Canadian Food Inspection Agency | Agence canadienne d'inspection des aliments

Overview of plant pest surveillance activities in Canada

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Canada

Overview

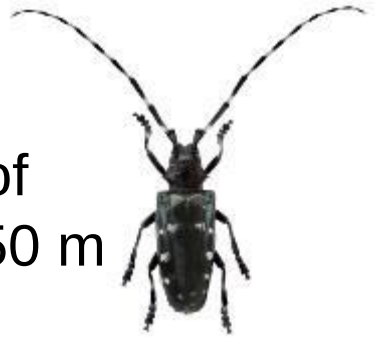
- 2017 CFIA Plant Pest Survey Results- Some highlights!

- Plant Health Surveillance Unit (PHSU) Research and Outreach Activities

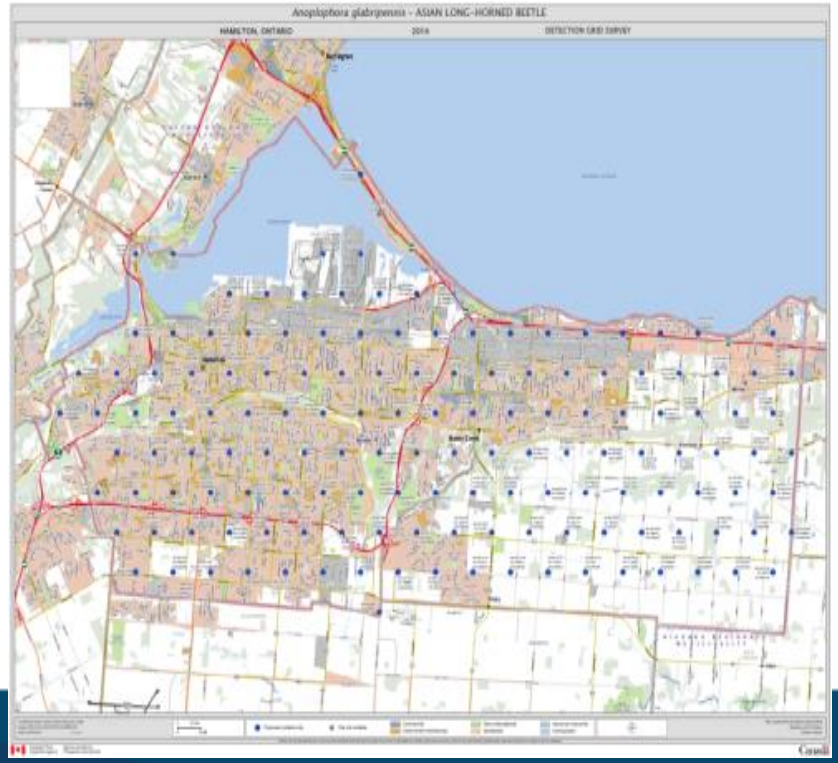
2017 Forestry Surveys

- **Asian longhorned betle (grids)**
- **Emerald ash borer**
- Brown spruce longhorn beetle
- Gypsy moth (Asian and European)
- Pink gypsy moth
- **Hemlock Woolly Adelgid**
- **Oak Wilt**
- Pine Shoot Beetle
- **IAS Trapping and Rearing Surveys**

