AfriCat Foundation Annual Report

1 March 2018 – 28 Feb 2019

Contents

I: Introduction

Problem Statement – Why We Do What We Do

Namibia is home to approximately 25% of the world's cheetah population, of which 90% live on farmland. Namibia's other large carnivores, namely leopards, lions, Wild Dogs, brown and spotted hyaena, are not, however, believed to make up such a large percentage of the world's population even though they also all occur in the unique farmland ecosystem. It is the inevitable conflict with humans on commercial and communal farmland that created the necessity for the establishment of the AfriCat Foundation.

Habitat loss is one of the largest threats to the large carnivore populations in Namibia. Over 7,000 commercial livestock and game farms cover approximately 355,000 km^2 and communal land covers an estimated area of 125,000 km^2 of Namibia's total 825,418 km^2. With the majority of leopards and cheetahs existing in these parts of the country, the resulting conflict between these predators and farmers protecting their livelihood is inevitable as the areas of natural habitat where these animals can safely exist have, consequently, been reduced dramatically.

General predator removal is often the "livestock-protection method" utilised by farmers who view most predators as "problem animals" and cheetahs and leopards are trapped, poisoned, or shot on sight. In most cases, an individual animal is responsible for stock losses and not the species in general and this indiscriminate removal leads to the unnecessary elimination of many blameless animals. Some individual cats are more likely to prey on livestock as opposed to their 'normal' prey diet for a number of reasons, such as being weak, injured, or old.

With livestock generally defenceless against such predators, they become a much easier and more appealing kill to cats which may not have the ability to prey on a more natural selection as opposed to the species in general. In addition to this, removing an individual which has killed some livestock does nothing but empty its territory, which will subsequently be filled again by at least one other predator, if not more. In short, it is not solving the problem of livestock predation.

The AfriCat Foundation has recognised this conflict as one of the key issues to successful conservation and sustainable development and has courageously taken up the gauntlet in striving to moderate between the two opposing sides.

History – The Formation of AfriCat

The AfriCat story started in 1970, when the Hanssen family settled on the farm Okonjima in central Namibia. Brahman cattle were raised on the land but annual losses of calves to predators, particularly leopards, amounted to between 20 and 30 per year, decimating the herd and resulting in huge financial losses. As with many farmers at that time, the Hanssens took the path of trapping, shooting, and hunting leopards in an attempt to minimise their losses. However, these losses continued at the same rate as before. Other measures were employed and calf-holding pens were built at watering holes where cows could give birth safely. The calves remained in protective custody until they were approximately 4 months old with their mothers coming in at regular intervals to feed them. Using this simple livestock protection method reduced losses to about 3 or 4 per year.

Wayne, the only son of the Hanssen family, recognised the need for a better understanding between humans and carnivores. He began observing the leopards, becoming more familiar with their habits and movements. At the same time, the family started a small bed-and-breakfast business and tourists began to visit Okonjima. Wayne's research revealed where leopards could be found and he started to share his viewing experiences with guests. Hunting ceased as more and more guests came to view the big cats at close quarters and Okonjima became a rapidly-growing tourism enterprise.

The AfriCat Foundation was founded in 1991 on Farm Okonjima and officially registered as a non-profit organisation in 1993. AfriCat was created as a result of information gained through Wayne's research on Okonjima during their cattle farming days, the loss of calves to leopards, finding solutions, and the desire to share this information with fellow farmers.

From this platform, farmers throughout the area turned to AfriCat to handle 'problem' cats, often calling AfriCat to their farms to collect animals which they had trapped to protect their livestock. Upon arrival, AfriCat made an effort to persuade the farmers to release the cats but, as an instinctive hatred towards these animals was so engrained, this was often a futile task. Failing to convince farmers to release, AfriCat relocated older cats to the properties of more tolerant farmers, but in cases which involved orphaned cubs, the only viable option was lifelong care by the AfriCat team at their Care Centre.

AfriCat's wilderness camp, **AfriCat North** (formerly known as Afri-Leo), was registered as a Namibian-based, non-profit organisation in 1997 and has worked closely with the AfriCat Foundation since its founding. Run by the Hanssen family's eldest daughter, Tammy Hoth-Hanssen, AfriCat North operates in much the same way as AfriCat on Okonjima but instead focuses on lions and spotted hyaena rather than leopards, Wild Dogs, and cheetahs.

Due to the ever-increasing demands of carnivore conservation, these two groups were merged under the AfriCat banner, and Afri-Leo's programmes and projects have continued and expanded under the name of AfriCat North. Its headquarters are ideally situated in north-western Namibia, bordering the Etosha National Park, to play a vital role in supporting Environmental Education, Farmer-

Predator/Human-Wildlife Conflict Mitigation & Community Support, and Research and Monitoring Programmes in the Kunene Region of Namibia.

Since AfriCat and AfriCat North's inception, more than 1,100 of these predators have been rescued and over 85% of them were released back into the wild. In addition to the rescue, rehabilitation, and release of these cats, AfriCat provides care for those which cannot be returned to the wild due to a variety of factors such as habituation, loss of hunting skills, and injury, as well as educational opportunities aimed at all ages to promote the long-term conservation of these predators.

What We Do Now

The AfriCat Foundation prides itself on being an evolving conservation organisation which changes its focus appropriately using various effective methods to meet the conservation needs of large carnivores at any particular time. In 2010, realising that the process of rescue and release alone was becoming outdated, AfriCat identified the need for a shift in focus to 'Conservation through Education'.

This new direction seeks to change the mind-set of future generations in order to provide a positive understanding and experience of the country's natural heritage and its Big Cats in particular. AfriCat has organised this new orientation into programmes which will be explained and reported on in detail in section II.

They are Research, Carnivore Care, Environmental Education, Rehabilitation and Rescue & Release and Human Wildlife Conflict & Community Support. As all of AfriCat's projects are interconnected, these programmes help to increase awareness amongst the local community as well as globally, and serve as an ambassadorship to the conservation of these carnivores.

AfriCat's Mission

The AfriCat Foundation's mission is to make a significant contribution to conservation through education and research. It strives to ensure the long-term survival of Namibia's predators in their natural habitat by working with commercial farmers, local communities, communal conservancies, various other stakeholders, and the youth of Namibia. Through its education efforts and wildlife research projects, AfriCat plays a crucial role in increasing our understanding of, and providing sustainable solutions to, conservation challenges in general and human-wildlife conflict and animal welfare issues in particular.

Who and Where We Are

AfriCat's Board of Trustees

As the AfriCat Foundation's vision expanded over time, and also pivoted towards research and education, its Board of Trustees was also broadened. A larger, more broad-based Board was appointed in order to be better able to represent the various stakeholders of the Foundation, as well as provide varying skill sets and fresh perspectives to the Foundation.

As such, the AfriCat Foundation's Board comprises:

- **Wayne Hanssen**: Founder and Trustee – In addition to being AfriCat's founder, Wayne acts as a Trustee and is involved in the daily running of AfriCat and its 20,000-hectare reserve. Wayne leads the Okonjima team in a tourism venture which offers their clients a high-quality, authentic safari experience, proceeds of which are used for conservation, environmental education, and social responsibility.

- **Tammy Hoth-Hanssen:** Executive Director – Tammy is the public face of the Foundation Abroad and in Namibia, interacting with like-minded NGO's and the Ministry of Environment and Tourism, as well as with local supporters and donors. She is AfriCat's global representative, attending meetings, presenting public statements, and generally handles its public relations. Tammy is based at AfriCat North, the field-base which borders western Etosha National Park. From this location, Tammy heads the Environmental Education, Research, and Human-Wildlife Conflict Mitigation & Community Support Programmes in the Communal Conservancies and wilderness areas of the northwest.

- **Mark Reinecke:** Chairperson – Mark's role as AfriCat's chairperson involves running board meetings and formulating strategic fund-raising decisions to be made by the organisation, as well as considering all legal matters. Mark and his wife, Karen Codling (Foundation Secretary), are also part owners of some of AfriCat's rehabilitation lands, located on Farm Ombujongwe.

- **Kathleen Newton:** Treasurer – Kathleen ensures that the Foundation remains focused on the conservation and rehabilitation goals, as well as maintaining strong fiscal controls over generously donated funds. In addition, her experience with, and knowledge of, other trusts and her understanding of Namibia's business community, is a valuable asset.

- **Karen Codling: Secretary –** As AfriCat's secretary, Karen is responsible for maintaining the Board records of the Foundation. Her professional experience is grounded in working for and with the United Nations Children's Emergency Fund (UNICEF) in matters of public policy, maternal & child health, and micronutrient deficiencies. She is also part owner of rehabilitation lands with her husband, Mark Reinecke (chairperson).

- **Donna Hanssen:** Trustee – Donna is involved in the daily decision-making and running of AfriCat Head Quarters. She also has brought her considerable skills to bear in the reorganisation of AfriCat, particularly in raising the Foundation's profile and bringing it closer to Okonjima's guests. In addition to increasing awareness among lodge guests, she is responsible for the new image which the Foundation now represents and joins her sister, Tammy Hoth-Hanssen, as the public face of AfriCat internationally.

- **Dr. Mark Jago:** Trustee – Mark has enjoyed a long and distinguished career in the Namibian Ministry of Environment and Tourism and thereafter founded the Veterinary faculty of the University of Namibia. He has been instrumental in facilitating the AfriCat Foundation to align its work with national policies and regulations on conservation, in general, and carnivores in particular. As a Wildlife Veterinarian, he is constantly aware of the conservation needs of Namibia's fauna and is able to make recommendations with these needs at heart.

- **Tristan Boehme:** Trustee – Tristan is involved in the daily running of AfriCat and the marketing of the AfriCat Foundation and its legacy with Okonjima guests. He also works on increasing the organisation's public profile in order to stimulate donations. He and Donna work hand in hand to ensure that AfriCat meets its maximum potential in the realm of Carnivore Conservation and Education.

- **David Farquharson:** AfriCat UK – As a corporate lawyer, David has assisted with the running of AfriCat UK and various works with the Foundation's legal requirements and issues. He also manages AfriCat UK's funds.

Team AfriCat

The AfriCat Foundation runs smoothly thanks to the team of employees who handle everything from the management and running of the organisation to the care of the animals under AfriCat's protection.

- **Selma Amadhila**: Administrator - As AfriCat's office administrator, Selma is responsible for AfriCat's office work, communication throughout the organisation and with potential donors, AfriCat staff issues, as well as overseeing the Carnivore Care Centre and its daily running.

- **Louis Heyns:** Field Co-ordinator – Louis is responsible for the rehabilitated animals' welfare in the Okonjima Reserve. He monitors the released and rehabilitated carnivores on a daily basis and maintains the database on their interactions with other animals in the Okonjima Reserve, in collaboration with Okonjima guides.

- **Jenny Noack M.Sc.:** AfriCat Researcher and Biologist -
  Jenny studied biology in Germany and completed her Bachelor of Science at the Freie Universität zu Berlin in 2010 and subsequently specialised in Evolution and Organismic Biology with emphasis on Zoology and Conservation at the Humboldt Universität zu Berlin. Jenny earned a Master of Science degree after a 4-month field project at the AfriCat North headquarters that aimed to investigate the occurrence of large carnivores and their potential prey species via the application of camera traps. Besides coordinating and implementing the current Okonjima/ AfriCat leopard density study, Jenny is assisting with the monitoring of the rehabilitated carnivores in the 20,000 ha Okonjima Nature Reserve and collects data of all the carnivores within the 200km^2 Nature Reserve. She assists with the AfriCat Environmental Education programme and the admin demands of the foundation.

- **Dr. Diethardt Rodenwoldt**: AfriCat Veterinarian - Dr. Rodenwoldt joined AfriCat in August 2015 and is responsible for monitoring the health and welfare of AfriCat's longer-term residents as well as several of the carnivores in the Okonjima Nature Reserve. Diethardt also takes time out to assist the AfriCat North Lion Research team, immobilising lions designated for collaring as part of the AfriCat Hobatere Lion Research Project (AHLRP). Dr. Rodenwoldt and a number of other veterinary specialists support Team AfriCat in achieving the ultimate goal for wild felines, canines, and herbivores in terms of conservation, education, veterinary care, and research.

- **Dr. Sarah Edwards**: AfriCat Researcher - Originally from Cheshire in the United Kingdom, Sarah first came to Namibia in 2007. Having gained a B.Sc. in Animal Behaviour and Welfare, Sarah studied ground squirrels on the NamibRand Nature Reserve for a year before returning to the UK to complete her masters in Animal Behaviour at Manchester Metropolitan University. She then returned to Namibia to work on an environmental impact assessment on the potential

impacts of the mining industry on brown hyaena within the Sperrgebiet National Park, with the Brown Hyaena Research Project in Luderitz. After spending a year researching forest ecology in Cambodia, and working on an environmental impact assessment within the Sperrgebiet National Park, she returned to Namibia to complete her Ph.D. in human-wildlife conflict on commercial farmlands bordering the Namib-Naukluft and Sperrgebiet National Parks in southern Namibia with the Brown Hyaena Research Project. Sarah will be running the AfriCat brown hyaena research project which aims to gain a better understanding of the spatial and social ecology of this misunderstood species when living in a closed reserve.

- **Kelsey Prediger**: NUST M.Sc. Student - Kelsey joined the team in August 2018 to take on the AfriCat Pangolin Project which aims to learn more about these nocturnal and elusive creatures and help provide a base of scientific knowledge from which we can better help save this species from the horrendous wildlife trafficking trade. Kelsey is currently pursuing her Masters of Natural Resource Management at the Namibia University of Science and Technology (NUST). Her studies and research go hand-in-hand here at AfriCat while she furthers our knowledge base on rare and endangered species. Kelsey received her B.Sc. in Zoology and Environmental Biology and a B.A. in German at Michigan State University in 2013. After graduation, she was ready to jump into the field of zoology to further expand her experience and see which direction in conservation she would like to go for graduate studies. She has worked a variety of positions ranging from zoos to sanctuaries to conservation centres focusing on large carnivores. These experiences honed her interest to focus on endangered species conservation.

- **Johan Viljoen**: Environmental Educator - The Environmental Educator presents the AfriCat Environmental Education Programme (AEEP) at the PAWS Environmental Education Centre, running the School Outreach Programme, visiting schools and presenting various relevant environmental topics, all the while striving to inspire learners to become aware of environmental challenges in Namibia today.

