



Healthy Palms in Healthy South 'Florida Landscapes'

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Introduction

Palms are widely used throughout Florida as dramatic specimen or accent plants, as avenue 'trees', as integral components of raised bed plantings, as under-story or 'filler' plants, and even as living fences or hedges. Although a large proportion of the 2500 palm species will grow well in south Florida, many of these have relatively high water and fertilizer requirements, while others have relatively high pest and disease susceptibilities.

A smaller number of palms exhibit high drought tolerance and low fertilizer requirements, and are generally free of pests and diseases. Because of their relatively low impact on Florida's precious and fragile natural environment, this latter group can be referred to as 'Florida friendly' palms. Similarly, landscapes in Florida that adhere to the nine principles of the University of Florida's Florida Yards & Neighborhoods (FYN) program are considered to be 'Florida-friendly' landscapes (i.e., 'Florida Landscapes') because they, too, have a relatively low impact on the environment.

The primary objective of this article is to explore some Florida-friendly palms and how they can be incorporated into Florida-friendly landscapes. The first section below lists and describes the basic characteristics and culture requirements of

twelve Florida-friendly palms; the second section discusses the nine FYN principles as they relate to palms in Florida Landscapes; and the third section provides a brief introduction to palm-related Internet resources.

'Florida-Friendly' Palms

A great diversity of palm species is well suited to the subtropical climate of south Florida. Many have proven to be reliable based on their tolerance of cool winter temperatures, seasonal rainfall, and alkaline soils. However, just because a palm will grow in a given region does not mean it *should* be grown there. Numerous palm species have high water and fertilizer demands, and some are susceptible to pests and diseases.

In south Florida, freshwater is at a premium, and, with the latest water restrictions imposed on the region by the South Florida Water Management District (Phase II restrictions took effect Thursday, January 11, 2001; contact the SFWMD for more information), outdoor water use must be reduced to conserve our precious freshwater resources. In addition, large amounts of excess nutrients and pesticides that are applied to yards and landscapes in south Florida find their way into surface waters during flood events—and eventually into Biscayne Bay—and

contribute to what is known as non-point source pollution.

Not all palms have high fertilizer and water requirements, or are susceptible to pests and diseases that must be treated with chemical pesticides. In 1997, the palm curator at Fairchild Tropical Garden published an updated “Top Ten” list of highly recommended, Florida-friendly palms (Maidman, 1997). The following list and descriptions are based on this article, with two additional species added.

Bismarckia nobilis, the Bismarck palm, is a native of the savannahs of Madagascar and is an extraordinarily durable and highly adaptable palm. The impressive silvery-gray, fan-shaped leaves can reach 6 feet across; therefore, its massive size restricts its use to larger landscapes.

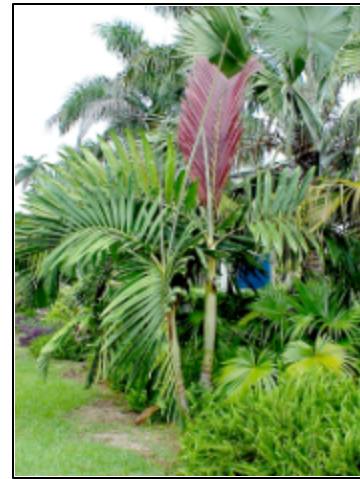
This palm requires full sun and prefers a fair amount of water when young, but performs well with no supplemental irrigation once established.



Chamaedorea ernesti-augustii is a small, solitary, under-story species from the rainforests of Mexico through Honduras. The sparsely divided to nearly entire leaves are quite attractive, as are the raised annular rings on the slender stem. It grows best in well-drained soil and is atypical of rain-forest palms in that it is fairly drought tolerant.



Chambeyronia macrocarpa, the red leaf palm, is one of the few palms from the low-altitude rainforests of New Caledonia that performs well



in south Florida’s soils and climate. Ultimately reaching 20 feet, this palm requires well-drained soil, shade, and some supplemental irrigation when young, but it can tolerate full sun and natural rainfall as it matures. This palm’s most im-

pressive attribute is its brilliant maroon-red new leaf, which fades to a dark glossy green within a few days after opening.

Coccothrinax crinita, the old man palm, is a native of Cuba. This palm has a characteristic “beard” of white-gray fibers. Although slow growing when small, its growth rate increases upon formation of a trunk. This is one of the most sought-after palms in south Florida.



