

A New Species of *Pritchardia* from Mitiaro, Cook Islands

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The island of Mitiaro lies at 19°52'S, 157°42'W in the Cook Islands group in the Southwest Pacific Ocean. It is remote, indeed. The island is a coral atoll of a mere 25 km². In view of its remoteness, it has rarely been visited by botanists. One of us, Yves Ehrhart, a forester working for the Centre Technique Forestier Tropical in the Cook Islands, collected samples from a small population of a fan palm on Mitiaro, occurring as an apparently natural, self-regenerating population. The collections were sent to Kew, to John Dransfield, for naming. Shortly after the collections arrived at Kew, further collections of the same palm were sent by Cecilia Luttrell, a British student who had visited the Cook Islands as part of an undergraduate expedition. With copious material and excellent photographs available, there should have been little difficulty in naming the palm. However, this was not to be.

The habit and highly characteristic way in which the corolla lobes fall off the flower at anthesis show that the palm is a species of *Pritchardia*. Of course, this is scarcely surprising in view of the distribution of the genus through a wide swathe of the Pacific Ocean. Deciding to which species it belongs was the problem.

As we assembled this manuscript, we began to uncover further problems and confusion in the species of *Pritchardia* occurring in the Western Pacific. Dr. McKee drew our attention to a reference to the Mitiaro palm in Art Whistler's account of the palms of Samoa (Whistler 1992). Whistler refers, in passing, to the presence of *Pritchardia vuylstekiana* H. Wendl. in Mitiaro. On our writing to Whistler, he in turn drew our attention to the first mention of the Mitiaro palm by Gill (1885). Whistler (pers. comm.) compared his own collection from Mitiaro (Whistler 5926) with material named *P. vuylstekeana* collected from Makatea, Tuamotu Archipelago (the type locality of *P. vuylstekeana*) in the Bishop Museum

in Honolulu, and he felt that they were a good match.

However, fruit size is of considerable importance in *Pritchardia*. In Wendland's description of *P. vuylstekeana*, the origin of the palm is clearly cited as being Pomutu in the Danger Archipelago (Tuamotu), but the fruit is unambiguously described as being oblong, 24 × 20 mm (Wendland, in André 1883). The small fruit size (5-7 mm diam.) in the Mitiaro plant seems thus to preclude *P. vuylstekeana*. Fruit characters and the lack of woolly indumentum on the flower-bearing branches suggest that the Mitiaro palm belongs to the group of species related to *P. pacifica* (Beccari and Rock 1921) that includes *P. pacifica*, *P. thurstonii* and *P. maideniana*, this last species described from material cultivated in the Royal Botanic Garden, Sydney. Inflorescence size and structure in the Mitiaro palm are similar to those of *P. pacifica*, but the fruits are far too small for that species and more closely resemble those of *P. thurstonii*. However, the inflorescences of *P. thurstonii* are longer than the leaves and are thus very characteristically exerted from the crown. Inflorescences in the Mitiaro palm do not behave in this way. The leaf division and the fruit size also seem to preclude *P. maideniana*. Thus the Mitiaro palm does not fit obviously into the range of variation of any described species of the genus.

Differences between recognized species in *Pritchardia* are notoriously fine; there is a great need for the critical work (Read and Hodel 1990) on the genus that has been accomplished in Hawaii, to be extended to the whole genus throughout the Pacific. Such revisionary work is essential to clear up the confusion over the identity of *P. vuylstekeana* and to sort out the relationships between the species of this extraordinarily widely dispersed genus. In the meantime, the Mitiaro palm requires a name as a basic reference point. We believe

that we have no alternative but to describe the Mitiaro palm as new and name it here *Pritchardia mitiaroana*, reflecting its known distribution. If in the future it is shown to be conspecific with an already named but at present poorly understood taxon, then we hope, at least, that by describing and naming the Mitiaro palm we shall have helped to characterize it and draw attention to a beautiful palm, growing in one of the most remote parts of the world.

Photographs indicate that the palm is of considerable beauty and it is to be hoped that it can be introduced into cultivation and the wild population safeguarded against accidental damage from fire that could occur, if the island were ever to become a tourist attraction.

***Pritchardia mitiaroana* J. Dransf. & Ehrhart
sp. nov. (Figs. 1–8)**

Fructu et rachillarum structura *P. pacificae* et *P. thurstonii* affinis sed a *P. pacifica* fructu multo minore et *P. thurstonii* inflorescentia a corona foliorum non exserta differt. Typus: Insulae Cook, Mitiaro, Ehrhart s.n. 26 April 1991 (Holotypus K; isotypus P).

