

CFEOR Updates

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Conserved Forest Ecosystems: Outreach and Research

<http://sfrc.ufl.edu/cfeor>

Fire in the Juniper Prairie Wilderness! Again?

Authors: Melissa M. Kreye, Dr. Leda Kobziar, David R. Godwin, University of Florida, Gainesville



A lone sand pine teeters over former sapling stands. Much of the evidence of these stands went up in smoke, revealing the 2004 hurricane legacy of widespread downed woody debris (Photo by Leda Kobziar).

Established in 1984 in the Ocala National Forest, the 14,277 acre wilderness is amongst Florida's largest outside of the Everglades National Park. The area is heralded for its diversity of ecological communities including the Florida sand pine scrub community which covers 3850 acres of the vegetated area. Sand pine scrub has a high severity fire regime which usually limits the use of prescribed fire in the Juniper Prairie Wilderness (JPW) and elsewhere. In August of 2006 a prescribed fire in the grassy prairies of the JPW escaped and burned into the sand pine stands. This fire ultimately burned approximately 50% of the wilderness, an area that had only seen a patchwork of prescribed fires and wildfires since designation. This fire was not only unique in terms of management history but also because it burned a uniquely diverse assemblage of ecosystems with various disturbance histories. The opportunity for research in the JPW following the 2006 fire has attracted numerous University of Florida scientists from a range of disciplines including: fire science and ecology, botany, wildlife ecology, invasive species ecology, and ecotourism. Dr. Leda Kobziar is the Principle Investigator spearheading a multi-disciplinary study on the effects of the 2006 fire. In an unexpected change of events in March of this year another wildfire occurred in the JPW, burning recovering areas as well as areas that had not burned in the 2006 fire, eventually reaching over 6000 acres. This second wildfire provides new opportunities to study and

improve our understanding of this complex and dynamic ecosystem by reexamining some previously held assumptions about fire in sand pine scrub systems.

The research is being led by the School of Forest Resources and Conservation (SFRC) Fire Science Lab. PhD Student, Jesse Kreye, and Kobziar developed the first-ever fire effect model to predict post-fire tree mortality in sand pine. The March wildfire could be used to test the validity of the model developed from data collected after the 2006 JPW fire.



Once validated, the model will be [University of Florida researchers survey the burn severity patterns \(Photo by Leda Kobziar\).](#) incorporated into the major fire effects prediction systems used throughout the country to help managers decide where and when to burn. SFRC PhD student, David Godwin, and Kobziar compared different burn severity mapping methods, image acquisition, and image processing for use in sand pine scrub from the 2006 fire. The March wildfire burned the control plots and could help quantify the time period during which remote sensing is effective in capturing fire effects prior to rapid vegetation regrowth. The unusually frequent burn cycle in the JPW also presents the opportunity to explore how one fire's heterogeneous patterns influence fire behavior and effects in subsequent fires. Understanding the relationship between fire severity and effects in the sand pine scrub ecosystem can help managers plan for the appropriate burn conditions to better meet ecosystem management objectives.

Graduated SFRC MS student, Johanna Freeman and Kobziar assessed the understory vegetation response in the sand pine scrub ecosystem for one and two years following the 2006 fire. With the latest JPW fire, this research could be expanded to investigate the composite impacts of high-severity fires on successional trajectories of vegetation communities, lending insight into whether fire frequencies outside the historical range of variability shift sand pine scrub towards a different community type. With sequential stand-replacing fires,



[A triple whammy: hurricane-damaged mature stand in 2004, severely burned in 2006, then again in 2009 \(Photos by Leda Kobziar\).](#)

Kobziar also plans to model the time required for the JPW to once again become a sink, rather than a source, of ecosystem carbon. Because much of the JPW was damaged during the 2004 hurricane season, leaving large loads of carbon-storing woody debris in the system, Kobziar is interested in the new burn's large scale woody debris combustion, and how this combustion influences soil nutrient status and carbon sequestration over time. Maintaining natural disturbances in an ecosystem adapted to high-severity crown fires presents a significant challenge to land managers. The overall objective of the multidisciplinary JPW research endeavor is to help land managers address whether fire use in sand pine scrub leads to the conservation of the unique ecosystem and its endemic and threatened species.

