

U.S. Forest Service R&D Newsletter - January 2018

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News from the Washington Office and Research Stations

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FEATURED NEWS

Where There's Smoke, There's Ire

More than 3,000 wildland fires burned more than one million acres in Alaska, Washington, and Oregon in 2016 alone. Smoke is one of the most visible byproducts of fire and is a public health threat. Innovative, cutting-edge USDA Forest Service tools are now advancing public health by helping to generate [forecasts](#) of the potency and path of smoke from wildfires and prescribed fires.



WILDLIFE

The Lethal Fungus Causing White-Nose Syndrome in Bats May Have an Achilles Heel

The fungus behind white-nose syndrome, a disease that has devastated bat populations in North America, may have an Achilles' heel: UV light, according to a [study](#) conducted by the Forest Service and its partners.



FOREST HEALTH

Small Pests, Big Problems: The Global Spread of Bark Beetles.

Forest Service scientists are quoted in a *Yale Environment 360* [article](#) about the expansion of pine and spruce beetle outbreaks across North America, Europe, and Siberia that are ravaging thousands of square miles of woodlands. Some forests may never recover from these outbreaks.



URBAN FORESTRY

Despite City Tree Benefits, California Urban Canopy Cover Per Capita is Lowest in U.S.

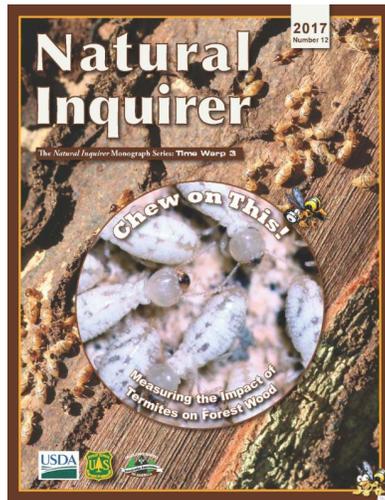
California's 173.2 million city trees remove carbon dioxide and air pollutants, intercept rainfall, and increase property values--services that are cumulatively worth about \$18 billion annually. But according to a recent [study](#), more benefits could be produced if the state's per capita urban canopy cover wasn't the lowest in the nation.



ECOLOGY

Even Fish Need Oxygen

A research team including a Forest Service scientist investigated whether low oxygen levels in Alaskan streams were causing salmon die-offs. Their results, which are described in an eye-catching science [story](#), indicate that large populations of salmon combined with low stream flow can lead to dangerously low oxygen levels.



SCIENCE EDUCATION

Chew On This!

Although termites can damage human-made structures, they are also a natural part of many ecosystems. This Natural Inquirer issue features an [article](#) that compares termites' role in forest decomposition to the roles of other decomposers in the Southern U.S. For comparison, the issue also includes a 1978 Forest Service article about homeowner costs from termite damage in the Southern U.S. Together, these articles illustrate how research on a topic develops over time.



FUNGI

Some Tiny Soil Fungi Make Forests More Vulnerable to Invasive Plant Species Than Others

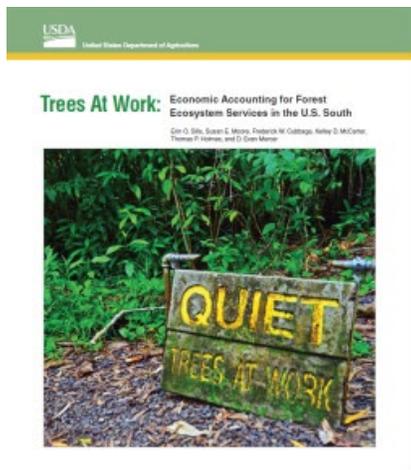
[Research](#) published by Forest Service and Purdue University researchers suggests that tiny soil fungi may influence a forest's vulnerability to invasion by non-native plant species. These mycorrhizal fungi help trees feed on soil minerals, and in turn, they feed off sugars in tree roots. The research suggests that the fungi species that recycles nutrients back into the forest most quickly is also the species that makes forests more vulnerable to invasion.



SOIL BIOLOGY

Centipedes Prey on Invasive Earthworms

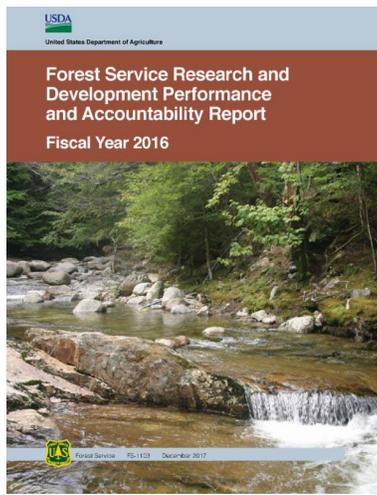
A Forest Service [study](#) reveals that centipedes use their venomous fangs to prey on invasive earthworms; the centipedes even consume earthworms that may be 10 times their size. This research may help forest managers control invasive worm species.



