

# FY 2019 SOUTHERN FIRE EXCHANGE ANNUAL PROGRESS REPORT

## **Highlights & Achievements**

The Southern U.S. leads the country in acres managed with prescribed fire and the number of wildfire ignitions. This provides impactful and powerful opportunities for connecting the wildland fire management and fire science research communities. Quantitative and qualitative feedback show that the Southern Fire Exchange (SFE) continues to be a productive, valued and influential program within the South that has the support of regional natural resource managers, researchers and upper-level leadership. Over the past year, SFE team members disseminated information during a wide variety of activities and hosted a series of original events that connected Southern fire managers and researchers in ways that are addressing our short- and medium-term logic model goals and making progress towards our desired long-term outcomes. Our FY19 program events covered regionally relevant topics ranging from duff fire science to the fire ecology of eastern wild turkeys. In FY19, SFE team members continued to engage with regional partners in strategic ways to increase the reach of our activities while remaining unbiased and cognizant of our core program mission. This annual report provides a broad overview of FY19 SFE activities and highlights of some of our recent programs and outcomes.



**Figure 1.** The June 2019 SFE Duff Fire Science Workshop at Weymouth Woods Sandhills Nature Preserve State Park in North Carolina brought together over 30 scientists and managers to learn about the latest information and techniques for preventing and predicting duff fires in upland pine ecosystems. Collectively, workshop participants were responsible for managing over 2.5 million acres in the Southeast. Photo: Laurel Kays.

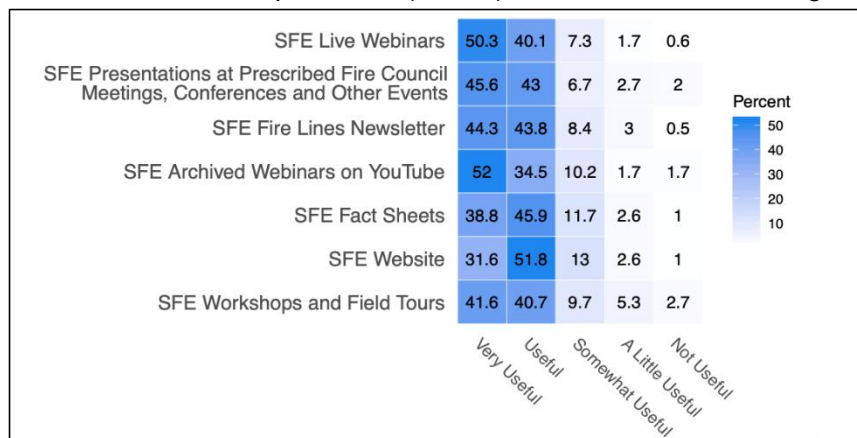
## **In FY19:**

- SFE team members gave presentations and hosted tables at 10 Prescribed Fire Council events in Alabama, Florida, Georgia, South Carolina and North Carolina reaching 1,387 meeting attendees.
- SFE hosted 10 original fire science webinars that had 1,432 participants and 2,927 recording views. “The Lessons-Learned from Hosting Learn-n-Burn Events” webinar was recognized with a 2019 Gold Award from the Association for Natural Resource Extension Professionals.
- SFE hosted two sold-out Duff Fire Science workshops and an Advanced Growing Season workshop in North Carolina. Duff Fire Science workshop participants were responsible for managing over 2.5 million acres in the South and over half of them indicated that they planned to apply and share the information presented. The second Duff Fire Science Workshop was held during a weeknight in cooperation with the North Carolina Sandhills Prescribed Burn Association (PBA). This event was organized at the request of regional private landowners who have been dealing with the negative impacts of duff fires. Plans are already underway for an SFE Fire in Organic Soils workshop in North Carolina during early FY20 and a Duff Fire Science workshop in South Carolina in mid-FY20.

- SFE team members were on the planning committee of the first biennial *Flatwoods Fire and Nature Festival* held in partnership with the University of Florida. SFE hosted an interactive fire science booth at the festival that attracted over 700 people and included live prescribed fire demonstrations. SFE team members also hosted fire science booths at the Wilmington North Carolina *Fire in the Pines Festival* and the Harris Lake North Carolina *Longleaf Festival*. These events reached an additional estimated 4,500 people.
- SFE published 6 issues of our bi-monthly *Fire Lines* newsletter that now goes out to over 3,700 subscribers.
- SFE email subscribers increased 24% over the last year, largely through webinar and workshop registrations.
- Based on our attendance tracking, SFE activities reached an estimated 10,000 participants over the last year, *not* including our extensive social media (146,523 Facebook post reach in FY19) or newsletter (3,774 subscribers) reach.

