



Canadian Food
Inspection Agency

Agence canadienne
d'inspection des aliments

CFIA Plant Health Surveillance Update

Eastern Ontario Forest Health Review

Thierry Poiré and Erin Appleton



November 23, 2018

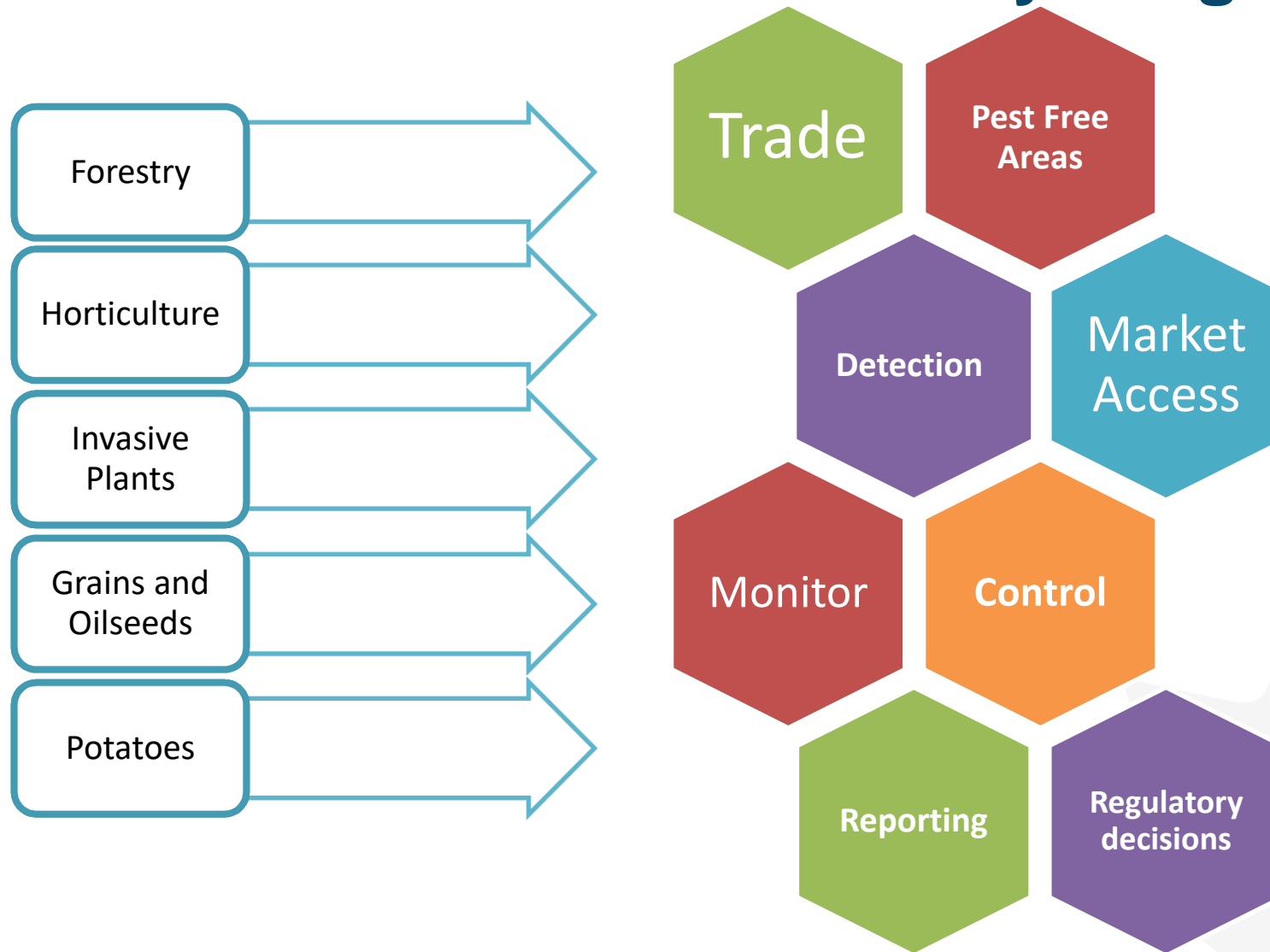
Canada 

Overview

- Plant Health Surveillance
- Forestry Surveys
- Invasive Plants
- Collaborative Surveillance



CFIA's Plant Health Survey Program



Invasive Alien Species Surveys

- Target high risk pathways for invasive alien forest pests
- Work collaboratively with CFS to address emerging pest issues



Invasive Alien Species Rearing Survey



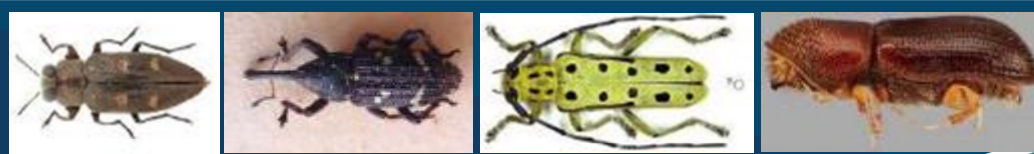
Lures are not attractive to all bugs
Target insects not on the radar
Logs from municipal hazard tree removal



