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Title:	Advent of extreme events in predator populations
Authors:	Chaurasia, S.S. (/jspui/browse?type=author&value=Chaurasia%2C+S.S.) Verma, U.K. (/jspui/browse?type=author&value=Verma%2C+U.K.) Sinha, Sudeshna (/jspui/browse?type=author&value=Sinha%2C+Sudeshna)
Keywords:	Predator populations Lotka–Volterra Aperiodic
Issue Date:	2020
Publisher:	Nature Research
Citation:	Scientific Reports, 10(1)
Abstract:	We study the dynamics of a ring of patches with vegetation–prey–predator populations, coupled through interactions of the Lotka–Volterra type. We find that the system yields aperiodic, recurrent and rare explosive bursts of predator density in a few isolated spatial patches from time to time. Further, the global predator biomass also exhibits sudden uncorrelated occurrences of large deviations from the mean as the coupled system evolves. The maximum value of the predator population in a patch, as well as the maximum value of the predator biomass, increases with coupling strength. These trends are further corroborated by fits to Generalized Extreme Value distributions, where the location and scale factor of the distribution increases markedly with coupling strength, indicating the crucial role of coupling interactions in the generation of extreme events. These results indicate how occurrences of extremely large predator populations can emerge in coupled population dynamics, and in a more general context they suggest a generic class of deterministic nonlinear systems that can naturally exhibit extreme events
URI:	<a href="https://www.nature.com/articles/s41598-020-67517-1">https://www.nature.com/articles/s41598-020-67517-1</a> ( <a href="https://www.nature.com/articles/s41598-020-67517-1">https://www.nature.com/articles/s41598-020-67517-1</a> ) <a href="http://hdl.handle.net/123456789/3207">http://hdl.handle.net/123456789/3207</a> ( <a href="http://hdl.handle.net/123456789/3207">http://hdl.handle.net/123456789/3207</a> )
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