

FAIRCHILD TROPICAL BOTANIC GARDEN
Exploring, Explaining and Conserving the World of Tropical Plants

Graduate Program

STUDENT MANUAL

**Academic Year
2011-2012**

IN PARTNERSHIP WITH

FLORIDA INTERNATIONAL UNIVERSITY

and

UNIVERSITY OF MIAMI

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INTRODUCTORY NOTE

This graduate manual is intended for the informational use of graduate students at Fairchild Tropical Botanic Garden (hereafter Fairchild) only. Its purpose is to bring together pertinent information essential for graduate students, and is meant to supplement and clarify: (1) Guidelines for graduate studies published in various other publications of the universities where the students will obtain their degrees and (2) Basic guidelines found in the Fairchild's Employee Manual.

This graduate student manual is not intended as a substitute for any of those documents.

It is the student's responsibility to familiarize him or herself with these policies and the opportunities that Fairchild can provide to enhance their academic/research skills. Each student must read these policies and opportunities, sign the statement below and submit it to the Graduate Program Secretary for inclusion in the student's file.

I have received and read the Fairchild Graduate Program Student Manual

Name (Print)

Signature

Date

Welcome

Dear Student,

Welcome to the Graduate Program at Fairchild Tropical Botanic Garden (Fairchild). We are glad to have you as a member of our program and hope that you will enjoy being part of this great botanic garden.

The Graduate Program at Fairchild is one of our greatest assets. During your tenure, you will have a chance to gain cutting edge skills in plant research that range from community dynamics, invasive species biology, and plant-animal interaction syndromes to advanced genomics and modern molecular systematics. Importantly, you will be exposed to a botanic garden where plant exploration and school and community education are at the core of our daily activities. You will have the opportunity to learn from our education and living collection teams; join expeditions to remote regions of the tropics aiming to collect and protect their fragile plant biodiversity; participate in community events; and be a role model for students, teachers and undergraduates enrolled in our education programs.

Upon completion of your tenure with us, we expect for your contributions to advance science, but also for you to understand the role that researchers have in educating the community on the importance of plant diversity and conservation.

Thank you for joining us. We look forward to working with you.

Sincerely,

Amy Padolf, M.Ed.
Director Education

1. The Fairchild Graduate Program: Vision, Aims, and Goals

OUR VISION

The vision of the Graduate Program of Fairchild Tropical Botanic Garden is rooted in our mission statement: **to save tropical plant diversity by exploring, explaining, and conserving the world of tropical plants**, and to develop the next generation of plant scientists working in the tropics that will contribute to improving our understanding of biological systems in these regions, providing tools for conservation including; the ability to engage and empower laypeople about the importance of plant diversity and conservation.

OUR GOALS

Complex conservation problems require both interdisciplinary solutions and public support. Therefore our graduate program aims to provide broad training across three main themes: (1) conservation biology research, (2) undergraduate teaching, and (3) explaining science to public audiences. Our goal is for students to complete their graduate degree with: (1) a strong commitment for the role of botanic gardens in our society and (2) a solid training that goes beyond technical skills, a list of research papers, and a few letters of recommendation. Therefore we strongly believe that our students should develop communication skills, teaching techniques, the ability to educate non professionals on plant science and conservation and a deep understanding of how botanic gardens have evolved from herbalist and apothecary “orchards” to centers where science, education, arts and community involvement can meet.

OUR THREE THEMES

Theme 1: Conservation Biology Research

Students in our program can specialize in sub-disciplines such as systematics, biogeography, invasive species biology, community ecology, restoration biology, physiology of seed conservation, ecological genomics, and population genetics. Through our Center for Tropical Plant Conservation (CTPC), we strive to help locate funding to support the research activities of our graduate students. These activities include: national and international training courses, field studies, laboratory experiments or presentation of data at professional meetings.

Theme 2: Undergraduate Teaching

In partnership with Florida International University (FIU) and the University of Miami (UM), we encourage our students to teach undergraduate courses. Many of our students will receive Teaching Assistantships from these universities, and therefore they will be required to teach. However, we believe that all of the students participating in our program must have experience teaching undergraduate courses. Teaching will help our students gain confidence in public speaking, learn how to explain their work to a non-professional audience, and build the necessary skills to become faculty members in academic institutions.

Theme 3: Explaining our Science to a Public Audience

We firmly believe that it is important that our students have opportunities to interact extensively with the general public at a variety of garden events and activities. Additionally, students should have the ability to communicate with land managers and owners, community leaders, school student and teachers, and non-profit and government scientists through a variety of on-going projects, including research activities with students. Therefore, our program has a broad educational component that goes beyond seeking a particular degree.

This is an innovative and holistic approach to graduate education, and because of this the program is managed by Fairchild's Education Department in coordination with the other departments.

2. Fairchild: An Overview

INTRODUCTION

Fairchild Tropical Botanic Garden is a private, nonprofit corporation and is supported through memberships, admissions, contributions, an endowment, and grants. It is located on an 83-acre site between historic Old Cutler Road and Biscayne Bay. Established in 1938, Fairchild is an internationally renowned botanic garden, known for its documented collections of palms, cycads and other tropical plants, including many rare and endangered species. Fairchild combines the beauty of its horticultural display with its role as a living museum, and is a center of learning and discovery. The plants are displayed in a landscape designed by renowned landscape designer William Lyman Phillips.

Fairchild has more than 42,500 members and more than 550 year-round dedicated volunteers who enjoy Fairchild's resources and generously support its ongoing programs and activities. In addition, there are hundreds of special event volunteers and a staff of about 100. The 39 members of the Board of Trustees serve Fairchild as volunteers with leadership and fund-raising roles. Fairchild plays an important role in our community as a catalyst for those who have a passion for the world of tropical plants.

OUR MISSION STATEMENT:

Our mission statement reflects our current and long term commitment for education, conservation, and exploration.

