



University of Miami  
Coral Gables

# Tree Care Plan



1/23/2015

Campus in a Tropical Garden

The University of Miami Coral Gables campus has a unique landscape character with elements designed specifically for its climate and natural setting. It conveys a positive and unified sense of place, coherency, and consistency. Its thoughtful landscape planning has become renown worldwide as a “campus-in-a-tropical garden”.

## INTRODUCTION

The campus enjoys a number of important vegetated areas which include Lake Osceola, The Gifford Arboretum, the Ibis Natural Trail, the Palmetum, the Butterfly Garden, and Smathers Four Fillies. Our goal is to preserve and enhance the following important features:

1. Lake Osceola, the central and distinctive body of water which should be surrounded with tropical vegetation. Natural edges should be preserved, and Native landscaping surrounding it should be promoted.
2. The Ibis Natural Trail is an invitation for students, faculty and staff to discover our dense canopy and vegetation.
3. The Palmetum: Established in cooperation with Fairchild Tropical Garden and the Montgomery Botanical Center, the University's palmetum includes nearly 800 palms and cycads that are native to South Florida or represent distinct, rare, or endangered species from 38 nations.
4. The Butterfly Garden: Located along the Ibis Walking Trail behind Eaton Residential College, the Butterfly Garden is a living laboratory. The garden is home to some 23 different varieties of plants and attracts butterflies such as the monarch, sulfur, and brush foot, as well as the zebra longwing, Florida's state butterfly.
5. The Gifford Arboretum is run by the Department of Biology and the Friends of the Gifford Arboretum Committee which consists of faculty, students, administrators, and community members. It is a collection of important trees and plants that have been assembled for the purposes of education and research.



# University of Miami Coral Gables

## CAMPUS IN A TROPICAL GARDEN

### Standard 2

#### 1- PURPOSE

The goal of the University of Miami Tree Care Plan is to establish and highlight good and sustainable landscaping practices on our main campus: 1535 Levante Ave, Coral Gables, FL 33146.

The general purpose of the plan is to guarantee that the standards of beauty, sustainability and environmental stewardship are respected and applied on our campus landscape.

Specific objectives of this plan are:

- Use of Native plants or low-maintenance plant species
- Administer environmentally sound arborist practices to enhance and maintain the campus landscape.
- Increase species diversity and tree canopy.
- Develop environmentally friendly landscape designs to conserve energy and water, reduce the urban heat island effect on campus, and promote improvements in air quality.
- Protect existing campus canopy during construction and renovation projects.

#### 2 - RESPONSIBILITY

UM Facilities Management Department will manage the Coral Gables Campus Tree Care Plan in partnership with the Campus Tree Advisory Committee members.

### Standard 1

#### 3 - CAMPUS TREE ADVISORY COMMITTEE

The committee is comprised of students, faculty, staff, and community partners. The committee will meet twice a year to review progress on yearly objectives. The committee responsibilities will include: providing suggestions for improvements of the campus landscape and the Tree Care Plan; organizing an annual Arbor Day celebration and service learning projects; increasing tree value awareness throughout the university community, and ensuring that UM maintains its Tree Campus USA certification each year. Members will be nominated and approved by standing committee members. Here is the list of our committee members:

Name	Status	Title	Email
Stephen D. Pearson	Staff	John C. Gifford Arboretum Director	<a href="mailto:sdpearson@bio.miami.edu">sdpearson@bio.miami.edu</a>
Teddy Lhoutellier	Staff	Sustainability Manager	<a href="mailto:teddyl@miami.edu">teddyl@miami.edu</a>

Son Vo	Staff	<i>Sr, Manager for Contract Admin, Contract Administration</i>	<a href="mailto:s.vo@miami.edu">s.vo@miami.edu</a>
Chris Thalasinios	Staff	<i>GCA Grounds-Landscaping Manager</i>	<a href="mailto:cthalasinios@gcaservices.com">cthalasinios@gcaservices.com</a>
Dr. Donald B. Olson	Faculty	<i>Professor &amp; Assoc. Dir. Of Undergrad MS, Center for Ecosystem Science and Policy, Leonard and Jayne Abess</i>	<a href="mailto:dolson@rsmas.miami.edu">dolson@rsmas.miami.edu</a>
Dr. Terri Hood	Faculty	<i>Professor &amp; Assist. Dir. of Undergrad Program, Center for Ecosystem Science and Policy, Leonard and Jayne Abess</i>	<a href="mailto:thood@rsmas.miami.edu">thood@rsmas.miami.edu</a>
Gina Maranto	Faculty	<i>Director of Undergraduate Programs, Center for Ecosystem Science and Policy, Leonard and Jayne Abess</i>	<a href="mailto:g.maranto@miami.edu">g.maranto@miami.edu</a>
Janet Gavarrete	Staff	<i>Asso. Vice President - Campus Planning Real Estate &amp; Facilities</i>	<a href="mailto:jgavarrete@miami.edu">jgavarrete@miami.edu</a>
Alicia M. Corral	Staff	<i>Campus Planner Real Estate &amp; Facilities</i>	<a href="mailto:acorral@miami.edu">acorral@miami.edu</a>
Dr. Carol Horvitz	Faculty	<i>Professor of Biology</i>	<a href="mailto:carolhorvitz@miami.edu">carolhorvitz@miami.edu</a>
Brian Walters	Student	<i>Biology &amp; Ecosystem Science and Policy</i>	<a href="mailto:bxw185@miami.edu">bxw185@miami.edu</a>
Dr. John Cozza	NGO	<i>Vice President of Education TREEmendous Miami</i>	<a href="mailto:johncozza@yahoo.com">johncozza@yahoo.com</a>
Bob Brennan	Community	<i>Certified Arborist Fairchild Tropical Botanic Garden</i>	<a href="mailto:treguru@mac.com">treguru@mac.com</a>

