



Palm Classification

Class: Monocotyledons

Subclass: Arecidae

Order: Arecales

Family: Arecaceae

Subfamilies: 5

Roughly 202 Genera

More than 2,600 species

The Wide World
of Palms:

Largest Leaf

Raphia australis



Largest Fruit



Lodoicea maldivica
Growing at Foster Botanical
Garden

Palms grow on the coast

Allooptera arenaria,
The Seashore Palm
growing on the
beach in Brazil



And in the mountains



Trachycarpus fortunei

Palms can be massive



*Corypha
utan*

A monocarpic Palm from SE Asia with the largest terminal inflorescence in the plant kingdom, 30' tall and up to 40' wide.

Or diminutive



Potato Chip Palm

The 4" to 6" leaf of a *Chamaedorea tuerckheimii*

Some palm fruits contain Calcium oxalate like the fruit of *Arenga pinnata* and *Caryota mitis*. The needle-like stinging crystals known as raphides cause severe burning or irritation if eaten or handled.



***Caryota mitis*, Fishtail Palm**

Some have edible fruit



Ready to eat fruit of the *Salacca zalacca*
(Salak Palm)

Palms can be durable



Palms on Oahu

Lyon Arboretum: \approx 800 species

**County of Honolulu Botanical
Gardens 502 species**

In the trade on Oahu

20 species (or so)

Manillas, Royals, Arecas, Sealing Wax, McCarthurs, Rhapsis, Phoenix, Foxtails, Fishtails, Fijian Fan, Pritchardia (Loulou), Alexanders, Latan, Bottle Palms, Solitaire. Queen Palms, Princess Palms, Triangle Palms, Normanbya.

Desirable Characteristics of a Potential New Commercial Palm

Adequate seed supply

Good rate and speed of germination

Availability; multiple growers

Relatively problem free to grow

**Production time; seed to landscape ready within 3
to 5 years if possible**

Useful tolerances; wind, salt, sun, shade etc.

**Moderate maintenance requirements in the
landscape**

The Ultimate Determining Factor: **Demand**

New Palms for Color



Areca vestiaria Red Form



Areca vestiaria Green Form



**The stilt roots of an
Areca vestiaria
Yellow Crownshaft**

Areca vestiaria

- Seed are plentiful and easy to find
- Quick and easy to produce
- Solitary as well as clumping
- Red Form best in filtered light
- Green Form can be trained to full sun
- Self-cleaning
- Colorful flowers, fruit, crownshaft and great red new leaf in the Red Form
- Good screening palm / max height 25'



Archontophoenix purpurea

- **Substitute for Alexander Palm**
- **Mature Height: 50'-60'**
- **Width of Crown: 15'-20'**
- **Plentiful seed and reasonable growth rate in the nursery and landscape**
- **More robust trunk (width)**
- **Not Invasive (larger seed)**
- **Colorful crownshaft**
- **Self-cleaning**

Two Palms Being Developed



Dypsis puitifera, Orange Crush *Areca macrocalyx* Red Crownshaft

A New Coastal Palm That Is Salt Tolerant



Allogoptera arenaria, Seashore Palm

Allooptera arenaria, Seashore Palm

- Can tolerate direct ocean spray
- Silver underside on attractive twisting leaves
- Mature Height: 6' to 8' (equally as wide)
- Appears clumping (bifurcates)
- Edible fruit
- Four to five years from seed to landscape-ready





New Alternative Screening Palms



Euterpe oleracea, from the Amazon, tolerates a wide range of soil conditions; tolerates full sun and coastal zone 2 conditions.

Euterpe oleracea Acai Palm



Dwarf Acai Palm



E. Olercea Acai Palm

Making Acai Juice

About 95% of the fruits is seed and skin and only a very thin layer of pulp lies between a hard skin and the seed. In order to separate the pulp from the seed, you first need to soak it in warm water for about half an hour. Then you take the fruits, put them into a basket and stamp them with a piece of wood or a glass bottle, adding a very small amount of water. This will crush the skin and loosen the pulp from the seed.



Then you add a little more water to wash the pulp and the crushed skin away from the seeds and finally sieve the mixture to separate pulp from the skin parts.

