

***Fairwood Island***

***Woodlands Plan***

***Tree Study***

***Part 2***

***2014 - 2021***

## *Fairwood Island Tree Report Part 2*

*2014 - 2015 - 2016 - 2017 - 2018 - 2019 - 2020 - 2021*

*Part 1 of this Plan covering the years 1999-2013 is bound as a separate document or it can be downloaded at:*

*<http://www.fairwood.ca/PDF-Files/AnnualTreeReport.pdf>*

### ***Purpose:***

*The purpose of this Tree Report is to identify a range of trees of different species which grow on Fairwood Island and monitor the effects of various diseases or insect attack on their growth over a period of time.*

*Many of the trees chosen are close to the main house on OK Point, or the cottages on Woodholm Point so that they may be readily monitored, allowing visitors to familiarize themselves both with the tree species and their various types afflictions.*

*The trees have been numbered from 1 to 21 with painted wooden identifying tags.*

### ***Remedial Measures policy:***

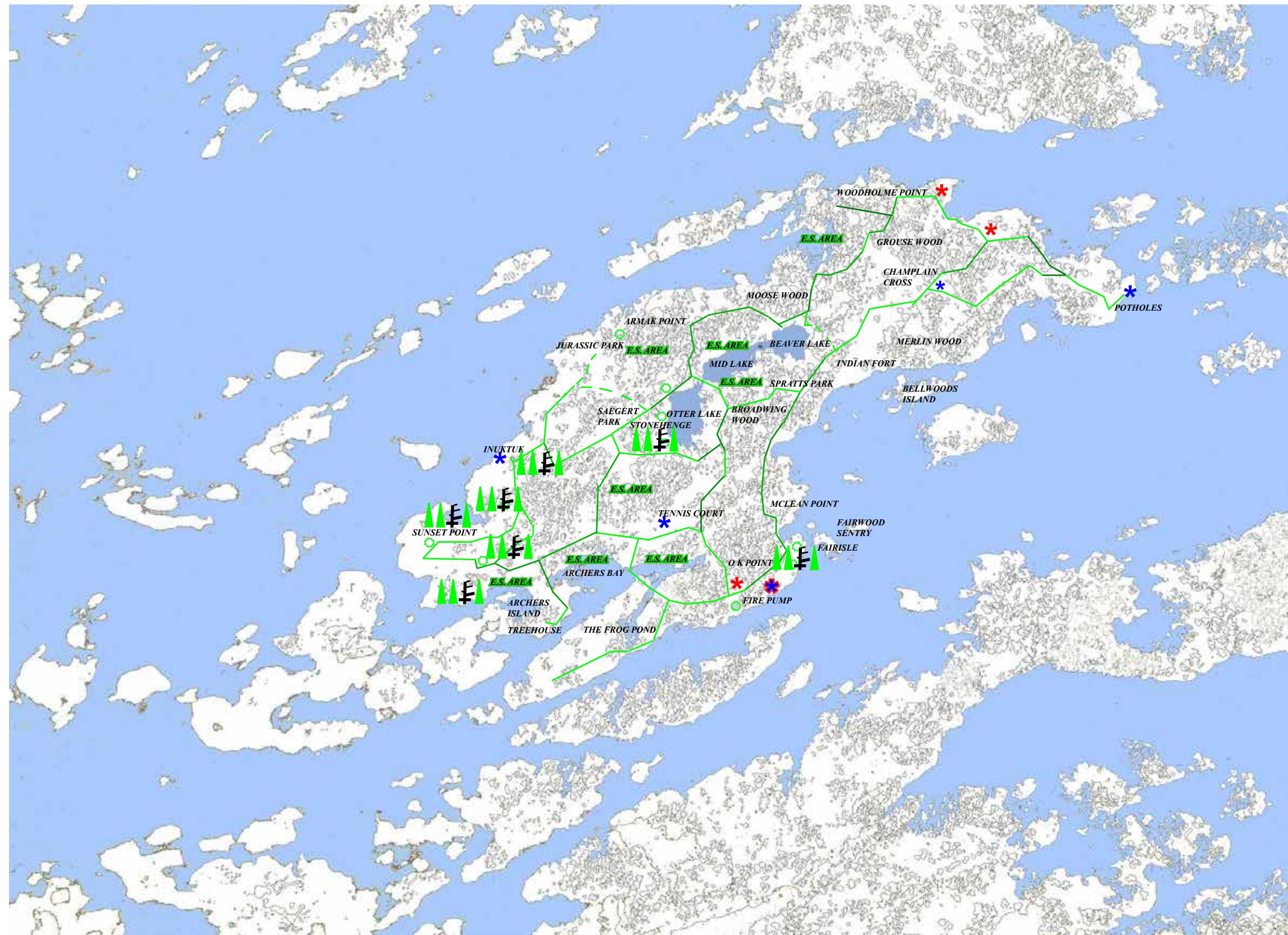
*Some of the trees in this survey (such as those affected by gypsy moth or caterpillar attack) have been treated in various experimental ways to address the attacks. The survey is intended to monitor the effectiveness of these treatments.*

*Other trees are not treated in order to observe the natural stages of the pests attack and judge them in the context of adjacent trees to discover whether the disease is contagious or the result of the particular circumstances of individual trees.*



*Study Tree Location Plan*





**KEY**

- \* COTTAGES
- PATH NETWORK
- UPGRADED PATHS
- \* FIRE STATION
- \* LANDMARKS
- E.S. AREA ENVIRONMENT SENSITIVE AREA
- ▲ REFORESTATION AREAS

## General Observations - 2014

The winter of 2013-2014 was the longest and most severe in recent memory. The Great Lakes froze over entirely and ice did not break up until the beginning of May.

The severe winter with heavy snows resulted in a raising of Lake Huron levels by about 200mm by the end of May. This continued to rise as water drained in from the north and levels were up by 550 mm by the end of September.

The season was generally cool and moist. The internal lakes retained their high water levels throughout the season and the whole island remained remarkably green.

Due to the late seasonal start lilies and orchids were undersized, few blueberries bloomed, though iris were very prolific (small) There was little milkweed in Archers bay, and no boneset or pickerel weed or cardinal flower.

There was some over winter wind damage and a few new leaners. In early June roughly 30 trees were cut down and cut up for firewood, including a very large centenary tree on Woodholm Point (estimated 150 years). The heaviest spring pine pollination in memory resulted in a bumper crop of pine cones in the autumn. The oaks were also very prolific with many acorns. The growing season for all trees seemed quite ideal.

There were no beavers living in the middle lakes, though a deer was photographed and otters observed. Bear passed through periodically disrupting paths.

Due to the lack of early blossom there were few blueberries but there were many blackberries.

Bird and insect life was reasonably good. Sandhill Cranes were observed in the Middle lake and the Blue Heron. Merlins, a nesting pair of Broadwing hawks, Pileated woodpeckers, and Grouse. Blue Jays, Flickers and as many Warblers as usual. There were however no blackbirds in Otter Lake. A golden eagle was frequently observed hovering over the mid island.

Many snakes noted this year and a rattlesnake was deported from the pantry of the main house.. Fox and garter snakes enjoying a comeback.

A vegetable garden was not planted this year.

**FAIRWOOD ISLAND FOREST MANAGEMENT PLAN**



Many dragonflies in cool damp weather



Good year for insects and birds



Little milkweed and few Monarch butterflies



Left: Restoration of Bell Tower

Raised water levels in Archers Bay



Prolific pine cones and acorns



2014 saw approximately 30 white pine seedlings planted on West End. Previous plantings thriving in cool moist weather



**TREE STUDY REPORTS - SECTION 09**

## **General Observations - 2015**

*Like the previous winter, the winter of 2014-2015 was long and severe. The Great Lakes froze over 90% and ice did not break up until the second week of May. Water levels rose about 20” or 550mm on the previous year. Levels are now about ‘ideal’ and the water quality seemed particularly good with little weed growth in the channel and a clear water quality.*

*The season was generally hot and dry. The internal lakes started the season brim full and gradually receded. Though there were occasional light rains, the big puddle by the inner Frog Pond on OK Point dried up entirely which suggests drought stress to trees.*

*Due to the late seasonal start few blueberries bloomed, though iris were very prolific. There was no milkweed in Archers bay, and no boneset or pickeral weed or cardinal flower - very unusual. Due to lack of early blossom there were few blueberries but there were many blackberries.*

*We lost 2 major ‘old timer’ pines on OK Point, the ‘Marker Rock Tree’ and Tree #16 in front of the Pagoda, which had sustained a lightning strike 7 years ago that apparently shattered its rooting base.*

*In early June roughly 20 trees were cut down and cut up for firewood. There was a very light spring pollination resulting in few cones on the white pines but plenty of cones on Scotch pines.*

*Behind the cabin, the seedbed oaks germinated into fine seedlings which were planted out in Gam’s Glade. The deer consumed a number of these and second and third transplantings were required.*

*Again there were no beavers living in the middle lakes, though a doe and fawn were observed. 7 Bears passed through periodically disrupting paths. Two mothers, 3 young cubs, 2 adolescents and another mother and cub. Maggie treed 5 in one day.*

*Bird and insect life was reasonably good. Sandhill Cranes were observed on the West End and three Blue Herons in the internal lakes. Merlins nested and produced two noisy youngsters. Pilated woodpeckers, Grouse, Blue Jays, Flickers and as many Warblers as usual. There were however no blackbirds in Otter Lake. A golden eagle was frequently observed hovering over the mid island.*

*Fox and garter snakes were common. Fox snakes have become more stark grey/black contrasty and less yellow green. A medium sized rattlesnake encountered en route to the outhouse. A large rattler (1100mm) encountered on front rock.*

*The vegetable garden was not planted this year.*



*In 2015 higher water levels restored life to the inner Frog Pond - but the usual range of wildflowers was still much reduced with little boneset, cardinal flower, monarch milkweed, No Jo Pyeweed. St Johnswort and steeplebush however thrived. It is hoped that the gar pike will return to mate and nest in this area with the improved water levels.*



## **General Observations - 2016**

*Unlike the winters of 2014 & 2015, the winter of 2016 was very mild. There was almost no snow in Toronto and less than usual across Ontario. The Great Lakes did not freeze. Nevertheless, defying predictions, the water levels went up to match the highest level of 2015.*

*Water quality was generally good and clear. The reason for this, possibly Quagga mussels which have replaced Zebra mussels, is still speculative. There was less pollen suspension in 2016. Hay fever and water induced allergies were thought to be lessened as a result.*

*The summer was generally hot and dry. There were fire warnings across the region by early August. Later in the summer there were occasional rains and the island was looking lush and healthy, puddles refilled, by the end of September.*

*The internal lakes started the year with unusually low levels and continued to drop. The beaver has not re-established himself in the lakes.*

*Due to the very dry spring blueberry blooming was curtailed. All of the bulb based plants like iris and ladyslippers were undersized. There was no milkweed in Archers bay and an effort to establish an Ontario farm variation around the Frog Pond did not succeed - possibly due to the acidity of the soil.*

*Tree #16 in front of the Pagoda, which had been hit by lightning, finally descended to the ground and was cut up for firewood. The inner rings counted numbered over 80, the outers were too dense to count but may be double that.*

*The bear, probably a 2 year old made several visits grubbing for insects. A deer and a doe were sighted on the West End. Otters took up residence in the boat house.*

*Bird and insect life seemed much reduced. However the Bald Headed Eagle from the Pointe was observed on the West End. Sandhill Cranes were observed on the West End. Frog and amphibian life was noticeably poor. There were no blackbirds in Otter Lake.*

*Several snakes and 3 medium sized rattlesnakes encountered around the house and on the old dock.*

*The vegetable garden was not planted this year.*

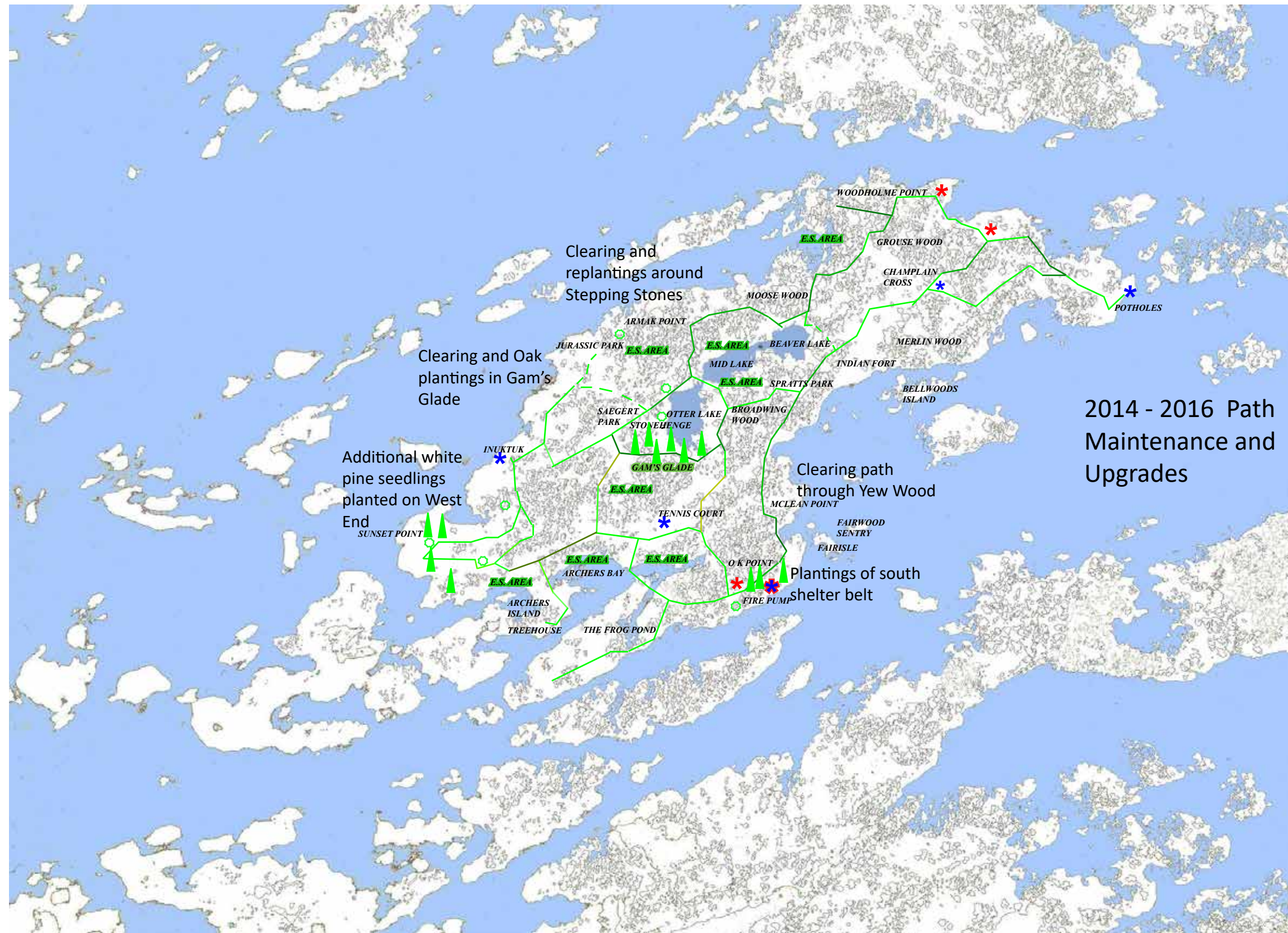
*Autumn came very late but due to an exceptionally mild September there was little evidence of leaf colour change at the time of closing in mid October.*



Higher water levels in Archers Bay in 2016. However neither the Gar Pike nor the Carp took advantage to spawn as they have at these levels in previous years.

Typical wild flowers found along the shorelines were generally subdued with rarer instances of Cardinal Flower, Milkweed, Jo Pyeweed, Evening Primrose, Steeplebush, St Johnswort, Pickerel weed, Arrowroot, Boneset, etc.





- KEY**
- \* COTTAGES
  - PATH NETWORK
  - UPGRADED PATHS
  - \* FIRE STATION
  - \* LANDMARKS
  - ENVIRONMENT SENSITIVE AREA
  - ▲ REFORESTATION AREAS

2014 - 2016 Path Maintenance and Upgrades

## ***General Observations - 2017***

*For the second year running the winter of 2016-7 was very mild with little snow in Toronto and less than usual across Ontario. Again the Great Lakes did not freeze. The water levels went up approximately 200mm leaving parts of the boathouse slip dock awash.*

*Water quality was generally good and clear. There has been no further seaweed growth in the channel, which was experienced 3 years ago.*

*The summer of 2017 was very changeable. There were brief spells of very fine weather balanced by spells of cool wet weather. Such weather has promoted tree health, growth and cone formation. In general there were no fire warnings across the region. Later in the summer there were frequent and spectacular thunder storms.*

*The internal lakes started the year with high levels and these were sustained by rainfall throughout the season. The beaver has not re-established himself in the lakes.*

*Due to the mild damp spring blueberry blooming was excellent and a bumper crop of blueberries was produced. Iris were abundant, but undersized. Ladyslippers leafed but did not flower at all. St Johnswort was prolific but there was no milkweed in Archers bay. Boneset, pickerel weed, arrowroot and cardinal flowers were very minimal, perhaps by the high water levels.*

*No bears took up residence in 2017. However the buck, doe and fawn remained throughout the season with their hide near the Stepping Stones.*

*Insect life seemed normal with a good population of dragonflies and crickets. There were fewer woodbugs in the house and fewer house wasps than in previous years.*

*There seemed to be a growing abundance of spiders over the past 2 years, particularly the very sizable orange dock spiders, some approximating a tarantula size.*

*Hérons were present on the south shore, and the merlin brought up at least one hysterical fledgling in Champlain Park.*

*Several snakes were encountered around the house. Bullfrog tadpoles were abundant in the shoreline bays*

***FAIRWOOD ISLAND FOREST MANAGEMENT PLAN***

*The vegetable garden was not planted this year.*

*The old dock 6' x 24' was replaced with a crowd-funded 8' x 20' version provided by Hodgson Construction..*



Higher water levels leave the boathouse slip awash and new dock provided by Keith Hodgson



***TREE STUDY REPORTS - SECTION 09***



## General Observations - 2018

The winter of 2017-2018 was late starting and lasted into May with the ice breaking up in the first week of May and still present around May 10th. Locals report that despite its length the winter was not particularly severe and that ice thickness in the Bay was not as great as usual.

The water levels fluctuated around the 2017 highs. The water quality was generally good and clear. This has been ascribed to phosphate impoverishment, possibly due to introduced zebra and quagga mussels which have been filtering out the phytoplankton, the basis of the food chain. There has been no further seaweed growth in the channel, last experienced 4 years ago.

The summer of 2018 brought severe drought conditions. The island started dry in May with very low levels in the internal lakes, indicating less snow cover. There was little rain in June and none in July. When the drought relented in southern Ontario with extensive rains, the island ecosystem remain parched throughout August. There was an uncontrolled brush fire raging near Britt Harbour, 'the Parry Sound 33', throughout most of August. In late August and early September the weather relented and there were some spectacular thunder storms.

The internal lakes remained at very low levels throughout the season and the bog cotton flourished around their perimeter. The beaver has not re-established himself in the lakes though otters were sighted and photographed in 'Beaver Lodge Lake'. There were no resident bears or deer in 2018. The fox family remained.

Due to the late spring, blueberries did not bloom and were very scarce. Consequently there were few visits by bears. Iris were abundant, but other bulbs like ladyslippers did not bloom extensively. Later bulbs, including tiger lilies, daylilies and wild orchids were very subdued by the extended drought. Other marsh flowers were not prolific and there was no milkweed in Archers bay. Boneset, pickerel weed, arrowroot and cardinal flowers remained very minimal again this year.

Insect life was very prolific with a good population of dragonflies and crickets. Wasps and bees were more evident. There was a huge migration of Monarch butterflies around Sept. 10th. There were many Black Admirals throughout the summer. The abundance of spiders continued.

The Sandhill Cranes were present on the West End throughout the summer and seemed to have had a nest near Archers Bay. The merlin continued to nest in Champlain Park and a Brownwing hawk somewhere on OK Point.

**FAIRWOOD ISLAND FOREST MANAGEMENT PLAN**

Fox and garter snakes were common and 2 rattlesnakes. Bullfrog tadpoles were abundant in the shoreline bays

The vegetable garden was planted this year and successfully produced lettuce, beans, many tomatoes, yellow summer squash, beets and cucumbers. A small vegetable garden was added in front of the Caravanserai.

Projects included rebuilding the western end of the boathouse, repainting the Pagoda and rehousing the Fire Pump.

Marion, named in memory of Marion Lambert and provided by Dave, was named with champagne on June. 10th.

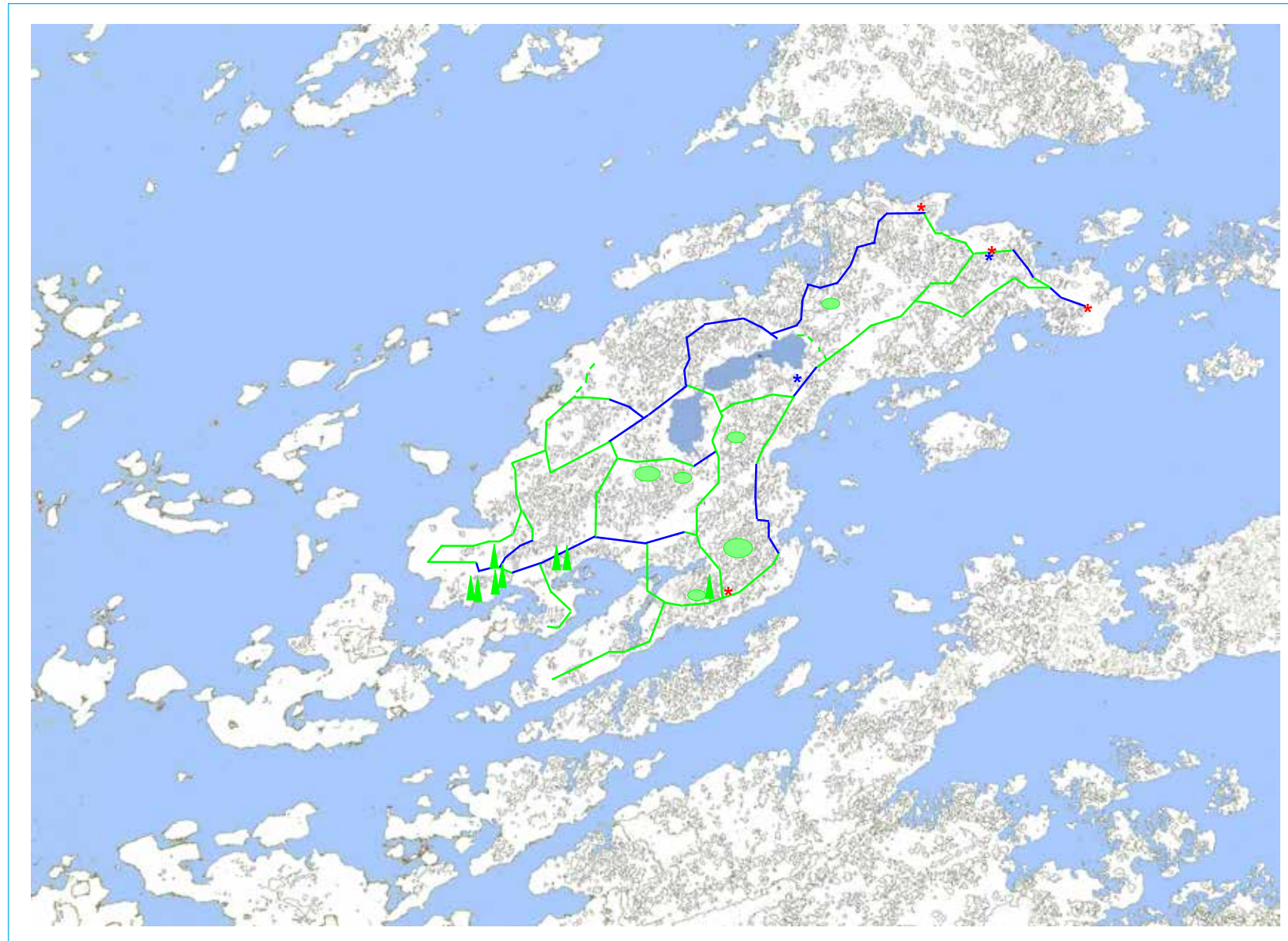


The ceremonial Naming of 'Marion'

Below: Monarch and Black Admiral butterflies



**TREE STUDY REPORTS - SECTION 09**



**2018 PATH UPGRADING & TREE REMOVALS**

- \* COTTAGES
- PATH NETWORK
- SECTIONS OF UPGRADING OF PATH SYSTEM
- \* TREE REMOVALS
- ▲ TREE PLANTINGS
- COMPOSTING SNAG

*Many of the paths were upgraded in 2018.*

*Cath and John did extensive work on opening up the North Path through Armak Point and down to the lakes.*

*Tam and Mavis worked on the West End Path and Spratt's Park as well as Stepping Stones.*

*The absence of bears over the summer resulted in less disturbance of path rocks.*

*In late September white pine seedlings were transplanted to the West End, in particular around the marsh where the Sandhill Cranes were nesting.*

*Trees in the tree nursery, walnuts, jack pine, scotch pine and spruce did not germinate. Spruce seed was planted in Autumn 2018.*

*In general the transplantings on the West End are doing well despite the drought. The new oaks in Gam's Glade are surviving.*

*In mid September there was a severe wind storm which snapped large pine trees at high level in Spratts Park and behind the Pumphouse. These trees were cut up by Matt, John and Dan on Thanksgiving weekend.*

## General Observations - 2019

Again the winter of 2018-2019 was late starting and lasted into May with the ice breaking up in the first week of May. All of the Great Lakes froze over during the course of the winter and the water levels were up resulting in damaging flooding around Lakes Ontario and Erie.

Throughout the summer the water levels fluctuated around the historic high water mark. The water quality was generally good and clear possibly due to phosphate impoverishment as previously noted. There was no evidence of zebra and quagga mussels which were previously thought to be filtering out the phytoplankton and undermining the basis of the food chain. Gobey fish however were noted daily in the swimming areas, distinguished by their large heads and peculiar darting movement and hugging the bottom rock surfaces.

There has been no further seaweed growth in the channel, last experienced 5 years ago.

The summer of 2019 did not bring the severe drought conditions and fire risks of 2018. The island remained reasonably green and it was a notable year for insects of all kinds. The internal lakes started at very low levels suggesting that the winters snows had been lighter than usual. They remained low throughout the summer and only began to rise during the rains in late September. The beaver were again absent. A doe about to give birth was encountered near Stepping Stones in May but not seen again. There were no resident bears and only an occasional bear in transit. It is thought that the shooting of a bear on Ojibway Island has put them off their area. A very splendid male fox was encountered (playing tennis) though no family encountered.

The late damp spring was perfectly timed to allow a profusion of blueberry blossom, unlike the previous year. However this resulted in only a mediocre crop. With the late spring iris were abundant, but the lady slippers were very rare. With the very high water levels there was an unusual dearth of the usual marsh flowers around the perimeter of the island. There was no milkweed in Archers bay. Boneset, pickerel weed, arrowroot and cardinal flowers were again very rare this year. Steeple bush flowered prolifically, as did the goldenrod.

Insect life was very prolific with a good population of dragonflies and crickets. Wasps and bees were more evident. There was a middling migration of Monarch butterflies around Sept. 1st. There were many Black Admirals throughout the summer. An abundance of spiders, some surprisingly large, continued.

The Sandhill Cranes were present on the West End throughout the summer though they were no

**FAIRWOOD ISLAND FOREST MANAGEMENT PLAN**

longer nesting in the Archer inlet. The merlin continued to nest in Champlain Park and the usual ruffed grouse in Yew Wood on Armak Point..

Fox and garter snakes were again common and various rattlesnakes. In September there was a profusion of brightly coloured leopard frogs.

The vegetable garden successfully produced lettuce, beans, many tomatoes, yellow summer squash, kale, chard and cucumbers. It was planted on the Victoria day weekend, too early in the season and was slow to take off. Two large trees overhanging the main house were cut down by Buttineau and the woodpile area behind the house re-organised.

Projects included repainting the Pagoda windows. Construction work began on Cath's sleeping cabin on Pothole Point.

Li'l Bro 2 was added to replace Green Boat. Megaboat was sold. Rowboat Elizabeth, named after Mavis' great-grandmother, Elizabeth Morey, was brought up from Go Home.



Archers Bay in High Water



Below: Mavis in rowboat Elizabeth



**TREE STUDY REPORTS - SECTION 09**

## General Observations - 2020

The summer of the Coronavirus, Covid-19 Pandemic. Quarantine for those from abroad, mask wearing and social distancing. Canadian borders were closed to American visitors.

The winter of 2019-2020 was late starting, relatively mild and extended into May. The Great Lakes were partially frozen over during the course of the winter. Water levels, which started around the 2019 highs fluctuated considerably and rose 12" to 16" above the historic high water mark at times during the course of summer.. The average level was approximately 8" above the benchmark during the high summer.

Again the water quality was generally good and clear. The high water transformed Archers bay into a major bass spawning area and many large bass nested there in early June.. There has been no further seaweed growth in the channel, last experienced at low water 6 years ago.

The summer was generally good with sufficient rains to keep the fire risk at 'moderate'. The internal lakes were replenished throughout the summer and reached highs in Autumn. The island remained green throughout and this was a notable year for insects of all kinds, particularly crickets, grasshoppers and dragonflies. The doe was encountered but no faun noted. Bears passed through occasionally and one broke into the kitchen in early September. Sadly this was shot by neighbours.

The late damp spring discouraged blueberry blossoming and pollination and the crop was very poor again this year. Lady slippers are making a gradual comeback, and other wildflowers were displaced from their usual bays by the very high water levels. There was no milkweed in Archers Bay. Boneset, pickerel weed, arrowroot and cardinal flowers were again rare this year. Steeple bush flowered prolifically, as did the goldenrod.

There was a modest migration of Monarch butterflies around Sept. 1st. There was an abundance of spiders, some surprisingly large.

Two families of Sandhill Cranes were present, one near the old cottage moved to the West End and another on Pothole Point. They are becoming more confident in proximity to human habitations. The merlin continued to nest in Champlain Park and the usual ruffed grouse in Yew Wood and on Armak Point.. The bald headed eagle was often spotted ranging from its nesting near the Range Light, and turkey vultures were also regular denizens of the skies.

**FAIRWOOD ISLAND FOREST MANAGEMENT PLAN**

Garter snakes were common but fox snakes were rarely spotted. Two rattlesnakes were encountered as well as young ones recently birthed near the house. There were many frogs and particularly bull frog tadpoles around the boathouse. Again September there was a profusion of brightly coloured leopard frogs.

The vegetable garden was planted very late (July 5th) due to lack of available seeds during the Covid pandemic. It successfully produced cucumbers, beans, good beefsteak tomatoes.

Projects included rebuilding the rear bathroom to include hot water and a shower, as well as a solar energy centre. John began the re-organisation of the solar energy system. Construction work was almost completed on Cath's sleeping cabin at Pothole Point. Andrew undertook the reroofing of the main cottage.



2020 - The Gathering of the Clan, not 'socially distanced'

Mamie Fairlie 1925-2019



Historic High Water levels



**TREE STUDY REPORTS - SECTION 09**

## General Observations - 2021

A second summer of the Coronavirus, Covid-19 Pandemic restrictions. Canadian borders remained closed to American visitors until August 9th. US borders remained closed to Canadians throughout the summer. Quarantine for those from abroad, mask wearing and social distancing. The winter of 2020-2021 was again late starting with little snow until February. In early November there was a severe storm and water surge which drove the water levels up over 36 inches (915mm) and cast the floating dock up onto the swimming rock, where it remained marooned and distorted all winter. The boathouse was flooded and pump inundated. Again the Great Lakes were partially frozen over providing clear ice for skating before the nows arrived. Water levels, plunged 26" from 2020 highs" to approximately 24" below the high water benchmark. Such a drop was almost unprecedented. The level fluctuated over the summer and began to drop about 8" in September.

Again the water quality was generally good and clear. Archers bay remained as a major bass spawning area and many large bass nested there in early June. Fishing throughout the summer appeared to be generally improving with an unusual record set by John Fairlie for a 20", 3 1/2 lb bass, free of parasites. Invasive goby fish were in evidence but there was a marked reduction in zebra and quagga mussels.

The summer started with generally cooler temperatures and plenty of rain. This proved ideal for tree planting of hemlock, spruce and tamarack and burr oak as well as assorted berries: blueberries, raspberries, haskaps, saskatoons, buckthorn and winter holly. The fire risk remained at 'low to moderate'. Meanwhile devastating forest fires were ravaging large tracts of Northern Ontario and throughout B.C. resulting in dazzling red sunrises on many mornings.

The internal lakes remained at medium water levels and much more forest encroachment upon the waters was noted. Again a doe but no faun was noted. A very healthy splendid 3 year old (est) bear appeared occasionally on the north shore but did not overturn the paths in the usual manner. He was briefly interested in the compost pile (a new kitchen composting regime) until the compost was mixed with wood ash.

Though the spring weather should have been ideal for the development of blueberries and other berries, there appeared to be a problem with insect pollination and very few bushes bore fruit, one of the worst years in memory.

Lady slippers made as noticeable comeback and the Indian Pipe has never been so abundant, suggesting a healthy mycelial network sustaining them.

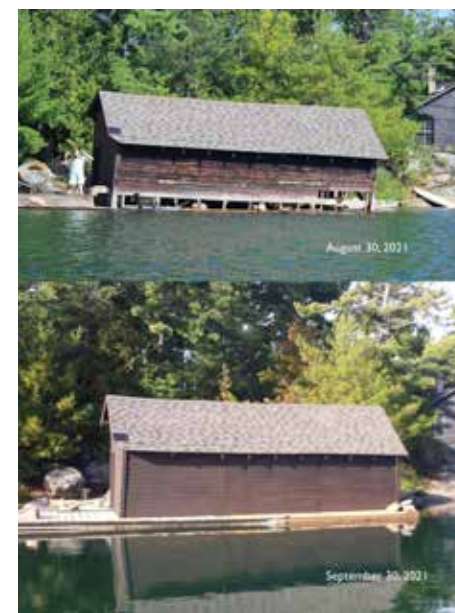
There was a scattered migration of Monarch butterflies around Sept. 1st. There was an abundance of spiders, some wolf spiders being surprisingly large.

Two immature bald-headed eagles were seen over OK Point in particular throughout June and early July. Merlins were again nesting in Champlain Park and a brownwing (?) near the beaver lake. Sand hill cranes did not nest on Fairwood this year. The usual ruffed grouse were to be found in Yew Wood and on Armak Point..

Garter snakes were common. Several young rattlesnakes were encountered in the vicinity of the house. Unusual pink spotted flattened snakes, thought to be hognose adders were noted. Frogs were abundant later in the season.

The vegetable garden was planted early, (May 18th) at the same time as the tree plantings. It was noted that though plants grew and flowered, there was only modest crop production, again ascribed to poor cross pollination. Tomatoes and beans were good. A pergola was built in the late season to develop a multi layered garden area with raised beds and individuated pots.

Projects included rebuilding the boathouse and tiling the new bathroom extension and kitchen counters. Cath's sleeping cabin was completed by Dean Corkins. Andrew completed the kitchen roofing.



Boathouse renovations



2021 - The Gathering of the Clan, not 'socially distanced'





Gypsy Moth nesting under crux



One of the lateral branchings has been removed in an effort to rebalance the tree which is shaping to the house airstream.



Tree 1 in 2010 >

Tree 1 in < 2014



**Tree Number: 1 - 2014**

*Location: behind main cottage, partially sheltered opposite back door*

*Species: White Pine with double crown - secondary crown is threatening the balance of the tree and leaning over the house.*

*Nature of Attack: Following a very long and hard winter all white pines are generally free of gypsy moth nests. Pine tip beetle which has severely affected this tree in previous years is also in abeyance.*

**Observations:**

- 1) *There was one minor gypsy moth nest site under the crux of this tree and this was removed.*
- 2) *There is no evidence of pine tip beetle on any of the white pines in 2014 though there were scattered instances observed of beetle spume nests observed in June.*
- 3) *Relief cutting of one of the side branchings was undertaken this spring due to concerns about unbalanced shape oversailing rear roof of house. This was undertaken due to the observed effects of a tornado which passed over the house in 2013 and severely flexed the tree.*
- 4) *Minor evidence of ant infestation, but considerably less than in previous years.*
- 5) *The adjacent maple has been entwined with this tree and accommodates itself to share the skylight.*
- 6) *During the spring this tree shed copious quantities of pollen as did all white pines.*
- 7) *There was no cone formation on this tree in 2014 which was unusual. Many other white pines produced a very heavy crop after a June pollination which was the heaviest in recent memory. After 2 years of cone free trees the squirrels and chipmunks have struck a bonanza year and the ground is littered with fallen cones in late September.*
- 8) *The shaping of this pine appears to be affected by wind streaming around the volume of the house. (see photo opposite) The tree is branching out laterally and not growing in overall height.*



No Gypsy Moth nesting in usual location but boring insects result in gum release.



