EASTERN INNOVATION LANDSCAPE NETWORK FACTSHEET

"Networked interagency co-production fostering deliberate accelerated wildland fire innovation"

A NOVEL INNOVATION APPROACH

The Eastern Innovation Landscape Innovation Network (EILN) offers a new paradigm for accelerating management-relevant fire science innovation and technology transfer through co-production, the intentional collaboration between the research community and end users who make fire planning and management decisions.

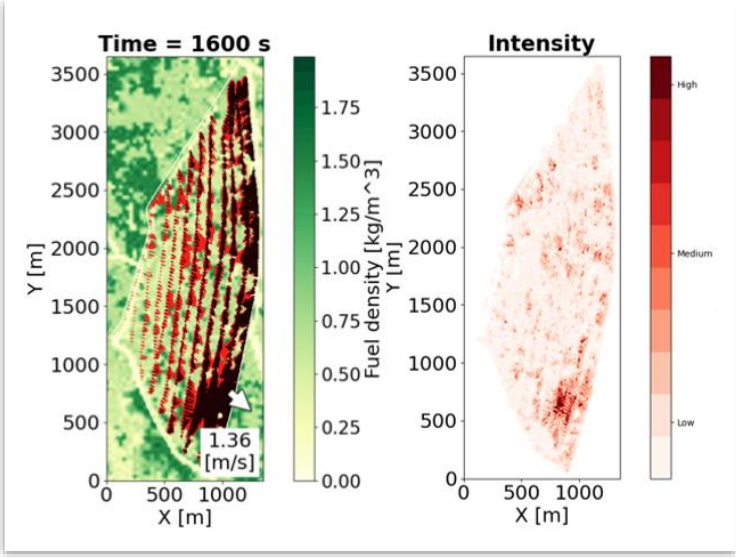

Figure 1. QUIC-Fire modeled fire progression and heat release for an aerial ignition prescribed burn conducted at Ft. Stewart, GA in March 2022.

In the 2023 National Cohesive Wildland Fire Management Strategy Addendum Update, the Wildland Fire Leadership Council (WFLC) recognized that, **"Science, data, and technology has not kept pace with the extent of wildland fire and postfire impacts, or been fully integrated into decision-making for fire, land and community managers."** WFLC specifically noted that fire behavior modeling and other tools are not being effectively used and communicated to decision-makers and practitioners.

Building on the USGS Innovation Landscape model first conceived in Southeast Arizona, the EILN will leverage successful examples of co-production through a formalized, interagency framework in which Department of Defense (DoD), US Fish and Wildlife Service (USFWS), and US Forest Service (USFS) fire practitioners in the eastern U.S. are invited to engage with fire scientists throughout the innovation process.

EILN PRIORITIES

3D FUELS CHARACTERIZATION TOOLS: ***Aerial*** and ***Terrestrial LiDAR*** paired with nationally available 3D fuels datasets such as ***FastFuels*** to more accurately represent the influence of vegetative structure on fire behavior.

"NEXT GENERATION" FIRE BEHAVIOR MODELS: ***QUIC-Fire*** **and** ***BurnPro3D*** due to their unique ability to account for fire-atmospheric feedbacks and the complex ignition patterns typical of prescribed fires (Figure 1).

As innovations thrive, novel uses of these models and tools to predict fire effects, improve smoke dispersion models, inform species habitat response to fire, and better understand ecosystem processes will be explored.

Fire managers need relevant fire science and technology but are often left out of the process and lack pathways to communicate effectively with the research community, slowing the development of innovations that respond to management and operational needs.

EILN innovation co-production strategies and approach:

- *Collaborative research burns hosted at DoD, USFS, and USFWS "Innovation Nodes"*
- *Facilitated workshops to demonstrate and evaluate next generation fuels and fire behavior models*
- *Fire science research project coordination across multiple "Innovation Nodes"*
- *End-user focus groups to evaluate model and tool utility and ease of use*
- *Development of training materials and visualizations based on prescribed fire scenarios*

INNOVATION NODES – THE FOCAL POINTS FOR CO-PRODUCTION

Researchers will engage in fire science co-production with fire managers and practitioners at select DoD, USFS, and USFWS demonstration sites, known as "Innovation Nodes" (Figure 2). **Innovation Nodes will be testbeds for fire science innovation** as fire managers at these sites evaluate and provide feedback on next generation fuels and fire behavior tools currently in development as well as working in tandem with researchers to imagine new innovations as needs arise and evolve. The EILN, part of the larger National Innovation Landscape Network, builds on the partnerships in place between:

- DoD SERDP/ESTCP Wildland Fire Science Initiative (WFSI)
- USFS Region 8 / Region 9
- USFWS Region 4
- Department of Defense Installations
- U.S. Geological Survey
- Southeast Regional Partnership for Planning and Sustainability (SERPPAS)
- JFSP Fire Science Exchange Network
- National Cohesive Wildland Fire Management Strategy
- USFS Southern Research Station
- USFS Northern Research Station
- USFS Rocky Mountain Research Station
- DOE's Los Alamos National Lab
- UC-San Diego Supercomputer Center's WIFIRE Commons.
- State and Tribal partners

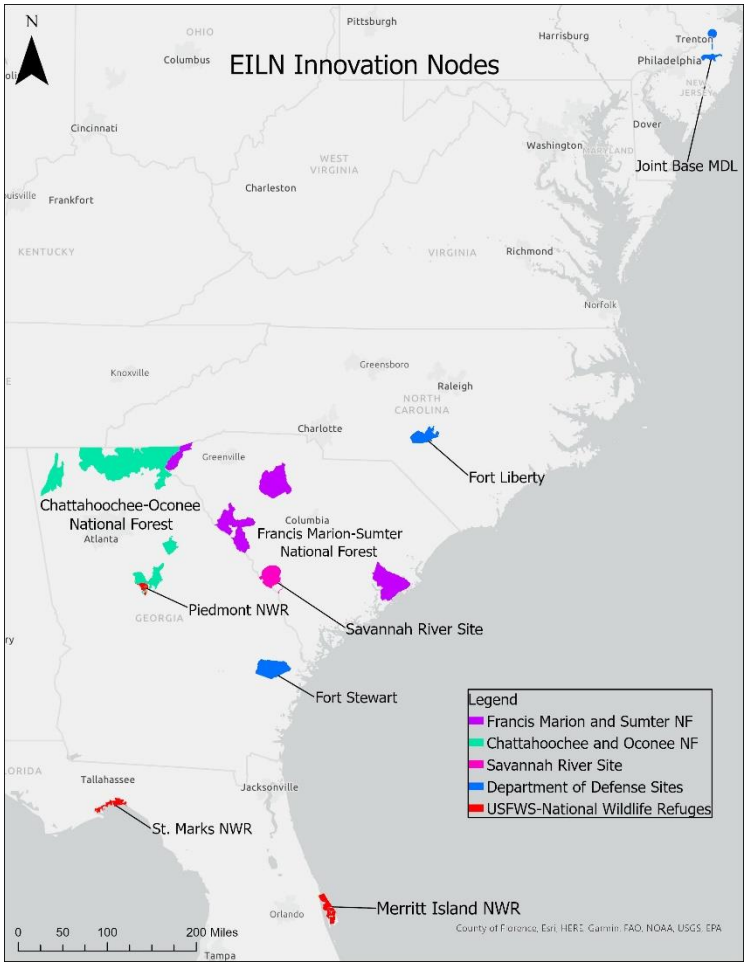

Figure 2. EILN Innovation Nodes. Innovation Nodes are advanced fire research and technology transfer sites where next-generation fire behavior and fuel models will be tested and then applied by fire managers.

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BACKGROUND

Prescribed fire continues to be the most cost-efficient and effective tool for managing fire-dependent ecosystems and mitigating wildfire risk in the eastern U.S. However, prescribed fire managers and practitioners are facing a rapidly evolving and increasingly complex fire environment due to inadequate fuels management, urbanization, the spread of invasive species, climate change, and other novel ecosystem transformations. Fire behavior, and the resulting effects of fire on fuels and ecosystems, is becoming more challenging to anticipate using the suite of currently available fire behavior models and tools. Once a given model or tool has been thoroughly evaluated and refined at the initial suite of innovation nodes, evaluation and utilization of the technologies will be expanded across a wider range of topographic and environmental conditions at additional sites in the eastern U.S. with the ultimate goal of transferring operational tools to the larger wildland fire community. As the network grows and matures, the EILN will seek opportunities to expand the concept to other federal, state, private, and tribal partners.