2023 Annual Progress Report

Reporting Period

January-December 2023

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Table of Contents

I. Executive Summary

Highlights for 2023 include the first litter of cheetahs to be born in India after the relocation of eight cheetahs from Namibia in September 2022, along with 12 cheetahs from South Africa. A Namibian cheetah named Siyaya, gave birth to four cubs in March 2023. This litter provides hope that cheetahs will be able to return to India after their extinction over 70 years ago, however, there is still ongoing work to ensure the species will be successful. CCF's rewilding program released three cheetahs locally, while continuing to actively monitor a number of cheetahs including two females that have cubs.

The resident cheetah population at CCF Namibia had increased to 32 individuals as of 31 December 2023, after being at its lowest in 10 years at the end of 2022. However, the number of resident cheetahs in Somaliland continues to grow, as more cheetah cubs are being confiscated from the Illegal Wildlife Trade in the Horn of Africa. At the end of 2023, there were 96 cheetahs, one caracal, and one leopard in care at CCF Somaliland.

The Life Technologies Conservation Genetics Laboratory continues to be an official placement for 4th year undergraduate students from the University of Namibia (UNAM) and Namibia University of Science and Technology (NUST), allowing students to earn credits for their internship at the CCF laboratory. The laboratory also trains recent graduates through its internship programme. In September, The Rufford Foundation organised a Namibian Learning Event, which was held at CCF.

Our Scat Detection team walked a total of 114 km on and offsite, collecting a total of 32 scat samples and 13 of those scat samples were identified as target species in the Namibian field. In addition, the team travelled to Angola once this year as part of the ongoing collaboration. A total of 479 scat samples were collected. Towards the end of 2023, the Scat Detection team was joined by a Namibian intern, who has been making strides in handling and taking care of the dogs and conducting scat dog demonstrations.

The Ecology team continued to monitor the weather and game on CCF property. The annual waterhole count was conducted on 19 July with the help of members from Earth Expeditions course, along with CCF staff and interns. A total of 35 waterholes were sampled through direct observation by volunteers/intern/staff and by camera trap. A total of 1,228 individuals from 16 different species were counted, most of which were observed at Elandsvreugde, Bellebenno and Osonanga.

As part of CCF's ongoing research activities, the Biomass programme together with other local and international partners acquired an EU grant that investigates a torrefaction process using superheated steam. In March CCF hosted the "18th month" meeting of all 15 partner organizations. The Steam Bio Africa biomass processing plant was delivered and assembled on the site, with commissioning still ongoing. A control room was constructed for the Steam Bio Africa plant, housing the control panel and HMI panel for operation of the plant as well as desk space and a camera monitoring system. Steam Bio Africa woodchip management shed was erected with interior walls and roller doors, and electrical was completed.

Professor Manuel Martin-Vivaldi from the Universidad de Granada, Spain along with his two students visited in September to continue their study on hornbills and hoopoes. Dr Martine Hausberger and her PhD student, from the University of Rennes in France, visited in September to do research on cheetah vocalisation in different conditions. Dr. Chris Sutherland from University of St. Andrews, Scotland, visited to initiate long-term collaborative studies with CCF.

Eight journal papers were published by CCF staff and collaborators during this reporting period. Five other papers have been accepted for publication but are awaiting finial revisions. Three Master's theses were completed during this reporting period.

To date we have placed 770 dogs through our Livestock Guarding Dog (LGD) program. The programme has become an effective means to promote coexistence with cheetahs and other predators. This year 37 puppies were born and 51 were successfully placed on farms. The placed puppies include those born the previous year that were too young to place on farms at the end of 2022. Currently, there are 19 dogs in CCF's LGD breeding program.

Our Dancing Goat Creamery continues to products a variety of goat milk products that are used at CCF's kitchens and available for sale to tourists at the Cheetah Café. This year, the Café received a generous donation of an ice-cream bar by a long-term friend. With the addition of an ice-cream bar, CCF is able to serve ice-cream in cones rather plastic cups allowing CCF to continue improving our green and cutting down on the amount of plastic we use.

Tourism in Namibia and at CCF is recovering very well post-pandemic. CCF hosted 15,829 visiting tourists representing a 60.1% increase from 9,891 tourists in 2022, and one of CCF's largest tourism years! Cheetah View Lodge and Babson House both saw an increase in overnight visitors from the previous year.

Our work in the Greater Waterberg Landscape communal conservancies continued with the rabies vaccination campaign whose primary goal is to vaccinate domestic pets (dogs and cats) against rabies to join in the World Organization for Animal Health (OIE), the Food and Agriculture Organization of the United Nations (FAO) and the Global Alliance for Rabies Control (GARC) in their Global Strategic Plan 'Zero by 30'. This Strategy aims to eliminate rabies death cases in humans by 2030. This year we vaccinated 3,302 animals of which 2,623 were dogs and 679 were cats, showing an increase in the number of vaccinations compared to all previous years. The team visited 152 villages, with 59% of the villages were visited for the first time in 2023.

CCF East Carnivore Conflict Field Station continued to work with livestock farmers and building relationships with stakeholders in our efforts to assist affected communities with human-wildlife conflict issues, especially with cheetahs. In our most recent project at the field station, the Predator Early Warning System (EWS) project, which was launched in August 2021. The aim of the EWS project is to minimize HWC involving cheetahs on these farms by serving as an early warning system through the GPS collars that transmit information via email, SMS or WhatsApp when there is a breach of the virtual fence. By the end of 2023, 10 cheetahs were being monitored for the EWS.

Several local schools participated in CCF's Future Conservationist of Africa (FCA) programme. A total of 17,780 Namibian learners and 410 teachers participated in our distance, outreach and centre-based programmes. We also hosted six overnight international groups; members of the Earth Expeditions course plus students from universities in USA and Australia. CCF also visited three villages identified as HWC areas in the Okakarara District and 124 farmers and community members participated in the Future Farmers of Africa (FFA) programme.

Work in Somaliland continues to expand on the capacity building, infrastructural development, and promotion of regional cooperation with other countries of the Horn of Africa to stop the Illegal Wildlife Trade (IWT). We conducted several conferences in Somaliland with grants from DEFRS, IUCN, Rainforest Trust and US Fish and Wildlife Servies.

This year, we were able to successful move all resident cheetahs, one caracal and one leopard to our new Cheetah Recuse and Conservation Centre (CRCC) in Geed Deeble by the end of July, after

years of planning and building. CRCC provides significantly larger enclosures and more naturalistic environment for the resident cheetahs, which in term will help with the long-term care of them. The cheetah compounds range in size from 2ha to 8ha.

CCF's work is funded through donations, grants and eco-tourism. I hope you will continue to support the successful research, education, and conservation programs including the fight against Illegal Wildlife Trade. Saving the cheetah means saving the world. Won't you join us?

Laurie Marker, DPhil.
Founder and Executive Director

II. Organisational Structure

The Cheetah Conservation Fund (CCF) is an international organisation with registered not-for-profit organisations in Namibia, the United States, Canada, the United Kingdom, Australia, and Italy. In addition, CCF has Memoranda of Understanding with partner fundraising organisations in the Netherlands, France, and Germany.

CCF's International Research and Education Centre in Namibia is the primary base for all of CCF's global activities. In 1991 CCF became a Namibian Voluntary Trust and in 2002 was registered as a not-for-profit Namibian Section 21 Company. CCF's Namibian Board of Directors is comprised of leaders in the local community, businesses, and agricultural sectors. Additionally, there is an International Scientific Board of Advisors that assists in planning and advising on research projects. CCF's Executive Director, Dr Laurie Marker, is assisted in the management and operations of CCF by a core professional staff aided by short-term volunteers and students who assist with daily operations and data collection.

The CCF Namibia Centre includes the farms Elandsvreugde, Osonanga (two sections), Boskop (Khayam's Kopje), Cheetah View, Bellebenno, Janhelpman, Bynadaar, Padberg, and Otjenga totalling 58,067 hectares. CCF's Namibian Centre is in prime cheetah habitat and a wildlife-friendly area, with many neighbouring farmers who believe in conservation ethics. This ensures a large prey population, which is important for the cheetah population and serves to provide a model for farmers to demonstrate that they can live harmoniously with cheetahs.

CCF Namibia is an active member of the Waterberg Conservancy, which encompasses over 175,000 hectares of private farmland surrounding the Waterberg Plateau Park: a national game park dedicated to rare and endangered species. The conservancy's farmers cooperatively manage the land's wildlife for long-term sustainability that in turn provides habitat and prey base for the cheetah. CCF also sits on the Steering Committee of the Greater Waterberg Landscape, an area comprising 16,000 km^2, or close to 2 million hectares, around the Plateau and in the Eastern Communal Lands.

CCF Namibia participates in many environmental groups including the Namibian Environmental Educators Network, the Namibian Chamber of Environment, and the Namibian Biomass Industry Group. There are close interactions with both major Namibian Universities.

III. Research

During 2023, the Cheetah Conservation Fund continued working towards achieving its research objectives and strengthening collaborative efforts. Research continued in overall health and genetics, ecological surveying, cheetah releases, and ecosystem research.

A. Population Dynamics

As of the end of December 2023, the number of CCF's resident captive cheetahs had increased to 32 individuals (14M, 18F), compared to 26 individuals (12M, 14F) in December 2022.

Throughout 2023, there were two deaths (1M, 1F), 11 transfers in (5M, 6F), and three transfers out (2M, 1F).

The two (1M, 1F) deaths were:

- Old Lady (AJU2057), a 15-year-old female, was euthanized on 13 February, due to quality-of-life reasons after a seizure.
- Mischief (AJU1581), a 14-year-old male, passed away on the 7 April, due to kidney failure.

The 11 (5M, 6F) transfers in were:

- On 21 May two orphaned cubs Hamish (AJU2193) and Kweli (AJU2194), were captured on Farm Betta #203, after their mom was killed in a HWC case. They were brought to CCF on 29 May. Being only about six weeks old, they will become permanent residents at CCF.
- On 30 May, Scarlett (AJU2195) was captured on Farm Stoetzer #195 and brought to CCF on 31 May. She had wounds on her back left leg and abdomen, from a suspected warthog tusk. She was kept at CCF for recovery and rehabilitation.
- On 14 October, Janus (AJU2164) and another male (AJU2197) were captured on Farm Quinta #976, due to HWC. They were brought to CCF for collaring and release.
- On 14 December, three sub adult cheetahs, one male and two females (AJU2199, AJU2200, AJU2201) were captured on Farm Brandmanspan #332 due to HWC. They were brought to CCF on 16 and 17 December. They will be fitted with tracking collars and released on CCF property/Farm Elandsvreugde #367 sometime begin 2024.
- On 12 December, two approximately 7-month-old cubs were captured on Farm Keilands #334 due to HWC. They were brought to CCF on 17 December and are currently in our quarantine facilities. They are release candidates, and will stay at CCF until they are fully grown.
- On 22 December an approximately 18-month-old female (AJU2204) was caught on Farm Okanenembandi #359 and brought to CCF. She will stay at CCF for a few months until she is big enough to be fitted with a tracking collar and then she will be released on CCF property/Farm Elandsvreugde #367.

The three (2M, 1F) transfers out were:

- Scarlett (AJU2195) was released on Farm Daylight #94 on 13 September.
- Janus (AJU2164) and the other male (AJU 2197) where released on CCF property/Farm Elandsvreugde #367 on 31 October.

B. Medical Examinations

Between 1 January and 31 December 2023, CCF performed a total of 24 medical examinations under anaesthesia on 13 individuals (4M, 9F) (section B.1., Table 1). Two (2F) of these cheetahs, and an additional 22 (10M, 12F), also received medical care and/or blood draws without anaesthesia (section B.2, Table 2), leading to a total of 35 individuals that received veterinary attention during this time period. All resident cheetahs received their vaccine booster for rabies and other feline specific diseases. The overview of examinations (B.1) is followed by a case description of examinations of each individual animal (B.2).

Case descriptions are grouped according to the origin and/or fate of the animal (captive B.3, related to release B.4, wild B.5), with a separate section for dental examinations (B.5). Of the 35 animals examined during this time period, 22 (9M, 13F) are captive individuals (B.3), four (1M, 3F) cheetahs were either release cheetahs, offspring of release cheetahs, or received examinations in preparation of a release (B.4), and 9 (4M, 5F) cheetahs were of wild origin and were or will be released back into the wild as soon as their age and condition allow (B.5).

Nine cheetahs (4M, 5F) died during this time period and if the bodies were retrieved, their necropsies were performed (section B.7). Non-cheetah carnivore examinations and necropsies are covered in section B.8.

B.1 Examinations under Anaesthesia

Each cheetah that is examined under anaesthesia by CCF, both captive and wild, is assessed for general health and fitness. The examinations follow standard protocols for health assessment, measurements, and sample collection. Male examinations include semen collection and female examinations include the collection of vaginal swabs. The semen is analysed, and sperm frozen viably; all samples are stored in the Genome Resource Bank (GRB). The 24 examinations performed under anaesthesia between 1 January and 31 December are presented in Table 1.

Table 1: *Summary of medical examinations performed under anaesthesia on wild and captive cheetahs during the reporting period, in chronological order. Reasons for exam include: Predator (wild animal on initial arrival to CCF); Entry (arrival of a captive cheetahs*

ID	Sex	Name	Exam date	Reason for exam
NA-AJU2164	M	Janus	24 Feb 2023	Wild
NA-AJU1641	F	Rainbow	01 Mar 2023	Medical
NA-AJU2191	F	Sophia	4 May 2023	Wild
NA-AJU2195	F	Scarlett	31 May 2023	Wild

NA-AJU2195	F	Scarlett	01 Jun 2023	Medical
NA-AJU2195	F	Scarlett	02 Jun 2023	Medical
NA-AJU2195	F	Scarlett	21 Jun 2023	Medical
NA-AJU2195	F	Scarlett	22 Aug 2023	Medical
NA-AJU1785	F	Hela	28 Sep 2023	Medical
NA-AJU2160	M	Cub 1	28 Sep 2023	Relocation
NA-AJU2161	F	Cub 2	28 Sep 2023	Relocation
NA-AJU2162	F	Cub 3	28 Sep 2023	Relocation
NA-AJU1785	F	Hela	03 Oct 2023	Medical
NA-AJU1785	F	Hela	10 Oct 2023	Medical
NA-AJU1785	F	Hela	18 Oct 2023	Medical
NA-AJU2197	M	AJU2197	19 Oct 2023	Wild
NA-AJU2197	M	AJU2197	24 Oct 2023	EEJ
NA-AJU2164	M	Janus	24 Oct 2023	EEJ
NA-AJU1785	F	Hela	26 Oct 2023	Medical
NA-AJU1785	F	Hela	16 Nov 2023	Medical
NA-AJU1771	F	Bella	03 Dec 2023	Medical
NA-AJU2202	M	AJU2202	27 Dec 2023	Wild/Entry
NA-AJU2203	F	AJU2203	27 Dec 2023	Wild/Entry
NA-AJU2204	F	AJU2204	27 Dec 2023	Wild/Entry

B.2 Examinations Without Anaesthesia

Most of the captive cheetahs at CCF have been trained to go into a squeeze cage, which allows the veterinary team to do a basic visual examination, administer vaccines and basic treatments, or draw blood without anaesthesia. Small cubs can sometimes also be examined with just physical restraint.

Voluntary blood draws provide valuable diagnostic information without subjecting the cheetahs to stress or medical procedures. They provide insight into organ function (e.g., kidney and liver) and allow identification of potential health concerns at an early stage, facilitating timely implementation of disease management plans. This health monitoring is particularly important for cheetahs aged 10 years and above.

Between 1 January and 31 December 2023, CCF performed over 60 blood draws on 24 individuals (10M, 14F) (Table 2) and treated an eye lesion in one individual (1M), NA-AJU1992, without associated anaesthesia or blood draw.

Table 2: *Summary of voluntary blood collection and cases not requiring anaesthesia on captive cheetahs during the reporting period.*

ID	Sex	Name	Age	Collection date/frequency	Reason
NA-AJU1581	M	Mischief	13 years old	Monthly - until death	Chronic disease monitoring
NA-AJU1669	F	Rainbow	10 years old	Every 3 months	Preventive care
NA-AJU2057	F	Old lady	15 years old	Monthly - until death	Chronic disease monitoring
AJU2058	M	Al Pacino	13 years old	Every 3 months	Preventive care
AJU1600	F	Senay	12 years old	Monthly	Preventive care
NA-AJU1601	M	Peter	12 years old	Monthly	Preventive care
NA-AJU1603	F	Tiger Lilly	12 years old	Monthly	Preventive care
NA-AJU1582	F	Polly	13 years old	Every 3 months	Preventive care
NA-AJU1641	F	Aurora	10 years old	Every 3 months	Preventive care
NA-AJU2193	M	Hamish	4 weeks old	30 May 2023	Wild cheetah exam, cub
NA-AJU2194	F	Kweli	4 weeks old	30 May 2023	Wild cheetah exam, cub
NA-AJU2105	M	Teja	1 years old	Annual check up	Routine
NA-AJU2106	F	Hadassa	1 years old	Annual check up	Routine
NA-AJU2107	F	Kora	1 years old	Annual check up	Routine
NA-AJU2158	F	Kaveri	1 years old	Annual check up	Routine
NA-AJU1776	M	Dom	5 years old	Annual check up	Routine
NA-AJU1910	F	Jaya	4 years old	Annual check up	Routine
NA-AJU2057	F	Khaleesi	2 years old	Annual check up	Routine
NA-AJU1749	M	Koya	6 years old	Annual check up	Routine
NA-AJU1772	M	Katiti	6 years old	Annual check up	Routine
NA-AJU1771	F	Bella	7 years old	Annual check up	Routine
NA-AJU1922	F	Nandi	9 years old	Annual check up	Routine
NA-AJU1923	M	Rocket	4 years old	Annual check up	Routine
NA-AJU1992	M	Hans	3 years old	Annual check up	Routine
				Eye lesion	Medical

B.3 Health-Related Medical Examinations: Captive Cheetahs

Between 1 January and 31 December 2023, 22 captive cheetahs (9M, 13F) received a health-related medical examination (with or without anaesthesia). Of those, 15 (6M, 9F) had blood draws without an associated case, for health check-ups. The remaining seven (3M, 4F) cheetahs are described hereafter. Details of on- and off- site procedures and monitoring are provided hereafter in order of ascending AJU numbers.

Resident male NA-AJU1581 (Mischief), age 14, was under supportive treatment for chronic kidney disease for over two years. He had monthly voluntary blood-draws and also voluntary fluid

therapy. In early 2023 his quality of life decreased rapidly over a period of 30 days, and it was decided to euthanize him on 7 April 2023.

Resident female NA-AJU1600 (Senay), age 13, was diagnosed with chronic atrophic gastritis in 2019. She receives proton-pump inhibitors and digestive enzymes, in addition to a modified diet. Blood is collected routinely to assess the animal's health.

Resident male NA-AJU1601 (Peter), age 13, had a case of gastritis in May. He was treated with antibiotics, proton-pump inhibitors and digestive enzymes, in addition to diet changes. Blood is collected routinely in order to assess the animal's health.

Resident female NA-AJU1641 (Rainbow) had a workup to clean and suture a wound on 1 March 2023; she received anti-inflammatory and topical antibiotics.

Resident female NA-AJU1771 (Bella) had a workup on 3 December 2023, after keepers noticed she was not eating or defecating for four days. At the workup she was diagnosed with Acute Kidney Injury and follow up treatment was made via behavioural contention – positive reinforcement to receive fluids and medication.

Resident male NA-AJU1992 (Hans) had a swollen eye on 9 April 2023, likely resulting from trauma. The eye was flushed while awake and absence of ulceration of the cornea verified with a fluorescein dye test. He was treated with systemic anti-inflammatories.

Resident female NA-AJU2057 (Old Lady), age 15 and partially deaf and blind, had volunteer blood draws monthly to monitor her liver and kidney functions. She suffered myoclonic seizures on 13 February 2023, and exhibited seizure-related neurological signs. Taking her quality of life into consideration; a decision was made to euthanize her on the same day.

B.4 Released Cheetah Examinations

Between 1 January and 31 December 2023, CCF performed nine examinations on four release-related cheetahs (1M, 3F).

Release female NA-AJU1785 (Hela) and 1 year old release offspring NA-AJU2159, NA-AJU2160, and NA-AJU2161: On 27 September 2023, the guides of Erindi Private Game Reserve informed CCF that the female had a significant wound (approximately 20cm by 16cm) on her left shoulder. On 28th, the CCF veterinary team travelled to the reserve and darted all four animals to treat AJU1785's wound and move the family to a boma so she could recover properly. AJU1785 was re-captured for wound cleaning and treatment on 3, 10, 18, 26 October and 16 November. She was visually evaluated on 29 November without an exam and due to the progress on wound healing was released from the boma with her cubs on 1 December.

B.5 Wild Cheetah Examinations

Between 1 January and 31 December, CCF performed medical examinations on nine wild cheetahs (4M, 5F). Details of on- and off- site procedures are provided hereafter in order of ascending AJU numbers.

Wild Male NA-AJU2164 (Janus) was captured on a farm in Gobabis district. A general veterinary check, including collaring, sample collection and measurements was done at a clinic in Gobabis on 24 February 2023. He was later recaptured on the same farm alongside AJU2197 and brought to CCF on 24 October. Sperm was collected before release of AJU2164 and AJU2197 on CCF reserve on 31 October.

Wild female NA-AJU2191 (Sophia) was captured on a farm in Gobabis district. A general veterinary check, including collaring, sample collection and measurements was done at a clinic in Gobabis on 4 May 2023. The female was released on another farm in the same district on the same day.

Cubs NA-AJU2193 (Hamish) (M), NA-AJU2194 (Kweli) (F), and NA-AJU2196 (F), aged approximately 2 months were captured by a farmer after their mother AJU2192 died because of human-wildlife-conflict. AJU2196 died of starvation (see section B.3); the other two cubs were confiscated and will be raised at CCF as they are too young for future release. Cubs were evaluated and had blood drawn by physical restraint on 7 June.

Wild female NA-AJU2195 (Scarlett) was captured on a farm in Gobabis district and was presented to a veterinary clinic in Gobabis for veterinary care on 31 May. The animal had a deep wound on the left hind leg and another wound on the left flank that is believed to have been a penetrating wound that had healed by the time of examination and was diagnosed with peritonitis. AJU2195 was taken to CCF for further treatment and received medical workups on 1 and 21 June and 22 August. During the workups, sample collection and measurements were also performed, and a collar placed in preparation for release on 13 September.

Wild male NA-AJU2197 was captured with AJU2164 on a farm in Gobabis and collared for monitoring on 19 October. He was also re-examined for sperm collection on 24 October. He was released on 31 October on CCF property.

Cubs NA-AJU2202 (M) and NA-AJU2203 (F), approximately 8 months old, were captured on a farm and brought to CCF on 17 December. A general veterinary check, including sample collection and measurements was performed on 27 December. The cubs are older than 6 months and will remain at CCF until they can be released at two years of age.

Wild female NA-AJU2204 (AJU2204) was captured on a farm and brought to CCF on 22 December. A general veterinary check, including sample collection and measurements was performed on 27 December. The female is approximately 18 months old and will remain at CCF until she is old enough to be collared and released.

B.6 Dental Examinations on Wild and Captive Cheetahs

No cheetah received a dental related examination during the reporting period.

B.7 Deaths, Euthanasia, and Necropsies

Between 1 January and 31 December 2023, two (1M, 1F) resident cheetahs, and seven wild cheetahs (3M, 4F) died (Table 3). Case descriptions are found under section B.2 and animals that died without case history are described here.

Table 3: *Summary of animals that died (natural mortality and euthanasia) and/or were necropsied during this reporting period, ordered by date of death with details regarding date of necropsy, age at death, and cause of death.*

AJU#	Name	date of death	date of necropsy	Age at death	Cause of death
NA-AJU2057	Old Lady	13-Feb-23	14-Feb-23	15 years	Euthanasia - Old age, life quality.
NA-AJU1581	Mischief	07-Apr-23	07-Apr-23	14 years	Euthanasia - Old age, life quality.
NA-AJU2163	Daylight	28-Feb-23	Body not retrieved	5 years	Unknown
NA-AJU2191	Sophia	29-May-23	Body not retrieved	6 years	Wound by gun shot
NA-AJU2192	AJU2192	21-May-23	Body not retrieved	4 years	Domestic animal attack
NA-AJU2196	AJU2196	01-June-23	Body not retrieved	4 weeks	Starvation
NA-AJU2162	AJU2162	16-June-23	Body not retrieved	10 months	Unknown – Death in the wild.
NA-AJU2010	Dax	Approx. 23 September 2023	Advanced decaying condition	7 years	Unknown
NA-AJU2050	Lauw	Approx. 26 September 2023	Body not retrieved	6 years	Unknown

Wild male NA-AJU2010 was 7 years old, collared and released at Erindi Private Reserve in 2010. Details of death are unknown.

Wild male NA-AJU2050 was 6 years old, collared and released at Erindi Private Reserve in 2021. Details of death are unknown.

Wild male NA-AJU2163 was 5 years old, collared and released in the Gobabis region in 2022. Details of death are unknown.