Above: Healthy needling with little evidence of tip beetle (2-3 instances) no sawfly and no gypsy moth. Below: Lateral branching below showing strain cracks, and bleeding gum.



Entanglement of crowns with adjacent maple



Bushier Tree 1 in 2010 >

Tree 1 in < 2015



**Tree Number: 1 - 2015**

**Location:** behind main cottage, partially sheltered opposite back door

**Species:** White Pine with double crown - secondary crown is threatening the balance of the tree and leaning over the house.

**Documented Attacks:** Following the very long and hard winter all white pines are free of gypsy moth nests. Again there is little evidence of the tip beetle which have afflicted it in recent years. No orange gypsy moth nests were encountered in any of the usual places on this tree, its neighbours, or under the house eaves

**Observations:**

- 1) Generally the pine tip beetle which affected drifts of white pine within the last decade has been reduced to rare occurrences on fewer trees. It is thought that the last two hard winters have resulted in the considerable reduction of this pest. White pines on OK Point can still be seen to have been stressed by this infestation with dead branches and sparser needling.
- 2) There have been severe outbreaks of Pine Sawfly on several white pines particularly noticeable in late August. This tree has been unaffected but instances are included later in this report. The White Pine Sawfly looks different from the Red Pine Sawfly which decimated the Red Pines on Fairwood in the 1960's and still appear occasionally in small outbreaks. The Red Pine caterpillar was not interested in White Pine. It was more yellow green with black spots - see earlier reports on infestations on Tree 2 for photos. The white pine sawfly has a darker more articulated spotting of yellow black and darker green.
- 5) The adjacent maple is becoming quite entangled in the upper branches. The maple is approaching the end of its life and is becoming sparsely leaved. This is also partly due to the drier summer weather in 2015. For an example of a healthy maple in prime of life see Tree 9 following.
- 7) There was no cone formation on this tree in 2015 or on most of the White pines. The white pine pollination across the island, so heavy in 2014 and resulting in so many cones, was much reduced this year. Nevertheless there is a huge stock of seedling white pine thriving at ground level certainly much more over the past 5 years with better growing conditions.





No Gypsy Moth nesting in usual location but boring insects result in gum release.



Above: Healthy needling with no evidence of tip beetle or gypsy moth nests in the usual areas.



There are many instances of bleeding through the bark on both trunks



Bushier  
Tree 1 in  
2010 >

Tree 1 in  
< 2016



**Tree Number: 1 - 2016**

*Location: behind main cottage, partially sheltered opposite back door*

*Species: White Pine with double crown - secondary crown is threatening the balance of the tree and leaning over the house.*

*Documented Attacks: There is no evidence of pine tip beetle or of gypsy moth on white pine anywhere on the island. No further saw fly infestation.*

**Observations:**

1) Following a short and mild winter there was a relatively dry spring. The dryness seems to have had a very adverse effect upon insect populations which were noticeably reduced this year. The pine tip beetle which afflicted drifts of white pine within the last decade has been hugely reduced in the past 3 years. At first this was thought to be due to recent harsh winters, but this last winter was mild and the following spring very dry. The mid island lakes were only half full in the early spring. Usually Stepping Stones are completely submerged in May.

2) Last years two outbreaks of Pine Sawfly have not recurred this summer. In fact the pines afflicted last year have come back with no apparent permanent damage.

3) There was little pine pollination in the spring of 2016. Pollens were noticeably lessened in the Bay water.

4) There is no cone formation on any of the white pine this year, though cones are prolific on the white spruce and reasonably generous on the jack pine.

5) There are increasing signs of stress on the substantial side branch. This is bleeding heavily onto the blueberry bushes below. This side branch is more substantial than the crown and is unbalancing and cracking the tree. Insects have been taking advantage of this stress and there are instances of bleeding knots on both main and ancillary trunks.

6) In comparing the 2 photos opposite at 6 years apart it is noted that the side branch as become more ponderously needled while the mid branches on the main stem trunk hav actually died back. The tree looks less balanced.



No Gypsy Moth nesting in usual location but boring insects result in gum release.



Above: After year 2016 clear of blight, the tip beetle is staging a mild comeback - still affecting only a few of the branches



Bleeding from the trunk has become more evident in 2017. There are signs of rust infection of a number of white pines in the area



Bushier Tree 1 in 2010 >

Tree 1 in < 2017



**Tree Number: 1 - 2017**

**Location:** behind main cottage, partially sheltered opposite back door

**Species:** White Pine with double crown - secondary crown is threatening the balance of the tree and leaning over the house.

**Documented Attacks:** After a generally mild winter there is evidence of a return of some tip beetle infection and evidence of increased rust bleeding on this and several neighbouring white pines There is no evidence of gypsy moth. In general this has been a superb year for pine growth and cone production.

**Observations:**

1) Following another short and relatively mild winter there was a long drawn out and wet spring. The summer has not been excessively hot and there have been frequent storms - altogether ideal weather for island trees.

2) The pine tip beetle which afflicted drifts of white pine within the last decade shows some signs of returning. There is also sign of increased rust bleeding on the bark of several neighbouring white pines. No further outbreaks of Pine Sawfly this summer.

3) There was a medium pine pollination in the spring of 2017. However the formation of cones on all the coniferous tress has never been more abundant. This also includes the white pine, red pine, jack pine, spruce and hemlock.

4) Continuing signs of stress on the substantial side branch. Insects seem to have been taking advantage of this stress and there are instances of bleeding knots on both main and ancillary trunks.

5) In comparing the 2 photos opposite at 7 years apart it is interesting to note the pronounced upward sweep of branches supporting a lot of new needle growth. 2017 has provided near perfect growing conditions for white pine with plenty of moisture, and summer weather which has not been excessively hot. New needle packets noted on many sprouting tips. The brow tubular mantle peels back in four petal lie strips to reveal the tight bunch of new needles within.



Gypsy Moth nesting in usual location under branching.



Above: Foliage is slightly sparse due to drought conditions but there is only one instance of tip beetle.



Bleeding gum from trunk in several locations particularly around primary branching. Principal branching which is larger than crown trunk is showing stress cracks which insect life is exploiting.



Bushier  
Tree 1 in  
2010 >

Tree 1 in  
< 2018



## Tree Number: 1 - 2018

Location: behind main cottage, partially sheltered opposite back door

Species: White Pine with double crown - secondary crown is threatening the balance of the tree and leaning over the house. The trunk is 1510 circ. at base, the circ. at the base of the crown branching is 910, whereas the unbalanced offshoot branching is 1350 circ.

Documented Attacks: After an extended but relatively mild winter there has been little change to this tree, however it is noted that both it and the adjacent maple seem to be overhanging the cottage more and the pine has deposited a heavy dump of needles on the roof. Branches were downward bent and touching the roof. These have been removed. There is only one instance of tip beetle infection. There is one small nest of gypsy moth under the branching arm. Despite the heavy pollination in late June (later than usual due to the late spring) there has been no cone production on any of the pines across the island.

### Observations:

- 1) The winter was unusually extended with the ice disappearing in the week of May 10th. The snow cover was reported to be less than usual and indeed the central lakes started off the spring with levels at unusual lows after the melt. Subsequently 2018 has been a summer with a prolonged drought. Many of the trees, especially the more vulnerable pines have been affected and show a sparser foliage.
- 2) The summer has been unusually favorable for all types of insects, which is difficult to comprehend during the extended drought. There is evidence of return of the Pine Sawfly caterpillars on many nearby pines.
- 3) There was a heavy pine pollination in late June of 2017. However no pine cones have developed on any of the pines. This also includes the white pine, red pine, jack pine, spruce and hemlock.
- 4) Continuing signs of stress on the substantial side branch. Insects are taking advantage of this stress and there are instances of bleeding knots particularly on the ancillary trunk. Due to the increased lean over the cottage it has been decided to cut this tree.



Both trees were ring counted at approximately 70 years. The maple had a hollow core up to 6M



< The offshoot branch exceeded the main trunk diameter and showed interesting crack and stress pattern in the internal rings



Mating Sawyer beetles. Their larvae, are responsible for extensive damage to dying, recently killed, and felled conifers of various species—but especially pines and spruce.

Bleeding gum from trunk in several locations particularly around primary branching. Principal branching which is larger than crown trunk is showing stress cracks which insect life is exploiting.



Tree 1 in 2010 >  
< After Removal of Competing Pine and Maple



Tree Number: 1 - 2019

Location: behind main cottage, overhanging house, partially sheltered

Species: White Pine with double crown competing with with a Maple for sunlight and growing over the house. Both were massive trees with trunks of 460 - 490mm in diameter and roughly 12-14 M in height. It was finally decided to cut these down to avoid falling risk on the structure. Both trees had begun to lean into the microclimate of upswept winds passing over the structure.

Both were cut down by Alvin Buttineau and the area opened up behind the house cleared by the family. Their removal reintroduced more sunlight into the garden.

The massive maple was found to have a rotted core. The white pine was found to have interesting stress lines in the point of branching where the secondary offshoot crown far exceeded the diameter of the original crown in its effort to avoid overshadowing by the maple.

Observations:

1) The Gypsy moth were again nesting in the crux under the off-branching. There has been considerably more evidence of gypsy moth in 2019 and a prolific hatching of moths in learly September. They did little damage however.

2) Three new fruit trees from Hardy Tree Nurseries in Quebec, (Siberian root stock) were added in the area to the west of the garden. Two will be added in the area of the two recently cut trees.

Commis Apple - 920mm - attacked by sawfly and gypsy moth - no budding

Trust Apple - 650mm - healthy future budding for 2020

Loma Pear - 720mm - healthy future budding for 2020

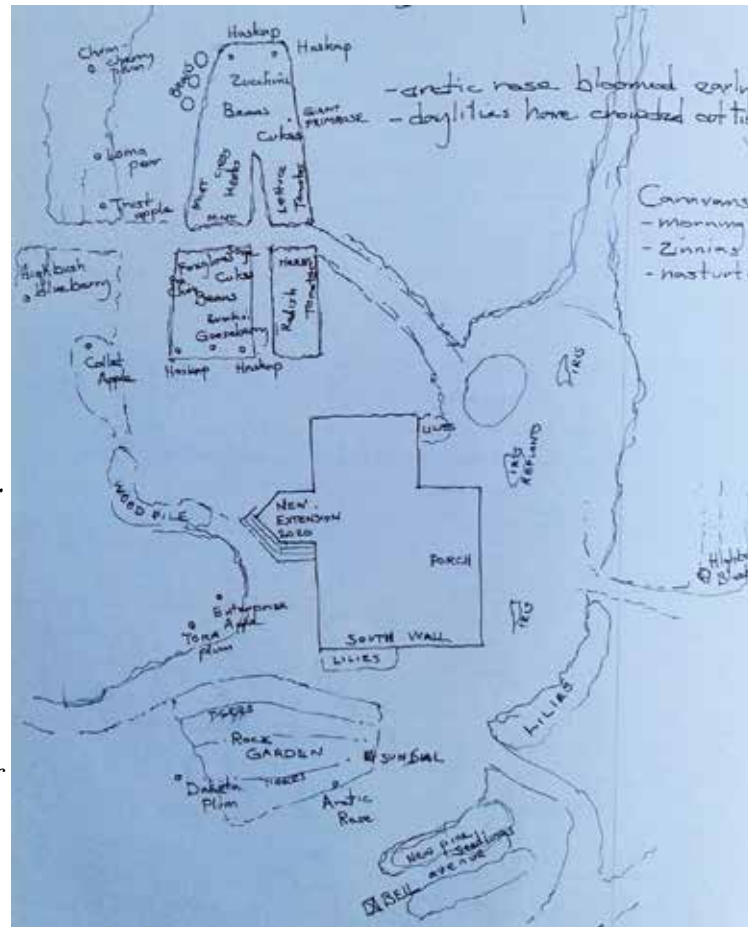


**Trees Number: 1A-1G - 2020**

Tree No. 1 was cut down in 2019 and it has been replaced in the study by a group of planted fruit trees

Location: Around cottage on O K Point

Species: A variety of planted fruit trees as experiments inspired by fruit trees observed on other islands. These trees in many cases have root stock supposed to withstand severe Zone 2 conditions. (Fairwood is in Zone 5-6) Some of the rootstock is Siberian (Hardy Fruit Trees) and some has been developed by the University of Saskatchewan. (Whiffletree Nurseries)



Map showing locations of recent plantings around main cottage.



**Tree 1A - Hybrid Plum 'South Dakota'** (root stock Mustang) - semi fertile  
(Whiffletree Nurseries -planted 2020  
This 900mm high specimen has been planted in a favorable

sunny location. It was ravaged by gypsy moth in transit at Fairfield farm. It had flowered prolifically, suggesting steroid inducement. Following the blight the live branchings have

occurred at or below the graft. Above the graft the wood is dead.



**Tree 1B - 'Toka' Plum** (rootstock Mustang - semi dwarf) 1350 high - a healthy specimen with multiple branchings at about 600 a.g.l.

This specimen was also ravaged by gypsy moth in transit, and then later suffered sawfly caterpillar attack . I has however bounced back in this particularly favourable sunny location.



**Tree 1C - Red Apple 'Enterprise'**  
1000mm high - a less confident growth season  
root stock Bud 118. This specimen was also ravaged by gypsy

mothe and then later after plantin by sawfly. It appears that the apples planted are particularly vulnerable to sawfly while the plums and pears are less so. This specimen was damaged during the nearby construction. The broken branch seemed critical to its survival and was taped with duct tap - apparently successfully.



**Tree 1D** - Collet Apple - planted in spring of 2019 and supplied by Hardys (Pepiniere) Nurseries in Quebec - Siberian rootstock .

*This tree occupies a partially shaded position, which may account for its slowness in establishing itself. This specimen is located near the old compost pile and much additional good soil has been added in 2020. It should be noted that 4 years ago an application of 'Round Up' to address proliferating invasive ground alder, may have damaged this soil.*

*This tree has suffered 2 consecutive years of sawfly attacks. Though it has next years budding in place it had lost most of its leaves by end of season.*



**Tree 1E** - Trust Apple - approx. 500mm high - planted in spring of 2019 and supplied by Hardys (Pepiniere) Nurseries in Quebec. - Siberian rootstock .

*This tree has been planted in a sunny location but the soil in this gulch may be too wet around the roots. It has succumbed to sawfly this year and the new growth has been very minimal. It appears to be barely clinging to existence and may not survive the winter.*



**Tree 1F** - 'Loma' Pear - approx 600mm high, (Hardy Pepiniere) Planted 2019. This specimen has proven of no interest to sawfly and other insects. The foliage is generally

*glossy and healthy but little advanced ver last year.*

*There is however limited evidence of a leaf miner turning some leaves black . There were also spider, mite nests noted on the undersides of some leaves.*



**Tree 1G** - 'Chum' Cherry Plum - approx 1000mm high, rootstock Mustang semi dwarf. (Whiffletree Nurseries) This

*tree has been planted in a sheltered, partially shaded position and in what has been the garden compost pile. This once healthy specimen bloomed profusely and then was ravaged by gypsy moth at Fairfield. However it has mad a strong comeback with many new branches emerging at lower level, about 250mm around graft (two above and one below)*

**Trees Number: 1A-1G - 2021**

**- Replacement 'arboretum' for Tree No. 1**

Location: Around cottage on O K Point



**Tree 1A** - Hybrid Plum 'South Dakota' (root stock Mustang) - (Whiffletree Nurseries) -planted 2020

Now approximately 1200 high. Again attacked by gypsy moth, but treated with Savers soap. One branching above and one below the graft. Only moderately healthy.

**New Tree 1A2** - American Hybrid Plum 'Black Ice' (rootstock Mustang - semi dwarf) from Whiffletree. Planted 2400mm due south of Tree 1A this healthy tree has grown over the season from 1500mm to 2100 mm



**Tree 1B** - 'Toka' Plum (rootstock Mustang - semi dwarf) is 1800 high - a healthy specimen with multiple branchings at about 600 a.g.l. Again attacked by gypsy moth, but treated with Savers soap. It is thriving in this sunny location.

**Tree 1C** - Red Apple 'Enterprise'

1200 high, this tree has grown slightly despite last years damage to a key branching. The splint was removed allowing the damaged branch to acclimatise. There are 3 key branchings above the graft. Minor pruning.



**Tree 1D** - Collet Apple - planted in spring of 2019 and supplied by Hardys (Pepiniere) Nurseries in Quebec - Siberian rootstock .

This tree started the season in poor health and was again savaged bu gypsy moth and addressed with Savers soap. It is considered dead as there is no new budding for next year's leafing.



**New Tree 1D-2** - European Plum (Mustang semi-dwarf rootstock) supplied by Whiffletree. This tree is thriving and has reached a height of 1900mm. The lateral branches of the adjacent maple have been cut away to give more sunlight.

**Tree 1E** - Trust Apple - still approx. 500mm high. Both apple trees 1D and 1E have been a disappointment. Though a sunny location, the soil may be too prone to waterlogging.



**Tree 1F** - 'Loma' Pear - still approx 600mm high, (Hardy Pepiniere). The foliage is generally glossy and healthy, unappealing to gypsy moth and sawfly but little advanced ver last year.



**Tree 1G** - Chum - this tree is too overshadowed and there has been little growth, it being still about 1200mm high. It is however healthy, with clean, glossy leaves. It has not been attacked by gypsy moth this year.



**Sundry Fruit Bush Plantings -**

Four Red Mammoth Raspberries (Whiffletree) have been planted to the west of the garden and have already proved fruitful.

Two Chester thornless blackberries (Whiffletree) have been planted further west. They are already thriving (perhaps alarmingly)

The Highbush blueberries are healthy but have not grown much. They have borne no fruit this year (like indigenous blueberries)

Four Haskaps have demonstrated little growth and are not particularly thriving.

Saskatoon berries were planted (male and female) to the south of Tree 1B2



Two lilacs were planted and seem to be stable.



# Nursery Stock Trees Orders 2021

Ontario Native Plants Order #642

Product	Quantity	Price
Hemlock	10	\$70.00
Tamarack	5	\$32.50
Lowbush Blueberry	10	\$70.00
Oak (Bur)	3	\$21.00
Black-Eyed Susan	1	\$5.50
Blue Wild Indigo	1	\$5.50
Wild Bergamot	1	\$5.50
Milkweed (Butterfly)	1	\$5.50
<b>Total Plants in Order</b>	<b>32</b>	
<b>Subtotal:</b>		<b>\$215.50</b>
<b>Shipping:</b>		<b>\$16.95 via Expedited Parcel</b>
<b>HST:</b>		<b>\$30.24</b>
<b>Payment method:</b>		<b>PayPal</b>
<b>Total:</b>		<b>\$262.69</b>

Georgian Bay Biosphere:

Product	Qty	Unit Price	Price
Wild bergamot	2	\$ 5.00	\$ 10.00
Eastern tamarack	4	\$ 12.00	\$ 48.00
White spruce	4	\$ 12.00	\$ 48.00
<b>\$20</b>	<b>1</b>	<b>\$ 20.00</b>	<b>\$ 20.00</b>

Whiffletree Nursery

Qty	Item	Description	Price	Total	Tax
1	142-1255	Tree: Plum - BlackIce Mustang Semi-Dwarf	47.95	47.95	H
1	145-2755	Tree: Plum - Opal Mustang Semi-Dwarf	47.95	47.95	H
2	205-0782	Small Fruit: Blackberry, Thornless - Chester, 2 yr old canes	11.95	23.90	H
2	223-1442	Small Fruit: Grape - Concord, 2 year old vine	16.95	33.90	H
1	231-3182	Small Fruit: Winterberry Holly - Berry Heavy, Female, 1 litre pot **SUB FOR BERRY POPPINS**	18.95	18.95	H
1	231-6282	Small Fruit: Winterberry Holly - Mr. Poppins, Male, 1 litre pot	18.95	18.95	H
2	246-0151	Small Plant: Lilac - Common Purple 30-45cm (12-18in)	9.95	19.90	H
4	265-4182	Small Fruit: Raspberry, Red - SK Red Mammoth, 2 yr old cane	4.95	19.80	H
1	269-1272	Small Fruit: Rhubarb - Canada Red	11.95	11.95	H
2	270-5591	Small Fruit: Saskatoon Berry - Northline, 15-30cm (6-12in) plant	12.95	25.90	H
		ORDER 9353			
1	271-4582	Small Fruit: Sea Buckthorn - Lord, Male, 2 yr old plant	24.95	24.95	H
1	271-6182	Small Fruit: Sea Buckthorn - Sunny, Female, 2 yr old	24.95	24.95	H





No cones but healthy crown growth

Healthy, unperforated bark



Die back on lower branches, spring flowers but no cones.



No insect infestations but many grasshoppers in September. Healthy bark

Example of sawfly larva (below)



**Tree Number: 2 - 2014**

**Location:** path between cabin and bell tower  
**Species:** Red Pine 570mm circ. bole at 1200 a.g.l.

**Nature of Attack** this tree has been ravaged regularly by yellow pine sawfly caterpillars. In the 1960's the sawfly killed off many of the Red Pines introduced by TUFairlie  
At that time this tree was cut down to 900mm above ground level. It has subsequently grown a healthy new crown and the original cutting is only evident as a slight sway in the trunk.

**Observations:**

- 1) Sawfly: No evidence of recurrence of sawfly on this or any of the red pines in 2014. Some stray examples noted elsewhere.
- 2) Bark generally healthy, reduced evidence of insect perforations.
- 3) Flowering and pollination in spring (heavy) but no cones produced. All of these red pines reforested by TUF appear to be infertile - no cones ever form.
- 3) Die back of lower branches to approximately 3 M above ground. Crown is well needled and healthy, restored after drought of 2011.
- 5) Budding observed for next spring
- 6) Note: adjacent white pine tree (below) has quickly succumbed to Rust. Mushy orange decomposition under bark. No ribes present. An insect bore hole observed and tested. It is found to extend 60mm into trunk, right into the centre of the heartwood.





Tree 2 in 2014 >



Tree 2 in < 2015

No cones, healthy crown but now dieback of lower branches up to 4 M above ground

For several years there has been no significant outbreak of 'native' sawfly illustrated in photo below.

Below: Healthy, unperforated bark



Below: Unusually, next year's buddings are not as evident as usual within the lower need clusters. This is part of the process of lower level die back. The reasons for this dieback are unclear as there is plenty of sunlight around this tree and adequate water.



Above: Simpler markings of sawfly larva which has afflicted Red Pines in past years - yellow-green & less elaborate markings than 'Introduced' Sawfly.

Below: Note complex markings of Introduced European Pine Sawfly larva which has afflicted drifts of white pines only in 2015. This is a recent pest.



**Tree Number: 2 - 2015**

*Location: path between cabin and bell tower*

*Species: Red Pine*

*Nature of Attack in the past this tree has been ravaged by an indigenous yellow pine sawfly caterpillar. (see photo opposite) However, a new 'Introduced' or 'European' Sawfly has begun to ravage the white pines on the island. This has shown no interest in the Red Pines as yet.*

*Observations:*

*1) Sawfly: No recurrence of indigenous sawfly though some examples were noted in the vicinity in 2014.*

*2) Bark generally healthy, shedding regularly - no evidence of any insect or woodpecker perforations.*

*3) Flowering and pollination in spring was light in 2015. There are never any cones formed on these Red Pines introduced by TUF.*

*4) Die back of lower branches to approximately 4 M above ground. Crown is healthy and restored after severe drought of 2011.*

*5) No budding occurring on tips of lower branches, unlike in normal years. This may be part of the lower branch die back - perhaps a strategy against insect infestations occurring from ground up.*

*6) Note photos below: rapid process of decay on adjacent white pine tree (below) has, along with heavy beaver defoliation, introduced much more sunlight and space around this red pine.*





Tree 2 in 2014 >



Tree 2 in < 2016

No cones, healthy crown but now dieback of lower branches up to 4 M above ground

This Red Pine avoided the severe outbreak of sawfly that occurred on the white pines last year.

Below: Healthy, unperforated bark



The needle bracts have healthy budding, below, for next spring's flowering



**Tree Number: 2 - 2016**

*Location:* path between cabin and bell tower  
*Species:* Red Pine 685 mm circ. bole at 1200 a.g.l.

*Nature of Attack* in the past this tree has been ravaged by an indigenous yellow pine sawfly caterpillar. However, a new 'Introduced' or 'European' Sawfly has begun to ravage the white pines on the island. This pest has shown no interest in the Red Pines as yet.

**Observations:**

- 1) Sawfly: No recurrence of the indigenous sawfly which used to afflict these red pines regularly.
- 2) Bark generally healthy, shedding regularly - no evidence insect or woodpecker perforations.
- 3) Spring pollination was minimal in 2016. However there is substantial budding in the needle bracts in anticipation of next spring.
- 4) Die back of lower branches to approximately 4 M above ground. Crown is generally healthy and branches slightly less needled due to hot dry conditions over the summer of 2016.
- 5) Budding in most needle bracts.
- 6) Note PHOTO Right >>

The original main trunk of the tree which was severely afflicted by sawfly at a young age and was cut back off to encourage side branching is still visible in the vestigial knot at about 1 metre above ground.





No cones, healthy crown, dieback of lower branches up to 4 M above ground.  
Below: Close up view of insect nest cluster



Healthy bark and strong needling with many new flower clusters. Below one of several insect nest clusters within the branches



Composition of insect nest cluster



Insect puts local fowering into overdrive and bundles up flowers with filaments to create secure nest.



**Tree Number: 2 - 2017**

*Location:* path between cabin and bell tower

*Species:* Red Pine 685 mm circ. bole at 1200 a.g.l.

*Nature of Attack* in the past this tree has been ravaged by an indigenous yellow pine sawfly caterpillar. A new infestation is observed on several branches. The nature of the insect is unknown and will be monitored into next season to reveal itself.

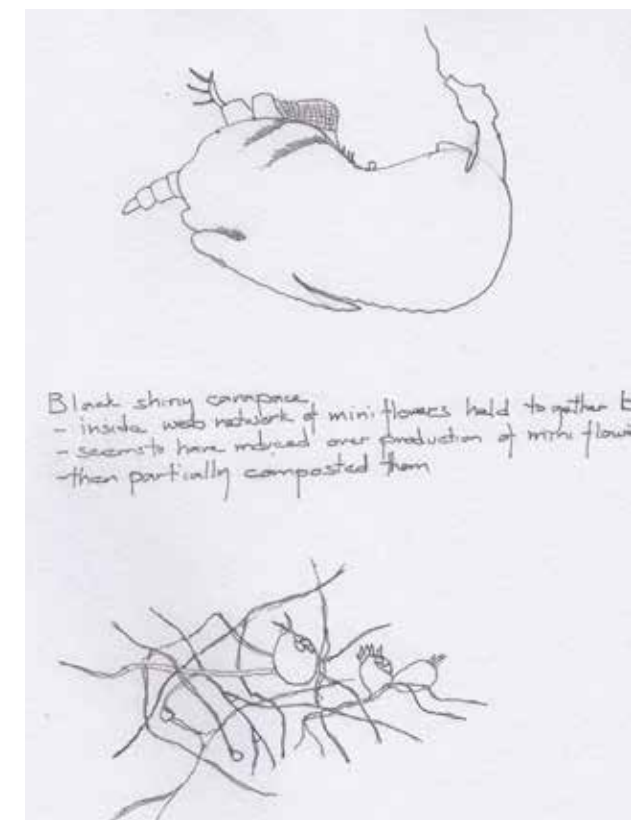
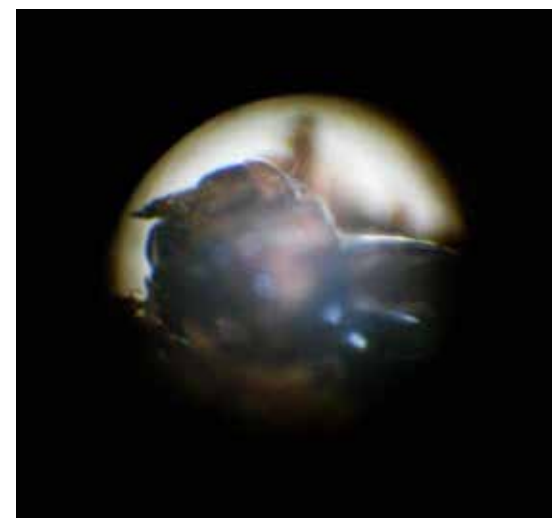
*Observations:*

1) Sawfly: Only one sawfly pupae casing noted on branches.

2) There are several curious insect nests dotted about the tree however. Several of these have been taken down and cut open, their contents examines under microscope to determine the nature of the infestation. The small shiny pupae within seem to create a nest by inducing the pine to over-produce excessive local flowering at branch tips. These are then bunched together with filaments to provide a warm, slightly composted environment.

3) Only one cone noted - opened and left over from last year.

4) Sketch Right shows the general shape of the tiny organisms found within these nests>>>  
Below - organism under microscope.





No cones, healthy crown, dieback of lower branches up to 4 M above ground.  
Below: Close up view of insect nest cluster



Healthy bark and strong needling with many new flower clusters. Below one of several insect nest clusters within the branches



Insect puts local flowering into overdrive and bundles up flowers with filaments to create secure nest.



**Tree Number: 2 - 2018**

*Location:* path between cabin and bell tower

*Species:* Red Pine 685 mm circ. bole at 1200 a.g.l.

*Nature of Attack* in the past this tree has been ravaged by an indigenous yellow pine sawfly caterpillar. There is no further evidence of the new and unknown infestation noted last year. The foliage is generally sparse due to the summer drought conditions.

*Observations:*

- 1) Sawfly: No pupa casings noted on branches.
- 2) No continuing evidence of curious insect nests dotted about the tree that were noted last year.
- 3) No cones produced despite strong spring pollination.



Note progress of fungal growth on adjacent pine which has succumbed to pine rust disease.



Below: Note extensive pileated woodpecker damage to venerable nearby cedar tree, revealing hollow core





*Cones have formed on sparse but healthy crown*

*Below: Double Cones, laid horizontal have formed on the crown*



*Healthy shag bark with no sign of insect perforation or woodpecker damage. However Gypsy moth has laid egg clusters in at least three locations.*

**Tree Number: 2 - 2019**

*Location: path between cabin and bell tower*  
*Species: Red Pine 685 mm circ. bole at 1200 a.g.l.*  
*tree is approx. 75 years old and about 8 M high*

*Nature of Attack in the past this tree has been ravaged by an indigenous yellow pine sawfly caterpillar. Some of the 'European' sawfly caterpillars were noted on adjacent white pines this year.*

**Observations:**

- 1) For the first year on record this tree has produced cones . These are usually doubled and lying in a horizontal position. The squirrels have paid them no attention, with the many other cones to harvest. These cones have formed after the strong spring pollination noted last year.*
- 2) The foliage is generally quite sparse due to the summer and the lower branches have died back to approx. 4 M a.g.l..*
- 3) Gypsy Moth have deposited egg casings in three location on the northern (protected) exposure*

*Below: Extensive die back of lower branches to 4M*

*Below: Upper needling is dense in parts and distinguished by the twisted branchings*



*Below: Gypsy Moth egg cluster nestled into bark*



**Tree Number: 2 - 2020**

*Location:* path between cabin and bell tower

*Species:* Red Pine 685 mm circ. bole at 1200 a.g.l.  
tree is approx. 75 years old and about 8 M high

*Nature of Attack* in the past this tree has been ravaged by an indigenous yellow pine sawfly caterpillar. In 2020 there was minimal sawfly but quite a strong hatching of gypsy moth which were to be seen fluttering everywhere in mid June.

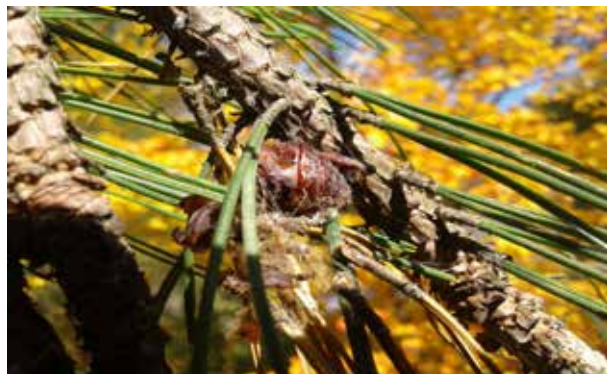
*Observations:*

- 1) No cones this year. Despite the ideal summer the needling has become very sparse throughout the tree and the has been total die-back to about 4 M level.
- 2) One gypsy moth chrysalis noted, no egg clusters noted.
- 3) Bark is healthy with no evident insect bore holes
- 4) Some minimal gum bleed on branches, cause undetermined



*Below: Sparse needling on upper branches*

*Below: New budding for 2021 growth*



**Tree Number: 2 - 2021**

*Observations:*

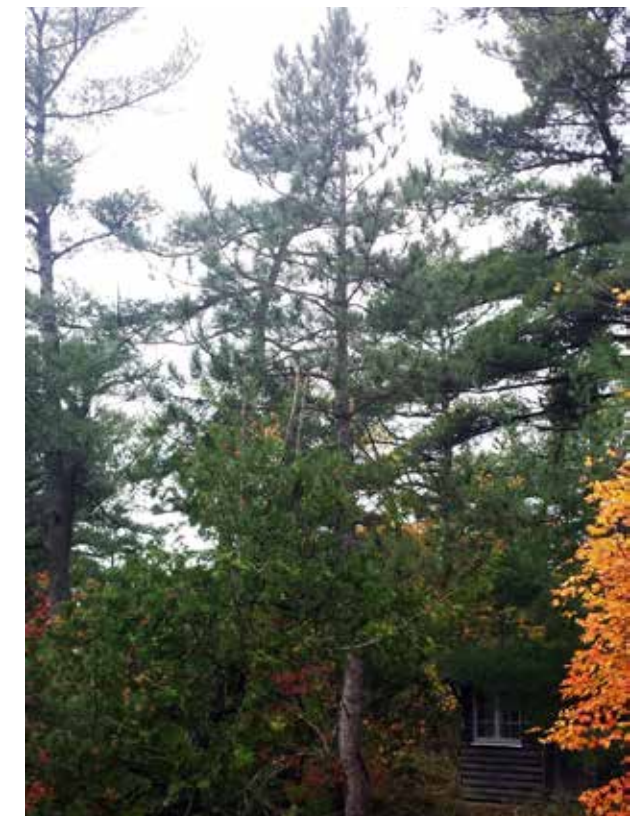
- 1) No cones were produced on this tree this year. In general pollination of all conifers in the spring was very light.
- 2) the bark remains healthy with few insect penetrations. There has been no sawfly in the vicinity during 2021.
- 3) needling is becoming sparser and the lower branches have died back to a height of 4 metres
- 4) tip buddings for next years growth are unusually small and tight suggesting that despite the ideal growing conditions over the summer, with plenty of rain, the tree is anticipating a tough winter (??)
- 5) a smallness of budding for next year has been noted on all the conifers this year.



*Above Two lilacs have been planted nearby*



*Above: sparser needling and tight budding for 2022 growth*





Healthy, well needled crown

Moss Growth and increasing decomposition on old stump



Scattering of healthy new cones



Next year's budding on tips



**Tree Number:** 3 - 2014

**Location:** on bell tower path  
**Species:** White Spruce planted by TUF

After the cutting away of the diseased and dead primary crown, secondary and tertiary crowns have formed hugging the rock face. These have thrived.

**Observations:**

- 1) Needling remains dense and healthy after a season of almost ideal growing conditions, cool and damp.
- 2) Patchy die back in lower branches towards channel.
- 3) New healthy cones have formed (approx. dozen). Some harvested for seeding next spring. Seeds harvested last year and planted in seed trays did not germinate.
- 4) Offspring in sand seed bed behind cabin may recover from die back of last summer
- 5) No tree frogs (often found here) or insect activity noted on the branches.
- 6) Increasing rot, sponginess and moss growth around wound of original cut but not as yet threatening the vitality of the lateral growth.

