

Canadian Chestnut Council (CCC)

...on the Chestnut Trail

NEWSLETTER # 34

April 2004

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

In this issue: - 2004 Achievements - Annual Meetings - Grafting 2004 - Director News - and more!

Tree Stock Increases in 2003-2004

The Canadian Chestnut Council's stock of American chestnut trees and nuts has grown in more ways than one, according to a recent report.

At the March meeting of directors, held to consider future plans for 2004 and beyond, Mr. Dragan Galic summarized the results of pollination over the past season. A total of 1086 hybrid nuts and 274 native Canadian nuts were produced.

The nut harvest was stratified over the winter and potted, and so far about 817 hybrid nuts - 75% - and 234 Canadian nuts - 85% - have sprouted.

Mr. Galic broke down the hybrid growth figures by pollen source. Hybrid seedlings grown from the Connecticut pollen sources sprouted as follows: Sandys Tree = 410 (82%); R2T8 = 281 (65%); R2T10 = 126 (82%).

The directors held their 27 March meeting at the Simcoe Research Station to graft "mother" tree scions onto potted American chestnut seedlings, and to view early 2004 greenhouse growth. Details of the grafting operation are reported separately. Mr. Ernie Grimo, of the Grimo Nut Nursery in Niagara-on-the-Lake, was on hand to guide the grafting session.

- C Hooker

TACF Annual Meeting

The American Chestnut Foundation (TACF) will hold its annual meeting in Asheville, North Carolina October 29 and 30, 2004. Anyone interested in chestnut preservation is welcome to attend.

More details can be obtained by writing to TACF, 469 Main Street, P.O. Box 4044, Bennington, Vermont, USA 05201-4044.

- CD McKeen



Healthy American Chestnut Tree

Second largest tree in Ontario - DBH 212 cm (85 inches)

EDITORIALS

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.

Executive

Chair - Dr. Colin McKeen
62 Westmoreland Ave., Orangeville, ON
L9W 3B6, 519-941-9513

Vice Chair - Dr. Terry Anderson
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N9Y 2E5, 519-733-3796

Secretary - Mr. Charles Hooker
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519-942-8085

Treasurer - Mr. Douglas McKeen
RR # 1 Orangeville, ON L9W 2Y8
519-941-5765

Board of Directors (by county)

Brant - Mr. John Hill
RR # 2 St. George, ON
N0E 1N0, 519-448-1749

Lincoln - Mr. Douglas Campbell
RR # 1 Niagara-on-the-Lake, ON
L0S 1J0, 905-262-4927

York - Mr. Phil Careless
160 Briar Hill Rd., Toronto, ON
M4R 1H9, 416-482-6079

Norfolk - Mr. Brett Hodgson
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Mr. Mike Nemerowski
RR # 3 Simcoe, ON
N3Y 4K2, 519-426-2174

Elgin - Mr. Brad Reive
RR # 2 West Lorne, ON
N0L 2P0, 519-768-1365
Mr. Murray Alward
Riverbend Farms, Box # 3
Port Burwell, ON N0J 1T0

Wellington - Dr. George Collin
RR # 3 Fergus, ON
N1M 2W4, 519-787-1849

Honorary and Advisory Directors

Dr. Ernie Kerr, Simcoe, ON
Dr. Arthur Langford, Simcoe, ON
Mr. Arthur Loughton, Vittoria, ON
Mr. Leslie Corkum, Falmouth, NS
Dr. Peter Rice, Hamilton, ON

Spring again, and the grass is greening around the tree seedlings. Time to mow and mulch.

It is this time of year that confirms a farmer in his vocation. Your faithful scribe was not always a farmer, and there are times in the depth of winter when one's faith can be shaken by growth of another snowdrift across the driveway. But when the green appears in the former pasture and hayfields (now planted in trees), and a ramble confirms that our seedlings are growing, the urge to plant more trees becomes irresistible.

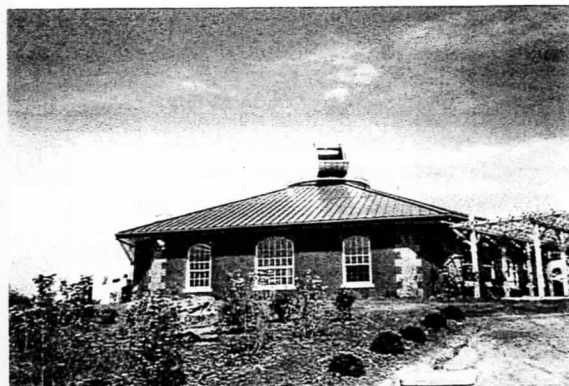
Elsewhere in this issue you will read that great strides were made in 2003/4 by the Canadian Chestnut Council. The CCC has exceeded the goals that were established three years ago. We also met some really pleasant folks who like trees, and who humble this editor by their diligence and energy in returning the American chestnut to its place in the wild.

