

Elephants and Ecosystems

Elephants are important. They are large, long-lived, highly intelligent and complex animals. They are under threat from ivory poaching and habitat loss. They are an essential component of African savannah and forest ecosystems. Local extinctions could lead to catastrophic ecological changes. Losing them would be detrimental to Africa, Asia and the world.

Elephant Biology and Behaviour: Exceptional in Every Respect

1. Elephants are the largest land mammals. They have proportionally very large and complex brains, combining self-awareness with a high capacity for spatial and social memory.
2. They can live to at least 65 years in the wild; there are records of Indian elephants living until 80.
3. Elephants have a very long developmental period with an extended period of social dependency on matriarchal family groups lasting 10 or more years.
4. Elephant social life is complex yet flexible. Females and calves live in families of two to fifty individuals, depending on the habitat and social circumstances. The oldest female, the matriarch, heads each family. She is the leader in every sense and the repository of vital knowledge for the survival of her family and the population.
5. Female elephants can reach sexual maturity at 10-12 years. Most successful conception and calf rearing occurs when females are aged 15-50 years. They can continue breeding into their 60s.
6. The family unit is the basis of elephant juvenile survival and reproductive success. Young immature females play a caretaking role to help protect and guide younger calves, which reduces stress on the mothers and increases the survival of the offspring.
7. Males leave their families from ages 10-15 and thereafter live separately in loose adult bull associations for some years. Mature males compete for females using a strategy called *musth*, by which annual periods of heightened sexual activity in each male are timed to maximize success and reduce conflict.
8. The oldest, largest males are the most successful breeders. Genetic studies of a well-known population show that male reproductive success peaks in the late forties and continues at least until 60 years of age.
9. Elephants have highly complex interactions with levels of social structure beyond the family unit. They have a vocal repertoire of over 70 individual calls each with a specific message and are capable of recognizing and responding appropriately to the calls of over 100 different elephants.
10. Elephants are sensitive to the behaviour of people and are capable of distinguishing between dangerous and benign humans. Elephants generally respond to human aggression by fleeing; they will only attack if threatened at close range. Survivors of poaching are clearly stressed, living in disrupted social structures with reduced breeding success and increased antagonism towards local people.
11. Long-term research has shown that the killing of older individuals for their ivory seriously jeopardizes the viability of their population. The accumulated experience of a matriarch provides a knowledge base to steer her family through the hazards of survival in a variable ecosystem. And the prolonged breeding of an old male passes on the very genes of strength and healthiness, canniness and adaptability that allowed him to get to that age in the first place.

Elephants' Role in Ecosystems: Architects and Planters

12. Elephants have co-evolved in the ecosystems of Africa and Asia for at least 50 million years.
13. The large body size and long lifespan of elephants govern many of their ecological interactions. The demographic variables that drive population growth and decline vary over long periods of time, often measured in decades. Population size is regulated by a combination of density-dependent food competition and periodic diebacks of very young and old animals in droughts.

14. The dispersal between adjacent populations (a so-called “meta-population” landscape) is another mechanism that reduces local population density. The need for dispersal space argues for easements and corridors to accommodate population growth and seasonal movements.
15. Elephants eat large amounts of plant material from ground level to the tree canopy. Foraging elephants have strongly influenced the shape, patchiness and species composition of ecosystems and habitats we see today. In this respect, the elephant is similar to other herbivores, but because of its size, it is a ‘keystone species’ that has a predominant and positive influence on the diversity of natural African landscapes.
16. Elephants’ bodies are designed for movement over extensive areas with relative ease. They perform use large areas of land in search of food, which increasingly brings them into contact and potential conflict with people. Unresolved conflict may result in human losses and confinement of elephants with intense, local effects on the structure of plant and animal communities.
17. In Africa, elephants are called the ‘architects of the savannah’; their role in preventing bush encroachment has long been recognized by pastoral people. Elephants keep the savannahs open for grassland that is essential to cattle-keepers. If elephants are removed, the structure of habitats changes dramatically.
18. They are also called the ‘tree-planters’ of the Central African forests. Elephants ingest and disperse the seeds of large, important forest tree species. Scientists have recorded 96 species in elephant dung, which can be dispersed more than 10 km from the parent tree.* Many tree species can only reproduce if elephants swallow and transport their seeds.
19. Blake and his colleagues concluded that “...the loss of forest elephants (and other large-bodied dispersers) may lead to a wave of recruitment failure among animal-dispersed tree species, and favor regeneration of the species-poor abiotically dispersed guild of trees.”*
20. The links between the ivory trade and the illegal killing of elephants are clear (see KEF Fact Sheet 02, *Elephant Poaching and the Ivory Trade*). Unless action is taken based on good information and sound policy, African elephants will be gone from most of their former range within our lifetimes, along with the diversity of many habitats and species.

*Blake, Stephen; Deem, Sharon Lynn; Mossimbo, Eric; Maisels, Fiona, Walsh, Peter (2009) Forest Elephants: Tree Planters of the Congo. BIOTROPICA 41(4): 459–468 2009

For more information, please contact the Kenya Elephant Forum or one of the AEC national focal points listed below.

AEC Mali Focal Point

Dir. Nat. de la Conservation de la Nature
Rue 333 – Porte 93
BP 275
Bamako, Mali
Tél.: +223 – 223 36 95 /97
conservationnature@datatech.net.ml

AEC Kenya Focal Point

Mr. Solomon Kyalo
CITES Office
Kenya Wildlife Service
PO Box 40241, Nairobi 00100, Kenya
Tel: +254 20 600800
cites@kws.go.ke

Kenya Elephant Forum

Ms. Pat Awori
PO Box 47756
Nairobi 00100, Kenya
aworipat@yahoo.com

KEF Fact Sheets

- 01 The African Elephant Coalition
- 02 Elephant Poaching & the Ivory Trade
- 03 CITES and the Ivory Trade
- 04 Proposed Annotations for CoP15
- 05 Elephants and Ecosystems