King of the Elephants?

A presentation to the SPHEX on 10/12/17
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Our family first met Babar in 1981 when our son received a copy of *The Story of Babar* as a Christmas gift. It quickly became one of his favorite bedtime stories and all of us fell in love with Babar, the engaging and inventive hero of the story, and his cast of friends and associates. We soon acquired additional Babar books including *The Travels of Babar* and *Babar the King.*

For those not familiar with the story, Babar made his first public appearance in 1931 in the French children's book *Histoire de Babar* by Jean de Brunhoff. (*Wikipedia*). Brunhoff, a French author and illustrator, adapted the story from a tale his wife made up as a tale for their two young boys – and many think she deserves equal billing with her husband.

As the story goes, a young elephant, Babar, lives with his mother in the jungle where she is killed by a hunter. "Babar escapes, and in the process, leaves the jungle, visits a big city, and returns to bring the benefits of civilization to his fellow elephants. Just as he returns to his community of elephants, their king dies from eating a bad mushroom. Because of his travels and civilization, Babar is appointed king of the elephant kingdom. He marries his cousin, and they subsequently have children and teach them valuable lessons." (Wikipedia).

There are a number of aspects of the books that are the subject of critical interest:

- The generous illustrations are full of imagination and depict Babar and other elephants clothed and fully engaged in a European life style. In fact, much of Babar's wisdom throughout the series is based on the lessons he learned at the foot of the Old Lady who was his tutor in the city to which Babar somehow managed to escape. In the storyline, Babar's eventual elevation to leadership of all of Elephantland is based on the superiority that is attributed to his education and acculturalization among the "learned" city folk.

- De Brunfoff is unabashedly anthropomorphic in both his illustrations and the thoughts and deeds he ascribes to Babar and other characters.

  Anthropomorphism is defined as the attribution of human characteristics or behavior to any other nonhuman entity in the environment and includes phenomena as diverse as attributing thoughts and emotions to both domestic and wild animals, to dressing a Chihuahua dog as a baby, or interpreting deities as human. J.A. Fisher in a1991 paper identified two different ways in which people engage in anthropomorphic thinking.

  "He defined 'interpretative' anthropomorphism as the attribution of intentions, beliefs and emotions to nonhuman agents based on their behavior and 'imaginative' anthropomorphism as the representation of imaginary and fictional characters as human-like. Representing gods as human-like or as having human-like characteristics such as personalities, emotions and interests is an example of what Fischer defined as imaginative anthropomorphism. Inferring that our cat is hungry because it sits in front of the fridge and meows or that a dog is soliciting play when it barks at us are instances of interpretative anthropomorphism." (http://www.sciencedirect.com/science/article/pii/S0003347215003085)

  By these classifications the Babar series is fully engaged in imaginative anthropomorphism.

- The books have also stirred some level of controversy over the years - some based on the belief that they promote and justify colonialism or neo-colonialism. And critics have pointed out that the Babar series presents a view of native Africans that is blatantly racist. (http://www.nytimes.com/1983/05/08/books/who-was-that-masked-capitalist.html) To me - and others - the books seem to imply that city life and culture - and especially a French influenced version of culture - must be superior to any others. Could this be the real reason that our 39-year-old son has always had a particular fondness for Paris?

It is evening in July of 2015. Soon the sun would be going down on this spectacular day in the Hwange National Game Preserve in tucked along the western border that of Zimbabwe. As the evening approached we pulled up to the pan, a shallow pool covering about an acre that was supplied with fresh water from a solar powered pump station. As our party of 7 stepped down from the Toyota 4-wheel safari vehicle, the we could detect movement across the horizon of the plain dominated by dry grasses and brush sprinkled with the occasional Mopane and Acacia Tree. As we settled in with a glass of white wine, the groups begin to move in. They were casual but cautious. There seemed to be a plan or protocol directing the groups – but the details were not obvious to the neophyte. Within 30 minutes we were in the midst of more than 200 elephants. In turn, they moved to the edge of the water and drank or waded in and drank and washed. They rumbled, and blew water, and stood with their heads and trunks touching one another. The little ones stayed close to their mothers. Collectively they occupied about three quarters of the perimeter of the Pan – leaving the remaining radius to us. Groups waited patiently on the outskirts for their turn. From time to time other groups would turn and assemble before moving off to the distance. We could hear low level rumbles and occasional higher pitched calls – all punctuated by the sound of water splashes. But there was no sense of drama or unrest - rather a feeling of content and peace. It was a magical hour – the first of a number of such magical encounters. As we left we could see other groups coming in their turn. This is the night I fell in love with African elephants.