- **Maryke Viljoen**: Environmental Educator's Assistant - The Environmental Educator's Assistant is responsible for the general running of the camp during school visits. This includes planning menus, ordering stock, and meal preparations. She is also responsible for the supervision over camp staff.

- **Faustinos Kaputura**: Environmental Education Camp Assistant - The Camp Assistant's main responsibilities are the general upkeep of the campsite, maintenance of infrastructure, and several other duties as may be needed from time to time. He is also available to assist with general safety supervision during trails - and supporting visitor groups in all regards.

- **Rosa Majoro**: Environmental Education Kitchen Assistant: The Kitchen Assistant is responsible for maintaining the general cleanliness of the ablution and kitchen facilities. She also assists with meal preparation.

- **Andries Garab**: Senior Field Assistant and Carnivore Caretaker – Andries' role as Field Assistant and Carnivore Caretaker includes overseeing food preparation, feeding, and daily visual inspection of animal welfare.

- **Lukas Hiskia**: Senior Field Assistant and Carnivore Caretaker – Lukas' role as Field Assistant and Carnivore Caretaker includes overseeing food preparation, feeding, and daily visual inspection of animal welfare.

- **Herold Nuwuseb**: Junior Field Assistant and Carnivore Caretaker –Herold's role as Field Assistant and Carnivore Caretaker includes overseeing food preparation, feeding, and daily visual inspection of animal welfare.

- **Justina Kaghuvi**: Housekeeping and Office Assistant - Justina's role as Housekeeping and Office Assistant includes the maintenance, organisation, and cleanliness of the AfriCat office, kitchen, clinic, Information Centre, and carnivore food preparation areas.

- **Matuuapi Jackson Kavetu, Titus Turitjo, Uezekandavii Nguezeeta, Vepanguriruaije Scott Kapi and Vevangapi Simion Vejoreko**: AfriCat Lion Guards – The duties of the five Lion Guards include monitoring and reporting on lion whereabouts, reporting incidents, patrolling fences with the Ministry of Environment & Tourism (MET), and monitoring and reporting poaching and other illegal activities. They also work closely with local farmers in identifying priority villages for kraal-building, encouraging, and guiding farmers to adopt the AfriCat Livestock Protection programme, and carrying the message of Conservation from the highest authorities to the farmer. The Lion Guards work with and through Traditional Authorities in the area, ensuring that the AfriCat message is therefore heard more readily by locals.

- **William Versfeld**: AfriCat North Research Assistant – William assists in the daily monitoring & tracking of GPS-Satellite collared lions in the Hobatere Concession Area and its surrounding conservancies. With his background in genetics, he is also ensuring the collection of non-invasive biological samples to monitor known and unknown lions in the area, in order to identify new individuals at a later stage. With the collection of genetics samples, he is in close collaboration with other NGOs, the Ministry of Environment & Tourism and the Technical University of Munich, to establish a research bank for the Northwest lion population. Additionally, collaborative projects include the collection of Emperor moths, commonly known as mopane moths, to study their life cycle and the genetics of the species.

AfriCat Locations

The AfriCat Foundation is located just 70 kilometres south of the small town of Otjiwarongo, in the Otjozondjupa Region in Central Namibia; situated on the Hanssen family's cattle farm-turned-Nature Reserve which now operates a 20,000-hectare area in the efforts of long-term carnivore conservation, focusing on the rehabilitation of once-captive cheetahs, environmental education, research and care of cheetahs, leopards, wild dogs, spotted & brown hyaena.

AfriCat North is AfriCat's wilderness base, located in north-western Namibia, bordering the Etosha National Park (ENP). AfriCat North is ideally situated in close proximity to the Communal Conservancies along Etosha's south-western, western and north-western borders, supporting these farmers through improved livestock management and protection programmes, ultimately reducing livestock loss to large carnivores, in particular lions. In so doing, these programmes mitigate the farmer-lion conflict, reducing the number of lions destroyed. From this base, the Hobatere Lion Research Project and Environmental Education programmes continue to support the long-term survival of Namibia's lions.

AfriCat UK

AfriCat UK represents the AfriCat Foundation in the United Kingdom. It is a registered charity and undertakes fundraising and awareness activities for the AfriCat Foundation. It also maintains a membership database of AfriCat supporters in the UK, maintaining their links with AfriCat and keeping them informed of AfriCat developments and achievements. Chris Packham, a well-known British naturalist, nature photographer, television presenter and author and Lorraine Kelly, a Scottish television presenter, journalist and actress, are AfriCat's patron. AfriCat UK has spent many busy years spreading the conservation message, raising awareness of our work, increasing the size of our e-database, encouraging visits to Okonjima as well as many fundraising efforts.

Main Activities

- **Gain increased levels of donations from corporations**

  Joined easyfundraising and Amazon Smile, where on-line retailers make donations to AfriCat when our supporters shop with them, and Benevity, an international site dedicated to raise money for charities from corporations. The aim is to generate increased general funds for AfriCat. Gained a three year sponsorship deal from Unicorn Ingredients to support the AfriCat Lion Guard programme.

- **To ensure AfriCat complies with the General Data Protection Regulations in the UK**

  Compliance ensured. AfriCat UK operates a double opt-in system for all databases.

- **To launch an appeal to raise funds for a Mobile Vet Clinic for the AfriCat North area – this will be our main campaign for #Giving Tuesday**

  Appeal web site launched in February 2018 and raised £381.25. But the #GivingTuesday campaign was cancelled in favour of the #Protect our Pride initiative following the change of priorities at AfriCat North.

- **Develop more ways to get support for AfriCat through digital media**

  Achieved through registration with easyfundraising etc. Over 50 supporters now regularly make donations through their on-line shopping. Towards the end of the reporting year there was a noticeable increase in the number of our supporters regularly raising funds through on-line shopping.

- **Develop a Virgin Money Giving site for Lion Guards – the keepers of the Wilderness**

  Achieved in June. An additional Virgin Money Giving site was developed to collect donations for AfriCat's Protect our Pride 2018 campaign of which the Lion Guards pay a crucial part.

- **Keep the issue of the Onguta School Building to the fore of our publicity by supporting phases 2 and 3 of the development when required**

- **Work with Blair Drummond Safari Park on their Big Cat weekend in July and support their fundraising efforts to buy a GPS satellite collar to help track lions around Etosha National Park.**

  Achieved and AfriCat UK ran a stand at the Park selling items, raising awareness about AfriCat and Okonjima and adding names to our e-newsletter database.

- **Continue to maintain the AfriCat UK website and email queries seeking out and responding to options for promoting AfriCat.**

  Became an urgent objective firstly after the Foundation's web site was changed which had severe and unexpected consequences for both the AfriCat Foundation and UK email servers. The subsequent updating of the UK web mail resulted in a further six weeks of major disruption of UK emails and a replacement with a vastly inferior system – that is slower and user unfriendly.

- **Work with Walk 4 Wildlife on activities**

Major Achievements

- Raised £176.09 from easyfundraising, £18.68 from Amazon Smile, £152.50 and $407.80 from Benevity. £10,500 from Unicorn Ingredients and £1,500 from the programme of Blair Drummond to buy Lion Collars as part of the Protect our Pride campaign.
- Raising £4,300 on the #GivingTuesday campaign to Protect our Pride.

  AfriCat supplied a panellist for the Bradt Travel Big Cat Festival 2018 – alongside Jonathan Scott, Dr Laurie Marker, and Dr Amy Dickman.

Constraints & Challenges

- All this was achieved against a background of greater competition for funds and declining levels of giving to charity in the UK. The decline of the value of the Pound, following the result of the Brexit vote in the UK, has hit the value of the money we send to Namibia.
- AfriCat UK is therefore struggling to raise significant funds. Whilst there is much enthusiasm, this is from individuals with regular incomes. For example, at the recent fundraising dinner, it was a great evening and approximately £14,000 was raised, the two main auction prizes of visits to Okonjima with reserve prices over £1,000 remained unsold (although ultimately, a trustee bought one of them).
- Technology – a major disruption to our administration was caused by the sudden change of the UK email server.

Future Plans

- Organise the succession of work following the retirement of some AfriCat UK Board members.
- Raise funds for AfriCat North projects – Onguta School payments, Protect our Pride, and the Lion Guards project.
- AfriCat to be represented at Big Cat events in the UK including Bradt Travel Big Cat Festival, Big Cat Sanctuary and Blair Drummond days, to raise awareness of our existence and funds.
- Step up fund raising efforts to meet the changing priorities of AfriCat Namibia by recruiting new supporters and Trustees in the UK.

AfriCat USA

AfriCat America registered in the state of Illinois with 5 Directors on the board.

AfriCat and Okonjima – A Symbiosis at Work

Okonjima, home of the AfriCat Foundation, was established as a small 'guest farm' in 1986. Okonjima, meaning "place of the baboon" in the Herero language, is an extensive tract of land nestled among the Omboroko Mountains, about seventy kilometres south of the small town of Otjiwarongo. For the last 35 years, Okonjima has been in the hands of the Hanssen family. Today, nearly 20 years after Wayne, Donna and Rosalea Hanssen took over the cattle farm from their parents, the original farm has grown in size to 20,000 hectares and hosts a guest lodge business. The cattle have gone, grasslands are returning, and wildlife abounds. Although they are separate entities, the relationship between Okonjima, its Nature Reserve, and the AfriCat Foundation is one of symbiosis.

In this, Okonjima owns and manages the land/nature reserve and operates the tourism business, while the AfriCat Foundation provides a unique opportunity for guests and sponsors to view large carnivores, as well as the work of the Foundation. In turn, AfriCat receives an income from the revenue generated by tourism, which contributes to covering the running costs of the organisation as well as an opportunity to obtain additional income from visitors, having witnessed the Foundation's work with carnivores in Namibia first hand, through on-going sponsorship programmes.

II. 2018 - 2019 Annual Report

Programme 1: Research

Objectives

AfriCat undertakes and supports research on the carnivores of Namibia which will contribute to their long-term conservation. The direction of the Foundation's research programme is guided on the larger scale by the Government of Namibia's national policies and species plans while, at the local level, it focuses on issues which the AfriCat/Okonjima symbiotic relationship has identified as essential for the long-term sustainability of the Okonjima Reserve and the animals in it.

The major areas of research which AfriCat is currently focused on include:

a) Human-wildlife conflict (causes and mitigation measures)
b) Captive carnivore welfare
c) Carnivore ecology in a protected and closed reserve
d) Ecological research on insectivorous small mammals

AfriCat's research programme is guided and coordinated by a Scientific Committee, formed in 2013. Members of the committee include conservation experts, wildlife veterinarians, AfriCat full-time staff, and Foundation trustees. Project proposals are approved by the Committee on a merit basis and their relevance to the Foundation's goals. Research is carried out both by AfriCat staff members and visiting scientists.

The animals, facilities, and staff at AfriCat provide a fairly unique setting in which to undertake both basic and applied research on threatened and endangered wild carnivores in a natural setting, but with opportunities to also learn from captive and semi-captive animals.

Key Issues

1) Indicators of optimal health of captive and free-ranging carnivores:
   a) Dental health;
   b) Parasite loads.

2) Human-Wildlife Conflict:
   a) Establish lion population density in the Hobatere area of northern Namibia;
   b) Develop approaches to resolve Human-Wildlife Conflicts through stakeholder participation.

3) To develop an approach to promote conservation through tourism and education with specific emphasis on the complexities of carnivore conservation within a rangeland production area:
   a) To understand the relationship between a range of predators and their prey in a semi-arid rangeland;
   b) To understand how predators select and utilise available prey to ensure population growth;
   c) To understand how predators interact during competition for food and habitat;
   d) To improve our understanding of the requirements of the different prey species to sustain healthy populations in the presence of a wide variety of predators.

4) A long-term study of the ecology of leopard and brown hyaena residing in a closed, protected reserve. Carnivore populations are studied and monitored with the aid of VHF and GPS collars as well as camera traps. The study is focusing on the altered ecology of the target species in a closed system and will ultimately contribute to the establishment of effective and sustainable management guidelines and thus, ensure the long-term persistence in a fenced environment.

5) Ecological research on insectivorous small mammals

   a) Ground pangolin research: The aim of the applied research is to assess the home range size, population density, and ecology of ground pangolin within Okonjima Nature Reserve and to gather further information about their behaviour, habitat preference, and survival strategies and to address the existing gap within Namibia regarding pangolin research and the exponential increase in trafficking of the species.
   b) Aardvark research: This research project aims to establish the potential impact of climate change on free-ranging aardvarks *Orycteropus afer* within the Okonjima Nature Reserve, focusing on home range estimations, activity patterns and how there ecology is influenced by climatic factors.

Project 1 - Programme 1: AfriCat Hobatere Lion Research Project (AHLRP)

Objectives

In order to manage Human Wildlife Conflict (the farmer-lion conflict) effectively and efficiently, it is crucial to have adequate and relevant information. AfriCat North is involved in programmes which will establish population density and activity patterns of lions living around human settlements in northern Namibia.

It is believed that the lion populations of the Etosha National Park and Kunene Region are FIV-free (Feline Immuno-deficiency Virus / Feline AIDs); one of the few FIV-free lion population in Africa. This FIV-free status makes the Etosha lion population an extremely important founder population source. The Hobatere Concession Area lies adjacent to western Etosha National Park and is government-owned and managed by the Ministry of Environment & Tourism. Two Communal Conservancies share the potential to develop tourism ventures within this concession area. Between 1989 and 2011, the Hobatere Tourism Concession was privately managed. The Concession was, however, terminated in May 2011 after a fire destroyed the main lodge building. No monitoring of the lion population has since been undertaken.

