

A long term evaluation of carbon balance in a managed urban forest in central Japan using a Forest Biogeochemical Model (BGC-ES)

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Carbon sink function in urban forests has been attracted attention a mitigation strategy of global warming. Urban forests are usually managed (removing dead and damaged trees, and undergrowth) for preserving scenery and securing safety. Removing trees (thinning) in urban forests of Kanto region, central Japan, unlike the forestry thinning, the thinning is characterized by low intensity and high frequency. Here, we aimed to clarify the effects of these managements on the carbon balance of deciduous broadleaf forest, and to clarify how we can reduce carbon emission from the urban forest management. We calculated the carbon balances under different management scenarios using a forest biogeochemical model (BGC-ES model) to elucidate effects of urban forest management on carbon sink function.

Keywords: urban green spaces, deciduous broadleaf forest, removal of dead and damaged trees, soil carbon, biomass carbon, carbon sequestration