

Project Leader's Report

August - 2003



USDA Forest Service - Southern Research Station - 320 Green Street Athens GA 30602 - <http://www.srs.fs.usda.gov/disturbance>



DMISE
DISTURBANCE AND MANAGEMENT
OF SOUTHEASTERN ECOSYSTEMS

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Outreach Activities:

Six organized groups with a total of 85 people visited the Brender Forest during the month of August. These groups included the Georgia Military College Leadership Class, a planning group from the Sustainable Forest Initiative, a training session for foresters to comply with the Sustainable Forest Initiative, the Mercer University Environmental Science and Biology Departments, and a group from the Timber Management Section of Region 8.

Approximately 30 visitors came by the office at the Brender Forest for information and 63 people signed the register at the Hitchiti Interpretive Trail, from places as far away as Las Vegas, NV, Birmingham, AL, and San Antonio, TX.

Technology Transfer:

- Andrea Leach presented a paper at the Ecological Society America annual meeting in Savannah on her thesis work. The paper was co-authored by Chris Peterson, UGA and entitled "Microsite vegetation and environmental disturbances in salvaged and unsalvaged wind-disturbed forest."
- Laura Zebehazy presented a paper at the Summer Meeting of the South Carolina Wildlife Society. Her presentation, entitled "Avian community responses to fuel reduction treatments in the Upper Piedmont of South Carolina," was based on her thesis, which was a component of the National Fire and Fire Surrogate Study. Laura recently finished her M.S. at Clemson University and is working for the RWU until she begins work on a Ph.D. at Clemson this fall.
- Tom Waldrop was an invited speaker at the Ecological Society of America Annual Meeting in Savannah. He participated in a one-half day symposium on ecological forces and land management for the southeastern landscape. His presentation was entitled "The National Fire and Fire Surrogate Study: an interdisciplinary comparison of methods to reduce fuels and fire risk." Tom introduced the national study and discussed preliminary results from the southeastern Piedmont.
- Tom Waldrop and Mac Callahan co-authored a poster and abstract with Ralph Boerner and Jennifer Brinkman of Ohio State University at the Ecological Society of America Annual Meeting. The poster, "Structural and functional restoration effects on soil microbial activity in two contrasting

Current Highlights

- Unit staff present work at the Ecological Society of America meeting - page 1
- MODIS detects fire area - see page 2
- Boyd Edwards retires - see page 4
- FY 2003 Publications - see page 6



ecosystems,” was a result of collaborative research efforts among these researchers as a part of the National Fire and Fire Surrogate Study. The research showed that soil microbial activity was strongly related to the impacts of fuel reduction treatments to soil organic matter.

- Scott Goodrick attended a meeting in Gulfport, MS of the interagency team charged with developing the Preparedness Module of the Fire Program Analysis System. Scott will assist this team in developing the weather inputs required for the fire behavior portion of their analysis.

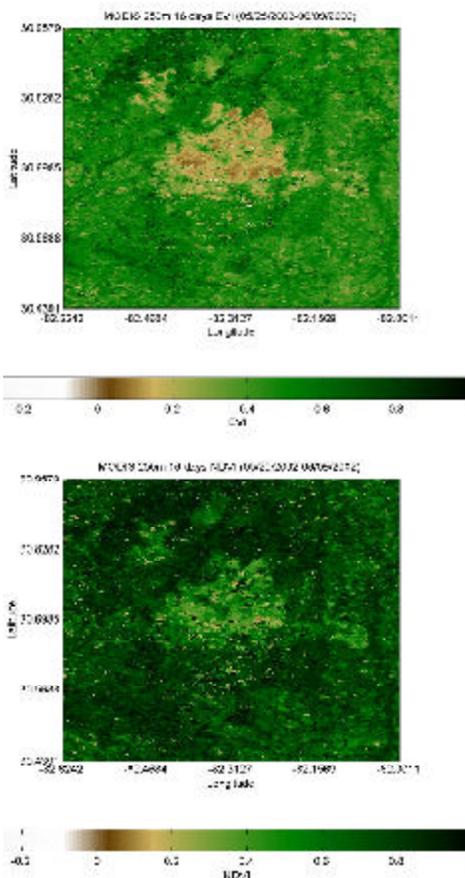
- Scott Goodrick will assist Fire Program Solutions, a consulting firm working with the Southern Group of State Foresters on a wildfire risk assessment for the 13 states of the southern region, in determining the best means of processing historical weather observations to meet the needs/constraints of this project. Don Carlton of Fire Program Solutions requested Scott’s involvement.

