DYNAMICS OF A DISCRETE POPULATION MODEL FOR EXTINCTION AND SUSTAINABILITY IN ANCIENT CIVILIZATIONS

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We analyze a discrete version of a recently developed ratio dependent population-resource model. This model has been used to study the decline of the human and resource populations on Easter Island and the chaotic dynamics of moose and wolf populations in Canada. The dynamical system exhibits a rich behavior of fractal basins of attraction and a Naimark-Sacker bifurcation route to chaos. The model consists of a coupled pair of logistic equations, with the carrying capacity for the predators proportional to the number of prey.

REFERENCES