1145-39-1133   **Jim Cushing*** (`cushing@math.arizona.edu`), Department of Mathematics, 617 N Santa Rita, University of Arizona, Tucson, AZ 85721. *Difference Equations as Models of Evolutionary Population Dynamics.*

We describe the evolutionary game theoretic methodology for extending a difference equation population dynamic model in a way so as to account for the Darwinian evolution of model coefficients. For these difference equation models, we give a general theorem that describes the transcritical bifurcation that occurs when the extinction equilibrium destabilizes. This bifurcation results in survival (positive) equilibria whose stability depends on the direction of bifurcation. We give several applications based on evolutionary versions of some classic equations, such as the discrete logistic (Beverton-Holt) and Ricker equations. In addition to illustrating our theorems, these examples also illustrate other biological phenomena, such as strong Allee effects, time dependent adaptive landscapes, and evolutionary stable strategies. (Received September 19, 2018)