## Other Accomplishments

In late FY19, SFE developed an online survey with institutional review board (IRB) approval through the University of Florida to identify fire science priorities and needs of the Southern fire community. This survey was designed to carry forward and build on some of the data collected by previous University of Nevada-Reno Fire Science Exchange Network surveys. The FY19 survey was distributed through our SFE email contact list and online via the website, social media and by our partners. After a 20-day availability period, the survey received 222 completed responses. More than half of respondents (56.6%) self-identified as managers/practitioners with local, state,



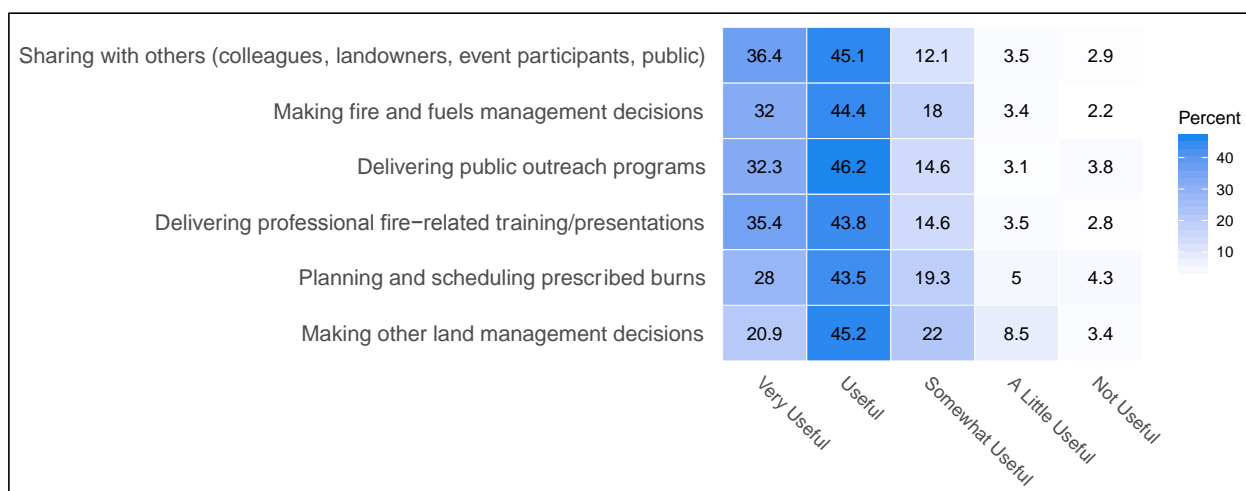
**Figure 2.** SFE products and programs continue to be popular with over 80% of users indicating they are *useful* or *very useful*. Numbers are the percent of survey respondents that indicated communication methods were of varying usefulness. *Source:* SFE 2019 biennial survey.

county, federal, or private affiliations, managing areas as small as 10 acres to as large as 1.4 million acres. Private landowners and researchers/scientists were the next largest groups with 10.8% and 6.3% of respondents, respectively. Results showed that end-users value SFE programs and products, with over 80% of users indicating the SFE resources are *very useful* or *useful* (Figure 2). The majority of survey respondents indicated that they find SFE programs useful for a variety of purposes including: making

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*"The SFE provides a critical service to the fire and larger natural resources communities - effectively connecting practitioners to best science - whether through direct guidance on effective application techniques/seasonality/etc. or through soliciting feedback from the fire community to better inform science, management and policy decisions."* -SFE 2019 Biennial Survey Response

