

where p_i is the sampling probability. The statistic used for calculating diversity was:

$$H' = c/N (N \log_{10} N - \sum n_i \log_{10} n_i) \quad (2)$$

where N is the total number of all individuals, n_i is the total number of individuals of each species, and $c = 3.321928$ to convert from \log_{10} to \log_2 (Lloyd et al., 1968). The maximum diversity possible (H'_{\max}) for the site was calculated using the function:

$$(H'_{\max}) = \log_2 N. \quad (3)$$

Since the diversity of a community depends on the number of species and their pattern of distribution (i.e., clumped, even, etc.), a measure of site homogeneity, or evenness (J'), was calculated using the following method as described by Zar (1974):

$$J' = \frac{\bar{H}}{H'_{\max}}. \quad (4)$$

Tree species data from the 13 10-m x 20-m quadrats were used for diversity calculations.

RESULTS

The old-growth cypress stand in the Okefenokee Swamp is characterized by three relatively distinct tiers of woody plants. The lower stratum is dominated by shrubs that generally do not exceed 4 m in height. The dominant shrubs are Lyonia lucida (fetterbush), Clethra alnifolia (sweet pepperbush), Smilax laurifolia (laurel greenbrier), and Itea virginica (virginia willow). Vaccinium arboreum (sparkleberry), Leucothoe racemosa (sweetbells leucothoe), Rhus radicans (poison ivy), Vitis spp. (wild grape), and Lyonia ferruginea (staggerbush) are also present, but to a much lesser extent. Numerous tree seedlings and saplings also occupy this stratum. This layer, although occasionally patchy, is relatively continuous throughout.

The middle stratum covers a large zone, ranging from 4 m to slightly over 15 m in height, and, like the shrub layer, is relatively continuous. This layer is dominated at the lower level by Ilex cassine (including coriacea) (dahoon) (generally treated as shrubs except when used to parallel data presented by others on diversity), and at the upper level by Gordonia lasianthus (loblolly bay) and an occasional large Magnolia virginiana (sweet bay). Persea palustris (red bay) and Nyssa sylvatica var. biflora (black gum) are also common components in the middle stratum.

A large void approximately 10 m wide separates the middle tree stratum from the upper tree stratum. This stratum consists solely of Taxodium ascendens. The Taxodium canopy generally occupies a span between 20 and 30 m. The upper canopy distribution is very spotty, with usually one or two and sometimes four or five Taxodium merging their canopies.