

The Genus Reinhardtia

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A few fortunate gardeners today possess plants of one of the varieties of *Reinhardtia gracilis*, a small but intriguing palm with "windows" in the leaves. A similar but larger species, *R. latisecta*, was illustrated by M. A. Langlois in *Principes* 1:48, 1957. Three additional species belong in this unusual genus. All of them are suitable for cultivation and two species have been cultivated in times past under the name *Malortiea*. A technical study of the genus will shortly appear in *Gentes Herbarum*. A less formal approach, however, may provide readers of *Principes* with information about plants in cultivation, with the means of identifying them, and, in addition, may explain why we call the genus *Reinhardtia* today.

Reinhardtia in Nature and in Cultivation

The five recognized species of *Reinhardtia* occur in the tropical rain-forests of southern Mexico, Central America and northern Colombia. They are shade-loving palms requiring abundant moisture and, where I have seen them in Mexico and Costa Rica, are always on rather steep slopes in well-drained soil rich in humus. Most reinhardtias grow at low elevations from near sea-level to about 2,000 feet, though *R. elegans* and *R. gracilis* var. *tenuissima* are found at an altitude of about 3,000 feet.

There is far too little information regarding their requirements in cultivation. *Reinhardtia simplex* and one or more varieties of *R. gracilis* were grown in European and British greenhouses in the last century. The same two species were also cultivated at the Doheny Estate in Los Angeles, California, early in this century. New introductions have brought fresh stocks of *R. gracilis* varieties and *R. simplex* into the United States

in recent years. Plants grown in the constant conditions of a warm greenhouse flourish when provided with rich humus soil, plenty of water and heat. In the open or under lath in Florida, they grow more slowly and appear to be sensitive to cold.

Further trials are needed to solve the problems of successful growing. Those species not yet in cultivation are certainly worth a serious attempt at introduction. The handsome appearance of *R. latisecta* has already been shown in *Principes*. *Reinhardtia elegans* would appear to deserve the epithet "elegant," and the diminutive *R. Koschnyana* is a prize to be sought. With the exception of *R. elegans*, plants eventually form clusters of several stems from an underground rhizome and thus may be propagated without seed.

Reinhardtia versus Malortiea

The first record of *Reinhardtia* appeared in 1845 when the Danish botanist Liebmann mentioned the name only in a list of Mexican palms he had collected. It was not until 1849 that a description of the single species, *Reinhardtia elegans*, appeared in Martius' *Historia Naturalis Palmarum*. Until 1889, it was supposed that this slender palm with evenly pinnate leaves was the only species of the genus. In the meantime, Hermann Wendland, Royal Gardener at Hannover, Germany, described a small Guatemalan palm of unusual habit noteworthy, among other characteristics, for the opening between the bases of pinnae that were otherwise united. It was called *Malortiea gracilis*; the generic name *Malortiea* coined in honor of Ernst von Malortie, Chief Marshal of the King of Hannover.

Later in the same year, 1853, Wendland described specimens of a second

species, also from Guatemala, to which he gave the name *Malortia latisecta*.

A few years later, a third species from Costa Rica, *M. simplex*, was added to the genus and in 1901, *Malortia Koschnyana*, one of the smallest of all palms, was described from specimens also collected in Costa Rica.

When Wendland amplified the description of *Malortia* in describing *M. latisecta*, he noted a strong resemblance to the genus *Reinhardtia*, but because of the difference in leaves and supposed differences in flowers he maintained them apart as did Sir Joseph Hooker when he studied the genera for *Genera Plantarum*.

Oscar Drude, however, combined the two genera when he wrote the treatment of the palms for Engler and Prantl's *Die natürlichen Pflanzenfamilien*. Max Burret reached a similar conclusion when he studied the genera in 1932, though L. H. Bailey continued to separate them. Further study on my own part with more abundant material than was available previously, and augmented by observation of some species in Mexico and Costa Rica, confirms the propriety of uniting *Malortia* with the earlier *Reinhardtia*.

Supposed differences based on inadequate specimens or erroneous observation disappear. Flowers are essentially similar in all species (fig. 1), and are unusual among palms in having the sterile stamens of the pistillate (female) flowers attached to the base of the petals, partially united in a ring, and often with the short remnants of the stalks or filaments protruding when the flower is fully opened (fig. 1 Cb). The degree of rumination (intrusion of the seed coat) of the endosperm has been found a poor distinction for genera when used alone. In *Reinhardtia*, the endosperm varies from strongly ruminant in *R. elegans* and *R. latisecta*, to weakly or not at all ruminant in the remaining species (fig. 2). A similar condition is found in other genera which have both types of endosperm, examples

being *Dryophloeus*, *Euterpe*, *Ptychococcus*, *Ptychosperma* (which includes *Actinophloeus*), *Synechanthus*, and others less familiar. Even the leaf is seen to be of similar nature. Although the pinnae are all separated in *Reinhardtia elegans*, the narrow tips are toothed in the same manner as the tips of the segments that unite to make the leaf of other species as illustrated in fig. 3.

The Genus and its Species

Reinhardtia

Species of *Reinhardtia* are of moderate to very small size with smooth solitary stems, or more often with loosely clustered stems from an underground rhizome. Leaves have slender tubular sheaths of "woven" brown fibers which are most prominent opposite the petiole where they project upward in a short to rather long ligular structure when young, becoming frayed as the leaf ages. Blades are pinnate with numerous reduplicate pinnae or are pinnately nerved with segments partially or completely united. Pinnae and segments have numerous fine nerves and one principal central nerve which extends in a point at the toothed or two-pronged tip. When

Fig. 1. FLOWERS OF REINHARDTIA. A, *R. elegans*. Aa, flowering node ($\times 5$), Ab, pistillate flower and bracteole ($\times 5$), Ac, pistillate corolla ($\times 5$), Ad, pistillate corolla expanded to show staminodes ($\times 5$), Ae, bracteole ($\times 5$), Af, pistillate sepal ($\times 5$), Ag, pistil ($\times 5$), Ah, pistil in vertical section ($\times 5$), Ai, ovary in cross section ($\times 10$), Aj, staminate flower ($\times 5$), Ak, androecium ($\times 5$). B, *R. gracilis* var. *gracilis*. Ba, flowering node ($\times 5$), Bb, pistillate flower and bracteoles ($\times 5$), Bc, bracteole ($\times 5$), Bd, pistillate corolla ($\times 5$), Be, pistillate sepal ($\times 5$), Bf, pistillate corolla expanded to show staminodes ($\times 5$), Bg, pistil ($\times 5$), Bh, pistil in vertical section ($\times 5$), Bi, ovary in cross section ($\times 10$), Bj, staminate flower ($\times 5$), Bk, androecium ($\times 5$). C, *R. gracilis* var. *rostrata*. Ca, staminate flower ($\times 5$), Cb, pistillate flower at maturity ($\times 5$).

