The Copernicias of Cuba

By Paul Craft

The symmetrical leaf crown of *Copernicia baileyana* from above

Cuba is home to over half the plant species that grow in the entire West Indies. It has been called by some people "the Madagascar of the Caribbean", but that would be somewhat of an exaggeration. Cuba is home to 6000 plant species with 53%, or 3200, being endemic. At nearly the same size as Pennsylvania, that is a huge number for its size. There are currently 98 taxa of palms with *Coccothrinax* and *Copernicia* making up the majority of species.

Cuba, along with Hispaniola and Jamaica, are made up of land that broke off the top of South America and drifted north eons ago. This helps explain why there are similarities of some plants, including the genus *Copernicia*, in only these islands with those found in South America.

Three Copernicias are endemic to South America: *Copernicia alba* from southern Brazil, eastern Bolivia, Paraguay, and northern Argentina; C. *prunifera* from northeast Brazil and *C. tectorum* from north-central Venezuela and Colombia. It has been suggested that the latter, being close to the northern coast of South America, may be the common ancestor of all the Caribbean species. It is also possible the ancestor of the Caribbean species is a palm that no longer exists. It is hoped that future DNA testing will help shed some light on this question.

Copernicia baileyana in habitat

Two *Copernicias* are endemic to the island of Hispaniola: *Copernicia berteroana* from the Dominican Republic and *C. ekmanii* from Haiti. The remaining 19 taxa are all endemic to Cuba.

All species are considered armed with nasty spines or teeth on both sides of the leaf petioles that readily find their way into arms and legs. Leaves are shortly costapalmate with a short rachis that is not often readily noticeable. All are solitary trees except for two species that cluster, *Copernicia curtissii* and *C. glabrescens*.

The Species

Copernicia baileyana is a member of what I like to call "The Magnificent Three". It, along with *C. gigas* and *C. fallaensis,* are the largest of all *Copernicias* as well as being some of the most spectacular. It is commonly called the Bailey palm after the famous

palm botanist, Liberty Hyde Bailey. This species grows in savannah areas and is fairly widespread in central Cuba extending into eastern Cuba.

C. baileyana grows to 50 feet with a columnar or fusiform stem 26 inches in diameter and a leaf-crown 16 – 18 feet across. With age, old leaf bases are shed revealing a very smooth, light grey stem. The shortly costapalmate leaves are orbicular with 110 – 130 segments. They are usually a deep green but can be silvery in at least one population seen by the author. Inflorescences can be up to 10 feet long and produce nearly globose fruit 0.7 inches in diameter that are yellowish green when mature.

The leaves of the Bailey palm are used for roofing thatch as well as in the making of hats and baskets. The hard wood of the stem is used for posts. It has been in cultivation for a great many years in the Americas as well as elsewhere but has never produced fruit readily in cultivation. Many plants thought to be *C. baileyana* in cultivation have actually been determined to be *C. x textilis,* a hybrid between C. baileyana and C. hospita.

Copernicia brittonorum is a coastal species that has not yet found its way into cultivation. It grows along the south coast of central Cuba near the city of Cienfuegos as well as on a couple islands in Cienfuegos Bay and has been recorded to be in the far western part of the island.

This species grows 20 - 25 feet tall with a stem that is 5 – 7 inches in diameter. The leaf-crown is 13 – 14 feet across. Old leaf bases are shed in time revealing a smooth grey stem that is cylindrical. The deeply divided, orbicular leaves have 55 – 65 segments that are dark green. Inflorescences are up to 11 feet long bearing nearly spherical fruit that are 0.5 inches in diameter.

The leaves are used in hat making as well as for tying up charcoal sacks.

Copernicia brittonorum in habitat. Photo by Duanny Suárez.

A grouping of *Copernicia cowellii* growing in serpentine soil

Copernicia cowellii is the smallest of all Copernicias reaching maturity when only 3 feet tall. It only grows in serpentine soil in central Cuba between the cities of Camagüey and Nuevitas. It has been in cultivation since the 1990s, but is difficult to grow outside of its habitat. The largest cultivated plants have reached perhaps 12 inches tall after nearly 20 years.

