



United States Department of Agriculture

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The banner features the U.S. Forest Service logo on the left, followed by the text "Forest Service" and "Research and Development". Below this, an orange box contains the text "Monthly News and Highlights from the World Leader in Forestry Research". On the right side, there is a graphic of a globe with a leaf growing from it. At the bottom right, the hashtag "#SoundScience" is displayed above social media icons for Twitter, Instagram, Facebook, and YouTube.

U.S. Forest Service R&D Newsletter - February 2019
News from the Washington Office and Research Stations

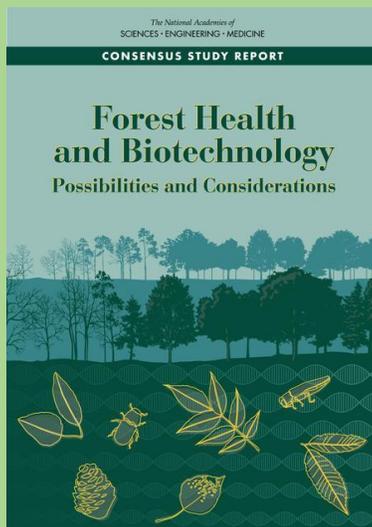
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FEATURED NEWS

The Hidden Lives of North America's Invisible Carnivores

The USDA Forest Service is using complex statistical [models](#) to monitor elusive fishers, martens, lynx, and wolverines. This approach can help scientists understand whether one of these species is present or not, whether there are multiple individuals present, and whether a population is likely to thrive-- information that can help land managers develop forest plans that better protect these predators.



IMPROVE THE CONDITIONS OF FORESTS AND GRASSLANDS

How Biotechnology May Help Protect Forests

A National Academies of Sciences, Engineering, and Medicine [report](#) funded in part by the Forest Service finds that biotechnology could be used to help protect forests from destructive pests and disease outbreaks by introducing pest-resistant traits to at-risk tree species. However, the report stresses that considerable investment in research is still needed to better understand how biotechnology can mitigate these threats and how ecosystems would be impacted.



PROVIDE EXCELLENT CUSTOMER SERVICE

Urban Nature Boosts Human Health

A [report](#) by the Forest Service's National Urban Forest Technology and Science Delivery Team summarizes the most current research about nature and public health. The report found that people living near parks and green spaces have less mental distress, are more physically active, and live longer. Plus, exposure to nature may help mitigate chronic disease and improve the attention capacity of children with attention deficit disorders.



SUSTAIN FORESTS AND GRASSLANDS

Predicting how CO₂ and Ozone will Change Forest Composition

Forest Service scientists used a forest landscape model and information from the earlier [Aspen Free Air Carbon Experiment](#) in Wisconsin to produce projections about forest composition in response to elevated carbon dioxide and ozone after 80 years. This study confirmed the previous study's finding that ozone has a negative impact on growth, but elevated carbon dioxide levels mitigate this impact. However, this recent study also showed that short-term species growth trajectories do not always last long term.



MITIGATE WILDFIRE RISK

Using Prescribed Fire to Restore and Sustain Oak Ecosystems

Forest Service scientists [reviewed](#) research about the long-term impacts of using prescribed fire to manage oak forests and woodlands in order to understand how resilient trees are to fire damage. They looked at tree species, size, bark characteristics, defense against decay, ability to protect damaged cells, and fire scar characteristics. The scientists concluded that oaks with a diameter of at least four inches have thick enough bark to protect them from fire damage.



SUSTAIN FORESTS AND GRASSLANDS

How Does Forest Management Affect Birds?

To learn how different types of timber harvests impact birds in mature forests, a team of Forest Service scientists [studied](#) species in the Ouachita Mountains of Oklahoma and Arkansas for 16 years following a harvest.



SUSTAIN FORESTS AND GRASSLANDS

Can Forests and Houses Coexist?

To understand the relationships between forest cover and residential development, Forest Service scientists [investigated](#) how forest cover varies with housing density, housing age, and household income in six regions within New York State, Wisconsin, and Colorado. They found that across all regions, high housing density corresponded with low forest cover.