Asian Longhorned Beetle National Survey (*Anoplophora glabripennis)*

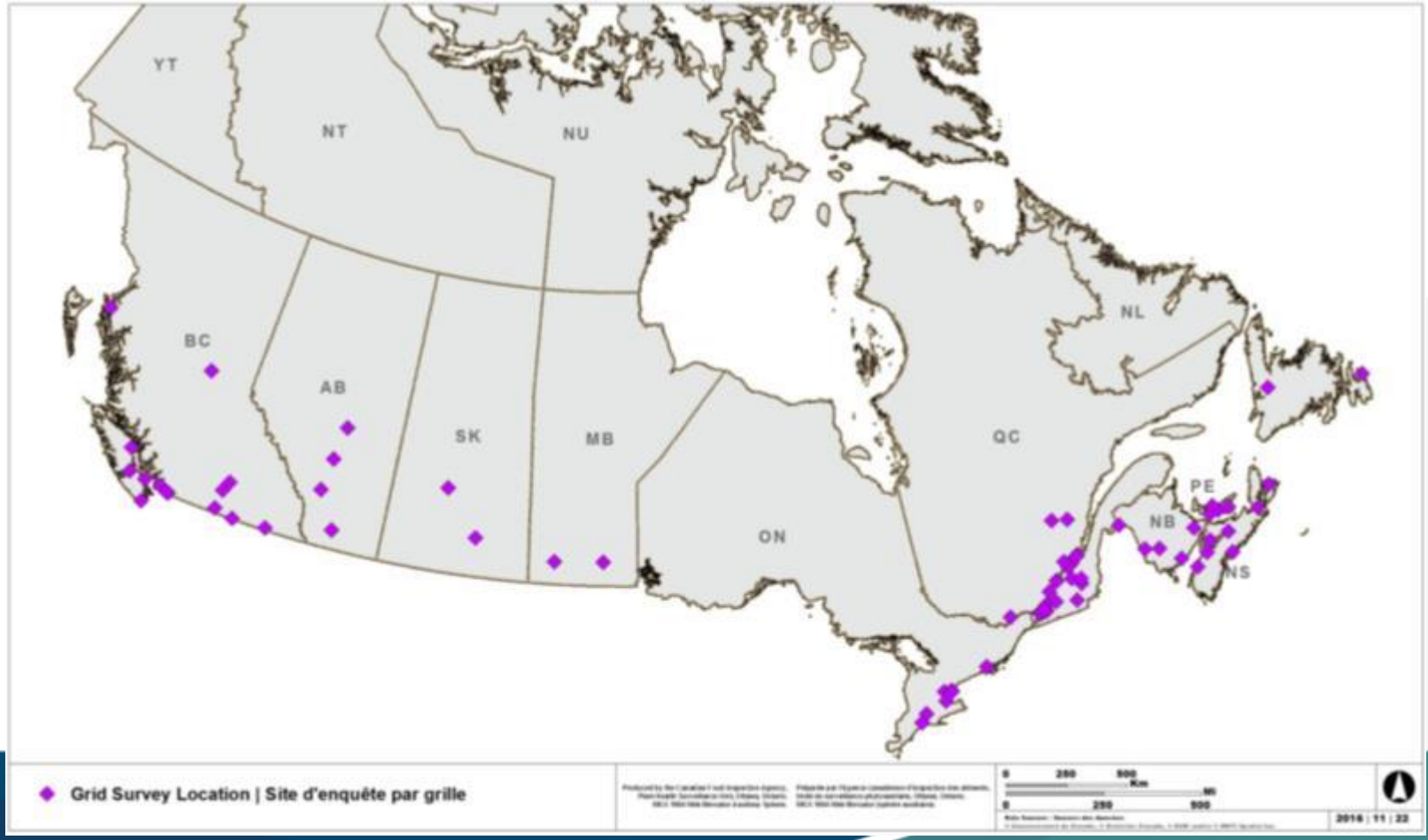


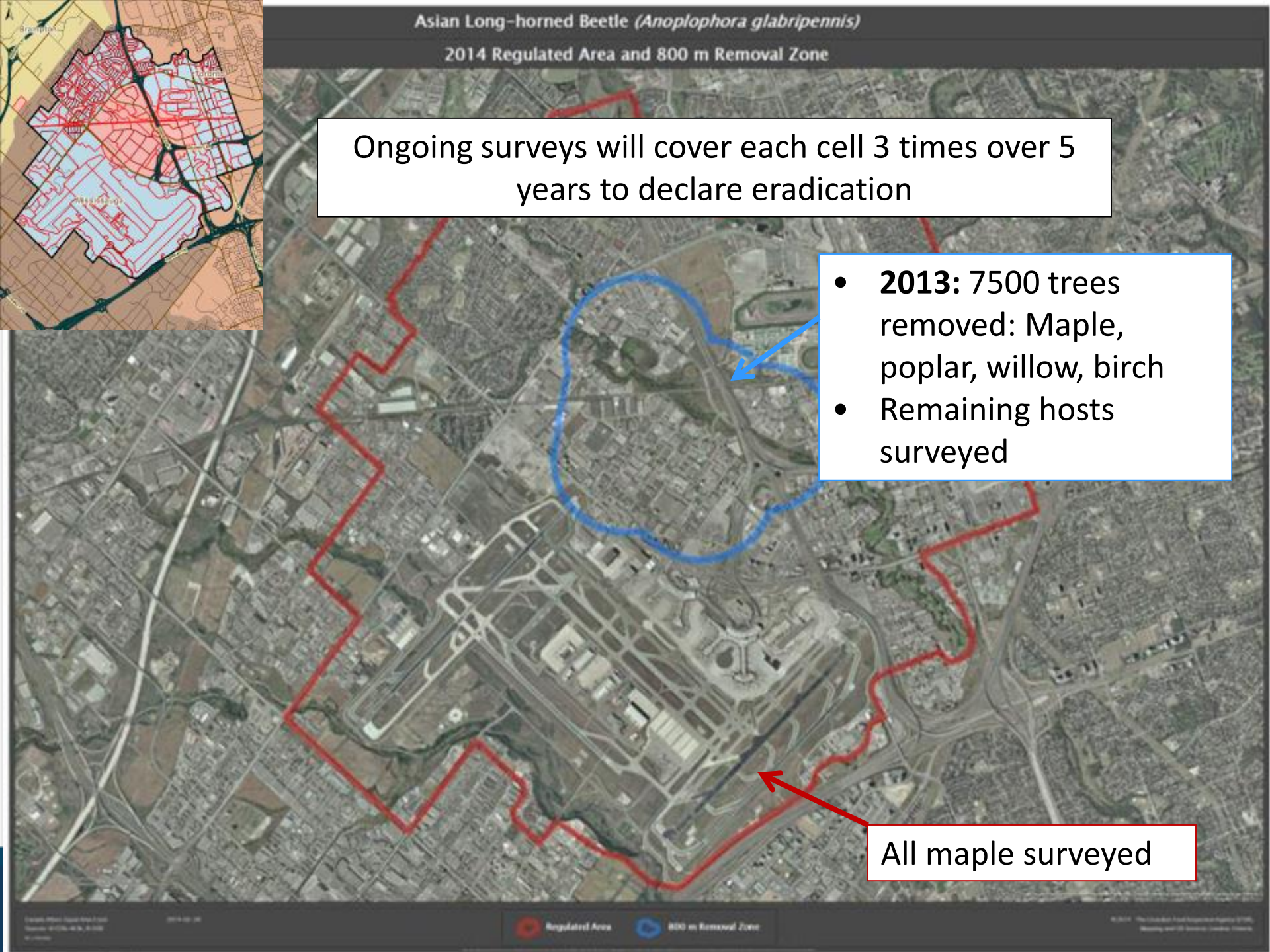
Grid-based survey designed to ensure high probability of detecting ALHB or CLHB infestations with a radius of 750 m or greater in the target cities



Asian Longhorned Beetle (*Anoplophora glabripennis*)