Wild female NA-AJU2191 was 6 years old, collared and released in the Gobabis region in 2023. Animal was killed in a human-wildlife conflict case.

Wild female NA-AJU2192 was 4 years old, the animal was killed in a human wildlife conflict case.

Wild female NA-AJU2196 was orphaned after the death of AJU2192 (above) and captured by a farmer. AJU2196 died of starvation and hypoglycaemia before reaching CCF, while her siblings (AJU2193 and AJU2194) were rescued (section B.2.3).

Wild female NA-AJU2162 was 10 months old, wild offspring from a released cheetah at Erindi Private Reserve. Details of death are unknown.

B.8 Non-cheetah Carnivore Examinations and Necropsies

B.8.1 African Wild Dogs

Between 1 January and 31 December 2023, CCF performed one examination under anaesthesia on a wild dog, as described below.

Captive male NA-LPI0001 had ulcerative dermatitis and underwent an examination to clean his wounds. He was given antibiotics and recovered well.

In May 2023, the African wild dogs, NA-LPI0001 (Zebra Legs) and NA-LPI0002 (White Collar), were vaccinated and dewormed.

During this reporting period, one necropsy was performed on an African Wild Dog (NA-LPI0053) on 17 June 2023. The animal had a gunshot wound in its abdomen.

B.8.2 Other Carnivores

Between 1 January and 31 December 2023, CCF performed no examinations on other carnivores.

C. Health and Reproduction

C.1 Genome Resource Bank

Since 2002 CCF has been collecting, evaluating, and freezing cheetah sperm. During January – December 2023, there was one collection event which produced two samples for the Genome Resource Bank (GRB).

CCF continues to bank sperm, serum, plasma, white and red blood cells, hair, and skin samples on all cheetahs worked up. Additionally, an increasingly extensive scat sample collection from wild cheetahs in Namibia and neighbouring countries is kept at CCF. All samples are part of CCF's GRB. Since 1991, blood and tissue samples have been obtained from over 900 individual cheetahs. These samples are used for overall health and genetic purposes, with backups stored at both CCF Namibia and the Smithsonian Institution in the USA. With the creation of CCF's genetics laboratory, most samples are now held at CCF. Currently, CCF holds the world's largest wild cheetah database of biological material, which also creates the need to curate all the samples and the development of database management systems.

D. Conservation Genetics

D.1 Life Technologies Conservation Genetics Laboratory

The Life Technologies Conservation Genetics Laboratory (formerly known as the Applied Biosystems Genetic Conservation Laboratory) was set up in 2008/2009 by Dr Anne Schmidt-Küntzel for CCF, thanks to the generous support of Life Technologies Inc. (formerly Applied Biosystems, today Thermo Fisher Scientific) and the Ohrstrom Foundation. In 2015, the genetics laboratory moved to the new Visitor Centre. This laboratory was designed with a forensic laboratory layout and is larger in order to be able to host visiting scientists and university interns.

In 2014, Thermo Fisher Scientific donated a refurbished 4-capillary genetic analyser, which greatly increased the capacity of the laboratory until April 2021 when it broke down. In 2021, a new genetic analyser was purchased from Thermo Fisher Scientific, to replace the refurbished 4-capillary genetic analyser which was donated by Thermo Fisher Scientific in 2014, as part of a major laboratory upgrade. This upgrade also included the expansion of the database system in all the laboratory areas, a centralized temperature monitoring system for the freezers, PCR machines, a qPCR machine, a spectrophotometer, a new gel imaging system and centrifuges. The new equipment replaced the second-hand equipment that were obtained in 2008 and were no longer fully reliable.

The laboratory's main aim is to contribute to the on-going research and conservation of cheetahs by working together with the ecology and biomedical departments in CCF's cross-disciplinary mode of operation. The main genetics projects are related to cheetah population structure, census, relatedness, investigation of illegal trade samples, and assignment of individual ID to non-invasive samples such as scat. Projects related to other species are performed with outside funding and are currently limited to collaborative projects.

Hafeni Hamalwa (MSc) became Laboratory Manager in March 2023. Hafeni joined CCF in early 2017 as an intern and became Laboratory Technician in October 2021 after completing his MSc ("Systematics and population structure of the Kenyan cheetah based on mitochondrial DNA analysis") at CCF with the University of Namibia (2018 - 2021). Benny Munyandi left CCF in July 2023. Benny had become Genetics Laboratory Assistant in January 2022, after having completed an internship in 2019 and obtained his Honours degree with the CCF Genetics Laboratory via The Namibia University of Science and Technology (NUST) in 2021. Anastasia Turenko (MSc) continued working as a Laboratory Technician, after joining CCF in September 2022. Tresia Shihepo (Hons), from University of Namibia (UNAM) became Genetics Laboratory Assistant in October 2023, after she completed her 6-month internship with the laboratory.

CCF's genetics laboratory is an official placement for final-year undergraduate students of UNAM since 2017 and of NUST since 2018, allowing students to earn credit for their internship at the CCF laboratory. Bachelor of Science students Stephanie Kavango and Saal Shaun-lee both from NUST joined the laboratory in May 2023 and November 2023, respectively, for a 4-week placement as part of NUST's Work Integrated Learning course. Paulina Shimbu, a 4th year student from UNAM joined the laboratory in December 2023 for a 2-month attachment and genetics training.

The laboratory also trains recent graduates through its internship programme. Josephina Nanghonda (Hons), Tresia Shihepo (Hons, also see staff section above), and Valencia Shihapo (Hons), both from UNAM joined the laboratory for a 6-month internship in January, March, and September 2023, respectively. Foibe Kadenga (BSc) from NUST joined the laboratory for two months in January. Noelle Huget (BSc) from the USA volunteered in the laboratory from September to December 2023. Tamina Bittner an MSc Student from Georg-August University, Germany, joined the laboratory in September 2023 to work on a Scat Dog project as part of her thesis.

In June 2023, Hafeni Hamalwa attended the International Conservation Genetics course "ConGen" in the USA. Dr Schmidt-Küntzel was one of the faculties of the course. He also attended the Namibian Learning Event 2023 organized by The Rufford Foundation, in September that was held at CCF.

D.1.1 Genetics Projects

Cheetah genotypes of known individuals (blood/tissue samples)

As part of CCF's ongoing research at the genetics laboratory, DNA is extracted from all individuals from which blood and tissue samples are available. All extracted DNA samples are assessed for quality via gel electrophoresis and genotypes obtained for 17 microsatellite markers. Those markers are amplified in five multiplex reactions to cut down on cost and optimize time. Additionally, new markers were designed to extend the genotypes. Sample collection started in

1992; however, up until the setup of the genetics laboratory in 2008, cheetah samples were sent to Dr Stephen O'Brien's laboratory at the National Cancer Institute, USA. Since 2008, blood and tissue samples from over 200 Namibian cheetahs have been extracted and an extended genotype was obtained. In 2022/2023 the dataset obtained over more than a decade was tidied up and curated to ensure all genotypes were translated appropriately between instruments (3 different analysers), chemistries (e.g., 2 POPs, various PCR mixes) and primer variants (including different dye weights) to allow for joint analysis of the entire dataset.

Cheetah genotypes of unknown individuals (scat samples) using non-invasive techniques

Since the identity of the cheetah is unknown for non-invasive samples, the first step is to obtain a genetic ID to assign an individual ID. Over a thousand samples have been collected over the years. Many of these scat samples were collected by the CCF ecology team or with the help of CCF's scat detection dogs Finn, Tiger, Levi, and Enya. Other samples were obtained from collaborators from other conservation organisations, taxidermists, and the farming community. A set of microsatellite markers have been redesigned and optimized for scat samples and are used routinely in the laboratory. The sex of the individual is also determined genetically (Zn-Finger).

Coalitions of wild males around CCF centre: Over 950 scat samples were collected from a coalition of two wild cheetah males ('The Wild Boys': Hifi - AJU1543, and Sam - AJU1542) between July 2008 and October 2013 (AJU1542 died in Aug 2010, AJU1543 in October 2013). Samples were predominantly found around the CCF centre as part of a daily search effort as the two cheetah males were attracted by the captive female cheetahs. The sample collection represents an invaluable resource for long-term monitoring of physiological parameters such as diet, stress levels, and parasite load in two wild cheetahs. Parasite levels were assessed and recorded on a regular basis on fresh samples. Hormone work will be performed when funding is secured. A multiplex of four markers, aimed specifically at differentiating the two males was used to identify samples for every 3 - 5 days throughout the entire five-year period. To date 586 samples have been processed, of which 533 were finalized as AJU1542 or 1543 (n = 507), another wild individual (n = 5), captive cheetahs (3, found next to enclosure), or non-cheetah carnivore (n = 18). The other 53 samples were dropped as they failed to amplify (n = 23) or are still in progress (n = 30; Figure 1).

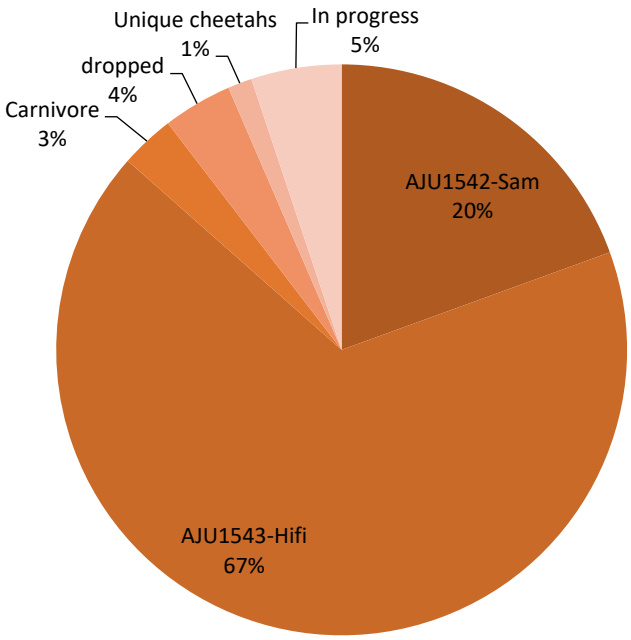


Figure 1: Results of genetic individual assignment for 586 scat samples collected as part of the 'Wildboy' project.

Between August 2021 and September 2022 another coalition of two wild cheetah males ('The Rockstars': AJU2066 and AJU2067) had included the CCF centre as part of their territory. The areas surrounding the cheetah enclosures were searched during the periods when the males were present in the area (based on satellite information). A total of 210 suspected cheetah scat samples were collected from this coalition. A minimum of 70 samples will be processed to aim to identify samples for every 3-5 days throughout the time period. Genetic analysis of the samples began in October 2023 with the selection of a multiplex of three markers that easily differentiates the two males. To date 29 samples have been identified.

Other suspected cheetah samples: All other suspected cheetah samples are analysed so that unique individuals can later be included in population studies. Over 400 samples were collected between 2008 and 2016, mostly around the CCF centre. An individual genetic cheetah ID could be assigned to 197 of these samples (corresponding to less than 20 individuals), 54 were assigned to other carnivore species using a mini-barcode sequencing approach. Since 2017, 514 cheetah scat samples were added to the sample collection thanks to the extensive work of the Scat Detection Dog team and includes samples from surveys in other parts of Namibia. All samples collected up until mid-2023 were extracted and their species ID confirmed. Of those, 344 were identified down to individual level and represented a minimum of 68 different individuals.

Cheetah scat samples caught on camera trap: The data from scat samples collected at camera trap stations from CCF's camera trap surveys between 2008 and 2014 was part of Lucia Mhuulu's MSc research thesis, which she defended in June 2015. For this study, the genetic ID was combined with the visual ID from the camera traps, to pair a physical appearance to the genetic genotype without handling the animal. The study was conducted until January 2019.

Release study: Sixty-six release and pre-release scat samples were extracted and assigned to an individual cheetah in 2013. Once identified, an aliquot of these samples was sent to the Smithsonian Institution in the US to be analysed for faecal hormone levels.

Verification of the accuracy of the scat detection dogs

The species of the scat samples found by the dogs and suspected to be cheetah is routinely verified using molecular markers.

Illegal Trade

Illegal product trade: Starting in 2013, the species content of samples from illegal trade was assessed using molecular markers specifically designed to identify carnivore species in samples of poor quality. PCR products were taken to the United States by Dr Anne Schmidt-Küntzel to do next generation sequencing in a collaborator's laboratory.

Illegal pet trade of cheetah cubs: Between 2004 and December 2023, CCF has received over 2,000 samples from 269 individuals (mostly cubs rescued from the illegal wildlife trade). A subset of 55 samples corresponding to a survey of illegal trade cases could be assigned to *A. j. soemmeringii*, the regional cheetah subspecies of the Horn of Africa, and provided a crucial link for the uplisting efforts of this subspecies (Schmidt-Küntzel et al., 2023; Figure 2). The uplisting of the subspecies took place in December of 2023.

The results obtained from these illegal trade studies are sensitive and will be made public when possible.

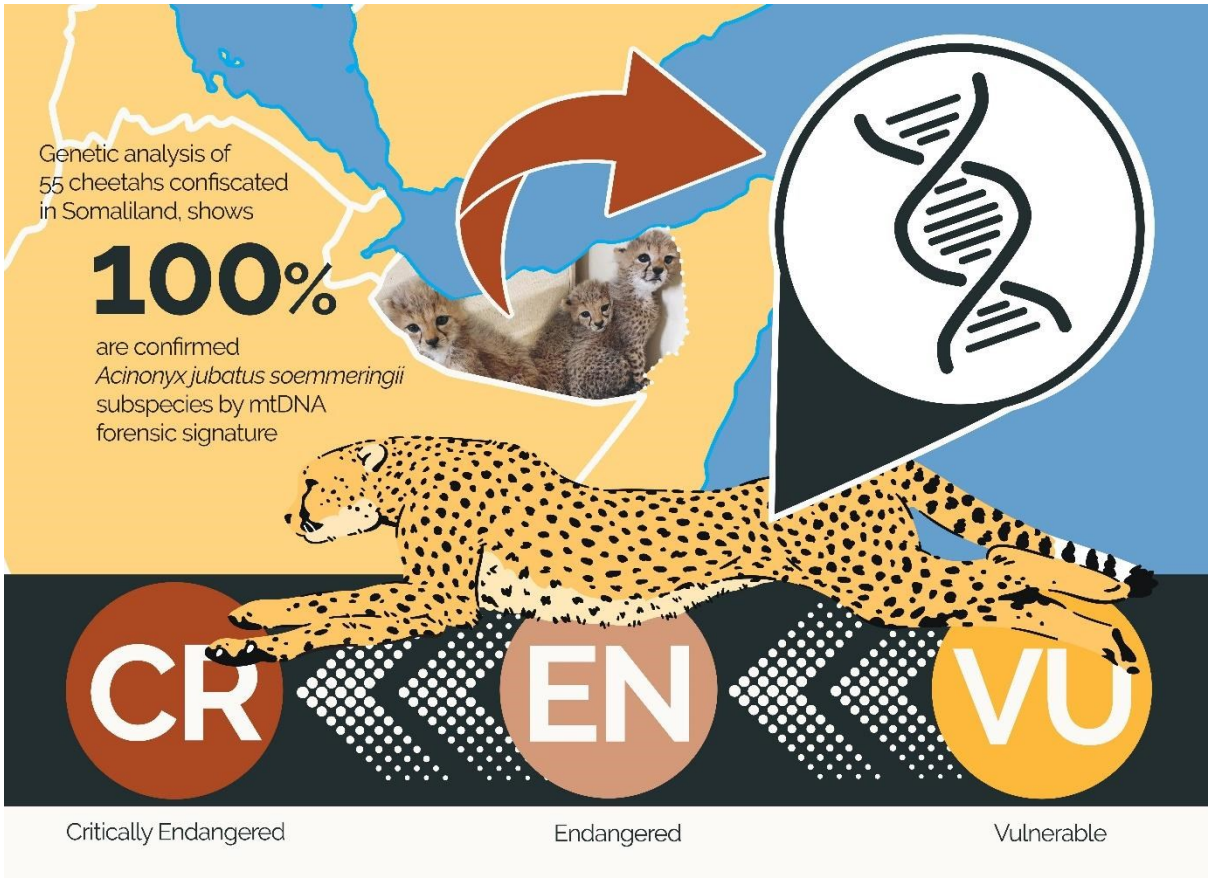


Figure 2: Conclusion drawn from the analysis of 55 cheetahs confiscated in Somaliland. Figure from Schmidt-Küntzel et al., 2023.

Babesia

Starting in 2013, a trial study on Babesia was conducted, to determine the percentage of affected cheetahs that are currently at CCF and compare those to the results obtained from microscopic evaluation of blood smears from other captive cheetahs. We also developed a diagnostic test to be used for further screening of the samples. The initial testing was assigned to Shalette Dingle, a visiting Cornell veterinary student in 2013; since then, a more sensitive test was also tested with promising results. Cornell veterinary student intern Natasja Lavin read the blood slides corresponding to the genetic samples in mid-2015. In March 2016, Karen Holm, veterinarian and working guest, finalized the last samples for the existing data set. In 2018, veterinary student Armaghan Nasim trialled the diagnostic test for the detection of babesia in ticks collected from babesia-positive and negative cheetahs. She also collected ticks which are currently used to determine the effect of storing ticks in methylated spirits. DNA from ticks was extracted after 14 days, 24 days, 34 days, 3 months, 6 months, 15 months, 22 months, 29 months, 36 months and 42 months. The latest date of extraction was in February 2023. Further tests will be performed over the coming years.

Carnivore diet

In 2014, visiting student intern Alicia Walsh from University of New Hampshire (USA) extracted DNA from 50 carnivore scat samples and verified the species they belong to using a mitochondrial marker. She also identified what the animals ate by using a variety of approaches including hair,

bone, exoskeleton, and vegetation analysis. She published the project in the university's Inquiry journal in 2015. In 2016, a preliminary analysis of the diet composition was performed by ecology research assistant, Samara Moreira.

D.1.2 Current Collaborative Genetics Projects

Oxalate nephrosis in cheetahs

In March 2012 a collaboration on oxalate nephrosis was started with Dr Karen Terio from the University of Illinois and Dr Emily Lane from the National Zoological Gardens of South Africa. This collaborative project aims to investigate whether oxalate nephrosis in the cheetah is caused by mutations in the same genes as in humans and cats. A genetic component was supported by the preliminary analysis performed by Dr Anne Schmidt-Küntzel. Primers were designed by Dr Anne Schmidt-Küntzel, and tested and optimized at the CCF genetics laboratory in 2013. In 2013 and 2014, diseased individuals were tested in the laboratory of the South African collaborators. In the first half of 2015 a second gene was investigated. To date no candidate mutation was found. Results will be published once results are obtained. Additional research is required and will be pursued once funding is obtained.

International cheetah samples

Over the years, CCF has collected cheetah samples in Angola, Somaliland, and Niger, where no genetic studies have been performed to date. In addition, samples have been obtained from collaborators in Angola, Algeria, Botswana, and South Africa.

Angola: Dr Ezekiel Fabiano, who graduated from his PhD in genetics with CCF in 2013, brought Angolan cheetah and other carnivore faecal samples to CCF subsequently for them to be analysed at the genetics laboratory as part of an ongoing collaboration.

Kenya: In 2017, Action for Cheetahs Kenya sent MSc student Brian Solomon to CCF with DNA from scat and tissue samples. Since 2018, Hafeni Hamalwa has continued the laboratory work to complete the genotypes of the 172 samples and obtained his MSc degree in April 2022 on the mitochondrial haplotypes present in the Kenyan cheetah population. Hafeni continued to genotype the samples to obtain genomic data with microsatellite markers. This study was partially supported by the Rufford Foundation. More DNA tubes are proposed to come from Kenya in the first half of 2024.

United Arab Emirates: A collaboration with cheetah holding facilities and veterinary clinics in the UAE was initiated in June of 2013. In 2014, sperm and genetic samples were collected on males to start the country's Genome Resource Bank (GRB) of cheetahs. Blood samples from the males that were worked up, as well as additional individuals, were taken back to Namibia with the relevant permits for banking and analysis. The samples are currently being analysed to identify the provenance of the animals, of which a large proportion originate from the illegal trade.

Carnivore species ID

Over 1,000 carnivore scat samples were collected in 2009 in the scope of an ongoing collaboration on carnivore diversity with Prof Eduardo Eizirik. Visiting MSc student Amy Wong joined the laboratory in 2022 to determine the species of 157 samples collected systematically in 2009 and graduated in early 2023 ("The use of faecal mini-barcoding techniques for non-invasive carnivore surveys in bushland savannah, Namibia") with an award. Emma Reasoner, CCF staff and NUST MSc student spent time in the laboratory between August and October 2022, processing a total of 140 scat samples as part of her study ("Human-conflict and coexistence of black-backed jacked (*Canis mesomelas*) and African Wild Dog (*Lycaon pictus*) in the Okakarara district communal area, Namibia"), which she defended mid-2023.

In collaboration with the Brown Hyaena Project in Lüderitz, carnivore hair samples obtained from rubbing stations and hair snares in southern Namibia were analysed at the genetics laboratory in 2014, to identify the species of the carnivore. This work was part of Sarah Edward's PhD (Royal Holloway, University of London). The genetic analysis was finalized in 2014, and the PhD successfully defended in October 2015.

Brown hyaena

As part of collaboration with Dr Ingrid Wiesel from the Brown Hyena Project in Lüderitz, which started in 2016, we received two sets of paste marks of brown hyenas (*Hyaena brunnea*). This allowed us to optimise protocols to successfully extract DNA from pastemarks. A total of 59 samples were genotyped with published markers. However, variability of the markers in the study population was insufficient, and additional markers are needed. The whole genome of the brown hyaena was mined by a joint collaborator and will allow for the design of additional markers for brown hyaena.

Caracal

Since 2016, caracal hair and tissue samples, collected from killer traps in South Africa, have been brought to the genetics laboratory to assess relatedness. This study is a collaboration with Kristine Teichman (PhD student from British Columbia University, Canada). Most samples were processed in 2018, and the dataset is expected to be finalized in 2022.

D.1.3 Current Collaborative Non-Carnivore Genetics Projects

Rhinoceros

In the scope of a collaboration with the research centre of Ongava Wildlife Reserve, MSc student Abigail Guerier finalized a pedigree of white rhinoceros (*Ceratotherium simum*) thanks to the inclusion of genetic data. The results have major implications for the management of captive rhinoceros populations and were part of her MSc thesis. A manuscript was published in 2012 ("Parentage analysis in a managed free ranging population of southern white rhinoceros: genetic diversity, pedigrees and management", Guerier et al, 2012). Since 2013 more samples have been collected by the Ongava research team to include additional generations to the project. Abigail Guerier also started a genetics project on black rhinoceros (*Diceros bicornis*) at the CCF genetics

laboratory. She continues to visit the laboratory once or twice a year with new batches of samples. Her last visit was at the end of February 2022.

Elephants

As part of a collaboration with Dr Caitlin O'Connell, the genetics laboratory has received 490 elephant dung samples, of which 203 in 2019 and 64 in 2023. Two hundred samples were identified as priority. To date, 178 samples have been extracted and genotypes obtained for 12 markers. In 2023, CCF hosted Hendrina Joel and Claudine Cloete, two PhD students registered at UNAM, to train them on the genetic analysis of the Elephant dung samples, which will be a part of their PhD projects.

Herpetology

As part of collaboration with Paul Kornacker from the Museum König in Germany on lizard species identification on samples from the NamibRand region of Namibia, 81 samples were extracted in 2017, and species identity was determined for half of the species. A new primer was ordered, which did amplify some of the remaining species. Further research is funding dependent.

Termites

In May 2015 and February 2016, a research team from the University of Florida worked with CCF to do a pilot study on termites. The initial tests were successful, and additional markers will be developed by CCF's collaborators. The team has since visited CCF on a regular basis, and more research is planned for upcoming years.

Bird Sexing

CCF started offering bird sexing as a tool for collaborators studying birds whose sex could not be determined by looking at the birds or chicks. To date CCF has processed vulture and oxpecker samples for conservation projects as well as UNAM collaborators.

In May 2023, the Genetics laboratory received nine vulture samples from Mark Boorman. The blood samples were extracted, and their analysis completed in June 2023, a final report has been submitted.

D.2 Scat Detection Dogs

CCF's scat detection dog unit was put in place to increase the number of cheetah scat samples found in the field. Scat samples are analysed at the CCF genetics laboratory as part of CCF's ongoing conservation efforts to gather valuable information on an animal's gender, individual, and species. Working with scat detection dogs on cheetahs is quite challenging, and we calculated a 22 km distance covered for each sample found along a road (data presented in the 'black gold' chapter of "Cheetahs: Biology and Conservation", 2018).

The test phase of the programme started with the arrival of Border Collie, Finn, in February 2009. Since 2009 the programme has trained and/or hosted several scat detection dogs, including Tiger,

a spaniel donated by dog trainer Steve Austin from Australia and who was CCF's main detection dog for several years. CCF's current team consists of Tim Hofmann and his Weimaraner Ole, and CCF's two Belgian Malinoises Enyakwa and Gamena. Tim joined CCF in 2018 as a scat dog researcher and has started his PhD about the scat detection dog project in May 2021.

