

# Thomas Nelke, Forestry

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## **An evaluation of long term changes in clear-cuts and plantations in Mid-Missouri**

*Thomas Nelke and Rose-Marie Muzika*

Identifying future stand composition is important for several reasons including: aesthetics, wildlife benefits, timber value, and predicting potential changes. I studied the species composition in the over story and the regeneration layers between clear-cuts and unmanaged plantations. I determined when different species began to invade the plantations and the growth rates of the invading species. I sampled 3 clear-cuts (20-25yrs old) and 3 plantations (66- 68 yrs old) using 1/10th acre fixed area plots and recorded the species and DBH (diameter at breast height) for every tree greater than 2 inches DBH. In addition, I cored several trees in the plantations for growth rate measurements. For each site, a 1/500th acre regeneration plot was established to count and identify all saplings less than 2 inches DBH. The slope and aspect of each site was recorded. Basal area in the clear-cuts was higher than expected due to a few large trees that were remaining following the initial harvest. In two clear-cuts, sugar maple (*Acer saccharum*) was the most common species. The third clear-cut had a greater mixture of regenerating species, the steep slope of this site most likely contributed to this difference. In the plantations, the largest portion of the basal area was attributed to the plantation species. In all three plantations, the second greatest basal area value was attributed to slippery elm (*Ulmus rubra*). Despite the higher basal area of slippery elm the future dominant species will likely be various oak (*Quercus*) species, since these were widespread in the regeneration layer and have the ability to persist.