

THE CECIL FUND

CREATING A LEGACY



WILDCRU 
Wildlife Conservation Research Unit

CECIL'S PRIDE

Cecil was first fitted with a GPS satellite collar in November 2008 when he was between five and six years old. He was a male lion coming into his prime. Over the next eight years, while WildCRU monitored his movements, he became a firm favourite amongst the researchers, safari guides and visitors to the safari lodges in Hwange National Park. By challenging other males for territorial dominance, Cecil, and his coalition partner Jericho, succeeded in claiming, and successfully holding, territory in the eastern part of Hwange National Park, home to the Ngweshla pride. On this page and throughout the following pages you'll see photographs of a variety of lions, all of which are lions known to be sired by Cecil, or the prides he consorted with while he was alive. Through them Cecil's legacy in Hwange National Park lives on.



DR ANDREW LOVERIDGE
DIRECTOR
TRANS-KALAHARI PREDATOR PROGRAMME

Through this report we'd like to thank you for your generous support of our lion conservation work.

When, on a warm November morning in 2008, I fitted a GPS collar on a majestic, dark maned male lion, newly arrived in the project's study site, I had no idea he would become a global phenomenon. The big cat, study animal MAGM1, would later be known as Cecil the Lion and the field-work my team and I were doing was part a long term study of lions in Hwange National Park.

But why study lions at all? The common perception is that they are conspicuous, plentiful and well known species. Nothing could be further from the truth. Although lions have been intensively studied in East Africa since the 1970s, when David Macdonald and I started this research in 1999 very little was known about the lion population inhabiting the semi-arid savannahs at the edge of the Kalahari. We were to discover, amongst other things, their unique behavioural adaptations to life in a dry ecosystem including their predilection for hunting elephants, their remarkable journeys and the vast areas of habitat they need to survive. We also discovered the threats they face from human persecution when they leave the safety of the national park, adding to the growing realisation of just how precarious the future of lions might be. Cecil was one of the many lions whose lives we have studied in intimate detail over the last 20 years. His death was emotional and saddening for our research team but the global furore surrounding his loss took us by surprise. Perhaps the level of public concern might have been something to do with the manner of his death at the hands of an American bow hunter, or perhaps because the society we live in is rightly starting to question the destructive relationship humanity has with nature. Indeed the future of lions is inextricably entangled with the future choices of human society and the willingness of African people to share a landscape with these beautiful, but dangerous creatures.

It has been five years since Cecil died and in that time we've worked hard and achieved a great deal to further the conservation of lions. In this report you can explore the science we do to better understand the threats to lions. For instance we have GPS tagged 20 lions and surveyed lion populations across 4.7 million acres in 10 protected areas. We've taken action to mitigate threats to lions, by installing more than 50 predator proof livestock enclosures and training nearly 60 community lion guardians. In this report you can meet the dedicated team of Guardians and find out what it takes to live alongside lions and protect the livelihoods of nearly 1300 families whose livestock are vulnerable to predation. You can also celebrate with us the successes of the passionate young African conservationists we have trained, men and women who are poised to take the lead in addressing tomorrow's conservation challenges.



For 20 years, Andrew Loveridge, David Macdonald and the lion research team have been studying lion ecology, predator-prey interactions, and monitoring the long term demographics and population trends of lions and their prey in Hwange National Park in Zimbabwe. In 2013, the project, then known as **Hwange Lion Research**, was extended into Botswana and later, together with the team's work there, formed the **Trans-Kalahari Predator Programme**. As the project continues to expand it combines field research on lion ecology and movement behaviour to inform conservation planning and policy, along with community projects to mitigate human-lion conflict and promote co-existence.



The lioness photographed is one of Cecil's daughters with a male lion called Humba. Humba was originally from a pride known as the 'Nora Pride', and with his brother, Netsayi, took over Cecil's home range in the Ngweshla area of Hwange National Park early in 2018, displacing a male lion called Bhubesi who had been in the area since Cecil's death in 2015.

WILD LIONS IN AFRICA

a threatened species...

There are only 56 wild lion populations left

Nearly half (43%) of the remaining wild populations have 50 or fewer lions

Over half (51%) of the remaining populations have 100 or fewer lions

Only 6 wild populations have over 1000 lions

There are only 25 lion range countries left in Africa

Lions have now disappeared from 92% of historic range

Historically lions ranged over 21.2 million km²

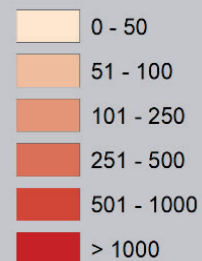
Today they range over only 1.7 million km²