In commerce it is common (or maybe should be common!) for CEOs and editors to be replaced after about five years, to make room for new ideas. We hope it will not happen that soon.

CCC Annual Meeting

The CCC Annual General Meeting will be held at the Tim Horton Children's Foundation camp at Onondaga Farm, near St. George, Ontario, on Saturday, October 30, 2004, 10:00 am-4:00 pm.

The meeting will be held in the Observatory Building.



THCF Onondaga Farm Observatory

Onondaga Farm is on the Glen Morris Road East, about 1-2 kilometers east of Highway 24 just north of St. George. A large gate on the south side of the road makes the farm clearly visible.

A summary of progress will be presented along with lectures and discussions of the work of the CCC. The meeting will be asked to endorse the work of the Council and its plans for the coming years. Attendees will partake of wagon-ride tours of the farm and the CCC planting site.

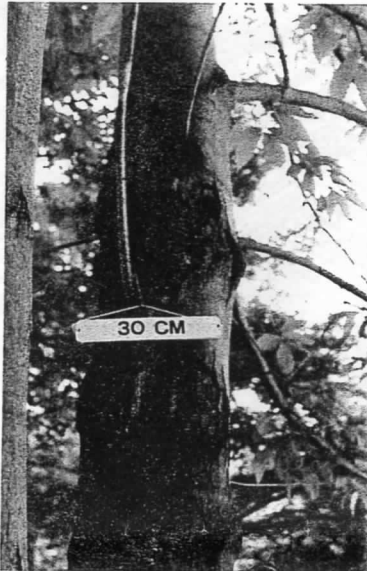
Lunch will be made available by Onondaga Farm, at a nominal cost of \$12.00 per person. Be sure to attend to enjoy this unique setting!

- Dr. CD McKeen

American Chestnut Canker

Dr and Mrs. McKeen have amassed a collection of photographs of healthy and cankered American chestnut trees, and recently agreed to release them to the Newsletter.

Shown here is a tree that developed canker and then acquired hypovirulence in the canker. The photo was taken eight years ago. Note the healthy callus growth around the cankers. This tree has overcome the blight thanks to invading hypovirulence.



Six years later, the same tree has degenerated. The blight fungus invaded the callus growth and is likely to kill the tree within two years.



The third photo was taken last year. The tree's trunk bark is heavily invaded with blight and the tree will die within a few months. Doug McKeen is the observer.



Another tree, with severe trunk canker, is shown below. A pencil lies across the the canker surface to indicate size. This is a virulent canker and will kill the tree within a few months.



A healthy American chestnut tree is shown on Page 1, for comparison purposes.

If you notice a healthy or a diseased American chestnut tree, please inform your Council. Use the format on Page 7, or just tell us whatever details are available. - C Hooker

Ernie Grimo Does It Again

Directors' Grafting Session Yields Pollination Stock for the Future

The March meeting of CCC directors began with a grafting session led by Mr. Ernie Grimo.

Our loyal CCC member from Grimo Nut Nurseries is The Expert on grafting procedures, as those who attended the Grafting Workshop in Spring 2003 well know. Mr. Grimo, who manages his own nut-growing business at Niagara-on-the-Lake, contributed his extensive knowledge at a "short" grafting workshop that lasted till all grafts were completed, about three hours.

As a result of that effort, the CCC now houses in a Simcoe Research Station greenhouse about 30 potted "mother" seedlings with one to five grafted branches grafted to each.

The purpose of the grafting was to create groves of American chestnut trees, native to Canada. These seedlings will be planted at the two growing sites, Onondaga Farm and Riverbend Farms, in 2005 or 2006. Grafted twigs came from the several native trees across southern Ontario that have been used for crossbreeding in previous years; rootstock came from similar sources. The genes of the Ontario trees will thereby be conserved in case the parent trees die of age or blight. Trees will be more easily pollinated in future as they will be concentrated in two areas. (It costs volunteers much time and money to travel between tree sites in widely separated counties, four or more times a year!)

Mr. Grimo quietly led the way along the long greenhouse tables at the Simcoe Research Station, moving from potted seedling to potted seedling. A highly efficient graft cutter chopped the end of the cutting to a tapered wedge, preparing it quickly for mating with the rootstock. His deft grafting knife trimmed the end of the stock seedling and notched it. The pruned cutting was inserted into the notch so that the growth rings of one mated with those of the other. A typical Grimo technique is to align the cutting's lowest bud with the cambium-ring union, improving the chances of success. He also wiped his tools and hands frequently with rubbing alcohol to eliminate any spread of disease from one plant to another.

