

# The Canadian Sweet Chestnut

-Newsletter of the Canadian Chestnut Council-

Issue # 76 – May 2020



<http://www.canadianchestnutcouncil.ca>

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**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 Gene pool Nodes
- 3) DNA Analysis
- 4) Survey of existing Chestnuts in the wild

## In this issue:

- Report on the 31<sup>st</sup> Annual General Meeting
- Breaking Isolation - Port Dover Cemetery Tree Part 2
- Survey of existing Chestnuts in the Wild - Revised Chestnut Reporting Form
- Membership Dues (Terry Anderson)

## 31<sup>st</sup> Annual General Meeting Report

- 1) Canadian Chestnut Council chair, Ron Casier, welcomed members and provided a brief overview of some of the accomplishments and challenges faced by the Foundation in 2019.
- 2) Dragan Gallic, PHD, Department of Integrative Biology, University of Guelph, provided a progress report on the Chestnut Council's initiative of Breeding Resistance to the Chestnut Blight.

**The Breeding Program** –The first generation of hybrid crosses were between native Canadian chestnuts that exhibited resistance as well as crosses between native chestnuts and moderately blight resistant trees from Connecticut source.

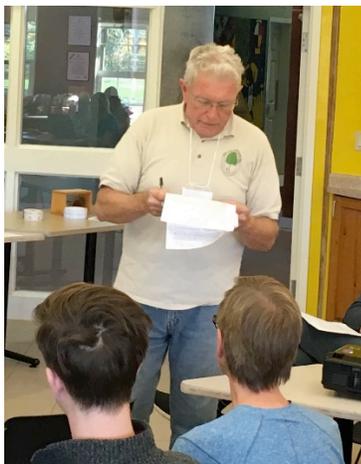
The second and third generation trees will come from intercrossing selected  $F_1$  and  $F_2$  trees, respectively.

Parents in each cross derived from different Canadian trees.

Nuts for each backcross are collected and planted. Resultant trees are then infected with the blight and a measure of their resistance are recorded. To date, 17,251 trees have been planted. The now 20 yr. long breeding program is on target to meet its goal of creating 3<sup>rd</sup> generation blight resistant trees by 2020.

**Breaking Isolation** – as of the meeting, 57 Chestnuts growing in the wild have been processed. The process involves the planting of 7 to 10 grafted chestnut seedlings from different genotypes around the perimeter of the “Wild” Chestnuts. In this way their isolation is broken, the potential for fertilization is increased in the hope that the “Wild” tree will set nuts for future inclusion in the breeding program.

**Gene pool Nodes** – as of this meeting, working with local municipalities and conservation organizations in southwestern Ontario, 26 gene pool nodes have been created. These nodes consist of the planting of 100 to 140 from the CCC breeding program.



President Ron Casier



Dragan Galic provides update on workplan

### 3) Keynote Speaker – Dr. Myron Smith, Carlton University

Dr. Smith’s research encompasses genetics, molecular biology, microbiology and general biology and focuses on four main themes: i) deciphering the biochemical and genetic bases of nonself recognition-associated cell death, ii) identification and characterization of new antibiotics from ethnobotanical leads and from agroforestry and bioprocessing ‘waste’ for use in health, food and industrial

applications, iii) development of methods to identify and enumerate microbial strains for environmental monitoring, and iv) application of genetic markers to life history studies.



**Dr. Myron Smith, Professor of Biology, Carleton University, addresses attendees.**

Dr. Myron's summary for strategies for recovery of American Chestnut

- Biocontrol of Chestnut Blight using engineered hypovirus
- Biocontrol of Chestnut Blight using immuno-compromised' fungus as virus donor
- Back-crossing American Chestnut  
(*Castanea dentata* x Chinese Chestnut *Castanea mollissima*) and selecting for resistance to fungus

## **Breaking Isolation – Port Dover Cemetery Tree – part 2**

In our March 2019 issue of this newsletter, we reported on the American Chestnut Tree found growing in the Port Dover Cemetery. With the kind permission of the Port Dover Maple Leaf, below find an update on pollination efforts.

Following the article, Dr. Galic reports on the results of the pollination.

## **Update on rare American Chestnut tree**

By Heather Walters

THE American Chestnut tree located in the Port Dover Cemetery has a new look – temporarily.

