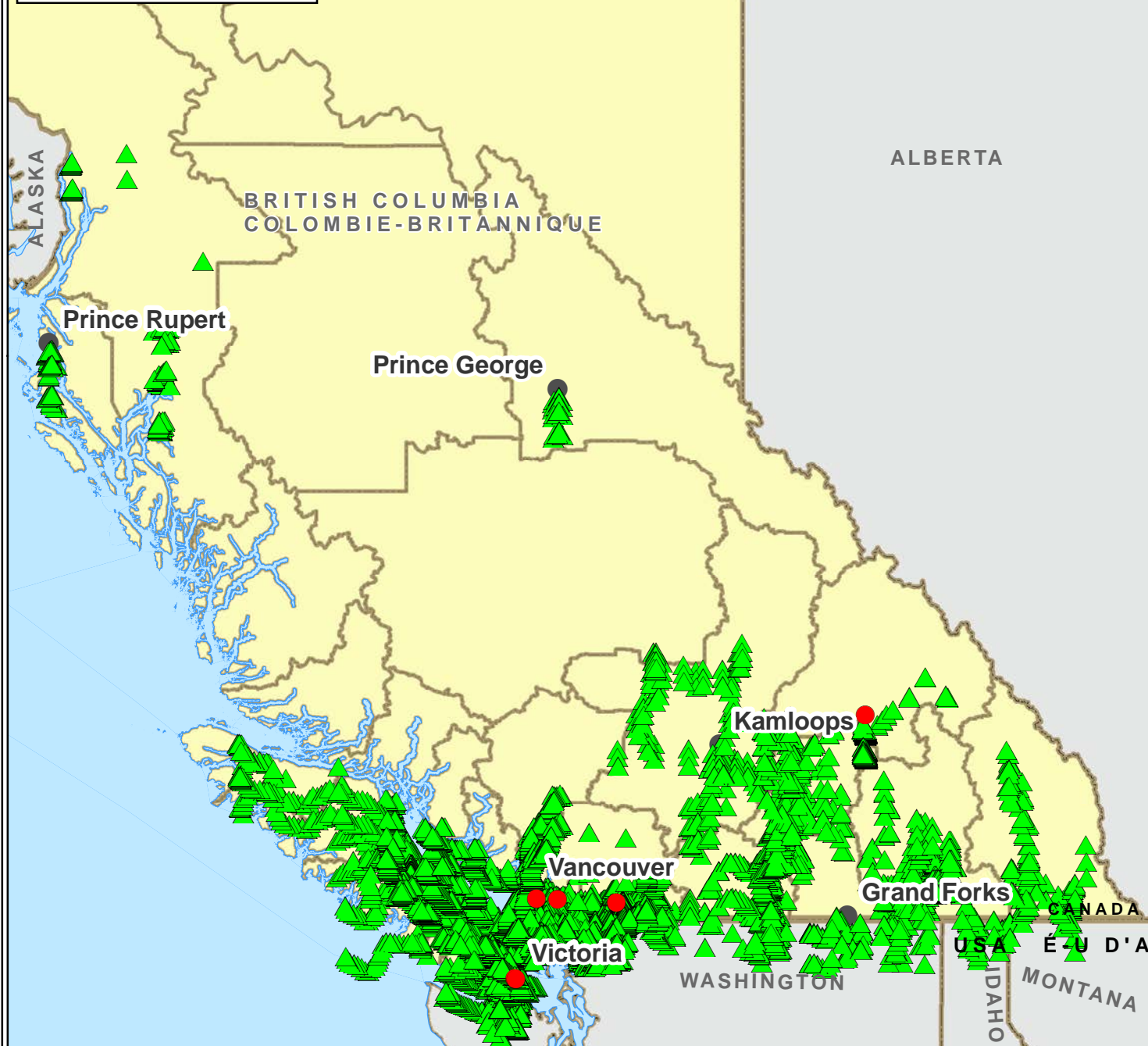
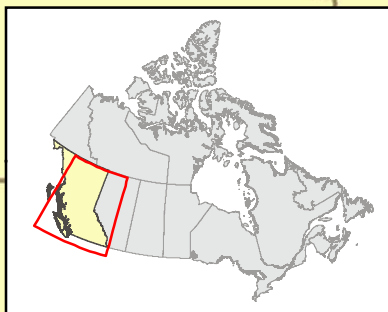
Produced by the Canadian Food Inspection Agency, Préparée par l'Agence canadienne d'inspection des aliments,
Plant Health Surveillance Unit, Ottawa, Ontario. Unité de surveillance phytosanitaire, Ottawa, Ontario.
WGS 1984 Web Mercator Auxiliary Sphere. WGS 1984 Web Mercator (sphère auxiliaire).

0 50 100
Km
0 50 100
Mi
Data Sources | Sources des données:
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2014 | 10 | 08

European gypsy moth | *Lymantria dispar dispar* | Spongieuse européenne
British Columbia | 2011 | Colombie-Britannique



- 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).

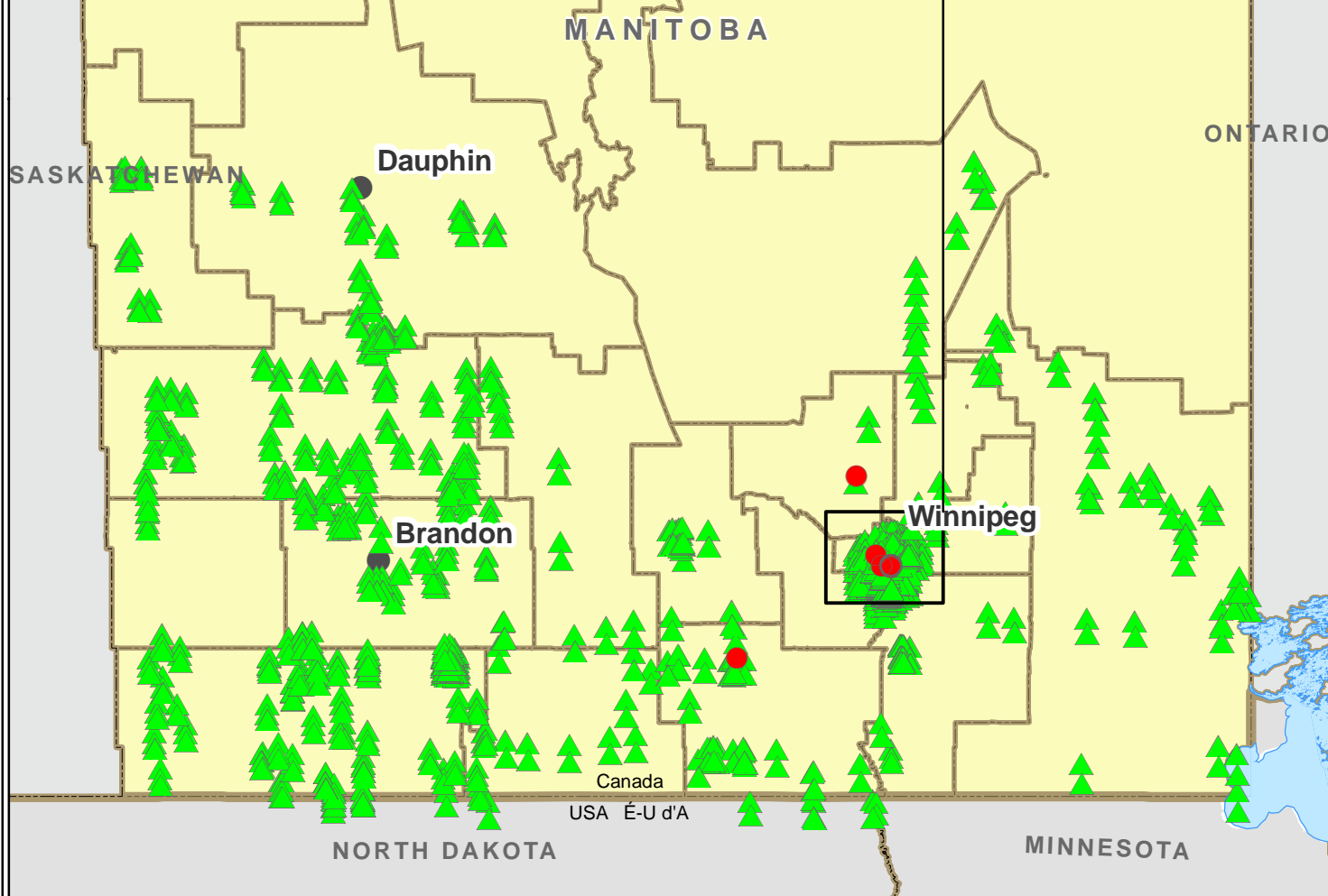
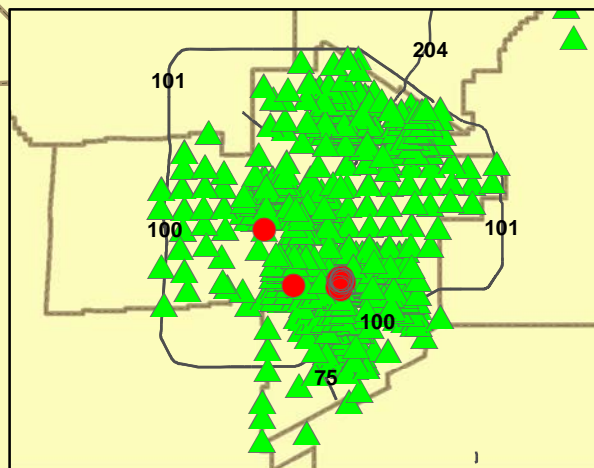
0 50 100
Km
0 50 100
Mi

Data Sources | Sources des données:
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2014 | 10 | 08

European gypsy moth | *Lymantria dispar dispar* | Spongieuse européenne
Manitoba | 2011

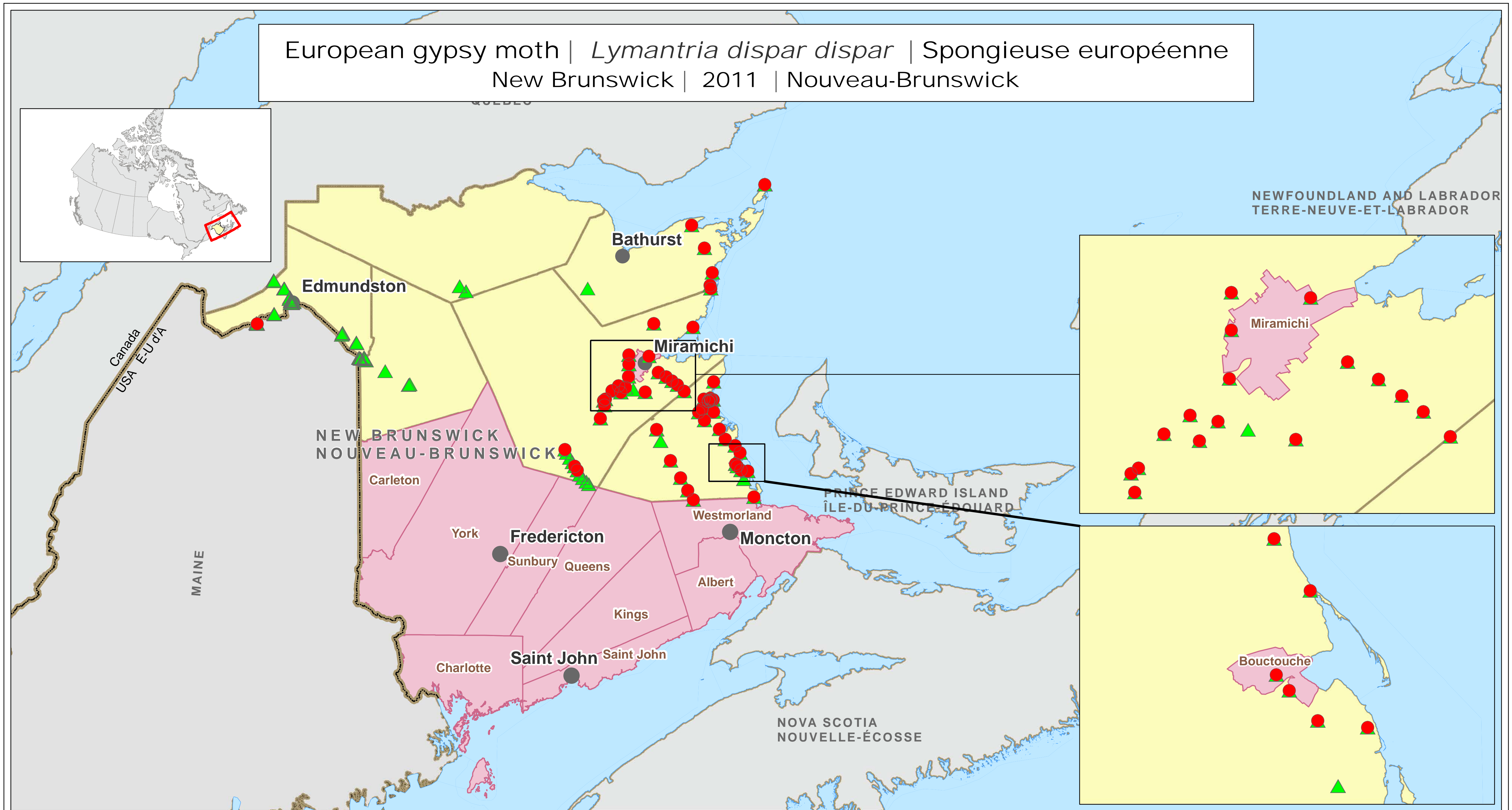


- Positive site | site positif
- ▲ Negative site | site négatif

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).



