1092-92-288 **Kimberly I. Meyer** (meyer.kimberly@gmail.com), Department of Mathematics, University of Louisville, Louisville, KY 40292, and **Bingtuan Li*** (bing.li@louisville.edu), Department of Mathematics, University of Louisville, Louisville, KY 40292. *A Spatial Model of Plants with an Age-Structured Seed Bank and Juvenile Stage.*

We formulate an integro-difference model to predict the growth and spatial spread of a plant population with an age-structured seed bank and juvenile cohort. We allow the seeds in the bank to be of any age producing a system of infinitely many equations. We assume that juvenile plants mature into adults at a particular age. The production of new seeds can be density-dependent and so the function describing this growth is allowed to be non-monotone. The functions describing the seed bank and juvenile plants are linear. We show that when the system has a positive equilibrium, there is a spreading speed that can be computed using model parameters and that this spreading speed can be characterized as the slowest speed of a class of traveling wave solutions. The spreading speed results are obtained through linearization and comparison to an analogous finite system, while the existence of traveling wave solutions is shown by using an asymptotic fixed point theorem. We conduct numerical simulations of a truncated version of this model. These simulations show that traveling wave solutions may exhibit different patterns of fluctuations including periodic oscillations and chaotic tails. (Received August 12, 2013)