The Dangers of Exotic Pests to Forests in Eastern Canada

(part 2 more)

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Updated by: P. DesRochers, Y. Proulx and J. VanAcker, July 2005 and August 2006

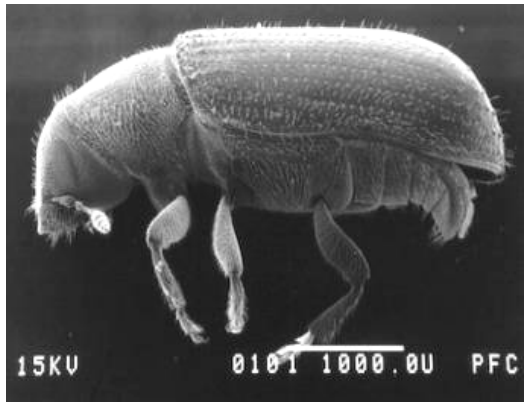
Presentation Outline

1) Historical perspectives
2) Recent introductions (more)
3) Other ongoing surveys
4) Other regulated pests
5) Literature

2) Recent introductions

- Brown spruce longhorn beetle
- Blueberry maggot
- **Pine shoot beetle**
- **Asian long-horned beetle**
- **Emerald ash borer**
- **Butternut canker**
- **European larch canker**
- **Others**

Pine shoot beetle



***Tomicus piniperda* (L.)**

Pine shoot beetle

- **Found in 14 US states, including Michigan, New York and Vermont**
- **Detected in Ontario in 1993**
- **Detected in Quebec in 1998**