European gypsy moth | *Lymantria dispar dispar* | Spongieuse européenne
New Brunswick | 2011 | 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. / 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).

0 50 100 Km

0 50 100 Mi

Data Sources | Sources des données:
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2014 | 10 | 17

Happy Valley-Goose Bay

QUÉBEC

Corner Brook

Gander

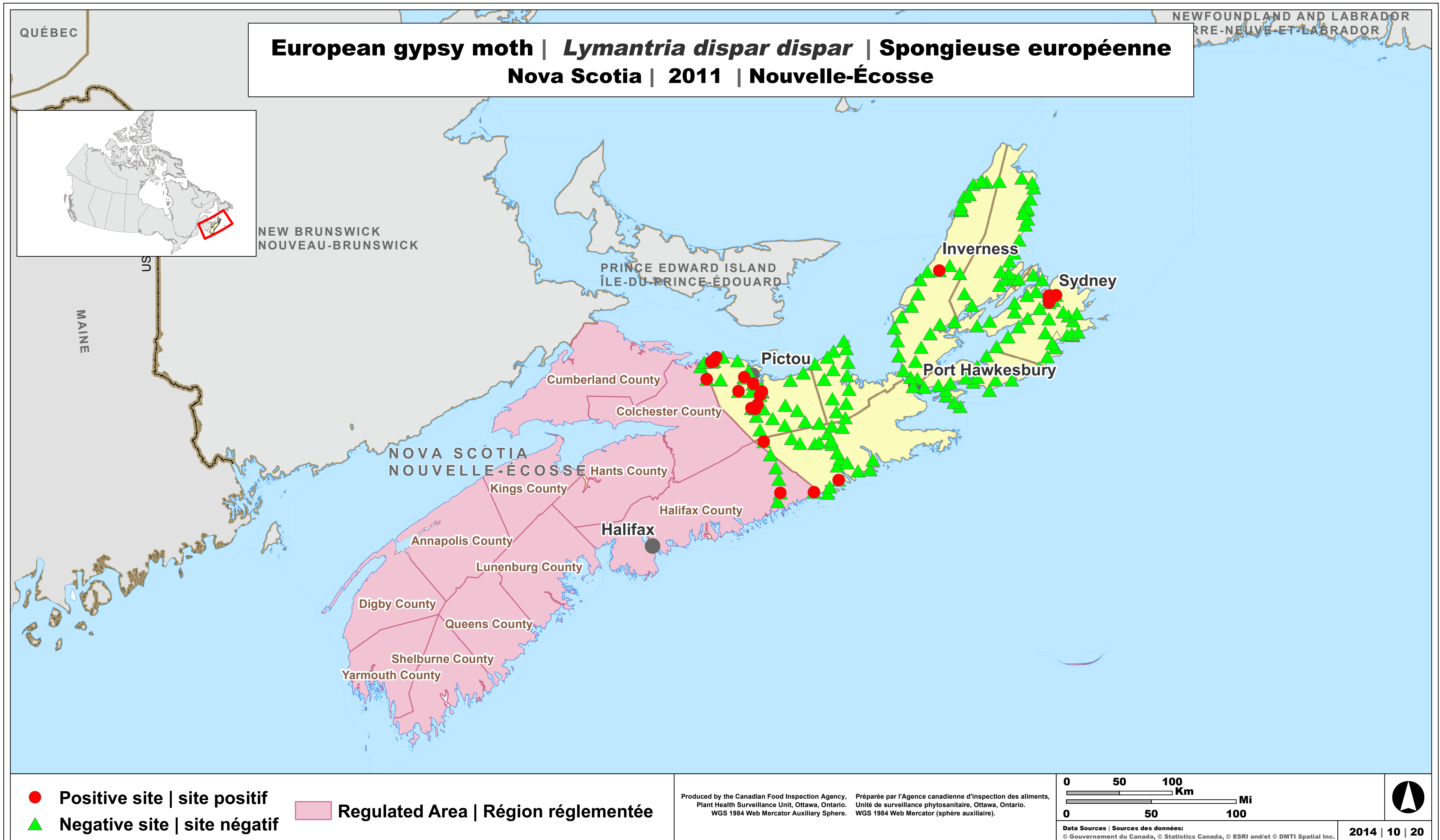
Channel-Port aux Basques

St. John's

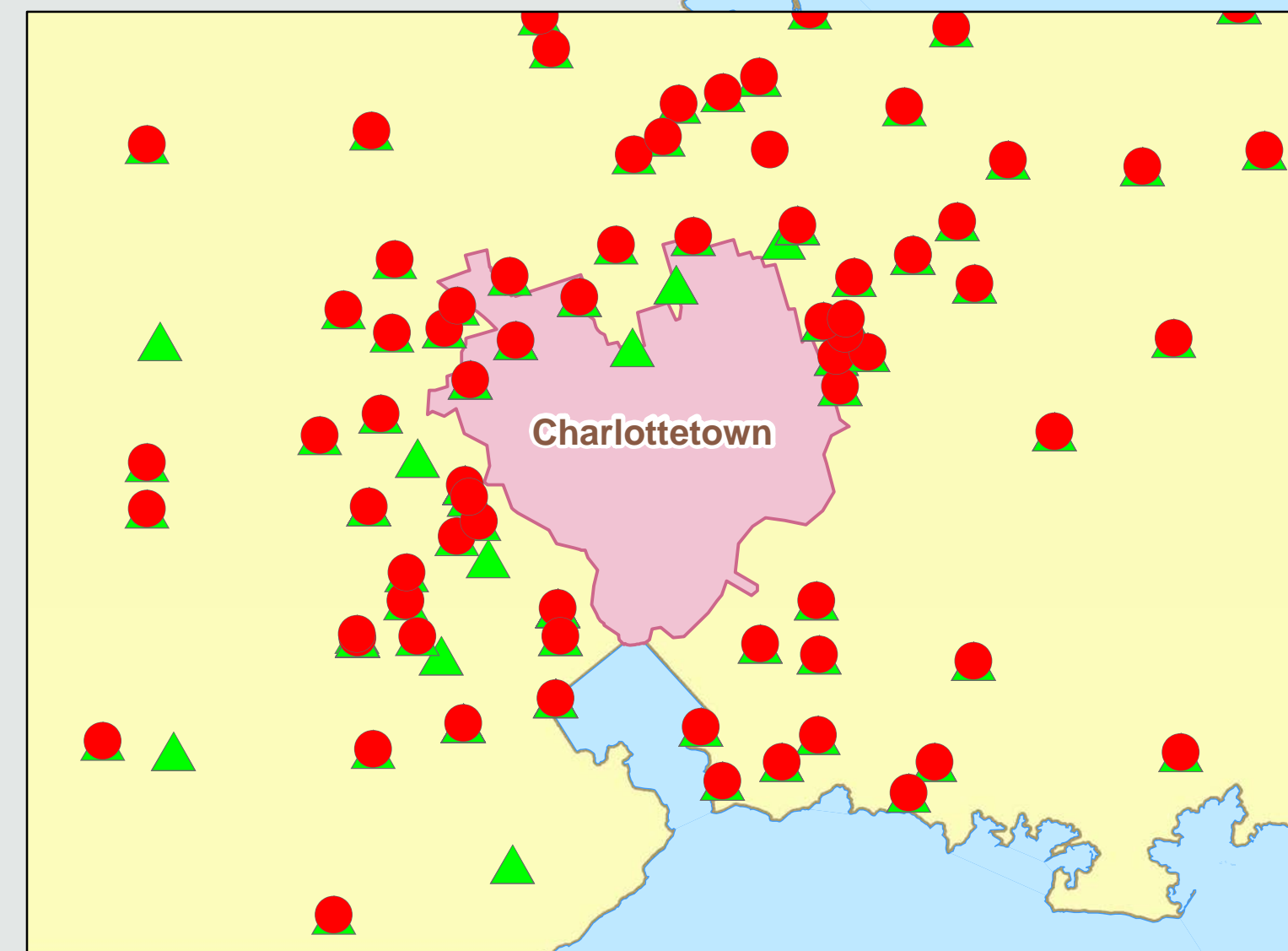
▲ Negative site | site négatif

Data Sources | Sources des données:
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2014 | 10 | 21



European gypsy moth | *Lymantria dispar dispar* | Spongieuse européenne
Prince Edward Island | 2011 | 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. / Préparée par l'Agence canadienne d'inspection des aliments, Unité de surveillance phytosanitaire, Ottawa, Ontario.

050100

Km

050100

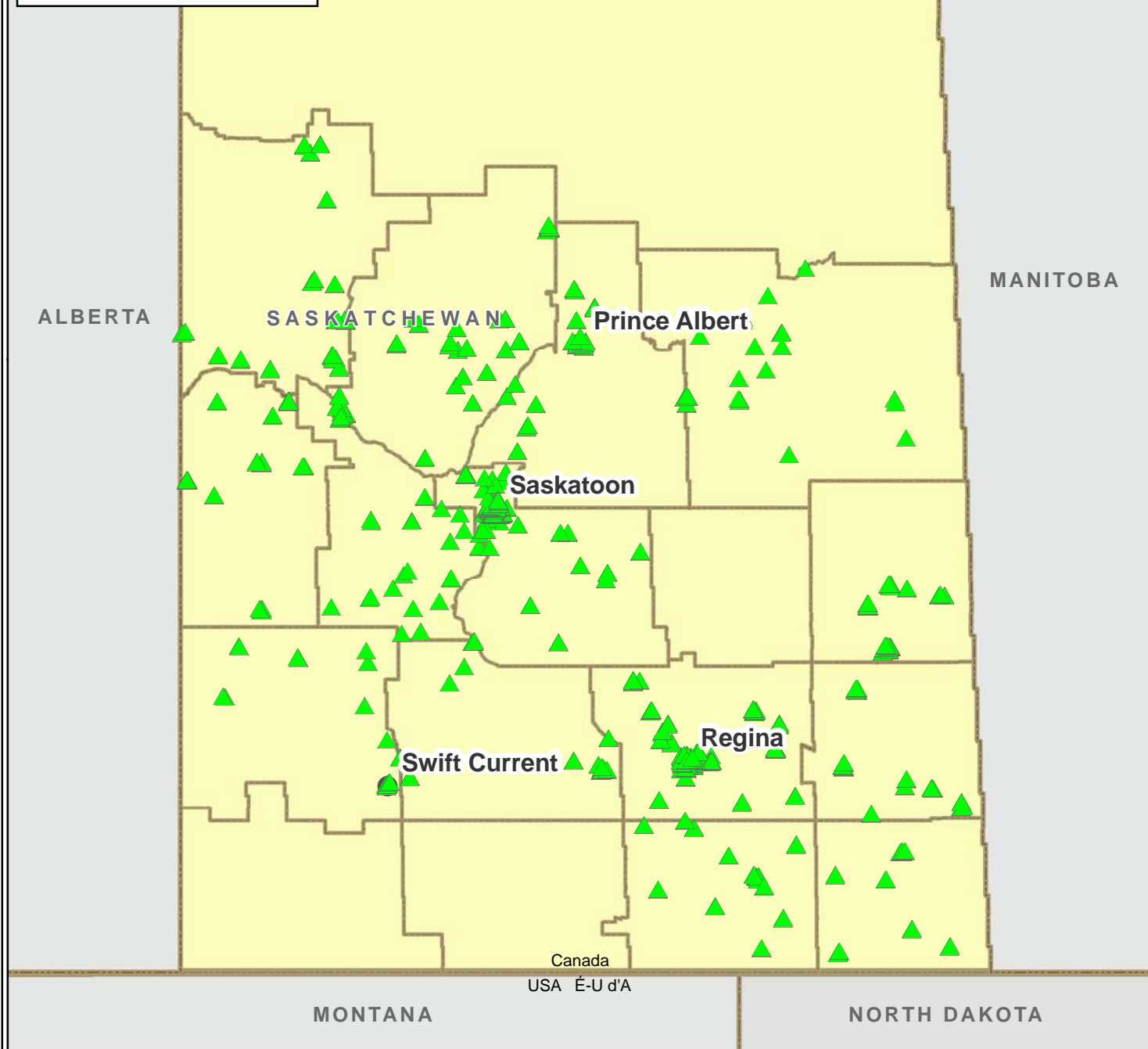
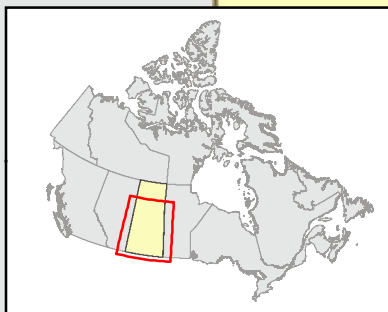
Mi

Data Sources | Sources des données:

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2014 | 10 | 21

European gypsy moth | *Lymantria dispar dispar* | Spongieuse européenne
Saskatchewan | 2011



