

## CHAPTER 12

# SOUTH FLORIDA SLASH PINE

This variety of slash pine differs from the typical species in many ways, as discussed in chapters on taxonomy and geographic and racial variation. Observations have been limited to phenotypic variation, with results roughly parallel to those in typical slash pine.

### CONES, SEEDS, AND SEEDLINGS

Differences in cone and seedling size and shape were noted in studies of taxonomic relationships of pines in southern Florida (Little and Dorman 1954) and racial variation (Squillace 1966b).

In two studies, seed size of South Florida slash pine had no significant effect on seedling size or survival, but seedling size varied widely and seedling grade was considered of prime importance in survival and growth of young trees (Langdon 1958a; Bethune and Langdon 1966). This was true for seed of South Florida slash pine collected at two locations, although average growth of seedlings from the two areas differed. After 6 years, survival for small, medium, and large seedlings in percent was 53, 66, and 78, respectively, and height growth in feet was 2.1, 2.6, and 3.5, respectively. Eighteen percent of the seedlings from Polk County, northern part of the range, had characteristics usually associated with typical slash pine seedlings, such as conspicuous winter buds or absence of secondary needles (fig. 15). No seedlings of Hendry County, central part of the range, possessed these characteristics. Height in Polk County seedlings varied over a wide range, and the shape of the frequency distribution curve was not normal. About 54 percent of the seedlings were 3 to 6 inches tall, but 34 percent were taller than 6 inches. Seedling heights may reflect differences in length of seasonal growth period, which is long because of the mild climate (Langdon 1963a).

South Florida slash pine seedlings are infected by brown spot, with infection often heavy on short trees (Bethune and Langdon 1966). Variation occurs among trees in attacks by other enemies listed in the chapter on taxonomy of southern pines.

### SAPLING GROWTH AND WOOD SPECIFIC GRAVITY

Among 11-year-old planted South Florida slash pine, tree volume varied from 0.1 to 1.0 cubic foot, and dry weight from 3 pounds to over 30 pounds. Extracted wood specific gravity varied from 0.43 to a maximum for one tree of 0.65 (fig. 175). Wood

specific gravity varied over a range of about 0.40 for trees of equal volume and increased directly with volume ( $r = 0.42$ ). Thus, certain large trees had both larger volume and higher specific gravity than small trees, the reverse of what is found in certain typical slash pine. Average specific gravity of all trees was 0.53. The percentage of latewood ranged from 30 to 60 percent, averaging 45 percent, and did not vary significantly with volume (White and Saucier 1966; Saucier and Dorman 1969). Dominant South Florida slash pines were observed to have a growth period extending into late fall, which might account for a high percentage of latewood in annual rings (Langdon 1963a).

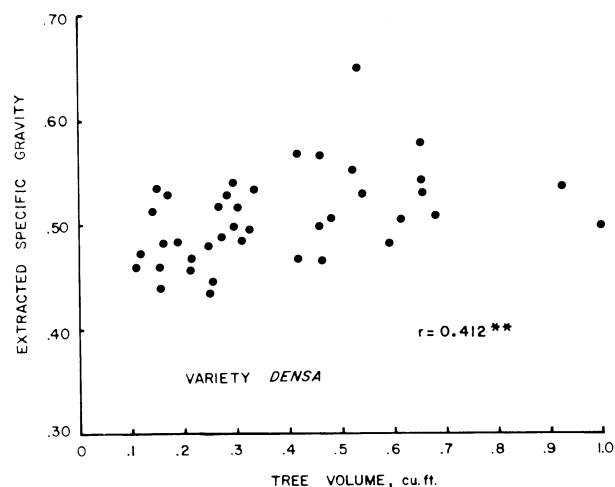


Figure 175.—South Florida slash pine trees 11 years old exhibit wide variation in total volume and wood specific gravity among individual trees of the same volume. (Saucier and Dorman 1969)

The average unextracted increment core specific gravity of South Florida slash pine in several natural stands was 0.615 (standard deviation 0.068), while the extracted increment core specific gravity was 0.547 (standard deviation 0.044), a decrease of 12.43 percent in specific gravity. The extractive content of the wood was higher than for other southern pines. Also, the average wood specific gravity and the variation among trees was higher than for other southern pines. Average specific gravity for the whole tree was computed to be 0.580, with a standard error of 0.003 (Clark and Taras 1970).

Oleoresin yield of South Florida slash pine is higher in the fall than in typical slash pine (Clements 1959). Variation in yield among trees has not

been studied. Oleoresin samples from a small number of trees indicate wide variation in major constituents of the turpentine, such as alpha-pinene, beta-pinene, and beta-phellandrene (Squillace and Fisher 1966).

Phenotypic variation in South Florida slash pine

is wide for seedling and sapling growth, resistance to pests, wood extractives, wood specific gravity, latewood percent, and turpentine composition. The values, or ranges in variation, within which selection can operate for studies of inheritance are indicated.