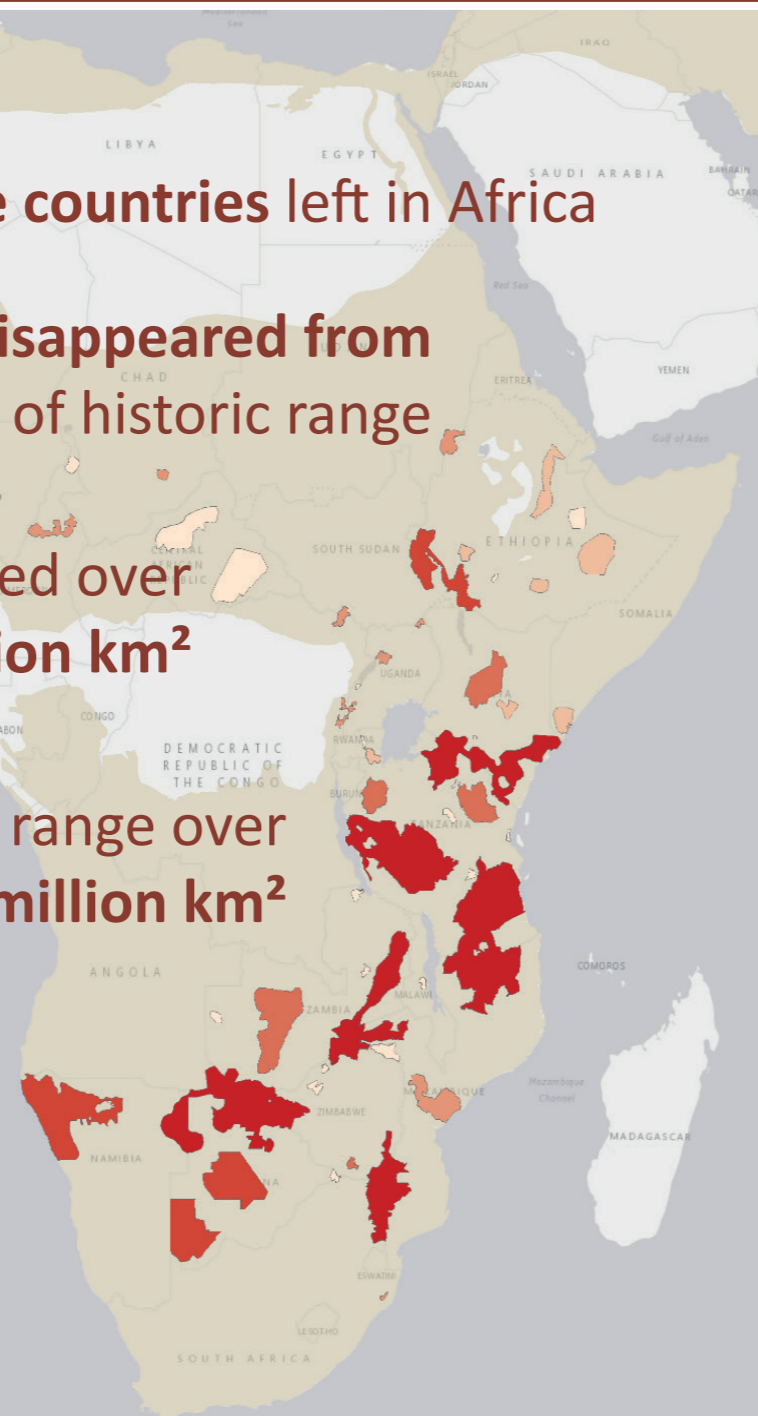
Legend

Extant wild lion range

No. of lions



Historic lion range



BY DAVID MACDONALD
FOUNDER & DIRECTOR
WILDCRU



FROM ONE LION TO ALL LIONS ACROSS THE CONTINENT

Almost everything is a matter of scale. Cecil was just one lion, but understanding his life, and his fate, requires scaling up through a broader understanding of the prides he dominated, how those prides linked to their neighbours, and through them to the population of lions in the KAZA region, linked to each other by variously tenuous corridors of Trans-Kalahari habitat, and onwards to the remaining, but shrinking, lion population of the Continent. That is what is remarkable about WildCRU's Trans-Kalahari Predator Programme, and why the support of donors to the Cecil Fund has mattered so much: its lens picks out the tiniest, but crucial, details of lion ecology, and uses them to underpin conservation across a continent. And in the same way, we work with single farmers, often the most impoverished, through to lofty national and regional policy-makers in our dedication to foster the wellbeing of both lions and the people that live alongside them. Which matters most, the single lion or its population, the humble farmer or his community, the locality or the region? These false contrasts miss the point – of the connectedness of everything, across scales, from groundedness to geopolitics. That is why, in this report on the wonderful achievements made possible by donors to WildCRU's Cecil Fund, you will read of ecology, agriculture, sociology, technology, education and policy: start with concern for one lion, and soon you are enmeshed in concern for every aspect of nature, people and the future.

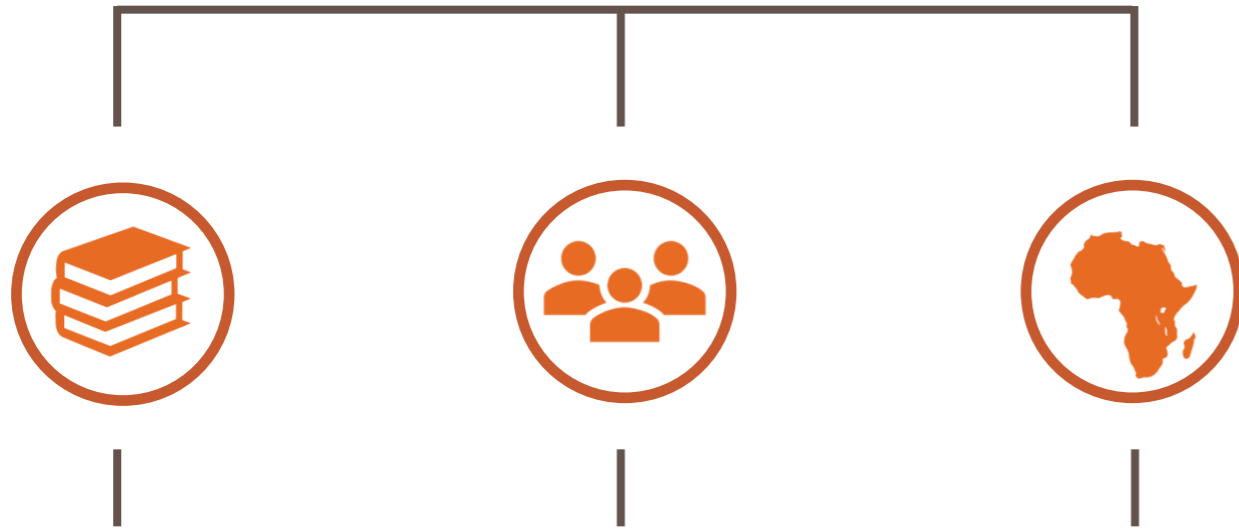
HOW DID IT ALL START?

There are two answers. One was a moonlit night in 1998 when my then student Andy Loveridge, just completing a doctorate on jackals, me and the late Lionel Reynolds sipped Glenfiddich by a waterhole in Hwange amidst the huffing and puffing of a shadowy herd of elephants. Lionel, with a life-time of experience of the lions of Hwange, and horrified at their tumbling numbers, begged us to replace the jackal project with a lion one. We did, and if the next 20 years have been successful it was because, for me, they have been navigated with the right partner – through Andy's dedication our team has equipped more than 200 lions with satellite tracking devices and one of them, first tagged in 2008, was nicknamed Cecil.



The second answer is that it all began in July, 2015, when Cecil was killed by a bow-hunter. On the 28th Jimmy Kimmel's tearful appeal sent 4.4 million people to our website. The following months saw 96,000 print media articles that catapulted Cecil and our project into households around the world – perhaps yours was amongst them, and perhaps you were amongst those whose donations totalled over US\$1,000,000. If so, this report is yours, because you have been the engine of our achievements, and we thank you. But now it's a matter of scale: we need to keep going, scaling up our impact, so if you like what you read in this anniversary report, please support us again if you can.

OUR CONSERVATION APPROACH



EDUCATION & TRAINING



Who better to be working in conservation than the people from the countries where the wildlife exists? WildCRU, part of the University of Oxford, provides opportunities for enterprising and talented conservationists to train as world class conservation practitioners. Combining this training with their connection to their natural heritage, appreciation of local culture and in-depth understanding of economic environments, they are exceptionally placed to drive forward conservation efforts.