In habitat, palms reach a height of 8 feet to perhaps 10 feet with stems 6.5 inches in diameter and a leaf-crown 5 feet in diameter. A short petticoat of old dead leaves is held beneath giving the crown a very rounded appearance. Old leaf bases are shed with time revealing

a smooth, cylindrical stem with obscure leaf scars. The shortly costapalmate leaves are orbicular or semi-orbicular with 40 – 48 segments. They are deep green above and a powdery blue beneath. Inflorescences are 5 feet long producing nearly spherical fruit 0.4 inches in diameter and golden-green when mature.

Copernicia curbeloi grows in central Cuba down into eastern Cuba. It has many similarities with *C. yarey* and more recent field studies suggest it may be a hybrid between *C. yarey* and *C. baileyana*. Nothing has been published yet to confirm this so until further studies are done, it will still be considered a species. This palm grows in central and eastern Cuba near the coast in wet areas as well as inland on open savannahs.

Copernicia curbeloi may be a hybrid between *C. baileyana* and *C. yarey*

C. curbeloi grows to nearly 50 feet tall with a columnar or fusiform stem to 15.5 inches in diameter and a leaf-crown 11 – 13 feet wide. The old leaf bases are eventually shed to reveal a smooth grey stem. The shortly costapalmate leaves are orbicular with 72 – 86 segments and are a medium green in color. Inflorescences are up to 10 feet long and produce globose fruit 0.5 inches in diameter.

Copernicia curtissii is one of two clustering species, the other being *C. glabrescens.* It grows in central and western Cuba as well as in the Isle of Youth located just south of western Cuba. It can be found near the coast as well as in interior savannah areas.

Copernicia curtissii can have either green or very silver leaves. Photo by Duanny Suárez.

This species grows 20 – 25 feet tall with stems 7 – 10 inches in diameter and leaf-crowns 11 to 13 feet across. Palms are often solitary but can also produce one or more additional stems which retain the old leaf bases until much older when they are finally shed revealing a cylindrical grey stem that is mostly smooth. The very shortly costapalmate leaves are orbicular with 70- 80 segments and can be either a medium green or very silver in color. Inflorescences are 10 – 11.5 feet long and produce globose fruit 0.5 inches in diameter that are yellowish green when mature.

The durable wood of the stems make them popular for the use of posts. It is a rare species in cultivation with just a very few individuals up to flowering and fruiting size.

Copernicia fallaensis is the largest of all Copernicias. It grows in central Cuba near Falla, so hence its epithet as well as common name, Falla palm. It was originally more widespread, but is now reduced to one small savannah area making it a threatened palm since it is not in any protected areas.

Copernicia fallaensis in habitat

C. fallaensis can grow to 65 feet tall with a leaf-crown 19 feet across or more. The smooth grey stem in older individuals is up to 30 inches in diameter and columnar or fusiform in shape. Bluish green leaves are shortly costapalmate and orbicular with 120 segments. A leaf silhouette appears somewhat diamond shaped with the divided part of the segments giving the appearance of a leaf within a leaf. The brownish or rust colored inflorescences are up to 12 feet long. The ovate fruit measures 0.9 inches long and 0.7 inches wide and is yellowish green when ripe.

The beautiful leaves of *Copernicia fallaensis*

The leaves are used for roofing thatch and known for their durability, which may be the reason for its shrunken distribution. The Falla palm has only been in cultivation since the 1990s and only in limited numbers. None of these are flowering or fruiting as of this writing.

Copernicia gigas is another member of "The Magnificent Three". It is primarily a coastal species that grows in large numbers next to coastal swamps or near mangroves in central and eastern Cuba. While sharing size characteristics with *C. baileyana* and *C. fallaensis*, it is not closely related to them.

This species grows to 65 feet tall with a columnar, light grey, smooth stem up to 20.5 inches in diameter and a leaf-crown 16 feet across. The stem sheds its leaf bases when fairly young. The deep green leaves are shortly costapalmate and broadly wedge-shaped with 60 segments. The inflorescences are up to 10 feet long and produce spherical fruit that are 0.9 inches in diameter.

