

Study documents a lost century for forest elephants

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Because forest elephants are one the slowest reproducing mammals in the world, it will take almost a century for them to recover from the intense poaching they have suffered since 2002. Credit: Andrea Turkalo/WCS

Because forest elephants are one the slowest reproducing mammals in

the world, it will take almost a century for them to recover from the intense poaching they have suffered since 2002. Not only does it take more than two decades for female forest elephants to begin reproducing, but they also give birth only once every five to six years.

The findings are from a first-ever study of forest elephant demography published Aug. 31 in the *Journal of Applied Ecology*.

There are two species of elephants in Africa. Savannah elephants make up the majority across the continent, with smaller numbers of the more diminutive forest elephants restricted to tropical forests. Forest elephants have experienced serious poaching, driving an estimated population decline of 65 percent between 2002 and 2013 according to a study led by the Wildlife Conservation Society (WCS).

Their reported low birth rates mean that it will take forest elephants at least 90 years to recover from these losses, according to researchers from the WCS, the Cornell Lab of Ornithology's Elephant Listening Project, Colorado State University, and Save the Elephants. The team used decades of intensive monitoring data that recorded births and deaths of the elephants using the Dzanga Bai in Central African Republic, part of the UNESCO World Heritage Sangha Trinational area. (Dzanga Bai translates roughly as "village of elephants.")

"This work provides another critical piece of understanding regarding the dire conservation status of forest elephants," said the study's lead author Andrea Turkalo, WCS Associate Conservation Scientist, who over several decades collected the detailed data on the Dzanga elephants despite tough logistical challenges and political instability.

Using data Turkalo collected from 1990 to 2013 during nearly daily visits to a mineral rich forest clearing, or bai, that attracts elephants and other wildlife, the authors were able to uncover the age at which the

forest elephants had their first calves, the length of time between calves, and other behaviors.

The team found that forest elephants begin breeding later and have much longer calving intervals than other elephants, which means the population takes much longer to increase.

"Female forest elephants in the Dzanga population typically breed for the first time after 23 years of age, a markedly late age of maturity relative to other mammals," Turkalo said. "In contrast, Savannah elephants typically begin breeding at age 12. In addition, breeding female forest elephants only produced a calf once every five or six years, relative to the three- to four-year interval found for Savannah elephants."

The authors believe that the low birth rate is due to the challenges of living in a tropical forest, where new plant growth is mostly limited to the canopy.

Said Peter Wrege, a Behavioral Ecologist at the Cornell Lab of Ornithology's Elephant Listening Project: "While we think of tropical forests as incredibly productive areas, most production occurs in the high canopy inaccessible to ground-dwelling species. In addition, vegetation in tropical systems are laden with compounds to defend their leaves from herbivores, including elephants. This means accessing resources is challenging for terrestrial fauna."

George Wittemyer, chair of the Scientific Board of Save the Elephants and a professor in Wildlife Conservation at Colorado State University, said the findings are essential to assessing the status of forest elephants and projecting population decline in the face of illegal killing.

"Legislation regarding ivory trade must consider the collateral effects on forest elephants and the difficulties of protecting them," Wittemyer said.

"Trade in ivory in one nation can influence the pressures on elephants in other nations."

The paper's findings show that the forest elephant is particularly susceptible to poaching - vital information in the push to close domestic ivory markets, which will be debated at the IUCN World Conservation Congress, which runs from Sept. 1-10 in Hawaii, and the Convention on International Trade in Endangered Species, which meets in Johannesburg in late September.

The authors also highlight the importance of the results for interpreting carcass data collected through the Monitoring of Illegal Killing of Elephants program, which has shown high levels of poaching across central Africa.

"Only by understanding the basic biology of forest elephants and other species, can we properly determine the level of threats they face from human activities," said Wittemyer.

Forest elephants have critical ecological roles in these forests, and many tree species rely on the elephants to disperse their seeds. Continued decline in forest elephant numbers and range is likely to drive severe changes to these ecosystems, making their conservation status a significant global issue.

Failing to protect [forest elephants](#) would also damage Central African forests, which are important for absorbing climate change gases.

More information: *Journal of Applied Ecology*, [DOI: 10.1111/1365-2664.12764](#)

Provided by Wildlife Conservation Society

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