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RESTORING THE HEALTH OF RATTRAY MARSH

Public Information Session

November 19, 2014

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EMERALD ASH BORER UPDATE

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WELCOME

Today I'm going to give an update to folks on our EAB activities since our last public meeting on this topic last spring, and for new listeners a bit of a quick overview as well of EAB and our plan for tackling it here at Rattray Marsh

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BACKGROUND

Emerald Ash Borer (EAB)

- Small, shiny, emerald green beetle
- Invasive species from Asia
- Affects Native Ash Trees
- Large-scale spread of EAB due to people moving infested ash products

Now. …The Emerald ash borer (Agrilus planipennis Fairmaire) is a small, shiny, emerald green beetle that attacks and kills healthy ash trees.

It came from Asia in 2002 to North America, found in our area in about 2008.

It is considered an invasive species as it attacks and kills native ash trees in as little as 2 growing seasons.

Its rapid spread has largely been linked with people moving infested ash products

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CURRENT REGULATIONS

Canadian Food Inspection Agency (CFIA)

Movement of any Ash Tree Article from a Regulated

- ash nursery stock
- ash logs and branches
- ash lumber
- ash wood or bark
- ash wood chips or bark chips
- **firewood from all tree species**

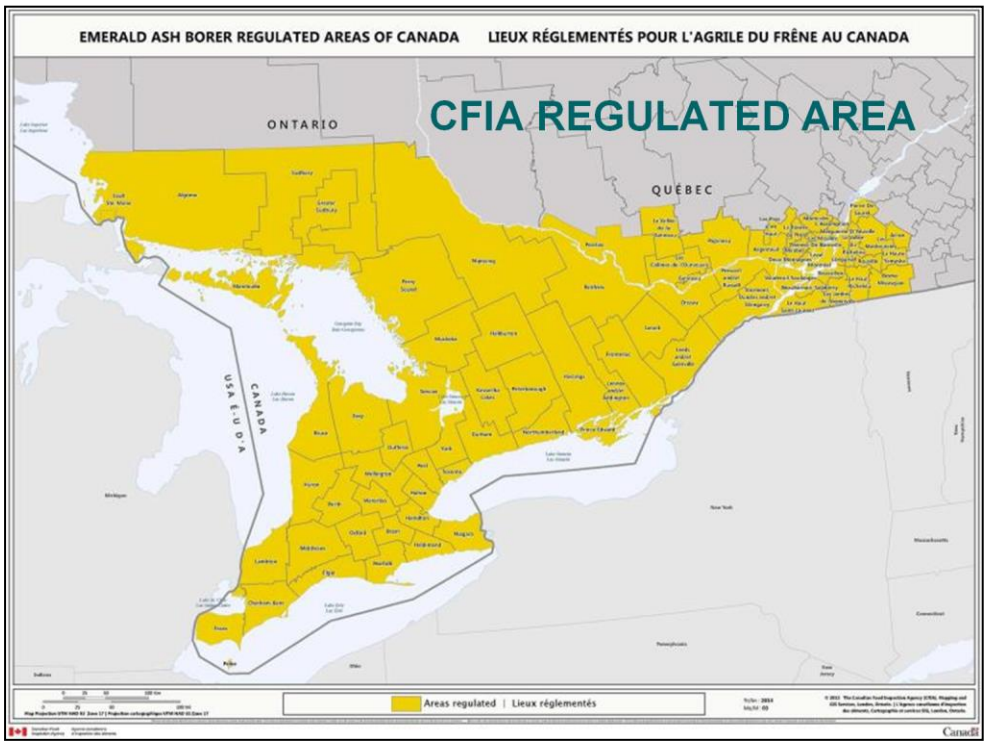
The Canadian Food Inspection Agency (CFIA) is responsible for preventing pests of quarantine significance from entering or spreading within Canada

Current Regulations prohibit movement of any ash tree article from a regulated area or property without the consent of the CFIA. Ash tree articles being