- Dave Cleland will be an invited speaker at an SAF meeting in September in East Landing, MI on fire risk, disturbance regimes, planning and management.

- Dave Cleland has been invited to participate in a one-day workshop of key FS people involved in criteria and indicator development and use. Ted Heintz from the White House Council of Environmental Quality made the request. The goal of the workshop is to bring the experience of the FS C&I National Report teams to bear on the CEQ

Interagency Working Group vision of developing C&I to cover all natural and environmental resources.

- Yong Liu has begun work with John Qu, professor at George Mason University, on using the MODIS remote sensing platform for mapping fires. Some interesting images of the Okefenokee wildfire from May 2002 suggest the potential of MODIS for detecting area burned. This image of the Enhanced Vegetation Index shows the area burned (not green). EVI is an improvement over the NDVI (Normalized Difference Vegetation Index) that has been long used in the NOAA/NASA Advanced Very High Resolution Radiometer (AVHRR). AVHRR has 5 channels and 1-km resolution; MODIS has more channels (36) and higher resolution (up to 250m), and reveals the spatial structure of the Okefenokee fire in more detail.



- Deb Kennard presented a poster at the Ecological Society of America’s Annual Meeting in Savannah, GA. The poster, “Spatial patterns of fuel loads, fire intensity, and microbial biomass in a longleaf pine forest,” describes work from the Fire and Fire Surrogate Study in southern Alabama. Ken Outcalt, Graeme Lockaby, and Robin Governo co-authored the poster.

- Joe O’Brien has been invited to travel to Abaco National Park in the Bahamas to establish research and demonstration plots in Caribbean pine stands in September. These pine forests are globally rare and unusual as they grow on a limestone substrate and are rich in endemic plants and animals. He is planning to set up plots to investigate the effects of different fire regimes on vegetation important as forage for the endangered Bahamian Parrot (*Amazona leucocephala bahamensis*) and Kirtland’s Warbler (*Dendroica kirtlandii*). He will also be investigating how fire affects densities of the native invasive bracken fern (*Pteridium aquilinum*). High densities of the fern are undesirable as they out compete other flora and affect fire behavior. Chris Bergh, Conservation Program Manager of the Nature Conservancy’s South Florida/Florida Keys Program and the Forest Service International Program, organized the trip.



Vista of Caribbean pine forest on Abaco, the Bahamas

Meetings / Reports :

- The unit submitted end of year reports to the Station. This was a productive year, with 74 publications that included 17 refereed papers, 7 non-refereed papers, and 43 abstracts or posters. Seven students completed MS theses on research supported by the unit. There were 31 publications in ecology of disturbance (Problem 1), 27 publications in applications to management (Problem 2), 11 in smoke management (Problem 3), and 5 in wood quality (Problem 4). Other indicators of productivity are given in the GPRA scorecard, elsewhere in this newsletter.
- Stanturf attended the Forest Service Research Advisory Committee (FSRAC) meeting in Philadelphia in August as the Southern Station representative. The group met with the Forest Service Research Executive Team. The primary task for the group was to review draft revisions to the Research Grade Evaluation Guide for preparing panel material. This revision updates the current guide (the printed version) with slight changes and additional clarity. The Committee plans to send the revised guide to the Deputy Chief by mid-2004. The Committee also is reviewing the ARS policy for Senior Scientific Research Service (SSRS) positions to see if it can be tailored to fit Forest Service needs. The SSRS was created in the last Farm Bill to provide 100 “super-grade” research positions in USDA. The SSRS is separate from, and in addition to the current ST positions beyond GS-15.
- Al Riebau, Washington Office is considering a workshop on emission inventory for next year and wants it to be held in Athens. This would be an opportunity to present results of a Southern emission study conducted by

the Missoula Fire Lab several years ago and not yet finalized.

