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EXECUTIVE SUMMARY

The purpose of this document is to provide a general framework and guidelines to assist in the prevention, detection and potential management of emerald ash borer (EAB) and other invasive forest pests. This is a living document and will be updated frequently as new information becomes available and as more detailed guidelines are developed.

To lay the foundation for the preparedness plan, some background information on this pest has been provided. The following information has been included in this document; brief details on the biology of EAB, the potential impacts of an infestation, the current distribution of EAB, the spread potential for EAB in Manitoba and the pathways through which it is spread.

Legislation has an important role to play in Manitoba’s preparedness plan. Provincial and federal legislation related to invasive forest pests are outlined in this document, and details on how the legislation could be used to prevent EAB and respond to a detection are provided.

Procedures are described in the plan that would allow for a rapid and organized response to a detection. However, these procedures can only serve as a starting place when planning a response to a new detection or infestation. What steps are actually taken in the event a new pest is detected would depend on several variables. While some of these variables are noted in the plan, managers will need to be adaptable, as it is impossible to account for them all.

If EAB was to become established in the province, there are different management tools available that can minimize losses and slow the spread of the pest. Current options for managing EAB are discussed in this plan, and ways to use and/or dispose of infested ash material are also discussed.

In the event EAB or similar forest pest is detected in Manitoba, it is proposed that a committee be convened that includes representatives from the province, federal government, municipalities, non-government agencies, affected industries, and other stakeholders. The potential structure of such a committee and its function are described in the appendices.
CHAPTER 1: INTRODUCTION

Information is provided here on the background and biology of this pest, the current distribution of the pest and the pathways through which it is spread. Potential impacts of EAB in Manitoba are also outlined.

BACKGROUND

Emerald ash borer (EAB) is an invasive forest pest that originates from eastern Asia. This highly destructive wood boring insect attacks and kills all species of ash trees (*Fraxinus* spp.), including green ash (*Fraxinus pennsylvanica* Marsh. var. *subintegerrima* (Vahl.) Fern.), black ash (*Fraxinus nigra* Marsh.), Manchurian ash (*Fraxinus mandshurica*) and cultivars of ash. Unlike many other wood boring beetles, EAB attacks both stressed and healthy trees, and North American ash species have little to no natural resistance to EAB attacks.

Although EAB was not detected until 2002, in the Detroit, Michigan area, and shortly after in Ontario, evidence indicates that EAB may have been present in these areas since the mid-nineties. Officials suspect that EAB inadvertently arrived in pallets or other wood packing material (dunnage) made from raw ash material imported from Asia.

BIOLOGY

Ash trees become infested when adult beetles lay eggs in bark crevices. These eggs develop into larvae that complete their life cycle feeding and creating tunnels under the bark in the phloem layer that transports water and nutrients in the tree. As the larval population increases, the network of feeding tunnels disrupts the transfer of water and nutrients in the tree resulting in the tree’s death.

EAB larvae pupate under the bark, and adults emerge through distinct D-shaped exit holes from May through to the end of August with peak emergence occurring from mid to late June. This timing may change depending on the geographical area. EAB can complete their lifecycle in one year but could take two years in cooler climates. EAB adults are good flyers (can fly 10 km or more); however, it is thought that flight dispersal of the EAB is mostly local (0.6 km/per year).

IMPACTS

EAB has caused major economic and environmental impacts to affected areas in Canada and the U.S. The costs associated with the removal and disposal of dead and dying ash trees alone have significant economic implications for municipal, provincial and state governments coping with EAB. Municipalities would also have to replace trees lost to EAB.

The detection of EAB or other regulated forest pest could also mean trade and export restrictions for Manitoba nurseries and garden centres. These businesses would not be able to export ash material to other non-infested provinces or to the U.S.

CURRENT DISTRIBUTION IN NORTH AMERICA

EAB has not been detected in Manitoba. In 2002, EAB was detected in Windsor, Ontario and Detroit, Michigan. EAB continues to spread in Ontario and was discovered in Quebec in 2008 (Figure 1). The closest infestations to Manitoba are in Thunder Bay, Ontario and Duluth, Minnesota.
PATHWAYS FOR THE SPREAD OF EMERALD ASH BORER INTO MANITOBA

Movement of infested raw ash wood material can spread EAB. It is suspected that EAB arrived in North America in wood packaging material that was made from untreated low grade lumber with at least some bark attached. Occurrence of live insects inside untreated wood packaging material is common. In 1997, the Canadian Food Inspection Agency (CFIA) and Canadian Forest Service (CFS) staff conducted a survey at major Canadian ports of entry where many life stages of non-indigenous insects were found on wooden dunnage, wire spools, boxes, pallets and crating made from low-quality wood with bark attached (Network News: Forest Health & Biodiversity (Canadian Forest Service) Volume 2, No. 1, Fall 1998).

Ash nursery stock is another potential pathway for the spread of EAB. The movement of ash nursery stock between provinces is not highly regulated unless the area the stock comes from is considered infested by the CFIA. Nursery tree stock is sold out of major retailer garden centres that could be sourced from different areas in Canada and the U.S.

Firewood movement spreads invasive forest pests and is of primary concern. Thousands of visitors enter Manitoba from the U.S. and from both eastern and western Canada every year to enjoy the province’s many campgrounds, parks and beaches. Campers could purchase infested firewood and then take any unused firewood with them to their next campsite or take it home with them. Many new detections of EAB have been traced back to firewood.
SPREAD POTENTIAL IN MANITOBA

Ash (Fraxinus spp.) forms a major component of natural forests in this province. Manitoba communities have also planted ash extensively as replacements for elms lost to Dutch elm disease. In addition, there are millions of ash trees growing in shelterbelts around farmyards and farm fields in Manitoba’s rural areas.

EAB originates from Mongolia, north-eastern China, Korea, Russian Far East, Japan and Taiwan. Its northern range extends into Mongolia and the Russian Far East, which can be as cold as or colder than southern Manitoba suggesting that EAB could survive Manitoba winters. For example, average monthly temperatures in Khabarovsk, Russia (green) (48°29”N) are very similar to those in Winnipeg, Manitoba (orange) (49°54”N) and The Pas, Manitoba (blue) (53°49”N) (Figure 2).

Researchers are studying the potential impacts of cold temperatures on EAB larvae. One study did find that between 1942 and 2010 temperatures were low enough in 7% of American weather stations and 42% of Canadian weather stations to kill the majority of EAB (DeSantis, Ryan D. et al, Effects of climate on emerald ash borer mortality and the potential for ash survival in North America, 120-128, Agricultural and Forest Meteorology: April 2013). While such temperatures may not eradicate EAB, it could help to slow the spread to a manageable level in Manitoba.

Figure 2: Comparison of Average Monthly Temperatures from 1971-2000 in Winnipeg, MB, The Pas, MB & Khabarovsk, Russia.
CHAPTER 2: INVASIVE FOREST PEST LEGISLATION

In Manitoba, both federal and provincial legislation govern the movement of forest products. The Province has certain powers under The Forest Health Protection Act that can help prevent the introduction of invasive pests, and the legislation provides the framework for the development of programs to contain any newly detected infestations. In addition, municipalities may have bylaws regarding forest threats or the disposal of affected trees or forest products.

FEDERAL LEGISLATION

The Canadian Food Inspection Agency (CFIA) administers the Plant Protection Act (and regulations), which regulates the importation of pests injurious to plants. The movement of plant material within Canada out of areas that are considered infested by a regulated pest, such as emerald ash borer (EAB), is regulated under this legislation as well.

The CFIA can implement measures under this legislation to contain detections of EAB, or other federally regulated forest pest, through a Notice of Prohibition of Movement or Notice of Quarantine. For more information on the Plant Protection Act and the CFIA’s plant protection programs, go to: http://www.inspection.gc.ca/plants/plant-protection/eng/1299168913252/1299168989280.

