Introduction

The only **extant** (living) species in the **order Proboscidea** are the **elephants**. The order, however, includes several other, now extinct species. The earliest record of a member in this group was a small pig-like creature called *Moeritherium*. It lived in a swamp area in what is now modern-day Egypt some **50 million years ago**.

There were many other species like it that, in turn, evolved into the **woolly mammoths** and **imperial mammoths**. From these earlier forms of the Proboscidea, we now have the last **2 living species** of elephants, the **Asian** and **African elephants**.

There has been much debate over the status of the **African forest elephant** (*Loxodonta cyclotis)*, which is found in West and Central Africa. Originally classed as a **subspecies** of the African elephant, new research has indicated that the two may, in fact, be separate species. The **African bush elephant** and **forest elephant** are **morphologically different** and **exhibit different social behaviourisms**, but these differences were previously ascribed to a physical adaptation to different habitats. Genetic research has indicated that the differences at the cellular level between the **2 subspecies** may be significant enough to recognise **2 distinct species**. The debate is yet to be resolved.

Classification

African bush elephants are classified in the following manner:

Kingdom	Animalia
Phylum	Chordata
Class	Mammalia
Order	Proboscidea
Family	Elephantidae
Genus	*Loxodonta*
Species	*africana*

Loxodonta africana (Blumenbach 1797)

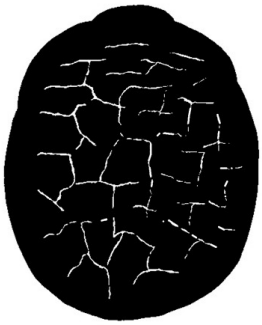
Common names:

English	African bush elephant or African savanna elephant
German	Elefant
French	l'éléphant
Afrikaans	Olifant
Zulu	Ndlovu
Swahili	Tembo

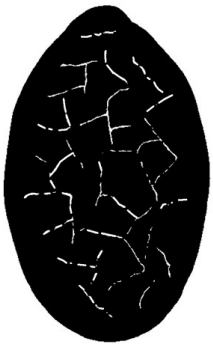
Vital statistics

Shoulder height	•3.2-4 m [10-13 ft] ♂ •2.2-2.6 m [7.2-8.5 ft] ♀
Weight	•4700-6048 kg [10 362-13 334 lb] ♂ •2160-3232 kg [4762-7125 lb] ♀
Gestation period	•669 days (22 months)
Food preference	•50% grass, 50% trees
Maximum charging speed	•40 kph [25 mph]
Average walking speed	•10 kph [6 mph]
Social grouping	•Matriarchy
Territory size	•15-2200 km^2 [5.7-849 mi^2]
Longevity	•± 60-70 years
Record tusk weight	•117 kg [258 lb]

Chris & Mathilde Stuart



Right front
Length: 500 mm
(average)



Right back
Length: 500 mm
(average)

Description

African bush elephants (*Loxodonta africana*) are the **largest land mammals**, with mature bulls reaching **7 tonnes** [15 432 lb].

The largest African bush elephant ever recorded was found in Angola, weighing in at a massive **11 tonnes** [24 250 lb].

Elephant cows average **2.5 m** [8.2 ft] **tall** and **3 tonnes** [6613 lb]. **Both sexes have tusks**. Sexing elephants is not easy, but a few differences other than size may be apparent. During periods of heightened sexuality, bulls may exhibit a large wet area on the side of their heads from a large gland.

Elephant bull (left) and **cow** (right)

Elephant bull and **cow head shape differences: Bulls** seem to have a **more rounded** forehead compared to the **angular** forehead of **cows**.

Elephant bull (left) and **cow** (right)

Bulls are **broader between the eyes** and **forehead slopes**. **Cows** are narrow between the eyes and tusks, and the forehead forms a sharper angle.

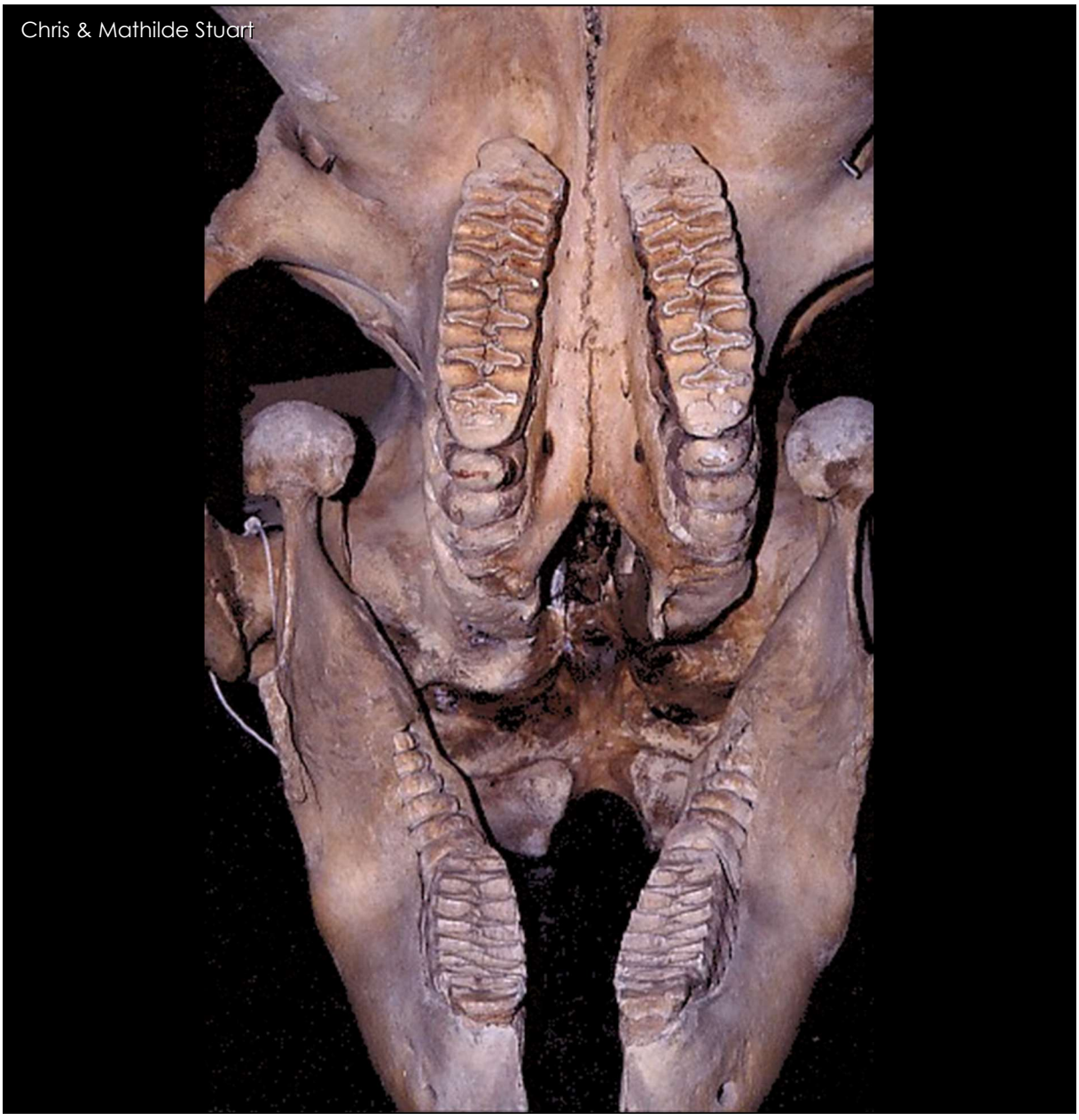
The **height of elephants** can be **roughly calculated** from footprints, as **twice the circumference of their front foot** gives their approximate height in **normal habitat**.

Elephants (together with hyrax) are classified as **near-ungulates**. The similarities between the elephant and hyrax have been discussed in a previous component. The defining characteristic of near-ungulates is that they have toenails rather than real hooves.

Elephants are also known as **pachyderms** (Greek). This refers to their very thick skin, which may be more than **3 cm** [1.1 in] thick in places, specifically their **legs** and **rump**. Elephants have the **second-longest potential lifespan** of all terrestrial mammals after humans. This is primarily since elephants **only have 6 sets of molar teeth during their life**. When the last is either worn away or lost, they **cannot feed** and **therefore die**. This occurs at around **65 years of age**.