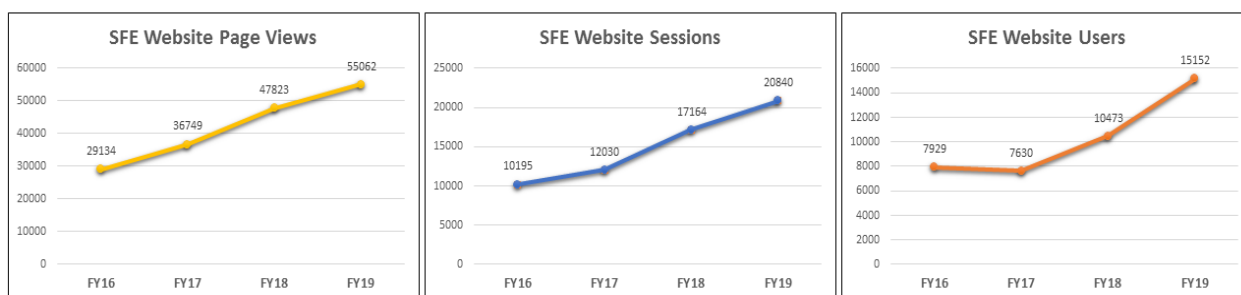
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**Figure 3.** SFE programs and products are frequently used for outreach, communication, decisions and planning. Numbers are the percent of survey respondents that indicated communication methods were of varying usefulness. *Source:* SFE 2019 biennial survey

fire management decisions (36% very useful, 45% useful), planning prescribed burns (28% very useful, 43% useful) and sharing with others (36% very useful, 45% useful) (Figure 3).

In FY19 we continued to update our Southern Fire Exchange website as a primary source for delivering fire science information and promoting our programs and resources. Over the last year, website use and traffic data showed that the website had 20,840 sessions by 15,152 users and 55,062 page views. Our annual website metrics show that the use of the website has continued to expand from FY16 through FY19 (Figure 4). As mentioned in our FY18 Annual Report, we began a project in FY19 to update and modernize our website to make it mobile compliant, easier to update, search-engine optimized and accessible to visually challenged users. Our leadership team worked with a website consultant over the course of the year and we anticipate formally launching the new website in early FY20.

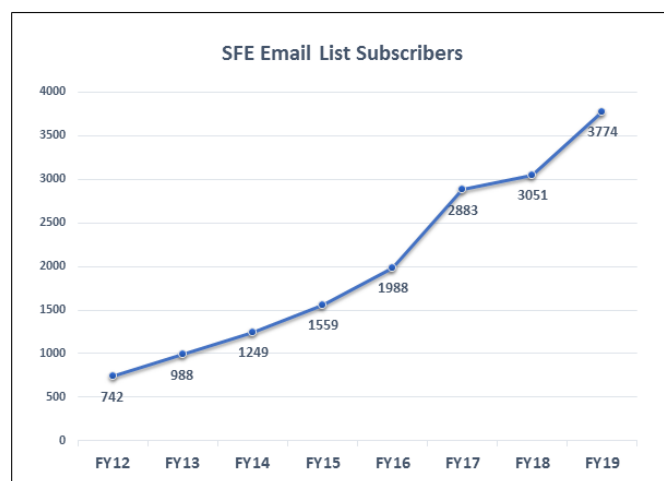


**Figure 4.** SFE Google Analytics metrics demonstrate that the SFE website continues to be accessed by an increasing number of users. Data presented are annual totals from FY16-FY19.

*“SFE provides a support network of information of latest trends, issues, technologies for the fire community. Utilizing their expertise will help the fire community continue to conduct prescribed burns with the growing population in Florida. Specifically improving techniques in smoke management.”*

*-SFE 2019 Biennial Survey Response*

In FY19 we utilized our SFE email list as a resource for communicating directly with end-users within the region and across the country. In FY19, our SFE subscriptions increased to 3,774 users, which represents a 24% increase over FY18 subscriptions. Many of our subscribers sign up via registration opportunities for our workshops and webinars and at our event booths. Our email list has continued to record increases in subscriptions since coordinated tracking efforts began in FY12 (Figure 5). In FY19 we made a big change in the way we compose and send out our SFE *Fire Lines* bimonthly newsletter. The newsletter is now composed and formatted entirely within the MailChimp environment. Moving away from the legacy PDF newsletter format significantly reduced newsletter production time, improved the tracking metrics and resulted in a mobile-friendly format that could display on a wider variety of devices and platforms.

