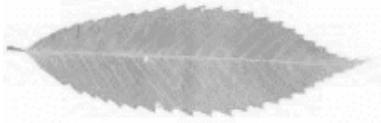


# Canadian Chestnut Council (CCC)

...on the Chestnut Trail



NEWSLETTER # 42

August 2006

<http://www.uoguelph.ca/~chestnut>

In this issue: - Workshop Report...Correspondence...Meet Your Directors...Tree Photos...and more!

## Spring Workshop a Success

The Spring Workshop held by the Canadian Chestnut Council attracted a number of members and guests.



### Dragan Galic at the Projection Screen

The morning was devoted to an illustrated presentation by Dragan Galic, followed by Murray Alward's hands-on instruction on how to graft. A young lady in the party, who proved to be the youngest member present, found the work interesting.



Arlin Otto and her grandfather follow Murray's

### guidance to graft a scion to a rootstock.

After lunch at the Tim Horton Onondaga Farms Camp Centre, Farm Manager John Hill took us on a tour of the Greenhouses, where Dragan's seedlings – planted this Spring - are leafing and growing well.



### Workshop members examine this year's crop.

Returning to the Environmental Centre, the group received a lesson on how to plant American chestnuts, and were given the fruits of their work to plant at home.

Part of the afternoon was devoted to a tractor-drawn wagon tour of the CCC planting site, with John Hill driving and explaining along the way.

Back at the Environmental Centre again, questions were fielded, and it is expected that most attendees had all their questions about tree planting satisfied.

The Workshop was held 22 April ("Earth Day") at Onondaga Farms, where the Tim Horton organization has established an Environment summer camp for children and provided a planting site for the CCC's American chestnut trees.

## Editorials

### This Newsletter needs a name!

We are tired of calling this despatch *The Newsletter*.

Other newsletters have names; why not this one? The American Chestnut Foundation (TACF) calls its newsletter *The Bark*. Others are known to their members as *The Nuttery*, *SONGNEWS*, etc.

How about *The Burr?* *The Chestnut?*

We hereby offer a one-year subscription to ...*whatever it is...* to whomever convinces the CCC Board of Directors to adopt his or her name for it.

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### The Canadian Chestnut Council

*The CCC is a scientific and charitable organization with the mission to restore the American chestnut. All its officers volunteer their services both in the field and at the desk. The CCC annual meeting, the web site and this Newsletter dispense information to generate support for saving and restoring this once-important forest tree.*

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# Correspondence

## From Ottawa, Ontario

Colin asked me to report on the progress of the chestnuts growing in the Ottawa area. The main group is on public land near the Mer Bleu area just east of Centertown. The dozen or so trees are in fine form, now about 30 years old.

They have been seeding for many years, the seed being distributed locally to experimental growers.

We are vigilant about material that might bring the blight into the area, which would be fatal to our small cadre of chestnuts.

This year, whatever we can get will be planted out as before; so the local population should continue to increase.

I will keep the CCC posted on our work here.  
Hank Jones, ECSONG Chair

## From the CCC

Recently Mr. David Holmes, Manager of the Long Point Region Conservation Authority, supplied a quantity of American chestnut wood to Director Mike Nemerowski. The lumber came from the Brant Tract 66 tree, which died from blight several years ago.

Director John Hill plans to make gift items from the wood. Recipients will be volunteers who have donated many hours of their time to the Canadian Chestnut Council's crossbreeding program.

A letter of appreciation has been sent to Mr. Holmes and the Long Point Conservation Authority.

## From Maidstone, Ontario

I recently read an article from National Geographic – February 1990 issue – regarding the chestnuts making a comeback, which sparked my interest.

Linda and Tom Halford

## From Ottawa, Ontario

Mr. Roderick Taylor corresponded about an American chestnut tree he saw in Hamilton, Ontario. Dr Peter Rice, Honorary Director in Hamilton, has investigated and has determined that the tree became blighted and was cut down.

Mr. Taylor is not satisfied that the tree he saw could have been blighted in such a short time. Dr Rice is investigating further.

## From New Brunswick

We like Chestnut Bread with Chestnut Flour. Do you know of any chestnut flour in Canada?

