1048-37-140   **J Robert Buchanan*** (`Robert.Buchanan@millersville.edu`), Department of Mathematics, Millersville University, P.O. Box 1002, Millersville, PA 17551-0302. *A Stochastic Model of a Pioneer/Climax Interaction.* Preliminary report.

The interactions and population dynamics of pioneer and climax species sharing the same ecosystem are well studied from a deterministic, ordinary differential equations perspective. In this presentation a stochastic model of the pioneer/climax interaction will be described. The challenges of establishing the existence of solutions to the stochastic differential equation will be discussed. As the numbers of individuals in the populations grow large, the stochastic model has as its limit the deterministic model (the fluid approximation), allowing the long-term dynamics of the large-population stochastic model to be understood from the deterministic model while the small-population stochastic model may exhibit behaviors differing from the deterministic model. (Received February 04, 2009)