2017 Detection Survey Plans

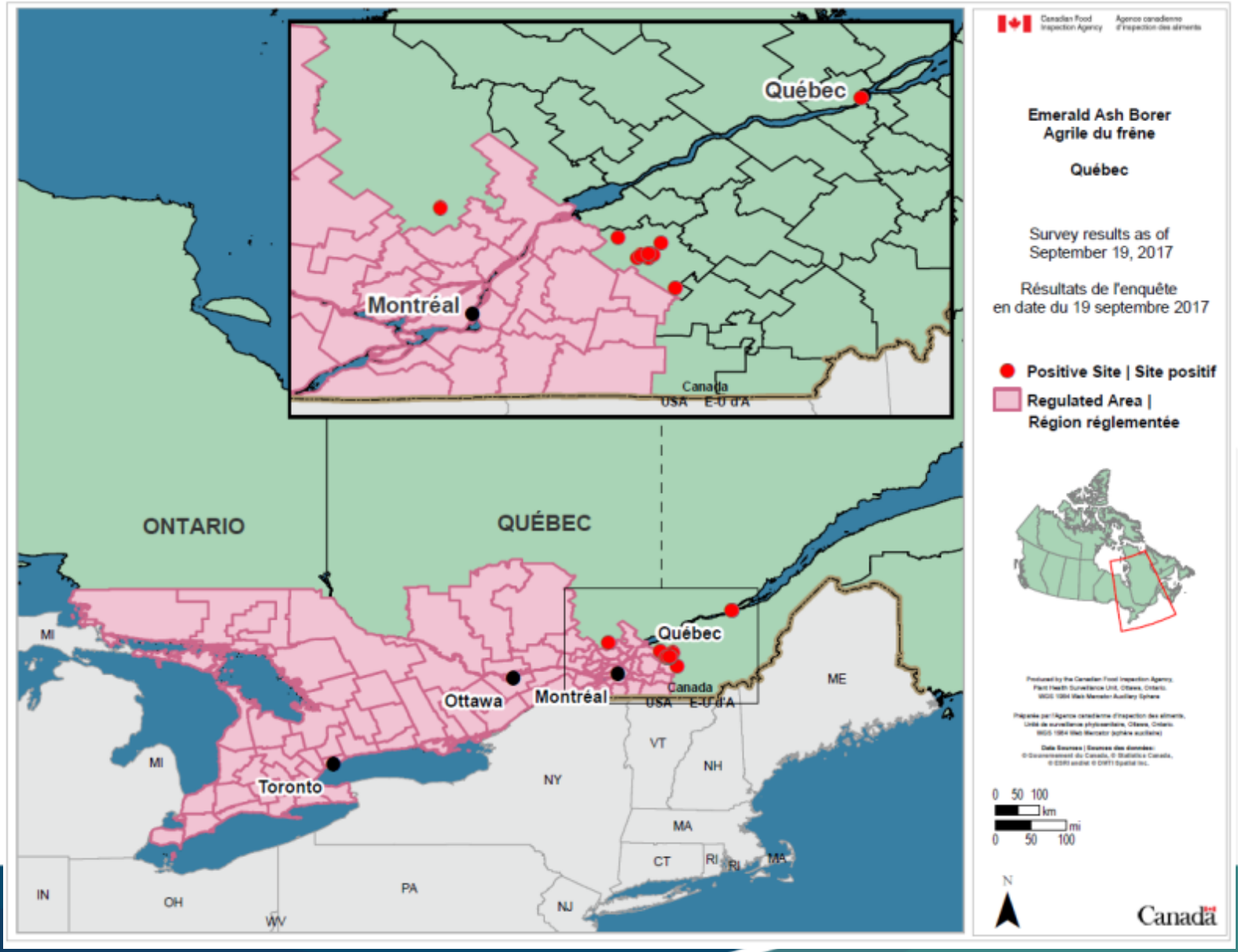



Asian Long-horned Beetle (Anoplophora glabripennis)
2014 Regulated Area and 800 m Removal Zone
Ongoing surveys will cover each cell 3 times over 5 years to declare eradication
• 2013: 7500 trees removed: Maple, poplar, willow, birch
• Remaining hosts surveyed
All maple surveyed

