Spring 2024
Colloquium Series

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Emerging insights into the effects of air pollution and climate change on forested ecosystems in the United States.

In the late 20th century, acid rain posed a substantial threat to terrestrial and aquatic ecosystems across the United States. In response, new air quality policies focused on reducing emissions of oxides of nitrogen and sulfur, notably from electric-generating utilities. Since 1990, many of these policies and regulations have been successful in lowering the observable harm to ecosystems, but regulatory policy development and resource management still require investigations into whether adequate levels of protection for ecosystems have been achieved. For terrestrial ecosystems, there have been substantial advancements in using spatial gradients across the United States to reveal species-specific relationships between tree growth and mortality and air pollution. These modeling results have been used to establish air quality levels that will be protective of forests, understand forest compositional shifts, and estimate the impacts to forest carbon sequestration. Overall, we find that while substantial progress has been made in protecting forests, sensitive tree species continue to experience harmful effects from air pollution.

In this talk, I will discuss
(1) the history of air pollution impacts to forested ecosystems,
(2) the evolution of modeling dose-response relationships for tree species,
(3) the quantification of ecosystem impacts in an applied ecology paradigm, and
(4) what is on the horizon for this work in the climate change space. Notably, as air pollution reductions continue through targeted policy, additional efforts will be needed to maintain biodiverse and healthy terrestrial ecosystems as our climate changes.

Bagels, donuts, and coffee available in **SRCC 219** before the talk!

March 7, 2024
Thaw 104 @ 4:00PM