Some die back on lower branches



More healthy new cones







Healthy branch spread at base with plenty of cones in 2015

Increasing decomposition on old stump with insect incursions.



Below: vacated sawfly cocoon cast



Below: plentiful new cones



Tree Number: 3 - 2015

Location: on bell tower path  
 Species: White Spruce planted by TUF

The secondary and tertiary crowns continue to flourish while insects make further inroads into the old cauterized stump.

Observations:

- 1) Dense needling. Some pruning undertaken to open path around base.
- 2) Again there are many clusters of new cones in 2016
- 4) Offspring (Tree #18) in sand seed bed behind cabin has died.
- 5) No tree frogs observed (often found here) or insect activity noted on the branches.

Insect damage to cauterised boll.



More healthy new cones





Healthy branch spread at base, plenty of cones in 2015



Healthy dense foliage and many more cones in 2016

Increasing decomposition on old stump with insect incursions.



Below: plentiful new cones in 2016 whereas the White and Red Pines have produced none this year and the Jack Pines are scarce



**Tree Number: 3 - 2016**

*Location: on bell tower path*  
*Species: White Spruce planted by TUF*

*The secondary and tertiary crowns continue to flourish while insects make further inroads into the old cauterized stump.*

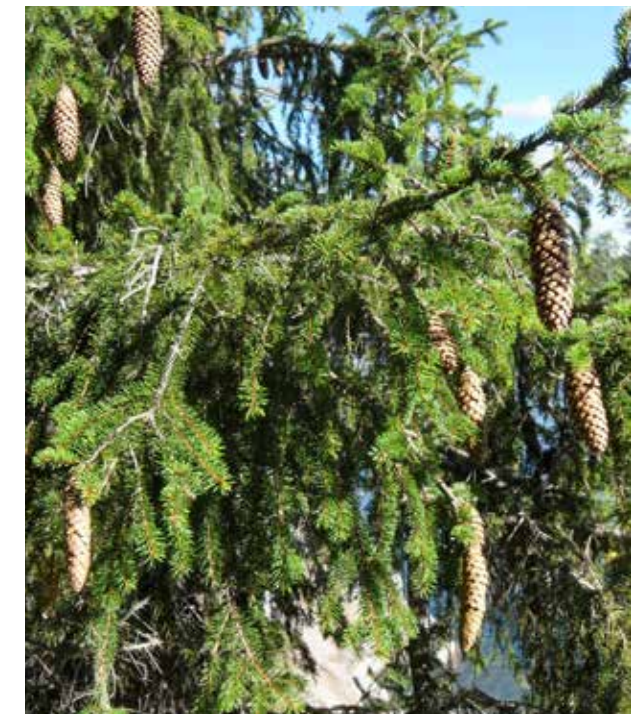
*Observations:*

*1) Dense needling. This needling provides a protective cover for many creature such as tree frogs and small mammals which find sanctuary around its dense protective base. This tree provides a protected access to the shoreline.*

*2) Many clusters of new cones have again formed in 2016, in contrast to the scarcity in 2014. Some cones harvested to provide seed stock for 2017*

*3) Offspring (Tree #18) in seed bed behind cabin has died. A new seedling has started nearby however and will become the new Tree 18.*

*4) No tree frogs observed this year.*





*Abundant crop of new cones has formed in 2017*



*Healthy dense foliage across second crown*

*Increasing decomposition on old stump with insect incursions.*



*Below: Dragonfly casing noted on one of lower branches. A moist summer of 2017 proved a good year for dragonflies*



**Tree Number:** 3 - 2017

**Location:** on bell tower path  
**Species:** White Spruce planted by TUF

*The secondary and tertiary crowns continue to flourish while insects make further inroads into the old cauterized stump.*

**Observations:**

- 1) *Continue good health. The dense needling of this tree provides a protective shelter for many animals and insects near the shoreline. Close inspection of its branches often turns up many insects and amphibians sheltered within.*
- 2) *Abundance of new cones have again formed in 2017, in contrast to the scarcity in 2014.*
- 3) *A new offspring seedling has started behind pumphouse nearby and this will replace recently defunct Tree 18.*
- 4) *No tree frogs observed this year. However a dragonfly carapace noted.*





*A few of last years cones, left by squirrels, remain*



*Slightly sparser foliage across second crown due to drought*

**Tree Number: 3 - 2018**

*Location: on bell tower path  
Species: White Spruce planted by TUF*

*The secondary and tertiary crowns continue to flourish while insects make further inroads into the old cauterized stump.*

*Observations:*

- 1) Continued reasonable health despite drought. Slightly sparser foliage.*
- 2) No new cones have formed in 2018, only a scattering of last years cones and a few opened 2 year cones remain.*
- 3) No tree frogs observed in branches.*

*Old stump with insect incursions has little change. Drought has dried out algal rot seen in other years.*

*Below: A scattering of cones left over from 1st year. No new cones forming this year.*





*New cones are not as abundant as in previous years.*



*Sparser foliage across both crowns due to last year's drought and woodpecker damage*

*Old stump with insect incursions - area of damp rot has extended. over last summer*



*Below: Thinning and de-needling of lower branches is sudden and severe*



**Tree Number: 3 - 2019**

*Location: on bell tower path*  
*Species: White Spruce planted by TUF approx. 75 years ago*  
*The principal crown succumbed to drought in the 1960's and was removed.*  
*Subsequently the tree has branched out sideways and developed two lateral crowns*  
*The secondary and tertiary crowns are beginning to thin while insects make further inroads into the old cauterized stump.*

*Observations:*

- 1) Noticeable die back and thinner needling, many lower branches denuded of needles.*
- 2) A few dozen cones have formed but not as prolific as in previous years*
- 3) Considerable new Downey woodpecker damage noted on the 'tertiary crown'*

*Considerable new woodpecker damage on tertiary crown*



*Downey woodpecker has riddled bark of tertiary crown.*



**Tree Number: 3 - 2020**

**Location:** on bell tower path  
**Species:** White Spruce planted by TUF approx. 75 years ago  
The principal crown succumbed to drought in the 1960's and was removed.  
Subsequently the tree has branched out sideways and developed two lateral crowns

**Observations:**  
1) Noticeable die back and browning of branches  
2) Many cones have been produced this summer and most of these had already opened and released their seed by October.



Many new cones - have already shed their seeds by October

Browning and de-needling of lower branches

**Tree Number: 3 - 2021**

**Observations:**  
1) sapsucker damage to all 3 crowns is increasingly evident  
2) there is increasing die back at the base, many more skeletal, denuded branches  
3) there are new cones, fewer than in past years. They have already opened and shed their seeds.  
4) lichen growth is increasingly evident  
5) after many unsuccessful attempts to harvest seeds and start them in a nursery behind the pump house, ten new healthy spruce specimens were purchased and planted in 2021, including the PFMS memorial spruce in Saegert Park.



Above: few new cones in 2021  
Below: increasing sapsucker damage

Above: die back in lower branches  
Below: sparser needling



## 2015 Introduced European Sawfly Infestations of White pines

*Location:* On pines alongside the FAIRWOOD Sign, including the recently planted reforestation seedlings.

Two waves of infestation of European pine sawfly have been observed in 2015. A light infestation occurred in late May and then a second, much more serious infestation occurred in mid-late August. The larvae appear similar to green caterpillars with dark green stripes and large black heads, growing to about one inch long. They are not true caterpillars; they have more than five pairs of prolegs and develop into wasp-like adults. The larvae feed in groups near the tips of branches and lie along the needles. When disturbed, they raise their heads and abdomens in unison which serves to scare predatory birds. The larvae feed on the outer portions of the needles, leaving a brown core that curls and falls off of the branch. Although they strip all of the foliage off of branches, the branches are unlikely to die. The reason is that the larvae are feeding on the second and third year needles. They drop to the ground to pupate at about the same time that new needles are emerging from the developed candles. These first year needles carry on photosynthesis and food production for the branch, keeping it healthy. With only one generation per year, those needles will not be fed upon until the following spring. However, damaged branches will be bare except for a puff of first year needles at the tip, making the tree less aesthetically pleasing.

The larvae drop to the ground and burrow into the duff. They form oblong, tan cocoons in which they pupate. They emerge as one-half inch, black, wasp-like adults. After mating, the female sawfly uses her saw-like ovipositor to make longitudinal slices in the needles where she inserts her eggs. Usually about six eggs are laid per needle with several needles attacked per shoot. Attacked needles have a series of small, yellowish spots along them where the eggs have been laid. These eggs hatch into larvae in spring.

The appearance of the larvae was first noticed on Fairwood in late summer 2014. The 'Introduced European' sawfly have a slightly different appearance from the indigenous yellow green and black spotted larvae which have killed a number of red pine in the 1950's and 1960's. They are a darker green and more articulated with spots and stripes. These imports seem to have no interest in the red or scotch pines.

The infestation on Fairwood in 2015 seemed to come in two waves, a lighter spring infestation at the time of tent caterpillars (light in 2015) and then a second wave in late summer which was much heavier.



*Photo of sawfly cocoon on Tree # 3. Uncertain whether this is an example of 'Introduced European' sawfly or of some other type.*

*Wasp-like sawfly emerging from its cocoon to lay its eggs on needles*



*Left: Newly planted white pine sitting under the main focus of attack has been devoured, leaving only the short new needles. Will it recover?*

*Below: All old growth needles on this pine have been stripped leaving only the short new growth sprigs.*





*Tree now presumed dead in 2014*



*Some patches of green still returning in 2013*

**Tree Number:**        **4 - 2014**

*Location:*                *on the bell tower path*

*Species:*                 *European Larch - 70 years old - planted by TUF*

*This is a deciduous tree which loses all its needles in the wintertime.*

*Observations:*

*1) This tree, after years of decline, is now dead*

*2) Seeds harvested from last years remaining cones have not germinated in 2014.*

*3) Larch is quite a hard softwood. It seems to have antibacterial qualities. There is no further interest from insects and no further woodpecker damage. It does not decay with the speed of the white pines.*

*4) Heavy lichen growth remains on lower branches.*

*5) Trumpet vine has been trained up the dead stump with the intention of retaining the dead branches and observing decomposition and infestations.*

*6) A new white pine has been planted nearby to begin to restore the shelter belt once provided by this now-defunct stand of larch.*



*Lichen encrusted lower branches*

*Old Cones*



*New planted replacement white pine - 1 year*





**Tree Number:**        **4 - 2015 - now dead**

**Location:**            *on the bell tower path*

**Species:**             *European Larch - 70 years old - planted by TUFairlie*

*This was a deciduous tree which lost its needles in wintertime.*

**Observations:**

*1) This deciduous tree has now died after years of decline. It was one of a line of larches planted in the 1940's*

*2) Harvested seeds from remaining cones have not germinated.*

*3) No further insect or woodpecker damage has occurred. This is tough, resistant wood.*

*4) Heavy lichen growth is however flourishing on lower branches. Trumpet vine has been trained to climb the trunk.*

*5) This tree is to be retained to study progress of decay and to support climbing trumpet vine on its lower branches.*



*Above: Tree thinning has not achieved desired growth spurt in selected remaining pine. Instead decay is occurring at base of trunk and the needling of this specimen appears weak and stressed.*

**Tree Number:**        **4B - 2015 - South Shelter Belt - planting of Replacement White Pines**

**Location:**            *on the bell tower path*

**Species:**             *White Pine to replace the original larch and help shield the buildings nearby from the direct effects of prevailing S-W winds which have severely eroded the clapboard siding of the house.*

**Strategy and Observations:**

*1) New white pine seedlings have been planted to create a replacement shelter belt for the originals cordon of European larch..*

*Below: New planted white pine seedlings to replace European larch shelter belt. - 1&2 year olds.*



**Tree Number:**        **4 - 2016 - now dead**

**Location:**            *on the bell tower path*

**Species:**            *European Larch - 70 years old - planted by TUFairlie*

*This was a deciduous tree which lost its needles in wintertime.*

**Observations:**

*1) This tree has now been dead for 2 years following a long decline. We will continue to monitor its decay for some years to observe how insects or birds contribute to its dissolution.*

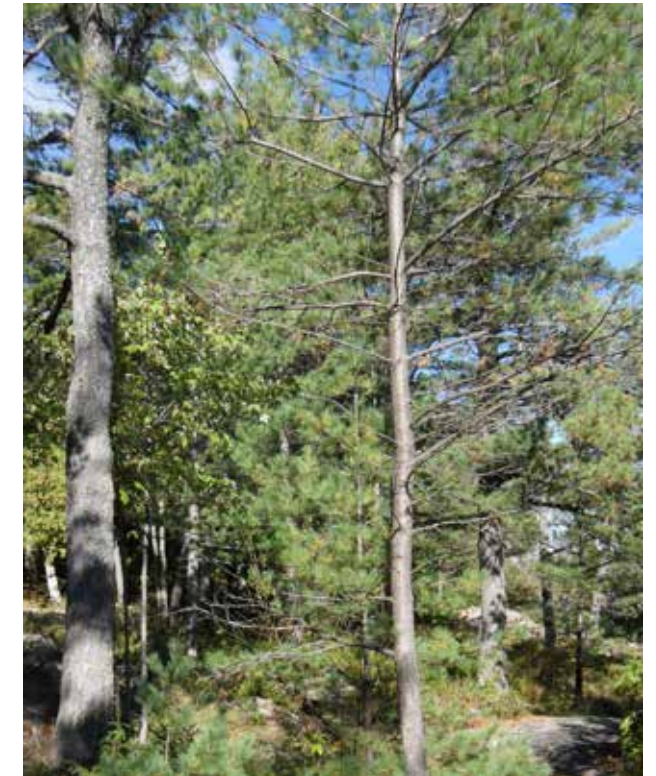
*2) At this stage the strong anti-bacterial properties of the larch tree seem to have repelled the immediate decomposition that has been evident in tree #6 (White Pine - dead following Pine Rust attack) This is tough, bacteria and rot resistant wood, but the dead branches seem to encourage lichen growth.*

*3) Heavy lichen growth is however flourishing on lower branches.*

*5) This tree now supports climbing trumpet vine on its lower branches.*



*Above: Left - one of the new transplants is flourishing where other attempts to introduce more unusual trees have failed.*



*Above Right - the remaining twin is looking sparse and unhealthy, a new white pine has appeared in this grouping and looks much healthier.*

**Tree Number:**        **4B - 2016 - South Shelter Belt - planting of Replacement White Pines**

**Location:**            *on the bell tower path*

**Species:**            *White Pine to replace the original larch and help shield nearby buildings from the direct effects of prevailing S-W winds which have severely eroded the clapboard siding of the house.*

**Observations:**

*1) One of the White Pine transplants is flourishing in just the right place - it is now 22" high (560mm) high with healthy needling.*

*2) Of the twin pines nearby where one was cut down to provide space for the other, we find that the remaining tree is not flourishing for some unaccountable reason. Its branches have become chaotic in the mid range and it seems to be curiously flattened around the missing ghost tree.*

*3) Another white pine which has sprung up nearby looks much more healthy.*





Recently planted white pine on bell path shelter belt is thriving.



Defunct shelter belt larch, now 3 years dead still sustains many old cones. Little recent insect infestation or insect damage. These dead trees are proposed be retained until new shelterbelt is established, and to study their decay process

Trumpet vine is being trained up defunct trees and some pines - temporary setback however

Monarch butterfly camouflaged amongst tiger lilies. Tiger lilies have been crowded out by day lilies in front area - move to establish them in parts of the south rockery gardens.



**Tree Number: 4B - 2017 - South Shelter Belt - planting of Replacement White Pines**

**Location:** on the bell tower path  
**Species:** White Pine to replace the original larch and help shield nearby buildings from the direct effects of prevailing S-W winds.

- Observations:**
- 1) White Pine transplant is flourishing with dense needling and new growth. - now 24" high
  - 2) Remaining twin pines is improving in appearance and becoming slightly denser. It still appears curiously 'bereaved' of its twin.
  - 3) However several new white pines around its base have begun to catch up with it.
  - 4) Several Luna moth caterpillars noted in vicinity.



The 'Bereaved' Twin pine - a curious and almost inexplicable phenomenon - it was somehow codependent on the twin that was removed to give it more space.

Luna Moth - Caterpillar stage below





Previous tree 4, 5 years dead, still holds onto its cones. Larch wood is quite impervious to rotting or insect infestation, but sustains a range of lichens.



Tree 4 has become encrusted with lichens on the lower branches.

**Tree Number: 4B - 2018 - South Shelter Belt**

**Location:** on the bell tower path through to the stone table  
**Species:** White Pine to replace the original larch and help shield nearby buildings from the direct effects of prevailing S-W winds.

**Observations:**

- 1) White Pine transplant is flourishing with dense needling and new growth. - now 700mm high
- 2) Remaining of the twin pines still appears curiously 'bereaved' of its twin with sparse, drought stricken foliage.
- 3) However six subsequent generation white pines around its base have begun to catch up with it.
- 4) Trumpet vine is flourishing in this area, but the tiger and day lilies have suffered a difficult season.

The 'Bereaved' Twin is now being overtaken by a subsequent generation of healthy young white pine

White pine transplant near bell tower; 700mm high

Stump of large pine that died and smaller stump of cut twin tree.



Six young pine saplings are jostling for space around the ailing 'bereaved tree'





*Previous Tree 4, 6 years dead, the old cones are losing definition under abundant lichen growth*



*Trumpet vine is being trained up defunct Tree 4. There are now signs of minor woodpecker damage on the trunk but larch is very rot resistant*

**Trees Number: 4B - 2019 - South Shelter Belt (Bell Tower)**

**Location:** *on the bell tower path through to the stone table*  
**Species:** *White Pines to replace the original larch and help shield nearby buildings from the corrosive effects of prevailing S-W winds.*

**Observations:**

- 1) White Pine transplant by bell tower is healthy and two new seedlings have been transplanted adjacent to dead larch.*
- 2) Mature white pine south of house is quickly dying. There are four new white pine trees growing up at its base.*
- 3) Trumpet vine is flourishing in this area, but the tiger and day lilies have suffered a difficult season.*
- 4) The 'twin tree' that had its sibling removed is still bereaved and not thriving. This 'joint destiny' phenomenon has been noted elsewhere. Other, more recent transplants are crowding upwards around its base.*

*Two new pine seedlings have been planted adjacent to defunct Tree 4*

*White pine transplant near bell tower,, healthy but little growth since last year, 680mm high*

*Major mature tree south of cottage is now dying.*



*Four new pines transplanted and self seeded are flourishing around its base.*



*New white pines being nurtured at base of dying tree*



**Trees Number: 4B - 2020 - South Shelter Belt (Bell Tower)**

**Location:** on the bell tower path  
**Species:** White Pines to replace the original larch and help shield nearby buildings from the corrosive effects of prevailing S-W winds.

- Observations:**
- 1) White Pine transplant closest to Bell Tower is thriving and 750mm high. The second seedling transplanted by the dead larch has died and was replaced with a new seedling transplant.
  - 2) South of the Bell Tower two white languishing pines have died and were cut down. Because other adjacent seedlings have died, a 2-3 year seedling has been transplanted into this area.
  - 3) A concerted effort is being made to build up this shelter belt.



Flourishing white pine transplant near bell tower.



2020 seedling transplant to replace unsuccessful seedling of 2019



**Trees Number: 4B - 2020 - South Shelter Belt (Stone Table)**

**Location:** in the dell around the stone table  
**Species:** White Pines to replace dying 'old timer' pines

- Observations:**
- 1) Dead 'Old Timer' estimated to be 100 years old from photos of it in 1922 has been cut down and there is now a small group of pines vying for air rights in this dell.
  - 2) approximately 6 young trees are establishing themselves and a few will eventually need to be culled.
  - 3) The 'so-called Twin Tree' that lost its mate is now beginning to thrive after that setback.



The 'Twin Tree', once bereft, is now beginning to flourish



Group of small pines are now flourishing around stump of cut dead 'old timer'.



**Trees Number: 4B - 2021 - South Shelter Belt (Bell Tower)**

*Observations:*

- 1) *White Pine transplant near Bell Tower is thriving and 900mm high.*
- 2) *The third seedling transplanted adjacent to the dead larch has been replaced with a new hemlock from Bioforest. It is one of 20 such transplants across the island and is thriving. All of these hemlock transplants have developed a surprising number of lateral branchings, instead of growing upwards in a single crown.*
- 3) *The small white pine transplant south of the Bell Tower is thriving.*
- 4) *A concerted effort is being made to build up this shelter belt to replace the historic shelter belt of European larches.*

**Trees Number: 4B - 2021 - South Shelter Belt (Stone Table)**

*Observations:*

- 1) *after the removal of the 'old timer' there are 5 white pines vying for position in the sun.*
- 2) *The so-called 'Twin Tree' that lost its mate is now beginning thriving and the lead contender in this area.*
- 3) *the day lilies in this area have never been so prolific as during this summer.*



*Above: new seedling south of bell tower  
Below: white pine in future shelter belt is thriving*



*Above: remnant cones on deceased european larch  
Below: hemlock planted in shelter belt is thriving*





*Tree 5 and its mate are exactly same age but Tree 5 is now far outstripping its mate in growth*



*Crown is well needled, die back on mid branches, which recently endured aphid, gypsy moth, and tip beetle attacks*

**Tree Number: 5 - 2014**

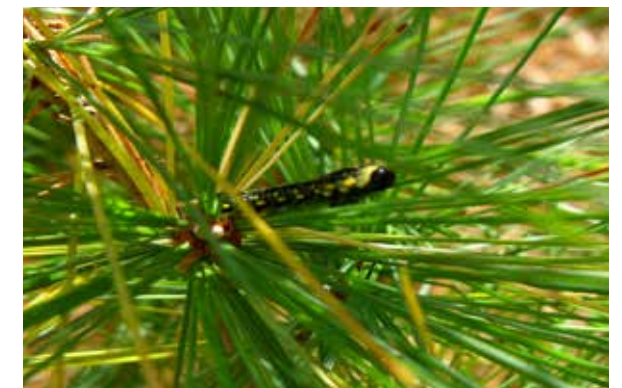
*Location: on the old flag pole point*  
*Species: White Pine (adjacent twin pair)*

**Observations:**

- 1) Tree 5 is now far outpacing its twin in its better rooting position*
- 2) Healthy needling on crown and base, but mid branches are now dead.*
- 3) No evidence of insect infestation except for lone sawfly caterpillar.*
- 4) No more rust, bleeding through bark or pine aphids. Aphid attack branch is completely dead and riddled with holes.*
- 5) No gypsy moth noted this year. No pine tip beetle or pine aphids noted this year.*
- 7) No cones have formed on this tree however its twin is heavy laden with cones as it was in 2008*

*Tree 5 has produced no cones but its weaker mate is heavy laden on top*

*Cones formed atop twin tree - last occurred in 2008*



*Pine sawfly caterpillar among needles*







Tree 5 and its mate are exactly same age but Tree 5 is now far outstripping its mate in growth. Both trees have been severely attacked by Sawfly this summer:



Crown is sparser in needling than in 2014, die back on mid branches, which recently endured aphid, gypsy moth, and tip beetle attacks. The twin tree to its left appears very sparse. However this tree is one of the few white pines on the island that has produced a good crop of cones in an off year.

Below: last years cones on twin tree have opened and distributed their seeds



Below: Compare the needling of the crown in 2014, below, with the current sparsity above and right.



**Tree Number: 5 - 2015**

**Location:** on the old flag pole point  
**Species:** White Pine (adjacent twin pair)

**Observations:**

- 1) Tree 5 is in a position that makes it very susceptible to low water levels. It should be thriving with the recent higher lake levels. However the needling is much reduced and lighter than expected (see opposite) due to an incursion of sawfly in two waves this summer. The sawfly attacks only the old needles, not the new growth.
- 2) Following the harsh winter there has been little evidence of Tip beetle (3 instances) Rust or Gypsy Moth. Pine aphids which afflicted it recently have been suppressed.
- 3) The mid branches are now completely denuded of needles.
- 4) The bark is clear of insect penetrations and healthy.

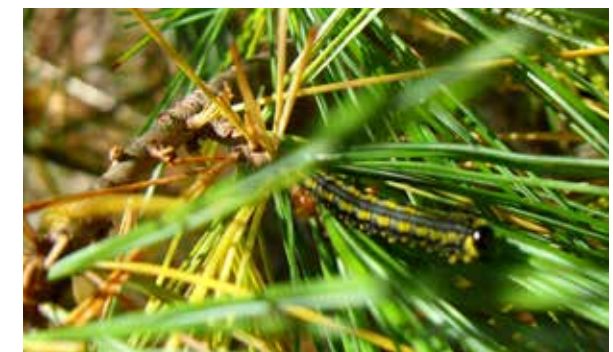
Needling of crown ravaged by Sawfly



Needles - sawfly damage and minor tip beetle evident in turned down brown tips



Observed in 2014 below-European Pine sawfly caterpillar stage





*Tree 5 is now far outstripping its mate in growth. Both trees have recovered from the sawfly attack of last summer. Note the generally shorter needling on the sawfly ravaged trees. Also note that due to the mild autumn the deciduous trees around its base have not changed colour.*



*Tree 5 is free of all insect blights this summer. The bark is clear and smooth. THE needles are shorter in this recovery mode.*

**Tree Number: 5 - 2016**

*Location: on the old flag pole point  
Species: White Pine (adjacent twin pair)*

*Observations:*

- 1) one twin has 450mm circumference bole - less favoured twin has 305mm circumference bole*
- 2) These twin trees were severely attacked by sawfly in 2015 and almost completely defoliated. However they demonstrate that complete recovery is possible from such infestation.*
- 3) These twin trees have been susceptible to Gypsy Moth, to Pine Aphids and to Tip Beetle in recent years. None of this is apparent in the healthy, if more compact, needling of this year.*
- 4) Is it possible that the sawfly scourge also cleared away these other insect infestations?*
- 5) The mid branches are beginning to be shaped by the harsh west winds that scour the channel.*
- 6) The bark is clear of insect penetrations and healthy.*





*One of the twins has far outstripped its partner in growth but it is the weaker twin that has produced the clusters of pine cones this year.*

*Below: recurrence of Tip Beetle*



*There is evidence in the area of a return of the tip beetle which is afflicting several branches on the stronger twin.*

*Below: Cones formed on weaker of the twins*



*Tree Number: 5 - 2017*

*Location: on the old flag pole point*

*Species: White Pine (adjacent twin pair)*

*Observations:*

- 1) again noted pronounced difference in growth characteristics of two twin trees which were almost identical 25 years ago.*
- 2) Followin the severe sawfly attack in 2015 both of these trees sustain a sparser foliage two years later.*
- 3)These twin trees have been susceptible to Gypsy Moth, to Pine Aphids and to Tip Beetle in recent years. Only instances of tip beetle are note as drooping brown branch tips on the larger of the twins as well as on several adjacent pines. .*
- 4) Bark is clear of insect penetrations and healthy.*
- 5) No cones on the stronger twin. However the weaker twin sustains 2 clusters of cones near its crown.*





*One of the twins has far outstripped its partner in growth*



*Tree Number: 5 - 2018*

*Location: on the old flag pole point*

*Species: White Pine (adjacent twin pair)*

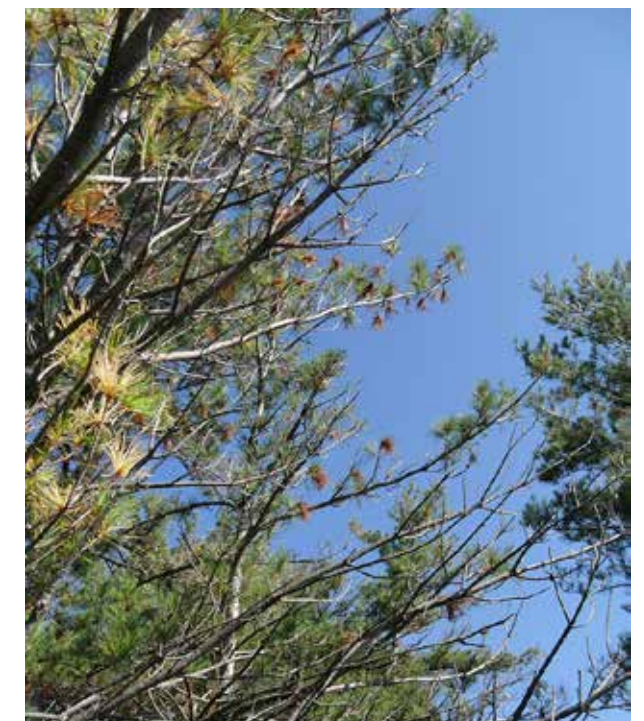
*Observations:*

- 1) tree bole of larger twin has now reached 440 circ. and is double that of its less favoured twin.*
- 2) The base of this tree is well needed hugging the rock but there is severe die back in the mid branches to bout 4M above ground.*
- 3) There is evidence of tip beetle in around 10 branches and much more on its feeble mate.*
- 4) Bark remains clear of insect penetrations, aphids or gypsy moth.*
- 5) Opened cones produced last year on the weaker mate are still clinging to its crown.*

*Below: recurrence of Tip Beetle*



*Below: Sparse, drought stricken foliage*





*Tree Number:*           **5 - 2019**

*Location:*                   *on the old flag pole point*

*Species:*                    *White Pine (adjacent twin pair)*

*Observations:*

- 1) the larger of these twin trees is healthy and without any sign of previous insect attack. The base, once ravaged by tip beetle, now has healthy dense needling.*
- 2) No Gypsy Moth, Aphids or Sawfly noted this year.*
- 3) for the first time many junior cones are forming in the crown of 5A.*
- 4) the smaller twin, so left behind in its unfavourable position, has died back to approx. 3M a.g.l. The cones that it alone produced two years ago have opened and are still clinging to the branches. It has had no cones this year.*

*Twin Trees, 5A and 5B. 5A has outstripped 5B and has produced a crop of cones in its crown this year*

*Below: Healthy lower branches - no evidence of any insect attack.*



*Below: Cones have formed on the crown of 5A*



*Tree Number: 5 - 2020*

*Location: on the old flag pole point*  
*Species: White Pine (adjacent twin pair)*

*Observations:*  
*1) though both these trees have suffered from gypsy moth and aphids as well as tip beetle in previous years, there is no sign of any infestation this year, this despite the sudden plethora of gypsy moth in June. The smaller twin has several bleeding knots.*

*Tree Number: 5 - 2021*

*Observations:*  
*1) though the needling is sparser in both these trees due to their very exposed location they continue to be healthy with no evidence of previous afflictions of pine aphids, gypsy moth and pine tip beetle.*  
*2) the middle reach branchings on both trees have died off leaving the base and crown.*  
*3) there were no cones on these pines in 2021. Cones on all white pines were rare following an only moderate pollination season in June.*



*Twin trees, but the one on the right is fast outstripping the other, though the smaller tree produced cones last year*





*Stand of white pine all planted in late 1970's (now approximately 30 years old) are all in reasonable health, well irrigated but not densely needled.*



*East Shelter Belt: a stand of white pine planted to shelter main house*

*Location: OK Point to east of old Cottage  
Species: White Pine planted in mid 1970's*

*Observations:*

- 1) This stand of trees is thriving. It is regularly irrigated by siphoning the water from front rock puddles.*
- 2) Healthy needling on crown but lower branches died back and have been removed. In this area bark is roughening to a mature cracking.*
- 3) No evidence of any insect infestation.*
- 4) No cones noted on this stand of trees.*
- 5) No gypsy moth noted this year. No pine tip beetle or pine aphids noted this year.*
- 6) Many other white pine on O K Point are still suffering from years of drought - most recently in 2012, and from the previous very low water levels.*

*Adjacent pines on path cut and thinned to give neighbour a growth advantage*





Stand of white pine all planted in late 1970's (now approximately 40 years old) are all in reasonable health, well irrigated but not densely needled.



These trees appear to have sustained attack by sawfly - witnessed by the depleted needling of their crowns

## East Shelter Belt: 2015

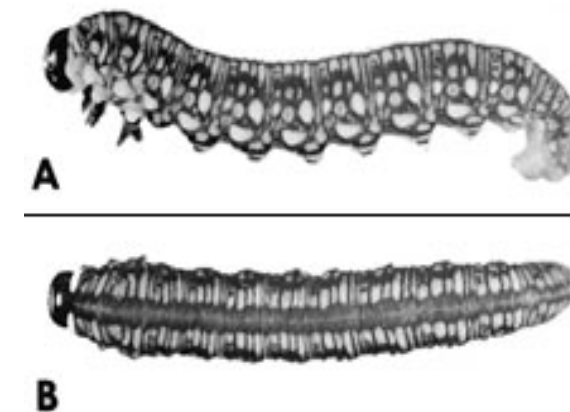
Location: OK Point to east of old Cottage  
 Species: White Pine planted in mid 1970's

### Observations:

- 1) This stand of trees is regularly irrigated by siphoning the water from front rock puddles.
- 2) Lower branches have died back and the bark cover is gradually becoming more corrugated.
- 3) Like the adjacent Twin Trees # 5, these trees have sustained an attack by sawfly witnessed in the reduced needling of the crowns. Sated caterpillars were observed dropping onto front rock.
- 4) No cones noted on this stand of trees in 2015.
- 5) No evidence of tip beetle in 2015. No gypsy moth noted this year.
- 6) A major old timer white pine, the Marker Rock Tree snapped due to carpenter ant damage in the winds of the winter of 2014-2015

European Sawfly - caterpillar stage.  
 Note these caterpillars have more elaborate markings than the similar indigenous sawfly caterpillars which periodically afflict the Red Pines (ie Tree # 2)

One of the major trees in the East Shelter area, the 'Marker Rock' pine snapped in the winter winds at about 3 M above ground level due to carpenter ant activity at this height. 140 years of growth rings were noted. This tree would have been young when the island was originally logged in the 1870's. Aside from the local insect inroads the quality of this wood was superb above and below the point of infestation.







2015 - after the saw fly attack



2017 - denser foliage recovering after the sawfly attack of 2015

## *East Shelter Belt: 2017*

*Location: OK Point to east of old Cottage*  
*Species: White Pine planted in mid 1970's*

### *Observations:*

- 1) This stand of trees is generally healthy and located in well irrigated soil with root access to an alder bog towards the norther edge of the gulch.*
- 2) At approximately 45 years since planting as 3 year old stock, their bark is now transitioning to a rough casing.*
- 3) The crowns of these trees seem lighter than would be normal following the devastation sawfly attack of 2 years ago. The sawfly tended to choose the healthiest, smooth bark trees to devastate.*
- 4) Curiously there are no cones noted on this stand of trees in 2017 whereas all of the neighbouring pines are very heavy laden. It seems that the trees which are enduring greater stress locations are producing bumper cone crops this year while those in more favoured positions are not.*





*Needling is lighter than would be expected on trees in such a favourable position. This may be ascribed to drought and mild return of sawfly*



*No cones have been produced on any of the white pines.*

*Below: mature, rough bark is developing on trees in their forties*



## *East Shelter Belt: 2018*

*Location: OK Point to east of old Cottage*  
*Species: White Pine planted in mid 1970's*  
*trunk boles now approx 780 circ. at 1200 a.g.l.*

### *Observations:*

- 1) This group of trees, now 46 years old, is in reasonable health. The foliage is sparser this year due to the extended drought conditions.*
- 2) After a heavy needle drop in the spring, and a late and very heavy pollination in late June, there are no cones on any of the pines this year.*
- 3) These trees are generally advantaged in drought conditions because there is always some residual water in this gulch. The sparse needling of the crowns cannot be fully ascribed to the drought.*
- 4) There is some evidence of return of sawfly which devastated these trees 3 years ago.*



*Note adjacent stand of dead trees which succumbed to drought and tip beetle . These have become prime nesting sites.*





Above: 'Hummingbird Tree' is rapidly dying. It is one of the last of the old generation trees in this area which are gradually dying off and have been replaced with new transplants.

Below: the needling in the crowns of the new transplants seems rather light



There are no cones on the new transplants this year, despite this being a generally productive year on adjacent pines.

Below: mature, rough bark can be seen developing on trees as they reach their forties



## East Shelter Belt: 2019

Location:

OK Point to east of old Cottage

Species:

White Pine planted in mid 1970's

trunk boles now approx 780 circ. at 1200 a.g.l.

