

More Venezuelan Palms

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These pages include the descriptions of 20 species of Venezuelan palms which I have collected, cultivated, and propagated successfully in the Botanical Garden in Caracas. It is my purpose not only to write about the general appearance of each of them, but also of my adventures in the mountains of Venezuela, my general observations, and of the propagation of the plants in our nursery.

To go to the mountains, to the Amazonian forests, or to the cloud forests of the Cordillera de la Costa of Venezuela, means to me in the first place, to be with the palms in their natural habitat so as to be able to study them better and to consider their potential for ornamental use.

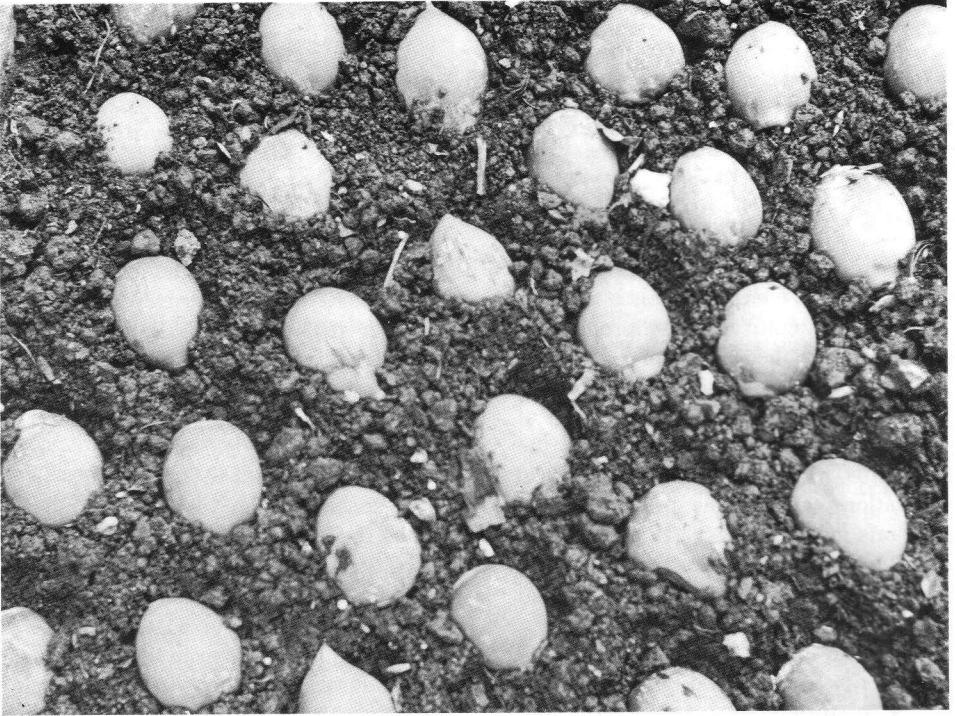
I have spent a long time in those regions of Venezuela where palms can be found and I never tire of looking at them. I have visited them in all the seasons of the year taking with me my camera, my notebook and collecting equipment.

In the field I have verified the flowering rhythm both in the highlands and in the hotter lowlands. I noticed, for example, that most of the palms of the lowlands have a fixed rhythm, so we know that the time when the palms bear seeds coincides with the months of June–August, even though some plants bear seeds in the months before and after these. The rhythm in the cool regions of the mountains is very different. There, according to my observations, the palms flower and fruit in different months of the year. *Ceroxylon klopstockia*, for example, has a flowering cycle of three years during which it flowers in a different month each year. The cycle starts in February and flowering the

next year is in June and the following year in October–November. Each plant requires a whole year to develop and mature its seeds. After the three year period, the plant starts to flower again in February. *Catoblastus praemorsus* and *Euterpe acuminata* have similar cycles. In consequence, the collection of seeds from these species is done in different months in different years.

