PANTHERA

WILDAID

WILDCRU
Wildlife Conservation Research Unit

BEYOND CECIL:
AFRICA'S LIONS IN CRISIS

CONTENTS

ABOUT PANTHERA

Panthera, founded in 2006, is devoted exclusively to preserving wild cats and their critical role in the world's ecosystems. Panthera's team of leading biologists, law enforcement experts and wild cat advocates develop innovative strategies based on the best available science to protect cheetahs, jaguars, leopards, lions, pumas, snow leopards and tigers and their vast landscapes. In 50 countries around the world, Panthera works with a wide variety of stakeholders to reduce or eliminate the most pressing threats to wild cats—securing their future, and ours.
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ABOUT WILDAID

WildAid's mission is to end the illegal wildlife trade in our lifetimes. We envision a world where people no longer buy wildlife products such as shark fin, elephant ivory and rhino horn. With an unrivaled portfolio of celebrity ambassadors and global network of media partners, WildAid leverages nearly US$200 million in annual pro bono media support with a simple but powerful message: "When the Buying Stops, the Killing Can Too." Visit wildaid.org

ABOUT WILDCRU

David Macdonald founded the Wildlife Conservation Research Unit (WildCRU) in 1986 at the University of Oxford. Now the foremost University-based centre for biodiversity conservation, the mission of the WildCRU is to achieve practical solutions to conservation problems through original research. WildCRU is particularly renowned for its work with wild carnivores, especially wild cats, including its long-running studies on lion and clouded leopard. Its training centre for early-career conservationists, so far from 32 countries, produces experts and future leaders in global conservation. Visit wildcru.org

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EXECUTIVE SUMMARY

Few stories about an individual wild animal have had as much global impact as that of Cecil, the magnificent, black-maned lion that was illegally hunted in Zimbabwe in July 2015. The massive outpouring of grief and anger spurred significant global restrictions on the import of African lion trophies, and it raised the bar for hunters and governments by requiring them to provide scientific evidence of the purported benefits of lion hunting to the species.

More importantly, this tragedy focused worldwide attention on the plight of the African lion, which is now known to be racing toward local extinction throughout much of the continent. Contrary to popular belief, trophy hunting is a small factor in the fate of the African lion—a relatively minor battle in the larger war on lions that has caused their populations to plunge by more than 43% in the past two decades to just around 20,000. In the same period, populations in West, Central and East Africa are collectively estimated to have declined by 60%.

The loss of lion habitat to agricultural expansion is the underlying factor that gives rise to all major threats to lions. Having lost at least 75% of their original habitat over the past 100 years, lions now occupy only about 8% of their historical range and are reported to have already vanished from 12 African countries.

As Africa's human population grows exponentially—from 1.2 billion currently to 2.47 billion in 2050[1]—more land is needed to house people and produce the required food to sustain them. Cultivated land area in sub-Saharan Africa is expected to increase by 21% and livestock by 73% within this same period. As human occupation of African savannas expands, interactions between lions and humans become more frequent. Lion prey species compete with livestock grazing in Protected Areas (PAs). Close contact with domestic herds can lead to lions killing livestock, which in turn provokes retaliatory killing of lions by herders and ranchers. This is one of the top three threats in West, Central, East and parts of Southern Africa.[2] Outside official PAs, retaliatory and preemptive killing is considered the primary threat to lions.[3]

Human encroachment also leads to illegal bushmeat hunting, a second severe threat to both lions and their prey. While bushmeat was once obtained primarily for subsistence in rural communities, today it is also sold commercially within African urban markets and internationally to markets in the United States and Europe. As bushmeat hunting expands from the forests to the savannas, vast areas have been emptied of large wildlife, especially the medium to large ungulates such as wildebeest, zebra, buffalo and impala on which lions subsist. Even the largest PAs are affected by bushmeat poaching, including the Serengeti where tens of thousands of wildebeest are killed in snares each year.[4] In addition to a depleted prey base, lions are often caught and killed in the snares poachers indiscriminately set for the lions' prey. In Mozambique's Niassa National Reserve, snares are the biggest threat to lions, causing 52% of mortalities.[5]

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Lions have suffered a 43% population decrease over the past two decades.

New threats are emerging, including a growing trade in lion bones and other body parts. In addition to local African use of these products for ceremonies and rituals, lions are being poached as a substitute for tiger bones in Asia.

The good news is that there are solutions to most of these threats to lions. Wherever human pressures have been reduced, savanna habitats, their wildlife populations, and particularly lions, have bounced back. Perhaps the single most important step in securing the future of lions in Africa is mobilizing massive support for effective protection and management of its system of PAs. Successful lion conservation requires significantly more resources than are currently allocated to PAs in range states. Outside of these areas, conflict arising from depredation of livestock by lions must be addressed. Reducing the vulnerability of livestock to lion predation and encouraging local people to value lions' presence are critical steps forward.

There is hope for the future of Africa's lions—the threats are known, the solutions exist, and the global passion to save this emblematic species is evident—but the world must come together to mobilize its response in the same way it did a year ago to implement effective reform.

THE CECIL EFFECT

There are many reasons why Cecil's story resonates with the media and public: the fact that the lion was named and well-known to researchers and tourists in Hwange National Park; the fact that he was a radio-collared animal; that he was killed for "fun" by a wealthy American; the tearful announcement of his death by a popular U.S. TV host; and the viral spread of photographs and commentary on social media. While the hunter was not ultimately charged with a crime, these factors galvanized a fateful moment into a global movement to avenge Cecil's death.

