

Canadian Food Inspection Agency



Our vision:
To excel as a science-based regulator, trusted and respected by Canadians and the international community.

Our mission:
Dedicated to safeguarding food, animals and plants, which enhances the health and well-being of Canada's people, environment and economy.

Invasive alien species of beetles from the Northern Asia-Pacific Region: proactive work through early detection and international collaboration

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What are Invasive Alien Species?

- Invasive Alien Species (IAS) are plants, animals and micro-organisms that spread beyond their natural range into new locations. They have the potential to cause extensive economic hardship and environmental damage.
- This problem has received significant attention from the Federal Government through 2005 budget, which provides \$85M over a five year period to minimize risk of IAS to the Canadian environment, economy and society.
- An Invasive Alien Species Strategy for Canada established in September 2004 a coordinated national policy and management framework that minimizes the risk of invasive alien species to the economy, environment, and society.

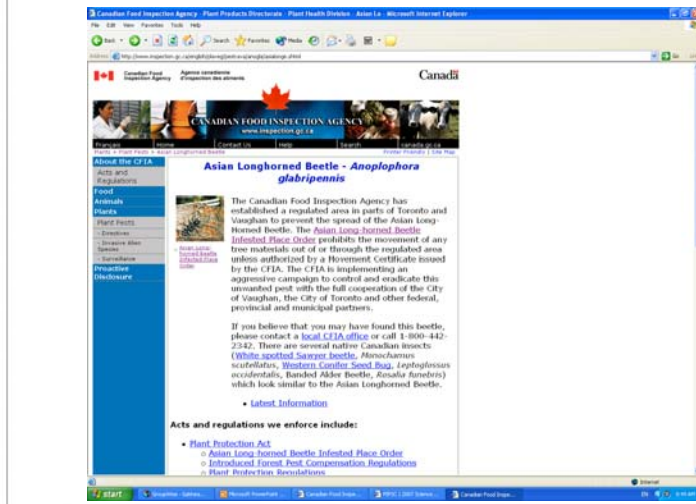
CFIA



IAS in Canada



IAS in Canada



IAS in Canada



Anoplophora glabripennis (Coleoptera: Cerambycidae), adult

IAS in Canada



Anoplophora glabripennis (Coleoptera: Cerambycidae), adult



Anoplophora glabripennis (Coleoptera: Cerambycidae), larva

IAS in Canada



Control of *Anoplophora glabripennis* (Coleoptera: Cerambycidae)

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IAS in Canada



Agrilus planipennis (Coleoptera: Buprestidae),
adult

IAS in Canada



Agrilus planipennis (Coleoptera: Buprestidae),
adult



Agrilus planipennis (Coleoptera: Buprestidae),
larva

IAS in Canada

- Many of the recent IAS originate from Asia, particularly from the People's Republic of China and neighbouring lands
- PR China and Canada possess large land mass with relatively similar climate and closely related Holarctic-type Biotas
- PR China counts between 5 and 10 thousand species of phytophagous beetles, majority of which is potentially invasive

PR China – Canada Trade



- PR China is second largest Canada's trading partner (Chinese export to Canada >\$30 billion in 2006)
- Canada is fourth largest PR China's trading partner (Canadian export to PR China \$7.1 billion in 2005)

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IAS in Canada

The main challenge is that many of North Asian phytophagous beetles are poorly known to Canadian scientists, and, therefore, cannot be immediately identified when intercepted, or found established, in Canada.

IAS in Canada

“Taxonomic benchmarks and expertise for the proper identification of invasive alien or native species are essential, but currently lacking in Canada, a gap that undermines Canada’s biosecurity.”*

“The general neglect of taxonomy in academia as well as in museum and other Canadian institutions has created a weakness in our ability to measure impact of species invasion.”*

*From: “An Invasive Alien Species Strategy for Canada”.

IAS in Canada

- At CFIA, we initiated a proactive capacity-building program to recognize the threat of phytophagous beetles from the North Asia-Pacific Region posing a risk to Canadian plant resources. This includes building up the knowledge on these organisms prior they arrive to Canada and start doing damage.
- This includes sampling phytophagous beetles in their native habitat for morphological and DNA analysis. Voucher specimens are deposited into the Canadian National Collection of Insects, the largest national reference source in entomology.

Canadian National Collection



K.W. Neatby Building, Ottawa, home of the Canadian National Collection (CNC)

- Some 16 000 000 specimens
- Some 60 staff members, including 30+ PhD Research Scientists

Beetle sampling in North Asia-Pacific

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Beetle sampling in North Asia-Pacific



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Beetle sampling in North Asia-Pacific



IAS in PR China



Red turpentine beetle, *Dendroctonus valens* LeConte, native to North America, a major Invasive Alien Species in P.R. China

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Canada