



## **Asian Long-Horned Beetle Update by Peter Dmytrasz**

This article includes, with approval, highlights of the Asian Long-Horned Beetle (ALHB) eradication plan report update for City of Toronto Council, prepared by Richard Ubbens. Figures quoted are estimates and for the most part include the affected areas within the bounds of the City of Toronto.

*Anaplophora glabripennis*, native to Asia (China, Japan and Korea) has been the focus of massive quarantine efforts, predominantly in North America. All established infestations were traced to untreated wood crating or packaging materials from Asian exports, which facilitated viable insect development to respective destination points. Countless other interceptions have occurred in many other countries, outside its native range. The threat of ALHB establishment includes climate similarity, lack of natural enemies and abundance of host tree species in the new host countries. Initial discoveries occurred in North America, primarily in the United States, in New York (1996) and Chicago (1998), with quarantines established since the late 1990's. New, recent infestations were discovered in Europe, specifically Braunau, Austria (2001), again in the US, in New Jersey (2002) and most recently in Canada, in and near Toronto including Vaughan (2003).

The Canadian Food inspection Agency (CFIA) confirmed an ALHB infestation near the Steeles and Weston Road industrial area during the week of September 15, 2003. It is estimated that the insect was introduced to the area approximately 4 to 6 years prior. In addition to this initial find, four satellite infestations were also located. These included the Ansley Grove and Russet Way areas of Woodbridge, the Beechwood Cemetery in Concord and the Thistleton residential community of North Etobicoke. The current infestation limits are roughly confined by Highway 427 to the west, Langstaff Road (Vaughan) to the north, Dufferin Street to the east and Highway 401 (Toronto) to the south. It includes industrial areas, residential neighbourhoods, ravines, parks and cemetery lands.

The ALHB is known to feed on broadleaf trees such as maple, birch, elm, willow, horse chestnut, poplar, hackberry and mountain ash. Approximately 60 to 70% of Toronto's existing canopy is comprised of these host species. We also rely heavily on this list for new city tree planting. The economic impacts are potentially devastating for urban forests as well as for natural hardwood forests throughout the country. For example, Canadian hardwood forests generate \$11 billion in wood products and \$100 million in maple syrup annually. Detection of infested trees is difficult. Often egg laying sites are merely small slits in the bark. Infested branches can be thin; approximately 2.5 to 3 cm in diameter. Scouting success rates were discovered to be approximately 30% from ground inspection, 50-60% from bucket trucks and 70% from direct tree climbing.

The CFIA has ultimate responsibility to control and eradicate the ALHB in Canada. It has the authority to issue control orders to municipalities and residents under the Canadian Food

Inspection Agency Act and The Plant Protection Act. Site-specific eradication protocols for survey, detection and tree removal are being developed. Currently, the City of Toronto, City of Vaughan, Toronto Region Conservation Authority, York Region, Ontario Ministry of Natural Resources, Canadian Forestry Service, United States Department of Agriculture and others are voluntarily collaborating to combat this Greater Toronto Area ALHB infestation.

The CFIA eradication plan involves; the removal all infested trees (primary zone); removal of all host species within 400 metres of the last known ALHB infested trees (secondary zone); and treatment of all host trees between 400 and 800 metres from the last known infested trees (tertiary zone) with imidacloprid. A n emergency registration submission to the PMRA for the insecticide imidacloprid has already been made by the CFIA . Many other ongoing efforts will be needed including; continued surveillance for signs of ALHB; research and education; co-operation between the public, industry and government; public awareness and alertness; multi-year quarantine restrictions; controlled wood disposal; and nursery stock movement and planting restrictions within these zones.

In summary, the eradication plan is:

<b>Area</b>	<b>CFIA Plan for ALHB Eradication</b>
<b>Infested area 1 (primary zone)</b>	- remove and chip all host trees during winter months
<b>400m beyond primary zone (secondary zone)</b>	- remove and chip all host trees during winter months
<b>400 to 800m beyond primary zone (tertiary zone)</b>	- treat or remove and chip all host trees - if approved, treatment with imidacloprid annually for four years and survey all treated trees annually to look for signs of ALHB
<b>2400m beyond primary zone (protection zone)</b>	- continued survey of host trees

***1 As known after rapid grid survey.***

Approximately 11,000 trees in the Toronto/Vaughan infestation require removal before beetles would emerge in May. As of January 8, 2004, 750 trees have been removed. The dedicated workforce assigned to the program consist of 45 City of Toronto Forestry staff, 4 contract tree removal crews supplied by Toronto Forestry, 15 TRCA staff, 7-10 CFS/OMNR staff, 3 City of Vaughan staff plus 20 CFIA staff. They make up 10 tree removal crews, 7 ground survey crews, 3 aerial climbing survey crews and research. In addition to the 169 square km ALHB surveillance work currently completed, aerial climbing crew surveillance will continue until it is determined that ALHB has been eradicated. During this entire time public education and on going awareness programs will be necessary to ensure that the public, industry and government remain active and effective in looking for ALHB. The cost of removing these trees including stump removal is estimated to be \$3M. The cost to tub grind the wood is estimated to be \$250,000 and it is anticipated that the chipped remains would be acceptable for composting purposes and could be disposed of at little to no cost. Future surveillance and removal costs cannot be determined until final eradication protocols are established by the CFIA but preliminary estimates for 2004 in addition to the \$3M approved thus far by Toronto City Council are \$3M to \$5M. Therefore the estimated cost, of tree survey, removal and disposal work, required within Toronto is estimated between \$6M and \$8M in 2004 from the data currently available.

