

A WORD OR TWO ABOUT GARDENING

South Florida Native Trees for Miami-Dade: Shade, Color and Conserving Water.

Against the backdrop of Miami-Dade's current water restrictions a previous article, the first of three, discussed what potentially stricter long term conservation measures mean for local landscaping practices. Particular attention was drawn to the fact that how we landscape area residences can be a significant factor in reducing urban water use. Making greater use of plants that require less water is one obvious means of accomplishing this goal. This then is the focus of the current series of three articles: identifying plants that will survive in local landscapes without the need for supplemental water, i.e., on annual rainfall alone. The first article identified both native and non-native flowering shrubs that could be used to provide color in a Miami-Dade landscape and meet the above goal of not requiring irrigation. This second article is devoted to south Florida native trees for color and/or shade; in the latter instance this will also include several highly drought tolerant large shrubs that can provide useful shade.

As in the first article the ability to survive without irrigation refers to an established shrub or tree; one that has received regular applications of water after being installed for a period that permits development of a sufficiently vigorous root system. Even a tree/shrub that is regarded as being "drought tolerant" requires this initial watering-in. University of Florida researchers have determined that for a newly planted tree, 2 gallons of water per inch of trunk caliper diameter (up to a 3" caliper trunk) 3 xs per week is sufficient (more frequent applications if there are no water restrictions). Frequency not the volume of water is what is important. It is also essential that water be applied directly to the rootball – not sprinkled on or around the tree. The aim is to prevent the rootball from drying out so as to expedite root growth into the surrounding soil.

Maintain the above watering regimen for a period equivalent to 3 months per inch of trunk diameter. After this time the tree should be sufficiently established so as not to require routine watering – apply supplemental water if signs of stress are noted (wilting, leaf drop, yellowing leaves). As an established tree grows, water (only if required) should be applied infrequently but in sufficient quantity to soak the top 12" of soil (approximately 1" of water). Soaking the soil in this manner will encourage roots to grow deeper. A large tree that has been growing for several years should rarely require watering. Trees vary of course in how readily they become establish after planting. The highly esteemed native **satinleaf (*Chrysophyllum oliviforme*)** in particular is slow to establish, and will develop into an unthrifty specimen if not regularly watered for at least the first year, especially if planted in an open site.

Avoid planting trees and palms during hot dry weather (notably March through the middle of May), especially if water restrictions are in place. Moisture loss will be even more pronounced at this time if the site is exposed to wind and receives all day sun. Do not cut back a newly planted tree in an attempt to reduce water loss due to transpiration. Leaf removal reduces the trees ability to convert the suns energy (via

photosynthesis) into a form used to support plant growth. This includes continued development of a vigorous root system, so important in establishing a newly planted tree. Roots will grow more readily into the surrounding soil if the planting hole is as wide as possible, with sloping sides. It should be no deeper than the rootball; on Miami limestone break up and loosen rock at the base of the hole. Remove a 2-3' wide strip of any groundcover (usually grass) from around the planting hole to lessen competition for available water – this area should be mulched. When planting a large caliper size tree in Miami limestone, dig four to five, 6' long trenches out from the planting hole (like spokes of a wheel), and fill with the material excavated plus soil amendments if used. Trenching will encourage roots to grow out into the surrounding soil.

This initial effort will help ensure a strong root system that will not only enhance the tree's ability to survive periods of low rainfall but also lessen the risk of toppling during a wind storm. Mention of wind storms leads into other factors that have to be considered when choosing a tree. An ability to withstand ongoing low levels of soil moisture is important, but one of several factors such as resistance to wind storms that must be considered. There is some limited information comparing resistance of different trees to wind damage but this is beyond the scope of the present article. Suffice to say the risk of storm damage to trees (and to nearby structures and utility lines as a result of falling limbs) can be greatly reduced if appropriate early formative pruning is undertaken followed by a program of regular maintenance pruning.

When it comes to listing trees able to survive prolonged periods with little measurable rainfall, logic dictates to look first at trees native to south Florida. Many of these native trees are present at the northern limit of their range being also found, often with greater frequency, in various parts of the Caribbean basin. There are also non-native trees/large shrubs from areas such as the Bahamas as well as the Caribbean that readily adapt to south Florida conditions. These and other drought tolerant non-native trees will be considered in the final article. For now though a look at some familiar and not so familiar trees native to south Florida. As in the previous article the emphasis is on highlighting trees and shrubs that will survive in full sun and remain attractive without supplemental water. Other trees that are not quite as drought tolerant would probably survive in local garden soil without irrigation, but are more likely to show at least some signs of stress. In some instances drought tolerance is improved where partial shade is provided, e.g., **Florida boxwood (*Schaefferia frutescens*)**, which in the wild is an understory component of rockland hammocks. The last article concentrated on shrubs for landscape color; of these several of the native species chosen can also be grown as small/medium trees (e.g., **Jamaica caper, blackbead, Bahama strongback, varnish leaf, joewood and lignum vitae**). This is also true of some large native shrubs that as well as finding utility as informal screens, windbreaks or as single specimens, can also form small shade trees.

