

Know Your Forest Soils - Introduction

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Forest soils knowledge serves as a basis for essentially all traditional forest management decisions from land acquisition, pine or hardwood species selection for planting, site preparation requirements, fertilization prescriptions, stand density/composition, and harvest timing. Forest soils are broken down into *soil series*. Each soil series has a set of relatively unique soil profile and/or parent material characteristics. Soil series that have common soil characteristics and similar productivity/site quality that can be grouped together are called *soil groups*. For Coastal Plain soils, the main defining characteristics of importance are (1) soil drainage, (2) depth to the first restrictive layer, and (3) surface soil texture (% sand, silt and clay). For Piedmont soils the main defining characteristics are (1) parent material and (2) topsoil (A) horizon depth. Each soil series and soil group has a “base” (inherent) level of site productivity for growing a pine or hardwood species. This inherent level of site productivity is influenced by (1) land use history (low fertility cut-over site that may have been forested to 2 or 3 or more rotations or moderate to high fertility old-field, pasture or hay-cutting fields), (2) management inputs (site preparation, competition control, and fertilization), and (3) genetic improvement (when available). Forest landowners should have a soil series map of their property(ies) to make informed and sound forest management decisions on their land holdings.

Forest soils serves as the medium where herbaceous and woody plants establish their roots and find needed water, nutrients, and oxygen to grow. Learning about the soils on one’s property can greatly improve the ability to make sound and beneficial forest management, whether one’s priorities are to maximize timber production or wildlife or improve water quality and enhance aesthetics and recreation. Not all forest soils are conducive to growing timber in a reasonable time frame. Very poorly drained soils are best left to be in their native set of vegetation. Excessively well drained, deep sandy soils are not well suited to loblolly or slash pine or hardwood planting, rather, they are better suited for longleaf or sand pine. On some soils, forest management inputs (competition control and/or fertilization) can make marginal soils very productive. So, it literally pays to get to know your forest soils. An example of this is the large growth response observed when low-productivity, poorly drained Coastal Plain soils are bedded and fertilized with phosphorus.

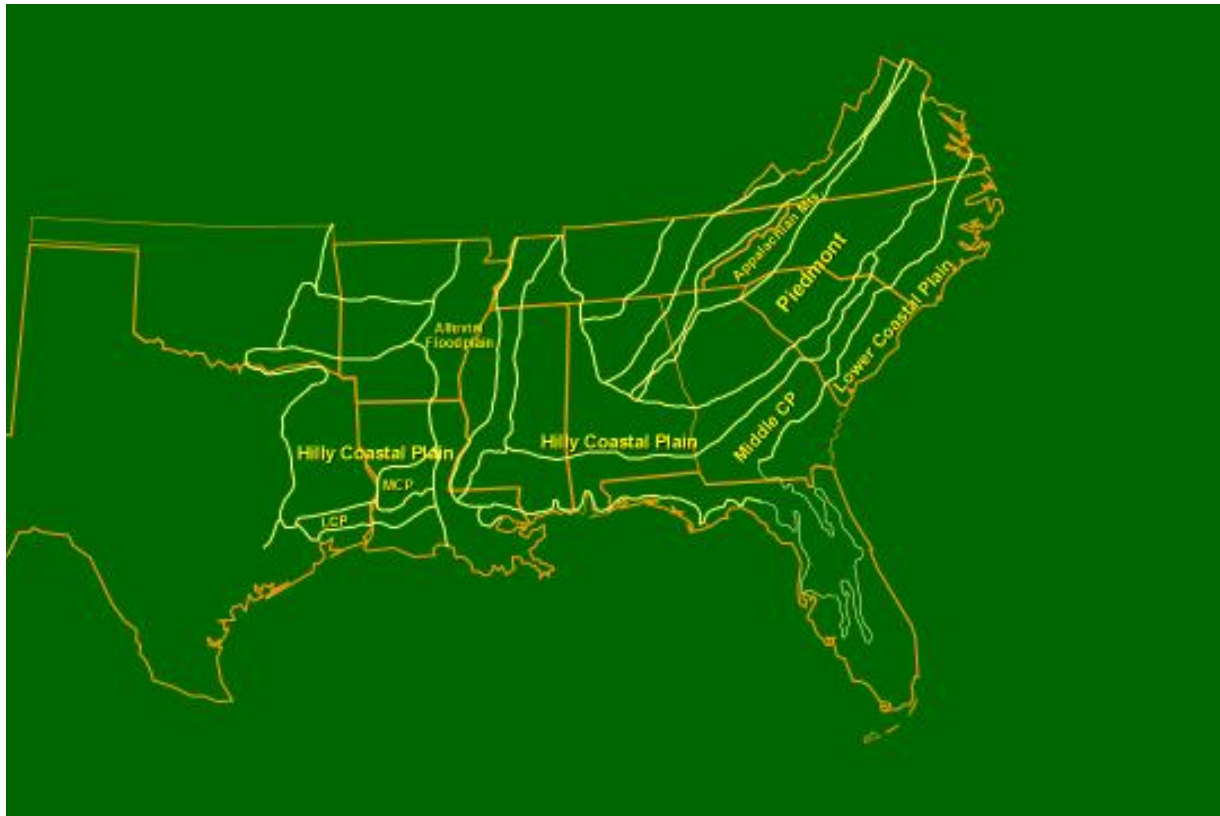


Figure 1. The Physiographic Regions/Provinces of the SE US.

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