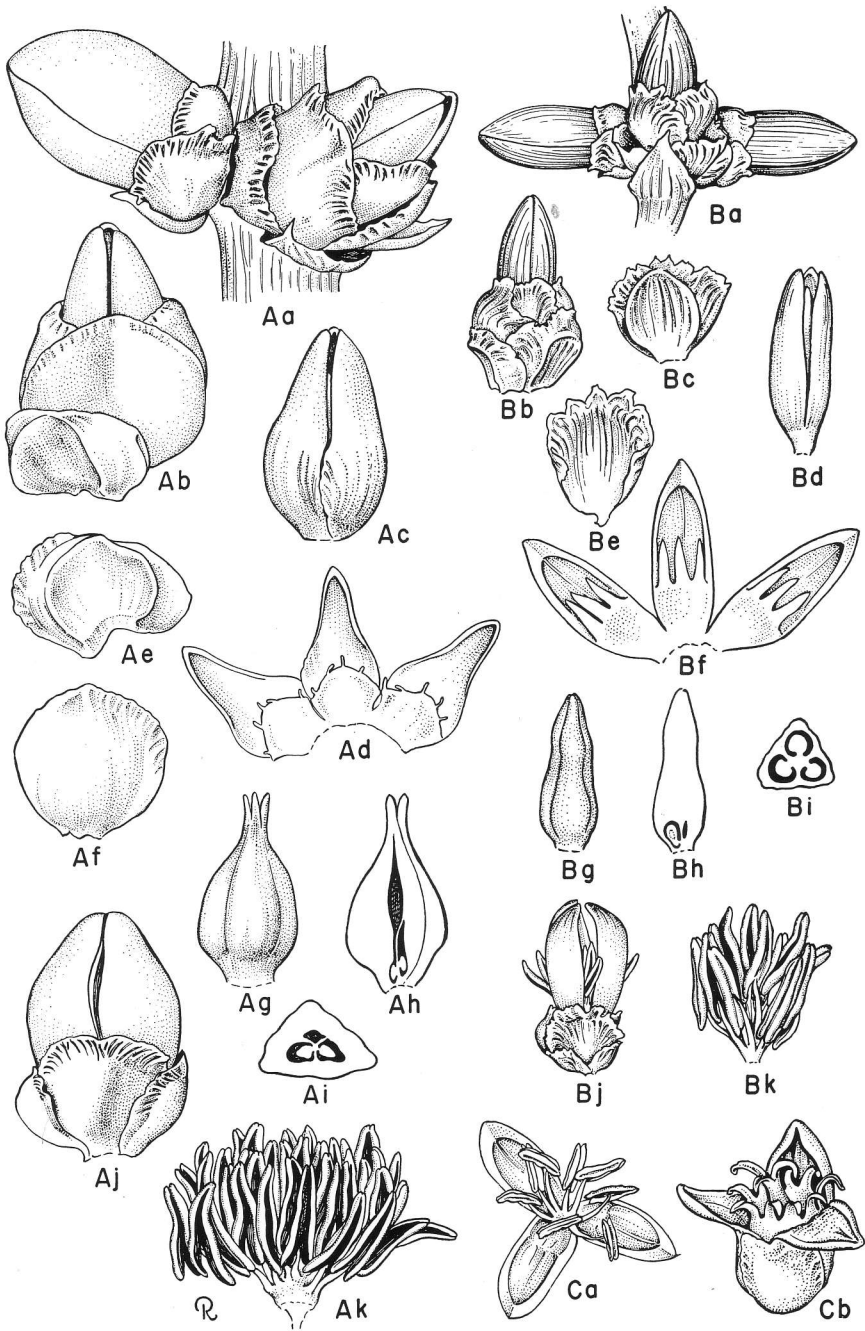


Fig. 1

segments are united, the margin of the leaf is obliquely and sharply cut. Before the blade expands, the points at the tips of the segments are united by a slender rein or lora which soon fragments (fig. 3G).

Inflorescences appear from the sheaths of the older leaves. Each is enfolded at first by two papery bracts attached close together at the base of the long peduncle. The outer of these bracts is short and open at the tip, seldom protruding beyond the sheath. The inner is longer, tubular, pointed, and at first completely encloses the inflorescence, then ruptures along one side as the peduncle elongates. Both bracts are usually persistent, the inner remaining attached though withering and fraying. The inflorescence is usually a panicle of few to many simple or forked or branched rachillae, but in one species it is spicate with only a single flowering axis developed. Rachillae are creamy white when in flower. As the fruit matures, however, they become thickened and bright orange-red in color.

Creamy-white flowers are borne in shallow depressions arranged in a spiral or more rarely nearly in two ranks along the rachilla. Each depression is subtended by and partially covered in bud with a pointed bractlet. These, for the most part, bear a staminate (male) flower on either side of a pistillate (female) which does not expand fully until the staminate flowers have fallen (fig. 1 Aa, Ba). At the tip of the rachilla, the pistillate flower may fail to develop leaving only paired or solitary staminate flowers. The slightly asymmetric staminate flowers (fig. 1 Aj, Ak, Bj, Bk, Ca) have a small, generally deciduous bracteole at one side of the base, three strongly imbricate sepals with rounded margins, and three valvate petals 2-3 times as long as the sepals. Stamens are 8-40. The short filaments are briefly united amongst themselves and to the base of the petals in an angled column, but above are distinct. They taper to linear anthers with

deeply divided bases and tips with a single or double point. There is no evidence of a pistillode.

Symmetric pistillate flowers (fig. 1 Ab-i, Bb-i) are flanked by a pair of persistent bracteoles that are concave on the back. The sepals are strongly imbricate and frequently handsomely nerved. Petals are imbricate or partially united at the base but are valvate above. The grooved tips spread at maturity to show the slender free tips of staminodes that are otherwise united with each other and with the petals (fig. 1 Cb). The pistil consists of a short, soft, trilocular ovary bearing 1-3 ovules near the base of an axile placenta continued in a thickened grooved style, and 3 slender stigmas that recurve at maturity.

The ellipsoid, ovoid, or obovoid fruit (fig. 2) is small, smooth, deep purple or blackish when ripe, 1-seeded, and bears the style and remains of the stigmas in a very small to prominent point at its tip. The seed is attached to the thin shining endocarp either laterally along an impressed raphe or at the base, and is more or less sculptured by impressed vascular strands. The endosperm is ruminant or homogeneous with the embryo borne at the base.

Fig. 2. FRUITS OF REINHARDTIA. A, *R. elegans*. Aa, fruit ($\times 2$), Ab, Ac, seed ($\times 2$), Ad, seed in cross section ($\times 2$). B, *R. latisepta*. Ba, fruit ($\times 2$), Bb, Bc, seed ($\times 2$), Bd, seed in cross section ($\times 2$), C, *R. gracilis* var. *gracilis*. Ca, fruit ($\times 2$), Cb, Cc, seed ($\times 2$), Cd, seed in cross section ($\times 2$). D, *R. gracilis* var. *tenuissima*. Fruit ($\times 2$). E, *R. gracilis* var. *gracillior*. Ea, fruit ($\times 2$), Eb, Ec, seed ($\times 2$), Ed, seed in cross section ($\times 2$). F, *R. gracilis* var. *rostrata*. Fa, fruit ($\times 2$), Fb, Fc, seed ($\times 2$), Fd, seed in cross section ($\times 2$). G, *R. simplex*. Ga, fruit ($\times 2$), Gb, Gc, seed ($\times 2$), Gd, seed in cross section ($\times 2$). H, *R. Koschnyana*. Ha, fruit ($\times 2$), Hb, Hc, seed ($\times 2$), Hd, seed in cross section ($\times 2$).