Buttonwood (*Conocarpus erectus*) and **sea grape (*Coccoloba uvifera*)** are two long time favorites in local landscapes. Both are highly tolerant of salt so they make especially good choices for ocean front properties. Buttonwood is related to white

mangrove (*Laguncularia racemosa*) but is far more resistant to drought, occurring on the immediate landward side of mangrove above areas normally inundated at high tide. Further inland buttonwood is sometimes found as an understory shrub of pine rockland. In open coastal sites it forms a wide, low branching tree growing up to 30', often with multiple trunks, and attractively contorted limbs (the result of constant wind exposure). Although the trunk becomes hard and strong, smaller branches and twigs are brittle – the roots too are brittle and weak. Flowers are insignificant and essentially imperfect (buttonwood is dioecious, male and female flowers on separate trees). Leaves are elliptic, leathery to somewhat fleshy and spirally arranged on the stems. A **silver** form of **buttonwood** (often listed as var. *sericeus*, a name with no taxonomic standing) has leaves that are densely covered with silvery grey, silky hairs, and is far more common (almost to the point of over use) in local landscapes. Both forms, especially green leaved specimens, can make an attractive low hedge, though the base often thins due to shading out from incorrect pruning, and/or excess moisture from sprinklers. Buttonwood requires full sun, being intolerant of shade.

Seagrape also develops into a broad, low branching tree or large shrub, but with stouter limbs and smooth, flaking bark that is attractively mottled, grey and light brown. Growing to 50', it is usually maintained at no more than 20 - 25'. The leaves are large, stiff and orbicular, the veins becoming a conspicuous red as they mature. Fallen leaves break down slowly and can become messy – less of a concern in a naturalistic garden. Trees are dioecious with semi showy flower spikes followed by grape-like clusters of edible fruit (female flowers if pollinated), more palatable when made into a jelly. In view of its' low branching growth habit, seagrape can be used as a privacy screen/ windbreak (responds well to hand pruning) but not trimmed as a formal hedge. The latter use, which thankfully appears to have fallen out of favor, produces butchered plants covered with tattered leaves. Seagrape grows well on either sandy or rocky calcareous soils and is extremely drought tolerant (more so than buttonwood). Found widely in tropical/ sub-tropical areas of the Americas, it will survive a dry season of up to 8 months, with as little as 20" of rain annually.

Both buttonwood and seagrape can be disfigured by insect pests, though few are serious; a stem borer occasionally found on seagrape causes extensive die-back and may kill young plants, while a root weevil (*Diaprepes*) is a threat to buttonwoods grown on marl soils. Scale insects too sometimes infest buttonwood, more so where there is limited air circulation. As a low growing alternative, especially for frontline ocean sites, **bay cedar** (*Suriana maritima*) is ideal. It forms a 3 – 12', much-branched spreading shrub or rarely a small tree (usually where there is protection from wind). The bark is rich brown and shaggy, the wood hard and strong. Leaves are narrow, fleshy, grey/green and clustered toward the branch tips where they tend to hide the somewhat showy yellow flowers. Bay cedar will also succeed inland providing the chosen site is open, away from competing plants and the soil free draining. No pests of any significance have been reported.

The **darling-plum** (*Reynosa septentrionalis*) is another salt-tolerant alternative to buttonwood or seagrape, found locally in the few coastal hammocks that remain in

Miami-Dade. Slow growing to 10 - 20' as either a large shrub or spreading small tree darling-plum, red ironwood as it is also commonly known, has stiff stems that bear obovate, leathery leaves with notched apices. Insignificant yellowish flowers are followed by an edible purplish drupe that contains a large seed surrounded by a thin layer of pleasantly sweet flesh. **Black ironwood (*Krugiodendron ferreum*)** is a closely related species but differs in having a far more defined arboreal growth habit, eventually developing into a 20 - 30' tree with an attractive, tight, narrow crown. The leaves are similar though more ovate, coriaceous rather than stiff, glossy, and tinged red to pink when immature. Black ironwood is not as salt-tolerant as darling plum. It can be tricky to establish, is very slow growing and along with lignum vitae, claimed to have the densest heartwood of any tree native to the US.

