

FORT LAUDERDALE'S PLAN TO RESTORE TREE CANOPY

By Daniel J. Mackey

The fast developing city of Fort Lauderdale, Florida, has some unique urban tree problems which have evolved as the result of destructive building practices, and the lack of city canopy planning.

It all began a long time ago, when Fort Lauderdale, like the rest of the Florida east coast, was a twenty mile wide pine ridge with the Atlantic Ocean, beach, and marsh on the east, and the massive Everglades on the west. There were bald cypress, red maple, laurel oak, willows, red bay, and Carolina ash in the 37,000 acres of cypress swamp to the northwest. The Everglades were a vast wilderness of trees and native palms amidst clumps of seagrasses. Tropical hammocks, or "islands" of trees were composed of live oaks, strangler figs, and red maple trees. Upland hammocks contained native varieties like mastic, stopper sabal palm, pidgeon plum, poisonwood, satin leaf, gumbo limbo, wild lime, and paradise trees. Behind the beaches there were red, black, and white mangroves, seagrasses, and sea oats. On the coastal ridge, where most east coast Floridians now live, there were two types of pine forests. On upland, well drained, sandy soils stood the scrub pine forest accompanied by sand pine and scrub oak. The second type of forest on the Atlantic Coastal Ridge were pine flatwoods, made up of dense stands of slash pine towering over grasses, saw palmetto and gallberry. Until the turn of the century, Fort Lauderdale was primarily covered with these pine forests.

Coconut palms were confined to the beach and inland waterways. The coconuts were washed in from the Caribbean Islands and tropics to the south. The winds and tides brought them here, but the coconuts rarely had a chance to sprout new trees beyond the shore due to competition with native vegetation.

By the early 1900's loggers and pioneers had leveled much of the great forests, and the slow development of Florida continued. But even as early as ten years ago, Fort Lauderdale and other South Florida cities were still beautiful beyond description. Then came the unlimited growth which continues today, and with it came the practice of clearcutting all trees at building sites. Under this money-saving practice, no trees were spared by the bulldozer. The land was drained, the trees dragged away, and sometimes if lucky, a few exotics were plopped around the building or road.

Residents, shopkeepers, and city officials saw the majesty of the leaning coconut palms along the beach and rivers and decided the palms would look good on their property too. The Jamaican tall palm was especially seen as a drawing card for tourists. The cities planted these stately palms everywhere; on street medians, parks, school grounds, around public buildings, and beside roadways. A monoculture of palm trees was encouraged, therefore, and the image of Florida (as palm trees on a beach at sunset) would prove costly to South Florida's canopy cover.



Recent commercial development in Fort Lauderdale shows little concern for tree canopy. A new plan and ordinances have been created to restore native tree cover.

While houses, buildings, and roads were being built without regard to tree cover, a pilot program initiated by the Federal Forest Service began in Fort Lauderdale, in 1971. It was only the second of its kind in the United States — the quiet beginning of urban forestry. In 1973, the Florida Department of Agriculture and Consumers Services' Division of Forestry assigned the first of three subsequent foresters to Fort Lauderdale's public works department. The results of a canopy consensus of the entire city by the urban forester that year were shocking. Only 4.9% per cent of the city had canopy cover! The canopy cover still holds at that mark. In that same year, the new urban forester took a street survey and found the great majority of public landscaping was done with palm trees, although live oaks were also used. A more recent 1976 field survey taken in Broward County, (of which Fort Lauderdale is a part) showed that 94 percent of the original 104,000 acres of forest are gone. Therefore, only 2.5 percent of the entire county has tree cover — a meager 6,191 acres.

