BUSINESS MAVERICK ANALYSIS

Africa’s beastly burden: The case for shrinking the faunal poverty line

By Ed Stoddard • 15 July 2019

Most people who live in the shadow of potentially fatal wild animal attacks are the poorest of the poor, gener...

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It is no coincidence that Africa is the world’s poorest continent and the last refuge of menacing megafauna. This has pre-historical roots and today, the poorest of the poor bear the brunt of human-wildlife conflict. The concept of the ‘faunal poverty line’ seeks to address this and put people first.

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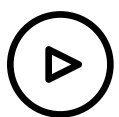

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Conflict with wildlife defined humanity in Africa, shaping our evolution and many of the paths *Homo sapiens* subsequently took.

Today, the vast majority of us live free from human-wildlife conflict – HWC in conservation speak. By HWC I mean the kind of conflict that humans lose when the stakes are terrifyingly high, such as being eaten or trampled by a large, wild animal. Most of the people who live in the shadow of potentially fatal wild animal attacks are the poorest of the poor, generally in Africa.

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They live below what can be described as the "faunal poverty line" – a term with utility because like other measurements of deprivation, it can be targeted for reduction.

Communities on the wrong side of the faunal poverty line are also usually deprived of basic needs, lacking sanitation, piped water, and electricity while often going hungry. Providing wider access in these crucial areas is the thrust of the UN's Sustainable Development Goals (SDGs).

I want to make the case here for a new SDG-like target – reducing the number of people who live under the faunal poverty line. There are a number of reasons why this should be a goal, for the sake of the poor and wider conservation aims, as well as its role in history.

Like other SDG targets – such as rolling out clean water and sanitation – the faunal poverty line is both a symptom and cause of extreme impoverishment. It is no coincidence that Africa is the world's poorest continent and the one where HWC extracts its highest toll. This stems from one of the most arresting features of global biogeography: Africa is the last great refuge of megafauna – big animals that kill humans.

This is not a natural state of affairs. It is an irony of history and prehistory because *Homo sapiens* emerged as a species in the rough African bush. Our ancestors, at the bottom of the food chain, triggered a sequence of events – control of fire to ward off predators, a meat and cooking diet that promoted increased brain size, and the resulting use of weapons. These moulded us into the global alpha predator. And it was as this predator that we began to free ourselves outside Africa from the faunal poverty line tens of thousands of years ago.

The Paleo hit list

Recent research suggests we began our migration from Africa about 190,000 years ago, with following waves. That triggered a tsunami of extinctions outside Africa of large animals that a growing scientific consensus holds was the result of overhunting – "overkill" – by prehistoric humans. First raised by US scientist Paul Martin in the 1960s to explain the sudden extinction of mammoths and other megafauna species shortly after humans arrived in the Americas, overkill has since gained wide scientific acceptance.

Five years ago, a compelling paper on the subject, spearheaded by researchers at Denmark's Aarhus University, appeared in the "Proceedings of the Royal Society of London". It linked a global extinction wave of large mammals between 132,000 and 1,000 years ago to human overkill.

This period saw the extinction or continent-wide disappearance of 177 species weighing more than 10 kg. The Aarhus team, which examined the relative roles played by climate change and humans, was categorical that human activity was the "primary driver of the worldwide megafauna losses".

"Southern South America, southeast North America, western Europe and southern Australia emerged as extinction hotspots, with sub-Saharan Africa and southern Asia as notable cold spots," wrote the authors in *Global late Quaternary megafauna extinctions linked to humans, not climate change*. Africa lost 18 mammal species weighing more than 10 kg; in South America, 62 vanished, and 43 in North America.

The Aarhus researchers, crunching the biggest data set to date, found: "Megafauna extinctions were strongly linked to hominin palaeobiogeography and only weakly to glacial-interglacial climate change." One reason: climate continuity rather than change – South America had high extinction rates despite a fairly stable climate, in marked contrast to sub-Saharan Africa where weather patterns were similar.

Africa was spared extinction on the same scale because its big animals did not share the fatal handicap of their kin elsewhere: having co-evolved with *Homo sapiens*, they were challenging human prey.

Lead author Jens Christian Svenning compiled a list of known land mammals 130,000 years ago that weighed more than 1,000kg – 47 in total, all herbivores. Of the 47, a startling 40 went extinct in prehistoric times and one species, the hippo, suffered a regional die-out in Europe, where it once roamed the Thames.

