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**Andrew L Nevai\*** (anevai@math.ucf.edu), Department of Mathematics, University of Central Florida, Orlando, FL 32816-1364, and **Benjamin M Bolker**, Biology Department, University of Florida, Gainesville, FL 32611-8525. *A comparison of spatial interactions at different scales.*

For a stochastic plant population model involving seed dispersal, competition between neighbors, and landscape-induced mortality, we investigate connections between a spatial point process description and a spatial logistic equation with diffusion. The spatial moment equations of the spatial point process consist of an ODE for the mean population density and a pair of coupled PDEs, one for the cross-correlation between population size and landscape mortality and one for the auto-correlation of population size. The spatial logistic equation with diffusion, which amounts to short-range dispersal coupled with local competition and mortality, has corresponding ODE and PDE equations describing the fluctuations of population density and landscape mortality around their mean values. This work is in collaboration with B Bolker. (Received September 22, 2009)