Towards the end of 2023, Ndatitangi Iyaloo Amadhila joined the scat detection dog team as an intern, making strides in handling and taking care of the dogs. Iyaloo has taken on responsibilities such as conducting scat dog demonstrations and executing the daily enrichment for the dogs when Tim was off-site.

Enyakwa has been the main scat detection dog at CCF since June 2019 (Figure 3). Her high toy drive and ability to correctly identify target species puts her ahead of the other two dogs. Her sister Gamena is a lot calmer and often more careful which can be a useful trait for certain tasks.

The systematic scent line-up exercises, implemented in 2020, to evaluate the dog's precision, are currently on hold but are performed as part of our regular training routine. Here different scents are hidden in four metal boxes ('sniffer boxes') that are organised in a line which the dogs have to walk up and down. Once they reach the box containing the target scent, they are supposed to show their trained indication behaviour which is sitting. These line-ups are very helpful to monitor their precision and sensitivity, but can also be used to efficiently teach new target species. Precision is the proportion of correctly indicated target scat samples to falsely indicated negative samples. Sensitivity is the proportion of correctly indicated target samples to the total number of target samples available. Also in 2020, several training transects were designed that are searched at consistent time intervals to document the team's development. Here target and non-target scats are hidden along road transects in different habitats to mimic real search conditions. The assessment transects allow for a precise 'real time' evaluation of the team throughout the year.

Figure 3: Enya indicating a scat sample next to an elephant trail in Bicuar National Park, Angola.

In 2023, the dogs covered a total of 34 km of transects on CCF land for training exercises and opportunistic sample collections. A total of four potential cheetah scat samples were found by Enya and brought to the genetics laboratory for analysis.

The combined ecology/scat detection sampling scheme was applied to a new area in Namibia, the Otjombinde conservancy, situated along the Namibia-Botswana border in the central eastern landscape. Scats, predator marking sites, and other signs of their presence were sought by our team through walking transects. Over an expansive area of 2,048 km², 80 km were walked to collect 28 scat samples, with nine identified as target species. Two cheetah playtrees were

discovered, and one of those was located by following fresh cheetah tracks all the way up to the tree.

In addition, the scat dog team's collaboration involving long-term CCF collaborator Dr. Ezequiel Fabiano and CIBIO (Centro de Investigação em Biodiversidade e Recursos Genéticos) from the University of Porto in Portugal, which was initiated in 2018 is still ongoing. In the scope of this collaboration, the scat dog team travels to Angola one to three times per year for three weeks to find predator scat in one national park and one private game reserve. It was decided to restrict trips to once a year and to conduct those at the end of the dry season, when samples have had time to accumulate. A total of 490 scat samples were collected in Bicuar National Park (up from 464 in 2022), and 15 in Cuatir Conservation Project (down from 106 in 2022).

E. Large Carnivore Research and Ecology

E.1 Cheetah Releases and Monitoring

E.1.1 Dax (AJU2010)

Dax was an adult male cheetah, approximately seven years old, who was released into Erindi on 25 January 2021 after a short period at CCF. He spent almost 3 years in the wild before being found dead by the Erindi team, at the end of September 2023. It seemed Dax died of natural causes.

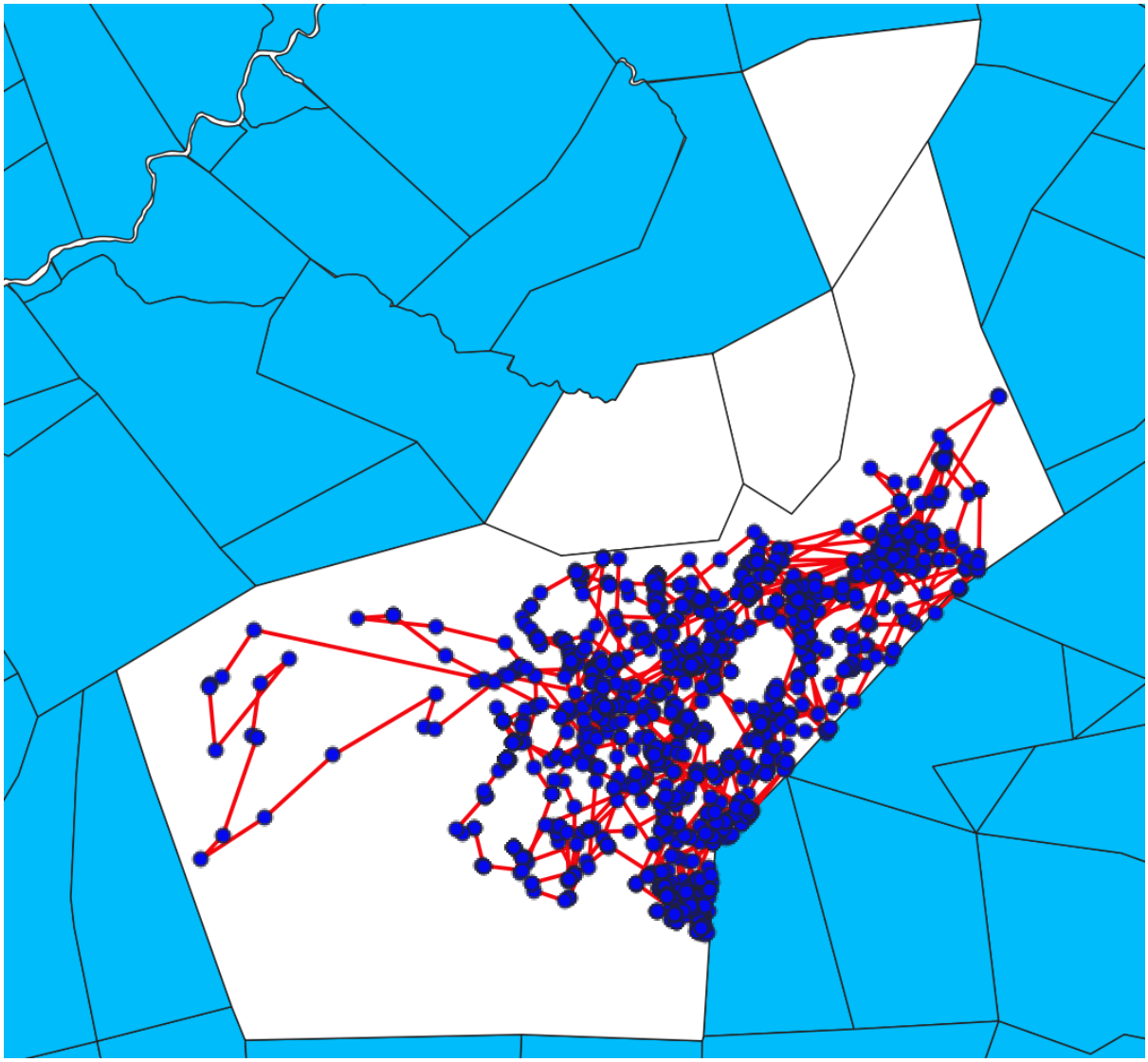


Figure 4: Dax's movements from 1 Jan 2023 until 20 Sept 2023.

E.1.2 Lauw (AJU2050)

Lauw is an adult male cheetah, approximately five years old who was released onto the Erindi reserve on 25 January 2021 after a short stay at CCF. After almost 3 years back in the wild, Lauw's collar was found by the Erindi team. We assumed that Lauw died of natural causes in September 2023 around the same time as Dax.

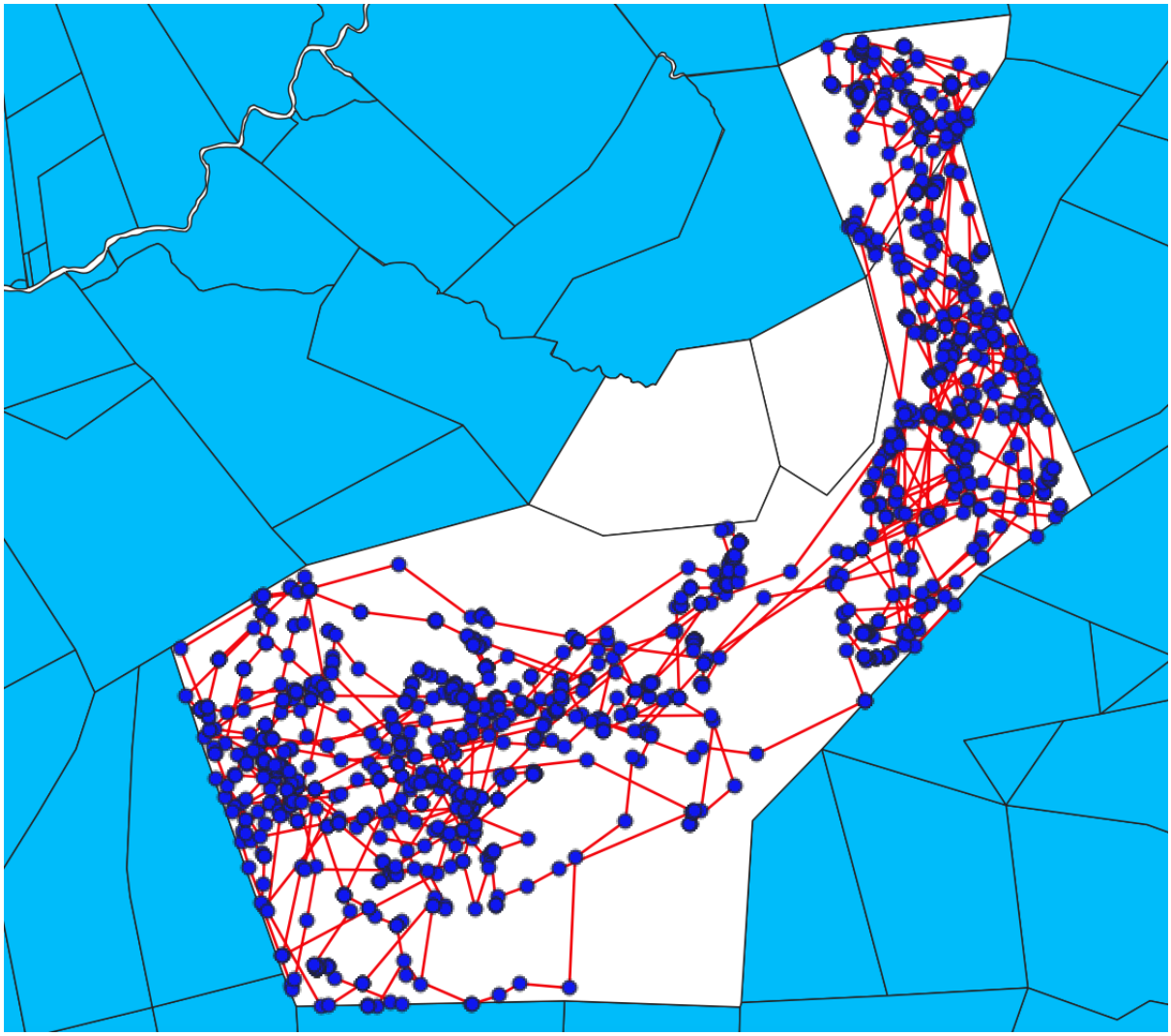


Figure 5: Lauw's movements from 1 Jan 2023 until 20 Sep 2023

E.1.3 Hella (AJU 1785)

Hella was released back in Erindi Private Game Reserve with her four cubs at the end of February 2023. She makes successful predation events on a regular basis. Unfortunately, she lost one of her cubs at the beginning of June due to an unknown cause. Hella remains healthy with her three surviving cubs that are around 10 months old. At the end of September 2023, Hella was found with a big wound on the front left leg. It was decided to bring her in the boma to treat the wound and avoid any infection. On the 1 December 2023, Hella and her three cubs were released into the main reserve at Erindi and since then they have been found with several kills.

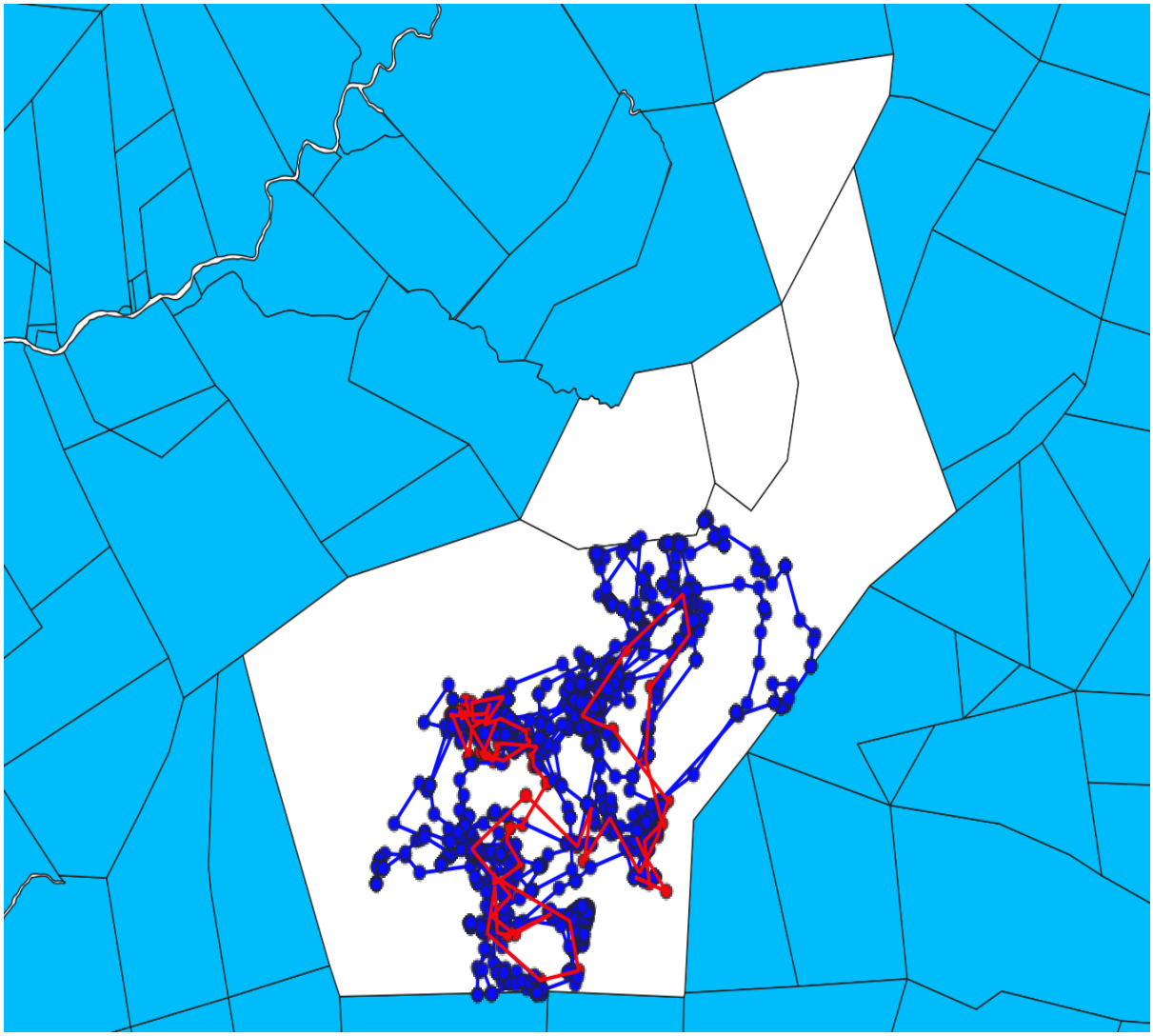


Figure 6: Hella's movement from end Feb 2023 until end of Sep 2023 in blue. Hella's movement from 1 Dec 2023 until now in red.

E.1.4 Four Boys (AJU 1898, 1779, 1780 & 1786)

After two years back in the wild, Max, Ben, Thor and West have been doing great on Erindi Private Game Reserve. They are fully independent, hunt on a regular basis and even were seen killing a young giraffe which is quite unusual for cheetah due the large size of giraffe as prey.

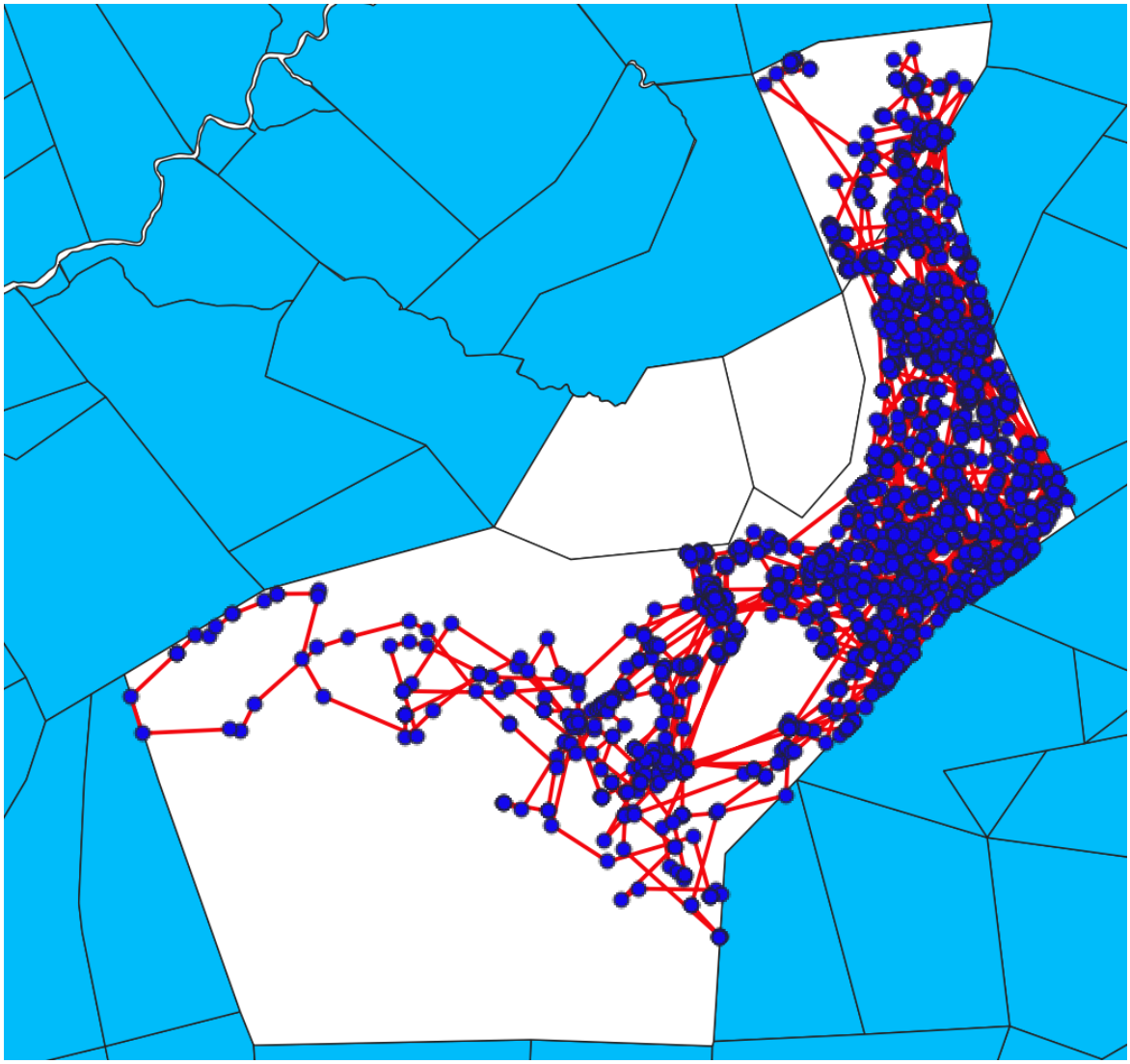


Figure 7: Four male coalition's movement during 2023.

E.1.5 Atlanta (AJU 2103)

More than two years after splitting from his sister Tbilisi, Atlanta remains on Erindi Private Game Reserve. He has been seen from time to time by Erindi staff and managed to look after himself. Erindi team reported him killing adult ram Impala multiple times which suggest that his hunting skills are good and sufficient for him to take care of himself.

E.1.6 Etosha Heights Males (AJU 2102)

After establishing his territory around Dolomite Camp in the western part of Etosha National Park, AJU 2102's GPS collar stopped sending GPS coordinates in January 2023. We do not know his current status, and the battery life on the collar is likely exhausted.

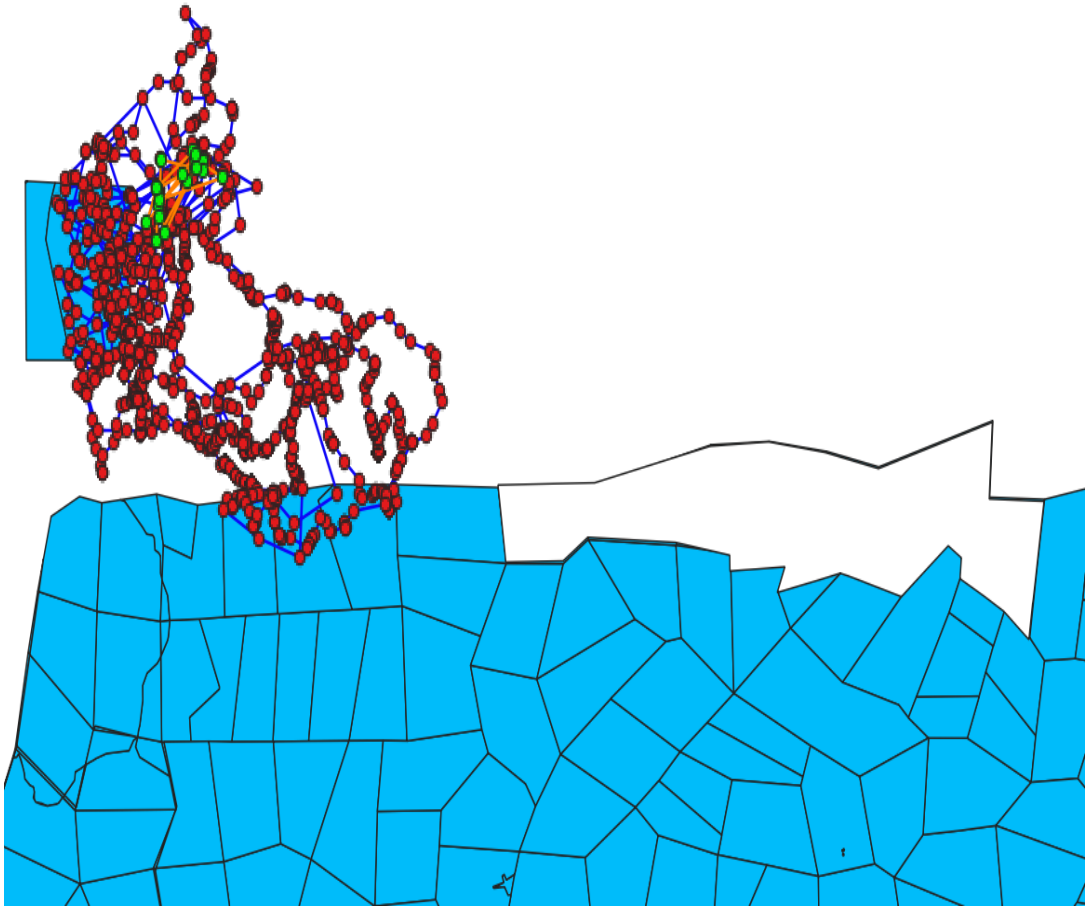


Figure 8: In Blue and red, Etosha Height male's movements between Etosha Heights, farmland and Etosha National Park from June to December 2022. In orange and green, Etosha Heights male's movement in Etosha National Park in January 2023.

E.1.7 Gobabis Summerdown Male (AJU2153)

This male was captured in July on farmland in Gobabis area. The owner of the farm did not have any livestock losses and agreed to collaborate in CCF's Early Warning System. The cheetah was released on the farm in the same month. Unfortunately, his collar stopped working prematurely in January 2023 and we lost track of him.