My limited knowledge, vocabulary, and time prevent me from fully addressing the capacities and complexities of this marvelous animal. Tonight, I will be satisfied if I can pique your curiosity to learn more about the African elephant and how it serves as a marker for the past and future of our planet. Along the way I hope to challenge some views of anthropomorphism and answer the question - could Babar really be the King of the Elephants?

Facts about Elephants

- **There are two distinct elephant species** - The Asian Elephant (numbering 40,000 to 50,000 in the wild with concentrations in mainland Asia:

Bangladesh, Bhutan, Cambodia, China, India, Laos, Malay Peninsula, Myanmar, Nepal, Thailand, Vietnam.

  - The African Elephant – numbering about 415,000 on the African Continent. There are two subspecies – the larger savannah elephant (*Loxodonta africana africana*), which roams grassy plains and woodlands, and the smaller forest elephant (*Loxodonta africana cyclotis*), which lives in the equatorial forests of central and western Africa.
  - The African savannah elephant is the world's largest land mammal - males grow faster than females and continue to grow for twice as long. Females reach full body size at around 25 years – can reach 8 feet a shoulder and up to 6,000 pounds. Males grow to 11 to 12 feet at shoulder and the largest can weigh 12,000 pounds. Lifespan in the wild is up to 70 years – with average longevity decreasing due to pressures we will discuss later.

- **Herbivores**, elephants eat grasses and leaves – pretty much any vegetation around. Daily intake is approximately 10 % of body weight - 600 pounds or more per day for the largest. And 50 gallons of water. Elephants only extract about 45% of the nutrient value from their food – the rest passes through and is deposited back into the soil as fecal matter.

- **Teeth** - The tusks of elephants begin as two front teeth which drop out after about a year. In their place grow ivory tusks which eventually protrude from beneath the upper lip. These tusks remain in place over their life time unless they are broken off. Elephants have large, grinding, molar teeth which masticate (chew and grind) their plant diet with a backward-forward jaw action. These teeth fall out when worn down, and are replaced by new, larger teeth. During its lifetime, an elephant may grow 24 of these large molar teeth, each weighing up to 9 lb. in older animals. Only four teeth, two on each side of the jaw, are in use at any one time. As the teeth wear down, they move forward; the new teeth grow from behind and the worn teeth drop out. This pattern repeats up to six times over the elephant's life time.
  Elephant - Teeth - Tusks, Elephants, Grow, and Animals - JRank Articles http://science.jrank.org/pages/2420/Elephant-Teeth.html#ixzz4vJZdSZP5

- **Feet** - Elephants fall into a group called near-ungulates, which refers to the fact that they have toenails rather than hooves. An elephants foot is designed in such a way that elephants actually walk on the tips of their toes. African elephants have 4 nails on their front feet and 3 nails on their back feet. These nails are worn down and do not always show on their footprints. The sole of the foot is covered in a thick epidermal layer tissue that acts like shock absorbers. This allows the elephant to move surprisingly silently. An elephant's foot generally measures 40 - 50 centimeters in length and width and has a circumference of about 1.34 meters. The footprint can also indicate the age of an elephant. Younger elephants leave a more defined footprint than older elephants that might have smoother ridges and well-worn heels.

