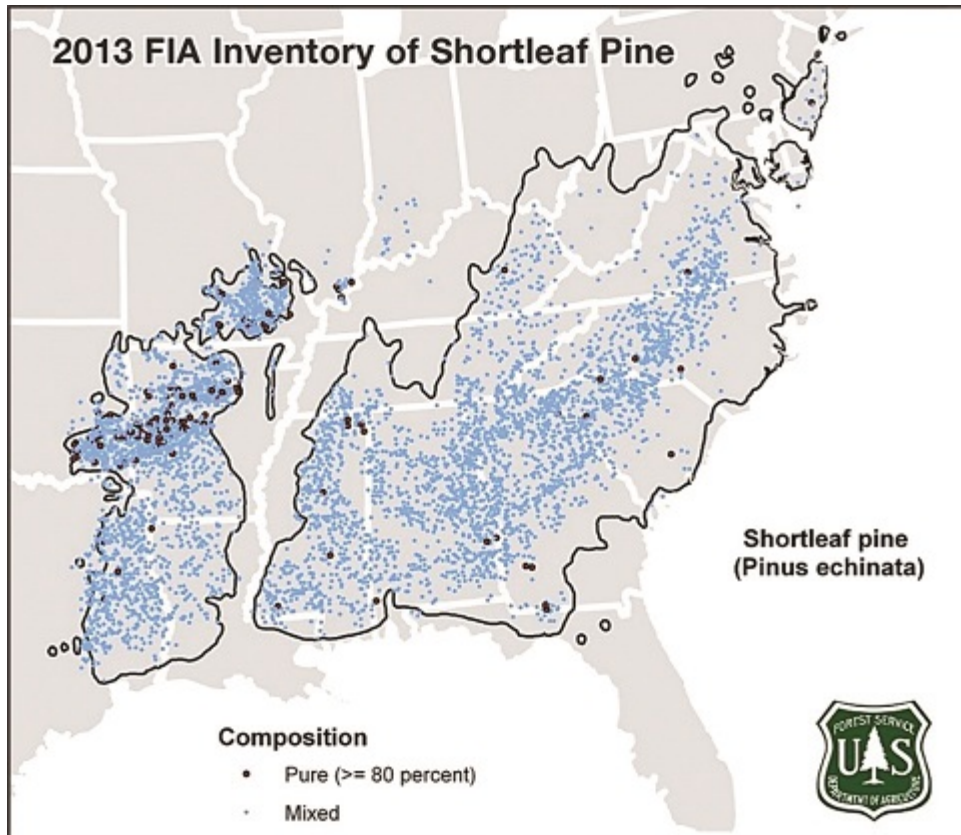


Forest Steward Online Extra (Vol. 3 No. 2, Fall 2018) - Shortleaf Pine Ecosystem Restoration



Shortleaf Pine Ecosystem Restoration in the Cumberland Plateau, by Nick Biemiller

Shortleaf pine (*Pinus echinata*) was once a common tree in forest canopies throughout the southeast from the interior highlands of Arkansas to the pine barrens of New Jersey (Burns & Honkala, 1990). Due to over two hundred years of intensive harvesting, management activities that favored other species (e.g. loblolly pine), disease and pests, and changes in fire regimes, the species now occupies less than 10% of its historic range, (Anderson et al., 2016). In the Cumberland Plateau ecoregion of the South, efforts are currently underway to restore shortleaf pine ecosystems to the landscape by actively managing remnant stands, planting seedlings to establish new stands, and implementing prescribed burning.



Shortleaf pine trees are drought tolerant due to high water use efficiency, are more cold tolerant than other commercial pine species (e.g. loblolly pine), can be valuable timber trees in strong pine sawtimber markets, and are fire-adapted due to their ability to sprout from dormant buds after fire, (Will et al., 2013). Shortleaf pine ecosystems have historically been maintained by frequent, low-intensity fires through human and lightning ignition, thus maintaining open structural conditions with rich herbaceous understories and sparse woodland- or savanna-like overstories, (Elliott & Vose, 2005; Guyette, Muzika, & Voelker, 2007). Throughout much of the shortleaf range, such forests are commonly mixed stands, composed of various upland oak species (e.g. scarlet oak, white oak) and other hardwoods growing alongside shortleaf (see Figure 2) (Guldin, 2007). These structural conditions provide critical habitat for game and non-game bird species such as bobwhite quail and pine warbler. They also increase the quantity of streamflow, have a unique aesthetic appeal, and are more resilient to catastrophic wildfires, drought, glaze events, pest and other natural disturbances, (Anderson et al., 2016).



Climate change projections for the southern and mid-Atlantic regions suggest that there will be more variable precipitation, increased drought frequency, and an increase in the threat of wildfires (Will et al., 2013). Under warmer and drier conditions, the range of shortleaf pine is expected to increase northward. Combined, the various biological and physiological characteristics of shortleaf pine trees, and the resiliency of their ecosystems, make them an ideal species to promote on the landscape for meeting diverse societal values and demands, promoting ecosystem health and resiliency, and meeting other landowner objectives.

Throughout its remaining range, approximately 62 percent of remaining shortleaf pine forests are found on privately owned forestland, consisting of both family and corporate ownerships (Oswalt, 2013). Family forest landowners, or noncorporate private forest landowners, own about 58 percent of all forestland in the South, making them a significant stakeholder in the efforts to promote shortleaf restoration. The multiple value streams provisioned by shortleaf pine forests may be a more attractive option to family forest landowners. Most family forest landowners in the South have a strong conservation ethic, reporting that they want their wooded land to stay wooded into the future (Butler et al., 2016) In fact, intangible values (e.g. beauty or scenery, biological diversity, water resource protection, improve wildlife habitat) are the primary reasons they own forestland (Butler et al., 2016)



However, the majority of southern family forest landowners are considered underserved by conventional educational and outreach efforts, with very few landowners taking advantage of government cost-share or tax-incentive programs for forest management activities (Measells et al., 2005). Furthermore, the vast majority (88 percent) of family forest landowners in the South do not have a written forest management plan, suggesting that they may not be making long-term management decisions (Butler et al., 2016a).

To address these concerns, a collaborative partnership is currently underway in the Cumberland Plateau between the Forest Stewards Guild, Tennessee Wildlife Federation, Sewanee: The University of the South in Tennessee, and Berea College in Kentucky to restore shortleaf pine ecosystems. This project is increasing capacity for shortleaf ecosystem restoration at Berea and the University of the South and using their demonstration forests to exemplify best practices to private forest landowners and natural resource professionals in the region. Educational events and technical trainings are being hosted at Berea and the University of the South, including learn-and-burn events for private forest landowners to increase their comfort and familiarity with prescribed burning. The Guild and partners are also working to develop NRCS-qualifying shortleaf management plans with landowners to connect them with cost-share funding. The project is being primarily funded by the National Fish and Wildlife Foundation and the Lyndhurst Foundation.

Through this project we hope to find innovative, targeted, and effective ways to reach family forest landowners and connect with them on like-terms, providing resources to forest management options that resonate with their reasons for owning forestland. Given that shortleaf pine ecosystems are fire-dependent, a primary next step of this project is finding ways to increase capacity for prescribed burning with private forest landowners in KY and TN. To achieve this, the Guild and partners are seeking support to incorporate the Guild's Gravitas Peak Wildland

Fire Module into burning with private landowners in the Cumberland Plateau, and hopefully laying the groundwork to coordinate the formation of a prescribed burn association (PBA) among regional landowners here.

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