

FLORIDA'S URBAN FORESTRY PROGRAM

by James B. Harrell

Abstract. The Florida Division of Forestry has, since 1971, been a leader in the development of Urban Forestry in the South. Florida counties and municipalities, in cooperation with the Division, sponsor an urban forestry program that currently employs sixteen urban foresters. Enlightened environmental legislation, rapid urban growth and a sub-tropical climate have combined to create innovative urban forest management.

The need

In 1850, Florida was almost entirely rural. In 1900, 20 percent of the population lived in urban areas. By 1970, this figure had increased to 80 percent and is expected to exceed 90 percent within ten years. Recent growth has increased Florida's population by 300,000 residents per year.

With these new inhabitants came uncontrolled urbanization, critical water shortages, severe environmental problems and the need for Florida's urban forestry program.

In the beginning

In 1971, an environmentally conscious Florida Legislature recognized a need to extend cooperative forestry assistance to municipalities and urban areas. In response, legislators amended Florida's County Forestry Law accordingly. A portion of the amended Law follows:

Statute 589.28 COUNTY COMMISSIONERS OR MUNICIPALITIES AUTHORIZED TO COOPERATE WITH DIVISION OF FORESTRY. *County Commissioners or municipalities are authorized to cooperate with the Division of Forestry of the Department of Agriculture and Consumer Services in providing assistance in forestry and forestry-related knowledge and skills to stimulate the production of timber wealth and to improve the beauty of urban and suburban areas by helping to create in them an attractive and healthy environment through the proper use of trees and related plant associations . . .*

This amendment made it possible for County Commissioners and representatives of city government to enter into a legal contract with the Florida Division of Forestry for a man-year of ur-

ban forestry assistance. Local government, upon entering such a forestry contract, agrees to pay a \$3,000 fee annually for the services of an urban forester. In many instances, they have also provided office space and local telephone service. Other costs relative to the urban forestry project are contributed by the State of Florida. Although assigned to a specific city or county, the urban forester remains a State employee.

With legislative authorization, the Division of Forestry immediately began contracting with municipalities and counties to provide urban forestry assistance. Urban projects were initiated in Metropolitan Dade County, Fort Lauderdale, Jacksonville and Hollywood by July of 1972, and within two years, 13 urban or urban-oriented forestry projects were in existence. Presently, Florida has 16 such projects sponsored by the Division. Of these, 11 are cooperative agreements with counties and 5 are cooperative agreements with cities.

A broad objective

The objective of the Florida Division of Forestry's efforts in urban areas is "to provide the services of a professional forester, to assist and advise urban communities in planning, and to assist in the establishment and management of trees and plant associations to enhance the beauty and livability of the urban environment."

In urban Florida, the forester's primary concern is directed toward the role of promoting trees to establish and maintain a balanced outdoor environment. He no longer considers a tree as just a producer of fiber, but he is "nature's champion" in emphasizing the potentials of trees and plant associations as modifiers of the harshness of man's concrete and asphalt world. To accomplish his goal, the professional forester exchanges his field clothes for a business suit, and steps into the "urban forest." He becomes an urban forester.

Division urban foresters are guided by the following long-range program goals:

- (1) The formulation of long-range guidelines to

derive maximum benefits from trees and related vegetation in urban areas;

(2) The promotion of tree planting in urban Florida;

(3) The establishment of criteria for the environmental and aesthetic enhancement of urban properties;

(4) The development of aesthetically pleasing and environmentally functional landscapes;

(5) The development of a public policy of environmental quality relative to landscapes created by government and private enterprise;

(6) The cultivation of a public awareness of the environmental and aesthetic value of trees and related vegetation in an urbanized environment; and

(7) The promotion of municipal forestry departments which employ their own urban forester.

First, a plan of action

In Florida, each urban forestry project develops from the specific interests and personality of the individual forester and the needs of local government. Within broad limits, however, all Division urban foresters seek to initiate their work with the development of a comprehensive urban forestry plan for their area. Such a plan can enlighten local government to the potentials of an urban forestry program and outline a definite direction for the project.