The trips and excursions in Venezuela have always been interesting and sometimes adventurous, mixed with problems and difficulties where even the climate can be a frustrating and delaying factor. Inundations in the wet season have caused me on various occasions to collect seeds while walking in dirty water, forcing me to walk in it in the "Morichales." The changes in temperature in the mountains also often produced high fevers and other disagreeable symptoms. To loose your way in the forest can be something terrible. I'm going to tell you one of the adventures that I had at 2,000 m of altitude in the cloud forest of the Cordillera de la Costa. The fog was so dense that I couldn't find my way and after hours of difficult walking over rocks, deep clefts and other obstacles I had to spend the night in the cold mountains without food or water.

On one of my trips to the Territorio Amazonas, my traveling companions fell gravely ill with paludism so that the trip had to be postponed for some days. One day after that I had the pleasure of collecting ripe seeds of *Astrocaryum munbaca*, which I had been trying to get for years. I was feeling very happy because of this collection when the next day I dis-



1. Propagation of nuts from *Scheelea*.

covered that the majority of the seeds were half-eaten by an insect and empty inside, really lamentable! In 1979 I found that all the seeds of *Catoblastus praemorsus* had been eaten by squirrels two months before ripening in a radius of about 3 km so that not a seed was left to be collected.

In the propagation of palms we also found surprises. For example, for many years I had been trying to germinate the seeds of *Bactris granatensis*. After putting the seeds in a concrete box with a natural bottom, covered with plastic to let the light in, with an inside humidity of a constant 100%, and having watered them only once in five months, I uncovered them to find that the majority had germinated.

Before each sowing we use different methods to take off the fleshy pericarp. We never cover the seeds with soil but depending on the species and the quan-

tity, we cover them partially or completely with moss or wood cuttings (Figs. 1, 2). The seeds have to have moderate humidity for if they receive too much water they drown. The transplanting must not be done before the plantlets have developed their third leaf (Fig. 3). On many occasions I collected small plantlets in the forests but the results were never satisfactory. For this reason I prefer to propagate palms by seeds instead of taking young plants from the forests.

The young plants of some palms are very attractive and very much desired by the public. I am referring particularly to *Catoblastus praemorsus*. The plantlets one or two years old are so attractive and graceful that the visitors to our Botanical Garden always want to take one of them home (Fig. 4). There are really few species of palms that have such a beautiful seed-



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2. Seeds are planted in pots and covered with moss. 3. Seedlings of *Geonoma* transplanted into pots. 4. *Catoblastus praemorsus*, one-year-old. 5. *Hyospathe pittieri*, one-year-old; this palm needs dense shade.

ling leaf which is oblong-rounded and of a light bright-green color. To grow this palm one has to add a good amount of granular sand to the soil and arrange for good drainage because the palm is very sensitive to too much water. *Hyospathe pittieri*, also from the cloud forest, was first

cultivated in our nursery and grew well (Figs. 5, 6). It is a palm that grows in very shady forests; perhaps it could be adapted to poorly lighted apartments.

On my last trip to the Orinoco river I had the great fortune to find the beautiful *Attalea racemosa*, which is a dwarf palm



6. *Hyospathe pittieri* grows only in the darkest part of the forest at 1,100 m in the Venezuelan coastal range. 7. *Attalaea racemosa* along the upper Orinoco. 8. Young plants of *Astrocaryum mumbaca*. 9. Mature *Astrocaryum mumbaca* has slender trunks.

only two meters in height and with pinnate leaves very similar to a *Cycas* (Fig. 7). Among hundreds of specimens only one plant had seeds, which was very surprising.

Yes, dear reader and palm friend, the

seed collector has to have good luck in his trips as knowledge provides only a basic help. One with no patience, perseverance, and luck is really lost in this activity.