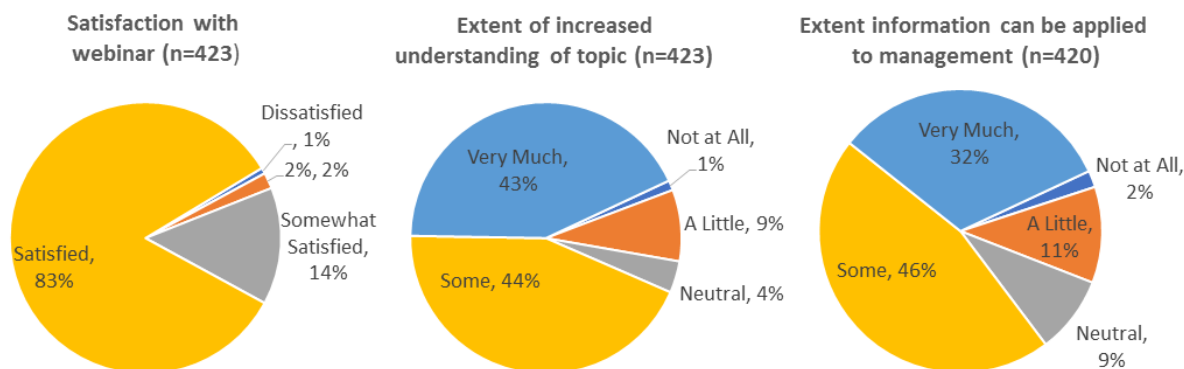


**Figure 5.** The SFE email list has shown steady growth since FY12. Email subscribers receive the bimonthly *Fire Lines* newsletter as well as timely notices about upcoming workshops, webinars and other events. This opt-in list includes subscribers from across the US and multiple international locations.

*“SFE webinars have changed the way in which I approach landowners about managing for gamebirds, specifically turkey, grouse, and quail. I feel more comfortable communicating the value of Rx fire for silvicultural reasons.”*

*-SFE 2019 Biennial Survey Response*

The FY19 SFE webinar series (Table 1) demonstrated that efforts towards developing fire science webinars with regional expert scientists and managers can be effective for science delivery. In FY19, we hosted 10 webinars on topics ranging from wildlife to fire mapping to fire history. Over the course of the year we had 1,442 webinar participants from across the U.S. SFE evaluations from our FY19 webinar series show that participants value the webinars, increase their knowledge of the topics and can apply the information to their fire related work (Figure 6).



**Figure 6.** Participant evaluation results from the SFE 2019 Webinar Series. SFE webinar participants are overwhelmingly satisfied with the webinars, increase their understanding of the topics and find that the information can be applied to management programs.



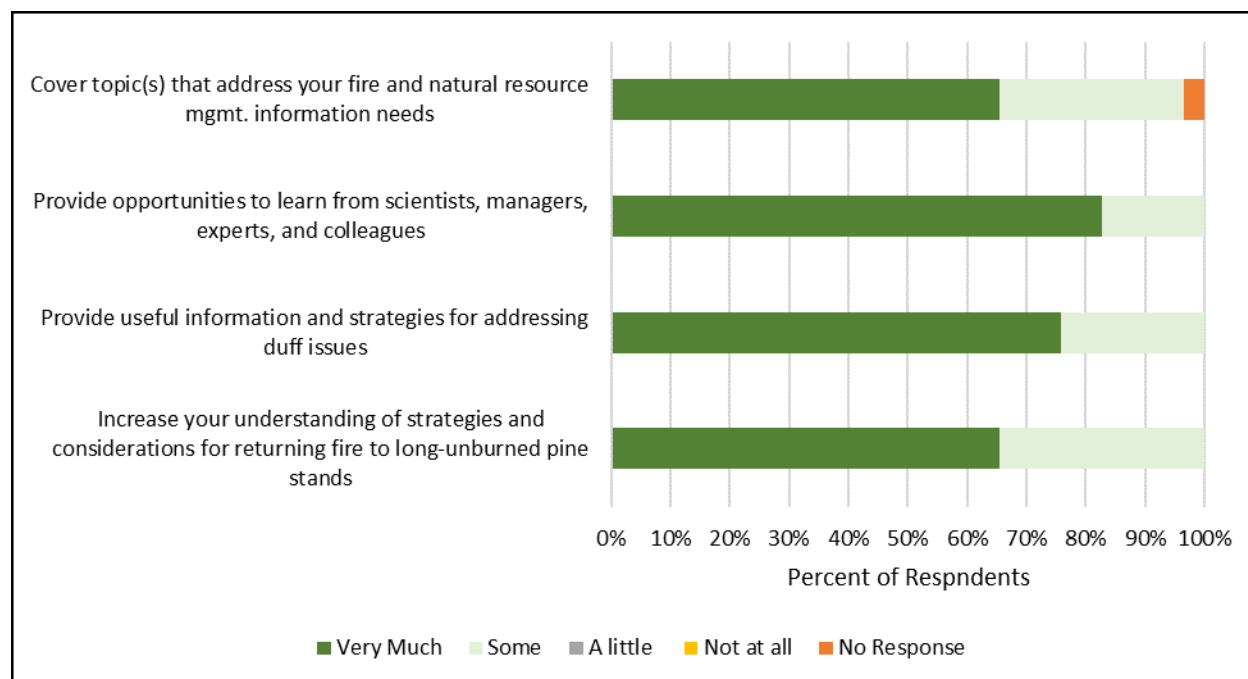
**Table 1. SFE FY19 Webinar Series Summary**

