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Összefoglalás

Long-term directional changes in upland Quercus forests throughout Oklahoma, USA

Ryan D. DeSantis, Stephen W. Hallgren, Thomas B. Lynch, Jesse A. Burton & Michael W. Palmer

Abstract:
Questions: (1) How have the composition and structure of undisturbed upland Quercus forests changed over 50 years across a large region and moisture gradient; (2) What factors are associated with long-term and broad-scale changes in these forests?
Location: Oklahoma, USA.
Methods: We re-sampled 30 forest stands originally sampled in the 1950s across a large geographical area and compared basal area, tree density, and sapling density between the sampling periods using paired t-tests, CCA, and DCA. We examined vegetation dynamics in the context of drought indices compiled for the sample period.
Results: Total and Quercus stellata basal area and tree density increased, but Q. stellata and Q. marilandica sapling density decreased. Juniperus virginiana and woody species richness increased for all measures. DCA indicated that re-sampled stands generally changed from Q. stellata-Q. marilandica-dominated

forests to forests with greater woody species richness and more J. virginiana. Q. stellata remained a dominant tree species; otherwise, composition shifted towards mesophytic and invasive woody species. Measurements taken in the 1950s immediately followed a major drought; whereas subsequent decades were significantly moister.
Conclusions: Fire exclusion and drought may have played and important role in driving changes towards lower dominance by Quercus, increased importance of mesophytic and invasive species, and greater woody species richness. These phenomena are similar to those found in Quercus-dominated forests throughout the northern hemisphere.

erdődinamika, lékdinamika, szukcesszió
erdőszerkezet: közösség(szerkezet)
klíma: mikroklíma, állományklíma
Megjegyzések

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Tartalom:
Introduction
Methods
Study area
Vegetation sampling
Environmental variables
Data analysis
Results
Basal area
Tree density
Sapling density
Drought incidence
Discussion
Acknowledgements
References
Supporting information

Drought; Fire exclusion; Forest dynamics; Juniperus virginiana; mesophication; Oak; Oklahoma; Quercus marilandica; Quercus stellata; Species composition; Vegetation change

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