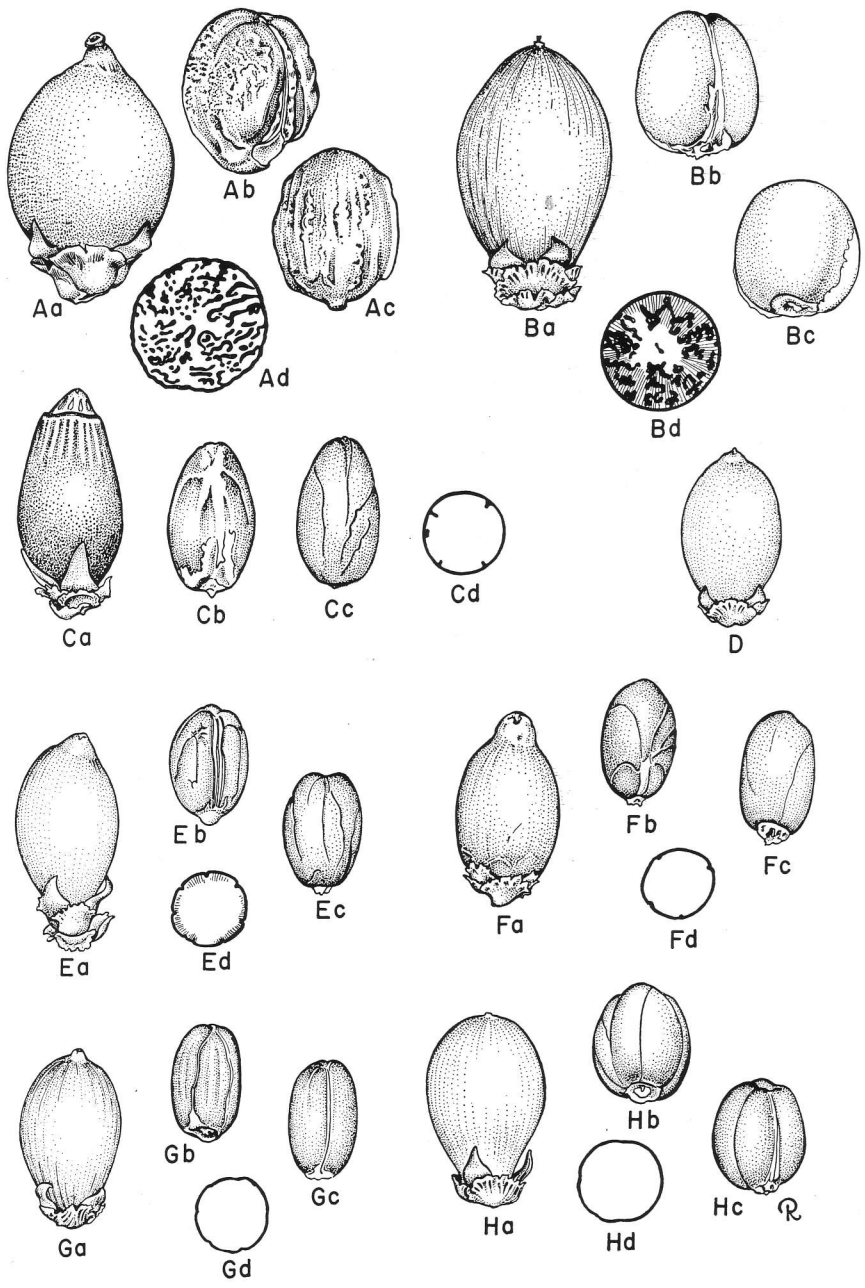


Fig. 2

Species of *Reinhardtia* are divided into two subgenera distinguished in the key that follows. The key is constructed with emphasis on the leaf for ease in identification.

- A. Petiole of the leaf densely and persistently brown-scurfy, not pale below or with a winged margin; stamens 27-40; seed attached laterally along an impressed raphe, the endosperm strongly and deeply ruminant *Subgenus Reinhardtia*
 - B. Leaves with 38-40 one-nerved slender-tipped pinnae on each side of the rachis; stamens 35-40 or rarely as few as 28. Mexico. *1. R. elegans*
 - BB. Leaves with 2-3 pinnae on each side of the rachis, the upper and lower pinnae several-nerved with openings between the segments along the rachis, broad and obliquely toothed along the outer margin; stamens about 27. Guatemala and British Honduras. *2. R. latisecta*
- AA. Petiole pale and narrowly winged along the margin below, loosely covered with minute brown scales when young but soon becoming merely brown-dotted; stamens 8-22; seed attached basally, the raphe little or not impressed, the endosperm essentially homogeneous but often with minute shallow intrusions below the vascular strands *Subgenus Malortia*
 - C. Leaves without spaces or "windows" between segments along the rachis.
 - D. Apex of the leaf divided to a depth of $3/8$ -1 or rarely $1\ 1/2$ in., the nerves 10-12 on each side of the rachis; some or all of the leaves usually with a pair of separate pinnae below the apical pair; inflorescence branched with 3-7 simple or rarely forked rachillae; stamens generally 14-17, perhaps as few as 12, or as many as 22. Honduras to Panamá. *4. R. simplex*
 - DD. Apex of the leaf divided $1\ 3/4$ - $2\ 3/8$ or rarely only $1\ 3/8$ in., the nerves 8-9 on each side of the rachis and the leaves never with separate pinnae below the apical pair; inflorescence spicate with only a single flowering axis; stamens 8-10. Costa Rica to northern Colombia. *5. R. Koschnyana*
 - CC. Leaves with spaces or "windows" between most of the segments along the rachis and deeply cleft at the tip *3. R. gracilis*
- E. Staminate flowers $3/16$ - $1/4$ in. long with 16-22 stamens.
 - F. Leaves large, with 14-22 nerves on each side of a rachis 11-23 cm. long; rachillae 6-11, the lower often forked or branched, $2\ 3/4$ - $11\ 1/2$ in. long with 16-40 flowering nodes. Guatemala and Honduras. var. *gracilis*
 - FF. Leaves small, with 8-9 nerves on each side of a rachis $1\ 3/8$ - $2\ 1/8$ in. long; rachillae 2-3, simple, $1\ 9/16$ -2 in. long bearing 8-17 flowering nodes. Oaxaca, Mexico. var. *tenuissima*
- EE. Staminate flowers $1/8$ - $5/32$ in. long with 8-10 stamens.
 - G. Leaves with 8-11 nerves on each side of the rachis; fruit with a low apiculate crown; flowering nodes 6-17 arranged in a loose spiral on the rachilla. Southern Mexico to Honduras. var. *gracilior*
 - GG. Leaves with 11-15 nerves on each side of the rachis; fruit with a prominent blunt crown about $3/32$ in. high; flowering nodes 16-37 arranged more or less in 2 ranks at least above the base of the rachillae. Eastern Nicaragua and Costa Rica. var. *rostrata*

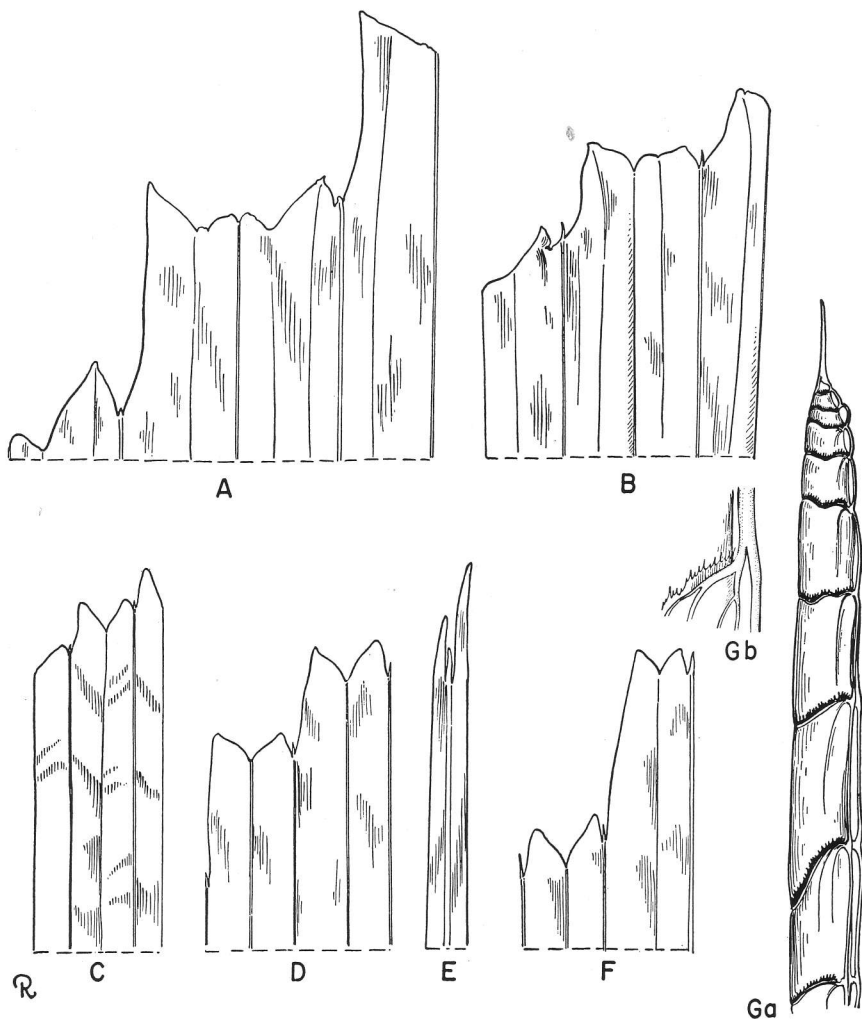


Fig. 3

LEAF MARGINS AND LORAE OF REINHARDTIA. A, *R. gracilis* var. *gracilis*. Portion of leaf margin ($\times 2$). B, *R. gracilis* var. *tenuissima*. Portion of leaf margin ($\times 2$). C, *R. simplex*. Portion of leaf margin ($\times 2$). D, *R. Koschnyana*. Portion of leaf margin ($\times 2$). E, *R. elegans*. Apex of pinna ($\times 2$). F, *R. latisecta*. Portion of leaf margin ($\times 2$). G, *R. gracilis* var. *rostrata*. Ga., portion of unexpanded leaf to show lorae ($\times 2$), Gb, attachment of individual segment to lora enlarged.

1. *REINHARDTIA ELEGANS* (figs. 1A, 2A, 3E, 4, 5).

