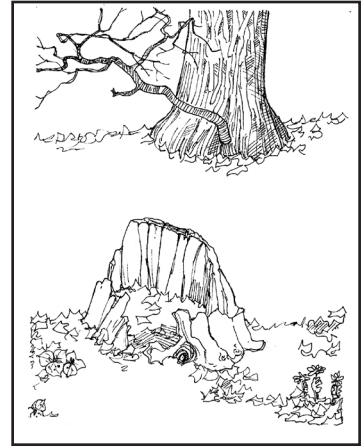


## Sketches of the MEGA-Transect Project

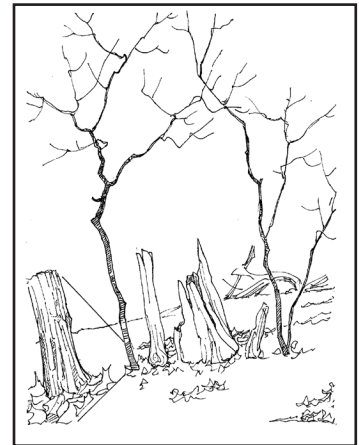
Text and Illustrations by Dr. Fred Paillet, Department of Geosciences  
Adjunct Professor, University of Arkansas

The idea of the MEGA-Transect as a vehicle for characterizing the large-scale distribution of chestnut in the southern Appalachians really intrigued a veteran chestnut researcher from New England. In my earlier work I had noted that there were several peculiarities about the distribution of chestnut on the landscape that needed explanation. Not the least of which was how a tree that was supposedly obliterated by a serious disease could remain so abundant nearly a century after the disease first appeared. I knew that a similar abundance of chestnut sprouts must occur further south because recent forestry publications identify released chestnut stems as the dominant woody biomass (and an important competitor for desirable hardwoods) in North Carolina and Virginia stands in the first few years after harvest. I had long suspected that a real analysis of the role of chestnut in modern landscapes would require a careful mapping of chestnut and the location of pre-blight chestnut trees over large areas. But my research funding had long ago pointed me away from chestnut, so that work would be left to others. The MEGA-Transect project might be the basis for just that kind of ambitious and definitive study of how chestnut is functioning as a viable shrub in the modern forest ecosystem.

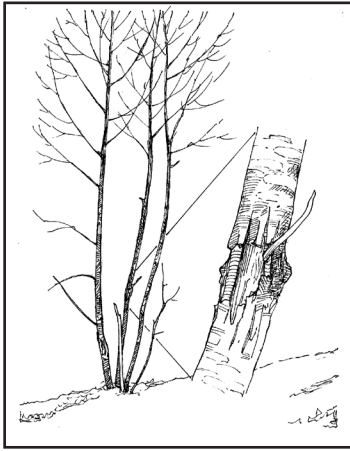
I had the chance to take a more serious look at chestnut in the southern Appalachians when a consulting project coincided with the retirement of a relative to the woods of northern Georgia. I used the opportunity to spend two glorious weeks tramping through the forest along the Appalachian Trail, and in adjacent side trails such as those of the Slickrock Wilderness and Great Smokey Mountain National Park. In New England, chestnut was and is located in mixed oak stands on dry uplands and outwash sediments along major rivers such as the Connecticut and



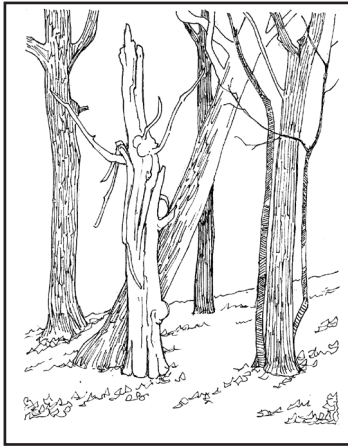
*An old chestnut stump on the A.T. in Georgia shows sockets where live basal sprouts were once attached, just like those on a large living tree shown for comparison.*



*Although almost all chestnut sprouts are derived from former seedlings, this is the rare exception where a living sprout is attached to the base of a former tree.*



*Sometimes sprouts are released into an opening, demonstrating the rapid growth capacity in chestnut, while hypovirulence suppresses the ravages of blight.*



*Although blight killed the large chestnut trees along the A.T. before 1940, the natural rot-resistance of chestnut wood allows some trees to remain standing today.*

Merrimack. Much of this land was reverting from cultivated fields or pasture when blight arrived generally before 1925. In contrast, much of the southern Appalachian habitat for chestnut was probably never without forest cover, and had experienced blight somewhat later. When combined with the differences in climate, I wondered if I would see the same conditions related to chestnut sprout distribution on my southern foray.

The short answer to that question is yes! In the sections of the Trail visited last spring, I saw all of the same things I had been seeing in New England. Chief among these were: 1) the tendency for chestnut sprouts to form dense clusters in some places while being absent from otherwise similar locations; 2) chestnut sprouts not necessarily associated with locations where there were large chestnut trees at the time blight arrived; 3) the lack of live sprouts attached to the base of former large trees suggesting that most live sprouts are “old seedlings” that never grew as trees; and 4) the tendency for heavily suppressed chestnut sprouts to survive blight for decades before the main stem (but not the plant itself) succumbed when an “epidemic” of blight swept through the area. Land use and particularly livestock predation could possibly explain everything I was seeing in New England. It seems intriguing that the same patterns do show up along the Appalachian Trail even though site history must have been so different.

If most living sprouts are old seedlings, their distribution can tell us something about how chestnut propagates in the forest, which would be of real use in planning the re-introduction of blight-resistant chestnut. How could we use the MEGA-

## Transect results?

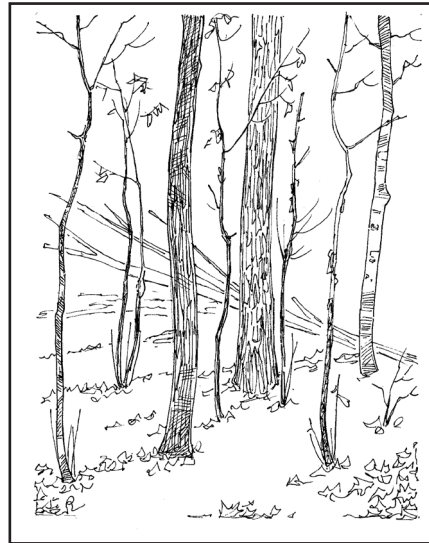
My idea of a detailed study of chestnut distribution is based on a “nested” set of study sites. The project would start at the largest scales, mapping the general distribution of terrain, forest class, and land use history. A very broad and highly generalized map of chestnut distribution along transects cutting continuously across that landscape would give the most general portrayal of chestnut.

Progressively smaller study plots would be “nested” within specific areas of the broadest transect to focus on specific questions, such as the effect of altitude and geologic substrate on chestnut.

So the MEGA-Transect does seem like an important first step in getting to the bottom of the natural and man-made influences on chestnut distribution—as well as what that distribution could possibly tell us about getting blight-resistant chestnut back onto the landscape. ♣



*A typical chestnut sprout along the A.T. in Georgia shows a long history of stem girdling by blight and repeated release of basal sprouts.*



*A typical example of a location where a dense clustering of living chestnut sprouts and an absence of stumps indicates a former abundance of chestnut seedlings.*