Principes, 29(1), 1985, pp. 31–34

A New Pritchardia from South Kona, Hawaii

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In 1960, while clearing land in Kapua and Papa in South Kona, Hawaii, Mr. George Schattauer came across several specimens of an elegant, tall fan palm of the genus *Pritchardia* previously not known to occur in that area of Hawaii. Recognizing the significance of his discovery, Mr. Schattauer left the palms standing in the cleared areas of the forest. In 1969 and 1970 Mr. Schattauer sent fruits of these palms to Mr. Paul Weissich, director of Honolulu Botanic Gardens. Upon seeing the relatively large fruits and noting the description and locality of the palms he realized that they could not be associated with any known species. Mr. Weissich alerted me to these palms while I was doing field work on the island of Hawaii in 1976 under the auspices of the Pacific Tropical Botanical Garden. Mr. Schattauer took me to see these palms, and I was able to collect fallen fruits, inflorescences, and leaves. I had the opportunity to visit the palms on several occasions during the next four years and make further collections. Finally in 1980 I visited the palms for the last time in the company of the late Dr. H. E. Moore, Jr. (see Hodel 1982). From field observations and examination of herbarium material I have ascertained that these palms represent a new species of *Pritchardia* as was alluded to in an earlier paper (Hodel 1980).

Pritchardia schattaueri D. R. Hodel, **sp. nov.** (Fig. 1).

Arbor ad 30(40) m alta, caudice 30 cm diametro, cortice non suberosa; folia circa 30, petiolis arcuatis ad 205 cm longis, laminis lucidis, apicibus segmentorum pendulis; inflorescentiae tenues, 2–4 axibus ad 175 cm longis, bracteis juventute tomento longo pallido infuscatio tectis; fructus magnus globosus vel obovoideus, 3.0–5.5 cm longus.

Typus: Hawaiian Islands, *H. E. Moore, Jr., D. R. Hodel, J. R. Judd, III,* and *R. H. Phillips 10570* (holotypus BH).

Single stemmed, tall, unarmed, pleonanthic, hermaphrodite palm to 30(40) m tall, 30 cm in diameter, cortex gray, longitudinally grooved but not corky. Leaves ca. 30, forming a spherical crown, sometimes old leaves persistent and forming a short skirt; petioles elongate, arching, to 205 cm long, to 27 cm wide at base, to 5 cm wide at tip, densely tawny-woolly below, glabrous above, margins long fibrous; ligule to 7 cm long, to 2.5 cm wide, hemispherical; blade glossy, not stiff, to 155 cm long, 170 cm wide, central undivided part to 105 cm long, left and right lateral segments from apex to base of blade progressively shorter while divided portions of these lateral segments progressively longer, central segments to 5.5 cm wide at point of disjunction becoming progressively narrower towards base, segment tips pendulous, blade green and glabrous above and greenish below, underside moderately covered with pale brown, elliptic to circular scales; dense woolly tomentum extending from underside of petiole onto blade and along ridges of segment folds. Inflorescence branched, with 2–4 axes from the base, each terminating in a panicle, slender and more or less pendulous, 120–175 cm long, 3.5–4.0 cm

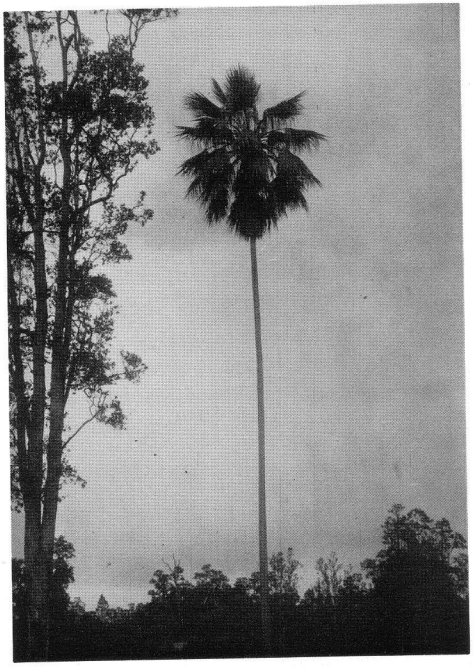

Fig. 1. *Pritchardia schattaueri*, type locality, Papa, South Kona, Hawaii.

