

# CITY OF CONCORD

## GENERAL SERVICES

### Urban Canopy Health Observations and Recommendations 2015-2016

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## **Introduction on the Effects of the Invasive Insect Species on the Urban Canopy**

Over the past few years my crew and I have encountered a lot of trees that have been affected by invasive insects and noticed that they are taking their toll on the urban tree canopy. There are a lot of trees that are on private property that we have noticed as well and at this point they don't impact the right of way or City property but eventually they will, therefore it's important to educate the public as a whole so that they can start taking steps themselves to try and prevent any hazards to the Right of Way and City owned property such as Parks and Cemeteries.

## **Observations on Emerald Ash Borer (EAB)**

EAB is present in most of the Parks and Cemeteries the city owns. Known infestations are; Garrison, Merrill, Kiwanis, Whites, Thompson, McKee Square, Terrill Park, Blossom Hill and Horsehill Cemetery. At this point in time one can assume that all ash trees (public and private) within the South End are being affected by EAB. EAB has also been established in East Concord as far as Hot Hole pond. The beetle has also moved on larger private landscape properties that abut the roadway. One large example is all ash trees bordering D'mante Dr. These properties include, Home Depot, Shaw's and all of the malls landscaping. There are numerous other private and public landscapes that are being attacked as well. It is important to not only look at large scale loss but also loss on a smaller scale. The significance of one or two may not seem noteworthy, but if you add up these losses in an overall area they begin to add up quickly. Much of the beetle's mobility comes from human aid via firewood, chips and lumber. Although the beetle does have flight capabilities of up to 2-4 miles, with pregnant females flying the longest distance.

## **What to expect from EAB:**

Based on information gathered from its initial USA finding (Southeast Michigan) one can assume within 10 years 99% of ash trees over 1inch in diameter will be dead. Since EAB was found in Concord (more likely here 3-8 years earlier) in 2013, one can assume 90% or higher mortality by 2020-2023. Mortality could be delayed as remote ash trees would generally be attacked after larger stands were exhausted. Attacks on these remote trees would inevitably extend EAB's range throughout Concord.

Expect faster loss of EAB affected trees as USDA projected mortality is based on a completely dead state. Trees owned in fee that are abutting private/public properties will need to be removed before they get to a completely dead state, I.E before they become a hazard. Trees not owned in fee within the right of way will also need to be addressed before they become a public hazard. At this point in time if a tree shows signs of EAB, it should be removed.

## **Management recommendations:**

There is a chemical control that can be injected into the base of ash trees to try and slow down mortality. The pesticide that is injected into the base of the trees is Emamectin benzoate. The State had

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a program that the City took advantage of and injected all ash trees within Thompson Play lot, all ash trees abutting Loudon Rd at the Arena, selected ash trees within White's Park, selected ash trees within McKee's Square. All of the above locations showed various signs of EAB. All these trees will need another round of injections in the spring of fiscal year 2018. I am recommending further injections be funded for all of the above locations at an approximate cost of \$3,200.

Biological control for this 10 year time frame should not be relied on too heavily. Treated trees are "safe" for approximately 3 years after injection. I do have concerns about repeated injections girdling the trunk of the tree over time. All other sites should be prepared for replacement with suitable species. It will also be important to educate the public of what is going on around them and offer help to where they can get further guidance and information. Owners of trees that pose a threat to the traveling public outside the right of way should be put on notice. Commercial properties should be monitored for green space mortality as they may no longer meet the planting requirements' established during initial construction.

### **Observations of Red pine needle scale:**

As already stated by Mr. Ronald Klemarczyk, City Forester, much of our red pine is located within stand type locations. Much like EAB we need to look at this scale not just at a large scale outbreak but also on individual trees within the landscape. Much of its movement can be projected from prevailing winds between the months of May-Oct. Other forms of movement include animals, humans, nursery stock and lumber.

I am seeing unconfirmed signs throughout Concord. Many of these trees are not within the public right of way but most likely will pose a threat to the traveling public in the next 2-3 years. We are currently removing declining red pines abutting the access road into the well fields/ shooting range off Pembroke Rd after multiple problems with accessibility to both facilities. The presence of the scale has not been confirmed for the decline.

### **What to expect from Red pine needle scale:**

We will most likely be able to handle small scale outbreaks within city owned parcels and deeded right of ways. Larger scale outbreaks will need to be handled with outside vendors. Larger parcels I see becoming a viable issue are; Rollins Park, red pines abutting roadway on city parcel off Pembroke Rd, Pembroke, red pines abutting Little Pond Rd. near Walker State Forest ,city owned parcel abutting Woodlawn Cemetery and mixed stand abutting Lakeview near the water pipe line from the Contoocook River crossing into watershed. There will also be numerous private trees that will become a problem.

### **Management recommendations:**

Non stand red pines showing signs should be removed. Owners of trees that pose a threat to the traveling public outside the right of way should be put on notice. Commercial properties should be

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monitored for green space mortality as they may no longer meet the planting requirements' established during initial construction.

## **Future pests being monitored:**

### **Southern pine bark beetle:**

The State of NH has begun setting traps for this more southern known pest. The pest has the ability to attack multiple pine species but most notability attacks pitch pines. Keach Park will be a place to monitor going into the future.

### **Winter moth:**

Moth feeds on; oaks, maples, basswood, elm, apple, and select spruce. This pest is frequent in Mass and bordering southern NH areas.

### **Spotted Lanternfly:**

Relatively new pest recently found in Pennsylvania in 2014. The USDA has found it can feed on apples, plums, cherries, oak, walnut and poplar to name a few. I would expect movement via wood or nursery stock or any smooth surface item to harbor egg masses. Quarantine regulations within sections of Pennsylvania restrict movement of more than bio mass products such as siding, tarps, ATV's and outdoor stone work. These items would all be considered regulated items within a quarantine zone.

### **Asian long horned beetle:**

Its ability to feed on multiple tree species makes this extremely dangerous for our canopy. Some of the species showing the highest favorability and larva survivability are sugar maple and red maple. The beetle is extremely devastating within an urban canopy scenario and has the ability to spread fast within a forest setting. An example of how a city can be hit with this pest is Worcester, MA.

Although control is somewhat possible it requires substantial funding. Control methods are also severe, requiring whole host removal. Flight tests show similar flight capacity of EAB, approx 2 mile. The large beetle size does limit distance however. I would assume movement into Concord would come from firewood or planting stock. I have seen this pest first hand while working in the commercial sector contracted by the USDA in Worcester.

### **Final notes:**

Concord's location to the highway and local nursery make it an ideal location for out of State pests to arrive via human aid. However, native and non-native pests are not new to Concord's canopy. I have been dealing with many of these throughout my time here. Major diseases that have been

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affecting our urban canopy are Dutch Elm disease (DED), and various forms of needle cast /blight diseases. The Parks and Cemeteries continually have mature tree mortality due to these diseases. Right of way mortality is also high. Abiotic mortality is considered a very high factor as well.

Concord's canopy decline will continue even faster with the colonization of present pests, new pests, along with future pests. It is vital funding for urban canopy improvement projects within Parks, Cemeteries and public ROW's begin now. We need to begin rebuilding a more suitable future canopy using the most up to date techniques. We can achieve this by incorporating up to date nursery varieties, soil improvements, pest monitoring techniques, more detailed inventories and sustainable long term funding.

Communication to the public is also very important. Educating residents of known pests within the area and potential pest would greatly improve management plans/monitoring and canopy health.

Any further questions regarding my staffs observations please don't hesitate to ask.

Respectfully submitted,

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