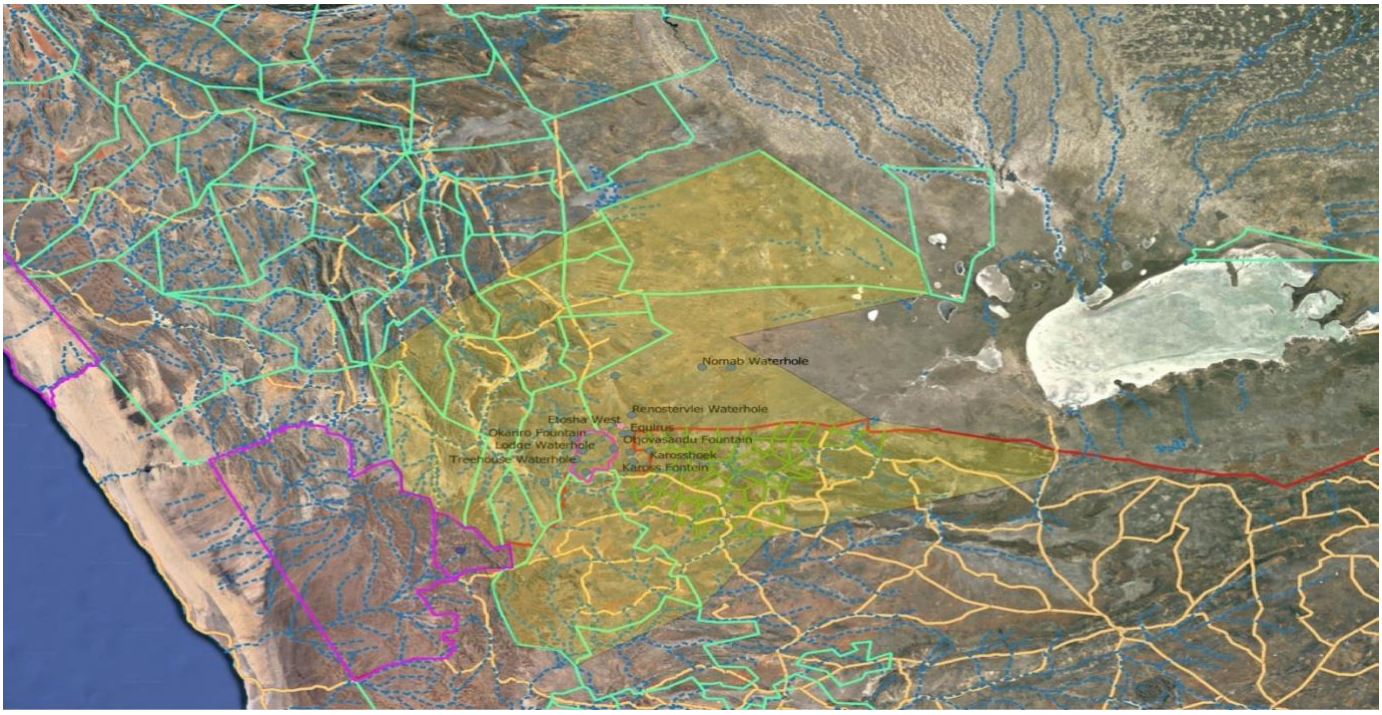
The objective of the Hobatere Lion Research Project is to conduct a study of the Lion (*Panthera leo)* population within the Hobatere Concession Area and the movements between the Hobatere Concession Area, western Etosha National Park, and adjacent communal farmland. Specific objectives are:

- To understand the population dynamics of the lions utilising the Hobatere Concession Area, and how one or more of the prides found within Hobatere relate to the greater Kunene population and/or the western part of Etosha National Park;
- To understand the dispersal and or migration/immigration patterns of lions within Hobatere and the surrounding areas;
- To understand the role of:
  - water and prey availability within Hobatere and the surrounding areas;
  - fencing surrounding Hobatere and Etosha National Park;
  - human pressure from outside of Hobatere;
  - hunting within the surrounding areas;
  - how these factors affect the movement of the so-called 'Hobatere lions' and the associated human-lion conflict within the area;

  To test the effectiveness of human-lion conflict mitigation measures, e.g. kraals, herding, geo-fencing/early warning systems, and translocations.

Project Location / Study Area

(i) Hobatere Concession Area and communal conservancies to the north, west and south, including the Ehirovipuka, Orupupa, Omatendeka, Anabeb and !Khoa di //Hoas Conservancies.



Map 1:
AfriCat Hobatere Lion Research Project Study Site (yellow-shaded area), Hobatere Concession Area, Etosha-west (west of vertical line: Restricted Area), the Communal Conservancies of Ehirovipuka, Omatendeka & !Khoa di //Hoas Conservancies and Free-hold farmland along Etosha National Park southern boundary.

ii) Western Etosha National Park (restricted area, hereafter Etosha-west), including adjacent free-hold farmland to the south (farms Wildeck to Helaas), adjacent communal conservancies to the south, (!Khoa di //Hoas), to the west, (Ehirovipuka) and to the north-west, (Sheya Shuushona).

iii) Included within the Omatendeka Conservancy, the Etendeka Concession.

iv) Palmwag Concession Area: collared lion range including the Obob, Kawaxab, Aub, Gaes, Uniab and Klip Rivers

Main Activities

- **Re-establishing accurate current data on the demography of lions within Hobatere and the surrounding areas:** Lion population size and demography were evaluated through live observations and photographs taken by camera traps. The photographs taken by such cameras along with the information from the GPS-Satellite collars, showed that placing the cameras on roads and game trails only occasionally photographed lions. Even when lions were known to be in the areas close to the trail cameras they would not necessarily walk past the cameras. It was concluded that trail cameras placed at the three functional Hobatere waterholes (Roadside {prev. Campsite}, Lodge, and Tree House, three bait-sites (Roadside dam, Airfield bait-site, and Tree House) and one other road & game-trail site (Mine Road/Hunters Road Gorge), providing a reliable indication of the population in the area. Multiple trail cameras were placed at each waterhole, covering every angle from which lions could approach the water; a number of trail cameras were placed further away from the water but within 50 metres of the waterhole, providing effective coverage of lions passing by.

Known Females: Hobatere Concession and Etosha-West (6 -7 Adults)

The two loosely-associated prides, Hobatere North and Etosha Roadside, identified in Phase 2 (2014-2015), remain resident within the Hobatere Concession, with some cross-border movement onto communal farmland to the south, west and north as well as into Kaross Block and Etosha-West. As far as can be ascertained (sightings, camera trap footage and reports), the Hobatere North Pride comprises 3 adult lionesses and 5 offspring, ages ranging from 11 – 17 months (total 8); Etosha Roadside Pride comprises 1 adult lioness and 3 offspring, aged 17 months (total 4). One dominant male (Hpl-26) resides among the Hobatere pride.

Hobatere North Pride:

Mortalities: In Early 2018, Hpl-1 and her pride comprising one adult daughter and their 7 cubs, were moved by MET to a waterhole approximately 120 km from home range, in western Etosha National Park, after which she returned with an unknown number of cubs and herself in a very bad shape. Her injuries are presumed to be the result of fighting, she died in March 2018.

Collared: Hpl-12 and Hpl-14 had their collars replaced in July and December 2018, respectively.

With the translocation of Hpl-1 and her pride in early 2018, the whereabouts of the pride is unknown, included in the pride was Hpl-13 and 2 female cubs.

The present Hobatere North Pride consists of 3 adult female lions and 5 cubs. The 3 lionesses, Hpl-12, Hpl-14 and Hpl-15, remain close, together with their 5 cubs, 2 male cubs mothered by Hpl-14 and 3 by Hpl-15 (one male, two females).
The pride spends the majority of their time within the Hobatere North boundaries. Hpl-26, the territorial male, is accepted as the pride male as he visits frequently and is considered to be the father of the cubs born to Hpl-14 and Hpl-15.

Etosha Roadside Pride:

The Etosha Roadside Pride currently consists of one collared lioness, Hpl-7, and her 3 cubs (one male and two females). Hpl-7 was regularly observed with Hpl-16 and Hpl-21, the latter two were last seen mid-2017, when they spent the majority of their time in Southern Hobatere. Towards the end of 2017, Hpl-7 moved into the Kaross Block with her new-born cubs (or she may have given birth inside Kaross Block); since October 2018, Hpl-7 makes frequent visits through the porous Kaross fence to the southern farms bordering the Kaross Block, causing conflict with livestock farmers.

<u>Known Males: Hobatere Concession and Etosha-West (5 Adults)</u>

No male lions permanently reside within the Hobatere Concession. Since the start of the study, the territorial males tend to make frequent visits to the two prides residing in Hobatere. The home range of the collared male lions in the past and present extend between the Hobatere Concession and Etosha-West.

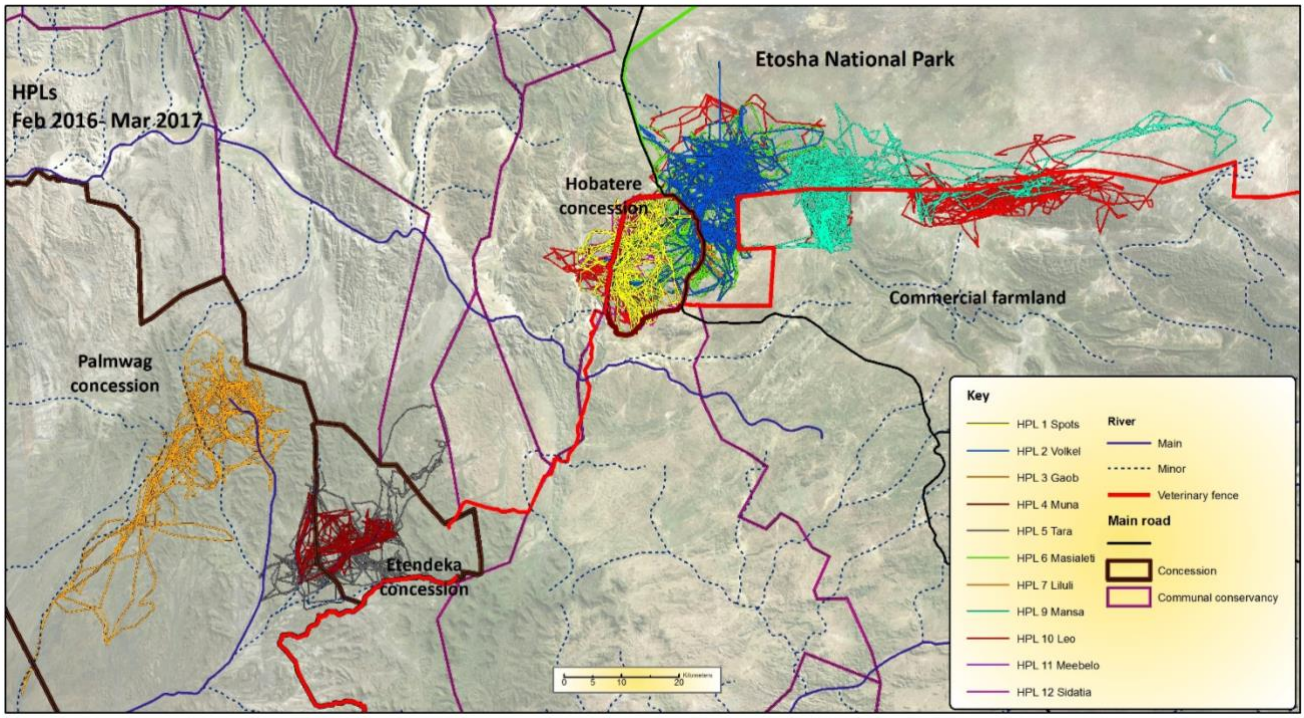
The two sibling males, Hpl-2 and Hpl-6 (the only territorial males), that have frequented the Hobatere Concession since 2012, have not been seen in Hobatere since December 2016 (Hpl-2) and February 2017 (Hpl-6); Hpl-10 and Hpl-20 moved eastwards mid-2016. Hpl-2 and Hpl-6 are presumed to be in western Etosha, where their location is occasionally monitored by Etosha wardens (their collars should be replaced, but due to the high anti-poaching security within

Etosha NP, AfriCat is unable to monitor on a regular basis). Hpl-10 and Hpl-20 have settled on large private reserves along Etosha's southern boundary, approx. 80-100 km east of Hobatere North.

Hpl-26 is the current dominant male that resides between the Hobatere Concession and Etosha-West. He is frequently seen together with Hpl-12, Hpl-14 and Hpl-15 and considered to be the biological father of the cubs born to Hpl-14 and Hpl-15.

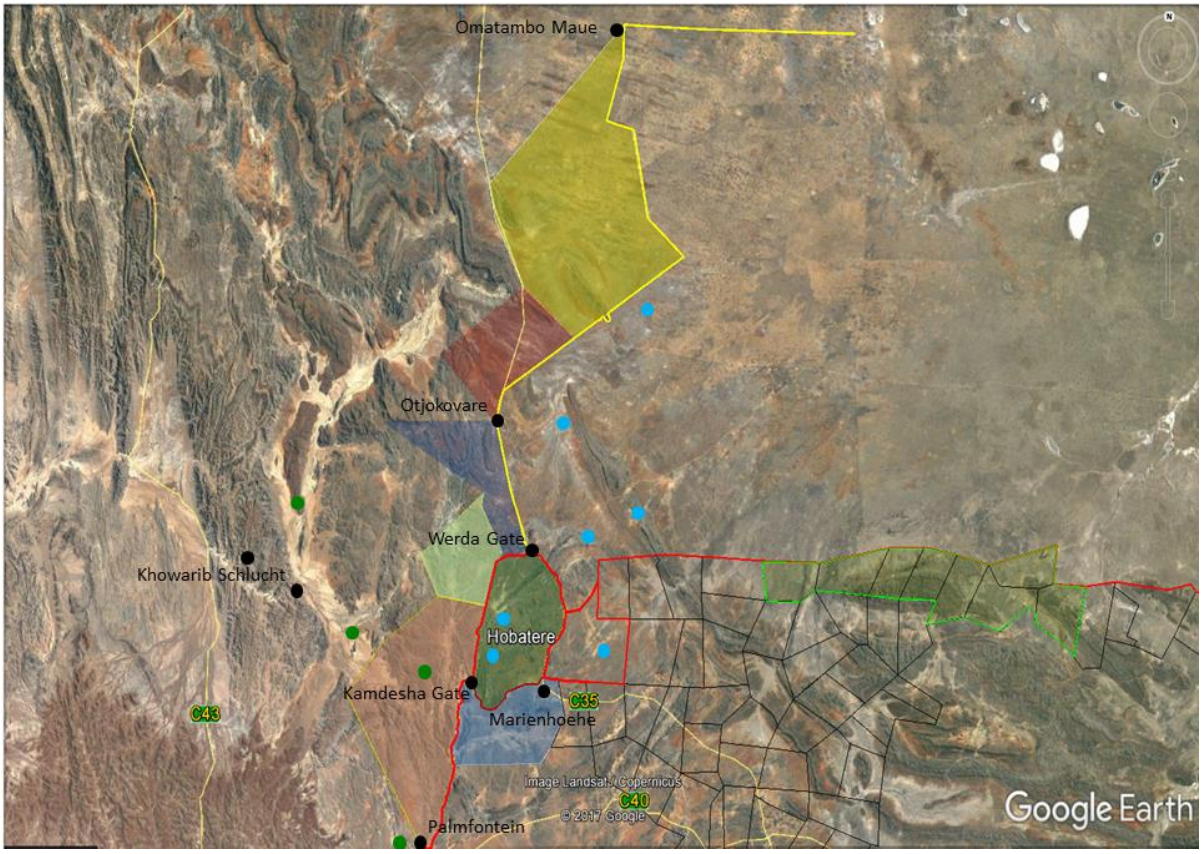
Major Achievements

- Final Analysis of home range data**:** Eleven lions (5 females and 7 males) have been collared since the start of the AfriCat Hobatere Lion Research Project (AHLRP), three of which (Hpl-3, 4 & 5) have remained in the Etendeka/Palmwag Concessions, west of the Grootberg Mountain Range. Interpretation: ENP: Etosha National Park; AHLRP: AfriCat Hobatere Lion Research Project; PA: Protected Area