#### 4 - TREE CARE POLICIES

All trees, shrubs, and turf areas are maintained according to landscape management best practices. Those practices include proper and sustainable fertilization, irrigation, and pest management on campus grounds. These guidelines allow us to guarantee the esthetics as well as the health of our landscape while reducing our environmental impact on local ecosystems.

##### Plant Selection

As stipulated in the *South Florida Water Management District's Xeriscape Plant Guide II* and the *Miami-Dade County Landscape Ordinance, chapter 18 A*, our choice of plant species is guided by the Florida Friendly Landscaping (FFL) principles. Native and Low maintenance, drought tolerant species are always preferred. Our irrigation systems also follow FFL's recommendations, conserving water and promoting soil integrity everywhere possible.

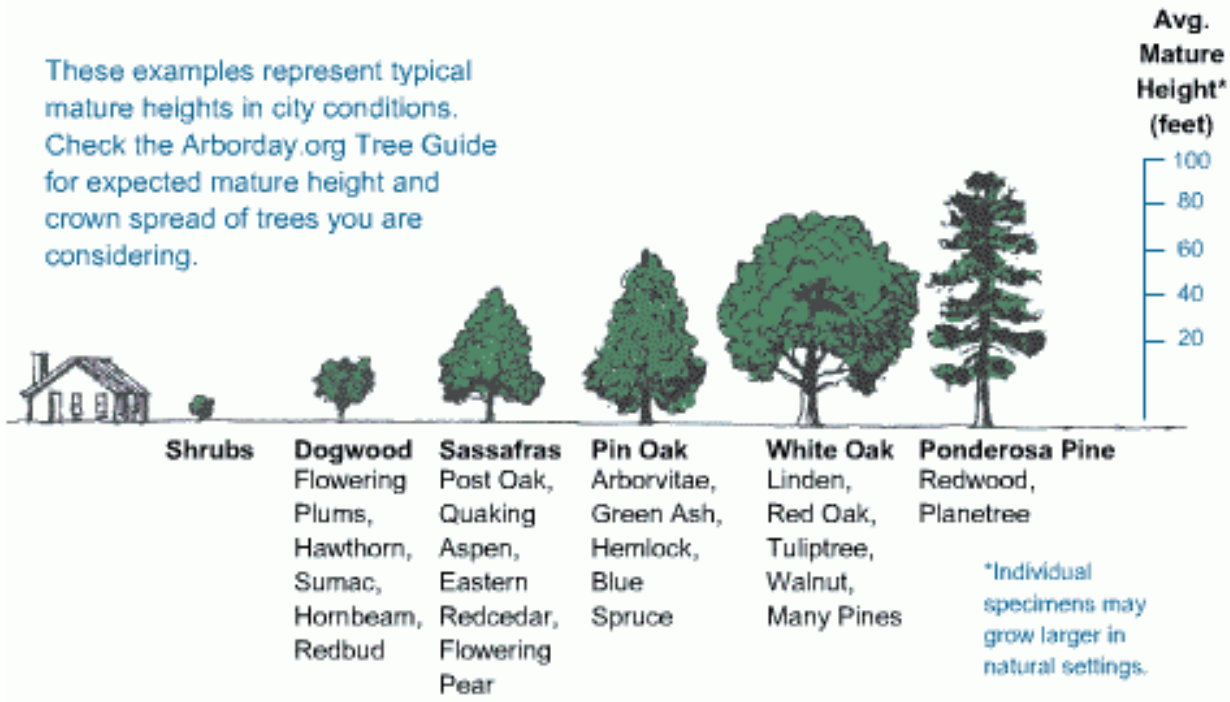
The "Right tree in the Right place" concept is applied in our guidelines to avoid any damage to existing and future infrastructure.

All plant material needs to be Florida No. 1 or better as specified within "Florida Grades and Standards for Nursery Plants" from the State of Florida Department of Agriculture and Consumer Services. (See *Annex III*)

##### "The Right Tree in the Right Place"

This concept shall be applied for all trees planted in order to avoid damages such as clogged sewers, cracked sidewalks and power service interruptions. It shall also address specific conditions such as drainage, soil quality, and site orientation.