Cocos nucifera ‘Maypan’ is a coconut hybrid created by hand-pollinating a ‘Malayan Dwarf’ coconut with ‘Panama Tall’ pollen, producing a vigorous palm that possesses a fairly high resistance to Lethal Yellowing disease—a lethal, untreatable disease of some coconut varieties and a few other palm species in south Florida.



Although the color of the ‘Panama Tall’ parent generally predominates, the choice of seed parent also has an effect. Since ‘Malayan Dwarf’ coconuts come in three colors—green, yellow, and gold/red—the petioles and fruit of the ‘Maypan’ hybrid can range from yellowish-green to reddish-bronze. ‘Maypans’ have the classic ‘tall’ trunk and swollen base. Like most coconuts, they have high drought tolerance, low nutrient requirements, and few pest problems.

Copernicia baileyana, the Bailey copernicia palm, hales from the dry savannahs and woodlands of Cuba. It prefers full sun even as a seedling and has a high tolerance of drought. Although slow-growing, hard to find, and usually a bit expensive, this palm is much sought-after in south Florida



due to its massive, smooth, slate-gray trunk and stiff, gray-green ‘fan’ leaves.

Heterospathes elata, the sagisi palm, is a tall rainforest species from the Phillipines and other adjacent islands. Although slow-growing when

young, it becomes quite fast growing once the trunk begins to form. Looking best when planted in small groups, this palm bears a crown of gracefully arching leaves, and the small, white fruits are produced nearly continuously upon maturation. It tolerates cold temperatures if planted in a sheltered location and can reach 50 feet in height.



Pseudophoenix sargentii, the Florida native buccaneer palm or Sargent’s cherry palm, grows naturally in sand or limestone soils in areas that receive little rainfall. This palm has a gray trunk and a prominent gray-green crownshaft topped by a sparse crown of silvery-blue-green leaves. Due to its slow-growing habit, this palm is not common in the nursery trade and is often fairly expensive. However, it is one of the hardiest palms for south Florida.



Sabal etonia, the scrub palmetto, is a small



shrub-like palm whose trunk usually remains underground. Its fan-shaped leaves are about 3’ across and costapalmate,

which means that they are essentially palmate except that the petiole (leaf stem) extends part way through the center of the leaf fan as a midrib. Scrub palmetto resembles saw palmetto, but the latter has a true palmate leaf with no midrib. Scrub palm can reach up to 3-4' tall with a spread of 4-5'. The flower stalk of scrub palmetto also does not extend beyond the leaves.

Thrinax morrissii, the Keys thatch palm, is native to the Florida Keys and throughout the



Caribbean and into the Yucatan peninsula, and is a relative of the Florida thatch palm, *T. radiata*.

This palm grows naturally in alkaline soils, sometimes even on limestone outcrops, and tolerates drought, low soil fertility, and exposure to salt spray. The leaves of *T. morrissii* are bluish-green above and silver below. As in most species in the genus, ripe fruit are white.

Thrinax radiata, the Florida thatch palm, is native to Florida and a few Caribbean islands. It

can reach a height of 20 feet and grows naturally in sand or on limestone.



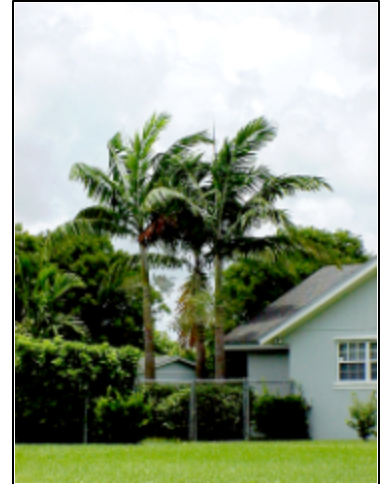
It prefers sun and tolerates salty

winds. The main difference between this species and its close relative, *T. morrissii*, is that the leaves of *T. radiata* are green on both sides. It is

a hardy palm with low maintenance requirements.

Veitchia species are natives of the South Pacific and are widely

planted in south Florida. They are among the fastest growing palms and often reach 50 feet in height. The slender trunks, elegantly arching leaves, and clusters of large, red fruit make these palms particularly



attractive when planted in informal groups. Additional appealing attributes include their high tolerance of hurricane-force winds and their wide adaptability to varying soil, water, and nutrient conditions. Care should be taken to avoid planting *Adonidia merrillii* (recently changed from *Veitchia merrillii*; Zona and Fuller, 1999), however, as it is highly susceptible to Lethal Yellowing.

