

Gifford Arboretum Newsletter

Fall 2012

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Moringa oleifera



The *Moringa oleifera* plant that was recently planted in the Gifford Arboretum

Known as the horseradish tree for the taste of the roots, or the drumstick tree for the shape of its long, triangular seed pods, this is an attractive small tree with lacy foliage and creamy white flowers. Although not rare, and the Brassicales order was already represented by species such as *Capparis cynophallophora* (Jamaican Caper), *Capparis flexuosa* (Limber Caper), and *Carica pubescens* (Papaya), *Moringa oleifera* is our only representative of the Moringaceae family and it also has ethnobotanical interest.

Native to the Indian subcontinent, and more particularly the southern foothills of the Himalayas, *Moringa oleifera* is widely cultivated today in India as well as in a number of other Asian and African countries. Interestingly, the parts of the plant and how they are used vary amongst countries. In India, Bangladesh and Sri Lanka, the leaves and seed pods are used to make various curries, kormas, dals, and sambars, while in Cambodia, Indonesia and the Philippines, the emphasis has been on using the fresh leaves, particularly in soups or as a vegetable. A pesto-like pasta sauce made with its leaves, salt and olive oil has recently also become popular in the Philippines. In Pakistan, the flowers are boiled, mashed and cooked,

while, in Thailand, a variety of dishes are made from the green pods, leaves and flowers. Here in southern Florida, this species has become increasingly common as an easy-to-grow landscape specimen, but it is not widely used as a food plant.

The seeds of *Moringa oleifera* are also edible and contain ben oil, a clear and odorless oil with strong resistance to becoming rancid. Incredibly, the seed cake remaining after oil extraction has the ability to purify water when used as a flocculent. The seed cake can also be used as a fertilizer.

Traditional medicinal uses have included remedies for skin, respiratory, and digestive ailments. Although the plant has recently been incorporated into a number of herbal remedies and supplements with alleged benefits as an antioxidant, a cancer and diabetes cure, and an infection inhibitor, not many careful, scientific studies have been conducted yet to support many of the claims, particularly studies using human subjects.

But, even with all the interesting culinary and ethnobotanical uses, what makes *Moringa oleifera* special? It is because it is a 5-star plant when it comes to NUTRITION and SUSTAINABILITY! The plant is packed with nutrients, and it could be part of the answer to world famine and malnutrition. Humankind is in desperate need of nutritional plants that can be produced in a sustainable manner, meaning plants that can be grown easily and quickly in a variety of conditions and soil types, and without needing fertilizers or irrigation. *Moringa oleifera* fits this bill, and the National Science Foundation and the National Geographic Society have been funding projects to study the plant and increase its usage.

Particularly in East Africa, and especially Senegal, *Moringa oleifera* is being cultivated and eaten to great advantage. It has already been adopted in many parts of Southeast Asia and, more recently, it is beginning to be more widely used in Latin America. According to National Geographic, the dried leaves of *Moringa oleifera* have, gram for gram, 25 times the iron of spinach; 17 times the calcium in milk; 15 times the potassium of bananas; 10 times the vitamin A of carrots; and 9 times the

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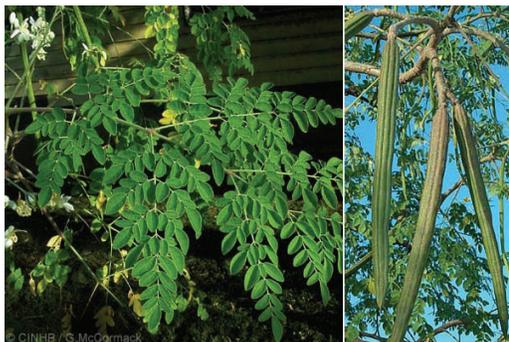
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protein in yogurt! According to Trees for Life International, the leaves also have 7 times the vitamin C of oranges and contain significant amounts of vitamin B6, manganese, and magnesium.

With essential nutritional benefits that are often lacking in people's diets, the plant's speed and ease of growth make it a great candidate for fighting famine, not to mention helping purify water, which is another huge problem in many parts of the world. Growing to only 15 to 20 feet, *Moringa oleifera* responds well to repeated harvesting - and to repeated pruning to keep it small for ease in harvesting. Its only geographic constraint is that it will not tolerate frost, but it can be grown throughout the tropics and subtropics. Ben oil also has potential as a bio-fuel, and *Moringa oleifera* allegedly helps new mothers lactate.