wide at base; individual axes 100–140 cm long, 1.0–1.5 cm in diameter; panicle 24–32 cm long, to 34 cm wide, lowest panicle branches composed of 3–5 branchlets to 17 cm long, middle branches composed of 1–2 branchlets, 12–16 cm long, upper branches simple to 12 cm long, lower panicle branchlets 4 mm in diameter, upper panicle branchlets 1 mm in diameter; prophyll and peduncular bracts not seen, new bracts covered with rather long, light brown tomentum, bracts long-lanceolate in shape, lower bracts to 60 cm long, terminal bracts 20–30 cm long, bracts 5 in number (excluding prophyll and peduncular bracts), progressively shorter from lower to terminal bract. Calyx green, shading to yellow-green apically, barrel-shaped, 3-toothed, 6 × 4 mm; filaments 6, 1.5–2.5 mm long, filament base orange, exserted 2.0–2.5 mm beyond calyx, 3 mm in diameter, filament ring 5 mm long; anthers 3.0–3.5 × 0.5 mm; ovary 3.5 mm long, 1.5 mm wide, style 2.5–3.0 mm long, slightly triangular in cross section. Fruit brown to black with brown spots when mature, variable in shape and size, globose to obovoid 3–5 × 3–4 cm; exocarp 0.5 mm thick, mesocarp variable in thickness from 1.5–6.0 mm at base, 1.3 mm in middle, to 10 mm thick at pedicel end, more or less fibrous or slightly corky, endocarp 1.0–1.5 mm thick; seed globose, 2.0–2.5 cm long and wide, or subglobose, 1.6 × 1.8 cm; embryo lateral or sub-basal, cylindrical, 3.5 × 1.5 mm.

Distribution: Known in the wild from only twelve individuals occurring in partially cleared, disturbed, mixed *Metrosideros* forest from 600–800 m altitude, Lands of Papa, Honomalino, and Kapua, South Kona on the island of Hawaii.

Specimens Examined: HAWAIIAN ISLANDS, Hawaii, District of South Kona, Lands of Papa, Ho'omau Ranch, ca. 750 m altitude, partially cleared, disturbed, mixed *Metrosideros* forest, 19 June 1980, *H. E. Moore, Jr., D. R. Hodel, J. R. Judd, III,* and *R. H. Phillips 10570* (holotype, BH); type locality, 1 April 1976, *D. R. Hodel* and *J. R. Judd, III 169* (PTBG); Lands of Kapua, in *Macadamia* nut orchard that was formerly *Metrosideros* forest, 30 March 1973, *L. E. Bishop* and *G. McDonough 1832* (UH).

Cultivated: Wahiawa Gardens of Honolulu Botanic Gardens, Honolulu, Hawaii, HBG 70.042 and HBG 69.698, 8 June 1983, *R. Kariel s.n.*

Vernacular Name: lo'ulu. This name was applied to all species of *Pritchardia* in Hawaii and is still popularly used today. *Hawane* was the name for the edible, immature fruits of the various *Pritchardia* spp. in Hawaii.

Pritchardia schattaueri is named for Mr. George Schattauer of Kona, Hawaii who discovered the palms, recognized their significance, and brought them to the attention of others. His fondness of Hawaiian plants and interest in preserving

the flora and fauna of Hawaii deserve recognition.

Seeds of *Pritchardia schattaueri* were sent to The Palm Society Seed Bank in 1976 as *Hodel 169.*

Habitat: R. schattaueri grows on gently sloping, rocky, well-drained soils. Average annual rainfall is about 200 cm with a majority of this falling from April through September. Although they now occur in open spaces and fully exposed, *P. schattaueri* must be considered a palm of the forest since before being cleared the area was covered by forest dominated by *Metrosideros collina.* The height of the forest canopy was approximately 30 m as evidenced by the present day remnant stands of *Metrosideros collina.* The height of *P. schattaueri,* 30–40 m, indicates that it was at least a canopy dweller if not an emergent of the mature forest. Other associated species include *Freycinetia arborea, Psychotria hawaiiensis, Xylosma hawaiiense, Myrsine lessertiana, Tetraplasandra hawaiiensis, Pisonia brunoniana, Antidesma platyphyllum, Cibotium chamissoi,* and *Sadleria cyatheoides.*

The distribution of *P. schattaueri* is somewhat of an enigma. Ten of the twelve individuals occur within 400 m of each other in Papa while the remaining two are several kilometers distant in Honomalino and Kapua. The more or less same type of forest found in these areas extends in a band with some degree of uniformity for a distance of approximately 50 km to the north along the west sides of Mauna Loa and Hualalai. Yet *P. schattaueri* is absent from this large forested area which apparently is a very suitable environment for its growth and development. Although several cultivated individuals of *P. affinis* occur near old Hawaiian homesites near this area, why *P. schattaueri* has not been reported is perplexing.

