



# MONTGOMERY BOTANICAL CENTER

*Advancing research, conservation, and education  
through scientific plant collections.*

## EXPEDITION REPORT

### *Pritchardia* Conservation Expedition: Hawaiian Archipelago December 12, 2007–January 24, 2008

#### *Project Team and Contact Information*

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#### SUMMARY

The 2007-2008 Hawai'i Palm Conservation Expedition sent Christine Bacon to remote field sites in the Hawaiian Archipelago to collect data and seed for research and conservation purposes. With partial funding from The Thomas S. Kenan Foundation, Inc., Montgomery Botanical Center (MBC) obtained important conservation material of *Pritchardia*, and helped support collaborative scientific research in support of palm conservation.

# Palm Conservation Expedition

Colorado State University Ph.D. student, National Tropical Botanical Garden (NTBG) McBryde Graduate Fellow, and MBC Research Associate Christine Bacon has successfully completed a 30-day expedition across the Hawaiian Archipelago. This research, funded in part by The Thomas S. Kenan Foundation, Inc., is aimed at understanding phylogenetic relationships and conservation genetics of the threatened *Pritchardia* palms. This project depended



Fig. 1. Location of aberrant population of *Pritchardia martii*



Fig. 2. Christine Bacon with aberrant *Pritchardia martii*

on close collaboration with the NTBG and the Plant Extinction Prevention Program on Maui and O‘ahu.

Collections from this expedition from the islands of Kaua‘i, O‘ahu, and Lana‘i will be essential in teasing apart species boundaries in this often confounding genus of highly variable plants. For the laboratory work involved in this project, samples of leaf material for DNA extraction were collected in the field. Seeds were also collected for *ex situ* conservation efforts at MBC, as well as herbarium specimens that will be deposited at the Bishop Museum.

*Pritchardia* populations are very limited in distribution, and often very restricted in number. Due to the threatened conservation status of these palm species and their natural preference for steep slopes,



Fig. 3. *Pritchardia martii*, compact inflorescence held within crown, central Ko‘olau Range

many of the populations are rarely visited. Census and population health data are important to continue the monitoring of these species and increase the understanding of their distribution, conservation status, and ecology.

Collaboration with the Plant Extinction Prevention Program enabled helicopter access to an aberrant population (Fig. 1) of *Pritchardia martii* with inflorescences extending beyond the fronds (Fig. 2). This morphology is observed in the southern and northernmost areas of the Ko‘olau Mountains. In the central regions of the Ko‘olau Range, inflorescences are more compact and are held within the crown (Fig. 3). This exemplifies the variability present within *Pritchardia* species, one of the research foci of this project.





## *Pritchardia* Species Targeted for MBC *ex situ* Conservation Efforts

<i>Pritchardia</i> species	Distribution	Populations	Individuals	Conservation status	Seed obtained
<i>P. affinis</i>	Hawai'i	1	60	Critically endangered	√
<i>P. aylmer-robinsonii</i>	Ni'ihau	1	2	Critically endangered	√
<i>P. elliptica</i>	Lana'i	0	5	Extinct in the wild	√
<i>P. glabrata</i>	Maui	2	ca. 50	Critically endangered	√
<i>P. kaalae</i>	O'ahu	1	170	Critically endangered	√
<i>P. martii</i>	O'ahu	1	ca. 10,000	Vulnerable	√
<i>P. munroi</i>	Moloka'i	1	2	Critically endangered	

## OUTCOMES

Fieldwork for this project was performed at 11 field sites, across five islands. This project resulted in the collection of seed from six species native to Hawaii, comprising 22 accessions, and 571 seeds; 720 DNA specimens were obtained for molecular research. Seed were obtained from native populations and *ex situ* botanic garden specimens. Herbarium vouchering was limited to two specimens, due to the extremely endangered condition of the populations studied. All specimens were extensively documented via photography and GPS data.

The specimens, documentation, and data will be of great informative value for conservation and research. The seed collected are invaluable for advancing *ex situ* conservation.

Collaborative links between Montgomery Botanical Center, the National Tropical Botanical Garden, the Plant Extinction Prevention Program, and Colorado State University, formed and strengthened through this project, will lead to further successes for all involved. Montgomery Botanical Center is very grateful for the support of The Thomas S. Kenan Foundation for enabling these important outcomes.