A University Palmetum

Ryan W. Vogel
Office of University Sustainability
Florida International University
11200 SW 8th Street
Miami, Florida, 33199, USA
(Current address:
700 Cuyahoga Court
Columbus, Ohio, 43210, USA
RangerRyanVogel@gmail.com)

1. An FIU student appreciating *Carpoxylon macrospermum*.

With most palm species being native to the tropics and Miami being arguably the most tropical city in the contiguous United States, it makes sense that Miami would be home to many palms. This paper describes the establishment of a surprisingly diverse palm collection in an academic setting.

2. 1992/2012 photos showing effect of hurricane Andrew on FIU campus (not Palmetum).

Florida International University (FIU) is an urban, public research institution. The university has one main campus in west Miami, the Modesto Maidique Campus, and several satellite campuses throughout south Florida. The rapidly developing Modesto Maidique Campus is where approximately 86% of the 54,000-student population attends classes and where the majority of employees are located. In the heart of this campus there is a two acre (0.8 ha) palm arboretum, the FIU Palmetum. This tropical urban oasis contains palm species from around the world meant to inspire the university population to slow down and enjoy the wonderfully fascinating diversity of Arecaceae (Fig. 1). One could safely say that the FIU Palmetum is one of the most diverse palm collections on a university campus in the United States.

The FIU Palmetum was originally founded about 23 years ago by Gregory Burdine-Coakley, currently assistant director of the department of Life Safety and Utility Systems. In 1992, Hurricane Andrew struck south Florida and destroyed many of FIU's trees (Fig. 2), essentially clearing the way for a new urban forest to be developed throughout the university landscape.

At the time, Burdine-Coakley was the grounds superintendent and was able to initiate the palm arboretum with Federal Emergency Management Agency funds meant to restore the university's urban forest. He began the project with the idea to group palm plantings based on their geographic origins, but as time went on that original design scheme was forgotten.

Burdine-Coakley left the department in 2001, handing responsibility of the palm arboretum over to Mark Salemi, the current senior superintendent of landscape and grounds. Being a horticultural scientist, certified arborist, and lifetime member of the South Florida Palm Society, Salemi was up to the task. With great personal interest in developing the collection but limited resources for doing so, Salemi used his local network of nursery growers to find great deals on interesting specimens to add to the collection. As time went on, he continued to develop the area, selectively removing and transplanting broadleaf trees from the site and replacing them with palms. His hope was that others in the university community would notice the palms and enjoy their beauty as much as he did.

The Palmetum, being overshadowed, literally and figuratively, on several sides by academic buildings, including the main university library, is not where one might think would be the best place to cultivate a palm garden. Although, many people walk through the collection every day, few of them are aware of

what is surrounding them. Naturally, the Earth & Environment department and the Biological Sciences department faculty and students are the ones most commonly using the palm collection for research and teaching, but they are not the only ones using this urban palm forest. Every spring the School of Architecture hosts a competition to see who can get to the Palmetum the fastest. The only catch is that participants are not allowed to walk on land to the Palmetum, instead they must "walk on water" (Fig. 3). Attracting hundreds of spectators each year, the audience anxiously watches from the Palmetum as brave architecture students attempt to cross a 53-m (175-ft) wide lake to get there.

Although, this annual event inadvertently brings a lot of people to the site at one time, this is quite insignificant when compared to the number of routine passers-by the area receives on any regular school day. With this palm collection being located in one of the highest pedestrian traffic areas on campus, we estimate that approximately 500–1,000 students, faculty, staff and visitors walk through it each day (Fig. 4). However, with no interpretive signage, no formal landscape design, no publicity, no documentation of species within the collection, no documented educational purpose, no history of prior investments and no management plan, the Palmetum was at risk of possible future destruction. It has been there for all this time, and still very few people on campus knew anything about the project. If this project was to be sustainable (protected with continual funding) it needed to have a larger university presence. For this reason we chose to focus our efforts on this particular planting of palms rather than other small groupings elsewhere around campus.

Jump-starting the recent renovations was a grant from the International Palm Society in December 2013, meant to provide tree tags and interpretive signs. During the first year our team: counted, identified and labeled/relabeled all the palms, removed several remaining broadleaf trees and planted an additional 14 palms on site. In our second year, we designed and installed 15 interpretive signs (Fig. 5), which immediately upon their installation began to draw peoples' attention, replaced an old dilapidated gazebo with new outdoor seating, and added another 15 individual palms to the collection. In this process, we discovered several issues that needed to be addressed. For example, some name tags, which had been installed some years earlier, had rusted, broken, been vandalized or had shifted such that they hung too low on the trunk, too high or facing directions where people would not likely see

3. A student "walking" across the lake to reach the Palmetum, in the annual competition.

4. A snapshot portraying the constant usage of this area.

them. Additionally, palms were never allowed to flower or fruit since the landscape maintenance crew routinely trimmed their inflorescences prematurely, and lawnmowers broke several ground tags we placed next to short, young, or cespitose palms. To alleviate these issues in the long run we created a tag installation protocol and began an ongoing discussion for proper training of the landscape maintenance crew. The internal funds used to accomplish much of this work may not have materialized were it not for the catalyst provided by the International Palm Society grant. And, with the area now having an introductory sign at each entrance, more people than ever are now aware of the palms.

In order to commemorate all these much-appreciated improvements to the area, we decided to have a celebration on Earth Day (Davis 2014, Piccardo 2014). The event was well attended by biology and environmental studies students and faculty as well as local community organizations. A local art museum showcased their exhibition "Earth and Water" at our event. Rescue Earth, a non-profit that focuses on creating awareness and protecting the environment, was present, and the South Florida Palm Society was present with past-president/board member Ken Johnson saying a few words at the podium. The local media coverage surrounding this event was quite helpful in getting the word out about our recent renovations.

