

Urban Forest Management: Healthy Forest for Healthy Community

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Abstract

Management of any resource begins with an inventory of that resource, and urban forest management is no exception. Inventories are needed to provide a current record of trees being managed; and to plan, schedule, and monitor maintenance jobs. More than 800 street trees of downtown Baton Rouge, LA were inventoried. Data from the inventory provided information on the current resource (trees) conditions. Based on the results, management recommendations were provided.

Keywords: Street tree, inventory, urban forest management, tree condition

Introduction

Baton Rouge, Louisiana is one of the most heavily tree populated cities (in percentage) in the United States. Trees in downtown areas are often the most visible vegetation within a city. Downtown is the area where many people will come in contact with, for jobs, visiting government entities, or for tourism purposes. Downtown Baton Rouge is also the site of parades, sporting events (at the Centroplex), and retail shops. It is important for this area of the city to look nice year around. Healthy trees are an important part of keeping the downtown area beautiful. Trees change from year to year. Trees can grow, decline, fall, or die between inventories. The Baton Rouge Department of Public Works Forestry Division needs current records of trees in the downtown area so that they are able to make management decisions regarding these trees.

Inventory Method

The total inventory encompassed 13 streets in downtown area. Variables such as tree location and species type were recorded, tree diameter at breast height (DBH) was measured, and tree condition was evaluated. The condition of root, trunk, branch, leave, and fruit, along with the presence of disease and pest were all taken into account to determine the overall condition of each tree.

Results

The inventory showed that within the downtown area there are over 800 tree spaces and more than 14 tree species. The Crepe Myrtle is the most planted tree/shrub in this area, with a total of 185 trees and is 27% of the total trees population (Figure 1 and Table 1). Trees with the smallest percent coverage are Magnolia (.05%) and Chinese Parasol (.0145%). The average DBH of the trees is 7 inches (Table 2 and Figure 2). Results for the entire tree population show that the trees within the downtown area are very healthy

in the majority of circumstances. 74% of trees inventoried were in good condition, 21% were in fair condition and 5% in poor condition (Table 3 and Figure 3).

Figure 1-Species Occurrence Within Downtown Baton Rouge, LA

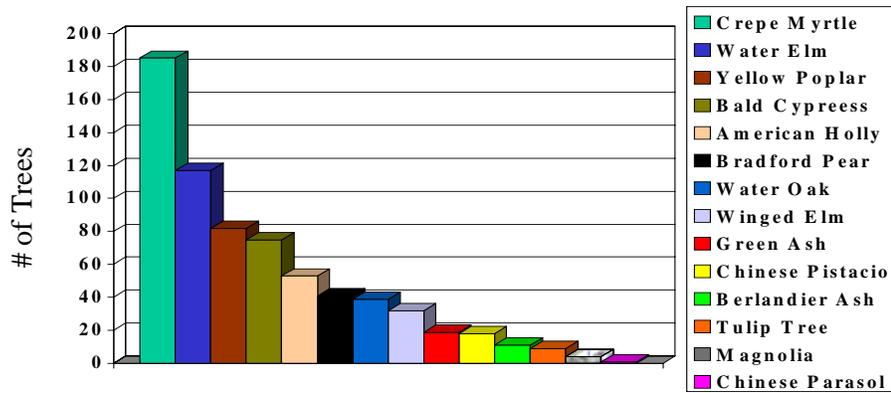


Table 1. Species Occurrence within Downtown Baton Rouge, LA

Species Name	Number of Trees	Percentage of Population
Crepe Myrtle	185	27%
Water Elm	117	17%
Yellow Poplar	82	12%
Bald Cypress	75	11%
American Holly	53	7%
Bradford Pear	41	6%
Water Oak	39	6%
Winged elm	32	5%
Green Ash	19	3%
Chinese Pistachio	18	3%
Berlandier Ash	11	2%
Tulipo Tree	9	1%
Magnolia	4	.05%
Chinese Parasol	1	.0145%

Table 2. DBH Averages for Trees Inventoried

Species Name	DBH Average
Bradford Pear	11
Water Oak	11
Tulip Tree	10
Berlandier Ash	8
Crepe Myrtle	8
Winged Elm	8
Magnolia	7
Bald Cypress	6
Chinese Pistachio	6
Chinese Parasol	6
Green Ash	6
Yellow Poplar	6
American Holly	5
Water Oak	4
Total Average	7 inches