Detection and Regulated Areas

Pine shoot beetle

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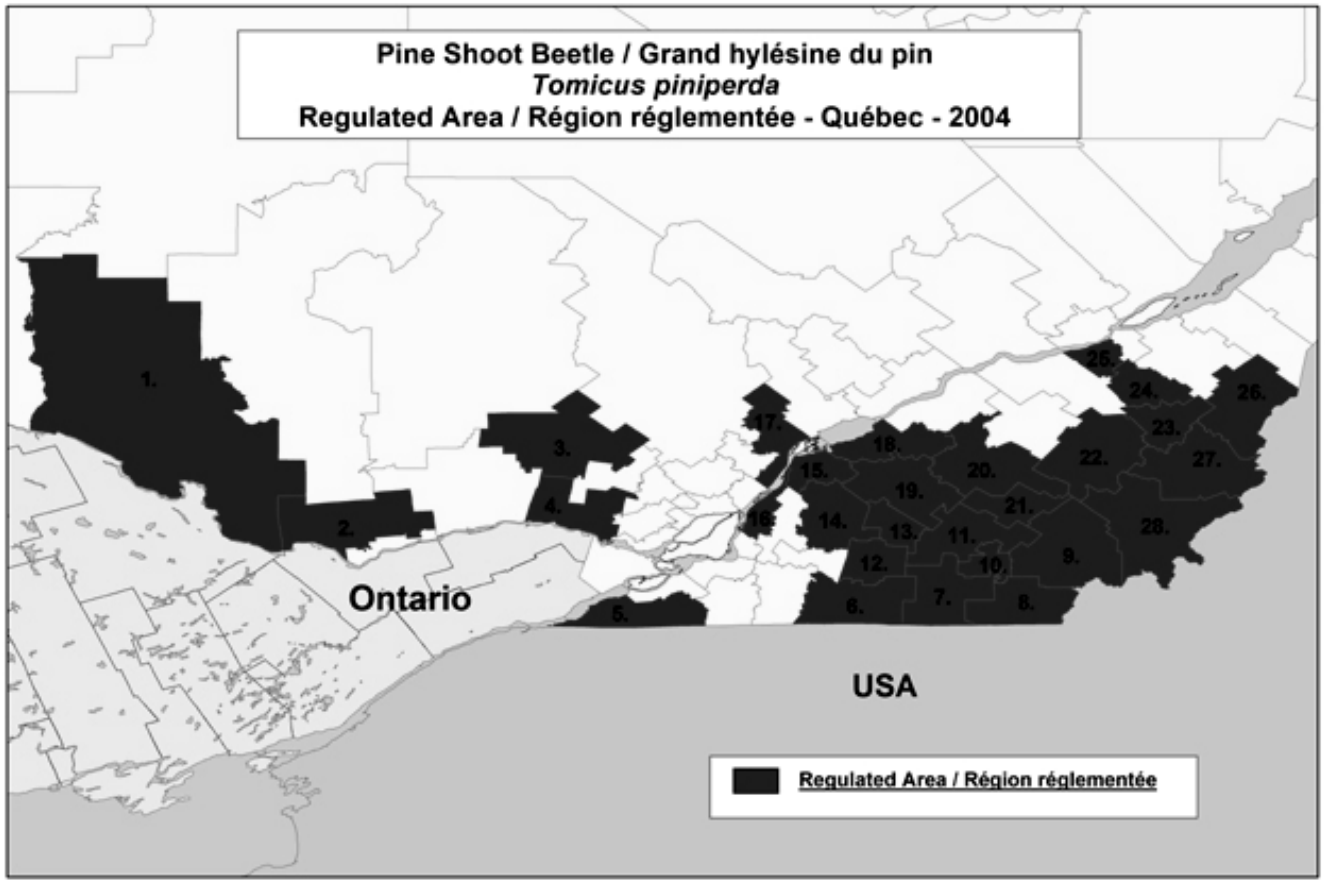
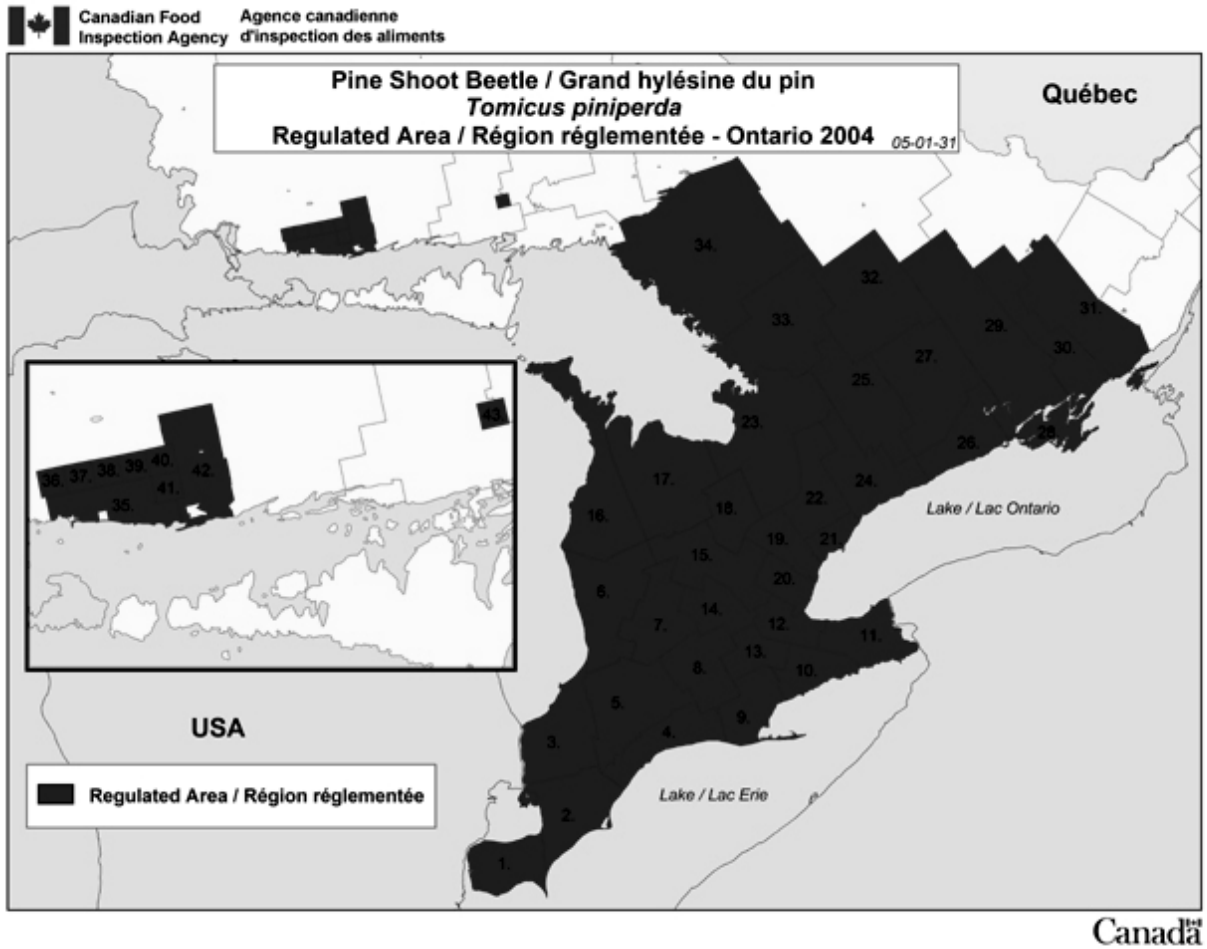


