

Tuskless Elephants



We often think that evolution takes thousands of years. But in rare cases where humans impact small populations, adaptation can work much faster. Take the case of the tuskless elephant.

Nearly all male elephants and most females have tusks. These are just elongated lateral incisors that grow outward once the elephant loses its baby teeth.

But a small percentage of elephants are born without these teeth and never develop tusks.

In 1919, the South African government brought trophy hunters to the East Cape to exterminate elephants that were eating crops and trampling farms.

By 1931, only eight females survived, and half were tuskless—perhaps because they made the least attractive trophies. Instead of natural selection, this was human selection.

Fortunately, public opinion forced a change of heart and a preserve was established to protect the elephants.

The tuskless matriarchs had tuskless offspring, and today nearly all female elephants in the park lack tusks.

A similar thing happened in Mozambique. During a 15-year civil war, soldiers poached elephants for their meat to feed the troops and for their ivory to sell to buy more weapons.

Again, elephants with tusks were killed, and by the end of the war, half the females were tuskless. As the population has rebounded, a large portion of females remain without tusks.

But with the hunting pressure off, experts think natural selection may again favor animals with tusks—and both groups may eventually become tusked again.

This tuskless Gorongosa National Park matriarch, Valda, has a hole in her right ear that was likely made by a bullet during Mozambique's civil war (1977–1992).

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Background: Tuskless Elephants

Synopsis: Evolutionary change generally involves long time frames of Earth history. But in some cases, evolution may be shifted or accelerated by human intervention in the natural world. Did human activity change the evolutionary path of some giant African elephants?

- The tusks of elephants are lateral incisors, located on either side of their two front teeth.
 - Tusks start to grow after baby elephants lose their primary teeth during the first year of their lives. Tusks continue to grow longer and thicker throughout their lives.
 - The longest African elephant tusk ever recorded was 11.5 ft (3.5 m) long.
 - The tusks of males weigh up to seven times those of similarly aged females. The heaviest tusk recorded weighed almost 265 lb (120 kg)!
 - Elephants tend to favor one tusk—the master tusk—over the other, similar to being right- or left-handed. With the extra use, the master tusk develops a groove over time.
 - Elephants use tusks as tools for foraging, digging, breaking branches, stripping bark, and moving things around.
 - Tusks are used as weapons against potential predators.
 - Males use tusks to vie with other males for mates.
- Like humans, a small percentage of elephants are born without their lateral incisors.
 - Historically, 2–4 percent of unstressed African elephant females are tuskless; tusks are an inherited genetic trait.
 - Fewer African elephant males are tuskless because successful competition for females is strongly dependent on tusks.
- The past century has seen a larger proportion of tuskless female African elephants develop in some areas. Humans appear to have caused this shift in elephant evolution.
 - Hunters have historically targeted elephants with the largest tusks because of the value of their ivory; males and older females have always been at higher risk.
- In South Africa’s Eastern Cape, northeast of the city of Port Elizabeth, the Addo Elephant National Park is home to a unique population of elephants with a sad past but an amazing conservation story.
 - In the late 1800’s, farmers started settling in the area. Their crops attracted elephants that raided and trampled fields, so farmers promoted hunting to reduce the damages. Elephants with more ivory were more valuable targets.
 - In 1919, the government hired Major P. J. Pretorius, the “great white hunter,” to eliminate the elephants in the area. In 1919 and 1920, he killed 114 elephants.
 - By 1931, only 11 elephants remained in the region, and half of the 8 female survivors were tuskless. That year, the Addo Elephant National Park was established to provide sanctuary for these elephants as well as other African animals.
 - As a result of both the proportion of tuskless elephants in the surviving population and inbreeding, 98 percent of female elephants in the park were tuskless by 2000. The males retained their tusks.
 - Currently, there are more than 600 elephants in the park, a real success story for conservation efforts.
- Farther to the northeast, at Gorongosa National Park in Mozambique, the elephant population suffered a more recent tragic history that has led to what some call “unnatural selection.”
 - During the 15 years of the Mozambican Civil War (1977–1992), Gorongosa elephants were ruthlessly hunted and poached by soldiers—both for meat to feed troops and for ivory to sell to fund weapons purchases.

References: Tuskless Elephants

The Gorongosa Elephants | ElephantVoices
Selection for Tuskless Elephants | hhmi BioInteractive
How an Elephant Loses Its Tusks: A Lesson in (Un)Natural Selection | National Geographic
Going Tuskless | African Wildlife Federation
Natural & Cultural History | Addo Elephant National Park

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- The Gorongosa elephants still exhibit dramatic behaviors that indicate they remember the horrors of the war—they have a heightened fear of people. Even though they now live in a safe preserve, more than 25 years after the war they avoid being out in the open and at water sources during the day, and may attack or run hysterically from people.
- Today, the Gorongosa population includes about 800 individual elephants in 24 families. About 150 of these are independent adult males.
- Of the surviving elephants that were adults during the war, most are female, and over half of these are tuskless, evidence of the preferential poaching of males and older tusked females.
- Younger females who are now 15–25 years old were not around during the war, but almost a third of them are tuskless, the result of a decrease in the number of their parents with the genes for tusks.
- The “unnatural selection” pressure of hunting and war creates circumstances in which tuskless elephants are more likely to survive, breed, and pass on the genes for missing lateral incisors in regions where intense hunting or poaching has occurred. With the passing of time and generations, the proportion of tusked individuals in the population will probably increase, slowly reverting back toward baseline levels.



Elephants in the Addo Elephant National Park near Port Elizabeth, South Africa.

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