THE COEXISTENCE OF HUMANS AND WILDLIFE



When lions stray out of protected areas into community lands they occasionally kill livestock, causing serious economic loss and disruption. Livestock losses often lead to the retaliatory killing of lions by members of the community. Across Africa, lions lost to retaliatory killing contributes significantly to the decline in numbers of wild lions, as well as reducing the genetic connectivity between populations. By developing coexistence programmes with the communities we are able to substantially reduce the loss of livestock and therefore also reduce the number of lions killed in retaliation.

LIONS IN THE LANDSCAPE



As wide-ranging predators, lions need vast amounts of space and to be able to disperse long distances to maintain healthy populations. With growing human and livestock numbers driving an increased demand for land, areas that have previously been suitable for wildlife are now being used by people. Land use change is fragmenting natural habitat, isolating lion populations and increasing the likelihood of inbreeding, intensifying vulnerability to local extinctions. Research to understand the ecology and behaviour of lions in the landscape is critical to protecting them. Using computer simulations for scenario planning we can predict the effect that further land use changes will have on lion populations. With our data, and working with policy makers, we will be able to develop management plans that take into account the vitally important natural movement of lions between protected areas.

FUTURE CONSERVATION GAME CHANGERS



Liomba-Junior Mathe (Leo) was awarded a **Cecil Fund Scholarship** to undertake WildCRU's **Post Graduate Diploma in International Wildlife Conservation Practice**. Equipped with the theoretical and practical skills from his study in Oxford, Leo returned to Zimbabwe where he now manages the daily operations of the coexistence programme. He is a member of the African Lion Working Group and has represented the Kavango Transfrontier Conservation Area as an Ambassador. Leo's expertise in conflict mitigation is highly sought after across the region, often taking him out in to new areas, both in country and further afield, to assist with the development of new programmes and the training of human-wildlife coexistence teams.

'I don't want my children learning from drawings of wildlife, they should be able to learn from real wildlife in the bush.'

'My MPhil journey has been a truly humbling experience and has opened my eyes to the challenges around solving human-lion conflict, and I believe my work will contribute to better understanding the needs of communities when planning human-wildlife conflict mitigation strategies.'

Tlamele Matsoga is from Gaborone, Botswana. In 2017 she gained a first class Bachelor of Arts (Humanities), and then worked as a Research Assistant for projects with the African Union-EU Partnership and the Southern African Science Service Centre for Climate Change and Adaptive Land Management. In 2019 she was awarded a **Cecil Fund Scholarship** for a Master of Philosophy project studying the social and environmental drivers of human-lion conflict in northern Botswana, at the Okavango Research Institute, University of Botswana.

Moreangels Mbizah completed a Masters research project with the Lowveld Wild Dog Project in South-East Lowveld, Zimbabwe before she joined WildCRU's **Post Graduate Diploma in International Wildlife Conservation Practice**. Returning to Zimbabwe, Moreangels developed her DPhil thesis ideas whilst working with TKPP's Hwange Lion Research. Moreangels completed her **doctorate** in 2018 with the support of a **Cecil Fund Scholarship**.

'The communities that live with the lions are the ones best positioned to help the lions the most.'

Moreangels was featured in a National Geographic film and in 2019 was awarded a TED Fellowship. Working with WildCRU partners, Panthera and the Lion Recovery Fund, she has founded an NGO in Zimbabwe called **Wildlife Conservation Action** promoting human-wildlife coexistence and socio-economic development of communities living next to wildlife areas.

Lovemore Sibanda joined TKPP's Hwange Lion Research in 2010 and worked as a Community Liaison Officer for two years until travelling to Oxford to undertake the **Post Graduate Diploma in International Wildlife Conservation Practice**. Continuing to work in Zimbabwe with the Long Shields Lion Guardians, Lovemore had the opportunity to come back to Oxford in 2016 with the support of a Beit Trust Scholarship and **Cecil Fund Sponsorship** to undertake a DPhil. Lovemore's thesis is evaluating the impacts of our human-lion conflict mitigation strategy on the well-being of rural communities. Whilst undertaking this intensive academic work in Oxford, Lovemore also manages the Long Shields Lion Guardians from afar.

'The opportunity to study in Oxford has been life changing for me. I have had the chance to meet and interact with some of the worlds leading conservation scientists.'



LIVING ALONGSIDE LIONS

African lions are charismatic and iconic, but for those communities who live alongside them, they can cause loss of income and serious harm.

Livestock is a valuable commodity in rural Africa. Not only does keeping livestock represent wealth and status, they are also used for ploughing, fetching water and transport. Crucially, livestock can be a significant financial asset, so when they are killed by lions it can have a devastating impact on the whole family.

Research carried out by TKPP shows that the majority of livestock losses to lions occur at night, and when livestock are left to graze unattended. **Improving livestock husbandry practices** makes a huge difference.



Traditionally, farmers have kept their cattle at night in 'bomas', or protective enclosures, made of logs and brushwood. Working with the communities, TKPP introduced an innovative **mobile boma** concept encouraging farmers to pool their cattle in large, high density enclosures. These enclosures are made with tough, 2 metre high opaque sheeting so the lions and cows cannot see each other, stopping lions from attacking and cows from stampeding.



Unlike traditional enclosures, mobile bomas can be placed in crop fields to **improve soil fertility** and **improve food security**. By breaking up the soil with their hooves and depositing dung and urine in the fields, cows help to naturally fertilize crop fields.



Field that hasn't been fertilised....

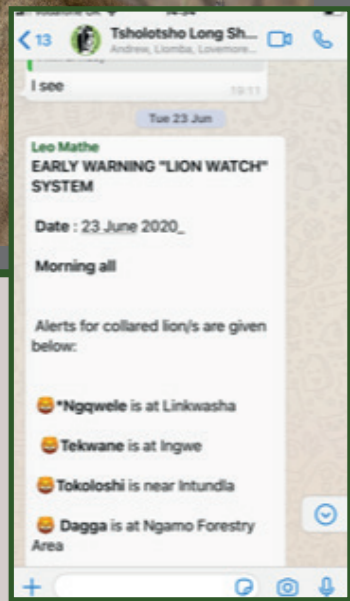
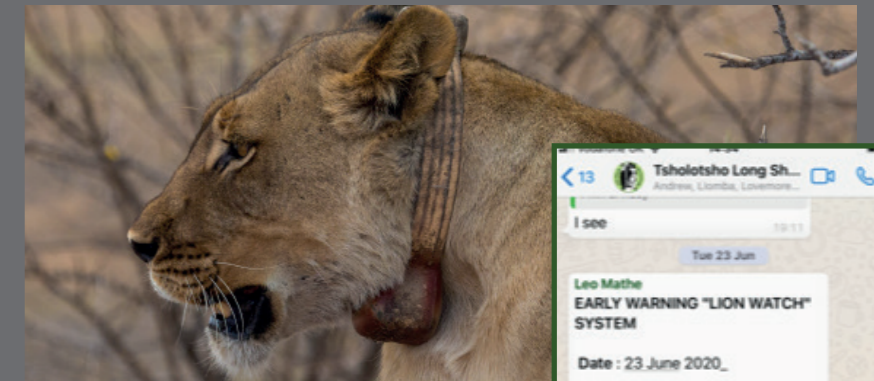
... next to a field that has been fertilised by the mobile bomas system

Every community requires a unique approach. In Botswana the communities do not use the mobile boma system, however prefer to fortify their bomas with a **predator resistant** strong wire mesh wall.



