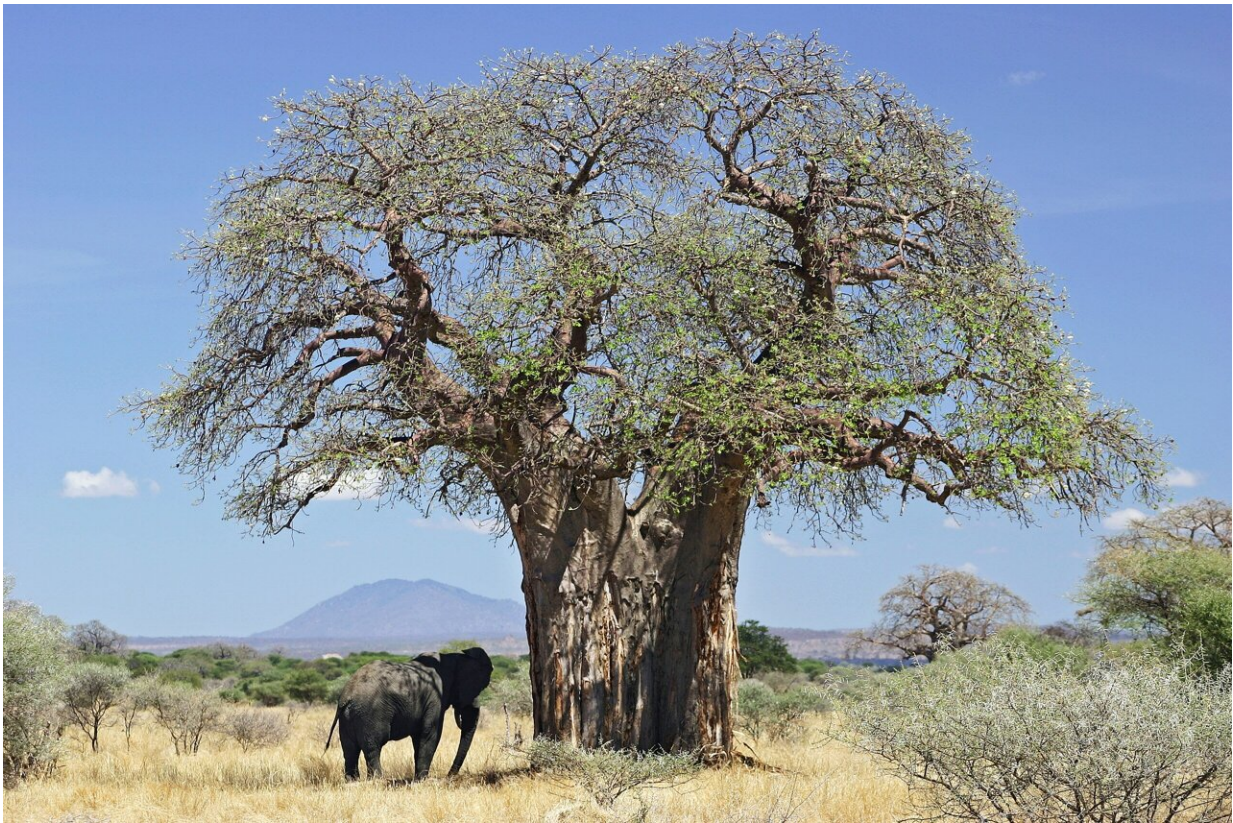


Baobabs: Africa's unique trees defy climate challenges, continue to flourish

August 26 2024, by Sarah Venter



Baobab (*Adansonia digitata*) and elephant, Tanzania. Credit: [Ferdinand Reus](#) from Arnhem, Holland, [Creative Commons Attribution-Share Alike 2.0 Generic](#)

Baobabs reach extraordinarily old ages. Some have been found to be thousands of years old. During these life spans, elder baobabs have

survived erratic climate conditions.

As an ecologist who has spent the last 17 years studying baobab, I decided to [look](#) specifically at the health of adult baobabs in Southern Africa and then in Africa as a whole, to establish if more recent human-induced climate change has started having an effect on these magnificent trees.

Over the course of 2023, I traveled across Botswana, South Africa, Namibia and Zimbabwe visiting baobabs located in the area as well as 13 other particularly old and large specimens, including Sagole (named after a local hot spring), the largest baobab in the world.