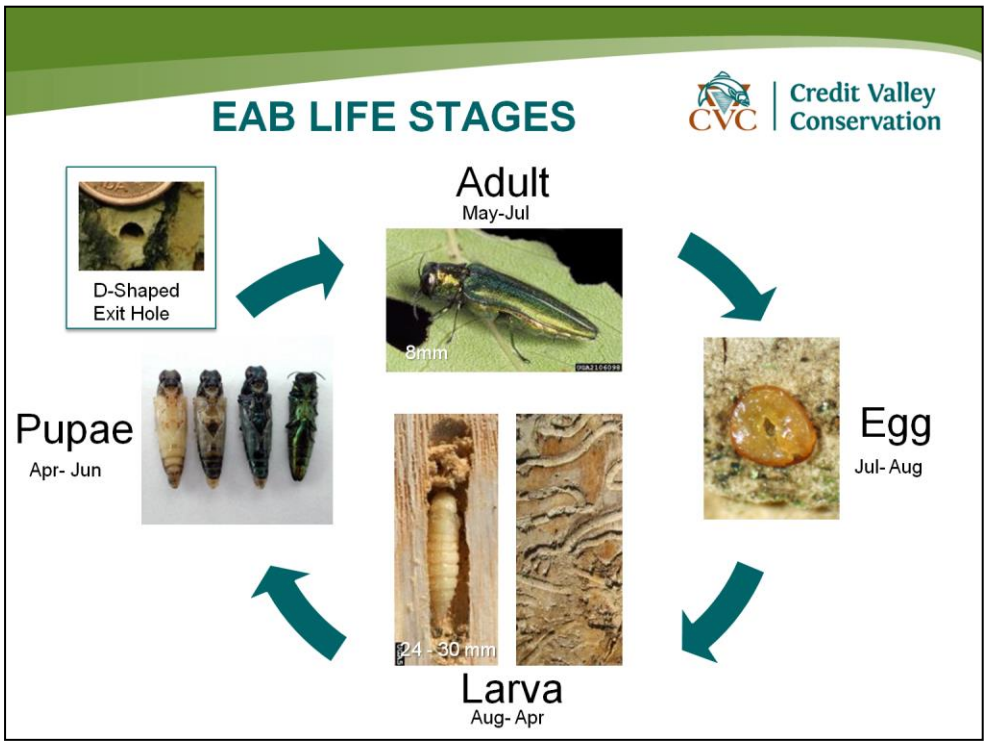
- ash nursery stock
- ash logs and branches
- ash lumber
- ash wood or bark
- ash wood chips or bark chips
- **firewood from all tree species**

Non-ash firewood can only be moved out of a regulated area by facilities registered under the Emerald Ash Borer Approved Facility Compliance Program

(EABAFCP).



Quick overview of the currently regulated area. Specific materials cannot be moved out of this zone, but Movement is permissible within the regulated area although not encouraged



EAB goes through various life stages.

- Adult: Shiny, emerald green, average of 8mm long (1/2”)
- Emerge from D- shaped exit hole chewing through the bark in spring from May to late July, with peak time in mid-late June
- Feed on ash leaves for several weeks, mature and mate. EAB can fly from 1 to 10 km in search of new ash hosts

- Egg: lain under bark scales and crevices in July and Aug, 1 mm long cream coloured turning to brown, Larvae hatch and burrow down to the inner bark (phloem) to feed

- Larva (4x the adult size): Feeds on the inner bark, most destructive life stage, it disrupts the water and nutrient flow within the tree, eventually killing it.
- It creates an S – shaped feeding gallery under the bark.
- In September, feeding slows down and the larvae borrows up into the bark and over winters in the pre – pupae larvae

Larvae molt into pupae where they subsequently transform into adults. The larval
Pupae are present in the host trees from late April until mid-June.

