

### Conclave 2008 in the Swamp

Every year, forestry clubs from 15 university forestry programs in the southeastern U.S. come together to compete in the Association of Southern Forestry Clubs' (ASFC) Conclave. Since 1957, this gathering brings several hundred undergraduate forestry students together to compete in traditional lumberjack style events like log birling and pole felling, as well as technical events such as dendrology and timber estimation. Conclave provides opportunities for future natural resource professionals to network with other students and visiting professionals from across the region, to develop organization and leadership skills, and to have a plain old good time. Most foresters educated in the region have fond memories of their own participation in Conclave as undergraduate students.

Hosting responsibilities rotate among ASFC members; the UF Forestry Club will host in April, 2008. Hosting an event with over 250 students and 20-30 faculty sponsors participating in 22 events over a three day period is a major undertaking, and SFRC students, faculty and staff are hard at work to make Conclave 2008 a memorable event. Information about Conclave can be found at this website: <http://sfrc.ufl.edu/Conclave2008/>

If you would like to volunteer your help or support for this beloved southern forestry institution, contact Forestry Club Advisor **Tim Martin**, [tamartin@ufl.edu](mailto:tamartin@ufl.edu), 352-846-0866.



### 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 School's Unrestricted Fund: **Wilma Grosenbaugh, Stephanie R. Steele('02), Norm('51) & Louise Carlson, Tom('96) & Jennifer Falvey, Douglas Shipley('03), Bob('64) & Erika Simons, Thomas Renison('68), Kevin & Susan('82) Kett, Anne Bower('96), Rand('85) & Anne('85) Rilling, James('50) & Cheryl Schaeffner, Kathryn('78) & Tony Mennella, Gary('77) & Aven Warner, Pamela('94) & Dean Gattie, Steve('83) & June Gilly, Charles('57) & Carolyn Haynes, Christine Wilson('07), Laura('93) & Steve('92) Lowrimore, Janet('74) & Lowell Hinchee, Roger('61) & Janie Bollinger, Robert('81) & Jacqueline Trickel, Bruce('79) & Joan Hill, Bill('78) & Mary Cleckley, Tim & Cindy Martin, Soumya Mohan('04) & Michael Rasser('03), Christine('00) & John Denny, Jason Evans & Sharon Levine, Charles('77) & Linda Schneider, Jim('81) & Kim DeCosmo, Lawrence & Stephanie('84) Bloyd, Harvey & Gail Buchanan in memory of Timothy Neal Mitchell('75), Weyerhaeuser Company Foundation for matching Cierra Ward's('06) gift, Harry('49) & Patricia Bumgarner, International Paper Company Foundation for matching Gary Warner's('77) gift, and Procter & Gamble Company for matching James Schaeffner's('50) gift. Thanks to the following for their contributions to Project Learning Tree: Coastal Plywood Company, St. Johns River Water Management District, Leon County Extension, The Rayonier Foundation, and Florida Society of American Foresters. Thanks to the following for their contributions to the Forest Stewardship Program: Florida Farm Bureau Federation, Marden Industries, Inc., International Forest Company, F&W Forestry Services, Inc., Environmental Services, Inc., Jowett & Wood, Inc., Suwannee Lumber Company, Forestland Management, Inc., Blanton's Longleaf Container Nursery, and Florida Forestry Association. Thanks to Dave Kidd('59), Roberta Moltzen('75), Bob Swinford('48), Joel('59) & Polly Smith, Larry Harris, Loukas & Sena Arvanitis and John Anderson for their contributions to the John Gray Endowment for Excellence in Forest Resources and Conservation. Thanks to Bob Swinford for his donations to the Learning Center Fund in memory of Edwin Fly and Frieda Foertsch. Thanks to the Florida Surveying & Mapping Society, Inc., The Manasota Chapter of the Florida Surveying & Mapping Society, Charlotte Harbor Chapter of the Florida Surveying & Mapping Society and Terry McKay for their contributions to the Surveying Support Fund. Thanks to Jeff('84) & Rhonda Glassburn for their contribution to the Surveying/Mapping Scholarship Fund. Thanks to Charlotte Harbor Chapter of the Florida Surveying & Mapping Society for their contribution to the Florida Surveying and Mapping Society Scholarship Fund. Thanks to Southern Laser Inc. and Tri-Ped Corporation for their donations of equipment and training. Thanks to Robert Edsall Jr. and Edsall Groves, Inc. for their support of Don Rockwood's windbreak tree research. Thanks to Southern Forest Research Partnership, Inc. for their support of Shibu Jose's research program. Thanks to Dan & Sandra Grzybowski, Roderick & Lucille Rowledge, John & Dolores Sadak, Carolyn Conde and Kenneth & Kimberly Jenkins for their contributions to the Louis F. Conde Memorial Scholarship Fund. Thanks to the following for their contributions to the turpentine still restoration project at the Austin Cary Memorial Forest Learning Center in memory of Allen Roston "Pete" Gerrell: **Betts, Rogers, Schenck & Jones CPA's, Charles Chapman, Wilson & Patsy Yawn, Sue Cowger, Delores Reecy, Dale & Dee Gerrell, Southeast Unity Ministries, Lawson & Jadon Gerrell and Ed & Joyce Hamer & family.** Thanks to **Pete & Terri Gerrell** for their contribution to the turpentine still restoration project at the Austin Cary Memorial Forest Learning Center. Thanks to **Larry('88) & Katherine Stanislowski** for their contribution to the Alumni Forestry Building Fund. Thanks to the **BellSouth Corporation** for matching the contribution of **William McElwain('49)** to the Forestry Alumni Fund. Thanks to **Jowett & Wood, Inc.** and the **Florida Chapter of the Society of American Foresters** for their contributions to the UF Student Chapter of SAF in support of student travel to SAF conferences.**



