

SFRC Newsletter

... for alumni and friends



Bioenergy
Cellulosic ethanol
Energy crops
CARBON CREDITS
25 x '25
Wood pellets for co-firing
power plants
Net metering
Gasification

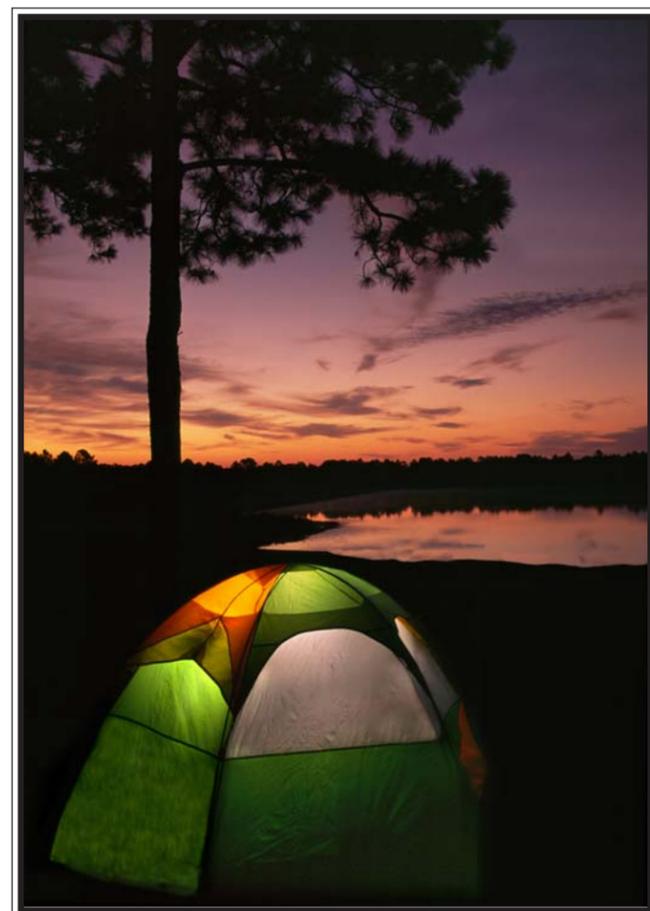
This is some of the diverse vocabulary being used in many of the important local, national and global discussions on bioenergy. The SFRC is deeply involved in these discussions because forest biomass is a promising source of energy for electricity, heating and transport fuels. In particular, energy from forests has the potential to help:

- Reduce reliance on traditional energy sources like coal and oil;
- Promote rural economic development by keeping dollars spent on woody biomass and energy in the local economy;
 - Sustain forested ecosystems by providing landowners with new markets;
 - Improve forest health and reduce fire hazard by creating a market for small trees and understory shrubs;
 - Mitigate global warming by reducing greenhouse gas emissions through use of carbon-neutral feedstocks; and
- Promote energy independence from foreign sources.

Yet, as with any new, emerging industry there are many questions to be answered both for the industry as a whole and for each new facility that is planned: (1) What are the best feedstocks and will their supply be sustainable in the long term? (2) Under what conditions are new facilities economically viable? (3) What will be the environmental impacts to soils, wildlife, water and air? (4) How will the new industries influence competitiveness of existing industries that depend on the same feedstocks? (5) Do life cycle studies indicate a substantial net savings in energy and carbon emissions compared to traditional sources? (6) Will production of bioenergy result in reduced efforts to conserve energy?

SFRC faculty and staff are conducting research to address some of these questions and are providing information through Extension programs to inform citizens, landowners and policy makers. This issue of the SFRC Newsletter highlights a few of our on-going efforts in this area, and more new projects are planned. Overall, UF/IFAS has more than 100 scientists working on various aspects of renewable energy. It is clear that Florida has the potential to be a major contributor to the production of biomass energy, and it is important to have as much information as possible to help guide policy development and decisions about our energy future. We welcome your comments, questions and suggestions.

Tim White



Please send interested,
qualified students our
way.

Larry Korhnak

Economic Analysis of Bioenergy

The feasibility of bioenergy depends largely on the economic availability of woody biomass. Many projects have estimated the total amount of biomass available in a given area but have failed to take into account varying cost of transportation and types of biomass (urban waste vs. forestry residues). The School of Forest Resources and Conservation, the USDA Forest Service's Southern Center for Wildland-Urban Interface Research and Information and the Southern States Energy Board coordinated efforts to determine the economic availability of woody biomass in 27 counties across the southeast.

The economic availability of woody biomass considers the total cost of delivered biomass, including: procurement, harvest, and transportation costs. Procurement areas and transportation costs were evaluated using GIS. GIS



allowed researchers to assign speed limits and determine road length and to calculate haul times rather than just hauling distances. Haul time calculations were increased by 25 percent to account for operational delays. All of the data were then used to create supply curves that express the price of a resource at a given quantity of demand. The project concluded that electricity could be produced at a particular price as long as the specific types of biomass were transported within a given distance.