Myth and legend

There is a legend that elephants have graveyards where they go to die, but science has never proven this. On finding the skeleton of an elephant, they will indeed stop and examine it, touch it, sometimes even pick up a bone or a tusk and carry it off. As mentioned above, elephants have a fixed set of molar teeth during their lifetime-**6 sets**. When the last set has emerged, they do not get another set of teeth, making feeding more and more difficult for the animal.



This unusual view of the mandible and maxilla of an elephant shows its massive molars

During their final years, elephants will mainly feed on softer vegetation. Therefore, they will more than likely spend more time alone and in lush green areas to find this softer food to eat. These areas are often close to rivers or riverbeds. It is then here (most of the time) where the elephant will blow out his last breath and die. The bones of dead elephants can then wash up and accumulate in a specific area, which might have seemed like elephant graveyards in the past.

A great deal of mythical folklore surrounds these magnificent giants of the bush. A few of these legends are worthy of being recounted. However, the origin of these myths has become quite unclear over the years, and no specific tribe of people can be directly credited with them. Though the most likely source would appear to be the Shona, a tribe ancestrally inhabiting the northern regions of southern Africa.

Indigenous people speak about the pair of 'wisdom sticks' that the elephant carries on either side of his temples. They believe that these sticks enable the elephant to know the time and place of its own death. That is why they believe that very old tuskers are often seen without their herd, preferring to find a hiding place to die, therefore maintaining their dignity, as they wish to die alone and in peace.

There are also many superstitions regarding the hunting of elephants by local people. A hunter that sets out nursing secret grief or grudge will only wound his prey and will not get a kill. Also, tuskless elephants will charge and kill those guilty of adultery unless they immediately confess their guilt to the elephant. Therefore, no hunter will allow others to accompany him unless he is sure that his companions are not harbouring grief or a grudge or are guilty of adultery. If the hunter meets an elephant with his trunk curled around his head, he will know that some tragedy has struck his home.

Should he see an elephant flinging earth over his back, he will know that his wife is bathing or swimming, not something that she should be doing while he is out hunting. And lastly, elephants are believed to swallow a pebble every year to keep a count of their age.

Diet and feeding

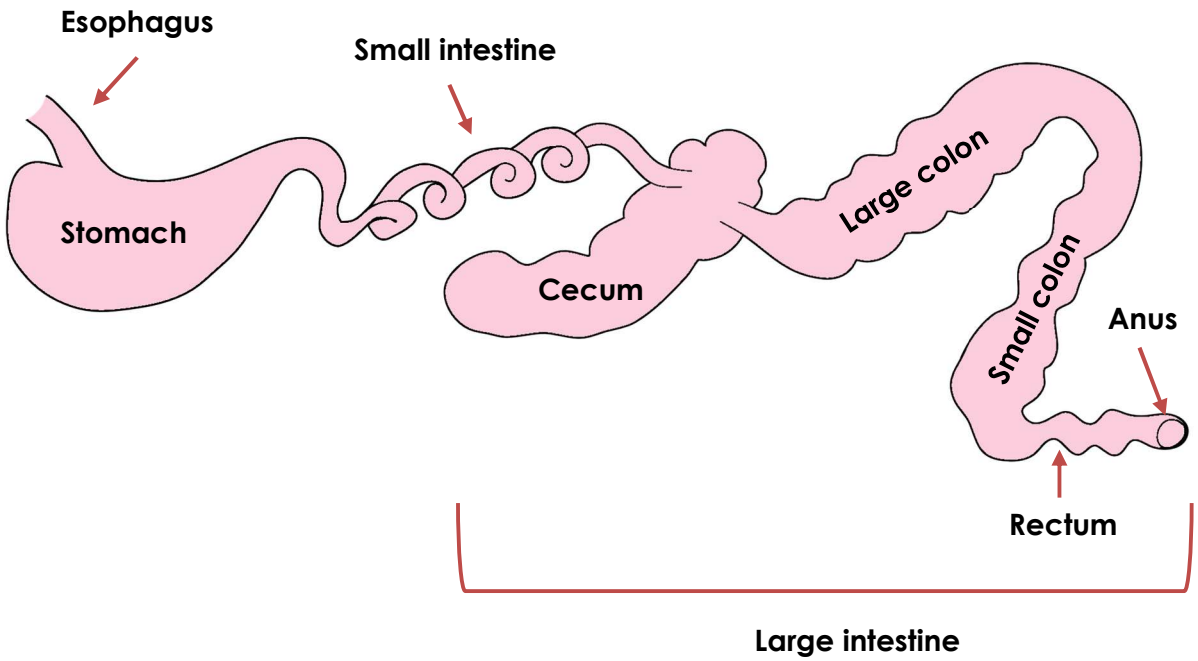
Elephants are both **browsers** and **grazers**, utilising a vast range of plants. Ecologists now classify them as **mixed feeders**, a term also applicable to **impala** and **eland**. **Grasses** are most often taken just **after a rainy season**, with **trees** and **browse** making up much of **their diet**. Elephants utilise **over 90 different tree species**. However, the **Mopane tree** (*Colophospermum mopane*) seems highly favoured wherever this tree is found.

When eating off a tree, the **leaves** and **bark** (and occasionally the **roots**) are taken. This often has a **detrimental effect on the tree**, especially when an entire tree may be pushed over to reach the choice of new growth in the canopy. Therefore, when elephant populations exceed their **ecological carrying capacity**, large woodland areas may be **severely damaged**. Eventually, this will impact their numbers, but the destruction is **first felt** by lesser browsing species such as antelope.

However, in areas where **severe bush encroachment** has occurred, **especially by Mopane**, elephants are quite beneficial, **improving the habitat** by opening dense woodland for other species. Elephants are **not very efficient** feeders, not only in their physical taking of vegetation but also digestively. Being **hindgut fermenters**, elephants, in fact, only **digest some 40%** of what they eat and being of such immense size, they require **at least 170 kg** [374 lb] **of plant matter daily**. Elephants are also **highly dependent on a stable water supply**, drinking up to **160 litres** [42 gallons] **of water per day**.

How does hindgut fermentation work?

Hindgut fermentation is a digestive process seen in large herbivores such as **elephants**, **rhinos**, **zebra**, **horses**, **dassies**, **warthogs** and **bushpigs**. These animals have a **simple**, **single-chambered stomach**. Cellulose is digested with the aid of symbiotic bacteria. The microbial fermentation occurs in the digestive organs that follow the **small intestine**, the **large intestine** and the **cecum**.



The digestive system of a horse

We have discussed the differences between coprophagy and cecotrophy earlier on in this module. **Hindgut fermenter babies practice coprophagy** in that they will eat the dung of their mother for the first couple of days after birth. This is to get all the necessary bacteria's and protozoans in their stomach to help with digestion and fermentation.

Social organisation

Elephants are organised into several social groups. The first and most common are **large herds led by a matriarch**. This consists of a **related group of females** incorporating mothers, their young, grown daughters and their offspring. Herd size may range between **2**-**24**, but typically **9**-**11**. However, reliable accounts have recorded elephant herds **numbering 200 individuals and more**. These numbers may be due to **habitat degradation** or **limited resources**, encouraging herds to gather around available resources.

The members of this family group keep together, rarely venturing **50 m** [164 ft] from their nearest neighbour. **Activity**, **direction** and **rate of movement** are all **set by the matriarch**, who is recognised as the **largest cow**. When the herd is disturbed, they all cluster around and turn to the matriarch for leadership. Since leadership and experience play such a crucial role in the lives of elephant herds, the females' lifespan extends far beyond their age of reproduction. **Long term post-reproductive survival is also true of humans** but otherwise quite **rare** in the animal kingdom. When matriarchs become between **50**-**60 years old**, they either leave or are abandoned by the herd. The next oldest cow assumes leadership.

Male elephants leave the maternal herds at **adolescence**, **around 12-19 years**. Separation is a gradual process, and the adolescent bulls may become peripheral, following the maternal herd at a distance. They **do not necessarily leave voluntarily** but are pushed out by the older females or their mothers due to an intolerance of the boisterous and sexual precociousness of pubescent males. After becoming independent, they either wander alone or more commonly join **bachelor herds**. These herds typically number between **2-14**, but records of up to **144 individuals** have been observed in some sort of temporary arrangement.

Young male elephants may also join up with an older bull. These young elephants are then called **'Askari's'**. The askari will spend time out in the bush learning all the skills that the bull has spent his life perfecting. **Askari is a Swahili word that means protector**. Another type of **social grouping** in elephants is **lone bulls or solitary bulls**. Mature bulls leave their herds and wander alone in search of receptive cows. Elephant bulls come into '**musth**' once a year, with the condition happening at approximately the same time each year.

