The Connecticut Agricultural Experiment Station

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PRESS RELEASE

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CAES SCIENTIST DEVELOPS NOVEL METHOD FOR ACCURATELY MEASURING THE CARBON STORED IN TREES, AND THE AMOUNT LOST DUE TO DECAY.

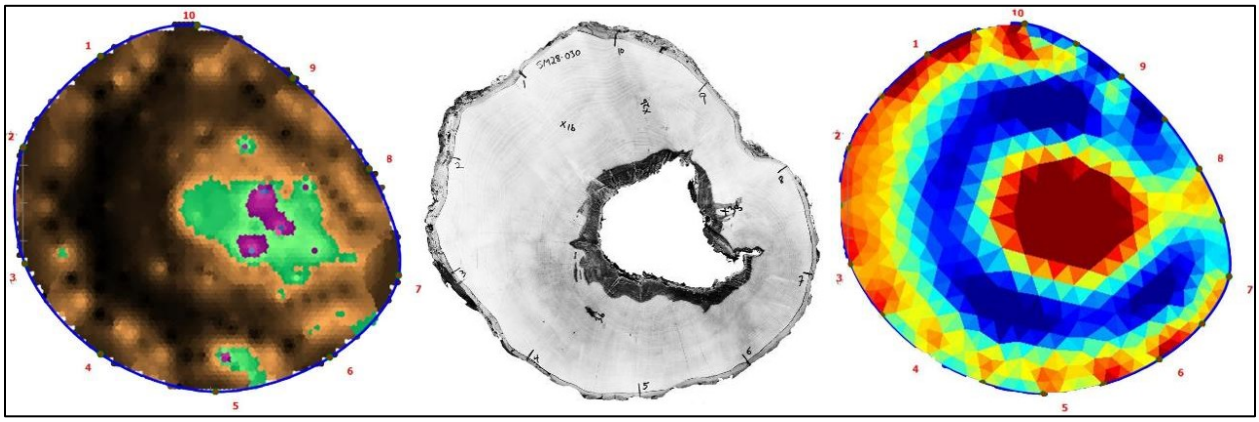
New Haven, CT - A team of researchers, led by Dr. Robert Marra, forest pathologist at the Connecticut Agricultural Experiment Station, has developed a method for accurately measuring the carbon content of living trees without cutting them down. Reporting in the journal *Environmental Research Letters*, in the special issue "Focus on Carbon Monitoring Systems Research and Applications" (http://iopscience.iop.org/article/10.1088/1748-9326/aae2bf), Dr. Marra, with coauthors Dr. Nicholas Brazee (University of Massachusetts) and Dr. Shawn Fraver (University of Maine), used a form of tomography (analogous to CAT scans) to nondestructively identify the presence, and volume, of internal decay and cavities in over 60 mature sugar maples, yellow birches, and American beeches, at a research forest in northwestern Connecticut. They then used the data from these scans to measure the amount of carbon stored in the trees, as well as the amount of carbon lost due to internal decay.

"Forests remove carbon dioxide, a greenhouse gas, from the atmosphere and store it as wood, making forests crucially important to efforts aimed at mitigating global warming and climate change," explained Dr. Marra. "The latest IPCC [Intergovernmental Panel on Climate Change] Special Report highlights the important role of forests in efforts to address climate change. Current estimates of forest carbon storage don't adequately account for internal decay because, at least up until now, measuring internal decay required cutting trees down."

"We believe ours is a potentially transformative methodology that can be applied at much larger scales, with the ultimate goal of more accurate forest carbon accounting," concluded Dr. Marra.

Reference:

Marra, R.E., Brazee, N.J., Fraver, S., 2018. Estimating carbon loss due to internal decay in living trees using tomography: implications for forest carbon budgets. Environ. Res. Lett. 13, 105004. http://iopscience.iop.org/article/10.1088/1748-9326/aae2bf



Sonic tomogram (left) and electrical-resistance tomogram (right) flanking a photograph (center) of the corresponding sugar maple stem-disk.

Drs. Marra (left) and Brazee performing a tomographic scan on a yellow birch at Great Mountain Forest.

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