Descriptions of some Venezuelan palms follow:

Aiphanes elegans Wendland

Plant 3–4 m tall. Trunk solitary, ca. 12 cm in diameter, densely covered with black spines up to 9 cm long. Leaves 9 to 14 in number, arched, 1.5–1.7 m long with 20–25 pairs of leaflets in groups of 3–4; leaf sheath and petiole covered with black spines of different sizes. Leaflets quadrangular, denticulate apically, approximately 46 cm long and 7 cm wide at the tip. Flowers yellow, fruit rounded, 1.6 cm in diameter, orange-red when ripe.

This is a palm from the dry regions of the Estados Apure and Sucre.

Cultivation: The seeds require about two months to germinate. The plants do best when planted in places where they receive sunlight in the morning and shade in the afternoon.

Astrocaryum munbaca Martius

(Figs. 8, 9)

Trunk up to 5 m tall and 6 cm in diameter, light colored and armed with flat black spines of different sizes. Leaves 8 in number, gray below and green above. Rachis of the infrutescence near 10 cm long with numerous small branches. Fruits rounded, 1.2 cm in diameter, red-orange when ripe. Collected in the gallery forests of the "Galipero" river, 30 km north of Puerto Ayacucho, Territorio Federal Amazonas of Venezuela. Of 100 seeds collected, only 20 were viable, the rest were eaten by insects.

This armed palm grows in groups inside shaded forests of the Territorio Amazonas of Venezuela.

Attalea racemosa Spruce (Fig. 7)

Acaulescent palm approximately 2 m tall with 8–14 leaves light green in color; leaf sheath about 40 cm long; rachis 1.5–2 m in length with 70–130 pairs of rigid leaflets, all in the same plane. Fruit ovoid 7 cm × 4 cm; perianth cupule clear with staminodial cup, endocarp thick, fibrous.

Grows in big colonies in the Alto Orinoco in the Territorio Federal Amazonas in periodically flooded forests but also in open savannas. This beautiful palm is sometimes cultivated in Puerto Ayacucho.

Bactris granatensis (Karsten)

H. A. Wendland (Fig. 10)

Multicaulescent palm, armed, 10–12 m tall. Trunks grayish in color, about 8 cm in diameter with spines of different sizes up to 8 cm in length. Leaf sheath about 60 cm long, covered with dark spines up to 7 cm long; petiole 32 cm in length with clustered spines up to 5 cm in length; rachis 1.6 m long, approximately 63 pairs of leaflets in groups of 3, 4 or 7; the central ones 58 cm long and 3 cm wide, at different angles. Inflorescences with approximately 70 small branches up to 20 cm in length. Flowers cream, with strong smell. Fruit globose, depressed, 2 cm in diameter, black when ripe.

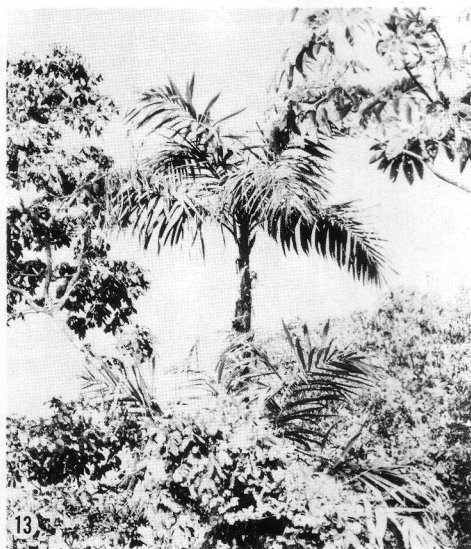
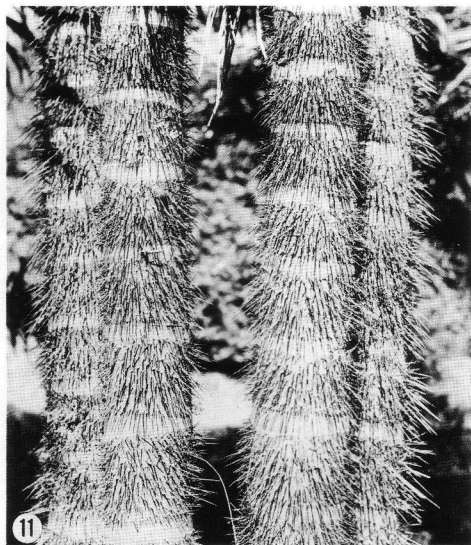
A very valuable ornamental species for parks and gardens in hot climates. Grows in the northern part of Venezuela where it is frequent, for example, in the Parque Nacional Guatopo at approximately 600 m above sea level.