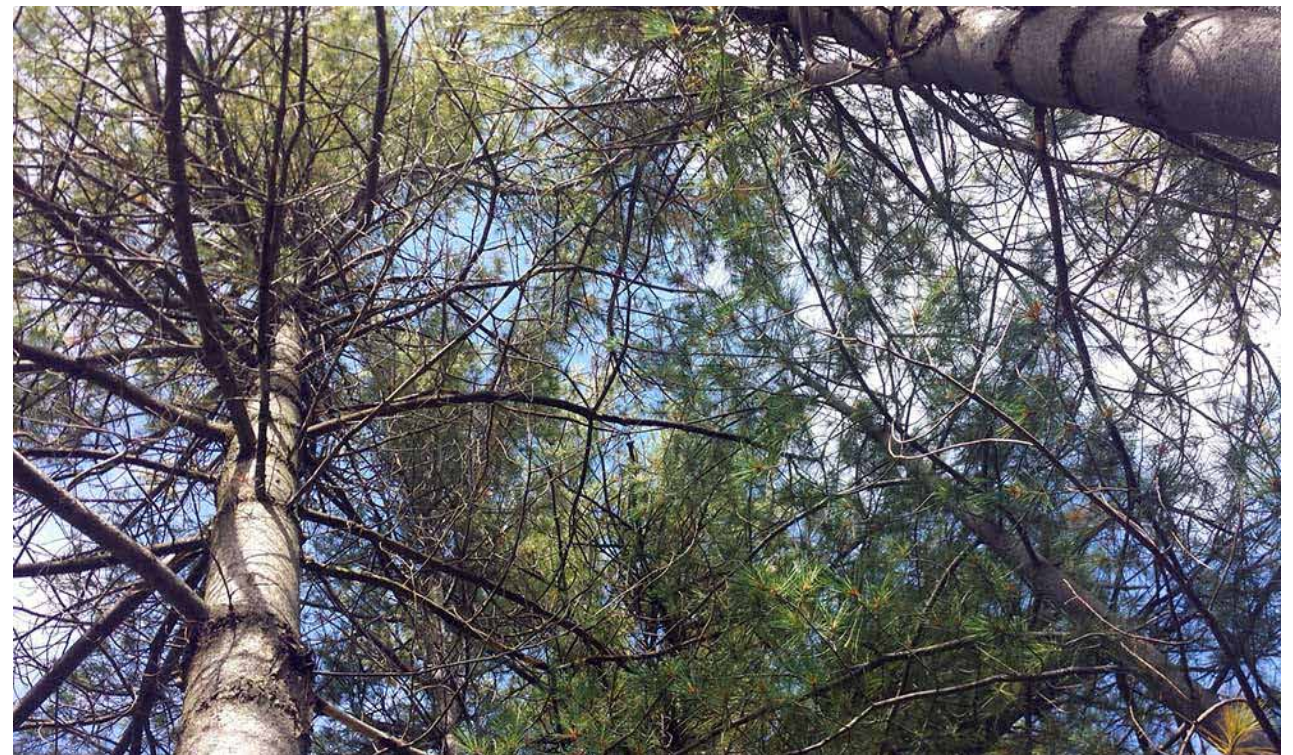
Observations:

1) This group of trees, now 47 years old, is in reasonable health. The foliage remains sparser than expected.

2) No cones have formed despite good pollination and cone production this year on other white pines across island (after 2018 drought dearth) .

3) No evidence of sawfly on these trees, as occurred 4 years previously. There has been a greater hatching of Gypsy Moth this year. They are on an up cycle and they may have laid nests in these trees. (Undersized Gypsy Moth nests have been noted elsewhere on many trees.)

Below: Light needling and no cones despite good soil and excellent irrigation.



## East Shelter Belt: 2020

*Location:* OK Point to east of old Cottage  
*Species:* White Pine planted in mid 1970's  
trunk boles now approx 780 circ. at 1200 a.g.l.

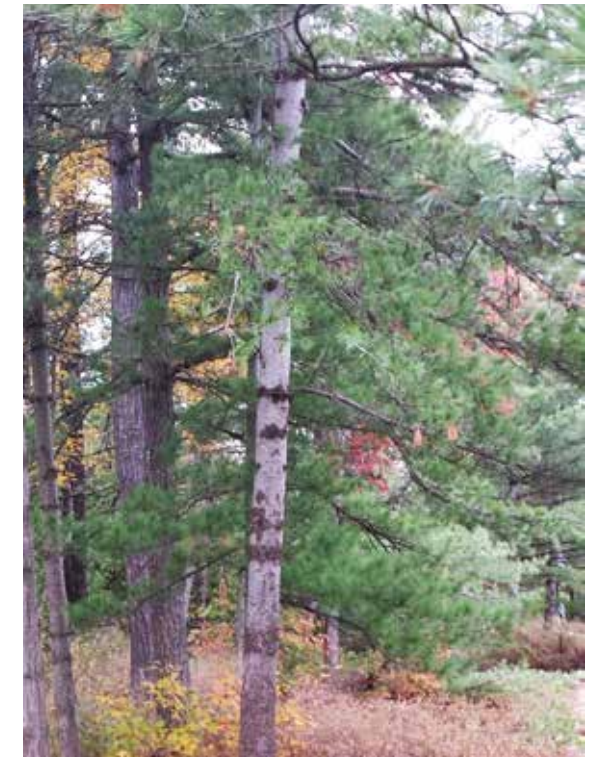
*Observations:*  
1) This group of trees, now 48 years old, is exhibiting varying growth rates.  
2) No cones have formed this year. after a light pollination season in June. There are many red squirrels vying for any cones that have formed elsewhere.  
3) No evidence of sawfly or gypsy moth. A small hummingbird nest was noted in the southernmost of this grouping.



FAIRWOOD ISLAND FOREST MANAGEMENT PLAN

## East Shelter Belt: 2021

*Observations:*  
1) This group of trees, now 49 years old, is in reasonably good health after a superb summer of well watered, cool temperatures.  
2) No cones have formed this year after a very light pollination in June.  
3) No evidence of sawfly or gypsy moth affliction although the gypsy moth were quite voracious in attacking the fruit trees in the arboretum and attacking oaks and maples. For unknown reasons they did not dwell on the pines as they have in past years.



TREE STUDY REPORTS - SECTION 09



*Tree 6A dead and 6B both occupy a drainage seam with excessive moss and moisture*



*Healthy bark, no evidence of rust infection though ribes has been noted in past*

**Tree Number:**  
*(Tree 6 Dead)*

**6 B - 2014**

*study focus has shifted to adjacent tree of similar age and size - now designated 6B*

**Location:**

*in the clearing beyond the old incinerator*

**Species:**

*White Pine 3.6M high 75mm dia. bole at bifurcation*

**Observations:**

- 1) Tree 6 having died in 2009, the new study tree, 6B, has no ongoing evidence of rust affliction.*
- 2) Due to its limited soil, its position over a drainage route and mossy surround, this tree remains very vulnerable to drought and flooding.*

*It has taken advantage of the cool moist weather of the last year and grown well, though the foliage is light and tends to yellowing.*

*3) No evidence of wild currant (ribes) in the vicinity. This was removed in 2008. This tree is being monitored as is Tree 8 to determine whether the removal of the Ribes vine breaks the pine rust cycle. This seems to be the case.*



*Ribes, wild currant, noted in vicinity in 2008*



*Spiders have been prolific throughout summer of 2014*



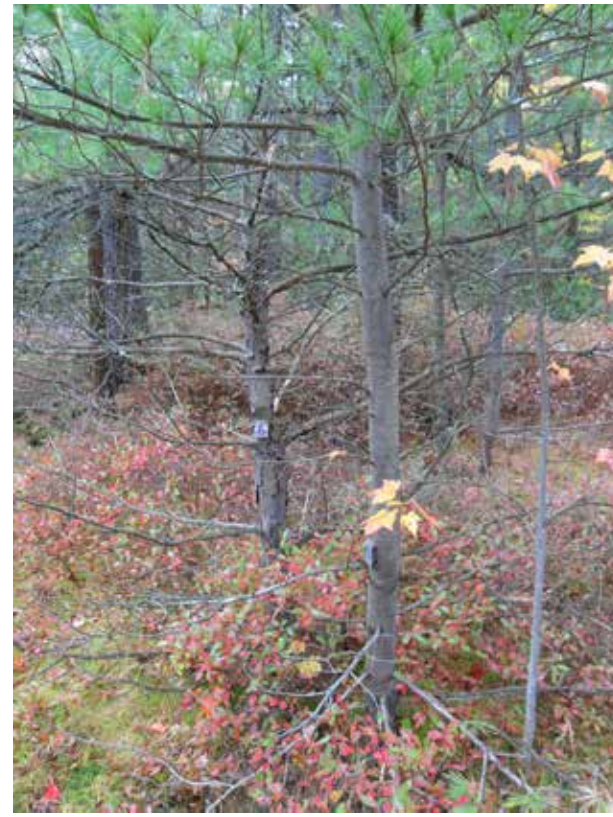
*Thin needling and yellowing off*



*Tree 6A is decomposing rapidly, Slimy moulds, lichens thriving under bark*



*Tree 6A dead and 6B occupy a drainage seam with excessive moisture. Branch Lichens are prevalent.*



*Healthy bark, no evidence of rust infection though ribes has been noted in past*

**Tree Number:**  
*(Tree 6 Dead)*

**6 B - 2015**

*study focus has shifted to adjacent tree of similar age and size - now designated 6B*

**Location:**

*in the clearing beyond the old incinerator*

**Species:**

*White Pine 4M high 250mm circ. bole at bifurcation*

**Observations:**

- 1) Tree 6B is in healthy condition and has had a healthy year of growth with just the right amount of irrigation.*
- 2) This pine avoided the Sawfly depredations on white pine in 2015.*
- 3) No evidence of currant vine (ribes) in the vicinity which carried the Rust cycle and led to the demise of the adjacent tree #6. Ribes was removed in 2008. This tree is being monitored along with Tree 8 to determine whether the removal of the nearby Ribes vine breaks the pine rust cycle.*

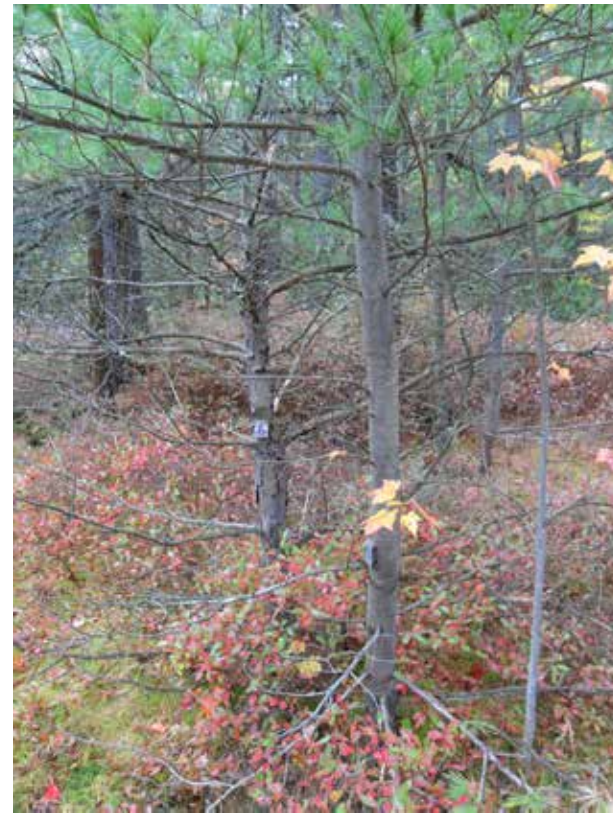
*Heavy lichens are forming on some of the branches. This is typical of pines in this sheltered damp area. (see Tree # 7)*

*Adjacent Tree 6A is decomposing rapidly, Slimy moulds, lichens thriving under bark*





*Tree 6B in 2016 - note how the summer season has been extended. No fall colours have appeared. However recent moist conditions have encouraged a wide range of mushrooms across the island.*



*Compare - Photo taken at same time of year in 2015 - note that autumn leaves have fallen and woods*



**Tree Number: 6 B - 2016**

*(Tree 6 Dead)*

*study focus has shifted to adjacent tree of similar age and size - now designated 6B  
Tree bole circumference is 305mm*

*Location:*

*in the clearing beyond the old incinerator*

*Species:*

*White Pine 4M high 305mm circ. bole with bifurcation suggestive of rust attack*

*Observations:*

*1) Tree 6B is in healthy condition and has had a healthy year of growth. It did not succumb to the sawfly attacks of 2015.*

*2) Currently no evidence of currant vine (ribes) which carried the Rust cycle and led to the demise of the adjacent tree #6. Ribes was removed in 2008. This tree is being monitored along with Tree 8 to determine whether the removal of Ribes vine breaks the pine rust cycle in this area.*

*Healthy needled branches, unusually free of insect castings this year.*

*Heavy lichens are forming on some of the branches. This is typical of pines throughout this sheltered damp area.*





*Tree 6B in 2017 is sitting in a moist bed of sphagnum moss.*

*Mushrooms are growing at its base in the moist soil.*



*Tree 6B has become quite sparsely needled. It is in an unfavourable shady and over-wet location. Below decaying mushrooms produce a strong odour in the vicinity of this tree.*



**Tree Number: 6 B - 2017**

*(Tree 6 Dead)*

*study focus has shifted to adjacent tree of similar age and size - now designated 6B*

*Tree bole circumference is 305mm*

*Location:*

*in the clearing beyond the old incinerator*

*Species:*

*White Pine 4M high 305mm circ. bole with bifurcation suggestive of rust attack*

*Observations:*

*1) Over this wet season in 2017 Tree 6B is clearly suffering from excess water at its roots. It is positioned on a rainwater run off which is an advantage in dry years, but waterlogging and damaging in wet summers such as 2017.*

*2) No evidence of currant vine (ribes) which carried the Rust cycle and led to the demise of the adjacent tree #6. This tree is being monitored along with Tree 8 to determine whether the removal of Ribes vine would break the pine rust cycle in this vicinity.*

*Lichen formation is typical of many tree branches in this wet shady microclimate*

*Heavy lichens are forming on several branches- typical of pines throughout this sheltered damp area. (see Tree # 7)*







*Tree 6B in 2017 is sitting in a moist bed of sphagnum moss. Ribes (currant) has been removed from the area surrounding this tree*



*Tree 6 is in advanced state of decomposition. Compare this with the resistance of the larch (tree 4) to decay.*

*Below: ground cover around tree base.*



**Tree Number: 6 B - 2018**

*(Tree 6 Dead)*

*study focus has shifted to adjacent tree of similar age and size - now designated 6B*

*Tree bole circumference is 305mm, approx. 8M tall*

*Location:*

*in the clearing beyond the old incinerator*

*Species:*

*White Pine 4M high 305mm circ. bole with bifurcation suggestive of rust attack*

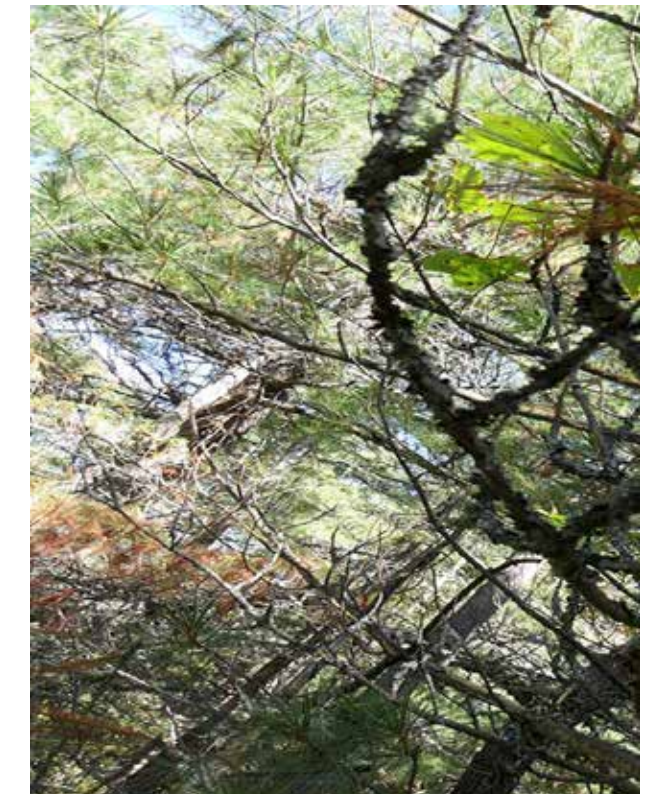
*Observations:*

*1) Located over a drainage seam, this tree has withstood the summer drought conditions. Nevertheless the needling is light, indicating the limited soil depth and mossy conditions*

*2) No evidence of wild currant vine (ribes) Lichen growths afflicts all of the trees in this sheltered boggy microclimate.*

*Sparse needling of the crown of this tree and die-back of lower branches to about 2 M above ground level*

*Heavy lichens are forming on several branches- typical of pines throughout this sheltered damp area. (see Tree # 7)*





*Tree 6B has sparse needling in the crown. No Ribes noted in the vicinity and no further rust infection. Below: Tree 6A continues to deteriorate, No insect infestation of woodpecker interest in the dead wood.*



*Tree 6 B sits in a very mossy drainage seam with plenty of water but poor soil. It sits in a mossy crease in the rock Below: the local microclimate favours lichen growth*



**Tree Number: 6 B - 2019**

*(Tree 6A is dead)*

*study focus has shifted to adjacent tree of similar age and size - now designated 6B*

*Tree bole circumference is 305mm, approx. 8M tall*

*Location:*

*in the clearing beyond the old incinerator*

*Species:*

*White Pine 5M high 305mm circ. bole with bifurcation suggestive of the rust attack which has killed Tree 6A*

*Observations:*

*1) Located over a drainage seam, this tree's roots become flooded in seasons with plenty of rainfall. There is a lush mossy area at its base. The needling remains light.*

*2) No evidence of wild currant vine (ribes) in the vicinity. No Rust or insect infestation.*

*3) No cones have ever formed on this tree.*

*4) Lichen and pendent sphagnum moss growth on the branches are extensive on this and other trees that share the protected microclimate of this area with its proximity to the extension of the Archers Bay Bog.*

*Below: Lichen growth in this moist microclimate affected by the Archers Bay Bog*



**Tree Number: 6 B - 2020**

*(Tree 6A is dead)*

*study focus has shifted to adjacent tree of similar age and size - now designated 6B*

*Tree bole circumference is 305mm, approx. 8M tall*

*Location: in the clearing beyond the old incinerator*

*Species: White Pine 6M high 305mm circ. bole with bifurcation suggestive of the rust attack which has killed Tree 6A*

*Observations:*

- 1) Oversupplied with water during this well watered season, the needling remains light.*
- 2) No evidence of rust or wild currant vine (ribes) in the vicinity.*
- 3) there are many newly established small white pines in this area that have established themselves during recent well watered summers, jostling for sunlight. Many are occupying locations very vulnerable to drought.*
- 4) extensive lichen and pendent sphagnum moss growth on the branches..*
- 5) Note how the adjacent rock faces are being encroached upon by mosses and composting debris as a result of a run of wet summers.*

**Tree Number: 6 B - 2021**

*Observations:*

- 1) Again these tree were oversupplied with water during a well watered summer and the needling remains light.*
- 2) no evidence of rust or wild currant vine (ribes) in the vicinity.*
- 3) lichens and 'old mans beard are becoming increasingly invasive of the lower branches.*





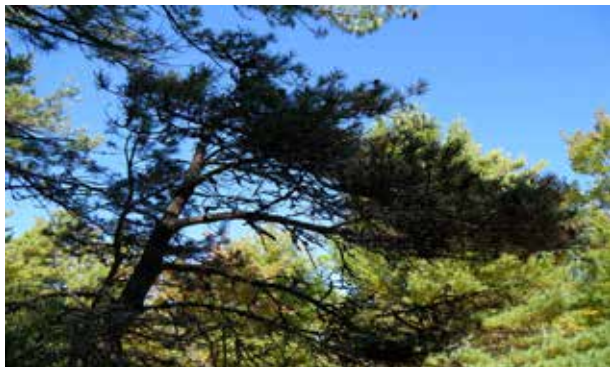
**Tree Number: 7 - 2014**

**Location:** near the 'Stop/Go' sign  
**Species:** Scotch Pine - relatively rare on Fairwood  
 (compare Tree 10 and new Trees 14)

**Observations:**

*Tree is in stable condition though it experiences very adverse conditions. This location would attract snow build up in winter. The needling is sparser and browner than in previous years (For an example of a very healthy Scotch Pine specimen see tree 14)*

- 1) Tree is in stable condition, together with its mate, subsisting in very difficult growing conditions, little soil, near swamp.*
- 2) Large sections of the needling have browned and there is extensive lichen and sphagnum growth on the lower branches.*
- 3) there are few cones from last year but there are many tiny, tight cones beginning to form which should mature in 2 years time - to be monitored.*
- 4) The damp protected micro climate has encouraged lichens to form.*

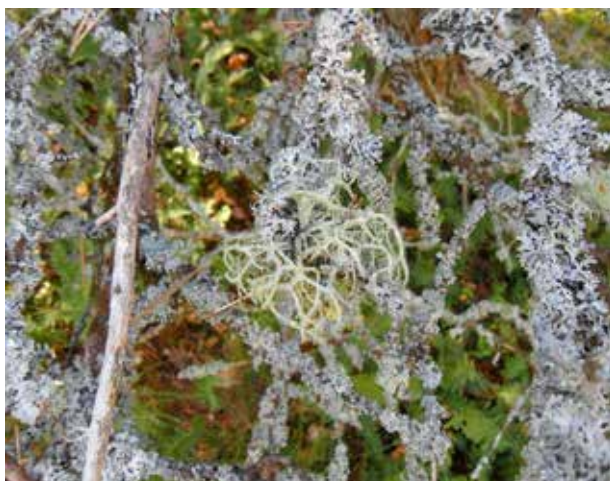


*Extensive browning and lichen growth*



*Tiny cones forming for 2 years hence*

*A few middle sized cones forming for next season*





**Tree Number:** 7 - 2015

**Location:** near the 'Stop/Go' sign  
**Species:** Scotch Pine - relatively rare on Fairwood  
(compare Tree 10 and new Trees 14)

**Observations:**

*This tree and its mate are in stable condition though the lower branches are now heavily encrusted with lichen growth and only patches of viable needling remain on branches near the ground. This location would be subject to considerable snow build up in winter.*

*1) Lichen and sphagnum growth, perhaps due to a sheltered position near a swampy area, is prevalent on branches throughout this area and on all species. It appears that this growth is a direct cause of the death of the lower branches. There are still small patches of greenery striving to survive amidst the lichens.*

*2) Many tight new cones are forming this year. Old cones are still clinging to branches and these are of no interest to the squirrels, even in years of great cone scarcity.*

*3) Other mosses are thriving throughout this area..*



*Extensive browning of lower branches and lichen growth*



*Many new cones forming*

*Heavy lichen and sphagnum growth on lower branches*





**Tree Number: 7 - 2016**

**Location:** near the 'Stop/Go' sign  
**Species:** Scotch Pine - relatively rare on Fairwood  
 (compare Tree 10 and Tree grouping 14)

**Observations:**

1) There is an unusual microclimate in the area around this grouping of scotch pines. Particularly at higher water levels the moisture seeps into the reed beds at the head of Archers Bay and encourages the growth of lichens and mosses. Westerly breezes also probably waft moisture laden currents into this low lying dell. As a result the growth of lichens is remarkable on many of the trees, including white pines and cedars. Note that this is the case on the other side of the dell in Bat Park.

2) These scotch pines are heavily encrusted with rapid growing lichens on their lower branches. The lower branches are now largely needle free though patches of needling occur, suggesting that the lichens are suffocating the natural growth rather than moving in on branches that have already died back.

3) There are fewer cones on these trees than in recent years. Like the white pine they may have suffered from the dry spring conditions which affected flowering and pollen production.



Very few new cones have formed in 2016

Below - branches sustain a wide variety of mosses and lichens

A wide variety of mosses thrive throughout this area on both sides of the Dell suggest a moist protected microclimate





**Tree Number:** 7 - 2017

**Location:** near the 'Stop/Go' sign  
**Species:** Scotch Pine - relatively rare on Fairwood  
 (compare Tree 10 - now dead, and Tree grouping 14 - of Jack Pines which is thriving on OK Point)

**Observations:**

1) The higher water levels have penetrated further up into the marsh at the end of Archers Bay and have increased the moisture in this area. The Bay beyond forms a kind of 'blow-in' cul-de-sac where winds funnel in pollens and waves bring in flotsam, increasing the diversity of wild flowers and other waterborne seeds at the head of Archers Bay. These ancient scotch pines are thought to have established themselves here for these reasons. But they are now succumbing to very heavy lichen growth also sustained by these conditions.

2) Their lower branches are now support structure for the lichen growth which has flourished in the last years mild, wet seasons. There is little needling left on these lower branches.

3) The upper branches are covered with tiny cones (4mm long) which will take at least 2 years to form and open. Pollination of all conifers seems to have been very successful in the spring of 2017. There are a few old and opened cones dotted around upper branches but this ancient stand of trees has not yet succeeded in re-seeding itself.

The damp sheltered conditions of this dell demonstrates the diversity of microclimates on Fairwood and their importance in sustaining a wide variety of lichen and mushroom colonies.



Above - fresh growth of Usnea 'beard' lichen



Above and below, many tiny new cones forming





**Tree Number: 7 - 2018**

**Location:** near the 'Stop/Go' sign  
**Species:** Scotch Pine - relatively rare on Fairwood  
 7 M high, bole 300mm  
 (compare Tree 10 - now dead, and Tree grouping 14 - of Jack Pines which is thriving on OK Point)

**Observations:**

- 1) Even in a year of severe drought, the microclimate in this dell area continues to favour lichen and sphagnum growth on the branches of all trees in this area.
- 2) There is only one viable lower branch on this tree and it is the one that is producing a few new cones. Other lower branches are dead and encrusted with lichen growth.
- 3) There are a few old and opened cones dotted around upper branches.
- 4) This ancient stand of trees has not yet succeeded in re-seeding itself. There are no scotch pine seedlings in this area.
- 5) One scotch pine seedling about 200mm high has been observed in the absence of any parent tree on the path towards Hemlock Tree 19. The seed seem to stray far and to germinate in unexpected locations.

The damp sheltered conditions of this dell demonstrates the diversity of micro climates on Fairwood and their importance in sustaining a wide variety of lichen and mushroom colonies.



Above - fresh growth of Usnea 'beard' lichen

Above and below, many tiny new cones forming







**Tree Number:** 7 - 2019

**Location:** near the 'Stop/Go' sign

**Species:** Scotch Pine - relatively rare on Fairwood  
7 M high, bole 300mm  
(compare Tree 10 - now dead, and Tree grouping 14 - of Jack Pines which is thriving on OK Point)

**Observations:**

- 1) With the very high water levels, the Archers Bay Bog is flooded back to the stone bridge in the Dell. This increases the moisture in the local microclimate.
- 2) A white pine tree has fallen between the two Scotch Pine and has damaged both extensively. The white pine was severely rotted at about 1500 a.g.l. but the wood above was solid and dense. This tree was about 60 years old.
- 3) There are a few scattered cones on the lower branches of these Scotch Pines. There are no old cones visible. This ancient stand of trees has not yet succeeded in re-seeding itself. There are no scotch pine seedlings in this area.
- 4) Gypsy Moth nests were detected nestled into the shag bark and were removed. Gypsy Moth has not been observed on this tree before.



*Below, a scattering of new cones forming*



*Above - fresh growth of Usnea 'beard' lichen*



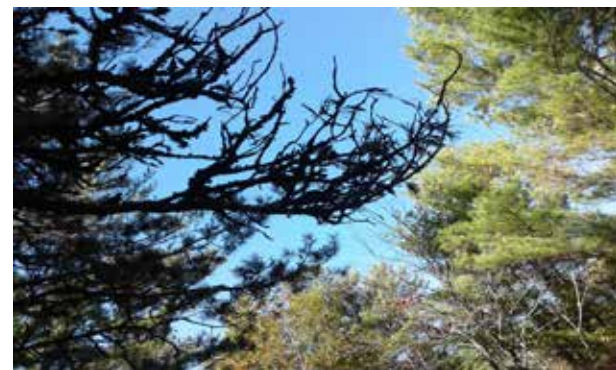
*Below: White pine has fallen through the two Scotch Pine specimen trees and had caused considerable damage.*



**Tree Number: 7 - 2020**

**Location:** near the 'Stop/Go' sign  
**Species:** Scotch Pine - relatively rare on Fairwood (though there is one that has recently seeded itself near Tree 19 on OK Point)  
7 M high, bole 300mm  
(compare Jack Pine -Tree 10 - now dead, and Tree grouping 14 - of Scotch Pines which is thriving on OK Point)

- Observations:**
- 1) With historically high water levels, the Archers Bay Bog is flooded and the stone bridge sometimes impassable. This enhances the moist protected microclimate in this area.
  - 2) There are 2 old cones noted on the branches and no new cones forming as normally evidenced in previous years.
  - 3) There are no scotch pine seedlings in this area and these trees remain rare on Fairwood.



Hardy, slow growing, resistant to insect attack



Above - fresh growth of Usnea 'beard' lichen



**Tree Number: 7 - 2021**

- Observations:**
- 1) There has been substantial die back and de-needling of these scotch pines.
  - 2) lichen growth and old mans beard are evident on many branches, reflecting the damp microclimate in this area at the head of Archers Bay
  - 3) There are no developing cones on any of the branches in contrast to the scotch pines near the Caravanserai which are among the only conifers on the island that have produces a good crop of cones.
  - 4) 2021 has been a summer of fungus fruiting with many varieties of mushrooms appearing through the damp weather interludes in the summer. It is interesting to observe that while there was a great deal of evidence of mycorrhizal relationships with white pines and hardwoods, the rooting of scotch pine and of cedars seemed to sustain no mycorrhizal collaboration.



Above: no new cones or budding on the branch ends



Above/below: lichen affliction & usnea (old mans beard)





*Die-back of mid range branches*



*Note chaotic branching, and die back of mid range branches indicative of rust*

*Tree Number: 8 - 2014*

*Location: Overhanging Old Incinerator*

*Species: White Pine*

*Nature of affliction: Pine Rust*

*Observations:*

*1) This tree appears to be now recovering from pine rust following the removal of ribes growing around its base. There is less evidence of bark discoloration and no dripping sap this year.*

*2) Wild currant 'Ribes' (wild currant) carrier of 3 of the 5 spore stages is infected by fungus on underside of leaf in many locations on the island. The Ribes does not seem to be present in this area, following removal in 2011*

*3) Note the distinctive chaotic branching in the mid range of the tree which seem to be associated with pine rust.*



*Wild Currant in 2011 - host of rust fungus underside leaves*



*Orange Pine Rust located on the underside of currant vines as viewed through 15x49 microscope*





No further gum bleeding on trunk noted.

Below: compare south west view of tree with greater greening with North east view (right)



Note sparser needling in contrast to previous year

North east view of the tree is very sparsely needled



**Tree Number: 8 - 2015**

*Location: Overhanging Old Incinerator*

*Species: White Pine*

*Nature of affliction: Pine Rust*

*Observations:*

- 1) Recovery from pine rust continues in absence of 'Ribes' wild currant.
- 2) Needling is however thinner, though the tree has not apparently been attacked by sawfly.
- 3) No tip beetle or Gypsy Moth noted.
- 4) Compare the north east and south west aspects of this tree in photos below left.

A confusion of branching is typical of a tree that has sustained Rust attack.



Bark clear of dripping gum, however lichen growth is typical on pines in this damp, sheltered area.





No further gum bleeding on trunk noted.



Healthy well needled crown but considerable die back in mid range branches

**Tree Number:** 8 - 2016

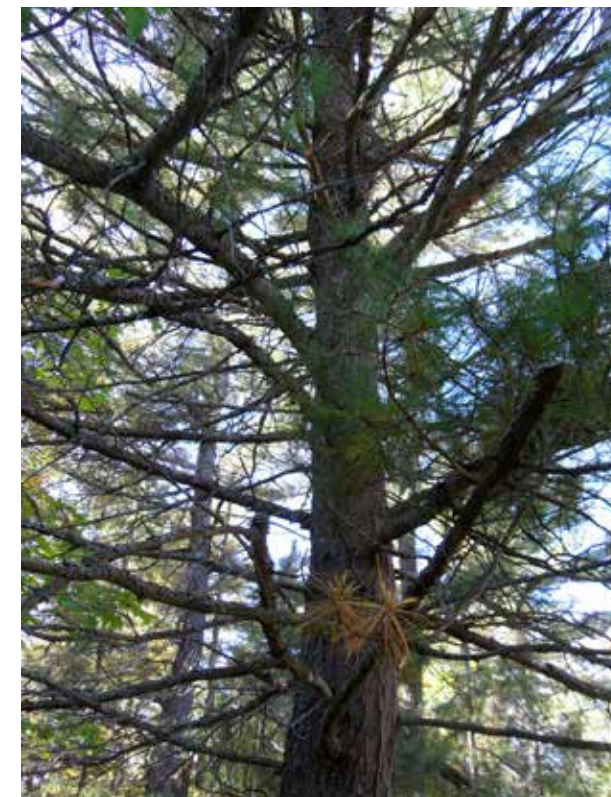
**Location:** Overhanging Old Incinerator  
**Species:** White Pine  
**Nature of affliction:** Pine Rust

**Observations:**

- 1) Recovery from pine rust continues in absence of 'Ribes' wild currant. The crown is very bushy and well needled but the mid height branches which are very chaotic due to past rust cycles have almost totally died back.
- 2) Tree was not attacked by sawfly last summer (2015)
- 3) No tip beetle or Gypsy Moth noted.
- 4) This tree is on the edge of the moist microclimate pocket note around Tree 7 and it also sustains much lichen growth.

The chaotic mid range branching are typical of trees which have sustained rust attacks

No further dripping gum on park or from branches onto bushes below.





Above - trunk shape tortured by previous rust cycles - moss and lichen growth in local microclimate.  
 Below left - crown in 2016  
 Below right - denser needling noted in 2017



Above - New bleeding and tell tale orange rust is again evident on the trunk.. This infection is not as extensive as that which has killed a stand of white pines on Woodholm Point (beside the 'Doghouse')

**Tree Number:** 8 - 2017

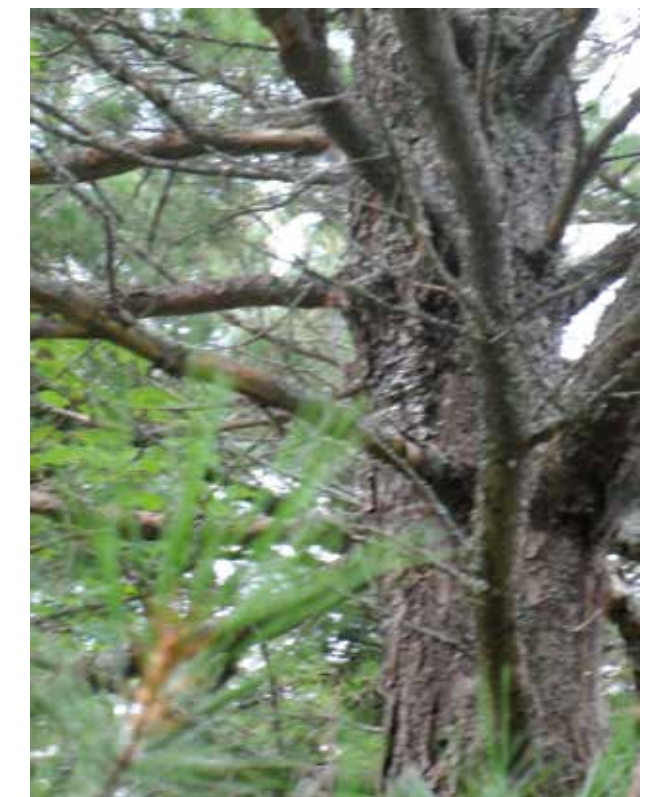
**Location:** Overhanging Old Incinerator  
**Species:** White Pine  
**Nature of affliction:** Pine Rust

**Observations:**

- 1) Though this tree was not attacked by sawfly in the summer of 2015, it was becoming sparser in needling of the upper branches. The ideal weather of 2017 has shown a marked improvement in this condition with denser needling. (compare two photos opposite - bottom)
- 2) Ribes, or wild currant, has returned to the area around the foot of the tree. The Ribes was inspected and it is clear of any fungal growth on the underside of the leaves.
- 3) No tip beetle or Gypsy Moth noted.
- 4) Much lichen growth noted on trunk and branches, resulting from local microclimate.

Below - Ribes has returned to thae area around the base of the tree. No orange fungus noted underleaves.

Below - Tortured swollen trunk and chaotic branching are indicators of past rust infections.