A commemorative graphic for Black History Month. On the left, a dark blue vertical banner contains the text "ELEANOR 'ELLIE' TOWNS" in white, followed by "First African-American woman Regional Forester in 1998. Awarded the Meritorious Presidential Rank by President Clinton." Below this is a small UAS logo and the text "Celebrating BLACK HISTORY MONTH". To the right of the banner is a black and white portrait of Eleanor "Ellie" Towns, a woman with short, curly hair, wearing a dark jacket and a necklace.

BLACK HISTORY MONTH

Celebrating Black History Month: Eleanor "Ellie" Towns

Eleanor "Ellie" Towns joined the Forest Service in 1978 after working in the Bureau of Land Management. In 1998, she became the first African American woman to serve as [Regional Forester](#). Towns has received numerous awards for her service, including the Meritorious Presidential Rank. She holds a bachelor's degree from the University of Illinois, a master's degree from the University of New Mexico, and a juris doctor degree from the University of Denver's College of Law.



MITIGATE WILDFIRE RISK

Understanding and Preparing for Wildfire

This interactive [slideshow](#) explains the role of fire in forest ecosystems of the Pacific Northwest, including the characteristics of wet, dry, and modern forests. It also describes strategies the Forest Service uses to manage fire, including prescribed burning and mechanical thinning, and discusses how you can make your home and community wildfire-ready.



MITIGATE WILDFIRE RISK

Into the Fire Nominated for Science Documentary Award

The Forest Service's Missoula Fire Science Laboratory worked with 90th Parallel Productions to create the [documentary](#) *Into the Fire*. The lab provided information and ran experiments for the film, which explores the latest research on the physics of fire and discusses new techniques for predicting and preventing it. The film was nominated for the 2019 Rob Stewart Award for Best Science or Nature Program or Series.



MITIGATE WILDFIRE RISK

A 250-year History of Fire in Oregon's Mixed-Conifer Forests

Forest Service scientists used data from four sites in central Oregon to create an [index](#) that captures the relative occurrence of low- and high-severity fire in dry mixed-conifer forests. These forests are widespread in the Pacific Northwest, but their historical fire regimes are not well understood. Data collected from the period between 1650 and 1900 showed that all four sites sustained frequent, often extensive, low-severity fires that sometimes included small patches of severe fire. For all sites, the average interval between fires was 14 to 32 years.



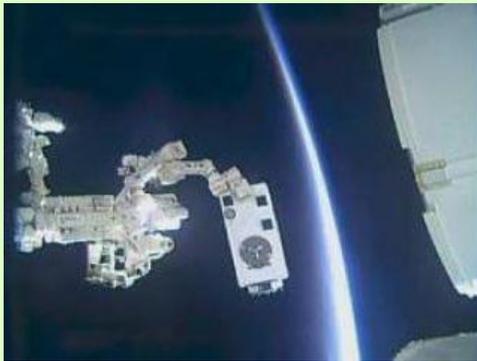
DID YOU KNOW?

The Wildland-Urban Interface is the Fastest Growing Land Use Type in the Coterminous U.S.

Wildland-urban interface (WUI) areas are places where homes meet undeveloped natural areas. These rapidly-growing areas pose challenges for wildfire managers because they result in more buildings in at-risk environments where firefighting is difficult.

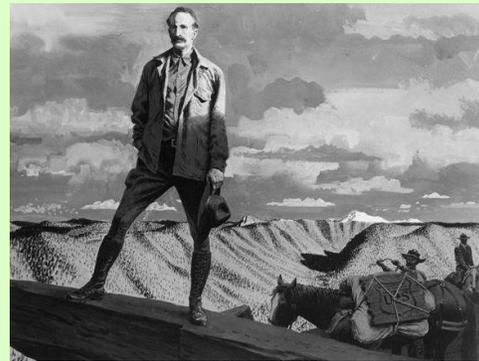
Scroll down to infographic for more on the WUI.

Recent Blogs



LiDAR Laser Measures Trees from Space

Forest Service scientists are analyzing spaceborne data about Earth's forests with the Global Ecosystems Dynamics Investigation.



Forest Service Celebrates 114th Birthday

On February 1, 1905, President Roosevelt united all federal forest lands under the USDA, creating the Forest Service. Gifford Pinchot served as the agency's first Chief.

BY-THE-NUMBERS

In 1990, there were **177,000** houses located within the perimeter of recent wildfires.



By 2010, the number rose to **286,000**.



[Learn More About the Wildland-Urban Interface](#)



Forest Service

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