Rosie Shaller, Rosie's Gluten Free Gourmet Food Ltd  
5096 Hopewell Cape, Shepody, Albert County, NB  
E4H 4K5

*Can anyone reply? – Editor*

**From Sault Sainte Marie, Ontario**

The three nuts I planted started like gangbusters and did well while they were in the sun in my south facing window. About June 15<sup>th</sup> I set them out on the patio and things started to go downhill from that time. I wonder if the double glass filtered some of the infra red rays.

I then transplanted two of them into large pulp containers 15" deep x 14" circumference. The other I gave to my son Mark. He lives in North Bay. The two here seem to burn the edge of the most exposed leaves. I added some liquid fertilizer, and last night it rained; so maybe I can coax them along.

I debated on whether I should have another go at the Simpson St. chestnut. I guess at 82 past, maybe I should stop climbing trees.

Thanks for the info. I'm optimistic about these two coming around. I wonder how Dragan made out with the seven nuts I sent him.  
Ron Bridge

## From Guelph, Ontario

I am associated with Ignatius Farm, just north of Guelph, through my work. They are initiating an old growth forest on 100 acres of land...It seems that chestnut trees would have been a part of the mix in the original climate forest which they wish to recreate, so this may be an opportunity for a planting site for CCC, if one is needed in this area. Do you want me to follow up on this idea?  
Mike Shook

*[The Chairman has replied to the effect that the CCC is grateful for the offer and would like to take part in the development of the forest. – Ed.]*

## Meet Your Directors

What's a city boy who's into bugs doing on the Canadian Chestnut Council?

As a ten-year-old, Philip Careless loved history and dreamed of building his own ship of the line, a full-scale HMS Wolfe, within the confines of his small Toronto backyard. But his imagination easily outstripped his meagre weekly allowance. Realizing that he would never be able to afford all the wood, he decided to grow his own oaks. Philip quickly learned to ID the different oak species and by sixteen could identify all the trees of Ontario--by their twigs alone.

As a youngster Philip had been enrolled in a day camp at Humber Arboretum just north of Highway 401. He had the run of a friend's farm



near Madoc in the summer, and in the winter would tramp around Mt. Pleasant Cemetery, which - with over 130 different tree species - may be the best arboretum in Canada. Here he first encountered the American chestnut and reported two shrubby specimens to Mike Nemerovski. As a teen he would skip class and cycle with a long pole to the cemetery to harvest chestnut burrs that he then grew in his former sandbox. The ship of the line was forgotten.

At age sixteen he became a CCC member and began an eleven-year stint at Presqu'ile Provincial Park, near Brighton, as a park naturalist.

It was Prof. Greg Boland, the University of Guelph plant disease pathologist and fellow CCC member, who first recommended the University of Guelph to Philip. Philip is currently working on his Masters degree in Entomology at that institution. The focus of his research is of course tree related: monitoring the invasion of the Emerald Ash Borer. He spent the past summer doing field work in Wheatley, where there are two fine chestnut saplings. He has also spent six winters in Costa Rica studying tropical ecology. There the biodiversity is so great that you are lucky to learn common families of trees.

Philip is the webmaster for the CCC, but claims "only a remedial understanding" of computers and that he is on "a steep learning curve."

"Not many of my generation have seen full-grown or even young American chestnuts. How can you preserve something you have never seen? The last generation of farmers and woodworkers who knew mature American chestnuts is passing; so any renewed interest in the chestnut must now come from young students studying botany, ecology and conservation biology. They must be curious about what is rare or almost extinct. Species at risk education is popular, but unfortunately trees don't get the buzz that snakes, birds and mammals do."

Philip's early love of history has morphed into a love of nature and science. The backyard of his family home possesses no ship structure but, under Philip's care, the narrow lot now boasts over twenty species of trees, many grown from Mt. Pleasant nuts. No American chestnuts survived but Carolinian species such as Tulip Tree, Big Shellbark Hickory and Chinkapin Oak have thrived, as well as English Oak--enough board feet to make a ship-of-the-line lifeboat at least.

- Sue Careless

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## Nobel Laureate at Foresters Meeting in USA

Professor Wangari Maathai will speak at the next meeting of the Society of American Foresters, 25-29 October, in Pittsburgh, Pennsylvania.

