FINAL REPORT
FOREST SERVICE GRANT NO. 0897-50-G-44

Period covered by this report: July 14,1997 through July 14, 2000

Note: Please review the following information and revise/complete as necessary.

Issued to: University of Florida

Address: School of Forest Resources and Conservation
P.O. Box 110410
Gainesville, FL 32611-0410

Project Name: Restoring the Urban Forest Ecosystem

Contact Person/Principal Investigator:

Name: Dr. Mary L. Duryea
Mailing Address: Same as above
Phone Number: (352) 846-0896
Fax Number: (352) 846-1277
E-Mail Address: mld@gnv.ifas.ufl.edu

Web Site Address: www. sfrc.ufl.edu

Date of Award: July 14,1997

Grant Modifications: Mod.1: No-cost time extension from July 14, 1997 to January 14, 2000
Mod.2: No-cost time extension from January 14,2000 to July 14, 2000

Date of Expiration: July 14, 2000

Funding: Federal Share: $74,625 plus **Grantee Share:** $74,075 = **Total Project:** $149,700

FS Grant Manager: Edward Macie
Address: USDA Forest Service, 1720 Peachtree Road, N.W., Atlanta, GA 30367
Phone Number: (404) 347-7203
Fax Number: (404) 347-2776

PROJECT ABSTRACT (as defined by initial proposal and contract):

Urban and community forests are often managed as individual trees instead of whole forest ecosystems. Yet, there are many opportunities for urban forest restoration to provide ecological benefits such as storm-water management, wildlife management, and biodiversity. We propose a CD-ROM containing ten extension publications, covering the areas of basic ecological principles, biodiversity, plant succession and disturbances, hydrology, site assessment and soil improvement, wildlife, invasive plants and development of a restoration plan. The primary audience for the CD-ROM will be natural resource managers working in urban and community forests. Yet, it can also be used as educational tools for gaining community support. Our objective is to improve the health and productivity of urban forests in the U.S. by providing public and resource managers with the skills, knowledge and methodology to restore urban forest ecosystems in their communities.

PROJECT GOALS AND OBJECTIVES:

As defined by the original proposal and contract our goals and objectives are:

GOALS

We propose a CD-ROM containing a series of extension publications to educate communities and managers and assist them in restoring their urban forests. This CD-ROM will assist in the search for funding and support for projects and in the planning, implementation and future management of restoration projects. Our long-term goal is to improve the health and productivity of urban forests in the U.S. Our short-term goal is to provide resource managers with the skills, knowledge and methodology to restore urban forest ecosystems in their communities.

OBJECTIVES

To develop and disseminate a CD-ROM with ten publications to natural resource managers and communities:

1. Restoring the urban forest ecosystem
2. Basic ecological principles for restoration of the urban forest ecosystem
3. Biodiversity and the restoration of the urban forest ecosystem
4. Plant succession and disturbances in the urban forest ecosystem
5. Developing a restoration plan that works
6. Restoring the hydrologic cycle in the urban forest ecosystem
7. Site assessment and soil improvement
8. Enriching and managing urban forests for wildlife
9. Invasive plants and the restoration of the urban forest ecosystem
10. Glossary of terms for urban forest restoration

OBJECTIVES MET SUCCESSFULLY TO-DATE:

We successfully produced nine short chapters (plus a glossary of terms) to better discuss restoration of urban forest ecosystems during the period the grant was awarded. In the second half of 1997, authors were selected and assigned one or more topics out of the total nine themes according to his/her expertise (see table below).