Map 2: Indicates ranges of the eleven collared lions:
11 Lion ranges depicted by coloured lines: Females: Hpl-1: yellow; Hpl- 4: maroon (Etendeka); Hpl-7: orange; Hpl-11: purple; Hpl-12: pink; Hpl-14 grey; Males**:** Hpl-2: blue; Hpl-3: gold (Etendeka/Palmwag); Hpl-5: grey (Etendeka/Palmwag; Hpl-6: neon green; Hpl-9: turquoise blue; Hpl-10: red; Hpl-26 dark blue

- The AfriCat Lion Guard Programme: Essentially, the Lion Guards are assigned to various conflict areas, e.g. ENP western boundary from Werda Veterinary Control Gate to Omatambo Maue, Otjokovare area, Onguta farming community (along the Hobatere western border) & Arisona farming community, along the Hobatere south-western border). These men play a vital role in protecting the Hobatere & Etosha lions and mitigating lion-farmer conflict on communal farmland (see map 3)



Map 3: Lion guard zones

- Phase 4: (February 2016 – March 2017): Here we begin to distinguish between the following groups:

  Hobatere North-Pride, i.e. all the known lions in the Hobatere North zone, comprising: 3 adult females (Hpl-12, 14, 15), one adult male (Hpl-26)), one females and 4 males of 11-17 months of age (Total: 9 lions**)**;

  Etosha Roadside Pride, i.e. all the known lions in the Etosha Roadside zone (which includes Etosha-West and Kaross Block): one adult female (Hpl-7) and 3 cubs, born ca. December 2017 (Total: 4 lions)

- Human-Wildlife Conflict Mitigation measures in place:
  - Geo-fencing or early-warning systems (via GPS-Satellite collars fitted on lions and other predators), whereby farmers are warned of lion/predator movement when in close proximity to their herds or villages; at present, AfriCat monitors 12 lions on a two-hourly basis, gathering much-needed data on movement patterns, thereby mitigating conflict.
  - Strong 1.8 - 2m high nocturnal kraals (ongoing new construction/repairs & maintenance of existing kraals), for use when the lions are in the area: to date, 23 such kraals have been built in the Ehirovipuka, Omusati and !Khoa di //Hoas Conservancies by AfriCat (see Map 2);
  - Rangeland management & herding systems in communal grazing areas: whereby farmers employ herdsmen to take care of their livestock during the day whilst in the field and to kraal them at night; the recent AfriCat collaboration with CAN (Conservation Agriculture Namibia) in communal grazing areas encourages rangeland management and improved husbandry and livestock protection;

- Conservation Education: whereby the youth as well as adult community members accept the lions' role in a balanced ecosystem and understand the value as a sustainable tourist attraction;
- The Lion Guard Programme provides day and night-time patrols, protecting both the villagers and their livestock from marauding predators; success is high provided livestock are safely penned during the night. A more extensive Lion Guard Programme, whereby conservancy members take on the role of 'keepers of the wilderness', is being developed.
- In progress: 'Conservation Agriculture' courses and work-shops, providing sound arid-adapted farm management, animal husbandry and improved livestock protection programmes, thereby minimising the disastrous effects of drought.

Constraints & Challenges

- Further studies have established that the regularity of lion movement onto farmland from the Hobatere Concession, has increased since August 2015: the persistent drought resulted in widespread migration of wildlife, with the lions naturally following their prey cross-border; the lions have become habituated to livestock as easy prey, causing them to kill inside of the protected area and outside. As far as can be ascertained through the monitoring of the 10 marked/collared lions, these lions would be regarded as 'occasional' stock-raiders, chiefly due to habituation caused by livestock grazing inside of protected areas, porous boundary fences and poor livestock management on communal farmland.
- Despite the presence of communal kraals (bomas) in the hot-spot areas (built by AfriCat, with commitments signed with the headmen), large numbers of livestock still remain unattended, in the field at night: reasons remain unclear but it is evident that the lack of graze keeps animals in the field for longer periods, farmers leaving their stock to search for the last morsels, livestock too weak to return to the homesteads and safety.

Future Plans

Due to the persistent drought, the implementation of certain plans and programmes remain tenuous until adequate rainfall eventuates.

Extension of Project into the Ombonde – Palmfontein area, Ehirovipuka Conservancy: Since the successes of the AfriCat Lion Research Project and the Human-Wildlife Conflict Mitigation & Community Support Programmes have become evident, Conservancies further afield have requested AfriCat's support and advice, including requesting monitoring of lions in their respective areas.

The studies carried out since 2013 by the AfriCat Hobatere Lion Project (AHLRP) indicate strongly the natural movement of lions along the Otjovasandu and Ombonde Rivers, as well as where the rivers converge south-west of the Hobatere Concession Area; into the sixth year of drought, these ephemeral river systems offer the last source of grazing and browse for both livestock and wildlife.

Reports of at least 4-6 lions frequenting the Otjeombonde waterhole have been received, after the loss of 5 lions at the hands of a farmer illegally residing and farming in the Ehirovipuka Core area west of Palmfontein; evidence of lion movement have also been observed entering the Hobatere Concession from the south-west.

Funding has been sourced for more collars and trail cameras, which will enable AfriCat to establish lion numbers, age and range, as well as identify problem areas regarding improved protection of livestock, increasing tolerance towards lions.

Extension of the AHLR Project westwards (including Orupupa, Omatendeka and Anabeb Conservancies) with the Grootberg Range as ecological boundary.

AfriCat has developed an innovative Communal Carnivore Conservation Programme (CCCP) whereby the communal livestock farmers are encouraged to adopt improved livestock protection methods, effectively reducing livestock losses. Data received from the GPS-Satellite Collars may be used as an Early-Warning System to further minimise losses.




Project 2 - Programme 1: Research in the 20,000 hectare (200 km^2) Okonjima Nature Reserve.

Objectives

To develop an approach to promote conservation using tourism and education as catalysts, with specific emphasis on the complexities of carnivore conservation within a rangeland production area.

The immediate mission is to turn the 20,000 hectare Okonjima Nature Reserve, which was recently denuded farmland, back to its natural state last seen, perhaps, 200 years ago. The approaches engaged in this regard must be sustainable and a benefit to local communities for it to survive the tides of social and environmental change in Namibia. Researching herbivores and carnivores within the Okonjima Nature Reserve, particularly cheetahs, leopards, and brown hyaena, will help future farming communities and, ultimately, reduce the numbers of predators killed on farmland. The objective of AfriCat's research in the 20,000 hectare Okonjima Nature Reserve is to develop practical solutions to the farmer-carnivore conflict and contribute to the understanding of herbivore-carnivore interaction for the benefit of animal conservation.

The sub-objectives are:

a. To understand the relationship between a range of predators and their prey in a semi-arid rangeland;

b. To understand how predators select and utilise available prey to ensure population growth;
c. To understand how predators interact during competition for food and habitat;
d. To improve understanding of the requirements of the different prey species to sustain healthy populations in the presence of a wide variety of predators.

Main Activities

AfriCat's current research projects in the 20,000 hectare Okonjima Nature Reserve include:

1. **Long-term study of sympatric carnivore interaction within an enclosed conservation area at Okonjima Nature Reserve with focus on leopard ecology (ongoing project)**

Aim of the research:

A long-term study of the predator population of the Okonjima Nature Reserve is proposed. Interactions between predators, both within and between species will be studied with the aid of VHF-telemetry, GPS-collars (if funding becomes available) and camera traps. The study will assess the extent of intraguild predation and determine the size of home ranges and territories for individual animals within the reserve and how they relate to those of other predators. In addition the study will provide valuable information on which to evaluate the success of carnivore rehabilitation on the reserve.

Objectives:

- To evaluate interspecific competition and interactions of sympatric large carnivores within an island bound conservation area;
- To assess species-specific habitat preferences and spatial utilisation patterns;
- To analyse individual-specific home ranges and assess the degree of inter and intra-specific territory overlap;
- To assess species-specific feeding habits and prey selection;
- To observe changes in predator population dynamics and composition over time;
- Collecting morphometric data on Okonjima's carnivores;
- Collection of biological samples of wild-caught carnivores for storage in Okonjima's bio bank for future research;
- To assist in evaluation of the current park management and development of long-term predator and prey management strategies.

2. Behavioural ecology and management-induced niche shift of brown hyaena in a closed reserve; implications for conservation management (project start: January 2018)

Aim of the research:

The research project aims to gain an in-depth understanding of the behavioural ecology of brown hyaena living in an enclosed reserve (Okonjima Nature Reserve), with specific respect to home-range size, social organisation and density, occupancy and habitat preferences activity patterns and spatial and temporal niche partitioning with sympatric carnivore species. Additionally, the genetic diversity and disease prevalence of the population will be studied.

Objectives:

- Home range estimation of brown hyaenas present on the Okonjima Reserve through the use of fine resolution data obtained from GPS collars fitted to a number of adult animals;
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- Determination of seasonal changes in home range use and range by comparing GPS data collected in the dry and wet seasons and calculating the degree of overlap between seasonal ranges;
- Estimation of overlap of home ranges of different clans (if a clan structure is present) occurring on Okonjima Reserve;
- Density estimation of brown hyaenas occurring on Okonjima reserve through the use of camera trap surveys and spatially explicit capture-recapture analysis of camera trap data;
- Estimate the annual population growth rate of brown hyaena occurring on Okonjima by repeating yearly density studies;
- Determine clan size and social structure of brown hyaena on Okonjima using camera trapping and GPS collar data;
- Occupancy and detection probability estimation and habitat preferences of brown hyaena occurring on Okonjima through the use of maximum likelihood occupancy modelling;
- Examine brown hyaena-sympatric carnivore interactions, e.g. cheetah and leopard, by running two species interaction occupancy models;
- Ascertain the disease prevalence within the enclosed brown hyaena population, following a full epidemiological disease study, using blood samples acquired when sedating brown hyaena for GPS collar fitting;
- To compare the genetic diversity of those individual brown hyaena living within the Okonjima Nature Reserve to free-ranging individuals across Namibia, by comparing samples taken from other research groups - e.g. IZW.

3. **Examining genetic diversity of different carnivore species from blood collection from the time the AfriCat Foundation came in existence, including family tree building of the species: leopard, cheetah, lion, brown hyaena, wild dogs (Blood bank IcPanthera**

Aim of the project:

The aim of the project is to examine the genetic diversity of different carnivore species that are inhabiting the Okonjima Nature Reserve, an enclosed nature reserve that prohibits natural migration through the erection of a surrounding predator-proof fence, via the utilisation of blood samples that have been collected and stored at the AfriCat Foundation over the last 22 years. The analysis is aiming to assess the relatedness among individuals and to ascertain the disease prevalence in the reserve and develop an epidemiological survey in collaboration with genetic and veterinary laboratories in Namibia and South Africa.

Objectives:

- Examining the genetic diversity in an enclosed reserve prohibiting migration
- Ascertain disease prevalence
- Development of an epidemiological survey

4. **Rehabilitation of degraded areas**

Aim of the project:

This long-term study will investigate different methods of rehabilitating degraded areas. Standard evaluation techniques such as the Landscape Function Assessment (Ludwig et al. 2004) will be used to determine the success of different approaches.

5. **Herbivore (prey) population monitoring project**

Aim of the project:

In order to be able to support a prey sustainable population in the presence of predators it is essential to understand the resources available to the different prey species and to understand their habitat preferences for foraging and resting. Further, in order to be able to sustain these aims, the following aspects will be addressed by AfriCat or through directed research projects

Objectives:

- Classify the vegetation and habitats in the study area to be able to map the resource areas for the different herbivores according to their requirements;
- Establish how the different prey species utilise these habitats in the different seasons and under different rainfall conditions;
- Determine the number of animals which can be supported by the environment on a yearly basis and recommend management actions accordingly;
- Determine the increase in available resources through rehabilitation projects.

6. **Determining the home range size, population density, habitat selection and ecology of wild and rehabilitated-released Temminck's ground pangolin (*Smutsia temminckii*) in the Okonjima Nature Reserve.**

Aim of the project:

The AfriCat Pangolin Project seeks to address the existing gap within Namibia regarding pangolin research and the exponential increase in trafficking of the species. Pangolin will be fitted with transmitters from which we can observe spatial movements in time, accelerometer data, and activity budgets. The overall aim of the applied research is to assess the home range size, population density, and ecology of wild and rehabilitated-released ground pangolin within the Okonjima Nature Reserve and to gather further information about their behaviour, habitat preference, and survival strategies. The project also plans to look closely at the success rate of adaptation of released-rehabilitated pangolin. From this research, we hope to determine suitable habitats of release for ground pangolin seized (from illegal wildlife tracking industry) as well as establish conservation management methods for rehabilitation of ground pangolin. The end goal of collecting this data is to shed light on biological baseline knowledge of the species and to create guidelines for the ground pangolin as a whole within Namibia and for these guidelines to be applicable across their range. An additional goal is to increase awareness of the vulnerable status of southern Africa's only pangolin species through publications in scientific journals and popular science magazines.