To learn how *Moringa oleifera* is used in traditional Indian recipes, you can visit <http://www.treesforlife.org/our-work/our-initiatives/moringa/how-to-cook/recipes-from-india>. Ironically, the traditional use of the shredded roots as a horseradish substitute is now being discouraged because the roots contain an alkaloid that may have nerve-paralyzing properties if eaten in quantity. Limiting consumption to leaves, pods and seeds is best.



Leaves and fruits of *Moringa oleifera*, the drumstick tree
(Photos: ddsdtv.blogspot.com)

THANK YOU to Sue and Alan Steinberg

We gratefully acknowledge Sue and Alan Steinberg for underwriting this edition of our Newsletter. The Steinbergs are wonderful citizens, and they generously donate their time and money to many environmental and botanical institutions and causes. Sue Steinberg is a member of the Gifford Arboretum Advisory Committee, and we are proud to count the Steinbergs as supporters. Thank you Sue and Alan!!

GOOD NEWS !!! GOOD NEWS !!!

We are very pleased to announce that **Dr. Walter S. Judd** will give the 25th Annual John C. Gifford Lecture on April 4, 2013. Please see our list of upcoming events and plan to attend this important lecture.

Arboretum Update from Steve Pearson, Director of the John C. Gifford Arboretum



Although the summer was a relatively quiet time, we have continued to make improvements in the Arboretum. Our collection was fertilized in the spring and early summer, which caused some immediate greening and perking up of many of the plants. However, long term micronutritional deficiencies can't be cured overnight, and some of our most difficult-to-grow species continue to need special care. Additional, lighter applications of fertilizer were given in the fall, and some plants received fungicides and special nutritional supplements.

Summer was also a time for having some needed pruning done. The emphasis was on pruning the collection for hurricane readiness by trying to correct structural imbalances and opening the canopies to decrease wind resistance, particularly in species that are known to have shallow or weak root systems. We also removed a *Millettia pinnata* (f/k/a *Pongamia pinnata*) that was infected with *Kretzschmaria deusta*, an incurable fungal disease that was identified by Adrian Hunsberger, the IFAS Extension Agent for our area and a member of our Advisory Committee. This was an old and large tree that had most likely been planted because of its use in producing honge oil, an inedible but beneficial oil that has been used in India and other areas as a lamp oil, in making soap, and as a lubricant for thousands of years. However, it is an invasive species that is prohibited in Miami-Dade County and our limited space can be used to greater advantage. I have planted *Delonix elata*, a rare white-flowering cousin of the beloved Poinciana, in this area, but there may be room for another Fabaceae family member if any of you have any suggestions on one that would be a valuable addition to our collection in this area.

Unfortunately, we continue to have problems with weak root systems in some of our trees. While the causes of this problem may vary, one theory that was suggested by some knowledgeable advisors was that we may have a problem with excess

salinity. The well used for irrigation in the Arboretum is fairly close to the Coral Gables Waterway and salt-water intrusion is a growing problem (no pun intended!) in coastal areas. Thanks to UM's Professor Leo Sternberg and the students in his lab, our water was tested in September and the results were that salt levels of 5 parts per 1000 were present. While that is not terribly high, we will re-test the water during this winter when water levels are lower and salt intrusion can become a bigger problem. Hopefully, the salt level will not increase and, in the meantime, I am trying to give trees with weak root systems additional potassium to try to offset any problems being caused by excess salinity. Plants vary in their salt tolerance with some species (called halophytes) being very salt tolerant, while others (called glycophytes) being very intolerant. Excess salinity in our water and soil can weaken glycophytes in several ways, and this may be one reason that the Arboretum suffered so much damage in Hurricanes Wilma and Katrina.

