Survival and Naturalization of Chinese Chestnut in Connecticut, USA

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ABSTRACT. The April 1926 trees of *Castanea mollissima,* Plant Introduction #58602, were planted in Killingly, Connecticut, USA. They were examined in 1965 by Richard Jaynes, who reported that seedlings from these trees were naturalizing in a neighboring, abandoned field. In 1992, 28/67 of the original trees were still alive, with about twice as many naturalized seedlings in the transects examined. The trees are competing well with the other early succession hardwoods and produce abundant nuts every year. The nuts were collected in 1992 by the State of Connecticut Plant Nursery and germinated; seedlings were sold to residents for planting, to provide food for wildlife.

When chestnut blight started to rapidly eliminate mature American chestnut trees *(Castanea dentata* [Marsh.] Borkh.) from the northeastern forests of the United States, the U.S. Department of Agriculture urged the Bureau of Plant Industry to increase its imports of resistant Asian chestnuts (1). David G. Fairchild was in charge of seed and plant introduction and distribution, and his foreign plant explorers traveled all over the world collecting material. In November 1923, the department requested seed from northern China, hoping the resulting seedlings would be more cold tolerant than those from earlier introductions. In response, J.H. Reisner of the University of Nanking wrote that he was "asking for seven or eight pounds of the chestnuts from each locality... . Strains of fruits and nuts have been developed in a community for hundreds of years; in some cases possibly thousands of years. It is very common to hear the Chinese say the variety or strain of fruit or nut which does well in a small local community is not adapted to other situations. . . . I am hoping to get something to you that will prove hardy and resistant.... If we had two hundred dollars gold . I am sure that this would cover all expenses involved."

This resulted in Plant Introduction #58602, imported and distributed in 1924. Seeds were planted in Georgia at a USDA test lab, and at Bell, Md. for seedling distribution. USDA records list organizations and individuals who were sent 7826 seedlings to test in their areas, which included 16 states and Manila in the Philippines. Unfortunately, no records were kept of the origin in China of each small lot, and the seeds were probably mixed.

In April 1926, trees of *C. mollissima* BI., Plant Introduction #58602 were planted as an orchard in Killingly, Conn. (41°50' latitude). They were examined in 1965 by Richard Jaynes, who found trees in 37 of the spaces where the original 67 were planted (2). Only 9 were single stems, suggesting that 28 of the original seedlings had died and sprouted from the root collar. The average diameter of the largest stems of each clump (at 1.4 meters off the ground) was 25.4 cm.

A neighboring field had been mowed until 1947, grazed until 1963, and then abandoned. Jaynes reported (2) that chestnut seedlings were coming up and surviving in that field. He found no American (or any other) chestnuts in the area, and assumed that all of the seedlings were from the trees in the 58602 orchard. By counting seedlings in transects, Jaynes estimated that there were about 121 per hectare in the 2 hectare field, the oldest being 12yr of age.

In 1992, I re-examined the original planting and found trees or sprout clumps in 28 of the original spaces. The

largest stem was 65 cm in diameter, and the average (of 49 stems) was 42 cm. The landowner said that the orchard produced abundant nuts every year.

There were many naturalized seedlings in the transects Jaynes previously examined, averaging 327 trees per ha. These trees were competing well with the other early succession trees, including *Betula lenta* L., *Prunus virginiana* L., *Pinus strobus* L., *Acer rubrum* L., *Malus* spp., *Rhus typhina* L., *Betula papyrifera* Marsh. and *Populus tremuloides* Michx. Shrub competitors were *Rosa multiflora* Thunb., *Rubus* spp., *Berberis* spp., *Vaccinium* spp., *Vitis labrusca* L. and *Spiraea latifolia* (Ait.) Borkh.

The ability of these Chinese chestnut trees to grow in the climate of northern Connecticut is better than average for the species. The nuts will be collected by the State of Connecticut Plant Nursery to be germinated, and seedlings will be sold to residents for planting to provide food for wildlife.

LITERATURE CITED

1. Anagnostakis, S. L. 1989. An historical reference for chestnut introductions into North America. Ann. Rep. North. Nut Growers Assoc. 80:132-143.
2. Jaynes, R. A. 1967. Natural regeneration from a 40-year old Chinese chestnut planting. J. For. 65:29-31.