Emerald Ash Borer (*Agrilus planipennis*)

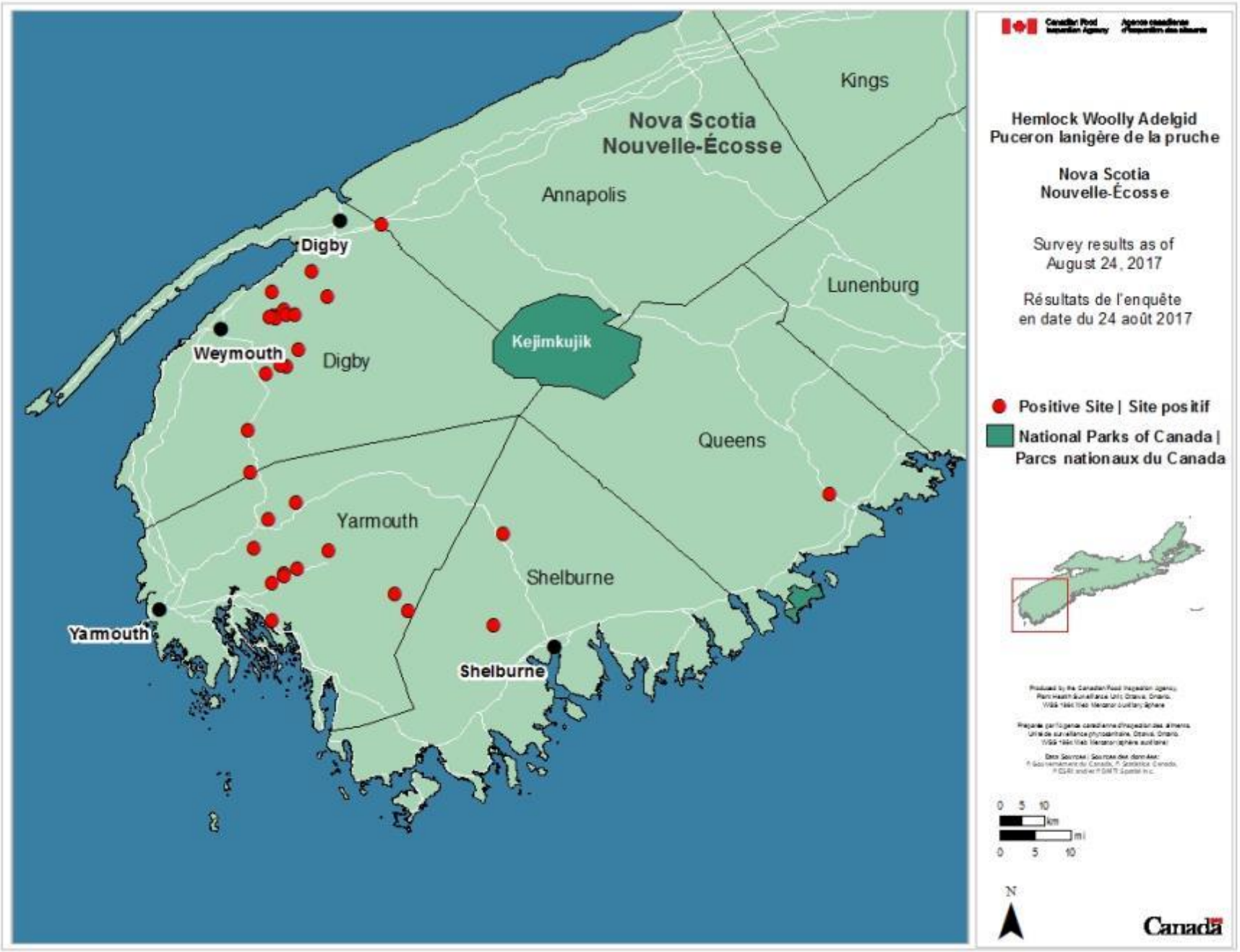
- Surveys conducted to provide information in support of regulatory decisions
- Trapping at high risk sites, including urban grid locations
  - Prism traps baited with green leaf volatiles and pheromone
- Visual ash decline surveys along transportation corridors
- Visual ground surveys at trap sites