E. Oleracea Dwarf Acai

- Height: 12'-15'
- Densely clumping i.e. good screening palm with pendulous leaflets
- Self-Cleaning
- Dark purple colorful crownshaft
- Bears Acai Berry which is dark purple, more plump than tall variety and easy to harvest
- Grows in a wide range of conditions

Pinanga coronata

- Height: 10'-20'
- Size of Crown: 'clumps' 8'-12' wide
- True screen at maturity
- Colorful yellow tinted stems
- Bright red flower stalks
- Dark purple fruits
- Filtered light to full sun
- Leaves are slightly mottled



Pinanga coronata
Trimmed to show
off colorful stems



Pinanga coronata
at Ho'omaluhia

Chamaedorea cataractarum,
Cat Palm



C. cataractarum

- Height: 6'
- Size of Crown: 6'-10'
- Prostrate clustering trunks forming attractive clusters
- Very shade tolerant, but also being used in full sun in Kona.
- Think of this as a dark green small 'Areca'



Dypsis cabadae, lanceolata, baronii, onilahensis and pembana

Dypsis is a large genus of palms, mostly from Madagascar. Many new species of palms have been discovered in the last two decades in Madagascar—so many in fact, that the distinction between five genera disappeared, resulting in name changes for over 150 palms. For instance, the commonly grown palm that is called an "areca" palm (was *Chrysalidocarpus lutescens*) is now a *Dypsis lutescens*.

Dypsis cabadae

- **Height: 30'-35'**
- **Width of Crown: 10'-12'**
- **Sparsely clumping**
- **Green trunk with white leaf scars (Bamboo-Like)**
- **Full sun or partial shade**
- **Self-Cleaning**
- **Adaptable**
- **High availability**



Dypsis cabadae
Kailua-Kona

Dypsis baronii

- Height of 20'-25'
- Grows well in full sun and partial shade
- Graceful clumping palm with yellow crownshaft
- Self-Cleaning



Dypsis baronii
An 'Areca'
substitute?

Dypsis lanceolata

- Height: 20-'25'
- Width of Crown: 12'
- Dark green wide leaflets
- Distinctive wide leaf scars
- Self Cleaning



Dypsis lanceolata





Dypsis lanceolata, Kaloko, Big Island

Dypsis onilahensis

- Height to 20'
- Pendulous leaflets
- Chalky white trunk
- Self-Cleaning



Dyopsis pembana

Looking at first glance like the *D. cabadae*, this palm has larger parts throughout. The trunk is twice as thick and is supported by an enlarged 'elephant' foot at the trunk base. The leaflets are broad and dark green, the trunk is gray with a whitish cast and white and attractive leaf base scars. Fast growing, this palm could be considered instead of *D. cabadae* if given enough room to grow..

Dyopsis pembana



The fast growing substitute for *D. cabadae* can be clumping or solitary



Coconut Substitutes

Palms that share some of the characteristics and attributes of *Cocos nucifera* but with lower maintenance costs and without exposure to liability from falling coconuts.

Beccariophoenix; three newly discovered species from Madagascar

- *B. sp. 'Window'*
- *B. madagascariensis*
- *B. alfredii*



Beccariophoenix sp. 'Window' growing at Ho'omaluhia

Beccariophoenix madagascariensis

- Height: 40 feet
- Trunk diameter: 1 foot or more
- Leaves to 15 feet
- Persistent leaf bases with tightly woven fibers
- Dramatic unopened spathes
- Flowering branches 2 feet long with bright yellow flowers
- Fruits are 1 inch long, purplish brown



B. sp 'Window', juvenile leaves at the nursery





Satakentia liukiuensis
Japanese Hurricane Palm

- **Height: up to 60'**
- **Size of Crown: 12'-15'**
- **Beautiful Coco-like brown trunk**
- **Self-Cleaning with small fruit**
- **Native to the Ryukyu archipelago: wind tolerant; will tolerate coastal planting**



***Satakentia* is monotypic i.e. one species in genus**

Attractive white flowers and small fruit

Satakentia liukuensis at Ho'omaluhia



Satakentia liukuensis, Paradise Park, Hilo





Satakentia liukuensis in habitat



Syagrus amara



Remember when the Queen Palm was *Cocos plumosa*?