To date, no cattle have been killed while enclosed overnight in one of our mobile or fortified bomas

In Zimbabwe, using GPS satellite collars we monitor lion prides situated on park boundaries that are known to cross into community lands and cause conflict with people. Our Guardians provide an **early warning system** to local farmers which enables them to gather their livestock and move them to safety.



The bomas are moved to new sites every 2 - 3 weeks fertilising multiple fields each season. When using our mobile boma system, **crop yields** have been recorded to increase by approximately **30%**. Fields will remain fertilised for up to 5 years.



- To ensure the best possible conservation impact our Guardians go through intensive training



- Guardians must be physically fit and have plenty of energy, especially when helping the farmers construct mobile and predator-resistant bomas

Our **Lion and Community Guardians**, always **recruited locally** from within the communities, are the **foundation** of our **coexistence** work. They take responsibility for patrolling and updating farmers in their given area, and are **instrumental** in delivering both practical **mitigation measures** and **educational information** to community members.

MEET THE GUARDIANS



Charles Tshuma, Concilia Tshuma, David Nchindo, Emmanuel Tembo, George Ngwenya, Hilder Hove, Levison Awakhiwe Sibanda, Lewis Ncube, Lowani Mphofu, Mduduzi Mphofu, Ndabzinhle Mphofu, Osias Ncube, Polite Chipembere, Thabani Moyo



Andrew Mukwati, Botsanang Gaborone, Goutlwamang Magasele, Kabo Ngalang, Kebonang Mangisi, Lefentse Serome, Mmoloki Ntemogang, Mubuso Kakambi

- Good animal husbandry practice is vital, the Guardians share their knowledge with their local farming community to help improve veterinary and general animal welfare as well as reduce depredation



- They learn tracking skills so they can patrol community lands and implement an early warning system to alert farmers to predators in the area

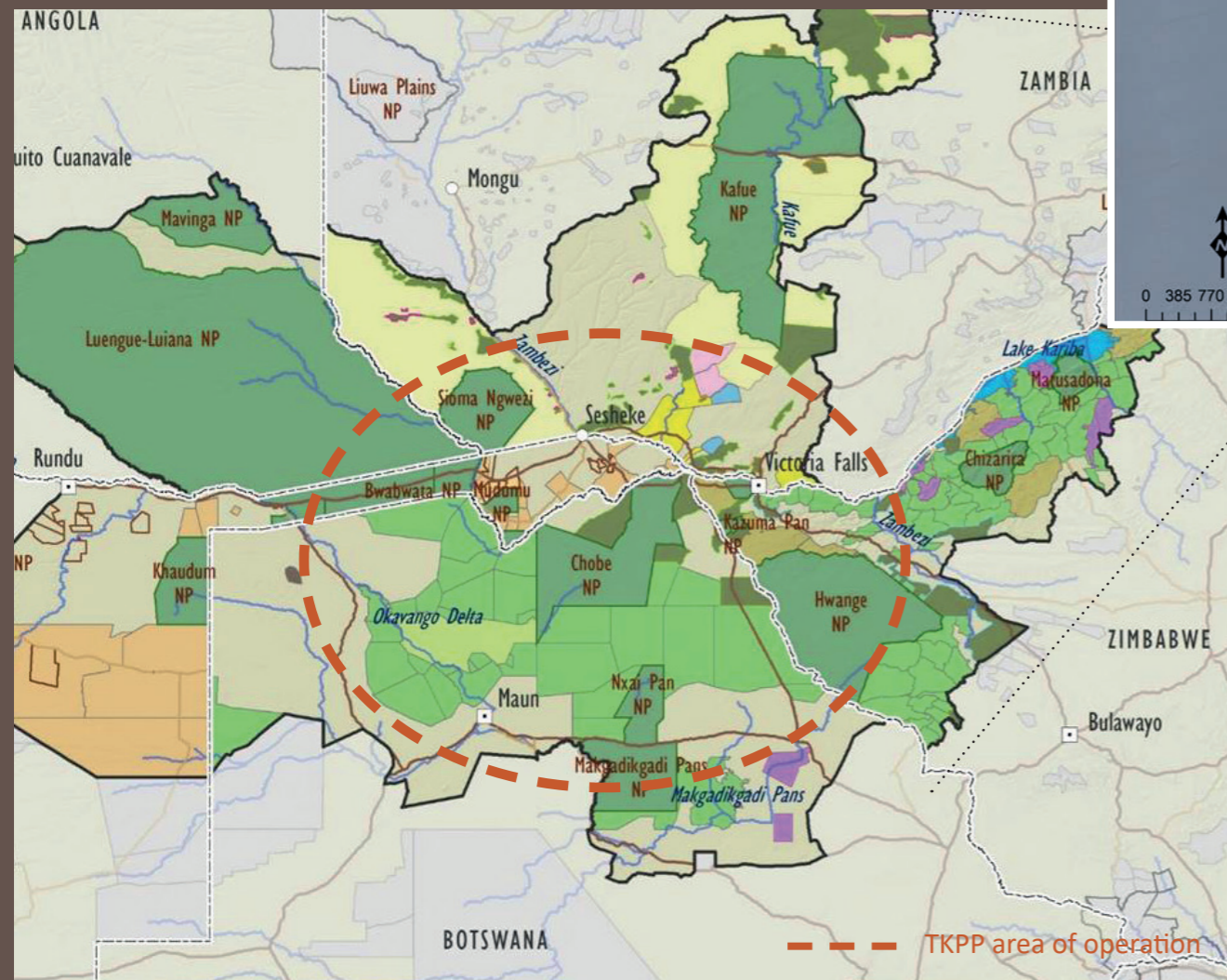
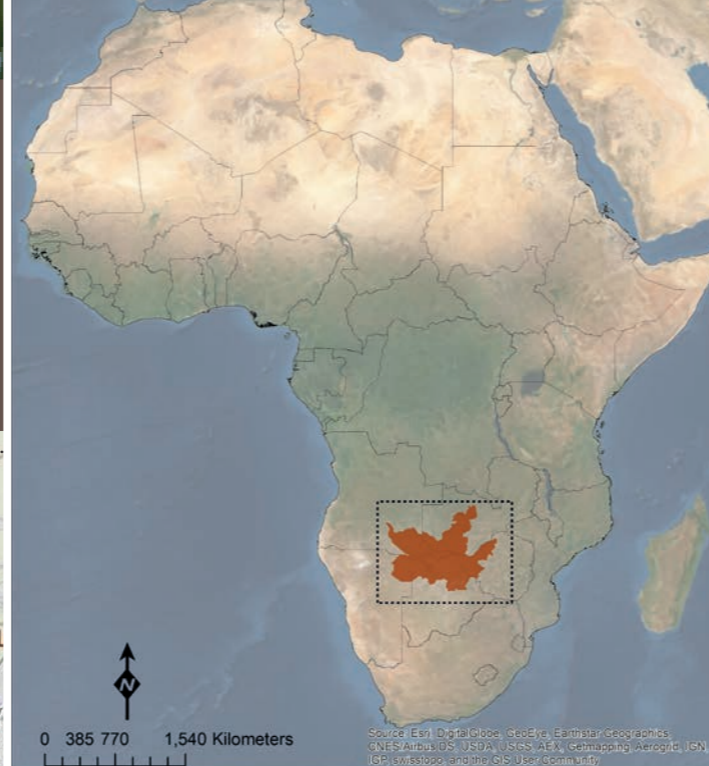
- And with the correct training the Guardians are able to safely chase lions away from the community lands