Mary Duryea, Eliana Kämpf Binelli, Larry Korhnak (Editors)

Publication #	Title	Author(s)
1	Restoring the urban forest ecosystem	M. Duryea
2	Basic ecological principles for restoration	M. Duryea H. Gholz E. K. Binelli
3	Biodiversity and the restoration of the urban forest ecosystem	E. K. Binelli
4	Plant succession and disturbances in the urban forest ecosystem	E. K. Binelli H. Gholz
5	Developing a restoration plan that works	W. Hubbard
6	Restoring the hydrologic cycle in the urban forest ecosystem	L. Korhnak
7	Soil assessment and site improvement	K. Coder
8	Enriching and managing urban forests for wildlife	J. Schaefer
9	Invasive plants and the restoration of the urban forest ecosystem	H. Dozier
10	Glossary of terms for urban forest restoration	E. K. Binelli M. Duryea L. Korhnak

In the first half of 1998, we met with the authors. The overall goals and objectives of the project and the final outline of publications (above) were presented. Also, the format of each publication (depth, length, glossary of terms, pictures, drawings and examples) was discussed. A consensus was reached in defining the restoration of urban forest ecosystems and areas to be restored as well as examples of restoration projects to be visited/included in the publications. A timetable with deadlines was established, according to the timeline initially submitted to NUCFAC.

In the second half of 1998, a prototype was developed by the Information Technology Department at University of Florida and sent to all authors. Additionally, most authors sent their outlines, which were reviewed by the editors and sent back to authors for modifications and improvements.

In the first half of 1999, three chapters were developed into the CD-ROM layout by the graphic designer experts at the Information Technology Department at University of Florida. These chapters were reviewed by the editors for their final format, containing photos, slides and drawings.

In the second half of 1999, all the chapters were sent by the respective authors. Seven chapters were into the CD-ROM final layout. Three chapters were being reviewed by the editors to include photos, slides and drawings. Additionally, these chapters were also be converted to a PDF (printable) and Internet versions.

In the first half of 2000, the Information Technology Department at University of Florida worked on the entry, design and technical development of all ten CD-ROM chapters. The chapters were been carefully reviewed for editing and final changes. Additionally, the Information Technology Department graphic designers developed the final CD-ROM, Internet and printable versions.

OBJECTIVES NOT YET MET:

Since a "No-Cost Time Extension" was granted until July 14, 2000 our new timetable was extended to include the entry, design and technical development of the CD-ROM by the Information Technology Department at University of Florida, as noted in our last report. Taking this into consideration, we are on schedule to mail the final CD-ROM product to its audience.

HOW WILL THIS PROJECT INCREASE THE KNOWLEDGE WE HAVE ABOUT URBAN FORESTRY? HOW WILL THE PUBLIC BENEFIT?

Urban and community forests are often managed as individual trees instead of whole forest ecosystems. Cities inventory and manage these tree species to meet many important needs. Yet, there are many opportunities for urban forest restoration to provide additional ecological benefits such as storm-water management, wildlife management, and biodiversity. The goal of restoration is to return the urban forest to a form which is more ecologically sustainable to the community. Therefore, the restored urban forest will contribute positively to the community instead of being a drain on its resources. Many of our parks, for example, are composed of trees and grass requiring intensive maintenance inputs such as fertilizing, irrigating, mowing and raking. With restoration these parks could take advantage of natural processes such as nutrient and hydrological cycling, thereby saving money, energy and resources for the community. Connecting these restored parks to other ecosystems such as waterways can also contribute to biodiversity and wildlife management and conservation.

In general, restoration information and tools are not available either to natural resource professionals or the public. Benefits of restoration, ecological principles to incorporate, wildlife, hydrology, site assessment, management plan and steps for success are critical issues in educating both communities and natural resource managers.

The primary audience for this CD-ROM will be natural resource managers working in urban and community forests. Natural resource professionals who manage urban forests often need additional knowledge and skills to embark in new directions such as restoration. This CD-ROM will also be useful for gaining support from urban citizens and community leaders who need to understand the benefits of restoration.

WHAT SPECIFIC QUANTIFIABLE RESULTS WILL BE PRODUCED?

Fifteen thousand (15,000) CD-ROMs, containing the complete series of publications, will be produced. Each of the 10 chapters will be in 2 versions: on-screen and PDF-printable format. Information will not be copyrighted for future reprinting and use (preferably with proper citation and credit to authors). Each chapter publication will contain 50 to 100 on-screen pages and 12 to 25 PDF pages with up to 65 graphics (drawings and photographs) illustrating major restoration definitions, steps, and real examples.

