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Ring Counts in Second-Growth Baldcypress

Many thrifty, second-growth baldcypress trees (*Taxodium distichum*) [L.] Rich.) appear to lay down several rings each year. These false rings may cause foresters to underestimate the growth potential of a highly prized species by overestimating the age of sample trees.

Increment cores recently taken from three baldcypress plantations provided a basis for comparing the observed with the expected number of growth rings. The oldest plantation was established in October 1935 by the Tennessee Valley Authority in the Wilson Reservoir near Florence, Alabama. The second plantation, made in March 1937, was in the TVA Pickwick Reservoir near Iuka, Mississippi. The third was installed in March 1939, by the Soil Conservation Service, near Athens, Georgia. One-year-old nursery stock was used at Athens and Iuka, and 2- to 3½-foot wildings at Florence.

An increment core was taken from each of 63 randomly selected trees in these plantations during the 1956 growing season. The samples encompassed most of the soil moisture conditions usually associated with baldcypress. The Georgia plantation is on a well-drained branch bottom. The TVA plantations cover the range from dry, rarely inundated sites to places where water nearly always stands.

All borings were made above pronounced butt swell. Trees subject to the deepest flooding were bored as high as 2 feet above the root collar. All 63 trees had probably reached the height of boring during their first growing season. Yet even when obviously doubtful rings were omitted, the unaided eye counted an average of 28 rings for 17-year-old trees, 30 for 19-year-old trees, and 32 for 20-year-old trees. Within each age group, the larger trees had more apparent rings.

The discrepancies arose because of the tendency to regard each dark, resinous band on the core as an annual ring. These bands are associated with intra-seasonal disturbances in growth — perhaps caused by soil-moisture fluctuations—and in many trees they occur more than once a year. In some cores they are so prominent that true rings are overlooked.

For an accurate count, an increment core must first be sliced down its long axis. This is best achieved by placing the core in a Reineke holder[1] or gluing it to a block of wood, and then sectioning it cross-grain with a razor blade. Although wetting the cores facilitates sectioning and inspection, soaking for over 30 minutes may discolor them.

When the sectioned core is examined under a magnification of 20 diameters or more, the true summerwood appears clearly as narrow bands of small, thick-walled cells. In effect, the false rings disappear, because the stains that cause them are indistinct at this magnification, and the cells in the stained portions are only slightly irregular. Even under low magnification, many of the false rings disappear from the sectioned core. Figure 1 illustrates round and sectioned portions of a core.

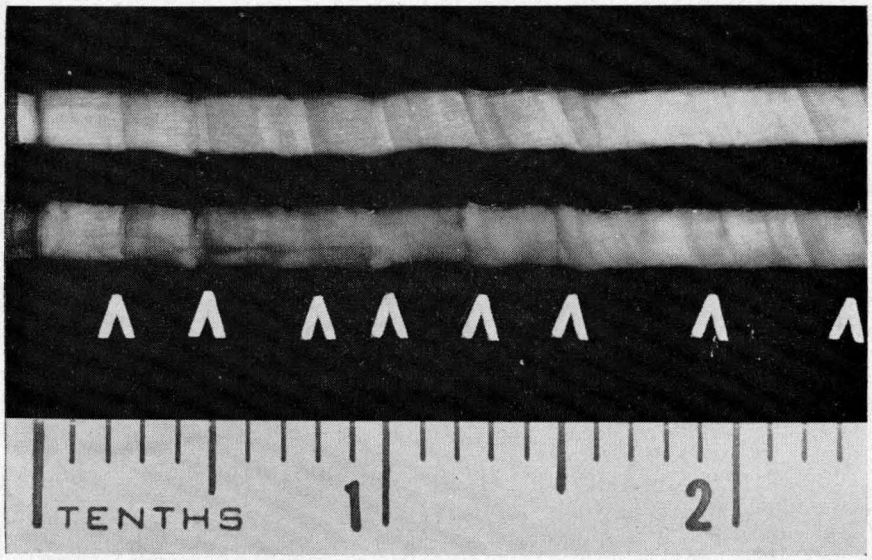

FIG. 1.—Increment core from second-growth baldcypress. *Above,* the true annual rings as seen on a flat, sectioned surface. *Below,* the round surface of the same core. Arrow points designate true rings.

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[1]Reineke, L. H. A new increment core instrument and coring wrinkles. Jour. Forestry 39: 304-309, illus. 1941.

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