

MANAGING THE EMERALD ASH BORER IN CANADA

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ABSTRACT

The Emerald ash borer, (EAB, *Agrilus planipennis* Fairmaire) continues to pose a major risk to Canadian urban and rural forests and parklands. EAB now occurs in four counties in southwestern Ontario. An estimated 1 million ash trees in Essex County, Ontario, and millions more in adjacent counties are in peril. Little natural resistance has been observed to this point in Canada.

Canada's official position is that EAB cannot be eradicated. However, the Canadian Food Inspection Agency (CFIA) believes there is merit in slowing the spread of EAB within Canada and protecting the country's vast ash resource. It is assumed that, ultimately, biological control and natural tree resistance will play increasingly important roles in "normalizing" the impact of this very serious pest in North America.

Ash (*Fraxinus* spp.) is a very important genus across much of southern Canada with as many as 3 billion trees across the country at risk from EAB. Ash, in particular the red or green ash (*F. pennsylvanica*) is a major component of most southern and eastern Ontario woodlots and forests and often comprises in excess of 50 percent of these; some woodlots have an ash component in excess of 90 percent. Five species of ash (*Fraxinus* spp.) occurring naturally in eastern and central Canada, and numerous exotic species and cultivars are at risk. Both the blue and pumpkin ashes (*F. quadrangulata* and *profunda* respectively) are considered to be rare

or species at risk in Canada and occur naturally only in extreme southwestern Ontario. While the blue ash appears to have some inherent resistance, it too succumbs to high levels of EAB. Pumpkin ash, already decimated as a result of past agricultural activities and urban sprawl in southern Ontario, appears to be extremely susceptible to EAB and may be extirpated from Canada as a direct result of EAB.

Because of the absence of any pheromones or other chemical attractants which can be used as lures in traps and the lag between the initial introduction of EAB into an area and initial detection there, the CFIA relies on risk assessment to prioritize its surveys for EAB. Survey activities are focussed on visual detection around sites to which EAB may have been introduced through human activities in recent years such as RV parks, campgrounds, nurseries, and firewood vendors. Both delimitation and detection surveys are conducted; delimitation to determine the leading edge of EAB in or around an infested area, and detection to ascertain the presence or absence of EAB around high risk sites beyond the known leading edge.

Based on recent research and observations, the CFIA makes two assumptions in designing surveys for EAB:

1. The actual leading edge can be as much as 30 km or more beyond what can be reliably detected through visual surveys and,

2. EAB may be present in an area for as long as 4 years prior to survey crews being able to detect it using visual survey techniques.

Survey initiatives in 2005, concentrated on searching for EAB in high risk areas such as along the Canadian side of the St. Clair River (Lambton County) and at Walpole Island (First Nations Reserve); high populations of EAB had been found along the U.S. side of the river in previous years and the risk of introduction through natural spread across the river was perceived as high. Intensive visual surveys were conducted by the CFIA in all woodlots within 10 km of the river with a 5 km grid system being employed elsewhere in the county as part of the detection survey. Intensive visual surveys were also conducted around known risk-makers throughout southern and eastern Ontario and at high risk sites across the province. In response to a late season discovery of EAB at Brimley State Park in Michigan's upper peninsula, extensive surveys were conducted by Natural Resources Canada-Canadian Forest Service (CFS) along the north shore of the St. Mary's River, and along the north shores of Lakes Superior and Huron; no EAB was detected. Surveys were also conducted in the municipality of Chatham-Kent (C-K) in southwestern Ontario to provide assurance that the outlier in neighbouring Elgin county was not an extension of the C-K population.

Survey activities in 2005 detected EAB along the eastern side of the St. Clair River, (Lambton County, Ontario), adjacent to St. Clair County, Michigan; Walpole Island; and at one site in Elgin County, estimated to be 40 km east of the current eastern leading edge in C-K and almost certainly an outlier population that resulted from an introduction to a rest stop along a freeway (highway 401) an estimated 4-5 years previously.