Coconut palms planted by the city, residents, and businesses, were a saving factor in providing at least minimal tree cover — until lethal yellowing hit. So called because the fronds turn a sickly yellow when infected with the disease, lethal yellowing was first discovered in Jamaica in 1933. It first became evident in the United States in 1955 at Key West. About 75 percent of the coconut palms on Key West island soon died, and the new blight to America quickly spread up the Florida Keys and onto the mainland. In 1974, it was estimated that Dade and Broward counties had 500,000 coconut palms. Today over 95 percent are dead, and the few remaining survivors are on borrowed time. The coconut palms on Fort Lauderdale's city property are injected with anti-biotics four times yearly to slow down the disease, and marked each time with a different color spray paint. This treatment, however, only postpones the inevitable, and researchers are still unable to find a lasting cure for the disease. But scientists from the University

of Florida's Institute of Food and Agricultural Sciences now think a quarter-inch tree insect called *Haplaxius* may be the carrier of the mysterious disease. Lethal yellowing also seems to be infecting other palms and tree species in South Florida in differing degrees. The Malayan Dwarf palm tree is highly resistant to the disease and is easily mistaken for the Jamaican palm, the appearance is so similar. This is why Malayan Dwarf palms are now being promoted as the Jamaican's replacement.

Lethal yellowing may be seen as a blessing in disguise someday, although the blight has further reduced the already inadequate canopy cover in Fort Lauderdale. Residents and city officials now realize the need for diversified planting of a mixture of tree types, so that when natural breaks do occur, there will be plenty of back-up vegetation to replace them. The day of monoculture planting in Fort Lauderdale is over. Now the stress is where it should be — on native varieties which are more suitable to the environment.

But coconut palms are not the only non-native exotic tree species which has usurped the rightful place of indigenous trees. The worst offenders are three junk trees which are invading at a rapid rate, years after their initial introduction. The Brazillian Pepper tree, locally called "holly tree," has become an urban weed tree in the city of Fort Lauderdale. It grows quickly on land disturbed by development, where its seeds are cultivated by the exposed soil. It is not uncommon to see wooded areas completely overcome by Brazillian Pepper trees, and see them growing out of sidewalks beside city buildings. Some birds, including the native mockingbird, love to feast on the red Brazillian Pepper seeds when ripe. But the seeds are also inadvertently dispersed by such birds throughout the city and countryside. The Pepper tree was introduced to Florida in the early 1900's because it is a fast grower which thrives near water, like all the non-desirable pest trees in South Florida.

The Australian Melaleuca tree was imported for many years as a specimen and lawn plant replacement for clearcut indigenous trees and plants. It was also widely used by the city as a street tree, and until very recently, its snowy blooms were of high ornamental value. The blooms extract a volatile odor which causes allergic reactions and respiratory problems in some people. The Malaleuca is another water glutton with roots which inhibit native vegetation growth. The magnificent Everglades are severely threatened by the Melaleuca's pervading presence. Melaleuca seed pods are large — about the size of an eraser — and contain many seeds. The seeds are dispersed by wind and birds and stay viable for a long time. Georgia Tech's Engineering Experiment Station is doing research on the uses of melaleuca wood by "pyrolyzing" it. Pyrolysis is the decomposition of solid organic waste through the action of heat in the absence of oxygen. Through the process, melaleuca wood is transformed into fuels like wood oil, char, and gas.

The third major pest tree thriving in Fort Lauderdale and other Florida towns, is the infamous Australian pine. These tall, brittle looking pines were initially introduced as windbreaks on



Malayan Dwarf palms planted recently next to an infected Jamaican Tall palm. Brazillian Pepper has taken over river bank below.



farms, cattle ranches, and roads. Some residents are concerned over the small forests of Australian pines quickly growing in the western portion of Fort Lauderdale. Others, who are glad of any tree cover no matter the source, look affectionately at the pines and attempt to save them from the ax, as in a controversial battle between citizens and Department of Transportation officials earlier this year. Florida state parks on the east coast seem to be fond of the soil-holding quality of Australian pines and use them widely, especially on beaches. They certainly give a "forest feeling" when grown together. The problem is, Australian pines are also, as one local editorial put it, "messy, short-lived, grow like weeds, and are not good habitat for native South Florida wildlife." Use of the trees on state roads thirty and forty years ago preceded the discovery that the pines mature at thirty years, and rot within from fungus and insects and topple in light winds. Australian pines require continual maintenance for this reason, and are less dangerous when cut back to hedge size. When the pines are totally cut down, within weeks, dozens of new trees sprout up around the stump.