Since that day, numerous governments, corporations, advocacy groups, and science-based organizations have taken action. Several Western nations moved to tighten restrictions on the import of lion trophies. France and the Netherlands banned lion trophy imports outright, while the United Kingdom issued a sharp warning to the hunting industry and governments in countries permitting lion hunting to improve their performance or face a ban on trophy imports.[6,7] Australia had banned lion trophy imports earlier in the year, reportedly in response to lobbying against canned hunting.[8] Major airlines, including Delta, United and American Airlines, announced that they would stop carrying hunting trophies from lion, leopard, elephant, rhinoceros and buffalo,[9] joining British Airways and Virgin Atlantic, which already had bans in place on the carriage of hunting trophies.[10]

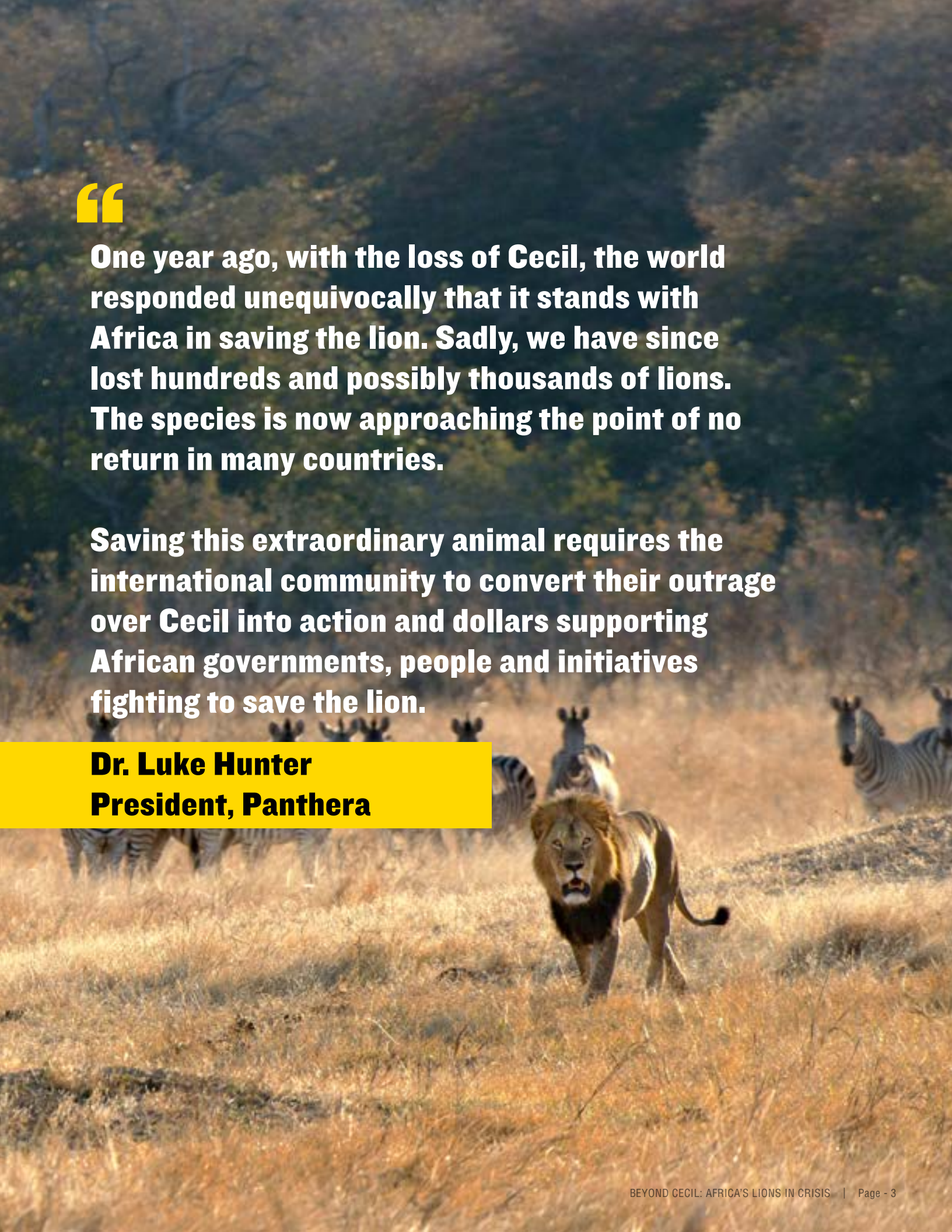
In January 2016, following the publication of a devastating study showing that most African lion populations were declining sharply, the U.S. Fish and Wildlife Service granted endangered status for the West and Central African lions, and threatened status for East and Southern African lions under the Endangered Species Act.[11]

U.S. Fish and Wildlife Service Director Dan Ashe stated that the listing would "raise the bar significantly" for African lion trophies by requiring documentation proving that the hunts had been conducted in a sustainable manner. In addition, source countries would need to show that their programs actually enhance and protect wild populations.[12] This represents an ambitious standard rarely achieved without concerted effort and ongoing verification. Only a few cases meet these criteria.

It is important to note that well before Cecil's death, some African countries that allow lion hunting had begun taking action, heeding the scientific consensus that poorly managed hunting is unsustainable. In recent years, Mozambique, Tanzania, Zambia and Zimbabwe have enacted significant reforms on lion hunting practices, including reducing their quotas for lions. At times, both Zambia and Zimbabwe have suspended lion hunting for multi-year periods to allow populations to recover.

The positive actions of these countries and the Cecil Effect notwithstanding, lions in much of Africa are in freefall.

Cecil in Hwange National Park, Zimbabwe. Paul Funston



One year ago, with the loss of Cecil, the world responded unequivocally that it stands with Africa in saving the lion. Sadly, we have since lost hundreds and possibly thousands of lions. The species is now approaching the point of no return in many countries.

Saving this extraordinary animal requires the international community to convert their outrage over Cecil into action and dollars supporting African governments, people and initiatives fighting to save the lion.

Dr. Luke Hunter
President, Panthera

POPULATION STATUS

While no credible historic estimate of the number of Africa's lions exists, the continent must once have been home to hundreds of thousands of individuals, distributed everywhere except the Sahara Desert and the equatorial rainforests of the Congo Basin. European colonization triggered a widespread decline, which has continued to escalate as human populations have grown.

This decline has accelerated in recent years. Over the past two decades, the African lion population is thought to have decreased by 43%, with approximately 20,000 remaining.[13] Only four Southern African countries have bucked this trend: Botswana, Namibia, South Africa and Zimbabwe.[14] Together, these four nations are home to an estimated 24-33% of Africa's lions. Here, lion numbers have increased by 12%. But much of this gain, especially in South Africa, is the result of reintroductions into fenced, intensively managed and relatively well-funded reserves[15]—a scenario not replicable for most of the remaining lion range.