Solitary erect stems of *R. elegans* may reach a height of nearly 20 feet, but bear fruit when much smaller. Ten to twelve leaves with stout sheaths about 10 in. long, crown the upper part of the stem. The graceful blades are slightly more than 3 ft. long from persistently brown-scurfy, wingless petioles about 1 ft. long, and have 38-40 narrow tapered dark green pinnae at regular intervals of an inch or more along each side of the rachis. Larger pinnae at the middle of the leaf measure to 16-17 in. long, 5/8 in. wide. Those of the base and tip, however, are shorter and narrower. Each pinna tapers to a very slender, rather deeply bifid, toothed tip that easily splits or frays.

The inflorescence is a large panicle of 5-9 rachillae 4 3/4 - 14 3/8 in. long, the lower of which are often forked, borne on a persistently brown-scurfy peduncle to 3 feet long. Staminate flowers are about 5/16 in. long with sepals 1/8 in. long and generally 35-38 stamens, though as few as 28 or as many as 40 have been recorded. Pistillate flowers are nearly as long as the staminate when fully developed with sepals 3/16 in. long. Staminodes are united to the petals for 3/32 in., then continue in short projecting filaments. The dark purple fruit is ovoid, 5/8 - 3/4 in. long, abruptly narrowed at the tip, and bears an oblong-ellipsoid, somewhat compressed seed 3/8 in. long, attached laterally along an impressed raphe. Endosperm is deeply ruminant.

Reinhardtia elegans has apparently never been cultivated. It inhabits the mountain forests of southern Oaxaca—north of Niltepec, on Cerro Caracol near Latani, Sierra San Pedro Nolasco, Talea, and the Cumbre de Teotalcingo—and mountains near Fenix in Chiapas, Mexico, at altitudes generally above 3,000 and up to 6,000 feet. Figure 4 shows a plant as drawn by Thornam for Liebmann's *Icones Palmarum* at Copenhagen with insert fruits added.

2. *REINHARDTIA LATISECTA* (figs. 2B, 3F).

Stems of *R. latisecta* are caespitose in clumps of 8-9, reaching a height of 26 ft., a diameter of 2 1/2 in. About 10 leaves with sheaths to 10 in. long are borne along the upper part of the stem. The spreading blades are 18-32 in. long, with persistently brown-scurfy wingless petioles 14-18 in. long and 2 broad several-nerved pinnae inserted 2 1/2 - 4 in. apart, sometimes with a 1-nerved slender pinna inserted between them. There are 21-24 nerves on each side of the rachis. The lower 7-9-nerved pinnae curve toward the tip and measure to 25 in. long, 4 1/2 in. wide. The 14-15-nerved upper pinnae measure about 2 ft. long, 6 in. or more wide. They diverge from the rachis at an acute angle. The lower margin is longer than the upper, the outer margin obliquely and sharply toothed as is that of the lower pinnae.

Erect or arching inflorescences exceed the leaves in length with the brown peduncle 3 ft. long or more and the 15-19 simple or once-branched rachillae to 8 in. long or more. Staminate flowers have not been completely described but have 27 stamens according to Wendland, (or perhaps as few as 22 according to Burret). Fruit is black at maturity, similar to that of *R. elegans* in size, shape, and seed.

Reinhardtia latisecta has been described and illustrated as it grows in the Stann Creek Valley of British Honduras by M. A. Langlois in *Principes* 1:48-53, 1957. The original specimens were sent to Wendland by Kegel, a gardener at Halle, Germany, and were supposed to have come from Guatemala which then included British Honduras. There is no modern record for the species outside British Honduras where it also grows at Rio Grande and Middlesex. I do not know of it in cultivation.

The species is of unusual interest in that it has leaves with "windows" very much like those of *R. gracilis* but lacks the pale petiole. It has the size, inflorescence, and fruit of *R. elegans*. Thus it

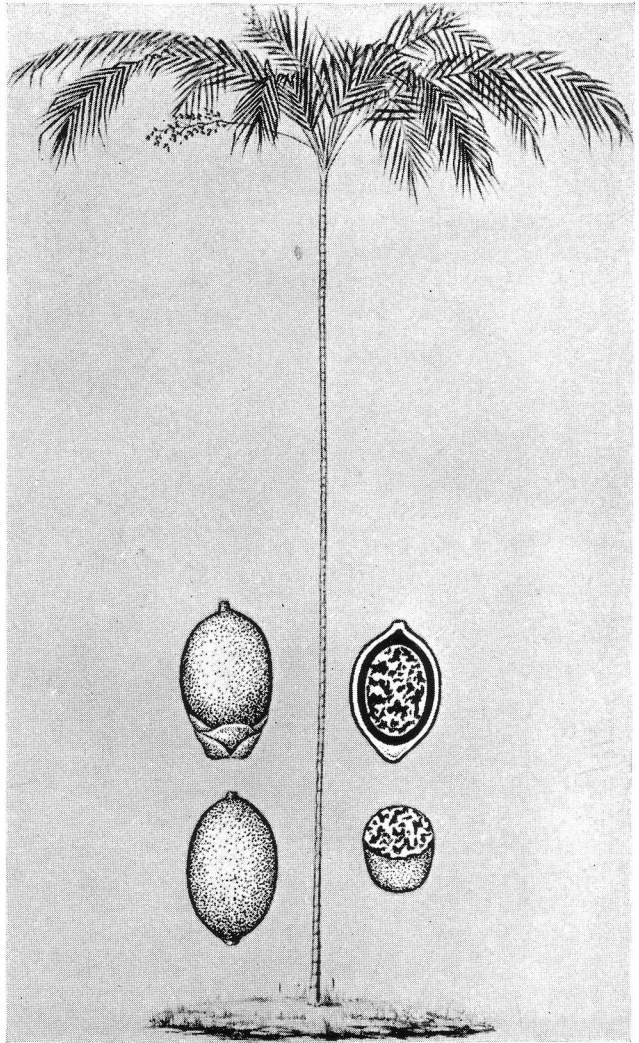


Fig. 4

REINHARDTIA ELEGANS.

Habit of plant as drawn for Liebmann's *Icones Palmarum* at Copenhagen with insert fruits added. (Reprinted from *Gentes Herbarum* 6:259, fig. 137. 1943.)

clearly connects these species formerly placed in two genera.

3. REINHARDTIA GRACILIS

The loosely to densely clustered or rarely solitary canelike stems of *R. gracilis* form attractive leafy masses up to 10 ft. high. Six to twenty leaves are borne along the upper part of the stem which is clothed with brown fibrous sheaths up to 6 in. long. A narrowly winged petiole $2\frac{3}{4}$ in. to 2 ft. long is pale below in age, though loosely

brown-scurfy when young, and bears a small to large blade with generally 2, rarely 3-4, pinnae composed of segments united above the base but separated from each other by spaces or "windows" along the rachis. The short- to long-peduncled inflorescence bears 2-11 or more slender rachillae all of which may be simple or the lower forked or branched. Flowering nodes are borne in loose spirals or, in var. *rostrata*, in 2 ranks along the rachillae. Staminate

flowers 1/8 - 1/4 in. long have sepals 3/32 in. long or less and 8-22 stamens. Pistillate flowers are 5/32 - 3/16 in. long. The fruit is 1/2 - 5/8 in. long, generally tapered downward from a broad upper portion which is tipped with a low point or a prominent truncate crown. An ovoid basally attached seed has essentially homogeneous endosperm sometimes, however, with minute shallow intrusions.

The species is variable in its rather extensive range from southern Mexico to Costa Rica. It is divided into four varieties as indicated in the key on page 132. Three of these varieties have previously been described as species, a fourth is newly described. I have considered them as constituting a single species well differentiated from *R. simplex* and *R. Koschnyana* in the characteristic fenestrate or "windowed" leaf. Within *R. gracilis*, however, it is difficult to separate varieties on characteristics of the leaf, for these overlap, nor can they always be distinguished by their fruit. Staminate flowers are necessary before exact identification can be made. Although the varieties can be divided into two groups based on the number of stamens, the differences do not seem of specific importance when compared with the variation in number of stamens in other species, particularly in *R. simplex*. Perhaps it will someday be possible to arrive at a better understanding of the species through the use of experimental techniques.

Reinhardtia gracilis was cultivated in Europe and England before varietal differences were recognized. Plants illustrated in *Curtis's Botanical Magazine* 88: pl. 5291, 1862, and in *L'Illustration Horticole* 9: pl. 327, 1862, appear to have 9 stamens (though the text states that 10-12 are developed). The general aspect of the plants and their 4-nerved lower pinnae suggest that they represented var. *rostrata*, but without fruit one cannot be sure. Similarly, the plant figured as *Malortiea simplex* in *The*

Florist and Pomologist 1873: 205, 1873, is probably the same.

