Pointe au Baril Islanders Association Naturalist Presentation

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When I was a child I loved going to visit my grandparents at their cabin on Rainy Lake. This place was amazingly beautiful. Tall red pine, majestic white pine, and of course the view of a sunset over Rainy Lake is one in a million. To this day, when I smell that familiar scent of needles drying in a red pine stand I can't help but think of the time I spent on Tar Barrel Trail at my grandparents' cabin.

For many cottagers in the Pointe au Baril area trees are a big deal. Islands here are rocks with precious little soil on which gnarled pine grow. Some trees grow with twisted roots spread out over bedrock that has long since been washed of soil by strong nor'westers pushing waves upon the shore. The stress this causes trees is immense. As trees struggle to find the necessary nutrients and water to survive they give off certain stress indicators. Insects key in on these signs of stress and invade, keen to take advantage of an easy meal.

Picture this scene in your mind: a white pine growing from seemingly bare bedrock just metres from the unrelenting waves along the shore of Georgian Bay. It looks like a healthy tree, except that some of the branches have reddish coloured shoot tips. A little closer inspection reveals that the shoot tips are dead. A little more digging, or in this case slicing, reveals the culprit! A tiny beetle as big around as the head of a pin has found its way into the very centre of the fine branches on your eastern white pine (Figure 1).

This little beetle and a few thousand of his friends and family are eating the scenic white pine from the inside, causing fine branch mortality. Given time and a suitable climate this pest can cause considerable defoliation which will lead to mortality of your beautiful tree. This is just one example of many where an insect can disrupt the fragile balance of life on the 30,000 islands.

Figure 1: Shoot tip of eastern white pine killed by an adult pine pith borer (*Pityophthorus pulicarius* (Zimm.) near Pointe au Baril, Ontario (photo by W. Byman)

There are at least 25 tree species that grow in the Pointe au Baril area. While tree species richness of the 30,000 islands is fairly high, the evenness of these same species is high for only a few species. These include eastern white pine, jack pine, red pine, eastern hemlock, white birch, trembling aspen, red oak and sugar maple.

Eastern white pine – *Pinus strobus* L.
Our provincial tree! One of the tallest growing trees in Ontario, this species can grow to over 30 metres tall. In the 30,000 islands this is likely the most abundant tree. Of the several insects and diseases that eat this conifer, the following have been especially active this year.

Introduced pine sawfly – *Diprion similis* (Htg.)
This introduced pest was first found in Ontario in 1931. Native to Holland the introduced pine sawfly (Figure 2) feeds on several pine species, but has a particular fondness for eastern white pine. In our part of Ontario this pest usually has two generations per year, the second causing much greater damage than the first due to higher populations. As weather patterns change, there is a distinct possibility that this pest could regularly have three generations per year. Several parasites enjoy the introduced pine sawfly as noted on many islands in 2011. These parasites do a marvellous job keeping the population

under control. Parasites are one reason this pest is not wreaking havoc across many islands in the area.

Figure 2: Introduced pine sawfly (*Diprion similis* (Htg.) larva feeding on needles of the eastern white pine, Pointe au Baril, Ontario *(photo by W. Byman)*

Jack pine budworm – *Choristoneura pinus pinus* Free.
Only during outbreak situations will jack pine budworm defoliate eastern white pine, but when it does it really eats quickly. This insect has one generation per year. The local population of jack pine budworm is located north of Pointe au Baril and has reduced in size this year compared to 2010. Mortality of jack pine is beginning to appear in the more severely defoliated areas to the north.

White pine weevil – *Pissodes strobi* (Peck)
White pine weevil is known to attack both pine and spruce. The insect causes a characteristic shepherd's crook on trees less than 6 metres tall, usually on the main leader, but also may attack branches near the top of the tree. Management options for young white pine include a nurse crop to offer partial shade to slow white pine growth until it is over 6 metres tall. The nurse crop can then be removed giving the young white pine full sunlight.