- Rick Reitz will present a draft technology transfer plan for the unit on September 17 at 10 am in the North Building Conference Room.
- The next unit staff meeting will be held on September 26, beginning at 9 am in the North Building Conference Room. Gary Achtemeier will present some ideas on how the resources and capability of the Southern High Resolution Modeling Consortium (SHRMC) can benefit other scientists in the unit. Joe O’Brien will present an overview of fire ecology of tropical pines, illustrated by experience from his recent technical assistance trips to Panama, the Dominican Republic, and the Bahamas.
- The Station is planning a workshop on the impacts of Southern Pine Beetle on other resources and values and options available to public land managers for dealing with acres of standing dead pine trees. The workshop is tentatively scheduled for January 2004. Contact Nancy Herbert for more information.
- The Station will host a Sustainability Roundtable meeting in Charleston, SC November 17-19. Contact Susan Fox for more information.
- Rob Wilson, Region 1, Environmental Protection Agency, and Gary Achtemeier discussed future implementation of BlueSky/Rains on SHRMC. Wilson will contact Region 4 EPA in Atlanta to foster a link with Gary. A major impediment to BlueSky in the South is that 80% of land is non-Federal and only a few states store prescribed fire data in a way that could

be used by BlueSky. Gary suggested that EPA could fund a workshop to bring together parties interested in state prescribed burning data, including potential vendors for hardware that could be used by county personnel who process burning permits that could be used to collect, store, and transmit the needed data.

- On August 28, Kenneth Outcalt, Cynthia Fowler and Tom Philipps participated in a prescribed burn on the Piedmont National Wildlife Refuge. This is part of a cooperative study of the effects of burning at different seasons on plant species. A crew from the Refuge conducted the prescribed burn. Our new infrared camera was used to collect fire intensity data that will be compared to standard thermocouple data (results on page 4).



↓ Visitors :

- Joe O'Brien will conduct an open house of the Ecophysiology Lab on October 16. He will demonstrate equipment for measuring photosynthesis, transpiration, plant moisture stress, infrared thermography, hydraulic conductance, meteorology, etc. He will highlight his current research plans to foster collaboration with other unit and UGA scientists.

- A group attending the IUFRO Seed Physiology meeting visited the Athens lab and Stanturf provided a tour.

- Dr. Frank Bonner, retired seed physiologist and former project leader in Starkville, MS visited Stanturf following the IUFRO meeting. Frank continues to consult, mostly internationally, on seed technology.

continued from article on page 3



Comparison between visual and infrared image of a low intensity prescribed fire on Piedmont Wildlife Refuge. The camera recorded a maximum temperature of 330° C in this image.

↓ Funding :

- Scott Goodrick is submitting a proposal to NOAA to implement satellite data assimilation techniques within the operational weather products produced by the Southern High Resolution Modeling Consortium (SHRMC). Cooperators include Dr. Tom Mote of the University of Georgia and researchers at the University of Alabama in Huntsville.

- Sue Ferguson and colleagues have submitted a proposal to EPA to fund migrating the BluSkyRAINS smoke impact prediction system to SHRMC. The objective is to develop a portable version of the BlueSkyRAINS system and test its portability. The system is a real-time tool for predicting and assessing weather conditions, air quality, and smoke impacts from wildland fire, and it has been used to coordinate and plan prescribed burns to minimize air quality impacts.

↓ Personnel News :

- Dr. M. Boyd Edwards will retire September 2 after 30 years federal service.



- Colleen Stanturf is working as a volunteer for our Unit. She will be setting up databases, picture archives and helping out with routine work.

- Andrea Leach was promoted to Biological Science Technician GS-7.

- John Stanturf was elected Vice-Chair of the Research Advisory Committee and will take over as Chair from Melody Keena, Northeastern Station, in May 2004.



Thank you Dr. M. Boyd Edwards for the 30 years of hard work.