Generally, however, our collection is healthy and looking better and better! We have also been adding some very exciting new plants. Over 60 trees and shrubs have been added to the Gifford Arboretum during the last year, but there are still about 20 additional spots where trees are missing. At the same time that we have been expanding the collection in botanically and ethnobotanically meaningful ways, we have been continuing to inventory the collection and review signage. There are some plants that are missing tags and in some instances the names on tags are wrong, usually because of changes in names that occur on a regular basis in botany as various plant taxonomists lump and split species and families. However, given that we do not have accurate plot maps of the existing collection and a concern that the existing numbering system is not ideal for ease of use, we have been holding off from trying to address the signage issues until we had assessed the entire collection; finished adding contemplated new plants to increase the educational and research value of the collection; and determined what numbering system would best serve the Arboretum's users. We were adding temporary, plastic signs to new plants, but maintenance equipment broke many of them and the source of the signs went out of business. While we are trying to locate a new source for temporary signage, the primary focus is on the need to address several issues simultaneously, and it simply takes a lot of time. Our goal is to finish new planting and cataloging by the end of the spring semester, and to then move forward with both new signage and developing a new and improved plant catalogue during next summer. If anyone would like to participate in this process, please let me know as it is a big endeavor and your assistance would be both welcome and appreciated. It is also a great opportunity to learn more about plant taxonomy as well as the many rare and unusual plants that we have in our collection.

Besides improving the health and breadth of our plant collection, there has also been progress in two new aspects of the Arboretum.

First, we have improved interpretation of the trees with new QR Code tours whereby someone with a smart-phone can learn more about the plants while walking through the Arboretum. By scanning a readable ink-blot symbol, users then receive information via their smart-phone that describes the plants, complete with pictures. So far, QR Code tours have been added to the What is a Tree?, Florida Native Trees, Arecaceae, Sapindales, and Gymnosperm Exhibits, and additional QR Code tours for other exhibits are in the works. This work will also serve as the basis for expanding the interpretive information available on our website,

The other new development is the institution of a collaborative effort with the Frost School of Music called Music in the Arboretum. This is an exciting opportunity to reach new audiences for both the Arboretum and the Music School, and another fun way for folks to enjoy the Arboretum. Please see the article about this new program in our newsletter and plan to enjoy a concert with us on the third Thursdays of the month from January through April, 2013.

Thank you to all who have shown interest in and support for the Gifford Arboretum. In particular, I thank the members of the Gifford Arboretum Advisory Committee for their help and guidance. I also want to particularly thank Fairchild Tropical Botanic Garden, Pinecrest Gardens, Plantscapes Nursery, Freund's Flowering Trees, Karma Nursery, Bloomin' Good Nursery, Dr. Scott Zona, and Mr. Mike Harris for recent donations of plants to the Arboretum. I also deeply appreciate those of you who have been providing financial support for the Arboretum, and I am looking forward to formally thanking you in the Spring edition of our newsletter.

Gardening Tip from Steve

Many local plants have trouble obtaining needed micro-nutrients, primarily due to our alkaline soils that bind with the nutrients and make them inaccessible to our plants. Many horticulturists also agree that for optimum health and flower production, plants in southern Florida need more potassium (normally the 3rd number in fertilizer mixes) and less phosphorous (normally the 2nd number in fertilizer mixes) than many mixes provide.

Thanks to master horticulturist Craig Morell for sharing his "General Purpose Liquid Fertilizer Recipe" which helps address these problems. This mix can be used as a spray or a root drench, and is presented in per gallon quantities:

- 1 tablespoon potassium nitrate
- 1 tablespoon magnesium sulfate (Epsom Salt)
- 2 teaspoons of 20-20-20 soluble fertilizer
- 1 tablespoon micronutrient solution such as Key-Plex350 or Fer-A-Gro
- 1 tablespoon of plain dish soap such as Publix white dish soap

You should mix thoroughly and then spray the leaves of your plant until runoff. As a root drench, use 2-20 gallons per tree depending on size. For optimum results, re-apply every 2 months.

SUMMARY OF PRIOR EVENTS SPRING 2012 – FALL 2012

April 5, 2012: Dr. Carol C. Horvitz, UM Professor of Biology and former Director of the Gifford Arboretum - As the 2012 Gifford Arboretum Lecturer, Professor Horvitz gave a fascinating and inspiring presentation entitled “**Gardens are Great, Forests are Phenomenal.**” She related some of the challenges and benefits of her work, which utilizes mathematical modeling to predict how different factors can affect ecosystems as well as how individual species adapt. Her work is of importance in learning how to be better stewards of our environment, particularly with respect to how we might better handle problems created by invasive exotic plants or, better, avoid those problems in the first place.

