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Title:	Threshold-activated transport stabilizes chaotic populations to steady states
Authors:	Meena, C. (/jspui/browse?type=author&value=Meena%2C+C.) Rungta, Pranay Deep (/jspui/browse?type=author&value=Rungta%2C+Pranay+Deep) Sinha, Sudeshna (/jspui/browse?type=author&value=Sinha%2C+Sudeshna)
Keywords:	Random Scale-Free chaotic Ricker maps threshold-activated migratio
Issue Date:	2017
Publisher:	Public Library of Science
Citation:	PLoS ONE, 12(8)
Abstract:	We explore Random Scale-Free networks of populations, modelled by chaotic Ricker maps, connected by transport that is triggered when population density in a patch is in excess of a critical threshold level. Our central result is that threshold-activated dispersal leads to stable fixed populations, for a wide range of threshold levels. Further, suppression of chaos is facilitated when the threshold-activated migration is more rapid than the intrinsic population dynamics of a patch. Additionally, networks with large number of nodes open to the environment, readily yield stable steady states. Lastly we demonstrate that in networks with very few open nodes, the degree and betweenness centrality of the node open to the environment has a pronounced influence on control. All qualitative trends are corroborated by quantitative measures, reflecting the efficiency of control, and the width of the steady state window.
URI:	https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0183251 (https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0183251) http://hdl.handle.net/123456789/1870 (http://hdl.handle.net/123456789/1870)
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