These examples represent typical mature heights in city conditions. Check the [Arborday.org Tree Guide](http://www.arborday.org) for expected mature height and crown spread of trees you are considering.



<http://www.arborday.org/trees/righttreeandplace/size.cfm>

**Tree Species Inventory and Selection**

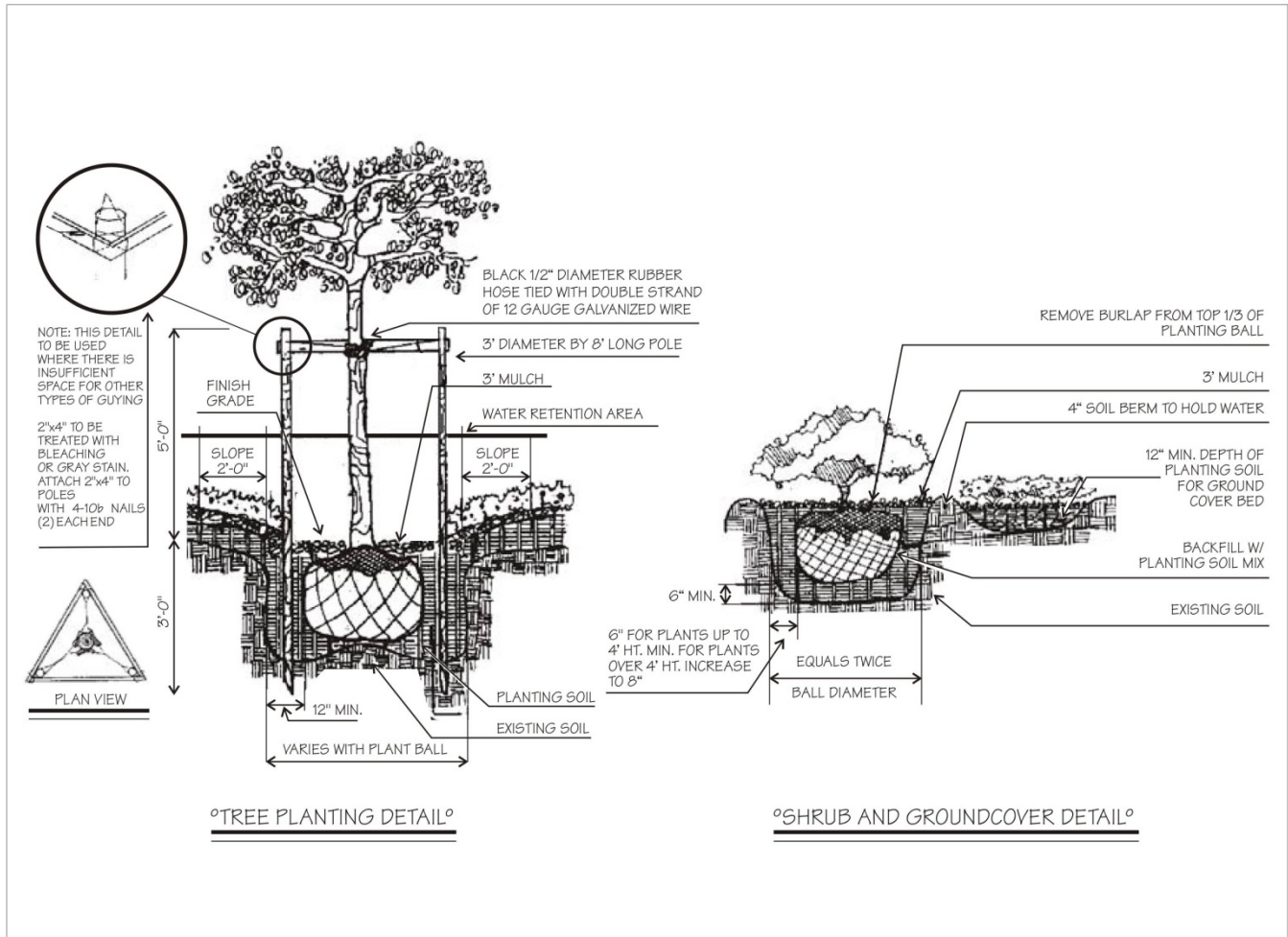
Tree selection shall strive for use of Florida native or "Florida-Friendly" species as much as possible. The Florida-Friendly plant database can be found at <http://www.floridayards.org>. The University shall not use category I exotic species, and shall avoid or use judiciously, category II exotic species, as listed within the Florida Exotic Pest Plant Council's Invasive Plant Species List (*Annex II*). Tree selection shall address the following factors: Species diversity, Maintenance cost, urban environment tolerance, Wind tolerance, and Invasive replacement. See our *Tree Species Inventory in Annex I* for a complete list of species on campus.

