# ECOLOGICAL FORESTRY IN THE SOUTHEAST: UNDERSTANDING THE ECOLOGY OF FUELS

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ABSTRACT:
Fire is a dominant disturbance within many forested ecosystems worldwide. Understanding the complex feedbacks among vegetation as a fuel for fire, the effects of fuels on fire behavior, and the impact of fire behavior on future vegetation are critical for sustaining biodiversity in fire-dependent forests. Nonetheless, understanding in fire ecology has been limited in part by the difficulties in establishing the connections between fire behavior and vegetation response. To address this issue, we present the concept of the ecology of fuels, which emphasizes the critical role that fuels play in conceptually linking feedbacks between fire and vegetation. This article explores the ecology of the fuels concept for longleaf pine woodlands and illustrates its utility by evaluating the principles of ecological forestry (incorporating legacies of disturbances, understanding intermediate stand development processes, and allowing for recovery periods) in this chronically disturbed ecosystem. We review the research behind our understanding of these feedbacks in longleaf pine ecosystems of the southeastern United States and review the applications of these principles through the Stoddard-Neel method of ecological forestry. Understanding these feedbacks is critical for integrating fire ecology and ecological forestry in the Southeast and in other fire-dependent forest types.