Date	Presenter	Title	Live Participants	Archived Views
10/5/2018	Dr. Talat Odman, Dr. Fernando Menendez	Prescribed Fire Tracking with SIPFIS	104	129
11/29/2018	Jennifer Fawcett, Bobby Clontz	Learn-n-Burn Lessons Learned	69	223
12/19/2018	Dr. David Coyle	Burning After Drought	147	279
1/17/2019	Dr. John Kush	Longleaf and Ponderosa Pine Fire Ecology	126	364
1/31/2019	Mark Melvin	Decoding the 2018 Prescribed Fire Survey Report	144	119
2/20/2019	Claire Rapp	Homeowner Preparedness in the WUI	136	150
4/24/2019	Dr. Todd Hawbaker, Dr. Casey Teske	Mapping Fires with Landsat and BAECV	127	290
5/30/2019	Dr. Kevin Robertson	Fire History Paradigms in North America – Controversy and Consensus	214	454
8/1/2019	Dr. Mike Chamberlain	Influence of Prescribed Fire on the Ecology of Wild Turkeys	281	858
9/12/2019	Dr. Jesse Kreye	Eastern US Litter Flammability	84	61
		<b>TOTAL</b>	<b>1,432</b>	<b>2,927</b>



**Figure 7.** In FY19 SFE hosted two duff fire science workshops and an advanced growing season prescribed fire workshop in North Carolina. These events brought scientists, agency land managers and private landowners together to learn state-of-the-art research, tools and techniques for addressing local fire management challenges. Photos: Laurel Kays

Field events and workshops continue to be strategic venues for SFE to provide advanced fire science information and resources to inform management decisions (Figure 7). The highlights of the year were the *North Carolina Duff Fire Science Workshop* held at Weymouth Woods Sandhills Nature Preserve State Park, the *Duff Fire Science Workshop for Private Landowners* held in Southern Pines, North Carolina and the two-day *Advanced Growing Season Prescribed Fire Workshop* co-hosted with the North Carolina Prescribed Fire Council. The duff fire science workshops included SFE evaluations that provided metrics regarding the utility and usefulness of the events (Figure 8). For example, over 65% of workshop participants indicated that the event “very much” covered topics that addressed their fire and natural resource management needs (Figure 8). In FY19, SFE also assisted with prescribed fire training workshops in Lumber City, Georgia, Nebo, North Carolina, Elizabethtown, North Carolina and Quincy, Florida. SFE (Dr. Robertson) also provided presentations at an advanced prescribed fire training workshop hosted by the North Florida Prescribed Burn Association.



**Figure 8.** The FY19 workshop evaluations following the SFE Duff Fire Science workshop at the North Carolina Weymouth Woods Sandhill Nature Preserve State Park indicated that the event provided participants useful and relevant information in a collegial format that can help them address their duff fire management issues. Data: 2019 Weymouth Woods Duff Fire Science Workshop Evaluation. Data are based on 29 evaluation responses.

