

Auburn researchers to study links between urbanization and West Nile Virus

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Two professors in Auburn University's School of Forestry and Wildlife Sciences have been awarded a \$240,000 research grant from the U.S. Forest Service Urban and Community Forestry Program to study the links between urbanization and West Nile Virus.

Clinton-McClure Professor, Graeme Lockaby, and associate professor Latif Kalin will conduct the project, "Impact of Forest to Urban Conversion on Human Health," in collaboration with the Department of Epidemiology at the University of Alabama at Birmingham, the [Centers for Disease Control and Prevention](#) in Atlanta and the Georgia Department of Community Health. Other members of the Auburn research team are assistant professor Wayde Morse and postdoctoral fellow Krisztian Magori, a quantitative disease ecologist.

Lockaby, director of Auburn's Center for Forest Sustainability, has done extensive work on the impact of urbanization on water quality. Past studies have shown a direct link between poor water quality and increased mosquito populations, including the species that is responsible for the spread of [West Nile Virus](#). However, precise data linking land use change and West Nile [Virus](#) risk is lacking.

"Many of the environmental factors associated with West Nile Virus remain unclear," said Lockaby. "What we as a natural resources unit bring to the table is the ability to do a very detailed analysis of the landscape including aspects that may contribute to risk."

Magori said previous research gives conflicting evidence on what conditions present the most risk for mosquito-borne diseases such as West Nile Virus.

"We are trying to bring together data sets of water quality and hydrology, land use/land cover changes and occurrences of West Nile Virus, to see if there is really a link between urbanization and mosquito-borne diseases, how we can best describe that linkage and what we can do about it," said Magori.

Lockaby and Magori are currently preparing a mesocosm study in advance of the larger, landscape project which will clarify the specific water chemistry that is most conducive to breeding the mosquitoes associated with the virus.

"This is about predicting risk," said Lockaby. "We don't want to just say bad [water quality](#) probably means more mosquitoes. We want to show a numerical relationship in order to help prevent infection."

West Nile Virus has recently been responsible for hundreds of infections and nearly 20 deaths in Texas, but Magori said that the impact of the disease could be underestimated. A study suggested that up to three million people nationwide could have been infected since the disease hit U.S. shores in 1999. He adds that a Texas study suggested that a small percentage of those infected – including people who never showed symptoms – can experience long-term health problems. They hope this study will have broad implications for preventing outbreaks of mosquito-vector diseases.

Provided by Auburn University

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