This "Big 40" included the mixotoxodon, a hippo-like brute found in South/Central America and southern North America; a dozen species of mammoths and elephant relatives; four rhino species; the bear-like dipotron of Australia; and an assortment of giant sloths and other Goliaths.

Mammals were not the only big creatures to perish. In Australia, the mega-extinction list was cold-blooded, featuring a terrestrial crocodile, a massive constrictor, and a monitor lizard, megalania, that may have reached 1,000kg, dwarfing the largest living monitor, the feared Komodo dragon of Indonesia.

Several large warm-blooded carnivores, including cave bears and lions in Europe and sabre-toothed cats and American lions and cheetahs, also went extinct – a typical scenario when an alpha predator invades new territory.

What these big extinct animals have in common is that – like their surviving relatives today – they are extremely dangerous to humans. Viewed through this prism, another pattern emerges – one resembling a Paleolithic hit list.

Dewilding and its legacies

What I am suggesting is that it is plausible that conflict with and the threat posed by megafauna was a driving force behind human-induced "overkill". HWC is often associated with livestock and crops but is also a feature of hunter-gatherer societies. The Mbendjele, a forest people of Congo-Brazzaville, use the word "*bita*" to describe their relationship with animals. *Bita*, revealingly, means "conflict".

Regardless of the reasons, the disappearance of menacing megafauna left a trail of legacies that helped shape our modern world. Scientists such as Felisa Smith at the University of New Mexico and Svenning, among others, are now exploring the ecological consequences of mega-extinctions.

These include increased forest cover in the Americas, Britain and Europe because of the removal of mammoths and elephants. This, in turn, had an impact on climate because forests act as carbon sinks.

The ecological consequences of these pre-historic events, in turn, would have had historical consequences. Some conservationists want to reverse this by reintroducing megafauna, such as elephants, into former ranges in Europe or the Americas, or by bringing mammoths back to life through cloning. This is part of a movement known as "rewilding", with roots in 19th and 20th Century efforts to save megafauna remnants, such as American bison and white rhinos in South Africa.

If replacing such species in a restored environment is "rewilding", then their initial removal by humans can be seen as a "dewilding" of the landscape that helped tame it, making the world safer for our ancestors outside Africa and pockets of Asia.

This marked the start of an epoch that many scientists now call the "Anthropocene". But for humanity it was, in many ways, liberating: it was the initial lifting of the faunal poverty line, enabling growing numbers of humans to go about their everyday business without the immediate threat of large animal attack. And a world devoid of such threats is one more conducive to a range of economic activities, from farming to trade.

Africa, however, remained burdened by beasts. The geographer and historian Jared Diamond has noted that no African mammal has been domesticated – one reason for the region's relative underdevelopment. African wildlife was a formidable obstacle on other fronts.

Crop farming is not for the faint-hearted in habitat shared with elephants. Africa's dearth of navigable rivers has been a trade hindrance, compounded by the lethal presence of hippos and crocodiles.

The African reverence for cattle – a coveted measure of wealth for many rural dwellers – makes sense in such a fearsome faunal environment. Here is something that stands out in shimmering contrast to the monstrous menagerie: a mammal that is large, mostly docile and useful.

But cattle ownership in drought-prone Africa is a precarious foundation for household savings. And the ubiquity of witchcraft belief – a conservative social force that discourages innovation and capital accumulation – in Africa may stem from the historical intensity of HWC. Animal attacks in rural Africa are often attributed to sorcery – hardly surprising as it is the one natural event that resembles an intentional act of malice.

The megafaunal extinctions also left Africa as the planet's last great reserve of ivory, paving the way for colonial conquest. The exploitation of mineral and hydrocarbon wealth followed, but the "Resource Curse" began with ivory.

African wildlife is regarded by outsiders as a natural treasure – understandable when viewed from above the faunal poverty line. But for many Africans, it is a curse. And untold numbers of Africans remain below the faunal poverty line, facing the

grim regular prospect of hippo, crocodile or lion attack.

Data dearth

How many Africans are in this line of fire? Getting the measure is a crucial first step. There are initiatives afoot. Vincenzo Penteriani, a Spanish scientist with the Pyrenean Institute of Ecology, is compiling a database of carnivore attacks worldwide. Accurate numbers in Africa are hard to come by. But the patterns in North America and Europe, where such data is available – and where the pre-historic dewildings took place –are revealing.

One recent study by Penteriani and others found that in Europe and North America, attacks on humans by large carnivores are rising. Published in the journal *Nature* in 2016, the researchers looked at 697 such incidents between 1955 and 2014 involving North American grizzly and black bears, coyotes, polar bears, wolves and the European brown bear.