- **The Trunk** - This appendage has such great utility that it facilitates much of elephant life and culture. An elephant's trunk is both an upper lip and an extension of the nose with two nostrils running through the whole length. It is composed of some 40,000 muscles, nerves, blood vessels, and connective tissue. It is extremely strong and at the same time extremely sensitive with fine motor skills. The African elephant trunk terminates with two almost finger like appendages. While in Zimbabwe we watched a full-grown mother elephant delicately pick up Acacia pods one by one and pop this delicacy into her mouth. And we watched her pull down large trunkloads of vegetation from trees. A familiar sight is elephants wrapping their trunk around grass clumps and with a tap of their foot dislodging the grass before tapping the clump against her shim to shake the dirt off and then lift it to her mouth. This is the same trunk that is used for drinking - scoping up water a gallon and squirting it into their mouths, or squirting water and mud over their skin to cool and bathe and protect from parasites and sun burn.

  The trunk also facilitates the elephants remarkable sense of smell. Think of having an acute nose attached to your hand -. Smelling each thing you picked up. A familiar sight is a group of elephants standing pointing in the same direction with their trunks raised smelling to sort out some possible

danger happening in their environment. Trunks are also facilitators of the elephants social relations. A greeting for close relatives and friends involves placing the trunk in the mouth of the other elephant. Males use it to help determine when females are in estrus. And it is an important part of elephant communication -. Albeit only one of the communication organs and perhaps not the most important. More on this in a minute.

Elephants are often seen tussling and tugging with their trunks -. Especially adolescent males. But serious fighting usually does not involve heads and tusks. According to our guides an elephant charge with the trunk extended is a mock charge. When it is tucked under watch out.

Interestingly – newborn babies are not born with full motor control over their trunk. It takes months of practice and muscle development. It is often 8 moths to a year before they master the task.

- **The Brain** - The African elephant's brain – like humans - is only partially developed at birth. While most mammals are born with brains weighing 90% of their adult weight - at birth elephants are born with 35% - humans 25 %. The grown elephant has a brain that is 2 times larger than its body mass would indicate compared to the average for mammals. Compared to the dolphin at about 5 and humans at 7.6.

Sensory capabilities.

Consider the following:

- In a privately-owned animal sanctuary in Zimbabwe 80 elephants lived in a relaxed state around a tourist lodge with an artificial watering hole. Cynthia Moss a renowned wildlife researcher and conservationist who has spent more than 40 years living with and observing elephants in Kenya, the Democratic Republic of Congo, Tanzania and Botswana, tells us that an unusual thing happened when officials in Hwange National Park some 90 miles away decided to reduce the park's elephant densities decided to do this by using helicopters to herd family groups of elephants into the gunsights of waiting marksmen. On the day the slaughter started, the

entire relaxed tourist elephant herd abruptly disappeared. They were found a few days later huddled in the sanctuary's farthest corner. Moss has said, "Elephants are able to detect distress calls over large distances and are fully aware when their fellows are being killed, "(Cynthia Moss, *Ambolesi Elephants*).

- Or consider that when Lawrence Anthony, the "elephant whisperer", passed away nearly 24 elephants that he had saved and harbored on his large reserve converged on his home two days after his death and remained for several days in an apparent vigil.

- Or the experience at of orphan elephants at Tsavo National Park who seem to know when they will be joined by other orphans and show up to welcome and help socialize them.

Moss, Carl Safina (*Beyond Words*, p 78) and others who have spent decades in observational and experimental research credit elephants' unique communication abilities from sub sonic rumbles as low as 8 hertz to trumpet calls at 10,000 hertz. The low frequency rumbles they emit are well below the range of human hearing and are transmitted thru the ground as well as thru the air. Elephants, according to Safina, can detect these rumbles over at least several miles. In this they are aided by their ear structure, bone conduction, and special nerve endings in their toes, feet and trunk with special sensitivity to vibration. He identifies two distinct pathways by which they detect these vibrations - either through bone conduction or through a sensory pathway not connected to the ear.

The bones of elephants' middle ear are enlarged - especially the malleus. This greater bone mass facilitates the oscillation of the middle ear - achieving thru bone mass what otherwise would be thru the vibration of the ear drum. He believes that in addition to the middle ear bone mass, the dense fat in the elephant footpad may facilitate bone conduction, and in addition there is a skeletal muscle in the ear - referred to by some as 'ear lips'.

