

Effort to restore American chestnut produces line of blight-resistant trees

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Glen Rea has a passion for trees. As a boy of 10, he planted acorns and walnuts. Today he is president of the Maine Chapter of the American Chestnut Foundation, a group with a mission to "restore American

chestnuts to a place of ecological and economic importance and self-sustainability throughout their original forest range in Maine."

I recently listened to Rea speak about the Maine backcross breeding program, in which American chestnuts, *Castanea dentata*, are crossed with Chinese chestnuts, *C. mollissima*, a species known to be resistant to the fungal blight that killed nearly all American trees, or reduced them to stump-sprouts. Ironically, the blight is believed to have first entered this country on Chinese chestnuts. Trees of this non-native species with a high percentage of infection exhibit resistance to it.

When a fully resistant Chinese tree is crossed with an American tree, the resulting progeny are moderately resistant to the blight. The trick is to continue backcrossing these hybrid trees with selected American trees that have survived the blight. This backcrossing avoids inbreeding, thus ensuring high genetic variability as the program continues along the path of producing blight-resistant trees with the desirable characteristics of the American chestnut, including creamy yellow summer flowers and golden yellow fall foliage.

The progeny of each backcross generation are inoculated with the blight fungus in order to identify trees with the best resistance. This is done when the trees are about five to eight years old and only the most resistant trees are used in subsequent crosses.

Rea explained that the program in Maine is now only two generations away from producing trees with high levels of blight resistance. Perhaps 20 years from

now the foundation will have achieved another of its missions, "to make blight-resistant American chestnuts available to the people of Maine as soon as possible."

Rea finished his presentation with a story that he calls "Ten Acres in Maine." The hero of this story is Sam Andrews, a logging contractor from Atkinson. In September 1993, as he was logging land just a few miles from his home, Sam was about to end the day by cutting down one last tree, had his chain saw out and running, and then noticed the unusual burs on the ground. It was an American chestnut.

Atkinson is 40 miles north of Bangor. Even though the northern limit of the American chestnut's natural range was thought to be about 20 miles south of the city, there it was, an American chestnut, along with two other nut-producing trees.

Last summer an intensive survey of the 10 acres revealed two additional chestnut trees producing viable nuts, bringing the total to five nut-producing trees. Sam's original tree is now 34 inches in diameter and about 80 feet tall. The survey also found more than 200 chestnut trees in the 10 acres, some grown to a height of 20 to 30 feet. They are outgrowing the competition and should soon start producing nuts. Some of the Atkinson trees have been incorporated into the Maine breeding program.

There are still a few American chestnuts growing in the Maine woods, trees with tall trunks that branch only when they clear the tops of other trees, and there are American chestnuts growing in open spaces with branches spreading low and wide. Rea's photo of an old chestnut growing in Dexter reveals the grace and beauty that we almost lost forever, if not for the work of people with a passion for trees.

Glen Rea is interested in learning about surviving American chestnuts in Maine. If you know of one, you can tell him about it by e-mail, glenrea42@msn.com.

Send queries to

Gardening Questions, P.O. Box 418, Ellsworth 04605, or to rmanley@ptc-me.net. Include name, address and telephone number.

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