The Great Lakes LTSP Study: Fine-Root Biomass and Nutritional Status of Aspen Suckers Five to Seven Years After Compaction Treatments. (S07-johanson202131-Poster)

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Abstract:

We examined effects of three soil compaction treatments (none, light, and heavy) on fine-root (< 2 mm) biomass and nutritional status of aspen (Populus spp.) regeneration on the Ottawa (calcareous clay) and Huron-Manistee (acid sands) National Forests in Michigan. In 1999, we collected soil cores to 45 cm and foliage samples from each treatment plot. We identified aspen fine roots using external morphology. The aspen root identification was verified using random amplified polymorphic DNA analysis; 90% of the root fragments were correctly identified. More than 60% of the aspen fine-root biomass (AFRB) occurred in the upper 10 cm of soil. Mean growing-season AFRB values of the compaction treatments were significantly lower ($p < 0.05$) than the controls. Fall AFRB data displayed a significant soil*treatment interaction. The AFRB data from the Ottawa clay indicate that the effects of soil compaction on fine-root biomass were still noticeable eight years after treatment. On the Ottawa site, mean growing-season foliar nitrogen concentration of the heavy treatment was significantly lower ($p < 0.05$) than the mean of the light treatment.

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