Objectives:

Specific objectives of the study which can lead us to these conclusions are the following;

1) Estimation of average home range sizes based upon spatial data collected via VHF tags and analysed using Minimum Convex Polygon and 95% Kernel Density;
2) Estimation of pangolin densities based upon home range size estimates and pangolin sightings;
3) Determination of seasonal habitat preference and selection comparing the dry and wet seasons from visual observations recorded during VHF tracking;

4) Determination of population dynamics for the area through assessing the number of male/female juvenile, sub-adult, and adult individuals and their respective home ranges;

5) Establishment of burrow and refuge preference over seasonality through visual observation data during VHF tracking and camera trapping at known refuges;
6) Determination of seasonal activity patterns through the use of camera trapping known refuges;
7) Assess and develop protocols for releasing and observing rehabilitated pangolin based upon observational data collected during relocation;
8) Determination of diet and prey selectivity through visual observations and prey identification as well as scat analysis;
9) To determine and analyse movement and spatial distribution patterns in an island-bound (restricted) conservation area with regard to electrified fences and comparison to open, non-fenced environments ("free-roaming");

10) Asses the influence of environmental factors such as temperature (environmental and burrow), season, lunar phase, humidity and rainfall pattern, etc. on times of emergence and re-entry of the burrow and time spent foraging;
11) Comparison of home range size, activity patterns, and behaviour of wild versus rehabilitated released pangolins.

7. <u>The Okonjima aardvark research project: Investigating the potential impact of climate change on aardvark within north-central Namibia.</u>

Aim of the project:

This research project aims to establish the potential impact of climate change on free-ranging aardvarks *Orycteropus afer* within the Okonjima Nature Reserve, north-central Namibia. The research will repeat specific aspects of Weyer's (2018) work which found aardvarks living in the semi-arid Kalahari were negatively influenced by summer droughts and responded with three main physiological responses, namely switching to diurnal activity patterns, lowering of core body temperatures during metabolically challenging periods and exhibiting basking behaviours. However, such responses were usually not successful and resulted in mass mortality of aardvarks following summer droughts. The activity patterns and basking activity of aardvarks on Okonjima will be monitored, as well as establishing the diet of aardvarks and examining seasonal and inter-annual fluctuations in prey populations and plant productivity on the reserve.

Objectives:

- Estimation of aardvark home ranges on the Okonjima Nature Reserve using VHF spatial data.
- Spatial mapping of aardvark burrows within the Okonjima Nature Reserve.
- Obtain activity patterns and times of emergence from and entry into burrows by aardvark and investigate the influence of climatic factors on both.
- Compare the activity patterns of aardvark living within the 200 km^2 Okonjima Nature Reserve with those of aardvark residing within the 'predator-free' 20 km^2 section of the park surrounding.
- Investigate the occurrence of basking behaviour in aardvark by monitoring time and duration of any basking bouts.
- To assess seasonal and inter-annual fluctuations in plant productivity, using grass cover as a proxy, within aardvark home ranges.
- Assess seasonal diet of aardvark via faecal sampling.

Major Achievements

- A total of N$ 110,000 funding was successfully gained from the Namibian Wildlife Conservation Trust to purchase 40 Cuddeback infra-red cameras, protective Cuddesafe boxes, 60 8GB SD cards, 50 sets of AA rechargeable batteries and six Varta battery chargers.
- Fitting Wireless Wildlife GPS collars to 10 adult brown hyaenas (four males and six females) and replacement of a dead VHF collar on one female adult.
- The first brown hyaena density survey completed for the Okonjima Nature Reserve, with an estimated density 26.67/100 km2 (SE = 0.91, 95% CI's 26.27 – 26.67); the highest recorded to date for the species.
- A density estimate manuscript entitled 'Evidence of a high density brown hyaena population within a small, enclosed reserve in north-central Namibia; the role of fenced systems in conservation' which has been submitted to the peer-reviewed Mammal Research journal and is currently under review
- The first individual identification (ID) catalogue of brown hyaena individuals produced for the Okonjima Nature Reserve.
- Die Republikein Afrikaans-language newspaper translated and published the first brown hyaena e-newsletter which increased public awareness of the project within Namibia.
- Funding for seven CamPark camera traps for aardvark research successfully gained from the Alongside Wildlife Foundation.
- Three VHF ear tags (aardvark cannot wear collars due to their sensitive skin becoming irritated and open leading to infection) have been purchased with funds from Okonjima Lodge.
- Purchase of 10 Telonics-, 6 AWT- and 5 Wireless Wildlife-VHF collars for the long-term study of sympatric carnivore interactions.
- Fitting of VHF collars to nine leopards (including six newly collared individuals and three collar replacements), six cheetahs, one spotted hyaena and one brown hyaena.
- Purchase of 11 telemetry receivers R-1000 from Communication specialists, Inc. and seven telemetry antennas RA-23K from Telonics.
- Upgrade, improvement and streamlining of steel-mesh box traps utilised for the capture of leopards for collaring purposes: A GSM (Global System for Mobile communication) commander with beams was installed alerting via SMS if an animal has entered the trap ensuring a more effective and selected capturing of target animals.
- Acquisition of three new field vehicles partly sponsored by AfriCat UK.
- M.Sc. student Kelsey Prediger joined the AfriCat team in August 2018 to help take on the AfriCat Pangolin Project which aims to learn more about these nocturnal and elusive creatures and help provide a base of scientific

knowledge from which we can better help save this species from the horrendous wildlife trafficking trade.

- Purchase of 17 pangolin VHF-tags of which seven were converted to ear-tag modified versions to reduce failure rate.
- Fitting of 11 pangolin with VHF tags, including one rehabilitated pangolin.
- Collaborations with the Namibia Animal Rehabilitation and Research Education Centre (NAREC) and Namibia University of Science and Technology (NUST) were established.
- An area of 430 hectares was relieved from bush encroachment.
- Two aerial game censuses have been conducted in 2018 in order to get reliable figures for (1) the total number of game in the park and (2) total number of individuals for each species. The main objectives for the implementation of an annual game census are: (i) to follow trend numbers in population size, (ii) to determine population dynamics, (iii) to evaluate sex rations for management purposes and (iv) to evaluate food biomass availability of different species in a closed ecosystem.
- Based on the results of the aerial game censuses, an ascertained number of game has been captured and relocated. Due to the lack of apex predators in the reserve like lions, certain antelope species (e.g. eland, zebra) have no natural enemies and hence, show a rapid increase in numbers. Overpopulation often results in overgrazing where wildlife excessively and continuously feeds on vegetation without given enough time to recover. In order to maintain the productivity and biodiversity of the land, a set number of individuals of specific species will be captured and relocated on an annual basis.

Constraints & Challenges

- The prevention of re-growth on previously de-bushed areas.
- De-bushed heaps are eradicated by a controlled burning programme, resulting in a sterile soil with no re-growth of grass. A practical solution needs to be found that will help maintain grassland.
- The rechargeable batteries used to power the camera traps have been found to not perform optimally, especially during cold winter nights, which is causing the camera traps to not keep the correct time and date, meaning certain data cannot reliably extracted from the cameras.
- Two of the hyaena GPS collars stopped working before the battery warranty period and had to be replaced, which resulted in gaps in the spatial data. The company stated the possible reason for this is having to use batteries from a different supplier, than their usual supplier, and hope such issues will be resolved in the future collars.
- Due to the lack of electronic equipment, carnivore data collection by Okonjima field guides is fragmentary.
- Four of the pangolin VHF tags broke off. Those tag failures led us to work on developing more successful tag attachments. All currently tagged pangolin have modified tags with a flexible ear tag instead of a metal plate.
  Due to the elusive and shy nature of aardvark, free-darting does not represent a feasible option for fitting the VHF ear tag. Therefore, plans have been made to use box traps for capturing aardvark, however all available box traps are currently in use for leopard capture and so trapping has not been able to commence.

Future Plans

- 10 new GPS collars need to be purchased for the brown hyaena project as the original GPS collar batteries will start dying and need to be replaced from June 2019 onwards.
- Purchase of 15 tablets to accompany each field guide during their game drives into the Okonjima Nature Reserve and thus, facilitating and ensuring a thorough data collection in the field.

- 10 new VHF collars need to be purchased for the long-term carnivore interaction study.
- Batteries powering the camera traps will be replaced with lithium batteries which are known to perform better, especially during cold temperatures.
- Testing of solar panel powered camera traps to reduce running costs of batteries and to reduce environmental waste.
- A number of grants have been applied for to cover the cost of new GPS collars and lithium batteries. Additionally, grants have been applied for to purchase satellite collars which would then be used to collar brown hyaena living outside the Okonjima Nature Reserve, i.e. at the Otjiwa feeding area, such data would be used for a comparative ecology study on free-ranging vs enclosed population individuals. This is not an essential part of the project but if funds were raised it would be a very interesting additional aspect to the study.
- Grants will be applied for to purchase GPS collars and additional camera traps for the leopard research.
- Sarah Edwards will be giving a talk on the Okonjima brown hyaena study at the Namibian Environment and Wildlife Society AGM in July 2019 which is hoped will further increase awareness of the project within Namibia.
- More grants will be applied for in order to purchase additional camera traps, VHF and GPS tags for pangolin and aardvark and accelerometer tags for pangolin.
- Initiate collaborations with other universities and organisations on pangolin research.
- Trapping of aardvark will start as soon as box traps become available and camera trapping in aardvark activity hotspots will continue to gather further data for activity pattern analysis.

Project 3 - Programme 1: Research in the AfriCat Carnivore Care Centre

Objectives

The animals, facilities, and staff at AfriCat provide a fairly unique setting in which to undertake both basic and applied research on threatened and endangered wild carnivores in a captive, semi-captive,

and a free-ranging environment. Optimal health is central to both animal welfare and conservation and is therefore a key focus of research.

In captivity, cheetahs are known to frequently suffer from a number of unusual diseases not typically seen in other large captive felids. These include glomerulosclerosis, renal amyloidosis, oxalate nephrosis, lympho-plasmacytic gastritis, veno-occlusive disease, splenic myelolipomas, cardiac fibrosis, and adrenal cortical hyperplasia with lymphocyctic depletion of the spleen, as well as several ill-defined neurological diseases. Dental and oral diseases have also been seen frequently in this species and the relevance thereof, as well as the influence they may have on several of the previously mentioned conditions, is still unclear. Some of these chronic degenerative diseases eventually affect the majority of cheetahs in captivity and are considered to be the primary cause of morbidity and mortality in adult animals. In contrast, the incidence of similar histological lesions in free-ranging cheetahs was found to be very low. Stress, lack of exercise, low genetic variability, and the provision of unnatural diets in captive facilities have been proposed as potential causal factors, but to-date convincing pathophysiological explanations for these diseases have been lacking or unsatisfactory.

Chronic diseases are often difficult to investigate due to the time span over which they develop and the complex biological interactions in living organisms that confound simplistic explanations. AfriCat has therefore proposed a three-pronged approach to clarifying the mechanisms of these idiopathic diseases in captive cheetahs.

Firstly, AfriCat plans to compare the metabolic profiles of captive cheetahs to those of their free-ranging counterparts. This is expected to highlight abnormal serum and urine metabolite concentrations in the captive animals, thus generating new hypotheses for further investigation. Secondly, AfriCat hopes to intensively study the health of the AfriCat cheetahs over a number of years to determine immune system function as well as disease progression and prevalence. Thirdly, AfriCat shall monitor the dental and oral health of these individuals over a period of time, which may assist in identifying underlying processes at play.

The aim of the study is therefore to establish baseline health data using a broad range of technologies and then to collect annual health status information at the time of AfriCat's annual health checks in

June/July each year. It is expected that this research will dramatically benefit the large felids in captive, rehabilitation, and welfare facilities, around the world.

Main Activities

General veterinary activities

- Different medical cases were attended to in the care centre and in the park throughout the year. Some patients needed a general examination, others needed specific intense clinical examination.

- At monthly intervals all captive carnivores in the AfriCat Care Centre were closely looked at and observed to ensure the best possible health status with their clean-living environment. Their diet was also closely monitored.

- All year round the collaring of some carnivores for research reasons (leopard and brown and spotted hyaena) and replacement of collars on some carnivores (cheetah, leopard, brown and spotted hyaena) within the reserve, were the collar battery lifespan is nearing the end, took place.

Successful annual health examination

A legal requirement for the maintenance of the AfriCat Carnivore Care Centre holding facility permit is that every carnivore within the centre has to undergo a veterinary clinical examination.

In previous of years an in-depth examination was performed. As there were a high number of captive carnivores, mainly cheetah (*Acinonyx jubatus*), it was ideal to combine it with different targeted research projects on that species:

Studies conducted during annual health examinations:

- The long-term health monitoring and immune-competence of captive cheetahs and other felids at the AfriCat Foundation
- Anaesthesiology: Testing of different agents / agent combination /dosages / agent effect on the animal's metabolism

- Imaging (ultra-sonography): to gain an insight of normal texture, organ sizes, and abnormal sizes/textures that possibly can be indicative as early warning signs for disease patterns, commonly encountered in captive carnivores (cats in our case)
- Dental studies
- Hyperthermia

Dr. Adrian Tordiffe, from the Academic Veterinary Hospital, Onderstepoort, University of Pretoria, South Africa, again headed and guided this years' annual veterinary health examination and also finalised his five-year long-term project (*The long-term health monitoring and immune-competence of captive cheetahs and other felids at the AfriCat Foundation*).

A new short project was conducted in anaesthesiology on the cheetah group presented. This project protocol was developed, implemented and successfully concluded under the guidance of Dr. Roxane Buck, from the same Veterinary Institute. The aim of that project is to find a simple, effective and practical medicinal combination (*Medetomidine with Ketamine in a safe combination ratio to be used as a constant infusion rate*) on the cheetah when in need.