Canada

Pine shoot beetle



Threatened Resources

- **Christmas pine tree industries and Christmas wreath manufacturing**
- **Scots pine, red pine, white pine and jack pine plantations**
- **The Laurentian Shield's large natural jack pine forest**

Source : Humphreys et Allen 1999

Threatened Resources

Volume of pine timber in Canada threatened by the pine shoot beetle: 927 million m^3

Source : CCMF 2003

Directive in Effect

- **D-94-22: Plant Protection Requirements on Pine Plants and Pine Materials to Prevent the ntry and Spread of Pine Shoot Beetle**

Canadian Food Inspection Agency

http://www.inspection.gc.ca/english/plaveg/protect/dir/d-94-22e.shtml

Asian long-horned beetle

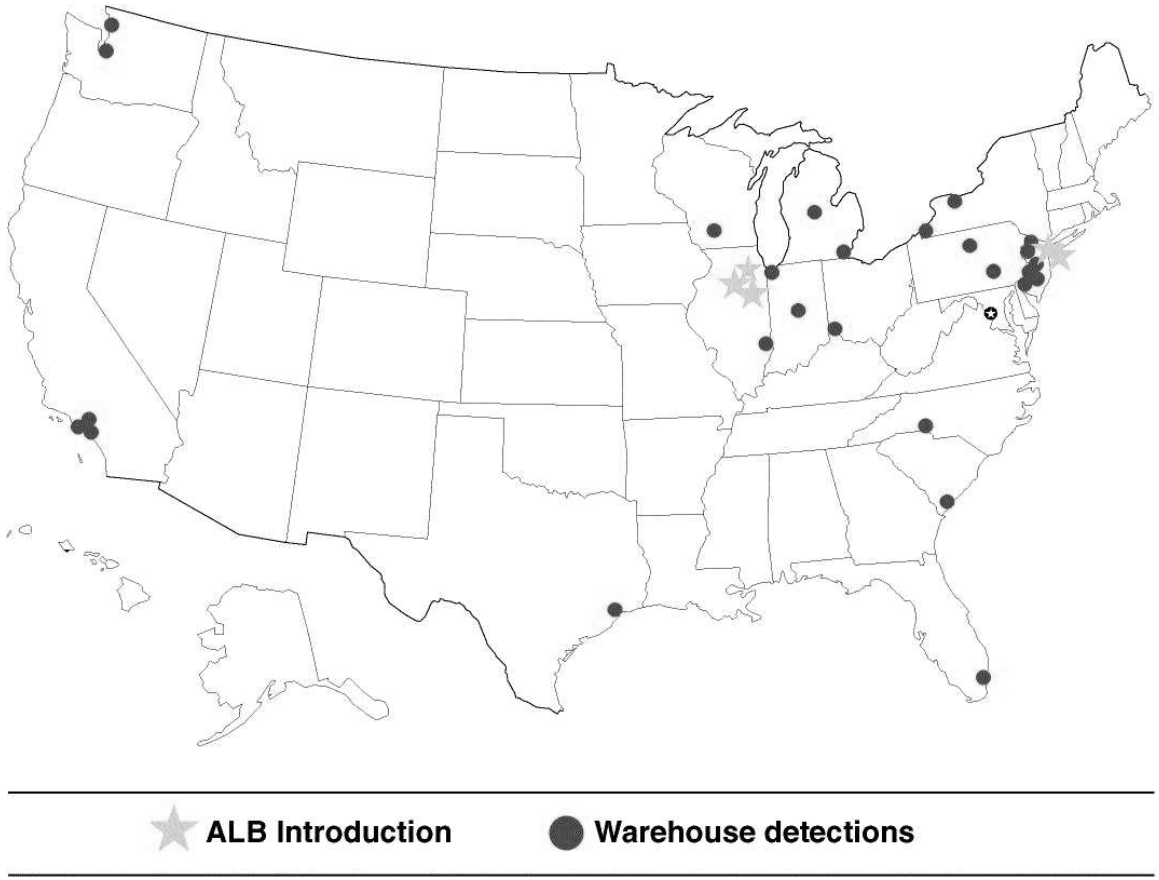
***Anoplophora glabripennis* (Motchulsky)**