As Dr Colin McKeen reported in Newsletter # 39, Professor Maathai has been instrumental in

planting over 30 million trees in Africa, as part of the Greenbelt Program there. Her work has been honoured with many awards.

Those wishing to attend can call 301-897-8720 or visit the Society of American Foresters web site at [www.safnet.org](http://www.safnet.org).

## Planting Update from Dragan Galic

This year's breeding program is a consolidation phase with two areas of emphasis: maintaining the hybrid trees, and grafting mother trees.

In the first phase of the breeding program, we crossed Ontario-based American chestnut trees with selected resistance trees from Connecticut (R2T8, R2T10 (Backcross-3 trees) and Sandy's Tree (a Backcross-2 tree), and cross-pollinated the Ontario trees. This Spring we planted 95 seedlings.

We now have 889 Backcross-3 and Backcross-4 trees from crosses with Connecticut pollen, and 738 trees of Canadian origin. All are growing well at Onondaga Farms and Riverbend Farms.

Our aim is to inoculate those trees with chestnut blight fungus in two to five years, depending on the maturity of each tree. Then we will select the best twenty to fifty trees having some resistance and central-leader architecture. The latter requirement will ensure that the selected trees will grow in a forest and not resemble small orchard trees.

The breeding program is intended to continue until we can intercross Backcross-4 (BC4) seedlings to produce 3% Chinese-97% American trees, and then to intercross the resulting BC4F2 trees to yield a BC4F3 tree with enhanced blight resistance. The latter type should be suitable for general distribution.

We did not originally plan to cross Ontario trees among themselves; however, this will give the breeding program two advantages. We can test the resulting trees to see if there is a low native level of resistance to the chestnut blight, and they will act as comparisons – controls - to the hybrid trees.

We are grafting our best Ontario parent trees onto native Canadian chestnut seedlings, to maintain their precious genetic material as the parent trees die in their forests. That is, the parent genes will be

maintained for breeding in future despite the inevitable blighting and death of the parent trees.

At present we have planted at the Simcoe Research Station 29 grafted mother trees and nut seedlings from valuable unpollinated trees.

Statistically, the population size needed to find one tree with a 95% certainty of having the desired characteristics at the F1 generation is twelve, but at the F2 generation is 1500.

The biggest step forward this year was to discover how to persuade a cutting to root. This was quite an achievement, as it was the first time it has been done in North America. It eliminates several problems associated with grafting. - D Galic

### One of Mr. Galic's rooted chestnut cuttings

## Next Annual General Meeting

The next annual general meeting of the Canadian Chestnut Council will be held at 10:00 am Saturday, 28 October at Onondaga Farms. That's on the south side of the Glen Morris Road about 2 km east of Highway 24, just south of Cambridge.

Registration will begin at 10:00, with refreshments provided for the attendees. The Board of Directors will hold a business meeting during registration and the main meeting will begin about 11:00 am.

The Tim Horton Children's Foundation will offer a lunch, prepaid by the CCC. Members are asked to donate a small sum to help offset the cost.

Highlights of the meeting will include a nut exchange, wherein those with American chestnut nuts to contribute can meet those with space and desire to grow American chestnut trees.

We anticipate a presentation by the National Wild

Turkey Federation, who are interested in the work of the CCC and wish to share in its support.

The Chairman, Dr. Terry Anderson, will report the work of the CCC over the past year and forecast future activities.

The lessons recently learned will be discussed, as well as plans for more research, blight testing, etc.

Our Onondaga Farms planting site will be opened for a tour. This event always impresses attendees, as the growth of our chestnut trees under the expert care of farm managers John Hill (Onondaga) and Murray Alward (Riverbend) is significant.

A question-and-answer session will terminate the meeting. Any questions members may have will be answered by a coterie of experts.

All persons interested in chestnuts are welcome. Bring your family and friends!

# Personal Reflections on the American Chestnut and its Fate

by Dr Colin D McKeen

When European colonists came to eastern North America, the American chestnut was revered as a tree beyond all others. Metaphorically, speaking, it was a genuine “staff of life.” In the autumn of every year, the bountiful harvest of its nuts was a providential source of food. As well as for immediate consumption, the nuts stored well, and met the nutritional needs of colonists, carrying them through the long winters.

