

Appendix D: Academic Resources in Sustainability at UF

In response to a UF Faculty Senator's call for identification of sustainability efforts on campus, a large number of the UF Faculty members responded with an abundance of information. This was an informal survey, in no way a comprehensive analysis of sustainability efforts on campus. The Faculty members that responded reside in various departments and colleges (short list enclosed below). There were approximately 70 responses from Faculty in total of 33 departments, colleges and IFAS extension. There are already two Programs in place at the UF that largely deal with sustainable resources (#14 and #35) and these include numerous scientists that were not counted individually. Numerous Faculty members in IFAS Extension involved in sustainability were not individually accounted for in this informal survey. Overall reported sustainability efforts involve several diverse areas such as research, teaching, administration, service, community outreach and operations.

1. Agricultural and Biological Engineering Dept.; 1
2. Department of Agronomy; 1
3. Department of Animal Sciences; 2
4. School of Architecture; 1
5. Department of Botany; 3
6. Commercial Horticulture - Woody Ornamentals
UF/IFAS Lake County Extension Service; 1
7. Powell Center for Construction and Environment
M.E. Rinker Sr. School of Building Construction; 1
8. College of Engineering, SFRC; 1
9. Department of Entomology & Nematology; 3
10. Department of Environmental Engineering Sciences; 1
11. Department of Environmental Horticulture; 8
12. Department of Fisheries and Aquatic Sciences; 1
13. Florida Energy Extension Service
Pinellas County Extension; 1
14. Florida Sea Grant College Program; numerous
15. Food and Resource Economics Department; 2
16. School of Forest Resources and Conservation; 11
17. Department of Geological Sciences; 1
18. Grassland Science; 1
19. Horticultural Sciences Department; 3
20. IFAS Extension; numerous
21. Indian River Research & Education Center; 1
22. Department of Landscape Architecture; 1
23. Department of Microbiology and Cell Science; 2
24. Materials Science and Engineering; 1
25. UF School of Natural Resources and Environment; 1
26. Department of Political Science; 1
27. Department of Religion; 3
28. Soil and Water Science Department; 1
29. Department of Tourism, Recreation and Sport Management; 1
30. Working Forests in Tropics Program; 1
31. Turfgrass Management and Water, FLREC; 1
32. Urban and Regional Planning Department
College of Design, Construction and Planning; 2
33. Veterinary Medicine; numerous
34. Department of Wildlife Ecology and Conservation; 5
35. University of Florida Program for Resource Efficient Communities; numerous

1. AGRICULTURAL AND BIOLOGICAL ENGINEERING

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RESEARCH

Sustainability- in form of **remote sensing and geographic information systems projects** in areas of Precision Agriculture, Surface Hydrology, and Invasive Exotic Vegetation mapping. Study areas have included Florida, Taiwan, and Ecuador.

1) Externally Funded Research Projects

a) Precision Agriculture

"Maintaining the Competitiveness of Tree Fruit Production through Precision Agriculture", United States Dept. of Agriculture (USDA), 2002-05, PI W. S. Lee.

"Implementation of Precision Agriculture Technology to Improve Profitability of Florida Citrus", Florida Citrus Production Research Advisory Council, 2003, PI A. W. Schumann.

b) Surface Hydrology

"Development of a Reflectance Spectroscopic P-Sensor for Terrestrial and Aquatic Ecosystems in the Lake Okeechobee Drainage Basin", Florida Dept. of Agriculture and Consumer Services (FL-DoACS), 2002-05, PI W. S. Lee.

"Remote Sensing and Geographic Information System in Runoff Coefficient Estimation for Irrigated Regions, Intl. Commission on Irrigation and Drainage, 1999-2001, PI S. F. Shih.

"Using Remote Sensing Techniques to Assess Stress Conditions in Wetland and Upland Vegetation in the Southeastern Coastal Region, 1997-2001, PI S. F. Shih.

c) Invasive Exotic Vegetation Mapping

"Baseline Mapping via Remote Sensing for Monitoring the Biocontrol of *Schinus terebinthifolius* Raddi in Florida", Florida Dept. of Environmental Protection (FL-DEP), 2004-05, PI J. D. Jordan.

2) In-House Funded Research Projects

b) Surface Hydrology

"Development of an Innovative GIS Database System for Flood Analysis, Crop Planning, and Agricultural Loss Mitigation in Miami-Dade County", Extension Enhancement funds, 2001, PI D. Pybas.

c) Invasive Exotic Vegetation Mapping

"Remote Sensing to Monitor Management of *Schinus terebinthifolius* Raddi in Central Florida", UF School of Natural Resources and Environment (SNRE), 2003-04, PI J. D. Jordan.

"Use of Aerial Photography to Monitor the Spatial and Temporal Distribution of *Ischnodemus variegatus* Signoret, a Natural Enemy of the Invasive Grass, *Hymenachne amplexicaulis* (Rudge) Nees", UF School of Natural Resources and Environment (SNRE), 2003-04, PI W. A. Overholt.

"Remote Sensing of Invasive Vegetation in Florida Wetlands by Multi-Temporal Analysis of Satellite Imagery", UF Invasive Plants Working Group, 2002-03, PI J. D. Jordan.

2. AGRONOMY

JOHANNES SCHOLBERG

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TEACHING

AGR4268C Sustainable Agricultural System Analysis

Learn more about regional and global food security, sustainable/alternative agriculture, and use of computer applications to improve your understanding of agro-ecosystems & environmental quality in an interactive & informal course setting.

AGR6932 Agriculture Environment and Food Security

I work on covercrops, environmental quality, nutrient cycling, organic and integrated cropping systems.

My web site has more info on my program: <http://scholberg.ifas.ufl.edu/>

Overall Program Objectives:

- Develop information on the effects of environmental conditions on nutrient uptake dynamics and to integrate this information in conceptual models.
- Design and evaluate improved irrigation systems and irrigation scheduling techniques for Florida crops.
- Develop integrated cropping systems, featuring improved use of crop residues that will improve nutrient retention, profitability, and sustainability of regional agricultural production systems.
- Design and test improved irrigation, crop nutrition, and weed control guidelines for alternative (organic) production systems.
- Implement user-friendly information systems and decision support tools for Florida growers that will allow successful implementation of site-specific BMPs for efficient use of water and nutrients and to minimize the risk of environmental degradation.

3. ANIMAL SCIENCES

A) SAUNDRA TENBROECK

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Extension Horse Specialist
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Most of what I do would fall under the broad description of **sustainability**.

EXTENSION

My assignment in IFAS is 60% Extension - **Horse Specialist** and 40% **Teaching - Equine Health Management, Introduction to Equine Science, Reproductive Techniques, Form to Function**.

I work with adult and youth audiences to provide up to date information regarding **horse care, selection and utilization**.

We are currently working on a BMP manual for horse owners that will focus on **Waste Management**.

RESEARCH

I am involved in research relative to **control of biting flies and mosquitoes on horse farms**.

B) JOEL H. BRENDEMUEHL, Ph.D.

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What we are doing falls under the category of sustainability.

Currently at the UF Swine Teaching and Research Unit we have an extension demonstration underway in evaluating the potential for naturally-raised swine. We are working with Frankie Hall from Florida Farm Bureau, the Florida Pig Improvement Group and a company called Niman Pork. We also have several producers that are participating as well as Florida A&M University. If this project exhibits positive potential it could pave the way for small land-owners to use their land to raise swine outdoors and to market those animals into a niche market that pays a premium (Niman Pork). Very little capital investment is required for this type of production system if the individual already owns the land. It may also provide an opportunity for those individuals that have lost broiler contracts due to the departure of Tyson from Florida and the reduction in broiler contracts by Perdue. It may be possible to renovate their existing chicken structures into facilities that would fit under the Niman Pork standards for their animals.

4. ARCHITECTURE

GARY W. SIEBEIN

Professor
School of Architecture
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TEACHING

I teach courses in **Environmental Technology** at the undergraduate, Masters and Doctoral levels that address the fundamentals of sustainable design principles.

Environmental Technology 1 ARC 3620
Environmental Technology 2 ARC 4620
Architectural Acoustics ARC 6642
Thermal Systems in Architecture ARC 6632

RESEARCH

I also conduct **research acoustical issues in sustainable buildings** and execute **remedial work on sustainable buildings** with acoustical problems such as the UF BCN Building. There are actually many acoustical difficulties encountered in sustainable buildings that research and training are needed to resolve.