To develop a plan of work, an urban forester must be aware of the resources with which he has to work. A first step toward this goal is the completion of a tree canopy analysis. This is simply an index of the percentage of an urban area which is covered by tree canopy. Aerial photographs are used to measure both acres and percent of tree canopy cover. With such a tool, urban foresters can quickly locate portions of a city deficient in trees, areas which should be given priority in tree planting programs. In addition, street tree surveys and inventories of areas with unique natural vegetation each provide direction to the urban forestry project.

A final Comprehensive Urban Forestry Plan such as the one developed for the City of Miramar in July of 1976, will include a detailed description of the city's urban forest based upon a tree

canopy analysis, a street tree survey and a vegetative inventory. In addition, the detailed plan will speak to the need for tree protection ordinances, and cite guidelines for future development of the urban forest. This usually includes plans for a city nursery, a street tree planting program for a city, a city parks tree planting program and ultimately a city forestry department.

The greening of urban Florida

The urban forestry program in Florida emphasizes the use and protection of natural plant communities. Street tree planting of suitable shade trees is encouraged; however, in urban Florida, it is the loss of cypress stands, sabal palm hammocks, tropical hardwood hammocks and mangrove forests that is now most critical. These areas, and not the row upon row of billboards and high-rise condominiums, represent the true picture of our native Florida.

As a forester becomes established in one of our new urban forestry projects, he quickly realizes that the urban forest in which he will be working is, to a large degree, "Florida's Forgotten Forest." This conceptualization quickly changes when he becomes involved with local government, citizen groups and clubs in the drafting of a local tree protection ordinance. Such an ordinance provides protection for unique plant communities and historical trees, requires a permitting system for tree removal, includes a list of recommended tree species for planting, and has enforceable tree replacement requirements.

Violators of tree protection ordinances may be required by a city or county to provide replacement trees on a formula basis, based upon the cross sectional area of tree stems illegally removed. Such replacement trees have constituted the major portion of the trees planted by the City of Fort Lauderdale in 1977.

Perhaps one of the most noticeable contributions of our urban foresters toward the "greening" of urban Florida is in the development of city and county tree nurseries. The establishment of a city or county-owned tree nursery is, by far, the most economically feasible way for local government in Florida to carry out tree planting programs. Division urban foresters have developed a six-year

budget design for a \$13,000 nursery complete with mist house on as little as three-tenths of an acre. This public nursery would have a growing stock of 800 trees of eight species at the end of six years, and would produce 200-300 trees annually for outplanting. Almost all recommended species for a beginning nursery could be purchased from local nurseries. Our Boca Raton urban forester is presently assisting that city with the completion of a nursery to provide future street tree planting stock. Included in this nursery will be Malayan Dwarf coconut palm (*Cocos nucifera*) seedlings to replace a Jamaican Tall variety susceptible to the Lethal Yellowing disease.

The highly publicized impact of lethal yellowing on 18 species of palms in South Florida has encouraged many municipalities to establish nurseries to produce resistant Malayan Dwarf coconut palm seedlings. Our urban foresters have started several South Florida communities on a planting program to replace dying Jamaican Tall palms (Fig. 1), and an inoculation program to treat the susceptible trees with injections of a drug, oxytetracycline, to delay mortality. The situation has become so critical that the Florida Division of Forestry has now established a seed orchard of disease-resistant coconut palms near Miami.

Florida's environmental laws

Florida has received considerable credit in recent years for its innovative environmental legislation. Two environmental laws which have given our urban foresters unusual opportunities to promote resource management are the 1972 Florida Environmental Land and Water Management Act and the Local Government Comprehensive Planning Act of 1975.

Through the 1972 Florida Environmental Land and Water Management Act, Division foresters have an opportunity to comment on "Developments of Regional Impact" (DRI). DRI's provide for a regional perspective on local land use decisions having an impact on more than one county. This technique allows for an environmental and economic analysis of proposed developments such as airports and large subdivisions. Our urban forester's role in the DRI process is to supply appropriate data to local government

and regional planning councils describing the impact of proposed development on forest resources and unique natural systems.



Figure 1. Malayan Dwarf variety of *Cocos nucifera* planted to replace the lethal yellowing susceptible Jamaican Tall variety, Fort Lauderdale, Florida.

