

THE FALL LINE: A PHYSIOGRAPHIC–FOREST VEGETATION BOUNDARY*

DAVID SHANKMAN and JUSTIN L. HART

ABSTRACT. The range boundaries for many tree species in the southeastern United States correspond to the Fall Line that separates the Coastal Plain from the Appalachian Highlands. Trees in the Coastal Plain with northern range boundaries corresponding to the Fall Line occur exclusively in alluvial valleys created by lateral channel migration. These species grow mostly on lower bottomland sites characterized by a high water table, soils that are often saturated, and low annual water fluctuation. In contrast to the Coastal Plain, the southern Appalachian Highlands are occupied mostly by bedrock streams that have few sites suitable for the regeneration of these species. The Fall Line is also an approximate southern boundary for trees common in the southern Appalachians that typically occur on either dry, rocky ridgetops or in narrow stream valleys, habitats that are uncommon on the relatively flat Coastal Plain. The ranges for many trees in eastern North America are controlled by large-scale climatic patterns. Tree species with range boundaries corresponding to the Fall Line, however, are not approaching their physiological limits caused by progressively harsher climatic conditions or by competition. Instead, the Fall Line represents the approximate boundary of habitats suitable for regeneration. *Keywords:* *Appalachian Highlands, Coastal Plain, Fall Line, forest vegetation.*

Forest vegetation dominates eastern North America. Before European settlement, these forests extended nearly unbroken from the Atlantic coast westward to the Central Plains, except where Native Americans had altered them. Distinct forest regions developed in response to climatic conditions (Braun 1950; Kùchler 1964). Many of the most common species, however, occupy a large part of eastern North America. The ranges of many species extend from the Atlantic coast westward into or beyond the Ozark and Ouachita Mountains. These include some of the most common tree species in the region, such as post oak (*Quercus stellata*), southern red oak (*Q. falcata*), water oak (*Q. nigra*), persimmon (*Diospyros virginiana*), and sweet gum (*Liquidambar styraciflua*), among others. Many tree species have ranges that extend from the lower Coastal Plain northward into the Great Lakes region and New England, including American beech (*Fagus grandifolia*), black walnut (*Juglans nigra*), black tupelo (*Nyssa sylvatica*), sassafras (*Sassafras albidum*), flowering dogwood (*Cornus florida*) and several species of oak, hickory (*Carya*), and ash (*Fraxinus*).

The climate of the southeastern United States is classified as humid, subtropical. The long growing season and abundant year-round precipitation are ideal for the growth of deciduous tree species. Rainfall associated with cyclonic storms and fronts occurs throughout the year but is more common during the winter and

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✉ DR. SHANKMAN is a professor of geography at the University of Alabama, Tuscaloosa, Alabama 35487. DR. HART is an assistant professor of geography at the University of North Alabama, Florence, Alabama 35632.