To make the publications both attractive and Internet-friendly we will use clear line drawings and full-color photographs. This will make them visually attractive and educationally beneficial to urban and suburban citizens and other members of communities

HOW WILL THE RESULTS BE DISSEMINATED TO THE PUBLIC?

These CD-ROMS will be distributed through direct mailings and a home-page will make them accessible electronically through the Internet. Initially the CD-ROM will be mailed from the University of Florida to Urban and Community State Coordinators in all 50 states (250 each) and the Urban Forestry Institute mailing list. Individual mailings will be sent to all electronic and telephone requests.

The CD-ROM contents will also be available on the Internet. The CD-ROM will be advertised on Internet newsletters and networks, such as the USDA Forest Service's Urban Natural Resources Network. Internet users will also locate the CD-ROM contents through search engines or through University of Florida's home page. All ten publications will be easily downloaded and printed by Internet users.

IF A NO-COST TIME EXTENSION HAS BEEN REQUESTED FOR THIS PROJECT, WHY IS (WAS) IT NEEDED?

The development of the ten publications for the CD-ROM are on-time and a prototype CD-ROM publication has also been developed. However, a time extension was requested because of the complexities of putting Internet linkage, PDF (printable) capabilities, and making the CD-ROM interactive. We have enlisted the Information Technology Department at the University of Florida to develop state-of-the-art technology and methodology to produce this CD-ROM. Additionally, the CD-ROM will be user-friendly with the computer hardware and capabilities of the natural resource professionals, who will use the final product.

LIST THE ACTIVE PARTNERS (key individuals or organizations) INVOLVED IN THE PROJECT T0-DATE:

Bill Hubbard - Southern Cooperative Extension Service
Kim Coder - University of Georgia, Department of Forest Resources
Joe Schaefer - University of Florida, Center for Natural Resources
Eliana Kampf Binelli - University of Florida, School of Forest Resources and Conservation
Henry Gholz - University of Florida, School of Forest Resources and Conservation
Larry Korhnak - University of Florida, School of Forest Resources and Conservation
Hallie Dozier -Southeastern Louisiana University, Department of Biological Sciences
Howard Beck - University of Florida, IFAS Information and Technology Department

COMMENTS CONSIDERED OF IMPORTANCE BUT NOT COVERED ABOVE:

Since 1990, The Urban Forestry Institute at the University of Florida has been teaching courses for natural resource managers who work in city and community forests in the United States. The three university-level courses have been: *The Urban Forest: Biology, Culture and Protection; The Urban Forest: Planning, Management and Policy* and *Restoration of the Urban Forest Ecosystem,* first offered in 1997. Due to the success of last year's course, *Restoration of the Urban Forest Ecosystem,* the Institute offered it again in 1998 and in Puerto Rico in 1999. The new CD-ROM outline for this grant follows the Urban Forest Institute 1999 format and content. First drafts of the publications were used in the course notebook.

THIS REPORT WAS PREPARED BY:

Name:	Dr. Mary L. Duryea and Ms. Eliana Kampf Binelli
Title:	Professor and Graduate Student, University of Florida, School of Forest Resources and Conservation
Phone Number:	(352) 846-0896, (352) 846-0886
Date:	August 1, 2000.

For further course information contact:

Mary Duryea
School of Forest Resources and Conservation
University of Florida
P.O. Box 110410
Gainesville, FL 32611-0410
PH: (352) 846-0896
FAX: (352) 846-1277
EMAIL: duryea@nervm.nerdc.ufl.edu

For enrollment information contact:

IFAS Office of Conferences
University of Florida
Florida Leadership and Education Foundation, Inc.
P.O. Box 110750
Gainesville, FL 32611-0750
PH: (352) 392-5930
FAX: (352) 392-9734
EMAIL: kmgil@gnv.ifas.ufl.edu

Visit the Office of Conferences home page for conference updates or to register online:

http://gnv.ifas.ufl.edu/~conferweb/

Find and click on your conference!