A habitat of *Copernicia gigas*. Photo by Raúl

Copernicia gigas has only been in cultivation since the mid-1990s. The largest specimens are developing short trunks and are still probably several years away

from flowering and fruiting. Leaves have been used as roofing thatch, the fruits are fed to pigs and the stems used to make canoes.

Copernicia glabrescens grow in wetter areas of western Cuba

Copernicia glabrescens is a clustering species that occurs in western and central Cuba. It grows in savannahs that seasonally flood along with *Acoelorrhaphe wrightii, Coccothrinax miraguama var. arenicola* and *Colpothrinax wrightii*. It does not produce dense clumps, only producing 1 or 2 offshoots if any. In cultivation the palm tends to cluster much more heavily.

C. glabrescens can grow to 20 feet tall with cylindrical stems 4.5 – 6 inches in diameter and a leaf-crown to 15 feet across. The stems are relatively smooth. The shortly costapalmate leaves are orbicular with 62 segments. Colorization is a medium green. The inflorescence is 9 feet long producing spherical fruit 0.65 inches in diameter that are golden green when mature.

It is a slow grower in cultivation and produces more stems than in habitat. Seed brought into cultivation in the mid 1990s are now flowering even though the palms are only 7 - 10 feet tall. The hard wood of the stems make excellent fence posts and is used in other construction to the point where some populations have been decimated by their harvest.

Copernicia glabrescens var. ramosissima grows in central Cuba with *Coccothrinax miraguama subsp. roseocarpa* in serpentine soil. In their monograph on Copernicia, Dahlgren and Glassman found the differences between this and the type species so minor that they questioned whether this variety should be kept as a separate taxon. They stopped short of sinking this taxon into synonymy with *C. glabrescens* though and *C. glabrescens var. ramosissima* remains a separate taxon to this date. More recent field study has determined that this taxon should remain a valid one.

Copernicia glabrescens var. ramosissima in habitat with *Coccothrinax miraguama subsp. roseocarpa*

Copernicia hospita is widely found throughout central Cuba. It grows mainly in inland savannahs but can be found near the coasts as well. Because it is so widespread, it has been one of the parent plants of several well-known hybrids of Cuba such as *C. x shaferi* (a hybrid with *C. cowellii*), *C. x textilis* (a hybrid with *C. baileyana*), *C. x burretiana* (a hybrid with

A fruiting *Copernicia hospita* in habitat

C. macroglossa and *C. sueroana* (a hybrid with *C. rigida*). Its common name is the Cuban wax palm because of the amount of wax produced on the leaves. Johnson and Johnson once explored its use for the carnauba wax industry.

The Cuban wax palm grows to 25 feet tall with a generally cylindrical stem up to 12 inches in diameter and a leaf-crown 13 to 15 feet across. Old leaf base scars eventually fade over time revealing a mostly smooth stem that is light grey in color. Leaves are orbicular and have 56 – 76 segments. They can be either a medium green or silver in color with trees of both colors intermixed in a population. Inflorescences are up to 8 feet long producing spherical fruit 0.8 inches in diameter that are yellowish green when mature.

C. hospita has been in cultivation for quite some time with mature specimens of both the green and silver forms found in several parts of the world. Back in Cuba, hats, brooms and hampers are made from the leaves.

Copernicia humicola may well be extinct. It has not been seen since the early 1960s when it was photographed for the Dahlgren and Glassman monograph on Caribbean *Copernicias.* It has only been known from the type locality of Niquero on the far eastern end of Cuba, where it grows next to mangrove swamps along the coast. Many people, including the author, have attempted to locate this palm to no avail.

This palm can grow to 20 feet tall with a leaf-crown 13 to 14 feet across and a stem 6 inches in diameter. The stem is covered in old leaf bases when young but with age a grey, smooth cylindrical stem is revealed. Leaves are orbicular and have from 54 to 70 segments. The inflorescence can be up to 8.5 feet long and the fruit is nearly spherical with a diameter of 0.7 inches.