SFE team members participated in a variety of national and regional conferences in FY19. These events have been valuable for sharing SFE resources and literature with conference participants, learning about new research and connecting with scientists for future webinar and workshop collaborations. In December, SFE hosted a booth and gave presentations (Dr. Roise and Jenn Fawcett) at the 15<sup>th</sup> International Wildland Fire Safety Summit and 5<sup>th</sup> Human Dimensions of Wildland Fire Conference. In February, Dr. Godwin presented at the 2019 Southeast Prescribed Fire and Smoke Management Summit IV (Figure 9). This gathering brought together representatives from eight southeastern state forestry and environmental air quality agencies and other regional programs at the Joseph W. Jones Ecological Research Center at Ichauway in southwest Georgia, to discuss prescribed fire smoke management issues, research and new ideas on how to achieve regional prescribed fire and air quality goals. In June, SFE also hosted a booth and participated in a wildland fire workshop (Dr. Godwin) at the 43<sup>rd</sup> Intertribal Timber Council

Symposium in Hollywood, Florida. Having this event in the South was a valuable opportunity for connecting with the Native American community from across the country. SFE planned to participate in the 3<sup>rd</sup> National Cohesive Wildland Fire Management Strategy Workshop during FY19, but it was rescheduled to early FY20.



**Figure 9.** The 2019 Southeast Prescribed Fire and Smoke Management Summit IV gathered state forestry and air quality program leaders as well as representatives of regional wildland fire science and management organizations together to learn about prescribed fire, fire science and smoke research.

State and regional Prescribed Fire Council (PFC) meetings have been and continue to be key venues for connecting science with the diverse regional fire management community of the South. In FY19 alone, SFE team members gave presentations and hosted booths to distribute SFE factsheets at ten different PFC events in Alabama, Florida, Georgia, South Carolina and North Carolina reaching 1,387 meeting attendees. In the early days of the program, SFE sought to interject science into the agendas of the PFC meetings through direct or invited presentations. In more recent years, observations suggest that most PFCs have made science a standing component of their annual meeting agendas. This represents an important regional shift demonstrating key partners integrating fire science and natural resource management into their own programs. While it is difficult to directly identify cause and effect, SFE efforts in supporting the science at these meetings over the years may have played a key role in this change in behavior. SFE continues to give direct science presentations at PFC meetings while also connecting PFC steering committees with fire science experts.

In FY19 SFE team members continued to participate in opportunities that allow for the program to engage and update regional leadership regarding fire science topics. In December, SFE (L. Kays) hosted a poster and distributed fact sheets at the US Forest Service Region 8 Burn Boss Refresher that had over 200 attendees. SFE (Dr. Godwin) gave a fire science update presentation to the Southern Group of State Foresters (SGSF) State Fire Chiefs at their winter meeting in Alabama. SFE update slides were also shared by the Consortium of Appalachian Fire Managers and Scientists (CAFMS) coordinator (H. Mohr) at the SGSF Summer Meeting in Tennessee. In May, SFE team members (Dr. Robertson and Dr. Godwin) led a tour of the historic Stoddard Plots at Tall Timbers Research Station for the Florida air quality regulator agency leaders and the state meteorologist for the Florida Forest Service. SFE team members made additional valuable connections through meetings with leaders of national organizations in FY19. In March, Drs. Crandall and Godwin met with the CEO of the Society of American Foresters and the Government Affairs Liaison for the University of Florida. Dr. Godwin also gave updates at the March FSEN meeting with representatives of the Ecological Society of America, the US Forest Service (USFS) Washington Office, The Wildlife Society, the National Academies of Science and the Society of



American Foresters. Later in the spring, SFE was represented at the Southeastern Partnership for Planning and Sustainability (SERPPAS) Steering Committee meeting in Atlanta and the Longleaf Partnership Council annual meeting in Columbus, Georgia (L. Kays). Dr. Crandall represented SFE at the Florida Forestry Association Forest Next Leadership Development Workshop. Dr. Godwin represented SFE at the State Line Meeting led by the USFS Southern Research Station (USFS SRS) director in collaboration with the leadership of the Florida Forest Service and the Georgia Forestry Commission. This meeting discussed science topics of interest to the state forestry agencies as well as a summary of some of the USFS SRS research programs. Finally, Drs. Godwin and Robertson gave updates and hosted a tour of The Wade Tract for the JFSP Executive Board during their spring meeting in Tallahassee.

In addition to in-person events, throughout the year, SFE team members contributed to national and regional committees and working groups including the SERPPAS Prescribed Fire Working Group, Southeast Cohesive Strategy Regional Strategy Committee, Southeast Fire and Air Quality Working Group, East Gulf Coastal Plain Joint Venture Prescribed Fire Committee and the National Extension Wildland Fire Initiative. Involvement with these groups connects the SFE team with regional science needs, shares information about SFE programs and activities and builds networks with regional fire and management leadership.