Behind Mr. Grimo followed a string of directors - many of them highly qualified in plant pathology and other disciplines, and with strings of initials behind their names. They dutifully applied the tutor's grafting wax to the joints and branch ends, wrapped Mr. Grimo's grafting tape over the splices, added wet paper towel and affixed plastic sacks, assembly-line fashion.

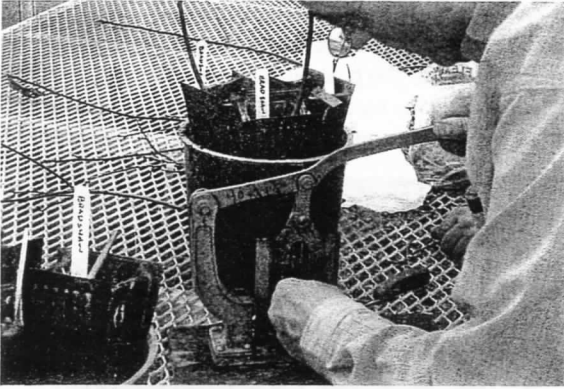
The potted plants were then placed in the greenhouse under a potting table, and covered with cheesecloth to reduce solar radiation.

In spite of the "novice" support, a high percentage of survival can be expected. Our sincere thanks to Ernie.
- C Hooker



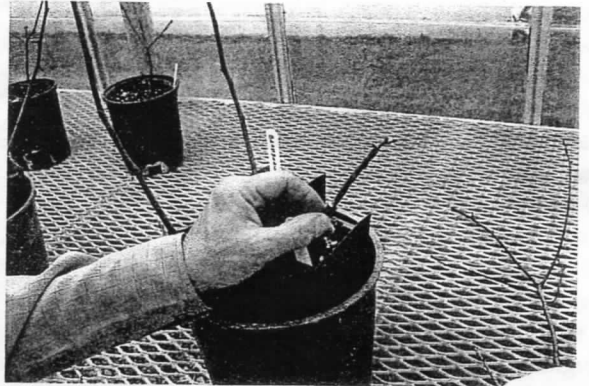
Eager (unnamed) CCC directors help Mr. Grimo graft scions to rootstock in the Simcoe Research Station greenhouse.

Grafting - March 2004

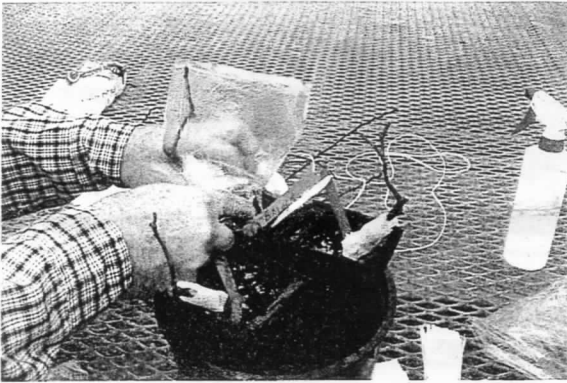


Ernie uses his special tool to prepare the scion for grafting. The cutter slices the end of the scion to a neat V point with one action.

The scion is inserted in the notched rootstock so the two cambium rings connect. Then the graft is wrapped with grafting tape, and the graft and all cut ends are coated with grafting wax.

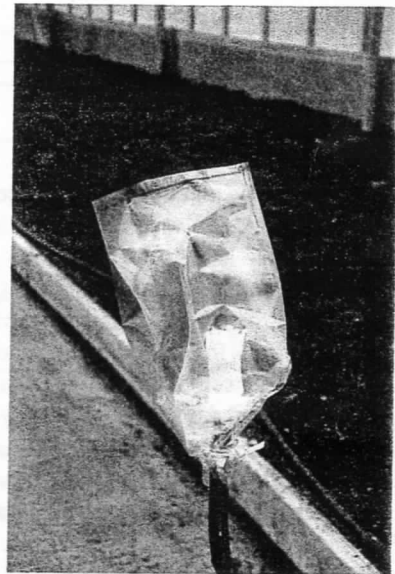


One of Ernie's helpers wraps the graft with a bit of paper towel, secures it with masking tape, sprays it lightly with water and bags it. The bag and towel keep the graft damp.



The completed graft. The bag will be removed after about ten days. The grafting tape will be removed next year. In five years or so, this tree will bear flowers with the genes of several native trees that may have died in the meantime but left their DNA for future generations.