Brazillian Pepper, Melaleuca, and Australian pine, were all introduced to South Florida because they grow well on sand ridges, are salt tolerant,



One stand of slash pine on Interstate 95. The Australian Melaleuca (below) was imported as a specimen tree but now is considered a pest tree.



and are fast growers. What early Floridians didn't realize, however, was that these same exotics would today threaten the very existence of their native flora.

Two city nurseries are crucial in the battle against exotic tree problems and the much needed reforestation of Fort Lauderdale. One nursery is twelve acres beneath the noisy electric power wires of a local utility company. The expansive nursery is in reality, a growing storage place for trees awaiting planting on public properties. Since the nursery is about fifteen years old, mostly palm trees grow there. Varieties which are resistant to lethal yellowing are also stored there after importation.

The primary city nursery is wedged between a busy Fort Lauderdale street and a corner of the beautifully maintained Lauderdale Memorial Park Cemetery. There are approximately thirty-five varieties of trees jam-packed into the diminutive

nursery, although according to manager Val Olszak, they will "cut it down to ten or twelve varieties in the future and emphasize hardwood species." Most of the trees are indigenous to Florida, although exotics are also present. All of them will one-day be planted to form the future urban canopy of Fort Lauderdale. They include European black olive trees, red cedar, mangroves, garcinia, silver buttonwood, oak, lychee, fan palms, cypress, Malayan palms, maple trees, green ash, tree hibiscus, gumbo limbo, tamarind, bottlebrush, oleanders, parkensonia trees, mahogeny, and benjamin trees.

The trees are bought from local nurseries and the Florida Division of Forestry, donated, grown from seed, or from cuttings. City officials would like to see the nurseries become self-sufficient within two years, but space and money are problems. The primary nursery has become so crowded in the past year, over 750 trees must be stored in concrete containers beyond the nursery grounds. The urban forester has been looking at from 100-150 acres of public land which could be used for growing purposes, but money is still an ever-present rebuff. Nearly everyone involved with reforestation, including Mayor E. Clay Shaw, (a former nurseryman) calls funding "a problem of priorities." Nursery manager Val Olszak sums up the frustration when he says, "working for any city, you've got to just keep doing your job as if nothing will change — that way you get the job done and sleep nights." The city's Park's and Recreation Division, which had a 1977-1978 budget of \$2.2 million, allocated \$45,000 for nursery operation and expenses, and \$60,000 for buying trees, while city crews from the Park's Department did all the planting. Mayor Shaw says the reforestation program, begun with the arrival of the first urban forester in the early 1970's, is beginning to pay off. He says "Fort Lauderdale has been planting 4,000 trees a year through various projects," but admits, "the city should accelerate its tree planting program and double its efforts."

Mike Moore, the present urban forester assigned to Fort Lauderdale by the Florida Division of Forestry, says Florida is one of the leaders in urban reforestation, and that "the urban projects in Jacksonville, then Fort Lauderdale, set the precedent; now other cities are creating their own forestry and landscaping divisions by using the state assigned foresters permanently on city pay — and this is a growing phenomenon." When one thinks of a forester, urban or rural, one imagines a man working outside. But Moore spends more time communicating what is needed to be done. As a state employee, Moore can do no more than explain problems and present viable solutions. It's the city's job to decide the best choices and act. His most important responsibility is to formulate continuing reforestation plans for the city. He explains he's now "working on a written overall program of reforestation with a greater emphasis on the city assisting in residential planting of swales and roads." Up until now, he says, "we've been chipping away at the canopy problem." The job is a big one. Moore estimates that if the city crews were to plant 500 trees on city property only, for the next 30 years, by the year 2028 the trees will have matured enough to give the minimum 35 percent urban



Crowded main city nursery where more than 750 trees are planted in concrete containers.

canopy recommended to cut noise and air pollution, provide shade, and oxygen.