The gains in Southern Africa obscure the rates of decline elsewhere. For example, lion populations in West, Central and East Africa are collectively estimated to have declined by 60% in the same period.

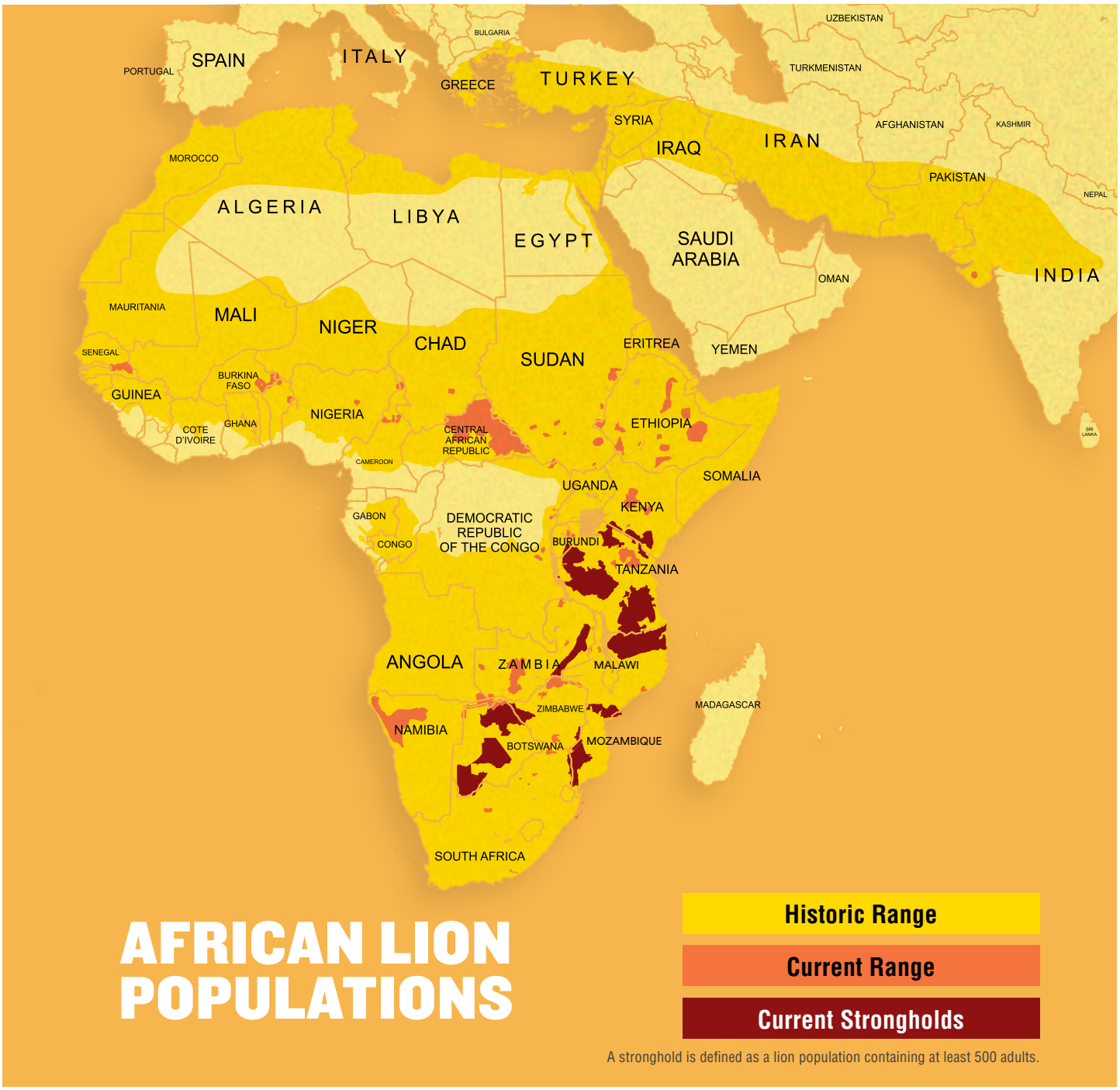
Lions now occupy only about 8% of their historical range (which once spanned an area of over 13 million km^2) and are reported to have already vanished from 12 African countries, with possible recent disappearance in another four countries.[16] Moreover, little is known about the lions of Angola, Central African Republic, Somalia and South Sudan where civil conflict and poorly funded or maintained PAs are suspected to have driven steep declines.[17]

African lions are classified as Vulnerable on the International Union for Conservation of Nature's (IUCN) Red List of Threatened Species.[18] However, the lions of West Africa are considered Critically Endangered, having lost nearly 99% of their historical range and with just 400 individuals (including large cubs

and sub-adults—fewer than 250 are adults). Of these 400, 350 are in a single subpopulation, W-Arly-Pendjari (WAP) complex, which spans Benin, Burkina Faso and Niger.[19] West African, Central African and Asiatic lions are genetically similar and likely comprise a separate subspecies (*Panthera leo leo*) from the East and Southern African lion (*Panthera leo melanochaita*).

Only six countries unequivocally harbor more than 1,000 wild lions: Tanzania and Kenya in East Africa, and Botswana, Mozambique, South Africa, and Zimbabwe in Southern Africa. A seventh country, Zambia, perhaps has 1000 lions, or close to that number. The largest subpopulations are: Selous-Niassa (Tanzania/Mozambique), Ruaha-Rungwa (Tanzania), Great Limpopo (Mozambique/ South Africa/Zimbabwe), Okavango-Chobe-Hwange (Botswana/Zimbabwe), and Serengeti-Mara (Tanzania/Kenya).

There are thought to be ten lion strongholds, defined as a population containing at least 500 adults: Ruaha-Rungwa, Serengeti-Mara, Tsavo-Mkomazi (Kenya/Tanzania), Selous (Tanzania), Luangwa (Zambia), Kgalagadi (Botswana, South Africa), Okavango-Hwange (Zimbabwe / Botswana), Mid-Zambezi (Mozambique/Zambia/Zimbabwe), Niassa (Mozambique), and Great Limpopo (Mozambique, South Africa, Zimbabwe).