5. BOTANY

A) JOSEPH S. DAVIS

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RESEARCH

My research involves **use of ecological methods to aid salt production from seawater**.

About one third of the world's salt is produced from seawater. I aid almost 30 installations worldwide in this endeavor. Nearly all the energy needed for salt production by this method --evaporation of seawater--comes from sun and wind, and is free.

At present I have no students nor do I teach a course on the subject. However, **for this year, I have aided large saltworks in Namibia and Mexico. My methods are widely used by the salt industry.**

B) STEPHEN MULKEY, PhD

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TEACHING

1) I am developing a course on **Global Change** which will be offered beginning Spring 2005 as **BSC 2008**. In the next iteration it will be offered under its own course number. The course covers climate, extinction, tradition concepts of conservation, and ecosystem services. About 50% of the course will be devoted to ecosystem and human health issues.

Sustainability will be a theme reiterated throughout.

RESEARCH

2) My research concerns the **ecophysiology of trees in regenerating forest** in Eastern Amazonia.

C) FRANCIS E. "JACK" PUTZ

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Virtually all of my teaching and research is related to the topic of sustainability.

TEACHING

1. **"Ecosystems of Florida"** considers the ecological basis of sustainable natural resource management with a focus on issues such as fire ecology, invasive exotic species, habitat fragmentation, and forestry practices.
2. **"Plant Ecology"** focuses on reading the landscapes of Florida for insights into historical and future land-use practices that have and will sustain our supplies of water, timber, and other resources.

RESEARCH

My research concerns the **ecological basis for sustainable forest management** for timber, non-timber forest products, and environmental services (e.g., carbon sequestration) in the tropics and in Florida.

6. COMMERCIAL HORTICULTURE - WOODY ORNAMENTALS

JUANITA POPENOE, Ph.D.

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Commercial Horticulture - Woody Ornamentals
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TEACHING

I teach an annual **IPM Scout Training Class** for four days to growers to teach them how to **scout for diseases and pests** and **how to use IPM to reduce their use of harmful pesticides in the greenhouse and nursery industry.**

We are also planning a water use field day to help growers make wise decisions about **irrigation to protect our water supply.**

I help teach the **pesticide safety courses** for pesticide applicator licenses for my three county area as well, and we always emphasize IPM and environmental stewardship.

7. CONSTRUCTION AND ENVIRONMENT, POWELL CENTER

CHARLES J. KIBERT, Ph.D., P.E.

Holland Professor and Director
Powell Center for Construction and Environment
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Fax: 352-392-9606 Powell Center: <http://www.cce.ufl.edu>
ckibert@ufl.edu Personal/Classes: <http://web.dcp.ufl.edu/ckibert>

TEACHING

a. Organized and teach **BCN 1582, International Sustainable Development**, to 110 students every fall. It carries International and Social (I,S) credits for general education.

b. Developed and teach **three Masters course** on sustainable construction:

BCN 6585 – Principles of Sustainable Construction

BCN 6586 – Construction Ecology & Metabolism

BCN 6905 – Green Building Delivery Systems

These three courses are also delivered via the internet as part of our Masters in **International Sustainable Development**:

ICM 6680 – Principles of Sustainable Construction
ICM 6682 – Construction Ecology & Metabolism
ICM 6905 – Green Building Delivery Systems

- c. Developing a Certificate in Sustainable Construction for both Masters programs.
- d. Co-developed a course on Sustainable Development for Honors Students, DCP 4905

RESEARCH

- a. Generated over \$1.5 million in research on sustainable development topics
- b. Wrote or edited three books on the general subject of sustainable development and construction:
 - Reshaping the Built Environment: Ethics, Economics and Environment, Washington, DC: Island Press, 1999
 - Construction Ecology: Nature as the Basis for Green Buildings, London: Spon Press Ltd, 2002
 - Sustainable Construction: Green Building Design and Delivery, New York: John Wiley & Sons, 2005
- c. Founded the Center for Construction and Environment in 1991 to conduct research into the relationship of sustainable development to the built environment. Was successful in obtaining a \$3million endowment for the Center which is now called the Powell Center for Construction and Environment.

SERVICE

- a. Founded Greening UF in 1997
- b. Member of the UF Sustainability Task Force, 2002-2004
- c. Organized or organizing three major international conferences on sustainable construction:
 - First International Conference on Sustainable Construction, Tampa, Florida, November 1994
 - Green Building Materials '96, Gainesville, Florida 1996
 - Rethinking Sustainable Construction, Sarasota, Florida 2006
- d. Member of the US Green Building Council Curriculum and Accreditation Committee
- e. President of the Cross Creek Initiative, Inc., a non-profit fostering the implementation of sustainable development in the built environment
- f. Organized, supervised, and did fund raising for the first green building at UF, Rinker Hall. The University now has 7 more green buildings being renovated or under construction.
- g. Organized the first student chapter of the US Green Building Council

8. ENGINEERING

A) ALEX E. S. GREEN

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In my November 1 Energy Colloquium presentation I speak on behalf of a group of concerned UFers rather than an individual with specific energy related research interests. Today natural gas futures rose above \$8/MMBtu and undoubtedly making substitute natural gas or syngas will soon become a very hot topic. We need quickly to groom a leader to develop a MADBANG proposal that resonates with baby boomer or generation X funding agents or rich UF alumni. Our paper might be a reasonable starting point for the proposal. Apart from the Gas Technology Institute in Chicago that has pursued a similar concept for a pulp and paper industry application I am unaware of any other US organization that has put forth the Bioamss Alliance with Natural Gas (BANG) strategy. Thus we shouldn't wait to capture the BANG thrust. Please put your thinking caps on as to how UF might best capture the leadership role.

9. ENTOMOLOGY AND NEMATOLOGY

A) JAMES P. CUDA, Ph.D.

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TEACHING

Teaching (5%)- Advise and mentor graduate students; guest lecturer on biological control and insect community ecology in graduate/undergraduate courses.

RESEARCH

Research (65%)- Focus on classical biological control of nonnative plants that have become invasive weeds in Florida

EXTENSION

Extension (30%)- Develop and implement arthropod pest and weed management programs emphasizing biological control

B) J. HOWARD FRANK, PH. D.

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TEACHING

My course on **Biological Control ENY 5241** is explained at:
<http://entnemdept.ifas.ufl.edu/eny5241.htm>

Course Description: Introduction to the principles involved in the natural and biological control of insects.

Objectives and Goals: To demonstrate the ecological principles of biological control; to demonstrate methods used in biological control of insects and other arthropods, by insects, and other arthropods, pathogens, and entomogenous nematodes, as well as biological control of weeds by insects and other arthropods; to show sources of information about biological control and those who practice it; to teach the relevant aspects of the laws that govern the practice of biological control.

Topics

- Natural limitation of populations (abiotic and biotic); Classical biological control; LAB: Division of Plant Industry, FDACS
- Insect predators and parasites (excluding Hymenoptera); On parasitoidism and predation; LAB: quarantine facilities in Gainesville
- Biological control of forest pests; Biological control of mosquitoes; LAB: International Institute of Biological Control
- Laws affecting biological control; The predatory and parasitic Hymenoptera; LAB: The American Entomological Institute
- Biological control of winter moth; Biological control of aquatic weeds; Field trip to Apopka (all day Saturday); Biological control of terrestrial weeds; Biological control of mole crickets; LAB: Drs. Chris Geden and Sanford Porter, USDA
- Who's who among biological control agencies; Assessing effects of biological control agents; Partitioning mortality of pests (life tables); Single-species models; LAB: videotape "Chaos"
- Host-parasitoid models; Predator-prey models; LAB: review of models
- Augmentative biological control; Manipulative biological control; Commercial biological control; Biological control as a component of IPM; LAB: videotapes "Dung Down Under" and "Biocontrol of Cassava Mealybug"
- Biological control of pests of citrus; Controversies in biological control; LAB: field trip to Lake Alfred (all day Saturday)
- Conflicts of interest in biological control; Economics of biological control; Field trip to EPCOT's The Land (all day Saturday); LAB: videotapes of (a) sugar cane borers (b) wine, women and vineyard mite control, (c) cane toads, and (d) control of mites on strawberry
- Insect pathogens as biological control agents; Biological control of mite pests of citrus; Entomopathogenic nematodes

The web page listed is about to be updated to reflect a title change
To Biological Control (WAS Biological Control of Insects)

Permanent suppression of pest mole crickets by classical biological control. The traditional method of dealing with pest mole crickets has been by non-sustainable use of chemical pesticides. Introduction of three beneficial species (two insects and one nematode) has suppressed pest mole cricket populations in the Gainesville area by more than 95%. These three biological control agents are spreading in Florida naturally and with assistance, and benefiting ranchers, farmers, and turfgrass managers.

