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NORTHEASTERN FOREST EXPERIMENT STATION

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Testing American Chestnuts For Blight Resistance

It has now been over half a century since chestnut blight, caused by the fungus Endothia parasitica (Murr.) A. & A., was introduced into America from the Orient. In that time the blight has spread relentlessly and has destroyed all of our commercial stands of this once most valuable hardwood species of the East.

A great many people are interested in seeing the American chestnut (Castanea dentata L.) appear again as a regular member of our forest communities. Over 600 people in 36 different states have written to us, in response to a brief magazine article,[1] to tell us of living American chestnut trees. The locations of these trees, large and small, are shown in Figure 1.

Before receiving these recent communications we knew of only 57 large surviving chestnut trees. Now we know of many more. It is our hope that among them may be a tree that hasn't simply escaped the blight, but has a high degree of disease resistance. Such a tree, if its progeny are also resistant to the disease, could provide a means by which American chestnut could be helped to grow in our forests again.

Those large trees that have remained free of the blight in areas in which the disease is well established have the strongest possibility of possessing disease resistance. They have been exposed to infection for years, so their escape from the disease must be due either to the failure of the fungus to reach them under conditions favorable to infection or to disease resistance. We hope to de-

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[1] Grahame, Arthur. Know Any Old Chestnuts? Outdoor Life, March 1957, p. 21.

termine which of these possibilities is responsible for their survival.

One way to test blight resistance is to artificially inoculate existing chestnut trees with the blight fungus. Some trees have been tested in this manner by a trained technician. Such work is slow, and our limited staff has been able to test only a few trees each year. Another method is to obtain scionwood from trees suspected of being blight resistant and graft them on small seedlings in areas where we know the blight is present. Resistant trees will live, others will die after sufficient exposure to the disease.

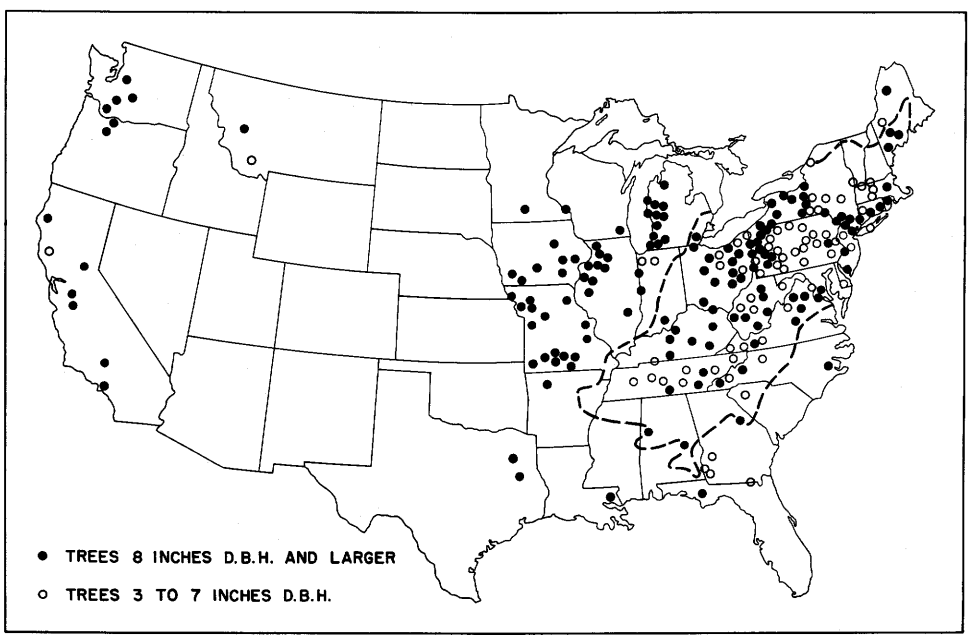

Figure 1.--Location of large American chestnut trees as reported in the spring of 1957. The dotted line indicates the botanical range of American chestnut.

During the past 4 years we have obtained scionwood from large chestnut trees that have survived the blight so far. Some of this scionwood has been used locally. The rest has been sent to cooperators in 28 states who have grafted the material on seedlings in their localities. In this way we can be relatively sure that the grafted trees that survive in all these different places, from scionwood from a single source, have an excellent chance of being

blight resistant. When these trees are much older our technicians can then subject them to artificial inoculations as final proof.

We hope that all who have reported the occurrence of American chestnuts will keep the trees under observation. Periodic reports on their condition would be welcome. We also wish to learn of the locations of still other large American chestnuts.

Those who wish to propagate their chestnut trees and test them can take scionwood from the tree and graft it onto other chestnut root stock. Detailed instructions on methods of making grafts may be obtained by writing to the U. S. Department of Agriculture, Washington 25, D. C.

We are now compiling information gleaned from the letters we have received. We plan to extend our testing of American chestnut and will contact those who have reported trees that have the strongest probability of possessing disease resistance. By obtaining scionwood from such trees for propagation and testing in various localities we hope to determine if America possesses a blight-resistant native chestnut.

--JESSE D. DILLER

Forest Pathologist
Virginia Pine-Hardwood Research Center
Northeastern Forest Experiment Station

Agriculture-Forest Service-Upper Darby, Pa.