

Public Abstract

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Title:FOREST HARVEST EFFECTS ON SOIL CHEMICAL PROPERTIES AND NUTRIENT CONCENTRATIONS IN OZARK HIGHLAND SOILS

Forests in southeast Missouri are managed by the Missouri Department of Conservation (MDC) using a variety of harvest methods. Both clearcutting (CC) and single-tree selection (STS) harvesting are utilized to achieve a variety of management goals for ecosystem diversity, wildlife, sustainability and quality timber. The Missouri Ozark Forest Ecosystem Project (MOFEP) was established to research how current MDC management guidelines are affecting various ecosystem traits and sustainability. This study indicates the different harvest used for forest regeneration is having an effect on nutrients in the surface soil. Ten years after harvest, soil samples were collected from 0-to-30 cm in each harvest type at MOFEP (CC, STS, and no-harvest removal sites) using a paired sampling approach (i.e., samples were collected in treated and nearby non-treated locations). This paired sampling revealed soil nutrients may be decreasing at STS sites and increasing at CC sites compared to their paired controls. However, soil properties and nutrients are so variable at MOFEP that sample pairs of neither harvest method are statistically different from sample pairs in entirely no-harvest MOFEP sites. This could change if forest rotations are shortened or greater amounts of biomass are removed in each harvest event.