All examinations were done within a time frame of 4 days. It was a smooth, harmonious efficient and coordinated flow of activities, which ended the "Annual Veterinary Health Examination" in such a big format, with different volunteer groups witnessing, helping, participating and communicating with high calibre veterinary specialists in their respective field of work. Due to the decreasing numbers of

carnivores in captivity, future health examinations will be carried out throughout the year by AfriCat's resident veterinarian Dr. Diethardt Rodenwoldt.

Long-term cheetah fly (*Hippoboscus longipennis*) control in the holding camps of AfriCat's Carnivore Care Centre

Aim of the project and current status:
The study is aiming to effectively control the number of cheetah flies (*Hippoboscus longipennis*) on cheetahs (*Acinonyx jubatus*), leopards (*Panthera pardus*), and lions (*Panthera leo*) in a captive environment via the application of insecticides administered as powders, or as dips, or in topically applied formulations.

The cheetah fly is a blood-sucking parasite found mainly on carnivores. Heavy parasite burdens can occur on some animals: in one case, 180 specimens were found on a single captive cheetah. Extensive blood loss might be possible. *H. longipennis* is an intermediate host for *Dipetalonema dracunculoides*, a filarial parasite (thread-like, parasitic nematode worm) of dogs and hyaenas. Even though irritating, cheetah flies don't reach numbers at which they pose a threat to the health of their hosts. However, when hosts are kept in captivity, the numbers of flies increase considerably, because of the ready availability of hosts and hence blood-meals. Consequently, cheetahs in breeding programs and cattle in feedlots can become heavily infested with flies and the constant irritation of their bites can lead to extreme discomfort.

The long-term cheetah fly control (*Hippoboscus longipennis*) in the holding camps of AfriCat Welfare Centre, was started at the end of 2015. All carnivores kept at AfriCat Care Centre are inspected on a monthly basis. For more than three years all captive carnivores are still fly free. The control strategy implemented was and can be regarded as successful.

AfriCat "behind the scenes"

Several small tourist groups visited the AfriCat Care Foundation for a specialised ''day behind the scene" or for a short film shoot throughout the year. The participants were witnessing most of the activities of AfriCat's daily routine including a carnivore immobilisation with all aspects associated with it and the different researchers' field work activities in the reserve. In most cases, the participants have the chance to directly communicate with the respective researchers.

Student projects form UNAM School of Veterinary Medicine (SoVM)

Some of the lion blood/serum samples were donated to the University of Namibia (UNAM) School of Veterinary Medicine (SoVM) at the beginning of 2018 and used in a disease survey for occurrence or not of the feline diseases of Feline Immune Deficiency Syndrome (FeIV) and Feline Leukaemia Virus. This survey is a pre-graduate student project at the SoVM. Results will only be reported on at the end of this year.

Another pre-graduate student project from the SoVM involves a survey of intestinal worm parasite burden during the wet and the dry season on Okonjima Nature Reserve of a grazer. Again, this result will only become available at the end of this year.

A successful 5-day workshop for the 3rd year class of veterinary students from SoVM was organised at the AfriCat clinic facility. The students were introduced to different aspects and involvement of wildlife in general, its relation towards ecology and conservation. The students were also introduced to remote projector handling, associated with all relevant safety measures.

Major Achievements

- Publication of peer viewed research papers by veterinarians/researchers including data collected during the annual AfriCat health checks:
    - Steenkamp, Gerhardus, et al. "Oral, Maxillofacial and Dental Diseases in Captive Cheetahs (Acinonyx jubatus)." *Journal of comparative pathology* 158 (2018): 77-89.
    - Tordiffe, Adrian Stephen Wolferstan, and Lodewyk Jacobus Mienie. "Serum and urine amino acid profiles of captive cheetahs (Acinonyx jubatus)." *Comparative Clinical Pathology* (2018): 1-10.

    - Hetem, Robyn S., et al. "Body temperature, activity patterns and hunting in free-living cheetah: biologging reveals new insights." *Integrative zoology* 14.1 (2019): 30-47.
- Integrate veterinary activities with research whenever needed.
- Student involvement and integrating wildlife into their veterinary education/activity scope.
- Successful cheetah fly control for now more than three years.

Constraints & Challenges

- Restructuring cost-effective multiple mini veterinary health examination throughout the year.
- Maintain a good functional working relation with multiple tertiary education institutions.

- Cost-effective veterinary service rendering from out the AfriCat Foundation Veterinary Clinic.

Future Plans

- To redefine the annual health exams for all captive felids in a practical way and to spread over the entire year.
- Establishment of student/volunteer accommodations
- Continuation of the involvement of veterinary students from the University of Namibia (UNAM) in AfriCat's Captive Carnivore Centre and wildlife park activities.

Programme 2: Carnivore Care

Objectives

As detailed in Section 1, AfriCat initially operated only a Rescue and Release Programme, which developed as a result of the Hanssen family's relationship with the local farming community. Through this programme, more than a thousand carnivores were rescued from farms where they would have otherwise have been killed, and over 85% of them were released where they would not be persecuted. Those that could not be released entered AfriCat's Carnivore Care Programme.

AfriCat currently holds 15 cheetahs in its care that are young, fit, and wild enough to be part of the Rehabilitation Project (see Programme 3). There are, however, 34 cheetahs, 4 leopards, and 4 lion too old or tame to go back into the wild. These individuals are going to live out their lives under the expert care of the AfriCat team and continue to be "**ambassadors**" for their wild counterparts. **AfriCat's Carnivore Care Centre** aims to provide a healthy living environment for the large carnivores in temporary or permanent captivity and to minimise illness and injuries as far as possible.

Assisting Research: Keeping large carnivores in captivity in Namibia requires a Permit from the Ministry of Environment and Tourism. One of the conditions of this Permit is that a veterinary inspection is carried out once a year. As discussed in Programme 1, the annual health examinations of the cheetahs at AfriCat give invited specialist veterinarians the opportunity to conduct research on various aspects of animal health, particularly those relating to the health of large carnivores in captivity. As well as providing expert information on the health of AfriCat's animals, the examinations also allow for the comparison of results with similar studies being conducted on large carnivores in other captive facilities across the globe. Some of this information can also be used to gain insight into the health of large carnivores in the wild. On-going collaboration with scientists and the conservation authorities and working closely with the farming community allows for studies to be conducted that provide valuable information on large carnivores and their long-term conservation in Namibia. Researchers have been involved in a number of studies involving captive cheetahs at AfriCat's Carnivore Care Centre (http://www.africat.org/program/research). AfriCat continued to collect blood and urine samples of

all cheetahs and leopards captured on farmland and released back into the wild, to add to the existing collection of samples started when AfriCat first began operating 21 years ago. These samples are available for research and analysis.

Conservation through Education: The animals in AfriCat's Carnivore Care programme support conservation through education – local school children who are unfamiliar with wild animals are able to see these animals at close quarters and learn to appreciate their beauty and value. The animals in captivity at AfriCat provide opportunities to increase awareness of their wild counterparts and their conservation priorities to the children at the Education Centres as well as to foreign visitors to Namibia.

AfriCat started out with a mission statement to "keep wild cats wild", hence 'A free Cat'. Concentrating on Adult and Youth Education, initiating wild cheetah research and evolving the Rehabilitation Project to such an extent that it becomes a worldwide model for Reintroduction, are all in keeping with that early statement.

Main Activities

- Upgrade of shade netting in cheetah feeding camps.
- Two new exercise lure tracks were erected in different cheetah camps.
- Interchange of captive cheetah groups into different camps to increase animal enrichment and mental as well as physical stimulation.
- Regular maintenance of electric fences.

Major Achievements

- The grass in all camps is cut annually to ensure improved viewing opportunities for school and visitor groups and to reduce the risk of bush fires throughout the rainy season.
- The most recent successful health examination was undertaken in the last week in June 2019 led by Dr. Adrian Tordiffe from the National Zoological Gardens of South Africa and the Faculty of Veterinary Science at the University of Pretoria (UP) and AfriCat's resident veterinarian Dr. Diethardt Rodenwoldt. The veterinary checks fully evaluated the health of all captive animals in the Carnivore Care Centre.

Constraints & Challenges

- Running costs for keeping captive carnivores fed with a well-balanced diet and vitamin and mineral supplements to prevent deficiencies have significantly increased. This has increased the financial burden on AfriCat and reduced the availability of funds for other programmes such as education and research.

Future Plans

- Maintenance of camps and electrical fences throughout the year.
- Upgrade of leopard enclosures and instalment of gates that allow an easy swap of leopards between different camps to relieve pressure of single individuals viewed by visitors throughout the year.

Programme 3: Environmental Education

AfriCat has discovered that, for many Namibian children and adults, the AfriCat Environmental Education Programme is their first camping and outdoor educational experience. Few have had the opportunity to visit wildlife reserves, observe antelope and wild large carnivores, and to experience the natural wonder of their own country. Neither have they been introduced to the vocational opportunities which tourism visitation, hand-in-glove with conservation, offers. AfriCat has advocated environmental education since 1998 and acutely recognizes the urgent need to offer as many learners, of all ages, exposure to the enormous challenges facing Namibia's increasingly fragile natural heritage. It offers constructive solutions and an alternative to the present path.

AfriCat provides Environmental Education programmes for the youth of Namibia with the hope of guiding them towards a greater understanding of the crucial importance of the natural world and of wildlife conservation. The main objective is to promote **holistic** environmental awareness among Namibian youth with emphasis on the role of Namibia's large carnivores. After many years of working with the farming community, it became clear that youth education was vital to the long-term

conservation of large carnivores. The programme has already reached over 25,000 children and young adults at AfriCat's two Education Centres and through its Outreach Programmes.

The AfriCat Environmental Education Programme aims to inform and empower Namibia's youth about large carnivores, conservation, and the Namibian environment through an experiential learning opportunity.

Objectives

The objectives of the Environmental Education Programme, based on the 1997 UNESCO-UNEP Environmental Education objectives, are as follows:

- To develop holistic, environmental awareness, sensitivity, knowledge, attitudes, and values among Namibian youth.
- To promote all aspects of sustainable living.
- To emphasise the importance and responsibility of each individual to contribute to the conservation of the environment.
- To increase knowledge and understanding of Namibia's large carnivores showing that they are an integral, essential, and magnificent part of the Namibian ecosystem.

AfriCat's Environmental Education Programme aims to achieve these objectives by:

- Providing fun and interesting environmental education camps ranging from 2 – 5 days, based at the AfriCat Environmental Education Centre or the AfriCat North Wilderness Camp.
- Utilising the AfriCat Information Centre and the non-releasable cats as carnivore 'ambassadors'.
- Utilising the Okonjima Nature Reserve and/or Northwestern Namibia to enjoy and experience nature; to see and learn about the fauna and flora of Namibia.
- AfriCat North programme: Youth of all ages are encouraged to become involved in this programme, where active participation enables them to learn more about lions in general, their role within the natural ecosystem and the problems facing lions due to loss of ideal habitat, disease, and drought. Issues such as Human-Wildlife Conflict and improved livestock protection methods are encountered and the students are then actively involved in trying to solve these crucial problems.

Main Activities

AfriCat Environmental Education Programme

- Our programme included visiting Namibian school, both primary and secondary schools, ranging from grade five up to grade twelve. The AfriCat Environmental Education Campsite also accommodated a number of UNAM-initiated groups for practical training.

- We continued hosting a number of international schools and colleges from the USA, UK, Poland and The Netherlands. During the financial year, March 2018 to February 2019, we hosted 26 camps at our PAWS Campsite and 562 learners, students and teachers visited the AfriCat Environmental Education Programme.
- We keep our programme flexible to be able to adapt it to the skills and abilities of each individual group. For all students we incorporate physical, mental as well as fun activities, while still emphasising the same core principles within environmental education. We motivate all participants to use critical thinking skills, to think outside the box, and to inspire them to make decisions that are beneficial both to the environment, as well as to their future careers.

Outreach Programme

- So far for the year we have conducted four school outreach trips. Our first outreach was to Windhoek and Okahandja Schools during February, then, we visited the Swakopmund & Walvis Bay schools during April. Our third outreach was to schools in Otjiwarongo and Okakarara during September and October, and finally we visited schools in Outjo.
- While the ideal with our outreach programme is to reach the learners, this is not always possible due to the high demand on learners' time by schools. Therefore, we also endeavour to make contact with the principals and teachers at the schools we contact.
- Our goal for this year was to reach at least 5,000 learners, students and teachers through the two programmes. We were able to reach 7,342 learners, students and teachers.

Major Achievements

- From March 2018 to February 2019 we had 26 visits at the PAWS Environmental Education Centre with a total of 598 learners, students and staff visiting. A breakdown of the visitors is as follows:

- 288 Namibian learners and teachers
- 67 UNAM (University of Namibia) students
- 243 international learners, students and staff (four countries: USA, UK, Poland and Holland)

- We also undertook four school outreach outings. The four regions we travelled to included Karas, Erongo, Otjozondjupa, and Kunene. With the outreach programme we reached 6,575 learners and 169 teachers: 6,744 learners and teachers in total.

- The AfriCat Environmental Education programme reached a total of 7,342 people during this year.

- A donation for eight tents used as student accommodation was received from Cymot.

Constraints & Challenges

- Our Major challenge for the future is to replace the funds received from the annual TUSK (UK) grant which is due to end in February 2020.
- Another main challenges remains transport to assist students, who do not have access to transport, to come to our centre. Okonjima has generously allowed us access to their 15 seater bus, at a small cost, to collect learners from Otjiwarongo.
- A third challenge is to get the schools from less affluent areas here at the AfriCat Educational Centre. We are currently approaching Namibian companies for sponsorships for these schools to enable them to join us at on our Programme.

- We also needed to move the date for the completion of our open class room due to some technicalities surrounding the transfer of money from the UK to AfriCat Environmental Education. The new completion date is planned for end of May or June, depending on how quickly a solution can be found to have the funds transferred.

Future Plans

Our plans for the future are to improve, and also grow, the programme with the following:

- Firstly, we continue to encourage schools to join us for our longer programme that will allow students to stay a whole week with us. We have found that the longer the students are exposed to the EE programme, the more significant the positive impact is on them, and it creates a longer and more memorable impression.
- We also incorporate more high profile primary and high schools which cater for students that come from families that are involved in the governing of our country. These students are likely to end up in the same professions and therefore would be in a position to make decisions that could be beneficial to the long-term conservation of Namibia's natural resources.
- We plan to launch a more concentrated effort to attract more international schools.
- Outreach is also high on the priority list as this will allow us to reach more students in remote areas, but also to concentrate in the northern part of Namibia where the vast majority of schools are situated. If they can't come to AfriCat, we will go to them. The vision is to be able reach school from the more northern parts of Namibia to schools further south from Rehoboth down to Mariental and Keetmanshoop.
- The new "open view" classroom, with office and storeroom, was finished by the end of May 2019.

