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Nikolay S Strigul* (nstrigul@stevens.edu), Department of Mathematical Sciences, Stevens Institute of Technology, Castle Point on Hudson, Hoboken, NJ 07030. *On the forest transient dynamics in the Perfect Plasticity Approximation model*. Preliminary report.

Recently we have developed tractable macroscopic equations for forest dynamics, the so called perfect plasticity approximation, PPA (Strigul et al., 2008, Ecological monographs). This mathematical model is a system of hyperbolic partial differential equations coupled with an additional integral equation (the PPA equation). Most of our analytical results presented in the initial paper concerned stationary regimes including stability analysis and invasion and coexistence in the stationary state. While the stationary regimes are analytically tractable, the transient dynamics presents a significant challenge. Here we will present recent results concerning transient dynamics of tree monocultures; in particular, we have obtained a closed analytical solution for the transient period before the moment of canopy closure. Currently we work to generalize this solution for the case of a multiple species model, which should provide better understanding of tree coexistence and forest succession. (Received September 16, 2008)