Federal Ministerial Orders are in place in EAB infested areas of Ontario and Quebec that prohibit the movement of specific materials, including any life stage of EAB, any ash material (nursery stock, trees, leaves, logs, rough-sawn lumber, wood chips/bark chips), and firewood of all species. Anyone violating these restrictions is subject to a fine and/or prosecution. For current information on Ministerial Orders and EAB regulated areas, go to: http://www.inspection.gc.ca.

The movement of firewood is addressed by a CFIA Plant Protection Directive, Phytosanitary Requirements for the Importation and Domestic Movement of Firewood (D-01-12). This directive prohibits the importation of firewood into Canada from other countries (U.S. included) unless the firewood has been heat-treated and all other import permit conditions have been met. However, there are no federal prohibitions on the movement of firewood and raw lumber with bark attached between the non-regulated areas of the provinces.

INTERNATIONAL STANDARDS FOR PHYTOSANITARY MEASURES NO. 15 (ISPM 15)

Since 2002, the movement of wood packaging material into Canada originating from other countries must adhere to strict standards (D-98-08: Requirements for the Entry of Wood Packaging Material into Canada). The standard commonly used for packaging material is the ISPM 15 (FAO 2002/2009). This standard has been adopted by most countries that are participating with the International Plant Protection Convention (IPPC), and it mandates that all wood packaging be appropriately treated to kill any unwanted organism present inside the material.

However, ISPM-15 does not yet fully apply to trade between Canada and the U.S., though it has been recognized that application of this standard between the two is of mutual interest. A harmonized phase-in of this standard between Canada and the U.S. has been proposed, but at this time, the exemption is still in place.
PROVINCIAL LEGISLATION

In Manitoba, invasive forest pests are also regulated by The Forest Health Protection Act (C.C.S.M. c. F151) (FHPA) and the associated Forest Health Protection Regulation (MR87/2009). The FHPA prohibits importation into the province of invasive forest threats as listed in “Schedule B” of the Regulation. In addition, the Regulation (sub-section 5(1)) prohibits importation into Manitoba of the following ash products from Ontario and Quebec; ash nursery stock, raw ash forest products and any ash wood packaging material. These items can only be imported if they have been treated properly - as specified in the regulations. Find more information at: http://web2.gov.mb.ca/laws/regs/index.php?act=f151 , http://web2.gov.mb.ca/laws/regs/annual/2017/026.pdf

NOTICES AND ORDERS

Forest Threat Notice
Under the Act, persons designated as inspectors or officers have the power to enter any property for inspections and to issue orders and notices. Inspectors or officers can post a Forest Threat Notice on an infested tree or product. A Forest Threat Notice restricts anyone from moving or destroying the posted tree or forest product until the date specified on the notice, which must not be more than 30 days after the notice is posted. An officer or inspector can then take a sample and confirm the presence of a regulated pest.

Preventive Quarantine Order
If the suspected forest threat poses an immediate risk, a Preventive Quarantine Order may be issued to the owner or occupier of a property where an invasive pest has been detected. It may also be issued for properties that are nearby to an invasive forest threat detection. This order prevents a person from cutting down, removing, or tampering with trees or forest products as described in the order. The owner or occupant of the land may be ordered to take certain measures in regards to trees or forest products to prevent the spread of a regulated pest. The movement of regulated forest products may be restricted from quarantined properties. Preventive Quarantine Orders expire after 90 days.

Forest Health Order
If the presence of an invasive forest threat is confirmed, an officer can issue a Forest Health Order to the owner of occupier of land. This order may require the person to carry out, or allow to be carried out, one or more measures listed in the order to mitigate the forest threat on their property, such as the removal and destruction of infested trees or the destruction of infested forest products. The time allowed to carry out the order must be no less than 20 days from the date of issue.

Forest Threat Response Zone
If it were to become necessary to manage a pest over a wider area, the minister can designate an area as a Forest Threat Response Zone. In these zones, regulations may be established regarding the forest pest, trees, and forest products. A management program could be developed for the zone, and the movement of firewood and other forest products out of the area could be restricted or regulated. The establishment of a Forest Threat Response Zone is a more permanent measure and does not have an expiry date.
CHAPTER 3: PRE-INFESTATION PHASE: PREVENTING THE INTRODUCTION OF EAB TO MANITOBA

There are three phases of infestation for invasive forest pests like emerald ash borer (EAB):

- **Pre-infestation** phase: EAB has not yet been detected. Main activities during this phase include surveillance (visual/trapping) and compliance inspections, public awareness/education (i.e. “Don’t Move Firewood” campaigns), and establishment of legislation and policy that restricts the movement of certain forest products into the province.

- **Initial detection** phase: EAB has been detected and confirmed. Activities carried out during this phase could include intensified surveillance, investigations, public notification/education, notification of local governments and the strengthening of regulatory enforcement, and implementation of EAB management strategies.

- **General infestation** phase: EAB has been established and has spread. Activities during this phase could include the development and maintenance of management programs to slow the spread of EAB.

There is a continuum or crossover between each of the phases. The transition to each phase would be gradual with some overlap between them.

Prevention initiatives are far less expensive than managing EAB, and the longer the introduction of a pest like EAB is delayed, the more information that can be accumulated about it and the better prepared the province can be.

PREVENTION INITIATIVES

Preventing the entry of EAB into Manitoba can be done by:

- Educating the public about the potential damage caused by invasive pests and how they spread.
- Educating the public and businesses about provincial regulations regarding invasive forest pests.
- Collecting and destroying high risk wood products coming into Manitoba, such as firewood.
- Enforcement of regulations through inspections and monitoring.

Public Education:

- Develop public education on material (pamphlets/website/media):
  - The potential damage caused by invasive forest pests,
  - The signs and symptoms of invasive forest pests, and
  - The pathways for spreading invasive forest pests – “Don’t Move Firewood”.
- Target traffic intensive areas through signage with the “Don’t Move Firewood” or “Burn it Where You Buy It” message.
• Continue to reach out to the public through public events (tradeshows and fairs/invasive pest display).
• Provide curriculum-based materials to teachers to educate students about invasive forest pests.
• Establish a community-based/citizen science invasive forest pest network.
• Provide training seminars throughout the province, particularly for municipal employees who work in areas where they may be able to detect a new infestation.
• Provide information to municipalities on the benefits of diversified tree planting practices (vs. monoculture planting).
• Establish a continuing education curriculum on invasives for arborist licensing.
• Businesses that retail firewood, lumber, and propagative/nursery stock material could be informed about the risks associated with the distribution of out-of-province ash products and could also be informed about current regulatory requirements (nurseries, garden centres, campgrounds and firewood dealers).

Firewood collection:

• Collect firewood from incoming travelers from other provinces and assist federal agencies, where possible, to ensure that firewood does not come in to the province via the international border (a collection bin project at the provincial borders has already been established).
• More restrictions on the movement of wood products, such as firewood, may have to be considered.

Inspections and monitoring:

• Inspect retail outlets, such as firewood dealers, nurseries, and garden centres for infested/restricted ash material.
• Inspect commercial transportation of raw ash material either through or into the province.
• Inspect selected areas and sites where EAB is most likely to appear first in the province (campgrounds and parks, rest stops, truck stops, industrial areas, rail yards, nurseries, garden centres and other points of sale for nursery products and firewood) for regulated pests and material and place monitoring traps at these locations.
CHAPTER 4: INITIAL DETECTION PHASE: INFESTATION RESPONSE

The first detection of emerald ash borer (EAB) that puts Manitoba in the *initial detection* phase would require a quick and well organized response. There are a number of possible scenarios for an initial detection that would influence the response. For example, the finding of EAB in a recent delivery of nursery material before adult flight times would require different containment activities than if EAB was discovered in a stand of ash trees during adult flight times. It would be important to analyze the situation carefully to ensure the correct response was made. Possible scenarios and responses can be found in Appendix 5.

