

TRANSPLANTING THE BIG TREE

by Joseph Cascio

Discussion of transplanting at the recent conference stirred memories of the good old days when I thought I'd succeed my Dad in the nursery business.

We had a large nursery, to Florida standards: 400 acres when I was its vice president, my older brother, Pete, its general manager, and my twin brother handling the garden store.

Transplanting was the major part of our business, as all our growing was in the field. We sold canned material from Monrovia in the garden center, but it was mostly the material that was difficult to dig easily, like the prostrate junipers and firethorns.

Dad started the nursery while learning the business from someone else, who was the source of one of his favorite bits of advice: "Decide what you want to do; go to work for the man that does it best; listen to him, watch what he does and what he doesn't do; learn everything he can teach you; then go and do it on your own, and try to do better."

Well, he started on his own during the depression, when the only folks with money to spend were the very rich and very smart — in this case, the founders of Sikorsky Aircraft, Travelers Insurance Company, Aetna Insurance Company, Pratt & Whitney Aircraft, Hamilton-Standard, and the like. Some of the stories I remember are about his crew spending an entire winter clearing a view from one of the large estates on Avon Mountain, and an entire summer digging a lake by hand for another.

Tree moving was a specialty that he made sure could not be equalled,

and he had a truck built that assured success. It was one of a kind. Each tree was handled with great care by a series of four winches: one to lift the top, one the ball, a third to trolley the ball in and out of the truck, and the fourth for the typical straight horizontal pulls needed for moving the tree on the ground or in the hole. We could handle fifteen tons and a root ball 15 feet in diameter, though most were in the 10- to 12-foot range.

(In a future article I'll describe another tree transplant, a huge American Beech, we moved one winter to make room for the construction of a large insurance building. The tree didn't have to leave the site so we moved it like a house by tunnelling under the ball and placing huge beams beneath. I'll get back to that, but I want to discuss something else now that others might find of use.)

I hope someone in the society will develop such a list for tropical trees so that no more proud trees must die or be dismembered to compensate for our ignorance of their needs.

At the Naples Native Plant conference, I overheard many generalities about the transplanting of oaks, pines, etc. with the implication that what is good for one species is good for the genus.

After the conference, I checked my files and found a list from an unknown source. I have noted only the native trees of Florida listed by Little.

As my experience is only with moving plants of the temperate types, I'll use that area to present my argument.

Some species of plants are more difficult to transplant than others. We don't always know why, but we continue to experiment to learn the best way with each plant that is desirable for use in the landscape.

As a boy, I overheard my father emphatically assert, "We don't move stone fruits in the fall; it's too risky." I wasn't sure what a stone fruit was, but I enjoyed imagining what that might be.

In my fifteenth summer, I was allowed to work full time in the nursery and out on the landscape jobs. Our tree mover could lift and transport a fifteen-foot-diameter ball, with a notch in the top of the ball to fit the fixed I-beam carrying the pulleys.

What a work of art those hand-dug, burlapped, and laced balls were! I never knew of one dying. I figured that, since they were handled with such great care and skill, there could be no reason for their undergoing any more than minor shock and losing a few minor branches. I still feel that skill and care are essential, in spite of some reports of how trees have been winched from their beds after the major roots are severed, with only portions of soilball clinging to the root structure.

Perhaps I just don't believe any living thing should be abused and mistreated. Being a transplant myself, four or five times, I know how tenuous life can be until you become established.

Generalities get us started, and then we slowly gather specifics. Some will say that large oaks don't transplant; others say oaks are easy. Upon closer examination we learn not to generalize. Many oaks such as *Q. alba* have a deep, penetrating taproot system from which secondary roots extend at various soil levels. Trees with such a root system are naturally resistant to wind-throw and difficult to transplant unless nursery grown and root-pruned for eventual transplanting.

Other oaks, especially the pin oak (*Q. palustris*) have the most beautiful system of wide spreading and deep laterals that you could hope for. Willow oaks (*Q. phellos*) have some different problems. Due to thin bark and lots of dense, twiggy growth, they dry out quickly if moved while dormant, when root generation cannot occur quickly to supply moisture.

The tuliptree (*Liriodendron tulipifera*), whose range just dips into



GUIDELINES

GENERAL MEASUREMENT SPECIFICATION

CALIPER is the average trunk diameter at a predetermined point of measurement. In size grading of B&B trees, caliper shall take precedence over heights, at 6-foot height and above.

Caliper of the trunk shall be taken 6 inches above the ground level up to and including 4-inch caliper size, and 12 inches above the ground level for larger sizes. Where trunk is not perfectly round, caliper shall be the average between the minimum and maximum measurement.

If only *one size* is given, (2"), that size will be the minimum size allowable for that grade and shall include plants from that size up to but not including the next larger size (2 1/2").

If a *size range* is given, (2-2 1/2"), the minimum size allowable for that grade is 2", the maximum size allowable for that grade is 2 1/2".

HEIGHT is the distance measured in feet and/or inches from ground level to the average top of the tree. Where tree has dominant central leader, the top of the central leader is the average top of the tree.

If only *one size* is given, (12'), that size will be the minimum size allowable for that grade and shall include plants from that size up to but not including the next larger size plus one (16').

If a *size range* is given, (12-14'), the minimum size allowable for that grade is 12', the maximum size allowable for that grade is 16'. The average size should not exceed 14'; however, with caliper taking precedence, wider height range must be permitted.

In shrubs, where caliper is not a primary factor, the maximum size for a size range at 2-3' is 3', as one would expect.