The second pathway for detecting vibrations has to do with specialized sensory cells – a characteristics that elephants share with primates, moles., cats, and a diverse group of animals. In elephants, these cells have been identified (Safina

and Hildebrand) in the tip of the trunk and especially in the toe and heel margins of the footpads. Multiple parties have reports elephants pausing as a group and focusing attention in the same direction while they rock back and forth on their front foot. The specialized sensory cells microscopically look like an onion with many layers surrounding a nerve - sending impulses directly to the brain bypassing the ear altogether.

Safina makes an elegant argument that these rumbles are likely to form a complete vocabulary with the resultant ability for elephants to communicate a wide range of information with each other and that their specialized anatomy allows these rumbles and vibrations to be transmitted across long distances. Moss and others would agree based on their decades of observation of hundreds of elephants in family groups. But 90 miles? Are the signals relayed like native drum, beats? Is there a jungle telephone or perhaps internet? The riddle is yet to be resolved - perhaps we should ask Babar who can communicate with humans to explain.

Social Structure and Practices

Iain Douglas-Hamilton, noted scientist and founder of Save the Elephants, was the first to recognize that the basic unit of elephant society is a female and her children and sisters and other relatives and friends. The matriarch – typically the oldest female and her sisters, their adult daughters and all their female children and young and adolescent males live together in a family group - typically numbering from 10 to 30 elephants. This family is the foundation for the shared infant care and child rearing. The matriarch is the foundation for wisdom within the group. It is her memory and leadership that guides the group as it travels seeking water and food, avoiding danger, and it is her personality and habits that shape the family groups tone – relaxed, indecisive, bold, nervous, etc. While she lives her daughters are unlikely to set out on their own. As the males reach a sexual maturity – typically 12 to 14 years - they are pushed out of the family group and typically form bachelor groups with other males from various family groups. These bachelor groups are typically dominated by a dominant male which exerts his dominance at water holes gaining the best drinking spots and by dominant sexual behavior as they enter musth at the most advantageous times.

But there is typically not highly aggressive or competitive behavior within these bachelor groups.

Elephants are highly social. Family groups form broad networks of relationships with other groups. A "bond group" is two or more family groups that have a special affinity for each other. These networks are forged at water holes and across shared habitats. Often a matriarch will alter the route she is leading for her family just to hang out with other groups which which such relationship exist. As I have watched groups come into watering holes it is clear that there is a hierarchy within the group and between family groups. And when the matriarch decides it is time to move on, she gives the "let's go" rumble and turns to face the exit direction. Other members of her group assume the "lets go' posture and typically the group moves out as a unit.

In a very real sense the health and safety of the family group rests with the wisdom, memory, leadership ability and strength of the group matriarch. She is the **Queen of the Elephants** or at least her elephant group. (Sorry Babar – it is a woman's world). As she matures and reaches the natural end of her life, her wisdom is passed on to another senior female within the group. AS her group gets very large it might split, with another senior female leading a sub group. Or if a group becomes very small due to death or disaster, it might merge with another group with which it has positive relationships.

Because the matriarch and her wisdom is so vital to her family group, her premature and unexpected demise puts the entire group in jeopardy. In a very real sense, poaching threatens the future of the entire group. And the large matriarch with her seniority and impressive tusks makes an attractive target for poachers.

Ivory and the Slavery Trade: Losing Elephants Forever:

In 1837 Darwin wrote in his diary, "Animals, whom we have made our slaves, we do not like to consider our equal." (Notebook B, *Transmutation of Species,* Darwin-on-line.org.UK/.) I cannot think of a better preamble to the consideration of the systematic elimination of a species. And at the same time a commentary on our national condition. If we can successfully deny that elephants that

elephants have feeling for each other, communicate with each other, routinely recognize and have close relations to hundreds of other elephants, care for their own young and for the young of their children and grandchildren, are capable of forming lasting bonds with humans, and in our quest for scientific "purity" label any inference that elephants have "feelings" as "anthropomorphic wrong thinking" – if we can do all of this – then perhaps we can justify the wanton killing of elephants for their teeth. And if we can harbor the same attitude toward people whom we consider somehow less than us – then perhaps we can justify a history that enslaves people, and that even today marginalizes races. If history and science teach us that we are wrong - that elephant communication in many respects is at a more advanced level that humans, that elephants live in complex social structures that involve long term relationships and responsible leadership, that elephants are better than many humans at cooperation - then we have a problem. And if we accept that human greed and population growth is an inherent threat to the survival of another species - then we double down on that problem.

