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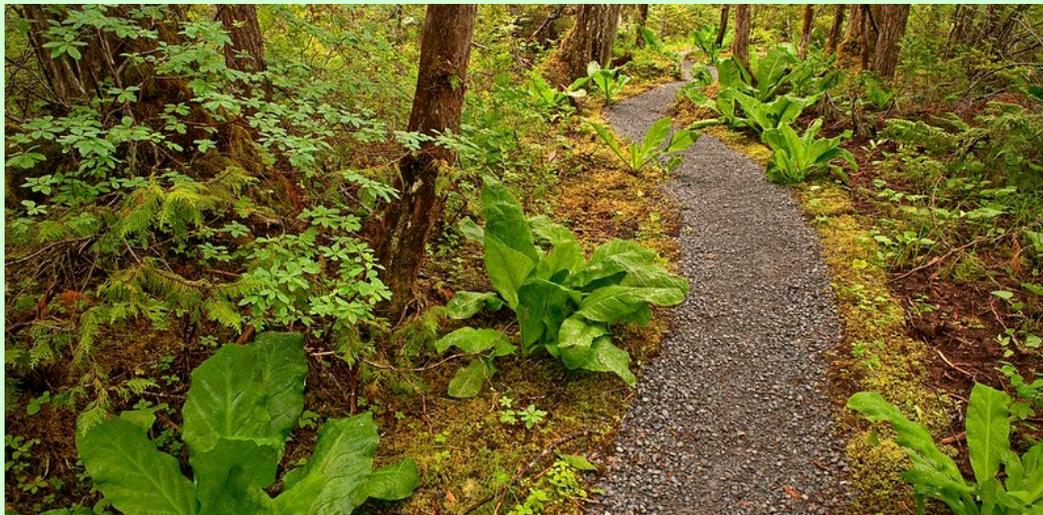
Forest Service
**Research
and Development**
Monthly News and Highlights from
the World Leader in Forestry Research

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



FEATURED STORY

Landmark Science Synthesis on Soils Published

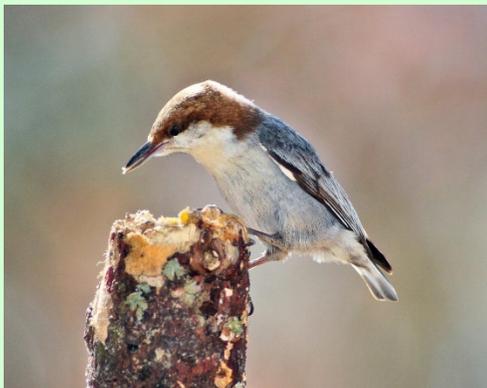
Productive forests and clean water depend on healthy soils. A new open-access book, [*Forest and Rangeland Soils of the United States under Changing Conditions: A Comprehensive Science Synthesis*](#), compiles the latest soil research in fields of forest and rangeland science. Forest Service scientists led the collaborative effort with dozens of authors across the Forest Service and beyond to capture and synthesize our state of knowledge of forest and grassland soils. This publication explores the current understanding of soils and science around soil carbon, hydrology, biogeochemistry, and biological diversity, and discusses the effects of natural and human-caused disturbances. It also provides managers with information to improve soil health by examining region-specific soil responses to various land management techniques.



SILVICULTURE

Risks and Rewards in Global Timberland Investments

Investing in timberland can offer an attractive long-term strategy for businesses and individuals as a relatively safe and cost-effective enterprise. Forest Service researchers recently examined [factors that influence profitability in several global timber plantation investment opportunities](#), looking at key risk and return factors. Their work revealed distinct risk factors among the timberland investment types and opportunities for enhancing returns.



WILDLIFE CONSERVATION

A New Beginning for the Brown-Headed Nuthatch

After decades of collaborative effort, the [brown-headed nuthatch was recently reintroduced to the Mark Twain National Forest](#). Forest Service researchers worked with state and federal partners in both Arkansas and Missouri to capture nuthatches on the Ouachita National Forest in Arkansas, fly them to Missouri, and release them. *Image by Mickey Estes from Pixabay*



FOREST ECOLOGY

Burrowing into 50 Years of Root Research in Puerto Rico

Despite the importance of tree roots in ecosystem carbon, water, and nutrient cycling, studies on underground tree components are far fewer than those on aboveground structures. Forest Service scientists published a [literature review of 50 years of root research](#) in Puerto Rico, helping to bridge critical knowledge gaps about root functions and characteristics in tropical forest ecosystems. *Image by robo1214 from Pixabay*



FOREST MANAGEMENT

Breaking Down Barriers in FIA Data Application

The Forest Inventory and Analysis (FIA) database is the largest and most diverse forest database in the world. To date, format differences made it difficult to apply FIA data in Forest Vegetation Simulation (FVS) software, widely used for predicting future forest conditions. Forest Service scientists have now solved that problem by creating the [FIA2FVS data translator, which translates FIA data into FVS-ready databases.](#)

WATER QUALITY

Monitoring Water Quality in the Mississippi Delta



Agriculture is a major source of pollution degrading water quality in the Gulf of Mexico. To better understand the characteristics, seasonal variations, and annual trends of pollutants, Forest Service scientists are [measuring surface water quality in the Big Sunflower River watershed](#) of the Mississippi Delta at three study sites. Read more about the [relationship between forests and surface water quality in the Southern U.S. here.](#)