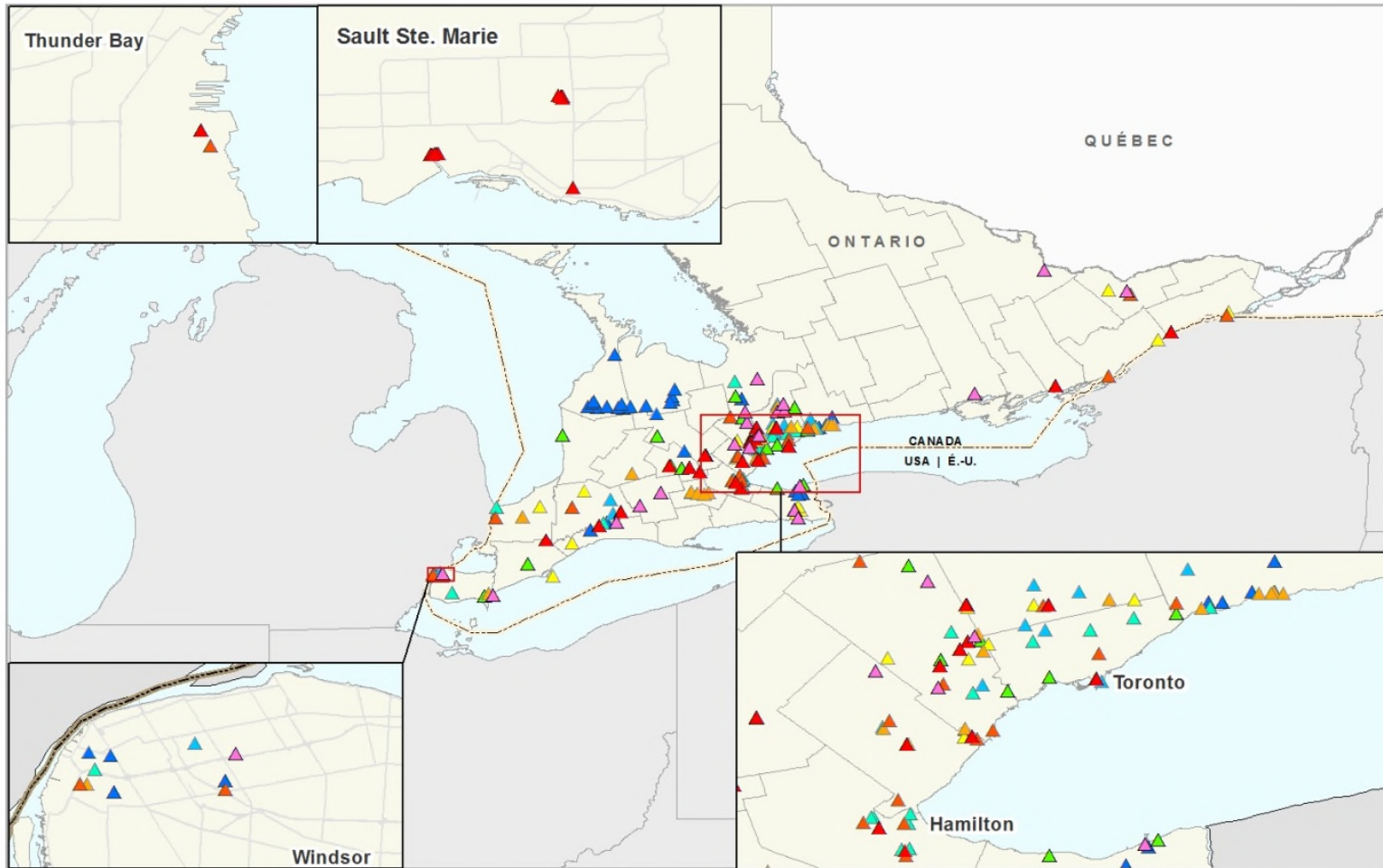
Invasive Alien Species Trapping Survey

Forests within 5 km of import centres, ports, industrial areas, disposal and storage sites

- Lures smell like mates and host trees
- Lures rotated on 3-5 year cycle



2018 Survey Sites



- ▲ 2018
- ▲ 2017
- ▲ 2016
- ▲ 2015
- ▲ 2014
- ▲ 2013
- ▲ 2012
- ▲ 2011
- ▲ 2010



Invasive Alien Forest Insect Survey | Enquête EEE - Foresterie

Trapping | Piégeage

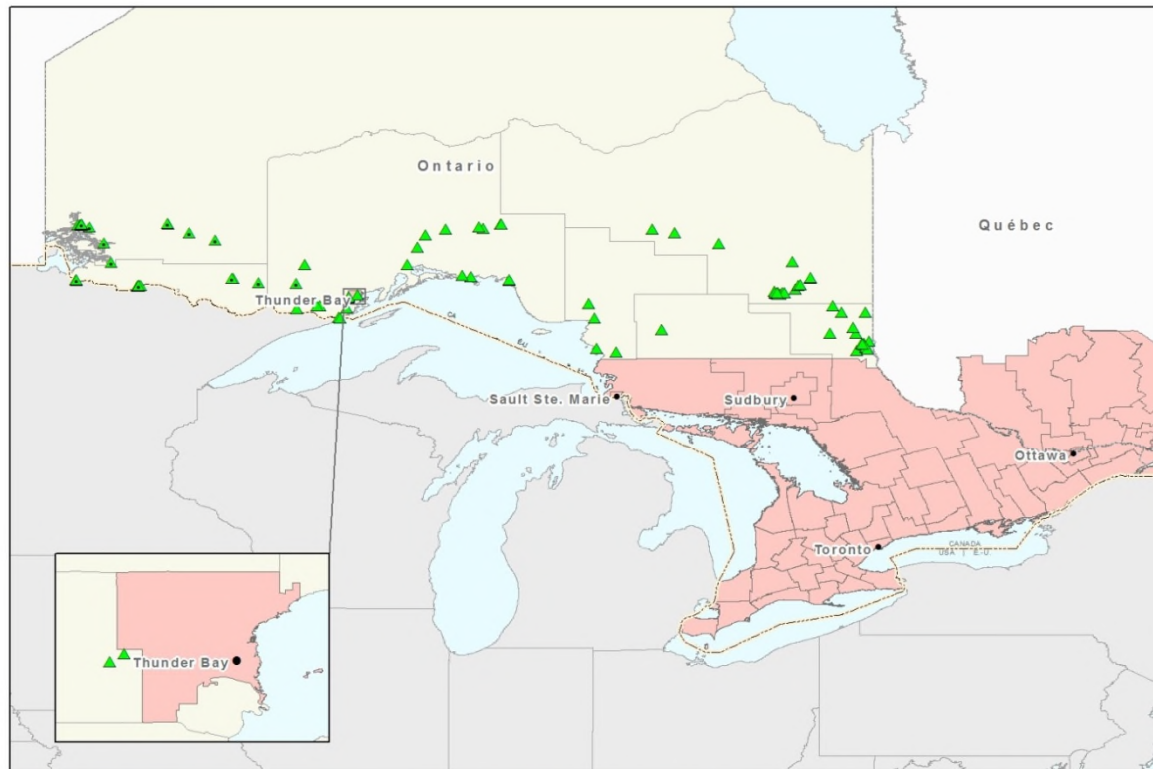
**Ontario
2010-2018**



Produced by the Canadian Food Inspection Agency
Préparé par l'Agence canadienne d'inspection des aliments
Unité de surveillance phytosanitaire, Ottawa, Ontario.
Data Sources | Sources des données:
© Gouvernement du Canada, © Infotrac Canada
© E.SRI and/or © DMIT Spatial Inc.