Genesis 1:26, (KJV) "And God said, Let us make man in our image, after our likeness: and let them have dominion over the fish of the sea, and over the fowl of the air, and over the cattle, and over all the earth, and over every creeping thing that creepeth upon the earth". So perhaps it comes down to the definition of the word dominion - or perhaps the accuracy of the translation of Genesis from Hebrew into English. In his children's story, De Brunhoff had a special counsel of elders grant Babar dominion over all the elephants of Elephantland. We can be pretty sure De Brunfoff's concept did not comply with that of man's real-world dominion over the elephants.

Over the last two million years about a dozen different elephant species inhabited the earth. Some were as small as three feet high - others much larger. For a while large size was a successful strategy – becoming so large that few predators were a threat. Then along came man - in what is now the Czech Republic a hunters camp location strategically placed in a mountain gap accumulated the remains of more than 900 mammoths. At the dawn of the Roman Republic, elephants inhabited most of Africa - excepting the Sahara – as well as China and all of Asia. But man, and Ivory were to be the downfall. In 77 AD Pliny, the Elder sounded the alarm over about extinction in North Africa due to the quest for Ivory, "The demands of luxury having exhausted all of those in our part of the

world." (*Pliny*. Douglas Hamilton. Among the Elephants, p 248). Since Roman times the world's elephant population has been reduced by as much as 99% when an estimated 26 million elephants trod the planet according to National Geographic estimates. (Safina, p110).

The Ivory trade and the human slavery trade in Africa goes back at least a 1000 years. First with Arab traders and then with the western civilizations. By the 1500's the trade in ivory and the trade in human slaves were very much entwined – living together in a shameless symbiotic relationship. With Eastern Africa elephant populations decimated, reaching a village of any size and an ivory cache required at least a 3-week trek inland. Captured humans carried captured ivory to costal ports where both were shipped. As late as 1882 British missionary Alfred J. Swann wrote of a gruesome sight in what is now Tanzania. Human beings chained together including women with small children - all forced to carry elephants tusks for the 1000-mile journey from the Congo - many dying along the way.(Saffina, p 111)

The industrial revolution in the 1800's the demand for ivory grew even stronger as it became a sign of social status for the growing middle class.

Following is a brief listing of elephant conservation milestones in the modern era as reported on the website for the Great Elephant Census:

Early 1900s - Shooting an African elephant is considered to be a great honor for Europeans on safari.

1913 - ***The U.S. is consuming two hundred tons of ivory per year. The African elephant population has dropped to an estimated 10 million.***

1950s – ***Elephant slaughter begins to drastically increase with estimates that 250 elephants are killed every day. The increase correlates with many African regions gaining independence from colonial rule.***

1973 - The Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) is agreed to on March 3, 1973.

1973 - The Endangered Species Act is signed into law on December 28, 1973, becoming immediately effective.

1977 - The African elephant is listed on CITES. International trade for commercial purposes continues; the international African ivory trade is regulated by CITES.

1978 - The African elephant is listed as threatened under the Endangered Species Act. A "special rule" allows for the commercial ivory trade to continue, including for the import and sale of African elephant ivory.

1979 – ***Elephant population is reported at 1.3 million according to the results of the first Pan-Africa elephant survey led by Dr. Iain Douglas-Hamilton.***

1988 - ***After ten years it becomes clear that the supposedly well-regulated international trade of African elephant ivory is a failure. The African elephant population has been cut by more than half in 10 years.***

1989 - CITES agrees to list the African elephant on Appendix I, as a result a ban on the international sale of ivory goes into effect in early 1990.

1989 - Only 600,000 elephants remain. The African Elephant Conservation Act is passed, banning the import of African elephant ivory into the U.S.