White pine blister rust – ***Cronartium ribicola*** Fisch.
This fungi threatens white pine populations in Ontario to such an extent that there is currently a genetic breeding program in Sault Ste. Marie to develop blister rust resistant white pine. White Pine Blister Rust (figure 2a) infects white pine of all ages and heights, causing variable levels of mortality depending on the location of the infection. The current best practise for control of this highly infectious disease is removal of infected trees and burning the cankered portions.

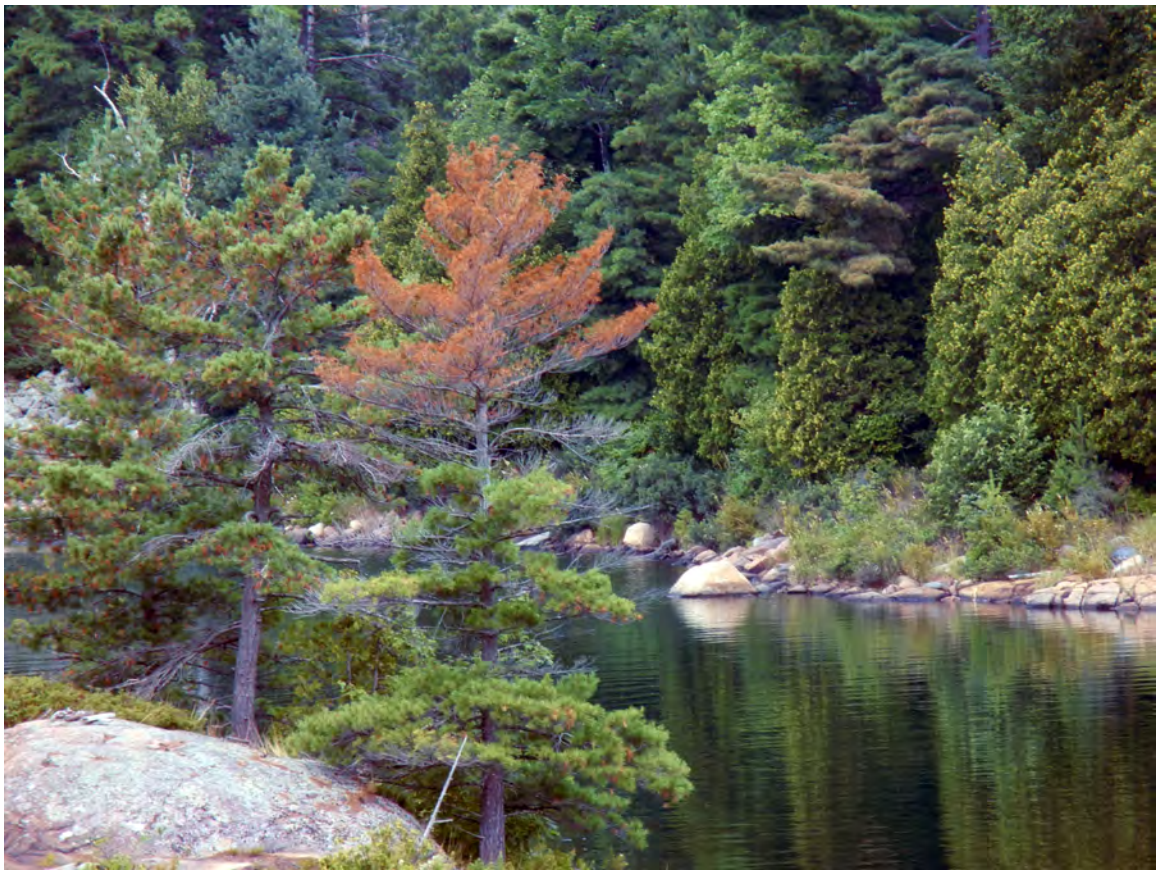

Figure 2a: White pine blister rust – *Cronartium ribicola* *photo by Hilde Clark*

Red pine – *Pinus resinosa* Ait.
As a species, this conifer is one of the least genetically diverse in Canada. This tree is used extensively in forestry plantations in Ontario. This species is often intermixed with eastern white pine and rarely forms a natural pure stand.