Cultivation: the seeds require 5–6 months to germinate. Requires half shade to direct sunlight, fertile soil and abundant water.

Bactris macana (Martius) Pittier

(Fig. 11)

Multicaulescent palm, armed, 5–10 m tall, with 8–17 leaves softly arched. Trunk approximately 16 cm in diameter, covered with black spines of different lengths, up to 6 cm in length. Leaf sheath 80 cm long, armed with spines; petiole near 20 cm in length, also with black spines; rachis 1.8 m long, armed in its lower part, with 90 pairs of leaflets in groups of 4, 5 or 7, at different angles, 50 cm in length and 3 cm wide, dark green in color. Inflorescence axillary with ca. 40 small branches.



10. *Bactris guineensis* in the Caracas Botanic Garden. 11. The spiny trunks of *Bactris macana*. 12. Young plants of *Bactris setulosa* in the cloud forest. 13. *Bactris setulosa* at 1,650 m.

Flowers cream-colored. Fruit subglobose, 12–16 mm in diameter, bright orange in color; seed globose-depressed.

Grows at the foot of the Cordillera Andina of Venezuela, up to approximately 600 m above sea level.

Cultivation: Propagation by seeds which germinate after 4–5 months. Requires half

shade and heat, abundant water and fertilizer.

Bactris piritu H. A. Wendland (Fig. 10)

Multicaulescent palm, armed, 3–5 m tall. Trunks several and very near each other, approximately 3 cm in diameter,

covered by the old leaf sheaths. Petiole and leaf sheath armed with acicular, yellow-brown spines, up to 6 cm long. Leaf rachis 30–40 cm in length with 20–40 pairs of linear leaflets, 20–30 cm in length, dark green in color. Inflorescences axillary, rachis 5–10 cm in length with 20–30 small branches. Fruit globose-depressed, 1–2 cm in diameter, black-purple in color when ripe.

A palm typical of the semidry regions of the llanos of Venezuela.

Cultivation: Propagation by seeds which germinate after 4–5 months. Requires complete or partial exposure to the sun. Needs a very hot climate.

Bactris setulosa Karsten (Fig. 12, 13)

Multicaulescent palm, 5–7 m tall. Bearing up to 10 trunks, 7–10 cm in diameter, armed with dark spines of different sizes. Leaves dark green; rachis 2–3 m long with 40–50 pairs of leaflets, in groups of 3–8, 9 cm in length. Rachis of the inflorescence 15–20 cm long with about 60 small branches. Flowers yellow-cream colored. Fruit globose-depressed, about 2 cm in diameter, red to dark red when ripe.

This species grows spontaneously in the shaded parts of the wet forests of the Cordillera Costanera de Venezuela between 1,650 and 5,000 m above sea level.

Cultivation: Propagated by seed which take 9–10 months to germinate. Requires partially shaded places, fertile soils, and frequent watering.

Bactris simplicifrons Martius (Fig. 14)

A dwarf palm, up to 2 m tall, armed and multicaulescent. Trunks 3–6 in number, about 5 mm in diameter, covered with black spines up to 10 cm in length. Leaves pinnate, up to 5 in each trunk. In young plants the rachis usually has only one pair of wide united leaflets. In adult plants the rachis is 1 m long with 30–35 pairs of lanceolate leaflets, in groups of 3–6, mea-

suring almost 43 cm in length and 4 cm in width. Inflorescences axillary, white-tomentose, up to 10 cm long, the first simple, later ones forked or rarely with 3–4 small branches. Fruit subglobose, approximately 7 mm diameter.