1990s - ***Some elephant populations begin to show signs of recovery, especially in East Africa and in some southern African countries.*** Kenya's population grows to more 30,000 by 2007 from an historic low of 16,000.

1997 - Botswana, Namibia and Zimbabwe submit proposals downlist their populations to Appendix II and to sell their ivory stockpiles. CITES approves the sales based on the positive status of these countries' national herds. The first "one-off sale" occurs in 1999 to a single CITES-approved buyer, Japan.

2002 - South Africa submits a proposal to downlist their populations to Appendix II. South Africa plus Botswana, Namibia and Zimbabwe seek another "one-off sale". This second one-off sale occurs in 2008 to two CITES-approved buyers, Japan and China. Conservationists fear that opening up a legal ivory market in China will lead to increased poaching.

2007 - The African Elephant Coalition (AEC) countries are successful in passing a CITES-instituted a 9-year moratorium on new ivory stockpile sale proposals.

2009-2013 - ***Empirical research, MIKE PIKE levels and ETIS ivory seizures demonstrate poaching of elephants for their tusks and trafficking of ivory is occurring at alarming levels, surpassing a level at which elephant populations can naturally reproduce -- populations across the continent go into net decline.***

2011 - Numbers of poached elephants and large-scale ivory seizures are so high that it is labeled *annus horibilis* for the species.

2012 - Sudanese Janjaweed poachers travel across the Sahara desert to massacre several hundreds of elephants in the span of a few days in Bouba Ndjida National Park, Cameroon -- the scale of the killing is labeled as *unprecendented.*

2012 - Secretary of State Hillary Clinton makes a Call to Action to world leaders to stop the epic slaughter of Africa's elephants.

2012 - Growth of a consumer class in China increases demand for ivory. The price reaches $1,000 per pound in Beijing; low wages in Africa drive poachers to increasing harvesting. CITES recognizes that elephant poaching has again reached "unsustainable level."

2013 - U.S. President Barack Obama passes Executive Order combating Wildlife Trafficking to attack the issue through a whole government approach.

2014 - Paul Allen and Elephants Without Borders launch The Great Elephant Census, the first-ever pan-African aerial census that will provide new, accurate data about the number and distribution of African elephants, information that will be critical to their future survival.

2015 - Great Elephant Census flights over 50% complete, some preliminary individual country data suggests dramatic drops in populations in some regions, and a few surprise herds in places where elephants did not previously exist.

2016 - Great Elephant Census results are announced, elephant populations have dropped 30% in surveyed areas with comparable data.

2016 - CITES passes resolution calling for all countries to close domestic ivory markets and votes down proposals by Namibia and Zimbabwe to open legal ivory trade from their countries. CITES rejects proposal for elephants in Botswana, Namibia, South Africa and Zimbabwe to be uplisted to Appendix I.

The Great Elephant Census (GEC) project is a current ongoing joint effort by Paul Allen, philanthropist and co founder of Microsoft, who funded the project with $7 million and by Dr. Mike Chase, an elephant ecologist and founder of the non-profit Elephant Without Borders. Other partners included African Parks, The Frankfurt Zoological Society, IUNC African Elephant Specialist Group, The Nature

Conservancy, and the Wildlife Conservation Society, ad Save the Elephants. . Over a two-year period from 2014 – 2016 the GEC conducted the first ever comprehensive survey of African savanna elephants with the goal of determining population numbers and increase and/or decline trends across 18 African countries which collectively include virtually all of the world's population of savannah elephants. It focused on the regions of each country with the highest elephant density and population with the goal of counting at least 90% of the savannah elephants across the African continent. The GEC also took note of protected vs, unprotected areas and counted carcasses and assessed historical trends to assess how populations have changed over the past two decades. It did not include forest elephants – the other elephant species in Africa, or Asian elephants.

In the news release issued on August 31, 2016 Allen reported, "what we learned is deeply disturbing. Armed with this knowledge of dramatically declining elephant populations, we share a collective responsibility to take action and we must all work to ensure the preservation of this iconic species."