In partnership with the JFSP Program Office and the Southwest Fire Science Consortium, SFE began creating a new series of regional fire science success stories in FY19. The development of these fact sheets and an accompanying video will continue into FY20 as the products are refined to provide the most compelling stories for showcasing the economic value and importance of fire science for improving natural resource management outcomes.

### **Staff Changes**

In early FY19, Laurel Kays began as a new half-time Outreach Specialist for SFE. She is in the North Carolina State University (NCSU) Forestry Extension program and holds a joint position hosted by SFE and SERPPAS. Ms. Kays has quickly become a trusted and valued member of the SFE team and has used her extensive experience in extension work to expand SFE programs in North Carolina. In late FY19, SFE hired May Armstrong to fill a part-time Fire Science Communication Specialist position at Tall Timbers Research Station. Ms. Armstrong fills the position previously held by Leslie Boby at the Southern Regional Extension Forestry (SREF) program in Athens, Georgia. Ms. Armstrong brings to the position extensive experience working on prescribed fire teams across the Southeast and she has quickly assumed the responsibilities of managing SFE social media programs and newsletter development. We expect that she'll be expanding into developing new workshops and events as we move into FY20.

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*-SFE 2019 Biennial Survey Response*

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## **Comparison with Planned Work**

In FY19 SFE had an ambitious list of activities and outputs on our annual plan of work. In most cases we met or exceeded our planned activities for the year. For example, we planned to coordinate nine webinars and successfully completed ten events. Similarly, we planned to host five workshops and we successfully hosted or supported seven workshops and nine field events. Connecting with Prescribed Fire Councils continues to be a fruitful collaboration and in FY19 we planned to and successfully engaged with nine Prescribed Fire Council meetings across the South. We were unable to participate in the Louisiana meeting due to scheduling conflicts, but we are hoping to have representation at both the Louisiana and Mississippi meetings FY20 and FY21 now that we have hired a new Tall Timbers Fire Science Communication Specialist (see Staff Changes above).

## **Priorities & Initiatives**

In FY20, SFE will continue to develop programs and events that connect the fire science and natural resource management communities on topics related to our four program focal areas: smoke and air quality, prescribed burning, fire ecology and wildfire mitigation and suppression. The SFE FY19 Biennial Survey responses indicated that our dominant audience (Caucasian males between the ages of 45 and 75) prefer interactive, in-person programs for accessing fire science information. More than 75% of survey respondents, most of which were from our dominant audience, indicated that presentations, workshops and field tours were their preferred methods for acquiring and sharing fire science information. Online resources, including websites, webinars and factsheets, were also popular. Our younger users (<45 years old), preferred many of the same communication methods, but also ranked Prescribed Fire Training Exchanges (TREX), Learn-n-Burn events and peer-reviewed journal publications as beneficial for acquiring fire science knowledge. Thus, SFE program plans continue to focus on developing products that are valued and often used by these groups. We're also interested, however, in expanding the diversity of our user base, and in FY20 and FY21 we will be examining how new communication methods and programs (podcasts, real-time social media Q/A sessions) might reach new, diverse audiences.

### **SFE FY20 Program Focal Areas**

- Smoke and Air Quality
- Prescribed Burning
- Fire Ecology
- Wildfire Mitigation and Suppression



**Figure 10.** The number of fire festivals held in various locations across the South have increased in recent years. SFE has utilized these events as public fire science outreach opportunities that also build important connections with participating fire management agencies. Shown here are photos from the live prescribed fire demonstration and the SFE activity booth at the first biennial *Flatwoods Fire and Nature Festival* in Gainesville, Florida. Photos: David Godwin

## **New Audiences & Partnerships**

In FY19, SFE increased collaboration with several new programs while maintaining ties with established partners. SFE involvement with several workshops and field events in North Carolina came out of collaborations with North Carolina Cooperative Extension and SERPPAS that were possible because of the joint position held by Ms. Kays. We anticipate that opportunities for partnering with Cooperative Extension will grow in the future as the National Extension Wildland Fire Initiative (NEWFI) continues to formalize and expand. SFE team members Dr. Robertson, Ms. Fawcett and Ms. Kays are all active with the initiative. In addition, we will have an SFE presence and presentation at the ANREP biennial meeting in mid-FY20, which is expected to have a significant focus on fire science knowledge exchange efforts. We have long sought to increase our collaboration with Cooperative Extension to leverage their network to extend the reach of our fire science resources with non-agency end-users. We see participating in the ANREP conference and the NEWFI effort as making progress towards this goal.