May 2, 2012: Mr. Steve Woodmansee, President of the Florida Native Plant Society and Owner of Pro Native Consulting – Mr. Woodmansee presented “**The How To’s, Challenges and Benefits of Restoring and Re-Creating a Pine Rockland Habitat.**” While many of us are aware of how pine rockland was once the dominant ecosystem of coastal southern Florida, Mr. Woodmansee explained how important and delicate pine rockland really is. Being a low nutrient ecosystem, it is also a difficult ecosystem to start and maintain, but he taught us how it can be done and the rewards of doing so, both for ourselves and local fauna.

September 6, 2012: Mr. Craig Morell, Pinecrest Gardens Horticulturist – Mr. Morell is a career horticulturist and a treasure trove of horticultural information, especially about plant cultivation and nutrition. “**A Better Diet Makes a Better Garden: The Renovation of Pinecrest Gardens**” was an informative presentation, and Mr. Morell emphasized that healthy plants require proper nutrition, just like we do. However, this isn’t always easy in our alkaline soils while, at the same time, we also need to be responsible in how and when we fertilize so that we do not cause pollution. One major lesson was that slow release fertilizers are better for our plants as well as the environment, and we should utilize brands like Nutricote and Dynamite where heat is not the agent for release.

September 15, 2012: Mr. Steve Pearson, Director of the Gifford Arboretum – Mr. Pearson conducted a **Walking Tour** of the Arboretum that focused on the Sapindales Order. The Burseraceae (gumbo limbo), Simaroubaceae (paradise tree and Mexican alvaradoa), Meliaceae (West Indian and big leaf mahoganies, neem and cigar box cedar), Rutaceae (citrus, curryleaf, white sapote, bael, and limeberry), Anacardaceae (mango, cashew and spondias, but also poison ivy and Brazilian pepper), and Sapindaceae (soapberry, longan, maples and akee) families were featured and described.

October 4, 2012: Dr. Jack Parker, FIU Professor of Environmental Science and Chemistry – Professor Parker presented “**Trees for a Cooler Planet and Lowering Your Electric Bills.**” a very interesting and important program that focused on the threats of climate change and what we need to do about it. Dr. Parker described the urgency of embracing green energy as well as energy conservation. He also described the benefits of trees and their role in cooling our planet. He demonstrated how proper placement of trees around buildings can create passive cooling that helps offset the heat island effect of urban areas while also saving significant amounts on our electric bills.

October 13, 2012: Dr. Scott Zona, FIU Conservatory and Greenhouse Curator, and Mr. Lenny Goldstein, renowned plant expert and enthusiast – Dr. Zona and Mr. Goldstein conducted a **Walking Tour** that focused on the Arboretum’s palms and cycad collections. As members of the Gifford Arboretum Advisory Committee, their excellent advice and guidance have been invaluable in maintaining, expanding and interpreting our palm and cycad collections and this was a great opportunity to learn about these two groups.



Dr. Alan Meerow addressing the Friends of the Arboretum in November 2012



Dr. Scott Zona and Mr. Lenny Goldstein leading a walking tour of the Arboretum's palms & cycads

November 1, 2012: Dr Alan Meerow, Senior Research Geneticist for the U.S.D.A. Agricultural Research Service Station in Miami, Florida (“Chapman Field”) – Dr. Meerow presented “**Enhancing Tropical Ornamentals at the USDA Chapman Field Research Station.**” It was an informative and interesting program that described the rich history of contributions (both fruit and ornamental plants) that have been made by scientists at this Station, as well as the current work that Dr. Meerow is leading to identify and breed superior new plants that will benefit the ornamental plant industry, a sizable and important part of the economy, particularly here in Florida.

November 17, 2012: Dr Chad Husby, Collections Manager and Botanist at Montgomery Botanical Center, and Mr. Steve Pearson, Director of the Gifford Arboretum – Dr. Husby and Mr. Pearson led a **Walking Tour** that focused on the plants of the Gymnosperm and Basal Angiosperm Exhibits of the Arboretum. Dr. Husby is an expert on tropical gymnosperms and this was a great opportunity to learn about some of the earliest seed plants, how they evolved over time, why they are still important, and the cultivation of these species. The tour also focused on some of the earliest flowering plants like the magnolias, but also on plants that are the sources of cinnamon, nutmeg and mace, which played such important roles in the expansion of trade in ancient times.

Music in the Arboretum

Music in the Arboretum is a new program that is a collaborative effort between the Frost School of Music and the John C. Gifford Arboretum. During the summer, Arboretum Director Steve Pearson contacted Shelly Berg, Dean of the Frost School of Music and an accomplished jazz pianist, to propose that the Gifford Arboretum would be a great venue for concerts by students and faculty from the Music School. Dean Berg was very receptive to the idea, and he asked Stephen Guerra and Cassandra Eisenreich to take charge of this effort on behalf of the Frost School of Music.