“We save tropical plant diversity through exploring, explaining and conserving the world of tropical plants; fundamental to this task is inspiring a greater knowledge and love for plants and gardening so that all can enjoy the beauty and bounty of the tropical world”

OUR INTERNATIONAL TRAJECTORY

In partnership with other botanical gardens and research institutions around the world, Fairchild staff members are contributors to an intense global effort to gather information about plants and their environments, to save plant species from extinction and develop the next generation of environmental stewards. In a world where natural resources are shrinking at an alarming pace, and where unique species are vanishing every year, Fairchild is an important member of the global environmental community. Currently we have active education/research projects with partners in Abu Dhabi, the Bahamas, Botswana, China, Dominican Republic, Ecuador, Great Britain, Indonesia, Jamaica, Kenya, Mexico, Peru, Samoa, Portugal, Spain, and Venezuela. All of these projects have yielded concrete results that have helped to advance our mission and importantly to advance science and education at a global scale.

3. Fairchild's Main Units

Fairchild's **EDUCATION DEPARTMENT** is located in the main Garden. This department occupies two buildings: "The Gate House" and "The Corbin Building" (Fig. 1). For 30 years, Fairchild's education programs have educated hundreds of thousands of students from Pre-K through adult including field studies, continuing adult education, teacher professional development and community outreach. The most successful of these programs is Fairchild Challenge. During the 2010-2011 school year this free, multidisciplinary environmental education outreach program has engaged more than 100,000 students and teachers from 238 elementary, middle and high schools locally. The Fairchild Challenge has gained national and international recognition as an effective environmental education model to bridge young people's chasm-like disconnect from the environment.

Fairchild's **CENTER FOR TROPICAL PLANT CONSERVATION (CTPC)** is located one mile from the public garden, at 11935 Old Cutler Road. **This facility currently houses the graduate students**, the conservation program staff, the FIU-FTBG faculty, scientific laboratories, the nursery, Herbarium, Research Library and Archives.

Fairchild's **LIVING COLLECTIONS AND GARDEN LANDSCAPES** department occupies the only buildings that are part of the Rainforest exhibits. All of our graduate students make use of our living collections during their activities. Their website (<http://www.fairchildgarden.org/livingcollections/>) has details of plant species present in our collections. The living collections are arranged in plots that follow a numeric system (Fig. 2). Maps with precise location of individual taxa in each plot are available at the main office of this unit.

SERVICES

-  Entrance/Exit
-  Map
-  Water Fountain
-  Restrooms
-  Food & Beverage
-  Shelter
-  Tram Stop
-  Vistas
-  The Shop at Fairchild
-  Veranda Restaurant*
-  Wi-fi Spot
-  ATM

*The Veranda Restaurant is only available on select days. Please check with the information desk upon arrival.



Fig. 1. Map of Fairchild Tropical Botanic Garden.

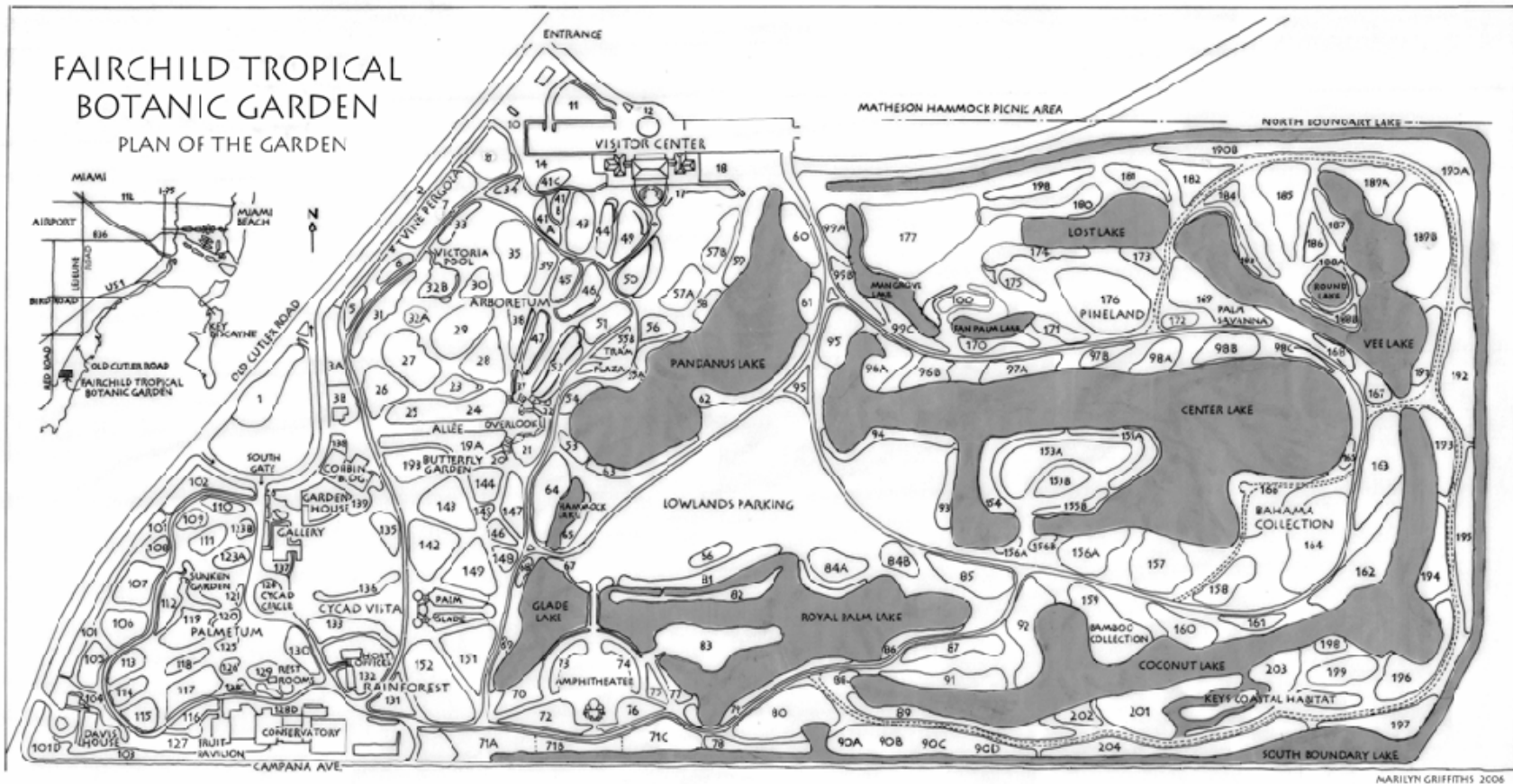


Figure 2. Map of Fairchild Tropical Botanic Garden showing the arrangement of plots where the living collections are located.