- C Hooker



Meet the Directors

Dr. Terry Anderson ("Call me Terry") grew up in Aurora, Ontario and spent much of his time outdoors in fields and woodlots - now malls and subdivisions. ("Such is life when you live near Toronto!") He attended the University of Guelph, met and married Candace who was teaching school in Toronto, and graduated with a degree in Plant Protection. They joined the Canadian University Service Overseas (CUSO) and spent the next three years in Thailand: Candace taught English in Bangkok while Terry was a plant pathologist at a research farm in the northeast.

After travelling through southeast Asia, they attended the University of Hawaii for two years where Terry studied sugarcane smut, a new disease in Hawaii. Back in Toronto, Candace taught school and Terry studied biological control of soil fungi, attaining his doctorate. They finally settled in Kingsville, Ontario and raised two daughters, Emily and Laura. Terry has been a plant pathologist at Agriculture and Agri-Food Canada, at Harrow, Ontario, for the past 26 years, working with corn, tobacco and soybeans.

Thirteen years ago the Andersons moved to a 50-acre farm with a 40-acre woodlot, where grow a number of Carolinian plant species and "too many" raccoons. The woodlot has several patches of paw-paws, which add variety to the family's Thanksgiving dinners. Seeds from this woodlot

are sent to the local natural habitat restoration program.

Terry has been President of the Essex County Woodlot Owners Association for the past eight years. He is also on the Board of Directors of the recently formed Canada South Land Trust, located in Essex County.



Because of development and ideal agricultural land, the future of the few remaining woodlots in Essex County is bleak. Terry is concerned that there aren't many American chestnuts left in Essex County - probably no more than a dozen true natives growing in natural areas. Only a few had flowers during the past three years, when the CCC's cross-pollination project was active. All of the known chestnuts have cankers; so grafting to conserve the germplasm may be the only way to protect the genes of those trees.

Terry believes that the work of the CCC is extremely important. He continues to apply his best efforts to

support it in the field, and (as Vice Chairman) contributes knowledge, experience, leadership and much good humour to our director meetings.

- C. Hooker

Director News

The CCC Board of Directors has met three times since the last Annual General Meeting in October 2003, to plan future field and office work.

In November the Board met at Riverbend Farm, near Calton, Ontario, to view the CCC planting site and consider future work. The site has been carefully fenced to prevent access by deer and other browsers, and the trees are individually sited, surrounded by growth tubes and staked to prevent blow-down in high wind. Mr. Murray Alward, the Farm Manager and one of our directors, has eliminated surrounding grass and weed competition, and it is expected that growth matching that of the photo on Page 3 of the last Newsletter can be expected.

Subsequent meetings were held in January and March, 2004, at the University of Guelph's Simcoe Research Station, where many of our seedlings are being grown in greenhouses. During these meetings it was agreed to fund an irrigation system for the Riverbend Farms site and to seek a further grant from the Ontario Trillium Foundation (OTF). The irrigation

system has now been contracted and should be in place by planting time at a cost of about \$5,000. The East Elgin County Stewardship Council has very kindly agreed to help finance the system.

A new CCC brochure was commissioned, with Dr. Terry Anderson as the creator, and is being distributed to potential fund sources. It is hoped that the brochure can be duplicated on our web site soon.

Signs have been erected at the two farm field sites to proclaim the CCC's presence.

By the time you read this, another directors' meeting will have been held in mid April at the Simcoe Research Station. Its aim is to confirm future plans and budgets, prior to seeking another grant from the Ontario Trillium Foundation.

The faster pace of development and the success of our plantings have obliged the directors to meet more often than in the past, to guide the activities of professional and volunteer staff over the next few years.

- C Hooker

Dr Norman Borlaug, Nobel Laureate

In 1970, Dr Norman Borlaug received the Nobel Peace Prize. Very few of the world's biologists have attained such a high honour.

His Education

Dr Borlaug began his university career in Forestry at the University of Minnesota, where he obtained a Bachelor of Science degree in 1937. Because of an interesting experience (described below), he changed his field and undertook his post-graduate studies in plant pathology. His thesis research was breeding for disease resistance in flax. He obtained his PhD in 1942.

The reason for Borlaug's switch from forestry to plant pathology was that he heard a lecture at the university by the world-renowned late Professor EC Stakman. Stakman probably influenced more scientists about the disastrous effects of crop diseases on human welfare than any other person in North America in the last century. Borlaug was so impressed with the forceful delivery and wide-ranging content of Stakman's message that he decided to continue his studies

in the plant pathology department. Stakman had spent his research career developing resistance to the cereal rusts. This was the time when Canadian scientists were developing their cereal rust program at Winnipeg and Saskatoon.