THREATS

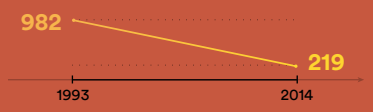
MAJOR THREATS

WEST AFRICA

Biggest Threats:
1. Bushmeat Poaching
2. Human Encroachment

Historic Range
Current Range
Outside Historic Range

Monitored Population: ↓ DECREASING



THE STATE OF THE LION

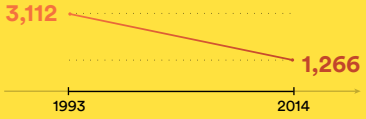
**The lion is completely extinct in North Africa*

EAST AFRICA

Biggest Threats:
1. Human-Lion Conflict
2. Human Encroachment

Historic Range
Current Range
Outside Historic Range

Monitored Population: ↓ DECREASING



CENTRAL AFRICA

Biggest Threats:
1. Bushmeat Poaching
2. Human Encroachment

Historic Range
Current Range
Outside Historic Range

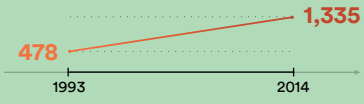
Monitored Population: ↓ DECREASING

SOUTHERN AFRICA
NORTH OF THE ZAMBEZI RIVER

Biggest Threats:
1. Bushmeat Poaching
2. Human-Lion Conflict

Historic Range
Current Range
Outside Historic Range

Monitored Population: ↑ INCREASING*



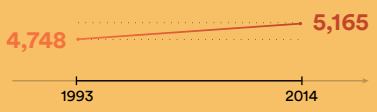
**growth in monitored population is all within Niassa National Reserve, Mozambique; elsewhere the lion is likely to be declining regionally.*

SOUTHERN AFRICA
SOUTH OF THE ZAMBEZI RIVER

Biggest Threats:
1. Human-Lion Conflict
2. Bushmeat Poaching

Historic Range
Current Range

Monitored Population: ↑ STABLE/INCREASING



A NOTE ON LION MORTALITY

Because most lion killings are illegal and rarely reported, estimates of total lions killed by people are elusive. In Niassa National Reserve in Mozambique, legal trophy hunting in 2014-2015 killed 12 lions, while at least 42 lions were killed illegally by local people.* However the estimate of illegal killing applied only to a small area with strong monitoring: many more lion deaths were never recorded. Additionally conflict-killing is a minor factor in Niassa because local people do not keep cattle—this is a major factor in most lion populations elsewhere. Taking all factors into account, the number of lions killed illegally across Africa is easily five times the number killed by trophy hunters, and it may be up to 10 times as high in some populations.

*Niassa Carnivore Project, unpublished data

HABITAT LOSS AND CONVERSION

The proliferation of human and livestock populations in Africa over the past 25 years and the accompanying loss of lion habitat to agriculture are the underlying factors that give rise to all major threats to lions. Lions struggle to coexist with people, especially the rural poor. As well as being the world's fastest growing region in terms of human population, Africa is also home to the most impoverished and rural populations, heavily reliant on subsistence farming.[20]

Having lost three-quarters or more of their original habitat over the past 100 years, lions are now mostly restricted to PAs. Lions now occupy only about 8% of their historical range.

Africa's human population is expected to increase dramatically, from 1.2 billion currently to 2.47 billion in 2050.[21] Half of this growth is predicted in nine countries including Nigeria, Democratic Republic of the Congo, Ethiopia, Tanzania and Uganda—all lion range states.[22] In some cases, human population growth rates are highest near PAs,[23] placing further pressure on already stressed ecosystems.

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Africa's human population is expected to increase dramatically, from 1.2 billion currently to 2.47 billion in 2050.

Agricultural land use in sub-Saharan Africa increased by 25% between 1970 and 2000, while domesticated animals' grazing areas expanded by 15% in the same period.[24]

Dramatic losses of wildlife habitats have been experienced in many countries; for example, in 1990 it was estimated that Côte d'Ivoire and Burkina Faso had lost 79% and 80% respectively of their natural habitat to agriculture.[25] Between 2005 and 2050, cultivated land area in sub-Saharan Africa is expected to increase by 21%, while livestock is predicted to increase by about 73%.[26]

ENCROACHMENT OF HUMANS AND LIVESTOCK INTO PROTECTED AREAS

The lion is now considered *conservation dependent*, with most remaining lion populations living in and around Protected Areas (PAs). Africa's magnificent national parks, game reserves and other protected wildlife landscapes are essential to the species' survival. Although protected on paper, many parks are vulnerable to the same anthropogenic threats that occur in human-dominated landscapes outside their boundaries. As human occupation of African savannas expands, villages are established along, and sometimes within, the PA borders, and livestock graze within the boundaries; this drives an escalation of human/carnivore interactions which leads to inevitable conflict. This conflict takes two main forms. First, livestock grazing in PAs results in competition with lion prey species and can lead to degraded habitat, both of which can drive a reduction in the numbers of native herbivores. Second, lions are more likely to encounter domestic herds and may resort to killing stock, particularly as wild prey numbers are depleted. This, in turn, provokes retaliatory killing of lions by herders and ranchers. Encroachment of people and their livestock into PAs and the associated pressure on lions is now regarded as one of the top three threats to the species in West, Central, East and parts of Southern Africa.[27] Human encroachment is also associated with illegal bushmeat hunting—another severe threat to both lions and their prey.

Livestock killed by lions.

A wildebeest killed by a poacher's snare Save Valley Conservancy, Zimbabwe. T. Labat

BUSHMEAT POACHING

The consumption of bushmeat—the meat of wild animals—has been a feature of most African cultures for millennia. Historically obtained primarily for subsistence use in rural communities, today it is sold commercially within densely populated African urban markets and even internationally to markets in the United States and Europe (an estimated 5 tons a week is shipped to Paris).[28] On the local level, bushmeat offers a cheap source of protein for rural populations. In rural Mozambique, for example, it costs US$ 3-4 to buy a chicken and just US$1.60 for a medium portion of bushmeat.[29] Conversely, more affluent consumers in urban markets view bushmeat as a luxury item, and it often costs as much as 50% more than fish or chicken.[30]

Hunting for bushmeat has become the primary threat to wildlife in some regions, including in several countries in Southern and East Africa, in addition to the nations in Central and West Africa where this has long been a major conservation issue. In many areas, including many PAs, the bushmeat trade has resulted in severe depletion of wildlife populations.