4. Fairchild: Website and Publications

FAIRCHILD'S website (www.fairchildgarden.org) provides detailed information about education programs, plant collections and special events. There are blogs, links to social networking sites, podcasts and more. Graduate students will find it helpful to visit Fairchild's website often to keep up to date. Our website hosts: (1) the **website of our Graduate Program** (<http://www.fairchildgarden.org/education/graduatestudies/>), (2) the **website of the Center for Teaching and Learning or Education Department** (<http://www.fairchildgarden.org/education/>), (3) **the website of the CTPC** (<http://www.fairchildgarden.org/centerfortropicalplantconservation/>). We encourage our students to visit these websites frequently as they have useful information, current news, and opportunities to join the Garden activities.

FAIRCHILD'S magazine, *The Tropical Garden* is published four times per year and distributed freely to Fairchild's Members. The magazine has a news section where reports on achievements of our graduate students are published regularly. We strongly encourage our graduate students to make some of their results available to our community through the *The Tropical Garden*.

5. Getting to Know the Garden and Additional Information

Fairchild is **OPEN DAILY** from 9:30 a.m. to 4:30 p.m. Special evening events are also scheduled throughout the year. Most Fairchild staff members observe the following holidays: New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day, Friday after Thanksgiving, Christmas Day and either Martin Luther King or President's Day. However, the garden is open every day except December 25th.

FEATURES of the landscape design include the Montgomery Palmetum, Richard H. Simons Rainforest, Bailey Palm Glade, Lisa D. Anness Butterfly Garden, Lin Loughheed Spiny Forest of Madagascar, Vine Pergola, Tropical Flower Garden, Moos Sunken Garden, magnificent vistas, secluded paths and serene lakes. Fairchild's Windows to the Tropics conservatory offers an enchanting display of thousands of selected species. The William F. Whitman Tropical Fruit Pavilion features fruit-bearing trees and plants from exotic places around the world.

The **LAKESIDE CAFÉ** serves freshly prepared food featuring sandwiches, salads, and beverages, and is open daily. All staff members, including grad students, receive discounts for meals and refreshments purchased at the Lakeside Café. Currently, the café is located next to Pandanus Lake.

The **PALM AND CYCAD COLLECTION** is among the most extensive of its kind in the world. There are approximately 550 named species of palms and 120 species of

cycads in the collection. The total number of individual plants at Fairchild is approximately 28,000.

Narrated **TRAM TOURS** begin on the hour between 10:00 a.m. and 3:00 p.m. on weekdays, and between 10:00 a.m. and 4:00 p.m. on weekends. During special events the schedule may be altered, and tram tours may be canceled during events when there are large crowds in the garden.

Guided **WALKING TOURS** of Fairchild are available from November through May. Volunteer guides share in-depth information about the plants with visitors. Details about walking tours can be obtained at the Information Desk in the Visitor Center or by viewing the website.

The **SHOP AT FAIRCHILD** is located within the Jean duPont Shehan Visitor Center. The Shop offers a wonderful selection of gardening items, tropical home accessories, stationery and cards, apparel and jewelry, a large selection of books and more. All staff members, including grad students, receive a 25% discount at The Shop. There is also a **LENDING LIBRARY** located here for members.

The **FAIRCHILD FARM** is located at 14885 SW 248 Street in Homestead. The Fairchild Farm serves as the permanent home for Fairchild's tropical fruit tree collections. On weekends the Farm operates a fruit stand where delicious tropical produce and smoothies are sold. Group tours of the Farm are available for a nominal fee with advanced reservations. Information about the tours can be found on Fairchild's website.

The **MEMBERSHIP OFFICE** is located in the Gallery Building.

6. Fairchild Special Events

Fairchild hosts a number of **SPECIAL EVENTS** each year. Fairchild celebrates **THE INTERNATIONAL CHOCOLATE FESTIVAL**, **THE ORCHID FESTIVAL**, **THE INTERNATIONAL MANGO FESTIVAL**, and **THE EDIBLE GARDEN FESTIVAL**. **THE RAMBLE** is Fairchild's signature event, and has been celebrated annually since 1940. Plants and plant-related items are sold and educational displays and activities are offered at more than 100 different booths. The Ramble is held in November.

Fairchild staff is actively engaged in collecting new species of plants to conserve, propagate, and share with our members through our **PLANT SALES**. The opportunity to buy plants grown exclusively for Fairchild members is an important benefit of membership.

Fairchild's facilities are available for weddings, private parties, business meetings and other functions. Visit Fairchild's website or contact the Special Events Department at ext. 3358 for information.

7. General Regulations and Policies

GRADUATE STUDENT ROOM AT THE CTPC

The graduate student room also serves as a place to store part of our large herbarium collection; therefore, we have a very strict policy concerning eating and drinking and opening the specimen cabinets. No eating/drinking is allowed in the room and herbarium cabinets can only be opened if the student needs to study some plant material for his/her research. Every student will be assigned to a desk by your advisor, we will also provide computer equipment if needed. The room has wireless connection and a phone. Every student will receive a key for the building. The main doors of the CTPC building need to be locked prior 9:00 AM and after 5:00 PM. These doors are locked during the weekend.

LIBRARIES AT FAIRCHILD

There are four libraries at Fairchild, each with its own emphasis. The Research Library (located at the CTPC) is the largest and probably most useful to you. In addition, the Members Library (located at the Visitor Center) includes mostly gardening books; the Horticulture Library (located in the Hawkes Lab) is mostly horticulture books reflecting our collections at the garden; and the Campbell Library (at Williams Grove) on tropical fruit.

The Research Library is open to staff (including graduate students) Monday, Tuesday and Wednesday from 6AM until 3PM. If you need to use the library at other times, there is a key available to open the library while you are using it. You are then responsible for relocking the library when you are finished.

The Research Library includes about 9,000 books focused on tropical botany. We also subscribe to many current periodicals, and have a reprint collection of about 10,000 articles. In addition there are some books in the rare book room that are available (see the librarian for access).

