

The Structure of Tampa's Urban Forest

What is the structure of a forest?

Forest structure refers to the distribution of vegetation (woody and herbaceous), both horizontally and vertically across a given area. The structure of the urban forest changes over time as plants grow, die or are added to a particular location. The structure of an urban forest influences the way the forest functions and the environmental services it can provide. For example, if reducing wind to slow soil erosion in an area is desirable, then an urban forest structure that has few overstory trees and shrubs with sparse grass and vegetation would not be as effective as one with a dense tree and shrub canopy with dense grass and vegetation.

What attributes are measured in a forests' structure?

Various physical attributes of the forest vegetation are measured and calculated to determine forest structure such as: tree density, diameter and height distribution, crown area/cover, tree health, leaf area and biomass. When the urban forest can be quantified and its structure identified, it is then possible to relate its structure to specific functions, such as energy conservation, carbon storage and sequestration, and pollution reduction

Why is it important to understand the diameter distribution of a Forest?

In Tampa, over 80% of the trees were smaller than 6 inches in diameter. In Tampa, over 80% of the trees were smaller than 6 inches in diameter (Figure 1). This would lead most to believe that the population of trees is mostly young, immature trees. However, 73% of the 1 to 3 inch trees are mangroves and Brazilian pepper. These two species tend to maintain a small diameter throughout their life and do not grow to large sizes.

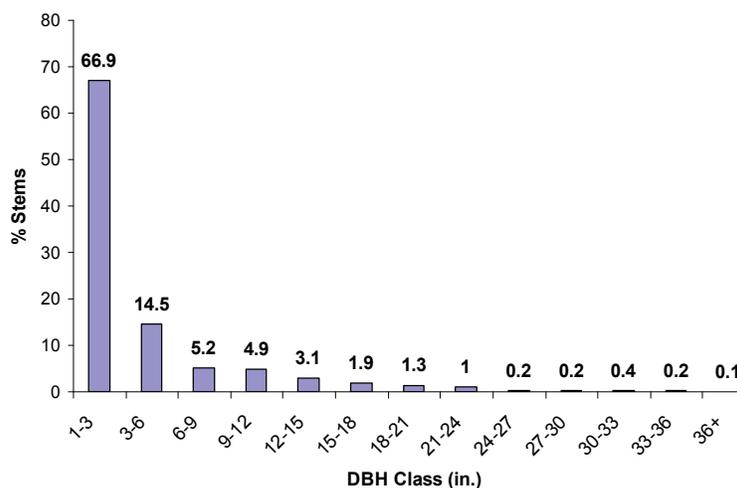


Figure 2: Diameter distribution of the trees in Tampa.

Trees greater than 36 inches in diameter represent just a tenth of one percent of the total population of trees in the city. Trees of this size consist, in large part, of native long-lived species such as oaks and bald cypress. If managers and planners want to ensure larger diameter trees exist on the landscape, they will need to be replaced over time. By understanding the diameter distribution and species information, a comprehensive strategic management plan can be developed to meet this objective. But it is important to keep in mind that both large and small diameter trees are important to ensure the diversity of structures that support the variety of values the urban forest provides.