

Instances of mass die-offs in wild lions precipitated by extreme climate change

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An international research team has published the first clear example of how climate extremes can create conditions in which diseases that are normally tolerated singly may converge and bring about mass die-offs in wildlife.

In a report issued June 25 by *PLoS ONE*, an online peer-reviewed research journal, researchers examined outbreaks of canine distemper virus (CDV) in 1994 and 2001 that resulted in unusually high mortality in Serengeti lions. CDV cycles periodically within the Serengeti ecosystem, and epidemics have occurred without effects on lion populations.

The study, led by scientists at the University of California, Davis, the University of Illinois, and the University of Minnesota, showed that both of the deadly CDV outbreaks were preceded by extreme drought conditions, which led to debilitated populations of Cape buffalo, the lion's prey. After the resumption of rains the buffalo suffered heavy tick infestations, resulting in high levels of a tick-borne blood parasite in the lion population, which in combination with CDV infection led to mass die-offs.

This study suggests that extreme climatic conditions, such as the more frequent droughts and floods expected with global warming, are capable of altering normal host-pathogen relationships and bringing about a "perfect storm" of multiple infectious outbreaks, potentially triggering epidemics with catastrophic mortality.

Source: University of Illinois at Urbana-Champaign

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