Asian long-horned beetle

- **Detected in a number of US states**
- **Found in New York, Newark and Chicago**
- **Eradicated in 5 of 6 sectors in Chicago**
- **Detected in Toronto in September 2003**

Sources : USDA 2005; ACIA 2005

Asian long-horned beetle



Source : APHIS SD

Detection and Regulated Areas

Asian long-horned beetle

Asian Long-horned Beetle / Longicorne Asiatique
Toronto - Vaughan, Ontario

The information is subject to change pending survey results

L'information est sujette à changement selon les résultats des enquêtes de dépistage

2004-09-16

Legend / Légende

- Regulated Area / Région réglementée
- Containment Zone / Région circonscrite
- Primary Zone / Région primaire
- Secondary Zone / Région secondaire
- Tertiary Zone / Région tertiaire
- Water / Eau
- Roads / Rues

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Canada

Threatened Resources

- **Maple, poplar, ash, willow, elm, etc.**
- **Healthy trees**
- **Natural forests, plantations, urban parks**

Source : Humphreys et coll. 1998

Resources Threatened in Canada

- **Maple: 683 million m^3**
- **Poplar: 3,525 million m^3**
- **Ash: 11 million m^3**

Sources : CCMF 2003; CanFI 2001

Resources Threatened in Quebec

- **Maple syrup production (average for 1999–2002)**
  - **25 million litres of syrup**
  - **$131 million for farms**
  - **7,960 operations**

Source : Table filière acéricole SD

Resources Threatened in Ontario

- Maple syrup production (average for 1999–2002)
  - 1,600 tonnes of syrup
  - $12.6 million in sales
  - 2,600 operations in 2001

Source : AAC 2003b

Resources Threatened in Quebec

- **Hardwood industry**
  - **Value of $4.3 billion**
  - **Generates 56,000 jobs**