Emerald Ash Borer (*Agrilus planipennis*)



Hemlock Woolly Adelgid (*Adelges tsugae*)

- Visual detection surveys on *Tsuga* spp. across Canada:
  - Nurseries importing hemlock from infested/regulated areas (BC & US)
  - Urban parks & green spaces containing hemlock
  - Hemlock forests within 100 km of US border
- Detected in Nova Scotia in 2017


Nova Scotia
Nouvelle-Écosse
Kings
Annapolis
Digby
Lunenburg
Kejimkujik
Weymouth
Digby
Queens
Yarmouth
Shelburne
Yarmouth
Shelburne
Hemlock Woolly Adelgid
Puceron lanigère de la pruche
Nova Scotia
Nouvelle-Écosse
Survey results as of
August 24, 2017
Résultats de l'enquête
en date du 24 août 2017
Positive Site | Site positif
National Parks of Canada |
Parcs nationaux du Canada
0 5 10
km
mi
0 5 10
N
Canada

Oak Wilt (*Ceratocystis fagacearum*)

- Not known to occur in Canada
- Recent US detection in Detroit, Michigan
- CFIA is working with Canadian and international partners to mitigate risks and promote early detection
- Survey conducted in 2016 and 2017 with OMNRF

Invasive Alien Species Trapping and Rearing Surveys

- **<u>Trapping Survey</u>**: Targets high risk pathways for introduction of forest IAS:
  - Wood packaging and loose dunnage pathways
  - International seasonal foliage and handicraft importers
  - Industrial and municipal disposal facilities/landfills

- Two lure types, attracting *Monochamus* and other longhorns, as well as other wood boring beetles

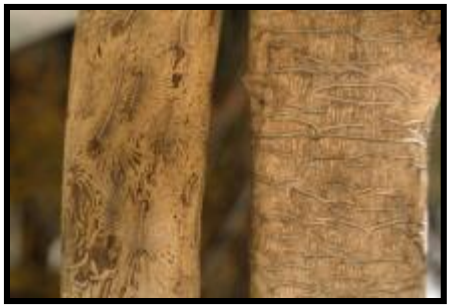
Container (Rearing) survey for the early detection of invasive alien species

- **WHAT**: Modified marine containers with controlled atmosphere filled with logs from declining trees acquired through municipal hazard tree removal programs
- **WHY**: Many insects are not captured in traps: containers are another tool for detecting invasive alien wood-boring insects
- **WHERE**: 4 municipalities with a high level of importations

Designed by Lee Humble - CFS

Container (Rearing) survey for the early detection of invasive alien species

- **Criterias for sourcing the logs (public trees through municipal hazard tree removal programs):**
  - Trees alive or recently dead
  - Signs of insect activity or exhibit symptoms of decline or stress
  - Prominent tree genera (conifer or deciduous)

