HTIRC HARDWOOD TREE IMPROVEMENT & REGENERATION CENTER

HTIRC E-Newsletter

Fall 2024

Volume 17 Issue 1 | htirc.org

Articles in this issue:

HTIRC and Tree Pro Develop Agreement to Distribute Hardwood Seedlings

The Purdue Hardwood Tree Improvement and Regeneration Center (HTIRC) is partnering with Tree Pro to distribute select hardwood seedlings from its breeding program beginning in March 2025. The partnership, which will mark the HTIRC's first commercial release of seedlings in its 25-year history, will see the West Lafayette, Ind., based company distribute bareroot seedlings of eight species in its timber select, conservation and wildlife lines. Timber select varieties will include black walnut, black cherry, northern red oak, white oak and pure and hybrid butternut. Conservation species include pure butternut and American chestnut. The wildlife line will feature select precocious white oak. Read the full article: "HTIRC Partners with Tree Pro to Distribute Hardwood Seedlings."

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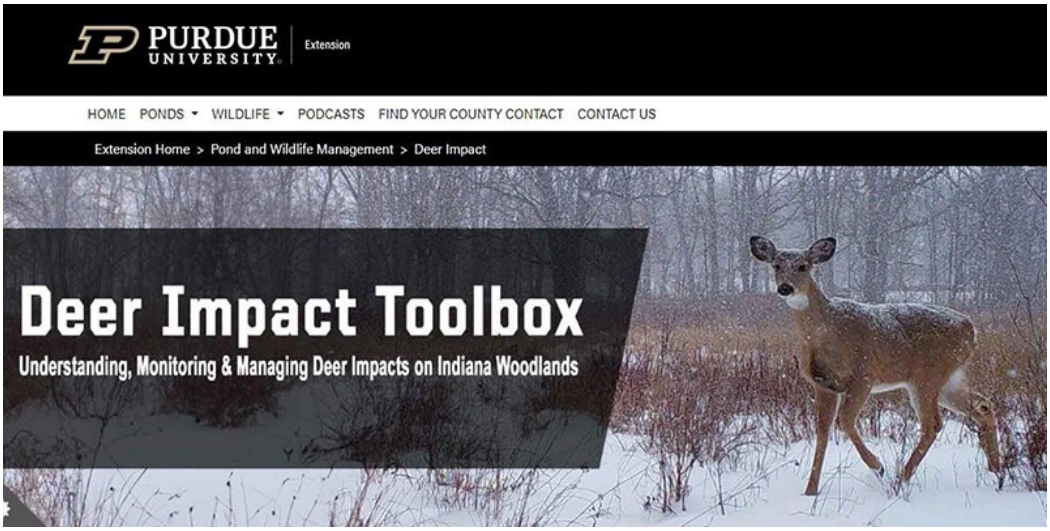
Deer Impact Toolbox Available to Assist Landowners, Managers

Purdue University Forestry and Natural Resources Extension, in cooperation with The Nature Conservancy and contributions from HTIRC staff, has produced an online collection of publications and videos to help landowners and managers identify and manage the impacts of white-tailed deer on natural areas. Resources on this site discuss identification, monitoring and management of deer impacts in forests, tree plantings, and other natural areas. HTIRC research and demonstration plantings have highlighted the importance of using deer damage reduction practices to improve hardwood tree planting performance. Visit the Deer Impact Toolbox website to learn more.



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Butternut Workshop Highlights North American Efforts to Conserve Species

Canadian and US researchers working to conserve American butternut, *Juglans cinerea,* gathered both virtually and in-person at the Purdue University John S. Wright Center on September 25, 2024, to share results from projects around the region. Butternut, a close relative of black walnut, is a declining and in many locations an endangered tree due in part to a fungal disease called butternut canker. Researchers are examining both the tree and the disease to develop strategies for conservation and restoration of the species. HTIRC and U.S. Forest Service staff have served central roles in research and breeding efforts to conserve butternut genetics and develop strategies for restoration.

To learn more about butternut and ongoing efforts, you can access recordings of the presentations from the workshop on the RNGR Reforestation, Nurseries and Genetic Resources website.

