1086-92-1365 **Christopher Strickland*** (strickla@math.colostate.edu), 101 Weber Building, Colorado State University, Fort Collins, CO 80523, and **Gerhard Dangelmayr** and **Patrick Shipman**.
Modeling the nonlocal dispersal of invasive plant species in heterogeneous landscapes.

Mathematical models for the spread of biological organisms typically utilize population growth and dispersal dynamics in an attempt to predict an expected value of the population distribution at some point in the future. These models often ignore uncertainty in initial conditions, neglect ecological heterogeneity in the landscape, and even misrepresent the underlying stochastic growth and dispersal processes they are supposed to represent. Assuming the underlying population dynamics of an invasive plant can be described by a nonlinear, stochastic contact birth process, we develop a deterministic model for the probability of species presence as a function of time and space. While assuming no information about the relative size of the current population, our model focuses on the goal of species presence prediction resulting in a model that naturally incorporates heterogeneity in the landscape as well as uncertainty in initial conditions. (Received September 21, 2012)