Above - trunk shape tortured by previous rust cycles - moss and lichen growth in local microclimate.  
 Below left - crown in 2016  
 Below right - denser needling noted in 2018



Compare the progress of this rust infection with that which has killed a stand of white pines on Woodholm Point (beside the 'Doghouse')

**Tree Number:** 8 - 2018

**Location:** Overhanging Old Incinerator  
**Species:** White Pine  
**Nature of affliction:** Pine Rust

**Observations:**

- 1) There is no evidence of bleeding due to the pine rust disease. However the summer drought has resulted in sparser needling throughout. The lower branches have largely died back to about the 10 M level. There is extensive growth of moss and lichens around base of trunk
- 2) Ribes, or wild currant, is not present this year at the foot of the tree.
- 3) No tip beetle or Gypsy Moth noted.

Snaggled, disorganised branching have resulted from previous rust infections

Underside of ribes leaf with fungal growth





Trunk bole showing increased lichen and moss growth



Needling from underside is somewhat sparse for a non-drought year. Note chaotic branchings indicative of Rust blight in the past.  
Below right: 2018 drought summer

Comparison: below left 2019 (non drought year)



**Tree Number: 8 - 2019**

*Location: Overhanging Old Incinerator*

*Species: White Pine*

*Nature of affliction: Pine Rust*

*Observations:*

- 1) There is no further evidence of bleeding due to the pine rust disease. No ribes present.
- 2) Ribes fungus will be monitored on the gooseberry that has been introduced to the garden nearby.
- 3) Compare the needling on two consecutive years, below left. 2019 has had good growing conditions and no drought shock. 2018 was a severe drought year and white pines suffered significantly.

*Examples of trees afflicted by rust - adjacent to the 'Dog House' - no ribes observed in vicinity. However it has been noted in past and removed. . Noticeable bleeding gum and orange tinge to bark.*





**Tree Number:** 8 - 2020

**Location:** Overhanging Old Incinerator

**Species:** White Pine

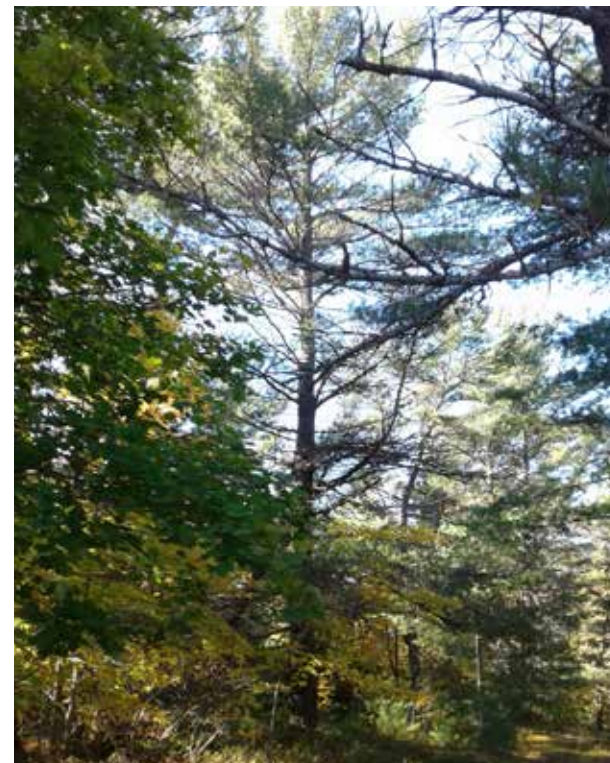
**Nature of affliction:** Pine Rust

**Observations:**

1) Although there is no further evidence of bleeding due to the pine rust and no ribes present, the needling of this tree is becoming much sparser, particularly in the middle branches.

2) Ribes fungus is being monitored on the gooseberry that has been introduced to the garden nearby. It has developed a fungal affliction of its leaves by late summer.

3) There are many pines of 4-5 years jostling for space in the vicinity and taking advantage of increased sunlight through the sparser foliage of this tree.



**Tree Number:** 8 - 2020

**Observations:**

1) no evidence of a continuing pine rust affliction. Nevertheless the needling on this tree continues to sparsen year by year, admitting more sunlight to encourage a large crop of offspring pines at its base.

2) this tree is on the edge of a very moist microclimate. During the generally wet summer of 2021 the mosses growing on its bark and around its roots have been thriving.

3) an animal has made a substantial burrow into its root.

4) in general pine rust is in remission across the island with only a few patches on Woodholme Point.

5) the summer of 2021 has seen a lot of mycorrhizal mushroom activity flourishing around white pines and hardwoods in particular. Amanitas were prominent in early months and Russulas and Boletes appeared in abundance in the autumn.



## Notes on unusual recent Lichen Growth noted in Archers Bay marsh and Dell - 2016

A flourishing lichen growth has been observed on trees particularly in the area of the Dell at the head of Archers Bay in recent years. The lichen growth has extended to all species of trees in this wide area both coniferous and deciduous.

This lichen seems to be faster growing species than the typical rock lichens. For instance it has taken root on the roof of the cottage and flourished there in as little as 15 years.

There are several possible reasons for this abundance.

- 1) This area enjoys an unusual microclimate in which moisture laden airs are blown up Archers Bay and collect in the protected pocket of the Dell.
- 2) Certain lichens are indicators of air quality, in particular suggesting the presence of Nitrogen. Some lichens, like the yellow orange species found on the Limestones and McCoys do not tolerate Nitrogen pollution. Are these lichens here thriving because they are tolerant or respond positively to high levels of Nitrogen gases?
- 3) The island has enjoyed a cycle of slightly more balanced summers and has not dried out to the extent that occurred in the drought, low water years of early 2000's



Bearded lichens (*Usnea* species) which are evident in this microclimate tend to be tolerant to or thrive in the presence of gaseous Nitrogens. Whereas the yellow and orange lichens (*Xanthoria parietina*) which are found on the Limestones and the outer shoals are not tolerant to nitrogen pollution.

Lichens are composite organisms comprising a symbiotic relationship between a single species of fungus and one or more species of algae. The fungal partner provides structure and protection for the algae, which through photosynthesis provides energy and assimilates for the fungal partner. As organisms without roots, lichens obtain their nutrients from the atmosphere and so are highly susceptible to changes in atmospheric chemistry. Lichens can be used as sensitive bio-indicators of air quality.

Recent research has identified lichens that are sensitive to, or tolerant of, increasing concentrations of nitrogenous pollutants in the atmosphere. In the field, the response to increasing atmospheric nitrogen pollution can be measured by the decrease in N-sensitive lichens and the increase in N-tolerant lichens.

Our hypothesis is that the air has become richer in Nitrogen, which is encouraging the lichen growth that we witness in this area.



*Tree has recovered from surgery to remove lateral branch*



*Dense green leafing*

**Tree Number: 9 - 2014**

**Location:** *Typical example of maple on OK Point- adjacent to Tree 8 and overshadowing old compost pile.*  
*Tree 9 is growing upwards and outwards with remarkable speed, now approx. 12M high with a 250mm bole, circ. at 1200 is 740mm*

**Species:** *Maple*

*Tree 9 has been added to monitor the predicted infestation of maples by an attack from a shoot beetle. There is no evidence of this anywhere on the island at this time.*

**Observations:**

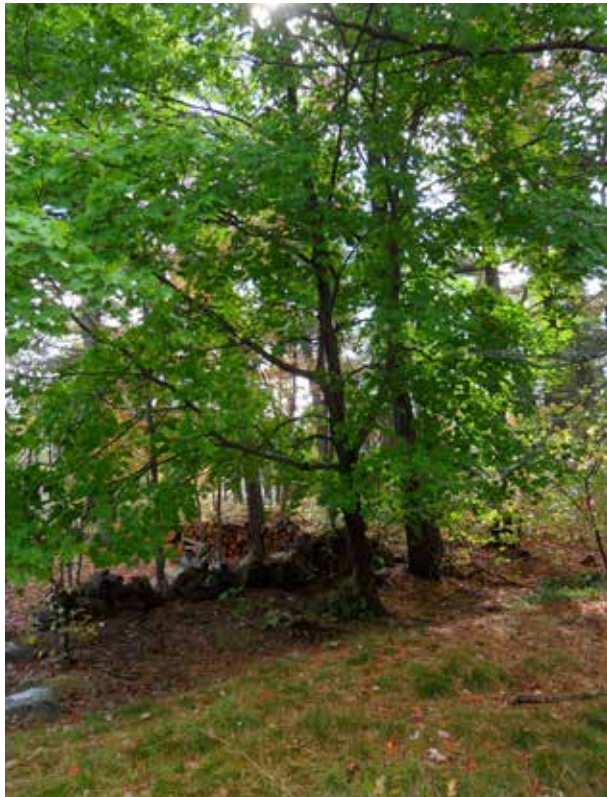
- 1) The tree is tapping into the benefit of an old compost pile and is growing exceptionally fast.*
- 2) Leaves very healthy and largely unblemished. This is a very healthy tree.*
- 3) Being in a protected position the leaves change colour late in the season. Meanwhile the large maple behind the house which is thinning and past its prime has turned yellow early and lost many leaves.*

*Healthy unblemished leaves*



*Dense healthy bark healed over old branching*



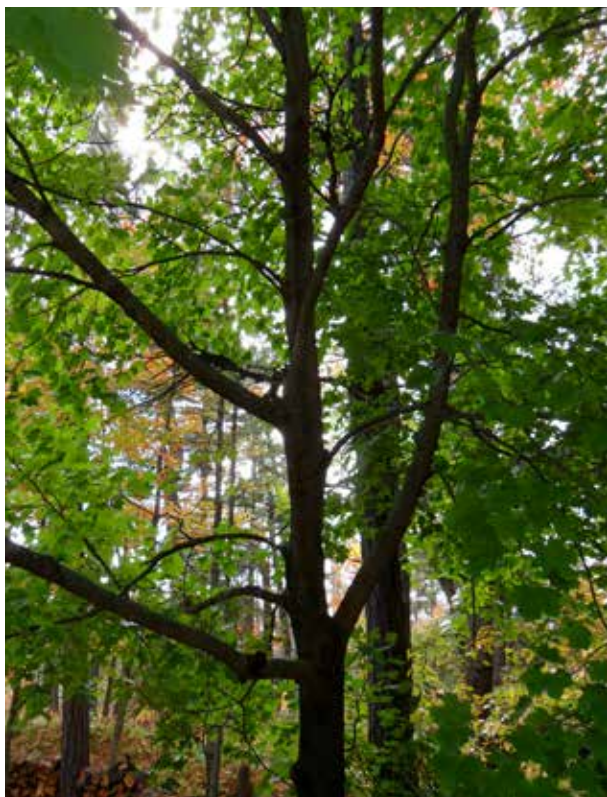


*Dense green leafing- free of insect or blight*



*Firm, clear bark*

*Below: Cauterised wound of removed side branch.*



***Tree Number: 9 - 2015***

*Location: Typical example of maple on OK Point- adjacent to Tree 8 and overshadowing old compost pile.*

*Species: Maple*  
*Tree 9 is growing upwards and outwards with remarkable speed.*

*Tree 9 has been added to monitor a predicted infestation of maples by an attack from a shoot beetle. There is no evidence of this anywhere on the island at this time.*

***Observations:***

*1) The tree is exceptionally healthy and tapping into the old compost pile. The tree has a tendency to lean south eastwards into the sunny clearing.*

*2) Leaves healthy and largely unblemished.*

*3) Contrast (below) with maple behind house which has begun to decline.*



*Healthy, relatively unblemished leaves*





Above - dense green foliage with slightly smaller leaves than in 2015, probably due to long dry summer. Unbalanced massing leaning into clearing with extended lower branches to reach sunlight.

Below: Wing seeds produced - first recorded on this tree. Below: View up into crown



**Tree Number: 9 - 2016**

**Location:** Typical example of maple on OK Point- adjacent to Tree 8 and overshadowing old compost pile.

Tree 9 is growing upwards and outwards with remarkable speed, now approx. 12M high with a 850 mm circ. bole

**Species:** Maple

**Observations:**

- 1) The tree remains healthy. Leafing is slightly smaller due to dry summer conditions.
- 2) Some fungal growths noted on leaves (or more than in previous years)
- 3) Despite cutting back the lateral branch which has penetrated the clearing, the tree remains quite lop-sided.

Below - Parent Maple behind cottage - approximately 60 years old and beginning to decline.

Healthy, relatively unblemished leaves and new wing seeds





Above - Healthy specimen with a slight lean to catch sunlight in open glade.



Below: Neatly furlled Luna Moth nest amongst the leaves reveals defunct occupant. Below left, Luna caterpillar

Below: Some new wing seeds produced - for second year



**Tree Number: 9 - 2017**

**Location:** Typical example of maple on OK Point- adjacent to Tree 8 and overshadowing old compost pile.

Tree 9 is growing upwards and outwards with remarkable speed, now approx. 12M high with a 850 mm circ. bole

**Species:** Maple

**Observations:**

- 1) Generally healthy. However more evidence of insect activity on leaves than in previous years.
- 2) Luna Moth nest, with defunct occupant, discovered neatly rolled up and camouflaged among the leaves

Below - 2016 - Parent Maple behind cottage - approximately 60 years old and beginning to decline.



Below - 2017 - a marked decline - evidently sparser foliage on both parent maple and on pine.





*Above - Healthy specimen with a slight lean to catch sunlight in open glade.*



*These maples lightly shade the vegetable garden in the afternoon sun*

*Below: No wing seeds have been produced this year, probably due to the drought*



**Tree Number:** 9 - 2018

**Location:** Typical example of maple on OK Point- adjacent to Tree 8 and overshadowing old compost pile.  
Tree 9 is growing upwards and outwards with remarkable speed, now approx. 12M high with a 850 mm circ. bole

**Species:** Maple

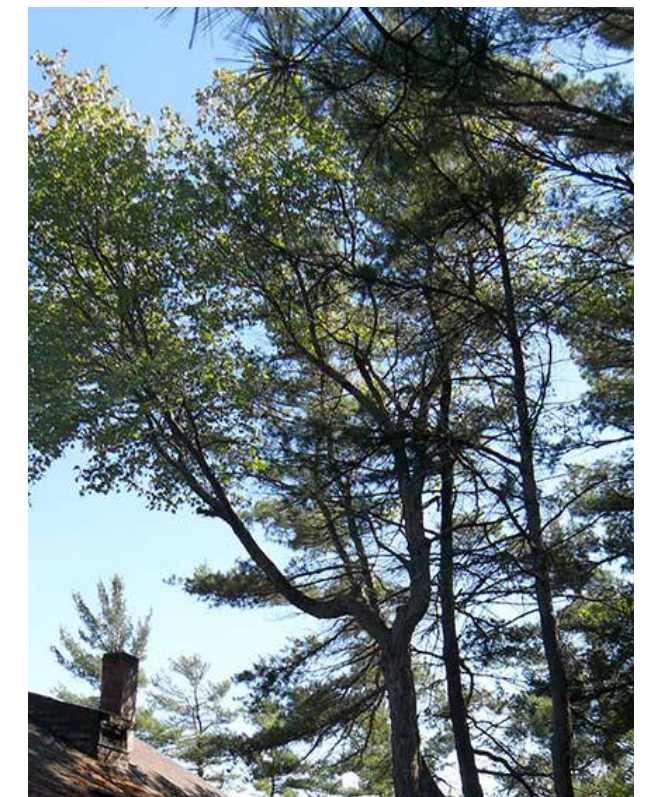
**Observations:**

- 1) Generally healthy. The leaves are generally clear of insect depredations.
- 2) Unlike last year, there have been no wing seeds produced this year as a result of the extended drought.

*Below - 2016 - Parent Maple behind cottage - approximately 60 years old and beginning to decline.*



*Below - 2018 - a marked decline - evidently sparser foliage on both parent maple and on adjacent pine.*





Healthy bark on boll. With the removal of maple behind house, the additional sunlight will spur further growth

Below: Leaves this year have attracted gypsy moth which were found harbouring in the brown leaf clusters.



Healing of wound of removed lateral branch.

Below: Insect damage to leaves at end of season.



**Tree Number:** 9 - 2019

**Location:** Typical example of maple on OK Point- adjacent to Tree 8 and overshadowing old compost pile.  
Tree 9 is growing upwards and outwards with remarkable speed, now approx. 12M high with a 850 mm circ. bole

**Species:** Maple

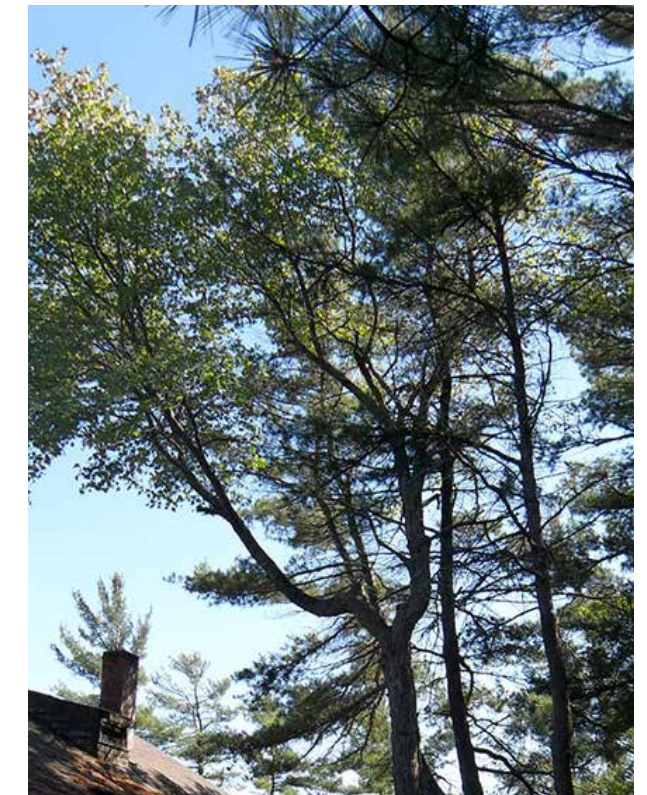
**Observations:**

- 1) Continuing in good health, however the leaves show considerable evidence of insect attack. Many leaves are black spotted. Gypsy moth was discovered hiding in the clusters of dead leaves
- 2) No wing seeds produced this year.

Below - 2019 - Removal of nearby 70 year old maple overhanging house will spur growth of remaining trees



Below - in 2018 both the maple and the pine behind house showed a marked decline with sparser foliage.





Tree Number: 9 - 2020

Location: Typical example of maple on OK Point- adjacent to Tree 8 and overshadowing old compost pile.  
Tree 9 is growing upwards and outwards with remarkable speed, now approx. 12M high with a 850 mm circ. bole

Species: Maple

Observations:

- 1) Continuing in good health, however the leaves show increasing evidence of insect attack, in particular a leaf miner as well as black fungal spots on som leaves.
- 2) Gypsy moth egg clusters were observed near an earlier truncation wound.
- 3) A small white spider creates a dense nest by folding over some of the leaves. It does not seem to be tapping nutrients but rather creating a shelter which will overwinter on the forest floor.
- 4) No wing seeds produced.



Above: Fungal spotting of some leaves  
Below: General good health of foliage



Above: New Energy Centre, removed overshadowing trees. Below: Gypsy moth egg clusters on carbuncle.



Tree Number: 9 - 2020

Observations:

- 1) this tree was quite heavily attacked by gypsy moth in the spring. Usually the moth has concentrated on other species than maple. However this year they seemed to have a taste for maple and oak leaves.
- 2) later in the summer there was evidence of blackspot fungus on the leaves. This is not a serious affliction.
- 3) the tree has now penetrated the forest canopy to reach the sun and it was decided to cut off a long lateral branch which has been extending out into the garden clearing and rebalance the tree, giving more sunlight to the garden.



Above: Ravages of gypsy moth and later black spot  
Below: Lateral limb removed



Above: opening up sunlight to garden clearing  
Below: Now penetrated to sunlight above forest canopy





*Tree 10, thinning in 2014*



*Tree 10 in 2012*



*Tree Number: 10 - 2014*

*Location: West End*

*Species: Jack Pine - planted 1967 (memorial JFF)*

*This 'JFF Memorial' tree is now about 10 metres high. with a trunk 450mm circ. It is 50 years old, having been transplanted from Nares as a 2 year sapling. Very slow growing.*

*1) Healthy crown with typical sparse needling for Jack Pine.*

*2) The lower branches have now died off to a height of 2400mm. No apparent further woodpecker damage. No sign of other insect infestation.*

*3) Few tight small cones forming for next year, other tiny cones forming at centre of clusters for 2 years hence.*





Tree 10 in 2012



Tree 10, thinning in 2014

Below: Tree 10, thinning severely in 2015. Note how severely affected nearby trees have been by partial drought and sawfly.



**Tree Number:** 10 - 2015

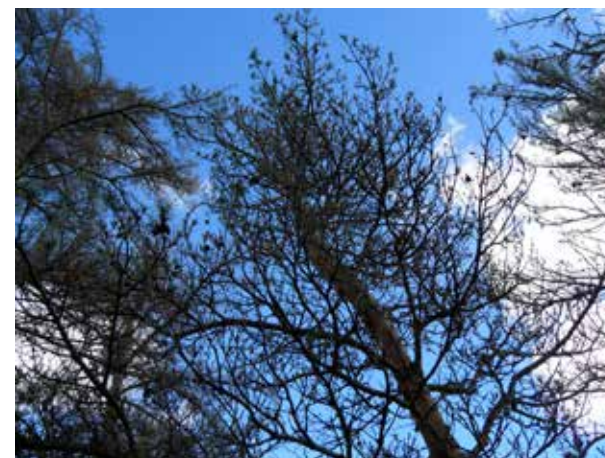
**Location:** West End

**Species:** Jack Pine - planted 1967 (memorial to JFF)

*This 'JFF Memorial' tree has been severely attacked by woodpeckers and has declined visibly in recent years.*

*1) Comparison of the three photos opposite illustrates how much the needling has been reduced over the past 3 years. Woodpecker damage has increased over the last year.*

*2) There are no new cones forming this year*





Tree 10 in 2012

Below: Tree 10, thinning severely in 2015. Note how severely affected nearby trees have been by partial drought and sawfly.



Tree 10, thinning in 2014

Below: Tree 10 died in 2016, adjacent trees have recovered from sawfly.



**Tree Number: 10 - 2016**

*Location: West End*

*Species: Jack Pine - planted 1967 (memorial JFF)*

*This 'JFF Memorial' tree has been severely attacked by woodpeckers and has declined visibly in recent years. The dry summer appears to have killed it off.*

*In 50 years it reached a bole circumference of 535 mm.*

*1) This tree has died this summer, succumbing to insect and woodpecker attack. Transplanted as a seedling from Nares it was exactly 50 years old.*

*2) This tree never thrived located as it was to receive the full force of the westerly gales. Despite producing cones in years past, it has not produced any offspring in this area.*

*3) The branches illustrated below still have brown needling and old cones attached. The*



**Tree Number:** 10 - 2017

**Location:** West End

**Species:** Jack Pine - planted 1967 (memorial JFF)



*This 'JFF Memorial' tree has been severely attacked by woodpeckers and died in 2016, aged exactly 50 years.*

*1) This tree died succumbing to insect and woodpecker attack. Transplanted as a seedling from Nares it was exactly 50 years old. Old cones are still attached to branches. Many are unopened but appear to be rotting from within.*

*Below: Healthy needling and cones forming on trees in this grouping*



*Below: Typical specimen - now about 4 M high*



**NEW Redesignated Tree Group Number:10 B - 2017  
'Group of Seven' - in memoriam JFF**

**Location:** West End

**Species:** 'Group of Seven' White Pines transplanted into Blueberry Gulch

*1) This group of pines was transplanted from various shore locations (mixed genetic origins) about a decade ago. Initially there was a severe attrition rate but the trees have finally established themselves and are extraordinarily healthy. They have reached about 4 M in height and are producing cones. It appears that they have taken some time to adapt the soil to their needs.*

*2) Note: there was an historic Pine at the end of the gulch which died in the late 1960's. This has been replaced by a new transplant alongside its stump, which is also thriving .*

*Below: This grouping will grow into the vacant space left by the demise of a towering (and much painted) white pine which died and came down in the late 1960's*





***Tree Group Number:10 B - 2018  
'Group of Seven' - in memoriam JFF***

*Location: West End*

*Species: 'Group of Seven' White Pines transplanted into Blueberry Gulch*

*1) Despite the drought these trees remain very healthy and fully needled, though a little thinner on top than last year. Trees have reached 4 M height, bole size 350mm circ..*

*2) There are no cones on any of the white pines this year despite heavy pollination.*

*3) No sign of insect incursions, no tip beetle or gypsy moth.*

*Below: Due to the drought season, these trees have slightly thinner needling at the extremities.*





*Rapid growing trees on both sides of gulch*

*Below: Healthy, dense needling*



*Some new cones this year after no crop during last year of drought.*

*Below: Astonishing recent bleeding of soft gum from the original Jack Pine memorial tree after some years of being completely dead and devoid of needles.*



## ***Tree Group Number:10 B - 2019 'Group of Seven' - in memoriam JFF***

*Location: West End*

*Species: 'Group of Seven' White Pines transplanted in Blueberry Gulch*

*1) Trees remain very bushy healthy and fully needled. They are genetically very fast growing. Trees have reached 4.5 M height.*

*2) There are a few cones on scattered among the trees. There were many two years ago.*

*3) No sign of insect incursions, no tip beetle or gypsy moth.*

*4) The original JFF Memorial tree which was killed by woodpecker damage 3 years ago has suddenly erupted in areas of fresh soft gum bleeding from these old wounds. Very surprising!*

*Below: Trees are flourishing with dense needling and a few scattered cones.*



**Tree Group Number:10 B - 2020**  
**'Group of Seven' - in memoriam JFF**

Location: West End  
 Species: 'Group of Seven' White Pines transplanted in Blueberry Gulch

- Observations:
- 1) These trees are flourishing and remain very bushy, healthy and fully needled. They have entered a very fast growing phase. Trees have reached 5 - 6 M height.
  - 2) There are no cones visible on the trees this year. There were many 3 years ago.
  - 3) No sign of insect incursions, no tip beetle or gypsy moth.
  - 4) The original JFF Memorial tree which was killed by woodpecker damage 4 years ago has suddenly collapsed revealing the carpenter ant infestation near its base.
  - 5) The high water level is threatening other transplants further west in the gulch, many are waterlogged and showing yellow needles.



Above: Flourishing and growing surprisingly quickly  
 Below: Well needled crowns



Above: No cone formation in 2020  
 Below: Carpenter ants have afflicted the now fallen, original JFF Memorial tree from Nares, planted 1967



**Tree Group Number:10 B - 2021**  
**'Group of Seven' - in memoriam JFF**

- Observations
- 1) These trees are noticeably sparser in needling than in 2020.
  - 2) No cone formation this year.
  - 3) No evidence of insect incursions, no tip beetle or gypsy moth.
  - 4) The original JFF Memorial tree which was killed by woodpecker damage 5 years ago has been replaced with a nursery stock hemlock transplant, one of around 20 planted across the island in 2021.
  - 5) A tamarack has been planted in the boggy area, one of around 20 planted in moist locations across the island. There were once tamaracks in the gulch approaching the tennis court but these died without successfully seeding a new generation.



Above: note sparser needling in 2021  
 Below: Tamarack planted in boggy area nearby



Above: note tight budding in contrast to previous years  
 Below: Hemlock planted as a replacement for the JFF Memorial Jack Pine





***West End Notes: - New Tree Plantings in 2014***



*The 'Fairwood Tree' in 2012*



*The 'Fairwood Tree' in 2014*



*Trees planted in 2010-2012*



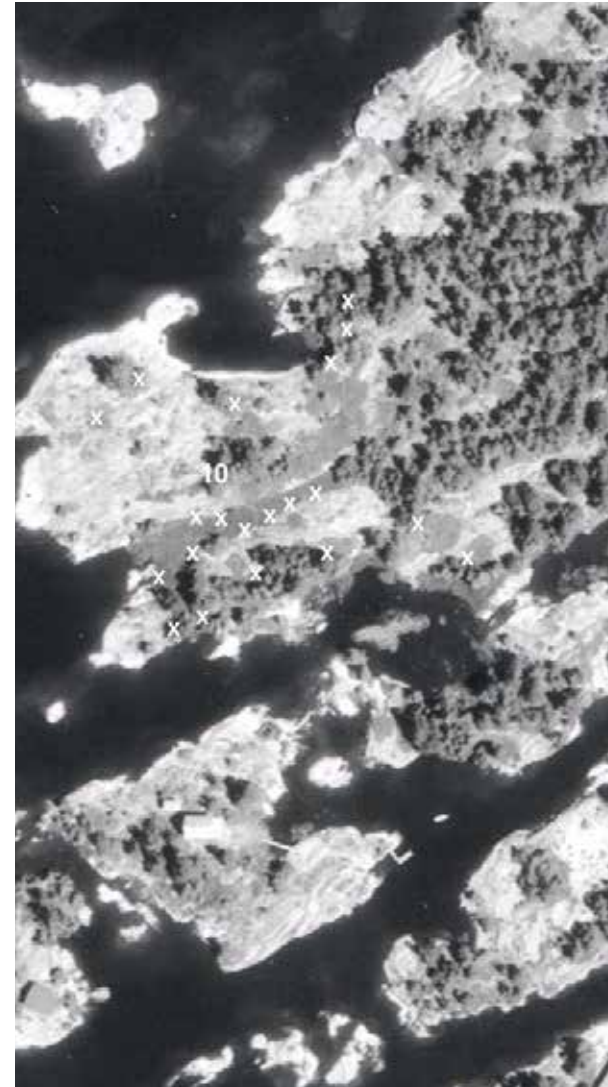
*Approximately 30 New white pine trees transplanted to the West End outlying patches in 2014 - ideal growing summer*



*Trees in blueberry Gulch planted 8-10 years ago are thriving*



***FAIRWOOD ISLAND FOREST MANAGEMENT PLAN***



*Abundance of cones on oldest transplants*



***TREE STUDY REPORTS - SECTION 09***

**West End Notes: - New Tree Plantings in 2015**



Approximately 50% of the new pines planted in 2014 seem to be unaccounted for. Those that were located seemed to be holding up well although growth rates vary greatly. Additional plantings in extreme West End locations were undertaken in 2015, the stock taken from Gam's Glade.

The 'Fairwood Tree' in 2015

Prolific Bayberry but no Mountain Ash again this year

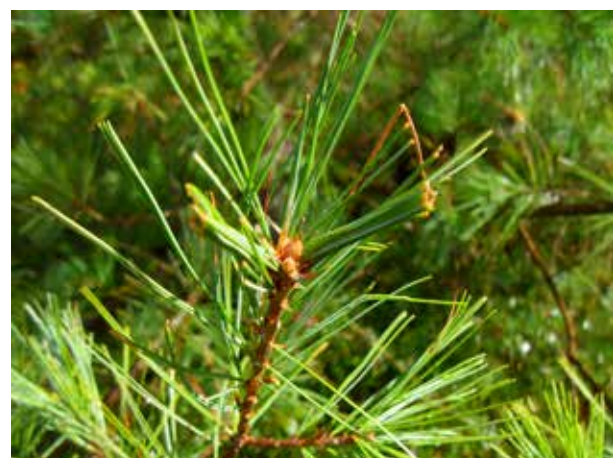


Below: Minor sawfly damage noted.

Spider Nest within bound needle enclosure



Abundance of cones on oldest transplants



**West End Notes: - New Tree Plantings in 2016**

1) The trees planted in Blueberry Gulch have become well established. Several are over 3.05 M high and have a bole circumference of 350mm. They have grown over one metre in height over the past 2 years. This grouping of trees is near the location of an ancient pine, a Fairwood Classic, which died and fell (lightning) over 30 years ago. Its stump can still be located nearby.

2) Though these trees produced their first cones last year there are no new cones this year.

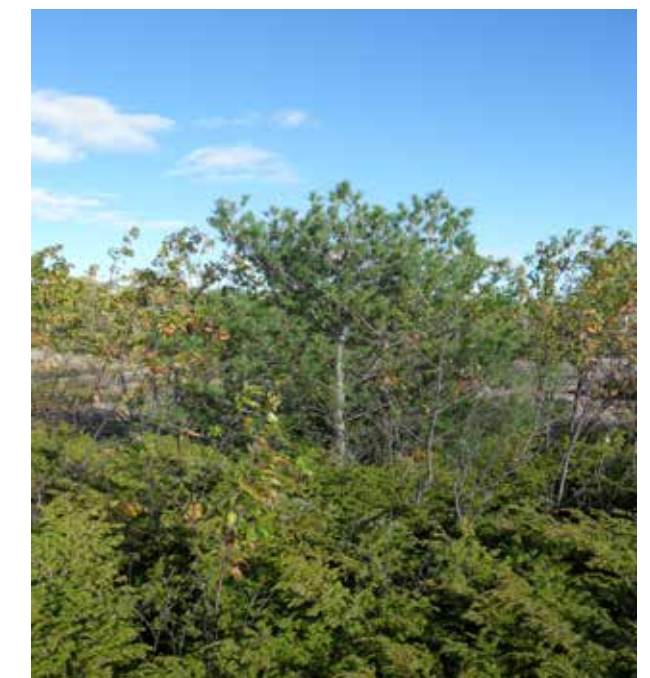
3) Many of the other transplant seedlings to the extreme Wet End patches undertaken in 2014 died in 2015. (success rate less than 25%) Further transplants were undertaken. Some of these have survived to 2016. Still further transplants were undertaken in 2016 from stock sourced at some distance to vary the genome.

4) One particular transplant in an outermost location west south-west beyond the Fairwood tree has a curious genetic anomaly. The needling is shorter than typical for a white pine and the rate of growth has been astonishingly fast. At almost twice the rate of the other pines this tree has already reached 2 M height within 4 years.