What is 'musth'?

Musth is a condition that is **unique to elephant bulls**. It was first observed and described in **Asian elephants** and later on in **African elephants**. It involves a dramatic rise in testosterone levels within the bull's biological system. This results in a strong desire to mate. The **higher testosterone levels** will also likely result in the bull **becoming more aggressive**, with unpredictable behaviour often being observed.

Maggel Els

When bulls are in musth they are very noticeable by a combination of the following characteristics:

- Their **temporal glands**, situated on either side of their face between their eyes and ears, are functional and discharge a viscous secretion that runs down the sides of their faces.
- The temporal glands will also be swollen.
- They may constantly be **dribbling urine**.
- Their penis may take on a **greenish tinge** due to the constant discharge of thick green fluid.
- This liquid will have a tangible, unmistakable foul smell.
- Increased **aggression**.
- Increased association with female herds.
- The elephant bull will walk with a definite **swagger** (**musth swagger**).

Because **musth** is **correlated** with a period of **increased sexual activity** and **aggressiveness**, an elephant bull encountered in this condition should be **left well alone**. Few of those elephants that come into musth will get the opportunity to mate. Therefore there will certainly be many very **frustrated animals** about, each quite capable of overturning your vehicle-**keep a safe distance**. Among males **25-35 years of age**, musth may only last **several days or weeks**.

Graeme Mitchley

In older animals, musth may continue for up to **5 months**. During this period, males often **wander over great distances** in search of a receptive female in oestrus. Musth may also be an **accurate indicator of the health** of elephants. It has been found that animals in poor condition do not come into musth and animals that become ill or are wounded while in this condition drop out of it. This is another mechanism of **natural selection** to ensure that only the stronger genetic material is passed on.

Communication

Before examining their reproductive behaviour, some mention of elephant communication is necessary. This has been particularly well studied and includes **tactile**, **olfactory**, **vocal** and **posturing communication**. Their vast array of signals and gestures include **greeting**, **caressing**, **slapping**, **checking the reproductive condition**, **rumbling**, **trumpeting**, **squealing**, **screaming** and over **30 postures** and movements covering **dominance**, **threatening**, **defensive**, **submissive** and **fighting displays** of various degrees.

Elephants can communicate using very low-frequency sounds, with pitches below the range of human hearing. These low-frequency sounds, termed '**infrasounds**', can travel tens of kilometres and provide elephants with a 'private' communication channel that plays an essential role in elephants' complex social life. Infrasonic calls enable elephants to reunite with friends and family members. One rumble means 'Hello, I'm here' another 'Help, I'm lost'. These are important messages for helping separated family groups find each other.

Researchers at the University of Vienna, led by voice scientist **Christian Herbst** and elephant communication expert **Angela Stoeger**, came up with the following hypothesis. Elephant infrasounds are produced like human speech or singing, but because the elephant larynx is so large, they are extremely low in frequency. Human humming is produced by vibrations of the vocal folds (also called 'vocal cords'), set into vibration by a stream of air from the lungs, and do not require periodic muscle activity. Their research shows that elephant infrasounds result simply from very long vocal folds slapping together at a low rate and do not require any periodic tensing of the laryngeal muscles.

Another unique way of communication is by **sensing seismic vibrations** through the **soft skin on the pads of their feet**. Elephants may also lay their trunks on the ground to detect vibrations in the earth.

Reproduction

Most elephant cows start going into oestrus at about **9 years old**. **Cows in oestrus** exhibit certain behaviourisms in the presence of adult bulls. **Cows out of oestrus** allow any bull to check on their reproductive condition, but cows that are nearing receptiveness acquire what is known as an **oestrus walk**. In this condition, the cow **becomes wary** of any approaching bull and walks away.

If he is persistent, the oestrus walk changes into an oestrus chase. She only stops moving when and if he manages to touch her. First, he lays his trunk on her shoulder and head and then rests his tusks or chin on her rump for a bit of leverage to mount her. Bulls have been described as being at their most magnificent now and may **display an erection between 1-2 m long** [3.2-6.5 ft], **weighing up to 30 kg** [66.1 lb]. Mounting and copulation are usually **completed within 45 seconds**.

The elephant is not the most well-endowed male in proportion to body size. This record belongs to **barnacles**. Barnacles are arthropods found in the marine environment. They usually attach themselves to rocks, whales or any floating object in the water. The reproductive organ of a barnacle can extend up to **8 times** its body length.

After **the longest gestation period of any animal**, some **669 days** (22 months), a **single calf** is born. Cows give birth standing amid the herd, and the new calf may weigh between **100-120 kg** [220-264 lb] and stand **90 cm** [35 in] at the shoulder. A **giraffe calf** weighs the same if not more than an elephant calf at birth.

The calf can stand and walk within a few hours and **suckles with its mouth**, **not trunk**, from **2 mammae** (teats) between the mother's front legs. The calf will **suckle for 2 years**, or until its tiny protruding tusks begin to irritate its mother. However, it has been observed that elephants up to the age of **4 years** will still try and suckle, especially if the mother is lactating.

The calf starts to **experiment on vegetation** at **6 months**. They will be fully independent in **10 years**, the **second-longest** period of **adolescent dependency** after humans.

Tusks and trunks

Elephants have many striking features. One is naturally the trunk. This is essentially an **extended nose**. This is a very powerful organ, which is **highly flexible** and **dextrous**. The tip of the trunk ends in **2** almost finger-like **prehensile projections**, capable of some very precise coordination.

The organ is used in **drinking by sucking water up and then squirting it into the animal's mouth**. It is also used in eating, with the prehensile tips picking food from the ground or directly from a tree and directing it into the mouth. The trunk is also obviously used for **smelling**.

The second striking feature is also the feature that **has almost resulted in the animal's extinction**, its tusks. Although both sexes may possess them, they are far **larger in bulls**. In the cows, if they grow tusks at all, they cease growing when the cows are fully mature at **20-30 years**.