The city has been working with resident groups like homeowners associations, women's clubs, and civic improvement associations. The city usually gets involved when individuals or groups call the forester. Sometimes residents purchase the trees directly, or use the forester as a personal agent in purchasing the trees at a better price. Tree planting has become a popular project for neighborhoods as a result of this kind of assistance. Last year, for instance, a two-day plant sale in Fort Lauderdale drew 180,000 persons, and sold \$25 million worth of plants and trees! Moore believes this appreciation of flora and concern for the urban environment is vital if the reforestation is to succeed. Citizens also get involved by donating trees to the city "tree bank" for eventual transplanting on public property. A tree donation by homeowners is a tax deductible contribution. The city is also considering a program to save doomed trees from demolition sites to supply the nurseries.

Two laws have been instrumental in the evolution of Fort Lauderdale's loosely knit reforestation program. They are the cogs without which the program would fail. The Tree Preservation Ordinance is unique in the United States, and generally says all trees which are cut down must be replaced. The ordinance is aimed at builders, who are required to take out a \$5 permit to remove each tree, and then must replace it. When a builder removes a large tree, he must replace it with a number of smaller ones, which is good for the canopy because it generates more trees. When builders find they can't fit all the required number of small trees on

their development, they can donate the excess trees to the city and claim it as a tax deduction. This helps the small developers who find it financially difficult to build around large trees. Now they can build without high costs by simply replacing the old trees with new, smaller ones. The big developers, on the other hand, are finding it easier to retain the old, large trees, and this is also great for the urban canopy. Since the emphasis of the ordinance is on trees, not enforcement, violators are given the option of paying a stiff fine, the monetary value of the destroyed trees, or donating a predetermined number of trees to the city.

The second important law is called the New Parking Lot Ordinance. It was passed in response to the canopy problem, and the "concrete jungle" atmosphere created by hot, ugly, expansive parking lots with few, if any trees. Both public and private parking lots have been built this way for years, and this new ordinance is quickly changing that situation. Within five years all parking lot owners must comply with the ordinance by replacing up to 50 per cent of the land's original tree cover. As with the Tree Preservation Ordinance, a drive through the city is all that is needed to realize both laws are working. Fort Lauderdale is getting greener every day.

Meanwhile, reforestation of that part of Fort Lauderdale's beach commonly referred to as "The Strip" has begun in earnest, with mostly Malayan palms and a few Australian pine seedlings. Palms will be stressed only at "key tourist areas," like the beach, to retain the city's tropical image, according to forester Moore. Residential areas are being



Royal palms are highly resistant to blight.

planted with a wide variety of native trees (and some exotics), with no plans for planting palm trees.

City planting projects along entrance and exit ramps on Interstate 95 in the past year have given each ramp a character all its own, while continued plantings on the median strips of major roads help absorb the carbon monoxide spewed by Fort Lauderdale's often heavy traffic. Public buildings and surrounding grounds in the city are dotted with young five-foot tall trees which will quickly grow in the year-round sunshine and annual rainfall of 64 inches.

The urban projects initiated by citizen groups are also having a positive effect on the canopy problem, although it is too soon to measure results. The pest exotics are a problem which will continue to get worse, but as Moore says, "periodic monitoring of hammocks and other native flora areas, and the continued planting of native trees will help."

The prognosis for Fort Lauderdale's tree problems is good. The still unusual situation of a city having an urban forester, a reforestation program, and the necessary legislation to back them up, is an optimistic sign of green things to come. But it will take generations before the foolish development practices and lack of planning of the past thirty years will be even partially erased, because, as Kilmer aptly put it, "... only God can make a tree." — and even in sunny Florida, that will take a long time.

WTT

The SPYDER®

THE SPYDER — A material handler that offers unequalled performance, low maintenance and operating costs. Over 400 are currently being used by SOD producers across the U.S.A., Canada and England.

COMPARE this user proven material handler with other methods of job site unloading and the bottom line will show you that **THERE IS NO BETTER WAY!!**

Ask your friends. If they say they don't like the Spyder, they've probably never tried one.

IT ARRIVES WITH THE LOAD, UNLOADS ITSELF . . . THEN UNLOADS THE LOAD!



For more information on the Spyder, call or write:
MIKE WHITT — SALES MANAGER
 Foxcroft Development
 5402 Edgewood Road
 Crystal Lake, Illinois 60014
 (815) 459-3351