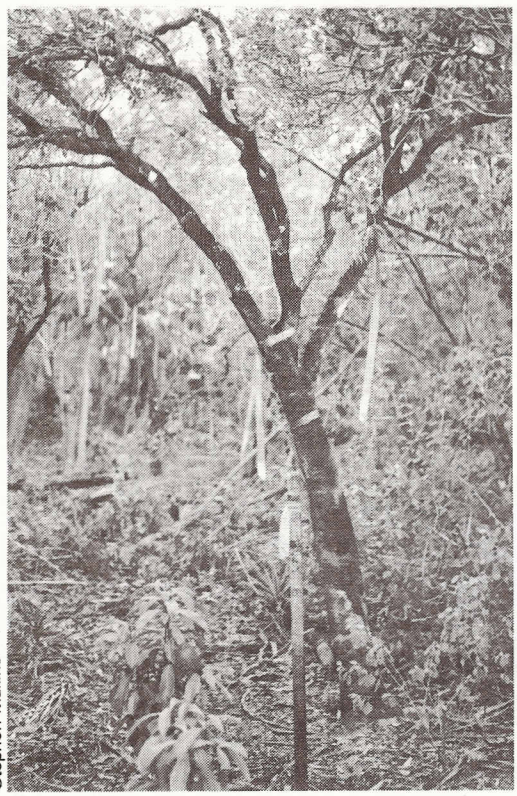
Moving Joewood Trees

by Stephen Mullins



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A joewood tree in the wood.

In 1987, the city of Sanibel, at the recommendation of its vegetation committee, declared the joewood, *Jacquinia keyensis*, to be its "city plant". From this pronouncement has come respect for this lovely, fragrant native, and we have had more success in protecting it from developers because of that recognition.

Sanibel is geologically a sandbar with extremely poor soil, mostly sand, shell, and in a few places a four- to six-inch (10–15 cm) cover of vegetative debris from its 5000 years of existence. It is alkaline with an average pH around 8.2. Many of the joewoods in the development are estimated to be over 75 years of age which, in such harsh soil, makes them real survivors. They have adapted to the pattern of summer rains and winter drought, and they live in full sun on the ridges, and yet we still find them deep in the forest and occasionally only a few feet from high tide level near the mangroves with their deeper roots most certainly in salt water. A remarkable plant!

About two years ago, Sanibel was faced with a request for a permit to develop a large tract of land at the north end of the island known as the Wulfert Tract. This was the area first settled on the island and has been almost undisturbed in the years since 1925 when a hurricane wiped out the farming of the settlement. Huge gumbo limbo, mastic, sea grape, and numerous other native plants, as well as several hundred joewood, abound here. Also on the tract is a pair of nesting eagles, wildcats, two hundred gopher tortoises, and many raccoons. It's a 500-acre tropical paradise!

Negotiations followed between the city and the developers, and though the development could not be stopped, many concessions were obtained by the city to limit the damage to the ecosystem. One of the settlement points was that all gumbo limbo, hackberry, persimmon, Cherokee bean, and Simpson stopper were to be saved, and that all joewood must be relocated on site *by tree spade*. All wildlife was to be protected in an appropriate manner and the city was to hire a field supervisor to be present during the development to be certain that these measures were carried out. However, the cost of the position of field supervisor was to be paid *by the developer*.

Sanibel had the guidance and expertise of Terry Tattlar, Ph.D., professor of plant pathology at the University of Massachusetts during this venture. Dr. Tattlar is a frequent visitor to Sanibel and a friend of Josh Kelley of Kelley's Landscape Co., who did the actual transplanting. I was hired as Sanibel's field supervisor, and the three of us planned the program for handling the joewood relocation.

In the fifteen months since we began, we have moved over 600 joewoods by tree spade. We have found that the plant may look healthy for months, then die, so this report is limited to those 341 joewood that have been in their new location for six months or more.

Once the woody plant was transplanted, with a good root ball preserved by the use of the tree spade, the primary problem was to provide sufficient water to prevent desiccation and to initiate growth of additional roots to replace those lost in the moving. Since the extremely shelly soil holds water so poorly, it was found that the addition of the gel, Terra-Sorb™, to the hole prior to placement of the new plant was necessary. In addition, transpiration was decreased by the use of an anti-desiccant spray, or by simple hand removal of most of the leaves.

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This tree spade with a 50" maw was used to move the joewood trees.

After three months, we noted that many of the plants were not thriving, and examination of some of the specimens showed no new root growth. The plants were dying as the stored nutrients were depleted. We then began to add the biostimulant, Roots™, at the recommended rates to each plant at the time of transplanting. This algal extract seems to have been of some help in those plants that were relocated into shelly soil. This was not deemed necessary where we were working with heavier, richer loam. Indeed, those planted in rich soil did far better with no help added than those planted in porous soil no matter what we tried to do to help. The root ball from the shelly soil was hard to retain in the tree spade, and water was hard to hold in this soil even with Terra-Sorb™. Accordingly, our survival rate for those trees was quite poor (20%–30%) even with our best effort, yet in the better soil we approached 80% survival.

In order to be objective in our evaluation of the work, we rated each plant at the time of transplanting on a scale of 1–10 (with 10 being best) for size, soil, and general appearance. "General appearance" included an assessment of color, compactness, fruit, new growth, and shape. Each plant was given a plastic tag with a coded number for identification

From *Native Trees and Shrubs of the Florida Keys*, Scurlock. Used by permission.

Joewood's fragrant blossoms.

after the six-months period. Below is a summary of our experience with the survival and plant health of the joewood plants after transplanting by tree spade under the variety of soil conditions of a barrier island:

A. **Plant Size**: Optimal survival size was 4.1 on a scale of 1–10. Smaller plants do better.

B. **Soil Condition**: Optimal survival was at 8.8, which is close to the loamy, moist soil of the forest, and away from the dry, shelly, ridge soil.

C. **General Appearance**: Optimal survival average was 8.5, indicating that plants that are healthier respond better, not surprisingly, to the stresses of transplanting.

Of the 341 joewood plants we moved at least six months ago, 219 have lived. This gives an overall survival rate of 64.5%.

In summary:

In this unique situation, where the cost of protecting a native plant during a development project was not a factor, we were able to do everything we could think of, and still were able to produce only a 64.5% survival rate of the joewood, *Jacquinia keyensis*, during relocation.

Much was learned during the process of trying. Plants from a very porous, shelly soil had little chance no matter what we did, large plants did poorly, but small plants from good soil did well. We now know which ones to move when choices must be made, and in our experience, artificial support techniques are of limited value.

We have tried to learn how to help this little plant, and the task seems to have been worthwhile now as we enjoy the fragrance of the survivors.

Stephen Mullins is conservation field supervisor on the Wulfert Project at Sanibel Island.