August 26, 2019

Restoration Research Priorities 1.0

At our April 5, 2019 restoration committee meeting in Abingdon we created a list of 13 areas of possible research needs to aid restoration. I would like to prioritize these so that we can present them to the Science Oversite Committee, and staff at the Gettysburg meeting. I want to begin that process by offering my priorities of those 13 areas of need for comment, possible additions, and to work toward some sort of consensus of priority at Gettysburg. Please send me your thoughts now so that I can take them into account before Gettysburg meeting.

Number 1 - As I mentioned in April, I still put site selection for restoration plantings as the number one priority for the development of better information. I think we know a lot already, but we need to sharpen what we know and make it possible for everybody in every state to easily look on the web soil survey and locate exactly where to plant chestnut trees. We need to better define those sites, and then make that information useable by the people doing plantings.

Number 1 - Developing transgenic and/or seed orchard trees for restoration trials and restoration plantings, including both blight and phytophthora resistance. Jared Westbrook, Bill Powell, Science Oversite Committee, and TACF Staff are already working very hard on this. The sooner we know what we will be planting, and when, the better we can plan.

Number 2 - We need ways to keep trees in our germplasm orchards, and other mother trees, alive. It is a lot of work to establish germplasm orchards only to see the blight wipe them out. We do not want to keep losing sources of diversification.

Number 2 - We need to know the number of trees required to establish a restoration planting. The fewer trees required the easier, quicker, and more successful restoration will be. I personally am hoping that 25 diversified trees will be enough in a given planting. I have heard estimates as high as 200 to 500 trees required per planting. If so, that will greatly slow down and change how we approach restoration.

Number 3 – Gap Studies (how big a gap is needed), shade tolerance, regional adaptability, the impact of current forest condition, and silviculture, are all important. The more we know about these topics the better job we will do with restoration.

Number 4 – Knowledge about allelopathy, mycorrhizal associations, and wildlife dispersal may become important in how we set up and manage restoration plots.

Number 5 – Climate Change is very real and will be very important over the long term. I see few opportunities for TACF to do research to help restoration in the near term.

Increased knowledge of most of the topics on this list will result in the development of better restoration planting protocols.

Bruce Wakeland