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Zhisheng Shuai* (shuai@ucf.edu), University of Central Florida, Orlando, FL 32765. *Target reproduction numbers with applications in ecology and epidemiology*. Preliminary report.

There are several important threshold parameters in the literature on population dynamics that determine the population persistence and disease invasibility. For example, the population growth rate and the net reproductive ratio are often derived in matrix population models to determine whether the population persists or goes to extinction. In mathematical epidemiology, the basic reproduction number often serves as a sharp threshold parameter determining whether or not a disease dies out; type reproduction numbers and target reproduction numbers recently are introduced for measuring disease control strategies in a heterogeneous host population. In this talk the concept of the target reproduction number is extended to a more general setting so that it unifies all the above threshold parameters and provides a new measure for population/disease control. (Received September 20, 2016)