Last year's cones have opened, no new cones this year



Below: Short needled white pine below has grown at astonishing speed - over 2 M high after 4 years





*The Fairwood Tree - 2017*

*The 'genetic anomaly' in juniper patch near Fairwood tree Below - A Grouping of transplants with little*



## ***West End Tree Plantings - 2017***

- 1) Many white pines have been transplanted into juniper patches on the West End choosing locations where there are broken rock shelves to sustain rooting and moisture*
- 2) There has been a high attrition rate in getting these trees established - estimated that perhaps 75% have not succeeded, many dying in the droughts of 2014 and 2015.*
- 3) However the past 2 years have provided better weather conditions for establishing root systems that can probe to hidden water resources. The surviving trees are now thriving.*
- 4) The 'genetic anomaly' white pine, referred to in 2016 continues to develop with extraordinary speed.*

*Nature's Bonsais on the West End and North Shore*



*Transplant thriving amidst junipers*

*Transplant to foot of lost 'scenic tree'*



## ***West End Tree Plantings - 2018***

*1) Transplanted trees, cling to life despite the drought. There have been only a handful of deaths in particularly adverse conditions. Many of the natural 'bonsais' tap into hidden under rock ledge water resources*

*2) The line of old pines which has been recorded by many artists, is now dying off. (see photo below)*

*3)The 'genetic anomaly', shorter needled, white pine, referred to in 2016 continues to develop with extraordinary speed. It is now 3 M tall with a 140 circ. bole. Note the short sparse needling and many lower branchings*

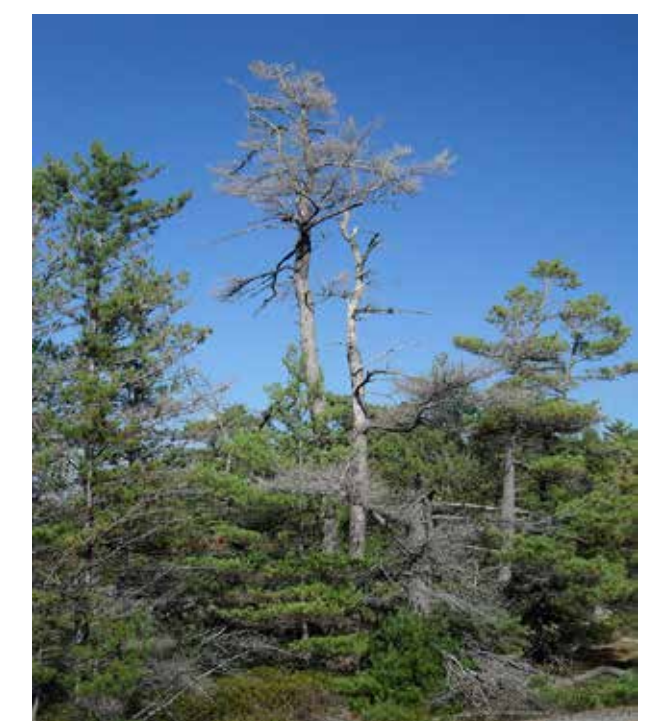


*The Fairwood Tree - 2018*

*The fast growing 'genetic anomaly' in juniper patch near Fairwood tree*

*Historic West End trees cope with drought in minimal soil resources.*

*The grouping of trees painted by Gooderich Roberts in the 1960's is now dying off - only 2 remain alive*





*The Fairwood Tree - 2019*

*The fast growing 'genetic white pine planted nearby is outstripping transplants on other west end sites. The needling is light and sparse.*

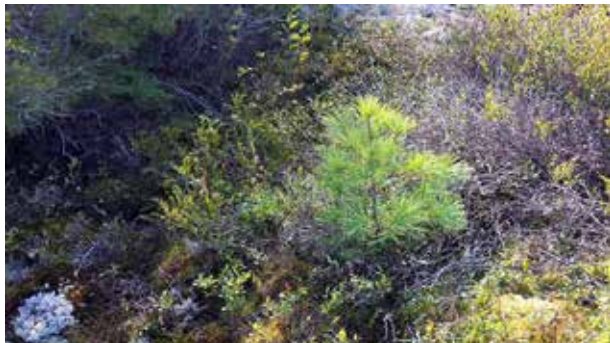
## ***West End Tree Plantings - 2019***

*1) Transplanted white pine trees in many of the west end patches have thrived during the tolerable growing conditions of the summer of 2019.*

*2) There are several genetic variations of white pine evident with peculiarities that range from longer needles, softer needles and a peculiar very fast growing sparse needled.*

*3)The 'genetic anomaly', sparsely needled, white pine, (below-left) continues to grow faster than other transplants.. It is now about 4 M tall with a 140 circ. bole.*

*4) Though the blueberries were somewhat mediocre, the other berry crops were generally good. This was the first year in many in which the Mountain Ash has produced a heavy crop of berries.*



*Below: The Pin Cherry produced a medium crop and the Mountain Ash produced a heavy crop of berries, the first such in some years*



*Serviceberries and bilberries were also prolific in 2019, as well as cranberries around Otter Lake*



*Above: The Pin Cherry Below: the Mountain Ash*



## West End Tree Plantings - 2019

- 1) Many of the transplanted white pine trees in west end patches have thrived during the excellent growing conditions of the summer of 2020. However the historic high water levels have invaded the end of blueberry gulch, putting several thriving transplants at risk.
- 2) The peculiar genetic profile of the extreme west end transplant, beyond the Gooderich Roberts tree, is growing at surprision speed and has already reached 5 M in height despite limited soil and very exposed position. Its foliage in clipped and sparse.
- 3) Blueberries on the west end were very poor. Blackberries were poor. The Mountain Ash did not produce any fruits this year. Service berries, however, were abundant.

## West End Tree Plantings - 2021

- 1) The West End tree transplants have had 5 years without enduring serious drought and have flourished.
- 2) The white pine growig adjacent to the Roberts tree has grown with astonishing speed and is now firmly established.
- 3) Other groupings of pine are becoming well established but may be very vulnerable to a drought year in the future.
- 4) Alower branch on the Roberts tree has broken out into a 'witches broom of small twiglets in reaction to the activity of a bark mining beetle.



Above: White pine at extreme west exposure is genetically disposed to grow very fast with short sparse needling  
Below: example of needling



Above: The West End grouping including Gooderich Roberts painting tree



Above and below: one of the lower branches of the Roberts tree has developed into a tangle of witches broom as the result of activities of a bark mining beetle.



Above and below: the white pine to the west of the Roberts tree has grown with astonishing rapidity.



## ***2014 - Internal Lakes - Tree specimens near Stepping Stones***

### *Observations*

*In 2014 the water in the internal lakes remained high after several years of low water levels which had last year revealed rocks in Beaver Lake and mud flats in Middle Lake.*

*There is at least one deer in the adjacent wood, caught on film by Tim Fyshe.*

*There are no beavers in these lakes this year.*

*Otters have been encountered on slide in Otter Lake..*

*There was no growth of pond weed in these lakes this year but plenty of cotton heads. The sedge is now encroaching on Big Rock in Otter Lake..*

*Frog life is thriving.*

*Sandhill Cranes, found in Middle Lake last year did not appear this year.*

*Great Blue Herons, also went to fishing in these lakes seemed to be fishing elsewhere. There seemed to be an abundance of amphibian life in 2014.*

*The colony of blackbirds which has been such a fixture of this lake, numbering in many hundreds of birds did not show up to nest this year, for the first time in memory.*

### *Forestry:*

*Several dead trees encroaching over the stepping Stones were removed in June.*

*New white pine 2 year seedlings were planted at the base of the 'Scenic Tree'. which succumbed to pine rust circa 1968.*

*A great number of small white pines are over-crowding the south shores. They have established themselves in the low water years and good growing conditions. Some of these should be thinned out and removed.*



*The Stepping Stones - in high water - disarray*



*Deer watering spot in Beaver Lake*



*Ancient bonsai (Gam's Tree) sustained breakage possibly snow mobile, branch dying & propped*



*Gnarled rooting overturned near Otter Lake*





*Ribes* wild currant, carrier of 3 stages of pine rust disease has been removed from the area after the death of 2 adjacent trees.



*Chaotic branching indicative of rust*

*Minor bleeding dribbles down bark*

**Tree Number:** **11 - 2014**

**Location:** *Near Stepping Stones at Otter Lake*

**Species:** *White Pine*

*Adjacent to the 'Scenic' white pine which succumbed to pine Rust in 1968.*

**Observations**

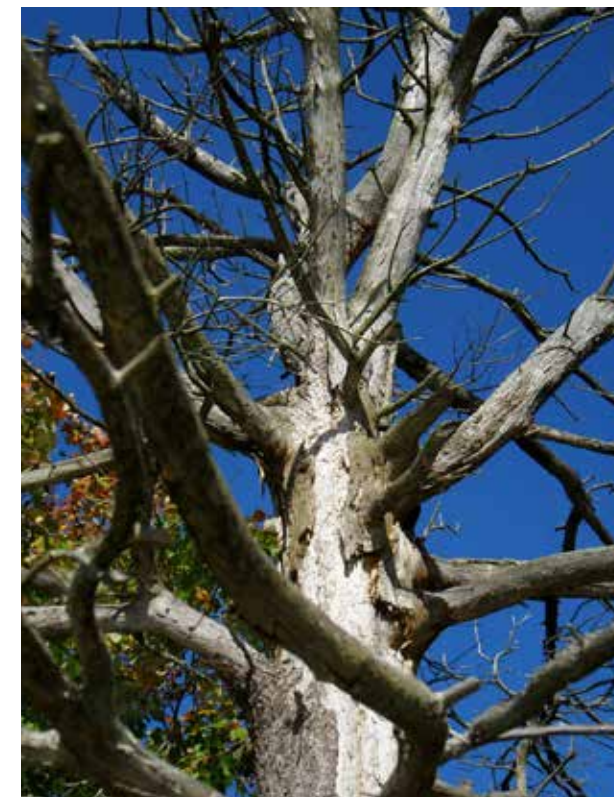
1) Wild Currant, '*Ribes*' no longer present with distinctive orange fungus on underside of leaves. (see photos for tree 9)

2) Tree has recovered. Minor bleeding is occurring at approx 2400mm above ground.

3) Healthy green crown and very sparse mid-range and base. Chaotic bunching of branches at 2/3rds height is typical of Pine Rust infected trees.

*The 'Scenic Tree' succumbed to rust in 1968*

*Adjacent Pine Rust victim*







*Ribes* wild currant, carrier of 3 stages of pine rust disease has been removed from the area after the death of 2 adjacent trees.



Minor bleeding dribbling down bark

Below: The 'Stepping Stones Scenic Tree' succumbed to rust in 1968



**Tree Number: 11 - 2015 and the Stepping Stones Area**

*Location:* Near Stepping Stones at Otter Lake

*Species:* White Pine

Adjacent to the 'Scenic' white pine which succumbed to pine Rust in 1968.

*Observations*

- 1) No Ribes present. Tree generally in better health. Some minor gum bleeding onto bark.
- 2) No Tip Beetle, Gypsy Moth or Sawfly in this area.
- 3) The long admired 'Scenic Tree' fell in the winter winds. It was tidied up as a 'venerable hulk' alongside the Stepping Stones. New White Pines were planted at the stump base and in the stump.
- 4) Gam's Bonsai also perished. A new seedling planted alongside its stump.
- 5) New white pine seedling (2 yr) planted at the stump of adjacent fallen tree with twisted roots.



Pathetic Fallacy: 'Gam's Bonsai' died in 2014. A new seedling (left) retrieved from Gam's Glade has been planted by its root and seems to have taken hold.





*Bleeding through bark has lessened in the last 2 years*

*Crown of tree in middling health*

*Evidence of minor bleeding visible on trunk.*



***Tree Number: 11 - 2016 and the Stepping Stones Area***

*Location: Near Stepping Stones at Otter Lake*  
*Species: White Pine - Bole measured at 1050mm circumference.*  
*Adjacent to the 'Scenic' white pine which succumbed to pine Rust in 1968.*

*Observations*

- 1) No Ribes present. Tree generally in better health. Some minor gum bleeding.*
- 2) No Tip Beetle, Gypsy Moth or Sawfly in this area.*
- 3) In 2015 several White Pine seedlings were transplanted planted to the vicinity of the toppled 'Scenic Tree' nearby. The seedling planted in stump has perished. Others planted nearby have survived.*
- 4) Pine seedling planted at base of Tree with the Twisted Roots beside Stepping Stones has perished.*
- 5) Pine seedling planted at stump of Gam's bonsai continues to thrive.*

*The new seedling planted in 2015 at the stump of Gam's bonsai has survived the winter and seems to be thriving*





*Bleeding through bark is no longer evident*



*Tangled branching belie the earlier rust infections*

**Tree Number: 11 - 2017 and the Stepping Stones Area**

*Location: Near Stepping Stones at Otter Lake*

*Species: White Pine*

*Adjacent to the 'Scenic' white pine which succumbed to pine Rust in 1968.*

*Observations*

- 1) Generally healthy, well needled crown*
- 2) No Ribes present. No significant new bleeding noted.*
- 3) No Tip Beetle, Gypsy Moth or Sawfly noted in this area.*
- 4) Wet summer has sustained higher pond water levels throughout the summer.*
- 5) The doe and fawn have their daytime hide in this vicinity and emerge in evening.*

*'Xanthoria' Lichen growth in this moist vicinity*



*Replacement of Gam Bonsai - holding its own after 2 winters*



*The Stepping Stones and higher water levels throughout the season*



*Fallen 'Scenic Tree' near Stepping Stones. New transplants have been undertaken around old stump*





*Bleeding through bark is no longer evident*



*Tangled branchings but little mid-range die-back*

***Tree Number: 11 - 2018 and the Stepping Stones Area***

*Location:*

*Near Stepping Stones at Otter Lake*

*Species:*

*White Pine - 970 circ. bole, approx. 12 M high*

*favoured, well watered location beside lake*

*Adjacent to the 'Scenic' white pine which succumbed to pine Rust in 1968.*

*Observations*

*1) Generally healthy, well needled crown, drawing water from lake during drought season*

*2) No Ribes present. No evidence of rust or significant new bleeding noted.*

*3) No Tip Beetle, Gypsy Moth or Sawfly noted in this area.*

*Replacement of Gam Bonsai - holding its own after 3 winters*



*The Stepping Stones have been high and dry throughout the season*





Bleeding through bark and reddish hue is no longer evident



Tree 11 is sparsely needled but shows no further sign of rust disease

Two new Crack Willows have been planted alongside Otter Lake



The Stepping Stones have been high and dry throughout the season but water levels are rising in the autumn



**Tree Number: 11 - 2019 and the Stepping Stones Area**

**Location:** Near Stepping Stones at Otter Lake  
**Species:** White Pine - 970 circ. bole, approx. 12 M high favoured, well watered location beside lake Adjacent to the 'Scenic' white pine which succumbed to pine Rust in 1968.

**Observations**

- 1) Generally healthy, well needled crown, roots into stable lake water supply
- 2) No Ribes present. No evidence of rust or significant new bleeding noted. No Tip Beetle, Gypsy Moth or Sawfly noted in this area.
- 3) Two new Crack Willows from Hardy Tree Nursery planted alongside lake have thrived throughout their first season. The bushy area behind the stepping stones is dense with bog willow. The Crack Willow is fast growing. However it will be attractive to beaver and may require future protection until it becomes well established. (There are Crack Willows behind the Belleview up at the Pointe)  
 Medium to low water levels in all 3 lakes

New sphagnum growth in vicinity resulting from damper summer conditions throughout season.



Below: The Gam Memorial Bonsai is holding its own after 4 winters.



**Tree Number: 11 - 2020 and the Stepping Stones Area**

**Location:** Near Stepping Stones at Otter Lake  
**Species:** White Pine - 970 circ. bole, approx. 12 M high  
favoured, well watered location beside lake  
Adjacent to the 'Scenic' white pine which succumbed to pine Rust in 1968.

- Observations**
- 1) The internal lake levels have been high throughout the summer due to regular rains. The ponds seem generally healthy with growing incursion of bog cotton around the ir perimeters.
  - 2) Cranberries growing in Otter Lake perimeter.
  - 3) Tree 11 is healthy, rust free, and well needled. No ribes present in vicinity. No Tip Beetle, Gypsy Moth or Sawfly noted in this area.
  - 4) The two Crack Willows from Hardy Tree Nursery planted in 2019 are thriving in their second season. However they seem to have a tendency to copse at low level rather than channel growth into a single bole. Both are in well watered, sheltered, sunny positions on the edge of the lake.

**Tree Number: 11 - 2021 and the Stepping Stones Area**

- Observations**
- 1) Internal lake levels have again been medium high throughout the summer due to regular rains.
  - 2) Tree 11 is generally healthy, rust free, but with increasiiingly sparser needling. No ribes present in vicinity. No Tip Beetle, Gypsy Moth or Sawfly noted in this area.
  - 3) One of the two Crack Willows planted in 2019 has been devoured by the beaver. However the root has sent up a number of alternative sprouts.
  - 4) The 'Gam Tree' transplanted in 2015 to replace the ancient bonsai, continues to thrive.
  - 5) Other white pine transplants in the area behind the 'Scenic Tree' continue to thrive.
  - 6) The beaver has made only occasional forays into these lakes during the summer. The otters however are resident and a doe is living in the woods nearby.
- The large and very ancient turtle (measured with a 22" shell) was sighted this year. It apparently laid eggs on the rock south of the Otter Lake where it has been observed previousl. These were immediately eaten by another animal, possibly the otter (?).



Above: high lake water levels due to plenteous rain  
Below: Crack Willow growth in season 2



Left: Tree 11 Above: consistently high lake water levels  
Below: Gam Memorial Tree trans planted in 2015



## 2015 - Internal Lakes - Clearing & Planting in 'Gam's Glade'

*On August 2nd 2015 a memorial planting of oak trees took place in the glade to the south of Otter Lake with the extended family piped out in single file to the glade. This year marks the 100th anniversary of the birth of Anne Primrose Fyshe/Saegert/Fairlie (1915-2014)*

*The new glade had been cleared in a family undertaking during late July.*

*Eight oak trees were planted which had been germinated from acorns gathered during the fall of 2014 in Craigeigh Gardens in Rosedale.*

*Several of these seedlings were subsequently eaten by deer and had to be replaced with reserve stock later in the season (areas dosed with cumin and chilli powder)*

*The 'Scenic Tree' by the Stepping Stones collapsed towards the lake and was cleared to become a lakeside reminiscence. A seedling pine was planted in its shattered trunk.*

*'Gam's Bonsai' also died over the winter of 2014. It had been broken in the winter of 2014, possibly by a snowmobile. A new white pine seedling was inserted alongside the old stump.*

### *General Observations:*

*Lake conditions: The water levels started high at the beginning of the season and gradually fell to a low level exposing all of the Stepping Stones and the Rocks in Beaver Lodge Lake..*

*During the course of the summer the fox and a doe and fawn have been encountered in the glade. There are no beavers in these lakes this year.*

*There was no growth of pond weed in these lakes, again plenty of cotton heads.*

*Three Great Blue Herons frequented these lakes during the summer which may account for the paucity of frog life.*

*The huge colony of blackbirds, established in Otter Lake for many years, has not returned for 2 consecutive years.*



*Gam's Glade cleared*



*Boulder at gateway path*



*The Scenic Tree was tidied up after collapse*



*Oak seedlings germinated from Craigeigh Gardens acorns planted.*



*Water levels in the lakes started high but receded over the season*



## 2016 - Internal Lakes - Report on 'Gam's Glade'

*The new glade has been cleared in a family undertaking during late July 2015.*

*Of the eight original oak trees germinated from acorns gathered from Craigleigh Gardens, six were soon nibbled by the deer that frequent the glade. These losses were replaced by secondary seedlings from the germinated stock and liberally sprinkled with pepper and cumin powder.*

*However in 2016 it was discovered that the original trees had revived and that in most locations there were 2 seedlings crowding together. The more promising will be selected once they have become well established.*

*General Observations:*

*Lake conditions: The water levels started medium to low after a mild winter and dry spring. They declined slightly over the summer.*

*During the course of the summer a doe and fawn have been encountered in the glade. There are no beavers in the lakes and the sedge around the perimeter is increasing and now envelops the otter slide rock.*

*There were few frogs or tadpoles anywhere on the island this year, and consequently the Great Blue Heron rarely visited the lakes.*

*The huge colony of blackbirds, established in Otter Lake for many years, has not returned for the third consecutive year. They were however noted as passing over the wet end of O K Point on their daily foraging trip south. The whereabouts of their present colony is unknown.*



*Gam's Glade viewed from Stepping Stones*

*Boulder at gateway path*



*The Scenic Tree was tidied up after collapse*

*Oak seedlings germinated from Craigleigh Gardens acorns planted.*



*Water levels in the lakes started high but receded over the season*





## ***2017 - Internal Lakes - Report on 'Gam's Glade'***

*Seven of the eight original oak trees germinated from acorns gathered from Craigleigh Gardens, have survived.*

*The deer have shown no further interest in them.*

*General Observations:*

*Lake conditions: The water levels in the ponds have been generally higher the summer.*

*A doe and her fawn have again been noted in the area.*

*There are no beavers in the lakes this year. The herons have fished out most of the frogs around the Stepping Stones. The frog populations elsewhere are flourishing, particularly bullfrogs on the outer shorelines*

*Again the lakes are rimmed with a good crop of cotton flower.*

*The colony of blackbirds has not returned for the fourth consecutive year.*



*Gam's Glade - lifted white pine tree roots on edge of Glade*

*Boulder at gateway path*



*Oak seedlings germinated from Craigleigh Gardens acorns planted.*



*Many mushrooms have appeared early this year an are thriving in the glade.*



## 2018 - 'Gam's Glade'

*All 7 oak seedling continue to grow, but the growth is very slow.*

*The large pine which has pulled its roots away above the rockface seems to be tipping more precariously towards the lake.*

*No deer grazing in this area in 2018.*

*The water levels in the ponds have been very low throughout the season. The lake has been fringed with more bog cotton than in previous years.*

*There are no beavers in the lakes this year. No herons and the frog population is flourishing.*

*Gam's Glade - lifted white pine tree roots on edge of Glade*



*Below: Survival but slow growth of transplanted oak seedlings*



FAIRWOOD ISLAND FOREST MANAGEMENT PLAN



TREE STUDY REPORTS - SECTION 09

## 2019 - 'Gam's Glade'

- 1) Six of the seven seedlings have survived and continue to grow very slowly.
- 2) The deer has not been sighted in this area in 2019
- 3) In the absence of beaver maintenance, the water levels in the ponds remain low throughout the season.
- 4) The lake is fringed with bog cotton and the cranberries are prolific in areas.
- 5) The Sand Hill Cranes are frequently to be found in this vicinity of the lakes, overturning moss for grubs and insects.

Below: Reindeer moss has thrived in the late season.



Below: Survival and slow growth of transplanted oak seedlings



FAIRWOOD ISLAND FOREST MANAGEMENT PLAN



Above: 2019 has been a prolific year for all insects, particularly dragonflies, crickets, grasshoppers woodbugs and pine sawers.

Below: Lady slippers and brown or purple fringed orchids were very rare on the island



Above: Many types of mushrooms and fungi have been discovered across the island. Below: There are many Russolas (edible) in Gam's Glade.



TREE STUDY REPORTS - SECTION 09

## 2020 - 'Gam's Glade'

- 1) Six of the seven seedlings survive and continue to grow very slowly. Generally oak do not thrive until they get access to plenty of direct sunlight.
- 2) The Isabel Shaw-Wood Fairlie memorial tree, a Burr Oak, was planted nearby on June 20, 2020. This appears to be thriving in its sunny location beside the tennis court.
- 3) The deer was sighted in early spring but seems to have departed later in the season.
- 4) The moist summer produced a huge variety and abundance of mushrooms across the island and especially in Gam's Glade.

Right: On June 20, 2020, a Burr Oak was planted nearby on the edge of the tennis court in memory of Isabel Wood Fairlie. Though initially ravaged by gypsy moth before planting, it has thrived in its new sunny location



Below: Gam's Glade was covered with Russola mushrooms late in the summer



Below: Survival and slow growth of transplanted oak seedlings



## 2021 - 'Gam's Glade'

Observations:

- 1) The Craigleigh Gardens oak transplants continue to grow very slowly. There is a lack of direct sunlight. However, the Isabel Shaw-Wood Fairlie Burr Oak began to thrive in its sunny location after recovering from gypsy moth devastation and once the bracken ferns were cleared to expose it to direct sunlight.
- 3) The roots of a large pine in the middle of the glade seem to be lifting as each year passes. Its falling will create havoc in the Glade.
- 4) The moist summer produced a huge variety and abundance of mushrooms across the island and especially in Gam's Glade.
- 5) The Glade was particularly productive of mushrooms throughout the summer: Amanitas and Yellow Patches in June, Russula Nigricans in late July, Russula Brevipes in August, Death Caps in late August, Bolete Paludosa in July to September, mixed boletes and russulas in September.



Above left: IWF Burr Oak is outstripping the Craigleigh Oaks in the shady glade





## 2017 - Oak Leaf Galls and Chokecherry Galls

Every year oak galls are visible forming on the undersides of the oak trees. The oak galls are produced in a variety of forms, the most common being the 'Oak Apple Gall' a spherical appendage to the leaf which can grow to 25mm in diameter.

Another common type of gall is the *Quercus* (oak) Lobatga gall which is like a miniature mushroom shape on a stem appended to the underside of the leaf.

The process by which these are formed is another wonder of nature. The cynipid wasp secretes special chemicals that promote plant growth. Its salivary fluids are injected into the plant tissue and they alter the hormones within the plant to induce cells to divide rapidly. A safe spherical environment for the protection of its own eggs is then grown on its behalf by the plant.

It is suggested that the bitter tannins that the wasp induces from the oak tree are useful in repelling other predators interest. Oak gall were collected historically as a source of tannin used in converting animal hides to leather. It was also used to make black inks.

When the newly hatched wasps burrow a hole through the skin of the gall to escape into the outside world the husk is vacated and then provides a future home for subsequent opportunistic occupants like spider mites, which are often found within the desiccated galls when they are cut open.



Above: Eriophyid mite on chokecherry

Below / left: Cynipidae - cynipid wasps create most of the galls on oaks (*quercus*) and rose families



Below: Chokecherry Finger Galls are common sight and are similarly created by a tiny Eriophyid mite on the upper, sunny side of the cherry leaf

Below: Chokecherry Stem Galls however are created by a fungus, not an insect. They encase the stem in a sleeve and the fungus seems to milk the sweet cherry sap and ooze an amber residue





## ***2018 - Oak Leaf Miner***

*Fewer oak galls noted this year. However there are many oak trees which have suffered a leaf miner.*

*The leaves appear to be 'stuck together' and drained of chlorophyll.*

*When the leaves are separated small green caterpillars are observed. These seem to have developed within the protected nests.*

*Below: Caterpillars are securely protected within the laminated oak leaf layers.*





Branch massing in 2012



Thinning needling in 2014

Narrow lightning strip blown out in 2008



FAIRWOOD ISLAND FOREST MANAGEMENT PLAN

Extensive bark fall & woodpecker damage in 2014



**Tree Number:** 12 - 2014

**Location:** South shore midway between Catherine's and the Ryan's Houses

**Species:** White Pine 20M high

This tree was struck by lightning in summer 2008

This tree has had a 50mm strip of bark torn off its north side from top to ground in an almost straight line in a lightning strike in August 2008. It is interesting that lightning strips such as this almost always occur on north side of tree, where bark is always shaded and remains moist.

**Observations:**

1) Extensive damage by woodpeckers has resulted in 50% of bark being shed over a large area of the trunk. It seems unlikely that the tree will survive such exposure. Large slabs of bark fallen at base.

2) Needling has become noticeably more sparse in last 6 years and the tree has developed an obvious list to the north. Apparently the rooting is weakening.

3) No new bleeding or drips on berries below. New mosses are growing on bark, on the north exposure.

4) No further damage from Pilated woodpecker.



Increasing insect damage and woodpecker interest

Crown massing in 2012



Crown massing in 2014



TREE STUDY REPORTS - SECTION 09



*Branch massing in 2012*



*Thinning needling in 2015*

*Narrow lightning strip blown out in 2008 has expanded to wide swath approximately 50% of circumference*



*Extensive woodpecker damage and scaling bark*



**Tree Number:**        **12 - 2015**

**Location:**                *South shore midway between Catherine's and the Ryan's Houses*

**Species:**                 *White Pine 20M high*

*This tree was struck by lightning in summer 2008*

*This tree has had a 50mm strip of bark torn off its north side from top to ground in an almost straight line in a lightning strike in August 2008. It is interesting that lightning strips such as this almost always occur on north side of tree, where bark is always shaded and remains moist and a better conductor.*

**Observations:**

*1) Extensive damage by woodpeckers has resulted in 50% of bark being shed over a large section of the trunk. It seems unlikely that the tree will survive much longer.*

*2) Needling has become noticeably more sparse in last 7 years and the tree has developed a pronounced list to the north. There is no further evidence of dripping gum on the bushes below.*

*3) More wood-pecker damage noted on denuded north face.*

*Crown massing in 2015*



*Inset infestation of denuded strip*



*Increasing woodpecker interest*





**Tree Number:** 12 - 2016

**Location:** South shore midway between Catherine's and the Ryan's Houses  
**Species:** White Pine 20M high. This is one of the 'primate' old trees, taller than its neighbours and well rooted  
This tree was struck by lightning in summer 2008

**Observations:**

- 1) The ongoing loss of bark on more than half the circumference in the northerly exposure has not substantially reduced the foliage on this tree over the past 4 years.
- 2) Further extensive damage by woodpeckers has exacerbated the loss of bark. The tree has developed a pronounced list to the north. There is no further dripping of gum on the bushes below.
- 3) A similar white pine of the same age, (Tree # 16 located in front of the Pagoda - approximately 120 rings) struck by lightning in 2010 collapsed in the fall of 2015 snapping at the base of the stump where a carpenter ants nest had established itself.

Massing in 2016 - surprisingly little change in 4 years

Extensive woodpecker damage and scaling bark



**Tree Number:** 12 - 2018

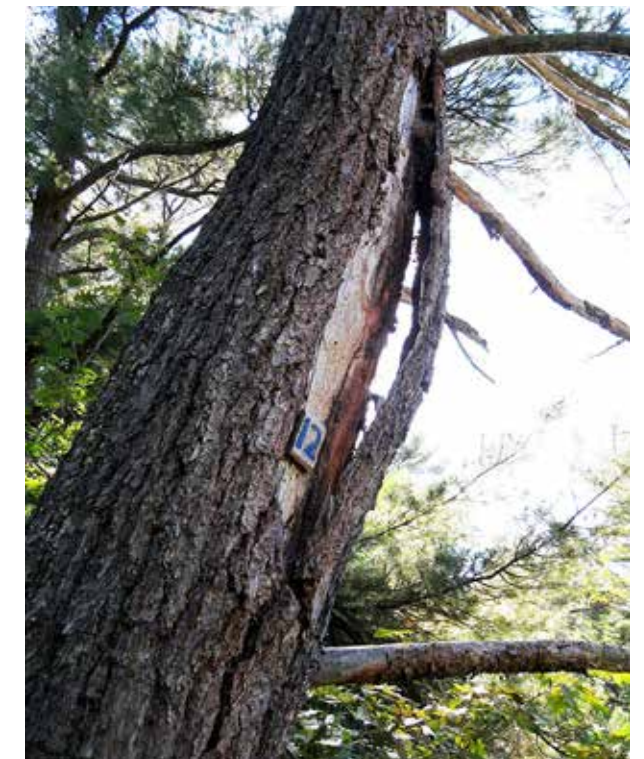
**Location:** South shore midway between Catherine's and the Ryan's Houses  
**Species:** White Pine 20M high. This is one of the 'primate' old trees, taller than its neighbours and well rooted  
This tree was struck by lightning in summer 2008

**Observations:**

- 1) Large areas of bark are becoming detached - in some cases more than 50% of the circumference.
- 2) Woodpecker damage increasing, though not the large holing of the pileated woodpecker.
- 3) There is no further dripping of gum on the bushes below.

Massing in 2018 - surprisingly little change over 6 years

Extensive scaling of bark yet tree survives



**Tree Number: 12 - 2019**

**Location:** South shore midway between Catherine's and the Ryan's Island  
**Species:** White Pine 20M high. This is one of the 'old timers', taller than its neighbours and well rooted, dating back to around 1870  
This tree was struck by lightning in summer 2008.

- Observations:**
- 1) After 11 years after the lightning strike Tree 12 has snapped at high level (approx 12 M) Nevertheless the tree continues to cling to life in remaining branches at high level.
  - 2) Woodpecker damage and bark loss continues to increase around the remaing bole..



Left: Woodpecker damage continues to erode the north face of this tree along the lightning strip.

2019: The crown has snapped off at a rotted weak point.

The tree has snapped at approximately 15M a.g.l.



**Tree Number: 12 - 2020 & 2021**

- Observations 2020:**
- 1) 12 years after the lightning strike Tree 12 still sustains life in 4 limbs.
  - 2) Woodpecker and insect damage is extensive and bark loss continues to increase around the remaining bole.
  - 3) There is no longer evidence of sap drip around the base of the tree.

- Observations 2021:**
- 1) little change and no new woodpecker damage visible
  - 2) the top branches continue to bear needles even though over 50% of the trunk has lost its bark..
  - 3) the root is lifting slightly on the north side and the tree begins to lean southerly.
  - 4) there are many new pines thriving in the area, expanding into the vacuum around this tree.
  - 5) there is extensive mycelial activity, russulas and some boletes, in this area. Lycoperdon puffballs are abundant in the nearby clearing.

2020 the remnant still sustains living limbs.

2021 the upper branches continue to grow.



*Comparison:2019*

***Trees Topped behind IFF Cottage***

*Location:*

*Behind IFF Cottage*

*Species:*

*White Pine approx 15M high.*

*These trees were 'topped' by Jon Solecki to prevent them from falling onto the cottage.*

*Observations:*

- 1) After 15 years one of these trees has been removed as a result of extensive Pileated Woodpecker damage.*
- 2) The other tree continues to live with remaining lower branches being lightly needled.*
- 3) Other trees, largely quicker growing maple, have taken advantage of the sunlight opportunities and grown into the light well.*

*Maple has grown into the light opportunity engulfing topped pine.*



*Cottage with topped trees behind.*



*Comparison:2020 - 2021*

***Trees Topped behind IFF Cottage***

*Location:*

*Behind IFF Cottage*

*Species:*

*White Pine approx 15M high.*

*These trees were 'topped' by Jon Solecki to prevent them from falling onto the cottage.*

*Observations:*

- 1) This is a good example of the effects of topping a white pine tree which had been growing in a favorable location, sheltered and well nourished in deeper soil.*
- 2) The topped trees developed pollarded multiple brancings which have subsequently died back.*
- 3) One of the pines, severely attacked by pileated woodpecker, died and was removed in 2018*
- 4) Other trees have grown into the new sunlight zones.*

*Maple has grown into the light opportunity engulfing topped pine.*



*Above: Cottage with topped trees behind 2020  
Below: 2021.*



**Tree Groups: 13 - 2014 - Caravanserai Point Plantings**

**Location:** Transplanted 2007 & 2008 around Caravanserai Centennial project

**Species:** White Pine seedlings (est. 3 years) from Fairisle Bay

**Observations:**

1) Group A in gulch in front of Caravanserai: Though many of these transplants succumbed to the drought in the summer of 2012, supplementary stock was added in 2013 and this has thrived in the near ideal growing conditions of 2014.

2) Group B Transplantings around the old Fairwood sign withstood drought and are beginning to close in the view. Decided to let them do this.

3) Tree Group C to east of Caravanserai. - approx. 750mm high.

4) Tree Group D to west of Caravanserai is developing to bush 1000mm height.

Group B & C - all remaining transplants thriving in near ideal growing conditions



Group A - growing fast, filling dead gap



**Tree Groups: 13 - 2015 - Caravanserai Point Plantings**

**Location:** Transplanted 2007 & 2008 around Caravanserai Centennial project

**Species:** White Pine

**Observations:**

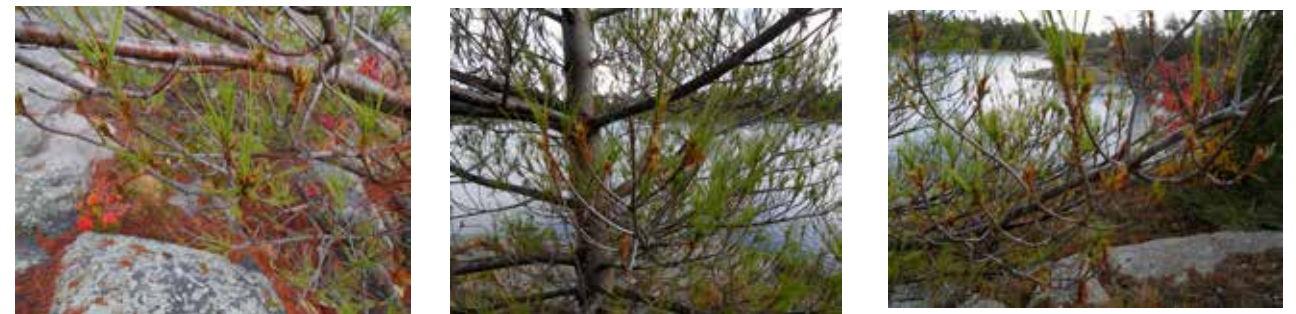
1) Group A in gulch in front of Caravanserai: slightly stressed by lack of water in periods over summer. No sawfly attack.

2) Group B near Fairwood sign: These young trees have been severely affected by pine sawfly with caterpillars dropping onto them from ravaged trees overhead. Needling is shor and sparse.

3) Tree Group C to north east of Caravanserai. - approx. 1200mm high and not affected by any insect depredations or blight. This grouping is beginning to provide the desired shelter belt screening the Caravanserai.

4) Tree Group D to west of Caravanserai is developing to bush 1200mm height.