Grows in half-shaded places in Venezuela under 1,200 m above sea level.

Cultivation: Propagated by seeds which germinate after 3–4 months. Requires half shade and warm soil.

Ceroxylon interruptum (Karsten)

H. A. Wendland (Fig. 15)

Solitary palm 10–20 m tall. Trunk grayish about 35 cm in diameter, almost always covered with lichens. Leaves 12–18, grayish; rachis about 2 m long with approximately 100 pairs of leaflets arranged in series of 3–9, apically almost regular. Inflorescences axillary, 1–4 in number with 40–50 small, much branched lateral branches. Fruits rounded, about 2 cm in diameter, bright red ripe, very verrucose.

Ceroxylon interruptum is very similar to *C. klopstockia*, it differs at first sight because it is less dense than the latter; moreover the leaves appear regularly ripped by the wind and are reddish in color.

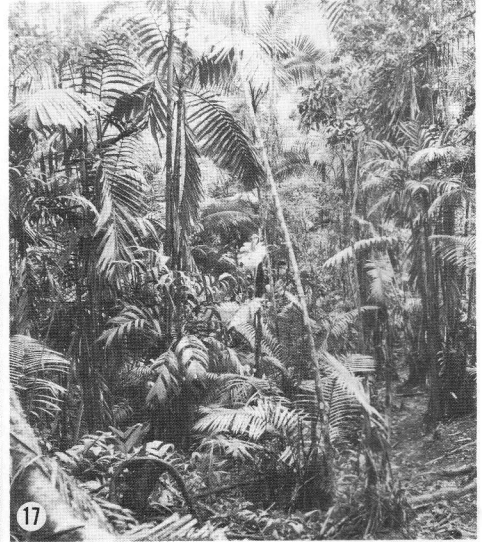
Very slender palm characteristic of the cloud forest between 1,500 and 2,800 m above sea level of the Cordillera de la Costa and the Cordillera de Los Andes of Venezuela and Colombia.

Cultivation: Adequate for parks and gardens with temperatures of 15° C. The seeds usually germinate after 6–13 months, but may take up to 2 years.

Coccothrinax barbadensis (Lodd.)

Becc. (Fig. 13)

A solitary palm, not armed, up to 8 m tall. Trunk 10–15 cm in diameter, wrapped for a long time in a fine brown-colored net, eventually bare. Leaves 15–20, palmate, green above and silver below. Leaf sheath covered with fibers that sur-



14. *Bactris simplicifrons* in the forest. 15. *Ceroxylon interruptum* in the Junquito cloud forest at 2,200 m. 16. *Coccothrinax barbadensis*. 17. *Euterpe acuminata* in the Junquito cloud forest at 1,950 m.

round the trunk. Flowers bisexual. Inflorescences axillary, shorter than the leaves, branched at different levels. Fruit black, rounded or slightly flattened, approximately 7 mm in diameter. Seed with deep furrows.

A palm of a great ornamental value for parks and gardens. In Margarita, hats and

handbags are made with the fibers of the young leaves. In Venezuela this species has been found only in the Isla de Margarita where it grows in open ground on the slopes of dry hills.

Cultivation: The seeds germinate after 4 months or longer. Not demanding as to soil type.



18. A four-year-old *Geonoma simplicifrons* in the Caracas Botanic Garden. 19. A five-year-old *Geonoma spinescens* also in the garden.

Euterpe acuminata (Willdenow)

H. A. Wendland (Fig. 17)

Multicaulescent palm about 14 m tall. Trunk more or less 8 cm in diameter. Leaves 5–6 in number, arched, dark green. Leaf sheath up to 1 m long, purple colored; petiole 30–60 cm long; rachis 1.5–3 m long with 35 pairs of leaflets, the central ones 48 cm in length. Rachis of the inflorescence 60–80 cm long, with 60–80 small pendulous branches. Flowers lilac-colored. Fruit globose, 1 cm in diameter, dark blue when ripe.

