U.S. Forest Service R&D Newsletter: February 2020

News from the Washington Office and Research Stations
FEATURED NEWS

Threats to the "Tree of Life"

*From Appalachian Voice:* Oak trees have helped to shape culture, diet and ecosystems around the world, but now these trees are facing significant threats to their ability to thrive. Today, oaks are struggling to regenerate, and diseases spreading in the West and Midwest could bring ecological devastation if they take root in Appalachia. The *Oak Conservation Alliance* has a network of researchers, non-governmental organizations, educators, foresters, hunters and concerned citizens to monitor Appalachian forests and learn from other regions. The Forest Service is contributing research on managing oak systems.

MITIGATING WILDFIRE

A Double Whammy: Climate Change and Disappearing Forests

In the Intermountain Region of the western U.S., most forested landscapes are fire prone and adapted to a semiarid climate. With the severity of wildfires increasing as a result of excessive fuels, land managers are concerned about forests converting to shrubland or grassland. When you throw climate change into the mix, the wildfire conversion risk goes even higher.
CLIMATE RESEARCH

Warming in the Cold North

Arctic and boreal regions are warming more than twice as rapidly as the rest of the world. The timing of plants’ flowering and fruiting is changing, with implications for insects, wildlife, and people who rely on these resources for food and livelihoods in Alaska. Forest Service scientists are contributing groundbreaking climate research in Alaska, with global implications.

OUTDOOR RECREATION

Climate Change Adaptation Strategies and Approaches for Outdoor Recreation

Using a combination of in-depth interviews of recreational managers and a review of peer-reviewed literature and government reports on outdoor recreation, Forest Service scientists developed a synthesis of impacts, strategies, and approaches, and a tiered structure that organizes this information.

MITIGATING WILDLAND FIRE

In the Eye of the Fire

Video: Observing phenomena inside of a fire is critical for improving decision support tools and training for fire managers. Forest Service research ecologist Mike Gallagher and Matt Hoehler, a research structural engineer at the National Institute of Standards and Technology, partnered to overcome that hurdle.
**SUSTAINABLE FOREST MANAGEMENT**

Forest Soils Recovering from Effects of Acid Rain

*From American Society of Agronomy:* Jennifer Knoepp, a research soil scientist with the Forest Service, has been studying how the reduction of air pollution and acid rain is affecting forests in the southern Appalachian Mountains. Her interest is to see how soils are recovering as the air gets cleaner.

**SUSTAINABLE FOREST MANAGEMENT**

Forest Service Report Provides a Comprehensive Look at Pinyon and Juniper Woodlands

Pinyon and juniper woodlands across the Western U.S. are changing, and this affects the communities and people who depend on them. A new publication about these woodlands will help land managers, working collaboratively with stakeholders and citizens, prioritize areas for treatment and identify strategies best suited to meet local needs.

**WILDLIFE HABITAT**

Northern Spotted Owls Threatened by Anticoagulant Rodenticides

Exposure of nontarget wildlife to anticoagulant rodenticides is a global conservation concern typically centered around urban or agricultural areas. Recently, however, the illegal use of such rodenticides in remote forests of California has exposed sensitive predators, including the federally threatened northern spotted owl, Forest Service scientists report.

**WILDLIFE HABITAT**

Barred Owls Invade the Sierra Nevada

*Scientific American podcast:* By listening to the sounds of the forest, Forest Service biologists identified an invasion of barred owls in spotted owl habitat.
WILDLIFE HABITAT
How Human-made Beaver Dams May Support Habitat Restoration

From Montana Public Radio: Ecologists are researching human-made beaver dams as a potential habitat restoration tool. Early case studies show the dams could dull the impacts of climate change on rivers and streams. The Forest Service, which is funding the research, is looking to use the simple structures on new sites in Montana, but first, officials want to better understand the science behind simulated rodent engineering.

RIVER RESTORATION
A Model to Integrate Urban River Thermal Cooling in River Restoration

River water quality and habitats are degraded by thermal pollution from urban areas. A new Forest Service study updates the i-Tree Cool River model to simulate restoration of these processes to reverse the urban river syndrome.

SUSTAINABLE FOREST MANAGEMENT
Bumble Bees' Favorite Flowers Identified to Aid Bee Restoration
Bumble bees are essential pollinators for plants, and their ability to fly in colder temperatures make them especially important pollinators at high elevation. Researchers from The Institute for Bird Populations, the University of Connecticut, and the Forest Service compared which species of flowers the bees used relative to the availability of each flower species across the landscape.

SUSTAINABLE FOREST MANAGEMENT

Emerald Ash Borer Threatens Minnesota’s Black Ash Forests

A nonnative insect that has killed millions of ash trees in more than 25 states is edging closer to Minnesota’s black ash forests. Forest Service scientists and partners report new findings that are changing the way black ash wetlands are managed by state and federal agencies and tribes in Minnesota and Wisconsin.

PARTNERSHIPS

How Science Partnerships Can Help Prioritize Rare Species for Conservation

Researchers from the Forest Service and partners developed an index that can help rapidly assess the vulnerability of Oregon’s native freshwater fish, reptiles, and amphibians. The index can be used to assess inherent climate sensitivity across entire taxonomic groups using existing data.

DID YOU KNOW?
Sixty percent of family-owned forests in the U.S. are between 1 and 9 acres.

Forest Service scientists used data from the National Woodland Owner Survey to understand small-area family forest ownerships and compare them to larger area family forest ownerships. Information from this study will help the professional forestry community assist small-acreage family forest ownerships.

Messages from the Forest Service R&D Washington Office

Read a message from Alexander Friend, Forest Service Deputy Chief for R&D, on the value of research.

The Forest Service's Urban Forest Connections webinar series brings experts together to discuss the latest science, practice, and policy on urban forestry and the environment.
Click Here for More About How Fire Kills Trees

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