A detection or outbreak could affect a number of stakeholders, such as homeowners, businesses, local governments, the provincial government, and the federal government. Any action taken in response to an EAB or other invasive forest pest detection may require consultations with some or all of these stakeholders.

- Forestry and Peatlands Management Branch would be the lead provincial agency in the event of a detection.
- Canadian Food Inspection Agency (CFIA) would be the lead federal agency in the event of a detection. If the pest is regulated by the CFIA (EAB) or is not known to occur in Canada, they would be informed immediately. Likewise, the CFIA would inform the Forestry and Peatlands Management Branch of any possible detections of a new invasive forest pest.

Other stakeholders that could be involved are:

- Local municipal governments
- Homeowner groups/cottage associations
- Manitoba Parks and Protected Spaces
- Parks Canada
- Indigenous and Northern Affairs Canada
- Affected industries
- Non-government agencies

DETECTION RESPONSE

The following outlines the sequence of actions that could be taken following the potential detection of an invasive forest pest like EAB. How a detection is handled would depend on the pest and where and when it was found and in what kind of material (i.e. firewood, nursery stock, tree).

*Procedures that may be followed in various scenarios are outlined in Appendix 5.

**Response actions:**

1. The officer/inspector would collect a sample, take pictures, and record the details of the inspection. The sample could be taken directly to the CFIA office in Winnipeg or Brandon, or it could be shipped to them (priority shipping).
2. The CFIA would ship the specimen to the Ottawa lab and would inform affected partners (Forestry) as soon as the results were known (a few days).
3. Before pest confirmation, if the specimen was likely to be identified as EAB, a Forest Threat Notice could be posted on potentially infested material. Note: the CFIA may also use their legislation (i.e. issue A Notice of Prohibition of Movement, Notice of Quarantine).

4. Visual surveys of the area in question could begin immediately to gain preliminary information on the potential scale and nature of the infestation. This should be done in coordination with the CFIA and the affected municipality.

5. If the sample was confirmed as EAB, or other invasive pest, it would be necessary to inform affected stakeholders.

6. A Preventive Quarantine Order may be issued for the property where EAB was detected and for any properties adjacent to that property. Note: the CFIA may also use their legislation (i.e. issue A Notice of Prohibition of Movement, Notice of Quarantine, Ministerial Orders).

7. Emergency funding may be needed.

8. Once EAB has been positively identified, inform the public about the situation, potential impacts and regulatory matters through the Forestry and Peatlands Management Branch website, twitter, media, open houses, and direct mailings. Signage could be posted in the affected areas.

9. More intense delimiting surveys should be conducted, and information from these surveys would be used to assist in the development of ongoing plans and activities in regards to the infestation and to assist in the investigation of the source of the infestation. More Preventive Quarantine Order may need to be issued if there were more finds in the area.

10. Forest Health Orders could be issued requiring the removal and destruction of infected trees (in compliance with federal regulations and directives).

11. A Forest Threat Response Zone may be established to impose restrictions on a larger area. The boundaries of the zone would be determined by the results of delimiting surveys and would be at least five kilometres from the nearest pest detection (if EAB), but if multiple detections were made in an area, the zone may be much larger and may encompass entire municipalities or regions.

**Delimiting Surveys**

Immediately following the confirmation of an invasive forest pest detection (may start before pest confirmation), surveys should be carried out in the area surrounding the detection to determine the extent of the infestation. Surveys could be conducted by a combination of federal, provincial, municipal staff, and/or volunteers.

There are several different types of surveys that can be used. The kind of survey conducted would depend on factors such as funding, personnel, time available, and the potential spread of the pest in the area.

Surveys should radiate from the initial detection, and new detections should be mapped and details recorded. Information recorded during surveys can assist in the determination of the epicenter of an infestation and in the determination of the extent and age of an infestation.

Information on survey procedures can be found at:


**Visual Surveys:** Volunteers may be trained to assist in surveys. This method could be used to gain general information about the extent of an infestation and would likely be the method used first in
the area surrounding a new detection. Volunteer groups may continue visual surveys in the province once EAB has been confirmed.

**Aerial surveys:** Trained staff could attempt to identify declining ash stands from the air via helicopters or airplanes. Aerial surveys should be conducted during the summer months when crown die-back and thinning are more noticeable. This method is not very effective at low infestation densities but can be used to look for declining ash stands that could later be more intensively surveyed from the ground.

**Trapping:** Baited sticky traps may be placed throughout southern Manitoba. Funnel traps could also be used. Traps should be placed in greater densities in areas surrounding detections to assist in determining the extent of an infestation.

**Branch Sampling:** This method was developed by the Canadian Forest Service (CFS) and is useful in determining the extent of an infestation. This method may be fairly effective at low infestation levels in detecting EAB. It may also be used for other wood boring insects. Branch sampling protocols: [http://cfs.nrcan.gc.ca/pubwarehouse/pdfs/32127.pdf](http://cfs.nrcan.gc.ca/pubwarehouse/pdfs/32127.pdf)

**Destructive Surveys:** This method could be used to detect potential infestations. Symptomatic and non-symptomatic trees would be felled and peeled on site to search for pest activity. After examination, this material would be disposed of immediately (chipping etc.- in compliance with federal regulations and directives).

This method is time and labour intensive, and healthy trees may be removed during this process. The immediate area surrounding an infestation could be surveyed this way, and, as surveyors move into low infestation areas, this method could be replaced with branch sampling.

**INVESTIGATION**

An investigation and potential search for the source should start immediately. Tracing where the infested material came from originally and where infested material may have been distributed to (tracing forward) would be extremely important information for managers to have. The initial investigation could occur concurrently with the initial delimitation surveys.

1. **EAB detected at a point source (nursery, firewood, etc.)**
   - A Forest Threat Notice may be issued to stop the movement of potentially infected material. Note: the CFIA may also use their legislation.
   - Trace backs should be conducted to determine the origin of infested material.
   - Investigators should attempt to determine where potentially infested material may have been moved to (trace forward) and those sites investigated for infestations.

2. **EAB detected at a non-point source (stand of trees)**
   - A Preventive Quarantine Order/Forest Threat Notice may be issued to immediately halt the movement of any ash material from the property. Note: the CFIA may also use their legislation.
   - Investigators would begin at the epicentre and move outwards targeting relevant businesses, private properties, and recreation areas for the source of the infestation (i.e., large volumes of firewood). Surveys may provide information relevant to the investigation.
• Information pertaining to the incident and FAQ's could be left with homeowners or at the property if no one is available.
• In order to determine the age of infestation, cores could be taken from infested trees and sent for dendrochronological analysis.

NOTIFICATION AND COMMUNICATIONS PLAN
Information and updates should be provided to various groups in an organized manner in the event that EAB or a new invasive forest pest was confirmed in Manitoba.

A consistent and clear message should be addressed to the public through sources like the media, the Forestry and Peatlands Management Branch’s website, signage, and mailings. Partnering agencies should work together to provide consistent messaging to the public.

Within the delimiting area:
• Relevant businesses and property owners should be advised personally as part of the investigation process.
• Materials describing notices, orders, and restrictions, action being taken, as well as FAQ’s should be distributed.
• Signage could be placed within the area warning the public about moving regulated products.

Within the Preventive Quarantine area:
• Businesses and property owners would have to be advised personally or by mail/phone/email of orders and restrictions, action being taken, as well as FAQ’s.
• Businesses/individuals at greatest risk for violating orders and restrictions should be advised personally and should be advised of the consequences of violating an order and its restrictions.
• Signage could be placed within the area warning the public about moving regulated products.
• Media releases could be used to advise the area of orders and restrictions, and this information would also be posted on the Forestry and Peatlands Management Branch website.