The information available through the internet allows this type of analysis to be replicated for any area of the United States and the U.S. Forest Service Inventory and Analysis Program is developing a national biomass dataset that could improve the effectiveness of the analysis.

For full article see <http://www.esri.com/news/arcuser/1006/biomass1of2.html>

The School of Forest Resources & Conservation Newsletter is published to inform alumni and friends. Comments and information to share should be directed to the Main Office: phone - (352) 846-0850, fax - (352) 392-1707, email - sfrc@ifas.ufl.edu. Visit our website at www.sfrc.ufl.edu.

Fulfilling Our Mission

Instruction

The SFRC has approximately 140 undergraduates, which are mostly juniors and seniors studying one of three majors: Forest Resources and Conservation, Geomatics, or Natural Resource Conservation. The SFRC faculty have approximately 90 graduate students pursuing masters and doctoral degrees.

Global Energy Issues

Global Energy Issues was a new course held last spring on the Plant City Campus. The seminar was led by **Michael Andreu** as a direct outcome of his research interest investigating biomass to bio-methanol production from small scale mobile conversion processors. Through reading and discussions, the class explored issues related to climate change and potential mitigation effects that renewable energy and specifically biomass can provide. Throughout the semester students were engaged in discussions ranging from the ecological impacts to the policy, economic and social impacts of biomass and bio-energy production. The class supplemented readings and discussions with two field trips including participation at the two day meeting Fueling the Future: The Role of Woody Biomass held in Gainesville as well as visiting Wheelabrator Ridge Energy Inc., a generating facility in Polk County, Florida that uses woody biomass as a feedstock to produce electricity. The course was designed so that students would leave the class with a better



understanding of the tradeoffs and barriers associated with energy production worldwide. Student **Jonathon Wright** summarized the sentiments of the class well when he stated at the end of the semester evaluation, "When the course began, I had no idea what biomass is, now I can carry on a conversation with professionals in the industry and know what I am talking about." It is our hope that we can continue to expose students to new ideas and ways of thinking about natural resources and the role they play in providing solutions to future energy needs.

Research

The SFRC has 41 research faculty that generate over \$4 million annually to conduct research in five focus areas: (1) Forest systems biology; (2) Human dimensions broadly defined to include social sciences, economics, recreation, and policy related to forest resources; (3) Agroforestry and tropical forestry; (4) Urban forestry and the wildland-urban interface; and (5) Geomatics.

Bioenergy

Janaki R.R. Alavalapati and **Wayne H. Smith**, University of Florida, **Gregory S. Amacher**, Virginia Polytechnic Institute and State University, and **Sayed R. Mehmood**, University of Arkansas have launched a research project to "determine optimum incentives to promote bioenergy and sustainability of non-industrial private forests in the U.S. south". This is a \$821,019 three-year project funded jointly by the US Department of Energy and US Department of Agriculture with cost-sharing arrangements from the University of Florida, the University of Arkansas, and Virginia Polytechnic Institute and State University.



This project will determine the optimum mix of policy instruments that can bridge current management and sustainable forest management of non-industrial private forests with wood energy as a product in the U.S. South. Specifically the effect of the following scenarios will be investigated in Arkansas, Florida and Virginia.

- Technical support and cost-share or price support for thinned material to improve the health of forest ecosystems.
- Incentives to cover the cost of biomass transportation, a production subsidy for wood energy, and cost-sharing capital investments in building wood fueled distributed plants or retrofitting existing coal and/or natural gas plants.
- Investments to advance technologies of biomass production and its use in energy production.
- Price support for bioenergy and/or a tax on conventional energy to reflect the societal benefits of bioenergy production.
- Households' willingness to pay a premium for bioenergy reflecting their preferences for green energy.

Extension

The SFRC has 9 extension specialists throughout the state. Extension specialists develop a wide variety of programs and materials to be used by county extension agents. In developing material, the specialists work with state agencies and professional organizations.

Wood to Energy Outreach Program

Woody biomass is a promising source of energy for electricity, heat and power. In many southern communities, where working forests are close to expanding communities, there are cost-effective opportunities to use this carbon-neutral form of energy. One barrier, however, is that people aren't aware of this potential.

Martha Monroe, Associate Professor in SFRC, is overseeing a large project dedicated to improving public awareness about the possibilities of using wood for energy in the southern wildland-urban interface. "Our research on public perceptions of using wood for power suggests that respondents are very concerned about losing nearby forests and polluting the air, but also very interested in using waste resources if it can be economical," she said. Additional research, led by **Doug Carter** and **Matt Langholtz** (SFRC, '05) and **Alan Hodges** (UF) identified the communities in the South that are likely to be able to use wood and analyzed their road system, wood supply, and local economy to determine the cost and availability of wood as well as the economic impact of using it (see front page).

In addition to raising awareness among the public, the project will help community leaders consider strategies for using wood for generating electricity, for powering industry, or for heating schools, hospitals, or prisons.

The materials (fact sheets, case studies, and economic profiles) will be distributed by a network of trained Biomass Ambassadors — people interested in woody biomass opportunities such as local foresters, extension agents, regional planners and energy specialists.