As I traveled, I became increasingly impressed by baobabs' fortitude. Not only is the cohort of southern Africa's oldest and largest baobabs enduring, but most baobab populations in Africa are healthy and stable, with very low mortality rates. Indeed, nothing I saw supported the notion that Africa's baobabs are dying as a result of climate change.

This is important because baobabs have been a source of food, fiber and medicine for centuries. Over 300 uses of baobabs have been [described](#).

In the last decade, the growing trade in baobab fruit products has supported thousands of [rural communities](#), especially marginalized women who are able to collect fruit from the trees around their homesteads and sell it for much needed income. The possible demise of baobabs would have devastating consequences for many people and local economies.

Climate change is not new for millennial trees

Baobabs are [originally from Africa](#), where they occur in 32 countries.

It is well-known that baobabs reach extraordinary old ages. Radio-carbon dating has repeatedly found baobabs well over 1,000 years old, with the oldest among them reaching [2,500 years in age](#). Over their life spans, baobabs have survived erratic climate conditions including droughts and floods.

[Researchers](#) used carbon isotopes recovered from the pith of nine baobabs to recreate rainfall patterns for the last 1,000 years. These [records](#) show that the southern part of Africa experienced numerous successive droughts, one of which was even severe enough to cause the abandonment of the [Mapungubwe capital](#), a significant archaeological settlement, in the early 14th century.

My observations on the general good health of baobabs do not stand alone. Several surveys across many parts of Africa also show stable baobab populations. It is [estimated](#) that there are up to four million baobab trees in Zimbabwe alone, and this only represents a fraction of Africa's population.

Adult tree mortality is negligible, except for where [elephants are found](#). Elephants rely on eating baobab bark in the dry season, and when elephant numbers get too high, baobab trees become over utilized, which can lead to population decline. However, where there are no elephants, adult baobab trees have a very high survival rate.

Baobabs are not immortal, so what are the threats?

There are, of course, several threats to baobabs—the most devastating of which is herbivory (the act of eating plants). [Studies](#) across Africa have shown that [young trees](#) are under high browsing pressures from domestic animals and wildlife. While browsing is not as much of a threat to adult baobabs, elephants are.

These animals were responsible for the dramatic [decline and almost extinction](#) of baobabs in Tsavo East National Park (Kenya) in the 1970s. They were [responsible](#) for a mortality rate of 8% in Mapungubwe National Park (South Africa) between 2009 and 2019.

This rapid loss of adult trees is [doubly alarming](#) as baobabs rely on a storage effect for episodic recruitment (meaning that the long-lived nature of the tree allows them to keep producing seed for hundreds of years). Without adult trees, these areas will not easily be populated again.

While major drought events of the mid 1960s and early 1970s, 1980s, and 1990s certainly [caused the death](#) of several baobabs in the region, too much water appears to be more of a threat to baobabs than too little.

Baobabs are vulnerable to too much water in the dry season (winter) when leafless, as leaves act as a pump for water that comes from the roots. Without leaves, baobabs have no way of getting rid of excess water and develop root and stem rot, leading to collapse or death.

This may be why baobabs in [high rainfall areas](#) do not achieve the same longevity as those in drier areas. It is also interesting to note that only one [baobab](#) named in [previous studies](#) which described the collapse and death of a number of large baobabs in southern Africa died during a drought period while two collapsed from too much water due to artificial watering over [multiple winter seasons](#).

Symbols of resilience

As global temperatures continue to rise, [millions of life-forms](#) around the globe are under threat.

Plants and animals differ in their ability to cope with variable climate conditions. Many are sensitive to the slightest change and thus may be

the first to die.

In contrast, baobabs are well adapted to changes in temperature and rainfall, as can be seen by their wide geographic distribution and extreme longevity. Baobabs, like any life-form, are not immortal, but they may well be the "last tree standing." Far from victims of climate change, as punted by social media, they can be symbols of resilience.

This article is republished from [The Conversation](#) under a Creative Commons license. Read the [original article](#).

Provided by The Conversation

Citation: Baobabs: Africa's unique trees defy climate challenges, continue to flourish (2024, August 26) retrieved 26 August 2024 from <https://phys.org/news/2024-08-baobabs-africa-unique-trees-defy.html>

This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.