Two varieties are probably grown in the United States today. R. G. Wilson has introduced var. *rostrata* from Costa Rica; David Barry has introduced what is probably var. *gracilior* from Mexico. I have not seen staminate flowers of the latter so cannot be sure of their identity until plants flower again.

R. GRACILIS, var. *GRACILIS* (figs. 1B, 2C, 3A, 6)

Variety *gracilis* is relatively large, approaching *R. latisecta* in size, with stems to 7 ft. high, 1/2 in. in diameter. Leaves have petioles 6 3/4 - 24 in. long and 14-22-nerved blades with a rachis 4 5/16 - 8 3/8 in. long. Lower pinnae are 4-7-nerved, to 10 in. long, 2 1/2 in. wide. Upper pinnae are 9-16-nerved, to 8 3/8 in. long on the lower margin and to 6 in. wide. The panicle consists of 6-11 rachillae nearly 1 ft. long, the lower often forked or branched, bearing 16-40 flowering nodes in a loose spiral. Staminate flowers 3/16 - 1/4 in. long have 17-22 stamens. Mature fruit is 9/16 - 5/8 in. long, 1/4 - 5/16 in. in diameter with a low apiculate crown.

Variety *gracilis* was first described from Guatemalan plants and has been collected several times in the Department of Izabal near Puerto Barrios. It also occurs in British Honduras at Pueblo Viejo, and in Honduras on the hills outside the United Fruit Company's station in Lancetilla near Tela, and on slopes of Mt. Cangrejal near the Danto River. The specimens from Honduras are larger than those from British Honduras and Guatemala. They have leaves with 17-22 nerves as opposed to 14-17 nerves, larger and more branched panicles with more numerous flowering nodes, but otherwise resemble the type of *R. gracilis*. I am not aware that either form of this variety is in cultivation.

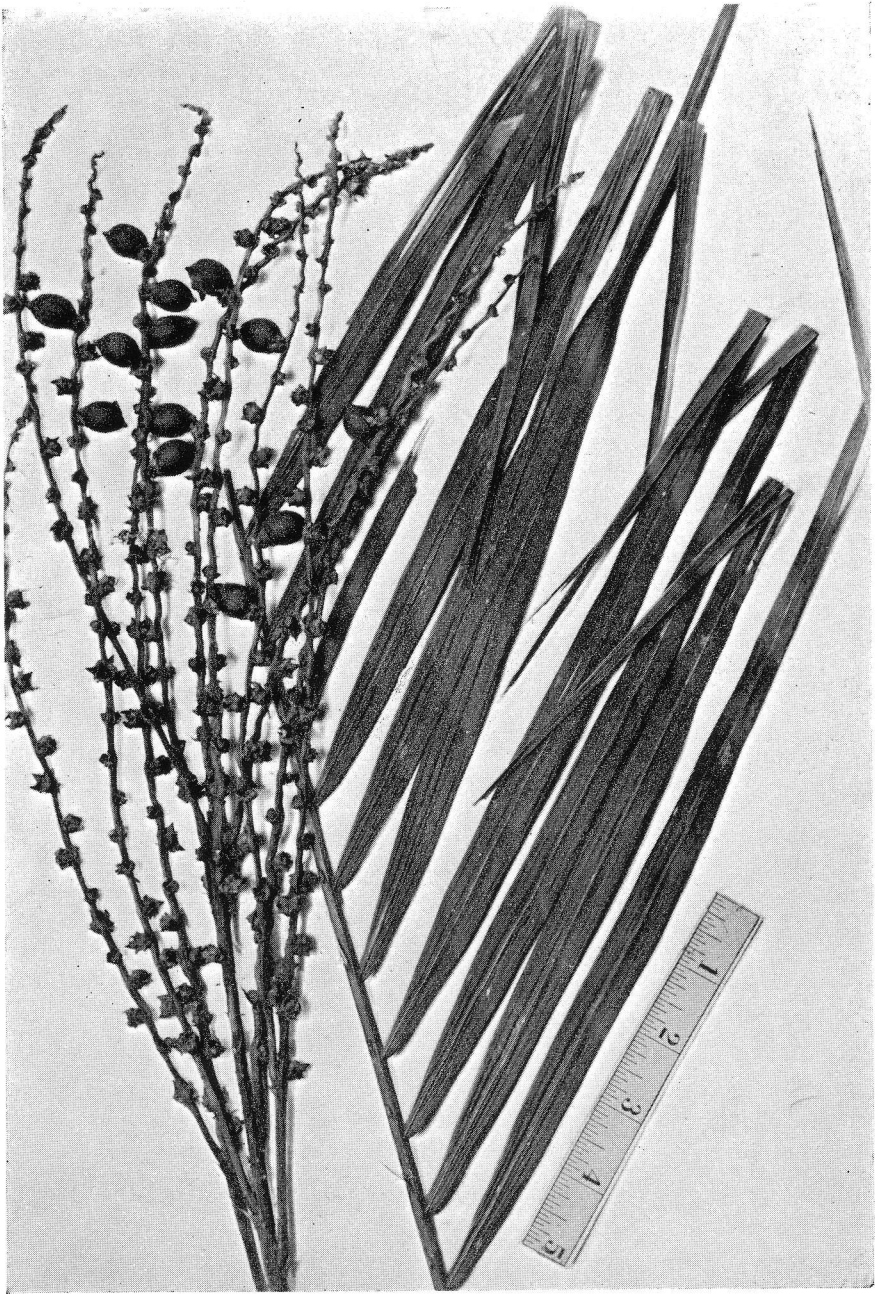


Fig. 5.

REINHARDTIA ELEGANS. Parts of a leaf and inflorescence in fruit somewhat less than 1/2 natural size. (Reprinted from *Gentes Herbarum* 8:190, fig. 80. 1949.)

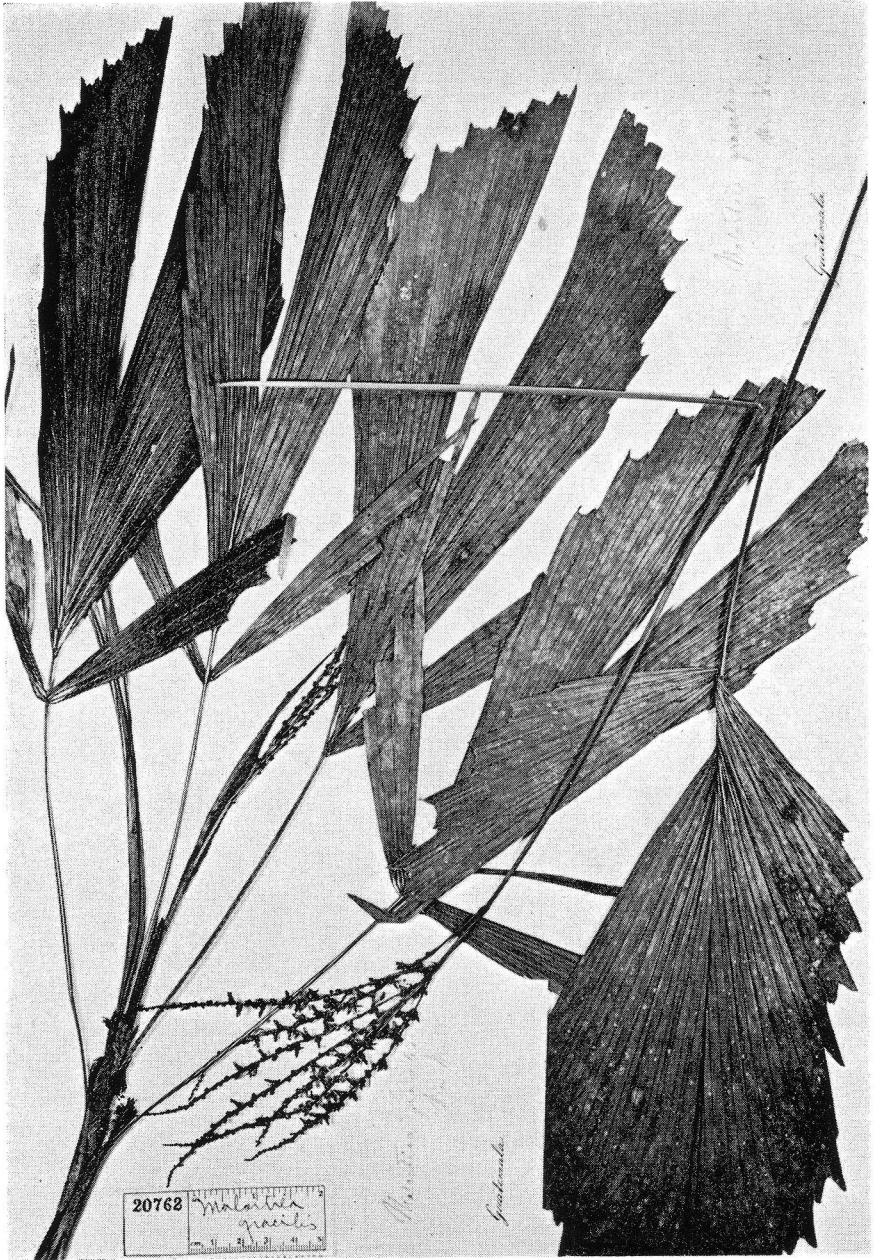


Fig. 6.

