1067-92-1724 **Jim M Cushing*** (cushing@math.arizona.edu), Department of Mathematics, University of Arizona, 617 N Santa Rita, Tucson, AZ 85721. *Nonlinear matrix models, evolution, and the dynamic dichotomy of semelparous populations.*

Nonlinear matrix models for the dynamics of structured populations with a semelparous life history possess a dynamic dichotomy when the extinction equilibrium destabilizes (as R_0 increases through 1) and the population becomes persistent. This dichotomy consists, on the one hand, of positive equilibria with overlapping generations and, on the other hand, synchronized periodic oscillations with non-overlapping generations. I will first describe recent results concerning the stability of these two simultaneously bifurcating invariant sets. Secondly, using evolutionary game theory methods, I will place semelparous matrix models into an evolutionary setting and re-consider the dynamic dichotomy. The results will provide conditions under which evolution favors either equilibration with overlapping generations or oscillations with non-overlapping generations. (Received September 21, 2010)