This species closely resembles *C. yarey* differing in the thickening of the fruiting branchlets and longer flower bracteoles. Current study is suggesting it may indeed be a synonym of *C. yarey,* but for now remains a distinct species. It is also related to *C. hospita* but differs in its generally longer panicle branchlets.

Copernicia longiglossa is in many ways similar to *Copernicia rigida*. At the time of its discovery in 1936, Hermano Léon thought this species may be of hybrid origin. It is indeed from an area in eastern Cuba where many hybrids occur. More recent field studies suggest it may be a hybrid, but until more research is done, it is still recognized as a distinct species.

This palm can grow to 35 feet tall with a cylindrical stem up to 14 inches in diameter and a leaf-crown 6.5 – 8 feet across. The shortly costapalmate leaves lack a petiole and are wedge-shaped with up to 42 segments. They are dark green in color with a long ligule or hastula on the upper surface. Inflorescences are 6.5 – 8 feet long. Fruits have not been seen.

Copernicia macroglossa is the most recognizable and most widely cultivated of all the Cuban *Copernicias*. Commonly called the petticoat palm, because of its skirt of dead leaves below the crown, it is found in northwestern and central Cuba often close to the coast in salt marshes but also in central savannah areas.

The petticoat palm can grow over 20 feet tall but is rarely seen taller than 13 - 16 feet. The smooth, grey stem is 8 inches in diameter and is only seen in older specimens that have shed the lower portion of their petticoats. Leaves are very shortly costapalmate, lack a petiole and are wedge-shaped with 64 segments. The leaf-crown is 10 to 11 feet across and tall forming a lollipop look on older plants. Inflorescences are 6.5 to 8 feet long and produce spherical fruit that are 0.7 – 0.8 inches across and golden in color when ripe.

C. macroglossa has been in cultivation in many parts of the world for many years and seeds readily. It is a salt tolerant species that can handle both some salt winds and salt around its roots. It is quite slow growing, especially when young, but well worth the wait as it grows more beautiful every year. The stems are of durable wood and have been used for fence posts.

Copernicia macroglossa in habitat. Photo by Celio Moya.

Copernicia molinetii is a species described in 1931 by Hermano Léon from a single collection and comes from central Cuba, near the southern coast, that is not easily accessible. It has not been collected or even seen since then and needs more study to see if it actually still exists. It is also possible this palm is a hybrid.

This species is described as a solitary palm up to 26 feet tall with a stem 15.5 inches in diameter and a leaf-crown 13 feet across. Old leaf bases are shed with time revealing a smooth, grey stem. Leaves are orbicular to semi-orbicular and have 62 segments. Old leaves form a petticoat just beneath the crown. Inflorescences are up to 10.5 feet long producing globose fruit 0.6 inches in diameter.

Herbarium samples are incomplete and until this palm is found again, it will remain a questionable species.

Copernicia oxycalyx has had an interesting history. At one time it was thought to be a synonym of *C. rigida*, as well as being closely related to *C. x sueroana*. While it is still considered a species, more recent field studies suggest it may be a hybrid between *C. rigida* and *C. baileyana*. Until research definitely proves otherwise and something is published, it will be considered a distinct species. It is native to central and eastern Cuba.

Copernicia oxycalyx may turn out to be a natural hybrid between *C. baileyana* and *C. rigida.* Photo by Raúl Verdecia.

This palm grows 30 – 35 feet tall with a leaf-crown 11 – 12 feet across and a cylindrical stem 10.5 inches in diameter. Younger specimens have stems covered with old leaf bases, which are shed with age revealing a smooth, grey stem. The leaf-crown has a petticoat of old leaves. The shortly costapalmate leaves are wedge shaped and contain 40 to 50 segments. Inflorescences are up to 10 feet long and produce spherical fruit that are 0.65 – 0.75 inches in diameter.

To the author's knowledge, this palm is not known to be in cultivation.

Copernicia rigida grows throughout central and eastern Cuba mainly in savannah and woodland areas but can also be found close to both the southern and northern coasts. It retains some older dead leaves giving the crown a rounded or lollipop look.

