

## HISTORY OF THE AMERICAN CHESTNUT

Before the turn of the 20th century, the American chestnut (*Castanea dentata*) was one of the dominant tree species of the eastern forests of the United States. They were majestic trees in extensive stands, with mature individuals averaging five feet in diameter and over one hundred feet tall. In addition to providing an unparalleled food source for wildlife and dominating the forest ecosystem, the nuts and lumber from this species played a major role in many rural Appalachian economies. Its wood was fast growing, rot resistant, and it was the primary hardwood timber species harvested in the 19th and early 20th centuries.



Photo courtesy of the USFS, Asheville, NC.

All of this changed after the arrival of the Asian chestnut blight (*Cryphonectria parasitica*) in the United States in the late 1890s. This fungus decimated American chestnut stands, and by 1950, most of the chestnut trees in the U.S. were dead or dying. In a few decades the American chestnut went from being the keystone species on an estimated 9 million acres to a relic, hanging on in the sprouts arising from the root stock of the fallen trees and a few surviving mature trees scattered across the species' range. The sprouts, too, are almost always killed by the blight before they reach reproductive age, so natural reproduction is almost unknown.

The American Chestnut Foundation (TACF) has worked diligently since the 1980s to develop a blight-resistant American chestnut through the labor- and time-intensive process of crossing American survivors to Chinese chestnuts and then repeatedly back-crossing the offspring to American chestnuts. Through the intervention of TACF and other conservation groups and their myriad supporters, the American chestnut may one day be reestablished in its native lands.

## ACKNOWLEDGEMENTS

Department of Defense Legacy Resource Management Program

The American Chestnut Foundation  
Tennessee Chapter of the American Chestnut Foundation

TNARNG Volunteer Training Site-Catoosa  
TNARNG Volunteer Training Site-Milan



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# American Chestnut Orchards and the Tennessee Army National Guard

*Utilizing military initiative  
to support restoration efforts*

Photo courtesy of The American Chestnut Foundation

## COORDINATION

One of the most essential resources needed for the backcross program is land for the seed orchards where the hybrid chestnuts can be grown. The Tennessee Army National Guard (TNARNG) has small areas on its training sites that are not actively used for military training, and so a cooperative agreement was developed with the American Chestnut Foundation (TACF) to establish American chestnut seed orchards at two of its facilities: VTS-Milan (Lavinia, TN) and VTS-Catoosa (Catoosa County, GA).

TNARNG provided the land and oversight of the project. TACF provided expertise and plant material (seeds and seedlings). Funding for materials and some labor necessary to establish the orchards was provided by the DoD Legacy Resource Management Program, which is dedicated to supporting efforts to preserve and enhance the natural and cultural heritage of DoD facilities, while maintaining military readiness.

## SITE PREPARATIONS

Both orchard sites required substantial preparations prior to planting chestnuts.

- A prescribed burn was conducted at VTS-Milan in order to prepare the two and a half acre grassy field
- At VTS-Catoosa, an acre of mixed hardwood/pine forest was cleared to make way for the orchard.



*Controlled burning of the VTS-Milan orchard site.*

Herbivory by deer is one of the biggest threats to young seedlings. In order to prevent this, an 8-foot-high woven wire fence was erected around the perimeters of both TNARNG orchards.



*Guardsmen and state employees installing orchard fences.*

## PLANTING

The TNARNG orchards were planted using volunteers from the local communities, TACF, and TNARNG personnel and soldiers.

In late April 2009, two chestnut seedlings and 533 seeds were planted at VTS-Milan and 173 seeds and 42 seedlings were planted at VTS-Catoosa. Each orchard was planted in a little over half a day.



*Volunteers planting American chestnuts at the VTS-Milan, April 18, 2009.*

Each seed received a prepared seedbed of loosened soil and a weedfree soil amendment, as well as a tree shelter to protect the new seedling from rodent herbivory.

Seedlings at both orchards are watered and fertilized approximately twice a month during the summer, depending on local rainfall. As it has been many years since the orchard site at VTS-Milan was forested, a fungal mycorrhizal inoculant was added there to give the seedlings an extra boost.

The TNARNG orchards will be surveyed annually, noting the survival, health, and size of each tree. Once the first year's data has been collected and overall germination rates have been assessed, more trees may be added to the orchards. VTS-Milan has well over an acre of fenced land on which seeds may be planted; trees may also be added in future years at the orchards wherever a gap is created by a culled tree.



*Volunteer prepares planting hole for American chestnut seed at the TNARNG Volunteer Training Site-Milan.*

## FUTURE PLANS

After five to seven years of growth, the trees will be inoculated with blight to test for resistance. If trees show susceptibility to the blight, they will be culled from the orchard. Trees exhibiting blight resistance will be crossed with trees of the same generation from other locations to produce a highly advanced intercross generation. Seeds from this generation will be collected and, as they are currently expected to be sufficiently resistant at that juncture, used in larger scale forest restoration test plots.



*American chestnut seedling growing in protective tube at the TNARNG VTS-Milan.*

## IMPACTS OF THIS PROJECT

The orchards on the VTS-Catoosa and VTS-Milan are a small part of a massive project whose long-term goal is to reintroduce to its native range an American chestnut with the ability to resist the blight and thrive again. Success in this project will enhance ecosystem quality and biodiversity on TNARNG lands and other forested properties throughout the range of this species and enrich the training environment for military generations to come.

## WANT TO KNOW MORE?

For additional information about the TNARNG American chestnut project, contact the TNARNG Environmental Branch at: 615-313-0603 or email [Janie.Becker@tn.gov](mailto:Janie.Becker@tn.gov). To learn more about the history and ongoing research of TACF, visit their website at: [www.acf.org/](http://www.acf.org/).