Groups B & C ravaged by sawfly leaving only clusters of new growth



Group A - growing fast, now nearly 2 M high

Sawfly on trees overhead have dropped on seedlings below



**Tree Groups: 13 - 2016 - Caravanserai Point Plantings**

*Location: Transplanted 2007 & 2008 around Caravanserai Centennial project*

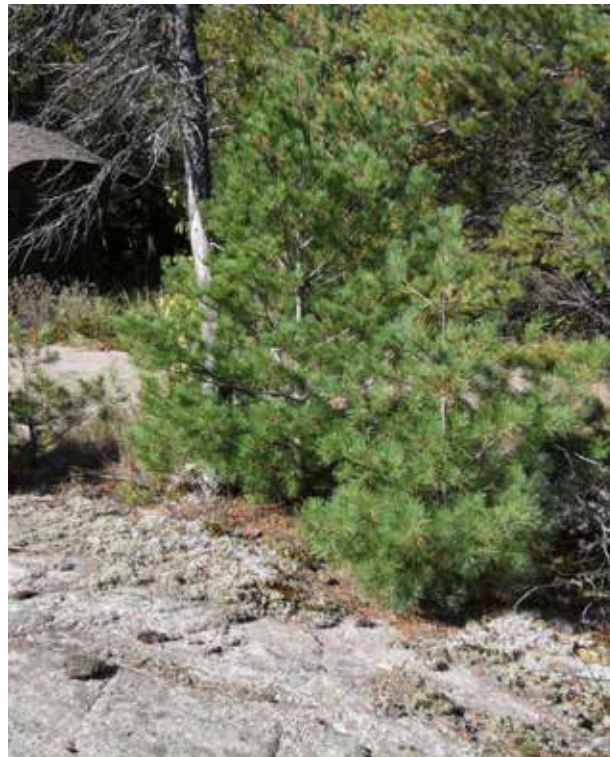
*Species: White Pine*

*Observations:*

- 1) Group A in gulch in front of Caravanserai. Most of these seedlings have succumbed to drought.*
- 2) Group B near Fairwood sign: These trees ravaged by sawfly last year have returned to health in 2016. The only evidence of last year's adversity is in the shorter needles.*
- 4) Tree Group C to north east of Caravanserai. There are 5 specimens here that are flourishing, the tallest being 2100 in height.*

*Group C pines are beginning to provide some visual seclusion for the Caravanserai.*

*Group B - This transplant near the Fairwood Sign was completely ravaged by sawfly in 2015. It was unusual that they should be interested in such a small specimen. However in 2016 the tree has returned to good health, albeit with shorter needles.*



**Tree Groups: 13 - 2017 - Caravanserai Point Plantings**

*Location: Transplanted 2007 & 2008 around Caravanserai Centennial project*

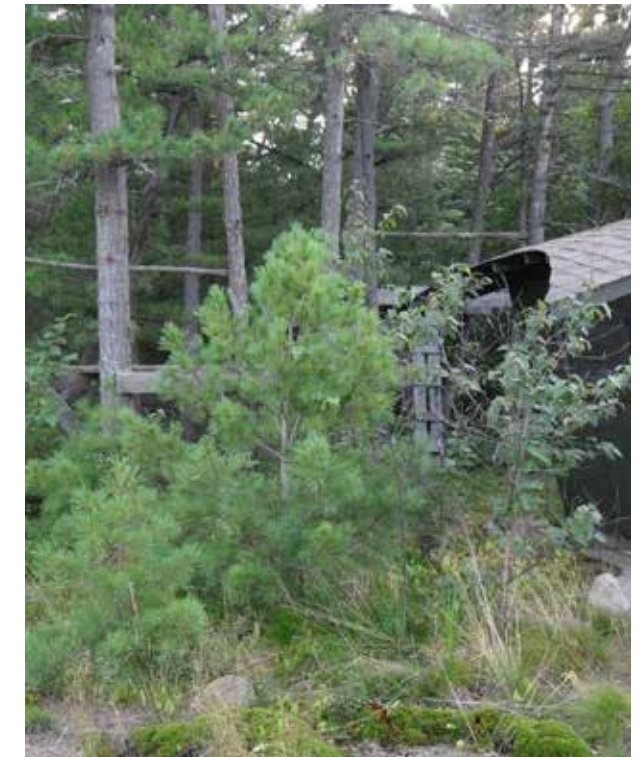
*Species: White Pine*

*Observations:*

- 1) Group A - only one seedling has survived*
- 2) Group B near Fairwood sign: These transplants are now developing vigorously*
- 4) Tree Group C: Also developing healthy mass. At 2200 height they are beginning to provide the desired screening towards the Rothsmay Island view.*
- 5) Tree Group D to west of Caravanserai has developed rapidly under ideal growing conditions to 2000 height..*

*Group C pines to north east are beginning to provide some visual seclusion for the Caravanserai.*

*Group D to west - pines are beginning to provide some visual seclusion for the Caravanserai.*



**Tree Groups: 13 - 2018 - Caravanserai Point Plantings**

*Location: Transplanted as seedlings 2007 & 2008*

*Species: White Pine*

*Observations:*

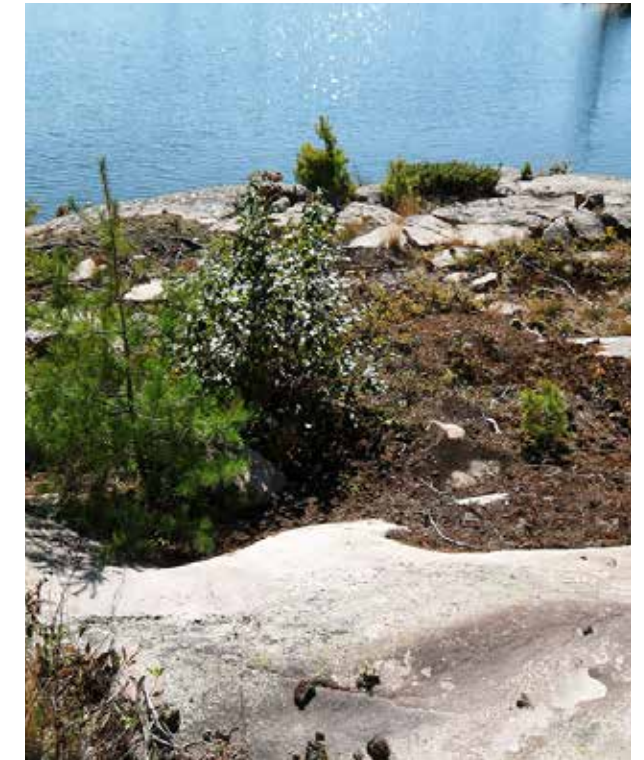
- 1) Group A - only one seedling has survived. Not much increase in size in these adverse soil conditions.*
- 2) Group B near Fairwood sign: Several of these transplants are now developing vigorously.*
- 4) Tree Group C: Developing quickly but slightly sparse foliage due to drought. At 2600 height they are beginning to provide the desired screening towards the Rothsmay Island view.*
- 5) Tree Group D, 4 pines to west of Caravanserai has developed rapidly under ideal growing conditions to 1500 height. 3 Birch trees have also sprung up and overtaken in this sheltered micro-*

*Group C - grove of pines to north east provide visual seclusion for the Caravanserai.*

*Group D to west - pines mixed with birches also provides visual seclusion for the Caravanserai.*



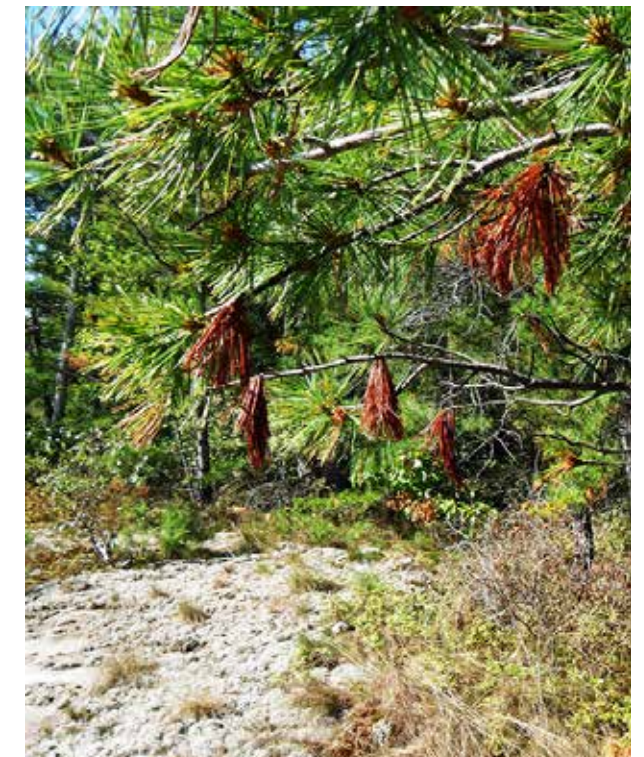
*Group B - several pines planted to east of Fairwood sign have recovered from sawfly and are flourishing*



*Year 1 of Caravanserai vegetable garden - tomatoes, beans, basil, cucumbers, parsley*



*There is some evidence of return of tip beetle on adjacent pines*



**Tree Groups: 13 - 2019 - Caravanserai Point Plantings**

*Location: Transplanted as seedlings 2007 & 2008*

*Species: White Pine*

*Observations:*

*1) Group A - in front of the Caravanserai. A dead tree has fallen in this area and is being frequented by woodpeckers. One small seedling survives. New seedlings will be planted next spring.*

*2) Group B near Fairwood Sign continues to thrive - small trees about 400mm high. The bushes in front of the sign have been trimmed back this year.*

*3) Tree Group C: located to east of Caravanserai continues to grow quickly and profit from the sheltered microclimate around the building.*

*5) Tree Group D, 4 pines to west of Caravanserai continue to develop rapidly under ideal micro-climate growing conditions to 2000 mm height. .*

*Group C - grove of pines to north east provide visual seclusion for the Caravanserai.*

*Group D to west - pines mixed with birches also provides visual seclusion for the Caravanserai.*



*Group C: east of Caravanserai is thriving and providing a good visual screen.*



*Year 2 of Caravanserai vegetable garden - tomatoes, beans, basil, has been relocated to shelter against the building for protection from wind.*

*Group A: Fallen tree to south of Caravanserai. The transplants in this area have not thrived in the poor exposed soil.*



*Fairisle was reforested extensively in 1962. Compare the picture below with the early JFF photo when vegetation was very sparse.*



**Tree Groups: 13 - 2020 - Caravanserai Point Plantings**

*Location:* Transplanted as seedlings 2007 & 2008

*Species:* White Pine

*Observations:*

- 1) Group A - One small seedling survives.
- 2) Group B near Fairwood Sign. Small well established trees about 500mm high.
- 3) Tree Group C: These trees are growing surprisingly fast due to the sheltered microclimate around the building.
- 4) Tree Group D, 4 pines to west of Caravanserai are also continuing to develop rapidly under ideal microclimate growing conditions to 2400 mm height.



*Group C - grove of pines to north east provide visual seclusion for the Caravanserai.*



*Group D to west - pines mixed with birches also provides visual seclusion for the Caravanserai.*



**Tree Groups: 13 - 2021 - Caravanserai Point Plantings**

*Observations:*

- 1) Group A: Seedling survives with little change. Soil is meagre in this area.
- 2) Group B: near Fairwood Sign. Small well established trees about 500mm high.
- 3) Tree Group C: These white pines are growing fast and have reached 2400mm height.
- 4) Tree Group D: 4 pines to west of Caravanserai develop rapidly under ideal microclimate growing conditions to 2400 mm height. Mycorrhizal associations with russula mushrooms noted in the area.



*Group C to east - pines provide increasing visual seclusion for the Caravanserai.*



*Group D to west - pines growing quickly*





*Tree Grouping: 14 - 2014*

*Location: adjacent flag pole*

*Species: 3 Jack Pines of various ages*

*compare with trees # 7 & 10 which are Scotch Pines which have similar needling but Jack Pine produce paired cones close set on branches*

*1) All 3 trees are in good health and covered with cones. They have roots that extend into deep cracks.*

*2) Old cones are cracking open but have not yet shed seeds.*

*3) No wasp life noted this year - other years this has been abundant hovering around these trees.*



*Many cones forming for 2015 and tiny cones forming for 2016*



*Tree Grouping: 14- 2015*

*Observations:*

*1) 3 trees are in good health and again covered with new twinned cones. Previous years cones have not opened up or shed their seeds*

*2) Cones were gathered for seeding experiments in spring of 2016 with the plan to plant seedlings on the West End.*



*Several cones, both 1 and 2 year old harvested for seeding next spring.*



*Tree Grouping: 14 - 2016*

*Location: adjacent flag pole*  
*Species: 3 Jack Pines of various ages*  
*compare with trees # 7 & 10 (Scotch Pines)*

- 1) All 3 trees are in good health but more sparsely needled than in previous years.*
- 2) Last year's cones have not broken open or shed their seeds. A few new cones in pairs clutch tightly to the branches.*
- 3) No wasp or hornet life noted.*



*Few new cones forming in 2016*



*Tree Grouping: 14 - 2017*

*Location: adjacent flag pole*  
*Species: 3 Jack Pines of various ages*  
*compare with trees # 7 & 10 (Scotch Pines)*

- 1) All 3 trees are in stable health.*
- 2) Last year's cones have opened and shed their seeds. Many tiny new cones in pairs, distinctive of the jack pine, clutch tightly to the branches.*
- 3) No unusual insects noted.*



*Few new cones forming in 2016*



*Tree Grouping: 14 - 2018*

*Location: adjacent flag pole*  
*Species: 3 Jack Pines of various ages*  
*compare with trees # 7 & 10 (Scotch Pines)*

- 1) All 3 trees are in stable health but the needling is noticeably sparser due to the extended summer drought.*
- 2) The few last year's cones remain tight shut. There are very few new cones formed this year and most of these are not in the customary pairings.*
- 3) Insects observed, grasshoppers, hornets and spiders, all of which have flourished this season.*

*Tree Grouping: 14 - 2019*

*Location: adjacent flag pole*  
*Species: 3 Jack Pines of various ages*  
*compare with trees # 7 & 10 (Scotch Pines)*

- 1) Needling is noticeably sparser following last years summer drought. There are noticeably fewer cones.*
- 2) These trees are usually favoured by a variety of wasps and beetles. However this year few such insects were observed.*



*Few new cones developing, last years remain tight shut*



*Usually the cones are arranged in pairs.*



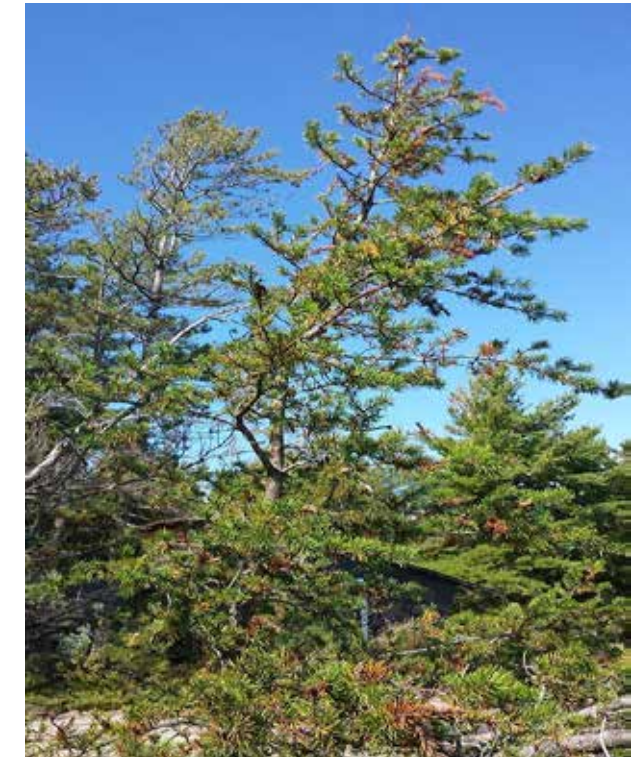
*Few new cones are developing in 2019.*



*Favorite Old Timer white pine nearby.*



*Old cones have now opened but no seedlings observed in this area.*



*Tree Grouping: 14 - 2020*

*Location: adjacent flag pole*  
*Species: 3 Jack Pines of various ages*  
*compare with trees # 7 & 10 (Scotch Pines)*

*Observations:*  
*1) Though all 3 trees are in stable health, like so many other conifers, they have produced very few cones this year.*  
*2) Few insects observed on these needlings though grasshoppers, hornets and spiders have flourished this season.*



*Few new cones developing, last years remain tight shut*



*Usually the cones are arranged in pairs.*



*Tree Grouping: 14 - 2021*

*Observations:*  
*1) All 3 trees are in good health and have put out an abundant crop of cones in a year when other conifers have been very stingy with their cones.*  
*2) No insect life was noted but observations were made very late in the season.*



*Fairisle below was 'reforested' in 1962 with stock from the Dept. of Lands and Forests. Compare its current state 60 years later with early photos in the archives.*



## Tree Location 15: Report on Cedar Blight 2014

*Location:* in front of main house

*Species:* *Keithia Thujina*

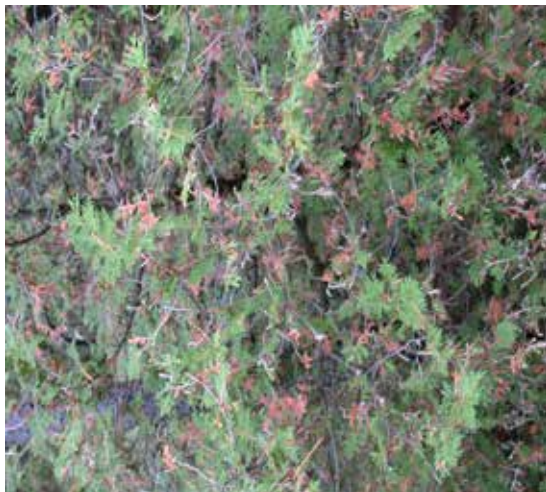
*cedars across the island but particularly on OK Point have been blighted with brown foliage for 5 years now.*

*the blight creates a scorched appearance on the leaf fronds, many of which turn ash grey. This blight is rarely lethal.*

*Symptoms: small whitish spots on upper leaf surface in spring. Browning of foliage is evident by June. fungus apothecia. The fungal spores turn black at maturity and release spores.*

*Airborne ascospores are released from June to October and can travel many kilometers infecting large drifts of trees.*

*Observations:*



*The blight seems to have become less prevalent after the long cold winter, 2013-2014. Trees are recovering.*

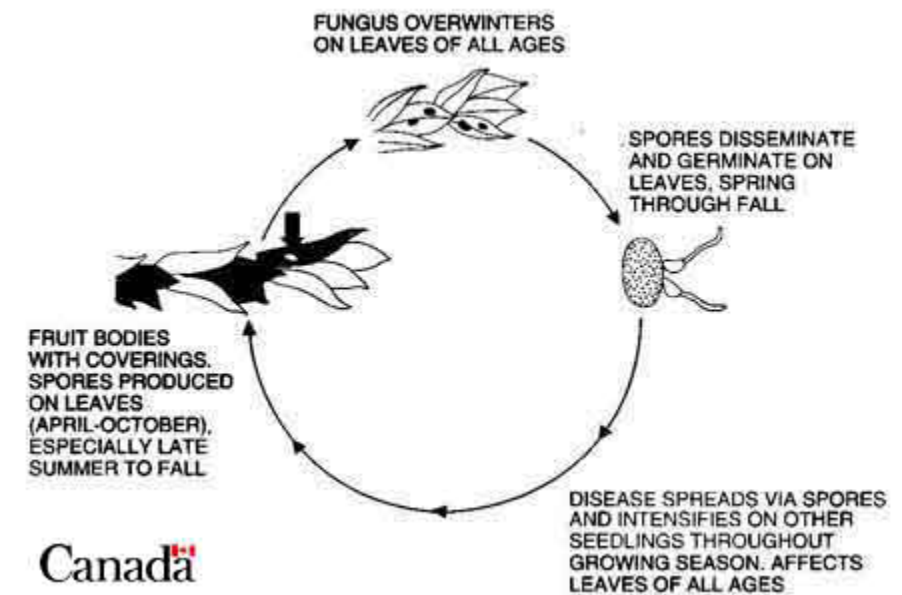
*Tends to affect mature cedar trees in damp shady areas.*



## Tree Location 15: Report on Cedar Blight 2015

*Observations:*

*The blight now seems to be receding - possibly due to two harsh winters in a row followed by a dry summer.*





*Most cedar trees look much healthier in 2016 with green leaves and some fruiting berries.*

### ***Tree Location 15: Report on Cedar Blight 2016***

*Location: in front of main house*  
*Species: Keithia Thujina*  
*cedars across the island but particularly on OK Point have been blighted with brown foliage for 7 years now.*

*Symptoms: small whitish spots on upper leaf surface in spring. Browning of foliage is evident by June. fungus apothecia. The fungal spores turn black at maturity and release spores.*

*Observations:*

*The blight seems to be receding in most areas afflicted. Usually it is seen in drifts of closely packed trees. The reason for this abeyance is not evident. There is still minor incidence around the Caravanserai.*

*2) There is still vestigial infection visible in the area around the north exposure of the Caravanserai*



## Tree Location 15: **Report on Cedar Blight 2017**

*Location:* in front of main house  
*Species:* *Keithia Thujina*  
cedars across the island but particularly on OK Point have been blighted with brown foliage for 7 years now.

*Symptoms:* small whitish spots on upper leaf surface in spring. Browning of foliage is evident by June. fungus apothecia. The fungal spores turn black at maturity and release spores.

*Observations:*

1) After the damp spring and rainy summer seasonal weather the cedar trees across the island are healthy and budding profusely.

2) There is no noticeable blight on any cedar trees. The area around the Caravanserai is restored to full health. There is no browning visible on any of the foliage.

Across the island the cedars which have been blighted and browning over 5 past seasons past, have suddenly enjoyed a remarkable turnaround and restoration of dense vibrant foliage. Almost all of the cedars are blooming profusely.



FAIRWOOD ISLAND FOREST MANAGEMENT PLAN

## Tree Location 15: **Report on Cedar Blight 2018**

*Location:* in front of main house  
*Species:* *Keithia Thujina*  
cedars across the island but particularly on OK Point have been blighted with brown foliage for 7 years now.

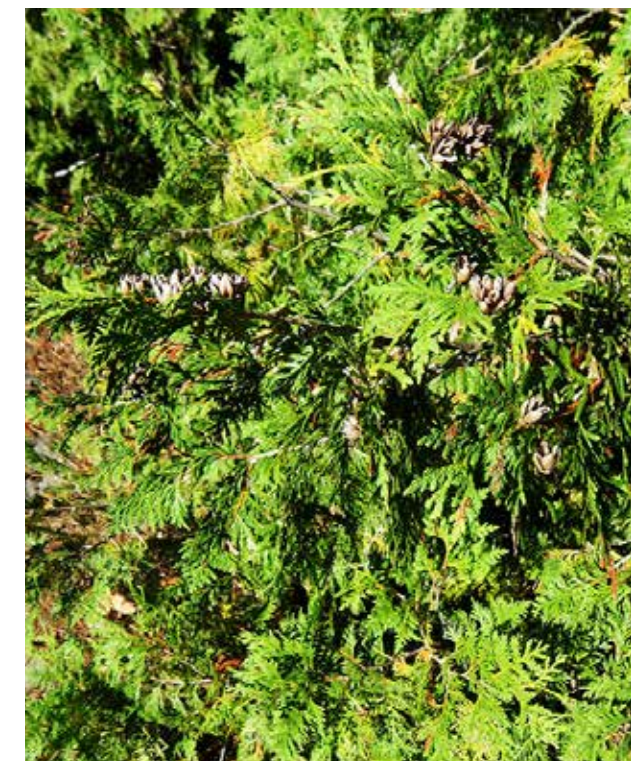
*Observations:*

1) After the extended winter, late spring followed by a summer drought, the water loving cedars across the island are looking more stressed than last year. .

2) There is however no sign of blight on any cedar trees.

3) There are no new flowerets this year, due to the drought. Only the desiccated flowerets from last year's profusion remain.

Last year's flowering clusters are desiccated and brown.



TREE STUDY REPORTS - SECTION 09

**Tree Number:** 16 - 2014

**Location:** in front of the Pagoda  
**Species:** white pine - one of a group of mature trees approximately 20 M high  
600mm diameter trunks coarse bark.

- 1) This tree now appears to be stable after a severe lightning strike. It has not succumbed to insects and woodpecker as has tree # 12.
- 2) Pine gum along edges of the split has successfully cauterized the wound. (unlike Tree # 12)
- 3) No apparent insect infestations visible
- 4) Adjacent 'mate' tree is no longer bleeding as profusely as it was in 2011.

**Tree Number:** 16 - 2015

**Observations:**

- 1) This tree has now come down in the winds, split at the root just above ground level. It has now fallen half way to the ground towards the north east and is caught in branches of other trees. Judging from the other windfall nearby the age of this tree is estimated at approximately 150 years.
- 2) The damage from the original lightning strike was disguised and had split the trunk where it entered the ground and the base of the trunk has just crumbled. There is no evidence of insect activity where the splitting has occurred.
- 3) This tree will be fully felled and disposed of in 2016. It is crossing the path to the Pagoda.

*New seedling has taken root at its base anticipating its demise.*



*Adjacent 'mate' pine*





*Tree Number: 16 - 2016*

*Observations:*

- 1) This tree descended fully to the ground over the winter of 2015. It has now been cut up for firewood.*
- 2) Cutting revealed a large carpenter ant colony at the base of the stem which had weakened the tree sufficiently to cause its fall. This nest seems to be large enough to have predated the lightning strike.*
- 3) In cutting the wood stress cracks were noted in the timber running up the stem.*
- 4) In estimating the age of this tree approximately 80 rings were counted in the heart wood and an estimated 40 to 60 densely packed outer rings too close to count. The tree was in the region of 140 years old and it would have been one of the saplings left behind when the island was logged in the 1870's.*



*Carpenter ant nest at the base of this tree at the point of snapping.*



*Below: note stress cracking throughout the trunk of this tree*



**Tree Grouping: 17 - 2014**

*Location: adjacent to pump house*  
*Species: a group of very vertical mature White Pine - 15 m high*  
*200-400mm diameter trunks*

*Observations*

- 1) This group of trees is thinning in foliage density and presents less of a wind drag and threat to the water tower.*
- 2) The conjoined twin trees behind the pump house are still generally healthy but have begun to decline, with less foliage density. These trees are being monitored to determine whether they should be removed from presenting a threat to the tower and cabin.*

*Canopy massing in 2012*



*Canopy massing in 2014*



**Tree Grouping: 17 - 2015**

*Observations*

- 1) Thinning needling in the crowns is evident in comparison to previous years.*
- 2) There is no evidence of insect depredation. The thinning may be attributable to the long had winter and the dry summer conditions in 2015.*



**Tree Grouping: 17 - 2016**

*Observations*

- 1) Little remarkable change in any of the trees in this grouping.*



*Canopy massing in 2018*



**Tree Grouping: 17 - 2018**

*Observations*

- 1) Little remarkable change in any of the trees in this grouping.*
- 2) Trees are well irrigated with roots extending into nearby bog and resistant to severe drought conditions*



**Tree Grouping: 17 - 2019**

*Location:* adjacent to pump house  
*Species:* a group of very vertical mature White Pine - 15 m high  
200-400mm diameter trunks

*Observations*

- 1) Several trees have been wind snapped in this area.
- 2) These trees are being monitored to determine whether they should be removed from presenting a threat to the tower and cabin.

**Tree Grouping: 17 - 2020 - 2021**

*Observations 2020*

- 1) Several trees have been snapped or overturned in this area. It seems to be developing a more turbulent microclimate.
- 2) Three of the white spruce have reached maturity and died off. These have been cut down this year.
- 3) Trees adjacent to pump tank trestle are becoming noticeably sparser with age.

*Observations 2021*

*Canopy massing*

*Tree grouping around pumphouse in 2019*



*2020 - Sparser needling noted on the trees adjacent to tank trestle. Chaos of fallen tree debris in foreground*

*2021 - Area to north of this grouping has been cleared*



**Tree Grouping: *behind Pagoda - 2019***

*Location: north of Pagoda circle window*

*Species: a group of seven mature White Pine - to 12 m high  
200-400mm diameter trunks*

*Observations*

*1) one tree in the group has been wind snapped at low level. This is one of several pines in the area that have been wind-broken in recent years.*

*2) across O.K Point there has been increased evidence of wind damage to mature pines.*

*3) a young pine is already established.*

*Grouping of 7 pines behind Pagoda*



*New replacement pine growing in this grouping*



**Tree Nursery: 18 - 2014**

*Location:* adjacent to pumphouse  
*Species:* White Spruce seedling from Tree 3 in well drained septic bed sand.  
Several chestnut trees from Rosedale horse chestnuts  
Oak planting from Craigleigh Gardens Oaks  
Seedlings from Jack Pines

- 1) Spruce Tree is sparser in needling but withstanding drought.
- 2) Seed bed of horse chestnuts, (below) half dozen remain, 5 transplanted to locations around Otter Lake. Three remainders survive in situ.
- 3) Line of Fairwood acorns planted in 2011 has not germinated.
- 4) Line of acorns from Craigleigh Gardens has germinated and produced over a dozen sturdy seedlings. Approximately 35 acorns set out.



*Below: Spruce seedling in 2012*



*One of the Horse Chestnut seedlings*  
*Below: Dying Spruce tree in 2014*



**Tree Nursery: 18 - 2015 - 2016**

- 1) Spruce Tree has died. Other spruce cone seeds have not germinated. Nor have the seeds germinated in the seed trays.
- 2) Seed bed of horse chestnuts. Two survive in situ.
- 3) Oak seedlings from Craigleigh Gardens have been transplanted to Gam's Glade, 8 in the initial planting, 4 replacements and then 5 further replacements after deer damage.
- 4) 4 black walnuts from Stratford Ontario planted

**Tree Nursery: 18 - 2018**

- 1) spruce seed and acorns planted between blue markers



*Below: White spruce now lifeless in 2015*



*Remaining Craigleigh oaks. All of the germinated stock has been transplanted to Gam's Glade. Black Walnuts (4) have been planted in this line.*

**Tree Nursery: 18 - 2019**

- 1) Spruce seedings have not gerrminated.
- 2) Walnuts and chestnuts have not germinated.
- 3) 2 dozen acorns harvested from Champlain Park oaks have been planted in pots

**Tree Nursery: 18 - 2021 Abandoned and cleared away**

- 1) Though the sand and peat soil mixture seemed ideal for starting new seeds and nuts, it proved too easy for squirrels to plunder and endangered by too many tree falls in the area. .
- 2) the only real success story was in the germination of Craigleigh Garden white oaks for transplant to Gams Glade.
- 3) White spruce proved hard to transplant and would have been better managed potted.
- 4) the squirrels found many other nut experiments delicious.



Clearing behind house - nursery area abandoned in favour of revised strategy for garden Bear Jungle Gym



**Tree Number: 19 - 2014 - (added in 2012)**

**Location:** exposed in open area on OK point opposite Ugo Igo Island main house

**Species:** Hemlock - only known specimen of hemlock on island. Such trees are very common around the Muskoka Lakes

- 1) Remnants of a single much larger tree that has collapsed and developed multiple crowns which are hugging the rock.
- 2) Tree is well needled with flat soft needles and has a few new red cones in 2012
- 3) Appears to have weathered the drought in 2012, there is no evident die back.
- 4) Many smooth red cones have formed in 2014- (how were they fertilized?)



Fallen tree has grown multiple crowns



New cones forming



**Tree Number: 19 - 2015**

- 1) Has not suffered apparently from exposed position and the drier summer in 2015
- 2) No red cones have formed this season.



No new cones forming this season. 2014's mini-cones have all disappeared.

**Tree Number: 19 - 2016**

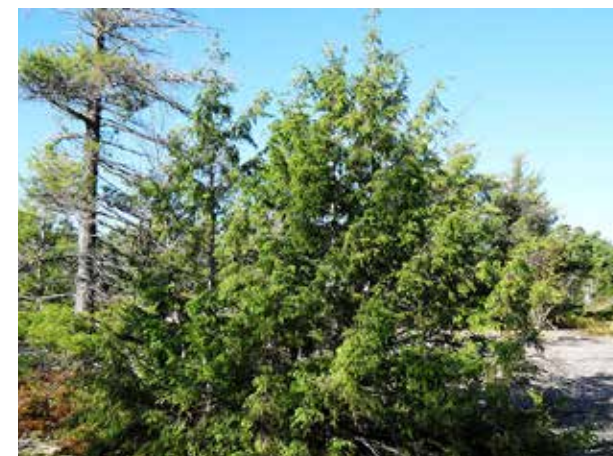
- 1) Tree is in stable condition
- 2) ) No new budding or pink cone formation noted this season

**Tree Number: 19 - 2018**

- 1) Tree is stressed due to extended drought. Needling is noticeably lighter.
- 2) ) No new budding or pink cone formation noted this season

Clump in 2016 during favourable conditions

Clump in 2018 under drought stress conditions



**Tree Number: 19 - 2019**

- 1) The grouping is appreciably sparser in needling since the drought of 2018
- 2) No new red cones forming this year.



No new cones.



Above: last years cones evident on several branches



Above and below: Several branches have been bared of needles



**Tree Number: 19 - 2020**

- 1) The grouping is appreciably sparser in needling since the drought of 2018
- 2) No new red cones forming this year.



*Very few new cones forming*



*Above: a few tiny pinkish cones*



*Below: Several branches have been bared of needles*



**Tree Number: 19 - 2021 - (added in 2012)**

**Location:** *exposed in open area on OK point opposite Ugo Igo Island main house*

**Species:** *Hemlock - only known specimen of hemlock on island. Such trees are very common around the Muskoka Lakes*

- Observations:**
- 1) *The many crowns are all thriving*
  - 2) *Many small red cones have formed on all limbs*
  - 3) *Mycorrhizal connection to russula mushrooms noted in the area.*
  - 4) *Some minor die back noted on lower branches*



*Below: many pink cones forming*



*Below: Mycorrhizal relationship with russula paludosa*





**Tree Number:** 20 - 2018 - (added in 2018)

**Location:** in the first dell after the Yew Wood on the South Path

**Species:** Red Cedar - only known example on island (all white cedar)

1) Of unknown provenance. This tree has been added because of the rarity of Red Cedar on the island. It is estimated to be about 25 years old.

2) Red Cedar has tight cylindrical leafing and a much sparser foliage than the flat fronded white cedar which is typical across the island.

3) This cedar has been severely affected by the drought this year and its foliage is very ragged.



Tight cylindrical needles open up into delicate fronds



Soft and shaggy bark - no sign of insect infestation



**Tree Number:** 20 - 2019

**Location:** in the first dell after the Yew Wood on the South Path

**Species:** Red Cedar - only known example on island (all white cedar)

1) This tree has sparser needling this year.

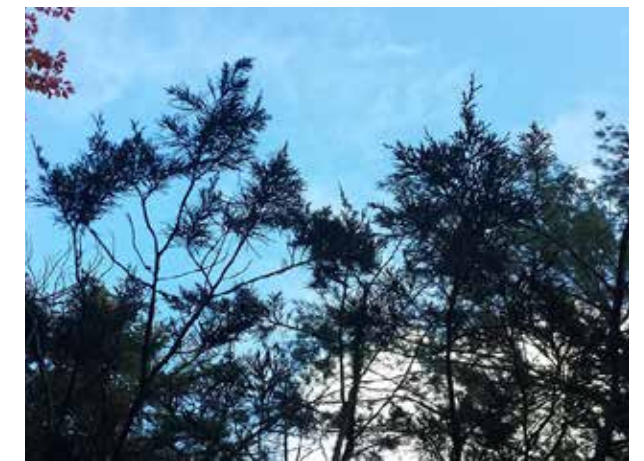
2) No insect infestation evident on this tree.

3) Crown is sparser needed.

4) After drought of 2018 this tree has not recovered its needling.



