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**Research
and Development**

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U.S. Forest Service R&D News: August 2020 *News from the Washington Office and Research Stations*

SPECIAL ISSUE ON FIRE RESEARCH



FEATURED STORY

Epidemic Modeling to Manage COVID-19 Risk at Fire Camps

Fire camps may provide a potent setting for COVID-19 outbreaks, as they are typically populated by a transient workforce interacting in close quarters. To better inform mitigation measures, Forest Service researchers and partners modeled the spread of [COVID-19 in fire camps](#) under a set of different scenarios. The study revealed that screening arriving fire fighters and social distancing measures may both be effective mitigation strategies, though social distancing was more important in longer fire incident scenarios.



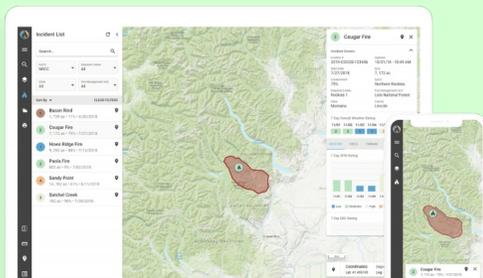
WILDLAND FIRE MITIGATION

Review of Wildland Firefighter Entrapment

A recent Forest Service review revealed several research gaps in the current state of knowledge surrounding U.S. [wildland firefighter entrapments](#). Researchers found that entrapment potential is highest when fire behavior rapidly deviates from an assumed trajectory, becomes extreme, and compromises the use of escape routes, safety zones, or both.

WILDLAND FIRE MITIGATION

Cutting-Edge Tool to Guide Wildland Fire Operations Launched



[WildfireSAFE](#) is a new web-based tool that integrates fire weather, hazard and behavior information from the Wildland Fire Assessment System (WFAS) for specific incidents. It was designed to increase situation awareness among fire professionals, enhance risk mitigation planning in wildland fire operations, and support greater interagency planning and response.



WILDLAND FIRE MITIGATION

Taming Swamp Fires

When dried out, Florida's hardwood-cypress swamps easily ignite and fuel tremendous fires. Forest Service scientists have found that [actively managing nearby pine flatwoods](#) decreased fire incidence and magnitude, especially when fire management techniques are applied to the borders between the pinelands and swamplands.



FOREST MANAGEMENT

Slowing the Tick Uptick with Prescribed Fire

Recurrent prescribed fire may reduce tick populations and incidence of the lyme disease they transmit, according to recent Forest Service research. By comparing tick populations in the [Silas Little Experimental Forest](#) and the New Jersey Pineland National Reserve, researchers found [blacklegged ticks decreased](#) with an increase in prescribed fire frequency and severity.

FOREST MANAGEMENT

A New Resource for Tree Mortality Data



Forest Service scientists have developed a comprehensive repository of information on individual tree responses to fire in the United States. [The Fire and Tree Mortality \(FTM\) database](#) contains records from over 160,000 trees, including descriptions of fire injury and post-fire behavior. Its data can be used for decision support, integrated into improved models, and used to explore patterns of tree mortality.



FOREST MANAGEMENT

Understanding How Wildfire is Converting Forest Ecosystems

Sustained patterns of fire disturbance can undermine forest recovery and permanently alter ecosystem form and function. In a recent Forest Service publication, scientists synthesize a growing body of evidence of [fire-driven conversion](#) and our understanding of its causes across western North America.



FOREST MANAGEMENT

Rising Temperatures Mean Greater Exposure to Fire Hazards

A recent Forest Service analysis evaluated trends in fire and heat risk across a set of regional and urban, suburban, and rural population groups. Overall, U.S. residents will experience greater exposure to [fire hazard and heat](#) over time due to climate change, with risk compounded as fire weather and heat are coupled.



PARTNERSHIPS

New Fire Research Initiative Launched for Pacific Northwest

While once rare, fires in the Pacific Northwest's temperate coastal forests are on the rise. The Forest Service Pacific Northwest Research Station has launched a [research initiative](#) to synthesize existing information and tools to help fire managers and responders plan for changing fire regimes in the region.



ENVIRONMENTAL EDUCATION

Honoring Smokey's 75 Years of Wildland Fire Education

Since 1944, [Smokey Bear](#) has been educating the public about wildfire prevention. In honor of his 75th birthday on August 9th last year, the Natural Inquirer teamed up with [Forest Service Conservation Education](#), [the Symbols Cache](#), and the [Cradle of Forestry in America Interpretive Association](#) to create some new educational materials available at the [Natural Inquirer website](#).



DID YOU KNOW?

Smoke from Wildland Fire Causes the Most Hazardous Air Quality Days in the U.S.

[The U.S. Interagency Wildland Fire Air Quality Response Program](#), founded by the Forest Service, delivers air quality outlook information to millions of people in areas affected by wildland fire smoke.

Webinars



The Forest Service is co-hosting a monthly [webinar](#) series that covers basic information about biochar, and its applications and environmental benefits. Tune in on August 20 at 11 a.m. EST for the next webinar "Biochar for innovative products".



The Forest Service's Urban Forest Connections [webinar](#) series brings together experts to discuss the latest science, practice, and policy on urban forestry and the environment. It is held on the second Wednesday of each month at 1p.m. EST.

Message from the Forest Service R&D Deputy Chief



Deputy Chief Alex L. Friend

FIRE SEASON 2020: REPORTING FOR DUTY

Since its inception in 1905, Forest Service researchers have been [investigating the effects of fire](#) and looking for improved methods to ensure the sustainability of the Nation's wildlands. Understanding and managing fire across the vast landscapes of the United States has always been a herculean task, with [mounting challenges](#) associated with the growing [Wildland-Urban Interface](#), rising summer temperatures, and decades of fuel build-up from fire suppression.

This year we face the novel challenge of ensuring the safety of our fire management professionals at the front lines in the midst of a global pandemic. R&D's researchers have dutifully taken on this critical new area of research, as demonstrated in this month's [feature story](#). Working across disciplines and practice areas to bring facts and data to agency decision-making, R&D's scientists are once again responding to the evolving and diverse challenges wildland fire management brings.

MEGAFIRES ARE FIRES THAT BURN OVER 100,000 ACRES.

IN THE PAST 30 YEARS, THE NUMBER OF
ACRES BURNED IN THE UNITED STATES
HAS GROWN **EXPONENTIALLY**.



OUR SCIENTISTS ARE FINDING OUT **WHY IT'S
HAPPENING AND WHAT TO DO ABOUT IT.**

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