### Research at the SFRC

Research is one of the three central missions of all Land Grant universities, along with teaching and Extension. The University of Florida is recognized as a Tier 1 research university and one of a very few universities in the south that holds invited membership in the American Association of Universities. The National Science Foundation ranks UF 17<sup>th</sup> among all universities in the US for total research funding from contracts and grants, outranking the University of California at Berkeley and approaching MIT and Duke.

The faculty and staff in the School of Forest Resources and Conservation play an important role in the UF/IFAS research enterprise, conducting important, nationally recognized research programs that consistently rank in the top among IFAS academic units for total funding. Each year SFRC faculty secure \$3 to \$5 million in research funding from contracts and grants, amounting to approximately \$200,000 per faculty member. These external funds, so essential to developing new knowledge, come from a variety of competitive sources including federal and state agencies, industry, NGOs and private foundations.

Research programs conducted by SFRC faculty and staff are extremely diverse, embracing both applied and basic

research and technology development and reflecting the diverse needs of our stakeholders. Our research spans all biological scales from molecular genetics to landscape ecology and all social and geographical scales from individuals to local communities and the world.

Beneath this diversity lies the common thread that characterizes all SFRC research.... the development of "knowledge with a purpose" not just "knowledge for knowledge's sake". This "problem solving" research is central to the Land Grant mission as we seek to discover new knowledge that is essential for the development of science-based policies, regulations, tools, technologies and management decisions. In this regard, SFRC research aims to: (1) Address key societal issues; (2) Enhance economic returns and global competitiveness; (3) Improve the health, sustainability and environmental values of our forest and natural resources.

This newsletter focuses on some recent results of SFRC research. All SFRC research is highly collaborative with staff, post-docs, graduate students, industry, state agencies and many others all working together. While it is not possible to list all those associated with each study, a faculty member is listed after each highlight as a contact if you want more information.

We hope these research highlights are useful to you and that you will send us your ideas, priorities and problems for future SFRC research projects. Your guidance will be important in helping to ensure that SFRC research continues to address important societal, economic and environmental problems and opportunities.