Emerald Ash Borer Survey

To determine whether EAB is present in areas where it is not known to occur in order to provide information in support of regulatory decisions.



90 high risk sites in and between urban centers of Northern Ontario OUTSIDE of the regulated area

- High risk areas
- Urban grids



▲ Negative Site | Site négatif
▲ Negative Partner Site | Site partenaire négatif
Regulated Areas | Zones

Emerald Ash Borer | Agrilus du frêne
Agrilus planipennis Fairmaire
Ontario
2018



Produced by the Canadian Food Inspection Agency
Produit par l'Agence canadienne d'inspection des aliments
UNITÉ DE SURVEILLANCE PHYLLOPHAGES, OTTAWA, ONTARIO
Date Révisée: Septembre 2018
© Gouvernement du Canada, 6330 Route Canada, 100
100 000 000 000 000 000

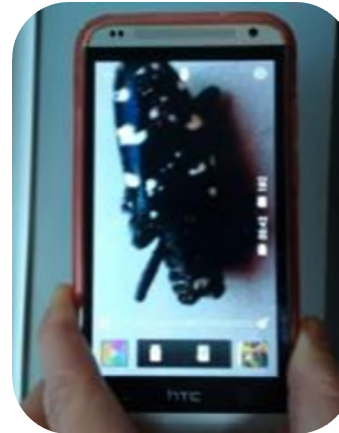
Asian Longhorned Beetle, *Anoplophora glabripennis*



- Spread: Infested wood packaging and pallets from Asia, natural dispersal and hitch-hiking
- Attacks and kills a wide range of deciduous tree species
- Since 1996, several populations discovered in North America and Europe
- First detected in Canada in 2003 in an industrial area of Toronto-Vaughan
- Eradication declared in 2013 based on 5 years of negative surveys

Asian Longhorned Beetle: Mississauga

- Call from citizen on 13 August 2013 that a beetle was found on car in an industrial area of Mississauga
- Photo sent via e-mail
- Toronto inspectors conducted a site visit and collected insect
- Insect confirmed as ALHB...