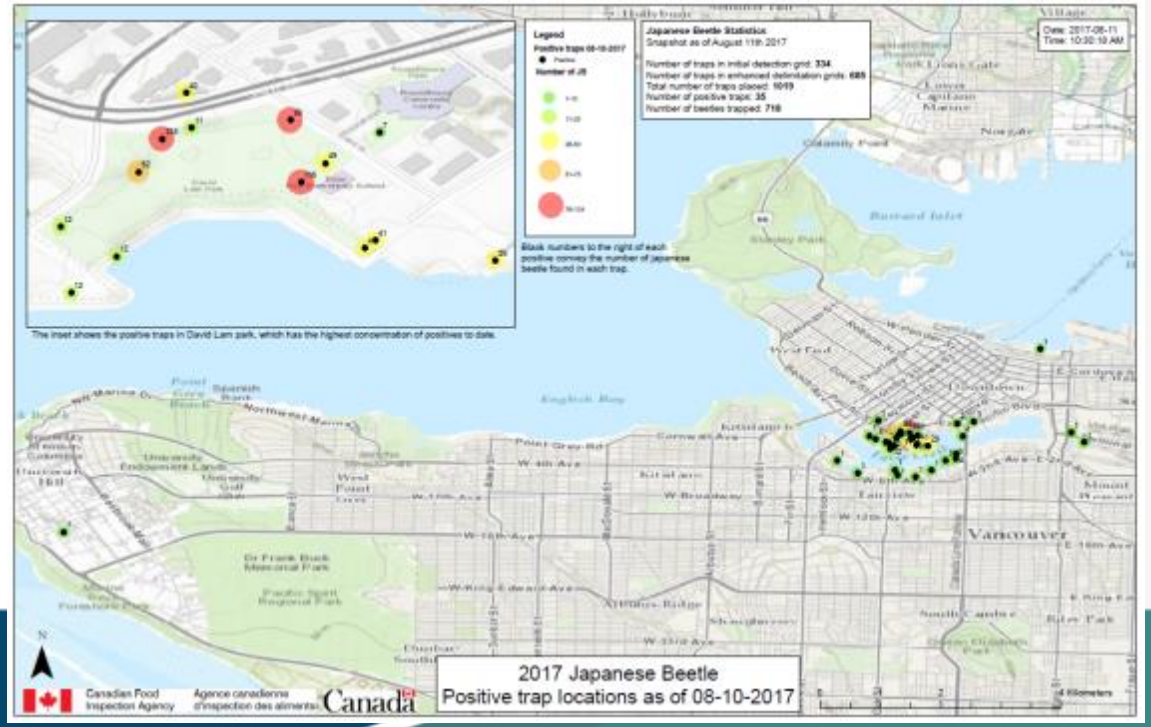


2017 Horticulture Surveys

- Ramorum blight
- **Japanese beetle**
- Oriental Fruit Moth
- Blueberry maggot
- Apple maggot
- Tobacco blue mold
- Plum pox virus

Japanese Beetle (*Popillia japonica*)

- Native to the main islands of Japan
- Introduced, New Jersey, 1916
- First interception in Canada 1939 in Yarmouth, NS
- Detected in Vancouver, BC in 2017



2017 Invasive Plants Surveys

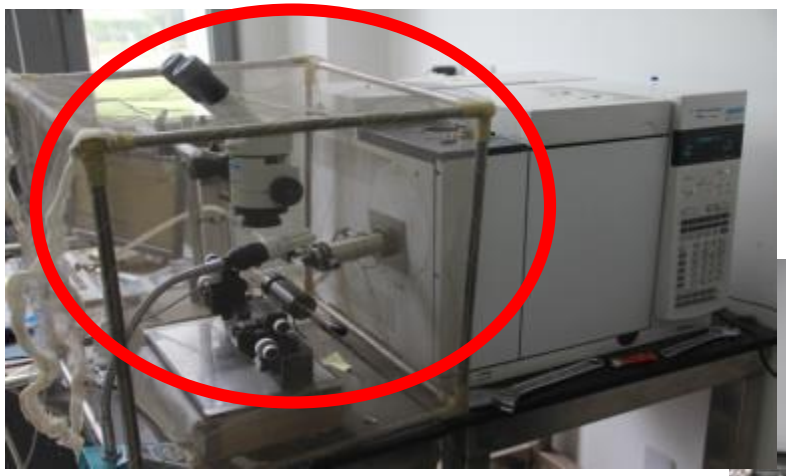
- IAS Plants (seed/grain handling facilities)
- Woolly Cup Grass
- Kudzu delimitation survey

