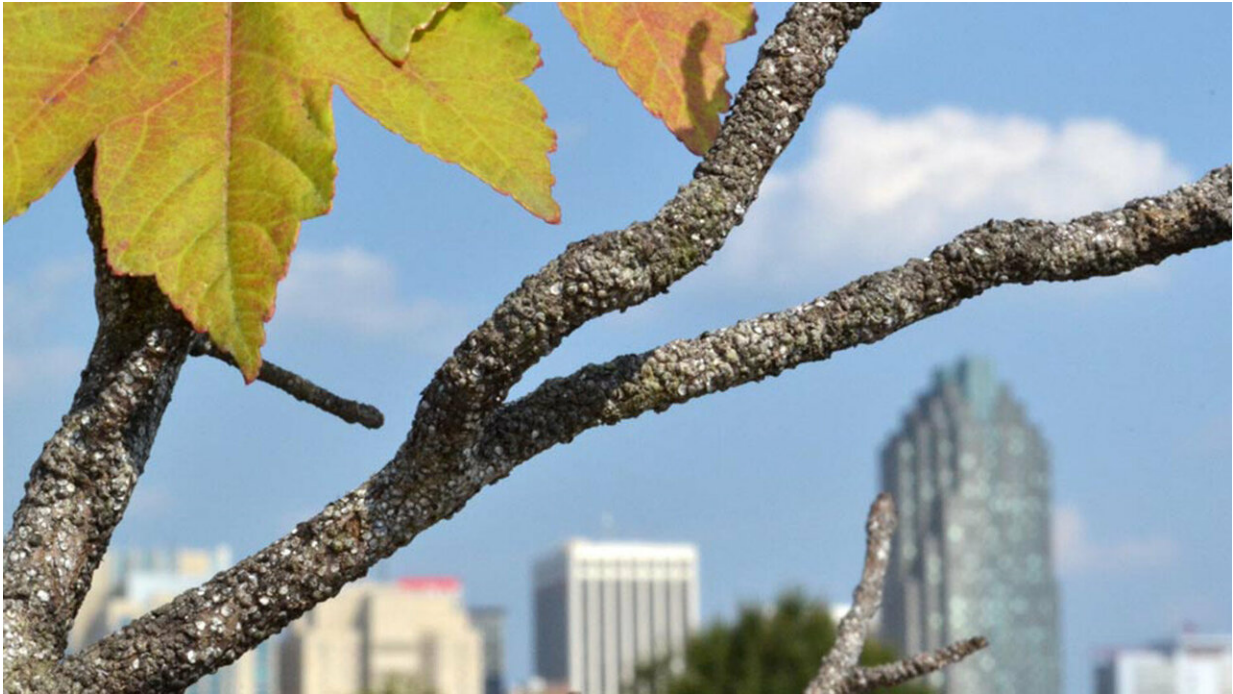


Dying trees in cities? Blame it on the concrete

March 4 2019, by Mick Kulikowski



Scale insects accumulate on a maple tree in Raleigh. Scale insects wreak havoc on maples in the midrange of studied cities in the Southeast. Credit: Adam Dale

A North Carolina State University study examining urbanization, scale-insect abundance and latitudinal warming on tree health in the Southeast captured a few surprising results.

The study showed more scale insects on red maple [trees](#) in the midrange of eight cities within a 10-degree latitudinal difference, from Newark,

Delaware, to Gainesville, Florida.

Cities in that midrange, including Raleigh and Asheville, showed poorer tree health, due mostly to these high volumes of tree-destroying gloomy scale insects (*Melanaspis tenebricosa*), which appear as tiny bumps on tree branches and leaves.

"Impervious surfaces—basically concrete and pavement—near trees was a better predictor of scale-insect abundance than temperature, and thus a better predictor of poor tree health in the study area," said Michael Just, an NC State postdoctoral entomology researcher and corresponding author of a paper describing the research.

The finding was surprising, Just said, as the study's original hypothesis predicted higher scale-insect abundance at lower latitudes—the study's southernmost areas.

"What we've learned over the years in [natural areas](#) like forests didn't translate in this study, which means we may need to consider if other natural-system theories can be used in urban areas," Just said. "That's important if we want to have reliable predictive ecological models."

The study appears in the journal *Oikos*.

More information: Michael G. Just et al, Urbanization drives unique latitudinal patterns of insect herbivory and tree condition, *Oikos* (2019). [DOI: 10.1111/oik.05874](https://doi.org/10.1111/oik.05874)

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