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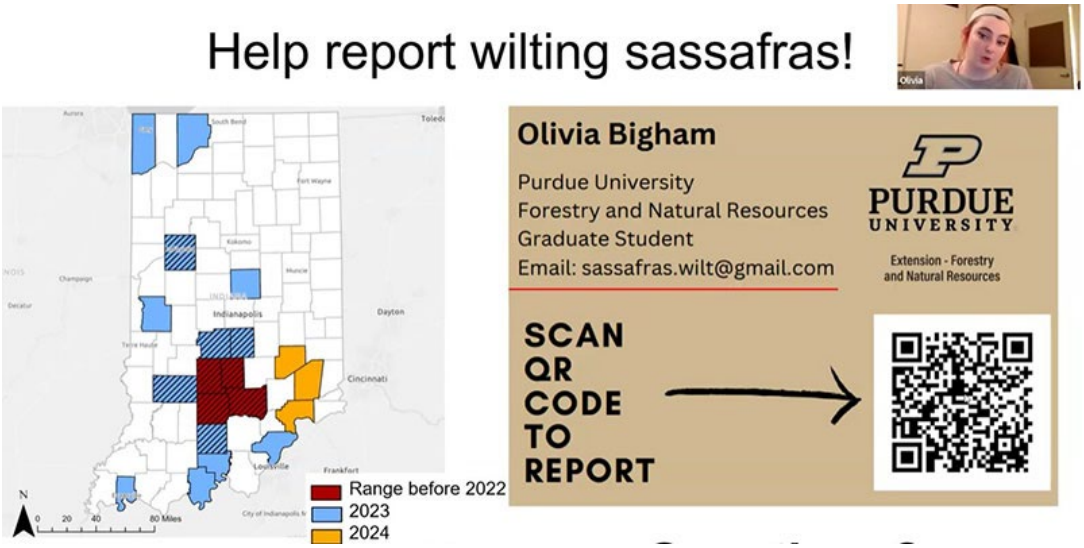
Olivia Bigham Presents Sassafras Wilt Study Results on National Webinar Series

Olivia Bigham, a PhD student in the Ginzel Lab at Purdue University recently presented on Sassafras Wilt in Indiana on the Emerald Ash Borer (EAB) University webinar series, a national webinar series highlighting forest insect, disease, and health research and extension.

Since 2019, sassafras trees in the Central Hardwood Forest Region have been wilting, yet the cause remains unknown. Initially, it was suspected that laurel wilt, a deadly disease of sassafras and other laurel species, had spread. However, neither its primary insect vector *(Xyleborus glabratus)* nor the causal agent of laurel wilt *(Harringtonia lauricola)* have been detected. However, investigations of material from wilting trees revealed two non-native ambrosia beetles *(Xylosandrus germanus* and *X. crassiusculus)* and a potentially novel fungus closely related to *Ophiostoma quercus*.

Learn more about this emerging issue and what is being done in this YouTube video.



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U.S. Forest Service Presents Tree Improvement 101 Webinar Series

A webinar series covering some core considerations for tree improvement, plus additional webinars on specific topics like black walnut seed orchard management and best practices for seed handling, is available from the U.S. Forest Service Reforestation, Nurseries and Genetic Resources (RNGR) program. The recorded webinars are available on-demand and upcoming webinars can be viewed live at the on the Tree Improvement 101 Webinar Series website.

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Purdue FNR Hosts Forestry Field Day at Northeast Indiana Property

by Liz Jackson

Purdue's Harrold Woodland property in Whitley County has a large acreage of 30-year-old mixed hardwood plantations. A recent tour there, hosted by Purdue Forestry and Natural Resources, Purdue Extension, Indiana Walnut Council and Indiana Forestry & Woodland Owners Association, allowed 44 landowners to discuss mid-rotation management practices of pruning, thinning, and crop tree release with Purdue forester Don Carlson.

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2024 HTIRC Seed Harvest Summary is Available

By Caleb Kell, Operational Tree Breeder

Every year HTIRC staff and students harvest hundreds of pounds of seed to support forestry researchers and nursery stakeholders, especially the Indiana Division of Forestry's Vallonia State Nursery. Starting this year, the HTIRC also began supplying seed from select seed trees to Tree Pro for private distribution.