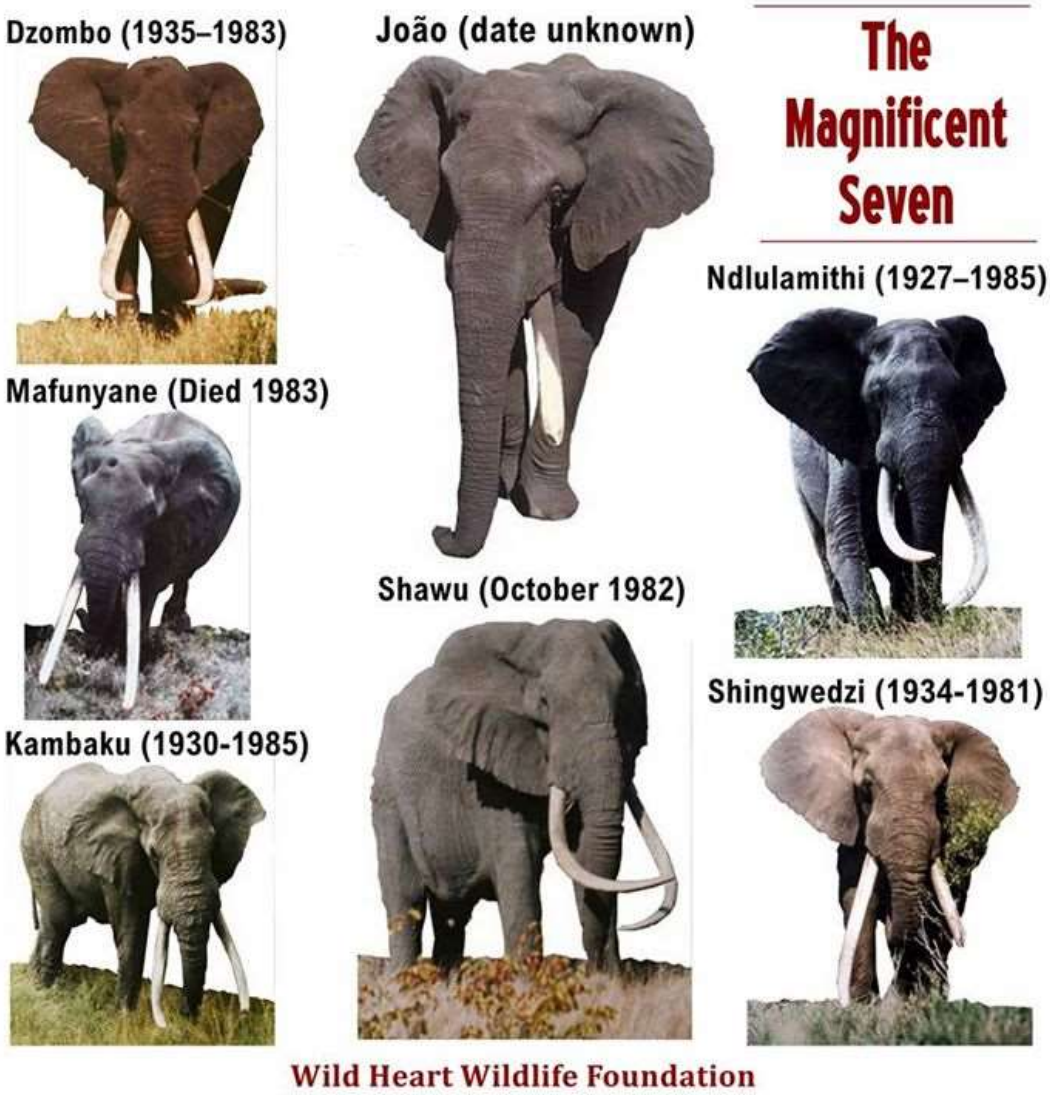
Graeme Mitchley

However, tusk growth in bulls begins almost exponentially from when they **mature to the time they die**. Not only do they grow longer, but they **thicken** substantially. Their two pillars of ivory are **elongated upper incisor teeth** that protrude from the mouth. Ivory has been much sought after for millennia. It has been used in a multitude of ways, from **carved figurines** to **knife handles**. It has been ground up for **traditional medicines** and manufactured as **cue balls** and **piano keys**. For these reasons, elephants have been ruthlessly hunted to the point of near extinction.

The Magnificent Seven

Over **30 years ago**, **seven impressive elephant bulls**, all with tusks weighing more than **50 kg** [110 lb] each, could be found in Kruger National Park. The Chief Warden at the time, Dr U de V Pienaar, decided to publicise these elephants as a successful example of Kruger's conservation work. He named those bulls that had not already been identified and coined the collective name, **The Magnificent Seven**, based on the **1960** Hollywood film.

The promotion was launched in 1980 with specially commissioned paintings by celebrated wildlife artist Paul Bosman and illustrated articles written by the park's Senior Research Officer, Dr Anthony Hall-Martin. The public reaction was staggering and, when each of these great elephants died, it was decided to retrieve their tusks and skulls to display them. **The Elephant Hall at Letaba Rest Camp** now holds the tusks of Dzombo, Kambaku, Mafunyane, Ndlulamithi, Shawu and Shingwedzi.



Dzombo (c.1935-1983)

Origin of name: Named after the Dzombo stream that traverses the Mopani Flats between the Shingwedzi and Shawu valleys. (The word Dzombo is derived from the Tsonga word Dzombolo meaning 'to wait for something slow in coming')

Range: He lived in the area bounded by the Tsendze, Letaba and the Shingwedzi Rivers and was most frequently seen along the grassy vlei system of the Shawu valley.

Special features: Dzombo's tusks are the classic Kruger National Park elephants' classic shape, bowed and curved, pointing forward and slightly upwards. They were also almost identically shaped in length, weight and thickness.

General: Dzombo was the only one of the 'Magnificent Seven' to be killed by poachers. It was only by a stroke of luck that Dzombo's **2 tusks** were not taken. He died in a hail of bullets from an AK-47 fired by a poacher from Mozambique in **October 1985**. The miscreants were in the act of chopping out the tusks when they were disturbed by the approach of Ranger Ampie Espag and fled, leaving their trophies behind. Dzombo met an untimely death at the age of **50 years**.Dzombo's tusks are on display in the Letaba Elephant Hall.

Tusk Data	Left	Right
Length	255 cm [8.3 ft]	237 cm [7.7 ft]
Mass	55.8 kg [123 lb]	56.8 kg [125 lb]
Circumference at lip	50 cm [19.6 in]	51 cm [20 in]

João (date unknown)

Origin of name: Named by Anthony-Hall Martin for Prester John, the legendary priest-king of ancient Africa. (João being the Portuguese for 'John') João was also to be found near the waterhole of this name along the Shingwedzi River. This waterhole was named in **1961** by Dr Tol Pienaar (former Warden of KNP and CEO of SANParks) after a former mechanic from Shingwedzi who assisted Dr Pienaar with fish surveys along the Shingwedzi River.

Range: João was first seen near a windmill called João in the Shingwedzi region. He was known to frequent the area south of the Shingwedzi River. However, there were times that he moved as far south as Mahlangene and Shilowa (East Mopani).

Special features: João was a very large bull, with a shoulder height of **340 cm** [11 ft].

General: João was wounded by poachers in **1982**. He was immobilised to investigate the damage.

Fortunately, the wounds were not fatal, and after a dose of antibiotics and cleaning the wounds, he was revived. While immobilised, he was fitted with a radio collar and measurements of his tusks taken. The tusks were an estimated combined **130 kg** [286 lb] which at the time would have made him the heaviest ivory carrier of the Magnificent Seven. Unfortunately, in 1984 (approximate age **45 years**), João broke both tusks close to the lip line [**20-30cm**], presumably while fighting with another bull. Unfortunately, the pieces were never found. As a result, João is the only member of the Magnificent Seven who is not represented in the Letaba Elephant Hall.

Tusk Data	Left	Right
Length	271 cm [8.8 ft]	250 cm [8.2 ft]
Mass	55 kg [121.2 lb]	45 kg [99.2 lb]
Circumference at lip	51 cm [20 in]	51 cm [20 in]

Kambaku (c.1930-1985)

Origin of name: Kambaku is the Tsonga word for 'Great Tusker' or 'Old Elephant Bull'.

Range: This bull moved over a huge tract of country stretching from Satara/Orpen and the Timbavati to Crocodile Bridge.

Special features: Kambaku's left ear had a perfectly round hole in it close to the outer edge, and towards the end of his life, he had no tail hairs. He was also recognised by the prominent markings on his trunk, which had the appearance of a round patch of smooth skin.

General: Kambaku was the third member of the Magnificent Seven. He was commonly seen by the rangers of the Kingfisherspruit area and was photographed by many visitors to the Kruger National Park. Uniquely unlike several of the other Magnificent Seven bull, Kambaku was always seen alone.

He was more than **55 years old** when he was shot in late **1985** by Regional Ranger Lynn van Rooyen from the Lower Sabie Ranger Section. The bull was in obvious pain from a bullet wound suffered during a foray across the Crocodile River into neighbouring sugar cane fields. The bullet penetrated his left shoulder, leaving a large wound that eventually became septic. When he could no longer walk, and it was clear that death was imminent, he was mercifully shot. Kambaku's tusks are on display in the Letaba Elephant Hall.

Tusk Data	Left	Right
Length	259 cm [8.4 ft]	265 cm [8.6 ft]
Mass	63.2 kg [lb]	64 kg [141 lb]
Circumference at lip	51 cm [20 in]	52 cm [20.4 in]

Mafunyane (Carcass discovered 16th Nov 1983)

Origin of name: This bull was named after the former warden of the Kruger National Park, Lou Steyn, who was well known for his quick temper. (Mafunyane is the Tsonga word for 'the irritable one', which appropriately refers to the elephant's disdain for, and intolerance of humans.) Kloppers & Bornman (2005) (A Dictionary of KNP Place Names) gives the meaning of the name as 'One who eats greedily')

Range: This bull roamed in the Shangoni section of the Kruger National Park, which includes the upper reaches of the Shingwedzi River and southwards up to the Bububu stream.

Special features: Mafunyane's tusks are fairly straight, and their tips are worn to a chisel edge due to being rubbed on the ground as he moved. His tusks were perfectly symmetrical and of identical length and mass. The bull had a **10 cm** [3.9 in] hole in the right side of his skull that extended into his nasal cavity, allowing him to breathe through this passage. One of his toes on his left hind foot was splayed to one side so that he left a distinctive impression, distinguishable from other elephants.