What started with just a few individuals has grown to become one of the largest university palm collections in the country. Its strength lies in its unique location and breadth. Today,

5. An interpretive sign about Caribbean palms adjacent to a *Coccothrinax crinita*.

6. Conference group touring the Palmetum.

it contains 262 individual palms, representing 72 species from 40 genera. With representation from every major palm hotspot in the world and spanning six continents, this collection is able to showcase the Arecaceae to the FIU community. There is strong representation from the southeastern United States, with all seven genera of the region being represented: *Thrinax*, *Coccothrinax*, *Rhapidophyllum*, *Acoelorrhaphe*, *Sabal*, *Pseudophoenix* and *Roystonea* (Zona 1997). Caribbean palms, such as the taxonomically difficult *Copernicia,* are represented, with six species present. Several individuals of *Dypsis, Hyophorbe* and *Latania*, as well as *Raphia farinifera* and *Elaeis guineensis*, are good examples from Madagascar/Africa. Central and South American palms like *Acoelorrhaphe wrightii*, *Copernicia prunifera*, *Syagrus romanzoffiana* and *Thrinax radiata* can be seen. Additionally, *Arenga pinnata*, *A. undulatifolia*, *Adonidia merrillii* and *Caryota mitis* provide excellent examples of Indian and Southeast Asian palms. *Livistona decora*, *Howea forsteriana*, *Veitchia arecina* and several *Ptychosperma* species round out Australia and the Pacific Islands. There are also six species of *Phoenix* representing Europe, Africa and Asia. Showcasing palms from around the world works well to connect with the very diverse and international student body.

The Palmetum demonstrates palm family diversity as well as general plant diversity and *ex situ* species conservation. We have palms of all shapes and sizes: those with long thin leaflets (*Acrocomia crispa*), with wide fan-shaped fronds (*Bismarckia nobilis*), short and stout (*Coccothrinax crinita*), large and lofty (*Phoenix dactylifera*), bottle-shaped (*Pseudophoenix vinifera),* triangular (*Dypsis decaryi)*, with recognizable fruits (*Cocos nucifera*), with recognizable stature (*Roystonea regia*), multi-stemmed (*Acoelorrhaphe wrightii*) and solitary trunked (*Ravenea rivularis*). There is also one broadleaf tree present in the center of the collection (Fig. 4) that is of particular interest. Being originally marked for removal, it was later discovered to be the largest living *Citharexylum spinosum*, Fiddlewood, in the United States – making it the reigning National Champion Tree. The Palmetum is surrounded with landscaping of *Ptychosperma*, *Veitchia* and *Dypsis lutescens*, and there are plans eventually to integrate *Serenoa repens* into adjacent building landscape design to show how beautiful, low-maintenance designs can be created using native palms. The collection does contain several West Indian endemic and critically endangered species like *Attalea crassispatha*, *Coccothrinax borhidiana*, *C. crinita* and *Copernicia fallaensis* (Zona et al. 2007). We also have several individuals of the regionally widespread *Pseudophoenix sargentii*, which is endangered in Florida (Weaver & Anderson 2010), and a juvenile *Jubaeopsis caffra,* which is critically endangered with an estimated population <100 wild individuals (Hurter 2007).

Standing amid a sea of turf, this palm collection was never historically a place for people to visit. Yet now, Biological Sciences

7. Science students taking a closer look at *Jubaeopsis caffra.*

and Earth & Environment faculty and students (Figs. 6 & 7) have begun to use the area more than ever. Campus tours for visiting prospective students stop to highlight the lush tropical vegetation, which awaits incoming freshmen. It is a place for students to soak in nature and refresh their minds from the harsh life of homework and exams. Located on prime real estate for a growing university that is already stretched for space, this project has developed into something with great potential to change people's lives. Now, the FIU Palmetum can continue to grow and inspire the next generation of plant biologists.

Acknowledgments

The International Palm Society endowment fund grant, The FIU Office of University Sustainability, FIU Facilities Management and FIU Biological Sciences are gratefully acknowledged.

Literature Cited

Davis, S. 2014. University opens renewed palmetum for Earth Day. FIU Beacon 22 April 2014. Available online at http://fiusm.com/2014/04/22/fiu-opens-one-of-the-largest-university-palmetums/. Accessed 26 October 2015.

Hurter, P.J.H., L. von Staden, J.E. Victor and A.E. van Wyk. 2007. *Jubaeopsis caffra* Becc. National Assessment: Red List of South African Plants version 2015.1. Available online at http://redlist.sanbi.org/species.php?species=3416-1. Accessed on 26 October 2015.

Piccardo, R. 2014. Floating art, ribbon cutting to celebrate Earth Day. FIU Beacon 22 April 2014. Available online at http://fiusm.com/2014/04/22/floating-art-ribbon-cutting-to-celebrate-earth-day/. Accessed 26 October 2015.

Weaver, R.E. and P.J. Anderson. 2010. Notes on Florida's Endangered and Threatened Plants, 5th ed. Contrib. No. 38, Bureau of Entomology, Nematology and Plant Pathology – Botany Section, Florida Division of Plant Industry.

Zona, S. 1997. The genera of Palmae (Arecaceae) in the southeastern United States. Harvard Papers in Botany 2: 77–107.

Zona, S. 2002. A revision of *Pseudophoenix*. Palms 46: 19–38.

Zona, S., R. Verdecia, A. Leiva Sanchez, C.E. Lewis and M. Maunder. 2007. The conservation status of West Indian palms (Arecaceae). Oryx 41: 300–305.