

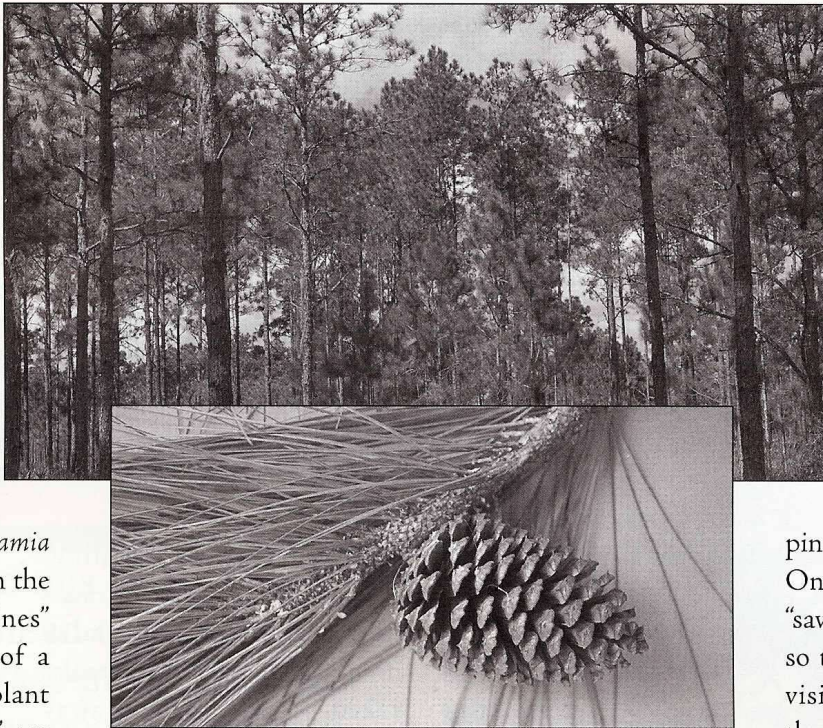
South Florida Slash Pine

Pinus elliottii variety *densa*

Text by Richard Moyroud

There are only two species of pines native to South Florida: sand pine and South Florida slash pine. Both are in the family Pinaceae, an ancient family of coniferous trees with resinous linear leaves (needles), and seeds produced on the scales of woody cones. Other members of this family are hemlock, fir, spruce, and larch. A number of technical details link these trees with junipers, bald cypress, and even coontie (*Zamia pumila*), but separate them from the invasive exotic Australian "Pines" (*Casuarina* spp.), members of a relatively modern flowering plant family in which the "needles" are modified branchlets and the woody fruit are only superficially similar to cones.

South Florida slash pine, *Pinus elliottii* variety *densa*, has a history of confusion and a future that is bleak. It was once called Dade County Pine, because the original extent of Dade County included much of the range of this tree, south from Lake Okeechobee and halfway up each coast. At first, it was incorrectly identified as *Pinus caribaea*, a species native to the Bahamas, Cuba, and Central America. South Florida slash pine is genetically and physically distinct (as seedlings) from typical or "North Florida slash pine" (*P. elliottii* variety *elliottii*), but both have needles 7 to 12" long in bundles of two and three. The varietal name, *densa*, refers to the extremely dense heartwood, and also to the seedling, which has a short, thick trunk, a thick tap root, and densely clustered needles. These characteristics help young



Pinus elliottii: a flatwoods and close-up of the cone. Photos, Betty Wargo.

trees survive frequent fires in their seasonally dry habitat. The same traits are seen in longleaf pine, a magnificent long-needled pine once dominant in sandhills throughout Central and North Florida.

In contrast, seedlings of the North Florida slash pine (variety *elliottii*) have tall, thin trunks and open groups of needles. This pine is adapted to mesic (moist) sites which do not burn with the regularity of the habitats of other pine species. A great disservice has been caused by large-scale planting of the northern variety in South Florida; many sick and deformed trees are testimony to this carelessness and ignorance. New plantings need not repeat this common mistake if we realize that the varieties are not interchangeable, and that planting stock must be specified for each site and properly identified by the seed collector and nursery grower. Current studies suggest that there is a slight gradation in this taxon, from the southernmost populations in Big Pine Key to the populations along the coasts in Central Florida — the southernmost populations,

up through Dade County, are found on almost bare limestone (pine rocklands) while the rest are found on sand with a wide range of water tables (pine flatwoods). Recent work in replanting after Hurricane Andrew suggests that seedlings from limerock trees seem to succeed better in limerock than seedlings from trees on sandy sites.

For the remaining mature pines, the situation is scarcely better. On many developed sites, pines are "saved" from immediate destruction so that a few large canopy trees are visible when sales begin. Most of these trees are doomed from the start, as heavy machinery is used first to rip

out the understory vegetation (often right up to the trunk), followed by trenching for utilities and irrigation; this subjects their root systems to compaction, tearing, toxic spills, and changes in grade and water regime, all hidden under a clean carpet of new sod. Mature pines cannot tolerate such insults, and begin an irreversible decline. Weakened pines are glowing targets for pine bark

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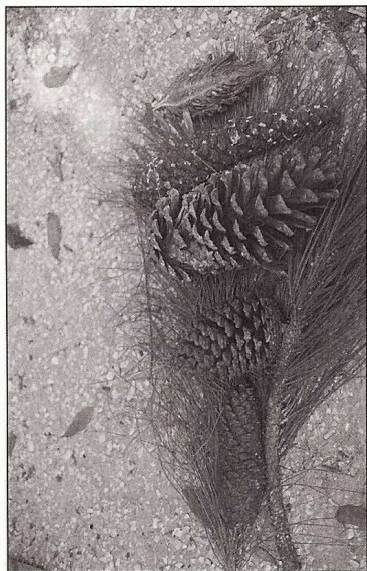
beetles, the final stage before death. Buyers of such sites should see the truth: only standing dead trees. Snags are useful for birds but for reasons of safety are generally prohibited in populated areas, and removal of large dead trees is expensive.

