

Searching for ecological geometry in forest structure and functions and the implications for forest management

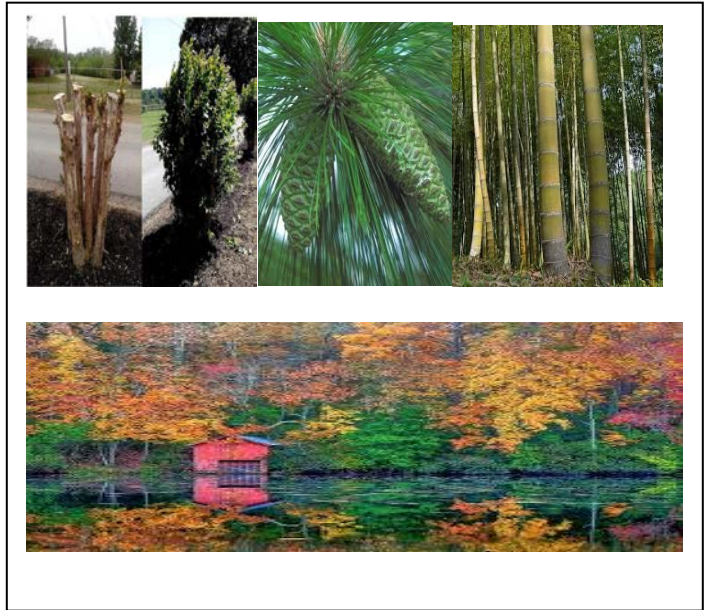


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Ecological geometry, refers to the frequently appeared patterns or quantitative relationships in ecological dynamics, is important to understand the resilience of forest structure and functions under the natural dynamics and environmental change.

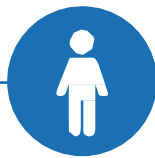
In this research, ecological geometry will be searched in forest structure and functions at forest with different sizes. Through periodic monitoring of abundance, species of tree individuals and their growth rates at different forests (including mixed broadleaved forests and pine plantations) across spatial scales by ground monitoring, remote sensing and GIS data, indices of ecological geometry will be developed to study the spatial-temporal dynamics in forest structure and functions.

The implications of ecological geometry in forest management will be explored in restoration, prescribed burning and harvesting. This proposed project will build the capacity in fundamental research in forest ecology at AAMU. It will also enhance the collaboration with scientists from USDA Forest Service and other universities.



COLLABORATION

Southern Forest Research Station of the USDA Forest Service.



Highlight or number

More than 6 students (including 1 Ph.D.) and a technician were involved.

About McIntire-Stennis

The McIntire-Stennis program, a unique federal-state partnership, cultivates and delivers forestry and natural resource innovations for a better future. By advancing research and education that increases the understanding of emerging challenges and fosters the development of relevant solutions, the McIntire-Stennis program has ensured healthy resilient forests and communities and an exceptional natural resources workforce since 1962.



IMPACT

Ecological geometry is a new direction and a challenging area for the research in forest ecology.



Highlight or number

A forest area has a higher albedo and precipitation, lower air temperature than a nearby urban area.



Highlight or number

There existed power-laws in cone production for longleaf pine and also in branch growth for other plants.



Highlight or number

Diverse tree height-diameter scaling relationships were observed for the tree species in varied environmental settings.