GPRA Accomplishments:

Category	FY 2002	FY 2003
	Total	To Date
Number of Refereed Journal Publications	9	24
Number of Non-Refereed Publications (include abstracts)	53	50
Number of Publications (refereed + non-refereed)	62	74
Number of Tours	46	66
Number of Short Courses/Training	8	8
Number of Invited Presentations to Scientific Organizations	6	8
Number of Invited Presentations to Lay Organizations	25	45
Volunteer Presentations to Scientific Organizations (non-GPRA)	28	27
Number of Technology Transfer Activities (other than above)	172	135
Outside Funding	\$3,227,500	\$1,955,455

News from around the Region :

- Jim Gooder, Supervisor National Forests in Alabama, has been named Assistant Director for the North Central Research Station.
- J. Boone Kauffman, Wildlife Professor at Oregon State University, has been selected as Director, Institute Pacific Islands Forestry in Honolulu. Kauffman's research interests include ecology of natural and anthropogenic disturbances, riparian and wetlands ecology, fire ecology, and tropical ecology.
- The Office of Management and Budget released draft guidelines for peer review of significant regulatory information. A press release and proposed guidelines can be found at <http://www.whitehouse.gov/omb/pubpress/2003-34.pdf>. Although we are not a regulatory agency, these guidelines no doubt will influence peer review requirements of other federal agencies.



• The Society of American Foresters has awarded the Barrington Moore Memorial Award to frequent collaborator David Van Lear, the Robert Adger Bowen professor of forest resources at Clemson University. The award recognizes outstanding achievement in biological research leading to the advancement of forestry. Van Lear is credited with performing research that has broadened the understanding of the ecological basis of forestry. He and his coworkers developed early models for classifying landscape ecosystems in the Southeast

based on landform, soil, and vegetation, as opposed to site index only, and his work in forest soils resulted in new methods for quantifying below-ground biomass and nutrient content and has shown the importance of decomposing root systems in sustaining soil productivity. He and his team have also demonstrated the carbon sequestration potential of damaged soils and showed how important the reforestation of eroded soils can be. They also documented the importance of American chestnut as a major component of coarse woody debris more than a century after the demise of the species. Along with graduate students, research associates, and colleagues (including Tom Waldrop), he has published nearly 160 papers, authored or coauthored 15 book chapters, and presented at more than 140 conferences both in the United States and abroad. He has received the National Hardwood Lumber Association's National Hardwood Research Award and has been honored for his accomplishments by Virginia Tech, his alma mater, and Clemson University, where he has worked for 32 years. An SAF member since 1967, he was elected SAF Fellow in 1985. (Source: Forestry Source).

• Boise Corp. will no longer buy wood products from endangered or old-growth forests and will encourage its suppliers to do the same. The company has been pressured by groups such as the Rainforest Action Network to adopt more environmentally sound policies. Boise will stop cutting timber from old-growth forests in the U.S. in 2004, and will stop buying wood from endangered forests in places such as Chile, Indonesia and Canada as they are identified. Boise will also give purchasing preference to

suppliers who use wood from certified forests, and will track the origin of the wood products it receives. (Source: AP)

• The first shipment of tropical wood harvested from a forest in Indonesia that demonstrates Reduced Impact Logging (RIL), documented to be legal, and with a recognized tracking system arrived in Norfolk. RIL is a system that ensures that harvested tropical wood is removed in a way that does not permanently damage the rainforest. Through prior planning, careful selection of trees, and special equipment designed for minimal impact, the trees are removed with the forest left intact for future use. This project was developed through a private/public partnership led by the Tropical Forest Foundation and partners, including USAID, USDA Forest Service, Caterpillar, Alas Kusuma, Plywood Tropics, and Home Depot. RIL verified ensures that the wood comes from a well-managed forest; the harvesting operations employed best practices and reduced impact logging techniques; logs were tracked from the forest, through the manufacturing process and to the shipping point; and, harvesting was done in full compliance with existing laws and regulations of national, regional and local governments. (Source: PRNewswire)

• Rayonier announced that its Board of Directors has approved a restructuring to qualify the company as a real estate investment trust (REIT), effective January 1, 2004. Rayonier said its U.S. timberland operations (approximately 2 million acres) qualify for REIT tax treatment and that non-qualifying operations, which will continue to pay corporate level tax on earnings, will be transferred into a wholly-owned "taxable REIT subsidiary" (TRS). The

Publications :

TRS will include Rayonier's performance fibers, New Zealand timber (120,000 acres), and wood products businesses, as well as the company's "higher and better use" land sales activities. Rayonier is the world's premier supplier of high performance specialty cellulose fibers. Approximately 40 percent of Rayonier's sales are outside the U.S.