RESEARCH

Research into the **management of the two insects** (a fly and a wasp) and **modeling of effects of all three bio-control agents** are ongoing.

C) NORMAN C. LEPPLA, Ph. D.

Professor & Director, IPM
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Sustainability is a cornerstone of our UF, IFAS **integrated pest management program** at <http://ipm.ifas.ufl.edu/>

10. ENVIRONMENTAL ENGINEERING SCIENCES

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<http://www.ees.ufl.edu/homepp/brown/>

RESEARCH

I have conducted more than 25 years of research in the fields of systems ecology, ecological engineering, ecological economics, environmental planning, and wetlands ecology. I have had more than 50 funded research projects in these research areas that deal directly with issues of sustainability at local, national, and global scales. Currently my funded research program is as follows:

- 1998 –05 **Development of biological indicators of wetland ecosystem health.** Agency: Florida Department of Environmental Protection/ USEPA. \$1,200,000
- 2004 – 07 **Hydrology and ecological structure and processes of wetlands constructed on phosphate clay settling areas.** Agency: Florida Institute of Phosphate Research. \$590,000
- 2004 - 06 **Evaluation of ecological success, compliance with permit criteria, and effectiveness of wetland mitigation banking in Florida.** Agency: Florida Department of Environment Protection / USEPA. \$200,000
- 2004 - 05 **Environmental accounting and systems synthesis of land management practices and interventions at multiple scales in the Sahel Region of west Africa.** Agency: United Nations Environmental Program. \$225,000

I have an active teaching and mentoring program that deals with issues of sustainability. I have mentored over 30 graduate students will a member of the graduate faculty at U of F and each student has conducted research and written a thesis or dissertation directly related to sustainability. Below is a list of dissertations I have directed:

Dissertations Directed

Buenfil, A.	Emergy evaluation of water supply alternatives	08/01
Buranakarn, V	Evaluation of recycling and reuse of building materials using the emergy analysis method /	12/98
Carstenn, B.	Self-organization and successional trajectories of constructed forested wetlands	08/00
Cohen, M.	Systems evaluation of erosion and erosion control in a tropical watershed	2003.
Guillen, H.	Emergy evaluation of ecotourism and traditional economies in southern Mexico	12/98
Howington, T.	A spatial analysis of an internationally shared drainage basin and the implications for policy decisions	05/99

Lane, C.	Biological indicators of wetland condition for isolated depressional herbaceous wetlands in Florida	12/03
Nelson, M.	Limestone wetland mesocosm for recycling saline wastewater in Coastal Yucatan, Mexico /	12/98
Reiss, K.	Developing biological indicators for isolated forested wetlands in Florida	5/04
Saunders, L	The Role of Hyporheic Zones for Managing Water Quality in Tropical, Rural River Basins	In progress
Surdick, J	The influence of landscape setting on the avian, amphibian and arthropod biota of isolated wetlands in Florida	In progress
Sweeney, S.	Systems analysis of the dynamic interactions of ecology, economy, and landscape across multiple scales in Thailand	In Progress
Tilley, D.	Emergy basis of forest systems	08/99

TEACHING

All of the courses I teach are related to sustainability and balancing humanity and nature.

- 1) **EES3000 – Environmental Science and Humanity:** An introduction to principles of environmental science: patterns and processes of atmosphere, oceans, earth, material cycles, resources, energy, ecosystems, economics, populations, and how they relate to global futures. The course addresses the need for developing a mutually beneficial system of humanity and nature as a means of solving present day environmental problems and preventing future environmental deterioration.
- 2) **EES3008 - Energy & Environment:** Energy basis for systems of humanity and nature, including principles of systems ecology, ecological economics and public policy
- 3) **EES4050 – Environmental Planning & Design:** An introduction to the principles and practices of environmental planning.
- 4) **EES5305 – Ecological & General Systems:** General systems and systems ecology, including examples, languages, theoretical formulations and models for design, synthesis, understanding, simulation, and prediction of systems of humanity and nature.
- 5) **EES5306 - Energy Analysis:** Energy analysis methods for evaluating the combined system of humanity and nature are studied as a means for recommending public policy. Other approaches and references on energy analysis are studied and compared
- 6) **EES5307 - Ecological Engineering:** Principles and practices in design and management of environment and society. Systems concepts for organization of humanity, technology, and nature
- 7) **EES6007 – Advanced Energy & Environment:** A unified view of the system of nature and humans using a “systems perspective” that integrates, rather than fragments science into disciplines to gain understanding of the interdependence of the economy with resources and environment and the way economic vitality and quality of life depend on a symbiotic system of humanity and nature.
- 8) **EES6009 - Ecological Economics:** Models and mathematical theories common to ecology and economics, interfaces between ecology and economics, measures of environmental value, relationships of energy and money, microcomputer simulations of micro, macro, global scale.
- 9) **EES6051 – Advanced Environmental Planning & Design:** Principles and practices of environmental planning. Planning for, and designing sustainable communities and regions. Exploration of quantitative methods for the evaluation of environmental impacts and analysis of carrying capacity of economic development. Exploration of theories of spatial and temporal organization of systems of humanity and nature
- 10) **EES6932 - Ecological and Biological Systems:** a unified systems course in fundamental principles of ecological and microbiological systems that enables students to use their engineering training to quantitatively evaluate relationships between humans and the environment.

11. ENVIRONMENTAL HORTICULTURE

A) ED GILMAN

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<http://hort.ufl.edu/woody/index.htm>
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RESEARCH/EXTENSION

Research and extension teaching efforts focus on building and managing sustainable urban spaces that support shade trees.

B) MICHAEL KANE

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<http://hort.ifas.ufl.edu/plantrestoration/KaneLab/html/index.htm>
<http://hort.ifas.ufl.edu/>

Genotypic selection and production of aquatic/wetland plants and native plants, including orchids. Ecotypic effects on field growth performance of micropropagated native wetland and coastal plants in restored habitats and/or retention ponds. Delineation of genetic diversity within and between wetland and native plant populations using DNA fingerprinting technology. Selection and propagation of ornamental water garden plants.

C) D. J. MORSE

Environmental Horticulture Extension
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TEACHING

As an Environmental Horticulture Extension Agent, teaching sustainability is the largest part of my work. I teach the public ways they can have a healthy lawn and landscape through **proper selection, installment and maintenance of plants**. Using the Florida Yards and Neighborhoods principles these lawns and landscapes also help **protect our water quality, water quantity, provide for wildlife**, keep yard assets on site by composting, and also save money and time by using less pesticides, herbicides, water, fertilizer, mowing, etc. and still provide a beautiful Florida-friendly landscape.

D) GRADY L. MILLER

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Turfgrass - Environmental Horticulture Dept.
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RESEARCH

My Research work relates to managing turfgrass, the number one ornamental plant in the landscape. I also work with various ways of managing water resources.

E) JEFF NORCINI

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<http://nfrec.ifas.ufl.edu/norcini>

<http://hort.ifas.ufl.edu/>

RESEARCH

Since 1996, my focus has been on implementing research and extension programming related to production of **native herbaceous plant materials** that are appropriate for Florida. My programming is designed to support those involved with **native wildflower seed production, container production, and establishment of sustainable populations**.

F) DAVID SANDROCK

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RESEARCH

Our lab is working to establish minimum input standards (fertilizer and water) for native and non-native landscape shrubs.

TEACHING

1) **ORH4848C (Landscape Plant Establishment)**, where we discuss best management practices for establishing landscape plants as well as topics like the effectiveness of wetlands mitigation and mitigation banking.