On May 30, 1975, H.B. 782 — The Local Government Comprehensive Planning Act of 1975 was signed into law by Governor Askew. By this Act, the State of Florida requires comprehensive planning programs for all municipalities and counties by July 1, 1979, and has set standards to be followed by each unit of local government in the planning process. This law has given Florida's urban foresters not only an unprecedented opportunity to speak out for forestry in the planning process, but also an obligation to ensure that our commercial forestlands and unique natural areas are recognized for their value and not placed in a "developable land" category. In this sense, our urban foresters have actually become planners.

Our urban forester assigned to Palm Beach County, in conjunction with the Palm Beach Area Planning Board, recently developed an En-

vironmental Composite Map and Overview which designated areas best suited for urban, rural and agricultural development. This suitability map will be a basis for development of the Palm Beach County Comprehensive Plan.

The sky is the limit

The promotion and development of Florida's urban forest is to a large extent determined by the needs of the community as expressed by local government. In this way, Florida's urban foresters are drawn into many unique and community-specific projects. The imagination and ingenuity of the individual urban forester provides the diversity and momentum to keep urban forestry in the public eye.

Our Fort Lauderdale urban forester became involved in an unusual tree transplanting project dur-

ing America's Bicentennial Year. With the cooperation of businessmen and local government, he coordinated the transplanting of a historic live oak (*Quercus virginiana*) from a construction site in downtown Fort Lauderdale across a quarter mile of ground and 100 feet of canal to a new home in Bubier Park, Fort Lauderdale. Involved in the transplanting of this 100-year-old tree were employees of the Fort Lauderdale Public Works Department who excavated around the root system, City firemen who assisted in uprooting the 50-ton oak with fire hoses, a local businessman who donated two 150-ton cranes to lift the huge oak upon a transport, telephone linemen and a crew from Florida Power and Light Company who lowered aerial lines so the live oak could pass beneath, a police escort, and even an individual who donated a barge and two tugboats



Figure 2. Transporting historic Bubler's live oak (*Quercus virginiana*) through downtown Fort Lauderdale.

to move the tree across a canal (Fig. 3). Care was taken to prevent an excessive loss of soil from around the rootball and transpiration was retarded by constant misting. Even so, many local citizens doubted the tree would survive. The urban forester even had doubts himself, after all, moving a 50-ton live oak is something most people don't attempt often enough to guarantee! However, today, more than a year later, the oak is green and healthy in Bubier Park for all of Fort Lauderdale to enjoy.

In a different situation, Division urban foresters recently found themselves inventorying local landfill sites. It was all part of an urban utilization study undertaken by the Florida Division of Forestry to determine the amount of wood residue (tree trunks, branches, boards, mill wastes and manufactured wood items) being buried at urban landfills. Preliminary indications are that of the waste presently being buried at Florida landfills, as much as 20 percent is composed of wood residues which could be utilized as fuel or composting material.

At the Hillsborough County landfill which handles refuse from the Tampa metropolitan area, wood residue makes up 15 to 20 percent of the material burned. As much as 62 tons of wood residue are being buried at this particular site daily! An estimated 90 tons of wood residue per day is available in the Jacksonville metropolitan area. In an energy and waste conscious age, urban forestry may well provide a new source of energy from a previously wasted resource.

Retrospect

Since 1971, the Division of Forestry has gained valuable experience in urban forestry. We've made mistakes, but in the educational process, our foresters have pioneered Urban Forestry — Florida Style. The important thing is that our Urban Forestry Program is continuing to expand and our impact on a growing Florida is showing. As a direct result of our efforts, five cities and counties have now employed their own urban foresters and several have their own forestry departments, and