> **“**
>
> **Historically obtained for subsistence use in rural communities, bushmeat now is sold commercially within densely populated African urban markets—and even internationally to markets in the United States and Europe.**

The great majority of bushmeat hunting is illegal as perpetrators typically lack permits, hunt in restricted areas using prohibited methods, and indiscriminately kill animals of protected species, gender, or age.[31] In Central and West African forests, bushmeat is seen as critical to food security, and is recognized as an important source of protein for many rural communities.[32] It is, however, generally unsustainable and widespread overexploitation has resulted in the so-called Empty Forest Syndrome, which has the most marked impact on the apex predator of the African forest, the African leopard.[33]

More recently, intensive bushmeat hunting has shifted into large savanna landscapes, which have been emptied of large wildlife.[34] The bushmeat trade is destroying the potential for tourism and tourism-based employment, and negatively impacts food security as a potentially sustainable (if properly regulated) source of protein, as this food source becomes rapidly depleted without controls or checks.[35] In addition, local communities lose part of their natural heritage as their wildlife disappears.

Lions require medium to large ungulates to survive; they cannot persist in areas lacking species such as wildebeest, zebra, buffalo, giraffe, kudu, impala and waterbuck.[36] These species are also the preferred target of bushmeat poachers using hunting methods such as firearms, snares and gin traps. Cheap and readily available wire snares are one of the most common and destructive methods. They are easy to set with a high catch rate, but are indiscriminate and kill non-target species, such as lions and other carnivores.[37] Poachers may check snares infrequently or abandon them after one or two carcasses are removed, leading to high wastage. In Save Valley Conservancy in Zimbabwe, at least 1,410 animals were killed and left to rot in snares over a nine-year period.[38]

Bushmeat hunting has been a major factor in depleting prey across vast tracts of formerly suitable lion habitat: herbivore populations have declined by 52% in Eastern Africa and by 85% in West Africa within the past three decades.[39] The frequency of illegal hunting is higher in regions close to human settlements, often on the borders of PAs.[40] Having depleted wildlife populations in bordering areas, illegal hunters increasingly poach wildlife within PAs. Even the largest such areas are severely affected in some places. In the world-famous Serengeti, for example, tens of thousands of wildebeest are killed in poachers' snares each year.[41]
The smell of carcasses in snares attracts lions, making them vulnerable to being snared themselves, where they will choke, bleed to death, or die of thirst. In Mozambique's Niassa National Reserve, snares are by far the largest threat to lions, responsible for 52% of mortalities[42] (~40 individuals) each year in the Reserve alone.[43]

Parks in parts of Angola, Cameroon, Central African Republic, Ivory Coast, Gabon, Malawi, Mozambique, Tanzania and Zimbabwe, among others, have undergone depleted densities, declining populations, or local extinctions of lions, likely due primarily to bushmeat hunting. In West Africa, low protection levels and the resulting uncontrolled bushmeat hunting have been the primary drivers of the local extinction of lions in 17 out of 21 surveyed PAs.[44]

Snared lion. Egil Droge/Zambian Carnivore Programme

EMERGING THREAT: ILLEGAL POACHING OF LIONS

The full extent of poaching for lion bones and other parts is unclear, but the trade appears to be growing.[45] Lion products are used for ceremonies and rituals, and also as medicine, decorations and talismans in many African nations, including Somalia, Nigeria, Benin, Burkina Faso, Kenya, Senegal and Cameroon.[46] One investigation uncovered the use of lions in traditional medicine in Nigeria, where their fat, meat, bones, teeth, lungs, skin, eyes, heart and liver are used to treat a variety of ailments.[47] Cameroon's government identified trade in skins "as a major cause of the decline in lion populations in western and central Africa."[48]

Compounding local demand for "traditional" uses, there is increasing evidence that lions are being intentionally poached for Asian medicinal use. Though not originally part of Traditional Chinese Medicine (TCM), lion bones are now being shipped legally to Asia as substitutes for rare and illegal tiger products in so-called medicinal wines, potions and supplements. Tiger products have been used for centuries, believed to provide strength to the user, to treat arthritis, swelling and epilepsy, and work as an aphrodisiac.[49] But as tiger populations decline, body parts from more abundant felines, including leopards and lions, have entered the market as substitutes. The UN Convention on International Trade in Endangered Species (CITES) authorities noted "clear scope for the international trade in lion body parts for [traditional Chinese medicine and traditional African medicine] to grow uncontrollably, as it has done for other big cats.[50] There is evidence that wild lion parts from West, East and Southern Africa are already entering the extensive illegal wildlife trade to Asia.[51] Targeted poaching of lions for body parts (for either local or international trade), appears to be most problematic in West and Central Africa, and in parts of Mozambique and Tanzania.[52]

SEIZURES OF AFRICAN LION PARTS
2004-2014

Country	Seizures	# of Items Seized
Cameroon	1	6
Egypt	1	1
Ethiopia	1	4
Ghana	1	1
Kenya	3	37
Mozambique	2	2
Namibia	3	4
Nigeria	2	5
Sudan	0	0
Somalia	2	75
Tanzania	10	126
South Africa	38	96
Zambia	3	76
Zimbabwe	10	89

Numbers represent the number of importer-seized lion parts exported from these countries

Data from UNEP-WCMC

HUMAN-LION CONFLICT

To the great majority of rural Africans living where lions still occur, co-existing with the species is a formidable challenge. The lion is a large, dangerous carnivore that represents a genuine threat to livestock and, occasionally, even to people. Lions provoke deep resentment by killing cattle, which are the primary source of wealth for millions of pastoralists. As a result, lions are persecuted intensely in livestock-dominated areas. Outside PAs, retaliatory and preemptive killing by people is considered the primary threat to lions.[53]

Lions are particularly vulnerable to retaliatory killings. In contrast to warier species such as leopards or hyenas, lions often defend a livestock carcass against humans, thereby making themselves an easy target. Often, all it takes is for lion tracks to be discovered—whether or not livestock has been killed—for a hunt to be initiated. The lion's predilection to scavenging means that they are easily trapped or shot while feeding on carcasses. Although poisoning of wildlife is banned by law in most African countries, it is poorly policed and prosecuted and so has proven extremely difficult to control. The widespread availability of cheap, highly toxic and legal pesticides and herbicides has provided an effective tool for killing lions. Farmers and herders sprinkle poisons such as carbofuran on a carcass left out to attract predators, which indiscriminately kills lions, and many other species that feed on it, including vultures, leopards, hyenas and jackals.[54] In some areas, ivory poachers add poison to water holes to kill elephants, and in the process, destroy everything that drinks there, including lions.