General: Mafunyane was the most famous of the 'Magnificent Seven', although he was only seen in the wild by a handful of people and was rarely seen by visitors as he kept well away from roads. This could be attributed to his shyness or that his chosen roaming area was very remote. Mafunyane, despite having impressive tusks, was not a large bull and was only **327 cm** [10.7 ft] at the shoulder compared with the average **340 cm** [11.1 ft] shoulder height of the other members of the Magnificent Seven. The immobilisation of Mafunyane on **8th Jun 1983**, to fit a radio collar and make plaster casts of the bull's ivory, nearly spelt the end for him. When given the antidote to the immobilisation drugs, Mafunyane could not 'rock' himself onto his chest due to his immense tusk size, which would have allowed him to stand up. His repeated efforts caused him to dig his tusks further into the ground.

Several strategies were tried to raise him, but all failed. Finally, after he had been down for several hours, a front end loader was brought in to assist the team. Mafunyane was eventually 'scooped' to his feet. The bull rose and ran into the nearby Mopane bushes, much to the relief of the capture team. Mafunyane's remains were found on **16th Nov 1983** near Tari River, Northwest of Shingwedzi. He had been dead for approximately **3-4 weeks** and appeared to have died of natural causes. He was about **57 years old** when he died. Mafunyane's tusks are on display in the Letaba Elephant Hall.

Tusk Data	Left	Right
Length	251 cm [8.2 ft]	251 cm [8.2 ft]
Mass	55.1 kg [121.5 lb]	55.1 kg [121.5 lb]
Circumference at lip	48 cm [18.8 in]	48 cm [18.8 in]

Ndlulamithi (c.1927-1985)

Origin of name: Ndlulamithi earned his name from his appearance, which is a traditional Tsonga word meaning 'taller than the trees'.

Range: His range was known to occupy a large area between the main road from Mooiplaas to the western boundary and stretching from the Byashishi drainage system across to Shingwedzi River to the Phongol River.

Special features: The handsomely curved tusks of Ndlulamithi, the left one sweeping low and well forward, are significantly more twisted than those of the other large bulls. He was considered a tall elephant, probably around **340-345 cm** [11.1-11.3 ft] high at the shoulder.

General: Ndlulamithi was first identified in **1980** along the Nkokodzi River in northern Kruger National Park. He was an aggressive yet secretive elephant and was seldom seen. This bull received some fame for charging Dr Anthony Hall-Martin and his assistant while they were trying to photograph him on foot, his intentions unmistakable. He died of natural causes in **1985** in the Shangoni area at an estimated **58 years of age**. Paul Zway, section ranger of Shangoni at the time, found his remains not far from the Nkokodzi Spruit. Ndlulamithi's tusks are on display in the Letaba Elephant Hall.

Tusk Data	Left	Right
Length	287 cm [9.4 ft]	273 cm [8.9 ft]
Mass	64.6 kg [142.4 lb]	57.2 kg [126.1 lb]
Circumference at lip	48.5 cm [19 in]	48 cm [18.8 in]

Shawu (October 1982)

Origin of name: The 'Shawu Bull' was named after the Shawu valley (Vlei), in which he spent much of his life.

Range: Shawu moved over an extensive range that spanned the flat Mopani covered plains country between the Letaba and Shingwedzi Rivers and stretched from the main road to Lebombo Hills. However, he did not cover this enormous area regularly but drifted around slowly, taking about **6 months** to move from South to North.

Special features: Shawu's tusks are the longest recorded in the Kruger National Park and the **6th longest** to ever come out of Africa.

General: Shawu was a fairly approachable animal and showed no particular fear or distrust of vehicles. He was a large bull having a shoulder height of **340 cm** [11.1 ft]. Due to the pincer formed by his large tusks, he was sometimes referred to in Afrikaans as 'Groot Haaktand'. In **1981**, it was decided to fit Shawu with a collar as poaching was a constant threat from Mozambique. This was successful, and he was monitored regularly.

Shawu died of old age in the Kostini area east of Shingwedzi, near the northern watershed of the Shawu Valley (Vlei) in **October 1982**. He had been ill for some time. His condition and movements were monitored daily towards the end of his life using a radio transmitter fitted in a collar around his neck. He was close to **60 years old** when he died. Shawu's tusks are on display in the Letaba Elephant Hall.

Tusk Data	Left	Right
Length	317 cm [10.4 ft]	305 cm [10 ft]
Mass	52.6 kg [115.9 lb]	50.8 kg [111.9 lb]
Circumference at lip	45 cm [17.7 in]	45 cm [17.7 in]

Shingwedzi (c.1934-1981)

Origin of name: Shingwedzi was named after the river and rest camp where he spent his last few years. Shingwedzi means 'place of ironstone', referring to the gabbro rock outcrops common to the area. Shingwedzi is derived from the Tsonga word Ngwetse which means 'the sound of metal objects rubbing against each other'.

Range: Shingwedzi was known to move as far west as Nkokodzi and Chugamila hills and as far as the Lebombo's near Shingwedzi Rest Camp.

Special features: Shingwedzi's ivory offers an excellent example of the classic master-servant tusks. He had a sizeable right servant tusk and a shorter left master tusk.

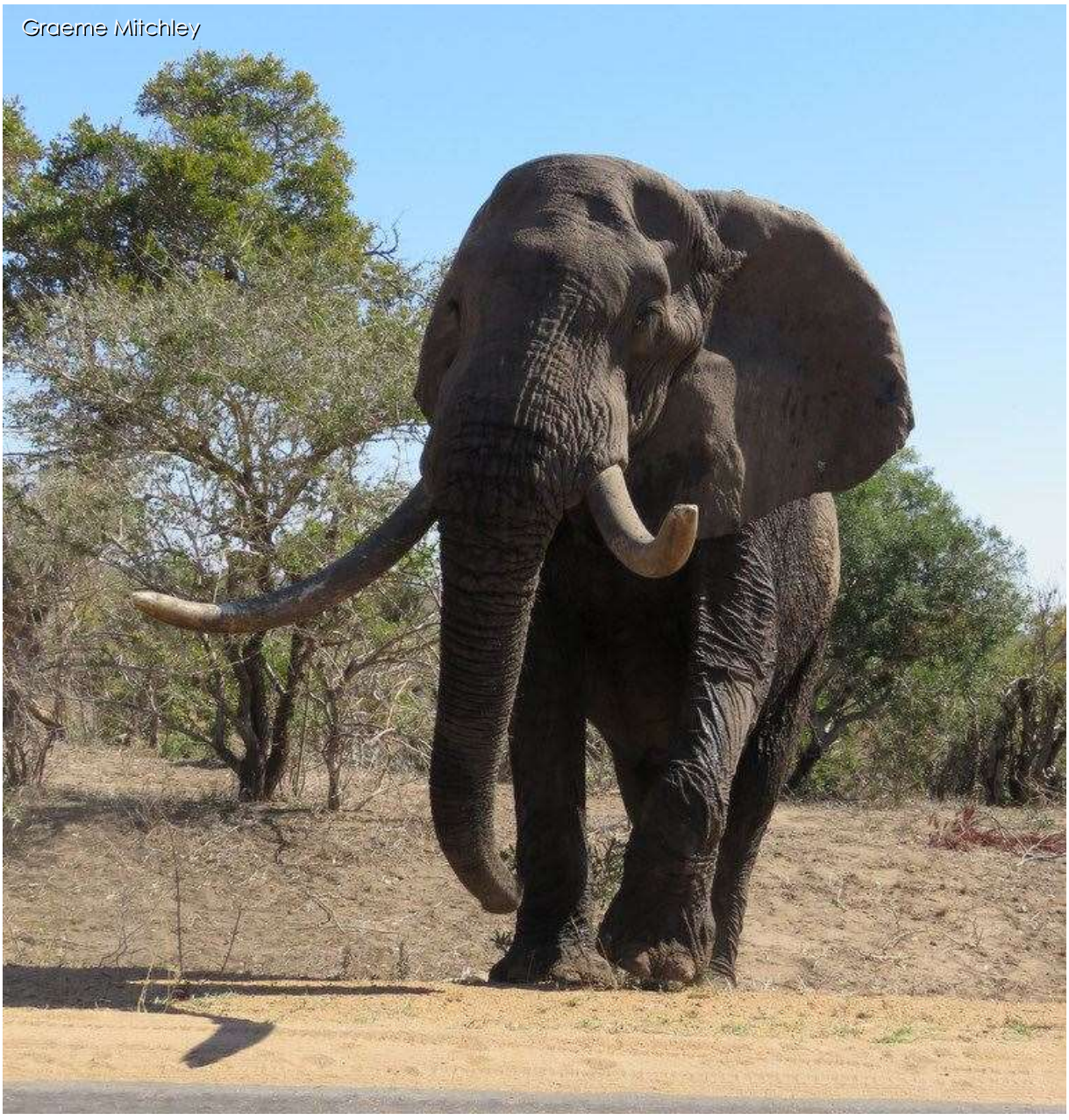
General: Shingwedzi was found dead under a sycamore fig and a short distance from Shingwedzi camp in **January 1981**. As far as can be determined, he died of natural causes. The age of an elephant can be accurately determined from the state of wear of the teeth. In the case of Shingwedzi, the last molar (**molar 6**) was well worn down, giving him an estimated **age of 65 years**. Shingwedzi's tusks are on display in the Letaba Elephant Hall.