Outside the Preventive Quarantine area:
• Relevant businesses should be advised by phone/mail/email of the order and its restrictions.
• Media releases could be used to inform the public of the situation, and information on the pest and related activities would also be posted on the Forestry and Peatlands Management Branch website.
CHAPTER 5: GENERAL INFESTATION PHASE: PEST MANAGEMENT

Since its discovery in 2002, the approach to managing emerald ash borer (EAB) has gradually shifted from eradication attempts to management methods that attempt to slow the spread of EAB. Because EAB is difficult to detect at low levels, this pest is often well established before it is noticed, so efforts to eradicate it in other areas have failed. Efforts now focus on containment rather than eradication.

Once an area in Manitoba reached the general infestation phase, there would be several different approaches to handling an outbreak of EAB. A flexible approach based on the most current information would be important in the effective management of pest outbreaks.

ERADICATION

Definition

Eradication is the complete elimination of a pest from a specific area. Usually, eradication involves the removal of small, isolated populations before the pest spreads beyond control.

Discussion

The ultimate goal of complete elimination of a pest is difficult to achieve. If technically and financially possible, eradication is the best option. With EAB, eradication would be very hard to accomplish. This pest is difficult to detect in the early stages, and infestations can go unnoticed for years. The state of Maryland tried to eradicate EAB in 2004. These efforts first appeared to be successful, until in 2006, when follow-up surveys found new emergence holes and larvae. Since eradication is difficult to achieve, it may only be considered under the rare circumstance that an infestation is truly detected early.

Example: If the initial identification was found as adults or exit holes in standing trees after emergence, eradication would not likely be possible. However, if the initial population was at the larval stage and identified in new stock at a nursery, eradication may be possible.

SUPPRESSION

Definition

Suppression is the reduction of a pest population to socially, politically, and economically acceptable levels by the application of silvicultural, mechanical, manual, biological and/or chemical control measures (Dictionary of Natural Resource Management, Dunster, Julian, A., 1996).

Discussion

Suppression efforts can include a variety of management activities: increased public education, sanitation (removal of infested trees), use of trap trees, pesticide treatment, containment with Preventive Quarantine Orders or Forest Threat Response Zones, and other methods as they become available.

- Intensify public education: Provide information on the signs and symptoms of EAB and provide information on the proper handling and disposal of ash material.
  - Distribute posters, pamphlets, pocket pest ID cards, and other materials.
• Post signage.
• Provide information seminars.
• Place more articles and ads in papers, newsletters, and magazines.
• Develop and train a network of community based volunteer surveyors to assist in identifying infested trees if this had not already been done.

- Sanitation: This involves removal of infested trees to reduce the pest population. Not all “symptomatic” trees are infested with EAB and it is sometimes difficult to determine if a tree is infected before cutting it down (some non-infested trees will be accidentally removed).
  - Approximately 100 EABs can be produced from one square metre of phloem (Siegert & McCullough, 2006).
  - It may be advisable to remove infested trees during the winter months or during times when the adults are not active. It would be safer to move trees to disposal sites during this time. If trees are removed before adult emergence, far fewer EABs would enter the system. However, removing too many host trees could push the population farther out into new areas sooner.
  - All Canadian Food Inspection Agency (CFIA) movement restrictions would apply, and special permission would have to be obtained from the CFIA if the disposal site was not located in the CFIA regulated area.

- Trap Trees: Trap trees are created by girdling host trees before adult emergence to make the trees attractive to EAB. These trap trees are removed before new adults emerge. Targeting large trees can attract larger numbers of adult beetles. All CFIA movement restrictions would apply, and special permission would have to be obtained from the CFIA if the disposal site was not located in the CFIA regulated area.

- Pesticide Treatment: Pesticides registration is regulated by Health Canada. Those pesticides that are currently registered for EAB can be found at [http://pr-rp.hc-sc.gc.ca/lsp-re/index-eng.php](http://pr-rp.hc-sc.gc.ca/lsp-re/index-eng.php).

- Biological Control: Studies involving the use of different species of parasitoid stingless wasps are being conducted. The larvae of the wasps feed on the various stages of EAB and may assist managers in controlling EAB populations.

- Containment with a Forest Threat Response Zone (FRTZ): A FRTZ could be implemented when EAB is discovered in Manitoba. If no other management strategies were being used, the FRTZ on its own could be a management strategy. The population would be allowed to spread at natural rates within a defined area, or suppression efforts could be used within the area that include pesticide treatments and sanitation. The success of a FRTZ would be dependent on public compliance and engagement. All CFIA movement restrictions would apply, and special permission would have to be obtained from the CFIA if the disposal site was not located in the CFIA regulated area.

- Ash tree conservation/integrated approach: Many jurisdictions have not only removed large amounts of ash preventatively in response to EAB detections, but some areas have removed large amounts of ash in advance of infestations to manage costs under the assumption all the ash will die anyway. In reaction to this, some managers are questioning the necessity of removing so many trees. There is now a strong push to retain and conserve ash trees in urban areas and to only remove infested trees or those that are truly in an advanced state of decline. This approach promotes an integrated management plan that
incorporates chemical and biological control, sanitation, and regulatory measures that curb the spread of EAB through human activity.

**Utilization & Disposal**

Finding ways to use the surplus wood generated from ash tree removals and to securely dispose of the material would be important in the event an infestation was discovered. Plans regarding use and disposal should be in place before an infestation is found in Manitoba and should include the development of disposal and landing sites, protocols and guidelines for ash tree usage, and a comprehensive public education package. Disposal methods would have to meet the federal requirements contained in CFIA's Plant Protection Directive, Phytosanitary Requirements to Prevent the Introduction Into and Spread within Canada of the Emerald Ash Borer, Agrilus planipennis Fairmaire (D-03-08).

Some potential issues related to tree/wood disposal:

- Potential unwillingness of landfills to deal with large quantities of ash material due to issues with burning permits etc.
- Designated disposal sites would have to be secure to ensure none of the wood was removed from the site. While landfills in larger communities are secure, many in smaller municipalities are not, and there could be additional costs for making these areas secure.
- If the material was to be disposed of during adult EAB flight times, it would be necessary to destroy or treat the wood on site.
- Finding potential uses for the wood could be difficult due to a lack of industries currently interested in working with this material. Some potential users may not want the hassle of dealing with the regulations related to the material.
- If the material was tendered out to potential users, the CFIA's guidelines, along with the Province's, would need to be adhered to. This could be difficult and costly to do.

Options to consider for usage:

- Lumber: Local sawmills may be able to utilize the ash trees for lumber.
- Furniture and cabinetry: Ash can be used to make furniture, flooring, cabinets etc.
- Chipping: Ash material can be chipped and used in landscape applications.
- Firewood: Debarked material could be used as firewood.
- Art: Artisans and carvers may be interested in the material.

All of the above options could be promoted as a green product to the consumer. There is also the potential to donate ash material to non-profit groups like Habitat for Humanity, colleges or schools that offer woodworking courses or to corrections facilities.

Options to consider for disposal:

- Disposal via burning or burying: This would likely have to be done at designated municipal waste disposal sites. The CFIA federal regulations, as well as Manitoba's, would have to be adhered to. It would be preferable to establish these sites within federally regulated areas, but if the site was outside of the federally regulated area, federal requirements contained in CFIA's Plant Protection Directive, Phytosanitary Requirements to Prevent the Introduction
Into and Spread within Canada of the Emerald Ash Borer, Agrilus planipennis Fairmaire (D-03-08) would have to be met. Regular inspections by Forestry Branch officers or inspectors would be necessary.

- **Chipping**: A large chipper or tub grinder could be purchased or rented by the province or municipality, and removed trees could be chipped immediately at the site or at a loading site.
- In wild and riverbank areas, trees could be felled and then burned at the site as is done with Dutch elm disease infested trees in similar areas.