Many of its branch tips are encased in sock like coverings, an effort by tree expert Dragan Galic to pollinate the many seed pods it is producing.

Because the rare tree is essentially alone in the cemetery, bees and other pollinators are not able to fertilize it with pollen from another American Chestnut tree.

University of Guelph's Dragan Galic learned of the tree's existence through the Port Dover Cemetery Board's president Mike Hourigan last year. Since then, cemetery staff and university members have been keeping an eye on it. Dr. Galic noted that the tree is healthy and thinks it is about 25 years old.

Most of the once very prolific American Chestnut trees died out years ago due to a blight that targeted the specific species. Since then, research and extensive breeding has developed a strain of chestnut trees that are more resistant to this disease.

The fact that the native tree in the cemetery is healthy and seemingly blight free is a good sign that it has naturally developed some immunity to the disease. Researchers want to use the pollinated and therefore viable seed pods from the cemetery tree to produce seedlings.

Thus, bags dusted with pollen from other American Chestnut trees have been tied around many developing seed pods. Eventually the bags will be removed and the fertilized seed pods will be harvested.

In addition to the fertilization of the existing cemetery tree, seven more seedling American Chestnut trees have been planted nearby. The hope is that someday, these younger trees will be able to cross pollinate naturally with the mature specimen.



### **Port Dover Tree Pollination Results – Dr. Dragan Galic**

With the assistance of students Cole McMorrow and Robert Splinter, 143 bags with, on average, 3 to 4 burs per bag were placed on the tree. The bags were pollinated with pollen from 14 different native genotypes and two genotypes from the Canadian Chestnut Council advanced backcrossing breeding program.

In the fall, 877 nuts with native pollen and 79 nuts with pollen from our advanced backcross breeding program were collected. This gave 6.7 nuts per bag or 1.7 to 2.2 nuts/bur. The burs were collected, husked and nuts sterilized, stratified. This is considered excellent results for hand pollination.



**Revised “Reporting a Chestnut in the Wild” Form** – survey of Chestnuts in the Wild.

Please be advised that the form for reporting an American Chestnut in the wild has been updated to a computer friendly fillable form. The form and instructions for completing the form may be found on the Canadian Chestnut Council website.

<http://www.canadianchestnutcouncil.ca/> under the tab, “Found a Chestnut/ Report a Chestnut”.

[http://www.canadianchestnutcouncil.ca/docs/Forms/CCC\\_2019\\_Reporting%20a%20Chestnut%20in%20the%20Wild%20Form%20R01.pdf](http://www.canadianchestnutcouncil.ca/docs/Forms/CCC_2019_Reporting%20a%20Chestnut%20in%20the%20Wild%20Form%20R01.pdf)

Of course, a print out and manual filling of the form remains an option. Please, share this information, with others that might find the form of use.

**Membership Dues** – a reminder that membership dues for 2019/2020 are due as of the annual meeting. It is the Foundation policy to remove members from the mailing list after three years in arrears. Dues can be forwarded to our Membership Secretary, Terry Anderson. His contact information is below.

### **32<sup>nd</sup> Annual General Meeting 2020**

Mark your calendars for Saturday, Oct. 17, 2020

Tim Horton Children's Foundation – Onondaga Farms  
Science/ Eco-Centre, 264 Glen Morris Road East, St. George Ontario

#### **Want more information:**

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**Council Directors** – Chuck Beach, Ron Casier, Tim Casson, Gord Chinnick, Doug Fagan, Stan Furman, Dragan Galic, John Hill, Nathan Munn, Christine Vey.

**Interim Directors** – Pete Smith, Ken MacGillivray

(See Over for Leaf awards )

## CCC Leaf Recipients 2019

### **White Leaf (\$30-\$99 )**

Keith Johnston  
Robin Cunningham  
Thomas & Karen Pellar  
Sharon A. Haws  
Carolyn Crozier  
Doug Fagan  
Wes Horley  
Jocelyn Clarke  
Gerald Young  
Janet Kellam  
Neal Stein  
John Foster

### **Green Leaf (\$100-\$249 )**

Peter Smith  
Dragan Galic  
Matthew Palarchio  
Peter Rice  
Mark Schwarz

### **Bronze Leaf (\$250 - \$499 )**

Ron Casier  
Terry Anderson  
Christian Schroeder

### **Gold Leaf (\$1000 + )**

Walter Zimmerman  
Peter & Annita Bergen