LOBLOLLY PINE TO WHITE OAK STAND CONVERSION ON BALLS MOUNTAIN IN THE BANKHEAD NATIONAL FOREST, ALABAMA

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PURPOSE AND SCOPE

Converting native hardwood stands to monoculture pine stands is well-established in the South due to the abundance of research on pine silvics and regeneration. Restoring a native hardwood or mixedwood stand on a previously converted pine stand is much more challenging, but is required to meet the Bankhead Ranger District's native ecosystem restoration goals. We discuss the intricate and multifaceted process of white oak (*Quercus alba*) restoration within a previously established loblolly pine (*Pinus taeda*) stand on the Bankhead National Forest, AL. The conversion from monoculture pine timber stands to a diverse and resilient hardwood woodland involves a nuanced set of steps and considerations, especially within a national forest. This includes project planning (National Environmental Policy Act [NEPA] analysis), site selection, timber sale management including timber receipt planning, stock procurement from seed to seedling, stand harvest, site preparation, planting, and survival and stocking monitoring.

METHODS AND APPROACH

Every step included substantial cooperative efforts among internal and external partners including the U.S. Department of Agriculture, Forest Service, Southern Research Station; University of Tennessee; and a local nonprofit. An interdisciplinary team consisting of district personnel from silviculture, timber, biology, fire, archeology, soil, and water from the Bankhead National Forest worked together to create this NEPA project. NEPA is required for all project undertakings on national forests. The NEPA process included situation assessment of the problem, which was the need for desired hardwoods; establishing the purpose and need for this project; developing a proposal; scoping, which is informing the public and allowing the public to voice opinions and concerns; developing alternatives; analyzing the effects of what is being proposed and the alternatives; and finally, writing a document to explain all of those items. To prepare for this endeavor, we considered suitable site locations to attempt this restoration. This was a critical first step because assessment of the site would bring understanding of the current ecological conditions and historic land-use

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practices. Following site selection and assessment, procurement of the stock was the next challenge in the process, because white oak acorns needed to be collected and shipped to a nursery where the seedlings could be grown for 1 year.

At the time of this project planning, the Forest Service, but most specifically the Bankhead National Forest, did not have a mechanism for efficiently acquiring acorns. This need presented a new opportunity for collaboration among the public, Forest Service research, and the National Forest. Research would provide the education for citizen scientists, and the citizens would provide the labor for the Forest Service by collecting acorns and assisting with seedling planting. This step required approximately 2 years' worth of effort and planning. Site preparation and competition control provided many more challenges, due to coordination of timber harvesting, chemical site preparation and prescribed burning. A glyphosate mix was used for site preparation during summer of 2022. Planting white oak seedlings is very different from planting pine seedlings. Equipment, timing of planting, and spacing were specific to oak planting.

FINDINGS AND IMPLICATIONS

Through the coordinated efforts of scientists from the Southern Research Station, Bankhead National Forest personnel, University of Tennessee students, The Nature Conservancy interns, and volunteer citizen scientists from the Wild Alabama monitoring group, the team was successful in planting white oaks in the stand. First year survival stocking yielded an 88.9 percent survival rate. The Bankhead and Southern Research Station continues to monitor the stand. Volunteer loblolly pine is competing for growing space within the stand. If allowed to continue without treatment the pines will outcompete the planted oak. A crop tree release by using brush saws is planned for October 2024.