© Jess Isden



SECURING THE LANDSCAPE FOR LIONS



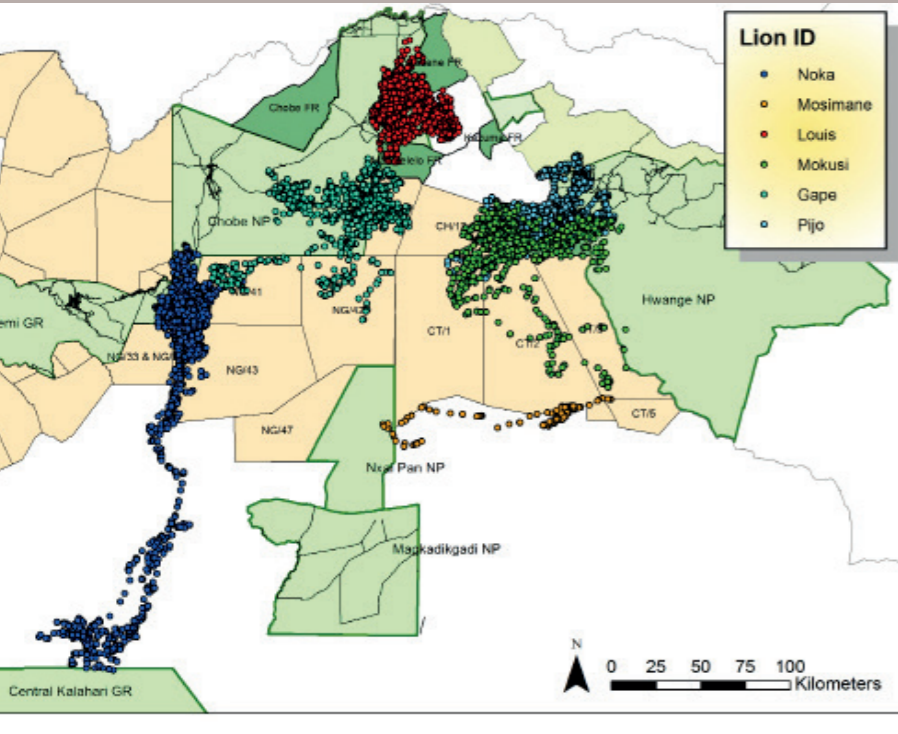
The Kavango-Zambezi Transfrontier Conservation Area (KAZA TFCA) links the conservation areas of **five countries** and spans **520,000 km²**. Within this region there are 13 National Parks and numerous other wildlife areas providing secure lion habitats and corridors. For the genetic diversity necessary for healthy lion populations, the lions must be able to move between these areas. However, as infrastructure develops and land is increasingly converted to agricultural use, lions are becoming isolated, threatening the stability of individual populations and limiting the recovery potential of regional lion populations. Furthermore, as lions attempt to move through human-dominated areas, they are coming into conflict with people, leading to the loss of community livestock, and the death of the lions if the communities retaliate.

The TKPP research team, working in the Hwange-Okavango region of KAZA, has identified important **corridors** for lions at a landscape scale. Alongside government departments, we are assisting with **spatial planning and development** to ensure that lions have **safe spaces to live and disperse**. Our spatial mapping of lion movement helps us identify 'conflict hotspots', places where lions are likely to get in trouble with communities. We target these areas to implement our coexistence programmes, tailored to local needs.



One of Cecil's 'boys' from the Ngweshla pride.
Photographed in 2018.