Avocado Estate performing in the Arboretum

The idea is to create performance opportunities that showcase the great talent within the Frost School of Music, while also introducing more people to the outstanding and beautiful trees that constitute the Gifford Arboretum. Music and nature are a great pairing, and listening to good music under the trees as the sun sets is a great way to end a day! In particular, Pearson hopes that this program will introduce more undergraduates to the Arboretum as he believes that it is critical that young people learn to have a greater appreciation of the importance of plants, both in our daily lives and in maintaining a healthy environment for our future.

The first Music in the Arboretum event occurred on October 16, 2012 when Avocado Estate played to an appreciative audience. Avocado Estate is a progressive bluegrass trio of very talented graduate students from the Frost School of Music. They are Joy Adams (cello, banjo and vocals); James Schlender (fiddle, guitar, and vocals); and Geoff Saunders (bass, banjo and vocals). Another student from the Music School joined them on some numbers. Playing both original songs and standards, this group energized and enthralled the crowd as they literally swayed with the breeze while enjoying this group’s delightful music.

The second Music in the Arboretum event occurred on November 15, 2012. This time, the music was by Category 5 Brass Quintet, a group of both graduate and undergraduate students from the Frost School of Music. This ensemble consists of Jon Anderson (horn); Andrew Friedrichs (trombone); Matt Shefick (trumpet); Sara Johnson (trumpet); and Najjah Thompson (tuba). They played a diverse and lovely mix of classical and jazz pieces, and both the musicians and the audience appeared to really enjoy themselves at this performance. *(Continued)*



Left: Listeners enjoying Music in the Arboretum

Right: Category 5 performing in the arboretum on Nov. 15th 2012

There will be no Music in the Arboretum in December, but the series will resume on the 3rd Thursdays of January through April, 2013. The January and February events will take place at 5:00 PM and, with the return on daylight saving time, the March and April events will be at 6:00 PM. All concerts will feature musicians that are students and/or faculty from the Frost School of Music.

Please plan to join us at future Music in the Arboretum performances! It is suggested that you bring a folding chair or blanket to enjoy the sights and sounds in comfort. All of the Music in the Arboretum events are free and open to the public. Free parking is also available at the south end of the Arboretum.

Some Recent Additions to the Gifford Arboretum

***Erblichea odorata* (Passifloraceae)** – Called “Flor de Fuego” by some and “Butterfly Tree” by others, this rare tree is esteemed as being especially beautiful. Even UM's Dr. Julia Morton was one of its admirers! However, there is little documentation of the species, and what is written is at times contradictory. While there is agreement that it originates in Mexico and Central America, and that it has large, showy flowers that vary from orange to yellow, there may be several distinct cultivars based on differing accounts about its native range, habitat, and horticultural requirements. Our specimen comes from a tree that produces large orange flowers, and it will be fun to learn more about this unusual tree, watch it bloom, and experience its fragrance, which is likened to apricot by Dolores Fugina! This species was previously included in Turneraceae, which is now regarded as a sub-family (Turneroideae) of Passifloraceae.

***Nyctanthes arbor-tristis* (Oleaceae)** – In the same order as olive and ash trees, this small tree is native to southern Asia. Its white, daisy-like flowers have an orange center and are fragrant at night. Called “Parijat” in parts of India, this plant appears in Hindu stories and is sometimes used to decorate temples. It is also considered to have medicinal properties, with uses ranging from treating gout and dandruff, to killing worms and other parasites.

***Gliricidia sepium* (Fabaceae)** – Madre de cacao is a multipurpose, medium sized tree that is native to Central America. Common uses include living fence posts, reforestation, animal fodder, shade for coffee or cacao plants, firewood, and rat poison! Crushed leaves are also used to make an insect repellent. Because it is a legume and fixes nitrogen in the soil, it can increase crop yields while reducing the need (and expense) for chemical fertilizers.

***Coccothrinax argentata* (Arecaceae)** - Silver palm is native to south Florida and the Keys. It is a slow growing palm whose name comes from the metallic, silver sheen on the undersides of its palmate leaves, which are deep green and glossy on top. Lovely and bountiful white flowers appear in late summer, followed by small, purplish-black seeds that are eaten by Florida Key Deer on Big Pine Key. This palm is the larval host for monk skipper butterflies and a variety of birds also eat its fruit.

