

Hurricane Andrew Damage to the Urban Forest A Preliminary Evaluation

by Mary Duryea

On August 28, 1992, four days after Hurricane Andrew, a team from the University of Florida toured south Florida with Rick Vasquez, Metro-Dade County Forester, to see the damage to the urban forest. We observed tree damage along streets, residential, shopping center and commercial areas, and in parks. This report summarizes observations from this three-day tour.

Tree damage was often dependent on previous tree health, location of the tree relative to a building, rooting space and several other factors. In general small trees, trees that had been previously pruned, and trees with good form fared better. Trees that had been previously mechanically damaged (from mowers or weed-eaters) and trees with limited rooting space (in parking lots or medians) did poorly.

Sabal palm was the most resilient tree across the entire damaged area. Gumbo limbo, live oak, royal palm, and several small palms were some of the trees that also withstood the winds.

Several trees exhibited variable damage, which was probably dependent on cultural and wind variables. These were black olive, mahogany, bottlebrush, and others. Ficus damage was variable and probably species specific.

Some trees that did not hold up well were sea grape, orchid tree, melaleuca, and tabebuia.

Trees that were uprooted or root sprung could have been straightened after being blown down even two weeks after the hurricane.

Damage ranged from almost none in Ft. Lauderdale to 89 to 90% of tree canopy in Homestead. By far the best survivor was the *Sabal palmetto*. Out of 284 observed, 261 had no noticeable damage. Others had minor leaf browning, and 12 had broken trunks.

The next best trees included these twelve species:

Gumbo limbo, *Bursera simaruba*. (Many lost all their small branches, but retained large branches and form.)

Live oak, *Quercus virginiana*. (Held up very well. Appeared to be heavily

"pruned" by the wind, but will probably come back.)

Manila palm, *Veitchia merrillii*

Royal palm, *Roystonea regia*

Queen palm, *Cocos plumosa*

Pygmy date palm, *Phoenix roebelenii*

Canary Island date palm, *Phoenix canariensis*

Pitch apple, *Clusia rosea*

Royal poinciana, *Delonix regia*

Silver buttonwood, *Conocarpus erectus*

Biscophia, *Biscophia javanica*

Wax myrtle, *Myrica cerifera*. (Out of 230 observed, more than half were dead.)

Receiving variable damage were: mahogany, crape myrtle, ficus species (large banyans were uprooted or badly broken), coconut palm, and black olive.

Trees that fared the worst included: South Florida slash pine, *Pinus elliottii* var. *densa*. (Individual residential trees were often broken or sustained heavy crown damage. Natural stands fared better. One location appeared to have 30 to 40% broken trees. Out of 427 observed, 328 were broken off at the trunk, 99 had major limb and stem damage.) Australian pine, *Casuarina equisetifolia*. (Variable. Out of 509 observed, about half were broken and uprooted.)

Silk oak, *Grevillea robusta*

Melaleuca, *Melaleuca quinquinervia*.

(Out of 277 observed, 159 were uprooted or broken off.)

Orchid tree, *Bauhinia* spp.

Sea grape, *Coccoloba uvifera*. (Single trees easily broke. A stand at Haul-

over was uprooted as a unit. Low-growing sea grape along the beach did well, protecting the beach from erosion.)

Schefflera, *Brassia actinophylla*

Tree of gold, *Tabebuia* spp.

Jerusalem thorn, *Parkinsonia aculeata*

Woman's tongue, *Albizia lebbek*

These observations were made during only three days of inspection. More study is needed to rank trees according to their hurricane survivability.

Recommendations for action from the forestry community include:

- ♦ educating the public concerning safety, pruning, replanting, and benefits of urban trees.

- ♦ forming a task force to coordinate and assist in re-establishing a new urban forest in communities.

- ♦ encouraging and assisting in the re-establishing of the urban forest through workshops, planning meetings, tree-planting days, and public service announcements.

- ♦ beginning a study to accurately determine what species to replant in communities in south Florida. The study would investigate how the major tree species responded to various wind speeds during the hurricane.

The team comprised Mary Duryea and Bill Hubbard of the Department of Forestry, University of Florida, and Stinger Guala of the Department of Botany, University of Florida, as well as wildlife biologist Thia Hunter and environmental educator Joseph Hatin.

NATURAL HISTORY BOOKS CATALOG

We proudly have the widest selection of preowned, out-of-print, and new titles in North Florida. This catalog is free to FNPS MEMBERS. Please send SASE to us. We also pay top \$\$\$ for quality used books. HAPPY GARDENING!

VILLAGE SQUARE BOOK SHOPPE

2409 SW 13TH STREET, GAINESVILLE, FLORIDA 32608

(904)336-7306 MON-SAT 10-6