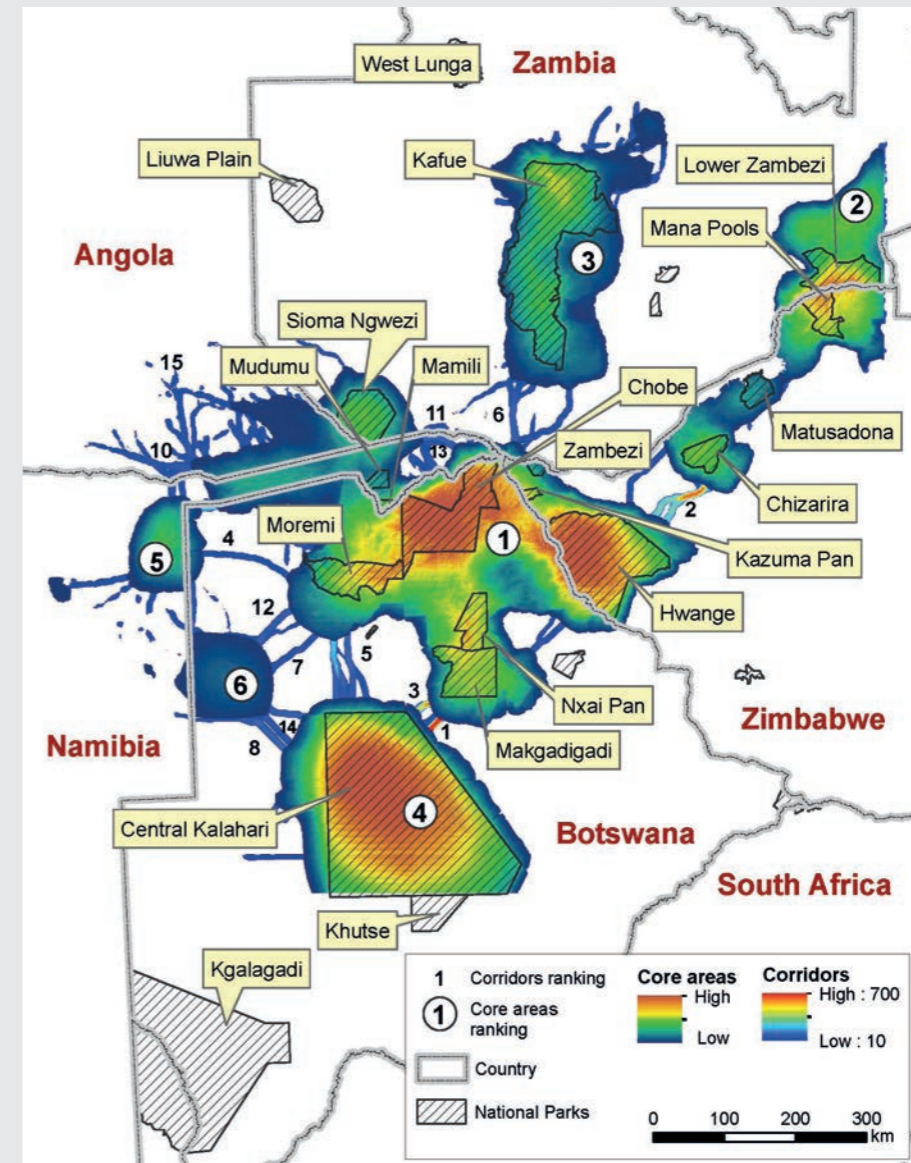
COLLARING & CAMERA TRAPPING FOR CONSERVATION & COEXISTENCE



One of the best ways to identify corridors is by using **GPS collars** to track the movement of dispersing lions through the landscape. At the age of between 2 and 3 years old, young males lions leave their natal pride and, during this time of transition, they can **move long distances** in search of a pride of their own. These young males are vital for maintaining genetic connectivity between different lion populations, preventing inbreeding and buffering populations against extinction resulting from isolation. As a result, these young males often stray beyond protected areas, in which case **securing corridors** for their safe movement through the landscape is important for their survival. As pictured in the map (left), data collected from fitting collars can give us important information about how these lions move across the landscape. Together with information on landscape features, we can identify which features, such as waterholes or good cover, lions select when moving through the landscape, or which features, such as large towns and villages, lions avoid.

In addition to data collected from collars, we also collect information on the **size of lion populations** in the core protected areas such as National Parks. This is because dispersing lions will naturally move from areas of higher density to areas of lower density, where there are potentially vacant territories. Camera trapping is currently one of the most reliable and robust methods for estimating densities of wide-ranging large carnivores such as lions.

Not only does this information help to strengthen the accuracy of corridors predicted by our landscape models, but estimating the density of lion populations in core areas also provides updated population estimates for park managers. Future trends in lion population size can therefore be compared to these baselines to determine the **success of future conservation actions**, or identify threats which may cause population declines.



Using data from GPS collars fitted to our study lions and lion population density data in different areas from our camera trap surveys, we can create empirical models such as this one (above) that predicts how lions move through the landscape. The models tell us, from a lion's perspective, how protected areas are likely to be linked up within the KAZA landscape. Shaded areas on the map represent National Parks. The core areas of suitable habitat for lions are classified from high to low, with red indicating high connectivity, blue indicating lower potential for connectivity with individual core areas ranked in order of importance (numbers in circles). Corridors linking areas of core habitat, that lions might use to move between protected areas, are classified according to their viability (high to low) and also ranked by order of importance (uncircled numbers), with 1 being the most vital corridor to protect to maintain connectivity and so on. These core areas and corridors indicate conservation priorities, and will enable us to strategically work with land planners and communities to best protect the parts of the landscape that are most critical for lion conservation.

“The often painstakingly detailed scientific data we collect is critical in informing and underpinning conservation actions and assisting policy makers in the incredibly complex management decisions they need to take.”
Dr Andrew Loveridge



SAVING LIONS FROM POACHER'S SNARES



Along with other wild animals, lions are vulnerable to being caught in wire snares, running nooses of steel wire that set in wildlife areas by bush-meat poachers to catch wild animals for food. This is one of the most serious threats that lions and other wild species face, and many die. Our project staff are trained to tranquilise and treat animals caught in snares or carrying injuries caused when escaping from them. In the last 5 years we've successfully rescued 11 lions from wire snares, animals that might otherwise have died lingering and painful deaths. Additionally our Guardians regularly patrol community lands where these snares are likely to be set. Snares are found and dismantled, immediately removing the threat to wildlife. The location of the snares are reported to the local authorities.



Lionesses, known by local Zimbabwean safari guides as 'Cecil's wives', on Linkwasha vlei in Hwange National Park.



Do mobile bomas increase crop yields and protect livestock?

The short answer is yes! Over the seven years we have used them, no livestock protected in our canvas mobile bomas have been killed by predators. Additionally, our guardian team has monitored crops subsequently grown on mobile boma sites that have been fertilised with the manure from livestock housed in the bomas. Compared to control sites, which have not been fertilised in this way, maize (or corn) crops are significantly larger and healthier, yield cobs double the size of those on control plants, with each plant growing twice as many cobs. Better crops means more food for participating households. Improved livestock protection in our mobile bomas reduces the need to kill lions. We think this is a win-win situation.

Does improving livestock enclosures and herding practices reduce livestock losses to lions?

As we report elsewhere, one of the key flash points between local farmers and lions is when lions kill domestic livestock. Reducing livestock depredation has been a key objective in reducing this conflict and protecting lions from retaliatory killing. Analysis of data we have collected on livestock depredation by lions at our project sites shows that overall, livestock losses have been reduced, compared to the period before our lion guardian programme was initiated.



Are local people's attitudes towards lions improving as a result of our conservation work?

Formation of positive attitudes towards large predators is a key determinant of whether people are likely to tolerate their presence in the long term. Gauging whether negative attitudes towards lions change in areas our programme is active is critical to understanding whether our conservation outreach is achieving the desired impacts. In an analysis of attitude surveys undertaken by TKPP in Zimbabwe shows that, in villages where our lion guardian team have a presence people's attitudes towards lions have significantly improved compared to their feelings towards lions prior to establishment of the programme.