All the library collections are included in the online catalog at (<http://maple.cybertoolsforlibraries.com/cgi-bin/CyberHTML?FTBGHO>). You may use this link from your own computer – or click the icon on the computer in the research library. Please keep in mind that the collection is not open to the public, so the web address of the collection should not be given to non-Fairchild affiliated people. This index includes all the library collections so be sure to note the location of the books you want.

Students may check out library materials using the very simple card system located at the table near the door. All materials are to be kept within the offices or labs here at Fairchild. You may take materials out of the library to photocopy them without checking them out. Please return all materials to the cart under the clock.

All new students should arrange a thorough tour of the library with the librarian.

Three important rules stand out from the policies set by the Library:

1. Be sure to return all books that you have checked out from the Library, especially ones that you do not routinely use or if you plan to travel for any extended period of time.
2. If you have any trouble using the collection, please contact the librarian (Nancy Korber, library@fairchildgarden.org, x3424).
3. Never remove library books from the garden premises. In your absence, library staff may retrieve books from your office if they are needed by someone else, so be sure to leave them in an obvious place.

HERBARIUM

- Visiting the Herbarium: The herbarium is open to consultation by all qualified visitors although the Fairchild Tropical Botanic Garden reserves the right to restrict entry to all or part of the collection to any visitor. The herbarium also reserves the right to impose requirements for use of the herbarium as outlined in this document. Permission to use the physical collections must be obtained from the Director of the Herbarium Curator prior to use. All visitors are expected to sign the guestbook log on every entry. All visitors are expected to fill out a collections use log sheet for every project. Both the guestbook and use logs should be completed in archival ink. The herbarium should not be used as a hallway to get from one end of the Research Center to the other unless the classroom is in use. Never bring food/drinks or any plant material that has not first been frozen by the herbarium staff into the herbarium, even if you are just passing through.
- Use of Collections in the Herbarium: All specimens should be handled carefully and gently according to standard herbarium practice. Sheets should never be bent, turned over, or shuffled. Removal of plant material from a packet on a sheet is allowable as long as all material is returned to the sheet after use. Material should never be removed from more than one packet at a time. Removal of any material for DNA/anatomical/morphological studies, from a sheet other than the contents of the packet is expressly forbidden without written permission from the Curator. All removed parts should be placed within the packet. Slides and SEM photos may be included. Specimens needing repair or showing any type of damage by insects or abuse should be brought to the immediate attention of the staff. Visitors are expected to be fully acquainted with the organization of the herbarium and to re-file their specimens correctly after use. If there is any question as to the re-filing of specimens please leave them out for a staff member to re-file. Specimens are never to be left out overnight and should never be removed from the herbarium room proper.

Cabinet doors should be opened as little as possible. Never leave cabinet doors open for extended periods. The graduate student room is shared with the herbarium. Students are required to read and follow the herbarium policies.

- **Annotation:** Qualified investigators are encouraged to annotate specimens in the herbarium whenever useful information can be added. Annotation is especially encouraged when a determination can be improved or updated, or when the investigator can add to the label data from information obtained from a duplicate. Every sheet of a multiple sheet collection should be annotated. Annotation labels should be typed or hand written with archival ink on acid-free paper. Annotations should include the date and full name of the annotator. Annotations must be made on all specimens by affixing of annotation labels not by writing on the sheets. All types should be plainly marked even if the name is not accepted. We provide annotation labels.
- **Publications:** The investigator agrees as a requirement for use of the collections that copies of any and all publications resulting from the use of the FTG collections will be provided to the herbarium. The investigator also agrees to cite the herbarium in all publications resulting from research that included the use of the collections. For citations the Fairchild Tropical Botanic Garden herbarium acronym is FTG.
- **Loans:** The herbarium makes loans to qualified institutions, not individuals. The herbarium reserves the right to limit the extent and content of these loans. Accessioned material of any kind is never to be removed from the herbarium without the proper paperwork which includes a written request (on paper - not email, fax, phone etc.) and the written permission of the Curator. Loans are generally made for a period of one year and are expected to be returned after that time. Extensions may be requested in some circumstances. Please notice that students cannot make loans by themselves, all loans are made through the Herbarium Curator.
- **Giving Specimens to the Herbarium:** The herbarium accepts gifts as determined appropriate by the Curator. All specimens must be collected and imported legally and in accordance with Fairchild Tropical Botanic Garden Policy and the Convention on Biological Diversity. Appropriate permit numbers must be included on the labels. All specimens must be dried according to standard herbarium practice, with no soils or insects. The herbarium accepts some other types of specimens as well (pickled, silica dried for DNA etc.), if they are accompanied by standard herbarium vouchers. Labels should include all relevant information according to standard herbarium practice and should always include the latitude and longitude of the collection locality. The herbarium has Global Positioning System (GPS) units for short term loan to qualified collectors who donate their specimens to the Herbarium. Labels must be typed with a laser printer on acid free paper. We have a label making

program for Fairchild collections and encourage its use; we accept data in Excel format, compatible with the herbarium database. All material becomes the property of the herbarium. The herbarium does not maintain private collections.

- **Commercial Enterprises:** The herbarium does not normally charge for use of the collections by researchers working in a nonprofit environment unless extraordinary amounts of staff time or resources are involved. Businesses or individuals consulting the herbarium in endeavors for profit must negotiate compensation for services with the Curator and the Director of the Garden prior to commencement of work.

PLANT RESEARCH LABORATORIES

Besides the herbarium, nursery and research greenhouses, and the library the CTPC has five main laboratories:

- (1) The Seed Laboratory
- (2) The GIS and Conservation Ecology Laboratory
- (3) The Invasive Species Laboratory
- (4) The Climatic Change and Modeling Laboratory
- (5) The Molecular Laboratory

The facilities found in these laboratories are available for the student research, if a particular student wants to develop a project in any of these labs he/she needs first to talk with his/her advisor to establish a schedule and a plan that will be compatible with those already working in these labs.