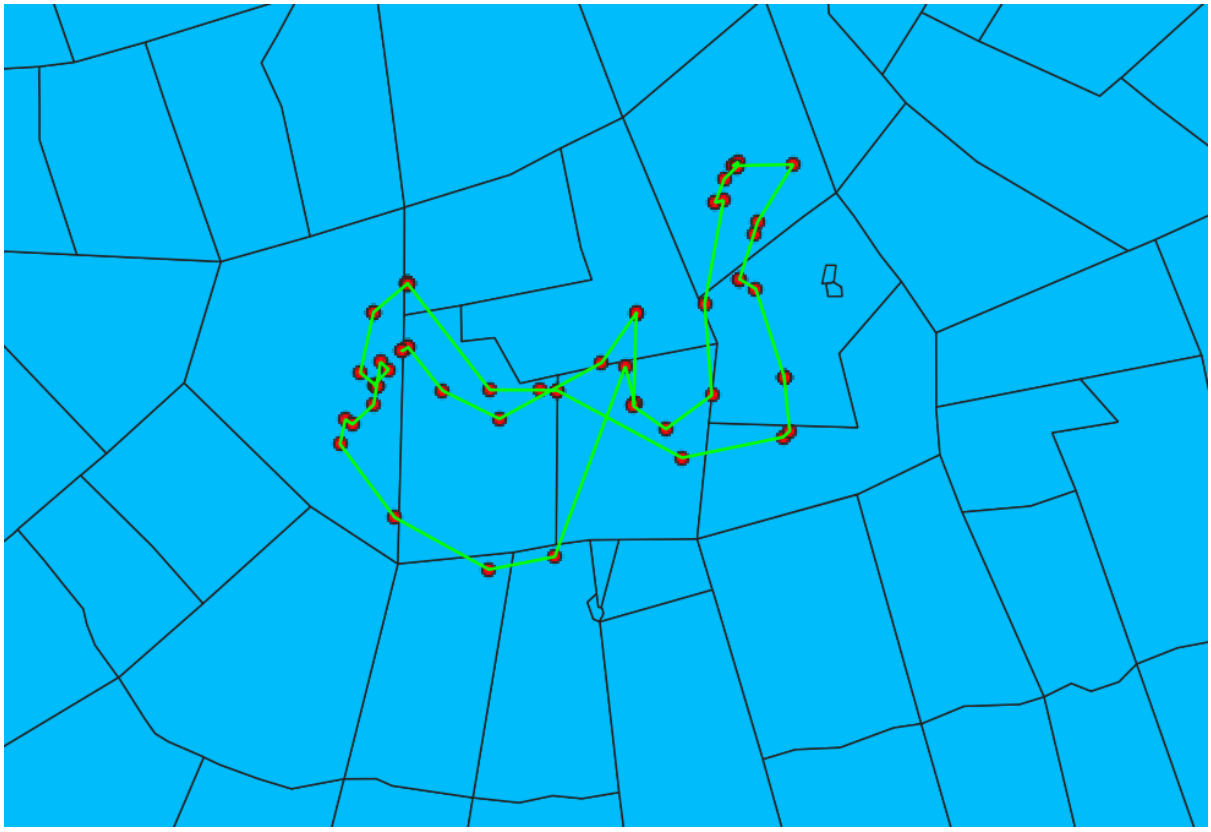


Figure 9: Summerdown male's movement on Gobabis Farm in January 2023.

E.1.8 Daylight with 4 cubs (AJU2163)

After being released with her four cubs in November 2022, Daylight moved around for a couple of months before her death in January 2023. The cause of the death could not be determined.

E.1.9 Calypso's male and female cubs (AJU 2064 & AJU 2065)

After 18 months, Kike and Duma's collars dropped off automatically in March 2023. At that time, they were both active and well. Since then, we have lost track of them.

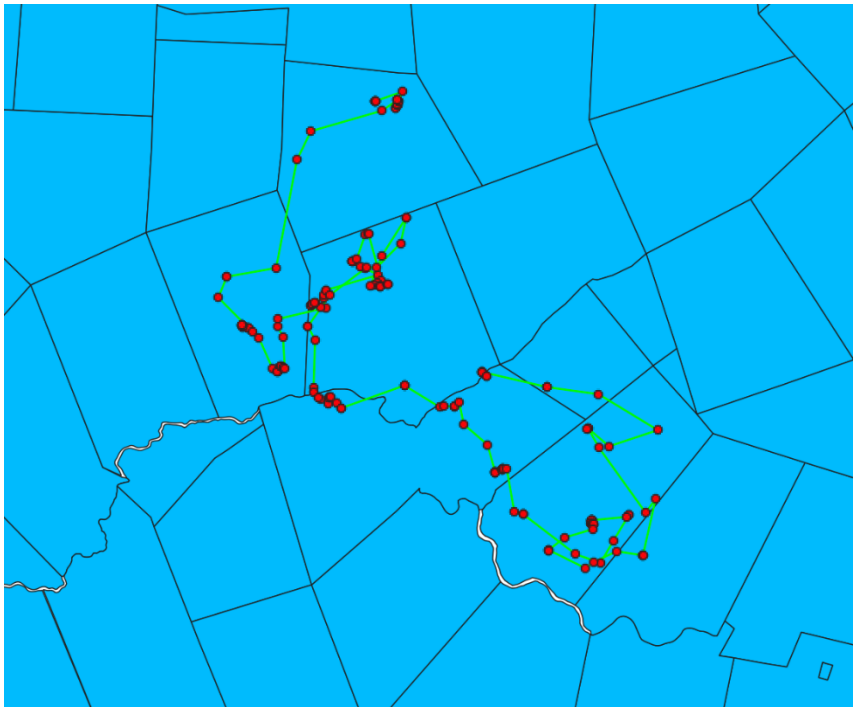


Figure 10: Calypso's female movement on Gobabis Farms from 1 Jan 2023 to 1 Feb 2023.

Figure 11: Calypso's male movement on Gobabis farms from 1 Jan 2023 to 1 Feb 2023.

E.1.10 Janus (AJU2164) and his sibling (AJU2197)

Janus is a male cheetah approximately five to six years old, was caught by a farmer in Gobabis area in February 2023. Janus was released in the same month on the same farm and the farm owner agreed to be part of the Early Warning system. In mid-October 2023, Janus was captured on the

same farm with another male, probably his sibling. Unfortunately, the farmer refused to release them on his land so it was decided to take them to the CCF veterinary clinic for a complete checkup and to release them on CCF land. They killed an adult kudu bull less than 48h after release and left CCF land the day after. Janus's sibling collar failed and it does not send any data anymore, but Janus' collar is still active.

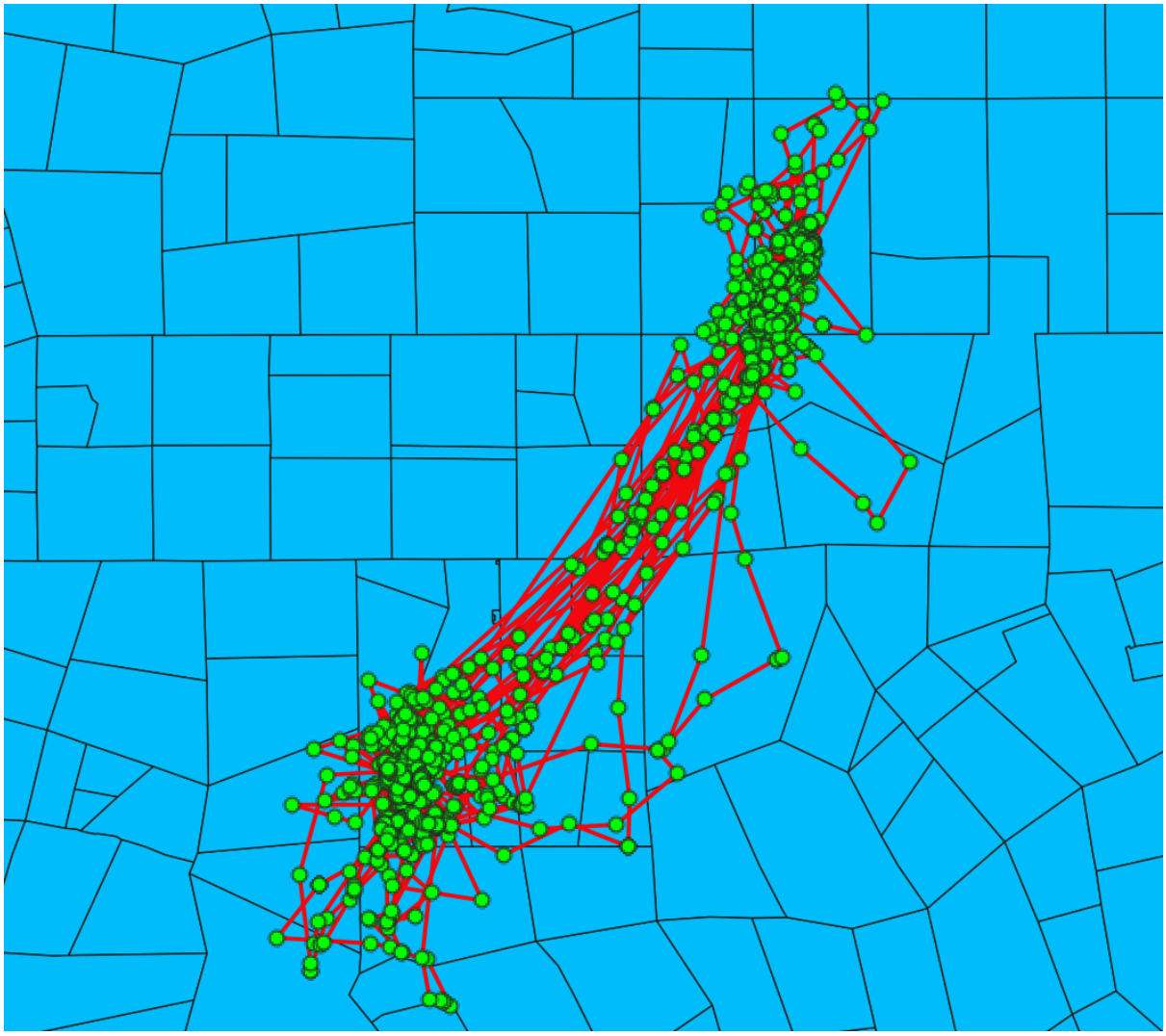


Figure 12: Janus movement on Gobabis farms from end Feb 2023 to mid Oct 2023.

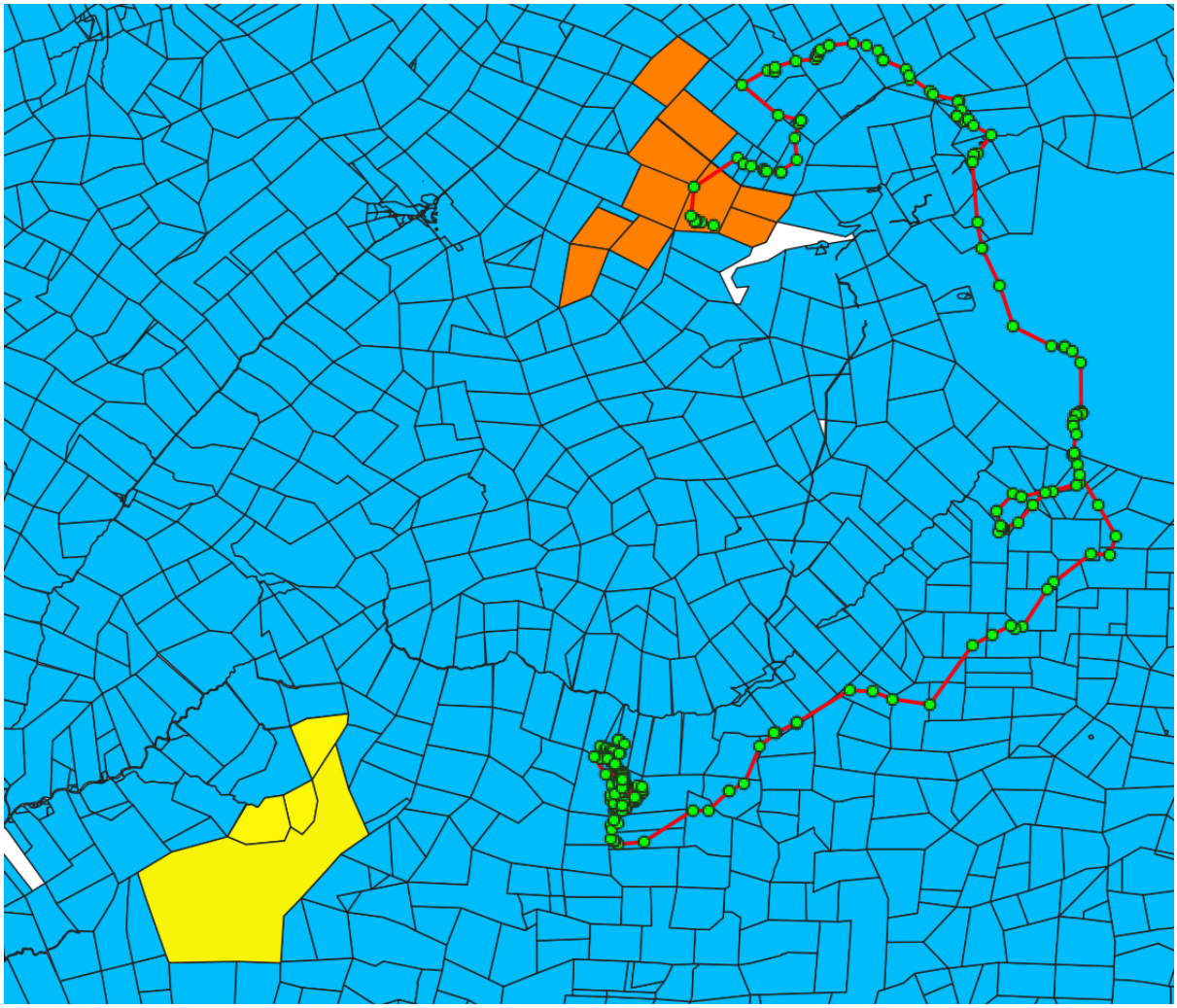


Figure 13: Janus and his brother's movement from the end of Oct 2023 until now. (In orange, CCF's land and in yellow, Erindi Private Game Reserve).

E.1.11 Sofia (AJU2191)

Sofia is a female of six to seven years old, was captured in the Gobabis area by a farmer in May 2023. After a full checkup, she was equipped with a GPS collar and released on a different farm, as part of the Early Warning System in Gobabis area. Unfortunately, Sofia crossed a farm that wasn't part of the Early Warning System and she was shot by a farmer less than a month after her release.

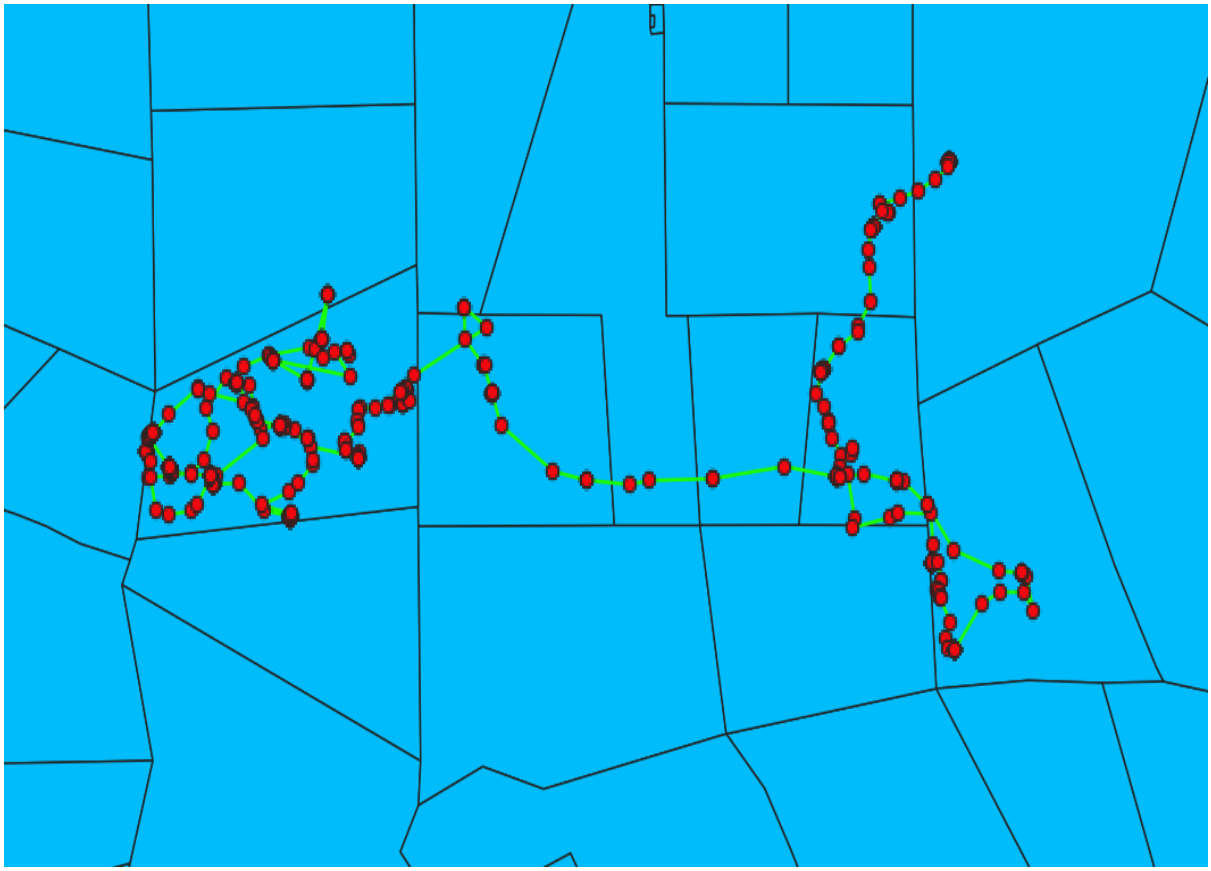


Figure 14: Sofia's movement on Gobabis farms from 6 May 2023 to 29 May 2023.

E.1.12 Scarlett (AJU2195)

The CCF East team picked up an adult female cheetah caught in a trap cage on a farm in Gobabis area on 31 May 2023. She was trapped after a human-wildlife conflict incident where she caught and fed on a goat. Due to severe injuries and in conjunction with MEFT Gobabis, it was decided the cheetah will be brought to CCF for treatment and then release. In early September 2023, the CCF veterinarians deemed the female cheetah ready for release and Scarlett was taken back to Gobabis where she was released on a farm as part of the Early Warning System.

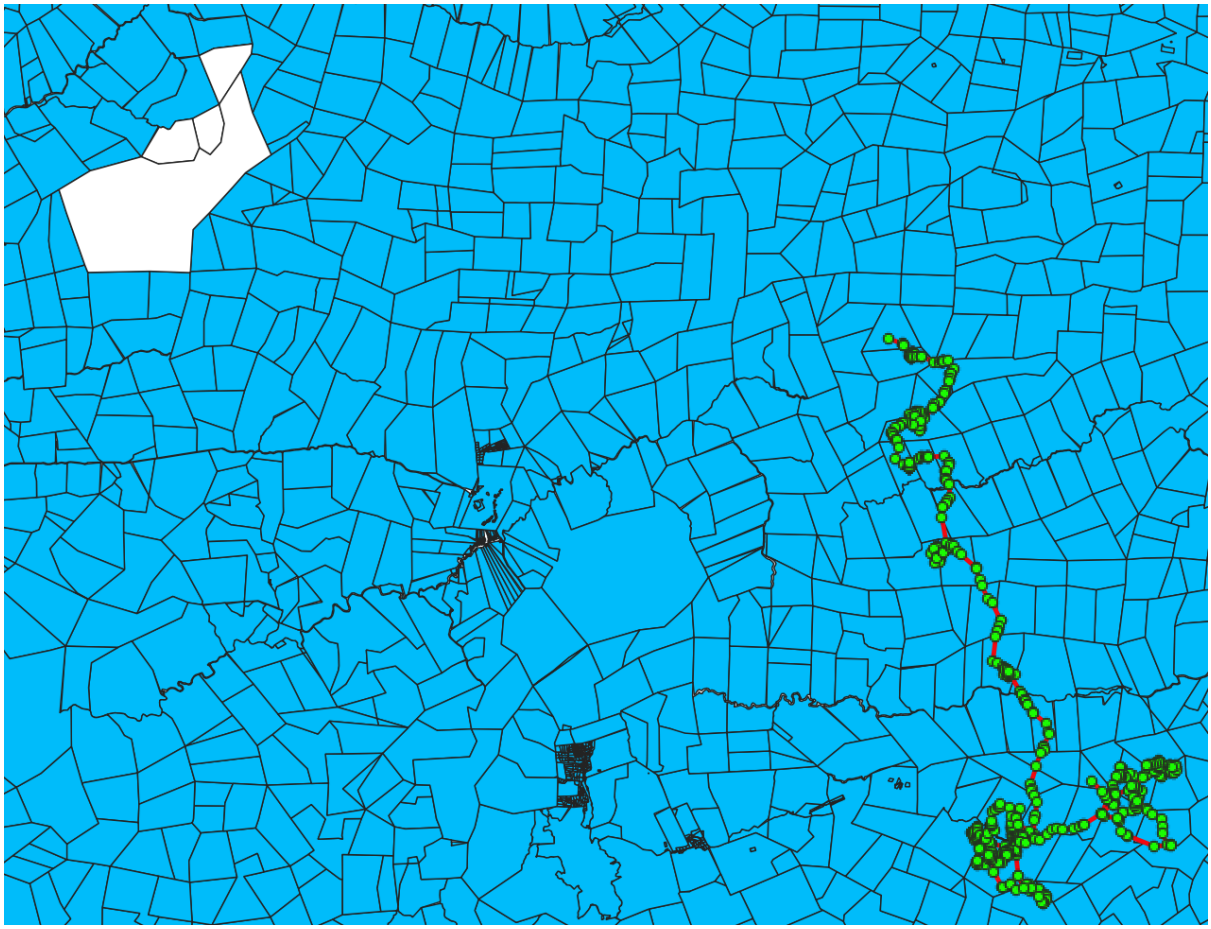


Figure 15: Scarlett's movement on Gobabis farms from beginning Sept 2023 until the end of December 2023 (in white, Erindi Private Game Reserve).

E.1.13 Lily (AJU2198)

On 28 Nov 2023, permission from MEFT Gobabis was granted for the CCF East team, to pick up a female cheetah caught in a trap cage on a farm in Gobabis area. After a veterinary check-up to confirm the good condition of the female and the fitting of the GPS collar, Lily was taken to a farm part of the EWS program in Gobabis area to release her back into the wild.

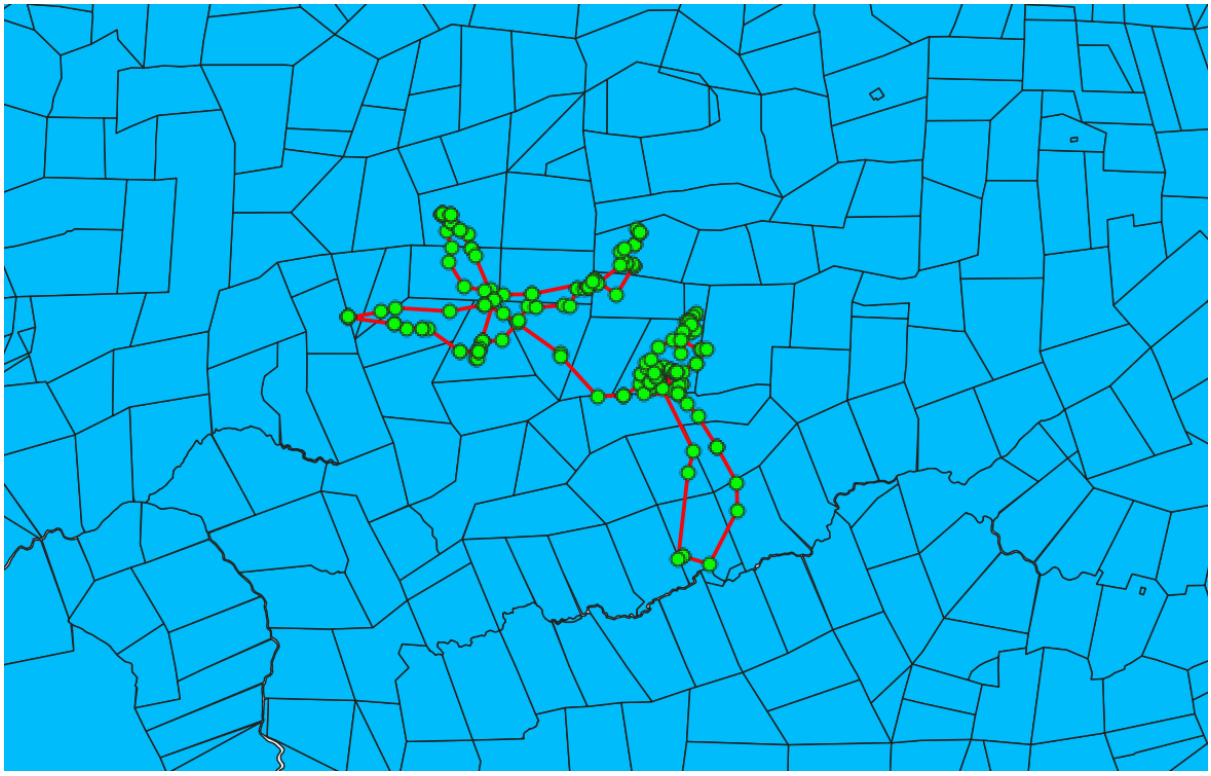


Figure 16: Lily's movement on Gobabis farms from the end of November 2023 until the end of December 2023.

E.2 Cheetah Release and Monitoring in India

Following the translocation of eight cheetahs from Namibia to India on 17 September 2022, the CCF maintained a constant presence in Kuno National Park (KNP) working closely with the local Indian team comprised of members from the Madhya Pradesh Department of Forestry (MPF), the National Tiger Conservation Authority (NTCA), and the Wildlife Institute of India (WII) until 24 April 2023. During this time, CCF staff Barth Balli and Eli Walker were assisting in the training of the local staff, working to share CCF knowledge, techniques, and training in cheetah care, handling, and management. During this time the eight Namibian cheetahs completed their quarantine period within KNP, were all transferred into the larger release bomas, and all made independent kills within the bomas. In February 2023, an additional shipment of 12 cheetahs (7M, 5F) arrived into KNP from South Africa (SA) and began their quarantine period. On 17 and 18 April, all 12 SA cheetahs were moved from quarantine to the release bomas.