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DYNAMICS OF ASH DECLINE

- The most tree damage is caused by the EAB larvae
- It destroys the layer under the bark (the cambium) that is responsible for transporting nutrients and water throughout the tree

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DYNAMICS OF ASH DECLINE

- Initial dieback is gradual
- But, from one year to the next the dieback can suddenly become overwhelming; 99.9% of ash will die
- Roots to fail first and entire trees to topple over

Signs of EAB infestation usually only become apparent once a tree has been heavily infested. These signs include the

- loss of green colour in the uppermost leaves (chlorosis) and
- thinning and dieback of the crown
- as well as epicormic shoots

- As the insect progresses dieback of the ash trees is gradual initially; but, from one year to the next the dieback can suddenly becomes overwhelming; with 99.9% of ash dying.

- The nature of EAB damage causes roots to fail first and entire trees can topple over

- Often Removal of dead trees cannot keep pace as new ash trees are killed;

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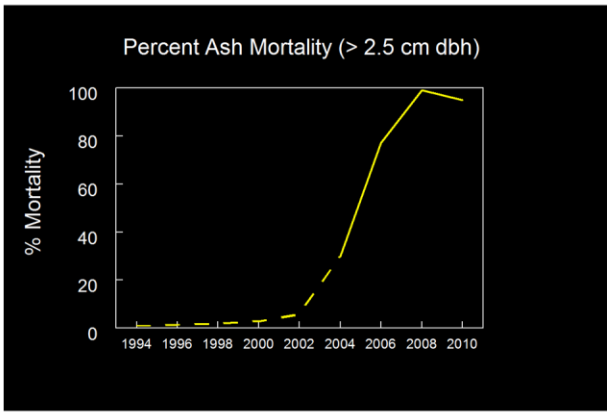
THE DEATH CURVE



Removal of dead trees cannot keep pace as new ash trees are killed

This figure illustrates what has been documented in other areas where invasion has passed through. Death of ash is gradual, but then hits wall where the majority die within the space of several years

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WHAT ARE THE IMPACTS?

Infrastructure

- Hazards and risks created by standing dead trees
- Risk to public safety in natural areas and parks
- Risks to buildings and structures

Forests and Biodiversity

- Removal of an entire species from a component of our forests
- Some species rely on ash as a part of their life cycle

So obviously as removal cannot often keep pace, we start ending up with a lot of dead and hazardous trees.

This creates an element of risk to the public and nearby infrastructure

Our forests will suffer

- Wildlife will lose habitat or have it drastically altered, invasive plant species will become problematic and biodiversity will suffer

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WHAT ARE THE IMPACTS?

Economics

- Cost associated with dead tree removal
- Costs associated with replanting
- Costs associated with damage to infrastructure
- Costs for tree preservation programs
- How to deal with the dead wood?

City of Oakville - $1,460,000 budget for EAB in 2012

Caledon East- $15 -16 million to replace/compensate for all ash trees

What are the dollar and cent costs associated with all this??

- Cost associated with dead tree removal
- Costs associated with replanting
- Costs associated with damage to infrastructure
- Costs for tree preservation programs
- Loss of woodlot revenues
- How to deal with the dead wood removed?

Stats for Caledon East from Caledon Urban forest study Tech report (71-75 million to replace or compensate for all trees….22% are susceptible to EAB)

A quick summary of CVC's response plan is covered in 6 main elements.

Assessment to identify where the ash are and to what extent (density)

Monitoring to detect locally its presence and abundance

Treatment of individual trees to preserve high value trees for aesthetic or ecological reasons

Removal of trees to protect people and infrastructure

Restoration programs to repair and recover areas where removal has occurred

Communication and Outreach to make the public aware of the threat, tools and information to assist with management and awareness of how we at CVC are managing this threat

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RATTRAY MARSH

That's the overall plan, but what is the plan and what are we doing at Rattray marsh?

Rattray Marsh is 95 Acres in size. 42 Acres of that are dominated by Ash trees. That's roughly 45% of the property covered with Ash.

Terrestrial areas of Rattray Marsh are comprised mostly of upland mixed wood forests, cottonwood/ash shingle beach bar, upland Oak forest at the null, but most vegetation communities are swamps dominated by Ash.

This map shows the various ash densities…dominant portion of the marsh is upwards of 60% ash, floodplain areas up to 80%. So we are dealing with a fairly significant issue here. Of all CVC properties this one has the highest percentage of ash

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TREATMENT

We are trying to save what ash we can. It is expensive both in material and labour, an average tree costs about $200, but you can add on a few hours of staff time per tree with that.