Figure 2-DBH Averages

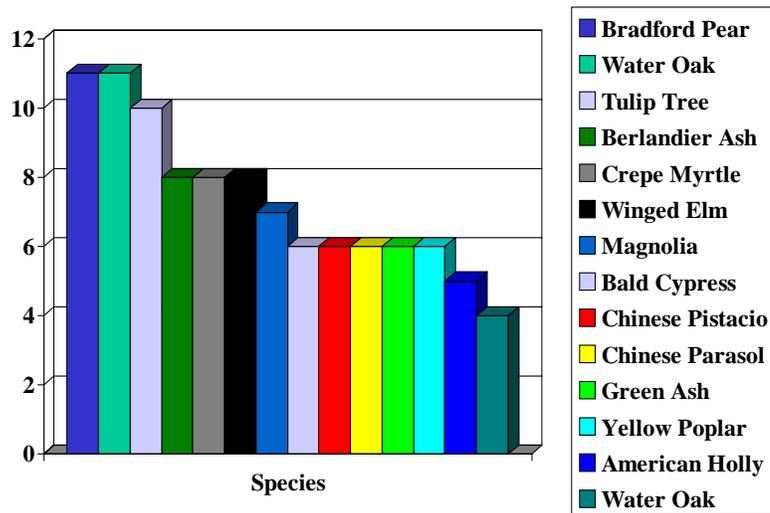
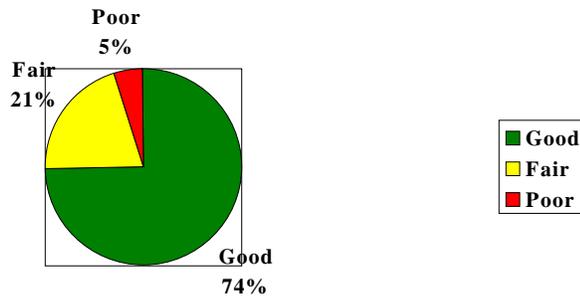


Table 3. Condition Status of Trees Inventoried

Species Name	% Good	% Fair	% Poor
American Holly	90	8	2
Bald Cypress	75	24	1
Berlandier Ash	82	9	9
Bradford Pear	44	49	7
Chinese Parasol	100	0	0
Chinese Pistachio	83	11	6
Crepe Myrtle	75	20	5
Green Ash	89	11	0
Magnolia	100	0	0
Tulip Tree	56	33	11
Water Elm	90	10	0
Water Oak	67	33	0
Winged Elm	60	34	6
Yellow Poplar	60	28	12
Overall Status	74	21	5

Figure 3-Condition Status of All Species Combined



Recommendation

Forest grown trees are self-maintaining unless a specific forest management objective requires otherwise. Street trees differ due to the fact that they are growing in an alien environment. Among the many stresses of street trees are poor soils, various pollutants, pests, and abuses from cars, lawn mowers, and people. Street trees must be maintained so that they provide ultimate benefits and minimal danger and interference to the public (Miller, 1998). Based on the inventory results, following general maintenance and management recommendations are given.

Pruning

Of all municipal tree management activities pruning is the most essential for long-term tree safety and survival. We recommend pruning for safety, health, and aesthetics. Pruning for safety involves removing branches that could fall and cause injury giving the fact that the downtown area is a frequently visited area. We recommend trimming branches that interfere with lines of sight on streets, and removing branches that grow into utility lines. We also recommend maintenance to remove diseased or insect-infested wood and removing crossing and rubbing branches. It also includes continued raising the crown for street and side walk clearance. Pruning for aesthetics involves enhancing the natural form and character of trees or stimulating flower production. Pruning for form can be especially important on open-grown trees that do very little self-pruning (Shigo, 1997).

Fertilization

Fertilizer applications should be used during the growing season to improve the health and appearance of trees. Most deciduous trees should be fertilized once every one to two years. Evergreens may be fertilized in the spring, but less often than other trees. Since trees have their greatest need for nutrients in the spring, fertilizer should be applied any time between leaf drops in the fall and leafing out in the spring. The health and vigor of a tree may be improved by applying fertilizers up to July 1. Beyond that time, new growth stimulated by the fertilizer may not have to adequately harden off before winter (Van De Werken, 1981).

Mulching

Mulching is a process of fertilization which employs certain decomposed organic materials including, but not limited to urban wood wastes from tree maintenance services to blanket an area in which vegetation is desired. The procedure Mulching not only enriches the soil, stimulates development, but also prevents erosion and decreases the evaporation of moisture from the ground. Mulch should be applied first in spring after the soil has warmed and begun to dry from winter rains, depending on soil texture. Mulching too early can delay drying of soil and subsequent root growth which is dependent upon sufficient aeration (oxygen content in soil) and reasonably warm temperature in the root zone. A second application is often needed in autumn. Water thoroughly in late autumn if the soil is not already moist, then mulch.

Literature Cited

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