Key findings of the GEC included

- Savanna elephant populations declined by 30 percent (equal to 144,000 elephants) between 2007 and 2014.
- The current rate of decline is 8 percent per year, primarily due to poaching. The rate of decline accelerated from 2007 to 2014.
- 352,271 elephants were counted in the 18 countries surveyed. This figure represents at least 93 percent of savanna elephants in these countries.
- Eighty-four percent of the population surveyed was sighted in legally protected areas while 16 percent were in unprotected areas. However, high numbers of elephant carcasses were discovered in many protected areas, indicating that elephants are struggling both inside and outside parks.

Reports by Country:

- Tanzania and Mozambique's elephants experienced staggering population declines, and the same appears to be true with Angola. Elephant

populations are on the verge of local extinction in northeastern Democratic Republic of Congo, northern Cameroon and southwest Zambia. In the face of poaching and encroachment, small herds were isolated and searching for safety. The Babile Elephant Sanctuary in Ethiopia, overwhelmed by human settlement, was lacking its own namesake.

- South Africa, Uganda, parts of Malawi and Kenya, and the W-Arli-Pendjari (WAP) conservation complex of protected areas that span Benin, Niger and Burkina Faso were found to have stable or even slightly increasing elephant populations. Although in some cases, such as Uganda and WAP, relatively high carcass ratios or estimates of the percentage of illegally killed elephants (PIKE) suggest this may be due in part to compression of elephants into the parks from surrounding areas. In the WAP complex, the population has doubled since the last count in 2003. With the last large population of savanna elephants in West Africa, WAP may merit greater conservation attention and investment.
- Zambia and Zimbabwe showed wide internal variation in population status in different parts of the country, with parks adjacent to countries with poor elephant protection (e.g. Angola) and those with no NGO presence faring badly but populations stable or increasing in parks further from trouble spots.

Poaching and Population

The report of the Great Elephant Census of 2016 rightly focuses on elephant poaching as the primary issue – poaching driven by the lucrative ivory trade. As I have noted - this is not a recent phenomenon - but rather goes all the way back to the Roman era. Interestingly, the emergence of China as a global economic power in recent decades, political instability in Africa as it continues to evolve from colonialism, modern weapons and methods, and the global economy driven by the internet are trends that have converged to accelerate the price of ivory and pressure on elephant populations.

Today the ivory trade us about poverty, ethnic rivalry, terrorism, and civil war. AS Safina notes (p 118) criminal, corrupt governments, and war lords are mining

elephant populations to finance savage conflict. Examples include Joseph Kony's Lords Resistance Army and Sudan's Janjaweed. The Ugaanda Murcheson Falls "National Park" had a population of more than 10,000 elephants wiped out during and immediately after the Idi Amin reign of terror.

In December of 2016 the *New York Times* quoted Eli Pepper, of the National Resources Defense Council, who stated "Demand for elephant ivory has skyrocketed in recent years, spurring poaching levels that are driving elephants towards extinction. And ending the legal ivory trade in China — the world's largest consumer of elephant ivory — is critical to saving the species."

The Times article notes the convergence of forces, "Illegal ivory ends up on the legal market after being smuggled into the country, chiefly by criminal syndicates. Hong Kong has been a main transit point.
Corruption and chaos in many parts of Central Africa, where the last great elephant herds roam, are fueling the trafficking. Poachers and rebel groups in the Democratic Republic of Congo, the Central African Republic, Chad and South Sudan have exploited conflicts and a breakdown in order to massacre thousands of elephants, often using the proceeds from ivory to buy more weapons. Like blood diamonds in West Africa in the late 1990s, ivory has become Africa's new conflict resource.

Writing in *The New Yorker*, senior editor Peter Canby put it this way, "Inside Africa, the effort to control the massacre of elephants has devolved into an escalating war between poachers—who are increasingly well armed and often tied to criminal syndicates—and conservationists, who, in defense of elephants, routinely deploy mercenaries, automatic weapons, advanced intelligence-gathering techniques, drones, and sniffer dogs. For all these efforts, the over-all situation of elephants has steadily worsened.".
(https://www.newyorker.com/news/news-desk/china-and-the-closing-of-the-ivory-trade).