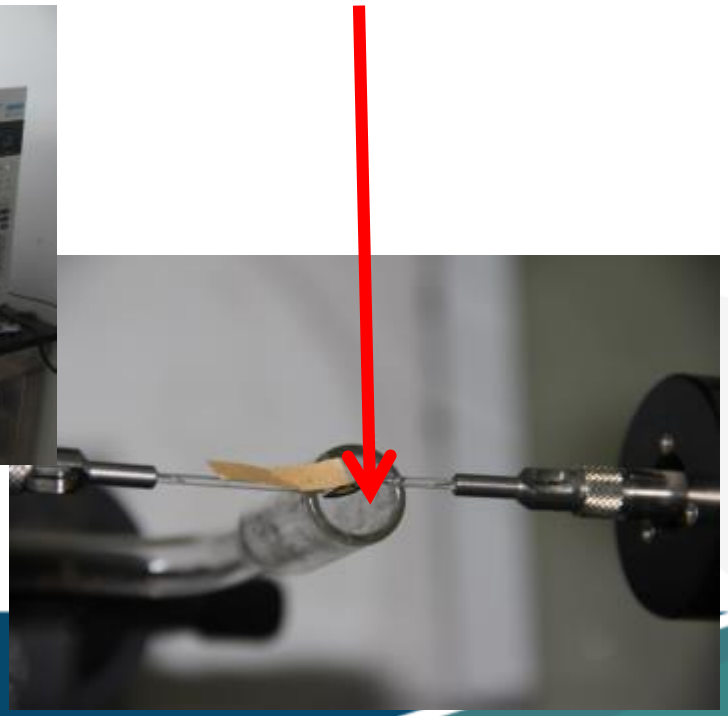



RESEARCH TO IMPROVE SURVEILLANCE

Collaborative Research

- IAS trapping, EAB, AM, BSLB, ALHB
  - Target new pests (CFS, international)
  - *Agrilus* trapping Slovakia
  - GC-EAD (China)





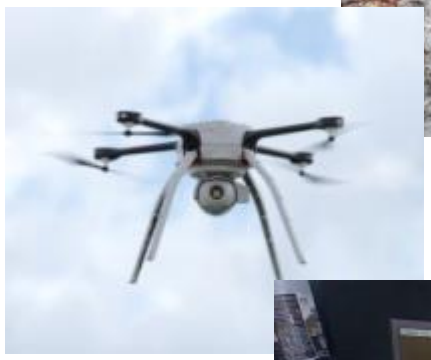
Collaborative Research

- Hemlock woolly adelgid
  - Difficult to detect at low levels
  - CFS/Cornell/CFIA
    - Ball sampling

- Genomics
  - International vessels (Asian gypsy moth)
  - CFS/UBC/Laval and others
  - Increase diagnostic precision
    - Identify other threats
      - *Dendrolimus* (Pine moths)
      - *Malacosoma* (Forest tent caterpillars)

Integrating Emerging Technologies: Drones

- Proof of concept
- Evaluating potential survey efficiencies for specific pests
  - Early detection of HWA
  - Follow-up surveillance for ALHB
  - Landscape level risk assessments using remote sensing technology
  - Rapid screening via image recognition software



TRAINING, OUTREACH, & PARTNERSHIPS

Training Activities

- Training and Information for CFIA inspection staff as well as municipal and provincial staff

Training session for municipal forestry staff on Asian Longhorned Beetle using simulated damage sites

CFS technician creating mock oviposition sites using a dremel tool.

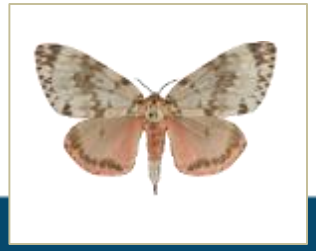
Outreach: Asian Longhorned Beetle Simulation Sites