This species grows to 50 feet tall with a slender cylindrical stem to 10 inches in diameter. The leaf-crown measures up to 13 feet across and is either deep green or silver in color. The stem is covered in old leaf bases for quite some time eventually shedding them to reveal a relatively smooth grey stem with obscure leaf scars. The narrow wedge-shaped leaves have 18 – 32 segments and lack a petiole that helps adds to the tight appearance of the crown. A long ligule or hastula on the upper side of the leaf can be as long as 39 inches and is rather unique to the genus. The inflorescences can be as much as 6.5 feet long and produce nearly spherical fruit 0.65 inches in diameter that is golden when mature.

A blue form of *Copernicia rigida* in habitat. Photo by Raúl Verdecia.

A grouping of *Copernicia rigida* at the Nacional Botanical Garden in Cuba

C. rigida has been in cultivation for many years, but in very limited numbers. Seed has found its way in since the 1990s so more are beginning to reach some height and will begin flowering before long. Leaves are used for roof thatch and stems used for fence posts.

Copernicia roigii has a spotty distribution in central and eastern Cuba. It is closely related to *Copernicia yarey* and it has been suggested in recent times that it may be just a variety of *C. yarey*. Nothing has been published confirming this, so it is still regarded as a distinct species.

This species grows to 30 feet tall with a stem 7 inches in diameter and a leaf-crown to 10 feet across. As with most *Copernicias*, the stem is covered in old leaf bases when young, shedding them as the palm ages revealing a cylindrical, smooth, grey stem. The bluish-green leaves are orbicular with 76 segments. The inflorescence stretches to 6.5 feet and the fruit is nearly spherical with a 0.6 – 0.7 inch diameter.

Stems of this species have been used in the construction of fences, corrals and bridges. It is not known to be in cultivation outside of Cuba.

***Copernicia* yarey** has a distribution mostly in eastern Cuba but can be found as far west as the coastal northern cayes in Central Cuba. It grows mostly near the coast but can also be found in savannahs inland. Its common name is yarey palm.

This species grows to 25 feet tall with a cylindrical stem up to 10 inches in diameter and a leaf-crown 13 – 14 feet across. Leaf bases are persistent when young but shed with age to reveal a smooth grey stem with faint leaf scars. The very shortly costapalmate leaves are orbicular with 58 – 80 segments and are either a medium green or silver in color. Inflorescences are 6 feet long producing a nearly globose fruit 0.55 inches in diameter that is golden green when mature.

Copernicia roigii in habitat. Photo by Raúl Verdecia.

Copernicia yarey in habitat on Cayo Coco on Cuba's north coast

Copernicia yarey var. robusta is a distinct variety with the main difference being in the longer and thicker flowering branchlets. It tends to be found more in savannahs and woodlands rather than along the coasts.

Both *C. yarey* and *C. yarey var. robusta* have been in cultivation in South Florida and possibly elsewhere for many years. It seeds easily and younger plants can be found in gardens elsewhere in the world now.

***Copernicia* hybrids**

While distinct species can be found throughout Cuba, there are areas in central and eastern Cuba home to hundreds and even thousands of hybrid Copernicias. Some have parentage that can be easily understood while others have hybridized amongst themselves making their ancestry not easily understood. All are quite beautiful, but any attempt to come up with the same looking palm from seed of these plants would be virtually impossible.

There are currently six recognized naturally occurring hybrids sharing characteristics of both parent plants listed above. As with any hybrids, these palms will vary in appearance depending on which parent the individual plants favor the most but their identification is fairly easy once the features of the parents are understood.

Copernicia x burretiana is a naturally occurring hybrid between *C. hospita* and *C. macroglossa*. It can be found in central Cuba where these two species grow with or near each other.

Copernicia x occidentalis is a hybrid between *C. curtissii* and *C. brittonorum* and again found where the parent plants grow with or near each other.

Copernicia x shaferi is a naturally occurring hybrid between *C. hospita* and *C. cowellii*. It can be found in central Cuba near the city of Camagüey in serpentine habitats.