Needling sparser in 2019



Needling of crown



*Tree Number: 20 - 2020*

*Location: in the first dell after the Yew Wood on the South Path*

*Species: Red Cedar - unique example on island (all white cedar)*

- 1) This tree has appreciably sparser needling this year.*
- 2) No insect infestation evident on this tree.*
- 3) This tree occupies a moist, wind protected microclimate. There is considerably more sunlight and growth opportunity in this area after the toppling of a major century pine approx. 15 years ago.*



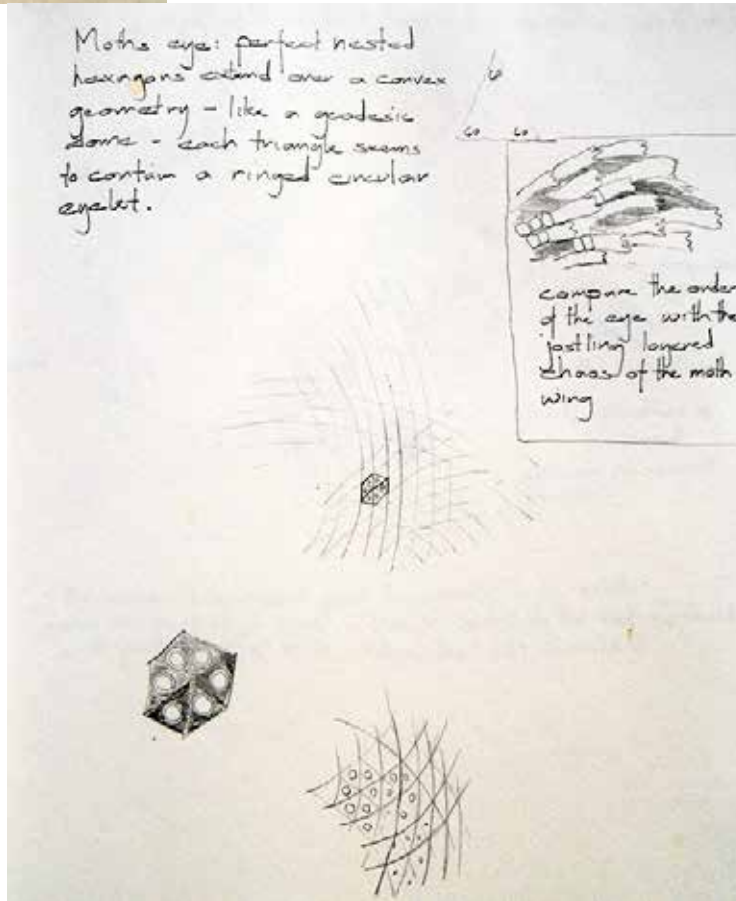
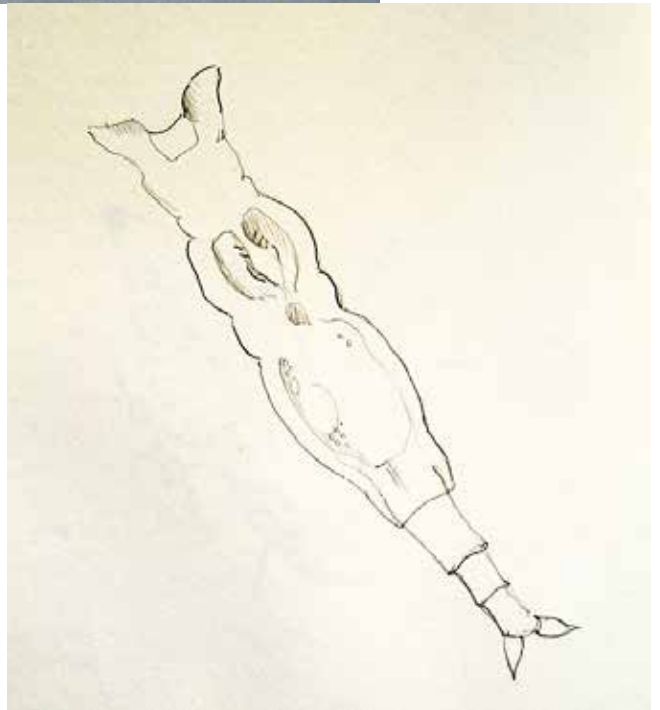
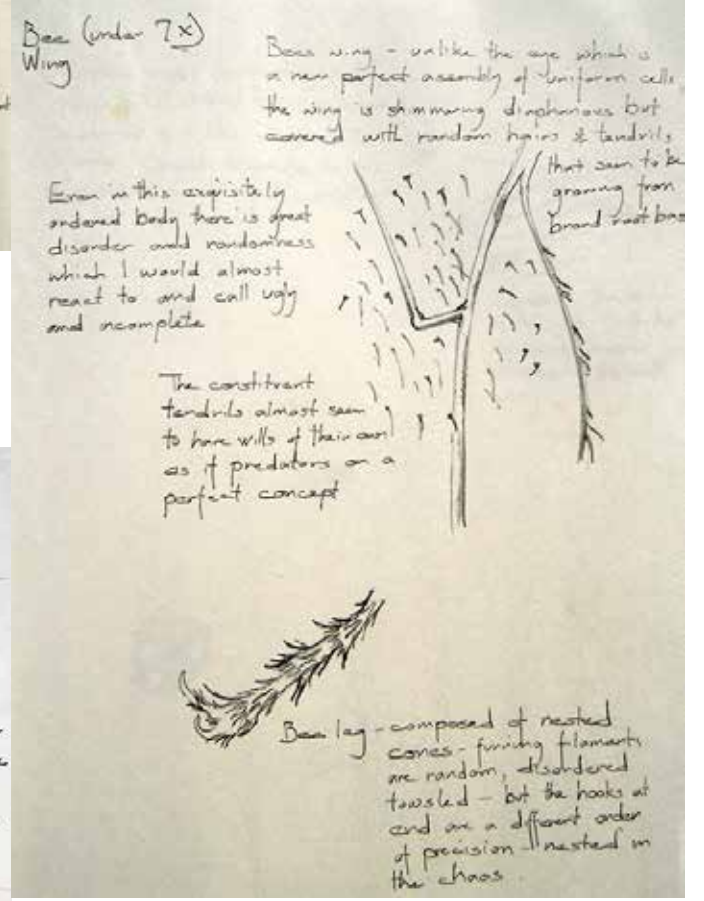
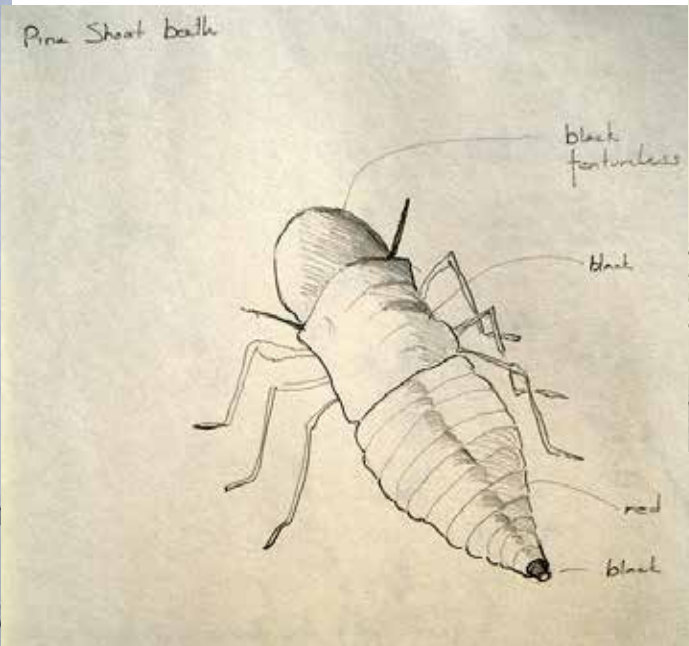
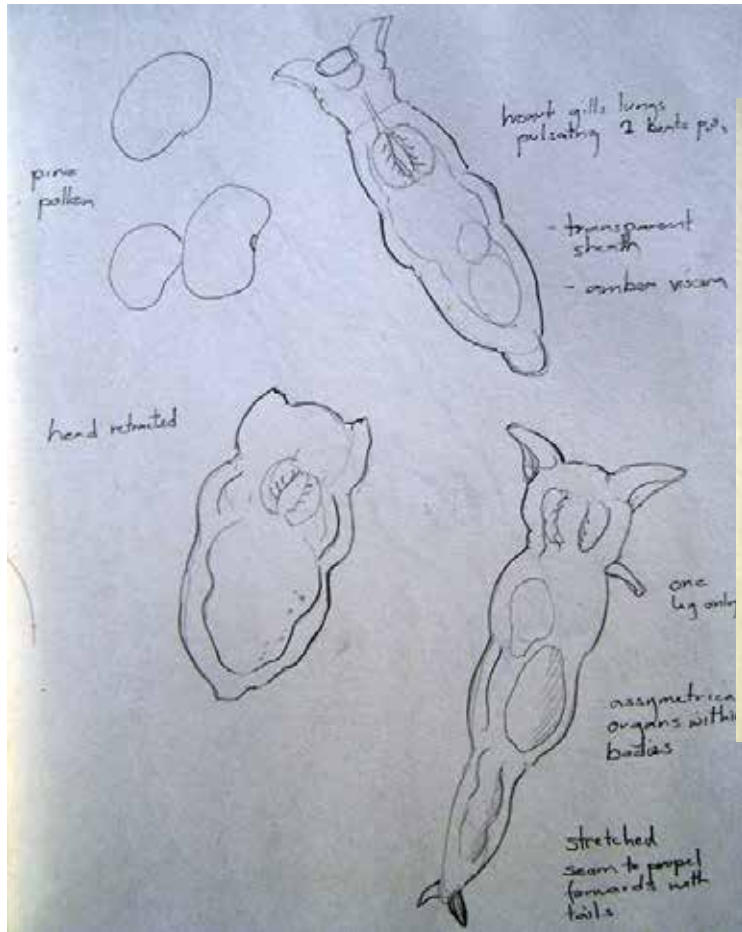
*Needling is appreciably sparser in 2020*



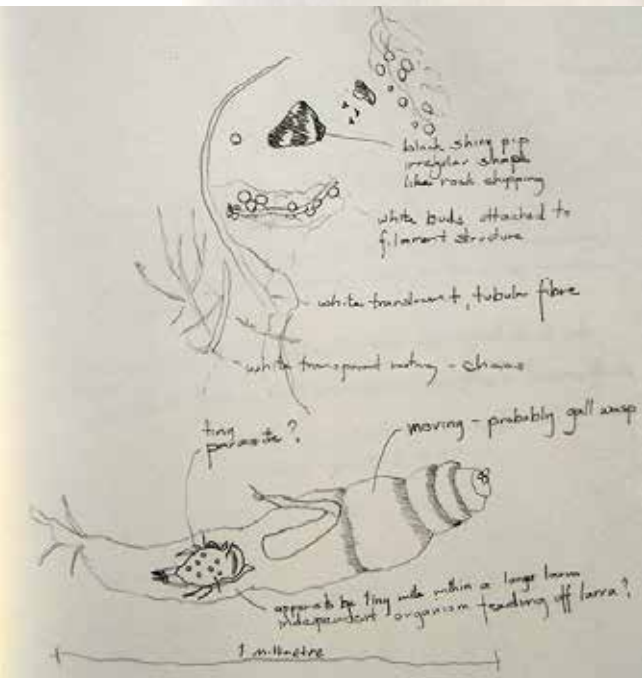
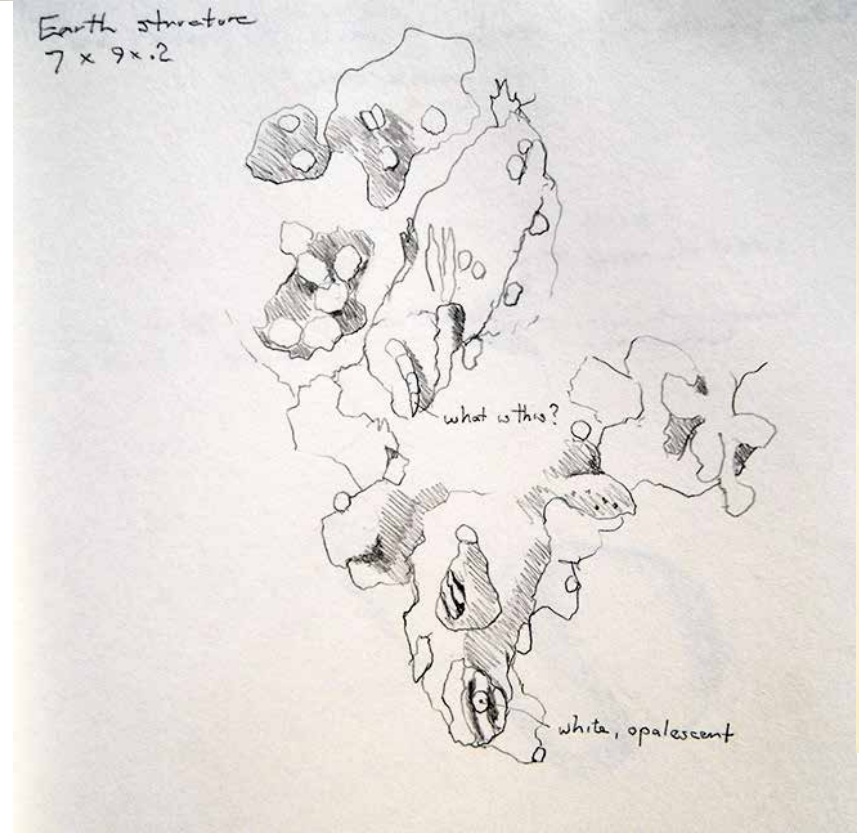
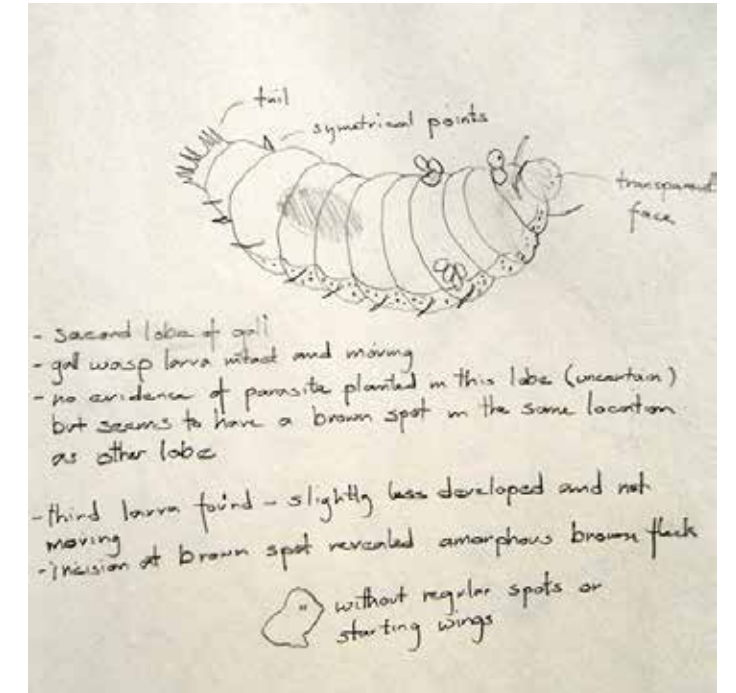
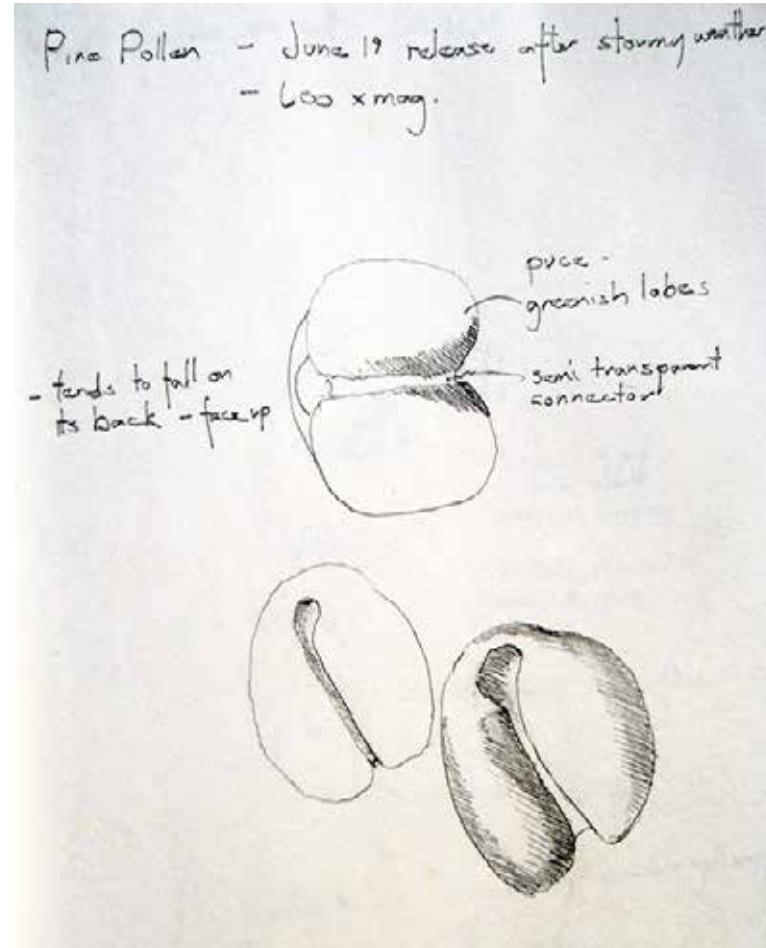
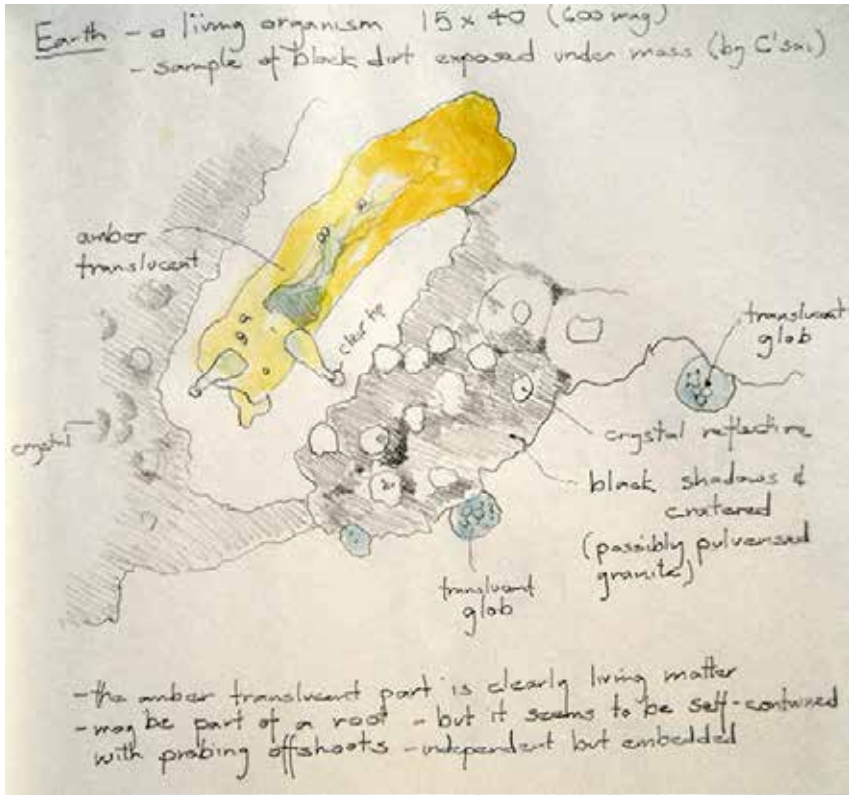
*Lichen growth in moist microclimate, protected area*



**Observations / Sketches:**



**Observations / Sketches:**



## ***Mosses in 2014***

*Observations:*

*1) Due to wet cool summer conditions mosses and lichens have thrived in many locations, not sustainable in hot dry conditions*

## ***Mosses in 2018***

*Observations:*

*1) Due to extended summer drought with rains coming only at the end of August, the mosses have been completely desiccated throughout the summer.*

## ***Trees - Woodholme Point***

*1) Shelter belt planted in front of Wood's cottage in imported soil has thrived and is very densely wooded.*

*2) White pines relish the richness of the imported soil sitting over puddle. Rooting however is precarious and they will be vulnerable to wind overturn.*

*3) Large Century white pine fallen on path to Pothole Point - rotten interior - cut up for firewood*



*Pothole - Cleopatra's Bath tub*

*Shelter belt planted west of New cottage by TWF in 1976*

*Fallen Century Pine (below)*



# Mushrooms on Fairwood



*Amanita - Fly agaric - very poisonous - red or yellow with gills and encrustations on cap - quite common across island*



*India Pipe (right) - edible raw, bland taste, contains glycosides and should not be eaten in vast quantities*



*Destroying Angel Mushrooms, gilled with lower gib - not a recommended food group*



*Russula Emetica (above and right) is very common across the island in moist late summer/fall - underside is gilled and top is often red or orange/brown - emetic properties*



*Lambs Ear (or Wood's Ear) mushroom - discovered in areas where oak roots are decaying - thought to be edible - but volunteers required*



*Bolete - (probably)*



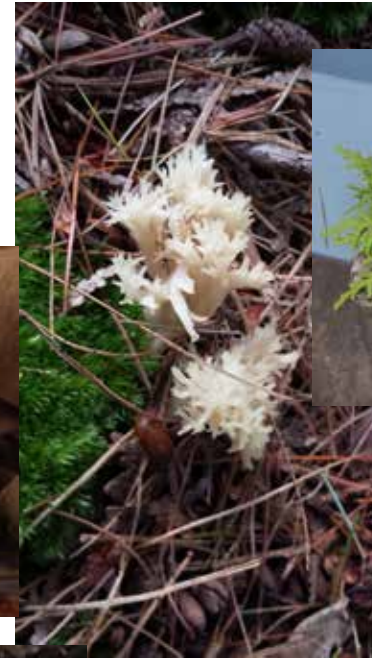
*Boletes above - with spongy undersides - are supposedly edible*

# Abundant Mushrooms on Fairwood - Summer 2020



Above and Below: Black Chantrelles were prolific in 2020 (edible)

Below: *Hygrocybe miniata*, commonly known as the vermilion waxcap, is a small, bright red or red-orange mushroom of the wax-cap genus *Hygrocybe*



Above and Right: *Ramariopsis kunzei* is an edible species of coral fungi in the family *Clavariaceae*



Above : Chicken of the Woods



Left: *Amanita muscaria* var. *guessowii*, commonly known as the American yellow fly agaric, is a basidiomycete fungus of the genus *Amanita*. It is one of several varieties of the *Amanita muscaria* fungi, all commonly known as fly agarics



Above: *Amanita muscaria*, commonly known as the fly agaric or fly amanita



***Insect Study: Birch Wasp***

*Location: beside causeway on Woodholm Point*

*Species: Water Birch*

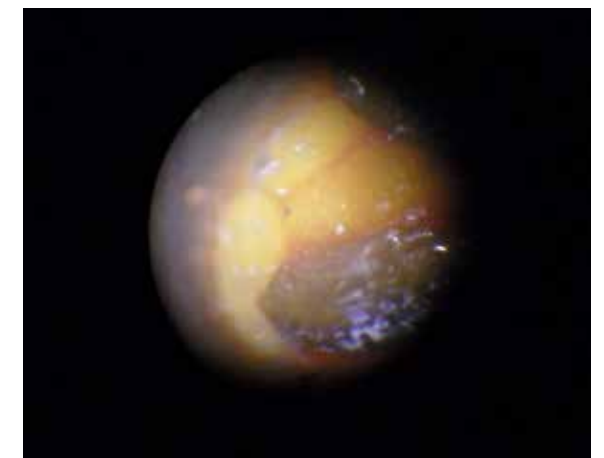
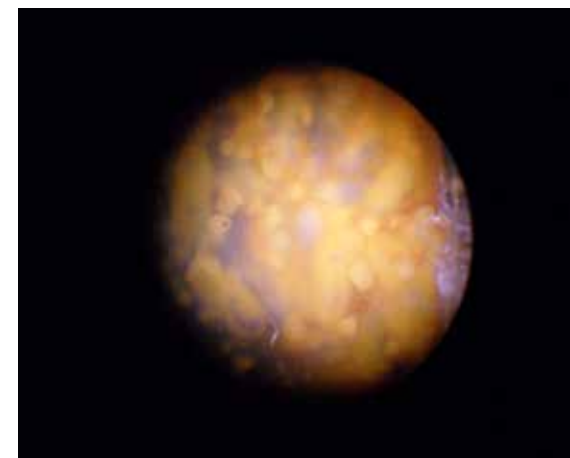
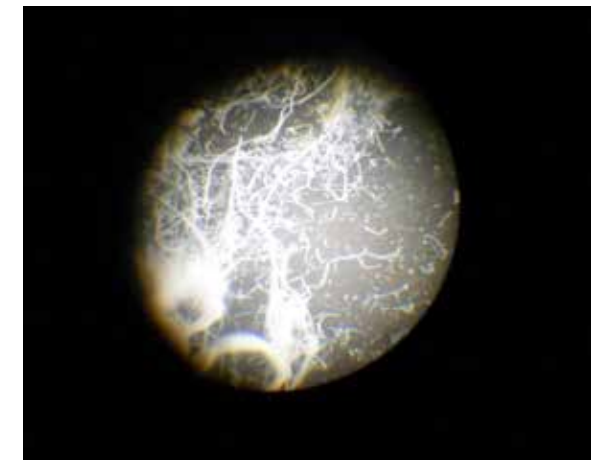
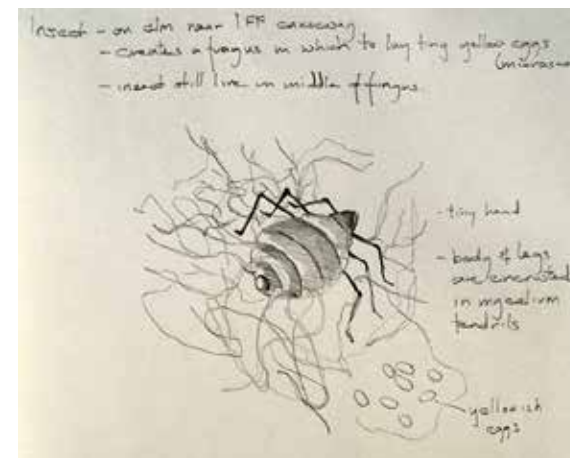
*Nature of Attack: unknown insect - some kind of wasp with large abdomen.*

***Observations:***

*This insect operates rather like the oak gall wasps. It creates a nest by tapping into the trees sap flow.*

*It appears to create a mycelium cocoon of white tendrils by injecting the birch branches. The mycelium then grows all over its body and limbs as seen under the microscope.*

*It deposits its eggs in this nest. The nests occurred on several branches. They had disappeared by mid September.*





**Tree Study: 21 - 2014 - (added group with Pine Rust)**

*Location:* beside Doghouse on North side  
*Species:* Group of White Pine densely clustered  
*Nature of Attack:* Severely affected by Pine Rust - ribes present in area

- Observations:*
- 1) Heavy bleeding on many of the trunks in this grouping, needling is sparse.
  - 2) Early stages of severe infection
  - 3) monitor to observe sequence of infection, how tree fights back, the effects on branching etc.

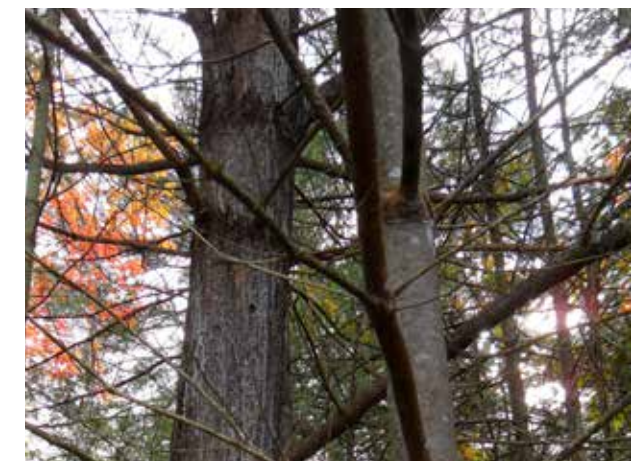


*Heavy bleeding on trunks of affected group of trees located on south east side of Doghouse*



**Tree Study: 21 - 2015**

- Observations:*
- 1) No continuing evidence of Ribes carrier in this area
  - 2) No additional bleeding or gum spatter on bushes below.
  - 3) considerable defoliation from sawfly or summer semi-drought.



*Right - pileated woodpecker damage to larg pine behind cottage*



**Tree Study: 21 - 2016 - 2018**

- Observations:*
- 1) Considerable ongoing defoliation noted.
  - 2) No noticeable dripping of pine gum onto bushes below.
  - 2) No evidence of Ribes uncovered in the vicinity.



**Tree Study: 21 - 2019**

*Location:* beside Doghouse on North side  
*Species:* Group of White Pine densely clustered  
*Nature of Attack:* Severely affected by Pine Rust - ribes present in area

- Observations:*
- 1) Heavy bleeding on many of the trunks in this grouping, needling is sparse.
  - 2) Ribes has been removed from area
  - 3) Monitor to determine whether these trees will recover from Rust cycle.



*Bleeding on trunks of affected group of trees on south east side of Doghouse - ribes is no longer detected nearby*



**Tree Study: 21 - 2020**

- Observations:*
- 1) Attack seems stabilised and not extending to neighbouring trees
  - 2) Note: how pine rust disease seems to occur in more sheltered stands of trees
  - 3) The rust cycle seems to have been broken with trees 8 and 12 where nearby ribes has been removed.



**Tree Study: 21 - 2021**

- Observations:*
- 1) No appreciable advancement of rust disease in this area. The specimens noted above have died.





### *Snowfleas Notes:*

*Location: discovered on many parts of the island around October 12-15*

*Snowfleas are an interesting late season phenomenon that seem to be activated by colder weather and have been observed on previous occasions around the time of Thanksgiving.*

*Snow fleas are small, about two to three millimetres in length, and they are blue-black in colour.*

*They are not actually fleas — and officially, they aren't classified as insects, either, though they do look like bugs. These small wingless creatures are often referred to as "springtails," but their scientific name is *Hypogastrura harveyi* or *Hypogastrura nivicola*, depending on the species. Snow fleas are classified as hexapods, which is a subtype of the arthropod family. Like insects, snow fleas have six legs, but researchers say that they are more closely related to crustaceans.*

*During warmer periods in the winter, when snow melts, they can be found speckling the snow.*

*Snow fleas also have the same super-powered jumping ability that regular fleas have. They have a sort of tail that is responsible for their jumping. As the tail unfolds, it launches the snow flea over large distances — hence the name "springtail."*

*Snow fleas are not parasitic. In the summer, they tend to sit on top of rich topsoil but because they are so small and dark, most people don't notice them. That soil is the snow flea's food source. They are an essential component in the ecosystem because they feed on decaying organic matter in the soil, thus helping it to decay faster, turning it into plant food.*

*Perhaps the most interesting thing about snow fleas is the way they come out in the winter, dotting melting snow instead of remaining in a period of dormancy like their insect and arthropod cousins. Snow fleas produce their own type of antifreeze, a protein that is rich in the amino acid glycine. Glycine prevents the formation and enlargement of ice crystals, enabling these creatures to keep on munching organic materials despite the bitter cold. Because snow fleas live in areas rich in organic materials (like leaf litter), they are quite common around tree trunks.*



## *Path Upgrades - 2014*

### *1) Clearing of north shore path system - Woodholme and Armak Points*



*Clearing in clintonia wood*



*Path on Armak Point*



*Gnarled cedar roots in clintonia wood.*



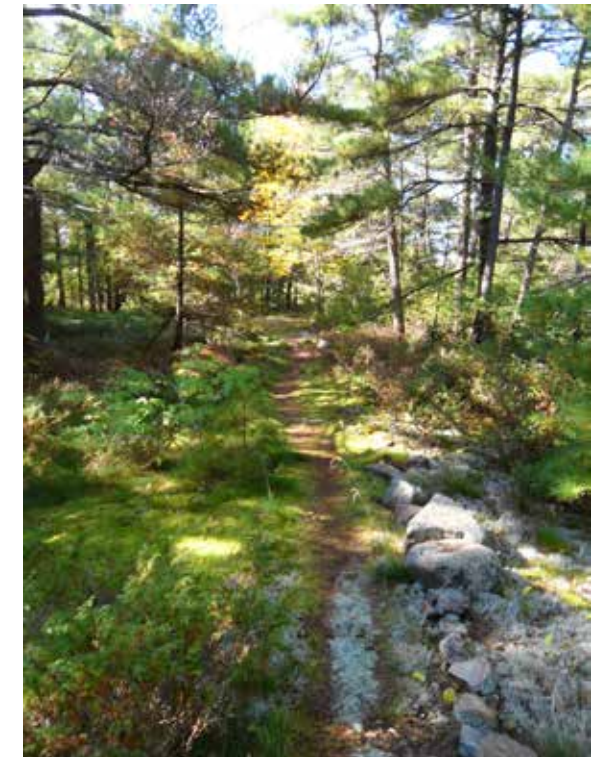
### *2) Clearing and reorganization of path to West End Sunset Point*



*Remnant of burned stump from forest fire in 1870's*



*Divided path to Archer's Bay*



## *Tennis Court Upgrades - 2014*

- 1) Back nets installed with 4" wide mesh gull netting - to avoid snagging snakes etc*
- 2) Tracked nets can be furled and bundled at corner poles off season*
- 3) System of tensile backnets provides maximum efficiency with minimal scarring of rock face.*



*FAIRWOOD ISLAND FOREST MANAGEMENT PLAN*

## *The Fairwood Woodlands Teams - 2014*



The B Team

*The Fairwood Woodlands Team - 2015*



*The Fairwood Woodlands Team - 2017*



*The Fairwood Woodlands Team - 2016*



*The Fairwood Woodlands Team - 2018*



*The Fairwood Woodlands Team - 2018*



*The vegetable garden*



*Naming ceremony for 'Marion'*



*Boathouse and dock rebuilding*

*The Garden - 2019*

*Highlights of the garden in 2019 were:*

- tomatos*
- lettuce*
- climbing french beans*
- summer squash*
- cucumbers*
- kale*
- chard*
- radishes*



*Arctic  
rose*



- gooseberry bush planted*
- foxgloves*
- sunflowers*
- hollyhock seeds planted*



- Herbs:*
- rosemary*
  - thyme*
  - lavender*
  - sage*
  - parsley*
  - mint*
  - basil*
  - coriander*







*The Fairwood Woodlands Team - 2019*



*Mavis and Maggie in Elizabeth*



*FAIRWOOD ISLAND FOREST MANAGEMENT PLAN*

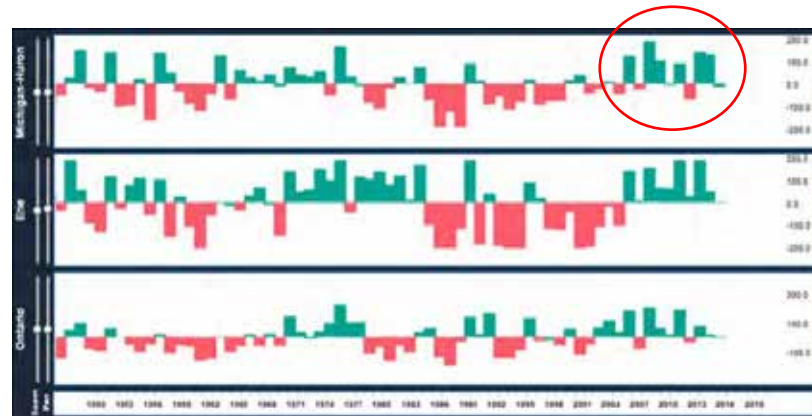


*TREE STUDY REPORTS - SECTION 09*

**Note: Historically High Water Levels - 2020**



Throughout the summer season of 2020, extreme fluctuations of water level extending from 16" (400mm) above the high water benchmark to 12" (300mm) below have been witnessed. Archers Bay was particularly active with water seching in and out in constant cycles. The water extended far inland almost cutting off parts of OK Point and extending into the Troll Bridge Gulch. The Giants Causeway on the north side was often underwater.



Precipitation is part of the story. The graph (left) indicates in the red circle how precipitation has been on the increase for a number of years. This has favoured the growth of young trees growing on very thin soil. The inner lake levels have been generally high during this half decade. The increased precipitation may also account for prospering lichens and sphagnum witnessed growing on many trees, especially in sheltered areas.



Left: Moist climate may also account for the prospering of such plants as Sorrel which has appeared on shallow soil across the island.

Right: The moist summers have also sustained the growth of many small pines, oaks and mosses which would be highly vulnerable under more arid conditions.



**Increase Seasonal Wind Damage - 2020**

Together with this tendency towards increased precipitation has come more frequent incidence of severe summer wind storms. During the summer of 2020 there were at least 3 major wind storms which took down trees in Spratts Park, to the west of the Pagoda, beside the Caravanserai and on the North Shore. All downed trees were proven to have been highly vulnerable and weakened by insect damage. Nevertheless the perception is that the severity of windstorms and of 'upsouts' is increasing with climate change.



(Above) Trees snapped and overturned in Spratts Park during the summer of 2020



(Left) Severe windstorms have been witnessed in the past however. Pictured left are the remnants of a wall of 6 trees on the North Shore which were blown over in a windstorm during the summer of 1964 (during the Junk expedition). The upended interlaced roots were impressively evident for many years, but now only two of the larger roots remain visible.

**Summer Projects 2020**



*Left: Pothole Cottage Sleeping Cabin, largely completed by Dean Corkins*



*Right and Below: Bathroom Rebuilt with Energy Centre at main cottage.*



**The Fairwood Woodlands Team 2020**

**The Fairwood Woodlands Team 2021**



**FAIRWOOD ISLAND FOREST MANAGEMENT PLAN**



**Summer Projects 2021**



**TREE STUDY REPORTS - SECTION 09**