Tusk Data	Left	Right
Length	207 cm [6.7 ft]	264 cm [8.6ft]
Mass	47.2 kg [104 lb]	58.1 kg [128 lb]
Circumference at lip	47.5 cm [18.7 in]	48 cm [18.8 in]

Emerging Tuskers

The legend of the Magnificent Seven lives on in Kruger National Park through several animals carrying impressive tusks.

Scientists are studying these impressive animals, and you can help by providing information on any tusker you see in the park. When a new tusker is identified, the current policy requires that they be named after their home range or characteristics unique to the individual tusker.



Please see the **Emerging Tuskers Project** for more details and regularly updated information: **www.sanparks.org/parks/kruger/elephants/tuskers/emerging.php**

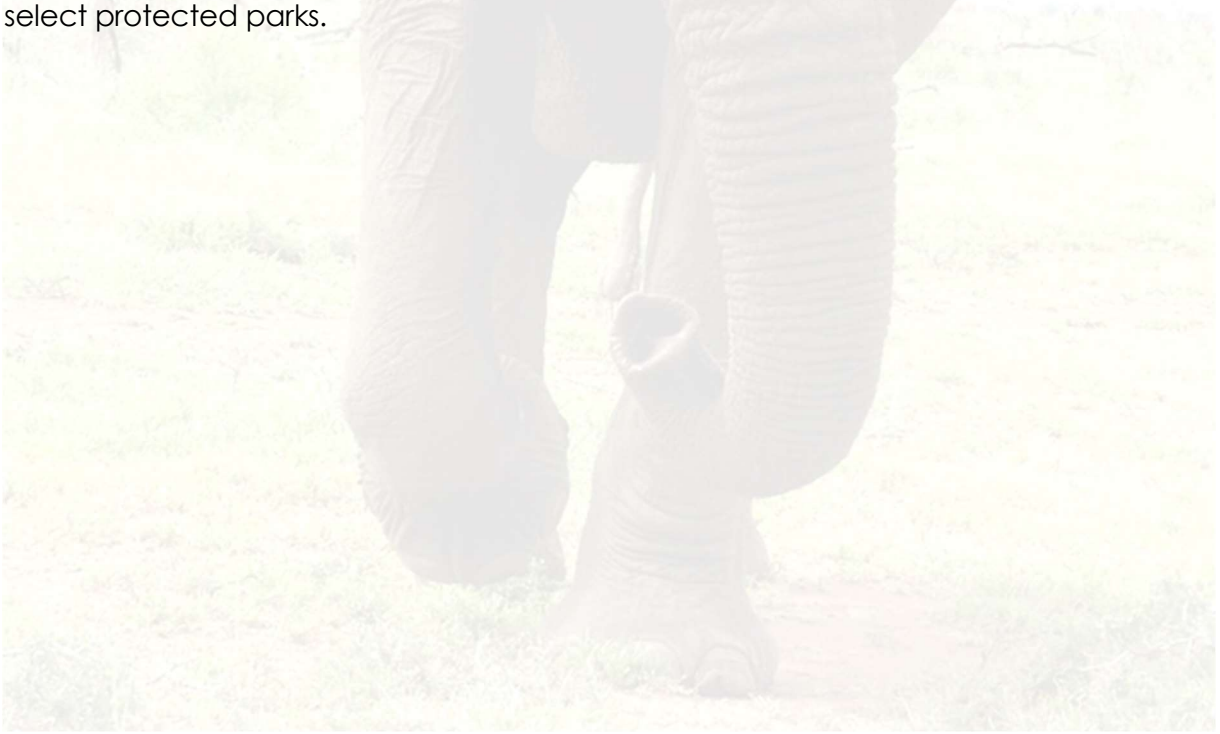
Conservation status

Elephant poaching statistics via www.poachingfacts.com

African elephants are split into **2 distinct species**: the African bush elephant, the most prevalent species, and the smaller African forest elephant. The bush elephant is the world's largest living species of land animal. In both African elephant species, the males and females have tusks; these are modified incisors that can grow to weigh dozens of kilograms and are used for a variety of essential purposes in an elephant's daily life. These tusks are a significant source of ivory that is used in ivory ornaments and jewellery. However, mammoth tusks are also being excavated, and their ivory is traded legally.

In **1989** Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) listed African elephants under Appendix I, which restricts international trade of their parts. However, the demand for ivory has continued to stimulate illegal trafficking and poaching of elephants. In **1997** and **2008**, there were CITES-approved, one-off sales of government-held ivory stockpiles held by southern African governments.

From **2003**-**2014**, except for **2005**, CITES reports have shown that estimated levels of illegal elephant killings in Central Africa have been occurring at unsustainable levels relative to natural population growth. This means that elephants in this region are dying faster than they can reproduce. The same report indicates West Africa is also thought to be suffering from unsustainable levels of elephant poaching from **2007**-**2009** and **2011**-**2014**. As a means of mitigating localised population losses, several programs have arisen to protect elephants, reduce human-elephant conflict where elephants regularly come into contact with farms and stop poaching. For decades there have also been elephant relocation programs, also known as translocation projects, which move elephants from areas of high population or over-population to habitats that can sustain and benefit from their reintroduction. African bush elephant populations were estimated by the **Great Elephant Census**, which concluded in **August 2016** at roughly **350 000** and in a separate census of African forest elephants, an estimated **18 000**-**36 500** individuals in select protected parks.



African bush elephants

Botswana

Botswana is presently **home to roughly one-third of Africa's largest elephant species**. It is a popular destination for tourists seeking the scenery of the ancient Kalahari Desert and the huge concentrations of wildlife in Chobe National Park. Botswana has faced severe poaching problems and within the last several years has made significant investments in the protection of its wildlife, including wildlife relocation to safer internal areas; translocation of wildlife from dangerous areas of South Africa by the Rhino Without Borders campaign; wildlife monitoring through governmental and non-governmental organisations, including Elephants Without Borders; and support from its tourism industry.

The country has a low average population density and shares a porous northern land and river border with a sliver of Namibia to the north and Zambia on the other side. The river, which originates in Angola, is used commercially by all countries, which it passes between and eventually flows to a point where Namibia, Zambia, Botswana, and Zimbabwe converge. Wildlife, including Botswana's large elephant population, rely on this river for year-round water and therefore are at risk of several forms of human-wildlife conflict.

Controversial policies: For many years, Botswana had an 'unwritten' shoot-to-kill policy that may have translated into a 'shoot-on-sight' in practice, while neighbouring countries have policies of shooting only in self-defence with high standards of proof required that human lives were in danger. Several incidents since **2012**, including a **2015** incident where two Namibians were shot allegedly while in possession of elephant ivory, sparked controversy over Botswana's 'shoot-to-kill' policy employed by the Botswana Defence Force in an area of Botswana that is largely uninhabited by humans yet just on the other side of the border is a Namibian town.

This incident may have prompted a regional governor of Namibia to warn potential poachers about crossing the border into Botswana. However, poachers are not only suspected of coming from Namibia.

Zambian poachers have been caught fleeing Botswana into neighbouring Zimbabwe after encountering the BDF. Members of a U.S. Congressional delegation visiting Botswana in **2016** have also voiced their concern over the shoot-to-kill policy. However, the then-Minister of Environment Wildlife and Tourism Tshekedi Khama maintained that it was an effective policy when dealing with armed groups.

Differing border policies, resource usage policies, and counter-poaching methods have caused domestic and international political turmoil within the region that may have impacted Botswana's internal policies. **In May of 2018**, President Masisi ordered anti-poaching units to be disarmed in border regions where **30 Namibians** and **22 Zimbabweans** had been killed in **2015** alone.

