Soil CO2 Evolution, Litter Decomposition, and Nitrogen Availability in a Thinned Japanese Larch Plantation. (S07-son232205-Poster)

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Abstract:

We measured soil CO2 evolution, litter decomposition and nitrogen availability for four different thinning intensities (control (C), 10% (T10), 20% (T20) and 40% (T40)) in a 19-year-old Japanese larch plantation in central Korea. There were significant differences in seasonal mean soil temperature, moisture and CO2 evolution among thinning intensities four years after thinning. Annual soil CO2 evolution (Mg CO2/ha) was 29.8 for C, 27.0 for T10, 24.2 for T20 and 23.8 for T40, respectively, and decreased with the thinning intensity. High soil CO2 evolution in the control and low thinning intensity mighty be related to root respiration from high stand densities. After decomposing for four years, 30, 30, 21, and 28% of the original needle litter mass remained for C, T10, T20, and T40, respectively, however, there were no significant trends with the thinning intensity. Also thinning did not increase or decrease ammonium, nitrate, and total inorganic nitrogen concentrations measured using the ion exchange resin bag method. Total annual resin inorganic nitrogen concentration (mg/bag) was 8.7 for C, 9.6 for T10, 8.6 for T20, and 9.2 for T40, respectively.

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