**Tree Planting**

Here are the general requirements for Tree planting in UM landscaping Design standards based on the Miami Dade County Landscape Design Manual (See illustration and Annex III):

- Groundcovers or low growing shrubs shall be used wherever possible to reduce landscape maintenance. Examples include sloped areas, replacement of turf grass in inaccessible or highly shaded areas, erosion prone areas, and areas where mulch washes away or is otherwise difficult to maintain, such as parking lot islands.
- A minimum tree planting area or island shall be ten (10) feet wide by ten (10) feet long.
- Trees shall be located a minimum of ten (10) feet from any underground utility to remain and a minimum of fifteen (15) feet from any overhead utility to remain unless it can be demonstrated that the mature size of the tree will not interfere with the utility.
- Landscape overhanging walkways and plazas to be clear overhead = (10) feet min.
- Trees with circling or girdling roots will not be permitted.
- Install planting soil and amendments as outlined in Division 32 91 00 of UM Building Standards.
- Planting shall be performed by a licensed contractor to the expected standards of care of landscape contractor professionals within the state of Florida.
- Trees and palms shall be planted such that two (2) inches of the root ball is above finished grade.

- Design professional shall be responsible for providing staking and bracing details specific to tree and palm sizes and types for review and approval prior to installation.
- Braces for palms shall be made of sound, new pressure preservative-treated softwood, free of knots, holes, cross grain, and other defects, 2 by 4 inches or 4 by 4 inches, and sized appropriately for the size of the palm.
- Tree staking systems shall use a polypropylene material in green, Arbor Tie by Deep Root, or other approved equal protective material where in contact with branches.



<http://www.miamidade.gov/zoning/library/studies/landscape-manual-new-draft.pdf> - p67

### Irrigation and Watering

Proper Irrigation shall be provided for all proposed landscape, unless otherwise directed by UM Project Manager according to plant requirements, recent rainfall, temperature extremes and soil moisture.

- Water use for irrigation must comply with the Miami-Dade County and SFWMD regulatory requirements as well as with the University's water use agreement with the SFWMD.
- All efforts should be made to connect irrigation to existing well water sources on the University campus.
- Potable water may only be used for irrigation with prior authorization by the UMBS Committee.

- Reclaimed or reuse water shall be utilized as much as possible for irrigation. If used, follow requirements of Florida Statutes Chapter 62- 610, "Reuse of Reclaimed Water and Land Application"
- Drip irrigation shall be utilized as much as possible.
- The irrigation system shall be regulated by a rain-gauge or a moisture sensor.
- Irrigation to provide 100% "head-to-head" coverage.
- Rain Bird brand components or equal shall be specified for all irrigation systems unless otherwise authorized by the University.
- Trees and plants shall be watered in accordance with specifications as provided on the irrigation plan I-5. (See Annex III)

### **Mulching**

All plants shall be mulched on a yearly basis or as needed to maintain healthy growth and reduce weed growth. Our maintenance plan follows the best practices stipulated in the Miami Dade Landscape Design Manual

- Mulch shall be organic wood mulch, free from deleterious materials and suitable as a top dressing for planting bed areas.
- Wood mulch shall be used for planting bed areas, as opposed to gravel or other inorganic mulches, as wood mulch inhibits weed germination and growth, holds in soil moisture, moderates soil temperature fluctuations (reducing plant stress), improves the soil fertility through the decomposition of organic material, and decomposes at a moderate rate (reducing maintenance).
- Mulch shall be installed at a depth of 2"-4" and shall be pulled back a minimum of 3 inches from the trunk of the tree or shrub so that the trunk and root flare are exposed.
- Mulch shall be Florimulch by Forestry Resources, Inc. or approved equal Grade A Melaleuca mulch that is clean, bright, and free of weeds, moss, sticks, and other debris.
- Cypress and red color mulch will not be accepted. (See Annex III)

### **Pruning**

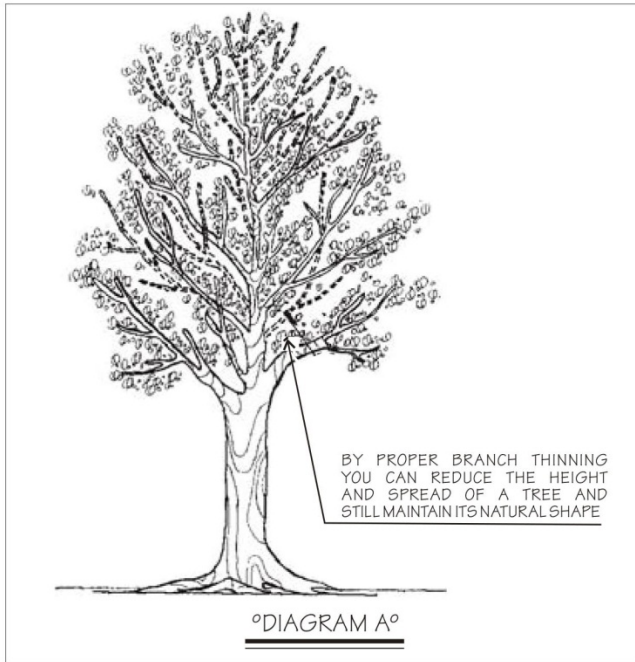
The correct pruning of shade trees is critical both for safety as well as for aesthetic reasons. The following criteria are adopted from the ANSI A-300 and are recommended as specifications to be included in landscape plans.