We've therefore had to prioritize based on funding and are targeting trees of significant aesthetic and ecological value

What we are injecting into the trees is a product called *TreeAzin which was created by the* Canadian Forest Service in partnership with BioForest Technologies.

Its a systematic bioinsecticide derived from the NEEM tree in India

Injections last 2 years and will be continued for a 10 year period in hopes that a biocontrol maybe fouund and/or allow other planted trees to begin maturing within the area

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ASH TREE PROTECTION

74 trees injected at Rattray Marsh Conservation Area this year

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HAZARDOUS ASH TREE MANAGEMENT

1700 Ash trees along trails, 680 trees along boundaries

2200 m of sanctioned trail have Ash along the sides

If you recall my earlier slide showing the as death curve, we are now at that turning point at rattray where trees are now declining rapidly.

Little sign was visible last year, But this year epicormic branching is visible on many ash and thinning crowns are evident everywhere

This photo show very well what we are facing. In this area 95% of those trees are ash. The green shrubs you see are all invasive honeysuckles shrubs

We have over 2 km of trails that will require management of ash as well as many sections of the property boundaries, totaling almost 2400 trees

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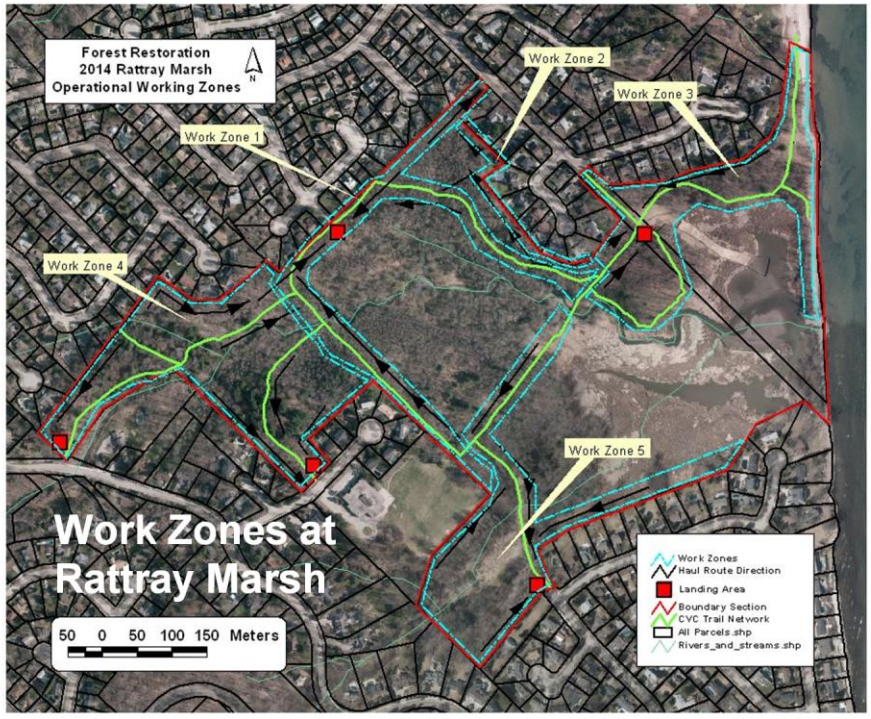
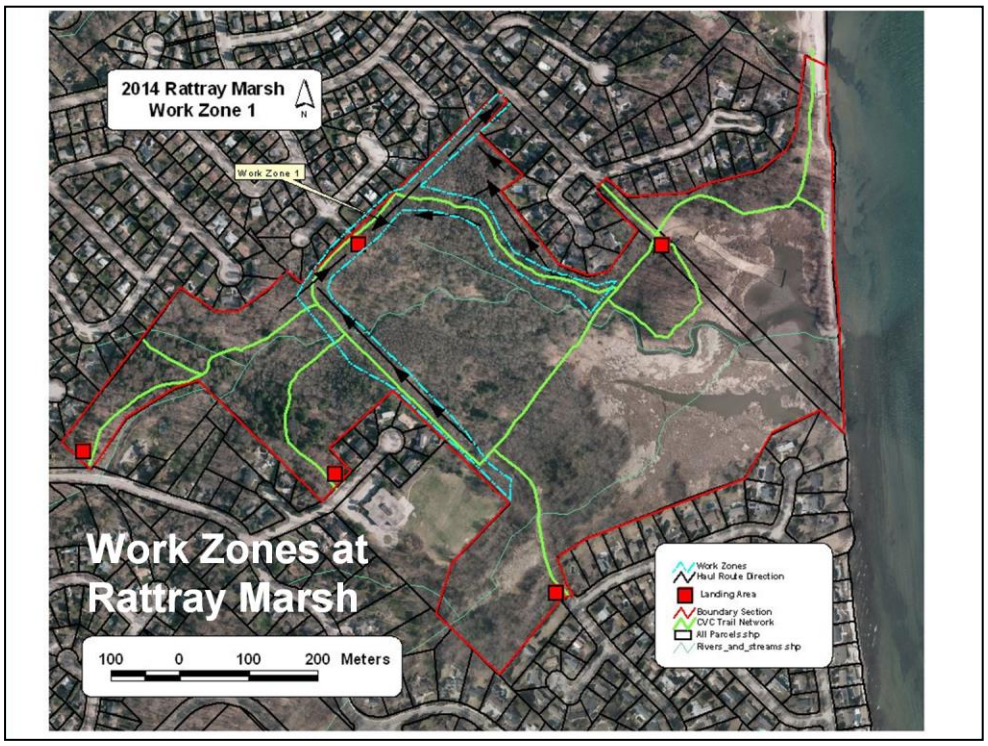
HAZARDOUS ASH TREE MANAGEMENT