***Baccharis dioica* (Asteraceae)** - This endangered shrub to 6 feet is believed to have been extirpated in the wild in Florida. Growing originally along the edges of hammocks in the Brickell area of Miami, it is now believed to be growing wild only in parts of the West Indies. Its fragrant, white flowers with yellow stamens attract Cassius blue, hair-streaks, and other butterflies.

***Koanophyllum villosum* (Asteraceae)** – Another endangered Florida plant, shrub eupatorium produces clusters of white to lavender flowers whose nectar attracts atala, sulphur, skipper and other butterflies. Growing to 6 feet tall, this shrub is a good understory plant that is found naturally in rockland hammock edges and in pine rockland, particularly where there is some organic content in the soil.



Some recent additions to the specimen collection at Gifford Arboretum. From L to R: *Koanophyllum villosum*, *Nyctanthes arbor-tristis* and *Gliricidia sepium* (Photos obtained from: L to R, www.infoplants.com.ar, tutdutta.blogspot.com and www.starrenvironmental.com)

***Cubanola domingensis* a/k/a *Portlandia domingensis* (Rubiaceae)** – This small tree or shrub is endemic to the Dominican Republic. It produces greenish-white, bell-shaped, pendant flowers that are highly fragrant at night. If you like spicy, rich fragrances, this is a plant that you should definitely check out!

***Gordonia lasianthus* (Theaceae)** – Loblolly Bay is native to the central and northern parts of Florida. It likes wet, acidic soils and is an evergreen tree with 3 inch, fragrant flowers. It is in the same family as tea and camellias, and its glossy leaves, conical crown, and lovely flowers make it a desirable landscape plant if its water requirements can be met. Its dislike of alkaline soils is likely the reason that it is not found naturally in southern Florida. This is the only *Gordonia* species that is native to the United States, and it was planted to assist our graduate curator, Anuradha Gunathilake, who is studying this genus in connection with her dissertation research. This constitutes another interesting specimen that represents a new family and genus for our collection.

***Pavonia bahamensis* (Malvaceae)** - This shrub to 15 feet produces small, yellow-green flowers that aren't that special to look at. However, hummingbirds love their nectar and this is considered by many to be one of the top plants for attracting hummingbirds to your garden. Ruby-throated and rufous hummingbirds are the ones most commonly seen in southern Florida during the winter months, but the very rare buff-bellied hummingbird has also been observed visiting the *Pavonia bahamensis* at Fairchild Tropical Botanic Garden.

***Aristolochia philippinensis* (Aristolochiaceae)** Part of the Piperales order, the Aristolochiaceae family contains about 500 species. Most of the common ones are vines known as “Dutchman’s Pipe” because of the unusual shape of the flowers that characterize this genus. However, *Aristolochia philippinensis* is a perennial shrub that is endemic to the Philippines. Although *Aristolochia* species were attributed to have medicinal properties by the ancient Egyptians, Greeks and Romans, and are also used in traditional Chinese medicine, this genus is known to contain the lethal toxin aristolochic acid. While human ingestion should be discouraged or at least approached with great caution, *Aristolochia* species are the larval food of swallowtail butterflies, perhaps because it makes them unpalatable to other species. This plant adds a new family and order to the Gifford Arboretum.



Some more recent additions to the collection. From L to R: *Erbilchea odorata*, *Cubanola domingensis* and *Gordonia lasianthus*
(Photos obtained from : L to R, www.tropicsphere.com, Wikispecies (Raffi Kojian) and www.alabamaplants.com)

We have some great programs and activities lined up for the Spring semester. Please check them out and plan to join us!

January 17, 2013 – Music in the Arboretum - An Afro-Peruvian Jazz ensemble from the Frost School of Music will perform at 5:00 PM in the Gifford Arboretum.

February 7, 2013 – Friends of the Gifford Arboretum Meeting and Presentation by Dr. Philippe A. Drouillet- Dr. Douillet is an Assistant Professor at the University of Miami’s Rosenstiel School of Marine and Atmospheric Science, and the President of EcoMicrobials, LLC. He will present a program entitled “**Microbes that Protect Plants and Animals from Microbial Pathogens and Restore Environmental Balance.**” This program will teach us about the roles that microbes play in the environment and how they can be managed to improve plant and animal health. This event will be at 7:00 PM in Cox Science Center Room 166.