Canada currently regulates EAB at a county level. Infested counties are regulated by means of either an order signed by the Federal Minister

of Agriculture declaring an area as infested, or by quarantine notices issued directly to affected property owners, or both. During 2005, all properties within a 5 km radius of all known infestations in both Elgin and Lambton counties were placed under strict quarantine with only compliant ash and other forest materials being permitted to exit the control zone. This was a new strategy for 2005 and designed to slow the spread of EAB within counties which are not believed to generally infested. Ministerial Orders declaring both Elgin and Lambton Counties as infested, are pending.

Consistent with the position of many of its U.S. partners, the CFIA has shifted its focus from active control programs involving tree removal to enhancement of existing regulatory, communication and research initiatives.

To this point, CFIA policy, on the advice of its science committee, has been to remove all ash trees within 500 m of a known positive in counties which are not considered as generally infested. Consistent with this policy, during the late winter of 2005, the CFIA ordered the removal of an estimated 50,000 ash trees from within the 500 m control zones around the City of Chatham, Ontario, C-K. Recent surveys in the vicinity of the 2005 tree removal sites have detected numerous new finds outside of the original 500-m zones which had been previously surveyed on several occasions and found to be not positive. On the basis of this data, it can be concluded that while tree removal around known positives may reduce some of the immediate risk of population build up and dispersal around these sites, it is not an effective means of eradicating EAB at a site and is not likely to be cost-effective in areas with established, albeit low-level populations. For this reason, the CFIA no longer deems tree removal in areas with any level of established populations to be a viable option and no tree further tree removals are currently planned. Where true

outliers are detected and are well beyond what is generally considered to be the leading edge, tree removal may still be considered as a viable option in conjunction with other pest mitigation options, such as pesticides.

The CFIA places high value on regulatory activities to slow the spread of EAB in Canada. Under the authority of the Federal Plant Protection Act and Regulations, CFIA inspectors have the legal right to enter a property at any reasonable time to conduct surveys and to take actions against a pest of quarantine significance. For the most part, compliance on the part of affected property owners has been excellent. For flagrant violations there exists the option to prosecute offenders under the Act. CFIA inspectors also have the right to issue Administrative Monetary Penalties (AMPS) for more minor violations such as moving firewood from quarantines areas. These \$400 fines or tickets can be issued on the spot to violators. Twenty-six AMPS were issued in 2005, mostly to persons moving ash firewood from quarantined areas to provincial parks outside of the quarantine area.

There are no immediate plans at this time by the CFIA to use pesticides as part of its EAB mitigation programs; however, it is acknowledged that some pest control products such as Imidacloprid can be highly effective in safeguarding or extending the life of trees in infested urban areas, and the CFIA is supportive of further research in this area and either the emergency registration of these products for use by other federal, provincial or municipal government agencies, or full registration by the manufacturer once all the required data is available.

The CFIA places a high value on communication and consultation. The CFIA sees the campaign against EAB to be a coordinated, concerted effort of all levels of government as well as stakeholders and other partners. For this to succeed, effective communications are paramount. Since the initial discovery of EAB in Ontario in 2002, considerable resources have been allocated to the development of posters and fact sheets, display materials and, in high risk areas public notices via radio and local newspapers. The CFS has, in collaboration with the CFIA and provincial forestry officials developed detailed survey guides for use by inspectors and municipal forestry workers.

As part of its consultation strategy, the CFIA has established advisory committees comprised of researchers, quarantine specialists, operational managers and communications experts from within the CFIA, from other federal and provincial government agencies, and from universities. Canada and the United States have collaborated extensively and openly since the initial discovery of EAB in 2002. In addition to several bilateral committees and panels on which representatives from both countries sit, a Canada/U.S. Operations committee meets quarterly to share information and coordinate strategies vis à vis surveillance, regulatory issues, communications, and pest mitigation.

The CFIA is currently developing a management plan, which will clearly outline its policy for surveillance, control, and declaration of areas as regulated. The emphasis of future EAB initiatives will shift from control and pest mitigation to surveillance, research, enforcement, and communication activities.