On 22 December 2022, the Namibian male coalition known as the ‘Rockstars’ was joined together with the three captive-raised Namibian females, Sasha, Savannah, and Siyaya. A confirmed mating occurred between male Elton and female Sasha on 23 December 2022. On 26 December 2022, female Siyaya was found with male Freddie but no matings were observed. However, on 24 March 2023 Siyaya gave birth to four healthy cubs, most likely to be sired by Freddie. Female Savannah was not observed interacting with the males during this time.

In January 2023, Sasha was found in poor condition and had to be returned to quarantine for emergency medical care and attention. Blood results revealed she was undergoing renal failure. Sasha did show elevated kidney values from her exam in Namibia, but perhaps this sudden

downturn in condition and renal function was due insufficient nutrition. Over the next couple of months, Sasha received constant attention and treatment from Eli and the local veterinarians and showed improvement, but unfortunately Sasha was not able to recover and died on 27 March 2023. Histopathology reports are still pending from Sasha's necropsy.

On 23 April 2023, one of the SA males was found showing signs of cervical ventroflexion. The animal was darted and a health exam was performed, but nothing conclusive was found. During the recovery from anaesthesia, the animal seemed to panic and had a rough recovery and eventually died of cardiac failure. So far, no underlying cause has been reported as histopathology reports are still pending.

On 13 May 2023, one of the South African females was killed by the South African male coalition from Phinda. This coalition had been given access to the female the day before. While CCF had endorsed the previous joining of males and females, CCF was not consulted on this decision.

On 23 May 2023, it was reported that one of the four cubs of Siyaya had been found dead, with signs of muscle wasting and dehydration. Later, another two cubs were found dead and the fourth cub in very poor condition. The Indian veterinarians pulled the cub and managed to provide emergency care and save the life of the cub. Dr. Marker was in contact with the veterinarians directly to provide assistance. They are now caring for the cub in captivity until a decision is made for the path forward. No pictures of the cub carcasses have been shared, but it may seem the cubs were not yet eating meat though they had been out of the den for nearly two weeks. It seems these cubs might have been slowly losing condition and this was not spotted in time to intervene and save the cubs. However, it was reported that this occurred suddenly as supposedly the cubs were all doing well just before.

The cheetahs were brought back to quarantine bomas in July and August 2023 due to a skin issue that started in June 2023, most probably because of high humidity in the monsoon season. The surviving cheetahs recovered and were due to be released in the national park in late 2023 by the Indian government authorities.

Four (3M, 1F) of the eight Namibian cheetahs were released into KNP in March 2023 but one single male had to be returned to KNP on two separate occasions following too much exploratory movement beyond the forests of KNP. On the second occasion, this male was placed back inside the release bomas within two females from SA with the hope of anchoring him to the release bomas so that he does not explore once again too far beyond KNP forests. He is currently still within the release bomas. Asha, the female released, has kept primarily to the forests of KNP and rarely ventures into human dominated areas but has explored most of the park. Asha has mostly supported herself since release but she was supplementary fed one time while in an area without much prey. Since then, Asha has been making sufficient kills to not require additional support. The 'Rockstars' have not ventured very far from the release bomas, clearly being anchored to the area by the captive females, and have supported themselves entirely post release. These males are skittish but are seen from time to time by the monitoring team. In May 2023, the Indian team released three SA cheetahs, one male coalition and a female. There has not been much news on the progress of these three animals so far.

F. Ecosystem Research

Over 80% of Namibia's wildlife lives on farmland. CCF's core ongoing study on farms includes an assessment of woodland savannah ecology for long-term viability for cheetahs and their prey.

F.1 Weather Monitoring

CCF staff continued to collect rainfall data at the CCF centre and farms, and daily high and low temperature readings at the CCF centre throughout 2023 (Figure 17 and Figure 18). Between January and December 2023, CCF received 363.61mm total amount of rainfall which is less than the amount of rainfall received in 2022 (Figure 17). The first rainfall in summer was recorded on 27 November 2023 (10 mm) and the highest amount of rainfall was recorded on 22 January 2023 (57 mm) (Figure 18).

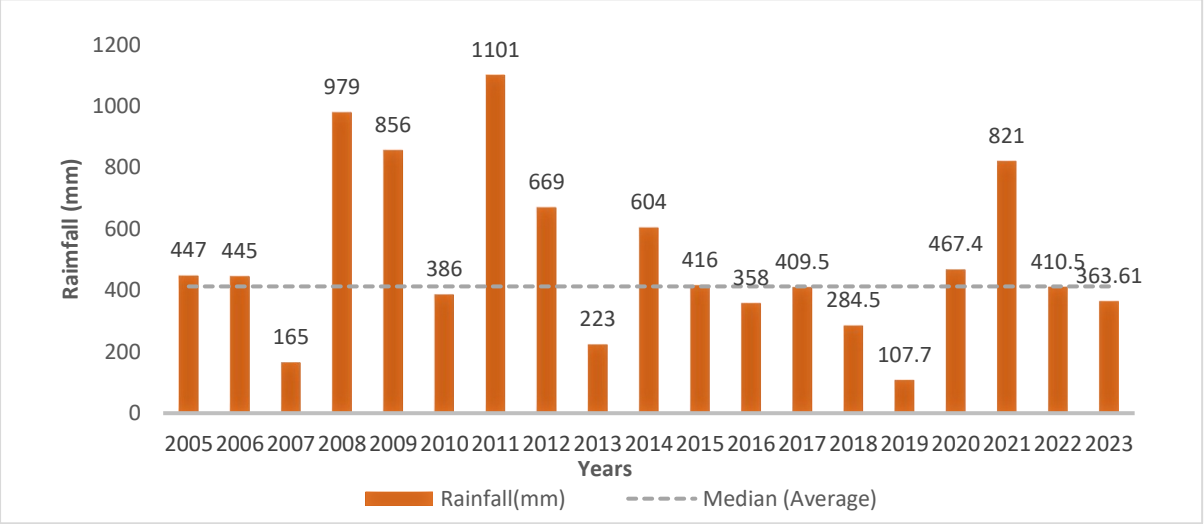


Figure 17: Annual seasonal rainfall from 2005–2023. Each rainy season compromises the precipitation occurring between October (previous year) and July (year shown). The grey dotted line bar shows the median of the last 19 years (412.75mm).

The lowest temperature during this report period was recorded on 10 and 12 July at 4°C, and the highest temperature was recorded on 17 December at 35°C. The first half of the year was on average colder in 2022 (Figure 18).

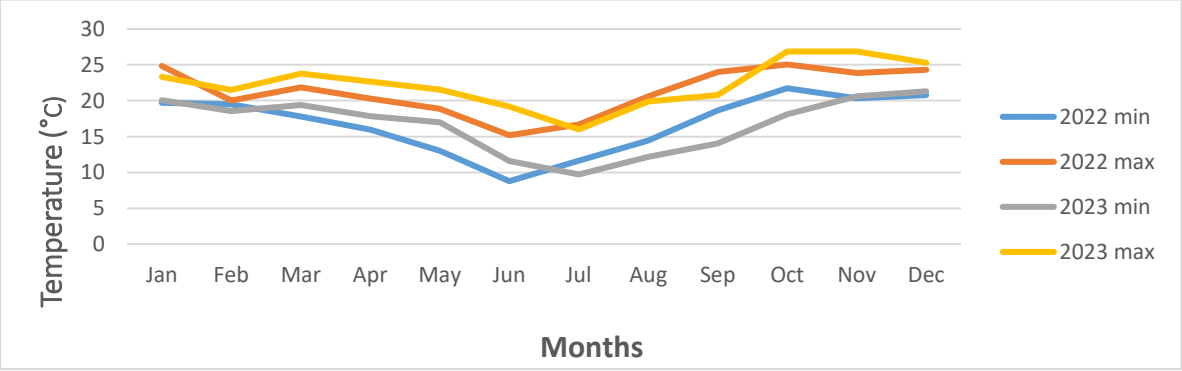


Figure 18: Monthly average maximum and minimum temperatures (°C) for 2022 and 2023.

F.2 Game Monitoring

CCF's long-term wildlife monitoring programme continues with the assistance of volunteers and student interns. The research conducted on CCF farms is designed to understand the patterns and trends of game populations. The monthly monitoring involves visual road counts where individuals of all wildlife species encountered are counted, recording age class and sex when possible.

F.2.1 Big Field Game Counts

CCF's Big Field, also known as 'The Little Serengeti', is an old uncultivated field of 14.9 km^2 (Figure 19). The field, one of the largest open, uncultivated areas in the North-central Namibian farmlands, attracts a high number of free-ranging game. Monitoring trends and understanding the dynamics of how the game utilizes the field provides important information for management strategies and is also informative for tourism wildlife viewing opportunities. The vegetation structure on the field has changed over the years but continues to show a high density of Bitter bush (*Pechuel-loeschea leubuitziae*)

During the 2023 reporting period, a total of 108 replicate counts (3 routes sampled daily for 3 consecutive days over 12 months) were conducted on the Big Field, resulting in a sampling effort covering 593.28 km. There are three routes on the field: Chewbaaka Road (6.34 km), Midfield Road (5.38 km), and Osonanga Road (4.76 km, Figure 19). The total distance travelled by three teams was 16.48km per day and 49.44km per month.

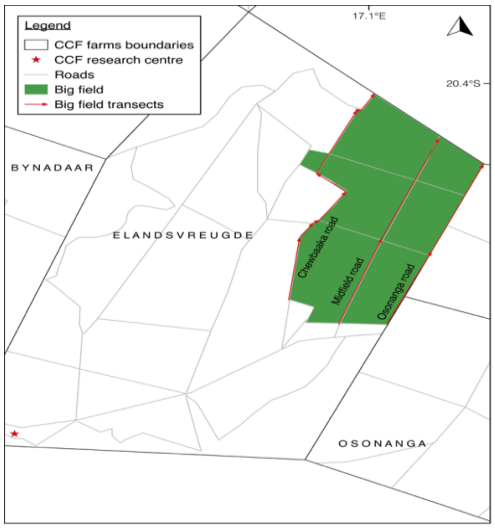


Figure 19: Map of CCF land and location of the Big Field showing the three transects driven monthly for game counts.

All data from these surveys were entered into the main database (FileMaker Pro 18) and preliminary results on trends were produced. Density estimates for the most common species (representing more than 10% of sightings) are reported (Table 4). Densities were estimated using Distance 7.2 Software. The current period was compared to the same period in 2022, showing an overall decrease for most species densities. There was an overall decrease in the most common species except for eland, kudu and red hartebeest (Figure 20).

Table 4: Density estimates (individual/km2) with 95% confidence interval of the most common species seen on Big

	2022			2023		
Species	Mean	Lower CI	Upper CI	Mean	Lower CI	Upper CI
Warthog (*Phacochoerus africanus*)	1.02	0.44	2.38	2.32	0.74	7.26
Springbok (*Antidorcas marsupialis*)	1.29	0.84	1.99	1.07	0.84	1.36
Red hartebeest (*Alcelaphus buselaphus caama*)	0.05	0.03	0.09	0.12	0.06	0.23
Oryx (*Oryx gazella*)	2.81	1.89	4.17	0.65	0.43	0.99
Eland (*Taurotragus oryx*)	0.18	0.06	0.56	1.20	0.37	3.87
Kudu (*Tragelaphus strepsiceros*)	0.10	0.06	0.16	0.73	0.32	1.66

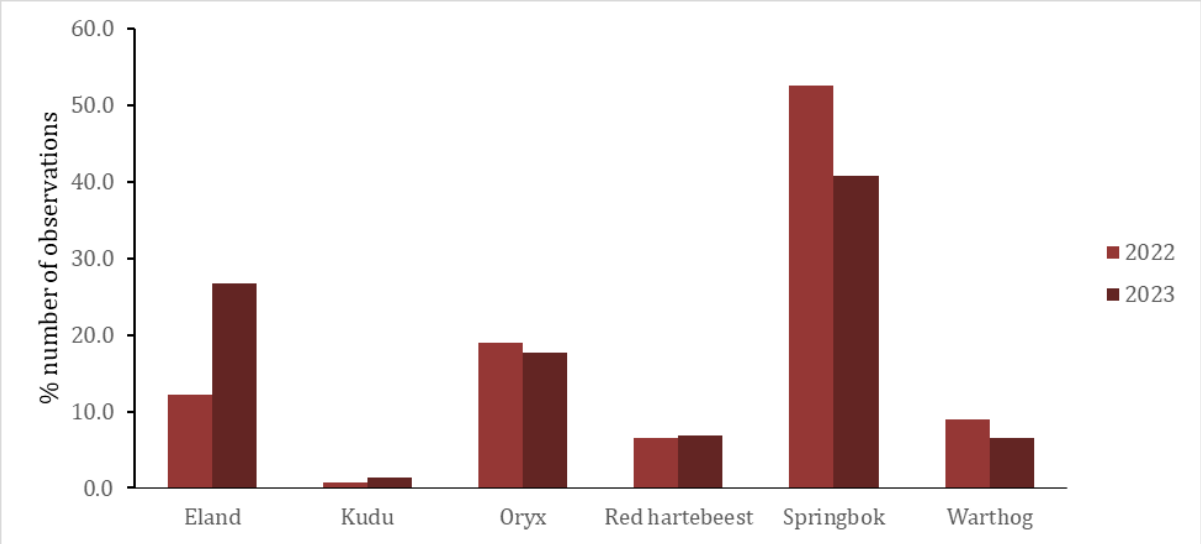


Figure 20: Frequency of sightings for the most common species during the Big Field counts in 2022 and 2023 (January – December).

F.2.2 Night Counts – Circuit B

The night count (also known as Circuit B) was also driven once a month (7 pm – 10 pm in winter, and 8 pm – 11 pm in summer) using spotlights on both sides of the vehicle (Figure 21). The night count focuses on nocturnal species.

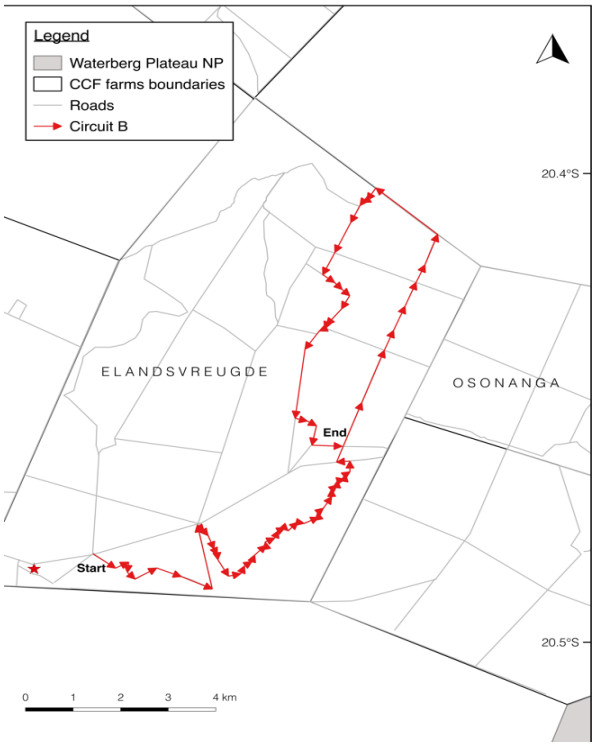


Figure 21: Night count transect on Elandsvreugde farm.

During this reporting period, 10-night counts were conducted (no night count was conducted in November and December). Figure 22 shows a comparison of the current period to the same period in 2022. Aardvark, African wild cat, Brown hyena, Serval, Scrub hare and Spring hare observations increased in 2023. There was a notable decrease in the Black backed Jackal, Caracal, Porcupine, Small spotted genet in 2023. There were no sightings of aardwolf, leopard, and striped polecat. Scrub hare was the most frequently sighted species during the night count.

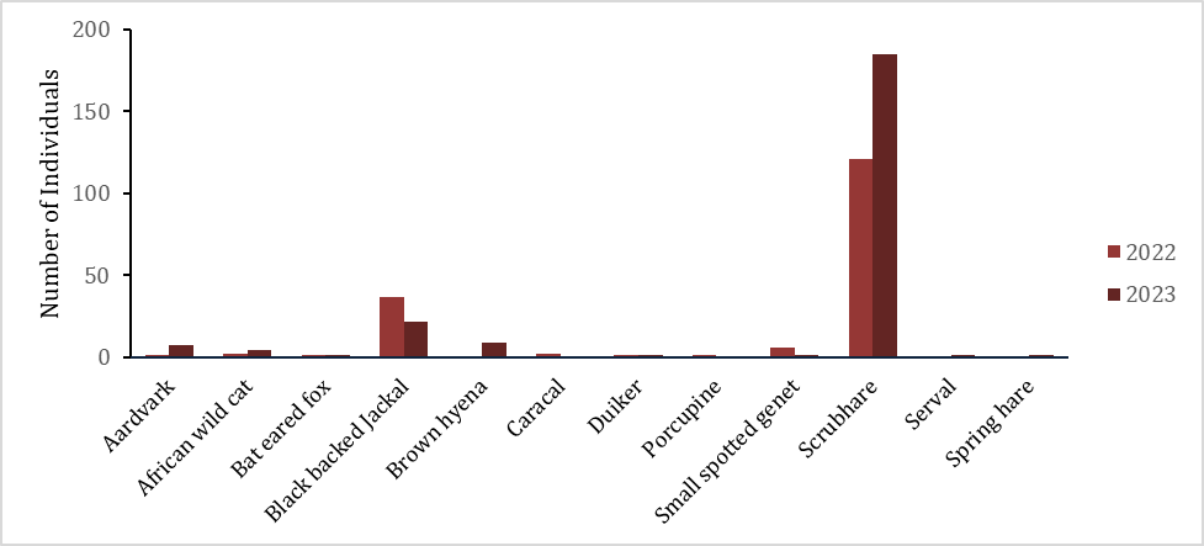


Figure 22: Sightings of nocturnal species during night counts in 2022 and 2023.

F.2.3 Annual Waterhole Counts

CCF's annual waterhole count was conducted on 19 July 2023, and a total of 35 natural and man-made waterholes were observed over a 12-hour period (6:00am - 6:00pm). Of those 34 waterholes, 16 were observed through direct observation and 18 waterholes were observed via camera traps (Figure 23). Volunteers, interns, and staff were stationed in hides to record any wildlife sightings at selected water points. More specifically, data recorded included sex, age class, direction the animal arrived/left and whether or not the animals drank from the water or utilized the salt lick provided.

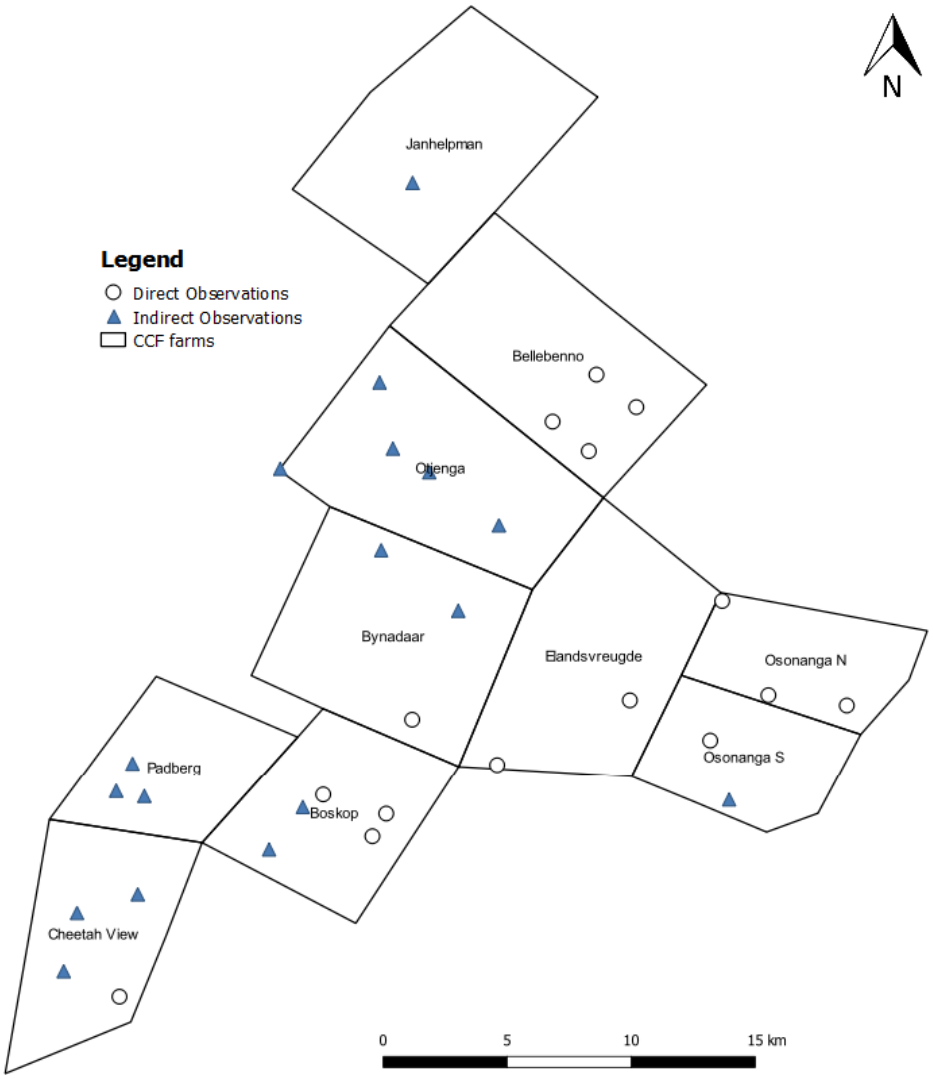


Figure 23: Locations of the water points surveyed by direct and indirect observations.

Observers counted a total of 1,228 individuals from 16 different species at the direct observational counts (Table 5). Of these species 13 were mammal species and 3 were large bird species. On the other hand, a total of 358 individuals from 14 different species were detected during the camera trap survey (Table 6) representing 13 mammal species and 1 large bird species. The observations varied widely throughout the farms. Bellebenno South had the highest species richness with 13 species in both direct and indirect observations (Figure 24). Elandsvreugde and Osonanga had a

species richness of 12, representing the second-highest species richness. Cheetah View and Padberg had somewhat lower species richness (7) based on the camera trap survey. While in contrast, Cheetah View lower species richness (4) via direct sighting. Bynadaar had the lowest detection of different types of species (3) via camera trap survey (Figure 24).

The most abundant species across the whole direct survey area was the Common Warthog (260) followed by the Chacma Baboon (194) and Common Duiker (181). The least abundant was the Springbok (3) (Table 5). Conversely, based on the camera trap survey, the most abundant species was the Chacma Baboon (76) followed by the Common Warthog (73) and Common Duiker (47). Steenbok (5) and Kori Bustard (2) were the least abundant (Table 6).

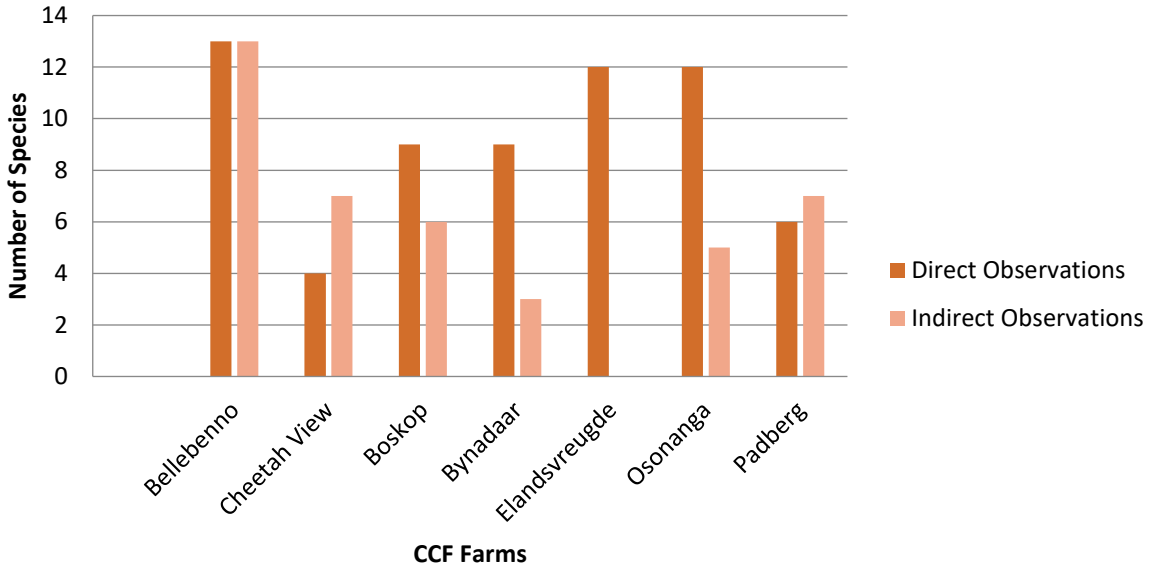


Figure 24: Species richness of each farm during the annual observational counts of 2023. Direct observations (visual sightings) and indirect observations (camera traps) are illustrated.