Canadian Food
Inspection Agency

Agence canadienne
d'inspection des aliments



Natural Resources
Canada

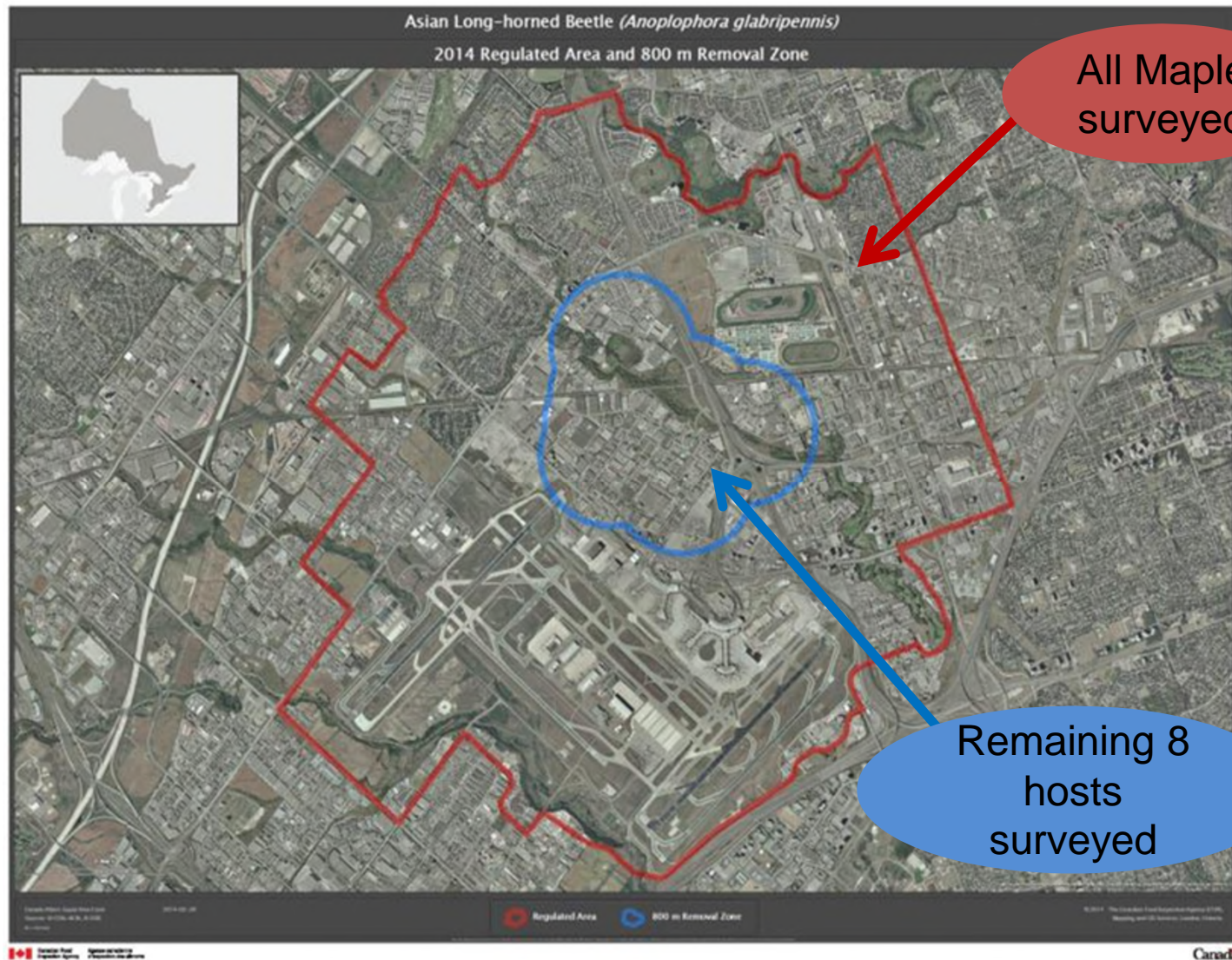
Ressources naturelles
Canada

Canadian Forest
Service

Service canadien
des forêts



Monitoring Survey



Year 4 of winter monitoring surveys completed. Eradication could be declared in year 6 if no further evidence of ALHB is detected.

Asian longhorned beetle National Survey

- Grid-based survey designed to ensure high probability of detecting ALHB or CLHB infestations with a radius of 750 m or greater in the target cities
- Inspection focusing on major urban centers on a 5-year rotation
- 30 maple trees inspected at each point for signs and symptoms of ALHB



Signs and Symptoms





2018 Target Areas



Hemlock Woolly Adelgid (HWA)

- HWA can cause defoliation, twig dieback and mortality
- Naturally spread by wind, birds and mammals
- Long distance dispersal via infected nursery stock
- First reported in western NA in BC in 1919 and eastern NA in Virginia in 1951
- Eastern and western NA populations genetically distinct
 - Potential impacts of eastern strain on western hosts unknown
- Usually killed by winter temperatures above -18°C , but has become more cold tolerant as it migrates northward (-30 to -35°C)



Hemlock Woolly Adelgid Survey

Early detection of HWA where it is not known to be established in support of D-07-05 to prevent introduction and spread.

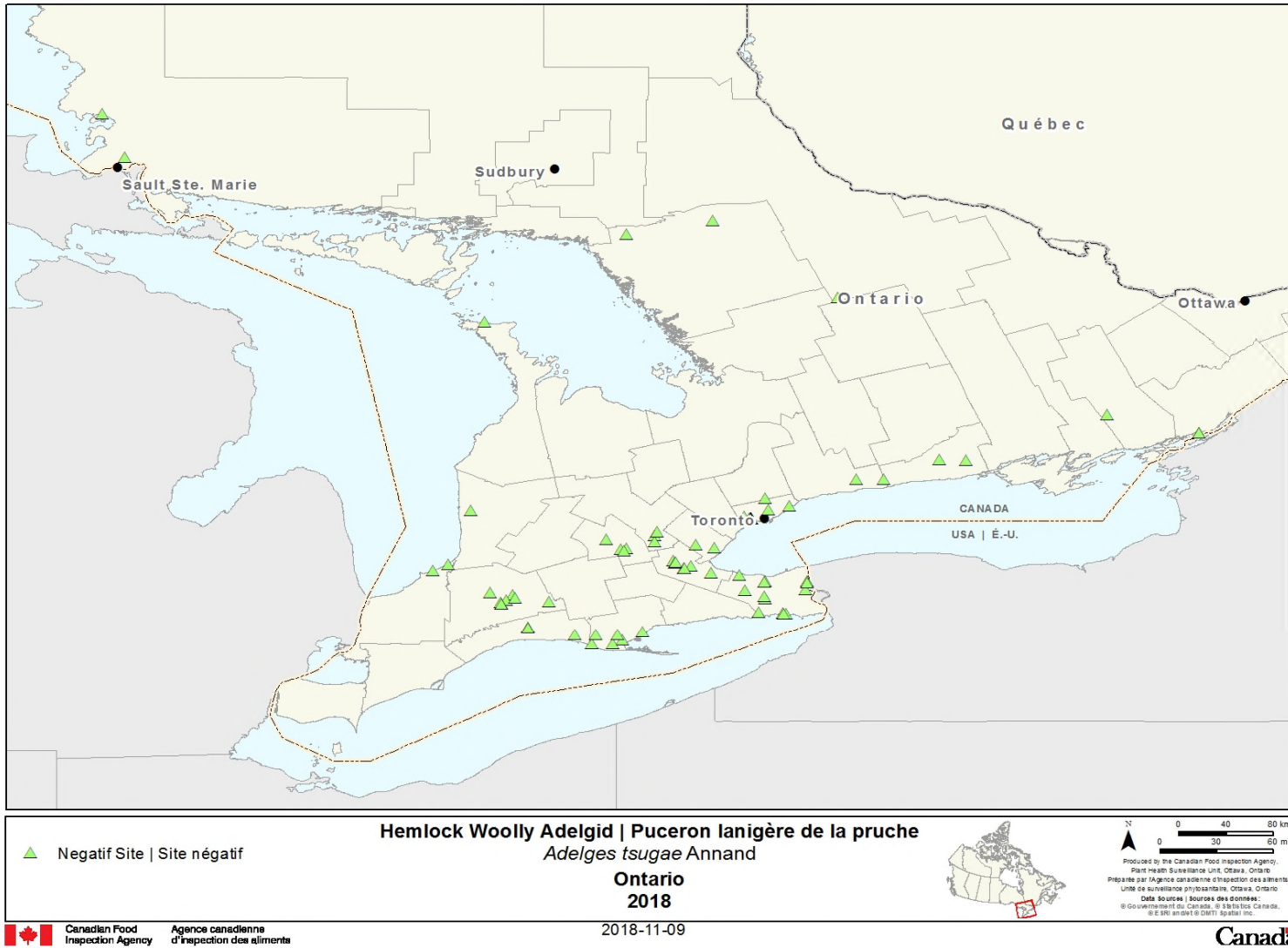


Hemlock Woolly Adelgid Detections in Ontario

- Small localized populations detected in ON
 - Etobicoke residence in 2012, Niagara gorge in 2013
- Infested trees removed through collaborative effort at both locations and follow-up surveys ongoing
- Following the initial detection an interagency task force travelled to the US as a knowledge transfer initiative
- New incursions assessed on individual basis