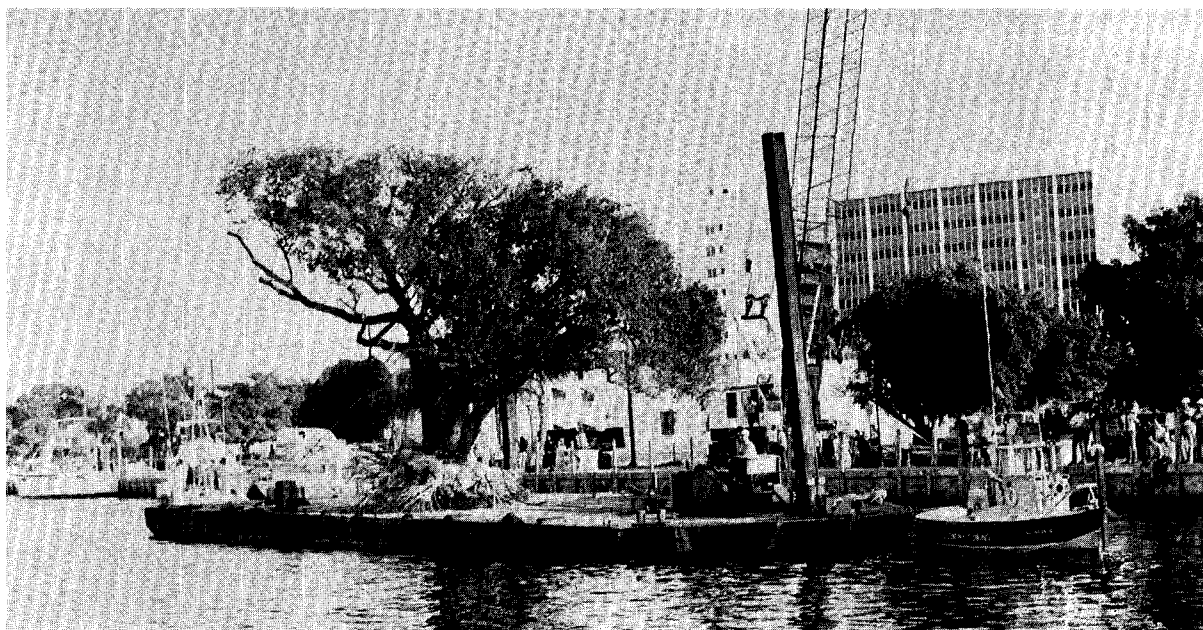


Figure 3. Moving historic live oak by barge, Fort Lauderdale.

there's more work and a brighter future for urban forestry than ever before. Yes, we're proud of our Florida program. It's working!

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ABSTRACTS

Birch, M.E. *et al.* 1977. **Pheromone traps to suppress populations of the smaller European elm bark beetle.** California Agriculture 31(11): 4-6.

The principal vector for the Dutch elm disease pathogen is the smaller European elm bark beetle. The beetles, known since 1951 to occur in California, reproduce in dead or dying elm wood. Feeding that occurs in the spring or early summer results in general infections because the spores can be quickly carried to all parts of a tree by the long xylem vessels of the spring wood. Using the aggregation pheromone (*multilure*) as a bait, sticky card traps can be used to kill large numbers of this beetle. We have been conducting a study to determine the efficacy of a pheromone based trap-out strategy to reduce the size of isolated populations of bark beetles in eastern California.

Edwards, Art. 1978. **Vegetation management.** Grounds Maintenance 13(2): 24-25, 28, 30.

Plans for vegetation management today include much more than merely knocking down excess growth, particularly weeds and brush. For a number of years utilities have been hiring qualified technical people who know every sprig of vegetation, and how it may or may not fit into an aesthetically pleasing and usable right of way. Chemical control today should consist of selectively killing only those species which unduly limit access or which may endanger the power lines. Plant communities are more or less planned and maintained to utilize as many native species as possible with only the undesirable tree species being killed off. Overall beautification is the key and brown-out, where total populations are killed off, is limited to less sensitive geographic areas. Turfgrass managers, golf superintendents and others need technical knowledge as never before. Their position is always sensitive because any use of chemicals must conform environmentally. Yet park visitors, golfers, and others who use turfgrass or merely enjoy it aesthetically seldom opt for lesser quality. The new season will be no different. Users still want the best. Following are case histories which exemplify successful applications.

Shurtleff, M.C. 1978. **Why not grow disease-resistant trees?** Grounds Maintenance 13(2): 38, 40, 43-44, 46.

The ideal method of controlling troublesome tree diseases is to grow resistant varieties (cultivars) and species. Selecting and growing such trees, where well adapted, will reduce your maintenance costs since these plants are less likely to require special sprays or additional care for disease control. Selecting resistant cultivars can reduce maintenance time and costs because such trees require less specialized care. This article, first in a series, recommends varieties resistant to Phomopsis blight, Verticillium wilt, crown gall, and leaf blotch.