Table 5: Frequency of species observed and recorded at each farm during the direct observation (visual sighting) annual count in 2023.

	Reserve Farms			Livestock Farms				
Species	Bellebenno South	Elandsvreugde	Osonanga	Bynadaar	Boskop	Padberg	Cheetah View	Total
Mammals								
Black Backed Jackal (*Canis mesomelas*)	4	1	2	4	3	-	-	14
Chacma Baboon (*Papio ursinus*)	41	10	17	77	49	-	-	194
Common Duiker (*Sylvicapra grimmia*)	9	13	33	50	72	-	4	181
Common Warthog (*Phacochoerus afrcanus*)	38	76	30	41	26	29	-	240

Eland (*Taurotragus oryx*)	15	15	25	-	-	1	-	56
Gemsbok/Oryx (*Oryx gazelle*)	8	3	17	7	11	7	2	55
Giraffe (*Giraffa cameleopardalis*)	23	8	1	-	-	-	-	32
Greater Kudu (*Tragelaphus strepsiceros*)	3	29	39	10	13	34	3	131
Impala (*Aepyceros melampus*)	1	-	-	-	66	-	23	90
Plain Zebra (*Equus quagga*)	46	-	-	-	-	-	-	46
Slender Mongoose (*Galerella sanguinea*)	6	7	4	1	2	-	-	20
Springbok (*Antidorcas marsupialis*)	-	3	-	-	-	-	-	3
Steenbok (*Raphicerus campestris*)	7	5	23	18	52	32	-	137
Large Birds								
Kori Bustard (*Ardeotis kori*)	3	-	-	1	-	1	-	5
Ostrich (*Struthio camelus*)	-	-	10	-	-	-	-	10
White-Backed Vulture (*Gyps africanus*)	-	10	4	-	-	-	-	14
Total	204	180	205	209	294	104	32	1228

Table 6: Frequency of species observed and recorded at each farm during the indirect observation (camera trap) annual count in 2023.

	Reserve Farms			**Livestock Farms**				
Species	**Bellebenno**	**Osonanga**	**Janhelpman**	**Bynadaar**	**Boskop**	**Padberg**	**Cheetah View**	**Total**
Mammals								
Black Backed Jackal *(Canis mesomelas)*	3	1	-	-	-	2	1	7
Chacma Baboon *(Papio ursinus)*	22	33	-	-	11	8	2	76
Common Duiker *(Sylvicapra grimmia)*	15	3	6	2	7	8	6	47
Common Warthog *(Phacochoerus afrcanus)*	19	14	1	-	15	23	1	73

Eland *(Taurotragus oryx)*	14	-	-	5	-	-	-	19
Gemsbok/Oryx *(Oryx gazelle)*	6	-	-	-	3	1	1	11
Giraffe *(Giraffa cameleopardalis)*	21	-	-	-	-	-	-	21
Greater Kudu *(Tragelaphus strepsiceros)*	7	21	-	8	-	3	2	41
Impala *(Aepyceros melampus)*	10	-	-	-	7	-	-	17
Plain Zebra *(Equus quagga)*	26	-	-	-	3	-	-	29
Slender Mongoose *(Galerella sanguinea)*	3	-	-	-	-	6	1	10
Springbok *(Antidorcas marsupialis)*	-	-	-	-	-	-	-	-
Steenbok *(Raphicerus campestris)*	5	-	-	-	-	-	-	5
Large Birds								
Kori Bustard *(Ardeotis kori)*	2	-	-	-	-	-	-	2
Ostrich *(Struthio camelus)*	-	-	-	-	-	-	-	-
White-Backed Vulture *(Gyps africanus)*	-	-	-	-	-	-	-	-
Total	153	72	7	15	46	51	14	358

Figure 25 shows overall trends in the densities of the main ungulate species from 1995 - 2023 in relation to annual precipitation. Although rainfall was high from 1995 - 2002, species density was low, which could be because the numbers were still picking up and the area sampled was relatively small. The density of the main prey species declined during the years of drought in 2003, 2009, and 2019, which was the result of variation in rainfall. Rainfall was low in 2023, while the density of the main species increased.

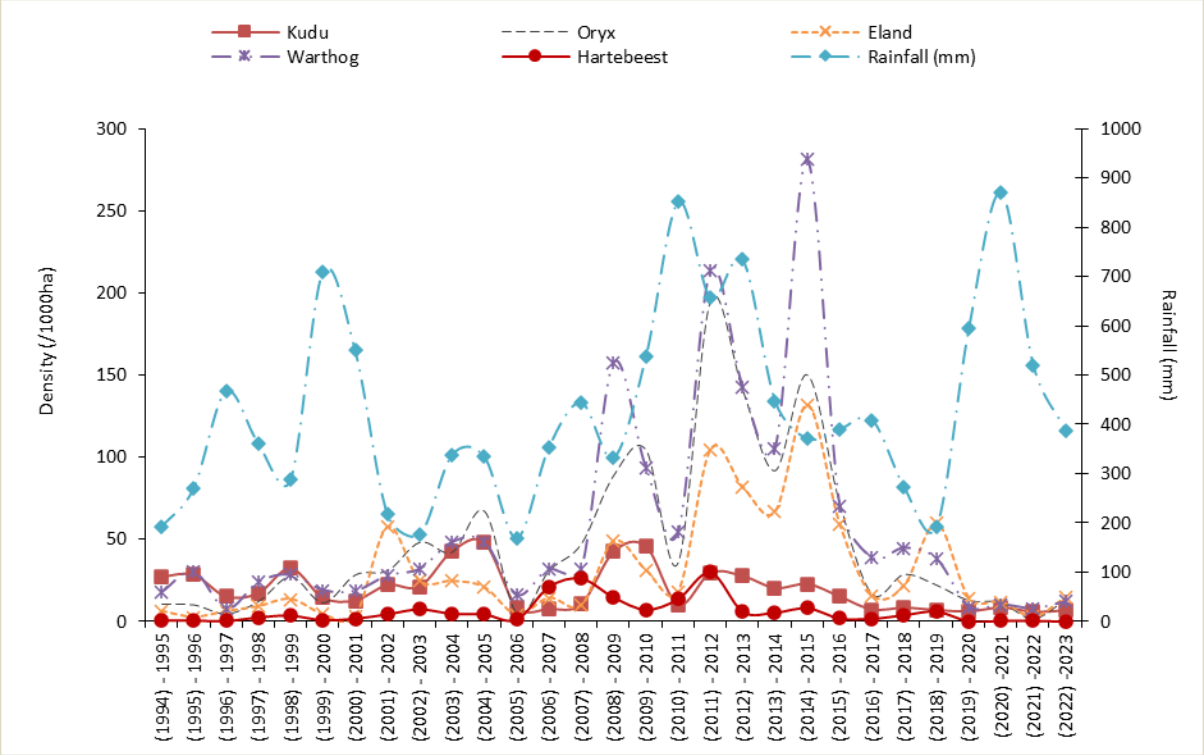


Figure 25: Trends in main ungulate species from 1995 - 2023 in relation to annual precipitation.

The species richness of waterholes in predominantly livestock farms were compared to the waterholes in CCF's Wildlife Reserve Farms. Waterholes in Bellebenno South, Elandsvreugde, and Osonanga were grouped into the wildlife reserve while waterholes in Padberg, Boskop, Cheetah View, and Bynadaar were considered livestock farmland. In Figure 26 **q = 0** shows species diversity by each farm type. Reserve waterholes (12 species) appear to be more diverse than livestock waterholes (10), but due to overlapping confidence intervals there isn't a significant difference between land use types.

In Figure 26, **q = 1** shows the Shannon diversity index. Again, the Reserve waterholes seem to have a higher evenness (10.17) than livestock waterholes (9.12) but due to overlapping confidence intervals it is not statistically significant difference. The Simpson diversity in **q = 2** shows the same overlap of confidence indicating a non-significant relationship, although Reserve (=9.25) appeared to have slightly higher diversity than Livestock Farmland (=8.64).

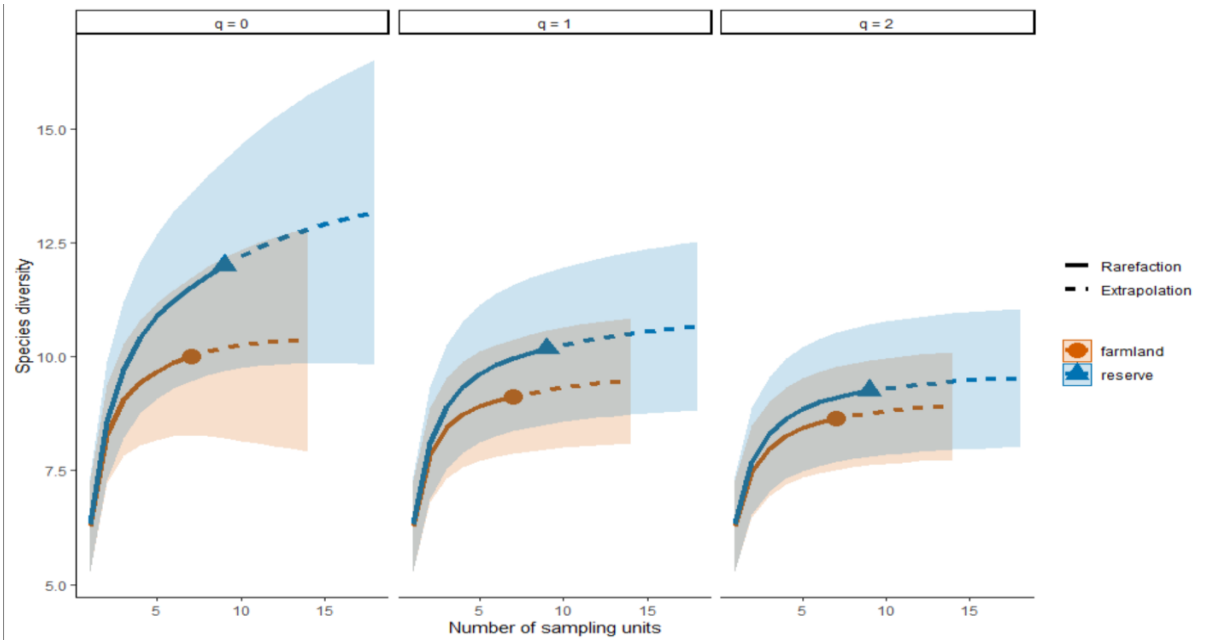


Figure 26: Species richness at waterholes predominately on livestock farms compared to waterholes in CCF's wildlife reserve.

F.2.4 Seasonal Count Across CCF Farms

Starting in July 2017, CCF began conducting seasonal, rather than only annual, strip counts across all CCF farms. These seasonal counts follow transects used in the past for annual counts with added routes to cover Osonanga, Janhelpman, the non-game fenced section of Bellebenno, Padberg and Otjenga (Figure 27). They are repeated twice (one morning and one-afternoon count) for each season (hot, wet, cold dry and hot dry). The 11 transects cover a total of ~213 km (426 km including the repetitions). Densities were estimated for the most commonly seen species following the same methods as for Big Field counts.

Densities for the most frequently sighted species were calculated using the 'Distance Sampling' software.

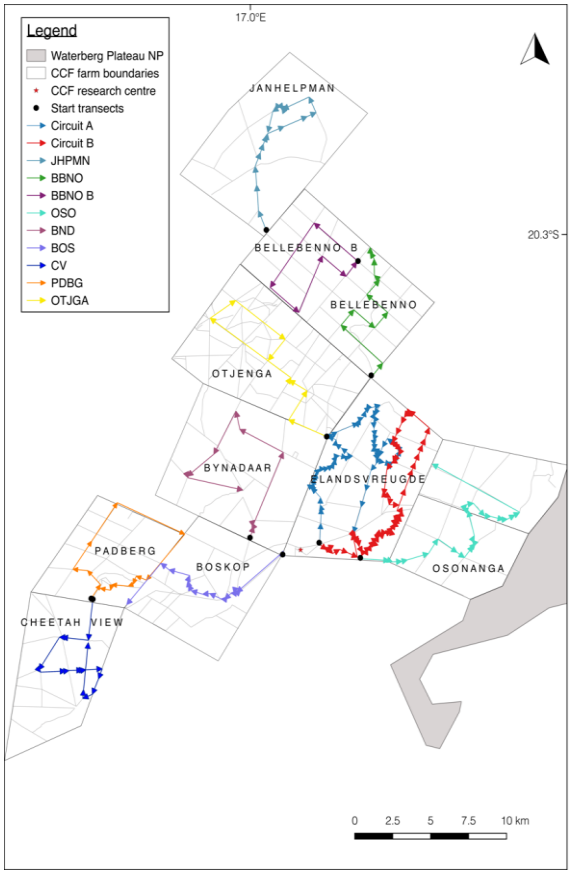


Figure 27: Map of seasonal strip count transects on CCF land.

Most of the species are distributed across CCF land with the exception of impala and plain zebra. Impala are largely restricted to Cheetah View and Boskop while plain zebra is only found in the game-fenced portion of Bellebenno, Padberg, and Boskop. Although the species were sighted, their counts were insufficient to run analyses in R, hence, impala and plains zebra densities could not be calculated during the hot-dry and cold-dry seasonal counts. Eland, impala and plains zebra had a lower count for analysis for one season. The overall densities of eland, steenbok, and red hartebeest were lower in 2023 compared to 2022. There was a slight increase in the abundance of some species in the hot dry season. Based on the density estimates in Table 7, eland, steenbok, springbok, oryx, warthog, and common duiker are the most abundant species on CCF land. Overall, there appears to be an increase in ungulate densities.

*Table 7: Density estimates of main species counted during seasonal strip counts, during the wet season of 2022 and 2023. *The distance analysis was not calculated due to fewer or no observations.*

Density estimate (individual/km^2)						
	2022			**2023**		
Species	**Hot Wet**	**Cold Dry**	**Hot Dry**	**Hot Wet**	**Cold Dry**	**Hot Dry**
Common Duiker	1.32	0.35	1.37	0.92	7.55	8.05

(*Sylvicapra grimmia*)	(0.70-2.51)	(0.08-1.55)	(0.67–2.83)	(0.41-2.08)	(4.06-14.06)	(3.24-19.98)
Eland (*Taurotragus oryx*)	0.21 (0.06–0.75)	0.37 (0.15–0.93)	0.21 (0.07–0.63)	* *	0.64 (0.16-2.54)	0.06 (0.01-0.29)
Giraffe (*Giraffa camelopardalis*)	0.31 (0.11-0.88)	0.05 (0.02-0.15)	0.05 (0.02-0.17)	0.11 (0.04-0.34)	0.14 (0.03-0.61)	1.22 (0.44-3.35)
Kudu (*Tragelaphus strepsiceros*)	0.64 (0.31-1.33)	0.13 (0.04–0.45)	0.27 (0.11–0.68)	0.35 (0.19-0.66)	0.08 (0.03-0.18)	1.58 (0.61-4.08)
Oryx (*Oryx gazella*)	0.36 (0.16–0.81)	0.33 (0.17–0.65)	0.44 (0.21–0.93)	1.03 (0.07-15.08)	0.41 (0.21-0.77)	0.23 (0.11-0.48)
Red hartebeest (Alcelaphus *buselaphus caama*)	0.02 (0.01-0.11)	0.005 (0.001-0.03)	0.06 (0.02-0.2)	0.02 (0.01-0.07)	0.02 (0.01-0.07)	0.01 (0.001-0.046)
Springbok (*Antidorcas marsupialis*)	0.05 (0.01 - 0.22)	0.09 (0.02-0.50)	0.1 (0.03-0.36)	0.03 (0.01 - 0.13)	0.20 (0.08 - 0.51)	0.04 (0.01-0.25)
Steenbok (*Raphicerus campestris*)	13.11 (8.24–20.85)	3.27 (1.67–6.42)	7.83 (4.73–12.95)	7.12 (3.56-14.26)	6.84 (4.92 – 9.52)	9.76 (7.59-12.56)
Warthog (*Phacochoerus africanus*)	0.44 (0.15-1.33)	1.57 (0.61-4.00)	0.4 (0.13–1.74)	3.96 (1.77-8.88)	1.16 (0.39-3.49)	4.02 (1.61-10.09)
Plains zebra (*Equus quagga*)	* *	* *	* *	0.52 (0.03-2.92)	* *	11.66 (1.72-79.02)
Impala (*Aepyceros melampus*)	0.04 (0.01-0.21)	* *	0.1 (0.02-0.47)	0.04 (0.01-0.20)	0.54 (0.09–3.17)	* *

F.3 Bush Encroachment and Biodiversity

Bush encroachment is an environmental problem threatening Namibia's rangeland productivity, food security, and biodiversity conservation nationwide. However, it also has the potential for a renewable source of alternative energy, especially in rural areas, and may alleviate electricity shortages projected to affect Namibia in the near future. The CCF Bush Project, now housed at

the Biomass Technology Demonstration Center (BTDC) on the main campus, was established to investigate uses of the encroaching bush. This is the production site for BUSHBLOK®. The former BUSHBLOK® factory in Otjiwarongo continued operations as the CCF depot.

CCF has collaborated with the Namibian University of Science and Technology (NUST) and others for related studies. CCF, the University of Hamburg in Germany, and the University of Namibia (UNAM) have an agreement to study the impacts of bush encroachment and bush thinning on soil and vegetation characteristics, and on the savannah water budget. This project is part of the Southern African Science Service Centre for Climate Change and Adaptive Land Management (SASSCAL). The project has three sites in Namibia and includes CCF farms. In November 2014, data collection equipment consisting of rain gauges and soil moisture meters, as well as remote digital data transmitters were installed in previously harvested sites and current bush-encroached sites on CCF farms, Cheetah View and Boskop. Both UNAM and Hamburg partners continued with field research during this reporting period, with the involvement of their graduate students and faculty members.

As part of our ongoing research activities, the Biomass programme together with other local and international partners have acquired an EU grant (grant agreement No 101036401; STEAMBIOAFRICA [SBA]) that investigates a torrefaction process using superheated steam. In March CCF hosted the “18th month” meeting of all 15 partner organizations (4 Namibian, 11 Other). CCF’s Forest and Safety officer, David Shipingana physically attended a knowledge exchange training in Seville Spain to learn more about laboratory analysis on soils in May 2023 (Figure 28).

Research activities within the grant scheme included preliminary soil sampling (data collection) to look at carbon content following bush thinning. Soils were collected in March, from CCF farms (Cheetah View, Boskop, and Elandsvreugde) where bush thinning and no thinning had taken place. This sampling process was conducted by the SBA overall project coordinator Prof. Heike Knicker and her research team from Seville, Spain (IRNAS-CSIC), as well as CCF’s Senior Ecologist and Forest Steward, Matti Nghikembua, Forest and Safety officer David Shipingana and Abraham Shihepo (SBA shift advisor) (Figure 29). A total of 76 samples were collected from three different farms and were sent to Spain for laboratory extraction. Analysis of soil properties (chemical and physical properties) between harvested and non-harvested bush encroached habitat to understand long-term natural regeneration and recovery of the soils and restored vegetation continued. The results will be utilised as a baseline for further ecological research and monitoring of harvested sites. The findings have applications to bush harvesting operations in both commercial and communal farmlands. The research will also provide necessary reference information to the public and for farmland management.

In 2023 construction of infrastructure for the SBA project continued at the BTDC. The Steam Bio Africa biomass processing plant was delivered and assembled on the site, with commissioning still ongoing. A 300kW PV array and 240kVA/860kWh power system was installed to support the operations of Steam Bio Africa. A 280kVA diesel generator was also delivered and installed as standby. A control room was constructed for the Steam Bio Africa plant, housing the control panel and HMI panel for operation of the plant as well as desk space and a camera monitoring system. Steam Bio Africa woodchip management shed was erected with interior walls and roller doors, and electrical was completed. The team is currently installing a shade cloth barrier for ventilation into the shed. A 20m x 35m chip processing slab poured adjacent to the Steam Bio Plant. It will intake all biomass woodchips from the field, and then screened them into three different sizes for use in the Steam Bio plant and Bushblok.

A six-unit housing block was constructed and completed at the BTDC, to house Steam Bio related personnel. The unit includes four single rooms with built-in bathrooms each and two apartment units with bedroom, living room, kitchen and built-in bathroom. New signage was put up for Steam Bio Africa and BTDC. The BTDC break area was removed from the operation site and expanded, with more environmental protection and additional seats. The BTDC and SBA received a 1425 Bandit horizontal wood grinder from South Africa, and a screen for sieving wood chips.

Figure 28: David Shipingana, CCF's Forest and Safety Officer, undertook the biomass soil sample analysis process in Spain in May 2023 at IRNAS-CSIC.

Figure 29: Soil sampling process conducted out in the field by prof. Heike Knicker (IRNAS-CSIC) and CCF's ecology team in March 2023.

David Shipingana continued as Forestry and Safety Officer on the biomass team. Forest Steward and Senior Ecologist Matti Nghikembua continued studies in Finland for a PhD in Forestry in addition to overseeing biomass activities. His third paper: Nghikembua, M.T., Marker, L.L., Brewer, B., Leinonen, A., Mehtätalo, L., Appiah, M., Pappinen, A., 2022. Response of woody vegetation to

bush thinning on freehold farmlands in north-central Namibia, has been accepted for publication in the Scientific Reports Journal *(10.1038/s41598-022-26639-4).*

Dr Bruce Brewer, CCF's General Manager, remained active in groups involved with bush encroachment in Namibia. These included the Namibia Biomass Group (N-BiG), and the GIZ/MAWF De-bushing project, which is supported by the German Development Authority.

F.4 Playtree Research

Cheetahs are known to frequent scent-marking posts ('play trees') for territorial marking and social interactions. Olfactory communication plays a vital role in conspecific interactions as it allows for communication in the absence of the animal. Furthermore, every mark can contain detailed information about the individual who deposited it. Namibian cheetahs are highly selective when choosing sites for scent-marking.

CCF has conducted camera trap monitoring at such scent-marking sites on their property since 2005 to estimate cheetah and leopard scent-marking behaviour.

In recent years, we have observed leopards more frequently at play trees (Figure 30 & Figure 31). CCF continues to study and investigate the effect of leopards on cheetahs, as we know that interspecific competition may pose a threat to the survival of cheetahs. We just discovered that cheetahs visit these play trees at different times of day and also utilize some play trees that leopards do not frequent. Increasing densities of leopards, as may be the case on Namibian farmlands, may reduce the availability of scent-marking sites for cheetahs, so we continue to monitor the interactions between these two felids.

There are six play trees being monitored currently, namely Eli's play tree, Field 6, Field 1, Osonanga West, Osonanga Road West, and Osonanga 04. Based on data from the weekly monitoring of these playtrees, leopards tend to utilize Field 6 and Field 1, with occasional appearances at Osonanga 04 (Figure 30 and Figure 31).

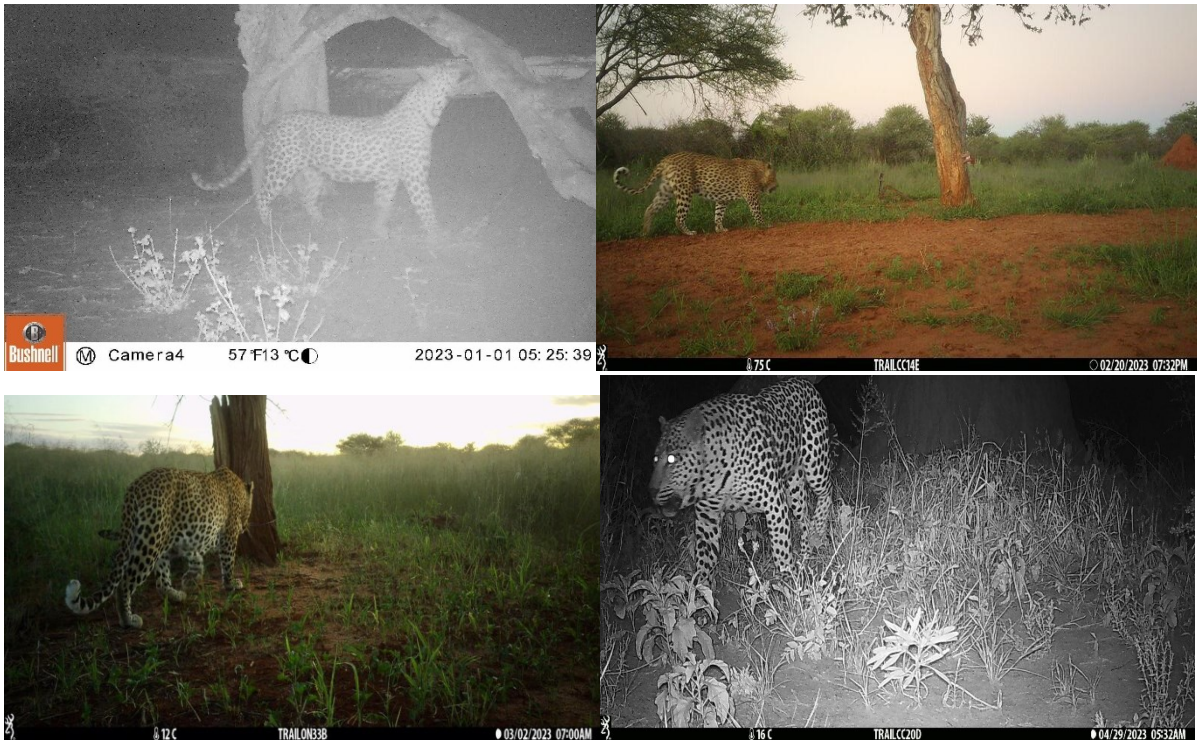


Figure 30: A few camera trap photos of leopards at play trees (Jan-Jun 2023).

