1125-39-1246 **J. M. Cushing*** (cushing@math.arizona.edu), Department of Mathematics, 617 N Santa Rita, University of Arizona, Tucson, AZ 85721. *Difference equation models in population dynamics whose coefficients are subject to Darwinian evolution.*

Difference equations used to define discrete time dynamical systems have widespread use in population dynamics. Constant coefficients give rise to autonomous equations. Equations with periodic coefficients are motivated by periodically oscillating environments or vital rates. Equations with stochastic coefficients give rise to nonlinear stochastic processes. Another reason model coefficients can change in time is that they might be subject to Darwinian evolution. I will talk about evolutionary versions of difference equations (or systems of difference equations) for population dynamics in which coefficients can depend on a vector of phenotypic traits (strategies) subject to evolutionary selection. I will describe a general theorem that addresses questions concerning extinction versus survival, the bifurcation of survival (positive) equilibria, evolutionary stable strategies, and the role that the direction of bifurcation plays with regard to stability, strong Allee effects, tipping points, and other phenomena. Collaborators are Filipe Martins and Alberto Pinto, University of Porto, and Amy Veprauskas, University of Louisiana at Lafayette. (Received September 15, 2016)