THE GRADUATE STUDENT PROCESS

Fairchild Tropical Botanic Garden is not an academic institution, and therefore it does not award the final graduate degrees. Regulations concerning academic procedures that need to be met by the graduate students prior to graduation are defined by Florida International University or the University of Miami. It is the responsibility of the graduate students under the supervision of his/her advisor and graduate committees that these regulations and procedures are strictly followed. Additional details concerning university policies and regulations can be found in the graduate student manuals of FIU and UM as posted in our website :
<http://www.fairchildgarden.org/education/graduatestudies/Graduate-Student-Manuals/>

WHAT'S IN IT FOR ME?

Like the rest of Fairchild staff, graduate students will receive a name badge that identifies themselves as members of Fairchild. They will receive free admission (by themselves or in the company of family and/or friends). As one of our staff members, you will receive discount in the Garden Café and Garden Shop. In addition, you will receive free admission to more than 200 other gardens, arboreta, museum, zoos, and conservatories of Florida; including the Miami Museum of Science, Naples Botanic

Garden, Butterfly World, Sea-Aquarium, Miami Metro-Zoo, the Marie Selby Botanic Garden, etc

Research funds are usually available for students either through grants or direct support from Fairchild. In coordination with FIU and UM, we can also provide funding to field work and to present data to professional meetings. Several granting agencies focus on botanic garden activities, and therefore we are in a unique position to apply for these funding opportunities. It is expected for our graduate students to apply for grants and fellowships. This will not only provide a funding source but will enhance the resume of the students.

There are many opportunities for graduate students to be engaged with the community. These opportunities will complement the research and teaching skills that the students will gain through the formal academic training. There are four main avenues to facilitate connections of the students with our community:

- (1) The Fairchild Challenge
- (2) Connect to Protect Network
- (3) Participation in Garden events and member activities
- (4) Preparation of articles in the Tropical Garden Magazine

A description of these four avenues and their activities are found in Appendix V of this manual.

POLICIES & PROCEDURES FOR GRADUATE STUDENTS / GRADUATE STUDENT RESPONSIBILITIES / CHECK OUT PROCEDURE

Graduate students should follow the same code of conduct, safety/emergency/first aid procedures of the rest of the staff of Fairchild. We particularly encourage our student to pay particular attention and to carefully read policies concerning Communication Systems (i.e., internet, phone, mail usage) and procedures for hurricane preparation. These procedures are described in the Employee Manual of Fairchild Tropical Botanic Garden and include checkout procedures. A copy of these procedures will be delivered to the students with this manual.

8. Additional Academic and Research Information

For more information on the graduate programs of FIU and UM and on the following fellowships and other research support, visit the Graduate studies page on Fairchild's website (<http://www.fairchildgarden.org/education/graduatestudies/>).

Graduate Fellowships:

- Florida International University - Presidential Fellowships
- Florida International University - Presidential Enhancement Assistantships
- McKnight Doctoral Fellowships at Florida International University

- Florida International University - Dissertation Year Fellowships
- Florida International University - Doctoral Evidence Acquisition
- University of Miami - Lisa D. Anness Graduate Fellowship in Tropical Plant Biology

Some Research Support Programs:

- FIU - Graduate Student Association
- FIU - Tinker Grant Program in association with the Latin American and Caribbean Center and the School of International and Public Affairs
Interdisciplinary Research Groups of FIU and UM to examine Latin American and Caribbean-related issues
- The Garden Club of America - Scholarships and Fellowships
- Florida Native Plant Society
- Fellowships for Graduate Environmental Study, Science to Achieve Results (STAR) program - Environmental Protection Agency (EPA)
- Doctoral Dissertation Improvement Grants in the Directorate for Biological Sciences, (DDIG) - National Science Foundation (NSF)
- Endowment Fund - The International Palm Society
- Graduate Student Research Grant Funds - The American Society of Plant Taxonomists
- Travel Grant for Students (attendance to ASPT annual meeting) - The American Society of Plant Taxonomists
- Botanical Society of America Award Opportunities
- Fulbright Program Opportunities for American Students - U.S. Department of State
- Sigma-Xi grants in aid of research
- Society for Integrative and Comparative Biology (SICB) student travel and research awards

9. Other Botanical Centers in the Miami-Metro Area

Students and faculty of our graduate program have developed many of their research activities in close association with colleagues working in four botanical centers of the Miami-Metro Area. They have served as Research Advisors (e.g., Dr. A. Meerow at the USDA) or as graduate committee members (e.g., Dr. P. Griffith (MBC), Dr. D. Kuhn (USDA), Dr. R. Schnell (USDA)). We encourage our students to establish professional ties with biologists working in these centers, fewer other places of the nation have such a high number of institutes devoted to Tropical Botany concentrated in such a small area.

MONTGOMERY BOTANICAL CENTER

The CTPC is located inside the grounds of the Montgomery Botanical Center (MBC; www.montgomerybotanical.org). Fairchild and MBC not only share the some founder (Col. R. H. Montgomery) but a common vision and commitment for botanical research and conservation in the tropics. As part of the agreements between the two institutions, MBC leases the land where the CTPC is located for a symbolic amount. Montgomery Botanical Center has the best *ex situ* collections of cycads and palms, worldwide and in the past our students have made extensive use of these collections for their research projects. The protocol to have access to this material is straight forward and requires contacting the collection manager of this institution. Montgomery Botanical Center is an institution that is not open to the public, therefore access to the premises of this institution is allowed by permission.

SUBTROPICAL HORTICULTURE RESEARCH STATION OF USDA

Located one mile south of the CTPC at 13601 Old Cutler Road, the Subtropical Horticulture Research Station of USDA (<http://www.ars.usda.gov/Main/docs.htm?docid=10134>) this station has the best plant molecular biology facilities of South Florida. A team of several Plant Geneticists and Germplasm Specialists are using cutting edge techniques in plant breeding and evolutionary biology, with a focus on tropical fruits and ornamentals. David Fairchild worked at this station until his retirement, and therefore the Garden has a long history of collaborations with this Federal research unit.

THE KAMPONG – THE NATIONAL TROPICAL BOTANICAL GARDEN

Listed in the National Register of Historic Places, “The Kampong” (<http://www.ntbg.org/gardens/kampong.php>) was the house where David Fairchild lived until his death in 1954. In 1984 the house and its gardens were gifted to the National Tropical Botanical Garden. The site is located at 4013 South Douglas Road has an interesting living collection of tropical trees and facilities for meetings.