(Source: BUSINESS WIRE)

• Biotech companies will have to obtain a federal permit from USDA before growing experimental plants engineered for industrial purposes like making paper, detergent, and minerals. Until now, companies have not been required to get government permission before launching U.S. field tests of genetically modified (GMO) plants that are designed to produce industrial components or chemicals. The change is designed to help protect food crops from accidental contamination. Once a company applies, it will take about four months to issue a permit. The USDA said companies must now obtain a government permit to move, field test or import industrial biotech crops. The department had regulated these crops under a notification process used for plants considered low risk and that had widely known genetic modifications. The department said companies were beginning to experiment with less familiar biotech traits in these crops. The Animal and Plant Health Inspection Service (APHIS) will administer these permits.

(Source: Reuters)

• Space Imaging's Wildland Fire Risk Assessment System (WFRAS) was selected by the Southern Group of State Foresters (SGSF) to support ongoing fire management planning and wildland fire risk analysis in each community, county, congressional district and fire response zone of the organization's 13 states. The organization also includes the U.S. Forest Service's Region 8 Office in Atlanta. The Texas Forest Service is administering the project on behalf of SGSF. Space Imaging's WFRAS is a wildland fire risk assessment methodology that employs both GIS and remote sensing to describe fuels and analyze wildland fire risk at multiple scales. The wildland fuels are mapped using 30-meter resolution Landsat-TM imagery as a baseline. Optionally, high-resolution multi-spectral imagery from Space Imaging's IKONOS satellite may be used for mapping fuels for specific areas of interest. The Wildland Fire Risk Assessment Model contains calculations to derive indices of Wildland Fire Susceptibility, Fire Effects, Fire Response Accessibility and Wildland Fire Risk. This award follows successful completion of the statewide Florida fire risk assessment project by Space Imaging. The contract began in July and allows 12 months to conduct a baseline analysis. Additional years are planned to ensure proper technology transfer occurs with State representatives.

"Reasonable orders are easy enough to obey; it is capricious, bureaucratic, or plain idiotic demands that form the habit of discipline."

—Barbara Tuchman

FY 2003 (* denotes new publication this month)

* Barnett, Jim; Rod Busby; Marianne Burke; Floyd Bridgewater; Don English; Jim Hanula; Nancy Herbert; Kurt Johnson; Brad Kard; Kier Klepzig; Charlie McMahon; Jeff Prestemon; Tim Rials; Bob Rummer; Mike Shelton; Ron Thill; **Tom Waldrop**; Joan Walker; and Nancy Walters. 2002. Sustainability and productivity of southern pine ecosystems. Science Update, SRS-001, U. S. Department of Agriculture, Forest Service, Southern Research Station, Asheville, NC. 28 p.

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Upcoming Events :

2003		Oct 7-9	Management Team Meeting, SRS; Huntsville, AL
Sep 7-10	Council on Forest Engineering annual meeting, Bar Harbor, ME; http://www.forest-resources.umaine.edu/nercofe/cofe2003.htm	Oct 14-21	International Conference on ECO-RESTORATION, Dehradun and New Delhi, INDIA.
Sep 16-18	IUFRO Conference on ‘Strong Winds and Trees: ecology and management, sponsored by WP 8.08.02 and University of Karlsruhe, Germany; re-scheduled from Aug 17-24 in Zurich; http://www.ifh.uni-Karlsruhe.de/ifh/science/aerodyn/windconf.htm .	Oct 25-29	Society American Foresters Annual Meeting, Buffalo, NY
Sep 18	Agroforestry and Wildlife Field Day, Griffin, GA	Nov 2-6	Soil Science Society of America annual meeting, Denver, CO
Sep 21-28	12 th World Forestry Congress, Quebec City, Canada; http://www.wfc2003.org ; Stanturf to attend.	Nov 3-7	Invasive Plants in Natural and Managed Systems: Linking Science and Management and 7th International Conference on the Ecology and Management of Alien Plant Invasions, Ft. Lauderdale, FL http://esa.org/ipinams-mapi7/abstractcall.htm
Sep 28-Oct 2	The Question Of Conversion of Coniferous Forests meeting, Freiburg, Germany; contact for further information: instww@uni-freiburg.de	Nov 4-6	SAMAB Fall Conference, Asheville, NC. http://samab.org/Conf/Conf03/conf03.html
October 27-30	Annual Entomological Society of America Symposium in Cincinnati, OH. Callahan invited to give presentation.	Nov 16-19	National Fire Risk Assessment Conference, Portland, OR.
Oct 2-3	Enhancing the Southern Appalachian Forest Resource symposium, Kanuga Conference Center, Hendersonville, NC. Rideout to Present. http://www.ces.ncsu.edu/nreos/forest/feop/symposium	Nov 16-20	Second International Congress On Wildland Fire Ecology And Fire Management, in conjunction with the Fifth Symposium on Fire and Forest Meteorology. http://www.ametsoc.org
Oct 4-8	3rd International Wildland Fire Conference, sponsored by the North American Forest Commission’s Fire Management Working Group, Sydney, Australia. Achtemeier to attend. http://www.wildlandfire03.com	Nov 19-22	Society for Ecological Restoration 15 th International Conference, Austin, TX (note new dates). http://www.ser.org
*Oct 5-8	Southeastern Society American Foresters annual meeting, Mobile, AL	Nov 27-Dec 5	IEA Short Rotation Bioenergy (Task 30) meeting, New Zealand and Australia http://www.shortrotationcrops.com/events.htm
		Nov 24-26	Introduction of broadleaf species for sustainable forest management, international conference sponsored by SUSTMAN project at the University of Ulm; to be held in Reissensburg, Germany, http://www.sustman.de
		Dec 8-10	Bioenergy Australia 2003, Sydney; Stanturf to present paper

