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Ross Chiquet* (rchiquet@louisiana.edu). *Chaos in a Two-stage Discrete Model with Periodic Birthrates.*

We develop a discrete juvenile-adult population model with Ricker-type survivorship functions and periodic birthrates. We first show that the extinction equilibrium, or trivial equilibrium, is locally asymptotically stable when the inherent net reproductive number is less than one. When it is greater than one, we show that the system is persistent. Given the inherent complexity of the system, several numerical examples are used to convey the rich chaotic behavior exhibited. Using bifurcation analysis, the effect of the birth rate on the system's dynamics is explored. It is shown that for certain birth rates the system exhibits chaotic behavior. We then make a comparison of the model with continuous birthrates verses one with periodic birthrates to explore the affects of different birthing strategies on the population. (Received September 09, 2014)