The financial impacts of livestock losses due to lion predation vary. A single loss for a herder dependent on just a few cattle or goats can be devastating. Researchers have estimated that each lion costs ranchers in Kenya living alongside Tsavo East National Park US$290 per year in livestock losses.[55] In other areas, lions kill cattle disproportionately compared to other less valuable livestock: In areas adjacent to Cameroon's Waza National Park lions comprised only about 3.1% of all livestock losses, but were estimated to represent more than 22% of financial losses—about US$370 per owner.[56]

The psychological impacts, including feelings of resentment, are also significant: many of those who live in close proximity to lions have a negative perception of the animals, regarding them as vermin that should be eradicated.[57] In some cases, livestock farmers poach wildlife as a protest against losses incurred from depredation and other sources of human-wildlife conflict.

As the killing of lions by local people is usually illegal, reliable estimates of its extent and impact are lacking. The lions of Kenya's Nairobi National Park and the adjacent Kitengela Plains were almost wiped out by a wave of spearing that killed at least 87 lions between 1998 and 2005.[58] A minimum of 108 lions, and probably many more, were killed in Kenya's Tsavo-Amboseli Ecosystem (lying between Amboseli and Tsavo West National Parks) between 2001 and 2006.[59] In Tanzania, over 125 lions were killed between 2000 and 2005 in the greater Tarangire-Manyara ecosystem, and people killed at least 35 lions in the Ngorongoro Conservation Area between 1998 and 2004.[60]

Credit Unknown

TROPHY HUNTING

Despite the significant attention trophy hunting received in the wake of Cecil's death, it is a relatively small factor contributing to the lion's current declining status. In most areas where wild lions are hunted, they are also exposed to greater threats of bushmeat poaching and human-lion conflict. In combination, these factors can severely reduce lion numbers. Hunting can act as an added threat to lion populations already under intense pressure from people.

Unlike many ungulate species, which have evolved with high rates of natural predation, lions are highly vulnerable to overhunting. The lion's social system elevates this vulnerability: Removal of pride males can escalate disruption within a population, driving increased rates of infanticide, lowering reproductive and survival rates, and displacing pride members into higher risk areas.

Eight countries consistently export lion trophies: Zimbabwe, Tanzania, South Africa, Botswana, Central African Republic, Mozambique, Namibia and Zambia. To their credit, in recent years Mozambique, Tanzania, Zambia and Zimbabwe have enacted reforms on lion hunting practices by reducing their quotas and raising age limits for trophy males. Recognizing that trophy hunting has contributed to population declines, both Zambia and Zimbabwe have temporarily suspended lion hunting on a national level and regionally respectively to allow populations to recover. The rapid recovery of lions under these moratoria demonstrated unequivocally that excessive hunting quotas suppress wild populations.

> **"As the Cecil tragedy showed, hunting is hard to regulate and difficult to ensure it's truly sustainable.**
>
> *- Peter Knights, WildAid CEO*

A recent study demonstrated the difficulties of getting the formula just right. In the study area between a protected national park and the adjacent hunting area in Zambia's Luangwa Valley, hunting combines with other forms of human-caused mortality including retaliatory killing by herders and deaths in snares.[61] Sophisticated population modeling showed that, unless these other forms of mortality could be significantly reduced, any hunting at all was likely to contribute to population declines over a 25-year period.

As more science becomes available on the negative effects of trophy hunting on lions and other animals with low natural mortality rates, the restrictions on hunting should be tightened accordingly. However, the greatest challenge for opponents of hunting is how to provide alternative sources of revenue to governments, landowners and communities to support wildlife management were it to end.

TROPHY HUNTING: DOES IT HELP OR HURT CONSERVATION?

PROPONENTS ARGUE:

- It generates a significant proportion of the operational revenues of state wildlife authorities in some countries.
- It creates economic incentives for the retention of large areas of state land for wildlife in addition to National Parks in the form of game reserves and wildlife management areas.
- It creates economic incentives for wildlife on both community and private land.
- It provides incentives for communities to coexist with wildlife where benefits from hunting are retained locally.
- In some areas, hunters contribute to anti-poaching and the presence of operators can help to reduce poaching, human encroachment and other threats.
- It only targets post-reproductive males and so does not impact populations.
- It can operate in areas of low infrastructure or scenic appeal, under conditions of political instability where regular tourism is generally not viable.

OPPONENTS ARGUE:

- It often targets males in their reproductive prime for a better trophy.
- It can lead to elevated infanticide and reduced reproduction by removing too many adult males, leading to population declines.
- It is often a source of mortality due to other anthropogenic factors such as snaring and retaliatory killing.
- It can lead to government departments becoming dependent on revenue, providing incentive to keep quotas high.
- It is often carried out on the boundaries of national parks, siphoning off lions from protected populations.
- It often does not provide adequate revenues to manage and secure lands effectively.
- It often fails to divide revenues fairly with communities, and government agencies may be unwilling to devolve user rights because they depend on hunting revenue for their core budget.
- It is subject to widespread abuse of regulations and is very difficult to control (as Cecil's case illustrated).
- It often does not benefit those intended as corruption can prevent the revenue flow from trickling down to village or individual level.

CAPTIVE LIONS AND CANNED HUNTING

An estimated 1,000 captive lions are legally killed in so-called "canned hunts" in South Africa each year,[62] which cost on average less than a third of a "fair chase" hunt (US$20,000 vs. US$76,000).[63] In a canned hunt, a paying hunter shoots a captive-bred lion in an enclosed space, ensuring a quick safari and a guaranteed trophy. South Africa's canned hunting feeds a legal trade of lion parts, and particularly bones, to Asia as replacements for illegal tiger products in so-called medicinal wines, potions and supplements. In total, 1,160 lion skeletons were legally exported from South Africa between 2008 and 2011.[64] Many lion breeding facilities in South Africa generate further profits by offering lion cub feeding and close encounters with lions that draw thousands of tourists and paying "volunteers." Cubs are taken away from mothers shortly after birth and bottle-fed by humans, so that the lioness will become fertile again faster.[65] When cubs outgrow tourists' laps, many are sold to hunting ranches and lion breeders for the canned hunting market.