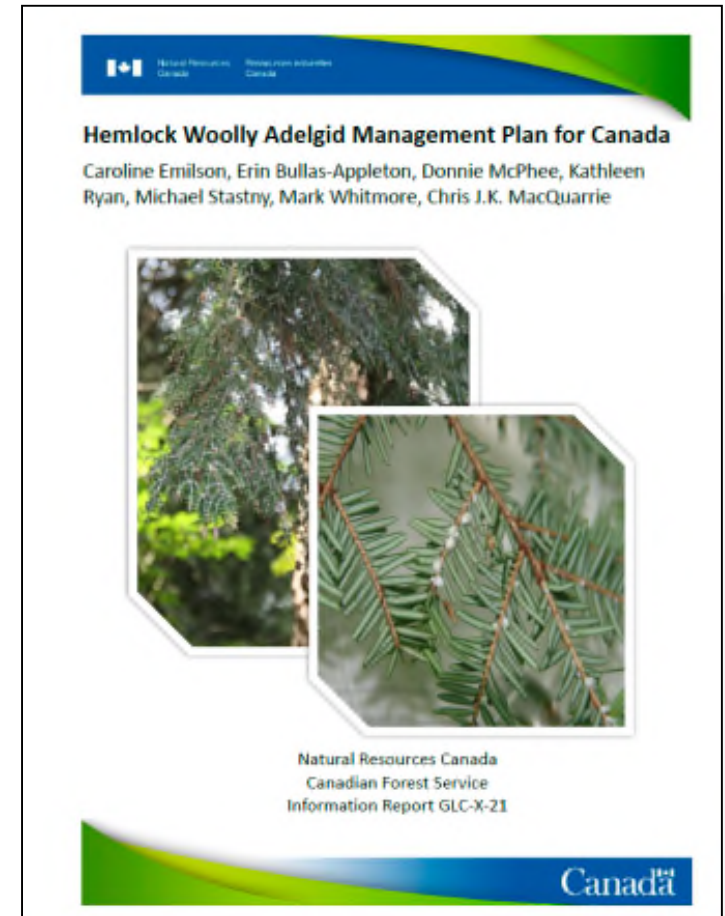
2018 Results



2018: 70 Sites

Hemlock Woolly Adelgid Technical Advisory Committee

- Coordinate multi-government information-sharing and actions associated with the detection and management of hemlock woolly adelgid in eastern Canada
- Make recommendations
- Pool expertise and resources
- Facilitate and support research advancements
- Provide scientific and/or technical contributions towards the management of HWA



HWA TAC Members



Canadian Food
Inspection Agency

Agence canadienne
d'inspection des aliments



Ontario

Ministry of Natural Resources



UNIVERSITY OF TORONTO
FACULTY OF FORESTRY



Parks
Canada

Parcs
Canada



Natural Resources



Cornell University
College of Agriculture and Life Sciences



SILV-ECON LTD.



Natural Resources
Canada

Canadian Forest
Service

Ressources naturelles
Canada

Service canadien
des forêts

Forêts, Faune
et Parcs

Québec



Ontario

Ministry of Agriculture,
Food and Rural Affairs



Agriculture and
Agri-Food Canada

Agriculture et
Agroalimentaire Canada



Invasive
Species
Centre

Oak Wilt, *Bretziella fagacearum* (syn: *Ceratocystis fagacearum*)

- Regulated pest not known to occur in Canada
- Only reported from the US, now present in 27 states
- First detected in 1942, but likely present since the 1890's
 - Overall slow spread, periodic and localized outbreaks
- Serious threat to oak trees, red oaks most susceptible
- Fungus develops on the outer sapwood, causing host production of gums which block transport within xylem
- Symptoms appear quickly after infection and tree dies shortly after infection

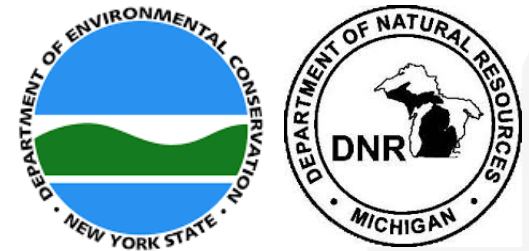
Oak Wilt Response Plan

- Comprehensive measures that may be implemented to address oak wilt detections
- Collaborative framework to mitigate risks and protect the oak resource



Oak Wilt Technical Advisory Committee

- Coordinate multi-government information-sharing and actions associated with the detection and management of OW in Canada.
- Facilitate and support research advancements related to surveillance and management of OW
- Provide scientific and/or technical contributions to the Oak Wilt Response Plan for Canada



Oak Wilt Survey

July-mid August

Early detection survey in support of policy D-99-03,
*Phytosanitary Measures to Prevent the Entry of Oak Wilt
Disease from the Continental United States*

40 sites:

- Areas adjacent to US infestations
- Campgrounds
- Mills or facilities importing oak logs
- Border crossings with firewood disposal bins



- Visual inspection of 50 oak trees for signs and symptoms
- Stand-level assessment for pockets of dead or declining trees
- Pole pruners used to obtain suspect samples from the canopy

2018 Results



▲ Negative Site | Site négatif

Oak Wilt | Flétrissement du chêne
Bretziella fagacearum (Bretz)
 (= *Ceratocystis fagacearum* (Bretz) Hunt)

