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Eddy A Kwessi\* (ekwessi@trinity.edu), 1 Trinity Place, San Antonio, TX 78212, Laila Assas, Makkah, 10265, Saudi Arabia, Brian Dennis (brian@uidaho.edu), 875 Perimeter Drive MS, Moscow, ID 83844, Saber Elaydi (selaydi@trinity.edu), 1 Trinity Place, San Antonio, TX 78212, and George Livadiotis (george.livadiotis@swri.org), San Antonio, TX 78238. Stochasticity on a modified Beverton-Holt model with Allee effects. Preliminary report.

In this paper, we consider a Modified Discrete Beverton-Holt single species model with Allee effect. We study the effects of demographic and environmental fluctuations on the dynamic of the model, including the potential function, the attainment time, mean first passage time, stationary and exit distributions. (Received September 03, 2014)