

SPATIAL ANALYSIS OF WOODY BIOMASS FOR BIOENERGY PRODUCTION IN THE MISSOURI OZARKS

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Abstract

Before regional economic and environmental benefits from the combination of renewable energy production and sustainable forest management can be assessed, one must first be able to spatially determine how much woody biomass is located where and its potential availability. We have developed a simple interactive tool for reporting woody biomass availability in the Missouri Ozarks. First, we extracted all live biomass data for pure upland hardwood stands on privately-owned timberland and on Mark Twain National Forest compartments being managed for timber products from the US Forest Service's Forest Inventory and Analysis (FIA) database across a 44-county region in southern Missouri. We then applied a conservative, even-age thinning algorithm that also accounted for a portion of these thinnings going to higher-value wood products. The total biomass yield from these thinnings was then divided by the total number of forested acres within the area queried to produce an average biomass yield per acre. This yield was then applied across the landscape based upon deciduous forest cover data from the Missouri Resource Assessment Partnership (MoRAP). The resolution was a 30 m square pixel, but converted into the more familiar square mile unit of area. Integrating this data layer with other natural resource and demographic data layers within ArcMap allows the user to generate a comprehensive biomass availability report in order to assess whether or not a designated source area could sustainably support a wood-to-energy enterprise. Future iterations of this tool will incorporate additional cover types and silvicultural prescriptions.

[Abstract Only]

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