

Public Abstract

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Title:Effects of Stand Density on Mitigation and Adaptability to Climate Change in Pine and Hardwood Forests of Missouri

Understanding how forests respond to traditional management in the context of climate change is increasingly important for developing multi-objective management strategies. In the Missouri Ozarks, the influence of long-term forest management on climate mitigation and adaptation potential is largely unknown. Using data from two long-term thinning studies, we determined the influence of stand density on carbon dynamics and drought response in the Missouri Ozarks. First, carbon storage and sequestration rates of even-aged shortleaf pine and upland oak forests were assessed to better understand the role of manipulating stand density in mitigating climate change. Next, we developed a shortleaf pine tree ring-width chronology to determine the influence of thinning on tree-level growth response during a severe drought. Results offer valuable information to land managers regarding the effects of stand density and traditional management practices on mitigation and adaptation to climate change in the Missouri Ozarks.