- Public safety is our primary concern
- Ash trees within range of hitting infrastructure or trails will need to be removed for safety reasons
- Due to the EAB infestation within Rattray Marsh, all ash trees that are not injected will die
- Operations for tree management work began in early September 2014
- CVC staff and outside contractors are being used to carry out carry out field work
- Timing, equipment used and methods will be designed to limit as much as possible the disturbance to visitors, wildlife and the natural area

- our primary concern here is Public safety and removing those Ash trees within range of hitting infrastructure or trails
- Due to the EAB infestation within Rattray Marsh, all ash trees that are not injected will die
- Operations for tree management work began in early September of this year
- We have both CVC staff and outside contractors carrying out the work
- Timing, equipment used and methods are designed to limit as much as possible the disturbance to visitors, wildlife and the natural area



We have divided the Marsh into 5 work zone areas based on density and access routes



In 2014 we began on work zone 1; which represents one of the highest density ash locations

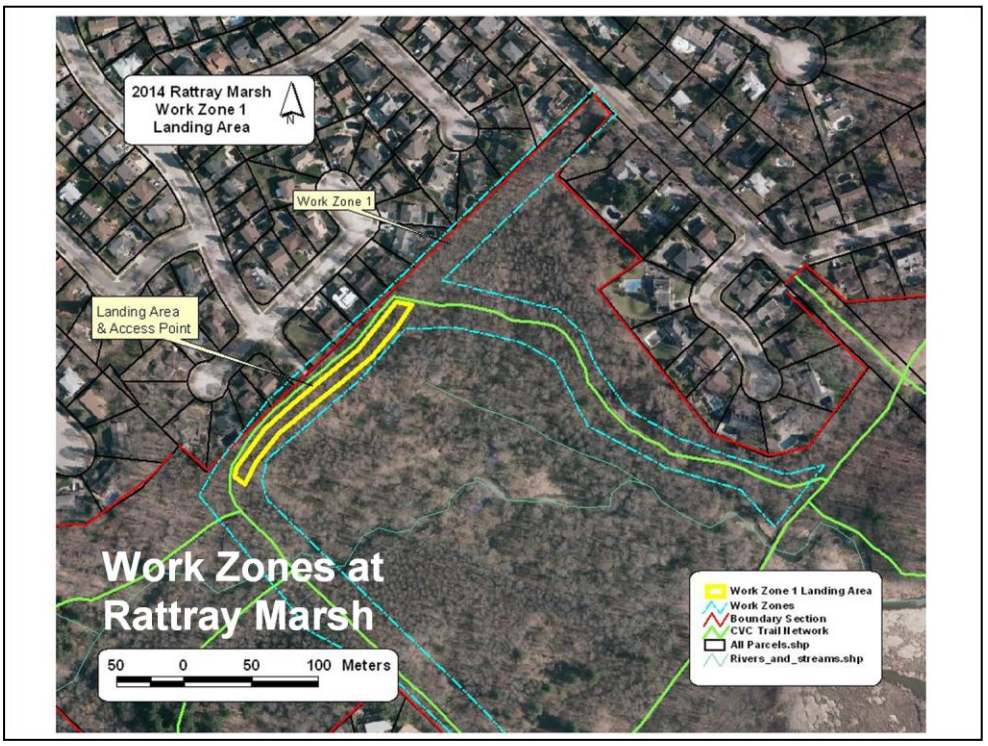
This section contains 483 trees, 309 of these are estimated to be over 8 inches in diameter.

Approx 40 % of Work Zone 1 Complete at this point

Some thick groupings of invasive plants such as Buckthorn and Honeysuckle have been removed to create areas for replanting

Arbourist / Contractor has and will have felled close to 90 trees along the boundary line of Work Zone 1

2014 tree felling expected to be finished on Thurs. Nov. 27



Relating to Work Zone 1 a Landing area was created to provide access for equipment.

And create a location where Saw logs and other ash material can be assembled for later use. Any wood still there now will be gone by mid December

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HAULING METHOD

- Access is poor within work zones, operating adjacent to boardwalks will be necessary.
- Material hauled by ATV, RTV and Tractor and will be cut into manageable pieces for staff to handle