TROPICAL RESEARCH AND EDUCATION CENTER – UNIVERSITY OF FLORIDA

Founded in 1929 this center focus on research, teaching, and extension of tropical and subtropical fruits. The center has a graduate program and department with a strong applied component focus. This institute is located in Homestead at 18905 SW 280 Street (http://trec.ifas.ufl.edu/about_us.shtml).

INVASIVE PLANT RESEARCH LABORATORY – USDA

Located in Ft. Lauderdale, this research station focuses on biological control agents of invasive plant species. Its address: 3225 College Avenue, Fort Lauderdale FL 33314 (http://www.ars.usda.gov/main/site_main.htm?modecode=66-29-00-00).

Appendix I. List of Graduate Students – 2011

Student	Advisor	Department	Email
Beyte Barrios	Prof. Suzanne Koptur	FIU - Biology	bbarr006@fiu.edu
Catherine Bravo	Dr. Kenneth Feeley	FIU – Biology	cbrav006@fiu.edu
Cara Cooper	Dr. Hong Liu	FIU – Earth & Environment	ccoop001@fiu.edu
Jason Downing	Dr. Hong Liu	FIU – Earth & Environment	jdown003@fiu.edu
Tonya Fotinos	Dr. Eric von Wettberg	FIU – Biology	tonya.fotinos@fiu.edu
Patricia Houle	Dr. George O'Brien	FIU – Environmental Education	houlep@fiu.edu
Andrew Jungman	Dr. Mahadev Bhatt	FIU – Biology	Ajung001@fiu.edu
Wuying Lin	Dr. Hong Liu	FIU – Earth & Environment	wlin006@fiu.edu
Brian Machovina	Dr. Kenneth Feeley	FIU – Biology	brian.machovina1@fiu.edu
Robert McElderry	Prof. Carol Horvitz & Dr. Joyce Maschinski	UM – Biology	rmcelderry@bio.miami.edu
Evan Rehm	Dr. Kenneth Feeley	FIU – Biology	erehm001@fiu.edu
Vanessa Sanchez	Dr. Krishnaswany Jay & Dr. Eric von Wettberg	FIU - Earth & Environment	vsanc004@fiu.edu
Klara Scharnagl	Dr. Krishnaswany Jay & Dr. Eric von Wettberg	FIU - Earth & Environment	kscha005@fiu.edu
Emily Warschefsky	Dr. Eric von Wettberg	FIU – Biology	e.warschefsky@gmail.com
Wyatt Sharber	Dr. Barbara Withlock & Dr. Carl Lewis	UM – Biology	wyattvs@bio.miami.edu

Appendix II. List of Garden Staff

3338	Abelardo Bello	Mechanic	3322	Marilyn Caputo	Education Program Assistant
3351	Adam Azner	Member Services and Donor Relations Associate			
Radio	Adan Zapata	Facilities	3318	Marilyn Griffiths	Plant Records
3353	Alison Walker	Youth Education Manager	3307	Marina Guzman	Assistant Controller/Manager of Finance
Radio	Alvin Ancrum	Security	3356	Marion Litzinger	Fairchild Challenge Program Manager
3327	Amy Padolf	Director of Education	3425	Marlon Rumble	Nursery Manager
3306	Andres Behrens	Assistant Controller	3359	Marnie Valent	Special Events Associate
3303	Andres Moya	Horticulturist (Fruit Pavilion)	3315	Martha Kent	Staff Horticulturist
3377	Annie Stamps	Special Events/Marketing Coordinator	3332	Mary Collins	Senior Horticulturist
3314	Arlene Ferris	Director of Volunteer Services	3379	Mary Keppler	Elementary Programs Coordinator
3344	Ashley Amarante	Special Events Program Associate	3339	Mary Neustein	Manager Continuing Adult Education
3331	Aurea Alemany	Database Coordinator	3418	Melissa Abdo	Conservation Biologist
3419	Beth Milne	Herbarium Technician			
Radio	Bill Taylor	Security	3316	Mike Freedman	Gardener
3427	Brett Jestrow	Herbarium Curator	3424	Nancy Korber	Librarian and Archivist
3333	Carl E. Lewis	Director	3383	Nannette M. Zapata	Chief Operating Officer

3346	Carmen Callejas	Facilities Administrative Assistant	3391	Natalie White	Director of Community Relations & Event Planning
Radio	Clay Pedroso	Custodian/Security	3363	Netiva Kolitz	Fairchild Challenge Satellite Program Coordinator
3390	Cristina Mas	Member and Donor Services Associate	FF301	Noris Ledesma	Curator of Tropical Fruit
3429	Devon Powell	Field Botanist	3305	Patricia Kendall	Sales Associate
3335	Diana Pena	Elementary Program Assistant	3388	Patty Kelly	Director of Admissions/Guest Relations
3334	Donald Winston	Conservatory Assistant	3392	Paula Fernández de los Muros	Communications Manager
Radio	Donaciano Lopez	Gardener			
3305	Donna Enders	Assistant Shop Manager	3305	Reynaldy Lonchamp	Sales Associate
3388	Doris Cochran	Admissions Clerk	3316	Ricardo Aberle	Grounds Supervisor
3316	Edgar Rodriguez	Gardener	FF302	Richard Campbell	Senior Curator of Tropical Fruit
			3319	Rick Echeverria	Director of Facilities
			3337	Robert Brennan	Arborist
3316	Eric Fleites	Gardener	3329	Robert Ziebro	Gardener
3411	Eric Bishop von Wettberg	Plant Conservation Biologist	3361	Rose Ricks	Staff Accountant
3321	Erin Fitts	Director of Retail and Visitor Services	3300	Rosemary Aquino	Receptionist
3312	Everett Skinner	Admissions Clerk	FF	TBA	Gardener
Radio	Fatima Lagos	Facilities	3414	Sam Wright	Field Biologist
3389	Gaby Orihuela	Production Manager	3316	Samuel Gonzalez	Gardener

