

A New *Pritchardia* from Kaua'i, Hawai'i

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While preparing a manuscript on the palms for the "Manual of The Flowering Plants of Hawai'i," under the auspices of the Bernice P. Bishop Museum in Honolulu, I was told of the great confusion that persisted among the taxa of *Pritchardia* along the Pole Line Trail (Power Line Trail) leading over the Makaleha Mountains from Hanalei to Lihue on the island of Kaua'i. Derral Herbst told me of Earl Bishop's report on the confusion among the three species described from the area. Bishop reported that the tallest plants were *P. hardyi*, the shortest plants with the extremely long inflorescences were *P. weissichiana* and that *P. viscosa* could not be found. In addition, he said he thought there was an undescribed species. In a letter from Don Hodel I was informed that "*P. hardyi* . . . approach(ed) 30 meters in height . . . much more than the 6-8 meters reported for *P. viscosa*." Hodel also said, "The way to distinguish *P. hardyi* from *P. weissichiana* which grows with it is by height. The former is constantly taller, averaging 25 m in height. In addition, the abaxial leaf surface is not densely tomentose, at least not like *P. weissichiana*." Hodel (1980: 73) referred to an undescribed species discovered by Robert Hobdy, past Forestry Officer on Kaua'i, who felt it was different and that further study was needed. Among the specimens at Pacific Tropical Botanical Gardens and The Bishop Museum I have not found any that do not fit accepted species. However, following my recent explorations on Kaua'i with great assistance from Tim Flynn of the Pacific Tropical Botanical Garden, I now believe I have unravelled the mysteries of the Pole Line Trail and can state with confidence that there is indeed an

undescribed species which I am naming for the wettest spot on earth, Mt. Wai'ale'ale.

Pritchardia waialealeana R. W. Read,
sp. nov.

Complexui *P. remota* affinis. Palma robustissima 10-20 m alta, caudice 30-50 cm diam., laevi et griseo; corona magna, foliis ca. 40; lamina ceraceo-glaucua vel pallide viridis, abaxilater lepidiis dispersis cinerascensibus obsita; costa prope laminae basem glabra vel glabrescens; inflorescentia petiolum aequans vel brevior; rachillae glabrae; fructus parvus; semen ovoideum, 12-13 mm longum, 17-18 latum. Typus: HAWAII, Kaua'i, R. W. Read et al., 87-211 (Holotypus US; isotypi BISH, HLA, LHB, PTBG).

Very large palms up to about 20 m or more high; trunk very robust 30-50 cm or more in diameter, smooth and gray. Crown rather large with more than 40 leaves; sheath ca. 40-60 cm long, soon becoming matted fibrous; petiole excluding the sheath ca. 60 cm long, ca. 5.5 cm wide at the sheath insertion, ca. 4 cm wide at the hastula, at first thinly velutinous adaxially, lightly lepidote abaxially, but densely so along the margins; blade costapalmate ca. 80-100 cm wide, waxy-glaucous to pale green; rachis ca. 20-30 cm long; palman ca. 75 cm deep, with a fragile thread-like filament extending in the sinus between each segment; abaxial costae at the base of the blade densely but fugaceously tan-lepidote, continuous onto the petiole, soon glabrous; adaxial costae densely and fugaceously gray-lepidote; hastula triangular, ca. 5 cm wide, 3.5 cm long, at first velutinous basally, glabrous



1. *Pritchardia waialealeana* (type plant). Close up of the crown showing the naked petioles and short inflorescences, and large number of leaves.

apically and marginally; segments ca. 70–75 in number, ca. 120 cm long (from rachis), ca. 4–5.5 cm wide at widest point, bifid into very slender to filamentous apices ca. 8–12 cm long.

Inflorescence ca. 110–120 cm long, equal or shorter than the petiole, usually divided near the base within the first peduncular bract into two main branching systems; prophyll 2-keeled, glabrescent; peduncular bracts tubular, very lightly (inconspicuously) lepidote, mostly glabrate, perforated obliquely; panicle rather large, glabrous in every part, spreadingly divided into several primary branches, lowermost panicle branches bearing spirally, at different heights, as many as 10–12 floriferous branchlets, the lowest of which, at times, divide again, or are forked; upper branches simple; rachis ca. 20–30 cm long rachillae 8–12 cm long, glabrous, subulate apically, with sessile flowers uncrowded,

spirally arranged, 2–8 mm apart, each of which subtended by a very small 2–5 mm long subulate bracteole; (mature flowers not available). Fruit small, (subpyriform when mature?), frequently with two carpels developed; seed ovoid, 12–13 mm long by 17–18 mm broad.

Specimens Examined: Kaua'i; on Kualapa ridge near district boundary, along the Power Line Trail, February 1987, R. W. Read, E. M. Read, S. Wiser, T. W. Flynn & D. K. Harder 87-211 (Holotype US; isotypes BISH, HLA, LHB, PTBG); North of Kualapa ridge in Hanalei District, along the Power Line Trail, 4 December 1987, R. W. Read, E. M. Read, T. W. Flynn and K. Wood 87-261 (US; FTG); Pole Line Trail, Hanalei side, "scattered through dying Ohia forest," 1,480', 31 May 1972, L. E. Bishop & D. Herbst 1279 (HAW).

