

The rolling hills of the Southern Piedmont have been cleared, cropped, and abandoned by several waves of settlers and farmers, beginning in the 1700's and ending in the 1930's. Each period of cropping caused considerable sheet and gully erosion. Now, thin topsoils cover clay subsoils with poor internal drainage, low fertility, and limited aeration. In many areas, topsoil is completely removed. Shortleaf pine seeded extensively from trees on uncultivated ridges onto fields abandoned in the 1920's and 1930's, and improved fire protection kept the trees alive.



Typical eroded Piedmont site in the 1930's.

Identifying The Disease Complex

On good sites, young shortleaf pines grow rapidly. Even after crown closure, sufficient nutrients and water are available to sustain the vigor of good competitors to an advanced age. The soils on littleleaf sites do not provide that kind of support. On those sites, topsoil is absent or nearly so, and infertile, clay subsoil forms the surface rooting zone. In periods of abundant rainfall, these soils are prone to waterlogging, which stresses roots by limiting oxygen supply. During droughts, soil moisture is tightly held by the fine clay particles and is unavailable for tree growth.