UNIVERSITY OF FLORIDA
Institute of Food and Agricultural Sciences

Project #9710

The URBAN FORESTRY Institute

Restoring the Urban Forest Ecosystem

Lago Mar Hotel
Fort Lauderdale, Florida

June 23-27, 1997

University of Florida
School of Forest Resources and Conservation
and Florida Cooperative Extension Service

- and -

United States Department of Agriculture
Forest Service, Southern Region

The URBAN FORESTRY Institute

Restoring the Urban Forest Ecosystem

Sunday, June 22, 1997

pm	6:00	Informal Reception and Registration

Monday, June 23, 1997

am	7:00	Registration
	8:00	Welcome and Introduction to the Course **Mary Duryea**

Restoration and Ecology: An Overview

George Blakeslee, Moderator

	8:30	What is restoration and why restore the urban forest ecosystem? **Mary Duryea**
	9:30	Basic ecological principles for restoration **Henry Gholz** and **Eliana Binelli**
	10:45	Break

Planning and Resource Assessment

George Blakeslee, Moderator

	11:15	Site assessment: Ecological and social factors **Kim Coder**
	12:00	Lunch on Own
pm	1:15	Site assessment *(continued)*
	2:00	Setting restoration priorities **Mike Renda**
	3:00	Break
	3:30	Setting restoration priorities *(continued)*
	4:00	Developing a management plan **Bill Hubbard**
	5:15	Adjourn

Tuesday, June 24, 1997

am	8:00	Quiz

Implementation

Bill Hubbard, Moderator

	8:45	Correcting or improving the hydrologic cycle **Jeff Vowell**
	10:00	Break
	10:30	Re- establishment of disturbances and succession **TBA**
	12:00	Lunch on Own
pm	1:15	Soil and site improvement **Kim Coder**
	2:15	Biological enrichment and management: Plants **George Gann**
	3:00	Break
	3:30	Biological enrichment and management: Plants *(continued)*
	4:00	Biological enrichment and management: Animals **Joe Schaefer**
	5:15	Adjourn

Wednesday, June 25, 1997

am	8:00	Quiz

Restoration Field Trip

	8:45	Overview of the field trip/assignment **Mary Duryea**
	9:00	Bill Baggs Recreation Area, Key Biscayne: Study of an active restoration project **Steve Gubitti**
	12:00	Lunch Provided
pm	1:30	Restoring a park in the city of Plantation: Analysis and plan development **Jeff Siegel**
	5:30	Return to Hotel
	7:30	Groups develop restoration plans
	10:00	End plan preparation

Restoring the Urban Forest Ecosystem

The urban forest ecosystem, with its variable ecological health, does not always provide the benefits to communities and cities that it could. Restoration of the urban forest is altering a site (a park, for example) to a form which is more ecologically and culturally contributing to the community. Restoration includes activities such as correcting or reinstating nutrient and hydrologic cycles as well as plant and animal enrichment. Through restoration the urban forest has the potential to contribute more positively to the community providing such benefits as energy conservation, better stormwater management, enhanced biodiversity, improved environmental education opportunities, and heightened economic and cultural amenities for communities.

Professionals who manage the urban forest are constantly facing challenges. Ecological restoration of urban forests has become essential for those working with urban forestry. In this new course, The Urban Forestry Institute offers up-to-date information about ecological restoration in the urban forest. The course will cover ecology and restoration principles, planning, resource assessment and implementation of restoration projects.

A nationwide team of urban forestry and restoration specialists will teach the course, interacting with students in lectures, discussions and problem-solving case studies. On a one-day field trip, participants will learn about an active restoration project and will also design and plan their own project for a city park. For effective teaching and one-on-one experience, enrollment will be limited. University credit is available.