Proponents of breeding and canned hunts contend that they relieve pressure on wild populations by satisfying the demand for wild hunts and lion bones from a captive-bred source. But there is no evidence for either claim. Canned hunters are largely a different market to "fair chase" hunters, and the increase in captive lion hunts does little to reduce the demand for wild hunts. Meanwhile, South Africa's bone trade has created a legal conduit for lion bone that formerly was not used in Asia. As some consumers believe wild sources are more efficacious than captive ones, it is inevitable that parts of wild killed lions will enter the same trade routes.

Lion cubs at a breeding farm. Pippa Hankinson

SOLUTIONS

The future of the lion in Africa hangs in the balance. Although there is a scattering of populations that are probably secure for the long-term, many more are under extreme pressure and will disappear without concerted conservation action. Africa still retains truly vast areas of wilderness. Fortunately, the iconic woodland savannas that lions require are resilient. Wherever human pressures have been reduced, these habitats, their wildlife populations, and especially lion populations, have been able to bounce back. Solutions exist and they are not complicated, but will require a global response.

STRENGTHENING PROTECTED AREAS

Perhaps the single most important step in securing a future for the lion in Africa is mobilizing massive support for the continent's vast system of PAs. If secured, their land area would ensure the long-term survival of the lion and that of many other species. African PAs incorporate 1.51 million km^2 of lion range—an area more than twice the size of Texas. However, most are chronically underfunded, and only 31% of PAs with lions currently maintain the species at 50% or greater of the natural density they would reach if only suffering natural mortality.[66]

Reinforcing protected areas is a massive conservation opportunity requiring massive support. Based on the operational budgets of NGO African Parks, in the seven parks in six countries that the organization co-manages, effective management of all PAs within the current lion range would require an annual budget of at least US$1.25 billion ($830 ± $285/km^2/year, inflated to 2015 values).[67] The Cecil Summit, to be convened by WildCcru and Panthera in September 2016, will seek to determine the current shortfall in funding as a target for global efforts.

Why does this require such significant investment? Anti-poaching law enforcement, for example, is costly and challenging. Similarly, effective engagement with communities, and measures to address human wildlife conflict, require adequate human and financial resources. PA managers require adequate manpower to conduct patrols and to fulfill management duties. Machinery is needed to maintain roads and infrastructure, and vehicles and fuel are required for deployments. Aerial support is an extremely useful means of detecting and responding to illegal activity. While funding needs can be reduced if communities are brought on side and effectively engaged in conservation efforts, adequate resourcing remains a necessity, not least because a proportion of illegal hunting is often done by people living far from the PA boundary.

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While achieving conservation outcomes, strengthening support for Protected Areas would create jobs, attract more tourism and stimulate economic growth.

While achieving conservation outcomes, adequate funding would create jobs, as well as stimulate tourism development and economic growth. These outcomes may be best achieved through partnerships between the private sector, NGOs and state wildlife authorities, which may provide access to long-term funding and technical support.

ACTIONS

- *Urgently mobilize significantly elevated support for the management of African PAs; support must come from both African governments and the international community. Such support will both enhance the conservation of lions and help to stimulate tourism industry development, economic growth and job creation.*
- *Foster more partnerships between NGOs and the private sector with state wildlife authorities for the management of underfunded PAs. Such arrangements help support the efforts of state wildlife authorities by providing access to both long-term funding and technical support.*
- *Ensure that local people have access to protein without needing to resort to bushmeat by improving people's ability to raise and maintain livestock; provide access to cheap livestock vaccinations and health care to reduce disease, and apply interventions for reducing losses to carnivores.*

Cecil, Zimbabwe. Craig Taylor

PROS AND CONS OF FENCING

In some regions of Africa, notably South Africa, Protected Areas are partially or entirely fenced. Fencing helps to prevent encroachment of people and livestock into parks, and helps to reduce conflict caused by dangerous wildlife moving into neighboring communities. Fencing has helped some reserves, especially those under 1,000km^2, successfully conserve lions.[68] However, fencing also has serious downsides, including ecosystem fragmentation, destruction of migration routes, genetic isolation of populations and re-purposing of fencing materials for wire snare poaching.[69]

ADDRESSING CONFLICT BETWEEN LIONS AND PEOPLE

Wherever there are people and their livestock, the lion will not persist unless the key driver of conflict—depredation by lions—is addressed. This is the most essential activity in most lion range outside PAs, the lands immediately adjacent to PAs and inside the PAs where people illegally graze domestic animals.

The first priority is reducing the vulnerability of livestock. Although loss to lions and other carnivores may always be a feature of human-dominated landscapes in Africa, it can be reduced so that grievances with lions are minimized. Successful projects have worked with communities to secure the night time corrals and to improve other aspects of husbandry. Typically community members are employed to give warning when lions approach livestock areas, to empathize with those who have lost livestock and to encourage them not to retaliate.

As well as reducing losses to lions, people need to value their presence. Tourism is one of the most important mechanisms that potentially brings revenue to communities, and attaches a value to the lion as one of the most highly sought after species. However, as with hunting, tourism often fails to directly benefit communities shouldering the main burden of living with lions, and it is not always viable in remote or undeveloped areas. There is an urgent need for new, innovative and globally acceptable means of generating incentives to encourage African people to live with lions.