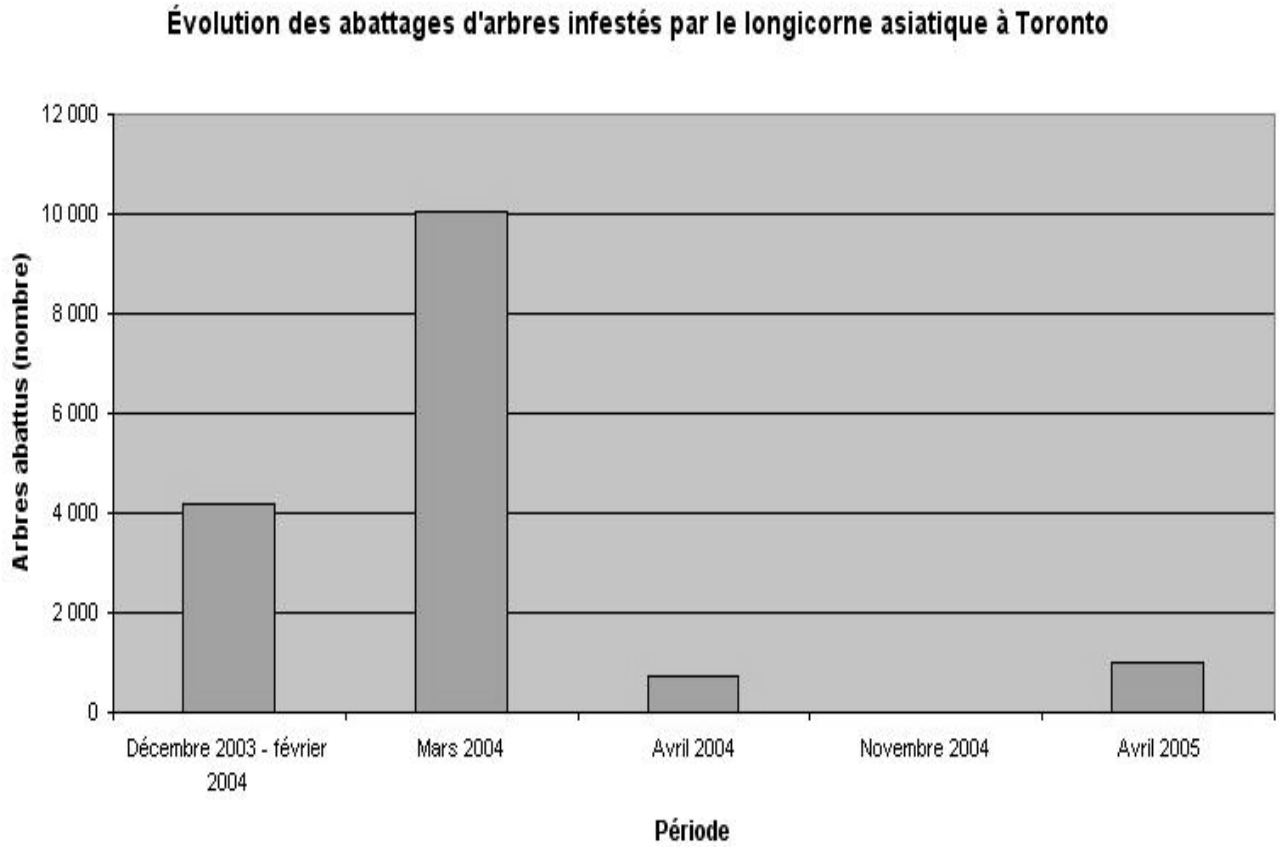
Source : C. Bordeleau (DCF), MRNFQ, Communication personnelle