G) TOM WICHMAN

Florida Master Gardener Coordinator
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<http://hort.ifas.ufl.edu/mg>

The Florida Master Gardener Program began in 1979 and trains interested citizens to assist County Extension Agents in educating residents on how to properly design, install and maintain landscapes in an environmentally friendly way. As a result of this program people plant the right plant in the right place, use fertilizers appropriately, use fewer and safer pesticides, and greatly reduce the amount of water applied as irrigation. These more than 4000 active volunteers donated more than 350,000 hours of volunteer time to the citizen of Florida in 2003.

H) TOM YEAGER

Professor

Environmental Horticulture Department
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<http://hort.ifas.ufl.edu/>

RESEARCH/EXTENSION

The long-term objectives of my research and extension program are to develop fertilization and irrigation regimes for the commercial nursery industry that will minimize nutrient loss to the production environment. This may be achieved by implementing management strategies or Best Management Practices based on model systems in which plant growth and nutrient loss (efficiency) can be predicted from environmental and physical inputs.

12. FISHERIES AND AQUATIC SCIENCES

SHIRLEY BAKER

Assistant Professor (and mother of identical triplets)
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Department of Fisheries and Aquatic Sciences
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RESEARCH

I do research that supports ecological and economic sustainability. My main project right now is: **CLAMMRS; Clam Lease Assessment Management and Modeling using Remote Sensing.**

Adoption of remote sensing technologies in management practices of the Florida hard clam industry is enhancing the sustainable development of open-water clam farming by increasing production, farm efficiency, and profitability, while minimizing impact on the environment.

13. FLORIDA ENERGY EXTENSION SERVICE

BERT HENDERSON, M.Ed.

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Florida Energy Extension Service
Pinellas County Extension
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ofc (727) 582-2660
fax (727) 582-2149
bhenderson@mail.ifas.ufl.edu
<http://coop.co.pinellas.fl.us>

TEACHING

Through FEES, I teach UF's **programs in adult education in the building construction and allied building construction fields.**

I would be interested in knowing issues and information that are directly related to my area of Energy Efficiency and building construction.

14. FLORIDA SEA GRANT COLLEGE PROGRAM

You should touch base with **Dr. MIKE SPRANGER**, Florida Sea Grant. A number of our extension and research efforts are focused on sustainable resources.

JOHN M. STEVELY

Florida Sea Grant College Program
1303 17th St. W.
Palmetto, FL 34221
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jmstevely@ifas.ufl.edu

15. FOOD AND RESOURCE ECONOMICS

A) JEFF BURKHARDT

Professor
Food and Resource Economics Department
E-mail: Rburkhardt@mail.ifas.ufl.edu

TEACHING

I teach an undergraduate course, **AEB 4126, Agricultural and Natural Resource Ethics**, which explores issues of socio-economic justice, environmental responsibility, and globalization, in the context of concerns about ecological, agricultural and institutional sustainability. In addition, my research has focused on the human and environmental impacts of agricultural biotechnology, which some regard as a "technological fix" for issues associated with "The Malthusian Problem."

B) SHERRY LARKIN

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slarkin@ufl.edu

TEACHING

- 1) **Environmental and Natural Resource Economics AEB4931** (undergrad)
- 2) **Natural Resource Economics AEB6453** (graduate)

Both courses address sustainability issues.

RESEARCH

1) CRIS Project, Multistate: "MARKETING, TRADE, AND MANAGEMENT OF FISHERIES AND AQUACULTURE RESOURCES" (W-1004; FLA-FRE-04192)

2) CRIS Project, CREES-FLA: "THE EFFICIENCY OF ALTERNATIVE NATURAL RESOURCE AND ENVIRONMENTAL POLICIES AND PRACTICES" (FLA-FRE-03863)

Both umbrella projects include studies that are predicated upon achieving and/or maintaining a sustainable resource stock.

16. FOREST RESOURCES AND CONSERVATION

A) JANAKI ALAVALAPATI

Associate Professor
Forest Policy and Economics
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<http://www.sfrc.ufl.edu/alvalapati.html>

TEACHING

- 1) **Natural Resource Policy and Administration** (undergraduate level): We explore the dynamics of policy development, administration, and assessment by keeping sustainability as a guiding principle. After going through the course, students will have multidisciplinary understanding natural resource conservation.
- 2) **Forest Conservation and Management Policies and Issues** (graduate): This is a multidisciplinary course focusing on the mechanics of sustainable forest and other natural resource conservation and management. Theories of political economy relating to resource conservation and management are discussed.

RESEARCH

- 1) **Identifying conservation compatible forest practices** - Which forest practices further biodiversity and what are the socioeconomic implications of adopting these practices?
- 2) **Exploring strategies to manage protected areas in a sustainable manner.**

Service: Served as a member of UF Sustainable Task Force Committee (2002-2003).

B) JOHN DAVIS & MATIAS KIRST

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E-mail: jmdavis@ufl.edu

TEACHING

- 1) **Forest Genetics and Tree Improvement FOR6310**

RESEARCH

Use of genomics to improve efficiency of tree breeding, leading to reduced pressure to harvest old-growth forests and enhanced utilization of wood - a renewable, recyclable and biodegradable raw material.

Three graduate student projects (Gogce Kayihan, Philip Boccock, Gustavo Ramirez) are designed to identify genes that underlie domestication traits and thus increase productivity with fewer chemical inputs.

C) SHIBU JOSE, Ph.D.

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<http://www.sfrc.ufl.edu/allfaculty.html>
<http://wfrec.ufl.edu/center/bios/sjose.htm>

TEACHING

- 1) Course **FOR 3163C Forest Ecology** in which sustainability of forest ecosystems is discussed in detail.
- 2) I am developing a distance education course called "**restoration ecology of longleaf pine ecosystems**" which also addresses sustainability.

RESEARCH

I conduct research in which the major focus is "**sustainable wood and food production**". My CRIS projects have substantiality as their cornerstone. They are FLA-Jay-04078 Silvicultural basis for forest production and conservation FLA-JAY-03900 Establishing a Center for Subtropical Agroforestry

D) TIM MARTIN

Assistant Professor
Tree Physiology
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tamartin@ufl.edu

TEACHING

- 1) **Tree Biology FOR 3342C and Physiology of Forest Trees FOR 6340**. Both courses focus on understanding the biological mechanisms underlying ecological cycles of carbon, water, nutrients and energy.

RESEARCH

Research program broadly focused on understanding the controls over carbon, water and nutrient cycles in managed forests.

E) MARTHA C. MONROE

Associate Professor and Extension Specialist
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mcmmonroe@ufl.edu

TEACHING

- 1) **Conservation Behavior**- we explore theories of human behavior and apply them to education and communication strategies that will move societies toward sustainability (graduate course).
- 2) **Environmental Education Program Development** - we explore program and evaluation theories that non-formal educators can use to develop good EE programs- good programs that address environment, economy, and equity in support of the UN Decade for Education for Sustainable Development (graduate course).

RESEARCH/EXTENSION

1) **Wood to Energy** - encouraging southern communities to use waste wood for energy supplies; our educational materials will address all three elements of sustainability.

2) **Wildland Urban Interface Training**- helping natural resource managers address environment and development issues in the southern interface.

I just returned from a study tour in Australia where I asked colleagues how they were approaching education for sustainable development and the decade.

We plan to write several articles. I just spoke to the editor of the journal Applied Environmental Education and Communication about coordinating a special issue on the topic.

In terms of service, I am President Elect of the North American Association for Environmental Education- our next conference will focus on sustainability and much of my term will be spent linking us to the U.N. Decade as appropriate.

F) GARY PETER, ERIC JOKELA, ROBERT SCHMIDT

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TEACHING

1) course: **Forest Productivity and Health FOR5161**

Integrated overview of tree breeding, silviculture and forest pathology related to creating sustainable forest tree plantations, leading to reduced pressure to harvest old-growth forests and enhanced utilization of wood- a renewable, recyclable and biodegradable raw material.

One graduate student projects (Xiaobo Li) is designed to identify the mechanisms that control productivity of southern pine trees with increased productivity and improved wood quality for bio-based products.

G) DONALD L. ROCKWOOD

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TEACHING

1) **NON-TIMBER FOREST PRODUCTS** - For advanced undergraduates and graduate students, the course will intensively review products, with emphasis on non-timber forest products that may be obtained from forestland worldwide and how forestland is managed to produce these products.