Red pine cone beetle – *Conophthorus resinosae* Hopk.
This beetle attacks both red pine and jack pine in Ontario and is capable of sporadic or localized injury to host trees. On red pine the beetle mines into cones causing cone mortality (Figure 3) while on jack pine it mines into the tender young shoots. Found in several locations close to Pointe au Baril in 2010, there were no noted infestations in 2011.

Figure 3: Cones unaffected (left) versus affected (right) by red pine cone beetle (*Conophthorus resinosae* Hopk.) on red pine, Pointe au Baril, Ontario *(photo by W. Byman)*

Diplodia blight on red pine – *Diplodia pinea* (Desm.) Kickx
This disease can cause severe injury or death to several species of pine in Ontario. In 2011 it was found sporadically from Espanola to Bala on Austrian, red and Scots pine in low levels.

Jack pine – *Pinus banksiana* Lamb.
This iconic conifer was famously painted by Group of Seven artist Tom Thomson in Algonquin Park. Growing in the southern part of its natural range causes the form of this northern Ontario tree to suffer as it struggles to occupy less than ideal sites.

Jack Pine Budworm – *Choristoneura pinus pinus* Free**.**
Jack pine budworm first feeds in flowers on jack pine. As the larvae grow bigger they feed on current year needles and rest in flowers tied up with silk (Figure 4), which they produce. This pest is currently just north of Pointe au Baril between the Georgian Bay coast and Highway 69. Last year over 30,000 hectares of moderate-to-severe defoliation was mapped from the air. Thankfully, the defoliation is much less this year; however patches of mortality are beginning to appear due past defoliation.


Figure 4: Jack pine budworm (*Choristoneura pinus pinus* Free.) larva resting in a jack pine flower, Key River, Ontario *(photo by W. Byman)*

White birch – *Betula papyrifera* Marsh.
This deciduous tree really could be Canada's national tree as it grows from Newfoundland in the east, to British Columbia in the west, to the tree line north of the Arctic Circle in Yukon Territory. This species can grow on almost any soil or topography and is therefore found growing throughout the Pointe au Baril islands.

Birch leaf-miner – *Fenusa pusilla* (Lep.)
Birch is host to a variety of different leafminers. The most destructive is known as Birch Leafminer and was introduced into North America in 1923. This pest can have up to four generations per year. Symptoms of this mining insect are brown patches on the leaves, caused by the larva eating the juicy inner parts of the leaves.

Gypsy Moth – *Lymantria dispar* (L.)
Gypsy moth loves to eat birch. They also love to eat most other trees. These insects are generalists and will try eating just about any species of tree. This year one small population was observed in mid-July on an island in Shawanaga Inlet.

Septoria on birch – *Septoria betulae* Pass.
Some years you may notice yellowing leaves (Figure 5) and early leaf-drop on birch in early August. This is caused by the fungus Septoria. This particular fungus creates both leaf spots and branch cankers, but as a late season defoliator it rarely causes mortality of trees.

Figure 5: White birch leaf showing characteristic yellowing with black spots of Septoria leaf spot on birch (*Septoria betulae* Pass.) near Dowling, Ontario *(photo by W. Byman)*

Red oak – *Quercus rubra* L.
This deciduous species prefers deep, moist soils where it can make good use of its deep growing root system. The shallow soils of the Pointe au Baril islands limit the extent of this beautiful mast producing tree.

Hickory Leafroller – *Pseudexentera cressoniana* (Clem.)
A pest of red oak local to central Ontario is the Hickory leafroller. Hickory leaf roller will roll up inside a leaf to hide while they eat the leaf. This insect causes leaf curl and rolling on all ages of red oak and is capable of complete defoliation. It is not known to cause lasting damage to oak in Ontario.

White spruce – *Picea glauca* (Moench) Voss
With a native range similar to white birch, this conifer grows on almost any site type in Ontario. Known for growing slowly in the understory this tree grows in association with most Great Lakes St. Lawrence forest region tree species.

Yellowheaded spruce sawfly – *Pikonema alaskensis* (Roh.)
This mid-season defoliator eats the needles on several species of spruce (Figure 6) in July. Low levels of this pest were found on a few islands around Pointe au Baril in 2011 causing localized light defoliation of white spruce regeneration. While population levels were low in 2011, this pest is capable of killing or severely damaging spruce trees.