- Haul routes will be identified and utilized numerous times with equip. until area is complete. Haul routes will be rehabilitated when complete and where necessary through tree planting.
- Attempting to contract in a horse logger to assist with movement across the numerous boardwalks and bridges

- Access is poor within work zones, operating adjacent to boardwalks will and has been necessary.
- Material is being hauled by ATV, RTV and Tractor and has been cut to a size that is manageable by staff and equipment
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WOOD UTILIZATION

Trees proposed to be utilized in 5 ways

1. Trees that are removed and are under 20 cm (8 in) will be bucked and remain on the forest floor for wildlife habitat. Occasionally larger material will be left to provide specific wildlife habitat use

2. Some material removed from site and transported to City of Mississauga works yard for inclusion in Region of Peel Green Waste program. – Amount of material necessitates the need for removals and will create opportunities for tree planting sites while mitigating aesthetic issues.

3. Value added opportunities (Ontario Wood Turners Guild, Ontario Woodworkers Association, etc.)

4. Some material chipped at landing sites to produce chips for future tree planting mulch at the site.

5. Removed trees containing sawlog material will be separated at landing areas for potential revenue used to offset costs (i.e. TreeAzin)

Trying to strike a balance between leaving enough wood onsite for wildlife and ecological value and concerns over aesthetics and safety issues.

- Smaller trees and material is largely being left on the forest floor to for forest health reasons with some larger material left to provide specific wildlife habitat use

- Some material removed from site and transported to City of Mississauga works yard for inclusion in Region of Peel Green Waste program due to volumes we are dealing with to mitigate aesthetic issues and create areas for tree planting
- Value added opportunities being explored (Ontario Wood Turners Guild, Ontario Woodworkers Association, etc.)
- Some material chipped at landing sites to produce chips for future tree planting mulch at the site.
- Removed trees containing sawlog material will be separated at landing areas for potential revenue used to offset costs (i.e. TreeAzin)