Class 1 - Fine pruning shall consist of the removal of dead, dying, diseased, decaying, interfering, obstructing, and weak branches, as well as selective thinning to lessen wind resistance. The removal of such described branches is to include those on the main trunks, as well as those inside the leaf area. An occasional undesirable branch up to one-half inch in diameter, as described above, may remain within the main leaf area to its full length when it is not practical to remove it. (Diagrams A and B)

Class 2 - Standard pruning shall consist of the removal of dead, dying, diseased, decaying, interfering, obstructing, and weak branches, as well as selective thinning to lessen wind resistance. The removal of such described branches is to include those on the main trunks, as well as those inside the leaf area. An occasional undesirable branch up to one inch in diameter may remain within the main leaf area where it is not practical to remove it.

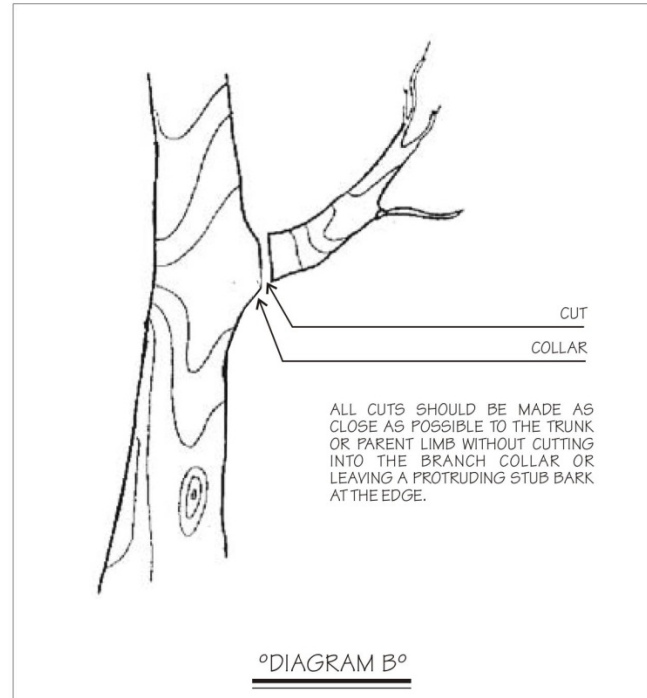
Class 3 - Hazard pruning is recommended where safety considerations are paramount.

Class 4 - Crown reduction pruning shall consist of the reduction of tops, sides or individual limbs. It involves the removal of a parent limb or dominant leader at the point of attachment of a lateral branch.



Fine pruning is recommended for premium quality work with an emphasis on aesthetic considerations in addition to structural integrity.

<http://www.miamidade.gov/zoning/library/studies/landscape-manual-new-draft.pdf> - p92



## 5 - PROTECTION GUIDELINES DURING CONSTRUCTION PHASES

Tree Protection: All existing trees and specimen plants to remain shall be protected during construction activities.

- Tree barricades shall be used to protect specimen plants and trees to remain larger than four (4) inches in diameter.
- Barricades shall be four feet high, minimum, and constructed of 2" x 4" rails with 4" x 4" posts, minimum. Barricades shall enclose the specimen plants, trees, or collective tree group's drip line or a fifteen (15) foot by fifteen (15) foot area, whichever is less. No stockpiling of debris, trash, or materials shall be permitted within the barrier area.
- No parking of vehicles or vehicular/equipment traffic shall be permitted within the drip line area or within the tree barricade once erected.
- No landscape planting shall occur prior to a fully functioning irrigation system to support it.
- Each tree proposed for transplanting needs to be inspected by a certified arborist, as certified by the International Society of Arboriculture, for recommendation of the tree's general health and expected success rate of transplanting. Arborist shall prepare report with recommended preparation and relocation procedures and schedule.
- All transplanting and trimming activities shall be performed by or directly overseen by a certified and licensed arborist.
- A tissue test shall be performed on all trees proposed for relocation.
- A soils test shall be conducted at all proposed relocation points of the site.
- All crown and root pruning shall be conducted as per approved transplanting plan and schedule.
- Transplanting activities other than root and crown trimming will not occur within hurricane season, June 1st through November 30.