There may be a light at the end of tunnel. On Dec 30, 2016, the government of China announced that it was largely ending the legal trade of ivory. As sales within accounts for up to 70% of the world ivory trade this could be a game

changer. Past official positions by the Chinese government has highlighted the cultural and artistic heritage of the China's ivory trade. And with a rapidly growing economically advantaged population, the collection of ivory objects has been an important status symbol.

As the New Yorker article noted, things within China are changing though, "But, in those same years, China, too, has changed. Xi Jinping, confirmed as President in early 2013, speaks less about ivory as an intangible cultural heritage than about his ambition for China to become an "ecological civilization." The rapacity of China's ivory merchants and the poaching industry they supported were giving the country a bad name. Perhaps especially embarrassing was a report that, during Xi's inaugural trip to Africa, in 2013, his political and business entourage took advantage of their diplomatic status to load his plane down with thousands of kilograms of illegal ivory."

While encouraging, there is a lot of speculation about the real impact of the action by China. First of all, Hong Kong is the chief marketplace for the ivory trade. It has announced a ban that is phased in over a five-year period. Secondly other markets are emerging like Viet Nam. And 90% of the ivory trade is illegal – some think that this ban will just push all ivory trade to the black market. And finally, there is the other "elephant in the corner". Population growth in Africa and its impact on habitat.

The UN projects that unlike many parts of the world, population growth on the African continent will continue and accelerate. Now home to 1.2 billion (up from just 477 million in 1980), Africa is projected to see a slight acceleration of annual population growth in the immediate future and will double to 2.4 billion by 2050. (https://www.theguardian.com/global-development-professionals-network/2016/jan/11/population-growth-in-africa-grasping-the-scale-of-the-challenge). With this growth comes tremendous ecological pressure on the elephant as its natural habitat is further compressed by agriculture and deforestation and its ability to travel across borders to seek water and food during times of climate change is further curtailed. During our visit to Hwange National Preserve we could witness this phenomena first hand as animals amassed around man made water holes without which they would have perished. And in doing so put tremendous pressure on the terrain and other animal species.

Caitlin O'Connell writes of her experiences in and around Etosha National Park in Namibia as she conducted research on ways to allow cohabitation of subsistence level farmers and elephants. Imagine the plight of a Mwfe tribesman who has planted a field of corn behind oxen inserting the seed with his toes - only to have his crop that he is counting on to feed his family for the year wiped out in one night by a marauding group of elephants that have snuck out of the adjoining preserve at night but are "protected" by government policy?

It remains to be seen how African Nations that are facing poverty, civil unrest, climate change and its impact on populations can cope with the need elephants have for space and the impact of an animal that eats up to 500 pounds of forage daily.

Concluding Statement and Questions:

At this point in my presentation you may have a slight tendency to "look down your nose" at the governments and people of Africa who cannot or will not preserve the tremendous resource and responsibility they have in the African elephant. Or perhaps your ire is more directed at the Chinese - who hold the Panda in an exalted and protected status as a national symbol and treasure - but have no regard for the impact of their selfish lust for ivory on the elephant. If so I would just take a moment to remind us of; (1) the American high consumption of ivory throughout much of the 20th century, (2) The plight of the American buffalo as we occupied this continent – not to mention the passenger pigeon. Or the American Indian. (3) Or the link between slavery and the ivory trade. Perhaps we do not occupy the moral high ground.

In closing then, Babar and I would leave you with these questions:

- Was Babar truly King of the Elephants? It doesn't matter – the Queen of the group is the one that matters.

- Can and should elephants wear hats, and green suits, and drive cars? And if in doing so we come to think of them as "just like us" do they have an increased chance of survival?

- If, in our dedication to scientific objectivity and principle, we stringently guard against any anthropomorphic leanings - does this lead us to deny the inherent value and privilege of animals have on this planet?

- How should we regard animals, like the elephant, that are superior to us in some respects, like us in others, and clearly have a social life and structure that includes deep feeling for each other individually?

- What lessons should Babar and I learn from real elephants – the benefits of a matriarchal society? Respect for the wisdom of elders, the importance of the group over the individual?

  You decide.