Registration Information

The early registration fee is $600.00. After May 15, 1997, the regular registration fee will be $675.00. The registration fee includes a restoration field trip to Key Biscayne and the City of Plantation (with lunch and bus transportation), a course workbook, a reception, a cookout, refreshment breaks, and various conference materials. We encourage you to register as soon as possible because *enrollment is limited to 50 participants*. To register, return the enclosed form along with payment. Registrations will be accepted on a first-come-first-served basis. All participants will be notified in writing upon acceptance into the course. If the course is filled, registration fees will be returned, and a waiting list established. Upon a cancellation, individuals will be contacted by telephone to determine if enrollment is still desired.

In compliance with ADA requirements, participants with special needs can be reasonably accommodated by contacting the Office of Conferences at least 10 working days prior to the course. We can be reached by phone at (352) 392-5930, by FAX at (352) 392-9734, or by calling (800) 955-8771 (TDD).

Certificate and University Credit

Upon completion of the course, each participant will receive a Certificate of Completion and will be qualified for approximately 30 CFE credits with the Society of American Foresters. University of Florida course credit can also be earned following appropriate registration and payment of university credit fees.

Quizzes

A series of short quizzes will evaluate individual learning and instructional effectiveness, arid will serve as a basis for grading those individuals taking the course for credit.

Cancellation and Refunds

Requests for registration refunds will be honored if a written notice of cancellation is received by the Office of Conferences on or before May 24, 1997. A $50 processing fee will be deducted from all refunds. Sorry, no refunds will be honored for cancellation after May 24, 1997.

Hotel Accommodations /Meeting Site

A block of rooms has been reserved at the Lago Mar Hotel (1770 South Ocean Lane, Fort Lauderdale, Florida) at a special per night rate of $88 single, or $91 double occupancy (plus 11% *tax—Federal and State employees will be exempt with proper documentation).* To qualify for the special room rate, reservations must be made before May 24, 1997. Each individual enrolled in the course will receive hotel information with their registration confirmation. Call the hotel directly at 1- 800-255-5246 or 305-523-6511 to make a reservation identify yourself as a participant of the Urban Forestry Institute.

Car Rental

Avis Car Rental offers Florida State employees daily rates of $22.00 for an economy car and $26.00 for a compact car. There is a mileage fee of $.04/mile in addition to the daily rate. Gas purchases are reimbursed upon return of the rental vehicle. Call 1-800-331-1212 and use the University of Florida/IFAS code: B113400.

Thursday, June 26, 1997

City of Plantation Park Restoration

Mary Duryea, Moderator

am	8:00	Groups present restoration plans
	10:00	Break

Restoration Projects: Success Stories

George Blakeslee, Moderator

	10:30	Tampa's park restoration program **Steve Graham**
	11:30	Coastal restoration at Blowing Rocks Preserve **Mike Renda**
pm	12:30	Lunch on Own
	1:45	Wetlands restoration at the Disney Wilderness Preserve **Michael Duever**
	2:45	Longleaf pine restoration: A potential project for many cities **Bruce Means**
	3:45	Study Break
	4:30	Quiz
	5:00	Adjourn
	6:30	Cook-out

Friday, June 27, 1997

Restoration: Important Considerations

Bill Hubbard, Moderator

am	8:00	Invasive species and the urban forest ecosystem **Hallie Dozier**
	8:45	Using GIS and GPS to inventory natural resources **Nancy Masterson**
	9:30	Restoration projects: Ecologically efficient and politically effective **Ed Macie**
	10:15	Break
	10:45	Evaluation and Summary
	11:15	Awarding of Certificates **Wayne Smith**
	12:00	Adjourn

Course Director

Mary L. Duryea, *Urban Forest Extension Specialist, School of Forest Resources and Conservation, University of Florida, Gainesville, FL*

Course Instructors

Eliana Kampf Binelli, *Urban Forester and Graduate Student, School of Forest Resources and Conservation, University of Florida, Gainesville, FL*

George Blakeslee, *Forest Pathologist, School of Forest Resources and Conservation, University of Florida, Gainesville, FL*

Kim Coder, *Extension Forester, Cooperative Extension Service, University of Georgia, Athens, GA*

Hallie Dozier, *Forester and Graduate Student, School of Forest Resources and Conservation, University of Florida, Gainesville, FL*