Spring came early in 2024, with bud break occurring two weeks sooner than normal. The rapid warmup accelerated flowering in the walnuts, thankfully with no late frosts to destroy female flowers. Accordingly, walnuts throughout Indiana bore heavily, with the notable exception of orchards at Martell and the Lugar Forestry Farm, which yielded a bumper crop last year. Despite these shortages, the HTIRC was still able to provide select black walnut seed to the Vallonia State Nursery by harvesting at grafted

walnut orchards located elsewhere. Twenty-two bushels (~22,000 seeds) of cleaned bed-run walnut and 8,000 select black walnut seeds were also supplied to the state nursery. About 6,000 black walnut seeds from selected clones were also harvested for Tree Pro's HTIRC Select lines.

The warm spring also led to a productive butternut crop in some of HTIRC's orchards and screening blocks. Eighty-six new seedling genotypes (genetic identity) were harvested this year for nut phenotype (physical appearance) research, with seed from butternut canker disease-resistant seedlings and grafts allocated for Tree Pro's HTIRC Select lines. Assisted by Forest Service staff, forty bushels of pure butternut were harvested this year from the Hoosier National Forest's pure butternut conservation orchard in Huntingburg, Indiana. Pure butternut from the OFS orchard is distributed between Hensler Nursery, Tree Pro, and the new Buckeye State Nursery in Zanesville, Ohio.

The black cherry crop was mediocre this year, with clones from Indiana and Michigan primarily producing. No seed was harvested for progeny testing, but about 10,000 seeds were harvested for the IN Division of Forestry select seedling line.

Red oak bore sporadically this year, with spotty crops on wild trees throughout the state. Seed from improved seedling seed orchards at Martell suffered greatly from seed predation and poor seed fill, with only 20% of seed harvested being viable. Use of catch-nets and diligent monitoring allowed the HTIRC to supply the Vallonia State Nursery with 3,000 select red oak acorns, but harvest totals still fell well short of what was needed.

Wild white oak crops were heavy. Seed from wild trees throughout the state was harvested for the HTIRC's newest white oak grant in collaboration with the University of Kentucky. Surplus seed was sent to Vallonia. The HTIRC's white oak orchards bore less than last year, with very heavy seed predation again taking its toll at the HTIRC's grafted precocious white oak orchard. Regardless, enough seed was harvested for progeny testing of 25 families and delivery of 7,000 select white oak acorns to the Vallonia State Nursery.

American chestnut crops continue to be modest, with the heavily blighted Duke grafted orchard bearing only sporadically depending on individual tree health. About 5,000 pure American chestnut seeds were harvested for distribution through Tree Pro and the Buckeye State Nursery. Several controlled crosses were made this year, primarily

creation of new F1 (first crossing) American x Chinese hybrids. Using pollen supplied from The American Chestnut Foundation, novel F2 (second crossing) American x Chinese crosses were made to further the development of a blight-resistant American chestnut hybrid.

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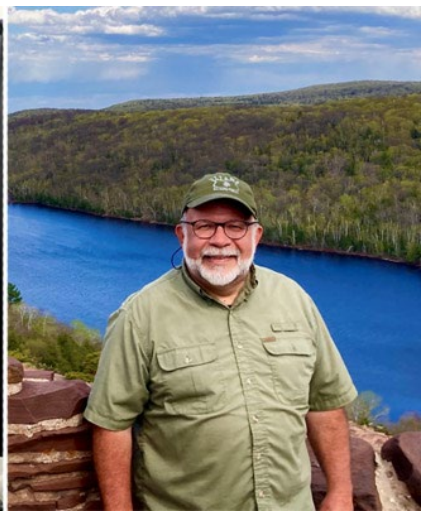
Society of American Foresters Convention Includes Strong HTIRC Presence

by Liz Jackson and Lenny Farlee

HTIRC staff Drs. Songlin Fei and Mike Saunders and extension specialist Liz Jackson, along with other Purdue Forestry & Natural Resources staff, attended the Society of American Foresters convention in September in Loveland, Colorado. Dr. Fei and digital forestry staff member Cameron Wingren gave a presentation on "Advances in Digital Forestry" in the Innovation Zone session.

Awards and recognition presented at the convention included Dr. Songlin Fei receiving the prestigious SAF Award in Forest Science for his exceptional research productivity and quality, innovation and impact, as well as exemplary leadership skills. Read the full article: "The Society of American Foresters Honors Purdue Professor with Award in Forest Science."