Eradication Underway In Toronto

- **16,000 trees felled in the Toronto area in 2004–2005**

Source : ACIA 2005

Asian long-horned beetle

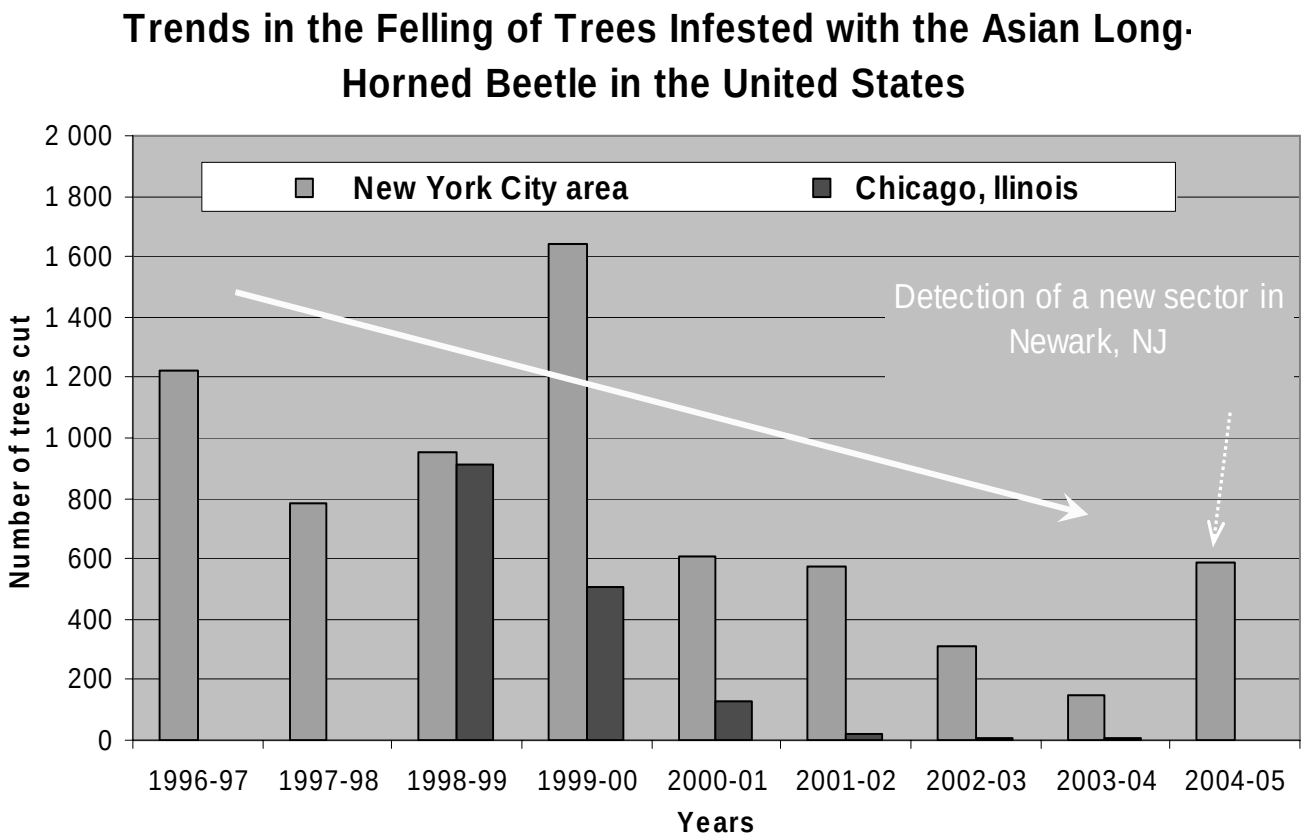


Eradication Underway In the United States

- **Tree felling and the injection of an insecticide reduced the number of infected trees in 2004–2005 to:**
  - **New York City area: 586**
  - **Chicago, Illinois: 0**

Source : USDA Forest Service 2005

Asian long-horned beetle



Source : USDA Forest Service 2005

Directive in Effect

- **D-98-10: Import Requirements for Wood Dunnage, Pallets, Crating or Other Wood Packaging Materials Originating in China and Hong Kong Special Administrative Region**