Radio	George Campbell	Security	3437	TBA	Research Technician
3417	Hong Liu	Research Ecologist	3324	Sandy Schoenfeldt	Volunteer Administrative Assistant
3305	Jackie Conesa	Shop Associate	3374	Sarah Vatland	Education Outreach Coordinator
Radio	Jaime Ojeda-Fuentes	Gardener			
3347	Jan Poole	Payroll and Accounting Clerk	3301	Sheila Curry	Membership Associate
3320	Jason Lopez	Living Collection Manager	3364	Stephanie Bott	Program Assistant, Volunteer Services
3354	Javier Francisco-Ortega		3336	Steve Dougal	Horticulturist
3378	Jeff Wasielewski	Marketing and Multi-Media Associate			
3358	Jennifer Baldwin	Special Events Coordinator	3375	Susanna Shubin	Donor Relations
3305	Jennifer Bickle-Montano	Shop Associate	3362	Suzanne Boyer	Member and Donor Services
3433	Jennifer Possley	GIS Lab Coordinator	3323	Suzanne Kores	Dir of Program Development (Grants)
3316	Jose Ceron	Gardener	3355	Tedd Johnson	Education Graphic Designer
3316	Jose Duarte	Four Fillies	3305	Teiko Koide	Sales Associate
Radio	Jose Guadamuz	Building Engineer	Radio	Zoraida Salinas	Facilities
Radio	Jose Nunez-Agreda	Facilities Assistant			
3302	Jose Pujala	Senior Accountant			
3308	Josefina Yespica	Director of Finance			
3416	Joyce Maschinski	Conservation Ecologist			

3313	Juan Rivera Jr.	Education Outreach			
3345	Kathy Wuerth	Café / Catering			
3352	Kelli Blake	Education Programs Coordinator		Administration and Department Heads	
3434	Kenneth J. Feeley	Plant Conservation Biologist	3327	Amy Padolf	Director of Education
3334	Ken Neugent	Conservatory & Special Projects Mgr	3314	Arlene Ferris	Director of Volunteer Services
3330	Kiki Mutis	Community Outreach Coordinator	3333	Carl E. Lewis	Director
3371	Kimberly Bobson	Communications Coordinator	3321	Erin Fitts	Director of Retail and Visitor Services
3349	Kirk Forbes	Senior Accountant	3308	Josefina Yespica	Controller, Director of Finance and HR
FF309	Leila Werner	Fairchild Farm Associate	3357	Mari Novo	Director – Membership and Donor Services
Radio	Lilia Gonzalez	Janitorial	3305	Maria T. Jackson	Shop Manager
3411	TBA	Field Botanist	3383	Nannette M. Zapata	COO, Director of Marketing
3316	Luis Marrero	Gardener	3388	Patty Kelly	Dir of Admissions and Guest Relations
			3319	Rick Echeverria	Director of Facilities
3357	Mari Novo	Director of Member and Donor Services	3391	Natalie White	Director of Community Relations & Event Planning
3305	Maria Tomeu Jackson	Shop Manager			

Appendix III. Important Phone Numbers and Email Addresses

Director of the Graduate Program

Amy Padolf, M.Ed.:

Phone: 305-663-8097

Cell-phone: 305-746-2822

Email: apadolf@fairchildgarden.org

Student Advisors

Advisors	University phone	Garden phone 305-665-2844 X	Cell phone	Email
Kenneth Feeley	305-348-7316	X 3434	617-777-4817	kfeeley@fiu.edu
Javier Francisco-Ortega	305-348-2080	X 3423; X 3432; X 3354	305-773-9613	ortegaj@fiu.edu
Carl Lewis		X 3333	305-776-6495	clewis@fairchildgarden.org
Hong Liu	305-348-6799	X 3417	305-495-5023	hliu@fiu.edu
Joyce Maschinski		X 3416	305-588-0383	jmaschinski@fairchildgarden.org
Eric von Wettberg		X 3411	401-225-6542	eric.vonwettberg@fiu.edu

Appendix IV. Opportunities for Community Involvement

The Garden offers four main avenues for the students to be involved with our community. They canalize some of our most important activities towards the general public, schools, volunteers, and members.

- (1) The Fairchild Challenge Program
- (2) The Connect to Protect Network
- (3) Participation in Garden events and Member activities
- (4) Preparation of popular articles to the Garden Magazine (*The Tropical Garden*)

IV.1. The Fairchild Challenge Program

Over the past nine years, the Garden has developed one of the most important environmental education programs in the country, the Fairchild Challenge (<http://www.fairchildgarden.org/education/fairchildchallenge/>). Representing a record 239 South Florida elementary, middle and high schools, the Fairchild Challenge provides an annual menu of options or competitions using the environment as an integrating context for learning. The program is designed to promote environmental awareness and critical thinking. The program also engages students in plant research and encourages them to become actively engaged citizens. Examples of past options include: "School Garden/Habitat Restoration," "Plants and their Pollinators," "Research Projects," and "Environmental Debates." Challenge option entries are evaluated by panels of professionals, including Fairchild researchers, FIU faculty, members of institutions of higher learning, and environmental organizations throughout South Florida. All schools that surpass the point goal (750 points for elementary school, 800 points for middle school, and 1,000 points for high school) are presented with the prestigious "Fairchild Challenge Award." The 16 top-scoring schools receive cash prizes of \$1,000, \$500 or \$250 at each program level. In addition, one student and one teacher from each participating school are selected and celebrated as Environmental Role Models. The program has become an education model beyond South Florida, influencing programs nationally and internationally. It has been offered as a replicable model to other institutions and has been implemented in eight cultural institutions within the United States and abroad.

