U.S. Forest Service R&D News: March 2021

News from the Washington Office and Research Stations

FEATURED STORY

Warnings from Warming Peatland

Beyond their critical role in hydrology and providing habitat for biodiverse wetland ecosystems, peatlands are important for climate regulation because of the large amount of carbon stored in their waterlogged soils. Forest Service research is shedding light on how climate change will impact the carbon storage capacity of peatlands. As part of the Spruce and Peatland Responses Under Changing Environments program (SPRUCE), carbon loss rates were calculated in an experimental warming setup at the Marcell Experimental Forest in northern Minnesota. Under the warming scenarios tested, carbon loss rates were found to be 4.5 to 18 times faster than the rate at which carbon was stored historically.
A Tool that Gives the ‘Green’ Light to Rangeland Managers

Understanding the availability and quality of forage across landscapes is an important component of sustainable rangeland management. The Forest Service online tool ‘Phenomap’ uses satellite imagery to track ‘greenness’ across landscapes, which can offer real-time insights about forage from week to week. Range managers can use this tool to inform management decisions and support communication with landowners.

A Deep-Dive into What Shapes Sustainable Forest Management in the U.S.

A new Forest Service report offers the most complete syntheses to date on the legal, institutional, economic, and social factors that shape forest management and sustainability. It applies standard indicators defined by Criterion 7 of the Montréal Process and covers legislation and policies, law enforcement, economic incentives, research and technology, and coordination and partnerships.

RESTORATION

Hurricane Preparation and Recovery Guides for Land Managers

The record-breaking 2020 Atlantic hurricane season highlights the immediate need for landowners and managers to better prepare and plan for hurricanes. Forest Service authors and colleagues produced a series of 23 Hurricane Preparation and Recovery guides focused on the most economically important commodities for coastal states in the southeastern U.S., including timber, livestock, row crops, aquaculture, and more.

American Chestnut Restoration Course

Once widely distributed and abundant in the eastern U.S., the American chestnut (Castanea dentata) has been decimated over the past century by exotic pests. A new free Forest Service course on the American chestnut introduces its basic ecology and silvics, historic significance, and demise. Complete the course and qualify for 1 CFE credit with the Society of American Foresters.

Partnering to Restore Urban Forest Patches

In southwest Baltimore, Forest Service researchers are working with local partners to restore a 10-acre stretch of urban forest. The Stillmeadow Community Peace Park & Forest project’s goals transcend ecological restoration, aiming to also make the park a community resource to connect with nature and each other. It will also add to the developing body of research and practice about how to most effectively restore forests in an urban environment.
**WILDLAND FIRE**

Post-Fire Restoration Framework for California's National Forests

The increasing frequency and severity of fire in Western U.S. landscapes requires a coordinated, science-based approach to post-fire management. A new Forest Service report seeks to meet that need, offering a [framework to guide postfire restoration on national forests in California](#). It is centered around a set of guiding principles and can inform project planning and monitoring.

Taking Stock of Prescribed Fire Impacts on Timber Quality in Eastern Oak Forests

New research is shedding light on fire as a management tool in eastern oak forests. Forest Service researchers assessed timber quality across multiple national forests with varied prescribed fire histories. They found damage to timber was usually minimal, particularly compared to the costs of regenerating oak by other methods such as tree planting after more severe wildfires.

**FOREST PRODUCT INNOVATIONS**

Biochar for Mine Reclamation

The benefits of biochar application in abandoned mine restoration programs were recently explored by Forest Service scientists. Made from woody biomass debris, biochar has the potential to improve water quality, bind heavy metals or decrease toxic chemical concentrations, and improve soil health. Its positive effect on soils can also help establish plant cover, thereby preventing soil erosion, leaching, and other unintended, negative environmental impacts from mine sites. When applied at scale, the increased carbon it adds to soils also can help mitigate climate change.

**INVASIVE SPECIES**

Weeding Out Eurasian Watermilfoil

The [Eurasian watermilfoil](#) is an invasive plant that forms thick mats in shallow areas of a lake, blocking sunlight and killing off native aquatic species.
plants and fish. It spreads easily via fragments caught on the boats or fishing gear of unknowing recreationists. The Forest Service is combating Eurasian watermilfoil by pairing up with local partners to remove Eurasian watermilfoil from lakebeds.

**DID YOU KNOW?**

Over 56,000 full-text publications produced by R&D scientists are available for free online!

The Forest Service R&D publication repository Treesearch is an online system for sharing free, full-text publications. Search by keyword, author, research station, or dates for R&D peer-reviewed products, including papers appearing in journals, conference proceedings, or books.

Learn More!

**SCIENCEx**

The newly launched Forest Service SCIENCEx webinar series brings together scientists and land management experts from across Forest Service research stations and beyond to explore the latest science and best practices for addressing large natural resource challenges across the country.

Tune in April 5-9, at 2 p.m. EST for the SCIENCE x Post-Disturbance Restoration webinars which will feature daily presentations from Forest Service scientists on their research and best management practices for restoration after disturbances caused by fire, wind, insects and floods/erosion.

The Forest Service Urban Forest Connections webinar series brings together experts to discuss the latest science, practice, and policy on urban forestry and the environment. The next webinar titled "Tree Equity for Climate and Health: State and Local Applications" is scheduled for March 10 at 1 p.m. EST.

The Forest Service co-hosts a monthly biochar webinar series that covers basic information about biochar, its applications, and environmental benefits. Tune in on March 18 at 11 a.m. EST for the next webinar "Forest management and biochar: building resilient ecosystems."

The Forest Service's Rocky Mountain Research Station hosts a Science You Can Use webinar series, with one hour webinars held twice each month. They feature the latest research from its scientists covering a wide range of topics, including wildland fire, forest restoration, rangeland management, and wildlife conservation.

Message from the Forest Service R&D Deputy Chief

**Forest Service Research at the Nexus**


It is truly remarkable that the Forest Service is positioned at the nexus of all these major 21st century issues in the U.S. As
Deputy Chief
Alexander L. Friend

The research arm of the agency, our work is more important than ever in guiding our country through these monumental challenges with sound science.

Our work empowers agency counterparts, policy makers, other government entities, and the American public to be proactive, rather than just reactive in facing these issues. By combining over a hundred years of experience in research and data with the tools and technologies of the future, it is no exaggeration that we are national problem-solvers and champions of a sustainable future.

This month's newsletter offers a taste of the broad assortment of science R&D engages in, the challenges we take on, and the creative solutions we deliver.

**MARCH INFOGRAPHIC**

**OUR DRINKING WATER: FROM FORESTS TO FAUCETS**

The Forest Service manages the Nation's largest single source of water. Forest Service lands capture and filter drinking water for some 60 million people in over 3,400 communities, including cities, such as Los Angeles, Denver, and Atlanta. Our research improves the quantity and quality of water from forests.

Click here to download this infographic and dozens of other infographics on R&D research.

Click here for the archives of the U.S. Forest Service R&D Monthly Newsletter

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Forest Service