Solitary, rather robust, stocky, pleonanthic hermaphroditic fan palm. Stem at maturity 4–6 m tall, slightly ventricose, widening to 30–35 cm diam. at 1.5 m above the ground, then tapering slightly to ca. 25 cm diam. at 2.5 m height, diameter then constant to the base of the crown, the stem surface grey brown, obscurely ringed with leaf scars, smooth or with irregular shallow vertical fissures in young palms or near the stem apex. Crown comprising 16–23 expanded leaves, one leaf three-quarters expanded, a sword leaf and two or more dying or dead leaves, juvenile palms (up to 3.5 m tall) with ca. 16 leaves, adult palms (up to 5 m tall) with 23 leaves, the leaves held stiffly; petiole 80–90 cm long, ca. 20 cm wide at the base, the base clasping the stem, tapering to 6 × 1.2 cm at ca. 50 cm above the base, tapering gradually to 3 × 1 cm at the insertion of the blade, the margins smooth, the surfaces somewhat waxy, glabrous; leaf base fibrous, terminating in a triangular ligule ca. 50 cm above the base, the fibres soft, pale grey brown; adaxial hastula bluntly triangular, 4 × 3 cm, ± symmetrical, abaxial hastula absent; leaf-blade bright green, briefly costapalmate, 100–110 cm long at the mid-point, held ± flat or folded into a shallow “m”, 52–56 folds in leaves of juvenile palms, 60–

66 folds in leaves of mature palms, the blade split to ca. 30 cm deep into stiff induplicate segments, the segments ca. 5.5 cm wide at the base of the splits, inter-segment fibers present in newly expanded leaves; adaxial surface of blade glabrous, abaxial surface covered in a thin layer of white wax and bearing abundant evenly distributed punctiform dark brown scales. Inflorescences solitary in each leaf axil, shorter than and hence obscured by the leaves, branching to 3–4 orders, the inflorescence somewhat lax, not congested, 10–12 inflorescences and infructescences present at the same time (appearing one after the other during several months, with apparently no flowering during the cool season); peduncle ca. 60 cm long, flattened at the base where ca. 3 × 1.5 cm, distally elliptic in cross section, ca. 2.0 × 1.3 cm; prophyll ca. 22 × 5.5 cm, tubular, 2-keeled, tattering apically, densely white tomentose; peduncular bracts 5–6, up to ca. 40 × 4 cm, tattering as the prophyll and bearing white tomentum; inflorescence rachis somewhat zig-zag; rachillae numerous but scarcely crowded, pale yellowish-green, straight or somewhat curved, up to 10 cm long, ca. 2 mm diam., glabrous, bearing solitary flowers ca. 4 mm apart, each subtended by a fragile brown ligulate acuminate membranous rachilla bract, ca. 1.7 × 0.1 mm; flower scar ca. 0.7 mm diam. Flower bud 6.5 × 2.8 mm; calyx with a basal tube, 3.5 mm long, with three short triangular lobes to 0.5 mm long, glabrous, faintly striate; corolla tubular below, circumscissile just below the mouth of the calyx tube, the lobes accrescent, ca. 4 × 2 mm, striate, glabrous, the inner surface marked with anther impressions; stamens 6, filaments united in an epipetalous ring ca. 1.6 mm high, with free filaments to 1.5 mm; anthers medifixed, versatile, ± oblong, 2.5 × 1 mm introrse; gynoecium with 3 carpels free in the wedge-shaped ovarian portion to 2 × 1 mm, apically connate in a style to 2 × 0.8 mm. Fruit rounded, to 7 mm diam., borne on the persistent calyx, the calyx lobes and androecial ring explanate; style and carpel remains excentrically apical; epicarp smooth, glabrous, green becoming brown; mesocarp ca. 0.6 mm thick; endocarp crustaceous, ca. 0.1 mm thick. Seed basally attached, ca. 5.5 mm diam., testa very thin, brown; endosperm homogeneous, embryo subbasal.

Distribution. Cook Islands, Mitiaro.

Specimens Examined. COOK ISLANDS. Mitiaro: Takaue Village, 2 to 2.5 km south of village, alt. 11 m, Yves Ehrhart s.n. 26 Apr 1991



1. *Pritchardia mitiaroana*: the main population on Mitiaro, Cook Islands. 2. *Pritchardia mitiaroana*: view into the crown.
(Photographs by Yves Ehrhart.)



3. *Pritchardia mitiaroana*: group of palms in makatea scrub. 4. *Pritchardia mitiaroana*: young leaf. 5. *Pritchardia mitiaroana*: detail of trunk of adult palm. 6. *Pritchardia mitiaroana*: detail of another adult trunk, showing cracking of trunk surface. (Photographs by Yves Ehrhart.)



7. *Pritchardia mitiaroana*: detail of young infructescence. 8. *Pritchardia mitiaroana*: part of infructescence. (Photographs by Yves Ehrhart.)

(Holotype K; isotype P); 28 July 1991 *Luttrell 126* (K).

Pritchardia mitiarioana occurs in several small groups and isolated trees scattered on the western and southwestern side of the island, in the inner *makatea* (*makatea* is the Polynesian name for the soils and geographic areas located on raised coral limestone reefs). No single plant species predominates in any area. The vegetation is low scrub, about 3 m tall, consisting mainly of *Guettarda speciosa*, *Pandanus tectorius*, *Pisonia grandis*, *Xylosma gracile*, *Capparis cordifolia*, *Timonius polygamus*, *Myrsine cheesemanii*, *Geniostoma sykesii*, *Ixora bracteata* and *Cassytha filiformis*. The soils (Wilde 1981) have formed from the *makatea* limestone rock *in situ* and from rock fragments. There is little sand, and very little organic matter accumulates between the rock fragments. It is very sharply drained. According to USDA Soil Taxonomy, it is a sandy-skeletal carbonatic isohyperthermic lithic Rendoll. Climatic data are scarce but data from the neighboring island suggest that the mean annual rainfall is about 2,000 mm distributed throughout the year, the driest months being June to August and the wettest December to February. Temperatures range from 21.5° C to 26.9° C with the coldest

months being the driest. Mean relative humidity is about 85%.

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