As infestations draw closer to Manitoba, the Forestry and Peatlands Management Branch could begin to reach out to different groups, such as municipalities, arborists, sawmill operators, local woodworking business and trade schools regarding ash removals material.
CHAPTER 6: REFERENCES


APPENDICES

APPENDIX 1: INCIDENT FLOW CHART

Potential forest pest detected
⇒ Officer/inspector investigates, collects sample and posts a Forest Health Notice
⇒ Sample is sent to CFIA or other appropriate authority for identification

⇒ Province informed of results
⇒ Pest confirmed - Preventive Quarantine Order may be issued
⇒ Inform affected partners and stakeholders

⇒ Meet with representatives of the affected municipality
⇒ Investigation and visual survey of immediate area begins
⇒ Prepare a media release/upon approval statement released

⇒ Continue to make and recommend public communication plans
⇒ Develop a plan to respond to the outbreak (surveys, removals etc) - involve CFIA/affected municipality
⇒ Obtain funding

⇒ The plan is executed: surveys, removals, seizures, destruction of affected products or trees, public education

The plan is executed: surveys, removals, seizures, destruction of affected products or trees, public education
APPENDIX 2: PROPOSED MANITOBA INVASIVE FOREST PEST COUNCIL
Development and implementation of the Emerald Ash Borer Response Plan will require coordination between stakeholders, pest management experts, and all levels of government. The proposed Manitoba Invasive Forest Pest Council would provide a framework for the knowledge, experience and guidance needed to respond to invasive forest pest detections in Manitoba. Such a group could be formed as EAB gets closer to Manitoba.

PROPOSED OPERATIONAL STRUCTURE
The Manitoba Invasive Forest Pest Council (MIFPC) (Figure 3) would consist of the Executive Council, Response Committee, Technical Advisory Committee and Operations Management. While the focus is on EAB, the intent is that this structure could accommodate other invasive forest pests.

![Image of organizational structure]

Figure 3: The proposed Manitoba Invasive Forest Pest Council (MIFPC) Organizational Structure

The **Executive Council (EC)** would govern all programs and projects. This council would consist of executives (ministers, deputy ministers) from Manitoba Sustainable Development and other provincial departments, federal departments, and local governments. The EC would review the proposals for invasive forest pest management plans forwarded by the Response Committee and would provide approvals for proposed plans. The Response Committee would take direction from the EC. It would be the EC’s task to locate funding sources needed for executing EAB response operations.

The **Response Committee (RC)** would have a central role in the MIFPC organizational structure. It would be the task of the RC to monitor the EAB situation for Manitoba, to prepare response plans and to develop proposals for pest management projects and programs. The RC would rely on the Technical Advisory Committee (TAC) for recommendations on technical, scientific and logistical issues. The RC would use the TAC’s recommendations to compile briefings and management plans.

With the help of special sub-committees, the RC would:

- Create and maintain an operational structure for pest management actions
• Develop a sustainable strategy for managing invasive forest pests
• Develop public education strategies
• Arrange media releases
• Recommend regulatory measures

The chair of the RC would present briefings and drafts of invasive pest plans to the EC. The chair of the RC would work closely with the EC to develop and update initiatives and proposals.

The Technical Advisory Committee (TAC) would assist the RC by developing new program initiatives and updating and improving existing ones. The TAC would consist of specialists and stakeholders from universities, governments or municipalities. The purpose of this committee would be to provide advice and information based on results from active programs and research projects.

It would be the task of the TAC to review invasive forest pest issues, to seek and provide technical information and to compile recommendations on best practices. The TAC would develop more in-depth guidelines on specific issues related to forest pest prevention and management. Members of this committee would be solicited from a broad range of professional backgrounds, including all government levels and departments, universities, industry and other non-government organizations.

The Operations Management (OM) team would be in charge of the day-to-day field operations as directed by the EC and the RC. For example, it would be the OM team's responsibility to arrange for the removal of infected trees and disposal of infested material. Members of this team could be from provincial departments and, depending on the location and nature of the work required, staff from local governments, such the City of Winnipeg or other municipalities. The OM team would consist of special sub-teams that would deal with issues, such as public information, communications, regulation and enforcement and mitigation measures.

It would be the task of the OM team, and in particular the chair of that team, to track and process the results of surveys and citizen inquiries. In addition, the team would be responsible for tracking ongoing invasive forest pest programs and for developing new proposals for invasive forest pest management plans.
APPENDIX 3: IDENTIFICATION OF SPECIMENS

While in the field it may not be possible to secure the specimen according to the instructions here. In such a situation, place larvae or adults in a vial or other secure container and return to the office to properly prepare the specimen as soon as possible. Place affected tree parts or products in a plastic bag and transport them back to the office to properly prepare the sample back at the office. In both cases, if you cannot return to the office right away, keep the specimens cool until you can return to the office.

(In most cases, a sample can be taken directly to a CFIA office (place specimen in secure container) and they can prepare the sample for identification at the Ottawa lab.)

All samples should be submitted to the Canadian Food Inspection Agency:

Attn: Plant Protection Officer, Food/Plant Programs

CFIA

613 – 269 Main St, Winnipeg MB, R3C 1B2

(204) 984-7603

A label must be secured to the sample that identifies: GPS waypoint, physical description of the property or location where the specimen was collected, date of collection, name/affiliation/mailing address/phone and fax numbers/email address of collector/s, host/substrate info (species, age, condition, number of hosts affected, description of area, damage intensity), also note anything else that may help in identifying the pest or host or the scope of the problem, i.e. proximity to a warehouse or nursery, etc.

- Insects/adult or pupae: Specimens should be placed in a vial with a 70% non-denatured ethanol solution and a label should be attached to the sample vial.
- If an adult beetle is found on a trap, the specimen should be carefully removed and individually wrapped in a KimWipe (do not use toilet paper or Kleenex that could adhere to the glue on the sample). Great care must be taken when removing the sample from the trap so as not to damage any of the insect’s structures that may assist in identification. Specimens must be placed in an empty glass vial.
- If it is not possible to remove the insect from the trap, the specimen can be submitted still attached to the trap (or portion of it). The portion should be lightly wrapped in KimWipes and placed in a plastic bag. A label should be attached to the bag.
- Insects/larvae: Larvae should be killed by placing them into near-boiling water. A microwave can be used to heat the water to the first signs of boiling. The larvae should be placed in this water for at least 30 seconds and up to three minutes for large larvae. Remove the larvae from the water and place into vials with a 70 per cent non-denatured ethanol solution.
- Diseased material: The sample collected should show as many stages of the disease as possible and should contain an adequate amount of material with generous portions of healthy tissues adjacent to tissues showing symptoms. A healthy sample can be submitted separately for comparison. Exclude all badly decayed material from a sample, if possible, as
isolation and identification of the original disease-causing organism from decayed material is usually impossible. (expand on this) (different between different types of material)

- Wrap samples with dry paper towels or newsprint and enclose in a plastic bag. Samples wrapped in plastic without dry paper tend to get overrun by secondary fungi and bacteria due to the high level of moisture in contact with the sample. Never add water and keep samples chilled. Attach a label to the bag.

- Woody material submitted for identification: The material should be contained in a similar fashion as above. Larger items could be wrapped in plastic/plastic bags. Where possible include pieces that show the inner wood, bark, twigs, leaves etc.
APPENDIX 4: FOREST HEALTH PROTECTION ACT ORDERS

The Forest Health Protection Act:  http://web2.gov.mb.ca/laws/statutes/ccsm/f151e.php

FOREST THREAT NOTICE (FTN)

12(1) If an inspector or officer has reasonable grounds to believe that a tree or forest product might be affected by a forest threat, the inspector or officer may post a forest threat notice on the tree or forest product.