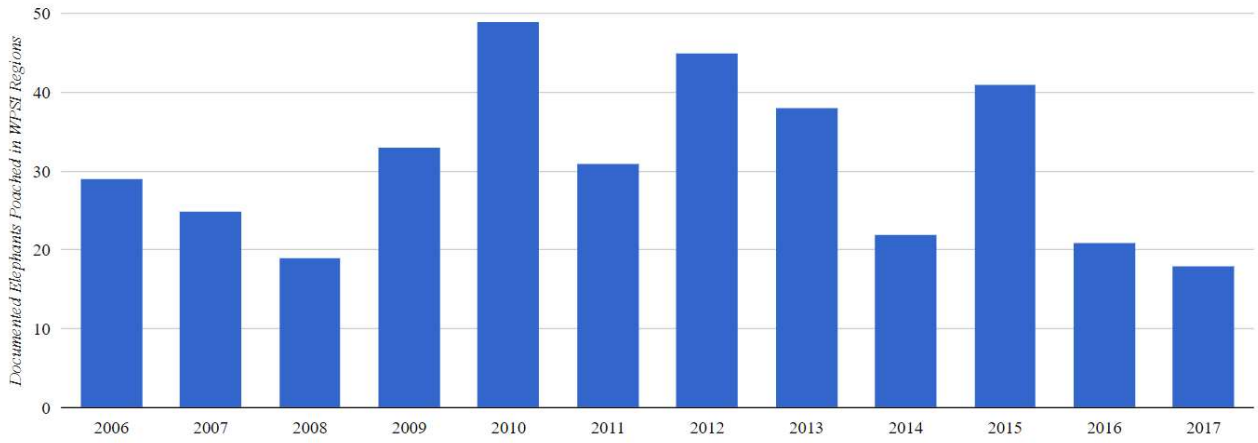
In early September of **2018**, the carcasses of **87 elephants** were discovered within Botswana's interior, dating back over a period of only several weeks, and were found with their tusks removed. Compared to recent years, having so many elephants illegally killed for ivory in a several week period is unprecedented. Historically, poaching has been extremely limited, and anti-poaching efforts have focused on the vulnerable borders, not the country's interior. Limited or historical data on elephant poaching in Botswana will be updated at a later date.

India

Like some ancient and modern cultures in Vietnam and Thailand, select cultures in India have broken and trained wild elephants for domestic and military use over the past several hundred years. As many as **40%** of Asia's **50 000** elephants are thought to live in captivity today. In **1990** India had an estimated **17 000** to **22 000** wild elephants, with at least another **2200** living in captivity [**10-13%**] throughout **11** of India's **25** states (now **29**).

Legal and illegal hunting has taken a great toll on India's elephant populations over the past two centuries. However, the Asian elephant's declining numbers can also be attributed to habitat loss and related results of human encroachment, including deaths from road accidents (cars and trains), electrocution on high-voltage fence lines, and as-of-yet unexplained mortality among young elephants. A longer-term problem faced by all **3 subspecies** of Asian elephants rarely reflected in any poaching statistics will inevitably be the ability for females to find suitable mates. In Asian elephants, males have tusks, while females have no visible tusks at all. This has resulted in a disproportionate reduction in males in some regions and can cause negative population growth.

Elephant Poaching in Select Regions Confirmed by WPSI in India (**2006-2017**)



Sources: Wildlife Protection Society of India (WPSI) **2014-2018**, some data from unpublished WPSI sources.

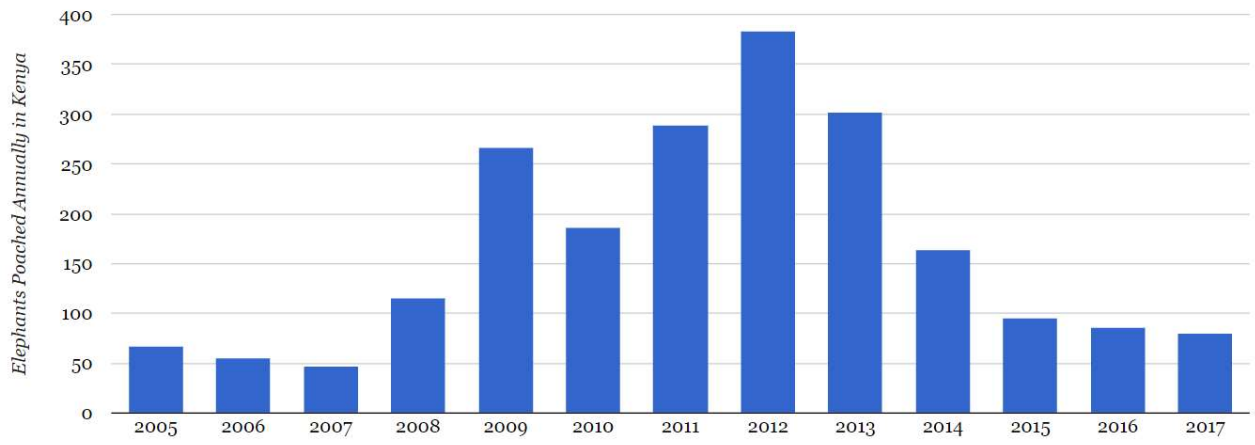
Kenya

Kenya is home to many national parks and national reserves that have provided a home to tens of thousands of elephants and thousands of rhinoceros. The Amboseli, Tsavo East, and Tsavo West National Parks, as well as the Maasai Mara National Reserve, are among the most popular tourist destinations in the country and help bring in hundreds of thousands of local and international visitors each year. Many of these parks and reserves are protected by the Kenya Wildlife Service (KWS), established in **1990**, which employs anti-poaching rangers and other personnel to combat local wildlife poaching as well as cross-border operations to arrest major wildlife parts traffickers. These traffickers bring ivory, leopard skins, and rhino horn into the country with the express intent to smuggle the products to foreign markets.

In an inventory conducted by Kenyan authorities and external groups concluded on **27th Aug 2015**, Kenyan authorities reported that government-held stockpiles were in possession of **25 052 pieces** of ivory weighing **137 679 kg** [303 530 lb]. The various stockpiles include raw elephant ivory collected by KWS from elephants who have died of natural and unnatural causes, as well as ivory recovered by other agencies from poachers, traffickers, and raw and worked ivory shipments originating from inside and outside the country.

In a **2012** annual report, the Kenya Wildlife Service noted that **384 elephants** were lost to poaching that year, the highest on record in the country since **2005**. That year the total elephant population within Kenya was estimated at roughly **38 000**, but later KWS figures put the **2012** population at **35 538** with a decline in **2014** to **32 456**. Since then, the wild population has steadily increased through **2018** to an estimated **34 132**.

Elephant Poaching in Kenya (**2005**-**2017**)



Sources: Kenya Wildlife Service Annual Report **2008**, KWS Annual Report **2009**, KWS Annual Report **2010**, KWS Annual Report **2011**, KWS Annual Report **2012**, KWS Annual Report **2013**, TRAFFIC.org, and KWS Elephant and Rhino Poaching and Trafficking Trends August **2018** (unpublished).

Namibia

Namibia does not appear to regularly report to the public the poaching statistics within its borders. However, the Namibian Sun reported **116 elephant deaths** due to poaching and **10 rhinos poached** from the period **January 2012-May 2014**. According to news reports, Namibia has suffered **101 elephants killed** by poachers in **2016**.

South Africa

South Africa has the largest population of rhinoceros of any African nation but also boasts a prodigious elephant population within its national parks. For several reasons, the famous Kruger National Park, an expansive **19 633 km²** [7 580 mi²], is the largest target in southern Africa and most of the statistics available focus on this region. In the past, South Africa's Department of Environmental Affairs, as well as the South African National Parks (SAN Parks), have released quarterly data on both rhinoceros poaching statistics and arrests of suspected poachers. As of **2015**, this data is released roughly twice a year and now includes elephant poaching statistics.

Over the years, South Africa has culled its elephant populations for various reasons but ended this practice in **1994**. At that time, South Africa had an estimated population of nearly **8000 elephants** and **had culled 7325 elephants** between **1980** and **1994**. During that same period, **1259 elephants** had been translocated out of Kruger National Park to protected areas, zoos, or other regions within the country or other countries, including Namibia. Culling data is shown below to provide a comparison to historical elephant population numbers and historical poaching numbers.