'Florida-Friendly' Landscapes

A Florida-friendly landscape is one in which the right plants are planted in the right places, mulch is maximized, water is used efficiently, fertilized is applied appropriately, pests and diseases are managed responsibly, yard waste is recycled, wildlife is attracted, and, when located on the waterfront, special precautions are taken to reduce non-point source pollution from entering the water. These landscaping practices represent the nine Florida-friendly principles of the Florida Yards & Neighborhoods (FYN) program.

The FYN program began as a county-level Extension program in the Tampa Bay and Sarasota Bay areas of Florida—out of the need to

address serious problems of pollution and disappearing habitats. FYN has since been adopted and promoted by the University of Florida Extension as a statewide program. The FYN program objectives are based on the above nine Florida-friendly landscaping principles that homeowners, landscape designers, and landscape maintenance personnel can utilize to create and maintain Florida-friendly landscapes. In this section, these nine principles will be discussed as they relate to the placement and maintenance of palms in Florida Landscapes.

Right Plant, Right Place—Learning the specific culture requirements and site preferences for each palm species of interest is the first step in creating a Florida Landscape. *Betrock's Guide to Landscape Palms* (Meerow, 1994) provides general culture information on 10 of the 12 recommended Florida-friendly palms discussed above. Numerous other books and websites are available for additional information (see below).

The second step is to conduct a thorough site evaluation of the landscape. Important aspects of site evaluation include sun and shade patterns; soil type and pH; location of existing structures, power lines, and water lines; location of existing plants; and location of areas where water stands or runs off.

The final step in this principle is to choose palm species whose requirements correspond to the respective site conditions, keeping in mind that it is best to group plants with similar requirements in the same area. Common problem spots that should be avoided include under power lines, too close to buildings, and in low-lying areas where water collects during heavy rains.

Maximize Mulch & Groundcover—The benefits of mulch are numerous and include conserving water, moderating soil temperature, discouraging weeds, and preventing damage from mowers and line trimmers. Organic mulches have an added benefit, in that they help improve the limestone

and sandy soils of south Florida. Mulch should be applied 3-4 inches thick around all palms and should be reapplied as needed—which is usually on a semiannual or annual basis. Although mulch is a good starter material, it may not always be a final landscape feature. Groundcovers serve a similar function, in that they shade the ground, control weeds, and add organic matter to the soil, while also adding texture and/or color to the landscape. Numerous drought-tolerant groundcover species are available for use in Florida Landscapes.

Water Efficiently—According to the South Florida Water Management District, about 50% of south Florida's average annual water consumption is used for lawn and landscape irrigation and other outdoor activities. With respect to palms, over-watering greatly increases the likelihood of root rot. Conversely, watering infrequently and for a longer duration induces deeper growth of palm roots, thereby increasing their drought tolerance. Although many rainforest palms can be grown in south Florida, most are not recommended for Florida Landscapes due to their high water requirements.

Fertilize Appropriately—Palms are particularly susceptible to micronutrient deficiencies in south Florida due to the poor nature of the soils. Deficiencies can even occur when palms receive regular fertilizer applications because most fertilizers do not contain the proper complement of micronutrients that palms require. Therefore, proper fertilization practices are crucial in maintaining healthy palms.

Broschat (1998) recently provided revised recommendations for palm fertilization (see also Broschat & Meerow, 1999):

Palms and other landscape ornamentals can be ... effectively and efficiently fertilized by broadcasting a 2N-1P-3K-1Mg plus micronutrients fertilizer over the entire ornamental landscape area at a rate of 1.5 lbs/100 sq. ft. every 3 months. These fertilizers should have 100% of their N, K, and Mg in controlled release form to maximize

their effectiveness to the plants and minimize their impact on the environment.

The benefit of these recommendations for Florida Landscapes (and for Florida's natural environment as well) is the use of slow release, low phosphorus fertilizers at a rate that is just sufficient for healthy palm growth.

Manage or Prevent Diseases & Pests—Palm diseases can be broadly categorized as those that are untreatable and are always fatal, those that are sometimes fatal but are treatable, and those that are simply cosmetic. The most important of these with respect to palms in south Florida Landscapes are those that are sometimes fatal but are generally easily treatable. Such diseases include phytophthora root, crown, and trunk rots, bacterial bud rot, pink rot, and damping off. Although complete prevention of these diseases is not possible, proper maintenance schedules, proper planting depth, proper placement in the landscape, and mulching all help to reduce disease incidence. If disease is suspected, contact your local Extension office for Florida-friendly treatment recommendations.