“Even if you’re on the right track, you’ll get run over if you just sit there.”

—Will Rogers

“To the man who only has a hammer in the tool kit, every problem looks like a nail.”

—Abraham Maslow

2004

- Feb 2-3** 2nd Annual Western Gulf Forest Soils Tour, Alexandria, LA
- Mar 2-4** Southern Research Station All Scientists Meeting
- Mar 17-19** 14th Central Hardwood Forest Conference, Wooster, OH. <http://www.oardc.ohio-state.edu/chfc2004/>
- Jun 21-25** IUFRO Division 1 - Silviculture Conference, CIRADForest, in Montpellier, France.
- Jun 27-Jul 2** First Agroforestry World Congress, Orlando, FL <http://conference.ifas.ufl.edu/wca/#background>
- Jul 25-31** 7th INTECOL International Wetlands Conference, Utrecht, The Netherlands. <http://www.bio.uu.nl/INTECOL>
- Aug** Society for Ecological Restoration 16th International Conference, Victoria, British Columbia.
- Aug 15-20** Large-Scale Experiments for Sustainable Forestry: Balancing Ecosystem Values; International IUFRO Workshop, Portland, OR *contact Charley Peterson: cepeter@fs.fed.us*
- Sep 3-7** European Forest Institute (EFI) Annual Meeting, Bangor, Wales (UK).
- Sep 12-16** IUFRO Conference Regenerating Mountain Forests, Kloster Seeon, Bavaria, Germany; http://www.forst.tu-muenchen.de/events/rmf2004/index_en.html
- Oct 31-Nov 3** Soil Science Society of America Annual Meeting, Seattle, WA.
- Nov 17-25** IUCN Third World Conservation Congress (WCC), Bangkok.
- Nov 7-11** Short Rotation Woody Crops Operations Working Group Biennial Meeting, Charleston, SC

Nov 24-26

Introduction of broadleaf species for sustainable forest management, international conference sponsored by SUSTMAN project at the University of Ulm; to be held in Reisenburg, Germany, <http://www.sustman.de>

2005

Aug 8-13

IUFRO World Congress, Brisbane, Australia. Stanturf to attend. <http://www.iufro2005.com>

Aug/Sep

Society for Ecological Restoration 17th International Conference, Zaragoza, Spain.

Nov 6-10

Soil Science Society of American Annual Meeting, Salt Lake City, UT

***TBD**

5th International Conference on Forest Vegetation Management, IUFRO Research Group 1.13.00 Forest Vegetation Management. Corvallis, Oregon, USA Contact: [Robin Rose](mailto:Robin.Rose@orst.edu), robin.rose@orst.edu.



Tom Philipps and Richard Reitz in the Piedmont Wildlife Refuge

SRS-4104 Project Leader's Report

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