In consultation with one of the instructors, each student will focus on one NTFP in one region of the world. The project will describe the chosen NTFP, evaluate its marketing, review management options for the NTFP resource, identify significant concerns related to its use, and assess the long-term feasibility of the NTFP.

As trial offering the course was **FOR4934/6934**; in the Fall 2005 it will likely be **FOR5754**.

RESEARCH

Fast Growing Forest Tree Management Systems for Florida and Similar Areas -

To increase productivity of various forestry applications in Florida and similar areas, forest research needs to develop and evaluate new management systems. Management options for appropriate fast-growing tree species

grown as short rotation woody crops (SRWC) for applications such as energywood and dendroremediation (i.e., phytoremediation using trees) include genetic improvement, intensive culture, and short rotations on agricultural, forest, and non-traditional sites such as reclaimed mined and contaminated lands. In the near term, the opportunities for SRWCs in Florida and similar climatic and edaphic areas include Eucalyptus species grown under diverse conditions in the Gulf Coast region, eastern cottonwood (*Populus deltoides*) on agricultural quality sites or in intensive culture in the Southeast, cypress (*Taxodium distichum*) on upland sites throughout Florida and adjacent states, and slash pine (*Pinus elliottii*) on reclaimed titanium and phosphate mined lands. The productivity and environmental benefits accruing from such intensively-managed forests permit less intensive and multiple use management of other forest lands.

H) TAYLOR V. STEIN

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TEACHING

1) course **FOR 4664: Sustainable Ecotourism Development**

The course is designed to discuss how nature-based recreation and tourism can be used as a tool to sustain social and environmental benefits to local communities, ecosystems, and visitors. It is a management-based course, that focuses on the natural resource manager's role in identifying sustainable benefits from nature-based tourism and designing management actions to help environments and people attain those benefits.

2) course **FOR 6665: Landscape Planning for Ecotourism**

The course takes a planning approach to providing the benefits of nature-based tourism. It is designed for graduate students who will likely move into decision-making roles for private land operations or public land management agencies. It focuses on landscape planning and collaboration.

3) course **FOR 2662: Forests for the Future**

This is a team taught course that introduces issues associated with the world's forests (timber production, global warming, tropical forests, etc.). It educates freshman and sophomores majoring in diverse subjects how the profession of forestry can be used to sustain the multitude of benefits associated with the world's forests.

RESEARCH

My research program is strongly based on sustainability. Most of my work focuses on working with public land management agencies and how to define the benefits their lands help provide to ecosystems and society. I think conduct social assessment research to identify how visitors to those lands or how neighboring communities can help in the identification of those sustainable benefits or help ensure their sustainability.

17. GEOLOGICAL SCIENCES

JONATHAN B. MARTIN

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TEACHING

GLY 5245 Chemistry of Water at the Earth Surface and Near Subsurface; sustainability is a common theme throughout the course.

RESEARCH

Research and teaching focus on water chemistry, particularly in coastal zones and in karst aquifers such as the Floridan Aquifer here in Florida.

18. GRASSLAND SCIENCE

LYNN E. SOLLENBERGER

Research Foundation Professor of Grassland Science
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TEACHING

1) course **AGR 5230: Grassland Agroecosystems**

RESEARCH

Grasslands provide wildlife habitat, wetlands, ground water recharge areas, soil erosion control, and a source of nutrients for animals. The focus of my research is to develop and test strategies for managing and preserving grasslands, so they can continue to carry out these vital functions for society in the future.

19. HORTICULTURAL SCIENCES

A) CARLENE A. CHASE

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Horticultural Sciences Department
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Fax: (352) 392-5653
Email: cach@ifas.ufl.edu
URL: www.hos.ufl.edu/cachweb

TEACHING

1) **HOS 6905: Problems in Horticultural Sciences**

This semester I am teaching a **new graduate level course: Sustainable Weed Management**. It does not yet have a course number so it's being taught under the course number HOS 6905 - Problems in Horticultural Sciences.

RESEARCH

My research is focused on weed ecology and weed management for sustainable and organic horticultural crops.

B) PAUL LYRENE

Professor
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RESEARCH

My principal official research project (my appointment is 80% research, 20% teaching) is entitled "**The genetics, ecology, and breeding of Florida blueberries.**" Eight species of blueberries are native in Florida. I use these in breeding new cultivars for commercial berry production. Some of these species and their races are endangered in Florida due to development. I am monitoring their decline in the wild and am collecting seed stocks for depositing in the national seed storage laboratory in Ft. Collins, CO. Invasive exotic plants, especially bahia grass and Chinese privet, are displacing wild blueberries in many parts of Florida, and I am working informally on this problem in conjunction with the Florida Native Plant Society. I am also breeding commercial blueberry varieties whose cultivation will be less disruptive to the environment: mainly more disease and insect resistant and better adapted to upland soils instead of to lands that border on wetlands. I am very interested in native plants in the southeastern U.S. and in their maintenance and preservation.

TEACHING

I occasionally give **presentations** on native plants to community groups such as the Sierra Club, the Florida Native Plant Society, churches, etc.

C) BALA RATHINASABAPATHI, Ph.D.

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RESEARCH

One aspect of the faculty member's research program aims to develop value-added products from by-products of horticulture.

- (1) Allelopathic wood chip mulches with weed suppressive qualities have been identified and evaluated for their effectiveness. This project is done in **collaboration with Dr. James Ferguson, Horticultural Sciences Department** and
- (2) Antioxidant phytochemicals (lycopene and flavonoids) have been identified in culled tomatoes and in Citrus leaves. The **collaborators in these projects include Dr. Steve Sargent, Dr. Jeff Brecht and Dr. Gloria Moore, Horticultural Sciences Department and Dr. Steve Talcott, Human Nutrition Department.**

TEACHING

1) The faculty member teaches two undergraduate courses **HOS3020 General Horticulture** and **VEC2100 World Herbs and Vegetables.**

Sustainable horticultural production is emphasized in both of these courses. Specific environmental problems created due to intensive cultivation of horticultural commodities are discussed.

20. IFAS EXTENSION

CHARLES S. VAVRINA

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Our Extension District is committed to sustainability at all levels and is developing a platform upon which we can report. All programmatic efforts (Ag. Sea Grant, Families, Youth) are working at defining/delineating this new direction as it applies to them. Issues of note include:

1. Urban Environmental Sustainability endowed professorship in Pinellas county
2. A Sustainable Community Multi-County Extension Agent for the west coast below St. Pete
3. Establishment of a Center for Sustainable Living in Sarasota
4. Office of Sustainability in Sarasota
5. Various partnerships with USDA, DEP, DOE, local and regional agencies in water, energy and the environment.
6. Relationship with Department of Urban & Regional Planning for training in Smart Growth

21. INDIAN RIVER RESEARCH & EDUCATION CENTER

RONALD D. CAVE

Assistant Professor
Indian River Research & Education Center
2199 S. Rock Road
Ft. Pierce, FL 34945
Tel: 772-468-3922 x 145
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TEACHING

I teach a distance ed course **Fundamentals of Pest Management PMA3010** that deals with sustainable methods for controlling pest populations.

RESEARCH

My research focuses on biological control of invasive arthropods. The objective is to discover new natural enemies of adventive pests in Florida, study these natural enemies and release them in the environment so that they provide long-term, environmentally safe control of a pest insect.

22. LANDSCAPE ARCHITECTURE

GLENN ACOMB, ASLA

Associate Professor
Department of Landscape Architecture
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TEACHING/ADMINISTRATIVE

1. Served on the College of Design, Construction and Planning's Sustainability and Smart Growth Committee for 2002 and 2003. The Committee has not met in 2004.
2. Assisted in the creation and coordination of "Conversations in Sustainability," the bi-weekly forum on sustainability in 2003-04.
3. Served as participating faculty for BCN 4905 "Issues in Sustainability" (Spring 2004), lecturing on sustainable development practices.
4. Incorporates sustainability in his landscape architecture construction courses.

SERVICE/PRACTICE

5. Consultant (since 1999) to the St. Johns River Water Management District and private developers to design water conservation demonstration landscapes as a part of the models in residential communities.

The designs utilize native plants, a low-volume irrigation system, limited turf and other sustainable design techniques.

