FIRE AND ECOLOGICAL RESTORATION OF WOODLANDS AND SAVANNAS IN THE SOUTHEASTERN USA: OPPORTUNITIES AND CONCERNS

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Most terrestrial ecosystems of the southeastern USA have an important historical association with wildland fire. Likewise, most have experienced organized fire suppression in the 20th century. Before deciding to restore historical fire regimes to these ecosystems, land managers should provide a cogent argument for doing so based on efficacy and conservation value, while accounting for unintended consequences. Although lightning fires shaped these ecosystems to varying degrees in the past, fire regimes throughout the southeastern USA were greatly influenced by Native Americans. These people used fire to manage the landscape for their own benefit and not specifically to increase biodiversity. Hence, restoration of historic fire regimes for their own sake, which may or may increase biodiversity, is not a valid reason for doing it. Today, land managers should consider how fire management decisions influence biodiversity at local, regional, and global scales. In this presentation, I describe a methodology for evaluating the effects offire restoration and associated treatments on wildland ecosystems. The approach includes 1) an objective system for quantifying regional rarity of species, and 2) an experimental approach to monitoring responses to ecological restoration derived from a desire to preserve humility in land management decisions. Such a humble experimental approach I argue is necessary to account for uncertainty and incomplete knowledge of past fire regimes, declines in rare species that benefit from fire suppression, and uncertain interactions with climate change and expansion of invasive species.I present some examples from Mississippi that illustrate how fire restoration treatments and natural disturbances can be used to preserve regional plant species diversity. In so doing, however, I also highlight the limitations and the potentially negative consequences of some fire management decisions.