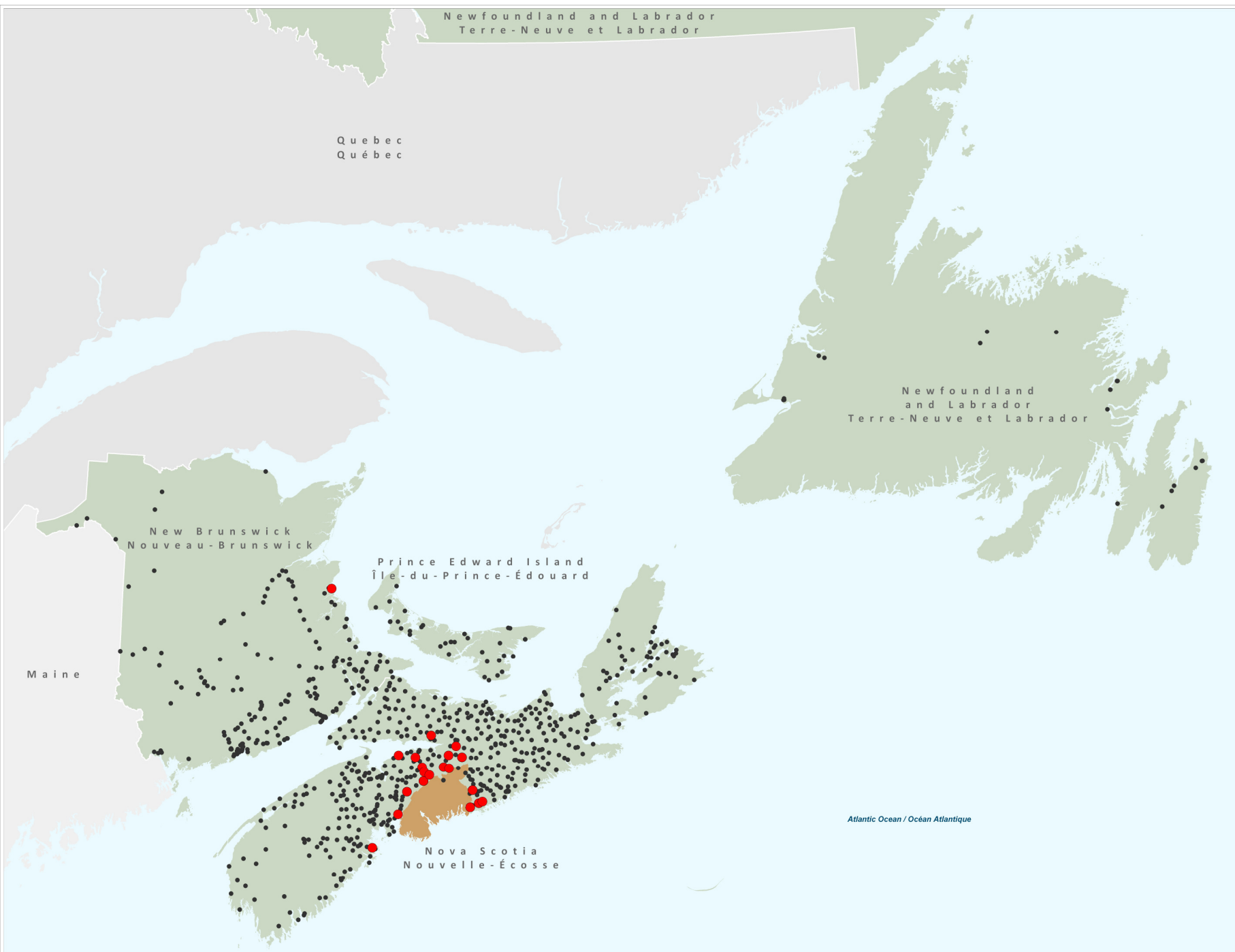
▲ Negative site | site négatif

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 | 08



2011

Brown spruce longhorn beetle
Longicorne brun de l'épinette

Atlantic Canada
Canada atlantique



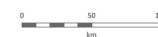
Survey Site / Site d'enquête

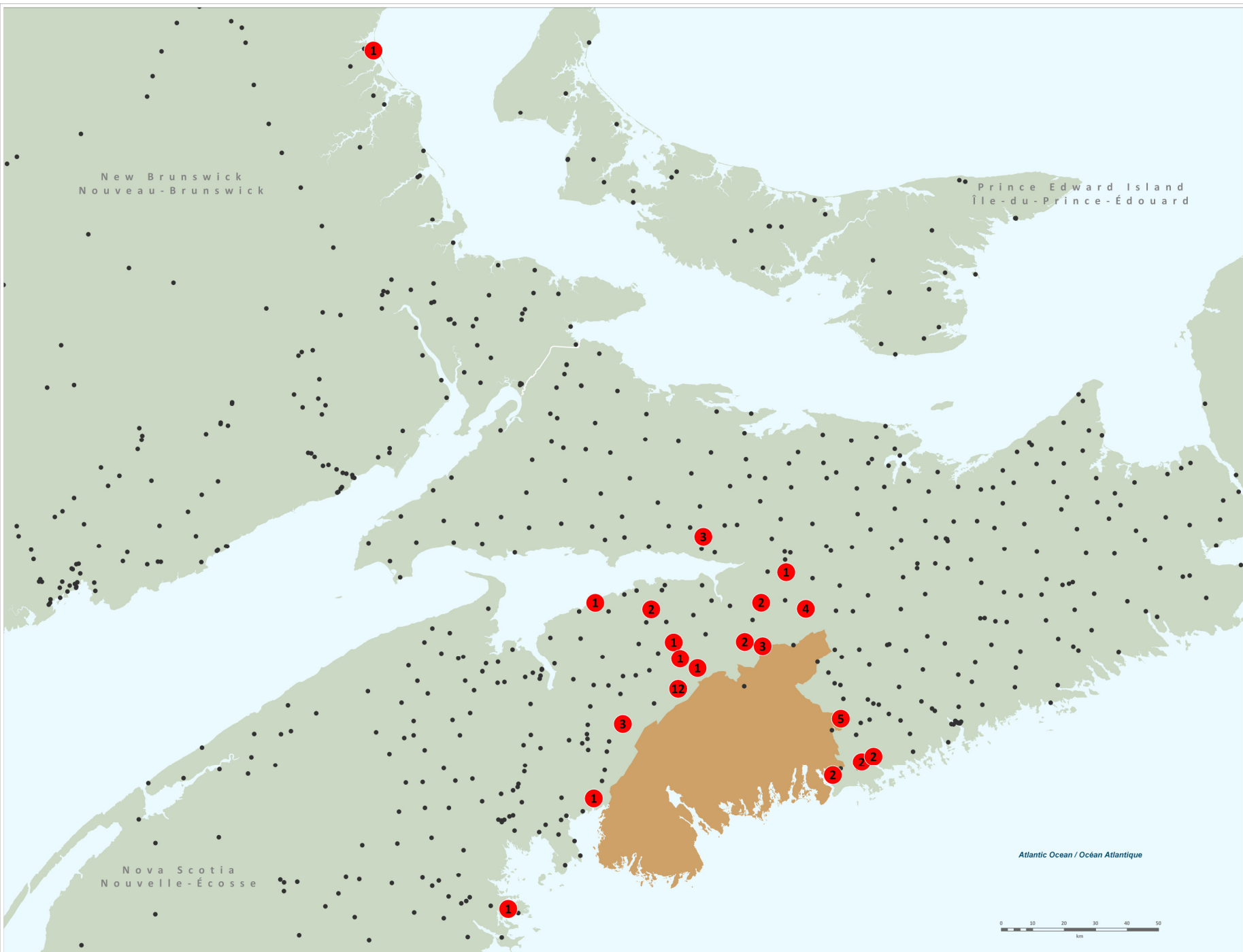
- BSLB Detected
LBE détecté
- BSLB Not Detected
LBE pas détecté
- BSLB Containment Area
Zone de confinement LBE


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.