Large carnivore populations have been on the rebound in the developed world because of conservation measures. The study also cited data showing a marked increase in people engaging in outdoor activities, including visiting wilderness areas. And these city slickers tend to do "risk-enhancing" things that spark attacks, such as leaving children unattended or approaching a female with young.

Bottom line: middle-class suburbanites, who have grown up comfortably above the faunal poverty line, don't know how to deal with dangerous wildlife. And they enter predatory territory *by choice* to follow fresh-air pursuits. The exception is coyote attacks, which are spiking in suburbia. But coyotes are not crocodiles – there has been only one recorded killing of a human by coyotes, in 2009, in Nova Scotia.

Fatal predatory attacks remain rare in industrialised economies. Between 2006 and 2016, the study found an average of 24.1 attacks a year in the developed world and an annual average of 3.9 fatalities. The study excludes alligator and crocodile attacks in the US South, but they are also uncommon. Florida has the lion's share. According to the state's Fish and Wildlife Conservation Commission, alligators killed 25 people between 1948 and 2018 – about one fatality every three years.

And virtually no one in Florida is attacked by an alligator because they have to fetch water.

Such incidents occur on a daily basis in Africa, yet we have no reliable data. That which does exist is patchy, but suggests the scale of deadly HWC in Africa dwarfs anything in the West.

In 2015, the Kenyan Wildlife Service recorded 46 human deaths from attack by species other than snakes – more, in a single year, than the combined European and North American total over a decade. In 2005, the UN's Food and Agriculture Organisation estimated that Mozambique – one of the world's least developed countries – suffered 300 crocodile attacks annually.

But there have been detailed assessments in Africa – which shows it can be done. Between 1990 and 2005, 563 people were killed by lions and more than 300 injured in southern Tanzania and northern Mozambique, a feline reign of terror that became the subject of a paper lead-authored by Craig Packer, probably the world's foremost lion authority.

Researchers found the attacks peaked during harvest, when bush pigs launched nocturnal raids on staple crops. Small-scale farmers took to sleeping in their fields to prevent hog damage. The result was that lions hunting pigs often found human quarry instead. The villagers thrust into this situation faced a grim choice: Starve, or be eaten. This is how poverty makes you prey.

Data could also highlight progress. I requested data from South Africa's Department of Environmental Affairs (DEA), and it shared "unverified and unaudited" numbers provided by the provinces. All but Limpopo – which probably has the highest HWC rates in the country – responded.

Since 1994, 56 people in South Africa in the other eight provinces have been killed by Big Five species, hippos, crocs or hyenas. Mpumalanga had the most with 14. KwaZulu-Natal had nine, and it would be useful to know if the trend has been on the decline. Anecdotal evidence suggests this is the case, in part because of the ANC government's roll-out of services such as piped water and sanitation in northern Kwa-Zulu Natal. Shoddy delivery service has become a byword in South Africa, but there have been accomplishments, with rural communities raised above the faunal poverty line.

The DEA says it is looking at compiling a database. And there are precedents: South Africa keeps detailed statistics on rhino poaching – surely deadly HWC incidents can also be tracked. This is not always easy – for example, there is no hard data on the number of Mozambican migrants killed by wildlife in the Kruger National Park, in part because the evidence vanishes when a human is devoured by lions.

But we should try to quantify the problem. One person who has tried is US journalist Robert Frump. In his lyrical book *The Man-Eaters of Eden*, he came to a rough tally, based on estimates of refugee traffic through Kruger and a lion kill rate of 1%. He calculated Kruger lions had killed and consumed 13,380 Mozambicans between 1960 and 2005.

Some critics might look at these numbers and argue there are more urgent priorities. The number of Africans who die annually from malaria is far higher, not to mention those who perish in conflicts or other poverty-related diseases. In South Africa, more than 60 people were murdered on the Cape Flats in the space of a recent week.

That misses the broader point. People below the faunal poverty line are those left behind, stuck in a nightmarish realm that should send a chill down humanity's collective spine. The dangers they confront are not modern gang warfare, nor the kind that obtained in pre-industrial societies. They are *pre-historical*, and no one should be expected to live that way in the 21st Century. We have a moral imperative to end their nightmare, with the added bonus of realising some conservation dreams while we are at it.