## 6 - GOALS AND TARGETS

The long term goals of the UM Tree Campus USA Plan is as follows:

- Preserve and increase the presence of Native species to promote biodiversity and water conservation.
- Preserve and enhance our tree canopy on the Coral Gables campus, and extend this plan to other UM campuses in the future.
- Use our landscaping design strategy as a way to reduce our carbon footprint, selecting trees that sequester more carbon per square foot and provide shading that will have an impact on the cooling needs of our buildings.
- Allow for storm water retention berms, and bio swales when possible. This guideline is part of our water management plan and is intended to also reduce the accumulation of nutrients and pollutants in the runoff to our canals that in turn affect the environmental health of our coastal line.
- Mapping of our Tree inventory, starting with the Arboretum.
- An ongoing research project (ECS 301 on multiple semesters – Dr Terri Hood) involves the study of nutrient cycling in live oak (*Quercus virginiana*) using stable isotopes. In particular: 1) potential nitrogen sources signals in N isotopes; 2) nitrogen withdrawal from leaves pre-drop; 3) effects of 1 & 2 on use of oak leaves for mulch and compost
- Increase the number of learning service projects at the JC Gifford Arboretum.
- Inauguration of the new [Ecological signs on the Ibis Trail sponsored by the ECO agency](#)
- Reach out to the community to bring awareness about the necessity of increasing our canopy, especially in disenfranchised areas of our county: Tree Planting events with TREEmendous and other local organizations.
- Integrate new items in our Tree care plan on a yearly basis.
- Host an annual Arbor Day event on the Coral Gables campus, inviting other campuses to inspire them and instigate emulation.

## 7 - TREE DAMAGE AND DISEASE ASSESMENT

Trees susceptible to serious infectious diseases should not be pruned at the time of year during which the pathogens causing the disease or the insect vectors are most active.

- The presence of any disease condition, fungus fruit bodies, decayed trunk or branches, spilt crotches or branches, cracks or other structural weakness shall be reported in writing to a supervisor and/or the owner, and corrective measures recommended. Native tree species survive better than non-native species.
- The stress to trees as a result of a hurricane damage initiates outbreaks of pests such as bark beetles, ambrosia beetles, sawyers, plant hoppers, and blue stain fungi that preferentially attack stressed damaged trees. These secondary problems have led to the death of trees, including palms, even several years after the storm.
- In addition, after such an event, many trees are damaged internally due to vibration and twisting experienced during the period of high winds. Some of these may die over time. Only 7% of trees studied (Annex III) caused damage to property. Live oak (*Quercus virginiana*) has exceptional wind resistance here, and in other hurricane prone southern areas. Palms are ranked second in wind resistance. It is important in urban areas for tree plantings to have species, age, and size diversity.  
(See annex III)

## 8 - PROHIBITED PRACTICES

### Tree Preservation and Vegetation removal

- Tree removal permits or natural forest community vegetation removal permits are required prior to the removal of trees or any vegetation in a natural forest community pursuant to City Code Chapter 82 and Miami-Dade County, Chapter 18A. ( See Annex IV)
- Desirable landscaping shall be preserved in its natural state to the maximum extent possible. Desirable native plant materials and well adapted exotic plant materials shall be preferred in plant selection.
- Existing trees required by law to be preserved on site and that meet the requirements of Section 18A-6(C), Miami-Dade County Code, may be counted toward fulfilling the minimum tree requirements. (See Annex III)

### Plant Materials

Plants installed should conform to, or exceed, the minimum standards for Florida Number One as provided in the most current edition of "Grades and Standards for Nursery Plants" prepared by the State of Florida Department of Agriculture and Consumer Services.

Vegetation requirements shall be installed in accordance with all of the following:

- Large shade trees. Large shade trees shall have a mature height of greater than twenty-five (25) feet and an average mature spread of crown of greater than fifteen (15) feet.
- Substitutions. Palms trees or medium shade trees as described in below Section 6(b) (ii) may be substituted at three-to-one (3:1) ratio. A maximum of twenty-five (25%) percent of the total may be palm varieties. (See Annex IV)
- A minimum of thirty (30%) percent of the total trees shall be native species.
- Palm trees and medium shade trees. A minimum of thirty (30%) percent of the total trees shall be native species.
- Shrubs. All shrubs shall be a minimum of eighteen (18) inches in height at planting, with a maximum average spacing of twenty-four (24) inches on center. Shrubs shall be planted and maintained to form a continuous, unbroken, solid, visual screen within a maximum of one (1) year after time of planting. A minimum of thirty (30%) percent of total shrubs shall be native species.

### Tree Abuse

All trees shall be trimmed in accordance to Miami-Dade County tree preservation code. Any type of tree abuse, hat racking, topping or heading shall be prohibited except in emergency situations. Contracts with vendors to perform tree services or building construction/maintenance services shall include fines for violating provisions of this plan. Damage to campus trees caused by students, faculty or staff shall be treated as acts of vandalism and punished accordingly.

## 10 - COMMUNICATION STRATEGY

The Facilities Management Department will make sure those guidelines are applied to maintenance of landscaped areas performed by UM employees and contractor's employees alike. The Tree Care Plan and the Tree Campus USA certification will be promoted on campus and in the community to spread best practices in sustainable urban forestry. The Plan will serve as a platform for discussion about sustainability and landscaping on our campus.

Here are some of our projected outreach campaign highlights:

- Organize an Arbor Day observance celebration and invite students, faculty and staff.
- Develop Service Learning projects that will involve students, faculty and staff.
- Partner with community organizations and government such as TREEmendous, Florida Forest Service, City of South Miami, City of Coral Gables, Florida Power and Light, Miami-Dade County Department of Regulatory and Economic Resources (RER), Citizens for a Better South Florida, Earth Learning, Fairchild Tropical Botanic Garden, and others.
- Organize Conferences and lectures by local experts for Earth Week, Arbor Day, Week of Well Being, Gandhi Day or U Serve Day.
- Promotion of native landscaping activities through student clubs involvement.
- Promotion of the right tree in the right place and the importance of tree canopy in the community.