Distribution: Endemic on Kaua'i. Viewed



2. *Pritchardia waialealeana*, photographed against a backdrop of Mt. Wai'ale'ale, showing the symmetrical crown with numerous leaves. Photographed along the Power Line Trail near its divide over a spur of the Makaleha mountains.

from the Power Line Trail out of Lihue at about 450–800 m elevation, this species is easily recognized because of its massive size, and can be seen as tall robust palms with symmetrically globose crowns growing along the slopes and ridges running from the Makaleha Mountains to the ridges below the summit called Wai'ale'ale on Kaua'i. This species is named for Mt. Wai'ale'ale, purported to be the wettest spot on earth. Subsequent observations by helicopter have confirmed the extensive population and distribution.

There has clearly been considerable confusion in the past regarding the palms seen along the Power Line Trail which runs from Lihue to Hanalei. Sometimes known as the Pole Line Trail, it is no doubt a regular avenue for collectors and has been cited at various points as localities for several species of palms. The earliest were

Pritchardia hardyi and *P. viscosa* described by J. F. Rock (in Beccari and Rock 1921). The latter species was described from a collection "one mile north of Summit Camp and two miles east of Pole Line Trail, elevation 2,000 feet, in Kalihiwai Valley, windward side of the island." *Pritchardia hardyi* on the other hand was collected "on the Lihue side along the Pole Line Trail near Summit Camp, 1900 feet elevation." Later a third species was described from the same region of Kaua'i, *Pritchardia weissichiana* also described by J. F. Rock (1962), but forty-one years later, from "beyond the ridge which terminates the Pole Line Trail, overlooking Lihue, altitude 2,500 feet". All three species were described as having leaves with their "lower surface densely tomentose with appressed light golden yellow, much fringed (confluent gray) lepidia



3. From the top to the bottom of the pile, a complete inflorescence, the abaxial and adaxial leaf surfaces, and hastular regions of the type specimen of *Pritchardia waialealeana*, photographed in the type locality.

in the young and old leaves"; and petioles covered ("beneath, in the lower half" or "on both margins" at least) with a "deep rufous tomentum" and the rachillae "covered with a rufous to salmon-colored tomentum," or "coarsely yellowish white villose," none of which is characteristic of this new taxon.

All three previously described species from the Pole Line Trail were compared by their author with other species using fruit size and shape, an unreliable character at best except for extremes. *Pritchardia viscosa* was otherwise distinguished by its "decidedly viscous inflorescence, calyx, and corolla." However, it also differs from *Pritchardia hardyi* and *P. weissichiana* in its very short inflorescence. *Pritchardia hardyi* Rock, said to be "one of the tallest species," is "distinguished . . . in the long drooping spadix." *Pritchardia weissichiana*

according to Rock "resembles *P. hardyi* in fruit only"; and "is at once distinguished from other Hawaiian *Pritchardias* by the long spadix," etc. Discounting calyx measurements, fruit size and shape, and length of inflorescence, all of which vary considerably or cannot be used satisfactorily in this case, I must consider these last two a single taxon.

The Pole Line Trail and the region of Mt. Wai'ale'ale and Mt. Kahili are the only verified localities so far in the Hawaiian Islands where two or more distinct species of *Pritchardia* are found growing sympatrically.

Five species of *Pritchardia* are now recognized on the island of Kaua'i, the oldest of the principal islands. They can be distinguished by the following key:

1. Leaves densely and completely tomentose-lepidote, silvery-white to subaureous beneath 2
1. Leaves green or glaucous, glabrous or glabrescent, definitely not tomentose beneath 4
2. Inflorescence greatly exceeding the petiole, usually greatly exceeding the entire leaf; rachillae scarcely velutinous, hairs not obscuring the base of the flowers at anthesis; Makaleha Mts., Power Line Trail *P. hardyi*
2. Inflorescence equaling or shorter than the petiole 3
3. Rachillae densely velutinous, the hairs nearly obscuring the base of the flowers at anthesis; flower buds not sticky; Kokee State Park and Alakai Swamp *P. minor*
3. Rachillae glabrous; flower buds very sticky; Power Line Trail towards Hanalei ... *P. viscosa*
4. Plants of small stature; trunk ca. 18-20 cm in diam.; leaf blades rather flat, not wavy or undulate; lower costae, at the base of the blade, and the petiole densely tan woolly; crown with fewer than 25 leaves; valleys of Na Pali coast *P. napaliensis*
4. Plants of massive stature; trunk ca. 30+ cm in diam.; leaf blades strongly folded, undulate; lower costae, at the base of the blade, and petiole very early glabrescent or lightly lepidote; crown with more than 40 leaves; slopes of Mt. Waialeale to Power Line trail *P. waialealeana*

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