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Date: 18 NOV 2011







Canadian Food
Inspection Agency



Agence canadienne
d'inspection des aliments

2011

Brown spruce longhorn beetle
Longicorne brun de l'épinette

Atlantic Canada
Canada atlantique



Survey Site / Site d'enquête

 BSLB Detected
LBE détecté

 BSLB Not Detected
LBE pas détecté

 BSLB Containment Area
Zone de confinement LBE

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Date: 18 NOV 2011



Atlantic Canada
Canada Atlantique



2006 - 2011

Brown Spruce Longhorn Beetle
Longicorne brun de l'épinette

Positive Sites
Outside Containment Area

Sites positifs
à l'extérieur de la
zone de confinement

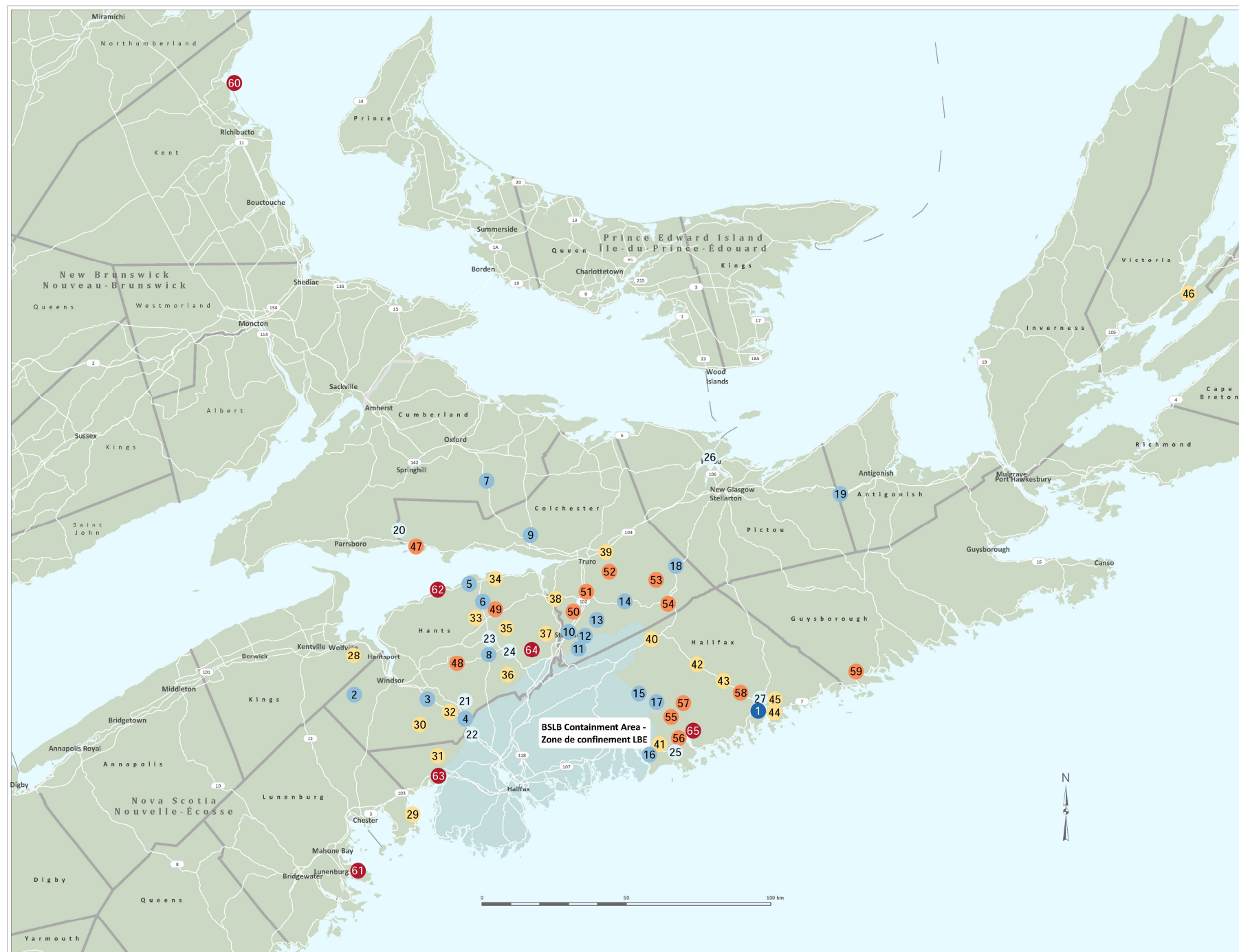
Legend / Légende

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

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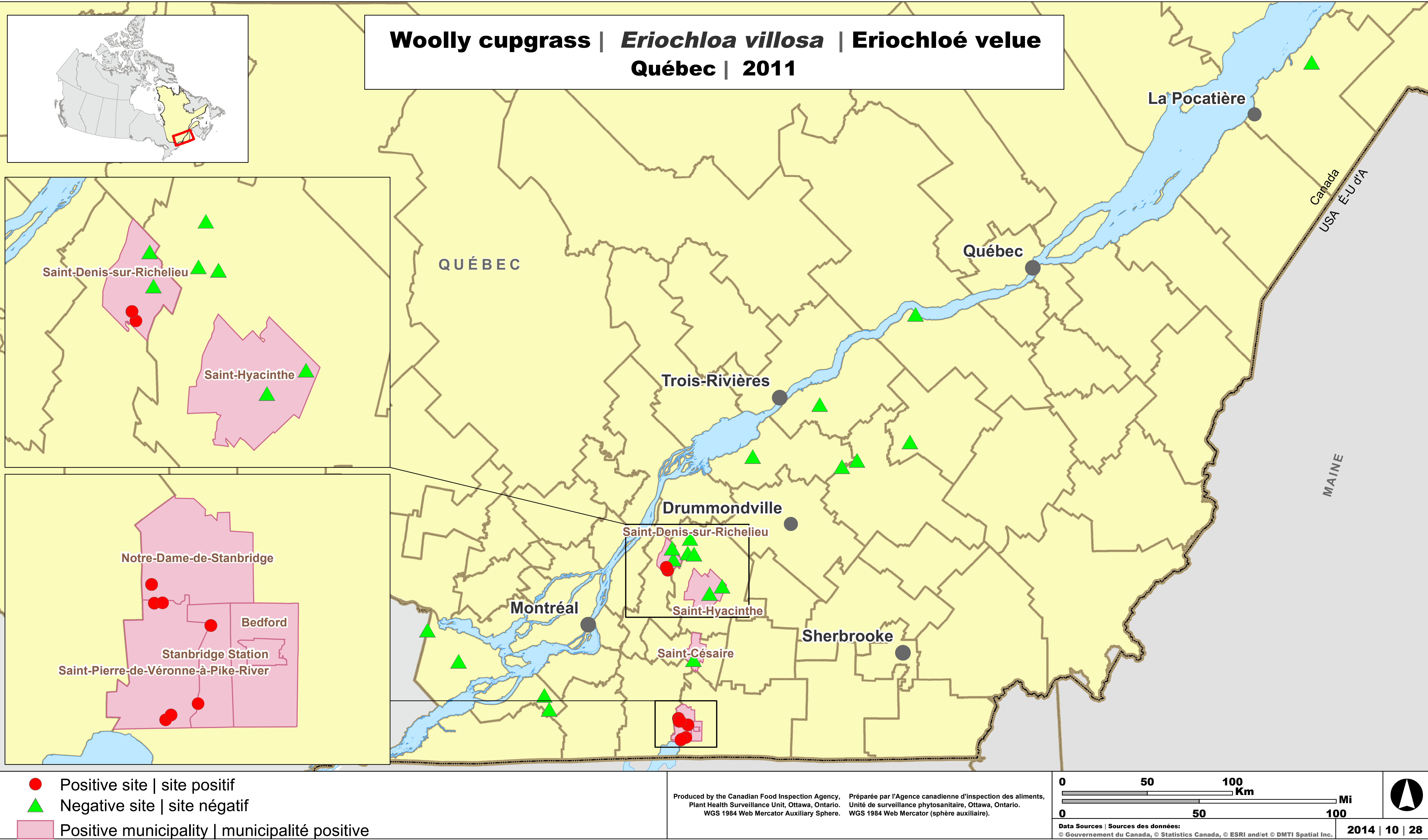
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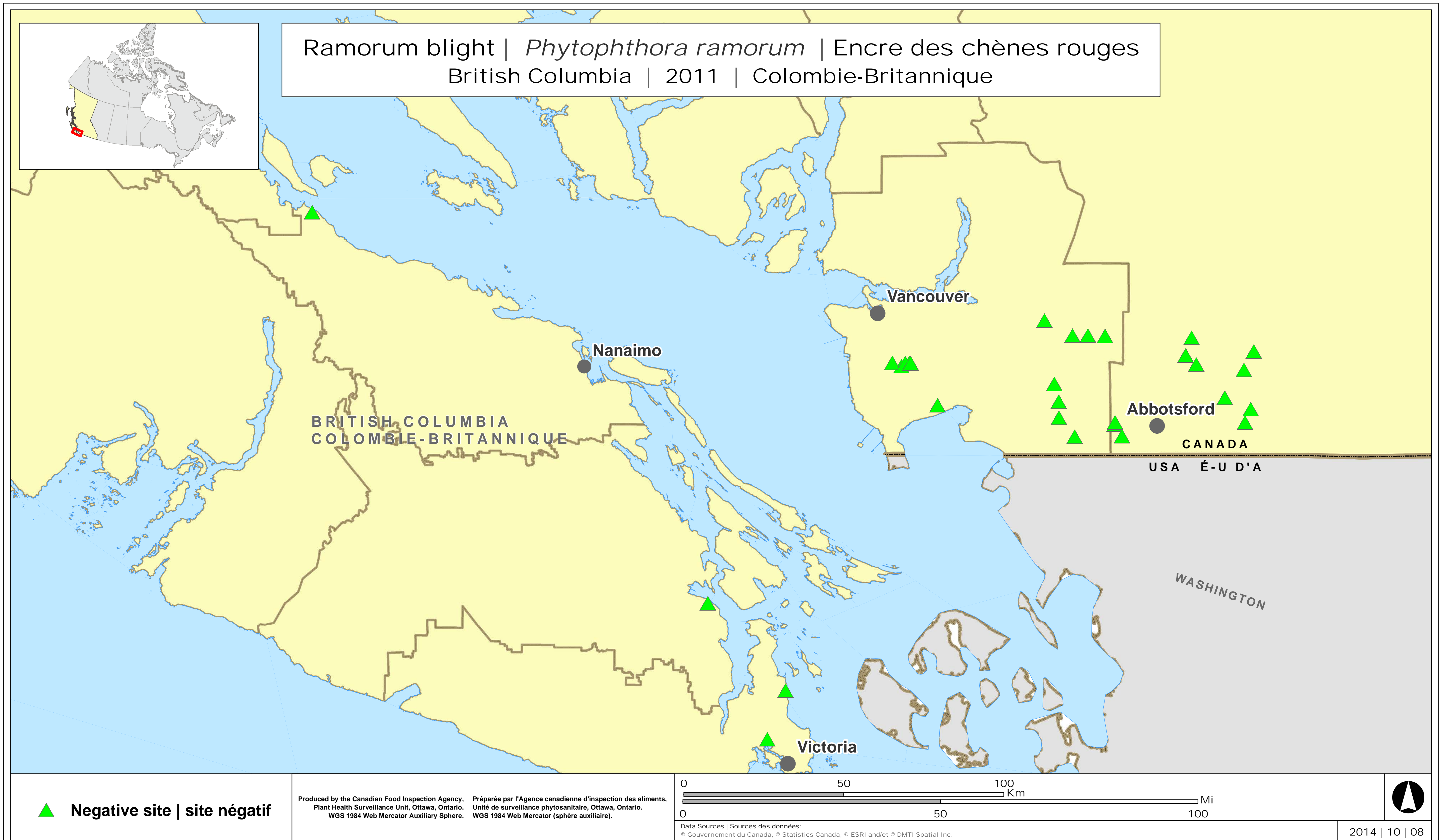
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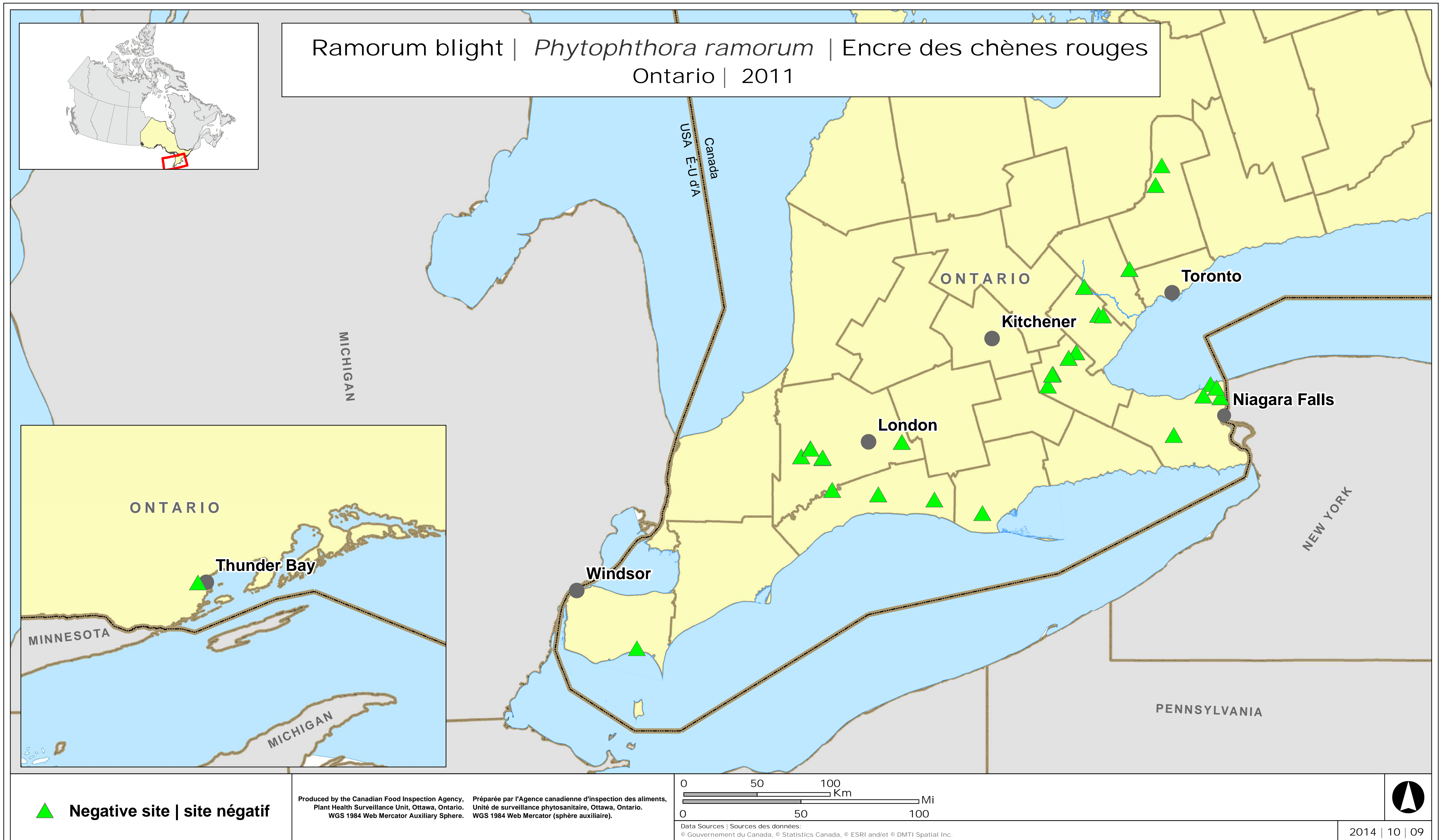


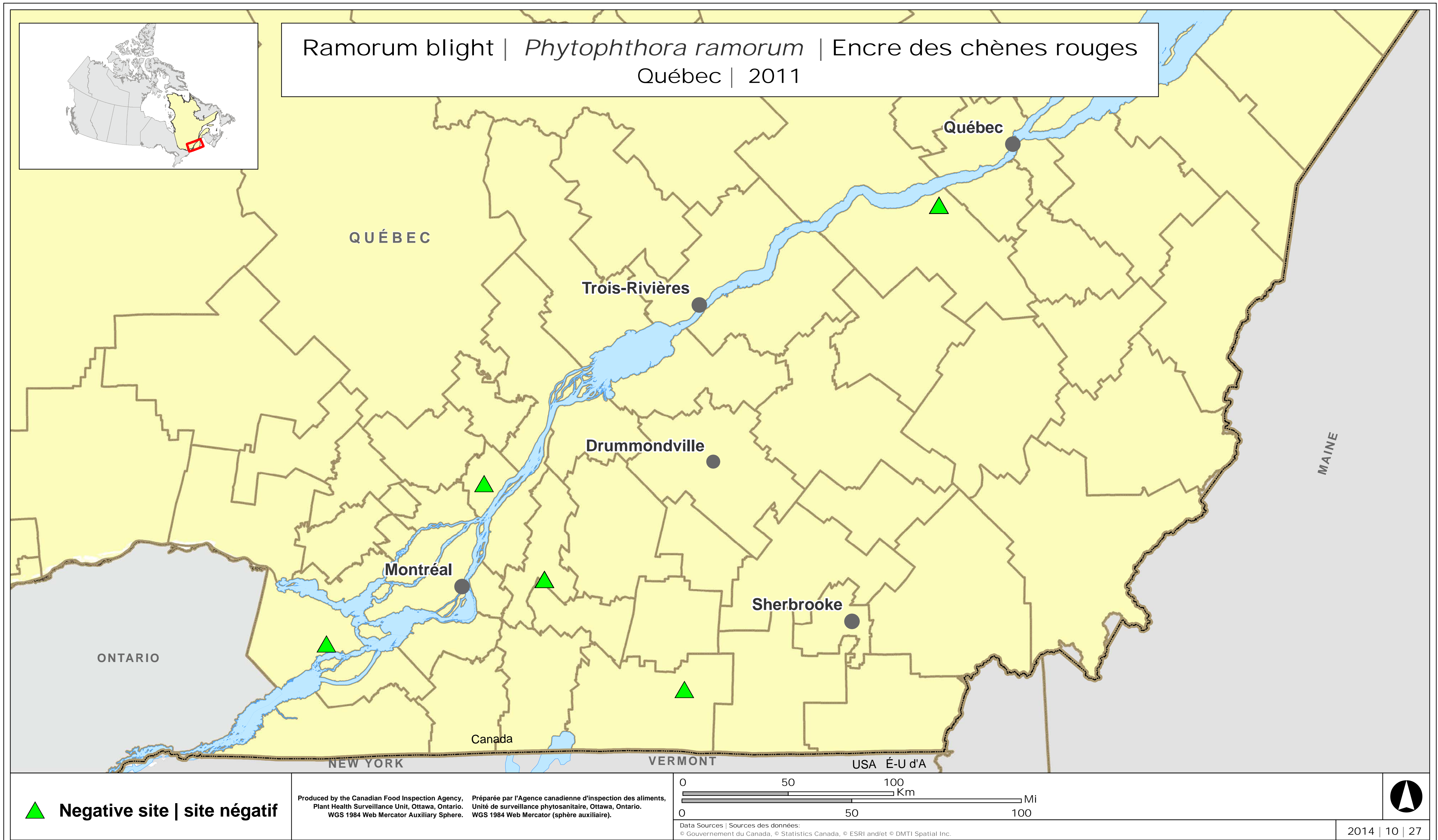
Woolly cupgrass | *Eriochloa villosa* | Eriochloé velue

Québec | 2011







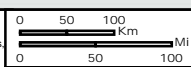


Oriental fruit moth | *Grapholita molesta* | Tordeuse orientale du pêcher
British Columbia | 2011 | Colombie-Britannique



▲ Negative site | site négatif

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Plant Health Surveillance Unit, Ottawa, Ontario. Unité de surveillance phytosanitaire, Ottawa, Ontario.
WGS 1984 Web Mercator Auxiliary Sphere. WGS 1984 Web Mercator (sphère auxiliaire).