Apart from its value as food, the chestnut had many other uses. Its tall, straight-grained timbers were used for post-and-beam construction of their habitations. Chestnut boards lined cabins and stables. The wood made excellent furniture. Split rails became fences to separate fields, mark the boundaries of properties and keep marauding wild animals out and domestic livestock in. Chestnut wood and bark supported a tanning industry to dress and preserve leathers. Early settlers could hardly have lived without this abundant and valuable tree.

Chestnut predominated not only throughout the Appalachian highlands but also in the broad river valleys and foothills. It grew on a variety of drained and well-leached soils.

The early colonists in southern Canada, in what became known as the Carolinian Zone of southwestern Ontario, shared similar experiences. In this region the chestnut grew on sandy and gravelly soils, among the soft pines (*Pinus strobus*) and numerous deciduous trees of the hardwood forests. The chestnut stands of southern Canada defined the northwestern fringe of the natural habitat of the species in North America.

## Blight brought change

Over the last 1-1/4 centuries the status of the American chestnut changed dramatically because of a devastating blight. Rural dwellers were sorely grieved to see their mighty forest monarchs die before their eyes. The metaphor “like a thief in the night” might be applied to the sudden death of all large chestnut trees.

The demise was a mystery to the general public and only somewhat less than that to a small band of forest scientists. Explanation of the disaster gave rise to many erroneous conclusions, and also a few vain hopes for the species’ recovery. The science of plant pathology was in its infancy at the beginning of the twentieth century.

Although the blight was first discovered in New York City in 1904, the causal pathogen and its origin were not confirmed until 1913. The Asiatic origin of the blight was established after a series of scientific investigations in North America and travels to Japan and China.

The rate of expansion of the blight was phenomenal – up to 50 km a year. By 1924 the blight had entered southern Ontario at Niagara; within 25 years all of Ontario’s largest trees had been killed, with only stump sprouts remaining.

## Other chestnut species known in America before the blight

At the end of the US Civil War (1865), some US attention was devoted to new and improved crops and related industries. Because of its food source, the chestnut attracted some interest. Travellers to the Orient brought back nuts that were of greater size, and perhaps superior quality, than their

counterparts growing in the USA. By the 1870s, nurserymen had access to newly introduced germplasm. Oriental chestnuts found their entry to the USA by the end of the century.

These introductions brought some good fortune as well as misfortune. It was perhaps fortunate that the Chinese and Japanese chestnut species were established in the USA before the blight. The bad fortune was that the blight came, too.

## Early attempts at chestnut improvement

Scientific undertakings bring about discovery and change. It was so with chestnut. One important innovator in the field of plant science was Dr Walter Van Fleet. By profession he was a physician. Late in the 19<sup>th</sup> century he abandoned medicine and turned his interest to horticulture.

In the last decade of the century he developed a special interest in the chestnut species. By 1890, on his property near Bell, Maryland, he established a breeding program to improve the size of native chestnut seeds. He succeeded in making interspecific hybridizations.

By 1910 he demonstrated that crossing with the Oriental species increased the size of the mature nut. His experiments also showed that the Oriental species conferred a degree of blight resistance in hybrids that was not found in native trees.

Dr Van Fleet was the first to raise the notion that a breeding program might be an approach to the blight problem. He was concerned, however, about the small stature of the Chinese and Japanese trees. He died in 1921, but his work had by then been clearly recognized by the US Department of Agriculture (USDA). His findings were a stepping-stone to later research in chestnut blight control.

## Continued blight resistance breeding programs in the USA

After 1921, two US research centres turned their attention to chestnut breeding. A blight resistance breeding program was set up by the USDA at Beltsville, Maryland, under the direction of Dr Russell Clapper. Another breeding program was established under Dr Arthur Graves at the Connecticut Experiment Station. Both operated with limited budgets; nevertheless, they produced interspecific hybrids during the 1930s and 1940s.

Of necessity, blight resistance and tall timber-tree characteristics were the overriding concerns. Melding these two objectives into their hybridized progenies proved very difficult. Only limited success was achieved. The applied science of genetic inheritance was not well understood at that time, and the long generation time from seed germination to tree flowering (six or more years) was a serious obstacle.

