Getting Fire Science on the Ground

The Southern Fire Exchange and the JFSP Fire Science Exchange Network

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The Gap

Natural Resource & Wildland Fire Management Community
“We argue that communication of results through published literature alone is insufficient to gain widespread field application.”

Adams et al. 2017 IJWF “Bridging the divide...”
Protected Areas Database of the U.S. (PAD-US) - Federally Managed Lands
Key Objectives of the Fire Science Exchange Network

1. Share information and build relationships.
2. List and describe existing research and synthesis information.
3. Identify and develop methods to assess the quality and applicability of research.
4. Demonstrate research on the ground.
5. Support adaptive management.
6. Identify new research, synthesis, and validation needs.
37% of the U.S. Population lives in the South - 2016 US Census Data
The Wildland Urban Interface

2010 Wildland Urban Interface

Wildland Urban Interface

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WUI 2010 based on the 2010 Census,
2006 National Land Cover Database (NLCD),
and the Protected Areas Database version 1.1

WUI Interface
Non-WUI Vegetated
No Housing
Very Low Density Housing

Non-vegetated or Agriculture
Medium and High Density Housing
Low and Very Low Housing Density
Water
States with the largest WUI area

- North Carolina (54,000 km²)
- Texas (47,000 km²)
- Georgia (42,000 km²)
- Pennsylvania (41,000 km²)

https://doi.org/10.2737/NRS-RMAP-8
Fire managers in the South are a diverse group.
The South burns a lot.
The South evolved with frequent fire.
The South uses fire.

Figure 9. Acres of all prescribed fire use by state. Coarse acreage classes were created using a histogram that determined the most significant breaking points in acres reported.
The South creates fire science.
Bridging the Gap

Science Community

Natural Resource & Wildland Fire Management Community
Essential Partnerships for Fire Science
SFE Core Focal Areas

• **Smoke and Air Quality**: Smoke management and effects, including smoke and fog forecasting, air quality impacts, weather interactions with smoke;

• **Prescribed Burning**: Improvements in incorporating science into burn prescriptions, implementation, and evaluation; application of weather forecasting tools and fire behavior models; quantification of fuel loads and consumption; manipulating fire regimes; and fire interactions with herbicides and fuel treatments;

• **Fire Ecology**: Ecological effects of fire on individual species or communities of plants and animals, soil, water, and wetlands across temporal and spatial scales;

• **Wildfire Mitigation & Suppression**: Research-based information related to suppression and fuels management impacts, safety guidelines and equipment, tactical decision making, resource-use fire, risk assessment and reduction, and WUI fire mitigation.
SFE Science Delivery Programming

User Accessed
- Fact Sheets
- Newsletters
- Website
- Videos
- Email / Social Media

Direct Delivery
- Webinars
- Meeting Presentations
- Fire Ecology Database

Personal Interactions
- Workshops
- Field Tours
- Classes
- Events
- Conferences

User Effort Investment and Engagement
Newsletters

FIRE LINES
A Joint Newsletter of the Southern Fire Exchange and the
Southeastern Section of the Association for Fire Ecology
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Do Liability and Regulatory Standards Influence the Amount of
Prescribed Burning in the South?

This issue features an in-depth look at the relationship between liability and prescribed burning practices in the southern U.S. The authors, who are researchers from the Southern Fire Exchange and the Southeastern Section of the Association for Fire Ecology, explore how regulatory standards and legal considerations impact prescribed burning activities. They discuss the challenges and opportunities that arise from these constraints, highlighting the importance of balancing safety and ecological benefits in fire management decisions.

In their study, the authors analyzed data from a comprehensive database of prescribed burn activities across the southern U.S. They found that liability concerns and regulatory requirements significantly influence the amount and intensity of prescribed burning. Key findings include:

1. Higher liability standards correlate with lower burn intensity and frequency.
2. Regulatory requirements often limit the types of fuels that can be burned, reducing the potential for effective fire suppression practices.
3. Cost and time constraints associated with liability claims deter many agencies from implementing prescribed burns.

The study concludes with recommendations for policymakers and practitioners to develop strategies that can mitigate liability risks while still promoting ecological objectives. It emphasizes the need for collaborative efforts to address these challenges, ensuring that prescribed burning remains a viable tool for ecosystem management in the southern U.S.
**Fact Sheets**

### What the Research Says: Prescribed Fire and Wildfire Risk Reduction

**Jim Long and Anna Oceran**

A variety of research studies have found similar conclusions: prescribed fire reduces wildfire risk, intensity, and size in southern pine forests ecosystems, but for a relatively short time.

Despite the decline in prescribed fire use, wildfires continued to burn across the Southeastern U.S. over the last 35 years. After a bushfire in 1996, prescribed fire use reduced the wildfire risk, intensity, and size in southern pine forests ecosystems. However, for a relatively short time.

### Offline Maps for Wildland Fire and Natural Resource Management: Custom GPS Enabled Maps on a Mobile Device

**David Gudzin**

**INTRODUCTION**

Innovations in smartphone and tablet device hardware and software have made it relatively easy for wildland fire and natural resource professionals to use digital maps in the field. Digital map use includes a variety of resource management tasks: custom prescribed fire maps, boundary line and timber cutting, damage surveys, wildlife inventories, and more. Unfortunately, since many of the most common mobile device mapping applications (apps) require constant data connectivity to stream maps, such applications often have little utility for wildland fire and natural resource management operations due to remote operating locations. The design and development of applications for exporting GPS enabled custom maps to a GeoPDF format that can later be georeferenced in the field using a mobile app without requiring cellular or data connections (GC/Gi or Wi).

**Software required for these instructions:**

- ESRI ArcMap 10.4 (desktop GIS application)
- http://www.esri.com/software/arcgis
- Avenza PDF Maps (free mobile mapping app)
- https://www.avenza.com
- Dropbox (free mobile file storage/sharing app)
- http://www.dropbox.com

**INSTRUCTIONS**

1. **Step 1:** Build a custom map in ESRI ArcGIS. Assemble the layers and zoom to the desired area that should be visible within the custom map.

2. **Step 2:** Within ArcGIS, go to the File menu and select Export Map. Under File Type select PDF. Within the Options pane, select the Advanced tab. Under the Layers and Attributes dropdown menu select...
Webinars
SFE webinars have been used as training for:

- Everglades Nat. Park Wildland Fire
- Florida Forest Service
- University and Community Colleges
- Georgia Interagency RxFire Burn Teams
- State RxFire Certification Courses
Field Workshops

[Scientists]

[Managers]
Collaborative Research Events

PRESCRIBED FIRE SCIENCE CONSORTIUM

[Managers]

[Scientists]

[Managers]
Adaptive Fire Science Generation and Management

New Management Problem Identified

Research Questions Developed

New Science Generated

Science Disseminated

New Science Applied to Management
“To safely and effectively extinguish fire when needed; use fire where allowable; manage our natural resources; and as a Nation, live with wildland fire.”

– Cohesive Strategy Vision
Connect with us!

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Youth Events