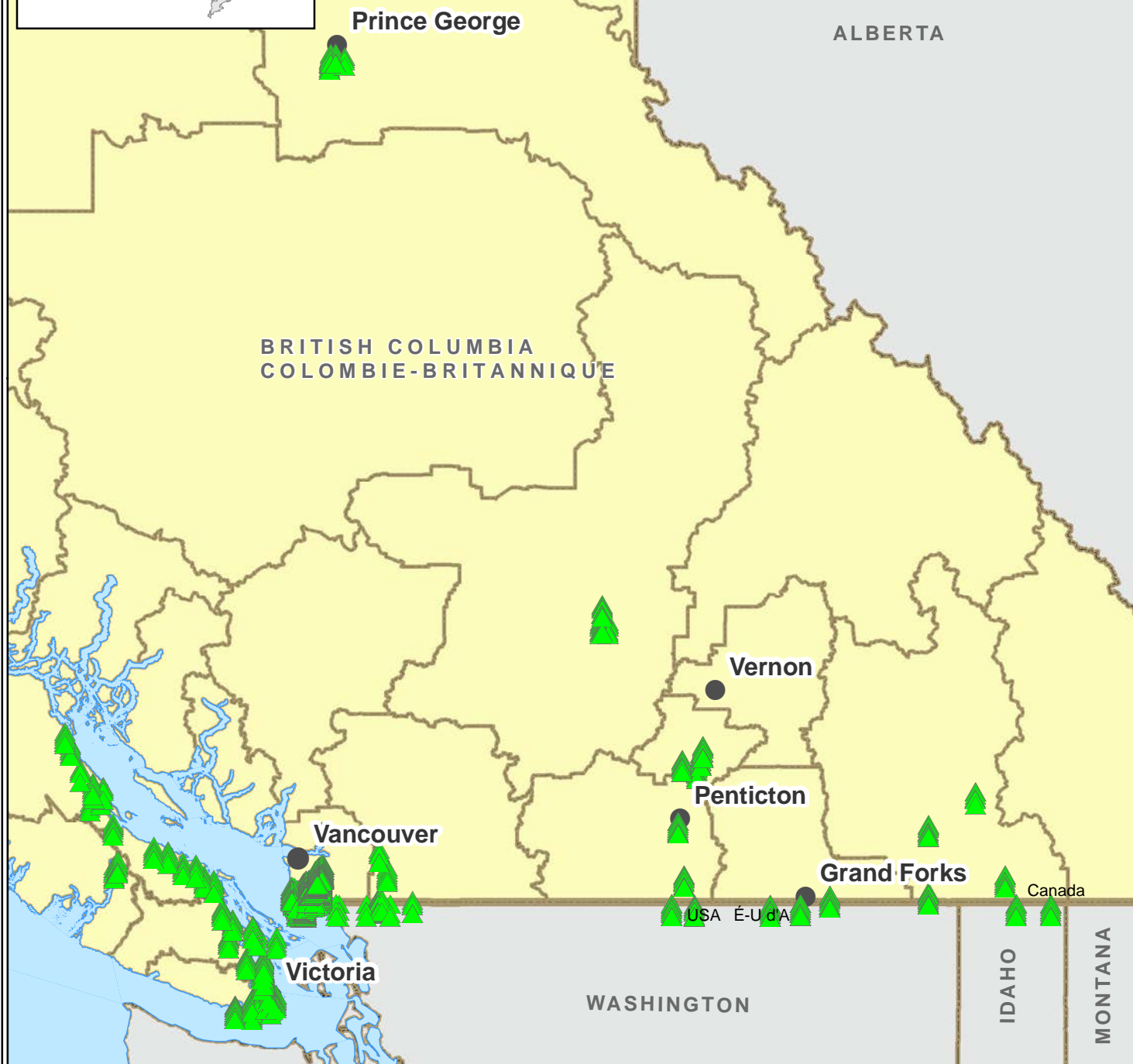


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2014 | 10 | 07

Japanese beetle | *Popillia japonica* | Scarabée japonais
British Columbia | 2011 | Colombie-Britannique



Negative site | site négatif

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0 50 100 Km
0 50 100 Mi

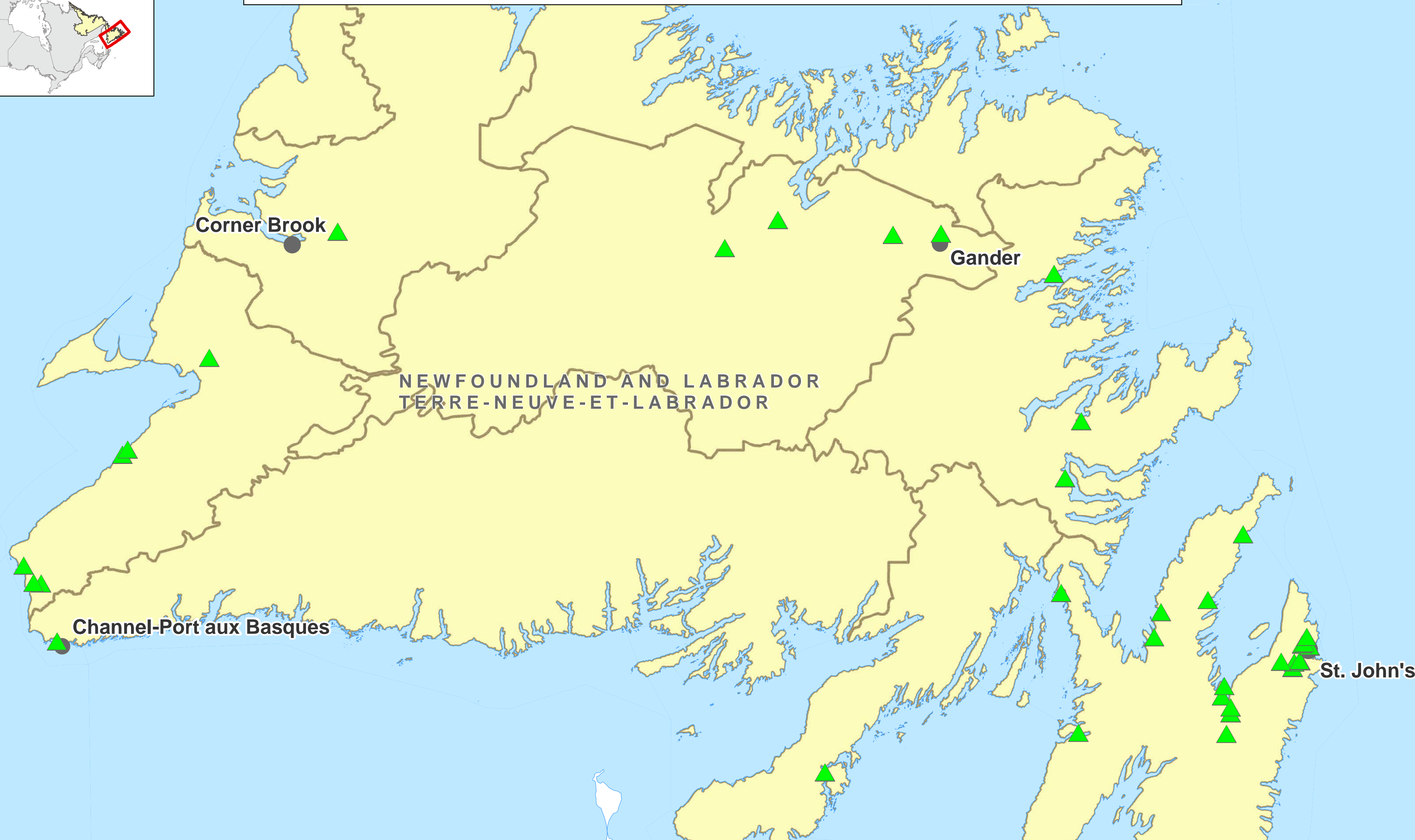
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2014 | 10 | 07

Japanese beetle | *Popillia japonica* | Scarabée japonais

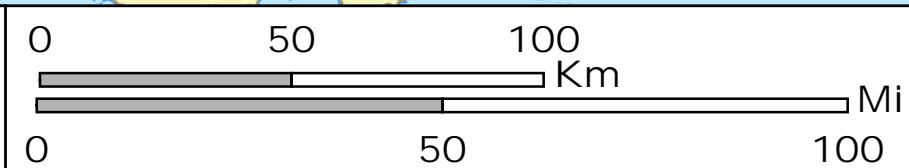
Newfoundland and Labrador | 2011 | Terre-Neuve-et-Labrador



