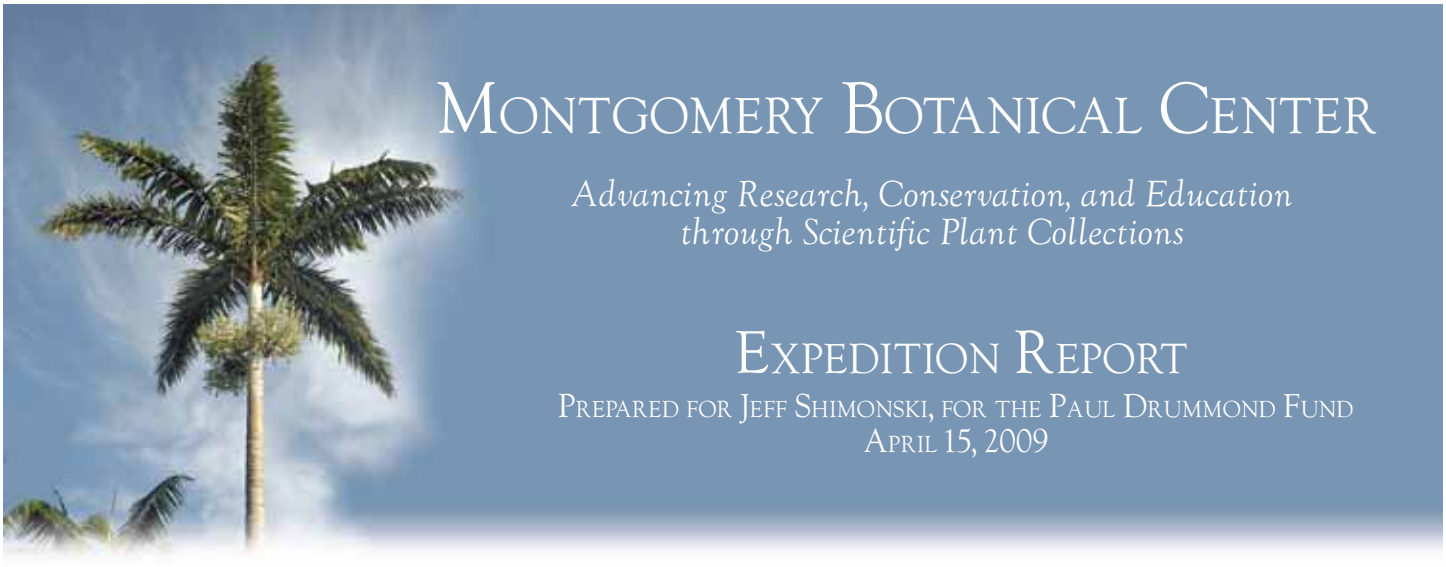

Montgomery Botanical Center

Advancing Research, Conservation, and Education through Scientific Plant Collections

Expedition Report

Prepared for Jeff Shimonski, for the Paul Drummond Fund
April 15, 2009

Palm Conservation and Research Fieldwork — Belize 2009
March 16, 2009 - April 1, 2009

Pseudophoenix sargentii in seasonally dry habitat.

Expedition Team

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Summary

Dr. Larry Noblick, Brett Adams, Heather duPlooy, and Jan Meerman performed palm conservation and research fieldwork in Belize from March 16 through April 1, 2009. This project expanded documentation and understanding of the Belizean palm flora, and brought eight species of palms and one cycad species into protective cultivation at Montgomery Botanical Center in Miami, Florida, and Belize Botanic Gardens and Green Hills Botanical Collections in Belize.

Introduction

With a tropical to subtropical climate showing great variation in rainfall, Belize has a great diversity of habitat types. Combined with a low human population density relative to other nearby areas of Central America, these factors intersect to support abundant botanical diversity. Previous work inventoried between thirty-eight and forty-four taxa of Arecaceae (palms) in Belize (Henderson *et al.*, 1995; Brewer, 1999; Balick *et al.*, 2000). Comparative studies of species richness (Brewer, 1999) concluded that Belize's palm flora is above average in number of species relative to area, and far above average in genera relative to area.

The 2008 Belize Palm Conservation project, funded by The Paul Drummond Fund, enabled fieldwork in support of *ex situ* conservation, and basic botanical research, focused around the Belizean Palm Flora.

Desmoncus orthacanthos spathe and flowers

Larry Noblick's Field notes:

March 16: Obtained a car and set up drying facilities and plant press at the duPlooy Jungle Lodge and Belize Botanic Garden.

March 17: Fieldwork in Stanns Creek District and the Cockscomb Basin Jaguar Reserve. 12 species of Arecaceae were observed. We only found one palm with mature fruit (*Bactris mexicana*). Collected seed and made 4 duplicate herbarium specimens.

March 18: Left Cockscomb and drove to the Toledo District and Pueblo Vieja, at the foot of the Maya mountains. Collected a few seed of *Chamaedorea adscendens*, and observed 14 palm species, seven of which were *Chamaedorea*. Drove to Punta Gorda to spend the night.

March 19: Left Punta Gorda and drove to Barranco, but stopped by the Cotton Tree Lodge to search for *Manicaria saccifera* along the river and flood plain there, but it was not observed. Met up with Santiago Chub, a local medicinal plant expert and guide, and drove on to Barranco, a Garifuna community, farther south. We hired Harry Sanderval from Barranco to lead us to a nearby population of *M. saccifera*. This *Manicaria* population is the northernmost population of this species. Collected seed and made herbarium voucher collections, before driving back to San Ignacio arriving just at sundown.