Project materials and strategies were pilot tested in Gainesville in a series of community forums. "Our experience with the forums suggests that people want information, do not trust the persuasive debate format, and arrive full of questions. They want to be involved in planning the system," explains Monroe.

Alumni News



Above: **Alan Shelby**, **Jeff Doran**, **Gail Kimbell** (Chief, USDA Forest Service), **Jack Vogel** ('69) and **Marsha Kearney** attend the National Association of Universities with Forest Resources Programs in Washington, D.C.

'59 **Elwyn Spence** passed away in December 2006.

'00 Congratulations to **Scott Sager & Julie Helmers** ('02) for the birth of Bennett James on April 6, 2007.

'06 **Laura Paterson** and **Ethan Sadowski** (right) were married in Pensacola, FL on March 31, 2007.



Faculty & Staff News



Dave Gibson (left) was named one of the "Surveying Profession's 25 Most Influential People" by *Professional Surveyor Magazine* in August 2006. This award was made as a result of a national poll of professionals and their leaders. **P.K. Nair** (right) was awarded the prestigious Humboldt Research Award in July of 2006 for his work in agroforestry. Dr. Nair's research was examined by scientists from multiple countries and was found to have great international significance.



Shibu Jose received a grant from the Florida Department of Agriculture and Consumer Services to conduct research on the ecology and management of hardwood forests in Florida in collaboration with the Division of Forestry.

Martha Monroe, **Lauren McDonell**, and **Annie Hermansen-Baez** produced the Changing Roles: Wildland-Urban Interface Professional Development program that won the Gold Award for Training Materials from the National Association of Natural Resource Extension Professionals in May 2006. **Greg Starr** was awarded a grant from the National Institute for Climatic Change Research to conduct research in the Florida Everglades.

Sherry Tucker (middle, left) received the 2007 Superior Accomplishment Award from IFAS. **Wayne Smith** was recently named a Fellow in the Society of American Foresters and became Chair of the Southeastern Society of American Foresters in January 2007. **John Davis** and **Alison Morse** have been mentoring **Katie Termer** from Clay County High School. She won first place in her category at the Clay Regional Science and Engineering Fair and will be attending UF this summer.



Student News



UF has a new student chapter of the Society of American Foresters in Plant City. The founder and chapter chair is **Mindy Napier**. **Carolyn Cheatham Rhodes**, **Mary Thornhill** and **Erin Brown** (above) attend the Annual Southeastern SAF meeting in Auburn.



The UF Forestry Club attended Conclave in Tennessee March 16-17. Congratulations to the following students who placed in their events (left): **Yarrow Titus**, **Jared Nobles**, **Colin Gordon**, **Aaron**

Trulock, **Gary Johns** and **Eric Thomas**. **Solomon Haile's** poster entitled "Soil Carbon Stabilization and Sequestration in Tree-based Pasture Systems" earned first place in the poster contest at the American Society of Agronomy, Crop Sciences Society of America, and Soil Sciences Society of America annual meeting.

Appreciation For Our Supporters

Without the support of friends we could not maintain our level of academic excellence. Thanks to all our supporters. Thanks to the following for their contributions to the SFRC's Unrestricted Fund: **The Rayonier Foundation**, **William Bennett** ('54), **Greg Driskell** ('88), **Paul Mott** ('67), **Donna Legare** ('75), **Joseph Walthall** ('76), **Roger Bollinger** ('61), **Andy** ('03) & **Julie Ruth**, **Cierra** ('06) & **Seth** ('03) **Ward** and **Richard Fisher**. Thanks to the following for their contributions to Project Learning Tree: **Packaging Corporation of America**, **International Paper Company Foundation**, **Florida Forestry Association**, **Plum Creek Timber Company** and **Smurfit-Stone Container Corporation**. Thanks to the following for their contributions to the University of Florida Forest Stewardship Program: **Marden Industries, Inc.**, **Farm Credit of North Florida**, **DuPont**, **Farm Credit of Northwest Florida** and **Blanton's Longleaf Container Nursery**. Thanks to **Wayne Smith & Mitzi Austin**, **Larry Harris** and **Norma Horan-Vogt** for their contributions to the John Gray Endowment for Excellence in Forest Resources and Conservation. Thanks to **Rand & Geraldine Edelstein** and **Melda Bassett**, in memory of **Paul Shelley**, for their contributions to the William Paul Shelley, Sr. Memorial Fund in Forestry. Thanks to the **Florida Surveying and Mapping Society, Inc.** for their contribution to the Surveying Support Fund. Thanks to **Mr. & Mrs. James H. Lybass Jr.** for their contribution that supports the 2007 Jim & Joh Lybass Scholarships. Thanks to **Muthiah Govindarajan** for his support of Dr. Nair's research in agroforestry. Thanks to **Wayne Smith & Mitzi Austin** for their contribution to the Wayne Smith Student Leadership Fund. Thanks to **Jack & Kathy Ewel** for their contribution to the Learning Center Fund in memory of Marie Louise Wesley "Mickey" Swinford. Thanks to Wayne Smith and Mitzi Autin for their contribution to the turpentine restoration project.