Canadian Food Inspection Agency

http://www.inspection.gc.ca/english/plaveg/protect/dir/d-98-10e.shtml

Emerald ash borer

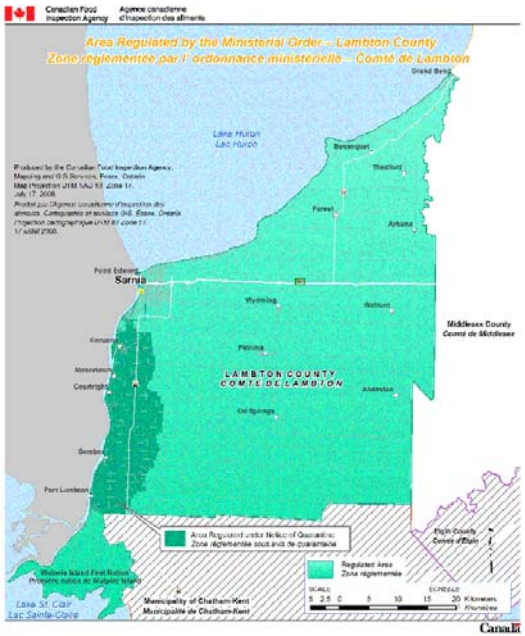
***Agrilus planipennis* (Fairmaire)**

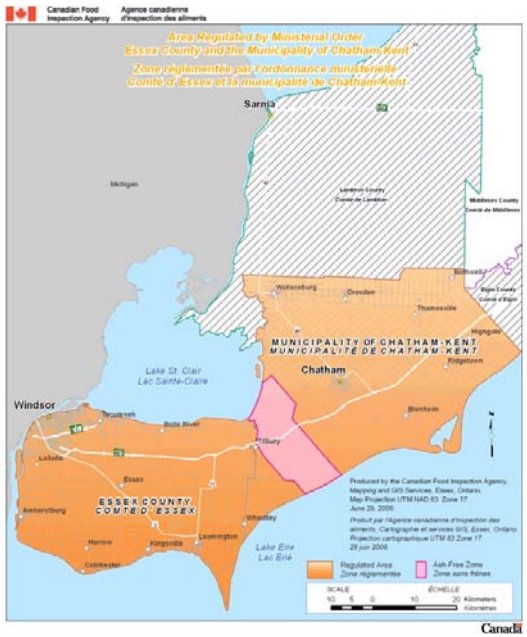
Detected in Canada and the United States in 2002 and found in:

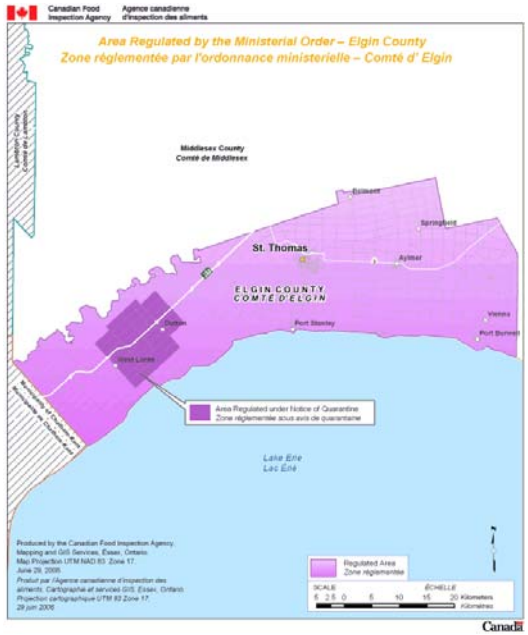
- The counties of Essex and Chatham–Kent in Ontario
- 20 quarantined counties in Michigan
- 21 other Michigan counties

Detection and Regulated Areas

Emerald ash borer







Threatened Resources

Healthy ash trees

- 11.1 million m^3 in Canada
- 7.9 million m^3 in Quebec

Source : CanFI2001

Impact

- **Between 100,000 and 200,000 ash trees infected in Essex County, in the Windsor, Ontario area**

Source : ACIA 2004

Protective Measure

- **Establishment of an ash-free zone (10 km X 30 km) and the cutting of 63,000 ash trees in that area**

Sources : ACIA 2004, 2005

Protective Measure

- **Cutting of 50,000 ash trees in the municipality of Chatham–Kent**

Source : ACIA 2005

Directive in Effect

- **D-03-08: Phytosanitary Requirements to Prevent the Introduction into and Spread within Canada of the Emerald Ash Borer *Agrilus planipennis* (Fairmaire)**

Canadian Food Inspection Agency

http://www.inspection.gc.ca/english/plaveg/protect/dir/d-03-08e.shtml

Butternut canker

Sirococcus clavigignenti-juglandacearum **V.M.G. Nair, Kostichka & Kuntz**

Butternut canker

- **First detected in Quebec and Ontario in 1990**

Sources : Innes et coll. 1997; Morin et coll. 2000

Threatened Resources

- **72,500 m^3 of butternut trees in Quebec**
- **Mortality rate of 80% in southern Ontario**

Sources : CanFI2001; Morin et coll. 2000

Threatened Species

- **The species is at risk of disappearing**
- **Listed as an endangered species in Schedule 1 of the *Species at Risk Act***