- *Syagrus* are closely related to the Coconut
- *S. amara*:
 - Height: 50' but very slow after 30'
 - Leaflets held on rachis at different angles, giving the leaves a plumose appearance (like *Syagrus romanzoffianum*, or Queen Palms)
 - Wind tolerant
 - Can tolerate salty soils
 - The only self-cleaning *Syagrus* is *S. plumosa*

Alternative Palm for Royals
Clinostigma samoense, Samoan Palm



Clinostigma samoense

- *C. samoense* grown in Hawaii is most likely *Clinostigma* sp. 'Easter Upolu'
- A South Pacific Palm
- Height; up to 50'
- Width of Crown: 30'-40'
- Fast growing
- Glaucous green trunk, often with 'chalky' appearance

Clinostigma samoense at the Lundqvist Gardens, Big Island



Carpoxylon macrospermum

Carpoxylon macrospermum was thought to be extinct until found in 1987 on Espiritu Sancto Island, Vanatu.

- Height in habitat: 90'
- Width of Crown: 24'-30'
- Swollen base
- Tall Crownshaft
- Grows in filtered light to full sun
- Needs regular water
- Self-Cleaning
- Mulching a good idea





Seed of *C. macrospermum* have only been available From the 1990's.

Look for more seed and plants in the next decade.

At Floribunda Palm Nursery



C. macrospermum
Growing on the Big Island at the Pauline Sullivan Garden

Alternative Solitary Palms

single specimens and also good for group plantings



Bentinckia nicobarica growing at Ho'omaluhia

Bentinckia nicobarica as a good substitute for *Ptychosperma elegans* (Solitaire Palm)

- **Height: to 45'**
- **Width of Crown: 12'**
- **Relatively fast growing with ample water**
- **Beautiful lime-green crownshaft and upper trunk**
- **Full sun to partial shade**
- **Self-cleaning**



B. nicobarica in the nursery



B. nicobarica at
Nong Nooch Gardens, Thailand

Dypsis leptocheilos, Teddy Bear Palm

Height: up to 40'
Width of Crown: 24'+
The crownshaft red and 'fuzzy'. The trunk retains a chalky white appearance. A very graceful canopy. Self-cleaning but may need to cut the spent inflorescences.





Dypsis leptocheilos,
Teddy Bear Palm
Kailua-Kona

Chambeyronia macrocarpa
Flame Palm / Watermelon variety

- **Gorgeous red emerging leaf**
- **Has a Watermelon variety with variegated crownshaft**
- **Grows in full sun**
- **Self-cleaning**
- **Height: up to 40'**
- **Size of Crown: 12'**
- **Likes humus-rich soil, well irrigated**
- **Prefers filtered light but adapts to full sun as it grows**



Watermelon Variety



Two *C. macrocarpa*, Kaloko, Big Island



*Chambeyronia
macrocarpa*
Sadie Seymour Gardens
Kailua-Kona

Hyophorbe indica, Sandalwood Palm



- **Plentiful seed and easy to produce**
- **Night fragrant**
- **Like Bottle Palms, are hardy and can tolerate poor soils**

- **Height: up to 30'**
- **Size of Crown: 10 feet**



The crownshaft of *H. indica* can vary, but a reddish-maroon color is common.

***Areca catechu*, Betel Nut Palm**



***A. catechu* at Ho'omaluhia
Height: can attain 100'**

**Looking for Specimen Palms
Dwarf Betel Nut**



6'to 12' in height, not true to seed

Coccothrinax crinita,
Grandfather Palm



C. crinita

- Slow growing to 25' (with great age)
- Will lose attractive trunk fibers if exposed to strong daily winds
- Requires a little more water than other drought tolerant Coccothrinax



Bismarckia nobilis



in habitat, Madagascar

Bismarckia nobilis

- **Height: up to 80'**
(rarely over 30' in landscape)
- **Size of Crown 20'-25'**
- **Dramatic costapalmate silver leaves**
- **Difficult transplant**





B. nobilis
Showing size of
before trunk begins
to put on height.

Copernicia prunifera,
Canuba Wax Palm

- **Height: no more than 35'**
- **Size of Crown: 15'**
- **Blue-Green circular leaves**
- **Will tolerate many soil types,
but need to avoid extremes of pH**
- **Looks best with regular water and full sun**
- **This palm is armed! (and not self-cleaning)**



Copernicia prunifera

Dypsis saintlucei
looking to the future



At Floribunda Nursery

D. saintlucei

- Rare and critically endangered
- From southeastern Madagascar
- Grows in sandy soil near sea level
- Max height: 30'
- Straight growing trunk topped with white and waxy crownshaft
- Self-cleaning
- Well suited for dry hot locations



Dypsis saintlucei
growing at
Ho'omaluhia