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Annex I: <https://umshare.miami.edu/web/wda/greenu/DOCUMENTS/Tree%20Inventory%2012.2015.pdf>

Annex II: <https://umshare.miami.edu/web/wda/greenu/DOCUMENTS/prohibited-plant-species.pdf>

Annex III: [Miami Dade County Landscape Code and Manual](#)

Annex IV: [City of Coral Gables Development Standards](#)



**Standard 3****EXPENDITURES:**

<b>Tree Planting and Initial Care</b>	
(Tree purchases, labor and equipment for planting, planting materials, staking, watering, mulching, competition control)	\$ 690,000.00
<b>Campus Tree Management</b>	\$ 2,236,254.00
(Pruning, public education, professional training, association memberships, campus tree inventory, pest management, fertilization, tree removals, Invasive removal)	
<b>Volunteering hours:</b> # of students: 693 h x \$18/h	\$ 12,474.00
<b>TOTAL:</b>	\$ 2,938,728.00

- **Number of trees planted:**  
1091(CG campus and Community Planting)
- **Number of trees maintained:**  
600(CG campus and Community Care)  
>removal of invasives, pruning, clearance requirements
- **693 volunteering hours**
- % of tree canopy: unknown
- Full Time Student population: 16,848

**Standard 4****ARBOR DAY OBSERVANCE:**

- **Arbor Day Observance Day in the Gifford Arboretum on April 15, 2015**  
Annual Picnic and Award ceremony at the Arboretum, sponsored by the JG Arboretum and the College of Arts and Science at UM.  
([http://www.miami.edu/finance/index.php/green\\_u/nature/university\\_of\\_miami\\_-\\_coral\\_gables\\_campus\\_has\\_been\\_designated\\_tree\\_campus\\_usa\\_2014/](http://www.miami.edu/finance/index.php/green_u/nature/university_of_miami_-_coral_gables_campus_has_been_designated_tree_campus_usa_2014/))

**Standard 5****SERVICE LEARNING PROJECTS in 2015:****Service projects:**

- **January 18, 2015** at Virginia Key Beach Park - Students from UM and FIU helped with maintenance work for 4 hours. This work focused on removing invasive exotics and vines in the areas where TREEmendous Miami has been planting thousands of trees to re-establish a maritime hammock in the Park.
- **February 21, 2015** at Virginia Key Beach Park - Students from UM helped with maintenance work for 3 hours. This work focused on removing invasive exotics and vines in the areas where TREEmendous Miami has been planting thousands of trees to re-establish a maritime hammock in the Park.
- **February 22, 2015** at Virginia Key Beach Park - Students from UM and FIU helped with maintenance work for 3 hours. This work focused on removing invasive exotics and vines in the areas where TREEmendous Miami has been planting thousands of trees to re-establish a maritime hammock in the Park.
- **April 11, 2015** at Virginia Key Beach Park - Students from UM helped with planting 30 native trees and maintenance work for 4 hours. Maintenance work focused on removing invasive exotics and vines in the areas where TREEmendous Miami has been planting thousands of trees to re-establish a maritime hammock in the Park.
- **April 25, 2015** at Virginia Key Beach Park - Students from UM helped with maintenance work for 3 hours as part of Baynanza event to clean and restore Biscayne Bay. Maintenance work focused on removing invasive exotics and vines in the areas where TREEmendous Miami has been planting thousands of trees to re-establish a maritime hammock in the Park.
- **April 29, 2015** in the Gifford Arboretum- UM students helped with maintenance work for 3 hours as part of Earth Alert event. The event also included an educational tour of the Arboretum. Most of the work that morning focused on removing invasive weeds in the South Florida Natives Exhibit, but some students worked on pruning, fertilizing and weeding in other parts of the Arboretum.
- **May 2, 2015** in historic City of Miami Cemetary - UM students helped for 3 hours to plant 10 trees and maintain previously planted trees in this historic site which contains a diverse and valuable collection of trees and shrubs.
- **June 6, 2015.** Students from the UM worked for 3 hours to help plant 31 trees in a public right of way on Miller Road between SW 59 and 60 Avenues.
- **June 8, 2015** at Fairchild Tropical Botanic Garden - UM students attended 2.5 hour ceremony as part of the annual Royal Poinciana Fiesta, which included narrated tour of the Garden and a presentation on care and history of the Poinciana tree in South Florida.
- **August 15, 2015** at Virginia Key Beach Park - UM students worked for 4 hours to help TREEmendous Miami plant 300 trees to re-establish a maritime hammock at the Park.. Students learned about native plant communities (including Strangler fig, Jamaican Dogwood, Blolly, Gumbo limbo and many others) and there ecological functions
- **August 29, 2015** at Virginia Key Beach Park - UM students worked from 4 to 8 hours to help TREEmendous Miami plant 450 trees to re-establish a maritime hammock there. The event included a tour of the areas already planted where students learned about the native plants that constitute a maritime hammock in S. Florida and their ecological importance.
- **September 6, 2015** in the Gifford Arboretum- UM students of Alpha Phi Omega service fraternity helped with maintenance work for 3 hours. The event also included an educational tour of the Arboretum.