*Tim White*

### Research in Urban and Urbanizing Forests...

-> Urban forests cover 50% of Gainesville. In 2006, this tree cover removed nearly 400 metric tons of air pollutants and 2300 metric tons of carbon emissions were avoided due to reduction in building energy use due to shading.

#### Francisco Escobedo

-> An ecological assessment of forests of the city of Tampa indicated that the most common tree species are mangroves (30%), cypress (16%), laurel oak (10%), Brazilian pepper (6%), and slash pine, live oak and water oak (3% each). However, the mangroves sequester less than 3.5% of the total carbon captured by these forests, while live oak and laurel oak account for over 40%. **Michael Andreu and Francisco Escobedo**

-> Landscapers and homeowners in Florida can create an urban forest that is more wind resistant by assuring that trees have sufficient rooting space, by clustering groups of trees in



plantings, and by using those tree species found to be more storm resistant. **Mary Duryea**

-> When ignited, pinestraw exhibits much longer flame lengths and faster spread rates than other common mulches, suggesting

that it should not be placed within 5 to 10 feet of wood structures or other flammable materials such as vinyl siding. **Alan Long**

-> The amount of tree cover in Dade and Broward Counties declined between 1984 and 2004 and the degree of loss depended, in part, on county enforcement of laws regulating tree removal for development. **Scot Smith**

-> Rapid and accurate damage assessment from hurricanes may be facilitated through new technologies such as satellite imagery and high resolution aerial imagery. **Scot Smith, Bon Dewitt and Ahmed Mohamed**

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](mailto:sfrc@ifas.ufl.edu). Visit our website at [www.sfrc.ufl.edu](http://www.sfrc.ufl.edu).

# Research highlights from the SFRC

## Human Dimensions...

-> Teachers can use stories and books about natural resources to teach reading through science if they are given worksheets and exercises that engage students in reading and writing skills.

**Martha Monroe**

-> OHV recreation at the Croom Motorcycle Area on the Withlacoochee State Forest generates \$21.6 million annual income and 318 jobs in four counties. **Janaki Alavalapati and Taylor Stein**



-> Most users of off highway vehicle (OHV) recreation on the Ocala National Forest are well educated and have high incomes. They participate in OHV recreation in the Ocala to experience nature (96%), spend time with their friends and family (94%), and reduce stress and tension from everyday life (93%). **Taylor Stein**

## Genetics and Tree Improvement...



-> Genetic gains measured in block plots of slash pine verify the accuracy of genetic predictions from single-tree progeny tests for volume growth and fusiform rust resistance. This allows breeding values predicted from progeny tests to be safely extrapolated to a stand level basis. **Dudley Huber**

-> Genetically improved slash pine plantations in low rust hazard areas can show verified genetic gains for volume per acre of more than 40% over wild seed. With good fusiform rust resistance in areas prone to high rust infections, the volume-per-acre gains from using highly improved sources can double that of unimproved material. **Dudley Huber**

-> Analysis of the first complete DNA sequence of a forest tree (*Populus*) revealed as many as 45,000 genes, about the same number as humans, with at least 20,000 of these genes being active during stem development and wood formation. **Matias Kirst and John Davis**

-> Natural genetic resistance of loblolly pine to fusiform rust and pitch canker diseases is controlled by entirely different genes for the two diseases; however, about 10% of genetically improved families happen to be highly resistant to both diseases and have excellent growth rates. **John Davis and Dudley Huber**

-> A newly discovered, naturally occurring allele in *Populus* leads to a reduction in lignin content by almost half, while also resulting in faster growth and higher cellulose content. This combination will be highly favorable for bioethanol production. **Matias Kirst**

-> At 7 years, growth was higher in mixed- versus pure-family stands for faster-growing families, suggesting that faster-growing families grew larger at the expense of the slower-growing ones when growing in an intimate mixture. **Christie Staudhammer, Eric Jokela and Tim Martin**

## Geomatics...

-> Use of integrated LiDAR and GPS/IMU systems increase the safety and resolution of shoreline and harbor surveying and can be used to improve the accuracy and completeness of the nation's nautical charts.