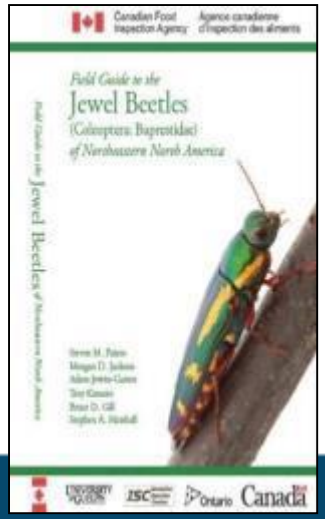
Real

Simulated

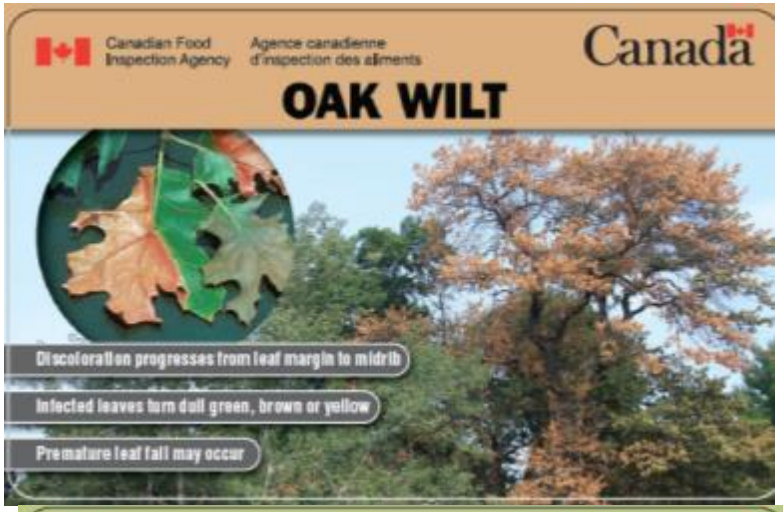
Products and Tools

- Surveillance **education and outreach** products
- Enhance surveillance capacity
- Novel and creative ways to engage citizen scientists and the general public



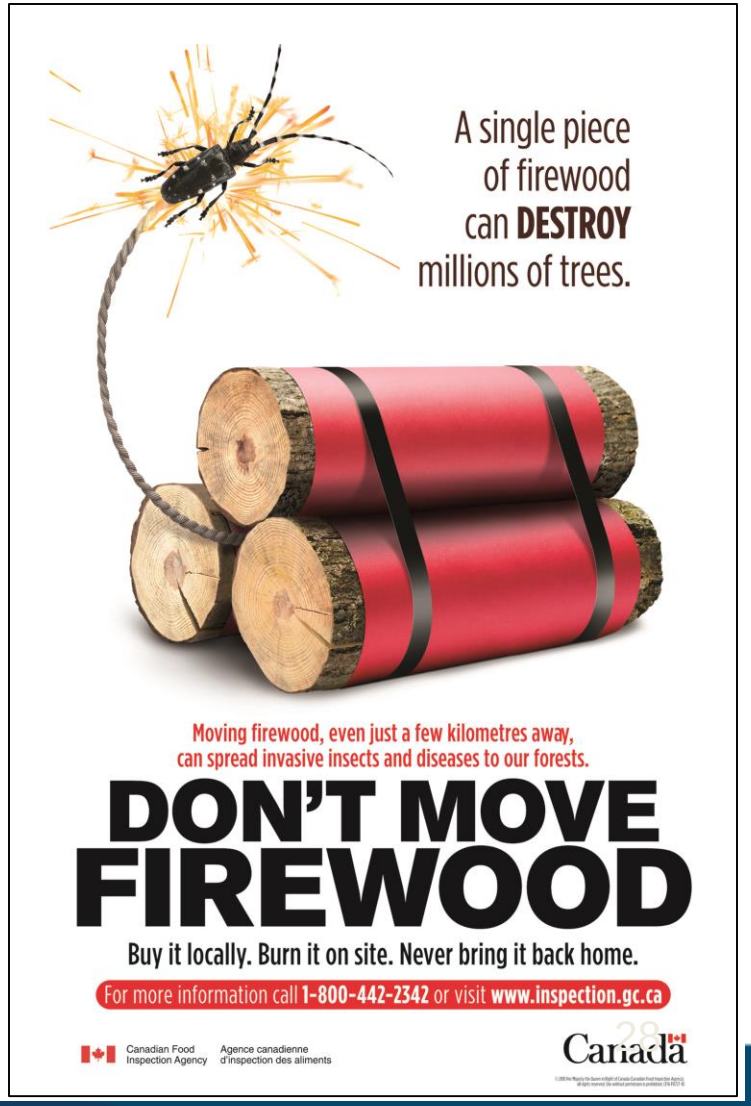


Pest Detection Cards



www.pinterest.com/CFIACanada/plant-pests

Don’t Move Firewood Campaign



Enhancing surveillance via partnerships

- Other Federal Departments (e.g. Parks Canada, Natural Resources Canada)
- Provinces, NGOs, citizen scientists
- Ontario's Invasive Species Centre
  - Working to incorporate CFIA data and information into ISC project websites and programs for Ontario

- Highlight regulated areas, high risk pathways or species of concern
- Promote awareness and compliance
- Potential for tailored data-gathering initiatives
  - Host inventories
  - Pest awareness campaigns

For more information

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