European larch canker

Lachnellula willkommii (R. Hartig) Dennis

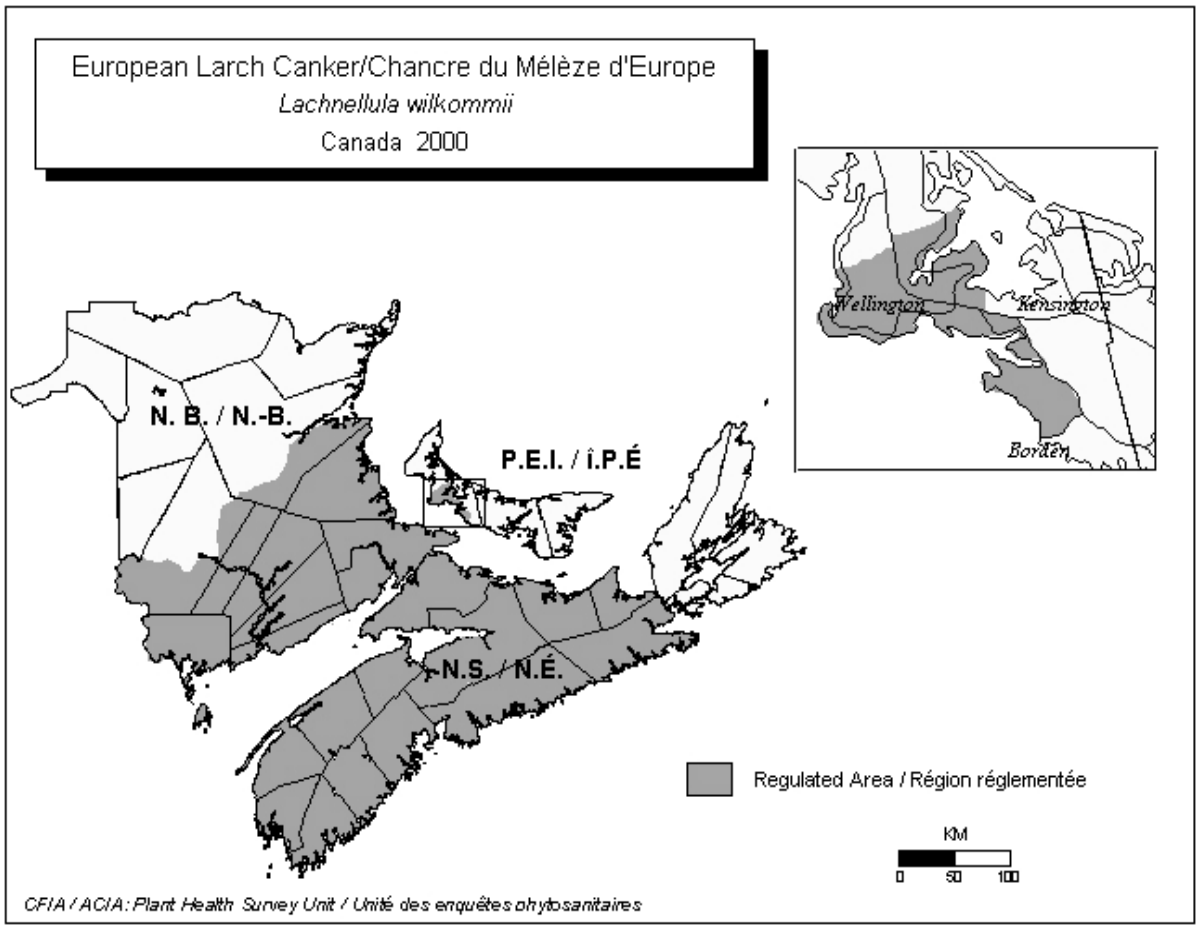
European larch canker

- **First detected in the Maritimes in 1980**

Source : ACIA 2001

Regulated Areas

European larch canker



Threatened Resources

Larch trees

- **172 million m^3 in Canada**
- **48 million m^3 in Eastern Canada**

Source : CCMF 2003

Directive in Effect

- **D-97-10: Interim Policy on Importation into Canada and Movement within Canada of Plants and Plant Parts of *Larix* spp. and *Pseudolarix* spp. to Prevent the Spread of European Larch Canker**

Canadian Food Inspection Agency

http://www.inspection.gc.ca/english/plaveg/protect/dir/d-97-10e.shtml

Other Introductions

- **European poplar rust *Melampsora larici-populina*: 2002**
- **Two insects**
  - ***Xylosandrus germanus*: 2000**
  - ***Hylastes opacus*: 2000**

Sources : R. Hamelin, C. Hébert, SCF-CFL, Communications personnelles

Impacts on Resources To Be Determined