- **September 19, 2015** in the Gifford Arboretum- UM and FIU students helped with maintenance work for 3 hours. The event also included an educational tour of the Arboretum.
- **September 26, 2015** at Virginia Key Beach Park - UM, FIU and Miami-Dade College students worked from 4 hours to help TREEmendous Miami plant 250 trees to re-establish a maritime hammock there. The event included a tour of the areas already planted where students learned about the native plants that constitute a maritime hammock in S. Florida and their ecological importance.
- **October 3, 2015.** As part of Gandhi Day, two large groups of UM students helped TREEmendous Miami for 3 hours plant 50 trees and maintain over 400 recently planted trees at Virginia Key Beach Park. This work included adding mulch to the planting areas and doing corrective measures where trees had not been planted properly. Besides learning proper planting and maintenance techniques, the students learned about the ecological importance of this work.  
<https://www.facebook.com/215493501847718/videos/935223089874752/>
- **October 7, 2015** - UM students attended a 2 hour meeting on the Univ. of Miami campus to discuss a proposed road within the University that would adversely impact the Gifford Arboretum. Students learned about the importance of an arboretum and some of the special attributes of the Gifford Arboretum.
- **November 21, 2015** at Virginia Key Beach Park - UM, FIU, and Miami-Dade College students worked 3 hours to help maintain previously planted trees in the Park.  
<https://www.facebook.com/215493501847718/videos/935208409876220/>

**Educational and recreational projects:** <http://www.bio.miami.edu/arboretum/Calendar.html>

- **January 25th, 2015:** Tour and lecture on tree planting work on Virginia Key Beach Park as part of annual meeting of TREEmendous Miami
- **February 4th, 2015:** Dr. Thomas Lodge, a renowned Everglades ecologist and author, presented "Everglades Tree Islands: Kinds, Origins, Ecology and Problems."
- **February 18th, 2015:** A musical performance in the Gifford Arboretum by the Melange Wind Quintet. Before the performance, Steve Pearson led a tour of the trees and plants in bloom in the Arboretum,
- **March 4th, 2015:** University of Miami Biology Professor, Dr. Floria Moria-Kempler Uy, presented "Symbiotic Relations Between Insects and Plants, and How to Attract Beneficial Insects to Your Garden,"
- **March 18th, 2015:** A musical performance by the Big City Folk Band, was enjoyed in the Arboretum along with a variety of botanical sights and smells.
- **April 2, 2015:** Dr. Dennis Stevenson, Vice President of the New York Botanical Garden presented the annual Gifford Arboretum Lecture on "Yes, Bobby, Gardens and Arboreta are Relevant to the Molecular World."
- **April 15th, 2015:** A musical performance was enjoyed in the Arboretum along with a presentation celebrating trees and their importance.
- **May 6, 2015:** Fairchild Field Biologist and fern expert, Jennifer Possley, conducted a tour of the Arboretum's new Florida native fern section and then presented a program on the work she is leading to preserve rare, native ferns in South Florida, some of which survive only in small, isolated pockets of only a few individuals.

- **September 2, 2015:** UM Professor, Dr. Donald Olson presented "Invasive Species and Biogeography."
- **October 7, 2015** – Vickie Murphy of Montgomery Botanical Center presented "Plant Propagation and Containerized Gardening"
- **October 21, 2015** - Musical performance by \_\_\_ in the Arboretum
- **October 29, 2015:** Walking Tour of the Arboretum's Sacred and Magical Trees where FIU Botany Instructor taught about myths, legends, religious uses, and alleged magical attributes of some of the Arboretum's trees
- **November 4, 2015** – Dr. Don DeAngelis, Biology Professor at the University of Miami presented "Sea Level Rise and Changes in Coastal Vegetation in Southern FL"
- **December 5, 2015:** Narrated tours of Arecaceae Exhibit in Arboretum and UM's Palmetum as part of Arboretum's annual picnic.
- **November 18, 2015:** Concert at the Arboretum in support our Arboretum Association and our School of Music.

Attachment # 1: <https://umshare.miami.edu/web/wda/greenu/DOCUMENTS/Dec%206%20ArbodayObs.pdf>

Attachment # 2: <http://www.bio.miami.edu/arboretum/Newsletters/giffordfall2014.pdf>

Attachment # 3: <http://www.bio.miami.edu/arboretum/Newsletters/giffordspring2014.pdf>

Attachment # 4: <https://umshare.miami.edu/web/wda/greenu/DOCUMENTS/FruitEdible%20trees%20of%20GAwadditions.pdf>