

Orphaned elephants have a tougher social life

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Orphans like Soutine, pictured with her calf, have been observed socializing with

different family groups in the Samburu elephant population. Credit: Jane Wynard/Save The Elephants

Young female orphan elephants have a tougher social life than non-orphans, a new study suggests, adding to a growing body of evidence of how the impacts of poaching cascade through elephant societies.

The research, part of a wider study by Save The Elephants and Colorado State University into the social impact of adult mortality on orphaned female elephants, shows that orphans receive more aggression from other elephants—whether overt aggression like pushing or more subtle forms like displacements—than non-orphans.

Orphans that leave their families and move into another family unit are likely to receive more aggression than those integrated in their natal groups.

The study, conducted over five years and led by postdoctoral researcher Shifra Goldenberg, analyzes the social interaction patterns of juvenile female elephants in Northern Kenya who have lost their mothers to either poaching or natural mortality. The work shows that orphans are resilient, and rebuild their social lives by strengthening relationships in response to maternal mortality. At the same time, orphans social lives do not return to normal. While they maintain rich and varied relationships with other elephants (relatives and non-relatives), they have markedly less interaction with adult females. This reduces their access to favored foods and resources, as well as to the elders whose experience is critical to the transmission of information between generations in elephant societies.

The latest findings around elephant aggression shed new light on the

substantial indirect impact of poaching on [orphan](#) survivors, demonstrating that socially disadvantaged elephant orphans have a tougher life than non-orphans.

Between 2009 and 2013, the population of elephants in Samburu and Buffalo Springs National Reserves in Northern Kenya, where the study was conducted, was hit by increased ivory poaching and a severe drought which has left many young elephants orphaned without mothers or grandmothers.

Some orphans choose to remain with what is left of their disrupted groups, others leave their natal group to attach to unrelated individuals. Still others become drifters, showing some social preference but not fully committing to any one group.

The study found that only orphans from disrupted families tend to disperse into new social groups but that during feeding, these same elephants receive more aggression than orphans in natal groups.

Shifra Goldenberg said: "Elephants live in matriarchies that facilitate their access to limited resources like food, water, and shade. Our results suggest that orphaning and natal group dispersal may trigger resource opportunity costs for young females as they appear to be subordinate to other group members. What this means for their long-term survival and reproduction remains an open question."

The paper's co-author, George Wittemyer, Associate Professor in the Department of Fish, Wildlife, and Conservation Biology at Colorado State University and Chairman of the Scientific Board of Save The Elephants said: "The recovery of elephant populations from prolonged ivory poaching will depend largely on the ability of young females to successfully reconstruct their social lives and family groups. Deep, life long bonds are the fundamental component of elephant societies. Fine

resolution studies like these allow us to gauge the response of young females to human driven disruption."

In the coming years the Samburu orphan study will relate the social costs of being an orphan to fitness as this could be important to the recovery of elephant populations affected by the ivory trade and other forms of disruption.

Key findings from the study include:

- Orphaned elephants appear to receive more aggression from other elephants than non-orphans
- Orphaned elephants that leave their family unit are subject to more [aggression](#) than those that stay with their families
- Given the importance of social bonding in elephants, the findings suggest socially disadvantaged elephant orphans could have a tougher life than non-orphans
- Some orphaned [elephants](#) leave their families while non-orphans always stay with their natal group

The Orphan study was recently published online in the journal *Animal Behaviour*.

More information: Shifra Z. Goldenberg et al, Orphaning and natal group dispersal are associated with social costs in female elephants, *Animal Behaviour* (2018). [DOI: 10.1016/j.anbehav.2018.07.002](https://doi.org/10.1016/j.anbehav.2018.07.002)

Provided by Colorado State University

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