# NOVEL MODELS TO DETECT, QUANTIFY, AND PREDICT CHANGES IN SPECIES COMPOSITION

A McIntire-Stennis supported project since 2015

The assessment of forest composition is critical to determine the availability of resources and for the planning of forest stand treatments. In this regard, forest types have traditionally played a central role for the practice of forestry. Yet, determining how many and which forest types there are, what is their spatial extent and how their abundance is changing or will change in the future, are not easy questions to tackle with current statistical methods. We have recently developed a new multivariate probabilistic method that can help better answer these questions.

The goal of this proposal is to further improve upon this method by enabling it to be used for other types of data (presence/absence instead of abundance) and by enabling spatial and temporal predictions to be made. These predictions will be critical for pro-active forest management, particularly in the presence of climate change.
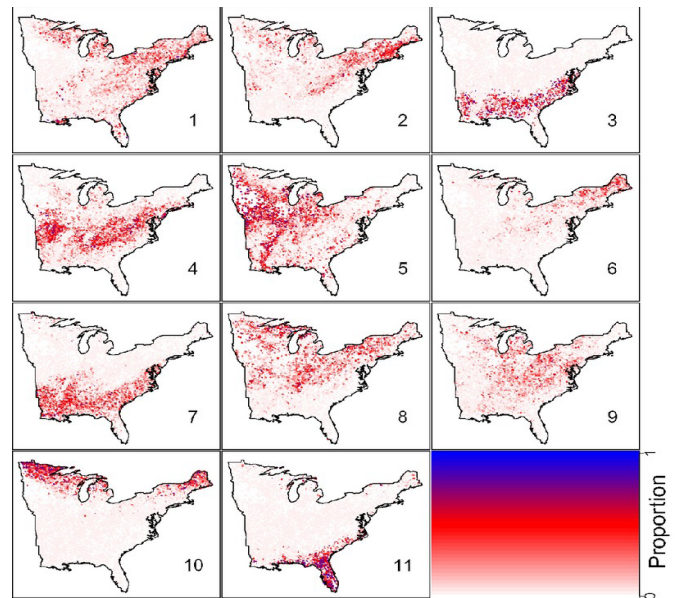
SPATIAL PATTERNS IN EASTERN UNITED STATES TREE PLOTS

COLLABORATION

In partnership with:
US Forest Service
University of Connecticut
University of Arizona

IMPACT

3 Publications

There have been 3 articles published (Valle et al. 2014, Valle et al. 2018, Albuquerque et al. 2019).

1 R Package

1 new R package, called "Rlda" has been created, which enables the straightforward use by foresters and environmental scientists of the developed methods.

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.

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