Form of forest threat notice

12(2) The forest threat notice must

   (a) be in a form approved by the director; and
   
   (b) state that no person may

      (i) move the forest product on which the notice is posted, or
      
      (ii) prune or cut down the tree on which the notice is posted, until after the date specified on the notice, which must not be more than 30 days after the notice is posted.

Prohibitions

12(3) Until after the date specified on the forest threat notice, no person shall

   (a) move or tamper with the forest product on which the notice is posted;
   
   (b) prune or cut down the tree on which the notice is posted; or
   
   (c) remove, deface or interfere with the notice, unless authorized to do so by an inspector or officer.

PREVENTIVE QUARANTINE ORDER (PQO)

According to section 13(1) of The Forest Health Protection Act (FHPA) a PQO could be issued if:

(a) the inspector or officer has reasonable grounds to believe that a forest threat that

      (i) is capable of causing significant damage to trees in a relatively short period of time, or
      
      (ii) is extremely contagious or mobile, might be present on the land, or on land nearby; or

(b) a forest threat has been found on land nearby

FOREST HEALTH ORDER (FHO)

14(1) When a forest threat has been found on land owned or occupied by a person, an officer may serve a forest health order on that person.
Terms of order

14(2) A forest health order may require a person, on or before a date specified in the order, which must be at least 20 days after the order is served, to do one or more of the following on the land the person owns or occupies:

(a) cut down or prune the trees specified in the order, and dispose of them in the manner specified in the order;

(b) remove the forest products specified in the order and dispose of them in the manner specified in the order;

(c) apply disinfecting, preventive or therapeutic treatments to trees or forest products that are affected or that are in danger of becoming affected;

(d) take other measures specified in the order to eradicate the forest threat or prevent it from spreading from the land.

Forest Threat Response Zone (FTRZ)

Revise the PQO if necessary and implement a FTRZ.

- The area designated as a FTRZ should be larger than the area of infestation.
- Only by regulation from the minister could an area be designated as a FTRZ. The minister would set out the area to be regulated and would create regulations that would restrict activities in the area.
- Before a FTRZ was established, open houses should be held and public consultations undertaken.
APPENDIX 5: EAB RESPONSE SCENARIOS

The following emerald ash borer (EAB) detection scenarios were developed by a working group comprised of representatives from the Canadian Food Inspection Agency (CFIA), Manitoba Conservation, Forestry and Peatlands Management Branch (FPMB), the City of Winnipeg and the City of Brandon. This working group was organized by the CFIA to assist in the development of a coordinated and efficient response plan to a detection of EAB in Manitoba.

Scenarios

1. EAB adult found in a trap or adult or larvae found in a tree in Winnipeg's Assiniboine Park
2. EAB found in firewood outside a “big box” store in Brandon
3. EAB found in a tree on private property in Selkirk
4. EAB found in a shelterbelt near Winkler
5. EAB infested material found in a transport truck

These scenarios are fictional but represent the potential for invasive pest introductions through several known pathways. Some of these scenarios describe specific situations but these can be applied to other similar potential situations. These scenarios have been developed using the available information at the time of publishing and are subject to change.

1. EAB ADULT FOUND IN A TRAP OR ADULT OR LARVAE FOUND IN A TREE IN WINNIPEG’S ASSINIBOINE PARK

In this first scenario, a City of Winnipeg, Forestry Branch employee finds a potentially EAB infested tree in Assiniboine Park. The tree shows visual symptoms of EAB infestation, and the employee finds larvae and s-shaped galleries upon peeling the bark of the tree.

Assiniboine Park is comprised of nearly 300 acres and contains several varieties of trees including ash (planted and natural). It is situated south of the Assiniboine River within the urban area of the city and is surrounded by many private properties.

Rapid Identification and Sample Specimen

A sample would be submitted for positive identification to the Winnipeg CFIA office. The specimen would be “rushed” to the entomology lab in Ottawa, and all effort would be made to have the sample identified as rapidly as possible (a couple of days). The CFIA would inform affected partners as soon as the specimen was identified.

Regulatory Response

CFIA

Notice of Prohibition of Movement (NOPM) or Notice of Quarantine (NOQ): The CFIA would use the Plant Protection Regulations to issue a NOPM or NOQ on the properties where EAB had been found - in this case the park. Either of these regulatory measures would place restrictions on the
movement of EAB, ash plant material and firewood out of the infested place to contain the spread of EAB. This step could be taken before pest confirmation.

**Federal Ministerial Order (Emerald Ash Borer Infested Places Order/MO):** After delimitation surveys, the existing MO would be revised by adding the new infested area to it. The area covered by the MO would replace the existing NOPM or NOQ and would be regulated by the CFIA. This could take several months.

In the event that more EAB infestations were found outside the park area during delimitation surveys, an additional NOPM or NOQs would be issued on all properties where EAB was found. The NOPM or NOQs would be in place until the Ministerial Order (i.e., Emerald Ash Borer Infested Places Order) was revised by adding the new infested area.

**Forestry and Peatlands Management Branch (FPMB)**

**Forest Threat Notice:** FPMB would post a Forest Threat Notice on trees that appeared to be infested (under The Forest Health Protection Act) to prohibit anyone from tampering with or removing the infested tree(s). This could be done before confirmation of EAB.

**Preventive Quarantine Order:** To prohibit the movement of hardwood firewood and potentially EAB infested material from the area, Preventive Quarantine Orders could be issued for the park and adjacent properties before or after pest confirmation.

**Forest Health Order:** If it became necessary to remove trees outside of the park area, a Forest Health Order could be issued for those properties directing the property owners to allow ash tree removals on their property. The CFIA would have to authorize the movement of the ash trees or other regulated material if the property was under a NOPM, NOQ or MO.

**Communications**

Affected partners would be informed immediately of the detection of a possible EAB infestation (City of Winnipeg, Forestry and Peatlands Management Branch, Manitoba Invasive Forest Pest Council (MIFPC), CFIA).

The CFIA, FPMB and the City of Winnipeg would issue a coordinated media release once EAB was confirmed. Any signage for the area would be developed by partnership.

Open houses would need to be organized in the affected neighborhoods. Later, public workshops could be organized to inform the general public about EAB and to enlist the help of volunteers from the public in EAB monitoring.

**Delimitation Surveys**

The CFIA and those who have been designated as officers or inspectors under The Forest Health Protection Act can enter private property to search for infested trees or wood without permission of the property owner (when necessary).

The CFIA would coordinate survey efforts with FPMB and the City of Winnipeg. Visual ground surveys and/or the placement of additional traps would be used to determine the distribution of
EAB. This survey area could expand if additional infested trees were found. (Once a Ministerial Order was in place for the area, the CFIA would no longer conduct surveys in the area.)

The City of Winnipeg and the Forestry and Peatlands Management Branch would consider branch sampling as part of the survey effort in consultation with the CFIA. The CFIA would not conduct branch sampling but would provide direction and technical assistance.

FPMB and city staff may continue surveys in the federal order area as infested trees within the order area may be removed by the city/province and the city may want to identify trees that would be suitable for treatment.

**Investigation**

FPMB would attempt to find the source of the infestation. Delimitation surveys would help with this.

**Operational Response**

The CFIA would not remove any infested trees or issue any Notices to Dispose. The CFIA would take a "slow the spread" approach and would focus on intensifying surveys outside of the "infested" area and would increase public education efforts.

The CFIA would continue to enforce the Federal Ministerial Order.

The operational plan could be developed and implemented by the City of Winnipeg and FPMB. FPMB would follow the protocols and incident flow chart outlined in the *Emerald Ash Borer Preparedness Plan.*

Surveys would intensify in the area to gain a better understanding of the extent of the infestation.

Operations may include tree removals, pesticide treatments and the implementation of a Forest Health Response Zone under *The Forest Health Protection Act.*

A cost sharing agreement could be drafted between the city and the province to assist the city in containment efforts.

