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Harold M Hastings* (hastingsmail@earthlink.net) and **Michael Radin.** *Time Scales, Switching, Control, Survival and Extinction in a Population Dynamics Model with Time-Varying Carrying Capacity.*

The Basener-Ross (2004) model is a system of two coupled logistic equations, one for a resource population and a second for a population which is harvesting that resource. This model has been used to model the collapse of the Easter Island population (Basener, Brooks, Radin, Wiandt 2008). We added a third equation to model a declining carrying capacity for the resource population, which might arise, for example, as a result of climate change. The resulting model displays a sharp transition between survival and extinction, depending upon how fast the harvesting population responds to the decline in resource production. Although this result is not of itself surprising, the surprising sharpness of the transition to extinction in finite time as the harvester time scale increases calls for an explanation. Further examination shows that increasing the harvester time scale shifts control from the resource population (reminiscent of a fishery model at low levels of effort) to virtually sole control by the harvester population (an analogue of extreme overfishing). We shall also briefly discuss extensions and generalizations. (Received January 12, 2014)