SPREAD is the distance measured in feet and/or inches across the average diameter of the plant. Where the plant is not perfectly round, spread shall be the average between the minimum and maximum measurement taken at the height of maximum spread.

If only *one size* is given, (3'), that size will be the minimum size allowable for that grade and shall include plants from that size up to but not including the next larger size (4').

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TYPES OF ROOT SYSTEMS OF VARIOUS FLORIDA TREES

Taproot System

Persimmon (*Diospyros virginiana*)
 Eastern black walnut (*Juglans nigra*)
 Eastern red cedar (*Juniperus virginiana*)
 Tuliptree, yellow poplar (*Liriodendron tulipifera*)
 Black tupelo, blackgum, pepperidge (*Nyssa sylvatica*)
 Longleaf pine (*Pinus palustris*)
 White oak (*Quercus alba*)

Shallow Lateral Root System

Red maple (*Acer rubrum*)
 Silver maple (*Acer saccharinum*)
 American beech (*Fagus grandifolia*)
 Flowering dogwood (*Cornus florida*)
 American sweetgum (*Liquidambar styraciflua*)
 Eastern poplar (*Populus deltoides*)
 Willows (*Salix* sp.)

Intermediate Type Root System

Box elder (*Acer negundo*)
 White ash (*Fraxinus americana*)
 Green ash (*Fraxinus pennsylvanica*)
 Honey locust (*Gleditsia triacanthos*)
 American planetree, sycamore (*Platanus occidentalis*)
 American elm (*Ulmus americana*)

QUALITY CONTRACTORS, LET US HEAR FROM YOU

At this time I do not know one landscape contractor in South Florida capable of moving a large tree without considerable damage. We have sought out the best and have been disappointed with every tree.

I have asked others if my standards are too high, or if trees have to be moved differently than in a temperate climate. I am assured that the process is the same for dicotyledonous trees the world over.

We must improve the professionalism of those equipped to move large trees in South Florida. Let us not mutilate one more tree; take the pledge; refuse to pass it off as "just the way it's always done down here."

How do we turn around established processes?

1. By requiring that the work for which you are responsible be constructed according to *your* standards, not by current local practice.
2. Be sure the contractor knows what he is expected to do before he submits a price to do it "your way."
3. Require, in your specification, conformance to a clearly-

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northern Florida, has both a tap root and, like many other members of the magnolia family, fleshy roots that are slow to regenerate, decaying back from severed tips until the next growing season.

You should know the idiosyncrasies of the species whose lives are in your hands. Know the type of root: taproot, lateral root, or intermediates, somewhere between the two extremes. Know if they prefer to move while dormant or at the beginning of a growth cycle. Know how different roots react in differing soils.

As one learns in digging from varied sites, root development is influenced by the character and the structure of the soil, the nutrient and water content, the aeration and the temperature of the soil. It also varies with species, vigor, competition, and spacing of the plants.

In some regions of the country, plants display the most stress during a hot, dry summer. It might be safe to assume that fall would be the most desirable time of the year to transplant, providing a maximum time for new roots to form before the hot, dry weather returns.

In south Florida, native vegetation undergoes many stresses. The land is generally poor and flat and low, subject annually to both flooding and drought. Carrying through with transplanted logic, spring should be the most desirable time of the year to transplant, providing a maximum time for new roots to develop before the winter drought, or perhaps one should say the former, or occasional, winter drought.

Transplanting in May or June, accompanied by careful irrigation, gets the plant in place at the commencement of the rainy season, a season of maximum root growth. Soft wood formed during the initial establishment of the plant has a full term to unfold new growth, flower, set fruit, and harden off before enduring the tests of winter temperatures and drought.

All you transplanting experts out there, I encourage you to send constructive contributions and criticisms to **The Palmetto** Editor, or to me in Orlando, so that we can inform the readers and members, and improve the quality of transplanting operations.

Communication of ideas based on experience is essential to the sound growth of the landscape construction industry.

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If a *size range* is given, (3-4'), the minimum size allowable for that grade is 3'; the maximum size allowable for that grade is 4'.

In the case of trees, as explained with height, the average width should not exceed the range of the next larger size, say 4-5'. This is to permit greater acceptance of quality material within a caliper size.

ROOT BALL SPECIFICATION

Balled and Burlapped (B&B) is the term to describe plants with roots established in an earthen ball and wrapped tightly with burlap sacking or similar fabric. Large balls over 30" and most balls in sandy soils should also be drumlaced or wireballed for additional support. Ball sizes should always be of a diameter and depth to encompass enough fibrous and feeding root system for the full recovery of the plant.

The soil must be capable of holding together without any breaking, cracking, or crumbling. The wrapping must be securely pinned, tied, bound, or wired.

When the ball is unusually wide for its depth, as with large surface-rooted trees, the ball must be balled, burlapped, and then platformed (BB&P) by securing the prepared ball to a wood pallet or large platform, or sled, to facilitate transportation without cracking the rootball.

When the ball is unusually deep for its width, as with taprooted or deep-rooted trees, or trees dug with a tree spade, the ball must be secured in a structural burlap-lined basket of wire and/or wood to facilitate transportation without cracking the rootball.

The ball size depends upon such factors as size of plant, species of plant, type of local soil, and extent of maintenance available after planting; in setting standards for the industry, this last factor is not a consideration. A general rule of thumb is that a 1" caliper tree will have an 18" diameter ball, a 2" tree has a 2' ball, a 3" tree has a 3' ball, a 4" tree has a 4' ball, and a 5" tree has a 4 1/2' ball. Trees over 5" caliper have 10" of ball diameter for every inch of trunk diameter. There are many charts available with specific ratios of ball-to-trunk dimension.