INVASIVE SPECIES

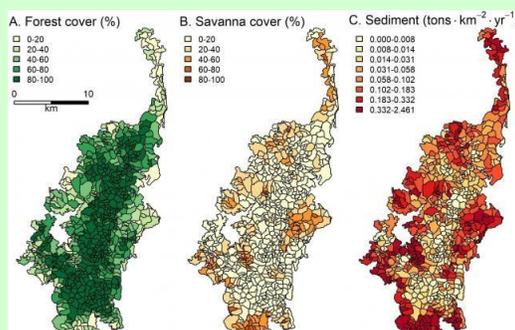
A Holistic Approach for Controlling Hemlock Woolly Adelgids



Hemlock Woolly Adelgids are an invasive pest causing widespread death and decline of hemlock trees in the eastern United States. Forest Service scientists have published a guide synthesizing best practices for controlling these tiny bugs. It promotes a strategy of [combining insecticide use with adelgid-eating insects.](#)

RESTORATION

Decision-Support Tool for Guiding Ecological Restoration on the Island of Palau



Many Pacific Islands suffer from environmental degradation driven by human development and climate change. Forest Service scientists are [helping restoration efforts in Palau](#) by developing a decision-support tool that uses spatial data to help weigh costs and benefits of interventions that facilitate ecosystem preservation and recovery.



DELIVERING BENEFITS TO THE PUBLIC

Mapping Out Flood Vulnerability for Better Planning

Shifts in land use and urbanization, combined with changing streamflow patterns, are important factors to consider when planning for future flood risk. Forest Service scientists recently used a model that combined biophysical and socioeconomic factors to [project the spatial distribution and impacts of flooding](#) in a large river-basin in North Carolina to identify vulnerable communities.



DID YOU KNOW?

The Forest Service has an [Institute of Pacific Island Forestry](#)

The Institute is part of the [Pacific Southwest Research Station](#) and based in Hawai'i. Its staff work with partners to restore, conserve, and sustain tropical forests and wetlands of the Pacific, including those in Hawai'i, Guam, American Samoa, the Northern Mariana Islands, the Marshall Islands, the Federated States of Micronesia, and Palau.

Webinars



The Forest Service is launching a week-long webinar series [Fire x Fauna](#) that will explore the effects of wildfire and prescribed fire on wildlife in the United States. Covering ecosystems and fire management practices across a wide range of geographies, speakers will present their research and best practices for balancing wildlife conservation and forest management goals. Webinars will take place each day from Nov 16-20, at 2-3 pm EST.

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. The next webinar "Millions, Billions, and Trillions – Do You Have the Tools to Keep New Trees Alive?" is scheduled for October 14 at 1 p.m. EST.

The Forest Service's Rocky Mountain Research Station hosts a [Science You Can Use webinar series](#), featuring the latest research from its scientists covering a wide range of topics. The next webinar "Where's the Biomass? A New Approach for Quantifying Biomass and Carbon in the Western United States" is scheduled for October 14 at 12 p.m. EST.

Message from the Forest Service R&D Deputy Chief



Deputy Chief Alex L. Friend

Celebrating Trailblazers at the Women of Color in STEM Conference

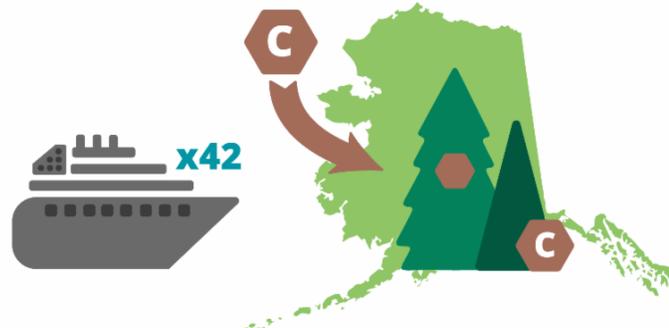
Stewardship of America's national forests and grasslands, resources that are culturally and biophysically vital to the public, is a vast undertaking that requires our nation's brightest minds and most dedicated public servants. Forest Service staff are the heart and soul of our agency, working together across disciplines and nine time zones to deliver on our mission. I believe diversity, a core value of the Forest Service, is a fundamental characteristic of a successful workforce. Fostering an environment that celebrates and empowers representation from different backgrounds and perspectives is essential, and we remain committed to modeling diversity and inclusion in the sphere of research and development.

The [Women of Color in STEM Conference](#) provides great opportunity each year to redouble that commitment and honor some of our best and brightest. Many Forest Service trailblazers have been recognized at the conference over the years – women who are leaders in their field and who serve as role models for future STEM professionals. This year, we are honored that [Dr. Sharon Parker](#), R&D Science Synthesis Program Manager, will represent our agency as a recipient of the Technology All-Star Award. We congratulate her and celebrate Sharon's esteemed career and leadership in our agency.

OCTOBER INFOGRAPHIC

FORESTRY AS A NATURAL CLIMATE SOLUTION

Research from the Forest Service and partners show that *Alaska's ecosystems* absorb and store **3.4 to 7.8 million tonnes of carbon a year.** In terms of carbon mass, that is equivalent to the weight of **about 42 cruise ships.**



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