

The Canadian Sweet Chestnut

-Newsletter of the Canadian Chestnut Council-

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<http://www.canadianchestnutcouncil.ca>

Council Mission - to help restore the American Chestnut to the areas of Canada it once occupied.

Current Priorities

- 1) Breeding resistance
- 2) Breaking Isolation / Establishing Genepool Nodes
- 3) DNA Analysis
- 4) Survey of existing Chestnuts in the wild

In this issue:

- Breeding Resistance – Spring Nut Seeding 2019
- Survey of existing Chestnuts in the wild – Rare American Chestnut tree identified at Cemetery (Article is reprinted with the permission of the Port Dover Maple Leaf)

(Stephen G. Van Drunen, Jenny L. McCune1, Brian C. Husband, Department of Integrative Biology, University of Guelph)
- Survey of existing Chestnuts in the wild – Review of recent publication - Distribution and environmental correlates of fungal infection and host tree health in the endangered American chestnut in Canada.
- Asian Chestnut Gall Wasp
- Ontario Species at Risk – 5- year review of progress towards recovery

Breeding Resistance – Spring Nut Seeding 2019

In late February and early March, 28 dedicated volunteers met at the University of Guelph Simcoe Research Station with the task of planting over 14,200 nuts that will be kept in the onsite greenhouses. The resulting seedlings will be planted out later this spring.



Preparing the planting medium



Transport to pots to planting area



Labelling the genotypes



Planting nuts



The result (over 14,200 seeds ready for the hot house)

Help will be needed – the first week of June, we will be planting at Onondaga Farms

Survey of Existing Chestnuts in the Wild – Rare American Chestnut tree identified at Cemetery

(article by Heather Walters, reprinted with the permission of the Port Dover Maple Leaf)



A very rare tree discovered growing in the Port Dover Cemetery has caused some excitement in the conservation world.

Mike Hourigan, member of the Cemetery Board, has confirmed that one single American Chestnut tree is alive and well in the local cemetery and recently invited an American Chestnut tree specialist from the University of Guelph out to take a look at the specimen.

Dragan Galic, PhD, a research associate in the Department of Integrative Biology, University of Guelph has worked for the past 17 years with the Canadian Chestnut Council (CCC) on the recovery of the American Chestnut tree in Ontario.

After examining the tree in the cemetery, he concurred that the tree was indeed an American Chestnut, was reasonably healthy, native and looked to be about 25 years old. He stated he will return in the spring to reassess the health of the tree, and possibly attempt to pollinate it so it can produce viable seed pods.

The American Chestnut was once the dominant hardwood species in the Carolinian Forest, and an important food source for many other species and the indigenous people.

It's high canopy once rose above all other species in the forest. It was also a major source of rot resistant timber. In the mid 1920s a fungal disease, the invasive chestnut blight, swept into Ontario from New York state killing approximately 2 million trees.

The blight left only a few isolated survivors. The few remaining trees were so isolated from each other they could not successfully cross pollinate and produce fertile seeds. To break this isolation, the CCC now provides these wild trees with genetically different native partners, planting 6 to 12 of these small grafted trees close to the naturally occurring, but isolated, mature American chestnut tree.

In partnership with the Nature Conservancy of Canada (NCC) two gene pods have been established in Norfolk County in the 2017 growing season.

After 17 years of breeding for native blight resistance, some first and second-generation trees have produced individuals that are demonstrating progressive blight resistance qualities – the first most vital step in recovering the American Chestnut tree.

Gallic and his team will likely establish another pod in the cemetery in the spring. They will do this by planting several other native partner trees near the solitary tree in hopes it will eventually cross pollinate with them and produce fertile seed pods.

Survey of Existing Chestnuts in the Wild – Environmental Determinants.

A recent publication in the Journal of Forestry Ecology and Management by University of Guelph researchers (Van Drunen et. al.), explores the relationship between environmental factors such as temperature, precipitation, soil composition, and landscape characteristics versus the rate of spread and impact of the chestnut blight among the Chestnut populations.

As reported in the December issue of this Newsletter, University of Guelph researchers undertook a comparison of surveys of chestnuts in the wild (Ontario) - 2014/2015 vs. the original 2001/2003 survey. Over 800 trees were visited and the health and habitat of the tree were compared to the tree's original condition. In addition to noting a significant increase in the chestnut blight, an increase on die back and a decrease in the number of trees that are reproducing, additional observations were noted.

In this most recent publication, multi-variant statistical analysis of the data obtained from the two surveys was undertaken to examine the role environmental factors have on the incidence and severity of the blight. Furthermore, the analysis may assist in guiding restoration efforts.

The analysis concluded that the occurrence of blight is complex in chestnut and governed by a wide range of factors that affect spread, infection, and expression of disease. Further, that site selection for restoration efforts was important and recommended that sites demonstrating lower growing season precipitation, lower elevation, higher surrounding forest cover, well-drained soils, and avoiding silt-based soils and northern aspects would be of benefit.

The complete paper may be accessed at the following link:

<https://www.sciencedirect.com/science/article/pii/S0378112718303323>

Call to action on the Asian Chestnut Gall Wasp

The Ontario Farmer recently published a report that the Asian Chestnut Gall Wasp has caused tremendous economic hardship in the Genal Valley in southern Spain which is an important chestnut growing region worth 10 million euros annually. Yields have been cut and trees are dying. This native of China, deforms the leaves and attacks the bud resulting in flower and fruit destruction in all species of chestnut. The health and vitality of the infected trees is sapped over several seasons until it succumbs to the gall wasps' pressure. The Asian Chestnut Gall Wasp has been observed in the Niagara and Simcoe Area in the last few years. There is no current chemical or biological treatment against this destructive invader in Ontario. The Canadian Chestnut Council is asking members to be vigilant and report any infected trees in orchards or the wild to the CCC and the Ministry of Environment Parks Conservation or MNRF. If possible, the infected branch should be cut off and incinerated asap while the galls are still green. The gall wasp itself is minuscule but its galls deforming the leaves are very visible and indicate the presence of the larval stage. To assist you in identification of the wasp's galls the illustrations below have been included. Brown galls observed this spring are from last season but are an indicator that the wasp is present and you should double your efforts to destroy all new green galls as possible to stem the spread of the Asian Chestnut Gall Wasp infection in the American Chestnut.



Gall production and leaf distortion in American Chestnut caused by Asian Chestnut Gall Wasp



Asian Chestnut Gall Wasp on a sectioned leaf gall produced by the larval stage.

Ontario Species At Risk – 5 year review of progress towards recovery

In 2018, to meet its legislative obligations under the Endangered Species Act, the Ontario government published its five- year review of progress towards the recovery of 17 species at risk. One of those was the American Chestnut.

A summary of the government review was penned by the combined efforts of our Science Committee Chair, Tom Welacky and our President Ron Casier. (A separate attachment to this email.). The Canadian Chestnut Council plays a predominant role in American Chestnut Recovery.

The government review can be accessed by clicking on the attached link.

<https://www.ontario.ca/document/2018-five-year-review-progress-towards-protection-and-recovery-ontarios-species-risk/american-chestnut>

31st Annual General Meeting 2019

Mark your calendars for Saturday, Oct. 19, 2019

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