**From Tree Improvement to Species Improvement: Restoration and Conservation Efforts on the Forest Service's Southern National Forests**

Barbara S. Crane[1]

The USDA Forest Service National Forest System (NFS) southern land base in Region 8 (R8) encompasses 13 million acres managed within 17 Administrative Units. These national forests are fragmented across 13 southern states and Puerto Rico.

The national forests were established in the early part of the 1900's. The original focus was to provide an adequate supply of timber products for the growing population. To meet projected timber needs R8's Tree Improvement (TI) program was initiated in the early 1960's. Seed orchards were established in Arkansas, Louisiana, Mississippi, Florida, South Carolina and North Carolina in order to capture the wide geographic variation of seed sources. The orchards would ensure seed needed for reforestation efforts following timber harvesting on the national forests. Some 1900+ superior tree selections were made from six species of pine. Over the next several decades breeding and progeny testing were the main focus of the program. Second generation orchard blocks for the four southern pines were established. In the late 1980's NFS goals and objectives changed from timber production to ecosystem management and biodiversity. Timber harvesting decreased by 90%, resulting in a drastic reduction in seed needs. The TI program's objective of genetic improvement for quality timber became obsolete. As a result some orchard components and all progeny testing were terminated. In the early 1990's R8's TI program shifted from traditional tree improvement to genetic resource management. Genetic diversity of each species became the priority. The program re-focused on meeting the seed needs for restoration of tree species within endangered ecosystems. More recently, as several pine and hardwood forest ecosystems have been decimated by exotic pests and diseases, genetic conservation has become a major emphasis of the program as well.

Today R8's Genetic Resource Management Program (GRMP) focuses on perpetuating biological & genetic diversity of tree species on the national forests. Current efforts target restoration and conservation of six conifer and six hardwood tree species. Ecosystem restoration, maintenance and sustainability on National Forest lands are long term commitments. Hence the GRMP continues to manage current species in the orchards, incorporate new species into the orchards and establish seed production areas out on national forests. Ensuring a stable supply of seed is critical for species' perpetuation. The GRMP promotes species improvement, rather than tree improvement. The GRMP is engaged in several university, research and private partnerships to facilitate conservation and restoration efforts.

[1] Regional Geneticist, USDA Forest Service, Atlanta, GA, USA