REINHARDTIA GRACILIS var. GRACILIS. The specimen formerly in the herbarium at Hannover upon which Wendland based his description of *Malortia gracilis*. Photograph by Macbride courtesy of the Chicago Natural History Museum.

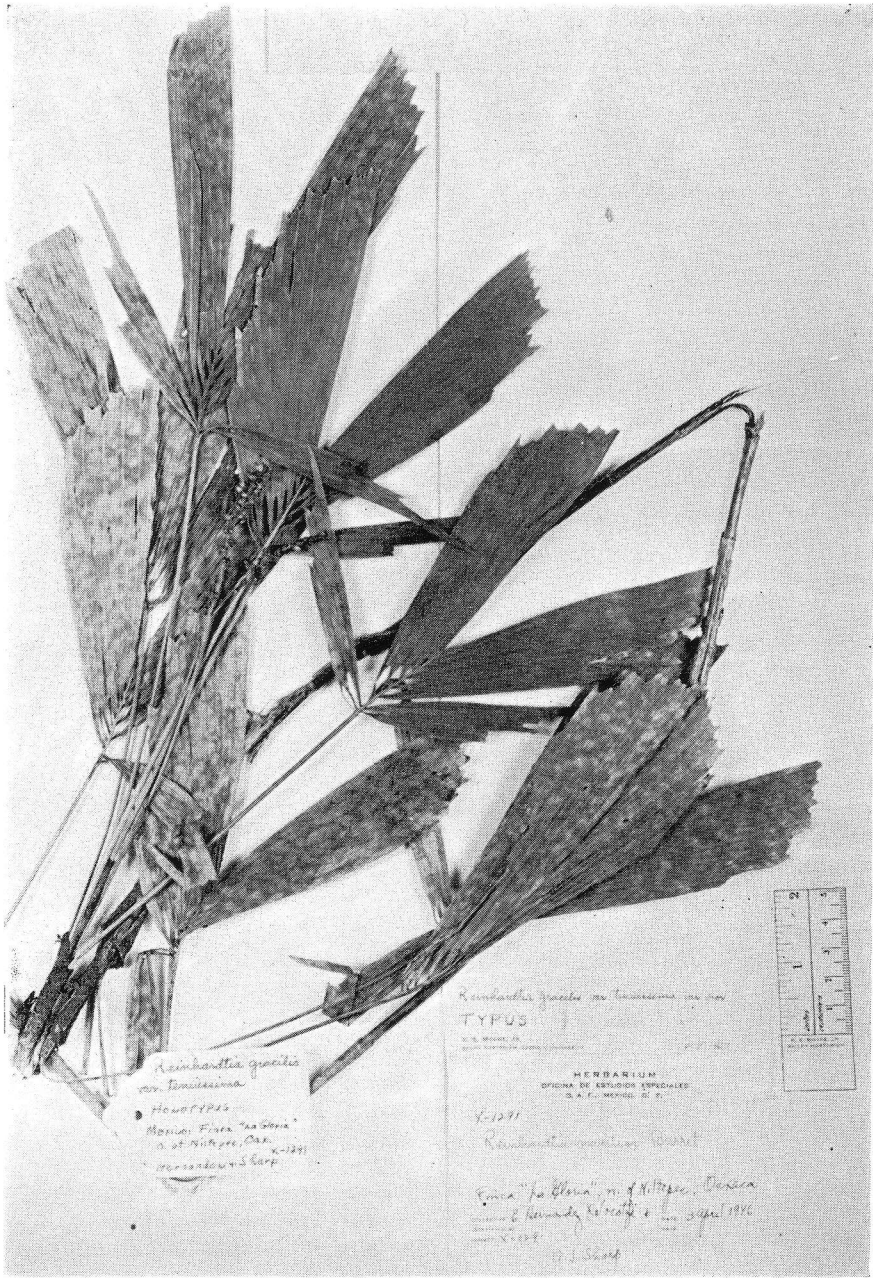


Fig. 7.

REINHARDTIA GRACILIS var. TENUISSIMA. The specimen in the Bailey Hortorium on which the variety is based.

R. GRACILIS var. TENUISSIMA (figs. 2D, 3B, 7).

Variety *tenuissima* differs from var. *gracilis* in its slender stems to about 3 ft. high, 3/16 in. in diameter and in its small leaves with only 8-9 nerves on each side of a rachis 1 3/8 - 2 3/16 in. long. Lower pinnae are 3-nerved, nearly 5 in. long, 11/16 in. wide. Upper pinnae are 5-6-nerved, to 4 1/2 in. long on the lower margin, 1 5/8 in. wide. The petiole measures 4 1/4 - 7 1/2 in. and has a short, loosely woven ligular structure at its base. Two to three slender simple rachillae 2 in. long with 8-17 spiralled flowering nodes make up the panicle. Staminate flowers are like those of var. *gracilis*, and fruit apparently resembles that of the var. *gracilior*.

Until flowers were studied, the specimens of var. *tenuissima* had been referred to var. *gracilior* which they resemble in size and leaf. The variety is known only from the wild state in the mountains of Oaxaca, Mexico, where it occurs north of Niltepec and near Tepinapa at altitudes of 3,000 feet or more.

R. GRACILIS var. GRACILIOR (figs. 2 E, 8).

Variety *gracilior* has a habit resembling that of var. *tenuissima* with stems to about 3 ft. high, 9/32 in. in diameter. Leaves have petioles to 9 7/8 in. long and are 8-11-nerved on each side of a rachis to 2 3/8 in. long. The lower pinnae are 3-4-nerved, to 4 3/4 in. long, 1 1/4 in. wide. Upper pinnae are 5-8-nerved, to 5 3/4 in. long on the lower margin, to 2 1/8 in. wide. The panicle has 3-8 slender rachillae to 3 5/16 in. long, the lower of which are sometimes forked, bearing 6-17 flowering nodes in a loose spiral. Staminate flowers to 5/32 in. long have 8-10 stamens. The fruit is 1/2 - 9/16 in. long, about 5/16 in. in diameter with a low apiculate crown.

Although variety *gracilior* resembles var. *tenuissima* in habit it differs in its staminate flowers and is found at low elevations from Veracruz and Oaxaca in Mexico, south to British Honduras at

Stann Creek and Atlántida Department of Honduras.

I have seen it growing on the forested slopes above Zontecomapan between San Andres Tuxtla and the Atlantic Coast in Veracruz, Mexico, where it is associated with *Astrocaryum mexicanum*. The slender canes are inconspicuous in the tangled undergrowth but the bright fruiting inflorescences stand out against the green background. It is presumably this variety that is now grown in Florida and California.

R. GRACILIS var. ROSTRATA (figs. 1C, 2F).

Variety *rostrata* is variable. Stems are usually rather densely clustered, reaching a height of nearly 5 ft., a diameter of 9/16 in. Leaves have petioles 5 1/2-13 1/2 in. long, a rachis 1 1/2-4 1/2 in. long and generally 2 but rarely 3-4 pinnae. Lower pinnae are 3-5-nerved, 7 1/8 in. long, 1 3/4 in. wide. Upper pinnae are 8-10-nerved, to 7 1/8 in. long on the lower margin, to 3 3/4 in. wide. Rarely the upper pinnae are again partially or completely divided into several-nerved narrower segments of about the same length. The panicle has 2-6 simple rachillae to 5 3/4 in. long on which the 16-37 flowering nodes are borne in 2 nearly opposite ranks, at least above the base. Staminate flowers are about 1/8 in. long with 8-10 stamens. The mature fruit is about 1/2 in. long, 1/4 in. in diameter, and is tipped with a prominent truncate crown about 3/32 in. high.