Rockefeller Offers Borlaug a Position

Dr Borlaug's studies fitted him for a position offered him in 1943 by the Rockefeller Foundation. He accepted, and was sent to Mexico where his assigned task was to assist the poor farmers to help them increase their wheat production.

Borlaug was in charge of coordinating all the research going into wheat. He was stationed at what became known a little later as the International Maize and Wheat Improvement Centre.

In Mexico, where rundown soils had grown crops since the Spaniards arrived 400 years earlier, Borlaug found it necessary to study soil fertility. This was done while he was developing a high-yielding, drought-resistant wheat. An important part of his assignment was *(cont'd on Page 8)*

AMERICAN CHESTNUT SITE RECORD

Castanea dentata

Tree Name		Tree #	
Latitude		Longitude	
UTM (optional)			
Twp and County		Lot:	Con:
Nearest Road (Name/Number)			
Property Ownership (name/public)			
Owner/Contact Address and telephone number			
Site Description (Check all that apply)			
Soil: Wet <input type="checkbox"/> Dry <input type="checkbox"/> Sand <input type="checkbox"/> Sandy loam <input type="checkbox"/> Silt mix <input type="checkbox"/> Clay <input type="checkbox"/> Clay loam <input type="checkbox"/>			
Exposure: N <input type="checkbox"/> E <input type="checkbox"/> S <input type="checkbox"/> W <input type="checkbox"/> Open <input type="checkbox"/> Elevation:			
Slope: Approximate degrees [] Tree on: N <input type="checkbox"/> E <input type="checkbox"/> S <input type="checkbox"/> W <input type="checkbox"/> side			
3 dominate tree species:			
Chestnut(s): In woodlot <input type="checkbox"/> At edge of woodlot <input type="checkbox"/> Stand alone <input type="checkbox"/>			
Tree Identification			
Single stem <input type="checkbox"/> Double stem <input type="checkbox"/> Coppice <input type="checkbox"/> Diameter (largest stem) [] (cm): Height (m) []			

(Cont'd from Page 7) training Mexican scientists in the field and laboratory to develop a high-yielding dwarf wheat that resisted a variety of diseases and pests. Their new variety produced two to three times more grain than their traditional versions. The impressive result was that Mexico achieved self-sufficiency in wheat production in 13 years.

By 1956 Borlaug's program was ready to turn over to the Mexican government to manage. Today, Mexico feeds a population more than four times larger than in 1943.

New Assignments

In 1959, the Rockefeller Foundation, along with the Food and Agricultural organizations of the United Nations, sent Borlaug to several other countries, among them India, Pakistan, Iraq and Iran.

In 1960 this expanded program started to teach farmers to cultivate the new wheats. Agricultural scientists from those countries came to Mexico to learn the new technology and how to apply it to their home countries. India and Pakistan became self-sufficient in wheat production by 1970. By 2000, Pakistan was producing nearly five times as much wheat as in 1965. India was able to boast an almost six-fold increase during the same period.

Borlaug was recognized as the mastermind ("father") behind what came to be known as the "Green Revolution."

Although he officially retired in 1979, he was enticed to continue as a consultant in other areas of the globe. In the 1990s he turned his attention to improving the yields of corn (maize) in ten countries of sub-Saharan Africa.

Dr Borlaug turned 90 on March 24, 2004, and thinks he may die with his boots on. Some people have said of him that, through his efforts and influence, he has saved the lives of more people than any other person in the world.

Note: Much of the preceding information was extracted from the Jan-Feb issue of the University of Minnesota Alumni Magazine.

Why Dr Borlaug should Inspire the CCC

Because of Borlaug's achievements with high-yield technology in global cereal production, millions of acres of forests and wildlife habitat have been saved. He has estimated that, with the application of this technology, 1.1 million hectares of forest and wildlife will be saved from the axe and bulldozer. Thus, the humanitarian aspects of the Nobel Peace winner's achievements are manifold. Moreover, the multi-faceted approach required in the research projects has been understood and applied.

In the formative years of The American Chestnut Foundation (TACF), Dr Borlaug was a director. In more recent years he has served as an honorary director. Although busy, he still finds time to comment on the program. Dr Borlaug began his science career in forestry and has not forgotten the needs of forestry.

The late Professor Charles Burnham was also a staff member of the University of Minnesota, and applied the principles of Mendelian genetics to increase US corn production. On retirement he was instrumental in getting TACF restarted on its present blight resistance breeding program, using the backcross breeding method.

Clearly, the cross-discipline "fertilization" of ideas works in science. - Dr CD McKeen

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: \$ _____

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:

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