

ECOSYSTEMS MANAGEMENT RESEARCH IN HARDWOOD FORESTS DOMINATED BY DEER

Susan L. Stout, David S. deCalesta, Stephen B. Horsley, Christopher A. Nowak, and James C. Redding¹

Abstract: Forest ecosystems of the Allegheny Plateau region of Pennsylvania have become impoverished as a result of over-browsing by white-tailed deer for more than 50 years. Research conducted in this region shows a strong, negative relationship between deer density and diversity of woody and herbaceous plant species and intermediate canopy nesting songbirds. This research also shows that deer are strongly associated with difficulties in establishing diverse regeneration of commercially important species. Research to date has been conducted on the stand level, and this research suggests that manipulation of deer forage, through managing at the landscape level, offers some hope of reestablishing diversity in forest ecosystems. Scientists have designed a landscape-level study to test this hypothesis generated from stand-level research. A study design combining observations and experimental manipulation on blocks of 500-1000 acres of forest land has been selected, and initial measurements will be collected before the Conference. While Pennsylvania's forests have suffered over-browsing for more than 50 years, this research has wide regional importance, as many other states are approaching the conditions currently found in Pennsylvania, and mitigation strategies are needed throughout the region.

¹U.S. Department of Agriculture Forest Service, Northeastern Forest Experiment Station, Forestry Sciences Laboratory, P.O. Box 928, Warren, PA 16365.