For more information visit the research page of Kobziar's Fire Science Lab Website www.sfrc.ufl.edu/fire/index.html or contact Dr. Leda Kobziar at lkobziar@ufl.edu.

Announcements

CFEOR and Osceola National Forest invite you to a workshop on Biomass Harvesting – April 30th 10:00am-1:00pm

The U.S. Forest Service will demonstrate on the Osceola National Forest a new method and opportunity for reducing hazardous fuels, improving forest health, and reducing wildfire threat to communities, while providing an alternative source of green energy. For details check out our [website!](#)

When:

April 30, 2009
10:00am-1:00pm

Where:

Osceola Ranger District
24874 US Highway 90
Olstee, FL 32072
(386) 752-2577

To register:

Please send name and number
of guests to mkreye@ufl.edu

Please Register by April 24th!

Recent Research Findings

The interactions of tropical soda apple mosaic *tobamovirus* and *Gratiana boliviana* (Coleoptera: Chrysomelidae), an introduced biological control agent of tropical soda apple (*Solanum viarum*)

Overholt, W. A.; Markle, L.; Rosskopf, E.; Manrique, V.; Albano, J.; Cave, E.; Adkins, S. *Biological Control*, March 2009, Volume 48, Issue 3, pages: 294-300.

Tropical soda apple (*Solanum viarum* Dunal (Solanaceae) is a South American invasive plant of rangelands, pastures and natural areas in Florida. A chrysomelid beetle from South America, *Gratiana boliviana* Spaeth, has been released at >300 locations in Florida for biological control of tropical soda apple since 2003. Tropical soda apple is a host of several plant viruses, including the newly described tropical soda apple mosaic virus (TSAMV). The researchers investigated the influence of TSAMV infection of tropical soda apple plants on developmental time, leaf tissue consumption, longevity, fecundity, and feeding preference of *G. boliviana*, and also tested transmission of the virus by the beetle. Developmental time was approximately 10% slower, and adults consumed only about 50% as much leaf tissue, for beetles fed on infected plants compared to uninfected plants. Longevity did not differ between females reared on infected and uninfected plants, but females fed on uninfected plants produced 71% more eggs than those fed on infected plants. Adult *G. boliviana* preferentially fed on uninfected plants when given a choice. There was no evidence of TSAMV transmission by *G. boliviana*. The potential impacts of TSAMV infection on the effectiveness of *G. boliviana* as a biological control agent are discussed.

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For full article [click here](#)

Upcoming Events

- **2009 Aquatic Weed Control Short Course**
May 4-7, 2009 Coral Springs Marriott, Coral Springs, Florida
The short course is designed to benefit those new to the industry and experienced professionals seeking a comprehensive update.
Register www.conference.ifas.ufl.edu/aw
- **11th North American Agroforestry Conference: Agroforestry Comes of Age: Putting Science into Practice**
May 31 - June 3, 2009, Columbia, Missouri. Early Bird registration extended to March 1
UMCA website www.centerforagroforestry.org
- **Society of Wood Science and Technology International Convention**
June 24, 2009, Laurel Room at the Doubletree Hotel Boise-Riverside, Boise Idaho
Topic: The Role of Wood in our Green Future

Contact vvicki@swst.org Website www.forestprod.org

- **Third National Conference on Ecosystem Restoration - The Spirit of Cooperation**
July 20 – 24, 2009, The Westin Bonaventure, Los Angeles, CA
<http://www.conference.ifas.ufl.edu/NCER2009/index.html>
- **Society of American Foresters National Convention - “Opportunities in a Forested World”**
Sept. 30, 2009 - Oct. 4, 2009, Orlando, Florida
<http://www.safnet.org/natcon-09/index.cfm>

CFEOR Mission: To develop and disseminate knowledge needed to conserve and manage Florida’s forest as a healthy, working ecosystem that provides social, ecological and economic benefits on a sustainable basis.

CFEOR Administration

Charlie Houser, Suwannee River Water Management District, Steering Committee Chair
Bill Cleckley, Northwest Florida Water Management District, Steering Committee Vice-Chair

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