6. Served on the national committee of the National Association of Home Builders to write their new green design guidelines for residential construction and land development (due to be published approximately January 2005).

RESEARCH

7. Co-founded (in 2002) the Program for Resource Efficient Communities, a multidisciplinary group of faculty that is focused in areas of sustainability in land development projects. Current activities include the Evaluation of Sustainable Practices of Baldwin Park (a new infill community in Orlando) with a focus on measures that will protect the water quality of Lake Baldwin.
8. Designed the site and landscape for the model home at Madera (in Gainesville), the demonstration subdivision to illustrate sustainable materials and designs of the home and development. The project is a joint venture of the University of Florida's Energy Extension Service and GreenTrust, a Maryland developer. He continues to assist in the landscape management practices and design of common areas and the main entrance of the project.
9. Current research involves the evaluation of Madera's sustainable practices and costs in comparison to conventional site design and land development. Practices being monitored include land clearing, construction vehicle compaction, stormwater design, landscape design and irrigation design. Capital costs and annual maintenance costs are being collected for the Model site and the development.
10. Other current research involves several grants to create the inaugural "Case Studies in Sustainable Florida Land Design" to document in a case study form the sustainable land development practices in Florida and to create a website that provides information about this on-going program. Funding for this project was obtained through the St. Johns River Water Management District and the American Society of Landscape Architects.

RECENT PAPERS AND PRESENTATIONS

11. Presented at the "Sustainable Community and Site Design Techniques" Building for *Greener Communities National Conference* by the Arbor Day Foundation, held on October 5, 2004 in Nebraska City, Nebraska.
12. Presented "Sustainable Site Design" at the *National Land Development Conference* in Baltimore, Maryland.
13. Presented "Sustainable Guidelines for Communities and Residential Lots" at *GreenTrends*, the annual conference of the Florida Green Building Coalition, May 3, 2004.
14. Presenting "Madera: A Model of Sustainable Site Design" at the national *GreenBuild Conference* in Portland, Oregon, November 3, 2004.

23. MICROBIOLOGY & CELL SCIENCE

A) lonnie o. ingram

Professor
Director, Florida Center for Renewable Chemicals and Fuels
Dept. of Microbiology and Cell Science
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Dr. Lonnie O. Ingram directs the Florida Center for Renewable Chemicals and Fuels (FCRC), located in the Microbiology and Cell Science Department. This new center was formed in response to increasing demands for renewable fuels and chemicals that can reduce our dependence on foreign oil imports. Processes and microorganisms are being developed to use biomass (agricultural residues, yard waste, and materials from municipal waste) as a renewable feedstock, concurrently improving our Florida environment, producing useful products, and stimulating the Florida economy.

B) eva czarnecka-Verner, PH.D.

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Modern science offers humankind a powerful instrument to **genetically engineer biological organisms for many potential advantages such as assurance of food for all**, improved health through medical advances, **and protection of the masses from biological terrorism**. Through enhanced knowledge and new technologies, science already contributes to astonishing advances in feeding the people of the world. However, if we are to produce enough food to sustain the requirements of the next 25 years, we must put all the tools of modern science to work. The human population is growing by 80 million people each year and it is estimated that within this century the population will reach 9 billion from a little over 4 billion at this time.

Environmental Stress:

Environmental stresses, including heat, low temperature, drought, salinity, cold, and heavy metals, represent the most limiting factors to worldwide agricultural productivity. These stresses impact crop production in areas currently cultivated and also constitute significant barriers to the introduction of crop plants into areas as yet not adapted for agriculture. Stresses associated with temperature, salinity and drought, individually or in combination, are likely to progress in severity in the oncoming decades thus further encumbering crop productivity. Already, intensive irrigation in agriculture production has caused severe salinity problems in the USA, Israel and other countries. Furthermore, in the USA and several developing countries, problems relating to drought, excessive heat or cold and heavy metal pollution are already considered the major factors impairing agricultural productivity. Therefore, it is absolutely crucial to apply all currently available biotechnology resources in dealing with problems concerning environmental stresses.

Bioterrorism:

The US Department of Defense BIOS program is focusing on the development of biological sentinels as detection agents of terrorism. These could be genetically engineered bacterial sentinels that can detect explosives such as TNT and DNT, and upon detection communicate this to the observer by an obvious change in a molecular reporter system. The next level of sophistication is to develop plant sentinels that are found naturally in the environment and are more robust than bacteria. Plant sentinels could detect agents of terrorism, explosives, *etceteras*, present in ground water. The signal would be detected by plant roots, transmitted to the aerial parts of the plant where the change in the reporter system would communicate the presence of the agents of terrorism.

RESEARCH

My research in the area of plant molecular biology addresses both issues.

- 1) I investigate the mechanisms of environmental stress response in plants and labor to unravel the signal transduction pathway of plants' response to heat stress. The ultimate goal is to engineer superior transgenic plants that have increased tolerance to heat stress and could potentially grow in areas currently not used for crop production, like deserts. This would contribute to advances in feeding the people of the world as well as increasing available land for habitation. If we can grow plants where we can't live, than we can live where we used to grow plants. Although overlooked, men and plants have a semi-symbiotic relationship, meaning we require plants for oxygen and food and they require us for carbon dioxide. It is imperative that we consider for long-term sustainability the preservation of plants by increasing their tolerance to an ever-changing environment and also maximizing their productivity. Taking into accounts that eventually humans will have to expand to other realms in order to sustain life, including space and underwater habitats, we also have to expand our ability to create new sustainable environments for ourselves by utilization of genetically modified, improved plants.
- 2) I aim to engineer sentinel plants that can detect the agents of terrorism and thus contribute to homeland security.

24. MATERIALS SCIENCE & ENGINEERING

ERIC D. WACHSMAN

Professor
Materials Science and Engineering
University of Florida
E-mail: ewach@mse.ufl.edu

RESEARCH

I have a major (24 students and post-docs) DOE and NASA supported research program on Fuel Cells, Hydrogen Production, and Sensors for Emissions Control. You can find some of the details on my web site:
www.mse.ufl.edu/~ewach

TEACHING

1) Course **EMA 6446**

25. NATURAL RESOURCES & ENVIRONMENT

A) IGNACIO PORZECANSKI, Ph.D.

Lecturer
School of Natural Resources and Environment
Black Hall 103
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392-0836 and igna@ufl.edu

B.Sc. Agriculture (1967), Hebrew University, Jerusalem, Israel
Ph. D. Plant Genetics (1972), Cambridge University, UK.

RESEARCH

Present research centers around a Project in the Eastern Wetlands of the South American Atlantic Coast –Remote Sensing for Ecosystem Management. It is a joint Project, led by the CIESIN of Columbia University (New York), with the Brazilian Institute of Environment (IBAMA) and a Biodiversity conservation and sustainable development Program in Uruguay (PROBIDES). My main interests lie in the area of natural resource identification, evaluation, and management from a biodiversity conservation and human development standpoints.

TEACHING

1) **EVS4000 Critical Thinking in the Environmental Sciences.**
2) **ALS5932 Environment and Reason.**

B) RANDALL K. STOCKER

Director, Research and Outreach/Extension
UF School of Natural Resources and Environment
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The UF School of Natural Resources and Environment was created, in large part, to address the sustainability of human activity related to natural resources and environment. Thus, all aspects of SNRE would appear to relate appropriately to this issue. There are **three faculty members (Jim Cato, Steve Humphrey, and Randall Stocker)** with designated administrative appointments in SNRE. Collectively these individuals develop curricula, provide workshops and seminar series, encourage collaborative interdisciplinary research in critically important sustainability areas, and provide an administrative home for several Centers and Programs, such as the Natural Areas Training Academy, the Natural Resources Leadership Institute, and the Program for Resource Efficient Communities.

We are very willing to assist in the development of UF sustainability programs.

26. POLITICAL SCIENCE

LESLIE PAUL THIELE

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TEACHING

Environmental Ethics and Politics.

RESEARCH

Conducts research on **environmental education, environmental movements, and sustainable communities.**

27. RELIGION

RICHARD C. FOLTZ, Ph. D.