Lenny Farlee was recognized as one of 22 new Fellows of the Society of American Foresters and as a member of the "Forest Management for the Private Woodland Owner" team that was honored with the 2024 Family Forests Education Award. Read the full article: "Purdue FNR Extension Specialist Receives National Recognition for Work in Forestry."



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Ginzel Selected to Participate in Purdue Insights Faculty Forum

by Wendy Mayer, Purdue Forestry and Natural Resources Communications Coordinator

Dr. Matt Ginzel was selected to participate in the Purdue Insights Faculty Forum, a leadership program that focuses on preparing and supporting faculty to take on enhanced leadership roles. He was one of only two faculty members from the College of Agriculture selected for the program in 2024-25. The Purdue Insights Faculty Forum is hosted by Faculty Affairs in the Office of the Provost. The program includes group forums, peer group meetings and a mentor connection.

"I am excited to be participating in the Purdue Insights Forum," Ginzel said. "This program offers a unique opportunity to further develop my skills, engage with mentors, build peer networks, and gain deeper insights into university leadership."

The bimonthly forums address the "nuts and bolts" of leadership at a university, including personal leadership styles, traits of successful academic leaders, diversity and inclusion, transparency, building consensus, recognition and appreciation, and mentoring faculty and staff.

Peer group meetings provide an opportunity for participants to interact in small groups in order to learn more about how different departments and colleges operate and to discuss program content in depth.

Each participant also selects an experienced administrator at Purdue as a mentor. Participants and mentors are expected to meet 3-4 times per year to discuss the participant's goals and personal progress toward leadership aspirations.

Ginzel is a professor with a joint appointment in Forestry and Natural Resources and Entomology. He also is the director of the Hardwood Tree Improvement and Regeneration Center. He came to Purdue in 2006 as an assistant professor, was promoted to associate professor in 2012 and to professor in 2019. He was named co-director of the HTIRC in 2017 and has served as the center's director since 2018. Ginzel received the Kohls Outstanding Undergraduate Teaching Award in 2018. He has served on the Purdue University Senate, as a reviewer for the AgSEED grant program in the Purdue College of Agriculture and as an editorial board member for *Environmental Entomology* with the Entomological Society of America among other leadership roles.

He is the chair of the research committee in the department of entomology and also serves on the teaching and curriculum committee. In FNR, Ginzel is a member of the woodlands management committee.

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Honoring Dr. Shaneka Lawson's Impact: A Look at the Women of Color STEM Awards

The Women of Color (WOC) STEM Awards are highly prestigious and competitive, recognizing exceptional leadership, innovation, and commitment to diversity within STEM fields. Securing even one of these awards signifies a substantial contribution to advancing diversity and excellence. Nominees must demonstrate exceptional role model potential, cultural capital, and a commitment to promoting technology through community service. They are also assessed on their effectiveness in attracting minorities, enhancing organizational policies for minority inclusion, and contributing to small business development.

Dr. Shaneka Lawson's recent receipt of the Women of Color STEM Diversity Leadership Award, following her achievement of the Community Service Award last year, underscores her remarkable contributions. Competing on a national level with peers from diverse sectors, her recognition highlights her significant role in advancing diversity within the Forest Service. Notably, Dr. Lawson's initiatives focus on underserved groups who are often excluded from critical information about climate change and forest research. Her outreach efforts encompass low-income summer camps, HBCU campuses, community groups, and local veterans' posts. Furthermore, she teaches forestry lessons and disseminates information on research projects from across the station, ensuring a wide-ranging inclusion of perspectives. Her exceptional achievements were acknowledged through nominations by both her station director and a dean at Purdue University, reflecting the high regard in which she is held across these institutions.

Since joining the Forest Service in 2011, Dr. Lawson has epitomized the agency's mission of "Caring for the Land, and Serving People," dedicating more than 10,000 hours to volunteer service. Her accomplishments are a source of pride for both Purdue and the Forest Service, serving as an inspiration to students and professionals alike. Dr. Lawson's dual recognition by the WOC STEM Awards—a rare and significant feat—further highlights her profound impact and esteemed role in the STEM community.

