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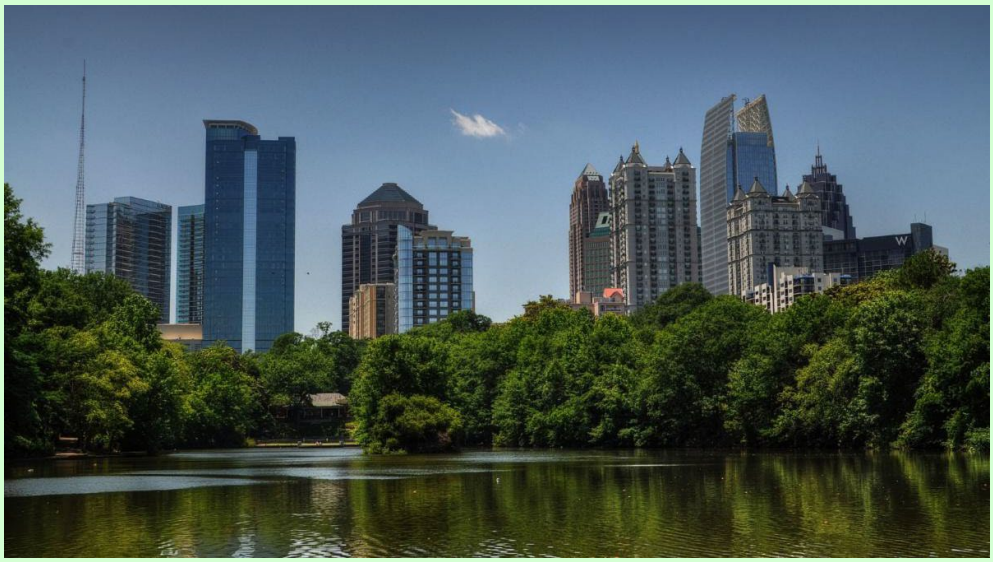
U.S. Forest Service R&D News: November 2020

News from the Washington Office and Research Stations

SPECIAL ISSUE ON URBAN FOREST SUSTAINABILITY RESEARCH



FEATURED STORY

Global Tree Cover in Cities Declining Despite Increasing Need

Trees in cities are mighty multi-taskers, reducing energy costs, mitigating air pollution, boosting housing values, providing wildlife habitat, and even increasing life expectancies. Yet globally, tree cover in cities is declining, according to recent Forest Service research. Between 2012–2017, urban areas globally lost an average of about 100,000 acres of tree cover each year. At the same time, the area of impervious surfaces grew, compounding the negative impacts associated with loss of canopy cover, such as excessive storm water runoff and heat islands. This is no less true for urban areas in the U.S., where an earlier national study (2018) showed a decline in tree cover of 138,000 acres per year (28.5 million trees) between 2009-2014, alongside a net increase in impervious cover. *Photo by Mike on Flickr*

SUSTAINABLE FOREST MANAGEMENT

New Resources for Municipal Tree Management

The Forest Service has a new set of guidance to help municipalities track the health and outcomes of the trees they plant and manage. *Urban Tree Monitoring: A Field Guide* details field protocols for data collection, and *Urban Tree Monitoring: A Resource Guide* provides a discussion of tips and strategies for designing and implementing a monitoring project. The Urban Tree Monitoring Playlist on YouTube also offers a series of related training videos.

Urban Forest Inventory and Analysis Data Informs Adaptation Planning in Austin, TX

Nearly 90% of tree species in Austin, TX are moderately to highly vulnerable to the effects of climate change, according to a vulnerability assessment. The study applied data from the Urban Forest Inventory and Analysis (FIA) program and an approach developed by the Climate Change Response Framework. This work was connected with the USDA Climate Hubs and the Northern Institute of Applied Climate Science. *Photo by Seb Atkinson on Unsplash*

Urban Tree Canopy Assessments for Minimizing Wildfire Risk in Montana

The Forest Service's Urban Tree Canopy (UTC) Assessments use high-resolution land cover maps to evaluate tree canopy and forest cover in urban areas. A new Forest Service project is applying UTC Assessments to better understand vegetation structures in Montana's Wildland-Urban Interface to help with wildfire mitigation activities.

DELIVERING BENEFITS TO THE PUBLIC

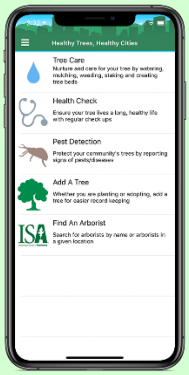
Urban Wood Reclamation to Restore Blighted Communities

In many U.S. cities, abandoned buildings blight neighborhoods, driving up illegal activity and depressing housing values. Yet these buildings often contain valuable timber that can be reclaimed, providing employment and land restoration opportunities. The Forest Service has partnered with the Baltimore Wood Project to establish and pilot an urban wood economy study, and produced the Urban Wood Workbook to help replicate the initiative in other cities.

The Vibrant Cities Lab

The Forest Service has partnered with American Forests and the National Association of Regional Councils to develop the Vibrant Cities Lab, a comprehensive resource to help communities understand the need for an urban forestry program and how to build one. It includes case studies, an urban forestry toolkit, and a host of other practical resources.

SHARED STEWARDSHIP

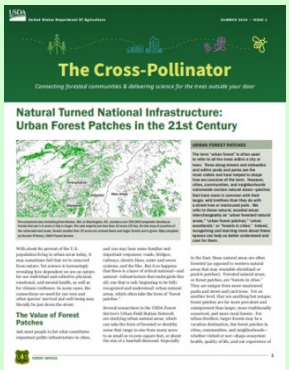


Healthy Trees, Healthy Cities Mobile App for Tree Monitoring

In partnership with The Nature Conservancy, the Forest Service has launched the Healthy Trees, Healthy Cities (HTHC) initiative, which includes a free app and suite of resources as well as training videos to engage the public in tree monitoring. The app provides guidance on tree care, pest identification, and tree health assessment. Civic scientists can also share data and observations with the research community to help better maintain and protect the health of trees nationally.