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RESTORATION

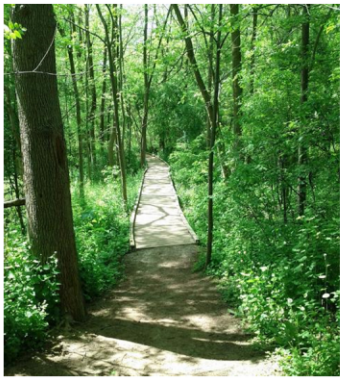
- Removal of invasive shrubs will occur in some areas where they pose a threat to the success of native tree plantings
- Tree planting to be carried out over several subsequent years to mitigate the loss of forest canopy
- Other plantings such as seeding with cover crops or native seed mixes will be used in select areas where this is necessary such as landing areas to restore land into a 'better than before' condition'.
- For 2014 tree planting will be carried out in areas completed by tree management crews.
- Initial 2014 plantings northward along Silver Birch trail.
- 2015- 165 two gallon potted and 120 three gallon potted stock will be planted with strategic placement along trail.
- All trees will be of Nursery Grade caliber and purchased specifically for Rattray Marsh. CYC groups and community to conduct planting.

With all this activity and disturbance form just the removal activities and the loss of ash restoration is a big part of this plan

Key activities are:

- Removal of invasive shrubs in planting areas where they pose a threat to the success of native tree plantings
- Tree planting will be carried out over several subsequent years to mitigate the loss of forest canopy
- Other plantings such as seeding with cover crops or native seed mixes will be used in select areas where this is necessary such as landing areas to restore land into a 'better than before' condition'.
- Tree planting will commence in areas once all work is completed by tree management crews.
- Initial 2014 plantings completed northward along Silver Birch trail.
- In 2015- 165 two gallon and 120 three gallon potted stock will be planted strategically along trails
- CYC groups and community to conduct planting

2015 & FUTURE OUTLOOK



- 2015 tree felling expected to resume in February
- Funding dependent it is our hope that we can get through most of the other work zones by end of 2015 or winter 2016.
- Tree Planting is paramount and will continue past those years.
- Invasive plant species removal will continue where necessary to complement removals and ensure restoration success
- Community volunteers to assist with invasive plant removal
- Assessment of forest health will continue to ensure our management and measures taken are having a net benefit.

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ASH TREE REMOVAL VOLUNTEERS

THANK YOU to all Volunteers

Special Thank You to all those volunteers who have assisted staff in temporarily closing trails…..

Lastly a big thank you to volunteers who have assisted with closing trails off and answering questions from the public, they've been a great help and asset….and thank you to many of the residents in the area who have been very understanding of the need for this work and the support they have given our crews down there, everything from words of encouragement to bringing coffee and snacks to them.

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FAQ'S

1. Why are they cutting what appear to be healthy ash trees?
2. Are other trees being cut?
3. Can I contribute to paying for the injections for a specific healthy ash behind my property?
4. What is being planted to replace the ash?
5. Can the wood chips be used on muddy trails as was done in the past?
6. Are the wood chips in the floodplain likely to be carried away by the overflowing creek ending up in the marsh?
7. How long are the large piles of big logs/tree trunks going to stay piled up in RM?
8. Some areas are bare soil now. What is being done with these?

Thought I would wrap up with some FAQ's we have been getting consistently about the work going on to maybe quickly get at many of the questions you may have.

1- remember death curve…getting ahead of work and also nature of dieback. Trees may seem healthy but are not

2- Generally no. Only if they are a hazard tree. Some invasives being removed in planting areas

3- We can't earmark certain funds for a specific tree, but any funds will go towards continued injections of trees

4- native trees to the area that are appropriate for each site

5- we can look at some local chip use as a way to utilize material, but generally chipping isn't a sustainable trail maintenance practice long term, so it may only be a temporary use and measure

6-generally our areas are away from the flood zone. Any chip placement in these areas would only be a temporary storage measure

7- Movement of wood out of the landing areas will be done by mid December. We try to expedite movement as quickly as feasible when working with contractors or agents receiving the material

8- Areas where there is bare soil will be rehabilitated when work in the area is complete by application of appropriate native seed mixes and cover crops to assist with regenerating natural cover

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