These programs were continuously subjected to scrutiny, and were finally set aside in the late 1950s. Nevertheless, both programs left a small legacy of hybrids that served as building blocks for a breeding program restarted by the American Chestnut Foundation (TACF) in the 1980s.

Meadowview, Virginia is the home base for TACF’s chestnut blight resistance program. A visit to the site is highly recommended for members of the Canadian Chestnut Council.

Dr C McKeen

## Chestnut Tree Survival Record

At the August meeting of the Board of Directors, held at Riverbend Farms, Honorary Director Arthur Langford reported his findings about the American chestnut trees that had been distributed to interested landowners in the 1990s.

The trees were dispersed through a CCC program intended to increase the number of native chestnuts and expand their range. Recipients were not obliged to provide complete and proper care, although that was desirable.

Dr Langford has long been an ardent supporter of the CCC chestnut restoration program. He believes there is nothing quite like a tree that grew up by itself in Nature, showing by its presence that it had been in the right place under acceptable conditions.

Dr Langford telephoned 15 persons known to have received trees to ascertain what success has been achieved.

Nine of the 15 listed persons were reached. All nine had received trees after 1996; so it not surprising that no trees have reached the flowering stage. In fact,

most trees have not survived, and in most cases no survivors were reported within a given site.

Four growers reported trees two to six feet high, and two trees have attained 16-18 feet of height with a girth of three to four inches.

Dr Langford concluded that a major obstacle to success was the lack of time and knowledge of recipients to nurture the trees. He observed, however, that we have no statistics on the rate of survival of naturally occurring native trees in the original Carolinian forest; so no comparison can be made of growth rates between planted trees and natural growth.

He recommended that future growers of distributed seedlings and nuts should be selected on the basis of their tree-growing knowledge and time available to provide proper care for their charges.

The CCC hopes to have nuts available at the Annual General Meeting for members interested in growing American chestnuts.

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## AMERICAN CHESTNUT SITE RECORD

*Castanea dentata*

The CCC wants to know where the chestnut trees are. You can help by submitting any of the listed information you can provide.

Owner's name, telephone, e-mail:

Street or rural address, township, county, province:

GPS or other location data:

Number of American chestnut trees:

Other environmental data:

**Send to any CCC director. Thanks!**

# Roundup Damage?

Roundup damage of some chestnut trees is suspected at Onondaga Farms.

Roundup spraying has been stopped at both the Onondaga and Riverbend Farms nurseries, pending more definitive information.

An alternative possibility is that Atrazine sprayed on crops four years ago, before the site was converted to an American chestnut plantation, remains in the soil and is responsible.

The Chairman, Dr Terry Anderson, has discussed the problem with Dr Al Hamill, AAFC Harrow, who has worked with herbicides for 35 years. Dr Hamill said it is unlikely that Roundup caused a problem unless it was sprayed directly on the trees. He added that Atrazine residues would not cause a problem after four years unless it had been applied at three to four times the recommended rate. He suggested that watering with buckets may have discouraged deep rooting and that mushroom compost could be a disease-free alternative to bark chips to discourage weed growth.

Further research may be necessary. Frost damage, for example, may have been the main culprit.

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## Director Mike Nemerowski examines an American chestnut tree of good stature.

### Membership

Membership fees and donations are tax deductible.

#### Membership Renewal:

Annual subscription = \$15.00 \$

**Donations** in excess of the annual subscription will be recognized in the Newsletter in the following categories. (Requests for anonymity will be honoured.)

Gold Leaf:	\$1,000 or more
Silver Leaf:	\$500-\$999
Bronze Leaf:	\$250-\$499
Green Leaf:	\$100-\$249
White Leaf:	Less than \$100

**Donation:** \$

**Total enclosed:** \$

**Make all cheques payable to the Canadian Chestnut Council**

**Comments:**

### Volunteers

We need your help! As our program grows and our activities expand, we very much need the talents and skills of our members. If you would like to contribute your skills, please tell us. We start pollinating in early summer!

**I'm interested in** (check all that apply):

Membership  
 Publicity  
 Fundraising  
 Library research  
 Field work  
 Other:

**Return your completed form to the Secretary:**

Charles Hooker, 431068 19<sup>th</sup> Line, RR # 2  
Orangeville, Ontario L9W 2Y9  
chuckh@sympatico.ca