In our FY18 Annual Report we shared that fire festivals were becoming an emerging opportunity for connecting fire science information and resources with the public. In FY19 we built on that opportunity through disseminating information at three fire festivals in North Carolina and Florida (Figure 10). While not requiring a significant investment of time, these events provide unique and efficient opportunities to connect with large and diverse audiences. We plan to continue that collaboration in FY20 through our participation and planning input at the *2020 Red Hills Fire Festival* and the *2020 Wilmington Fire in the Pines Festival*.

As part of our dedication to support diversity in fire science and management, we were involved with Tall Timbers Research Station and the Prescribed Fire Science Consortium in the 2019 Women's Prescribed Fire Training Exchange (WTREX) (Figure 11). WTREX participants were an elite group of fire professionals from 16 different states and 4 countries. Over the 14-day event,



**Figure 11.** The 2019 Women's Prescribed Fire Training Exchange (WTREX) held at Tall Timbers Research Station was a great opportunity for SFE programs to provide fire science support for a diverse audience of prescribed fire professionals from across the US and three international locations. Photos: David Godwin

SFE provided fire science presentations for WTREX participants (Dr. Robertson and Dr. Godwin) and documented the event through photos and videos. Interestingly, our *WTREX Highlights* video from the week had over 69 *shares*, 63 *likes* and reached an estimated audience of over 12,000 users on Facebook. Based on the unique opportunity to connect with such a diverse group of fire professionals, we anticipate continuing to connect fire science resources with WTREX events in the future when they are held in the South.

## **Developing Trends**

In FY19 SFE continued to develop and host workshops and events related to managing fire in sites with heavy duff loads. Over the past couple of years, we have had more requests to host these workshops than we have had the capacity to deliver. In response to this regional need, we plan to continue to develop workshops and other resources in the coming years that seek to move the latest duff fire science resources into the hands of managers. Additional details regarding this effort were included in our FY21-FY22 Refunding Proposal.

Our collaboration with the regional National Cohesive Wildland Fire Management Strategy (CS) continued to increase in FY19. The regional CS coordinator and Regional Strategy Committee provide an important link between SFE programs and Southern upper-level fire management leadership. SFE is one of the regional CS key partners for science delivery and we have a standing presentation slot on the monthly CS Regional Strategy Committee calls. The regional CS co-sponsored our fire in organic soils workshop held in early FY20, and we anticipate collaborating on future workshops in the future. SFE co-coordinated a special FSEN session at the 3<sup>rd</sup> National Cohesive Wildland Fire Management Strategy Workshop held in Plymouth, Massachusetts in early FY20. This 3<sup>rd</sup> workshop was the first time that the national-level Cohesive Strategy gathering had been held in the East and it represented a unique opportunity for the three eastern Fire Science Exchanges to showcase fire science communication successes within the region. In FY20, SFE will be collaborating with the regional CS in preparation for the 4<sup>th</sup> National Cohesive Wildland Fire Management Strategy Workshop which will be held in Asheville, North Carolina.

SFE has supported and promoted science co-production in various forms since the start of our Exchange. Starting in FY16 and continuing in FY18, SFE has been involved with the Prescribed Fire Science Consortium collaborative research burns hosted at Tall Timbers Research Station. Prior to participating in the JFSP Co-Production of Science Workshop held in Salt Lake City, Utah in early FY20, the SFE Leadership Team developed plans to include science co-production programs in our FY21-FY22 refunding proposal. In FY20, SFE plans to build the capacity and identifying the necessary partners to facilitate a series of co-production events and outputs in FY21 and FY22.

## **What We Will Build On and Do Differently**

The hiring process for our Fire Science Communication Specialist position at Tall Timbers Research Station took significantly longer than we anticipated. We had expected that the vacancy would be filled in the spring, but due to a variety of reasons, the position was not filled until late in FY19. Now that the position has been filled, we look forward to getting Ms. Armstrong trained and moving forward with program development in FY20.

We made progress in FY19 to identify new SFE Advisory Board and External Leadership Team candidates. While we have not completed our FY19-FY20 plan to revitalize the Board, we will continue in FY20 to made changes to the membership and increase the number of meetings. This is in line with our goals to improve our collaboration and coordination with the Board throughout the program year.