Plants assigned to var. *rostrata* differ almost as much amongst themselves in regard to the leaf as do the various varieties of *R. gracilis*, though the inflorescence and fruit are relatively constant. Four forms are found near the coast and on higher ground inland from eastern Nicaragua south into eastern Costa Rica. These are not designated formally in a botanical sense for they cannot be distinguished by exact means. The typical form, that which was first described as *R. rostrata*, occurs in the lower reaches of the Reventazon River in Costa Rica and near the Ocong-



Fig. 8.

REINHARDTIA GRACILIS var. GRACILIOR. A plant growing along banks of the Coatzacoalcos River at Buenaventura, Veracruz, Mexico. Photograph courtesy Plant Introduction Section, U.S. Department of Agriculture.

was River in Nicaragua. It has large leaves with 2-3 pinnae and 11- mostly 13-15 nerves. Without the inflorescence, leaves would be easily confused with those of *R. gracilis* var. *gracilis*.

A second form from the San Carlos plains of Costa Rica has smaller leaves with 3-4 pinnae and 13-15 nerves on each side of the rachis. A third from the vicinity of Turrialba, Costa Rica, and Libertad, Nicaragua, at elevations of 1,500 feet or more has leaves much resembling those of var. *gracilior*, with

2 pinnae and 12-13 nerves. Finally, a fourth form from Río Luis and Pejivalle, Costa Rica, at altitudes of 2,300 to 3,000 feet has leaves scarcely separable from those of var. *tenuissima*.

The third form from the region of Turrialba (and often collected by botanists near the Inter-American Institute of Agricultural Sciences) has been introduced into cultivation recently. It may be the same as the one grown in Europe nearly a century ago.

4. REINHARDTIA SIMPLEX (figs. 2G, 3C, 9).

Stems of *R. simplex* are sometimes late-suckering and appear to be solitary but they ordinarily form clusters of a few slender canelike stems to 4 ft. high, about 1/4 in. in diameter, sheathed with 8-20 leaves in the upper portion. The leaf sheaths are to 3 1/8 in. long, the slender petioles to 6 1/2 in. long. These are pale and rounded below with a very narrow winglike margin, flat above, lightly brown-scurfy when young but soon only brown-dotted. Deep green leaf blades are either simple and 6 1/2-8 1/4 in. long, to 4 3/4 in. wide, 10-12 or rarely 8-nerved, or they have a pair of slender 3-4-nerved pinnae below the 7-8-nerved apex. When present, the lower pinnae are 4 3/4-6 in. long, to 1 9/16 in. wide and very obliquely toothed and tapered at the tip. The apex of the leaf is cleft only for 3/8-1 or rarely 1 1/2 in. Three to seven slender rachillae to 3 3/8 in. long are simple or rarely the lower are branched. They are borne at the end of a peduncle to 18 in. long and have 7-21 flowering nodes in a spiral. Staminate flowers 1/8-5/32 in. long have 12 or usually 14-19 stamens. The fruit is 1/2-9/16 in. long and is broadest near the tip where it is capped with a low apiculate crown. The oblong-ellipsoid seed has homogeneous endosperm.

Plate 5247 of *Curtis's Botanical Magazine* (1861) figures a plant of *Reinhardtia simplex* presented to Kew by Hermann Wendland, and probably brought by him from Costa Rica. Early in this century *R. simplex* was also grown on the Doheny Estate in California. A few plants grown from Costa Rican seeds are cultivated in Florida and Nassau but the species is undeservedly rare in cultivation. In the wild state, however, it is widely distributed at altitudes up to 2,300 feet but usually at less than 1,000 feet from Honduras and Nicaragua to Panamá. The habit is similar to that of *R. gracilis*. The small leaves lack "windows" along the rachis and, though generally with a pair of pinnae below the apical pair, sometimes resemble those

of *R. Koschnyana* from which they are distinguished by the more numerous nerves and the very shallowly cleft apex.

5. REINHARDTIA KOSCHNYANA (figs. 2H, 3D, 10).

Several slender stems from a horizontal rhizome form a cluster 16-28 in. high, each stem clothed with brown fibrous sheaths scarcely exceeding 2 in. in length along the upper portion. The 6-14 leaves have a petiole to 4 3/4 in. long which is pale and rounded with narrowly winged margins beneath, and a small 8-9-nerved toothed blade to 9 in. long, 3 in. wide, lacking "windows" along the rachis, undivided except at the apex, where cleft for 1 3/4-2 3/8 or very rarely only 1 3/8 in. A slender spicate inflorescence has a flowering axis 2 3/8-3 1/2 in. long on which flowers are borne at 17-25 nodes. Staminate flowers measure about 1/8 in. long and have 8-10 stamens. Fruit is broadest near the tip, 7/16-1/2 in. long, 1/4-5/16 in. in diameter, with a low apiculate crown. The oblong-ellipsoid seed has homogeneous endosperm.

Reinhardtia Koschnyana is one of the most diminutive palms and for many years was known only from specimens collected in Costa Rica. It is now known to occur in Nicaragua, Panamá, and Colombia as well. The plants from Colombia have been called *Malortia pumila* but study of a series of specimens shows them to be the same as *R. Koschnyana*.

The species is rarely encountered in the wild state and has not been reported in cultivation, though it surely deserves to be grown. In Nicaragua, *R. Koschnyana* has been found in Zelaya Department, in Costa Rica on the plains of San Carlos in Alajuela Province, in Panamá in Chepigana District of Darien Province, and in Colombia in Antioquia and Chocó Provinces.

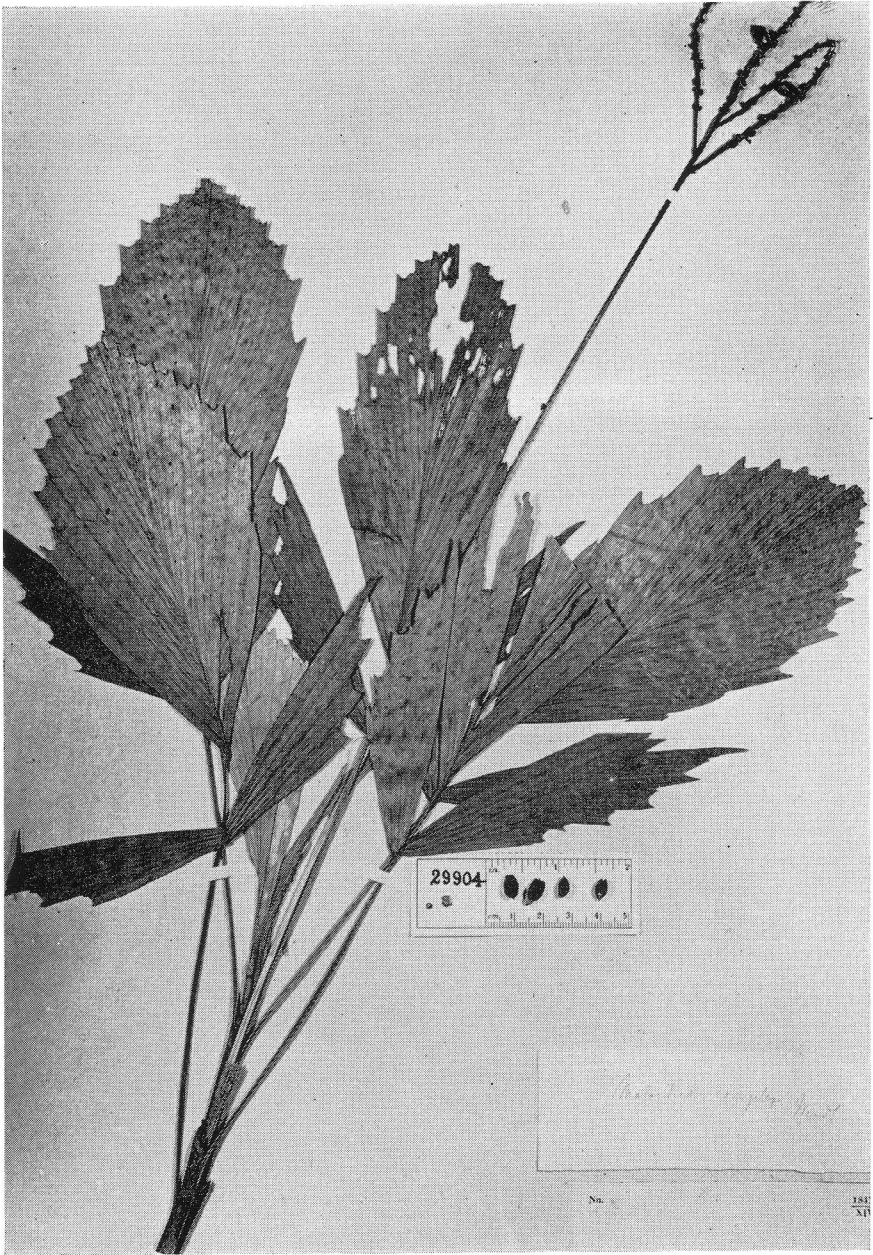


Fig. 9.