**Disposal of Infested Materials**

Under the federal NOPM/NOQ/MO, no infested materials could leave the infested area unless the risk of EAB was mitigated and a Movement Certificate (MC) was issued by the CFIA. FPMB and the City of Winnipeg may arrange to destroy and dispose of infested materials and would need to do so in accordance with federal and provincial legislation.

The response to an EAB detection would vary depending on what time of year it was found. For example, if the pest were found during adult EAB flight times, removed trees would either have to be chipped/destroyed on site, as removal of ash material from a federally regulated area to a non-regulated area is prohibited during the high risk season of April 1 to September 30 (see D-03-08).

A disposal area would have to be established; although, ideally, this would have been done in advance. The disposal area would have to be secure (people cannot come in and remove wood).
Depending on the time of year, the material may have to be destroyed quickly. The CFIA has developed an EAB Approved Facility Compliance Program (EABAFCP) that would allow a facility in good standing to receive regulated articles in non-regulated areas. The requirements are outlined in D-03-08 and QSM-07.

Depending on the scope of the infestation, private tree care companies may need to be contracted to assist in tree removals.

2. EAB FOUND IN FIREWOOD OUTSIDE “BIG BOX” STORE IN BRANDON

In this scenario, a Forest Health Protection Officer from the Forestry and Peatlands Management Branch (FPMB) inspects firewood in onion bags being sold at a big box store in Brandon (small city of 46,000 located two hours west of Winnipeg on the Assiniboine River) on a Friday morning in July. The officer notices that the wood is hardwood and that there are some pieces of barked ash in the bags. The label on the bag indicates that the company selling the wood is located in Ontario. No treatment is listed on the bag.

After purchasing a bag, the officer takes the wood back to the office to inspect. The bark is fairly tight, and after removing some of the bark, the officer finds s-shaped galleries and finds what appears to be an EAB larva.

The store is located near the riverbank, which contains ash, new developments with ash monocultures, and a nursery that sells containerized ash trees.

**Rapid Identification and Sample Specimen**

A sample must be submitted for positive identification to the Brandon CFIA office or the Winnipeg CFIA office. The specimen would be “rushed” to the entomology lab in Ottawa, and all effort would be made to have the sample identified as rapidly as possible (a couple of days). The CFIA would inform affected partners as soon as the specimen was identified.

Although neither the CFIA nor FPMB regularly work weekends, both agencies would be prepared to attend to the situation on a weekend or holiday.

**Regulatory Response**

**CFIA**

**Notice of Quarantine:** The CFIA would issue a NOQ and order that the firewood be moved to a secure area for storage to prevent EAB from spreading from the location. This would be done before pest confirmation.

**Forestry and Peatlands Management Branch (FPMB)**

**Forest Threat Notice:** A Forest Threat Notice could be posted on the firewood prior to pest confirmation to stop it from being sold, moved from the location or otherwise tampered with.
**Preventive Quarantine Order:** FPMB could issue a Preventive Quarantine Order for the location and for nearby properties before or after pest confirmation.

**Forest Health Order:** FPMB could order the big box store to destroy the wood after pest confirmation or FPMB could seize the wood and destroy it.

The CFIA and FPMB would need to work closely together in this situation.

**Communications**

Affected partners would be informed immediately of the detection of a possible EAB infestation (City of Brandon, Forestry Branch, Manitoba Invasive Forest Pest Council (MIFPC) etc.).

This detection would be considered an interception event, because life stages were only found in a commodity (e.g. firewood) and not found in established trees. As such, the CFIA does not issue any media releases for interception events.

Sustainable Development would consider a media release in this situation in order to gain public participation in returning potentially infested firewood that they bought at the big box store.

**Surveys**

The CFIA does not conduct any delimitation surveys for interception events. However, the CFIA would conduct detection surveys for several years around the interception site (e.g. visual ground surveys and/or traps).

FPMB may conduct surveys (visual/branch sampling/trapping) in cooperation with affected partners (City of Brandon). This would depend on how long the infested material was sold at the location and during what time of year. The CFIA would assist in the coordination of surveys.

Ash nursery stock at the nearby nursery would be closely inspected and the nursery would be informed of the situation.

The area would have to be monitored (more traps/visual surveys) for many years, even if initial surveys did not find any infested trees. It may take a year or more for new infestations to become noticeable. The same would be true for other locations where the wood had been sold and for locations where the wood had been stored after it was purchased.

**Investigation**

The CFIA would consider this an interception and trace-back and trace-forward investigations would begin.

The original vendor/seller would be contacted.

It would be important to determine how long the wood had been at the location. If the wood had been at the location for several months during adult EAB flight times, the probability that nearby trees had been infested would increase significantly.
The CFIA would need to determine if this wood came from an EAB regulated area or if the wood originated from outside of current regulated areas – where was the wood cut? If the firewood originated in a regulated area, the CFIA could impose enforcement measures including fines or prosecution.

The CFIA and FPMB would need to determine where else the wood had been distributed to (other stores).

Other investigations/inspections could be triggered by this investigation.

The CFIA and FPMB would work together on an investigation.

Every effort would need to be made to find out where the wood was sold and to whom (FPMB). This material would have to be seized and destroyed (the public could be asked to voluntarily return wood they purchased to the store where they purchased it).

**Operational Response**

FPMB would follow protocols outlined in the provincial *Emerald Ash Borer Preparedness Plan*, and the incident flow chart (EAB plan appendices) would be followed.

**Disposal of Infested Materials**

If the interception was determined to be positive by the CFIA, it would order the firewood destroyed with the costs to be borne by the big box store. The CFIA’s primary objective would be to take control of the firewood and ensure it was destroyed according to regulations. Destruction methods may include deep burial (i.e., under two meters of solid waste in a landfill) or incineration. The CFIA would supervise the destruction of the wood.

FPMB and City of Brandon staff would be available to assist with disposal.

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**3. EAB found in a tree on private property in Selkirk**

A property owner in Selkirk, a small city near Winnipeg (pop. 10,000) on the Red River, calls Forestry and Peatlands Management Branch (FPMB) about a tree that is dying in their backyard near the end of July. They are not sure what kind of tree it is, and they are worried that the tree has Dutch elm disease.

An inspector (DED surveyor) goes to the property the following week (August) during their regular survey of that community for DED. The inspector determines that the tree is an ash tree, and that it is in very poor condition. They take a picture. The inspector informs their supervisor at the end of the day about the tree and shows them the picture. The tree shows symptoms of an EAB infestation.

The supervisor/officer attends the property the following day to inspect the tree and finds longitudinal cracks in the tree/epicormic shoots. After peeling some bark from the tree, the officer finds what appears to be an EAB larva. The larva is collected and preserved, and the officer takes the sample directly to the Winnipeg CFIA office. The larva is very likely EAB.
The property is in a neighbourhood with lots of ash and is near Selkirk Park, which contains newly planted ash and wild populations of ash.

**Rapid Identification and Sample Specimen**

The specimen would be “rushed” to the entomology lab in Ottawa, and all effort would be made to have the sample identified as rapidly as possible (a couple of days). The CFIA would inform affected partners as soon as the specimen was identified.

**Regulatory Response**

**CFIA**

**Notice of Prohibition of Movement (NOPM) or Notice of Quarantine (NOQ):** The CFIA would use the *Plant Protection Regulations* to issue a NOPM or NOQ on the properties where EAB had been found. Either of these regulatory measures would place restrictions on the movement of EAB, ash plant material and firewood out of the infested place to contain the spread of EAB. This step could be taken before pest confirmation.

**Federal Ministerial Order (Emerald Ash Borer Infested Places Order/MO):** After delimitation surveys, the existing MO would be revised by adding the new infested area to it. The area covered by the MO would replace the existing NOPM or NOQ and would be regulated by the CFIA. This could take several months.