MONITORING & EVALUATION

How do we know if our conservation activities in the field are achieving our conservation goals and ultimately protecting lions? In order to find out we carefully monitor the conservation interventions we are introducing by collecting detailed data to quantify and evaluate our impacts. This allows us to understand what works and what doesn't and to assess and, if needed, modify our conservation interventions. We often find that the success of a particular activity is site specific, so we can't assume that any one conservation intervention will be equally successful at all our sites.

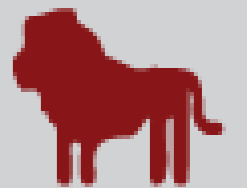
Does hazing trespassing lions deter them from entering farmland?

When lions leave the safety of protected areas and stray into the surrounding farmland, our lion guardian team chase or "haze" them to persuade them to return to the national park. We want lions to learn to avoid areas where they are at risk of being killed by people. A recent analysis using data collected by our lion guardian team from 72 chases of trespassing lions, shows that long term success in conditioning lions to avoid farmland was achievable when lions were consistently and repeatedly hazed when they entered these areas. The technique was most successful when used on adult males and females from small, stable prides. Under the right circumstances, this is an intervention that can be extremely successful, though as with most conservation activities it needs to be part of a broader integrated approach, which includes effective livestock herding and protection.



Do our conservation actions help to stabilise or increase lion populations?

Since the start of this project, 20 years ago, we have carefully recorded and monitored lion prides in our core research area. To date we have detailed records of nearly 1000 individual lions. In an analysis of these data, published in the journal Biological Conservation, we found that the lion population in our core project area, Hwange National Park, has increased by over 60%. This has largely been due to improved management of trophy hunting in the hunting areas around the protected area and an increasing awareness of the threats posed by uncontrolled retaliatory killing of lions and bush-meat snaring. Of course we can't claim all the credit here. We work closely with conservation managers and practitioners, scientific colleagues, anti-poaching teams and policy makers to help to devise appropriate management strategies and implement research findings.



SCIENCE TO UNDERPIN CONSERVATION ACTION

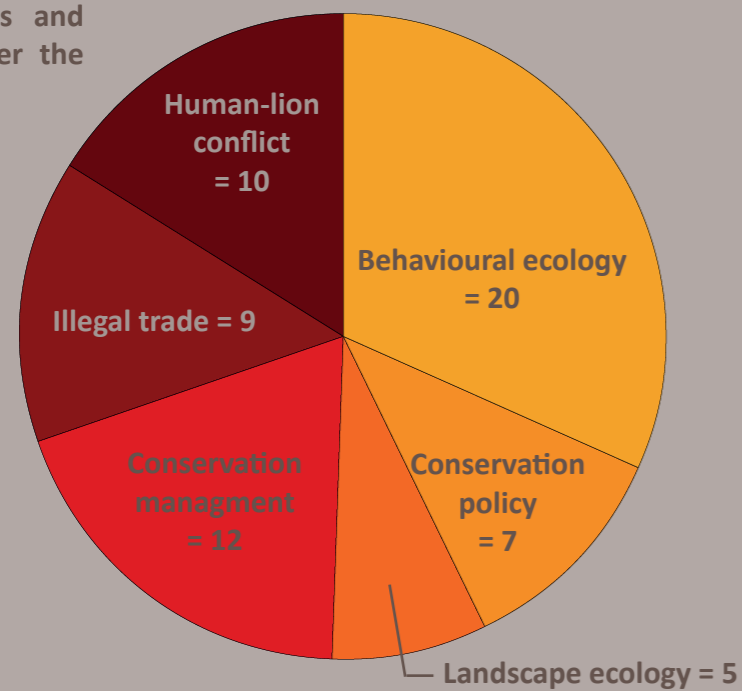


Conservation science is at the heart of everything we do.

THROUGH DETAILED SCIENTIFIC RESEARCH WE AIM TO UNDERSTAND AND EVALUATE CONSERVATION PROBLEMS. WE ARE THEN ABLE TO IMPLEMENT APPROPRIATE PRACTICAL SOLUTIONS TO SOLVING THEM AND TO PROVIDE CONSERVATION MANAGERS WITH THE INFORMATION THEY NEED TO FORMULATE CONSERVATION POLICY.

Our research ranges from gaining the fundamental understanding of lion behaviour and ecology, critical to formulating well informed conservation strategies, through to applied research that evaluates the implementation of lion conservation management and policy.

Total number of publications and reports over the last 5 years = 63



Over the last five years we have published sixty-three scientific papers and reports, many of which addressed or evaluated practical aspects of the project. This scientific foundation to our conservation work and translating this science through public outreach is critical in achieving the most effective conservation outcomes.



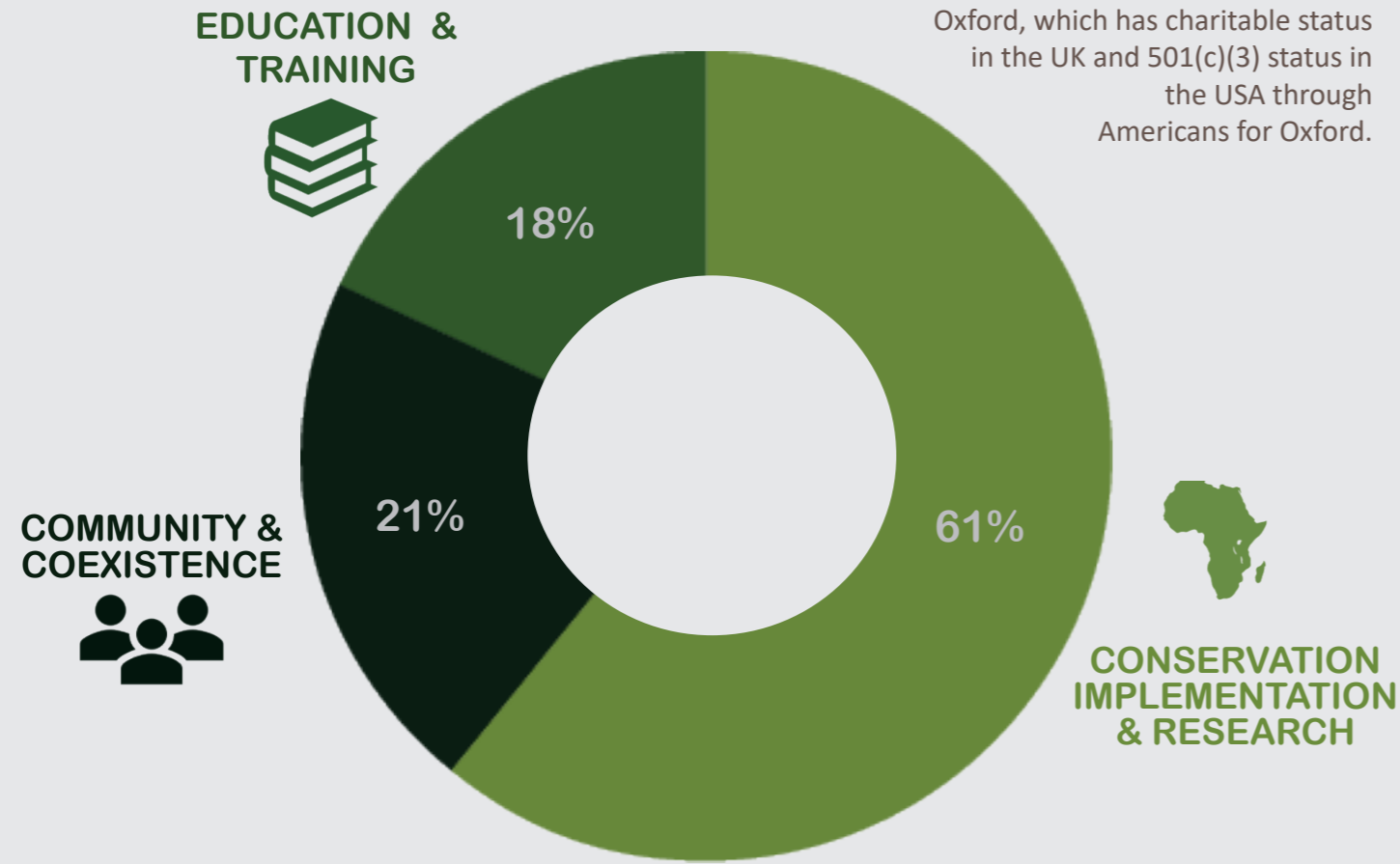
'Lesang', Cecil's son.
Born November 2014.