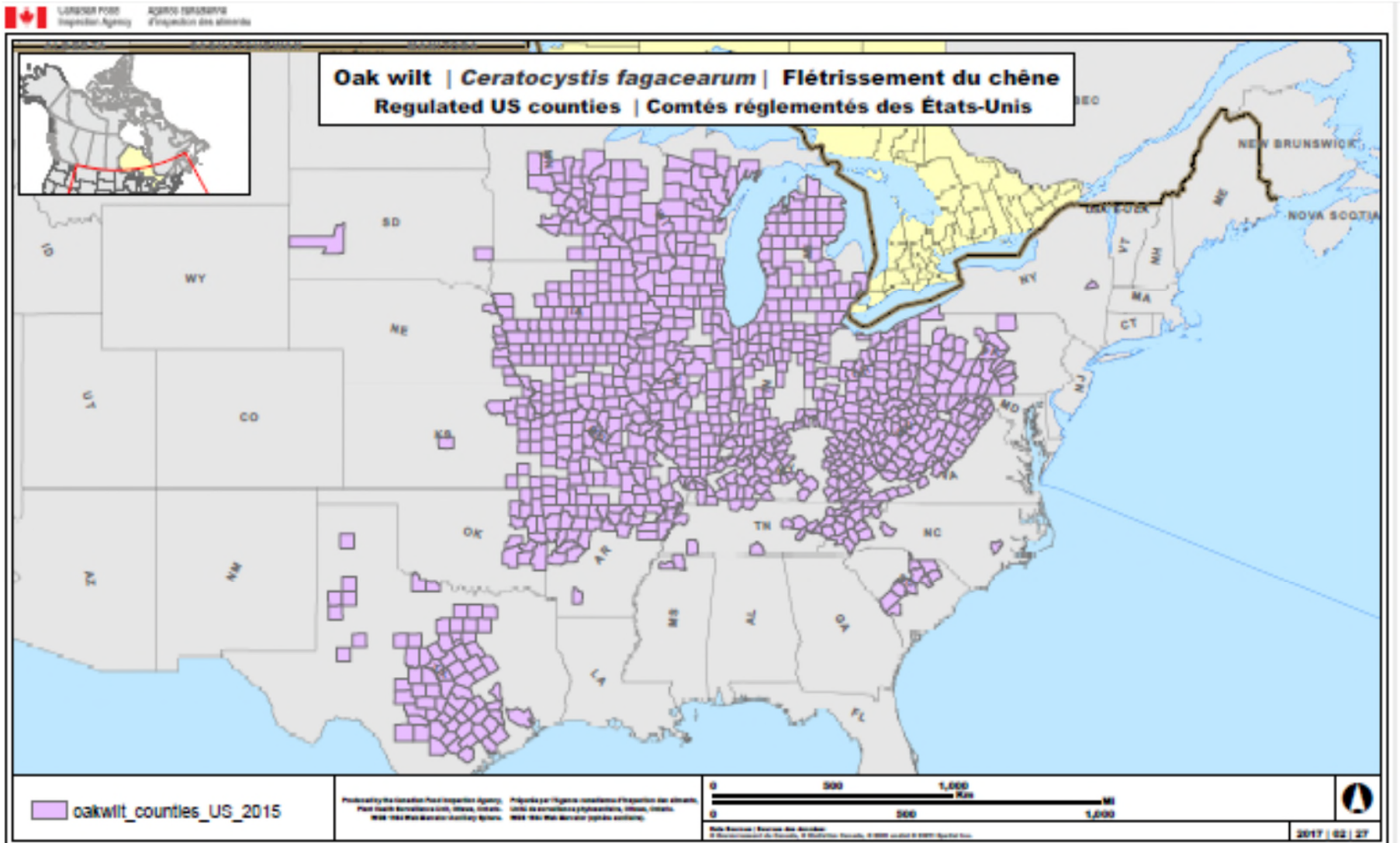
**Ontario
 2018**

2018-11-19



0 30 60 km
 0 30 60 m
 Produced by the Canadian Food Inspection Agency,
 Santé Canada / Agence canadienne d'inspection des aliments,
 Unité de surveillance phytosanitaire, Ottawa, Ontario
 Data Sources / Sources des données:
 © Gouvernement du Canada, © Statistics Canada,
 © ESR and/or © DMT spatial inc.