Mapping Out Civic Engagement

Understanding and organizing civic groups who care for public lands provides an opportunity to build greener and more resilient communities. Recognizing this need, the Forest Service developed the Stewardship Mapping and Assessment Project (STEW-MAP), a research methodology to help answer the question: Who takes care of the local environment? It has been applied in landscapes across the world, including New York City and the Bridger-Teton National Forest, which was done with support from Forest Service's State and Private Forestry arm.


The Cross-Pollinator

Connecting forested communities & delivering science for the trees outside your door

Natural Turned National Infrastructure: Urban Forest Patches in the 21st Century

The Value of Forest Patches

Cross-Pollinating on Urban Forestry

The Cross-Pollinator is a quarterly science synthesis publication highlighting transdisciplinary collaborations among researchers and practitioners that “cross” forest research with urban and community forests. The first issue explores the social and ecological role of forest patches inside cities and the importance of partnerships in helping to increase public awareness and stewardship activities.

SHARING KNOWLEDGE GLOBALLY

i-Tree Celebrates Over 15 years of Science Delivery

The i-Tree software suite was developed by Forest Service scientists and collaborators to enable users to quantify the structure, functions and values of trees and forests. Since its launch in 2006, groups from across public and private sectors all over the world (>400,000 users) have been using it to understand and communicate the value of trees and forests, as described in this new video. Forest Service R&D, State and Private Forestry, and International Programs are collaborating with numerous i-Tree partners to develop and utilize these tools globally.

DID YOU KNOW?

Over 141 million acres of America’s forests are on urban and community land.

Check out the Forest Service's Urban Forests webpages to learn more about what the agency is doing to carry out its mission across all lands, including the Urban and Community Forestry Program, Urban Research, Technology and Science Delivery, and Urban National Forests. A full listing of Forest Service urban sustainability research scientists is also available here.

RESOURCES FOR YOUNG NATURALISTS

The Natural Inquirer Explores Urban Forests

The Natural Inquirer is a free science education journal written for middle through high school age students. Check out the Urban Forest issue, along with games and other web resources. Young naturalists can also learn about STEM careers by exploring the Scientist Cards, which include Dr. Lara Roman, whose work is featured in the 'New Resources for Municipal Tree Management' story.

Learn More!

FIRE X FAUNA WEBINAR SERIES

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.

URBAN FOREST CONNECTIONS WEBINAR SERIES

The Forest Service Urban Forest Connections webinars bring together experts to discuss the latest science, practice, and policy on urban forestry and the environment. The next webinar is scheduled for December 9 at 1 p.m. EST.

BIOCHAR WEBINAR SERIES

The Forest Service co-hosts a monthly webinar series that covers basic information about biochar, and its applications and environmental benefits. Tune in on November 12 at 11 a.m. EST for the next webinar "Biochar as carbon emissions negative technology and climate change".

National Biochar week runs from December 7 to 11, 2020! Visit www.easternbiochar.org/ for more information.

SCIENCE YOU CAN USE WEBINAR SERIES

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 fire impacts, management, and recovery, forest restoration, and wildlife management. Upcoming webinar topics include wildland smoke emissions and white pine restoration.

Message from the Forest Service R&D Deputy Chief

Deputy Chief Alex Friend

Our Mighty Urban Forests

In this edition of the R&D newsletter we highlight the remarkable work of Forest Service scientists in urban and community areas. Our urban sustainability research has shown the powerful impact of trees standing guard outside our homes, in our parks, and along our streets. We can say with confidence that these are some of the hardest working trees: improving air quality and storm water runoff, providing critical wildlife habitat, moderating local climate, generating value for property owners and income for tree workers, protecting public health, and reducing mental stress and local crime rates. We know that the trees around us make our lives better, every day.

We also know that community trees are under constant pressure from new development, invasive pests, and extreme weather events. Our science and decision-tools are helping community leaders to better protect, plant, and manage their forested natural areas and public trees, and to maintain or improve the quality of life for all residents.

Our research stations have been growing their capacity for the study of forest condition and stewardship activities in cities and towns for all of these reasons. This is particularly important where changing climate and vulnerable communities intersect, whether in the Wildland Urban Interface where houses and forests intermingle and where fire is a threat, or in cities where extreme drought, wind, and rain events threaten lives and property.

The numbers of partners we have to work with in cities is exponentially greater than in rural areas, which increase the cross-boundary opportunities for the shared stewardship of public and private lands. This capacity bodes well for our nation's ability to meet the global Trillion Trees challenge to conserve, restore and grow resilience in our forests.

It is challenges like these – to explore and answer questions on the health and sustainability of forests – that motivate R&D's scientists to work on the global stage and serve the American public in caring for the land wherever they live, work, and recreate.

NOVEMBER INFOGRAPHIC

FOREST SERVICE BY-THE-NUMBERS

Urban land is projected to increase by 95.5M acres between 2010 and 2060 - an area larger than the size of Montana!

Urban forests can help mitigate this spread by **slowing stormwater runoff** and **shading and cooling** the urban landscape.

Source: Nowak, David J; Greenfield, Eric J. 2018. US Urban Forest Statistics, Values, and Projections. Journal of Forestry.

Graphic by Forest Service intern Elizabeth Ignacio at UCLA, courtesy of the Virtual Student Federal Service program of the US State Department.

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

Forest Service

STAY CONNECTED