

Lockwood Lecture

Friday, 6 May 2011



Native Butternut in New Brunswick, Canada

Dr. Jeanne Romero-Severson will be coming to The Connecticut Agricultural Experiment Station to deliver a Lockwood Lecture on Friday, 6 May 2011. The Lecture will be in the Experiment Station's Jones Auditorium at 123 Huntington Street in New Haven, CT. The title of the lecture is ***Seeing the Forest and the Trees***.

Dr. Romero-Severson leads the Forest Conservation and Tree Genetics Program of the Department of Biological Sciences at the University of Notre Dame. Her research focuses on population genetics and genomics in natural populations and the use of genetics and genomics to identify natural sources of resistance to the infectious diseases and insect pests that attack native tree species.

Dr. Romero-Severson earned a Ph.D. in Plant Breeding and Plant Genetics and a B.S. in Molecular Biology from the University of Wisconsin.

Abstract of Lockwood Lecture:

The conservation and restoration of threatened and endangered forest trees requires a long term commitment based on a sound understanding of population dynamics, site suitability and the species capacity to respond to exotic pests and pathogens. Butternut (*Juglans cinerea* L.), a North American forest tree threatened by the

exotic fungal pathogen *Sirococcus clavigignenti-juglandacearum* Nair, Kostichka & Kuntz, is now locally extinct in many forests in the South and declining in forests elsewhere. We have recently completed a series of studies on butternut population dynamics, including the extent of natural hybridization with Japanese walnut (an introduced species) and the impact of habitat on spatial genetic structure. We have found genetic differentiation consistent with a postglacial migration model and found no support for the abundant center hypothesis. Spatial genetic structure was higher in riparian versus upland habitats and interspecific hybridization was associated with anthropogenic disturbance. Although our study did not include disease screening, other studies have shown that Japanese walnuts and most F₁ hybrids with butternuts have moderate to high tolerance of butternut canker. The vitality and fertility of the hybrids, as well as the presence of advanced generation hybrids, suggests that hybrids may persist in the landscape as native butternut declines. We argue against wholesale extirpation of the hybrids in the interest of native "purity" and suggest that maintenance of the native gene pool might best be accomplished by outplanting the intercrossed progeny of interspecific hybrids from Japanese walnuts and locally adapted butternuts.



Dr. Jeanne Romero-Severson