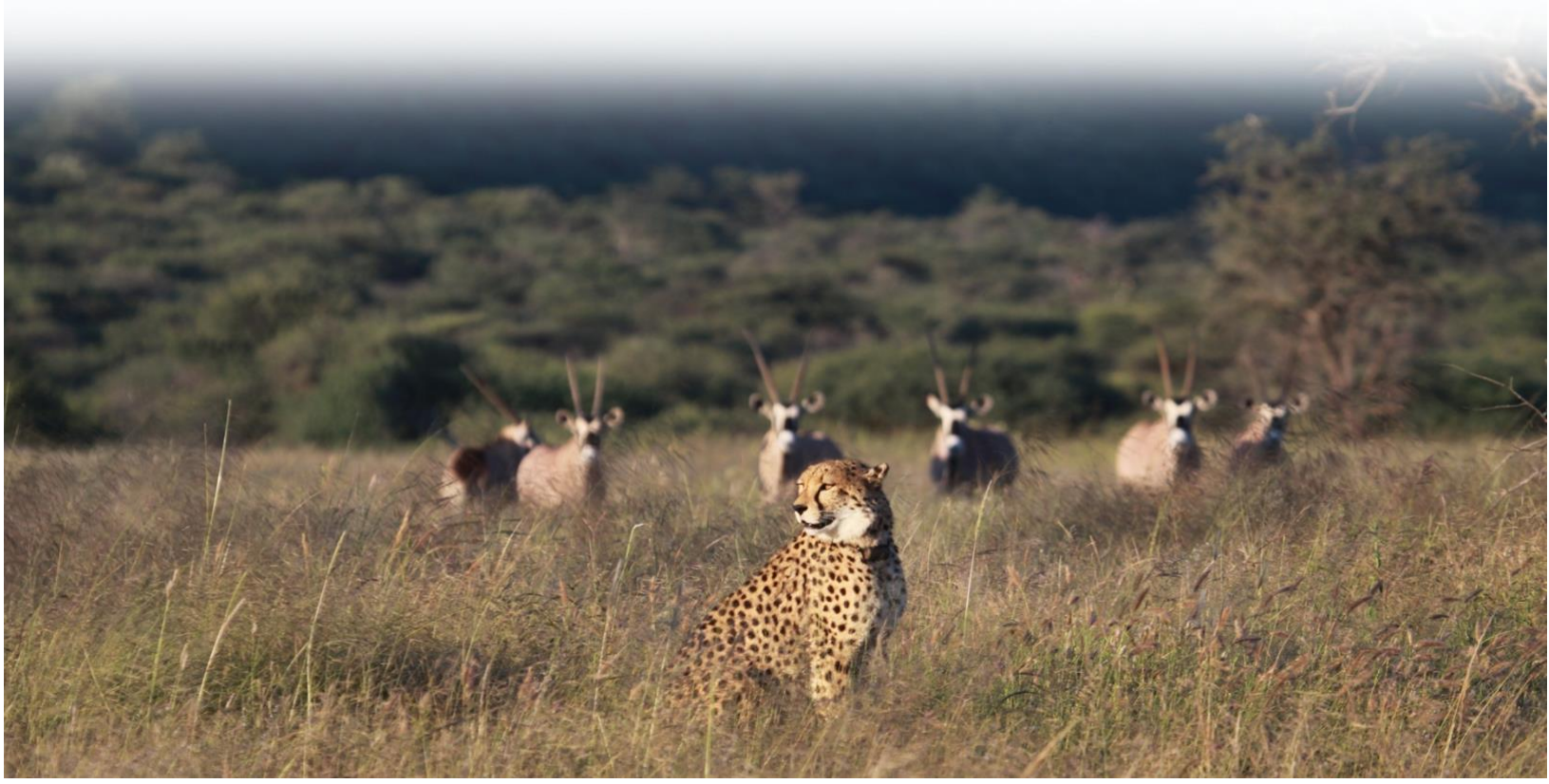
Programme 4: Rehabilitation

Objectives

AfriCat's Cheetah Rehabilitation project was initiated to give captive cheetahs an opportunity to return to their natural environment. Although hunting in carnivores is instinctive, many of the cheetahs at AfriCat lack experience due to being orphaned or removed from the wild at an early age. This inexperience, as well as their conditioning to captivity, makes these animals unsuitable for release on farmland. The cheetahs (usually a coalition of brothers and sisters) are fitted with radio-collars before their release into the 20,000 hectare Okonjima Nature Reserve, so that their welfare and progress can be closely monitored. Rehabilitated cheetahs are not released on farmland.

Besides giving the cheetahs a chance to return to the wild, the success of this project provides other substantial benefits, as it gives AfriCat the opportunity to assess whether rehabilitation is a successful means of conserving an endangered population and it also allows for the number of cheetahs in captivity to be reduced.

The objective is to turn the 20,000 hectare Okonjima Nature Reserve, once denuded and eroded farmland, back to its natural state, by optimising the herbivore population and the related carnivore density, in order to underpin this Nature Reserve's sustainability. The symbiotic relationship which exists between the AfriCat Foundation and the Okonjima Nature Reserve is imperative. Without education, research, and the mitigation of farmer-predator conflict throughout Namibia, the essential conservation of large carnivores would



falter; and without the substantial financial support offered by foreign visitors, who stay in the Okonjima lodges, neither would survive. This mutually beneficial relationship enables interested visitors to experience, first hand, the work of the AfriCat Foundation, gaining valuable insight into carnivore conservation and, at the same time, creating the platform for donating much-needed funds to the AfriCat Foundation and its programmes throughout the whole of Namibia: Environmental Education, Carnivore Research, Rescue-Release & Rehabilitation, Carnivore Care, and Human Wildlife Conflict Mitigation and Community Support.

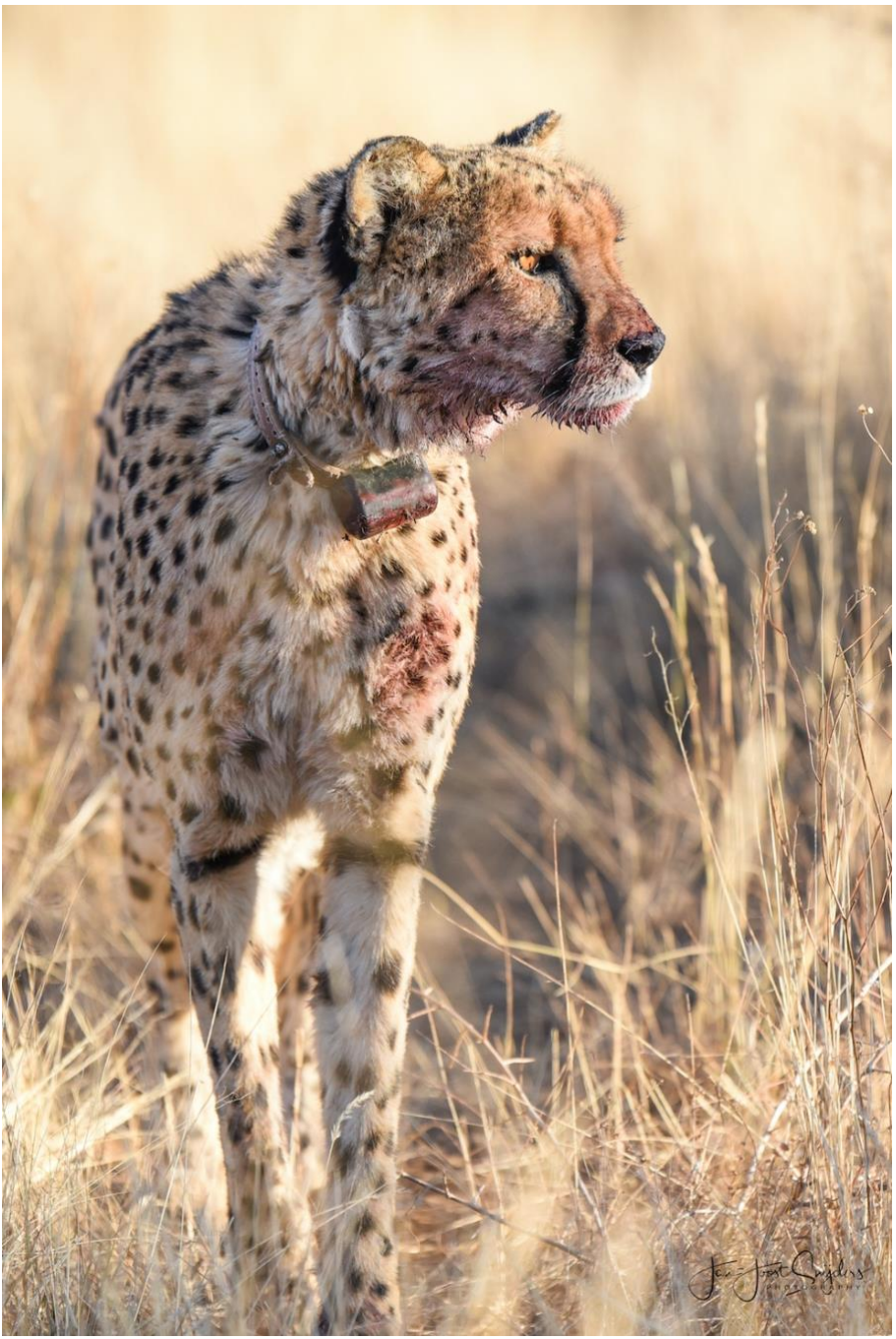
The 20,000 hectare Okonjima Nature Reserve was established with a 2.2 metre-high electrified, 98km long, perimeter fence to control predator movement, enabling research to monitor predator movement and density studies within an enclosed conservation wilderness. The main reason for fencing the reserve is to establish a protected environment for the AfriCat Rehabilitation Project (and Rescue & Release Project). It will certainly take time for the AfriCat Environmental Education Programme to have the desired effect on people dealing with carnivores on open farmland. Because most captive carnivores have lost their natural fear of humans, the cheetahs released into the reserve would be shot by neighbouring farmers, if it was not fenced. It would not be possible to achieve the objectives of the Rehabilitation and Education Programmes in this reserve, if there was the chance that they could leave the protection of the reserve and be shot on neighbouring farms. The presence of 'tame' carnivores on adjacent farmland would have resulted in increased, indiscriminate shooting of these animals and, with the increased number of antelope moving from the Reserve onto neighbouring farms, the hunting thereof for meat would also have increased. Thus, these programmes are undertaken and monitored within the Reserve

borders, with the removal and addition of prey species as necessary for the purpose of research and equilibrium.

The enclosed wilderness area is also part of a project to prove to farmers that one can farm alongside carnivores and that they do not adversely diminish populations of indigenous game. Research has shown that the Okonjima Nature Reserve has up to three times the number of carnivores normally occurring in a fenced area of this size.[1] Even with these high predator numbers, the game numbers increased annually. This has proven that increased predation stimulates reproduction.

Main Activities

- Monitoring the dynamics of in total six different rehabilitated cheetah groups in the Okonjima Nature Reserve.
- Release of two female cheetahs into the Okonjima Nature Reserve in May and October 2018.
- Discontinuation of AfriCat's cheetah rehabilitation programme and removal of rehabilitated cheetahs from the Okonjima Nature Reserve and return to AfriCat's Carnivore Care Centre (see Constraints and Challenges)



Major Achievements

- Analysis and evaluation of cheetah rehabilitation data gathered over the last 18 years assess and assessment whether rehabilitation is a successful means of conserving an endangered population.

Constraints and Challenges

The mortality rate of all cheetahs released between 2000 and 2018 into the ONR amounted to 74% with the majority of animals dying during the

first year post release (42.5%). Interspecific predation accounted for 72% of all mortalities, followed by disease (15%) and fatal injuries sustained during hunting (7.5%). Leopards were responsible for the vast majority of cheetah deaths caused by interspecific predation (72%), followed by spotted hyaena (10%); in 10% of all cases the source of predation could not be determined.

Within the last years the leopard and brown hyaena population in the ONR increased steadily expanding the pressure on other carnivores like cheetah with regards to home range and dietary overlap.

Fencing has become an increasingly used tool in the future of large carnivore conservation. However, effective fencing restricts natural dispersal patterns and causes differences in ecology and behavior when compared to free-ranging carnivores. Although we have shown that leopards were able to move in and out of the ONR by surveying areas outside the perimeter fence with the use of remote camera traps, the density of leopards in the reserve remained high due to the stable/increasing number of prey in the reserve. Although certain measures were in place to manage leopard population and decelerate the population growth e.g. the reproductive control in selected individuals, the population progressed naturally.

The high density of leopards, in particular, and the resulting strong overlap of home ranges between leopards and cheetahs contributed to the high rate of interspecific competition and, thus, mortality rate of cheetahs in the reserve. Predator-avoidance strategies such as natural large ranging patterns and the utilisation of hunting grounds in areas of low predator occurrence were difficult to implement due to the fence-restricted useable area. With the creation of more open plains in the reserve over the past years, we had hoped that we could achieve a more distinct separation between leopard and cheetah habitat use and therefore decrease the encounter rate of the two carnivore species.

Due to the fact that the anticipated cheetah release successes failed to appear, the AfriCat Foundation reached the decision that the Okonjima Nature Reserve will no longer be used as a release site for rehabilitated cheetahs.

After 18 years of rehabilitating cheetahs into the ONR we have come to the conclusion that the success of cheetah rehabilitation has its limits. Even though the majority of rehabilitated cheetahs displayed hunting behavior and were able to survive without human intervention and supplemental feeding, the conditions in the ONR, in particular the high density of higher order carnivores, resulted in inevitable interspecific predation and thus, made the ONR a more and more unsuitable place for cheetah rehabilitation.

Future Plans

- The Okonjima Nature Reserve will no longer be used as a release site for captive-raised cheetah until further notice, but will still act as a release site for wild cheetah threatened by human-wildlife conflict if necessary.