Grows in the very humid forests of the Cordillera de la Costa of Venezuela between 1,500 and 2,000 m above sea level.

Cultivation: The seeds germinate very easily after 40–50 days. A palm for cool places of approximately 10–20° C. Requires high humidity and shade.

Euterpe precatória Martius

Solitary palm, stem 18–28 m tall with approximately 13–17 leaves; leaf sheath about 1.5 m long glaucous-green; petiole 35 cm long; rachis 3.5 m long with approximately 75–90 pairs of leaflets,

pendulous, glaucous above and green-grayish below, up to 1.2 m long and 2.5 cm wide. Inflorescence with peduncle measuring 15–20 cm in length; rachis with 80–130 small branches, 80–90 cm long, white-tomentose.

The most abundant plant in the Territorio Amazonas of Venezuela where it grows at low altitudes.

Geonoma simplicifrons Willdenow

(Fig. 18)

A solitary palm, unarmed, 1–2 m tall. Trunk more or less 1 cm in diameter. Leaves pinnate, 7–10 in number, segments 15–30 cm in length, rarely simple or only in the first years. Inflorescences axillary; peduncle of the inflorescence 20–30 cm long, branches 15–30 cm long and 3 mm wide. Fruit globose, ca. 5 mm long, blackish when ripe.

Another dwarf palm from the cloud forests of the Cordillera de la Costa of Venezuela, between 400 and 1,400 m above sea level.

Cultivation: The seeds germinate after 4 months. The plants always require shade. Adequate plants for apartments but requiring daily care.



20. *Geonoma undata* in the Venezuelan cloud forest at 1,950 m. 21. *Geonoma undata*, about five years old. 22. *Scheelea butyracea*, Barinas State. 23. Inflorescence of *Scheelea butyracea*.

***Geonoma spinescens* H. A.**
Wendland ex. Burret (Fig. 19)

An almost acaulescent palm, 0.5–1 m tall. Trunk some 3 cm in diameter with foliar scars very near each other. Leaves 8–12, usually simple, but sometimes

irregularly pinnate. Leaf blade 40–50 cm long and the sheath up to 26 cm wide, multi-nerved. Inflorescences axillary; main axis up to 30 cm long; rachis 8–10 cm long with 10–12 branches, 8 cm in length and 1 mm wide, reddish in color as are the axis and the rachis. Fruits rounded,

approximately 7 mm in diameter, shiny black when ripe.

This beautiful dwarf palm grows spontaneously in the Venezuelan Cordillera de la Costa, between 1,100 and 1,650 m above sea level.

Cultivation: Propagation by seeds which germinate after 4 months. Requires half-shade to shade and high humidity. An excellent palm for apartments with temperatures between 15–23° C.

Geonoma undata Klotzsch (Fig. 20, 21)

Solitary palm; stem 5–10 m tall and 10 cm in diameter. Leaf blade 15–25 cm long and irregularly pinnate. Inflorescences axillary and twice branched; small branches 25–45 cm in length and 3–6 mm wide, cream-colored.

A species native to the coastal forests and into the Andes at an altitude of 1,400–2,400 m.

Cultivation: The seeds need 4–6 months to germinate. A palm for shady places with temperatures between 10 and 19° C.

Hyospathe pittieri Burret (Fig. 5, 6)

A multicaulescent palm, not armed, 5–6 m tall. Trunk 3–4 cm in diameter. Leaves 10–12 in number; rachis 1 m long with 19–27 pairs of leaflets up to 60 cm long. Inflorescences growing from under the leaves; rachis of the inflorescence 15–25 cm long; flowers cream-colored during anthesis and reddish after opening. Fruit elliptical, 1.5 cm long, blackish when ripe.