Michael Duever, *Project Ecologist at the Disney Wilderness Preserve, The Nature Conservancy, Kissimmee, FL*

George Gann, *Director, Institute for Regional Conservation, Miami, FL*

Henry Gholz, *Forest Ecologist, School of Forest Resources and Conservation, University of Florida, Gainesville, FL*

Steve Graham, *Superintendent, Urban Forestry Division, City of Tampa Parks Department, Tampa, FL*

Steve Gubitti, *Construction Project Manager, Department of Environmental Protection, Tallahassee, FL*

Bill Hubbard, *Southern Regional Extension Forester, Cooperative Extension Service, Athens, GA*

Ed Macie, *Regional Urban Forestry Specialist, USDA Forest Service — Southern Region, Atlanta, GA*

Nancy Masterson, *Southeast Region Coordinator, American Forests, Miami, FL*

Bruce Means, *Ecologist and President, Coastal Plains Institute, Tallahassee, FL*

Mike Renda, *Restoration Coordinator at Blowing Rocks Preserve, The Nature Conservancy, Hobe Sound, FL*

Joe Schaefer, *Wildlife Extension Specialist, Department of Wildlife Ecology and Conservation, University of Florida, Gainesville, FL*

Jeff Siegel, *Landscape Architect, City of Plantation, FL*

Wayne Smith, *Director, School of Forest Resources and Conservation, University of Florida, Gainesville, FL*

Jeff Vowell, *Environmental Manager, Florida Division of Forestry, Tallahassee, FL*

Please make check, money order, or purchase order payable to:
FL Leadership & Education Foundation, Inc. (U.S. currency ONLY)
Mail this form with payment to: **Urban Forestry Institute**
IFAS Office of Conferences
University of Florida
P. O. Box 110750
Gainesville, FL 32611-0750

-OR-

FAX registration form to the IFAS Office of Conferences at:
(352) 392-9734.

Charge my: ❑ VISA ❑ Master Card *(Note: No other cards accepted.)*

PLEASE PRINT Fed. ID: 59-3104978

Credit Card #: _____

Expiration date: _____

Name of cardholder: _____

Amount: $ _____

Signature: _____

The URBAN FORESTRY Institute

REGISTRATION

Note: If making payment for multiple registrants, please list each individual's name on the form of payment. This will ensure proper crediting for each registrant.

Refund Policy: Requests for registration refunds will be honored if a written notification of cancellation is received by the Office of Conferences on or before May 24, 1997. A $50.00 processing fee will be deducted from all refunds. Sorry, no refunds will be honored for cancellations after May 24, 1997.

Journal Transfer Payments NOT Accepted!

In compliance with ADA requirements, participants with special needs can be reasonably accommodated by contacting the Office of Conferences at least 10 working days prior to the conference. We can be reached by phone at (352) 392-5930, by fax at (352) 392-9734, or by calling (800) 955-8771 (TDD)

The Urban Forestry Institute: Restoring the Urban Forest Ecosystem

June 23-27, 1997 • Fort Lauderdale, FL

PLEASE PRINT Project # 9710

Name: (first) _____ (last) _____

Organization: _____ Business Address: _____

City: _____ State: _____ Zip: _____ Country: _____

Business Phone: _____ FAX: _____ Email: _____

Registration Fee (includes: a field trip with lunch and transportation, a course workbook, a reception, a cookout, refreshment breaks and various course materials)

_____ $600 Early Registration Fee (for fees postmarked on or before May 15, 1997)

_____ $675 Regular Registration Fee (for fees postmarked after May 15, 1997)

Journal Transfer Payments NOT Accepted!

$_____ **Total amount enclosed** (payable to: Florida Leadership & Education Foundation, Inc.)

Early registration deadline is May 15, 1997. *To qualify for the early registration fee, payment must accompany your registration card on or before this date.*

OFFICE USE ONLY Receipt #: _____ Check #: _____ Cash: _____

Date received: _____ PO #: _____ Money Order: _____ Amount received: _____