Associate Professor of Religion, History, Natural Resources and Asian Studies
Undergraduate Coordinator, Dept. of Religion
Faculty Senator
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<http://plaza.ufl.edu/rfoltz>

TEACHING

- 1) In rotation with two other colleagues, a course **REL 3942 Religion, Ethics and Nature**, which deals with environmental values in the world's many religious traditions. Uses edited anthology, *Worldviews, Religion and the Environment* (Wadsworth, 2002), which is now the standard teaching text in the field.
- 2) A seminar on **Islam and Nature: REL 4936/REL5396**, which is unique in academia
- 3) A course on **Religion and Animals**
- 4) Completing the first scholarly book ever on **animals in the Islamic tradition**

RESEARCH

In my research, I have worked with ENGOs throughout the Muslim world, and described their work in my forthcoming edited volume **Environmentalism in the Muslim World** (Nova Science, 2005). Our **department offers the only Ph. D. track anywhere** focusing on Religion and Nature. My colleague **Dr. Bron Taylor** is editor of the forthcoming 2-volume *Encyclopedia of Religion and Nature* (Continuum, 2005), which is likely to define the field for some time to come. You should contact Dr. Taylor and my other colleague, **Anna Peterson**, for more information about their activities.

28. SOIL & WATER SCIENCE

ANN C. WILKIE, Ph. D.

Associate Professor
Soil and Water Science Department

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RESEARCH: ENVIRONMENTAL BIOTECHNOLOGY

Dr. Wilkie specializes in environmental biotechnology, with particular emphasis on anaerobic processes, the microbial and environmental factors influencing biodegradation, and the practical application of anaerobic digestion technology for waste treatment, odor control and energy production from biomass and wastes. Her current research focuses on sustainable livestock waste management technology for odor control, energy production, nutrient recovery and water quality improvement. Dr. Wilkie has worked extensively with the Florida dairy industry to develop sustainable solutions to the problems of dairy manure management and handling. She is the inventor of the fixed-film anaerobic digester for treating large volumes of dilute, low-strength wastewaters such as flushed dairy manure.

29. TOURISM, RECREATION & SPORT MANAGEMENT

LORI PENNINGTON-GRAY, Ph. D.

Assistant Professor
Director of Center for Tourism Research and Development
Department of Tourism, Recreation and Sport Management
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Tourism has been touted as the largest industry in the world. One of the most critical issues related to tourism is the sustainability of the destination. My research uses a “systems approach” to understand both demand-side and supply-side issues related to tourism. On the demand side, my primary research agenda has concentrated on the consumer travel behavior. On the supply-side, my research has focused on the decision-making process of destination marketing organizations (DMOs).

RESEARCH

I conduct research in sustainable tourism. Particularly sustainable tourism planning focusing on cultural integrity and culturally responsible behaviors of tourists.

Refereed Journal Articles

Pennington-Gray, L.; Reisinger, Y.; Kim, J.E. & B. Thapa (in press). U.S. Tour Operators to Kenya: Do They Educate the Tourist on Culturally Responsible Behavior? *Journal of Vacation Marketing*.

Floyd, M. & L. Pennington-Gray (in press). Profiling Travelers by Risk Perceptions: Segment Characteristics. *Annals of Tourism Research*.

Pennington-Gray, L. & B. Thapa. (2004). Culturally Responsible Tourism: Are DMOs doing a Good Job of Educating the Tourist? *Tourism- An Interdisciplinary International Journal*. 52 (2), 183-194.

Floyd, M, Gibson, H. Pennington-Gray, L. & B. Thapa (2003). The Effect of Risk Perceptions on Intentions to Travel in the Aftermath of September 11. *Journal of Travel and Tourism Marketing*. 15(2/3), 19-38.

Pennington-Gray, L.; D. Stynes & J. Fridgen. (2003). Cohort Segmentation: An Application to Tourism. *Leisure Sciences*. 25, 1-20.

Pennington-Gray, L. (2003). Understanding the Domestic VFR Drive Market in Florida. *Journal of Vacation Marketing*. 3(3), 1-14.

Pennington-Gray, L.; Beland, R. & S. Sklar (2003). Examining the Influences of Senior Discount Usage in the Hospitality Industry. *International Journal of Hospitality and Tourism Administration*. 3(4), 77-93

Pennington-Gray, L.; Holland, S. & B. Thapa (2003). Florida Residents' Constraints to Parks and Public Lands Visitation: An Assessment of the Validity of an Interpersonal, Interpersonal and Structural Model. *World Leisure*. 44(4), 51-60.

Pennington-Gray, L & C. Vogt (2003). Examining Welcome Center Visitors' Travel and Information Behaviors: Does Location of Centers or Residency Matter? *Journal of Travel Research*, 41(3), 272-280.

Pennington-Gray, L.; Kerstetter, D. L & R. Warnick (2002). Forecasting Travel Patterns Using Palmore's Cohort Analysis. *Journal of Travel and Tourism Marketing*. 13 (1/2), 127-145

Pennington-Gray, L. & D. L. Kerstetter. (2002). Testing A Constraints Model within the Context of Nature-Based Tourism. *Journal of Travel Research*. 40(4), 416-423.

30. THE TROPICS PROGRAM; WORKING FORESTS

ROBERT BUSCHBACHER, Ph. D.

Associate Program Director
Working Forests in the Tropics Program
University of Florida
Tel: (352) 846-2831
rbusch@ufl.edu
www.tropicalforests.ufl.edu/wft

TEACHING

1) **The Working Forests in the Tropics program** is an interdisciplinary **PhD program** that focuses on sustainable management of tropical forests.

One of the courses taught is **LAS 6291, Conservation Entrepreneurship**, that introduces business and management practices to sustainable development and conservation practitioners.

Other courses and program activities are listed on the web site: <http://www.tropicalforests.ufl.edu/wft>

31. TURFGRASS MANAGEMENT & WATER

JOHN CISAR

Professor Turfgrass Management and Water
FLREC
E-mail: JLCI @ufl.edu

Sustainable turfgrass systems

32. URBAN & REGIONAL PLANNING

A) LINDA B. CRIDER

Urban and Regional Planning Department
College of Design, Construction and Planning
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E-mail: LBCrider@aol.com

TEACHING

I teach a course in the Department of Urban and Regional Planning for graduate and undergraduate students from many varied disciplines (Architecture, Landscape, Geography, Urban Planning, Public Administration, Recreation, Civil Engineering, etc.) in Planning and Design for Bicyclists and pedestrians. It is focused on creating a more balanced and sustainable transportation system for our cities and promoting very walkable/bikable (human powered transportation) options for mobility.

Last year I taught it both fall and spring semesters as an on-line course.

This year I am going back to my original design of a regular spring semester on campus course with web option for off-campus professionals in the field.

1) Courses **Bikeways Planning and Design; URP 6718, URP 4715**

B) RHONDA PHILLIPS, AICP, CED

Director, Center for Building Better Communities
Urban and Regional Planning Department
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University of Florida
PO Box 115706
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Fax: 352-392-3308

TEACHING

1) A course **Community Conservation and Revitalization; URP 6884**

Focuses on balanced approaches to community redevelopment, including the use of indicators and other measures of sustainable approaches such as asset-based development.

33. VETERINARY MEDICINE

PAT COLAHAN & COLLEAGUES

To my knowledge there are no classes or courses in the College of Veterinary Medicine that address the global questions of ecology, social equity or economy, but almost every course taught in the College of Veterinary Medicine will address the issues of ecology and economy in a very focused, specific way. Animal agriculture, the human animal bond and the preservation of wildlife are what veterinary medicine is about. Some describe it as ecohealth and it directly addresses meeting contemporary needs and the preservation of future potential.

34. WILDLIFE ECOLOGY & CONSERVATION

A) GRAEME S. CUMMING

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Department of Wildlife Ecology and Conservation
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cummingg@wec.ufl.edu

TEACHING and RESEARCH:

1. Theoretical and applied research on resilience and complex systems theory.

2. Approaches to conservation, natural resource management, and what Steve Carpenter calls 'the ecology of the long now'.
3. I've been involved in the Millennium Assessment as part of the scenarios working group (see <http://www.millenniumassessment.org>)
4. Last spring I taught a **graduate course titled 'Resilience and Sustainability'**.
5. I have a grant from the USDA to look at 'Land Use and Sustainability in the Caribbean Region'.
6. I'm part of an interdisciplinary group of faculty on campus, calling ourselves 'the roadies' (because we have an emphasis on understanding the impacts of road developments), who are all interested in sustainability.