Figure 31: A few camera trap photos of leopards at play trees (July-Dec 2023).

F.5 Giraffe Monitoring

During vehicle-based ground surveys conducted on the nine CCF farms, we recorded giraffe sightings. Specifically, during the 13th - 27th July 2023 seasonal count, we monitored giraffes more intensively to estimate age and sex ratios as well as understand the distribution and numbers of giraffes. During the game count, we photographed all encountered giraffes and recorded the sex (male/female) and estimated their age class (calf, sub-adult, or adult) based on observable physical traits.

On 28 occasions during the July seasonal count, this included two newly discovered calves, giraffes were mostly observed in Osonanga and Bellebenno South, with both having 10 giraffe observations. Cheetah View and Elandsvreugde had four giraffe observations each. No giraffes were detected on the other farms (Figure 32).

In terms of sex distribution, the males outnumbered the females in 15 sightings (Figure 33). Among them, 10 male giraffe sightings occurred in Osonanga. The highest frequency of female sightings was Bellebenno South. Additionally, four giraffes remained unidentifiable and were labeled as unknown, due to their distance from observation points (Figure 34). The distribution of age groups within the population was not consistent (Figure 35). This indicates that the population is mostly made up of adult giraffes, with fewer sub-adults and calves as illustrated in Figure 36.

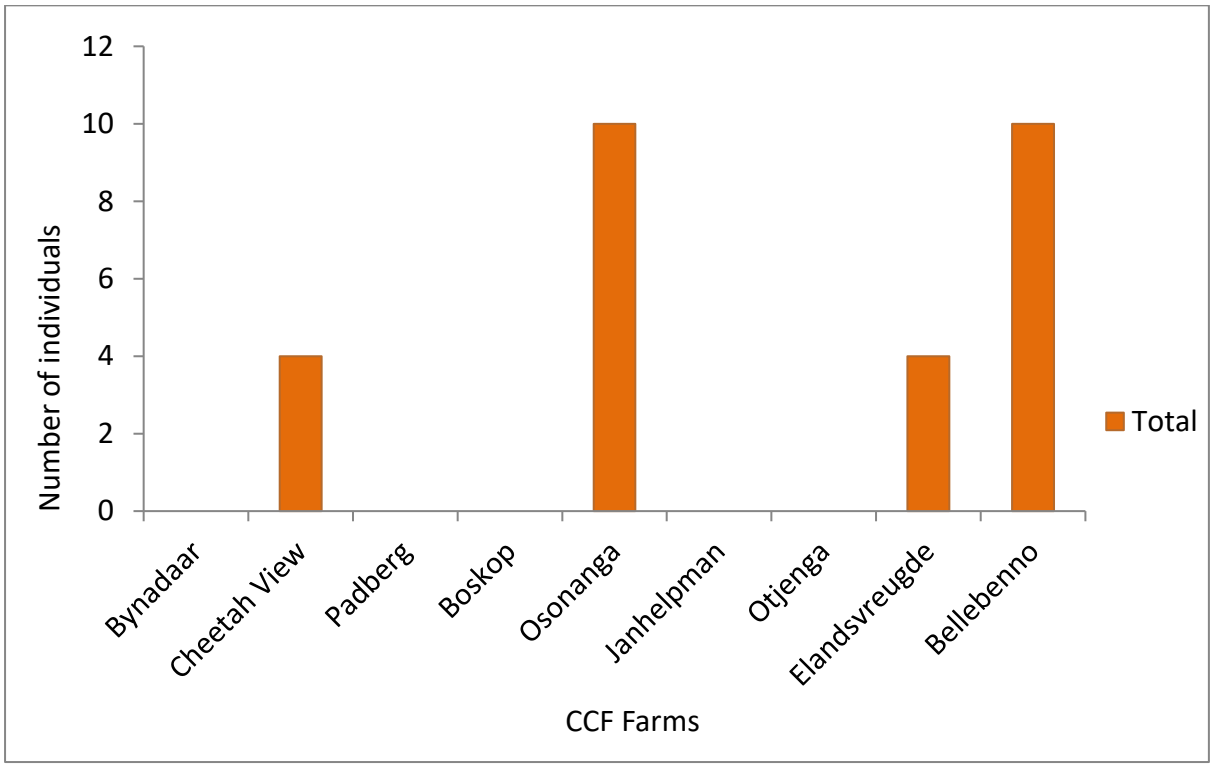


Figure 32: Total giraffe observations by farm.

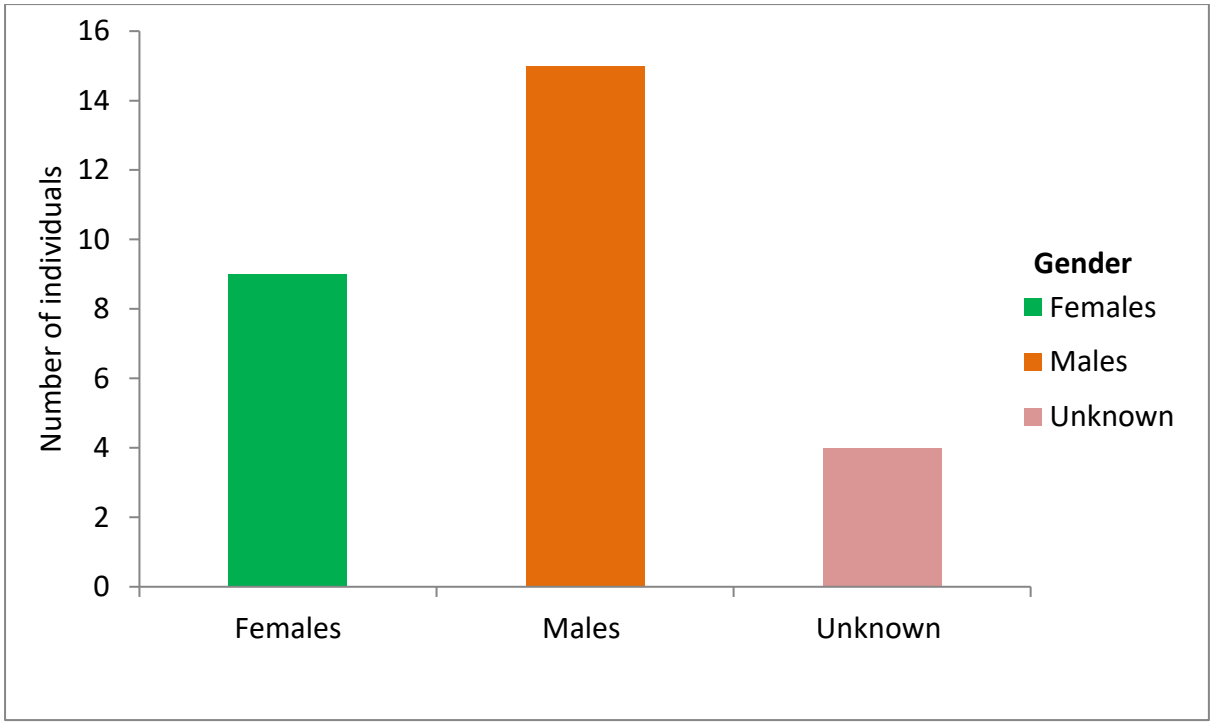


Figure 33: Total number of giraffes observations during the July 2023 seasonal game count.

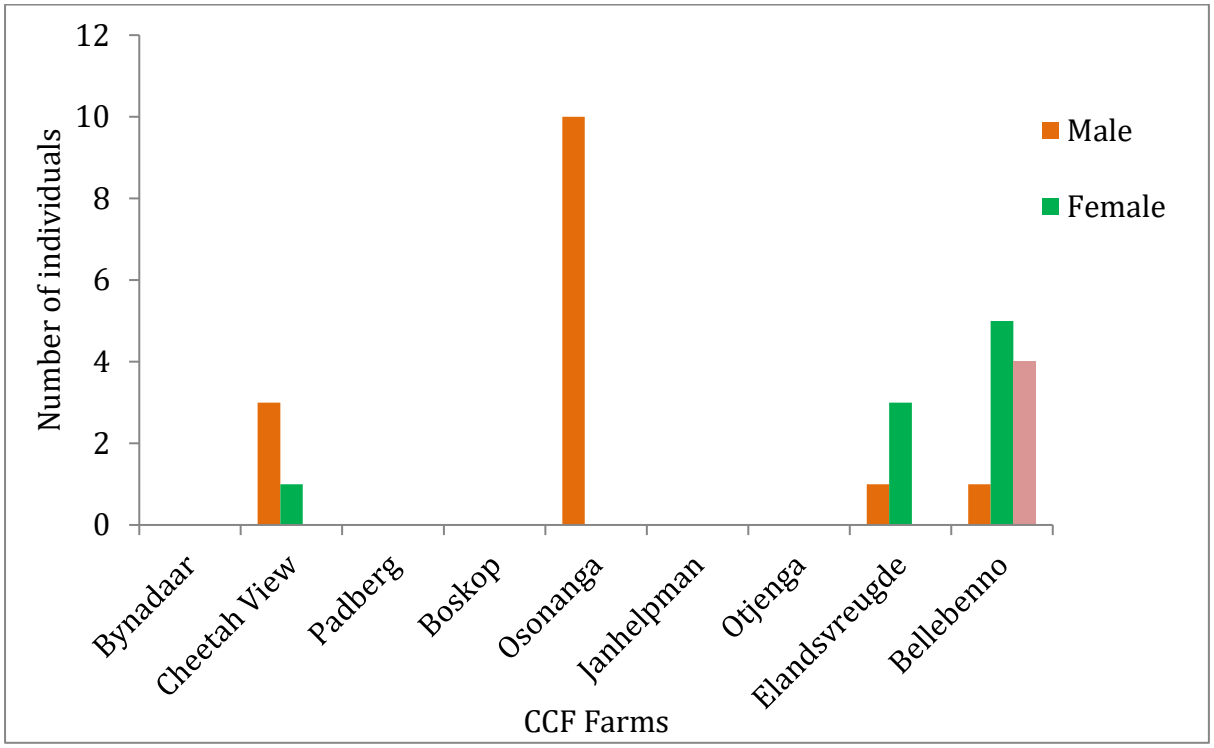


Figure 34: Total number of giraffe observations by sex and farm in 2023.

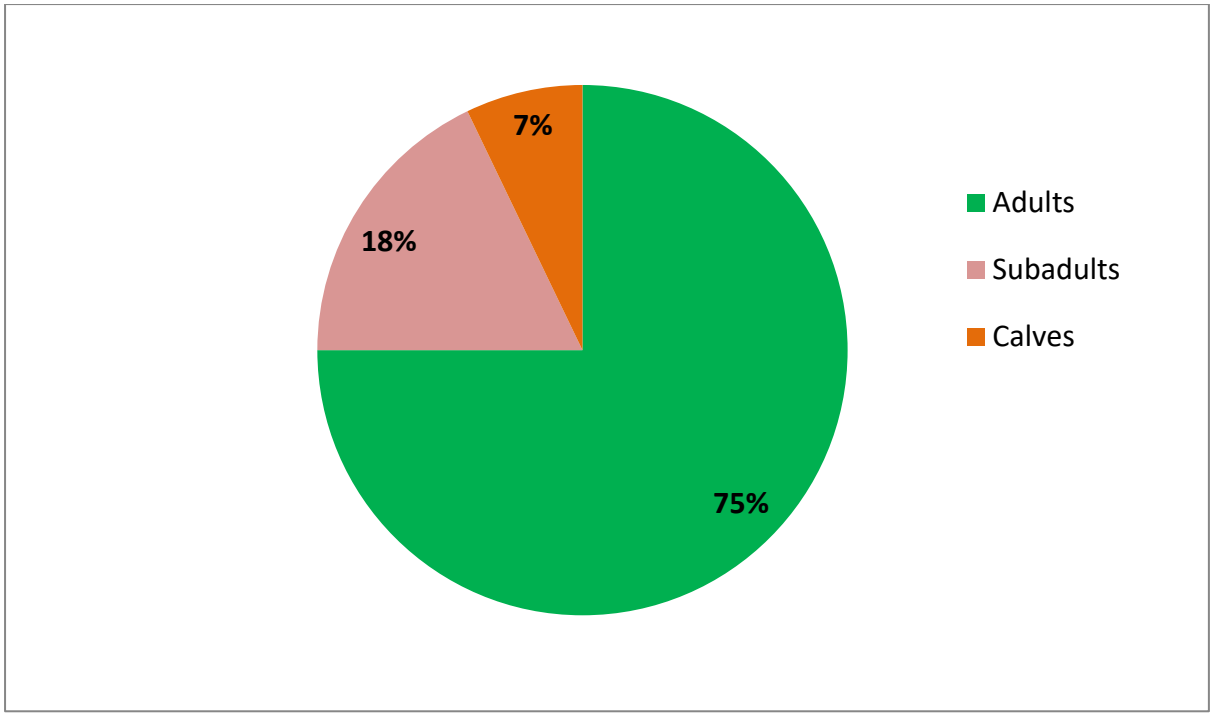


Figure 35: Total percentages of giraffe observations per age class observed during the July 2023 game count.

Giraffes possess distinctive and enduring coat patterns that serve as a valuable tool for distinguishing individual characteristics. This aids in tracking movements in their location or group dynamics over time. Furthermore, the coloration of their coats is influenced by their diet and geographical location[1,2] (Lee *et al*., 2018; Lee *et al*., 2022).

To examine these unique coat patterns, researchers have employed various techniques. Notably, the Colour Histogram method of ImageJ has been utilized for precise colour trait analysis, allowing for the extraction of intricate coat patterns. Additionally, studies have proposed the application of specialized pattern-matching software such as WildID, HotSpotter, etc. These innovative programs facilitate the identification of features like pelage patterns and whisker spots.

We captured images of the Angolan giraffe (*Giraffa camelopardalis angolensis*), a unique subspecies native to Namibia and Botswana. The giraffes observed on neighboring farms such as Otjenga and Boskop (Figure 36), were photographed subsequent to the completion of the count. Therefore, these particular giraffes were not included in the official tally.

[1] Lee, D. E., Cavener, D. R., & Bond, M. L. (2018). Seeing spots: quantifying mother-offspring similarity and assessing fitness consequences of coat pattern traits in a wild population of giraffes (*Giraffa camelopardalis*). *PeerJ, 6*, e5690.

[2] Lee, D. E., Lohay, G. G., Cavener, D. R., & Bond, M. L. (2022). Using spot pattern recognition to examine population biology, evolutionary ecology, sociality, and movements of giraffes: a 70-year retrospective. *Mammalian Biology, 102*(4), 1055-1071.

Boskop **Osonanga** **Bellebenno**

Otjenga **Elandsvreugde** **Bellebenno**

Figure 36: Various coat patterns found on giraffes across some of CCF farms.

F.6 Research Projects

F.6.1 Livestock Guarding Donkey

An innovative project is underway to fill a knowledge gap regarding livestock guarding donkey (LGDonkey) effectiveness from 'hearsay' to objective evidence. The objective of this project is to assess the effectiveness of donkeys in mitigating carnivore attacks on livestock. One of the critical tasks undertaken in this project was the collaring of donkeys and their integration among livestock herds (Figure 37). This allowed for continuous monitoring of their interactions with both the livestock and the carnivores in the area. By tracking the movements and behaviour of the donkeys, we can gather valuable data on their ability to deter predators and protect livestock.

In addition to the collaring and monitoring, a small-scale trial was conducted to further examine the donkeys' response to carnivores. In this trial, cheetah or leopard skins were worn experimentally when approaching the donkeys to observe their behavioural reactions. This exercise aimed to simulate a potential encounter with a predator and provide insights into how the donkeys would respond in such situations.

The behavioural responses of the donkeys during the trial, such as alertness, vocalizations, and defensive postures, were carefully observed and recorded. These observations contribute to a deeper understanding of the donkeys' natural instincts and their ability to serve as effective protectors of livestock.

By exploring alternative methods to mitigate human-wildlife conflicts and reduce carnivore attacks on livestock, the project aims to promote sustainable conservation practices that benefit both the local communities and the carnivore populations.

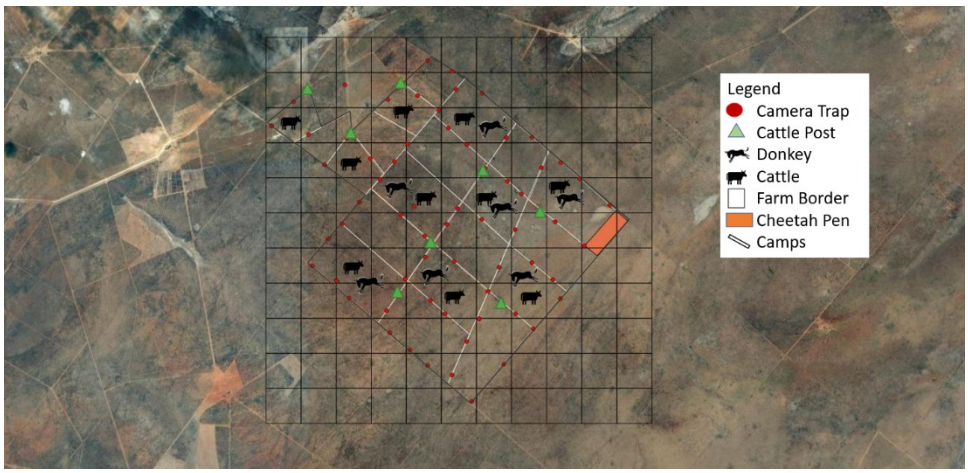


Figure 37: The study area with locations of camera traps that were implemented to assess interactions between the cattle, donkeys and predators.

F.6.2 Bush Encroachment

The Vanier Biodiversity Project is a long-term monitoring initiative aimed at assessing the impact of bush encroachment on the fauna and flora of southern African savannas. In collaboration with Vanier College, Canada, the project involved the establishment of six 1-hectare plots, with four plots to be harvested after two years of assessment (Figure 38). The remaining two plots will serve as control plots, where no bush harvesting will take place.

Ecological assessments occur along transects and at observation points using cameras, GPS devices, binoculars, sound recording devices, rangefinders and more. The first phase of the project focused on observing reptile and insect groups, specifically *Lepidoptera* and *Odonata*, along the transects. Bird species were recorded at the observation points, and camera traps were utilized to identify the types of medium and large mammals using the plots. In the second phase, ground and dung beetles were sampled within each plot to record species or genera. Species identifications were discussed using field guides and online resources such as iNaturalist and Merlin.

The fieldwork conducted as part of this project allows for the establishment of a baseline from which conclusions could be drawn regarding the effects of bush removal on various forms of life. Two presentations were conducted as part of the project, each focusing on a different section of data collection. The first presentation encompassed the findings from the initial data collection section, which involved studying birds, mammals, reptiles (lizards), and insects, with a specific focus on butterflies and dragonflies. The second presentation focused on the second section of data collection, which primarily involved insects, particularly ground and dung beetles. Both presentations provided an opportunity for the team to share their findings, methodologies, and key insights gained from the data collection efforts, contributing to an understanding of the local biodiversity and its ecological significance.

Assessing beetles

Creating offshoot roads

Recording butterflies

Figure 38: An illustration on some activities carried out during field work.

F.6.3 CCF and Waterberg Landscape Carnivore Survey

The project's aim is to assess the carnivore and prey composition across CCF land and neighbouring freehold farms in the Greater Waterberg Landscape. The study commenced in mid-January 2023 and ended in mid-April 2023. The study area was demarcated into 32 grid cells of 8x8 km^2, in which motion-triggered camera traps were placed at 39 locations of interest (play trees, potential play trees, marking sites, and animal trails) (Figure 39).

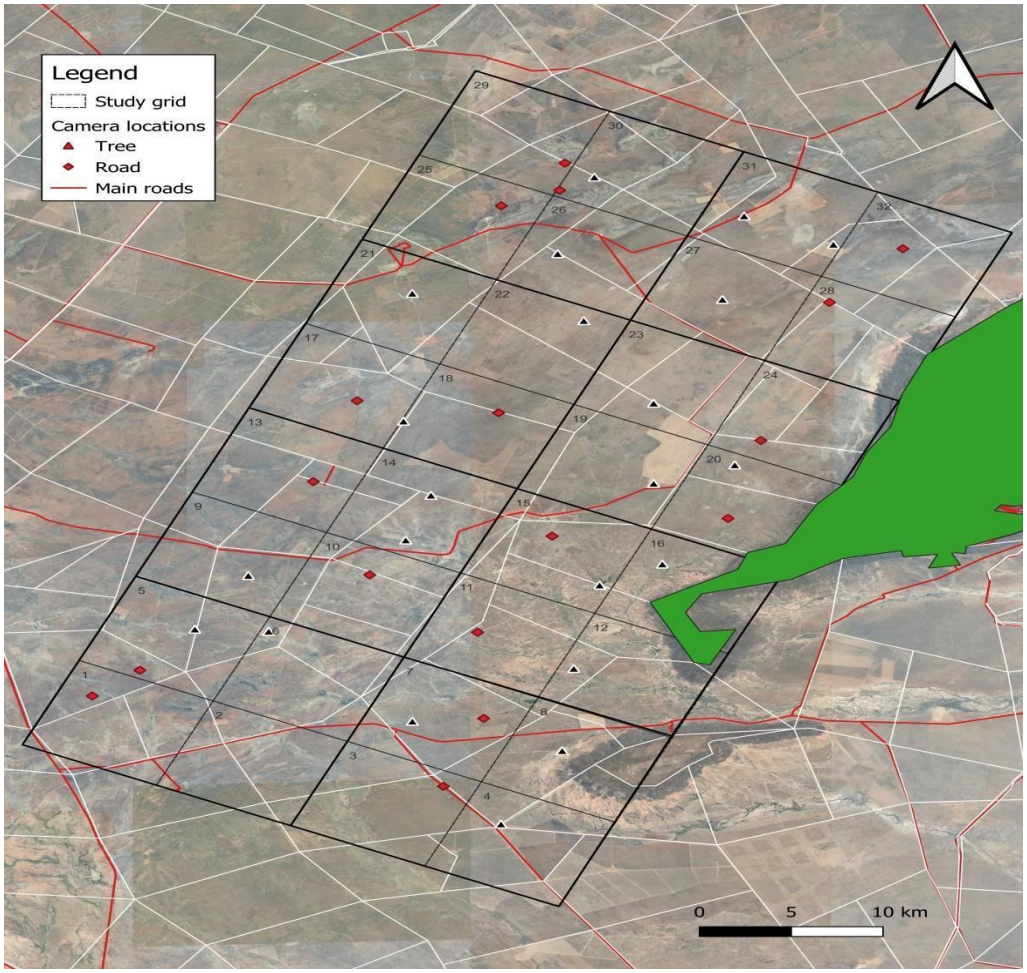


Figure 39: The study area with locations of interest where cameras were placed.

A total of 1,172,099 images were captured. The sorting of images is still ongoing during this reporting period. However, we can report carnivores captured, i.e., leopards, brown hyenas, jackals, and some other medium-sized carnivores. Cheetahs were not captured on camera traps, suggesting a considerable decrease from previous years when they were relatively common on the landscape. Herbivores seen throughout the photo sorting are steenbok, duiker, kudu, eland, and waterbuck, just to name a few. A detailed report will be available when all images have been sorted, along with analysis results.

F.6.4 Large Carnivore Survey Otjombinde Conservancy

During August-October 2023, we implemented a survey in Otjombinde Conservancy at the border with Botswana which established baseline knowledge on the population status of large carnivores in the Otjombinde Conservancy, with specific focus on cheetah and African wild dogs. The area has the potential of being an important link between globally important conservation areas, yet we lack insights on the viability of the large carnivore guild.

We surveyed an area of 2,048 km^2 subdivided and gridded into 8 cells of 16 x 16 km. Four double sided camera trap stations were deployed within each cell along identified and suspected movement paths of large carnivores. Camera traps remained active for 60 days. Transect length, number of camera traps and survey duration were based on prior analyses estimating minimal survey effort required to detect cheetah. Species classification of collected camera trap images was performed through TrapTagger, an open-source web application that implements a computer-assisted workflow for processing camera trap data.

We collected 246,236 camera trap images at 28 camera trap stations. Wildlife cameras at one station went missing. We detected 25 mammalian wildlife species of which 14 belong to the order *Carnivora* (Figure 40). We detected four large carnivore species (African wild dog, brown hyena, cheetah and leopard) (Figure 40). Our preliminary results highlight the conservation value of this area as well as its potential as a connectivity link in the conservation network.

