

Elephants' Future



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Recall that rapid habitat loss, poaching, and a slow reproductive rate have resulted in African elephants (of which there are two species: African forest elephants and African savannah elephants) being listed as critically endangered by the International Union for Conservation of Nature (IUCN). After a particularly heavy period of poaching during the 15-year Mozambique civil war, a population of African forest elephants appears to be evolving to have tuskless females.

Much remains unclear about what this might mean for elephants' future. Will the tuskless population eventually become a new species of elephant? Will tusklessness spread to other populations? Will all African elephants go extinct, regardless of this adaptation in one population? Will tusklessness become less prevalent in the population if poaching declines?

While tusklessness is an obvious advantage if you want to avoid being killed for your ivory, it has some serious trade-offs. The gene that produces the tuskless phenotype in females is lethal to males. A female with one copy of the tuskless mutation has no tusks. Half of her female offspring will have tusks, and half will be tuskless. Half of her male offspring will have tusks and the other half will not survive. And all elephants including females normally use their tusks for defense, to strip the bark of trees for food, and to dig holes for water.

Elephant behavior is important to consider as well. Elephants are highly social animals. They live in groups of 1–20 mature females and their immature offspring. At maturity, male offspring leave the group. Females generally remain with the group they were born into. Adult male elephants wander long distances in search of females to mate with, increasing gene flow among populations.

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Elephants likely evolved to live in groups because it made them and their genetic relatives more likely to be reproductively successful. Under heavy poaching pressure, female elephants that lose all their close relatives often immigrate to a new core social group where they have no close relatives.

Finally, in spite of researchers observing adaptation through natural selection in the Mozambique population, elephants are still at high risk of extinction. Both species of African elephants are currently listed by the IUCN as having a decreasing population trend. While tusklessness is a response to poaching pressure, elephants are also under pressure from habitat loss and fragmentation. Fragmentation may reduce genetic connectivity, isolating populations.