

# Presenting Open Forest Ecosystems, Loss, and Consequences for Biodiversity <sup>†</sup>

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**Abstract:** Temperate open forest ecosystems of savannas and woodlands that were maintained by understory disturbances of fire and browsing have been lost. Here, I will describe the alternative state of open forests, which span the continuum between grasslands and forests, using structure, composition, function, and management of open pine and oak forests in the eastern United States as an example. Open forests are characterized by simple internal stand structure consisting of a single stratum of overstory trees and limited midstory, allowing co-existence of grasslands in the groundlayer. Current forests contain greater tree densities, which take growing space from herbaceous plants. Loss of open forests remains largely unrecognized due to transition to closed successional forests comprised of diverse tree species, which are the current baselines. Yet open forest loss comes at considerable conservation costs to herbaceous plants, fungi, insects including pollinators, and ‘successional’ and grassland birds and mammals. Open forests with a grasslands understory will impart another management option for forestry and wildlife. Open forest management includes maintaining the tree overstory and herbaceous understory rather than the focus of harvest and regeneration of traditional silviculture. Open old growth forests should be recognized as distinct ecosystems with unique biodiversity and associated management practices, similarly to recognition of closed old growth forests.

**Keywords:** fire; function; management; savanna; woodland

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