Programme 5: Human-Wildlife Conflict Mitigation and Community Support

Objectives

The AfriCat Communal Carnivore Conservation Programme (CCCP) primarily aims at empowering farming communities in carnivore-conflict areas to better manage and protect their livestock, ultimately mitigating conflict and reducing carnivore persecution. With Namibia's lion numbers estimated at fewer than 1,000 individuals (Panthera, WildAid & WildCru: Beyond Cecil: Africa's Lion in Crisis, 2016), and the ever-present lion-farmer conflict in a number of communal conservancies and along the borders of protected areas, especially Etosha National Park (ENP) and the Hobatere Concession Area, our aim is to develop workable Human-Wildlife Mitigation programmes together with improved arid-adaptive farming methods, thereby reducing livestock loss.

Our main objectives are: i) to empower livestock farmers to better manage and protect their livestock; ii) to create greater tolerance towards carnivores, through Education and by minimising livestock loss; iii) to encourage non- consumptive tourist activities (photographic tourist lodges) in support of communal farming communities; iv) to GPS-Satellite collar a number of lions in order to monitor movement patterns and offer farmers an early-warning system.

AfriCat North has, for many years, been directly involved with Human Wildlife Conflict (HWC) incidents on communal & free-hold farmland adjacent to the Etosha National Park (ENP), where conflict situations arise when lions leave the confines of protected areas and kill livestock; also, when the presence of resident lions within communal Conservancies, cause conflict. Due to either a perceived or a real threat, large number of lions are killed annually.

AfriCat strives to enable local communities to support themselves without endangering the valuable lion population.

Main Activities

The **AfriCat community programmes** directly support and up-lift the communal farming communities along the western, south-western and north-western borders of Protected Areas such as Etosha National Park and the Hobatere Concession Area, as well as further afield. By adapting their livestock management and protection methods, both communal and free-hold farming communities will lose less livestock and, with continued support and education, these communities will destroy fewer lions and other large carnivores.

The Communal Carnivore Conservation Programme (CCCP), active since 2004 in the Ehirovipuka, Omatendeka and !Khoa di //Hoas Conservancies, encompasses three primary sectors:

1. **The Livestock Protection Programme (LPP)** includes i) the upgrading and building of nocturnal livestock 'kraals' (bomas); 2017-2018, totaled an additional five kraals, supporting five more communities. In total the LLP program has built 35 kraals and supports 80-100 communities from the start of the program; ii) providing much-needed advice on rangeland & livestock management and improved protection methods. AfriCat collaborates with CAN (Conservation Agriculture Namibia), an NGO dedicated to holistic rangeland management: encouraging farmers to adopt arid-adaptive livestock management practices, thereby protecting the land and increasing yield. This is carried out through regular meetings with traditional leaders, youth & women's groups and community gatherings as well as environmental education for wildlife clubs; iii) the patrol, repair & strengthening of boundary fences together with Etosha NP staff and community members, thereby reducing predator movement out of and preventing cattle movement into, these protected areas; iv) the AfriCat Lion Guards: essentially, the Lion Guards are assigned to various conflict areas, elected by their communities. The five men in AfriCat's employment as well as 5 volunteers monitor & report on lion whereabouts, report incidents, patrol protected area boundary fences, monitor & report poaching and other illegal activities, identify priority villages for kraal-building and carry the message of Conservation from the highest authorities to the farmer. These men play a vital role in protecting the Hobatere lions, mitigating lion-farmer conflict on communal farmland and encourage & guide farmers to adopt the AfriCat Livestock Protection Programme. Farmers along

the southern, western and northern boundaries of Hobatere and the western Etosha border suffer high livestock loss to lions (see white blocks on Map AfriCat North Activities, below, indicating 'hot-spots' where kraals have been built). AfriCat offers various mitigation options including the use of nocturnal kraals and re-instating herdsmen; once the Traditional leaders have signed the AfriCat Agreement, to maintain and repair these kraals, to bring their animals into this safe-haven when predators are in the area and to refrain from persecuting lions and other large carnivores, AfriCat sponsors the building of strong, nocturnal kraals. AfriCat monitors these kraals on a regular basis, sends early warning alerts and responds to calls for help when lions are in close proximity to kraals and villages.

2. **'Conservation Through Education' encompasses:** i) Youth groups, community leaders and members of farming communities are encouraged to participate in AfriCat's Environmental Education Programmes, ultimately establishing a deep-seated awareness of environmental issues, encouraging adaptive livestock management and developing an understanding and appreciation of the value of the wilderness and the wildlife within it. AfriCat strives to enable local communities to support themselves without endangering the valuable carnivore population. Between

2015-2016, two Wildlife Clubs were established, one in a rural environment and the other semi-urban, involving approximately 150 children between the ages of 10-18 years. Further Wildlife Clubs were established between 2017–2018, in Omatendeka Conservancy.

3. **Onguta School**: In late February of 2019 the school of Onguta started construction on their new school building built form containers. The containers were constructed in Swakop by CowBoys, months earlier allowing the project in the field to finish mid-March 2019. The school provides two classrooms for learners aged 4 to 12. The school also provides the pupils with running water in the bathrooms, solar electricity, computer room and a kitchen.

4. **Lion Research and Monitoring** aims to re-establish accurate current data on the demography of lions within the corridor between the northwest, the Etosha National Park and the surrounding areas. It provides data on the movement of lions into and out of Hobatere and aims to quantify both the degree of human-lion conflict and the

impact it has on people living around Etosha & Hobatere. Lions are fitted with GPS – Satellite collars, offering farmers an early-warning system regarding lion movements

Major Achievements

- The AfriCat Lion Guard Programme: these men monitor & report on lion whereabouts, encourage and guide farmers to adopt the AfriCat Livestock Protection programme, report incidents, patrol fences with Ministry of Environment & Tourism (MET), monitor & report poaching and other illegal activities, identify priority villages for kraal-building and carry the message of Conservation from the highest authorities to the farmer. Essentially, the Lion Guards are assigned to various 'conflict' areas, eg. ENP western boundary from Werda Veterinary Control Gate to Omatambo Maue, Otjokovare area, Onguta farming community (along the Hobatere western border) & Arisona farming community, along the Hobatere south-western border). These men play a vital role in protecting the Hobatere & Etosha lions and mitigating lion-farmer conflict on communal farmland.

- Geo-fencing or early-warning systems (via GPS-Satellite collars fitted on lions and other predators), whereby farmers are warned of lion/predator movement when in close proximity to their herds or villages; at present, AfriCat monitors 12 lions on a two-hourly basis, gathering much-needed data on movement patterns, thereby mitigating conflict.

- Strong, 1.8-2m high nocturnal kraals (ongoing new construction / repairs & maintenance of existing kraals), for use when the lions are in the area: to date, 23 such kraals have been built in the Ehirovipuka, Omusati and !Khoa di //Hoas Conservancies by AfriCat.

- Rangeland Management & Herding systems in communal grazing areas: whereby farmers employ herdsmen to take care of their livestock during the day whilst in the field and to kraal them at night; the recent AfriCat collaboration with CAN (Conservation Agriculture Namibia) in communal grazing areas encourages rangeland management and improved husbandry & livestock protection Conservation Education: whereby the youth as well as adult community members accept the lions' role in a balanced ecosystem and understand the value as a sustainable tourist attraction.

- The Lion Guard Programme provides day and night-time patrols, protecting both the villagers and their livestock from marauding predators; success is high provided livestock are safely penned during the night. A more extensive Lion Guard Programme, whereby conservancy members take on the role of 'keepers of the wilderness', is being developed.

- In progress: Conservation Agriculture courses and work-shops, providing sound arid-adapted farm management, animal husbandry and improved livestock protection programmes, thereby minimising the disastrous effects of drought.

Constraints & Challenges

- Fund-Raising Challenges & Constraints: as a non-Profit Organisation, AfriCat is forced to raise funds in order to sustain the various programmes: 1. Human-Wildlife Conflict Mitigation & Community Support (Livestock Protection Programme); 2. Conservation Education (Youth and Adult programmes); 3. Lion Research & Mitigation Programmes. With the current global donor-fatigue due to the ever-increasing need by an increasing number of donor-funded projects, such a small, Africa-based organisation as AfriCat is faced with major challenges to sustain and further develop such programmes.

- Drought: Ever-present conflict is largely due to persistent drought (2017-2019 drought is at its peak) and resultant human & livestock encroachment on state-protected land, (Hobatere and Etosha NP), as well as occupation of core breeding areas in communal Conservancies. Conservancy Committees unable to manage such disregard of policy due to human need, resulting in long-term complications and friction amongst community members and loss of wildlife due to poaching (bush-meat) and persecution (lion and spotted hyaena).
- Restrictive traditional farming practices: The Livestock Protection Programme which supports communal farming communities, faces the on-going challenge of farmers' reservations regarding the re-modelled kraal (boma) design; the traditional wire-and-wooden-poles boma (kraal) could be replaced by panels of shade-cloth material, strung between trees, readily erected and taken down as the grazing needs are met; funding constraints and design challenges (reluctance by traditionalists), hamper progress.
- Conservation Education & Conservation Agriculture: In most cases, limited basic, formal education, with minimal tertiary training, reiterates the importance of
- AfriCat's Conservation Education Programmes. Many young men and women in the 20 – 35 year old category, lack basic qualifications as artisans or farmers, resulting in unemployed, frustrated community members, who turn to poaching and other forms of criminal activity.

Future Plans

- Training and support for the present and additional Lion Guards;
- Further develop the LPP in the !Khoa di //Hoas & Ehirovipuka Conservancies and extend the programme to neighbouring Omatendeka, Anabeb and Orupupa Conservancies;
- Ground surveys of prey species will continue, as will surveys of livestock predation, retaliation and stakeholder attitudes towards lions (questionnaires);
- Promote greater awareness & tolerance towards the species through environmental education, using local media and outreach to schools;
- Promote appropriate and realistic mitigation measures: Changes to existing animal husbandry practices in order to reduce conflict;
- Medium – Long Term: to develop and support Vocational Training Programmes & Initiatives for men and women, targeted to sustainably contribute to economic enhancement of households, with the consequent gradual but steady impact of poverty alleviation and skill augmentation;
- The collaring of 3-5 more lions within the study area, using GPS-Satellite transmitter collars for movement patterns and conflict monitoring, will provide an Early-Warning System via text messages to farmers in these conflict zones or 'hot-spots'.
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III: Budget and Statistics.

The AfriCat Foundation Trust

Registration Number T48/93

Grant Thornton
Neuhaus

Statement of Financial Position as at 28 February 2019

THE AFRICAT FOUNDATION TRUST

REGISTRATION NUMBER T48/93

ANNUAL FINANCIAL STATEMENTS

28 FEBRUARY 2018

THE AFRICAT FOUNDATION TRUST

STATEMENT OF FINANCIAL POSITION AS AT 28 FEBRUARY 2019

	2019 N$	2018 N$
ASSETS		
Non-current assets		
Property, plant and equipment	14,273,090	12,979,510
Investments	-	-
Current assets	4,409,938	3,503,074
Trade and other receivables	1,170,795	1,237,711
VAT control account	257,242	-
Inventory on hand (curios)	1,853,426	1,194,985
Cash and cash equivalents	1,128,475	1,070,378
TOTAL ASSETS	18,683,028	16,300,584
FUNDS AND LIABILITIES		
Funds	18,280,597	16,137,126
Opening balance	16,137,126	14,597,399
Surplus/(Deficit) for the year	2,143,471	1,539,727
Current liabilities	402,431	163,458

Advances	83,197	96,013
Trade and other payables	319,234	67,445
TOTAL FUNDS AND LIABILITIES	18,683,028	16,300,584

THE AFRICAT FOUNDATION TRUST

STATEMENT OF PROFIT OR LOSS FOR THE YEAR ENDED 28 FEBRUARY 2019

	2019 N$	**2018 N$**
Income	7,689,974	6,384,385
Donations received	5,291,992	3,939,192
Adoptions	197,826	515,140
Curios, net sales	1,216,886	1,687,010
Day Centre activities	635,684	-
Insurance claim proceeds	104,685	-
Rent received Day Centre	240,000	240,000
Interest received on investment accounts	2,901	3,043
Expenditure	(5,546,503	(4,844,658)
Project activity expenditure	3,436,539	2,756,700
Operational expenditure	2,109,964	2,087,958
Surplus/(Deficit) for the year	2,143,471	1,539,727

THE AFRICAT FOUNDATION TRUST

STATEMENT OF CASH FLOWS FOR THE YEAR ENDED 28 FEBRUARY 2019

	2019 N$	**2018 N$**
Operating activities		
Cash receipts from donors	7,392,062	5,228,871
Cash paid to suppliers for services	(5,549,385)	(4,865,922)
Cash generated from operations	1,842,677	362,949
Interest received	2,901	3,043
Net cash inflow from operating activities	1,845,578	365,992
Investing activities		

Additions to property, plant and equipment	(1,774,665)	(912,739)
Decrease/(Increase) in investments	-	1,276,664
Net cash inflow/(outflow) from investing activities	(1,774,665)	363,925
Financing activities		
Advances (repaid)	(12,816)	(359,158)
Net movement in cash and cash equivalents	58,097	370,759
Change in cash and cash equivalents		
Balance at beginning of the year	1,070,378	699,619
Net movement	58,097	370,759
Balance at end of the year	1,128,475	1,070,378
The balance comprises:		
Cash at bank	1,127,775	1,069,678
Cash on hand	700	700
	1,128,475	1,070,378

NOTE A
Reconciliation of surplus/(deficit) for the year to cash generated from operations

	2019 N$	**2018 N$**
Surplus for the year	2,143,471	1,539,727
Adjusted for:		
• Depreciation	299,085	265,640
• Interest received	(2,901)	(3,043)
Operating surplus/(deficit) before working capital changes	2,439,655	1,802,324
Working capital changes:		
• (Increase)/Decrease in trade and other receivables	(190,326)	(1,152,471)
• (Increase) in inventories	(658,441)	(44,486)
• (Decrease)/Increase in trade and other payables	251,789	(242,418)
Cash generated from operations	1,842,677	362,949

*Note: The represented figures are an excerpt from the audited financial statements for the year ended

February 2019.