Our graduate students can be active participants of the Fairchild Challenge by:

- (1) Joining us to visit the School Gardens
- (2) Pairing with their graduate advisors to judge student performance for the various options
- (3) Being role models to our teachers and students by participating in our workshops, research demonstrations, and celebratory events

During these events the Fairchild Challenge will provide lunch/dinner to the graduate students. A list of the most important events for this coming year is found below:

Fairchild Challenge Opportunities for Graduate Students 2011 - 2012

Event	Activity	Date	Participation
Performances (MS & HS)	Event/Panel	10/19/2011 & 10/26/2011	Panelists
Design: T-shirt designs, Baynanza t-shirt designs, Banner, and Fairchild Challenge educator design	Panel	11/10/2011	Panelists
Fashion Design: Parade of Animals (ES)	Panel	11/30/2011	Panelists
Botanical Fashions: Olympic Wreath (MS & HS)	Panel	12/3/2011	Panelists
Writing: A Better World of Plants (MS)	Panel	12/13/2011	Panelists
Art: Beautiful Blooms	Panel	1/19/2011	Panelists
Writing: Inform Your Mind and Change Your Life (HS)	Panel	1/10/2012	Panelists
Environmental Debates (HS)	Panel	1/28/2012	Panelists
Art: Florida Flowers (HS & MS)	Panel	2/16/2012	Panelists
Research Projects Showcase (HS)	Panel	2/25/2012	Panelists
Science Projects (MS)	Panel	2/29/2012	Panelists
Creative Writing: Flower Power (ES)	Panel	3/1/2012	Panelists
Green Treasures: Flower Power (ES)	Panel	3/1/2012	Panelists
Green Treasures: A Living History (MS)	Panel	3/21/2012	Panelists
School Gardens/Habitat Restoration (HS & MS)	Panel	4/11/2012	Panelists
Environmental Action (ES)	Panel	4/19/2012	Panelists
Environmental Action Report (HS & MS)	Panel	4/25/2012	Panelists
School Gardens (ES)	Panel	4/26/2012	Panelists

HS = High School; MS = Middle School; ES = Elementary School

IV.2. The Connect to Protect Network

Rapid development in South Florida has reduced and fragmented critical habitat for many of South Florida's rarest native flora residing in the globally endangered ecosystem known as the pine rocklands. The *Connect to Protect Network* (CTPN) seeks to develop corridors and stepping stones between existing pine rocklands to improve opportunities for seed and pollen transfer between rare and common pine rockland plant populations. Connecting populations has been shown to improve genetic diversity and survival. The CTPN builds on the idea of utilizing corridors to promote the survival of plants in these shrinking habitats. This idea has gained international prominence in recent years in efforts to assist the survival of charismatic megafauna, such as, elephants and the Florida panther. The use of corridors can also be applied to the preservation of plants.

Initially funded by a grant from U.S. Fish and Wildlife Service and currently funded by Florida Department of Agriculture and Consumer Services Division of Plant Industry, Fairchild Tropical Botanic Garden created this program to help conserve the federally listed and candidate species found in this remarkable habitat. Based

upon a conservation action plan, Fairchild launched a participatory network of interested public land managers, private landowners, and businesses, which has been steadily growing since 2007. Members of the CTPN agree to preserve existing pine rocklands on their property or create corridors and stepping stone gardens planted with pine rockland species. Members along with interested volunteer citizens also help to restore pine rockland habitats by removing invasive species and implementing site-specific activities that can enhance populations of listed and candidate species. The goal of the program is to reconnect the fragments of pine rocklands with as many plantings as possible.

In addition, providing corridors with native pine rockland plants in public landscapes may allow the public to become more familiar with these unusual species. Corridors established with pine rockland species along bike or footpaths will help the general public see these beautiful plants close up and integrated into their urban setting.

Meeting the goals of the CTPN will require widespread participation from many citizens and planting many native pine rockland species. Because many of these species are uncommon in the nursery trade, Fairchild has collected seeds of pine rockland plants to learn about their germination, storage and cultivation requirements. Members of CTPN receive some of these uncommon pine rockland species and have helped gather much needed information about the growth of pine rockland plants on their properties.

Graduate students have opportunities to participate in restoration workdays and public events, or may arrange for independent studies pertaining to the CTPN in pine rockland habitats. Interested students should contact Dr. Joyce Maschinski.

IV.3. Participation in Garden Events and Member Activities

IV.3.1. Garden Events (2011 – 2012)

During weekends, Fairchild has celebratory events open to the public. These events have strong environmental, gardening and horticultural components and represent one of the main activities of Fairchild. During these events the visitors will find food, garden tours, popular lectures, children activities, exhibits from partners and researchers, and plant sales and a unique synergistic atmosphere. Through these events the Garden has gained wide recognition as a major stakeholder in our community. The following are the 2011-2012 Garden Events:

Event	Date
Butterfly Days	Saturday, September 24 and Sunday, September 25
Fall Plant Sale	Saturday, October 1
Bird Day	Sunday, October 9
Edible Garden Festival	Saturday, October 22 and Sunday, October 23
Ramble 2011	Friday, November 11; Saturday, November 12 and Sunday November 13
Chocolate Festival	Friday, January 20; Saturday, January 21 and Sunday, January 22
Orchid Festival	Friday, March 9; Saturday, March 10 and Sunday, March 11
Spring Plant Sale and Food and Garden Festival	Saturday, April 14
Mango Festival	Saturday, July 14 and Sunday, July 15
Outdoor Movie Events and Music Concerts	To be announced

IV.3.2. Garden Member Activities

Fairchild is the leading botanic garden with exceptional programs in horticulture, conservation, research, education and cultural events. Membership is the sustenance - the pillar - of this conservation-focused botanic garden. The 39,000 members are strongly committed to our mission, providing inspiration and support while also receiving an opportunity to directly affect and connect with conservation both locally and internationally while enjoying many benefits.

- Benefits include:
- Free daily admission everyday, including all festivals.
- Invitations to members-only lectures, plant societies, Moonlight Tours and the Members' Day Plant Sale
- 25% discount on purchases at the Shop at Fairchild
- Special rate on more than 165 adult education classes offered through the Lifelong Learning Program.
- Members-only privileges at the Lending Library
- Complimentary subscription to The Tropical Garden magazine
- Free or discounted reciprocal admission to more than 500 other gardens, arboreta, conservatories and science museums throughout the U.S. and around the world.

Activities such as the member-only lectures, moonlight tours, and plant society links will provide the graduate students with additional opportunities to connect with the Garden and our community.

IV.4. The Garden Magazine (*The Tropical Garden*)

Published four times per year, this popular magazine has been published continuously since 1945. The magazine is also freely available on-line to the general public at our web-site (<http://www.fairchildgarden.org/WhatsNews/#view=5>). Students will find in this magazine a good avenue to make their research findings and news available to the community.

We also encourage students to think of, and propose, additional innovative ways to become involved with the Fairchild community and greater public.