Oak wilt distribution : USA



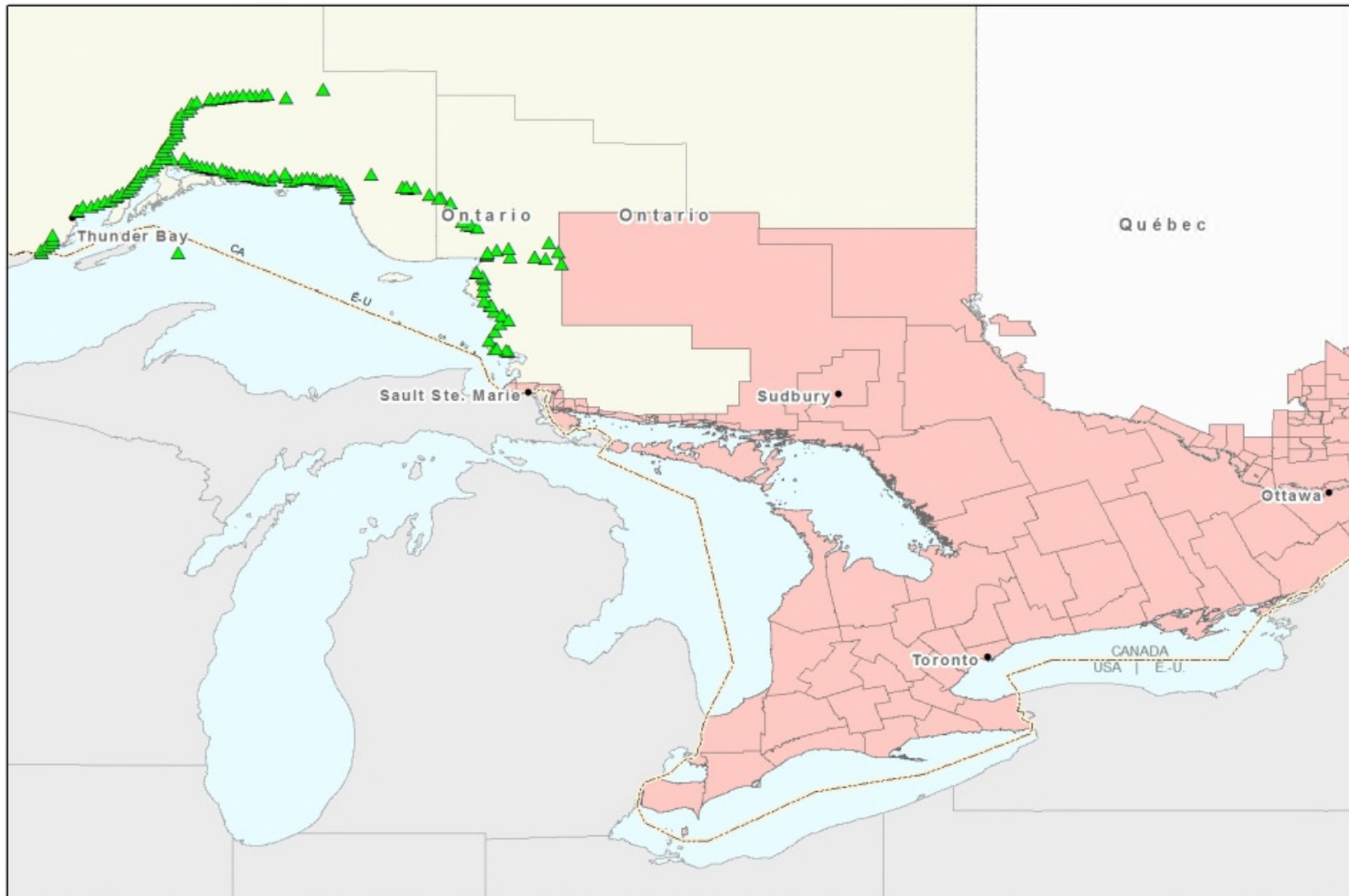
Gypsy Moth

Detection surveys to inform regulatory decisions.

Molecular analysis of specimens collected from high risk ports for detection of Asian subspecies.



2018 Results

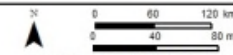


- ▲ Negative Site | Site négatif
- Regulated Areas | Zones réglementées

Gypsy Moth | Spongieuse
Lymantria dispar (L.)

Ontario
2018

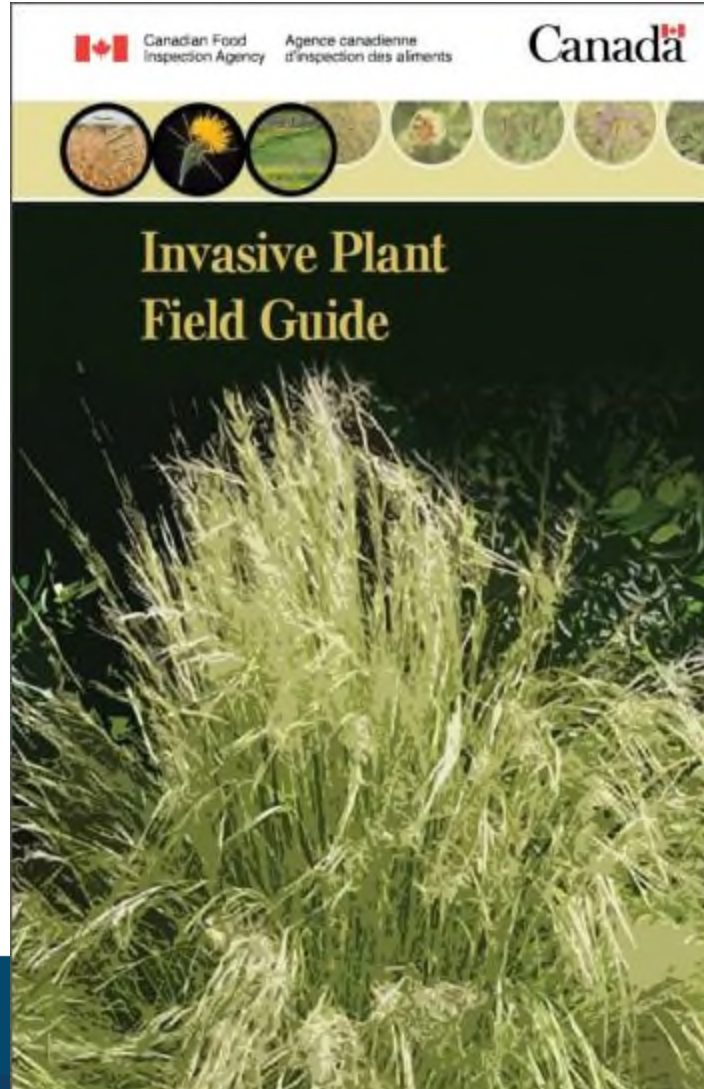
2018-11-15



Produced by the Canadian Food Inspection Agency,
Plant Health Surveillance Unit, Ottawa, Ontario
Préparé par l'Agence canadienne d'inspection des aliments,
Unité de surveillance phytosanitaire, Ottawa, Ontario
Data Sources | Sources des données:
© Gouvernement du Canada, © Statistics Canada,
© E. coli and/or © OAGI, Sporex, Inc.

