

Anomalous Crown Growth in *Pritchardia* *napaliensis*

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1. Wild *Pritchardia napaliensis* growing in the largest population in Hoolulu Valley, Kauai, Hawaii. Photo: Steve Perlman.

An unusual crown growth of *Pritchardia napaliensis* is described and documented from ex situ collections at the National Tropical Botanical Garden. The cause is unknown. Greenhouse experiments where the growing meristem has been mechanically and chemically treated have been set up in an attempt to reproduce the anomaly. The authors having not seen this in the wild or in cultivation seek responses from readers who have observed this same phenomenon.

There are thought to be 22 species of *Pritchardia* endemic to Hawaii and each species is confined to a single island (Beccari & Rock 1921). St. John described *Pritchardia napaliensis* based upon a specimen collected by Charles Christensen on Kauai in 1976. He named this plant for the Na Pali Coast of Kauai where it was first collected (St. John 1981). *Pritchardia napaliensis* is a small palm with about 20 leaves and an open crown. It belongs to the *P. remota* complex which Read and Hodel (1990) define as only distinguishable from each other with difficulty, and they include four species in this complex. *Pritchardia napaliensis* typically grows in habitats ranging from mesic forests to montane wet forests from 150 to about 1,160 m (500 to about 3,800 ft) elevation. The largest population in Hoolulu Valley contains between 60 and 80 plants and the two other populations, Pohakuao and Hanakoa each contain three or fewer plants, giving a total of fewer than 90 known wild individuals. It is ranked as endangered by the USFWS (Wagner et al. 1999).

The National Tropical Botanical Garden (NTBG) has 36 plants of *P. napaliensis* from a seed collected by Steve Perlman in 1990 from the wild population in Hoolulu Valley, Kauai, Hawaii (Fig. 1) and planted in 1993 in a garden site within the McBryde Garden of NTBG.

2. *Pritchardia napaliensis* exhibiting a multiple crowned growth habit in NTBG's *ex situ* collections. Photo: M.H. Chapin.



Of these 36 trees, 31 have anomalous crown growth that appears to be a form of leaf suckering from the growing tip (Fig. 2). Five palms do not have the suckering crown habit. The solitary stem is still developing normally. In addition, a nearby *Pritchardia munroi*, planted in the same year, also has a suckering crown, which is equally unusual (Wood et al. 2001). This crown growth anomaly has never been seen or documented in wild *P. napaliensis* or any of the Hawaiian *Pritchardia* species or in *ex situ* palm collections.

It is unclear what caused this unusual crown growth. The authors considered physical damage either by insects or gardening tools, or chemical damage such as herbicide overspray. In an effort to understand better what caused this and to attempt to induce the same suckering crown development, 25 seedlings of *P. pacifica* and *P. arecina* were selected. They have been included in a greenhouse experiment and subjected to two treatments. Five seedlings of each taxon have had their growing tip sliced vertically with a razor, and the area treated with fungicide. Five seedlings of *P. pacifica* were sprayed with 2,4-Dichlorophenoxyacetic Acid (2,4-D). Five seedlings of each species are being used as controls. It may take several years to see the results.

We welcome new information or similar observations from our readers and we will continue to monitor this unusual growth habit in *Pritchardia*.

LITERATURE CITED

- BECCARI, O. AND J.F. ROCK. 1921. A monographic study of the genus *Pritchardia*. Memoirs Bernice P. Bishop Museum 8: 1-77.
- READ, R. AND D. HODEL. 1990. *In*: WAGNER, W. L., D. R. HERBST, AND S. H. SOHMER. 1990. Manual of the flowering plants of Hawaii. Vol. 1-2. Bishop Museum Press, Honolulu, Hawaii 83: 45-114.
- ST. JOHN, H. 1981. New species from Kauai. Hawaiian plant studies 97. Pacific Science 35: 97-103.
- WAGNER, W.L., M.M. BRUEGMANN, D.M. HERBST AND J.Q.C. LAU. 1999. Hawaiian vascular plants at risk: 1999. Bishop Museum Occasional Papers. Bishop Museum Press, Honolulu. No. 60, 58 pp.
- WOOD, K.R., S. PERLMAN, M.H. CHAPIN AND M. MAUNDER. 2001. Critically Endangered Hawaiian Plant Taxa & Conservation Collections within the Genetic Safety Net (GSN). Interim Report on Field Research Conducted Under USFWS Grant No. 122000G001.