

## Proposal to Break Isolation of the Dingman Creek American Chestnut

The project is intended to contribute to the retention of the American chestnut population and its genome within its Ontario distribution by breaking the isolation of wild native American chestnut. "Breaking the isolation" means the following: American chestnut is not self-compatible. Many American chestnut continue to flower, but they no longer produce viable nuts because they do not have a source of compatible pollen. These trees may be considered "sexually isolated". Therefore, "breaking the isolation" refers to planting sexually mature grafted pure American chestnut trees (6-10) within pollen dispersal distances (15 m) of these existing isolated trees. This is to be achieved by planting selected cloned saplings (etiolated grafts) of native American chestnut at locations adjacent to occurrences to allow trees to resume non-clonal reproduction. All trees used for this project will be DNA tested to ascertain its purity (100% American) and will be blight free. Grafted trees will be planted during late summer/early fall, the trees will be planted against prevailing winds 7.5 to 13.5 m from candidate tree and in total up to 10 trees per candidate tree (depending of available material and canopy openings). With careful management, this is a viable option to continue the species in the wild and act to buy time until blight resistant American chestnut can be introduced. To this date the Canadian Chestnut Council has planted grafted trees for the purpose of breaking isolation at 26 locations. Just to mention a few: the Nature Conservancy of Canada (4 trees), the Royal Botanical Garden, Hamilton, (2 trees), Dundas Valley Conservation Area (4 trees), City of Hamilton (2 trees), Norfolk County (2 trees), Catfish Creek Conservation Authority (2 trees), Thames Talbot Land Trust (Hawk Cliff Woods 1 tree) etc. and on numerous private properties. The breaking isolation project of the Canadian Chestnut Council is approved and funded under the Endangered Species Act (2007) by the OMNR Species at Risk Stewardship Fund.

In the most recent official survey of American Chestnut in Ontario (2014), it was determined that there had been a 21% mortality among the wild native population from numerous causes with only 0.3% recruitment in the previous decade. The sexual isolation of the remaining wild native trees prevents nut production and dooms the species to expatriation in Ontario within 100 years without human intervention.

The Dingman Tree is a blight free mature canopy specimen which is flowering without a partner for proper pollination and nut production for the propagation of the species. As a survivor of the blight that decimated the species in the 1920s and that continues to decimate the remaining population, the genome of this tree is important to preserve and reintroduce to the breeding population. The breaking isolation of the Dingman Creek tree will allow it to not only produce viable nuts after nearly 100 years of isolation and pass

its unique genetics on to a new generation but will allow it partner trees to exchange genetic material as well. Such a natural recombination of genetics may allow for natural selection to occur resulting in a more blight resistant prodigy. This is what the Canadian Chestnut Council is doing in its three research and breeding plots but are restricted physically by the number of trees that we have material to work with. The breaking isolation project brings the isolated trees into contact with as many of our best wild American Chestnuts in the province. This allows nature to do her own job of recombining genes through nut production and seek its own possible solution to the blight. The recruitment of new trees plus the renewed source of mast for wildlife will increase the biodiversity of the ecosystem of the Dingman Creek watershed.

The breaking isolation of the Dingman Creek Tree will be at no cost to the City of London and the Canadian Chestnut Council will be responsible for all materials, installation and maintenance of the site in regards to the American Chestnut.

Additional background materials, presentations, references are available upon request. Thanking you in advance and for your time and consideration in this matter.

Sincerely Yours in the Restoration of the American Chestnut.

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Chair

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