Chronic stress in elephants can affect long-term behavior

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Stress is known to lead to short-term escape behavior, and new research on elephants in South Africa shows that it can also cause long-term escape behavior, affecting the extent that elephants use their habitat. The work is published Feb. 22 in the open access journal *PLoS ONE*.

The researchers, led by David Jachowski of the University of Missouri, measured levels of FGM (fecal glucocorticoid metabolite), a proxy of physiological stress, and land use patterns for three different elephant populations, and found that higher FGM was associated with 20-43% lower land usage. These results suggest that chronic high stress leads to "refuge behavior," with the animals altering their space use and preferences in response to stress.

"Chronic stress and refuge behavior by elephants could be linked to multiple elephant management problems, ranging from habitat destruction to aggression towards and killing of humans", says Dr. Jachowski.

Wildlife translocation or reintroduction projects should consider these effects in their planning, the authors write.

More information: Jachowski DS, Slotow R, Millspaugh JJ (2012) Physiological Stress and Refuge Behavior by African Elephants. *PLoS ONE* 7(2): e31818. doi:10.1371/journal.pone.0031818