South Africa has been a leader on this front in one crucial area – the use of fences to mitigate HWC. In South Africa, elephants, rhinos, buffalo and lions are all contained on land, state or private, that is fenced. This keeps the vast majority of South Africans on the safe side of the faunal poverty line. Pointedly, South Africa is the only industrialised economy that has had dangerous African megafauna within its borders. Its response is that of an industrialised society which does not tolerate HWC and can afford costly measures. Enclosing wildlife with fences has ecological consequences. But have an understanding of these and it remains by far the best way to mitigate HWC.

Every child counts

Consider this fictional scenario: between 1990 and 2005, 563 Americans in a single state – say, Wyoming – are killed in a spate of attacks by cougars. We all know what the public response would be – outrage.

Such a human death toll inflicted by paws and claws in the developed world would never be reached, simply because it would not be tolerated. Take the case of Lane Graves, the mid-Western toddler killed by an alligator at a Disney resort in August 2016. There was saturation media coverage of the incident, public shock and awe as the animated animal world of Disney, which provided the backdrop, came chillingly to life.

In Africa, the hundreds devoured by lions in that decade-and-a-half of terror passed almost unnoticed by the rest of the world, beyond a scientific paper and a few media stories. This is another example of how poverty makes you prey: it renders your plight invisible.

But it does not make you powerless. The lion expert Packer told me that the villages where hundreds perished have long since taken the law into their own hands, poisoning most of the resident lions. In doing so, they lifted themselves above the faunal poverty line, carrying on the tradition of "dewilding" that has made our planet ecologically poorer.

Indeed, that is the most brutally effective way for a community to free itself from the faunal poverty line – extermination. If people in the West want to conserve Africa's wildlife, lethal HWC must be resolved, in ways that are beneficial to man and beast. Fencing initiatives, such as those undertaken by the NGO African Parks in Akagara National Park in Rwanda, where lions have been reintroduced, are a good start.

African Parks also established fences around its Majete and Liwonde parks in Malawi to directly address HWC.

"Majete was our first park and we have not had any fatalities from HWC since we assumed management of the park in 2003," John Scanlon, African Parks' special envoy, told me.

Another intriguing initiative is the SEEDS model developed by Silvia Ceausu, a conservation scientist at the University of Southhampton, and others. It broadly aims to look at "services" local communities receive from wildlife (such as

ecotourism revenue or protein) and who benefits, as well as the disservices (such as crop damage or lethal attack).

We need a sense of urgency to address the latter and compile a database of communities below the faunal poverty line so the right policies – fencing, or the provision of piped water – can be put into effect. No one in the developed world wants to subject their children to the terror of the faunal poverty line. Why would we expect poor Africans to? Every child should count.

One advantage of this approach is its potential appeal for Africans, who are the ultimate custodians of the continent's wildlife. Middle-class Africans often roll their eyes when confronted with campaigns to "save the lion" or "save the rhino" – understandable in a region with such pressing social challenges. So let's reverse our priorities around a movement to save African children from the crocodile's jaws and the leopard's claws. Saving them by snatching them from the faunal poverty line could have the twin benefit of conserving the last of the planet's megafauna.

This is our oldest conflict, one that goes far back into pre-history. If we want to begin the rewilding process, we need to take some more dewilding measures – fencing is a dewilding measure – but not the kind that eliminates the monsters in our midst. **DM**

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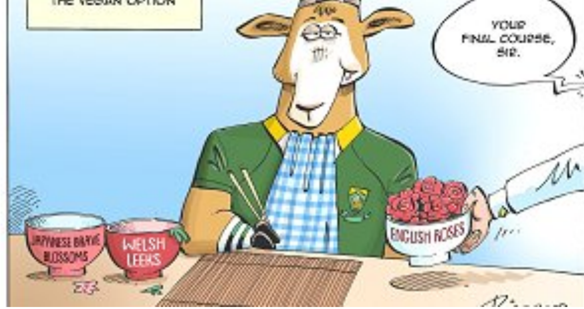

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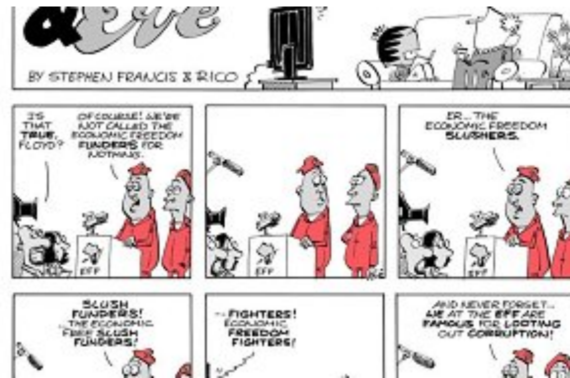

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