> **Although loss of livestock to lions and other carnivores may always be a feature of human-dominated landscapes in Africa, it can be significantly reduced so that grievances with lions are minimized.**

ACTIONS

- *Identify creative funding sources to support 'performance payments' type projects, where communities are directly rewarded for protecting and living with wildlife (without relying on tenuous tourism or hunting income). Such performance payments could be in the form of improved educational opportunities, or better healthcare, thus providing avenues for aligning conservation and broader development objectives.*
- *Develop projects where communities are engaged to reduce depredation of livestock by lions via wide-scale husbandry improvements—reinforcing livestock night enclosures, accompanying livestock while grazing in the field and ensuring livestock is not left out in the field at night.*
- *Replace wide-spectrum pesticides and herbicides highly toxic to wildlife with pest-specific compounds that are not dangerous to wildlife.*

Christian Sperka

COMPENSATION VERSUS REWARD

Compensating pastoralists for livestock killed by lions would seem to be an intuitive solution, and some practitioners in Kenya have used it successfully to reduce killing of lions. It can be especially useful to calm outbreaks of conflict, such as during droughts when livestock killing by lions may escalate. However, even successful programs have seen spikes of lion killing. Compensation payments often do little to reduce actual stock depreadation and may actually reward poor husbandry practices by reducing incentives to better protect cattle from lions. “Performance payments” flip that idea by giving lions a direct value: People are paid for the number of lions living in their landscape, and evidence of breeding attracts a premium payment. Though largely experimental, these payments have significant potential.

DOES CONFLICT MITIGATION WORK?

In northern Namibia, a cooperative effort between a local NGO, the Kwando Carnivore Project, and Panthera aims to reduce the retaliatory killing of lions by pastoralists living in conflict hotspots near PAs. With the cooperation of local residents, the project builds large, very secure corrals to provide a safe place to house livestock at night. The corrals limit the ability of lions to easily take livestock from their night quarters, formerly a regular event when poorly built enclosures made from acacia thorn-trees were the norm. The new corrals are also sufficiently strong to withstand panicked cattle stampeding when they smell lions nearby. Since the project’s inception, depredation at night in the villages has been eliminated (although livestock is still vulnerable to lions if not closely monitored while out grazing during the day). In the same period, the number of lions killed by people has dropped from at least 20 in 2013, before the corrals were built, to one in 2015, and no lion deaths to date in 2016.

Christian Sperka


Christian Sperka

REFORMING TROPHY HUNTING OF LIONS

There is a strong consensus among lion scientists that if trophy hunting of lions is to continue, there must be urgent and widespread reform in its practice. Given the significant challenges in addressing other forms of anthropogenic mortality of lions, sustainable hunting will be difficult to achieve in many areas. Numerous recent publications have provided strong scientific guidance on some of the reforms necessary to reduce the risks associated with lion hunting:[70, 71]

ACTIONS

- *Ensure that tight age restrictions are in place in all countries where lions are hunted, and raise the minimum permissible age to seven years.*
- *Introduce adaptive quota-setting based on the age of the lions hunted in the previous year, whereby quotas are cut if underage lions are hunted.*
- *Ensure that there is independent auditing of the ages of lions hunted, and that aging and quota setting processes are fully transparent.*
- *In all but the very best managed areas, restrict harvests to 0.5/1,000 km^2.*
- *In cases where lion populations have been over-hunted and adversely affected by excessive harvests, introduce moratoria to allow populations to recover, and only consider re-opening of hunting if reforms are in place.*
- *Reform the process for allocating hunting blocks by rooting out corruption and ensuring that only reputable hunting operators are allocated leases.*
- *Allocate long leases for hunting areas, with much clearer responsibilities for anti-poaching and community outreach work allocated to hunting operators.*
- *Regularly review the performance of hunting operators vis-à-vis concession management.*
- *Provide central government funding to wildlife authorities such that they can devolve user rights over wildlife to communities in the hunting blocks where people live, so that they can derive most or all of the benefits from hunting.*
- *Introduce certification of hunting operators, such that the 'gold star' operators with the best track records in sustainable hunting, conservation and community work are easily identifiable by the hunting clientele.*
- *Prohibit canned lion hunting while strictly controlling wild lion hunts, and ensuring that the price of wild lion hunts is high.*

REDUCING DEMAND FOR LION PARTS

To ensure Africa's lions do not suffer a fate similar to that of Asia's tigers, educational campaigns in both Africa and Asia, particularly China, are needed to address demand for lion products. UN CITES authorities have already noted the international trade in lion body parts has the potential to grow uncontrollably, as it has with other big cats. The key now is to suppress this demand before it can further impact—and likely decimate—Africa's wild lions. Campaigns are needed to educate consumers and potential consumers about the current state of lions, to discourage the use of bones, skins and other parts in traditional medicines by debunking false medicinal beliefs, and encouraging local support for conservation of Africa's natural heritage.

VIEWS FROM AFRICAN RANGE STATES[72]

Delegates from 28 African lion range states met in Uganda from May 30-31, 2016 to discuss the conservation, management and restoration of the lion and its habitat in Africa. The resulting communiqué:

- Agreed on the need to improve the collection of scientific information and data on population status as well as to monitor changes in populations

- Called upon Range States to strengthen their legislation on lion conservation and to promote the standardization of land-use designations, establish effective governance structures and improve law enforcement measures vis-à-vis migrating cattle holders and poachers

- Emphasized the need for the development of national action plans and adaptive management practices to conserve lions at the national level

- Agreed that community-based natural resource management, the creation of incentives for local communities to engage in lion conservation, the sharing of conservation benefits, and the establishment of mitigation measures can increase lion range and are essential to the conservation success of lions

- Called for the establishment of viable ecosystem and wildlife-based land-use practices, ensuring that agricultural activities and mining operations do not impede lion conservation

• Highlighted the contribution that trophy hunting makes to lion conservation in some countries, where it is based on scientifically established quotas, taking into account the social position, age and sex of an animal

• Highlighted the potentially damaging effects that import bans on trophies could have for currently stable lion populations

• Recognized the need for transboundary cooperation and management systems in light of the high number of transboundary lion populations

• Called upon CITES, CMS and IUCN to provide scientific information, to assist with the establishment of a mechanism to develop joint lion conservation plans and strategies, to assist with capacity building in lion conservation and management, public awareness raising and the establishment of a fund for specific emergency projects

• Called upon CITES to support Range States with the drafting of comparative analyses of countries that allow or do not allow hunting, the provision of funds to establish a CITES lion task force composed of countries most affected by poaching and illegal trade, and with undertaking a study on legal and illegal trade in wild lions, including lion bones, to ascertain the origin and smuggling routes and to provide support with enforcement

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