

1116-34-1779      **Elena Dimitrova\*** (edimit@clermson.edu), O-303 Martin Hall, Clemson University, Clemson, SC 29634, and **Sherli Koshy**. *Long-term survival and chaotic dynamics in population models*. Preliminary report.

In 1996, Cushing et al. announced the first discovery of a real population (the flour beetle *tribolium*) that exhibits chaotic dynamics. Since then others have observed chaotic behavior in populations of species but little is know about the significance of such behavior. We study the connection between chaotic dynamics and long-term survival of populations in ecological context using models differential equations. Many criteria have been used to define the notion of long-term survival of each species in a system of interacting populations. We focus on perhaps the most widely accepted criterion, permanence, which roughly speaking requires that any asymptotic behavior of orbits should be allowed as long as the orbits come too close to the boundary. (Received September 21, 2015)