There is no other Venezuelan species that grows in such a shaded region as this one. It is common in very humid forests of the Cordillera de la Costa of Venezuela, between 800 and 1,100 m above sea level.

Cultivation: To this day cultivated only in the Jardin Botanico de Caracas. The seeds require approximately 4 months to germinate. The plants need sufficient shade, only 12–20° C and high humidity.

Prestoa longipetiolata (Orested)

H. E. Moore

Palm usually solitary, 1–2 m tall. Trunk not armed, ringed, about 10 cm in diameter. Leaf sheath about 60 cm in length with approximately 34 pairs of rigid leaflets. Inflorescence 30–50 cm long, with 20–40 small branches up to 20 cm long. Fruit globose, 9–10 mm in diameter, almost black in color.

This beautiful dwarf palm is quite rare in Venezuela. To this day it has been reported only from the humid forests north of Nirgua (Edo. Yaracuy) between 1,200 and 1,300 m above sea level.

Cultivation: Propagation by seeds which germinate easily after a 40 day period. Requires half-shade and temperature of 15–20° C. A palm that would do well in apartments.

Scheelea butyracea (Mutis ex

Linnaeus f.) Karsten ex H. A. Wendland in Kerchove (Fig. 22, 23)

Columnar trunk, 20–25 m tall in mature plants and 30–40 cm in diameter. Leaves 15–20; sheath 1.5 m long and fibrous; petiole almost absent; rachis 6–9 m long with about 200–230 pairs of leaflets, irregularly arranged. Inflorescences about 3 m long; rachis 1 m long with approximately 200 short branches. Flowers cream colored. Fruit oblong, 2.5–5 cm long and 3 cm in diameter.

Very impressive palm from the llanos of Barinas and Apure and in the Territorio Amazonas of Venezuela and Colombia.

A very spectacular palm, appropriate for parks and large gardens. The seeds germinated in Caracas after 17 months.

Scheelea macrolepis Burret (Fig. 24)

Solitary palm with columnar trunk, up to 6 m tall and nearly 30 cm in diameter. Leaves 15–20 in number, green-blue-grayish in color, more or less arched. Leaf sheath fibrous along the margins; petiole



24. *Scheelea macrolepis* in the Caracas Botanic Garden. 25. *Syragrus sancona*, Barinas State.

very small; rachis with approximately 180 pairs of leaflets in mature plants, 70–80 cm long. Axillary inflorescences 1–2 m long. Fruits irregular, ovoid, ca. 5 cm long and 3.5 cm wide.

The “Coroba” palm, as it is commonly called, grows along the northern part of the Orinoco river, mainly in the savannas of the Cuchivero and Caicara del Orinoco (Edo. Bolivar).

Cultivation: Propagation by seeds which germinate after 2–4 months or longer. Requires fertile soil, heat and abundant water. Very appreciated in the country for its oily fruits. The leaves are used to roof rural buildings and the trunk as firewood.

Syragrus sancona Karsten (Fig. 25)

Solitary palm, 10–18 m tall. Trunk 20–25 cm in diameter. Leaves about 14,

varying from light to dark green. Leaf sheath laterally fibrous. Rachis 2.5–3 m long with 120–150 pairs of leaflets grouped at different angles, 60–80 cm long and 3–4 cm wide. Rachis of the inflorescence 0.5–1 m long, with numerous small branches. Flowers cream-colored. Fruit approximately 3.5 cm long and 2.5 cm in diameter, orange when ripe.

Native to the Andes region and the lowlands of Venezuela and Colombia.

Cultivation: Propagation by seeds which germinate after 3–4 months or longer. Hot climate palm. Very suitable for parks and gardens, requires fertile soil and abundant water.

Know Your Palms

A. *Actinorhysis calapparia* (with *Areca catechu* on right). B. *Carpentaria acuminata*. C. *Bismarckia nobilis*. D. *Heterospathe elata*.