March 20: Drove to the Cayo District, north of Spanish Lookout, a Mennonite community, near Laguna Aguacate to look for *Chamaedorea woodsoniana*. Col-

Brett Adams collecting a specimen of *Gaussia maya*.

lected *Cryosophila stauracantha* and *Gaussia maya* seed and herbarium vouchers, and observed 6 other species of palm. We did not find *Chamaedorea woodsoniana*, and after studying this species, we are certain that it does not occur there and was likely a misidentification of an herbarium voucher. *Chamaedorea woodsoniana* is a high altitude, cloud forest species; maximum altitude near Laguna Aguacate is 130 m. The description on the specimen label fits the *Gaussia maya* population found in this area.

March 21: Planned fieldwork in Mt. Margaret to collect the *Colpothrinax cookii* population, but Heather was unable to contact the property owner for needed right of way to get to the mountain. So instead, drove out a short distance and collected seed and vouchers of *Acrocomia aculeata*.

March 22: Prepared and dried specimens, cleaned seed, and processed data at Belize Botanic Garden. At 2 p.m. drove to Green Hills Botanical Collections.

March 23: Left at 4 am and drove to Orange Walk where we met up with some of Jan's colleagues. Drove on to Sarteneja and the Shipstern Nature Reserve in the Corozal District. I found and collected *Pseudophoenix sargentii* seed that day and one voucher specimen.

March 24: Continued with collecting of seed of *Pseudophoenix sargentii* and a second herbarium specimen, then drove south to Orange Walk observing the *Sabal yapa* for seed (too young yet) and a then collected some older seed of *Roystonea regia* palms near Gardenia on the Northern Highway south of Orange Walk. We were fortunate that our brakes failed in an area of flat terrain and that we were close enough to a gas station to get the problem fixed so that we were able to reach Belmopan in time for Jan to complete some work there and reach Green Hills by nightfall.

March 25: Drove to San Ignacio, and exchanged the car. Adjusted the plants in the dryer and cleaned more seed. Prepared and packed for the next day.

March 26: Planned to go to Mt. Margaret, but the guide had an accident and could not go. Went there by myself, but Cisco had not advised them that I was coming, and since I was alone they did not want me to go by myself either, so I had to turn around and come home. I visited the Forestry Department in time to meet Hector Mai and I emailed my collection list to him that evening for the export permit.

Brake Repair, March 24.

March 27 - 30: Worked to finalize the export permit. Finished processing specimens and seed in preparation for the Phytosanitary Certificate inspection.

March 31: Obtained export permit in Belmopan and had material inspected at Central Farm for the Phytosanitary Certificate. Prepared to return home.

April 1: Left Belize and returned to Miami.

Outcomes

The collected palms have great scientific and conservation value. *Pseudophoenix sargentii* is a rare palm which has a short fruiting season and was only available at this time of year, so we were fortunate to make a good seed collections for this species from several different mother plants. This population of *Pseudophoenix* is the most western population of its genus. *Manicaria saccifera* in the southern part of Belize is the northernmost population for that species, so these collections are of biogeographic importance. The material of *Acrocomia aculeata* from Belize will complement Montgomery Botanical's collections from the Caribbean (Puerto Rico, and Trinidad) and from South America (Brazil and Paraguay). It will be interesting to see how similar or distinct they are from one another.

The *Gaussia maya* collection reconfirms that the misidentified specimen of *Chamaedorea woodsoniana* (Balick 1801 MO, NY) from the Laguna Aguacate area is a *Gaussia maya* and that *Chamaedorea woodsoniana* does not occur in Belize. It is still misidentified at MO but it was corrected by Andrew Henderson at NY in 2007.

Species	seed collected	specimens collected
Acrocomia aculeata	61	2
Bactris mexicana	124	4
Chamaedorea adscendens	4	2
Cryosophila stauracantha	119	2
Gaussia maya	18	2
Manicaria saccifera	44	2
Pseudophoenix sargentii	263	2
Roystonea regia	48	0

Seed are being cultivated at Montgomery Botanical Center, Belize Botanic Garden, and Green Hills Botanical Collections. Herbarium specimens were deposited at FTG, NY, and BRH.

Future Outcomes

Montgomery Botanical continues to build research and conservation collaborations in Belize. Additional species of palm will be documented and brought into protective cultivation. Biogeographic and phenological information gained by this fieldwork will aid future collecting efforts of *Sabal mexicana*, *Sabal yapa*, *Colpothrinax cookii*, *Chamaedorea allenbergiana*, *Reinhardtia gracilis*, and *Reinhardtia latisecta*.

Reinhardtia gracilis

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References

Balick, M. J., M. Nee & D. E. Atha. 2000. A Checklist of the Flora of Belize, With Common Names and Uses. Mem. N. Y. Bot. Gard. 85:1-246

Brewer, S.W. 1999. The Palms of Belize: Species Rich ness and a Key Based on Vegetative Characters. Palms (formerly Principes 43(3): 109–113)

Bridgewater, S., N. C. Garwood and S.W. Brewer. 2005. Common Palms of Belize. www.fmnh.org/ plantguides/ Rapid Color Guide X004 version 1 pp. 8

Garwood, N. C. and S. Bridgewater. 2005. Chamaedorea – Ecology and Economic Botany, www.fmnh.org/plantguides/ Rapid Color Guide 195 version 1 pp. 3

Henderson, A.H., G. Galeano, R. Bernal. 1995. Field guide to the palms of the Americas. Princeton University Press, Princeton, N.J.

Hodel, D.R. 1992. Chamaedorea Palms: The Species and Their Cultivation. Allen Press, Lawrence, Kansas

Harry Sanderval helping to prepare a specimen of *Manicaria saccifera.*

Close up of *Gaussia maya* fruit.