For more inland locations **Krug's holly, *Ilex krugiana*** (a component of local rockland hammocks) grows as an erect, 20 – 30' tree with an open canopy that casts a light dappled shade. New leaves are flushed a purplish red at first, the upper surface becoming dark green, the margins undulating but no spines – for most hollies spiny margined leaves are restricted to juvenile plants (Christmas cards typically depict “English” holly). **Willow bastic (*Sideroxylon saliciform*)** is also useful where only light to partial shade is required. An upright tree to 30' with smooth peeling bark and dense, hard wood, it forms a narrow rounded canopy of thin branches and shiny mid-green lanceolate leaves. Sweetly fragrant flowers are borne in early summer on mostly leafless stem segments. For more shade the willow bastic's larger cousin, the **wild mastic *Sideroxylon foetidissimum***, grows to more than 50' but is more suited to larger properties. The trunk is erect having a long clean bole topped with a denser more irregular canopy of semi-glossy leaves; as the tree ages the base of the trunk becomes conspicuously flared. The specific epithet *foetidissimum* refers to the somewhat rancid aroma of the flowers; fruit can be copious and messy, though it is consumed by a wide range of wildlife. Wild mastic exhibits excellent storm resistance; an insect pest (Psyllid) attacks this and other *Sideroxylon* spp., and though damage can be severe it is infrequent.

The **wild tamarind, *Lysiloma latisiliqua*** is also useful where light shade is required, growing to more than 40' with a wide spreading canopy of feathery bipinnate leaves. This is fast growing compared to the above trees, but is structurally weak requiring regular maintenance pruning to improve storm resistance. The familiar **gumbo limbo (*Bursera simarouba*)**, is an attractive medium to large pachycaulous tree (to about 50') that also provides part to light shade; it too is fast growing and susceptible to limb breakage in view of the soft weak wood. The tree is semi-deciduous with leaf renewal in early spring following on rapidly after annual leaf drop. Gumbo limbo requires a site with free draining soil otherwise it is susceptible to root and basal trunk rots – never place the tree where sprinklers will wet the trunk. The tree's signature, peeling red bark is a variable feature; especially attractive trees can be readily propagated from cuttings.

More elegant than either of the two above trees **paradise tree (*Simarouba glauca*)** is one of south Florida's most attractive shade trees. Growing up to 40' the trunk is straight, upright, finely fissured and supports a canopy of long pinnate leaves composed of small, stiff, glossy leaflets. New growth is a conspicuous pale orange

to red. Paradise tree succeeds best on well drained sandy or rocky calcareous soils and does poorly where if drainage is impeded. Closely related is the smaller (10 – 25') **alvaradoa** *Alvaradoa amorphoides* with a more open growth habit and shorter pinnate leaves. The tree is notable for the showy, pendent inflorescences composed of many tiny pale yellow flowers (those from more northern states may see a superficial resemblance to laburnum). These appear in late fall/early winter and are followed by reddish, winged, singled seeded fruits (samaras). Like paradise tree alvaradoa is dioecious the female flowering alvaradoa having shorter fuller inflorescences than male trees, and bear fruit only if pollinated. Since trees are seed grown it is not possible to know whether a tree is male or female until it flowers. Paradise tree has an upright, branched inflorescence far less conspicuous than the alvaradoa; fruits are bright red drupes. Alvaradoa is endangered in Florida and is found only as a rare component of Miami-Dade's rockland hammocks. Most uncommon in cultivation and difficult to find it deserves to be used more in local landscapes.

Another tree with a showy if brief flower display is the **Jamaica dogwood**, *Piscidia piscipula*. This is a fast growing, briefly deciduous, irregularly branching tree to about 30' with grayish green pinnate leaves. In spring just prior to leaf renewal it is covered with masses of white to lavender flowers. Unlike many fast growing trees, Jamaica dogwood has the additional benefit of being storm resistant. The tree is poisonous – the name *Piscidia* is derived from the Latin for fish, *piscis*, and *caedere*, to kill and alludes to the trees past use as a fish poison. More graceful, if with somewhat less showy flowers, **lancewood** *Nectandria coriacea* has a slender upright trunk and narrow rounded crown. Growing to about 25' it makes an attractive small shade tree as well as providing fragrant white flowers and unusual semi-ornamental fruits.

For heavier shade there is the **short-leaved ficus** *Ficus citrifolia*, which unlike commonly grown exotic *Ficus* trees rarely produces aerial roots. It does however, like other members of the genus, require plenty of room and occasionally grows as a strangler fig. A better choice as a shade tree for both rights-of-way and the average ¼ acre lot is the **soapberry** *Sapindus saponaria*. The tree can be maintained from 20 to 45' and forms a broad dense crown of pinnate leaves, each with a distinctively winged rachis. The tree is evergreen though in early summer leaf drop becomes most pronounced just prior to the principal period of leaf renewal. For smaller yards **Florida privet** *Forestiera segregata* can be used as a small (to 15') multi-trunk shade tree with a dense, much branched canopy of shiny, oblanceolate to elliptic leaves. It can also be allowed to grow as a bushy specimen shrub, or used as a tall privacy screen and is sufficiently fast growing to be clipped as a more formal hedge (a good substitute for exotic *Ligustrum*). Some authorities recognize a low growing more compact form found in rockland hammocks as *F. segregata* var. *pinetorum*. Florida privet is nominally evergreen, though all of the old leaves may drop immediately prior to a new growth flush.



Mexican Alvaradoa, *Alvaradoa amphoroides*; in the US found only as a rare component of Miami-Dade rockland hammocks – female tree in bloom.