Copernicia x burretiana in habitat. Photo by Duanny Suárez.

Copernicia x sueroana is a hybrid between *C. hospita* and *C. rigida*. It has a spotty distribution in central and eastern Cuba.

Copernicia x schaferi in habitat.

A grouping of *Copernicia x textilis* in habitat. Photo by Raúl Verdecia.

Copernicia x textilis is a naturally occurring hybrid between *C. hospita* and *C. baileyana*. Since both parents are wide spread, this hybrid is widespread as well.

Copernicia x vespertilionum is a natural hybrid between *C. gigas* and *C. rigida* with a spotty distribution in central and eastern Cuba.

Seed of these named hybrids came into cultivation in the 1990s. While seed could well have been collected from these hybrids, the offspring from the palms may not look anything like the parent and could even be further hybridized with other species or hybrids in the habitat from which collected. It will be interesting to see what these palms turn in to given time.

Copernicia x sueroana at the Las Tunas Botanical Garden

Cultivation

To understand the cultivation requirements of *Copernicia*, it helps to know what the conditions are where they grow.

Most species of this genus grow in open savannahs in red clay mixed with sand that is generally alkaline in nature. Some grow on the coasts in sand near mangroves. *Copernicia cowellii* is the lone species that grows exclusively in serpentine soil, which is made up of ultramafic rock that is very low in calcium and high in magnesium and iron. This soil can also contain toxic elements such as nickel, cobalt and chromium. Plants that have adapted to such soil often cannot grow well in other soils. It

Copernicia x vespertilionum in habitat.
Photo by Raúl Verdecia.

may grow best cultivated in a volcanic based soil that possibly simulates serpentine soil. The rest of the Copernicias seem to do well in either sand, sand mixed with clay, granite or even in acidic volcanic soils albeit in the latter they tend to grow more slowly. They do seem to prefer alkaline soil mixes.

None of the species grow in what would be considered dry areas. Rainfall is seasonal and most species tolerate seasonal flooding. A misconception that some people have is that *Copernicias* prefer being on the dry side and nothing could be further from the truth. While they do not require copious amounts of water, they will grow far better when given water on a regular basis.

All prefer full sun from the time they are quite small. They can be slow growing when young, but will usually pick up speed once they have developed a nearly full sized leaf-crown. Along with sun, they like heat. The lowland savannahs and coastal areas are hot, particularly in the summer. Daytime highs of low to mid 90s are normal in the summer with nighttime lows in the low to mid 70s. With the increased rainfall in the summer, this is the time of year when they grow most robustly. When temperatures cool in the winter, their growth slows down greatly as well as when planted in areas that are never as warm as Cuba or Florida. It is still possible to grow beautiful *Copernicias* in cooler climates, but it will just take longer for them to mature.

These palms are also somewhat cold tolerant, at least by Florida standards. The brief lows that South Florida experiences from time to time have not been a problem. Little if any leaf damage occurs with lows in the high 20s, and even down in the mid 20s, only some leaf burn occurs. Longer term cold may not be as well received by *Copernicias* as sometimes experienced in California or Mediterranean type climates. By comparison, the two Hispaniola species, *Copernicia ekmanii* and *C. berteroana,* are far more cold sensitive than the Cuban species.

Copernicia glabrescens used as a landscape plant in Cuba

Regular fertilization with a palm special fertilizer is generally sufficient to keep *Copernicias* robust and in good color. Occasionally, magnesium or potassium deficiencies can show up, but can be easily corrected with a magnesium/potassium supplement. During prolonged cold periods, boron deficiency can manifest, particularly in *Copernicia macroglossa*, but after some continuous warm weather will go away on its own.

To sum up, the Cuban *Copernicias* are a fascinating group of plants that are in great need of a modern taxonomic revision. They are excellent plants for any landscape use as long as one has some patience to watch them grow. Some need larger landscapes than others because of their great size (*C. baileyana, C. gigas*, and *C. fallaensis*) while the rest fit well into small or large landscapes. Grown in odd numbered groupings, they can be particularly impressive. Their needs are not excessive and they are quite rewarding when they reach maturity.

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