In the event that more EAB infestations were found during delimitation surveys, an additional NOPM or NOQs would be issued on all properties where EAB was found. The NOPM or NOQs would be in place until the Ministerial Order (i.e., [Emerald Ash Borer Infested Places Order](#)) was revised by adding the new infested area.

**Forestry and Peatlands Management Branch (FPMB)**

**Forest Threat Notice:** FPMB would post a Forest Threat Notice on trees that appeared to be infested (under *The Forest Health Protection Act*) to prohibit anyone from tampering with or removing the infested tree(s). This could be done before confirmation of EAB.

**Preventive Quarantine Order:** To prohibit the movement of hardwood firewood and potentially EAB infested material from the area, Preventive Quarantine Orders could be issued for the property and adjacent properties before or after pest confirmation.

**Forest Health Order:** A Forest Health Order could be issued for those properties where EAB infested trees were found directing the property owners to allow ash tree removals on their property. The CFIA would have to authorize the movement of the ash trees or other regulated material if the property was under a NOPM, NOQ or MO.

**Communications**

Affected partners would be informed immediately of the detection of a possible EAB infestation (City of Selkirk, Forestry and Peatlands Management Branch etc., CFIA).
The CFIA, FPMB and the City of Selkirk would issue a coordinated media release once the NOPM was in place and the pest was confirmed. Any signage would be developed in partnership.

Open houses would be organized and held in the community. Subsequent training programs for public volunteers may also ensue.

**Delimitation Surveys**

The CFIA and those who have been designated as officers or inspectors under *The Forest Health Protection Act* can enter private property to search for infested trees or wood without permission of the property owner (when necessary).

The CFIA would coordinate survey efforts with FPMB. Visual ground surveys and/or the placement of additional traps would be used to determine the distribution of EAB. This survey area could expand if additional infested trees were found. (Once a Ministerial Order was in place for the area, the CFIA would no longer conduct surveys in the area.)

FPMB would consider branch sampling as part of the survey effort in consultation with the CFIA and the City of Selkirk. The CFIA would not conduct branch sampling but would provide direction and technical assistance.

FPMB may continue surveys in the federal order area as infested trees within the order area may be removed by the city/province, and the city may want to identify trees that would be suitable for treatment.

**Investigation**

FPMB would attempt to find the source of the infestation. Delimitation surveys would help with this.

**Operational Response**

The CFIA would not remove any infested trees or issue any Notices to Dispose. The CFIA would take a "slow the spread" approach and would focus on intensifying surveys outside of the "infested" area and would increase public education efforts.

The CFIA would continue to enforce the Federal Ministerial Order.

The operational plan would be developed and implemented by the City of Selkirk and FPMB in consultation with the MIFPC. FPMB would follow the protocols and incident flow chart outlined in the *Emerald Ash Borer Preparedness Plan*.

Surveys would intensify in the area to gain a better understanding of the extent of the infestation.

Operations may include tree removals, pesticide treatments and the implementation of a Forest Health Response Zone under *The Forest Health Protection Act*.

A cost sharing agreement could be drafted between the city and the province to assist the city in containment efforts.
Disposal of Infested Materials

Under the federal NOPM/NOQ/MO, no infested materials could leave the infested area unless the risk of EAB was mitigated and a Movement Certificate (MC) was issued by the CFIA. FPMB and the City of Selkirk may arrange to destroy and dispose of infested materials and would need to do so in accordance with federal and provincial legislation.

The response to an EAB detection would vary depending on what time of year it was found. For example, if the pest were found during adult EAB flight times, removed trees would either have to be chipped/destroyed on site, because removal of ash logs from a federally regulated area to a non-regulated area is prohibited during the high risk season of April 1 to September 30 (see D-03-08).

A disposal area would have to be established; although, ideally, this would have been done in advance. The disposal area would have to be secure (people cannot come in and remove wood). Depending on the time of year, the material may have to be destroyed quickly. The CFIA has developed an EAB Approved Facility Compliance Program (EABAFCP) that would allow a facility in good standing to receive regulated articles in non-regulated areas. The requirements are outlined in D-03-08 and QSM-07.

Depending on the scope of the infestation, private tree care companies may need to be contracted to assist in tree removals.

4. EAB FOUND IN A SHELTERBELT NEAR WINKLER
In this scenario, a potentially EAB infested tree is reported to the CFIA in an isolated rural shelterbelt that is several miles out of Winkler (small city in the Pembina Valley – pop. 11,000).

The response to this scenario would be the same as Scenario 3. One notable difference is that eradication may be a greater possibility in this situation, and Sustainable Development would take this into consideration in its operational response.

5. EAB INFESTED MATERIAL FOUND IN A TRANSPORT TRUCK
In this scenario, a highways inspector working on the Trans Canada Highway near Portage La Prairie (small city one hour from Winnipeg) finds a transport truck with a load of tree nursery stock that does not have proper documentation. There is no load slip that indicates species, where the trees came from and where the trees are going (legally required under The Forest Health Protection Act). The driver of the truck tells the inspector that the trees came from a nursery near London ON and he is taking them to Saskatoon, SK. He does not know what species the trees are.

Forestry and Peatlands Management Branch (FPMB) is contacted and a quick check confirms that the trees came from an area regulated by the CFIA for EAB. A Forest Health Protection Officer drives to the location to inspect the load. The trees are ash, and there is visual evidence of EAB infestation.
Initial response and sample collection

The officer would call FPMB head office in Winnipeg to inform them of the situation. The CFIA would also be called, and they would send an inspector to the location as well.

The FPMB officer would order the driver to remain at the current location. After the CFIA inspector arrived they would choose a tree with obvious symptoms and peel the bark to search for larva/other life stages. Any specimens collected would be “rushed” to the entomology lab in Ottawa, and all effort would be made to have the sample identified as rapidly as possible (a couple of days). The CFIA would inform affected partners as soon as the specimen was identified.

Containment

CFIA

Notice of Quarantine (NOQ): The CFIA would issue a NOQ and order that the trees be moved to a secure area for storage until pest identification. Care would have to be taken to find a suitable location as this incident has occurred during EAB flight times. Manitoba Highways Department could be contacted for ideas as could the City of Portage La Prairie – although a location within the city would not be suitable.

If the inspection station was isolated and far removed from any wild ash or ash shelterbelts, the truck could be retained at the inspection station and the trees secured in the truck.

Forestry and Peatlands Management Branch (FPMB)

Seizure: The officer could also direct the driver of the truck to take the trees to a secure location pending pest identification under The Forest Health Protection Act, or, as indicated above, the truck could be retained at the inspection station.

Forest Threat Notice: A Forest Threat Notice could be posted on the trees prior to pest confirmation to stop the trees from being moved from the secure location or otherwise tampered with.

EAB Confirmation

Communications

FPMB would need to inform the Manitoba Invasive Forest Pest Council (MIFPC) about the situation as soon as FPMB or CFIA took control of the ash material (prior to confirmation). Pest confirmation would need to be relayed to the MIFPC as well.

The CFIA and FPMB would work together in this situation.

Disposal

The CFIA would order the trees destroyed if the pest was identified as EAB or if it was determined that the nursery stock originated from a federally regulated area for EAB. The CFIA’s primary objective would be to mitigate the risk of EAB spread and ensure that the trees were destroyed according to regulations. Destruction methods may include deep burial (i.e., under two meters of
solid waste in a landfill), incineration or chipping/tub grinder. The CFIA would supervise the destruction of the trees.

FPMB staff would be available to assist with disposal.

**Investigation**

The CFIA, with FPMB’s assistance, would conduct an investigation. Much of the investigation would take place in ON, but that could change if more loads were en route through Manitoba or if any other loads from the same location had been delivered to Manitoba. It would be important to determine where the trees originated from and whether or not more had been shipped to other non-regulated areas. Depending on the findings of the investigation, more action may need to be taken in Manitoba.

Both agencies could pursue charges under their respective legislation.