FIRE RESEARCH ON THE RACCOON ECOLOGICAL MANAGEMENT AREA

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The Raccoon Ecological Management Area (REMA) consists of 16,000 acres of forest located on the unglaciated Allegheny Plateau in southeastern Ohio. The area was cutover to provide charcoal to the iron furnaces that operated during the mid 19th century. The overstory is dominated by oaks with abundant red maple in the midstory and understory. Research on the use of fire to restore a mixed-oak ecosystem was initiated on the REMA in 1995 with a grant from the USDA Forest Service's Ecosystem Management Program. Periodic and annual prescribed burns were compared with respect to their effect on flora and fauna. These low-intensity fires did not increase the light reaching the forest floor sufficiently to promote oak regeneration. The Joint Fire Science Program provided funding for a replication of the national Fire and Fire Surrogate study, which was installed on the REMA in 2001 as part of the Ohio Hills site. This ongoing study combines thinning from below and prescribed fire to provide varying light levels and oak competition control to promote mixed-oak ecosystem sustainability. Many additional investigations by Forest Service and university scientists have been added to the original experimental design, which increases insight into the effects of these management practices. The processes determining fire behavior and effects are being modeled with funds provided by the National Fire Plan. Fire monitoring technologies and fire effects models are being developed. A hydrology and ecosystem process model is being applied to the sites to provide fuel characteristics for fire modeling. A study is being established on the REMA in which herbicide will be used prior to harvesting under a shelterwood system to control the sprouting of the pole-sized oak competitors. Prescribed fire will be used to control new seedling competition 3 to 5 years following a major acorn crop. It is hypothesized that the combination of these management practices will promote sustainability of the mixed-oak ecosystem. The research of fire effects and behavior on the REMA have made it on of the premier sites for producing information on the management of mixed-oak ecosystems in the United States.

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