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Jim M Cushing* (cushing@math.arizona.edu), Department of Mathematics, 617 N Santa Rita, University of Arizona, Tucson, AZ 85721. *Systems of rational difference equations from population dynamics and global dynamics on the boundary of the positive cone*. Preliminary report.

I will present some (systems of) rational difference equations that arise in the study of life history strategies in population dynamics. These equations hold both the boundary and the interior of the positive cone invariant. A fundamental bifurcation that occurs gives rise to a dynamic dichotomy between equilibria in interior of the cone and synchronized period oscillations on the boundary of the cone. An understanding of the global dynamics on the boundary of the cone is fundamental to understanding this dynamic dichotomy and its biological implications. I will describe some known results about the boundary dynamics and present several open problems. (Received September 21, 2011)