REINHARDTIA SIMPLEX. The specimen formerly in the herbarium at Vienna upon which Wendland based his description of *Malortica simplex*. Photograph by Machride, courtesy of the Chicago Natural History Museum.

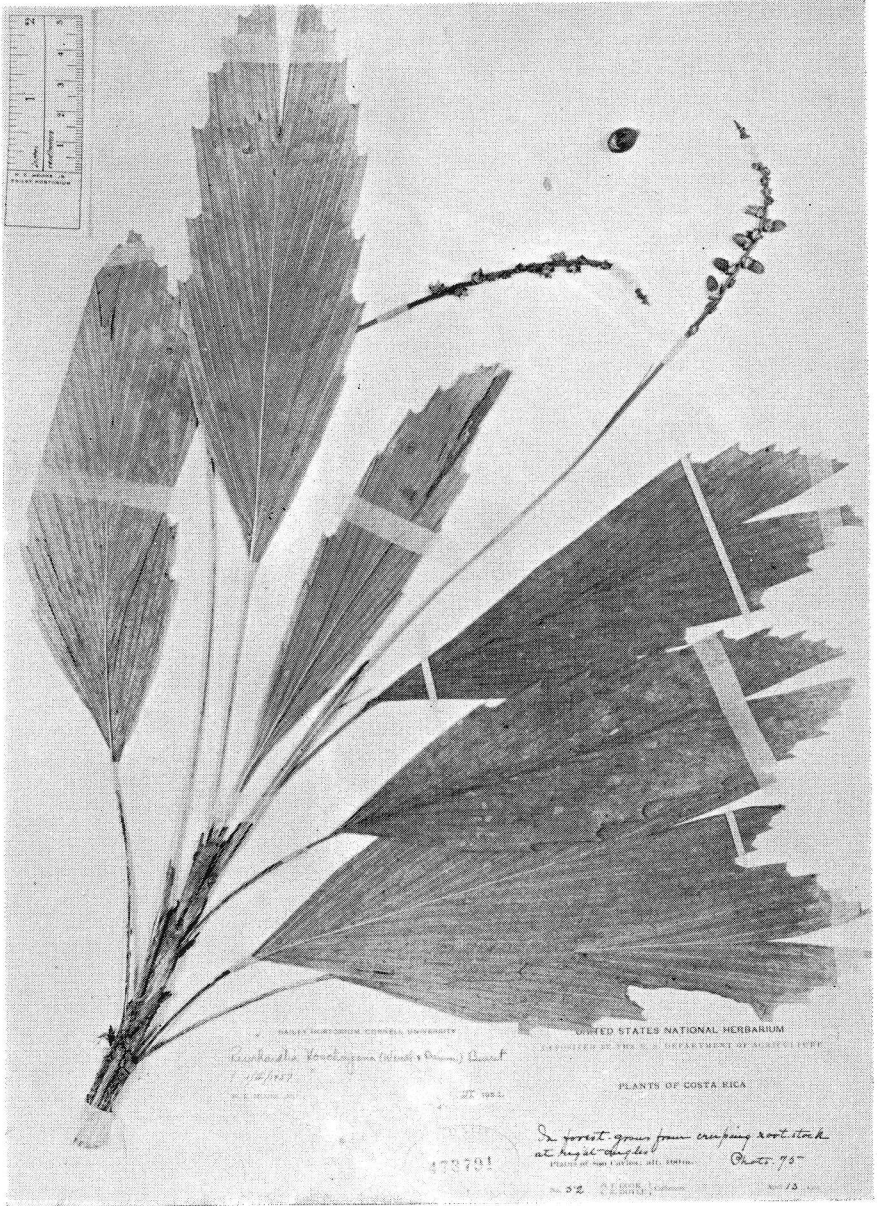


Fig. 10.

REINHARDTIA KOSCHNYANA. Photograph of a specimen now in the U.S. Natural Herbarium collected on the plains of San Carlos, Costa Rica, by Cook and Doyle in 1903.

Synonymy

The essential synonymy of the accepted species and varieties of *Reinhardtia*, including necessary transfers and description, is followed by a list of names or species that are no longer included in the genus.

REINHARDTIA Liebmann in Martius, *Historia Naturalis Palmarum* 3:311. 1849.

Malortiea H. Wendland, in *Allgemeine Gartenzeitung* 21:25, 145. 1853.

REINHARDTIA ELEGANS Liebmann, *Loc. cit.*

REINHARDTIA GRACILIS (H. Wendland) Burret, in *Notizblatt des Botanischen Gartens Berlin* 11:554. 1932.

REINHARDTIA GRACILIS var. GRACILIS

Malortiea gracilis H. Wendland, in *Allgemeine Gartenzeitung* 21:26, 146. 1853.

REINHARDTIA GRACILIS var. GRACILIOR (Burret) *stat. nov.*

Reinhardtia gracilior Burret, in *Notizblatt des Botanischen Gartens Berlin* 11:555. 1932.

REINHARDTIA GRACILIS var. ROSTRATA (Burret) *stat. nov.*

Reinhardtia rostrata Burret, in *Notizblatt des Botanischen Gartens Berlin* 11:554. 1932 [nomen] and in *Annalen des Naturhistorischen Museums Wien* 46:228. 1933.

Malortiea rostrata (Burret) L. H. Bailey, in *Gentes Herbarum* 6:260. 1943.

REINHARDTIA GRACILIS var. TENUISSIMA var. *nov.* Ab. var. *gracili* differt caulibus tenuibus foliis parvis 8-9-nervatis rachibus 3.5-5.5 cm. longis ligulis brevibus. Typus: Mexico; Oaxaca, Finca "La Gloria" north of Niltepec, 1,000-1,250 m. alt., Apr. 3, 1946, E. Hernandez Xolocotzi & A. J. Sharp X-1291 (Bailey Hortorium).

REINHARDTIA KOSCHNYANA (H. Wendland & Dammer) Burret, in *Notizblatt des Botanischen Gartens Berlin* 11:554. 1932.

Malortiea Koschnyana H. Wendland & Dammer, in *Gardeners' Chronicle*, series 3, 29:341. 1901.

Malortiea pumila Dugand, in *Revista de la Academia Colombiana de Ciencias Exactas, Fisico-Quimicas y Naturales* 7:515. 1950.

REINHARDTIA LATISECTA (H. Wendland) Burret, in *Notizblatt des Botanischen Gartens Berlin* 11:554. 1932.

Malortiea latisecta H. Wendland, in *Allgemeine Gartenzeitung* 21:146. 1853.

REINHARDTIA SIMPLEX (H. Wendland) Burret, in *Notizblatt des Botanischen Gartens Berlin* 11:554. 1932.

Malortiea simplex H. Wendland, in *Botanische Zeitung* 17:5. 1859.

Excluded Species

Malortiea intermedia H. Wendland in Kerchove, *Les Palmiers* 250. 1878 [name only].

Malortiea lacerata H. Wendland in Kerchove, *Les Palmiers* 250. 1878 [name only].

Malortiea simiarum Standley & L. O. Williams, in *Ceiba* 3:102. 1952=*Euterpe simiarum* (Standley & L. O. Williams) *tr. nov.*

Malortiea speciosa Hort. ex. H. Wendland in Kerchove, *Les Palmiers* 250. 1878 [name only].

Malortiea Tuerckheimii Dammer, in *Notizblatt des Botanischen Gartens Berlin* 4:157. 1904 & 259. 1906=*Chamaedorea Tuerckheimii* (Dammer) Burret.

Reinhardtia spinigera L. H. Bailey, in *Gentes Herbarum* 8:191. 1949. Rejected species based on a mixed collection, the leaves of which belong to a species of *Bactris*, the inflorescence to *Reinhardtia elegans*.