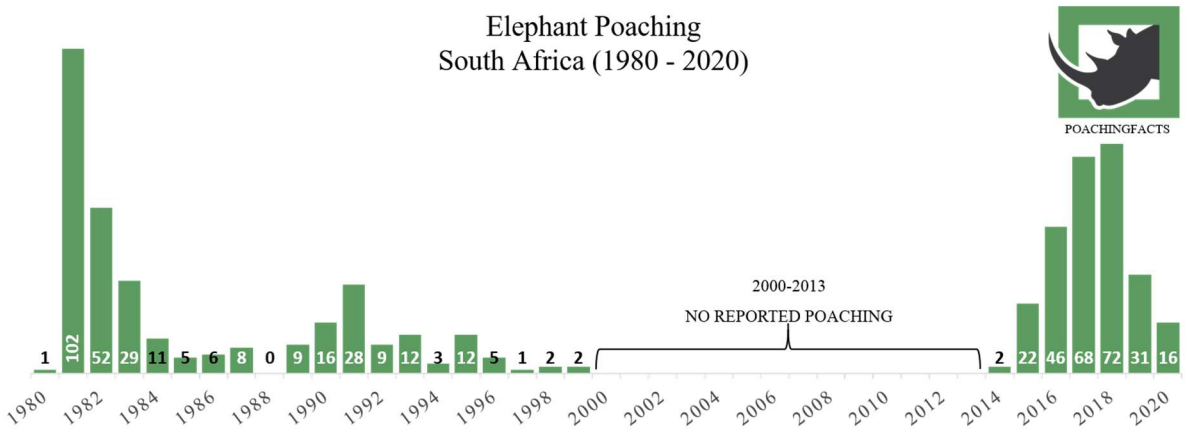
African bush elephants

Recent Elephant Poaching Statistics in South Africa (**1980**-**2020**)

Below are more than **25 years** worth of data on elephant poaching within South Africa. The majority of poaching incidents since **2014** have occurred in Kruger National Park, where **22 elephants** were killed during **2015**. The previous year had only **2 illegal killings**. This had followed a roughly **14-year period** of no recorded elephant poaching within the park (**2000**-**2013**). **2016** saw an increase in elephant poaching within South Africa, particularly Kruger National Park, when **46 elephants** were illegally killed. Throughout **2017**, there were **67 poached** in KNP and **1 illegally killed** elsewhere in the country. The year **2018** saw a slight uptick in poaching, with **71 elephants illegally killed in KNP** and **1 elsewhere in the country**, demonstrating for a **4th year in a row** the intentional targeting by organised criminal syndicates of elephants in eastern South Africa bordering Mozambique. Kruger National Park and Marakele National Park were both victims of elephant poaching in **2019**. The country lost a total of at least **31 elephants** that year.

South Africa reported only **16 elephant poaching incidents in 2020**. It attributed a portion of this decline to the **COVID-19 pandemic** that impacted many countries in **2020**. According to the Department of Environment, Forests and Fisheries, all elephant poaching incidents reported in the country happened in Kruger National Park.

Elephants Poached in South Africa (**1980**-**2020**)

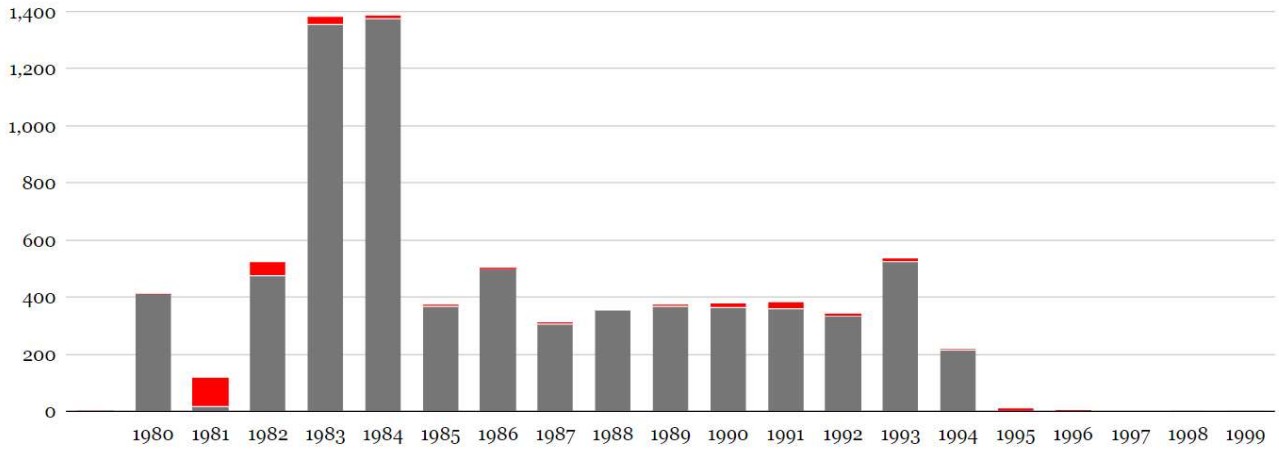


Sources: South African Population of the African Elephant report by CITES. SAN Parks. ESPU **1999** (unpublished) Ivory Markets of Africa. Elephant poaching on the rise in Kruger by Oxpeckers. ENS-Newswire. ZA DEA Progress on ISMR February **2017**, ZA DEA Progress on ISMR January **2018**, ZA DEA Progress on ISMR February **2019**, and ZA DEFF Department Report on Rhino Poaching in **2020**.

Historical Elephant Mortality Statistics in Kruger National Park (KNP) (1980-1999)

The data below reflects the scale of elephant culling within Kruger National Park until the middle of the **1990s** compared to the historical and current elephant poaching incidents. These are official numbers provided by SAN Parks and related authorities to the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) but only applies to Kruger National Park. Data on elephant poaching was not provided by the internal region and was not provided for other public land, as is common for recent data on rhino poaching.

Only reports from **1998** and **1999** provided data on ivory seizures due to law enforcement or anti-poaching operations or recovery from dead elephants in Kruger National Park. **53 tusks** were seized in **1998**, and **20 were seized in 1999**.



Sources: South African Population of the African Elephant report by CITES. SAN Parks. ESPU **1999** (unpublished) Ivory Markets of Africa.

Zimbabwe

Below is a dataset relating to the time frame of 'Operation Stronghold', which was designed to curb rhinoceros poaching and ran from roughly **1984** through as late as the end of **1993**, but likely was concluded before the end of that year. The chart below also includes the preceding years of Zimbabwe's 'independence era' (when it is alleged that no rhino were poached), which began after the former colony (formerly Rhodesia) gained official recognition as a nation independent of the United Kingdom, the white-minority government was ended, and changed its name to Zimbabwe.

Like its counterpart for rhino poaching, this chart illustrates the influx of poachers, primarily from Zambia, into Zimbabwe's parks overseen by Zimbabwe's Department of National Parks and Wildlife Management (DNPWLM, ZimParks). However, the chart likely does not take into account the illegal hunting conducted by military and insurgent personnel during and after the Rhodesian Bush War and related conflicts. Nor does it take into account the government-authorised poaching of elephants, rhinoceroses, and other species in their own national parks during the **1980s** of already at-risk populations of elephants.

Historical Elephant Poaching in Zimbabwe (1980-1993)

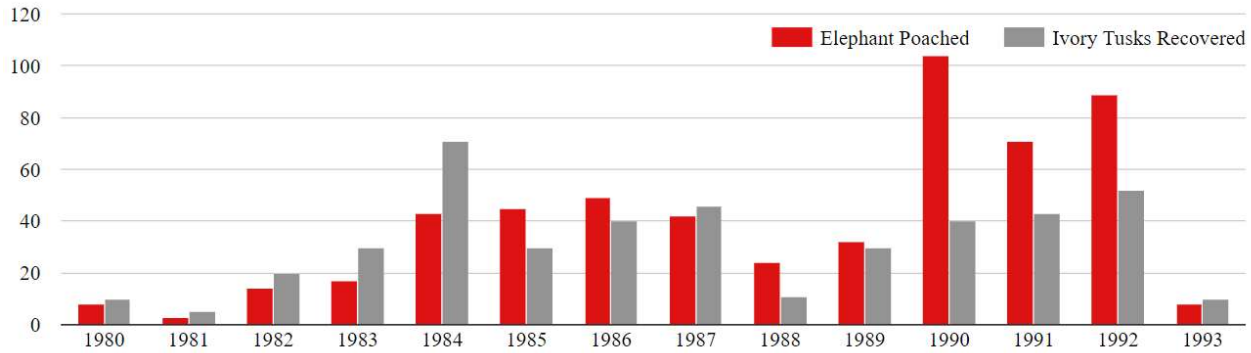


Chart source: The Rhino Anti-Poaching War Rages On, October 2011.

For a much wider perspective on **poaching and anti-poaching**, please investigate the very informative **WildlifeCampus Anti-Poaching Course**.