Richard Moyroud is the FNPS Conservation Chair and owner of Mesozoic Landscapes, a native nursery. Jill Young, who drew the pine cone on page 12, is a graduate student at Florida Atlantic University.

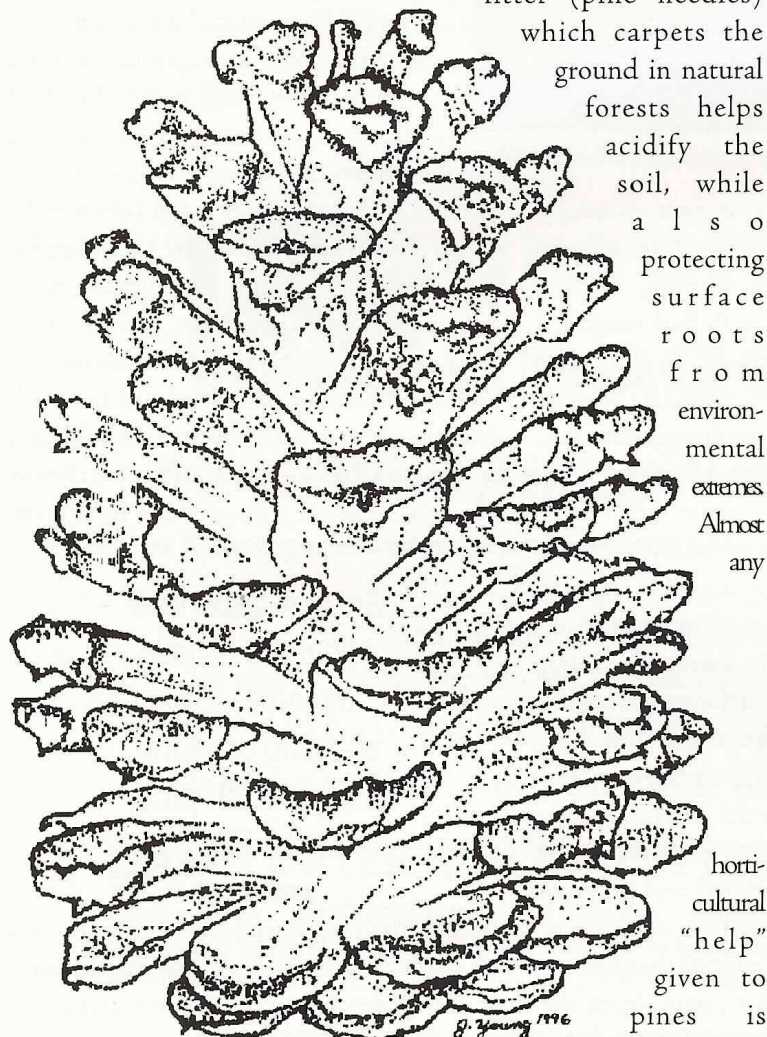
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Pinus elliottii variety *densa*

continued from page 13



Cones of *Pinus elliottii* compared with those of *Pinus palustris* (longleaf).
Photo, B. Wargo.



Cone of the *Pinus elliottii* variety *densa*
Artwork by Jill Young

South Florida Slash Pine is exceptional in its ability to thrive in hot, dry, nutrient-poor soils, and survive fire — yet produce iron-hard heartwood and dark green foliage. So why is it otherwise so fragile? The answer is in the plant structures we never see — roots. All pines have symbiotic fungi (mycorrhizae) associated with their roots, and these organisms function best in acid (low pH) conditions, helping with nutrient uptake. South Florida slash pine has adapted to tolerate limestone (growing on solid rock in South Dade and the Keys), but the leaf

litter (pine needles) which carpets the ground in natural forests helps acidify the soil, while a l s o protecting surface roots from environmental extremes. Almost any horticultural “help” given to pines is harmful. Strong, usually alkaline fertilizers interfere with iron and

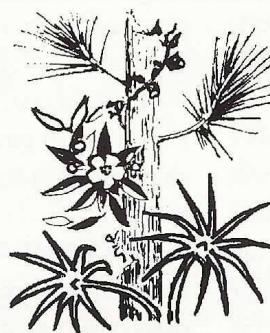
manganese uptake and damage mycorrhizae; supplemental

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watering (mostly alkaline) suffocates roots and also raises pH, further harming mycorrhizae; and fallen needles raked up and thrown away remove useful mulch. In the wild, regular low-intensity fires help clear the understory of

competition; this kind of natural pruning can probably be imitated by mechanical trimming. If we want to preserve mature pines we need to maintain natural conditions, and this is best achieved by keeping intact as large a piece of the original system as possible, not isolated trees, and preventing any damage — repair is not an option. We can also plant seedlings of the local variety in natural groups with appropriate understory plants such as beautyberry and coontie, and cultivate them with healthy restraint, a demanding task for the ardent gardener in us all. ✱

A slightly different version of this article appeared in the August 1996 issue of *Landscape and Nursery Digest*, and has been reprinted with the permission of Betrock Information Systems and the author, who first published in *The Daboon*, newsletter of the Palm Beach County Chapter of FNPS.



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