Although healthy, well-grown palms will typically be relatively free of debilitating insect pests (Meerow, 1994), pests do sometimes attack landscape palms in sufficient force to cause concern—particularly when palms are weakened by improper fertilization or excessive watering. Insects that can cause significant pest problems include scale insects, palm aphids, spider mites, coconut mites, banana moths, palm leaf skeletonizers, royal palm bugs, palmetto weevils, various caterpillars, and some grasshoppers (Meerow, 1994). Most of these pests can be successfully treated with oils, soaps, bio-control products, or natural predators, but the most efficient 'pre'-solution to this problem is to choose palms that are resistant to common pests and diseases (see list above), and then make sure they are properly maintained.

Recycle Yard Waste—In 1999, yard waste made up 14% of the 3.6 million tons of municipal solid

waste generated in Miami-Dade County (pers. comm., Irving Gerson, Miami-Dade Solid Waste Management). A significant proportion of this yard waste consisted of pruned (over-pruned?) palm fronds. Ironically, palms do not need to be pruned; in fact, the health of palms is significantly threatened by over-pruning. Furthermore, due to the nearly ubiquitous problems with micronutrient deficiencies in palms in south Florida, pruning green or healthy fronds eliminates a primary source of these micronutrients, since palms recycle many nutrients from old to new leaves. Therefore, palm fronds should only be cut off (if at all) when they are brown and dry. Then, the dead fronds should be shredded or composted, thereby greatly reducing the amount of organic debris added to landfills and providing a sustainable source of mulch or compost. Converting palm leaf debris to compost has the added benefit of quickly recycling nutrients back into the soil, thereby reducing the need for inorganic fertilizers.

Attract Wildlife—Palms are not generally known for their attractiveness to wildlife, although there are some notable exceptions. For example, the native sabal palm (*Sabal palmetto*, which is Florida's State 'Tree') attracts birds, which feed on the fruits. Another native palm, the saw palmetto (*Serenoa repens*), is utilized by various wildlife species for nesting, protective cover, and as a food source. Both of these species, although not listed above, are recommended palms for Florida Landscapes.

Protect the Waterfront—Only a few palms prefer to grow near water. One example is the paurotis or Everglades palm (*Acoelorrhaphes wrightii*), which prefers to have its "feet wet" at all times and performs best when the soil is constantly saturated. Other species, such as the mangrove palm (*Nypa fruticans*) and the mangrove fan palm (*Licuala spinosa*), actually prefer to live along or in brackish waters. Unless planted near water, these palms are generally not

recommended for Florida Landscapes due to their high water requirements. One Florida-friendly landscape practice that does not involve palms but that can help reduce excess nutrients and pesticides from running off into water bodies from adjacent landscapes is to establish a 20-foot “No-Application Zone” along the entirety of the waterfront. Since no fertilizers or pesticides are applied in this zone, non-point source pollution can be reduced.

Reduce Non-Point Source Pollution—Adhering to the previous eight principles will greatly reduce non-point source pollution originating from Florida Landscapes. The best course of action with respect to palms is to plant species that have low fertilizer and water requirements and few pests and diseases (see list above).

Palm Internet Resources

The past few years have witnessed a virtual explosion of palm-related information on the Internet. Interested persons can now subscribe to e-mail lists about palms, participate in online discussion forums, and visit numerous websites throughout the world that contain information on palms.

One of the most comprehensive online palm resources is the website of the Palm & Cycad Societies of Florida, Inc., located at the following URL: www.plantapalm.com. This website is the home of the *Virtual Palm Encyclopedia* (VPE). Here you will find over 50 articles on palms, ranging from general palm horticulture to conservation, ethnobotany, taxonomy, evolution, and pests and diseases.

Also included in the VPE are over 1200 photos of over 500 palm species; a graphical key to common landscape palms; information on cold-hardiness in palms, including several hardiness zone maps; a PowerPoint presentation on palm pests in Florida; University of Florida palm fact sheets; a compiled list of over 1700 palm species

names; a glossary and pronunciation guide containing over 1000 palm genus and species names; a cross-reference containing over 300 palm common and botanical names; and links to numerous other palm-related Internet resources.

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