Treatment with imidicloprid, if approved, would cost approximately \$130 for an average 40cm diameter tree, based on 2003 Chicago and New York City contract information. Approximately 50,000 trees from random sampling inventories might require treatment annually for four years in the tertiary zone, for an approximate \$6,500,000 annual treatment cost. Other monetary considerations would result if the CFIA issues a Ministerial Order placing an area roughly 48 km<sup>2</sup> in quarantine. Wood disposal sites would have to be established to accept public and private wood from the quarantine area, to be tub ground into wood chips of a small enough size to eliminate any possibility of ALHB survival. Chips would be transported off site to other composting facilities. Finally, funding for appropriate slope stability measures, to be determined by TRCA Geotechnical staff should ALHB eradication in the Black Creek or Humber River ravines be required, would have to be clarified. Normal urban forest management activities have been reduced to hazard abatement alone, resulting in increased service backlogs for regular forestry maintenance and tree planting activities. City of Toronto has deployed approximately 25% of its 180 Urban Forestry Services staff, for ALHB eradication efforts.

Reallocation of existing municipal resources is not sustainable over the years required to eradicate ALHB. A financial commitment to reimburse expenses incurred by the affected municipalities to eradicate the ALHB, including costs for annual surveys, tree removal, chemical control, wood disposal, communication, research assistance, administration and management, is required. The CFIA submitted written confirmation that funds are available to cover expenditures incurred as a result of the current ALHB emergency situation, but did not specify a comprehensive funding commitment. The CFIA also indicated that it does not have a mandate or legislated authority to pay for replanting trees or compensation to homeowners for their lost tree assets. The Tree Canada Foundation has stated that no commitments for funding amounts have been made. The OMNR is currently also looking further into the issue of funds for tree replacement.

South of the border, in their efforts to combat ALHB infestations over 5 years, the United States Department of Agriculture (USDA) has spent over \$100 million U.S. In addition, ongoing studies of the insect and other controls are also continuing. Their target completion is 2018, with anticipated expenditures of over \$300 million U.S. dollars.

Tree removal has the negative result of diminishing property and assessment values and the lost crown cover should be replaced as soon as possible after tree removal. A size schedule replacement-planting program, for private trees removed, was initiated by the City of Chicago to maximize their tree canopy. One 70mm replacement tree of non-host species was offered for every 10 centimetres of tree removed from private property, to a maximum of 5 trees/tree removed. Planting location was selected by location the respective land owner. On city property, the City of Chicago replaced trees one for one.

To date confirmed tree genera that are suitable for planting within the ALHB regulated area are Ginkgo, Honeylocust, Hazel, various oak species, Catalpa and conifers. A 70mm tree in Toronto is valued at \$550.00 Canadian. This cost includes utility locating, planting and watering. A 30 to 40mm bare root stock tree carries an average planting costs of \$120 per tree. Planting replacement trees cannot begin until funding for the replacement program is found. Assuming a 3 to 1 replacement ratio of the trees in Toronto, planting could run over \$18,000,000 in a few years, if 70mm trees are used as the standard replacement size.

Public awareness is essential. The CFIA has developed basic information about ALHB and distributed it through a number of channels, including posters, fact sheets, identification cards, and a regularly updated website, [www.inspection.gc.ca](http://www.inspection.gc.ca) . Print materials have been made available through Access Toronto and City of Toronto recreation centres and public libraries . Fifteen community presentations, meetings, and open houses were held in Toronto by the end of 2003; another seven sessions were conducted with forestry and landscape professionals, public agencies, and environmental groups. An information booth was manned at the 2003 Royal Winter Agricultural Fair. Toronto staff also produced an information flyer in 10 languages that was distributed through the City's website, [www.toronto.ca/trees](http://www.toronto.ca/trees) , at public meetings, and through door-to-door drops in infested areas. CFIA and City staff were also contacted by media outlets on 45 occasions in 2003, resulting in 30 ALHB items being published or aired nationally, and through community outlets. The CFIA, together with Toronto, is developing signage for eradication sites, a general information brochure, a weekly information bulletin, a firewood poster, and a school information kit. These materials will complement existing tools, which will be revised as required. Public meetings and presentations about new developments will continue throughout 2004, as required. Toronto staff will also work with CFIA to identify additional media outlets, such as cottage-country magazines and newsletters, which can be used to distribute information about ALHB.

The serious implications of the current Toronto/Vaughan infestation of ALHB make this one of the most difficult and complex forest health issues our urban forest has faced since Dutch elm disease (which caused the loss of virtually all of the mature specimens of white elm in North America). Sufficient funding to both effectively combat this infestation and provide the necessary replacement planting is essential. This must be done without impinging on normal day-to-day urban forestry activities. The limited use of the insecticide imidicloprid would improve cost effectiveness in efforts to eradicate ALHB. Continuing surveys by trained staff and the watchful eyes of a knowledgeable public, will be needed. Ongoing operational and strategic co-operation between the various levels of governments, agencies and stakeholders will also be essential in effectively controlling this devastating pest. Lessons learned from previous infestations have improved and quickened responses to new infestations. Time is certainly of the essence, since any beetles that may have escaped the arborists' chainsaws, will be out in May.

Our appreciation and support goes out to all of those groups and individuals working hard to contain and eradicate this infestation.