If you need it, there is more information on my web page, <http://www.wec.ufl.edu/faculty/cummingg/index.htm>

B) NAT B. FRAZER

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 Fax: (352) 392-6984
 Cell: (352) 281-1036

<http://www.wec.ufl.edu/>

TEACHING

1. **WIS 2552; Biodiversity Conservation: Global Perspectives**

C) MARK HOSTETLER

Asst. Professor, Extension Wildlife Specialist
 Department of Wildlife Ecology & Conservation
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 (for wildlife information: see <http://www.wec.ufl.edu/extension/>)

35. UNIVERSITY OF FLORIDA PROGRAM FOR RESOURCE EFFICIENT COMMUNITIES

Pierce Jones¹, Mark Hostetler, Michael D. G. Acomb, Marc Smith & Marty Main
 School of Natural Resources, University of Florida
<http://snre.ufl.edu/programs/prec.htm>

BACKGROUND:

Over the last decade approximately 100,000 new single-family, detached homes have been built annually in Florida, making it one of the most active areas of new residential community development in the United States. In the face of this rapid growth, many Florida communities are looking for support in how to preserve (and even enhance) their local quality of life. More particularly, land planners, developers and others in these communities need tools to manage natural resources in a sustainable fashion while maintaining the economic benefits associated with growth. As one indicator, various organizations such as Audubon International, the US Green Building Council and the Florida Green Building Coalition are attempting to fulfill this need and have begun to offer guidance and support in the form of voluntary certification programs. In several areas of Florida these programs are being well received by many communities and developers.

The University of Florida, as a land grant university, is uniquely qualified to support the development, evaluation and implementation of community level resource management tools. Its faculty has expertise specific to Florida (and even within specific counties) covering a wide range of disciplines related to the environment and land use. Many of its faculty members have direct outreach responsibilities as specialists within the Cooperative Extension Service (CES).

Through CES, the University of Florida offers a range of educational programs directly related to specific natural resource management issues. Although many of these are excellent programs individually, they are generally not well integrated for comprehensive application to sustainable residential community land development or community building.

A University of Florida Program for Resource Efficient Communities (PREC) is one option for an organizational structure capable of partnering with communities to provide sustainable residential community land development. PREC offers an opportunity to precisely integrate and apply educational and analytical resources available at the University of Florida to the major industry affecting the state's environment. This shouldn't be undertaken lightly because land development for residential housing is an involved process that usually occurs over multi-year timeframes. The spatial impact of residential communities is not only on site, but extends far beyond the boundaries of a development, affecting adjoining agricultural and forest lands and various water bodies and wetlands. Any serious effort by the University of Florida to participate comprehensively and substantially in the application of sustainable development principles to the conceptualization, design, implementation and maintenance of real developments will require the on-going commitment of multidisciplinary specialists' services over relatively long periods of time. Furthermore, services provided in the development process must be made available on a timely basis.

MISSION STATEMENT AND GOALS:

The goal of the Program for Resource Efficient Communities is to promote the adoption of best design and operation practices in new residential community development that measurably reduce energy and water consumption and environmental degradation. Focus will extend from lot level through site development to surrounding lands and ecological systems. The Program's primary mission will be to coordinate the delivery and implementation of resource efficient community development practices through direct outreach activities. In addition the Program will directly support integration of resource efficient community best practices and case studies into academic courses and degree programs. Finally, the Program will seek and coordinate applied research grants targeted to improve best design and management recommendations.

PROPOSED ACTIVITIES:

Certification: A responsibility of the PREC will be the review of product, building and community certification systems that apply to resource efficiency. Certification programs will be evaluated from the perspective of best design and management practices as endorsed by University of Florida specialists. This is a necessary core function for the Program. First, the proliferation of standards and their multiple levels of potential application creates confusion that can obscure the relative merits of various programs. Second, it is important to insure that recommendations in the various programs are appropriate for application in Florida's unique environment. Third, the on-going review of certification programs will identify collaboration and partnership opportunities to support the Program's outreach, research and teaching activities. Finally, the Program will establish agreements with exemplary certification programs to allow faculty to directly participate in field certifications both to gain experience and to develop materials for case studies.

Outreach: The primary outreach tool of the Program for Resource Efficient Communities (PREC) will be continuing education and associated professional certificate programs tailored to target specific groups of professionals involved in the various phases of residential community development design, construction and operation. Wherever possible continuing education will be designed to satisfy State of Florida licensure and Professional Association requirements. Beyond those requirements, exams leading to supplemental certificates will be offered on a voluntary basis. These programs and associated optional certificates will be explicitly linked to affiliated resource efficient community related certification programs wherever possible.

Research: A core activity of the Program for Resource Efficient Communities (PREC) will be to identify and prioritize applied research topics related to the resource efficient design, construction and operation of residential communities. A corollary activity will be the regular screening of on-going University of Florida research to identify potential synergies. The Program will actively seek applied research grants covering high priority issues related to certification programs and supporting case studies.

Teaching: The Program for Resource Efficient Communities (PREC) will support graduate programs that address

critical applied research issues; provide case studies related to impacts of specific practices; and develop training materials for use in professional continuing education programs. The Program will also promote internship programs with developers, certification groups, government agencies and others that can offer real-world, interdisciplinary experience related to development and/or operation of residential communities.

PROGRAM MEMBERSHIP:

1. Mark Hostetler, PhD;	Assistant Professor	Wildlife Ecology and Conservation
2. Michael Dukes. PhD,	Assistant Professor	Agricultural and Biological Engineering
3. Glenn Acomb,	Associate Professor	Landscape Architecture
4. Marc Smith, PhD	Associate Professor	Rinker School of Building Construction
5. Marty Main, PhD	Associate Professor	Wildlife Ecology and Conservation
6. Pierce Jones, PhD	Professor	Florida Energy Extension Service
7. Kathleen Ruppert, PhD	Assistant Extension Scientist	Florida Energy Extension Service
8. Craig Miller	Assistant In	Florida Energy Extension Service

D) MARTIN B. MAIN, Ph. D.

Associate Professor and Wildlife Ecologist
Program Leader, Florida Master Naturalist Program
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TEACHING and RESEARCH:

I am Program Leader for the **Florida Master Naturalist Program (www.MasterNaturalist.org)**, an adult environmental education program that both educates and prepares individuals to educate others about the Florida environment and conservation issues. The FMNP includes 3 ecosystem modules (coastal, wetlands, uplands), each of which is 40 contact hours and includes classroom, field, and practical learning experiences. The FMNP is provided by a network of more than 150 certified Instructors representing ~90 organizations in 45 counties throughout Florida. Since the first course was offered in September 2001, more than 1,500 graduate certificates have been issued. Graduates of the FMNP include interested citizens, teachers, ecotour guides, park rangers and biologists, and others. Graduates of the FMNP are contributing to the education of Florida's citizens and visitors in formal and informal ways that, ultimately, will contribute in positive ways to sustainability in Florida.

E) KATHRYN E. SIEVING

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<http://www.wec.ufl.edu/faculty/SievingK/>

B.Sc. in Wildlife Biology, University of California Davis ('82)
Ph.D. in Ecology, University of Illinois ('91)

RESEARCH:

My core research program seeks to understand forest bird ecology and distribution in disturbed, especially agricultural, landscapes. My work examines bird responses to anthropogenic changes to habitat configurations (e.g., corridors and boundaries) at local and landscape scales, and also addresses positive roles that birds may play in human-dominated ecosystems (e.g., role of avian insectivory in crops as pest control). I lead and support various collaborative research projects in both forested and agricultural ecosystems of north Florida and southern Chile.

TEACHING:

The following courses that I developed and teach (or have taught in the past) deal either wholly or partially with conservation science as a tool for achieving sustainability.

- 1) **WIS 4547C - Avian Field Research**
- 2) **WIS 3403C - Perspectives in Wildlife Ecology and Conservation**
- 3) **WIS 5496 - Research Design in Wildlife Ecology & Conservation**
- 4) **ALS 4921 - Honors Colloquium (topic = Diversity and Resilience in Living Systems)**
- 5) **WIS 2552 - Honors Biodiversity Conservation: Global Perspectives (UF Honors Program)**
- 6) **WIS 6934 - Behavioral Landscape Ecology**