FINANCES

JULY 2015 - JUNE 2020

SPENDING BY CATEGORY:

The Trans-Kalahari Predator Programme is audited through the University of Oxford, which has charitable status in the UK and 501(c)(3) status in the USA through Americans for Oxford.



£757,478 DONATED

91% SPENT

- EDUCATION & TRAINING**
- UNIVERSITY CONFERENCES
 - WORKSHOPS
 - TRAVEL
 - STIPEND
 - FEES STUDENTS
 - MASTERS STUDENTSHIP
 - DIPLOMA
 - DPHIL BURSARY

- COMMUNITY & COEXISTENCE**
- EQUIPMENT
 - BOOTS GPS
 - BOMAS AIRTIME
 - UNIFORMS
 - GUARDIANS
 - FUEL WORKSHOPS
 - BICYCLES SALARIES
 - VEHICLES TYRES TRAINING

- CONSERVATION IMPLEMENTATION & RESEARCH**
- LANDSCAPE EVALUATION
 - GPS MONITORING
 - TRAINING
 - SATELLITE COLLARS
 - SURVEYS
 - CAPACITY-BUILDING
 - TRAVEL

IMPACT BY NUMBERS

Funds donated have contributed to the following:

0	3	3	4.7
cattle killed whilst housed in mobile or permanent bomas overnight	vehicles purchased for Hwange National Park ecologists to support monitoring and research & for our project community work	human-wildlife conflict mitigation projects initiated in lion conflict hotspots identified through research	million acres of of lion habitat surveyed by camera trap across 10 protected areas
11	16	20	23
lions darted and immobilised to remove snares	training and development workshops held for Guardians	GPS collars fitted to monitor dispersing lions	Guardians employed
24	25	27	27
camera trap surveys carried out	mobile bomas installed	GPS collars fitted to monitor conflict lions	corridors identified as important for lion connectivity
31	34	43	63
permanent bomas installed	Guardians for partner NGO's trained	acres of arable crop land fertilised using mobile bomas	scientific journal papers and reports published
116	214	1292	1160
lion chases carried out by Guardians to move lions away from community land	farmers collectively enclosing their cattle in mobile bomas	households engaged in our Guardian programme	early warning alerts sent to farmers to warn them of lions in the area



LOOKING FORWARD

Vast swathes of the African savannah no longer reverberate to the lion's roar. Lion numbers are plummeting across Africa and understanding the threats that lead to this decline are critical to securing the future of this iconic African species. Saving lions is in reality synonymous with saving African savannah ecosystems. This is because lions are what conservationists term umbrella species, that is species whose successful protection benefits the entire ecosystem. So by halting the decline of lions we simultaneously preserve the wilderness they rely on and save a lot of other wild species at the same time. But lions are more than just ecological ambassadors, they have immense cultural value and significant potential to generate revenue, through tourism and conservation investment, in some of the world's poorest countries. Realising the economic value of lions, preserving their cultural importance and protecting the integrity of the ecosystems they need to survive alongside growing human populations and burgeoning economic development are challenges that conservationists in 21st Century Africa must navigate.

HOW CAN WE ACHIEVE THIS? Our aim is to translate the fundamental and applied science that is at the core of our work into conservation policy and on-the-ground action in collaboration with national authorities and wider stakeholders. Our on-going, long term monitoring of individual lions and the ecosystems they inhabit has gained an in depth understanding of their ecological and conservation needs that has been invaluable in designing appropriate conservation strategies. We have developed conservation tools and approaches to address the problems the scientific work has identified. These are in many cases practical solutions, such as community guardians and protective livestock enclosures that allow African people to share space with large predators. These are solutions that we have shown genuinely work and we aim to continue to develop them and to introduce them to new landscapes and make these techniques available for other conservation partners to use. We also passionately believe that the future of African conservation lies in training the next generation of African conservation scientists; the men and women who will take on the challenges of an ever threatened natural world. By continuing to provide training opportunities we aim to continue to invest in Africa's future.

Through this report we'd like to thank the individuals and organisations who made generous donations to support our lion conservation work. We are immensely proud of what we are achieving, and we hope that after reading this report you will take some time to reflect on how valuable your support has been, and will continue to be as we move forward. If you feel motivated to continue supporting our conservation work then please consider donating via the links below.

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WITH THANKS - KEALEBOGA - SIYABONGA - TATENDA

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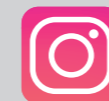
Our work would not be possible without the continued support from Botswana's Department of Wildlife and National Parks and Zimbabwe Parks and Wildlife Management Authority



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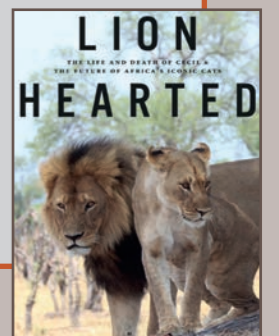


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Interested in learning more about 20 years of lion research in Hwange National Park? Andrew Loveridge has published an autobiographical account of his research and conservation work, 'Lion Hearted'.





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