**Ahmed Mohamed**

-> The integration between proprietary GIS services and open access technology (e.g. Google Earth) is gaining momentum in forestry applications. **Amr Abd-Elrahman**



## Production and Family Forests...

-> Southern pine plantation forests have among the highest terrestrial ecosystem carbon sequestration rates yet measured, as much as 3.5 tons/ac/yr. **Tim Martin**

-> Some families of slash and loblolly pine are more responsive than others to increasing silvicultural intensity, highlighting the opportunity to increase stand volume production by planting responsive families with site-specific silvicultural treatments. **Eric Jokela**



-> Higher levels of pitch canker incidence and disease severity in slash pine plantations are associated with the higher levels of plantation nitrogen found in proximity to poultry houses.

**Eric Jokela**

-> Both genetics and silvicultural treatments affect the stiffness of juvenile corewood in loblolly pine. Planting certain families of pine that are naturally stiffer and planting them at higher densities can increase juvenile corewood stiffness by 40-60%. **Gary Peter**

## Fire and Water...

-> Ocala sand pine has a greater capacity to survive high-intensity crown fire than previously believed, suggesting that prescribed fire can be used to manage wildfire hazard without complete loss of timber revenues. **Leda Kobziar**

-> Tree ring chronologies from living and long-submerged longleaf pine in Florida's panhandle can also be applied to other parts of Florida to increase understanding of historical patterns of fire, droughts and hurricanes. **Leda Kobziar**

-> The primary source of phosphorus (P) loading into hyper-eutrophic Newnans Lake comes from naturally occurring geologic sources not from pine silviculture. **Matt Cohen**

-> NIR spectroscopy (NIRS) can predict functional attributes (C, N, P, Ca, Al, Fe) of saturated soils and sediments, paving the way for direct field measurement with portable spectrometers. **Matt Cohen**



## Longleaf Pine...



-> Ground-based LiDAR (a laser-based measuring system) provides a novel technique to quantify fuel bed characteristics. The data permit better modeling and prediction of fire behavior in longleaf pine forests. **Wendell Cropper**

-> Longleaf pine regeneration in hurricane-impacted areas

tends to be clustered into several distinct patches ranging in size from 0.1 to 1 acre. An alternative to row planting in restoration efforts could include planting seedlings within unique patches in order to mimic the natural landscape of longleaf pine ecosystems. **Kimberly Bohn**

-> Reintroduction of fire alone is not always sufficient to restore the understory communities in longleaf pine flatwoods. Seeding or planting of understory species may be necessary if there is not a viable seed bank. **Shibu Jose**

## Tropical and International Forests...

-> Policy initiatives that promote ethanol production have increased the areas under sugar cane cultivation in Brazil and corn cultivation in the USA. Unfortunately, this could lead to increased deforestation in the Amazon region as displaced soybean cultivation and cattle ranching are pushed further into the forest.

**Daniel Zarin**

-> Current best practices for timber production from Brazil's native Amazon forests minimize the environmental impacts of harvest operations, but do not ensure that the volume of timber removals can be sustained in future harvests. **Daniel Zarin**

-> Brazil nuts are solely harvested in the wild from mature Amazonian forests, and this single species is credited with the protection of millions of hectares of intact rainforest in Brazil, Bolivia and Peru. Research in three communities indicated that this forest use is sustainable, meaning that despite high current nut (seed) collection intensities of up to 71% of the annual crop, natural regeneration is sufficient for population persistence in this collection hub. **Karen Kainer and Christie Staudhammer**

-> The tropical palm *Mauritia flexuosa* has high ecological and economic value, but currently some wild populations are harvested excessively. Matrix population models were developed to investigate the potential for sustainable harvest. **Wendell Cropper**

-> Mexico's reformed Constitution of 1992 allows privatization of communal property (called ejidos). Those ejidos with successful community forestry operations are less likely to convert to private, individual property.