February 21, 2013 – Music in the Arboretum- A horn quartet from the Frost School of Music will perform at 5:00 PM in the Gifford Arboretum

March 7, 2013 – Friends of the Gifford Arboretum Meeting and Presentation by Dr. Chad E. Husby–Dr. Chad Husby is a Collections Manager and Botanist at the Montgomery Botanical Center with special expertise on tropical gymnosperms. He will present a program entitled “**The Garden Primeval: Ancient Plant Forms in Nature and Cultivation.**” Dr. Husby is a very interesting speaker and this program promises to give us insight not only about what was and is in the world of these fascinating plants, but also their future in a changing world and the role of cultivation in maintaining and improving some of these species. This event will be at 7:00 PM in Cox Science Center Room 166.

March 21, 2013 – Music in the Arboretum- A string trio from the Frost School of Music will perform at 6:00 PM in the Gifford Arboretum

April 4, 2013 –The 25th Annual John C. Gifford Lecture by Dr. Walter S. Judd– Professor Walter Judd of the University of Florida is a world-renowned plant taxonomist and expert on tropical plants. He will present a lecture entitled “**An Introduction to the Diversity of Flowering Plants: How Much has Changed as a Result of the Molecular Revolution?**” Dr. Judd will also share the results of some of his recent, DNA-based phylogenetic work on the Ericaceae and Melastomataceae families. It is both an honor and a privilege to have Dr. Judd as our speaker, and this will be a great opportunity to learn from one of the oracles of plant taxonomy. This event will take place at 7:00 PM in Cox Science Center in a room to be announced. A reception and refreshments will accompany the program.

Note that there will also be a special luncheon honoring Dr. Judd on Friday, April 5, 2013 where attendees will have the chance to meet Dr. Judd and discuss his work in a more informal and personal setting. Please contact the Arboretum’s director at sdpearson@bio.miami.edu if you are interested in attending this luncheon.

April 18, 2013 – Music in the Arboretum- A percussion ensemble from the Frost School of Music will perform at 6:00 PM in the Gifford Arboretum

May 2, 2013 –Friends of the Gifford Arboretum Meeting and Presentation by Ms. Linda Evans–Ms. Evans will present a program on “**Butterflies: How they Function; What they Need; and Why they are Important.**” She is the Vice President of the Miami Blue Chapter of the North American Butterfly Association, and she regularly gives butterfly tours at Fairchild Tropical Botanic Garden. Although you will also learn how to plant your garden to help and attract butterflies, this will be an opportunity to really learn how butterflies interact with plants and why we should care. This event will be at 7:00 PM in Cox Science Center Room 166.

All of these events are free and open to the public except for the luncheon honoring Dr. Walter Judd on April 5, 2013, for which there will be a charge and reservations are required.

For further information about upcoming events, including to-be-scheduled walking tours of the Gifford Arboretum and driving directions, please visit our website at www.bio.miami.edu/arboretum.



Q: Why did the tree change majors? A: Because it wanted to branch out!!



Please Donate to the Gifford Arboretum

Mailing Address: John C. Gifford Arboretum, Rm. 231 Cox Science Center
University of Miami, 1301 Memorial Drive, Coral Gables, FL 33124-0421

Website: <http://www.bio.miami.edu/arboretum>

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- Please keep me informed of activities at the Gifford Arboretum.
- Please find enclosed my tax-deductible donation to the University of Miami-Gifford Arboretum. (Tax deduction excludes value of benefits)
- Please send me information about including the University of Miami in my estate plans.

Membership levels (annual)		Benefits
<input type="checkbox"/> Student friends	\$5	newsletter and discounts
<input type="checkbox"/> Friends	\$25	newsletter and discounts
<input type="checkbox"/> Supporters	\$100	all above plus t-shirt
<input type="checkbox"/> Donors	\$1,000	all above plus special luncheon
<input type="checkbox"/> Benefactors	\$5,000	all above plus display on plaque

T-shirt size (circle one): S, M, L, XL

Make your donation by check: Total amount enclosed \$ _____
(payable to *University of Miami– Gifford Arboretum*)

by credit card: Amount \$ _____

Type of Card (Master Card, Visa, AMEX, etc) _____

Account No _____ Expiration Date _____ Signature _____