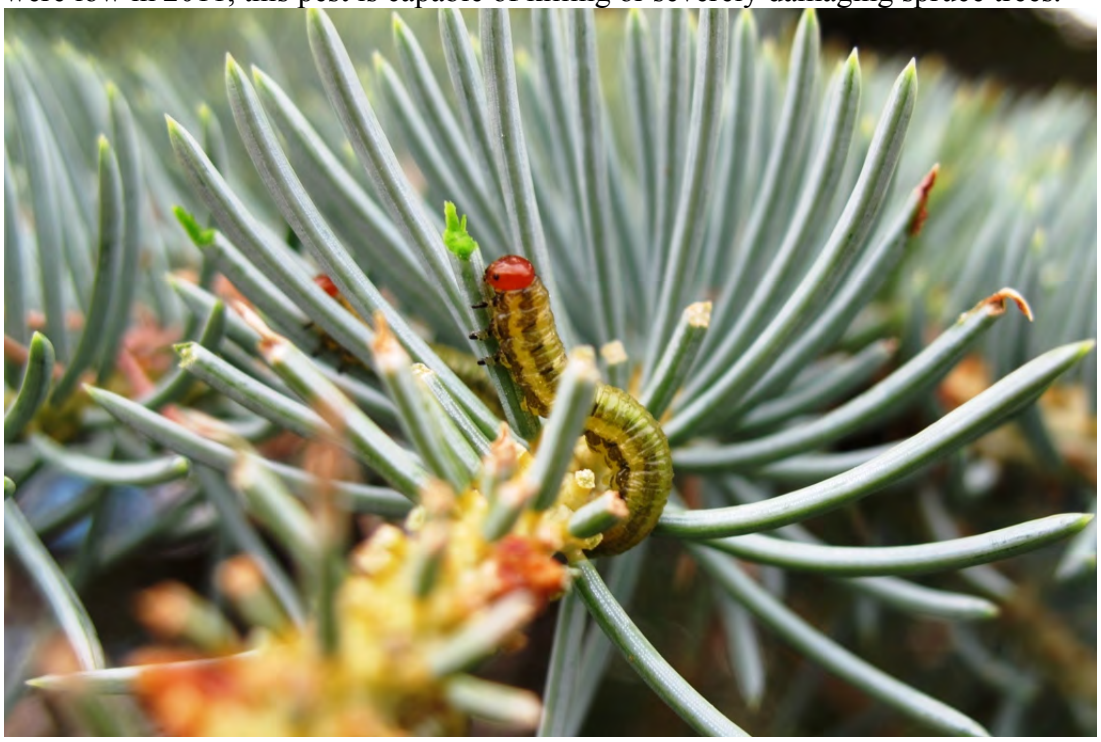

Figure 6: Yellowheaded spruce sawfly (*Pikonema alaskensis* (Roh.)) feeding on ornamental Colorado blue spruce (*Picea pungens* Engelm.) in Sudbury, Ontario *(photo by W. Byman)*

Control Options for Forest Pests
Many people want to know what the control options are for specific pests on their trees. There are so many different insects and diseases that giving such information are close to impossible in a report such as this. Since an ounce of prevention is worth a pound of cure the next best thing is to offer these suggestions to keep those pesky critters (or diseases) from gaining a foothold in your favourite tree.

1. The first and most important is identification. Determining what kind of tree you have dictates what kind of pests you can host.
2. Your best defence is a strong offence. Makes certain your trees are receiving enough water and nutrients to keep their immune systems functioning well.

3. If you do find a pest on your tree get it identified! If you have spruce spider mites (the damage looks like needle cast) and you spray a fungicide (because you think you have needle cast – a fungi) it won't work! Learn all you can about specific pests and how to overcome them.

Most control options beyond doing nothing or monitoring, such as spraying pesticides or removal of trees, are very expensive. When large areas of forest are affected the expense becomes prohibitive and you may have to let nature take its course.