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Lawson Selected for Nationwide Recruitment Efforts

With the endorsement of senior executives in national recruitment, Dr. Shaneka Lawson has been formally approached by the Forest Service office in Washington, D.C. to undertake the role of Science Representative at Building a Greener Tomorrow, an upcoming nationwide virtual outreach event which is focused on the critical topics of climate change and environmental stewardship. Dr. Lawson stands as a singular figure within the Forest Service ranks, possessing a comprehensive research background that spans across an array of animal species including the black rat (*Rattus rattus*), chicken (*Gallus gallus domesticus*), house mouse (*Mus musculus*), human (*Homo sapiens*),

roundworm (*Caenorhabditis elegans*) and zebrafish (*Danio rerio*) models, alongside an extensive array of plant species such as ash (*Fraxinus* spp.), koa (*Acacia koa*), oak (*Quercus* spp.), poplar (*Populus* spp.) and walnut (*Juglans* spp.).

Her scholarly pursuits traverse a broad spectrum of scientific disciplines ranging from the investigation of biological weapons, developmental biotechnology, neuroscience and human genetic engineering to the intricate realms of plant bioinformatics, plant genetic engineering and plant physiology. Dr. Lawson's distinction as the Forest Service's appointed Science Ambassador to Historically Black Colleges and Universities (HBCUs), coupled with her tenure as the subject matter expert representing the Forest Service at Northern Research Station hiring events, underscores her established commitment and expertise in these domains.

This newly assigned responsibility not only amplifies Dr. Lawson's impact but also extends her influence nationwide, thereby positioning her as a pivotal figure in advancing the Forest Service's mission on a broader scale.

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Couture Recognized for Research Impact

Dr. John Couture, an associate professor with a joint appointment in Entomology and Forestry and Natural Resources at Purdue, was recently recognized as a University Faculty Scholar. This honor recognizes outstanding faculty who are on an accelerated path for academic distinction in the discovery and dissemination of knowledge. John works at the intersection of ecology and technology, using remote sensing tools to explore ecosystem function and health. Learn more about John Couture and his work in the article "John Couture Named University Faculty Scholar for Multifaceted Research in Plant and Insect Ecology."

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Digital Forestry Can Help Mitigate, Prevent Wildfires

Linked article by Maureen Manier and Steve Koppes

Digital Forestry offers a variety of tools and technologies to address resource management challenges. One of the greatest challenges currently is catastrophic wildfires threating communities and natural resources around the world. Learn how researchers at Purdue University's Institute for Digital Forestry are leveraging technology to get more complete and accurate measurements of forests to assist with management of wildfires. Read the full article: "Digital Forestry Can Help Mitigate and Prevent Wildfires."

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Morgan Furze and New Tree Physiology Lab Highlighted in Recent Article

The tree physiology research of Dr. Morgan Furze and several other collaborating HTIRC scientists was highlighted in a recent article. “We’re interested in how trees store and move carbohydrates throughout their bodies and how that impacts their ability to survive and thrive in their environments,” Furze said. From lab experiments to field work in Hawaii, you can learn more about the research and collaborations online. Read full article: “Journey Along the Sugar Highway.”

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2023 HTIRC Annual Report Is Available

The 2023 HTIRC Annual Report details how the Center worked to further our mission of advancing the science and application of tree improvement, management and protection of hardwood forests. See the report at HTIRC 2023 Annual Report to learn more about HTIRC projects and activities.

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DNA Science Cracked Case of Stolen Walnut Trees on Mark Twain National Forest

Linked article by Lucas Davis, KZRG News, Talk, Weather

A recent theft of walnut timber was solved using DNA identification techniques being developed to assist with black walnut tree breeding. See how U.S. Forest Service science helped solve a timber theft case on Mark Twain National Forest in Missouri. Read full article: "DNA Science Cracked Case of Stolen Walnut Trees on Mark Twain National Forest."

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Forest Service Developing Tools for Assisted Tree Migration

Carrie Pike and Nick LaBonte with the U.S. Forest Service, and also HTIRC colleagues, are working with a diverse group of researchers to develop guidelines for future tree planting efforts. Projections indicate changes in climate may outpace the rate of natural plant adaptation and migration. This mismatch presents a significant challenge for resource managers as they make decisions on what tree species to select, grow and plant during reforestation and restoration projects. The **Desired Regeneration through Assisted Migration (DREAM)** project is an international collaboration that seeks to diminish these uncertainties through a structured process that uses basic and applied forest research to derive climate-informed planting approaches. To see the research and tools being developed visit the DREAM project website.