▲ Negative site | site négatif

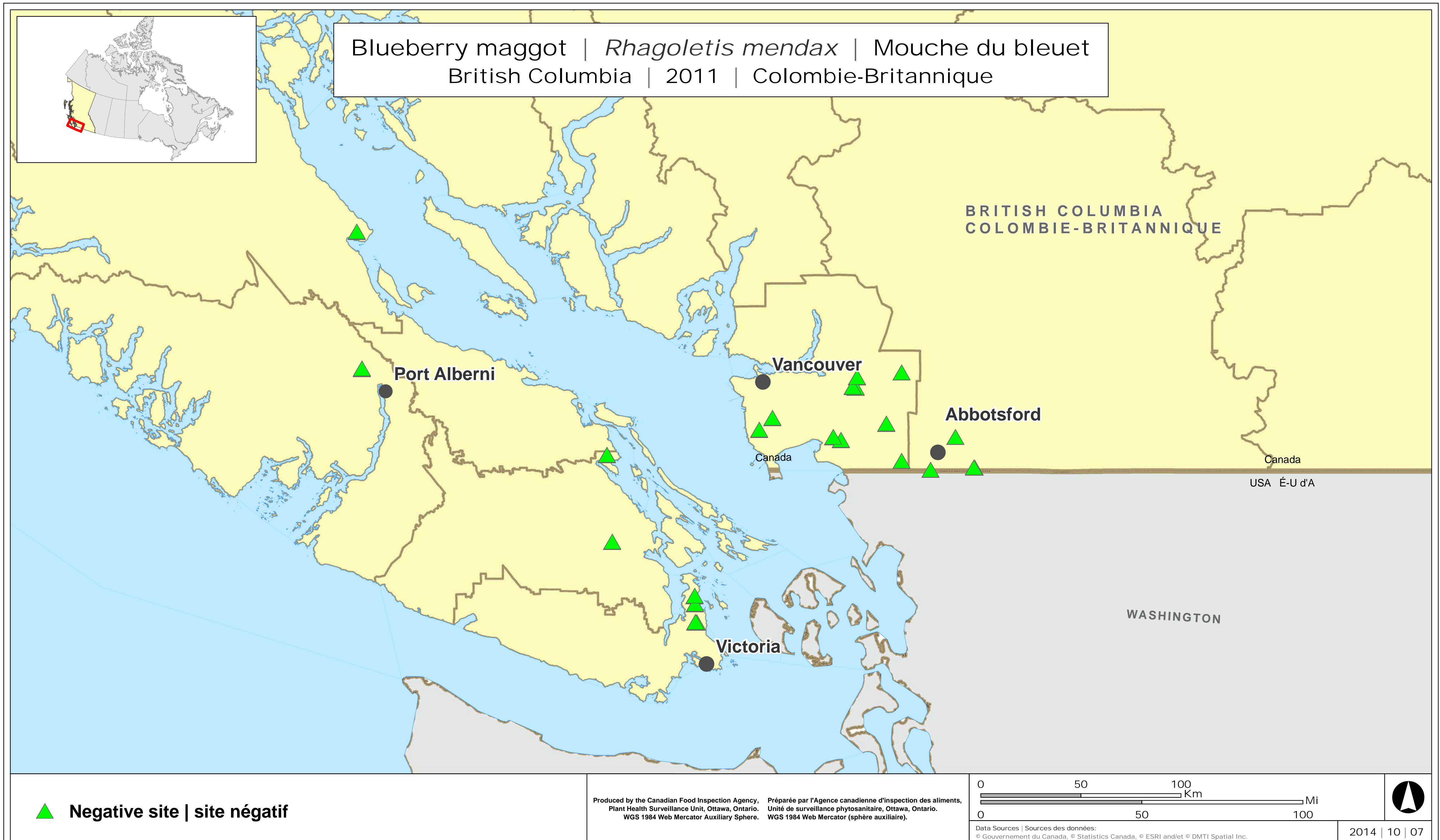
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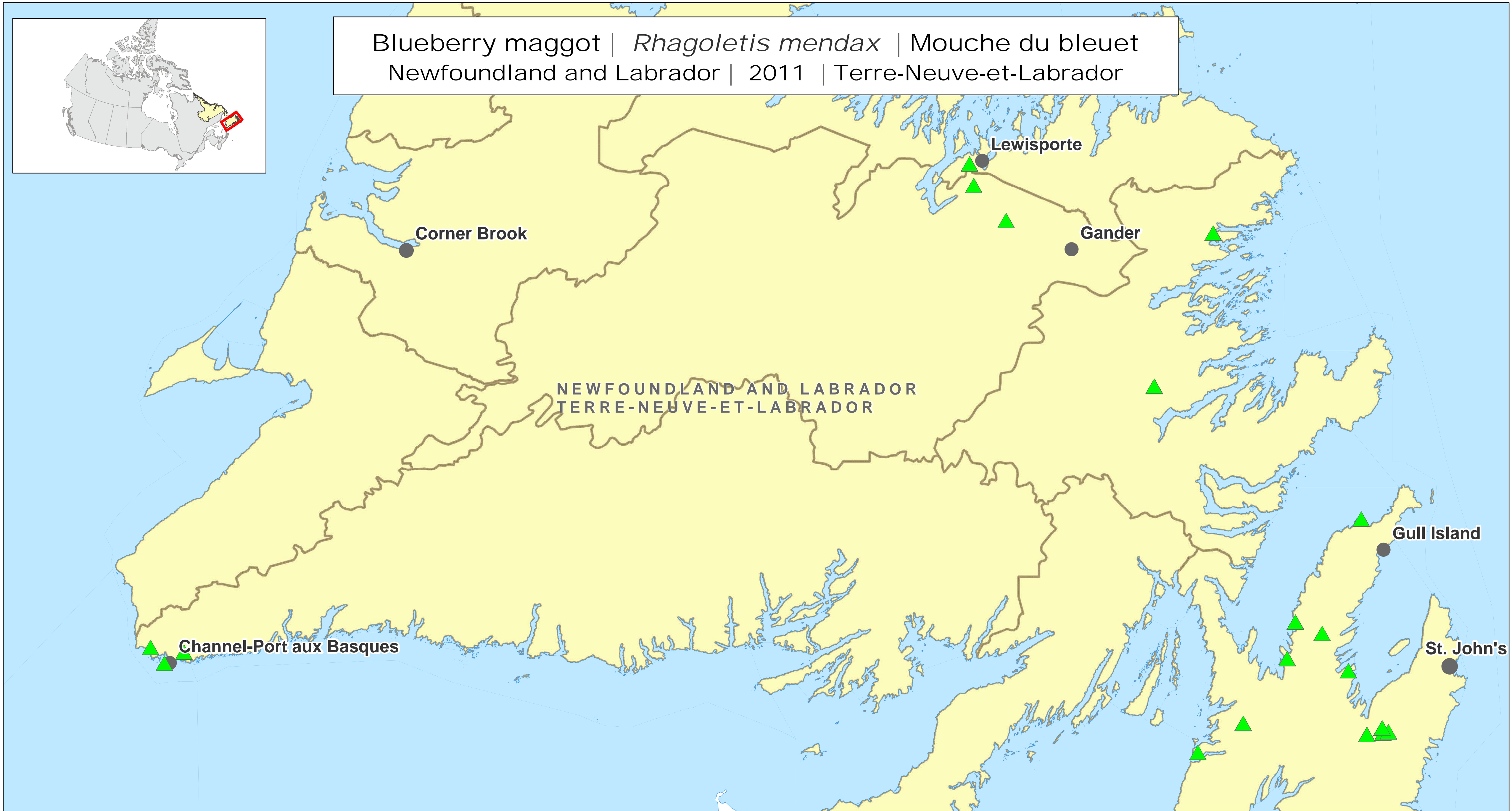
Préparée par l'Agence canadienne d'inspection des aliments,
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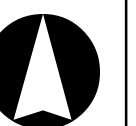
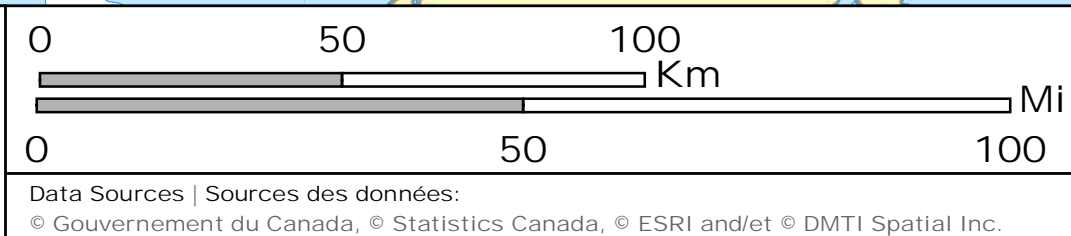




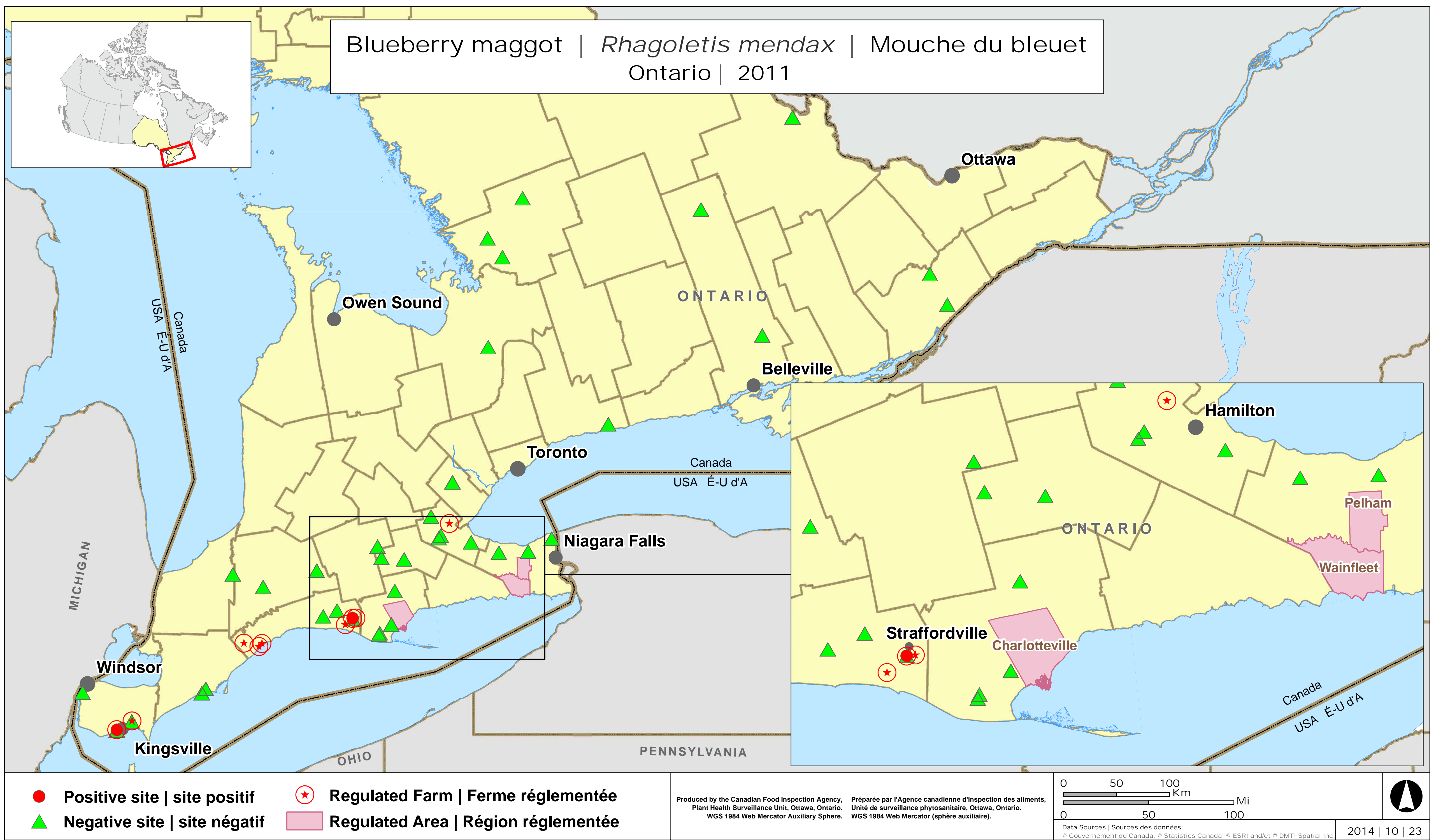
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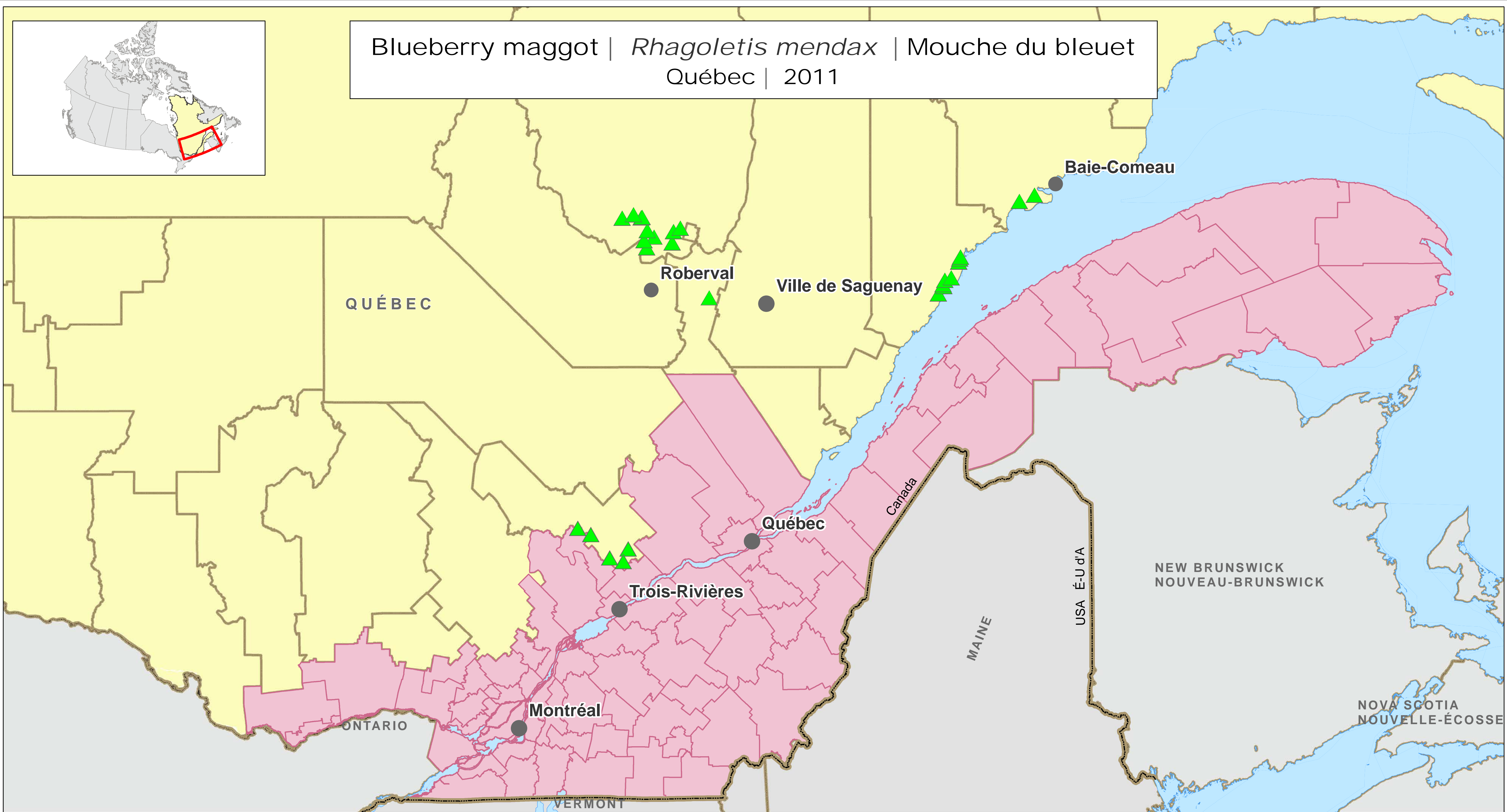
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2014 | 10 | 08