**Grenville Barnes**

-> Development of wildlife conservancies among communities surrounding parks in Southern Africa allows community members to derive a livelihood from the park and provides the opportunity to develop democratic local governance structures. **Grenville Barnes**

## Bioenergy...

-> Producing ethanol from southern pine plantations uses less than half the water and less than 1/10 the nitrogen that is used to produce the same amount of ethanol from corn. **Matt Cohen**



-> Residues from logging, urban wood waste, and trees harvested during thinning operations in overstocked pine stands can provide the majority of woody biomass needed to produce 120 megawatts per year of energy for three north Florida communities. **Douglas Carter**

-> Adoption of Renewable Energy Portfolio Standards (REPS) by states in the U.S. is not random, but rather is influenced by the state's education level, political party dominance, gross state product and growth rate of population. **Janaki Alavalapati and Douglas Carter**

-> Thinning small diameter trees for bioenergy improves the profitability of non-industrial private forest owners (NIPF) in Florida by 15%, and this increase more than doubles if the benefits of reduction of wildfires and pest outbreaks associated with thinning are considered. **Janaki Alavalapati**



Photo by Jennifer Holm

## Invasive Exotics...

-> Cogongrass (*Imperata cylindrical*) was found to invade forest communities irrespective of their species richness or diversity. However, the presence of certain species, such as broomsedge (*Andropogon virginicus*), enhanced the community resistance to cogongrass invasion. **Shibu Jose**

-> Control of cogongrass in slash pine forests by a single landowner generally does not make economic sense without neighborhood landowners' participation. **Janaki Alavalapati, Shibu Jose and Douglas Carter**

-> The incredibly rapid spread of an exotic pathogen-insect complex, commonly known as Lural Wilt Disease, threatens the future of the red bay (*Persea borbonia*) species. Potential natural resistance to the pathogen has been observed



in native red bay populations where widely scattered individuals survive devastating epidemics. **Jason Smith**

-> Combinations of herbicides that inhibit the formation of amino acids in plants provide the best control of the invasive non-native Japanese climbing fern (*Lygodium japonicum*) while minimizing adverse impacts to associated vegetation. **Pat Minogue**

## Faculty and Staff News

Congratulations to **Alan Long** and **Chris Demers** for receiving the 2007 Family Forests Education Award from the National Woodland Owners Association and the National Association of Universities with Forest Resources Programs for their Florida Forest Stewardship Program. Congratulations to **Laura Sadowski**, the UF Student Chapter of SAF and **Taylor Stein** for receiving 3<sup>rd</sup> place nationally for quality, attractiveness and accessibility of website. Congratulations to **Shibu Jose** on receiving the National Young Leader Award from the Society of American Foresters.



**Janaki Alavalapati** has been selected to serve as a 2007 Jefferson Science Fellow at the U.S. Department of State in Washington, D.C. He began the 12-month fellowship on Aug. 13 and he is serving as a Senior Advisor for International Energy Affairs.

**Chris Demers** won the 1<sup>st</sup> Place Award of Excellence for the production of an outstanding DVD/Video from the Florida Association of Natural Resources Extension Professionals for his production of "Cover Your A\$\$ets: Estate Planning, Conservation Planning and Income Options for Forestland Owners." The Duane C. Brown Award was awarded to **Gamal Seedahmed** from The Ohio State University and recognizes a person "who has most successfully forwarded the cause of photogrammetry and strengthened the reputation of the Department of Geodetic Science and Surveying in the field of photogrammetry." Congratulations to **Lauren McDonnell** and **Martha Monroe** for winning a Gold award from the Association of Natural Resource Extension Professionals for their DVD "When Nature is at Your Doorstep".