



“The most valuable part of this week for me was getting to talk to professionals in fire. I found their insight and career history very interesting and it's made me have a new appreciation for fire through hands on experience.

—NCSU Forest Management Student

Igniting Futures: NCSU Fire Week Trains Tomorrow's Fire Professionals

By: Sarah A. Cain, David R. Godwin, Raelene M. Crandall, and Joseph P. Roise

Overview

In June 2025, the Southern Fire Exchange (SFE) partnered with North Carolina State University's (NCSU) College of Natural Resources and NC State Extension Forestry to support an intensive, hands-on Fire Week training experience for undergraduate forest management students. Over four days in North Carolina's Sandhills region, students helped implement prescribed fires on 939 acres, while gaining exposure to fire science, planning, operations, and the culture and history of fire in the region. Fire Week represents an emerging model of experiential education that bridges academic learning with applied fire management. Partners at the NC Wildlife Resource Commission served as the main hosts for the event, providing the camping area and prescribed burn units. Other partners included: North Carolina State Parks, North Carolina Forest Service, The Nature Conservancy, the Sandhills Prescribed Burn Association, the Ember Alliance, and the University of Florida.

The Need

As wildland fire challenges grow across the country, there is increasing demand for professionals who understand both the science and practice of prescribed fire. However, many college graduates have limited field experience or awareness of fire's role in ecosystem management. NCSU's Fire Week addresses this gap by immersing students in real-world fire scenarios grounded in science, safety, and interagency collaboration.

The Experience

NC State students majoring in forest management arrived at Fire Week already certified as NWCG Firefighter Type 2 Crewmembers, allowing them to directly participate with established agency prescribed burn teams.



JFSP Fire Science Exchange Network



The mission of the Southern Fire Exchange (SFE) is to increase the availability and application of fire science information for natural resource management and to serve as a conduit for fire managers to share new research needs with the research community. The SFE is part of the Joint Fire Science Program Fire Science Exchange Network, a national consortium of 15 regional fire science exchanges.

From the first day, students participated directly in prescribed fire activities, rotating through fireline roles, monitoring fire weather, practicing burn planning, and engaging in discussions of fire behavior and fuel characteristics.

Within just hours of arriving, the students set up camp, donned their PPE, organized into squads with experienced leaders, received a burn briefing from the burn boss, and mobilized to the fire site. After field operations concluded, student squads returned to camp to carry out rotating duties, which included inspecting vehicles, cleaning the kitchen and bathroom, sharpening tools, and preparing dinner for the 41-member crew.

The program emphasized building key competencies in teamwork, adaptability, and resilience, all qualities essential to wildland fire operations. Each day, students received mentorship from professionals representing a range of agencies and organizations, exposing them to diverse career pathways and management strategies in fire ecology and prescribed fire implementation.

SFE's Role

The Southern Fire Exchange (SFE) supported Fire Week by fostering collaboration among partner agencies, sharing fire science resources, and promoting this model of applied learning to broader regional audiences. Members of the SFE leadership team including Dr. Joe Roise, Dr. Jennifer Fawcett, Dr. Rae Crandall, and Sarah Cain served as cadre for the event, with Jenn and Sarah each leading student squads.

As part of the week's activities, students participated in an interactive lecture on fire ecology and behavior led by Dr. Rae Crandall from the University of Florida. The session featured live matchstick forest experiments designed to demonstrate how weather, topography, and fuels influence fire behavior. Working in small groups, students developed hypotheses about fire behavior under different conditions and then constructed scaled-down forest models to test their predictions. Once ignited, these experimental "matchstick forests" enabled students to observe fire behavior in real-time, thereby assessing the accuracy of their hypotheses and deepening their understanding of key fire science concepts.

Throughout the week, students also learned how to stay current with the latest fire science, technology, and tools. They left with SFE factsheets, publications, and other materials to support their future careers. NCSU's Fire Week aligns closely with SFE's mission to connect cutting-edge fire science with land managers and students by training the next generation of fire professionals.

Learn More

Visit <https://southernfireexchange.org> to explore how SFE supports training, partnerships, and science communication across the Southeast.

Visit <https://cnr.ncsu.edu/fer/graduate/forestry/wildland-fire-courses/> to learn more about the wildland fire courses taught at NCSU.

OUTCOMES

- 939 acres prescribed burned across state, private, and conservation lands
- 31 students participated in live prescribed burn operations
- Fire science applied through on-site instruction in weather, fuels, behavior, and planning
- Professional development through daily mentorship, teamwork, and debriefs
- Expanded awareness of fire careers, agency missions, and the role of prescribed fire in southeastern landscapes



NCSU Forest Management students participating in Fire Week. Photos courtesy of Sarah Cain and Louise Orr.