Of the five other named species of *Pritchardia* on the island of Hawaii, *P. schattaueri* is apparently most closely related to *P. beccariana* but differs in the less ramified panicle, more slender inflorescence axes, more deeply divided leaves, and pendulous rather than stiff tips of the leaf blade segments. *P. schattaueri* differs from *P. eriostachya, P. lanigera,* and the probably extinct *P. montis-kea* in the lack of thick woolly tomentum covering the bracts and panicles, the more slender inflorescence axes, the more ramified panicle, and more slender rachillae. It differs from *P. affinis* in the pendulous tips of the leaf blade segments, longer and more slender inflorescence axes, larger fruits and a woody rather than corky texture to the cortex of the trunk.

The survival of *P. schattaueri* in the wild is certainly doubtful. Although all the trees comprising the population are mature and several produce fruit regularly, their habitat is so altered or disturbed that regeneration is nonexistent. Of the twelve remaining individuals, ten occur in pastureland where grazing cattle and wild pigs crush or eat fallen or sprouted seeds. One of the remaining twelve is located in a commercial *Macadamia* nut orchard where extraneous plant growth in orchard rows is discouraged. The last occurs in very disturbed, weedy *Metrosideros* forest remnants where weed growth and grazing wild animals prevent regeneration while a proposed housing development threatens the survival of the mature specimen. *P. schattaueri* should be given the official status of very rare, very local, and endangered according to the criteria outlined by Fosberg and Herbst (1975).

It is my observation that several of the specimens are approaching the end of their natural life. Their crowns are much reduced, being only hemispherical not spherical in shape. Flower and fruit production is minimal and these palms have a generally unthrifty appearance. Until these trees are afforded protection from grazing cattle, wild animals, weed growth, and land development, their future as a viable, existing, wild population is doomed.

Animal-proof fencing around key individuals of the population and a weed management program within these enclosures until regeneration is resumed may offer a solution. In addition, seeds could be collected, seedlings germinated and grown in a nursery until of suitable size, and then replanted within the animal-proof enclosures. This may prove to be beneficial and expedient to the regeneration process. It is hoped that the naming of this palm will help to publicize its precarious existence and result in efforts to protect and enhance its survival as a viable, wild population.

Acknowledgments

Several individuals and institutions have assisted me in this study. In addition to discovering these palms and bringing them to the attention of others, George Schattauer was instrumental in making arrangements for me to visit the palms. William Theobald and Timothy Flynn of Pacific Tropical Botanical Garden, Peter Hyypio of L. H. Bailey Hortorium, and Gerald Carr of the University of Hawaii lent herbarium material while Rachel Kariel of Honolulu Botanic Gardens sent material from cultivation. Paul Weissich inspired my interest in *Pritchardia* and alerted me to the existence of these palms. James R. Judd, Jr. was very supportive of my efforts in pursuing studies of *Pritchardia* on Hawaii. James R. Judd, III was a very selfless companion in the field for many a happy and memorable day in Kona. Lastly, my wife, Marianne, tolerated my preoccupations for extended periods with grace and understanding. All deserve my sincere appreciation.

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Aiphanes chocoensis A. Gentry is described from the Chocó region, in Western Colombia. Although the author revised Burret's (1932) synopsis of the genus, and even criticizes it, he nevertheless overlooked *Aiphanes macroloba* Burret, a species described there, and which appears to be identical to *A. chocoensis*. Both type localities are less than 140 kilometers apart. A formal reduction of *A. chocoensis* A. Gentry to synonymy under *A. macroloba* Burret will be made elsewhere.

RODRIGO BERNAL-GONZALEZ

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Quarterly	4	*12.00

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5. COMPLETE MAILING ADDRESS OF THE HEADQUARTERS OR GENERAL BUSINESS OFFICES OF THE PUBLISHERS (Not printers)
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