Invasive Plant Surveys

Detection of Regulated Invasive Plants



Invasive Plants: Facility Survey

Early Summer (June 1 - 30)

- *Aegilops cylindrica*
Jointed Goatgrass
- *Alopecurus myosuroides*
Slender Foxtail
- *Crupina vulgaris*
Common Crupina
- *Nassella trichotoma*
Serrated Tussock

Late Summer (Aug 1 – Sept 10)

- *Centaurea solstitialis*
Yellow Star-Thistle
- *Centaurea iberica*
Iberian Star-Thistle
- *Eriochloa villosa*
Woolly Cupgrass
- *Paspalum dilatatum*
Dallis Grass
- *Solanum elaeagnifolium*
Silverleaf Nighthshade



- Early detection of plants at facilities where imported seed and grain is stored, handled, cleaned and processed.
- 100 m radius surrounding facility including rail tracks, ditches, wastelands, disposal areas

Kudzu

Early detection in areas where kudzu is not known to occur, focusing on areas surrounding the known population in southern ON



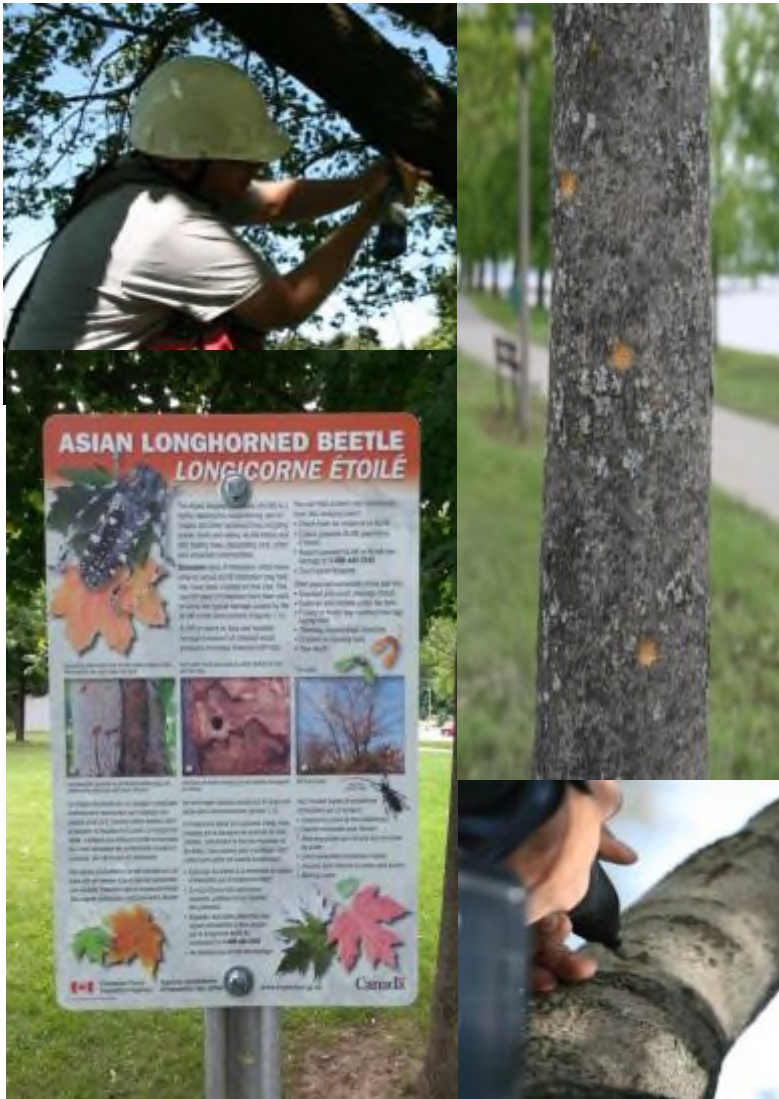
- Native to eastern Asia
- Spread: Intentional plantings, contaminated soil or equipment
- Aggressive, rapid growing; damages ecosystems and structures
- Population discovered in Leamington, ON in 2009 under eradication
- Visual ground surveys relying on trace out information

Research: UAV Applications



- Topographical survey analysis
 - Land vs UAV
- Multispectral assessments
 - Species differentiation
 - Stress
- Monitor

Collaborative Outreach and Education



Simulations
 Sites
 Collaborative
 Training
 Partnerships
 Products



Forest Invasives Retweeted
 EDRR Network Ontario @EDRRNetwork 29 Oct 2016
 In Halton Hills & looking 2 enjoy the great weather? Visit @CFIA_Canada's Asian LongHorned Beetle demo tree @ HungryHollow #InvasiveSpecies -- at Miller Drive Park



Expanding our Capacity Through Partnerships

gypsy moth
Lymantria dispar (Linnaeus)
Points



Species Information



Invasive Species Ctr @InvSp · Sep 24
Emerald ash borer is now present in FIVE Canadian provinces. In 2018, EAB spread to New Brunswick and Nova Scotia. Visit the ISC "Report a Sightings" to learn about resources near you. ow.ly/DKbt30iWMH6



York Region @YorkRegionGovt · Feb 28
York Region & @InvSp are cohosting an Oak Wilt Ambassador Workshop to help increase #OakWilt awareness & help prevent its introduction and spread in Ontario. @CFA_Canada @ONresources @MichiganDNR #InvSpWk



Forest Invasives @forestinvasives · Dec 13

EDDMaps Ontario has been updated to include federal regulation information for invasive species in Ontario. Be sure to report the sightings!



Invasive Species Ctr @InvSp · 16 Jun 2017

Yesterday, the ISC & @CFA_Canada signed a 5-year Memorandum of Understanding! Read the full media release here invasivespeciescentre.ca/WHAT-WE-DO/Med...

THANK YOU'VE SPOTTED OAK WILT?
REPORT IT!

SNAP A PICTURE AND SEND IT TO CFA
OR
CALL THE HOTLINE
1-800-563-7711
REPORT IT ONLINE
www.eddmaps.org
DOWNLOAD THE APP
EddMaps available for
Apple & Android

Forest Health Volunteer Training Session
Learn to Detect Insect and Disease Problems in Trees
Wednesday, July 26th
9-4 pm
Odyssey Nature Centre
1201 Woodbury Road, Woodville, ON
R.S.O.P. by invitation www.ontario.ca

Canada Invasive Species Centre

THANK YOU'VE SPOTTED OAK WILT?
REPORT IT!

SNAP A PICTURE AND SEND IT TO CFA
OR
CALL THE HOTLINE
1-800-563-7711
REPORT IT ONLINE
www.eddmaps.org
DOWNLOAD THE APP
EddMaps available for
Apple & Android

QUESTIONS?

For More Information Contact:

Erin.Bullas-Appleton@Canada.ca

226-217-8304



https://twitter.com/CFIA_Canada