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

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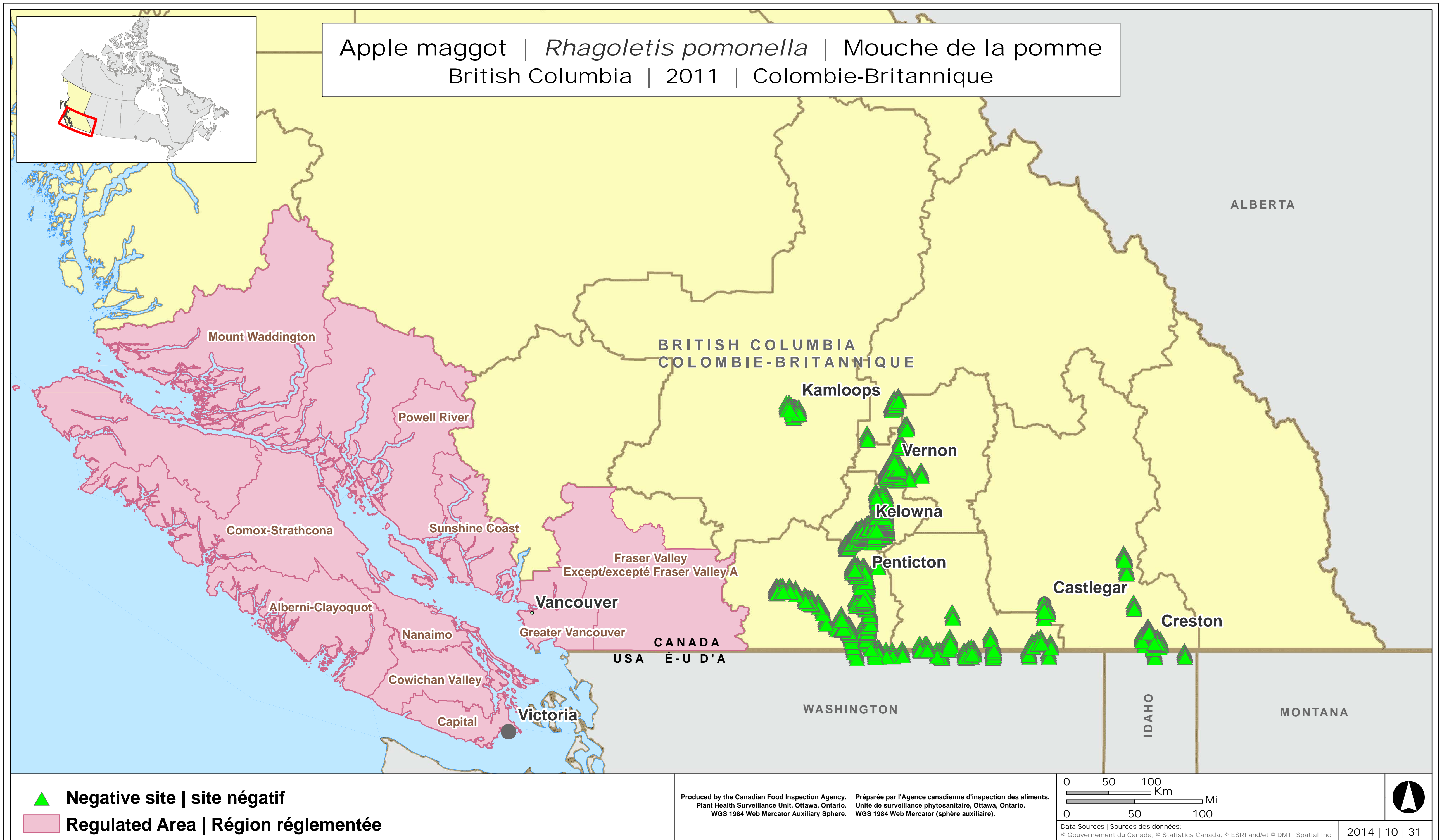
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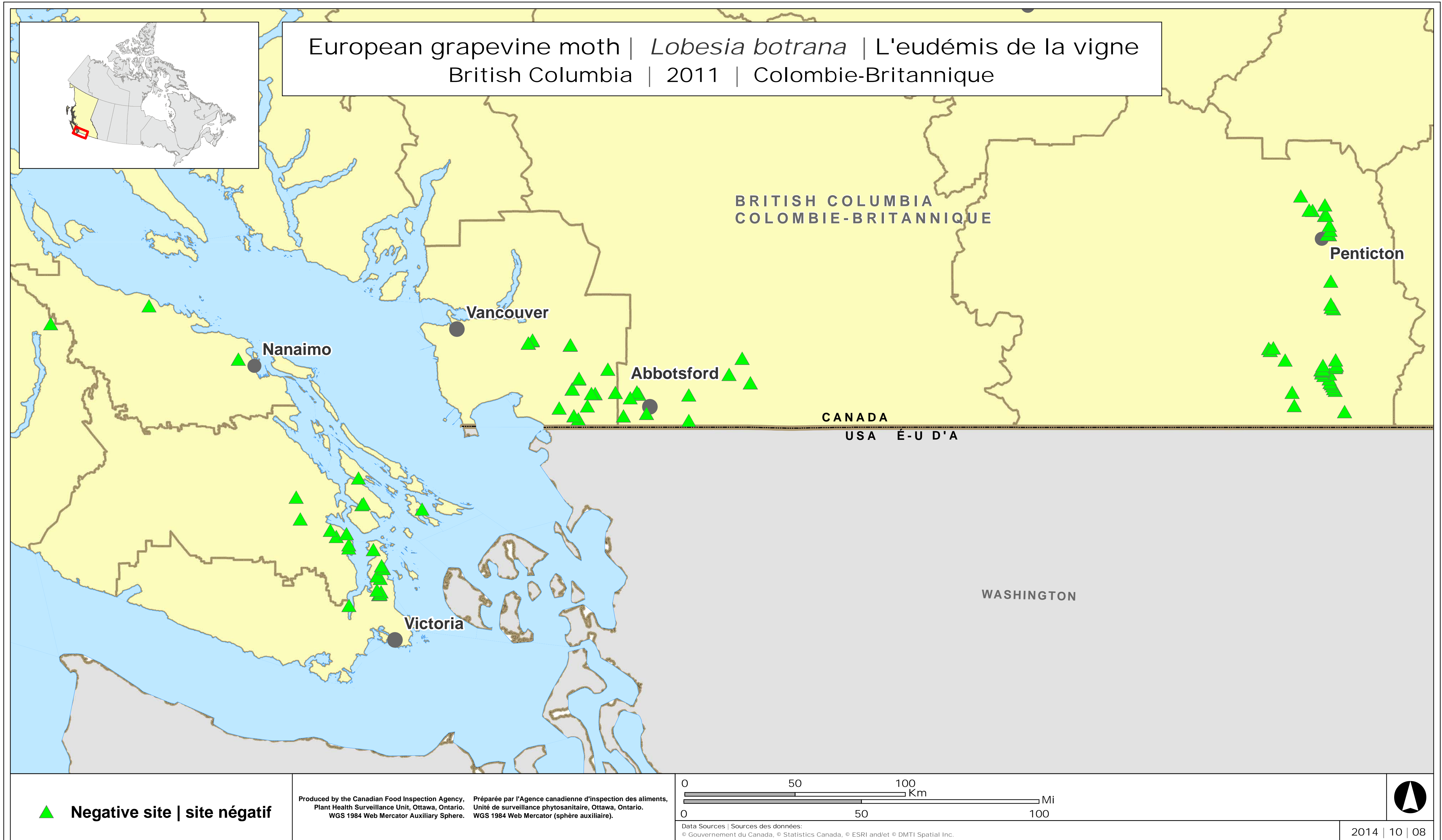
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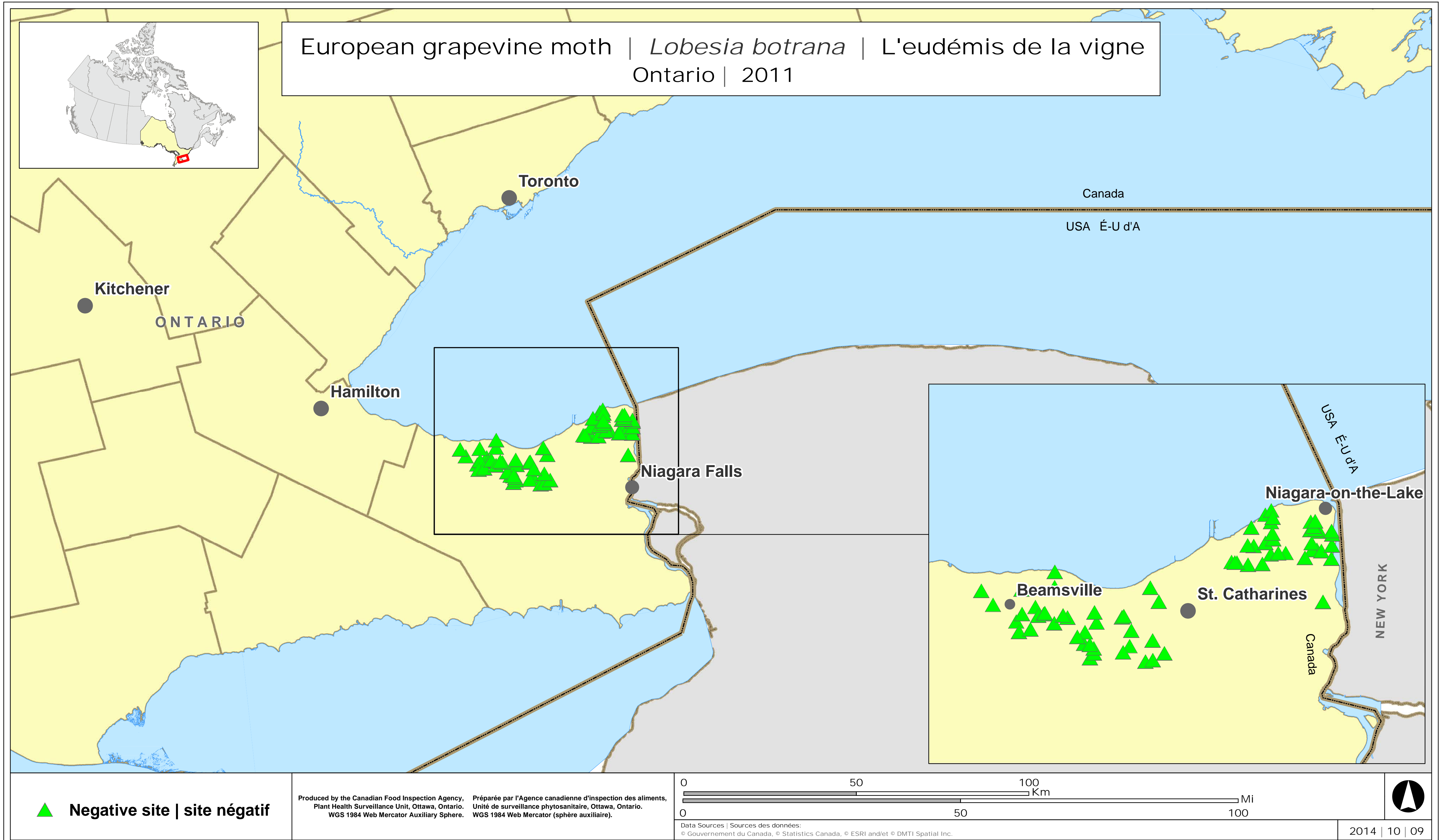
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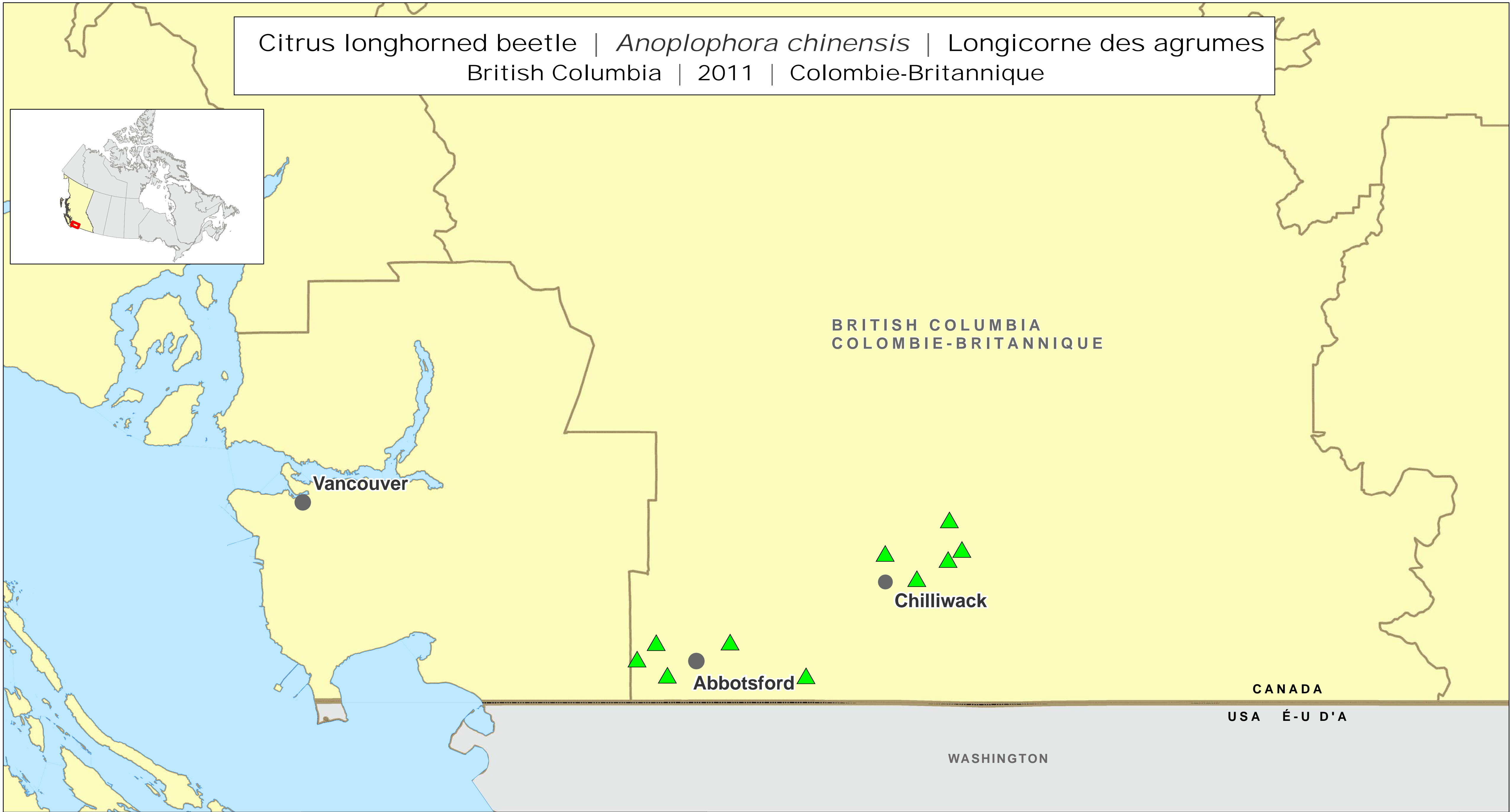
Apple maggot | *Rhagoletis pomonella* | Mouche de la pomme
British Columbia | 2011 | Colombie-Britannique







