

PACIFIC PALM RESEARCH: TONGA AND FIJI ISLANDS

I conducted fieldwork for MBC in the Pacific in late 2009, visiting remote field sites in Tonga and Fiji to collect data and seed for research and conservation purposes. On behalf of MBC, I obtained important conservation material of many Pacific palms, and helped support collaborative studies in support of palm research. Fieldwork on the islands of 'Eua (Tonga) and Viti Levu (Fiji) successfully led to the collection of important conservation material and DNA for future laboratory work. International cooperation, with faculty at the University of the South Pacific and with local villages, helped accomplish the goals of the expedition and increase collaboration for future fieldwork and research on the palms of the Pacific basin.

AN IMPORTANT *PRITCHARDIA*

Pritchardia thurstonii was the focus of the expedition. This species is of particular interest. Based on DNA studies *P. thurstonii* is the closest relative to the 26 currently recognized species of *Pritchardia* on the Hawaiian islands. The *Pritchardia thurstonii* found on Fiji and Tonga are not as affected by seed predation from rats when compared to most species of Hawaiian *Pritchardia*. The Hawaiian *Pritchardia* have no self-replacement because of seed caching and predation. Therefore, *P. thurstonii* can approximate the genetics of Hawaiian *Pritchardia* before the arrival of rats. This type of information may also aid in identifying particular populations of conservation concern.

I studied and collected *P. thurstonii* populations on the island of 'Eua, in Tonga. I also took the opportunity to visit remote higher elevation sites to document and sample from some of Fiji's most rare and endangered palms, including *Balaka*, *Cyphosperma*, and *Neoveitchia*. Due to the rarity of these palms, few mother plants were collected for seed, but complete and duplicate herbarium specimens were made for each of the species visited. All of the Fijian palms collected are endemic to the islands and require further study to discern their inter-generic relationships.

OUTCOMES

The fifteen days of fieldwork provided MBC with seeds for *ex situ* conservation of these palm species, as well as an extensive DNA source for future work on these endemic palms.



Collecting *Clinostigma exorrhizum*,
Tomaniivi Nature Reserve, Fiji.



Pritchardia thurstonii in 'Eua National Park,
'Eua Island, Tonga.

Fieldwork for this project was performed at four sites across two island nations: 'Eua National Park (Tonga), USP campus (Fiji), Colo-i-Suva Forest Park (Fiji), and in the Tomaniivi Nature Reserve (Fiji). This expedition resulted in the collection of hundreds of seeds from nine species endemic to either Tonga or Fiji, 17 herbarium specimens with duplicates for herbaria at the Bishop Museum (BISH), the Royal Botanic Garden Kew (K), the New York Botanical Garden (NY), and the University of the South Pacific (USP). Seeds were obtained from native populations and *ex situ* live collections. All specimens were extensively documented via images and GPS data. Collaborative links between Montgomery Botanical Center, the University of South Pacific, and local Tongan and Fijian villages were formed and strengthened through this project, which will lead to further successes for all involved. *Pritchardia* is a unique genus of island plants, and this field project will advance our understanding of this and other Pacific palms.

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