ECONOMICS

Trees at Work

Southern forests provide various important ecosystem services, from purification of water and air to recreational opportunities for millions of people. Because many of these services are public goods with no observable market value, they are not fully incorporated into land use and policy decisions. To help address this problem, the Forest Service--with input from the Southern Group of State Foresters--produced a [study](#) that provides guidance on standardized approaches for accounting for forest ecosystem services in Southern states.



PROGRESS REPORTING

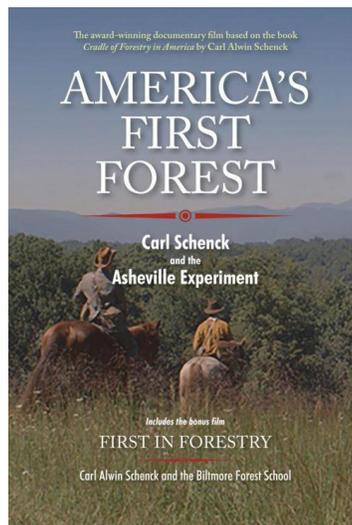
Forest Service Research and Development Performance and Accountability Report (PAR)

This progress [report](#) describes the Forest Service Research & Development organization, explains how it has applied the public's investments, and provides an accounting of budgets and accomplishments. It aims to help policymakers make informed decisions and presents an overview for all Americans interested in the workings of their Government and R&D's ability to manage for results in delivering information, technology, and applications.

HISTORY

America's First Forest

An Emmy Award-winning [film](#) titled *America's First Forest: Carl Schenck and the Asheville Experiment* tells the story of how Carl Schenck, a German forester, came to America in 1895 to manage the forests at the Biltmore Estate in Asheville, North Carolina. In addition to restoring land, he established the country's first forestry school and helped launch the American conservation movement. The film was produced by the Forest History Society (FHS) and Bonesteel Films, with support from the Forest Service, the Cradle of Forestry in America Interpretive Association, and the Blue Ridge National Heritage Area. It was based on Schenck's memoirs, which are housed at the FHS Archives and edited into the [book](#) *Cradle of Forestry in America: The Biltmore Forest School, 1898-1913*.



FRESHWATER

Water from the Mountain

A new [film](#) titled *Water from the Mountain - Agua de El Yunque* traces the movements and monitoring of freshwater shrimp from the coast at El Yunque National Forest headquarters just prior to Hurricane Maria. This film was produced in partnership with the Forest Service, with cooperation from the Luquillo Experimental Forest, and support from the National Science Foundation.





Photo by Jaepil Cho ([CC BY 2.0](#))

Did You Know?

Cheatgrass--an invasive, highly flammable plant--is a particular problem in the Great Basin of the Western U.S., where large wildfires are becoming more frequent. (Scroll down for an infographic on cheatgrass.) After barren land in the Great Basin burns, restoration efforts must quickly target burned areas to prevent cheatgrass from carpeting the ground and fueling more fires.

To support such post-fire restoration efforts, Forest Service scientists identified native plant strains that can [block cheatgrass invasions](#). They also showed land managers how to plant the right native seeds in the right places. As a result, native plant species now account for the majority of seeds used in Great Basin restoration efforts.

Recent Blogs



[The Promise of Biochar for Forests, Grasslands, and Farms](#)

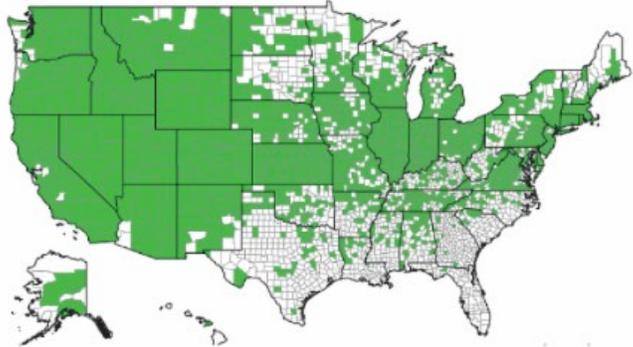
Research & Development is developing an innovative method--inspired by prehistoric Indians--to transform excess trees and branches into forest fertilizer.



[Art Bridges the Gap Between Nature and People](#)

A Forest Service scientist and an artist creatively connect kids with nature in New Mexico.

BY-THE-NUMBERS



Cheatgrass – a highly flammable invasive species – is present in every U.S. state. It dominates about 25 million acres in the Great Basin region of the Intermountain West.

[Learn More >>](#)

□ No Data ■ Species Reported



For more information on cheatgrass click [here](#).

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