The Importance of Experimental Stratification when Measuring Soil Organic Carbon Pools- Implications for Applying Marketable Permits to Ozark Forest Systems. (S07-ficklin164726-Poster)

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Abstract:

The Kyoto Protocol developed in 1997 outlined objectives for reducing the emission of greenhouse gases, particularly CO2. One of the mechanisms by which acceptable emissions may be achieved is through the use of tradable emissions permits, and some companies and countries have begun purchasing emission permits with the expectation that marketable permits will be implemented as part of carbon emissions policy. Forest soils have great potential to sequester atmospheric carbon, but quantifying the magnitude of soil carbon is difficult. Forests in or near carbon flux equilibrium contain a soil organic carbon content that varies both spatially and temporally about a mean. Equitable valuation of stored carbon requires accurate measurement of bulk density and carbon concentrations for entire landscapes, but many Ozark forest systems have heterogeneous landscapes that consist of multiple landforms with different chemical, physical and hydrologic characteristics. Examination of the soils on one Ozark forest tract revealed significant variability of both density and carbon concentrations by landform and season. Failure to recognize such variability in sampling designs would result in socially and economically suboptimal valuation of carbon stored in forest soils.

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