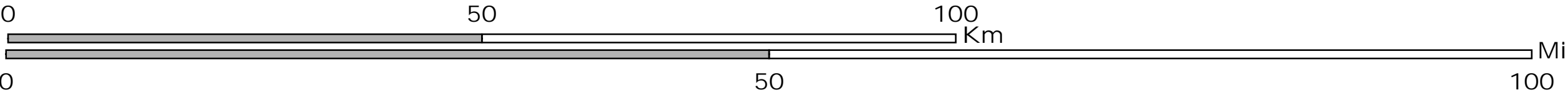
Citrus longhorned beetle | *Anoplophora chinensis* | Longicorne des agrumes
British Columbia | 2011 | Colombie-Britannique



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

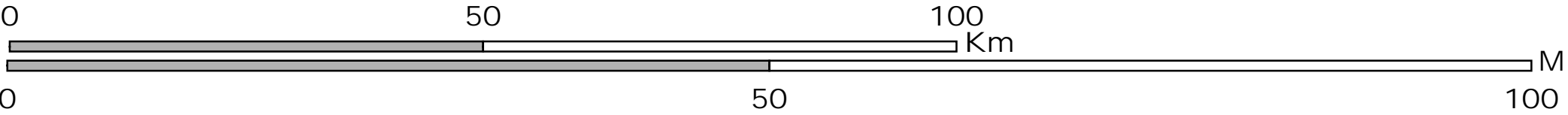
Nova Scotia | 2011 | Nouvelle-Écosse



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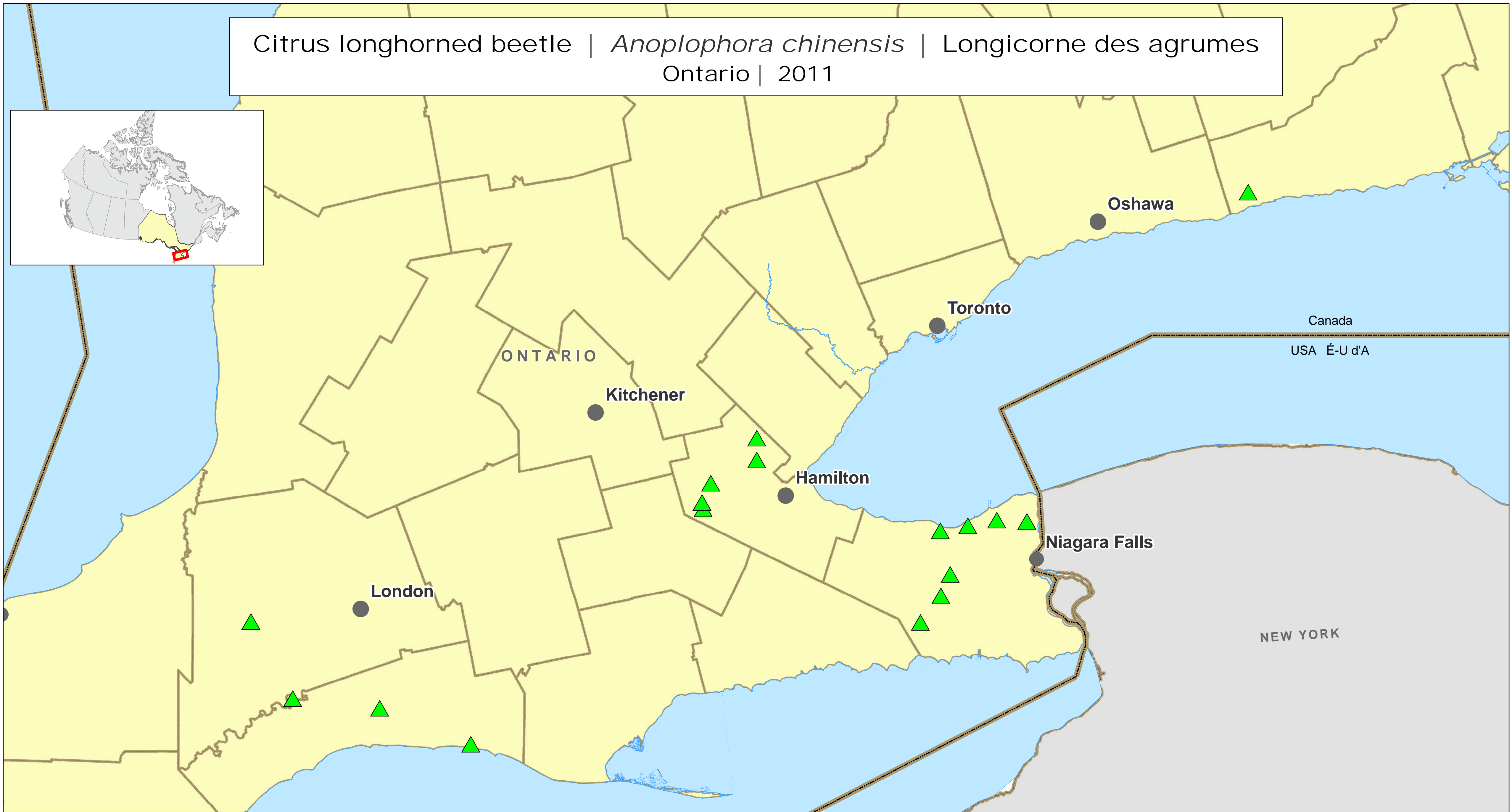
Préparée par l'Agence canadienne d'inspection des aliments,
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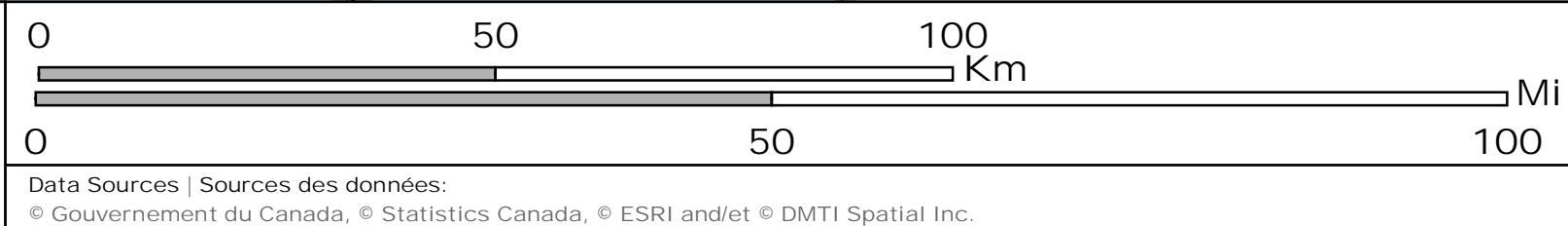
Citrus longhorned beetle | *Anoplophora chinensis* | Longicorne des agrumes
Ontario | 2011



▲ Negative site | site négatif

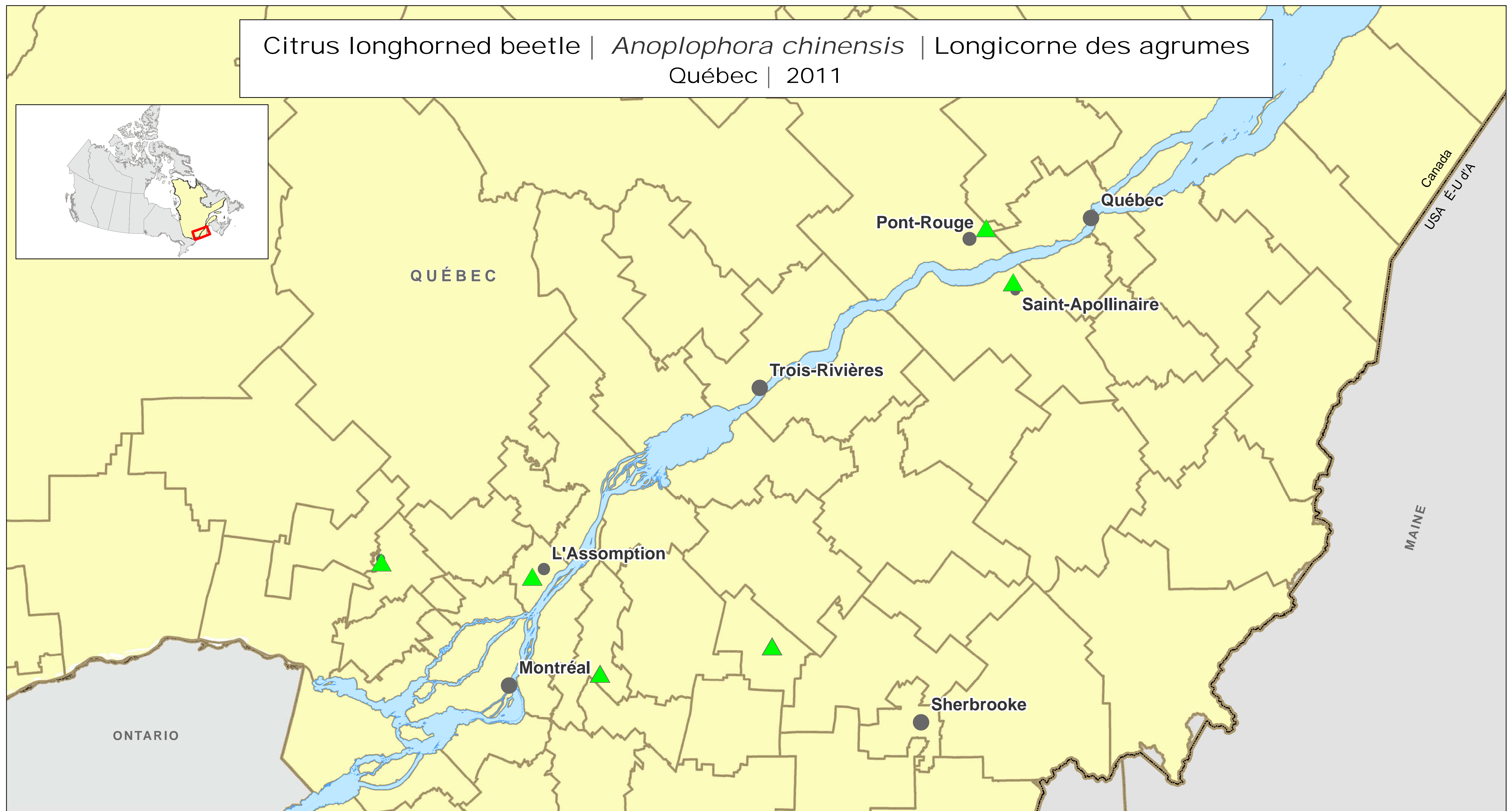
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Citrus longhorned beetle | *Anoplophora chinensis* | Longicorne des agrumes

Québec | 2011



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