

ASSESSING CHANGE IN HARDWOOD FORESTS OF THE WAYNE NATIONAL FOREST, SOUTHEASTERN OHIO

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Abstract—Many forest ecosystems of the unglaciated Allegheny Plateau of southeastern Ohio are undergoing a conversion from oak–hickory (*Quercus–Carya*) species to future dominance by mesophytic species (e.g., *Acer rubrum*). We examined the changes in tagged trees that were measured on permanent plots during 1992–1993 on the Athens Unit of the Wayne National Forest. In 2016, we relocated 102 plots to measure the same tagged trees. Tagged, or witness, trees were the two living trees [diameter at breast height (DBH) ≥ 10.1 cm] closest to the plot center, and along with DBH, we recorded the direction and distance of each tree from plot center. On returning to the plots, we relocated each tree; we searched for the remnants of the tree if it was missing. There had been no harvesting on the plots; therefore, we believe the missing witness trees had fallen and decayed. Twenty-three species were represented as witness trees. *Quercus alba* was the most common across all plots; *Acer saccharum* and *Fagus grandifolia* (the second and third most common species) were concentrated on mesic northeast-facing slope Ecological Land Type (ELT). Nearly 80 percent of the trees were still alive; about half of the mortality occurred on mesic ELTs. Growth varied considerably by species with *Quercus rubra* having the largest median increase in DBH. Among the ELTs, dry southwest slope ELTs had the smallest increase in DBH. These data capture the current dominance of oak in the overstory and reflect the initiation of change across a diverse landscape.

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