Otjombinde Conservancy supports a diverse carnivore guild in a prey-depleted system. Species of global conservation concern (i.e. cheetah, African wild dog) were detected but few large herbivores were detected. The low natural prey base presents a risk for livestock depredation, with carnivores being at risk for persecution.

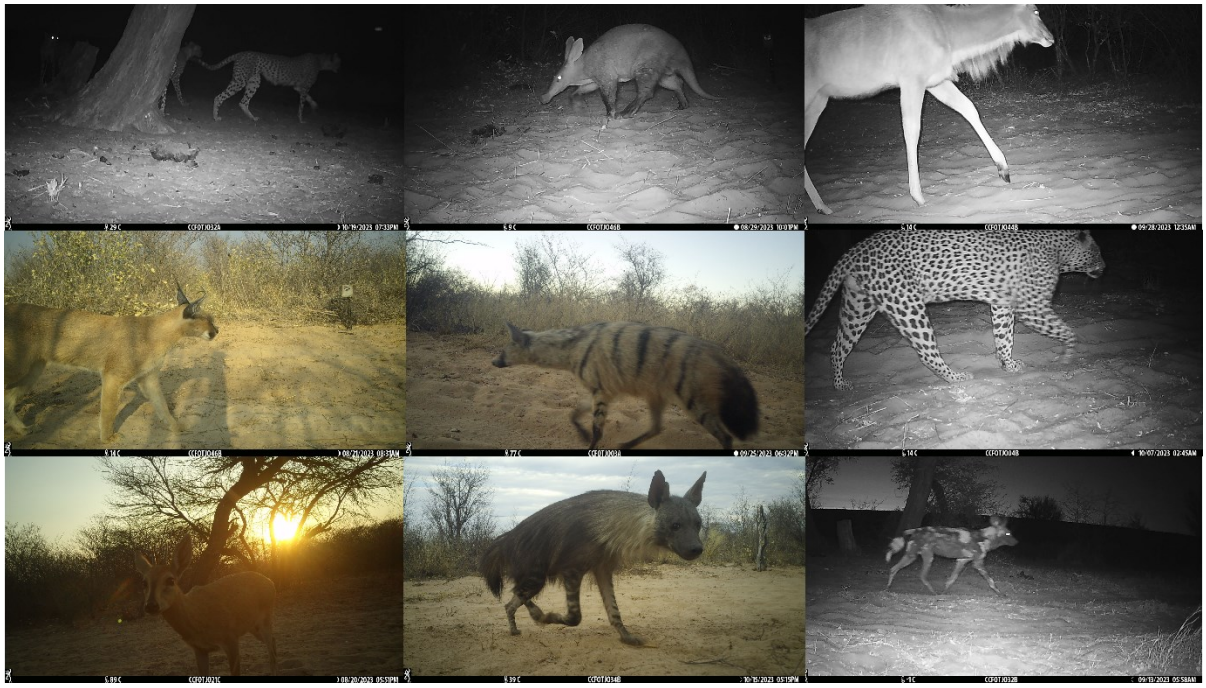


Figure 40: Some of the wildlife recorded by camera traps in the Otjombinde Conservancy survey.

F.8 Visiting Researchers

Professor Manuel Martin-Vivaldi from the Universidad de Granada, Spain along with his two students visited in September to continue their study on hornbills and hoopoes. The two students stayed a further three months to continue the project.

Dr Martine Hausberger and her PhD student, Allesandro Gallo, from the University of Rennes in France, visited in September to do research on cheetah vocalization in different conditions. Allesandro stayed until the end of November to continue with data collection for his PhD project.

Dr. Chris Sutherland from University of St. Andrews, Scotland, visited to initiate long-term collaborative studies with CCF. Dr Sutherland's research interest is in spatial population ecology, with a specific focus on characterization of how space is used, dispersal and demography vary in response to changes in density, the environment and landscape structure. The overall theme of his research is an emphasis on increasing the biological realism of modern eco-statistical models to best test spatial ecological theory.

G. Scientific Publications and Papers

G.1 Published Papers

Bandyopadhyay K, Cristescu B, Beck JL, Koprowski JL & Marker L (2023) Status and density of threatened Kori bustard in a woodland savanna. Ostrich – Journal of African Ornithology, 94, 124–128.

Koehler G, Schmidt-Küntzel A, Marker L, Hobson KA (2023) Delineating origins of cheetah cubs in the illegal wildlife trade: Improvements based on the use of hair δ18O measurements. Frontiers in Ecology and Evolution 2023 Feb 10; 11:1058985.

Marker L, Connolly E, Saed AH, Reasoner E, Aden KY & Cristescu B (2023) Cheetahs persist in the wild in the remote Awdal region of Somaliland. Oryx – The International Journal of Conservation, 57, 611–614.

Nghikembua M, Marker L, Brewer B, Leinonen A, Mehtatalo L, Appiah M, Pappinen A (2023) Response of woody vegetation to bush thinning on freehold farmlands in north-central Namibia. Scientific Reports, 13, 297-311.

Schmidt-Küntzel A, Yashphe S, Hamalwa H, Ismail SH, Tricorache P, Brewer B, O'Brien SJ, Marker L (2023) Genetic support to uplist an African cheetah subspecies, *Acinonyx jubatus soemmeringii*, imperiled by illegal trade. Conservation Science and Practice, e13052.

Tordiffe ASW, Jhala YV, Boitani L, Cristescu B, Kock RA, Meyer LRC, Naylor S, O'Brien SJ, Schmidt-Küntzel A, Price MRS, van der Merwe V & Marker L (2023) The case for the reintroduction of cheetahs to India. Nature Ecology & Evolution, 7, 480–481.

Verschueren S, Fabiano EC, Kakove M, Cristescu B & Marker L (2023) Reducing identification errors of African carnivores from photographs through computer-assisted workflow. Mammal Research, 68, 121–125.

Verschueren S, Fabiano EC, Nghipunya EN, Cristescu B & Marker L (2023) Social organization of a solitary carnivore, the leopard (*Panthera pardus*), inferred from behavioural interactions at marking sites. Animal Behaviour, 200, 115–124.

G.2 Published Book Chapters

There were no book chapters published during this reporting period.

G.3 Accepted Papers

Verschueren S, Hofmann T, Kakove M, Cristescu B & Marker L. High carnivore richness despite human pressure and prey depletion in overlooked region of the Kavango-Zambezi Transfrontier Conservation Area. Oryx – The International Journal of Conservation.

Nghikembua, M.T., Marker, L.L., Brewer, B., Leinonen, A., Mehtätalo, L., Appiah, M., Pappinen, A. Response of woody vegetation to bush thinning on freehold farmlands in north-central Namibia. Scientific Reports. In press.

G.4 Submitted Papers – In Revision

Dimbleby J, Cristescu B, Bandyopadhyay K, Marker L, Rooney N. Rewilding landscapes with apex predators: Cheetah movements reveal the importance of environmental and individual contexts.

Marker L, Schmidt-Küntzel A, Walker EH, Nghikembua M & Cristescu B. Time to independence and predator-prey relationships of wild-born, captive-raised cheetahs released into private reserves in Namibia.

Marker, L., Shipingana, D., Fleury, G., Pfeiffer, L., Pöntinen, A., Nghikembua, M.T. Promoting human-carnivore coexistence through outreach in Namibia's eastern communal conservancies.

G.5 Submitted Papers

Bandyopadhyay, K., Cristescu, B., Alfeus, M., Koprowski, J.L., Marker, L. Declining trends in density and biomass, and incipient population halving of African herbivores in a woodland savanna.

Cristescu B, Laincz M, Basto AF, Bornman N & Marker L. Aging cheetahs using gum-line recession and evaluation of expert-based aging techniques.

Cristescu B, Jhala YV, Balli B, Qureshi Q, Schmidt-Küntzel A, Tordiffe ASW, van der Merwe V, Verschueren S, Walker E & Marker L. Spatial ecology of cheetahs in India and the complexities of the real-world context.

Verschueren S, Bauer H, Cristescu B, Leirs H, Torres-Uribe C & Marker L. From popularity to preservation: The potential of cheetahs for ecosystem conservation.

Connolly E, Cristescu B, Saed AH, Jama AM, Hirsi M, Abdukadir A & Marker L. Large carnivores and human-wildlife conflict warrant attention in arid regions of the Horn of Africa.

Reasoner E, Marker L, Verschueren S, Briers-Louw W, Mbidzo M, Cristescu B. Mesocarnivore abundance is facilitated by proximity to humans and to a large carnivore.

Devarajan K et al. [224 co-authors]. When the wild things are: Defining mammalian diel activity and plasticity.

Gieling R, Schmidt-Küntzel A, Flores-Pineda K, Bailey M, Rooney N, Marker L. Live canine distemper vaccine in African wild dogs effective antibody response of African wild dogs (*Lycaon pictus*) to canine distemper vaccination with a live attenuated vaccine

Basto AFF, Anahi Hidalgo A, Bornman N, Schmidt-Küntzel A, Marker L. Penile abnormalities in wild-born captive cheetahs (*Acinonyx jubatus*)

Hauw C, Schmidt-Küntzel A, Basto A, Yabe J, McCann N, Díez-León M, Marker L. Acute lead poisoning from bullet ingestion in a captive cheetah (*Acinonyx jubatus*) in Namibia, A Case Report.

Fabiano EC, Bonatto SL, Schmidt-Küntzel A, O'Brien SJ, Marker LL, Eizirik E. Inferring the historical demography of southern African cheetahs (*Acinonyx jubatus*) using Bayesian analyses of molecular genetic data.

G.6 MSc. Theses

Dimbleby, J. (2023) A spatial analysis of cheetah movement patterns across four classes of cheetahs in Namibia.

Reasoner, E. (2023). Human-wildlife conflict and coexistence of black-backed jackal (*Canis mesomelas*) and African wild dog (*Lycaon pictus*) in the Okakarara District Communal Area, Namibia. Namibia University of Science and Technology, Windhoek, Namibia.

Ruozzi, M.-L. (2023). Wildlife response to fire disturbance in a woodland savanna. University of Antwerp, Antwerp, Belgium.

IV. Conservation

Whether perceived or real, livestock loss to cheetahs is an economic and emotional issue as farmers' livelihoods depend on the economic success of their livestock and wild game industries. While many Namibian farmers are very respectful of nature and tolerate a certain level of loss, some resort to lethal predator control rather than alleviating their problems in a non-lethal manner through appropriate livestock and predator management. By addressing livestock-predator conflict through a conservation management strategy that benefits both humans and cheetahs, CCF is ensuring the long-term species' survival on Namibian farms and has raised greater awareness of better farm practices.

A. Livestock Guarding Dog Programme

A.1 Programme Overview

CCF's Livestock Guarding Dog Program (LGD) continues to be one of the most successful conservation projects to assist farmers with predator conflict in Namibia. To date, CCF has placed 770 (395M, 375F) Livestock Guarding Dogs with farmers throughout Namibia and other parts of Africa. As of 31 December 2023, there were 229 (108M, 121F) dogs alive in the program (Table 8), of which 193 (90M, 103F) are working dogs and 36 (18M, 18F) are retired or housed as pets.

Table 8: Dogs alive as of 31 December 2023. One female in South Africa and one female in Tanzania are now pet dogs.

Location	M	F	Total
Commercial	36	45	81
Commercial (CCF Working)	9	16	25
Commercial (CCF Puppies)	1	4	5
Communal	24	23	47
Emerging Commercial	13	7	20
Resettled	3	7	10
Freehold	3	0	3
Tanzania	1	1	2
Total Working	**90**	**103**	**193**
Retired/Pet (Breeding)	18	18	36
Total dogs alive:	**108**	**121**	**229**

CCF began a collaboration with the Ruaha Carnivore Project (RCP) in Tanzania in 2013, which is working to mitigate human-carnivore conflict in the Ruaha area. A large part of this conflict is

driven by attacks on livestock, so CCF has provided RCP with a total of 10 (5M, 5F) puppies throughout the years to protect the livestock of Maasai and Barabaig farmers. Although the program has been quite successful, only two (1M, 1F) dogs are still working and one female had to be placed as a pet due to an eye issue that affected her working skills.

CCF has also donated numerous puppies over the years to Cheetah Outreach, another facility that works to save the wild cheetah in South Africa, to help form their own livestock guarding dog program. Since the trial program was so successful in 2005, they also began breeding and providing Anatolian shepherds to South African farmers after the CCF model. The program is key to helping farmers protect their livestock and thus save more cheetahs.

Currently, there are 19 (4M, 15F) intact dogs in CCF's breeding program (Table 9), of which 17 (4M, 13F) reside at CCF as working dogs. Of the two offsite dogs, one (0M, 1F) resides on a commercial farm and one (0M, 1F) resides as a pet in South Africa. One dog was added to the breeding program (1M, 0F) and three removed (2M, 1F) from the breeding program in 2023 (Table 9).

- Bushman (SB#847), was added to CCF's program on 1 January 2023 to be used for breeding with Ana (SB#810) and Katira (SB#809) as part of the mongrel guarding dog program
- Firat (SB#431), an offsite breeding male was euthanized on 15 October 2023 due to old age.
- Brooks (SB#814), a donated breeding male, was removed from the breeding program on 19 October 2022 due to abnormal sperm and was placed as an ambassador dog in Gobabis.
- Kuvvet (SB#799), an onsite breeding female, died from snakebite on 21 December 2023.

Table 9: Intact livestock guarding dogs as of 31 December 2023.

SB#	Dog Name	Born	Sex	Working/Pet	Farm Type	Country
405	Pandora	05/08/2010	F	Pet	N/A	South Africa
628	Susie	11/11/2015	F	Working (CCF)	Commercial	Namibia
660	Bolt	20/05/2016	M	Working (CCF)	Commercial	Namibia
709	April	01/08/2017	F	Working (CCF)	Commercial	Namibia
718	Tika	08/08/2017	F	Working (CCF)	Commercial	Namibia
751	Dusty	8/10/2018	F	Working	Commercial	Namibia
772	Koda	21/04/2019	F	Working (CCF)	Commercial	Namibia
788	Bella	05/01/2019	F	Working (CCF)	Commercial	Namibia
789	Mia	14/06/2019	F	Working (CCF)	Commercial	Namibia
809	Katira	15/06/2020	F	Working (CCF)	Commercial	Namibia
810	Ana	15/06/2020	F	Working (CCF)	Commercial	Namibia
825	Dionne	09/03/2021	F	Working (CCF)	Commercial	Namibia

833	Nahanni	09/07/2021	F	Working (CCF)	Commercial	Namibia
837	Oonkondo	14/05/2021	M	Working (CCF)	Commercial	Namibia
847	Bushman	03/03/2018	M	Working (CCF)	Commercial	Namibia
881	Misty-Lee	01/06/2022	F	Working (CCF)	Commercial	Namibia
882	Zeke	01/06/2022	M	Working (CCF)	Commercial	Namibia
883	Catalina	19/10/2021	F	Working (CCF)	Commercial	Namibia
884	Jenny	13/12/2021	F	Working (CCF)	Commercial	Namibia

The LGD program is a crucial part of CCF's mission to conserve the wild cheetah and its continuing success is due to the efforts of dedicated CCF staff. Gebhardt Nikanor has worked on placing dogs with farmers for over 10 years. Calum O'Flaherty arrived in June 2019 to manage the program. Eveline Iikondja has assisted in managing the program since December 2020.

A.2 Breeding and Puppy Placements

Since the program's inception, 103 litters have been born at CCF for a total of 832 (405M, 411F, 16U) puppies. From 1 January 2023 to 31 December 2023, a total of 37 (15M, 22F) puppies were born to CCF's onsite breeding females. Of these 2023 litters, two female puppies were stillborn; one female puppy succumbed to hypothermia and a further male puppy died of internal issues (Table 10). Furthermore, 51 puppies (21M, 30F) were placed on farms which were born to CCF's onsite females during the last quarter of 2022 (23 puppies) and throughout 2023 (28 puppies).

Table 10: Puppies born and type of placement as of 31 December 2023 (K = Commercial Farm; C = Communal Farm; EC = Emerging Commercial Farm; R = Re-settled Farm; F = Freehold Farm, P/B = Pet/Breeder; D = Dead; NP = Not Placed; IP = Intact Puppies).

Sire/Dam	**837/709**	**837/799**	**847/809**	**847/810**	**837/772**	**660/628**	**837/788**	**837/709**	**837/772**	**Totals**	
DOB:	**03 Oct 22**	**08 Oct 22**	**24 Nov 22**	**13 Dec 22**	**04 Jan 23**	**06 Jan 23**	**20 May 23**	**08 Sep 23**	**02 Oct 23**		
Sex:	**M F**	**M F**	**M F**	**M F**	**M F**	**M F**	**M F**	**M F**	**M F**	**M**	**F**
K	1 2	1 3	1 1	0 2	2 4	0 1	3 3	2 3	2 1	12	20
C	1 1	0 0	3 1	2 3	0 0	0 0	0 0	0 0	0 2	6	7
EC	0 2	3 0	0 1	0 1	0 0	0 0	1 0	0 0	0 0	4	4
R	0 0	0 0	1 0	1 0	1 0	0 0	0 1	0 0	0 1	3	2
F	0 0	0 0	0 0	0 0	1 0	0 0	0 0	0 0	0 0	1	0
P/B	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0	0
D	0 0	1 0	0 0	0 0	0 0	0 0	0 2	1 1	0 0	2	3
NP	0 0	0 0	0 0	0 0	0 0	0 0	0 0	1 0	1 3	2	3
Total	**2 5**	**5 3**	**5 3**	**3 6**	**4 4**	**0 1**	**4 6**	**4 4**	**3 7**	**30**	**39**

IP	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0	0

- April (SB#709), was bred with our Kangal male Oonkondo (SB#837) for the first time in August 2022. She gave birth to seven (2M, 5F) puppies on 3 October 2022. Four of these puppies were placed in December 2022. Two of them (2M, 0F) were placed on commercial farms. The other two puppies (0M, 2F) were placed on emerging commercial farms. The remaining three puppies were placed in January 2023, two of them (0M, 2F) on commercial farms and the final puppy (0M, 1F) on a communal farm.
- Kuvvet (SB#799), was bred with our Kangal male Oonkondo (SB#837) for the first time in August 2022. She gave birth to eight (5M, 3F) puppies on 8 October 2022. One male puppy was stillborn (SB#903). Four of these puppies were placed in December 2022. One of them (1M, 0F) was placed on a commercial farm. The other three puppies (3M, 0F) were placed on emerging commercial farms. The remaining three puppies were placed in January 2023, with all three of them (0M, 3F) being placed on commercial farms
- Katira (SB#809), a mongrel working and breeding dog at CCF, was bred with a mongrel working dog Bushman (SB#847) for the first time and she gave birth on 24 November 2022 to eight (5M, 3F) healthy puppies who were placed in February 2023. Four of these puppies (3M, 1F) were placed on communal farms. Two puppies (1M, 1F) were placed on commercial farms. Of the remaining two puppies one (1M, 0F) was placed on a resettled farm and the other (0M, 1F) on an emerging commercial farm.
- Ana (SB#810), a mongrel working and breeding dog at CCF, was bred with a mongrel working dog Bushman (SB#847) for the second time and she gave birth on 13 December 2022 to nine (3M, 6F) healthy puppies. Five of these puppies (2M, 3F) were placed on communal farms. Two puppies (0M, 2F) were placed on commercial farms. Of the remaining two puppies one (1M, 0F) was placed on a resettled farm and the other (0M, 1F) on an emerging commercial farm.
- Koda (SB#772), was bred with our Kangal male Oonkondo (SB#837) for the first time in November 2022. She gave birth to eight (4M, 4F) healthy puppies on 4 January 2023. These puppies were placed in April 2023. Six of these puppies (2M, 4F) were placed on commercial farms. One puppy (1M, 0F) was placed on a resettled farm with the remaining puppy (1M, 0F) was placed on a freehold farm.
- Susie (SB#628), was bred with our Kangal male Bolt (SB#660) for the fifth time. She gave birth on 6 January 2023 to one (0M, 1F) healthy puppy. This puppy was placed in April 2023 on a commercial farm.
- Lisboa-Bella (SB#788), was bred with our Kangal male Oonkondo (SB#837) for the first time in March 2023, and she gave birth on 20 May 2023 to 10 (4M, 6F) puppies. One female puppy was stillborn (SB#936), and another female succumbed to hypothermia on the first night (SB#939). These puppies were placed in August 2023. Six of these puppies (3M, 3F) were placed on commercial farms. One puppy (0M, 1F) was placed on a resettled farm with the remaining puppy (1M, 0F) being placed on an emerging commercial farm.
- April (SB#709), was bred with our Kangal male Oonkondo (SB#837) for the second time in July 2023. She gave birth to eight (4M, 4F) puppies on 8 September 2023. One female puppy was stillborn (SB#947), and a male succumbed to internal issues on the first day (SB#943). Five of these puppies were placed in November/December 2023 with all of

them (2M, 3F) being placed on commercial farms. The remaining puppy's second testicle has not distended yet and thus will not be placed until January 2024.

- Koda (SB#772), was bred with our Kangal male Oonkondo (SB#837) for the second time in July 2023. She gave birth to 10 (3M, 7F) healthy puppies on 2 October 2023. Six of these puppies were placed in December 2023. Three of these puppies (2M, 1F) were placed on commercial farms. Two puppies (0M, 2F) were placed on communal farms with the remaining puppy (1M, 0F) being placed on a resettled farm. The final four puppies (1M, 3F) will be placed in January 2024.

CCF delivers each puppy to their new farm to ensure the farmer and workers are properly trained on the correct methods of raising a livestock guarding dog and to make sure the puppy settles into their new farm. Each farmer receives packets of information covering the care and training of their livestock guarding dog as well as an Integrated Livestock and Predator Management book to assist with predator-friendly management.

A.3 Follow-up on Prior Placements and Health Survey

Before any dog is placed on a farm in Namibia, CCF conducts a pre-approval farm visit to ensure that the farm has the facilities and capabilities to ensure the health and wellbeing of the dog and that it can provide the right conditions for the dog to succeed as a Livestock Guarding Dog. After a puppy is placed, CCF performs follow-up visits at 3, 6, and 12 months of age, and then yearly thereafter, to ensure the health and success of each dog. When dogs are found to be unhealthy or not doing their job, they are removed from that specific farm, evaluated, and placed on another farm if deemed appropriate or placed as pets if they are no longer able to work as Livestock Guarding Dogs due to health or behavioural concerns.

From 1 January 2023 to 31 December 2023, CCF staff visited 77 (42M, 45F) dogs, this number includes dogs counted multiple times because they have been visited several times throughout the year to complete their required 3-month, 6-month, and 1-year visits or follow-up visits. Of the 77 dogs, 32 (15M, 17F) received their one-year of age visit. The dogs were vaccinated against rabies and other canine diseases, had an overall health check, and were evaluated on their working success. The following are some outcomes and findings from the visits:

A.3.1 Dog Deaths

- Mweneni (SB#713), a working dog on a freehold farm, died due to snake bite on 1 November 2022. CCF was only informed in March 2023 when scheduling their annual visit.
- Hediye (SB#382), a pet dog on a commercial farm, died due to old age on 1 November 2022. CCF was only informed in March 2023 when following up with the owners.
- Kalife (SB#790), a working dog on a communal farm, died due to snake bite on 1 December 2022. CCF was only informed in March 2023 when scheduling their annual visit.
- Rocky (SB#739), a working dog on a resettled farm, died due to snake bite on 2 January 2023.
- Lady (SB#795), a working dog on a commercial farm, died due to snake bite on 5 January 2023.

- Zipo (SB#842), a working dog on an emerging commercial farm, died due to snake bite on 15 January 2023.
- Shiba (SB#366), a pet dog on a commercial farm was euthanized due to old age on 30 January 2023.
- Mongolo (SB#527), a working dog on a commercial farm, died due to snake bite on 28 February 2023.
- Orange (SB#915), a working dog on an emerging commercial farm, died due to snake bite on 3 April 2023.
- Yellow (SB#926), a working dog on a commercial farm, died due to snake bite on 1 May 2023.
- Sam (SB#899), a working dog on an emerging commercial farm was found dead in kraal with no obvious cause on 2 May 2023. The reason of death was suspected snake bite.
- Unnamed Dog (SB#939), a female puppy from Lisboa-Bella's (SB#788) litter, was stillborn on 20 May 2023.
- Unnamed Dog (SB#936), a female puppy from Lisboa-Bella's (SB#788) litter, succumbed to hypothermia overnight and passed away on 21 May 2023.
- York (SB#728), a working dog on a commercial farm went missing for a week. She was later found dead in the field on 29 May 2023. The cause of death was suspected snake bite.
- Tiger (SB#401), a working dog on an emerging commercial farm, died due to old age 8 June 2023.
- Lady (SB#487), a pet dog on a commercial farm, died due congestive heart failure on 12 June 2023. See section, Dog Health, for more information.
- Captain (SB#856), a working dog on an emerging commercial farm, was euthanized on 13 July 2023 due to a severe cancer diagnosis which was affecting her health. See section, Dog Health, for more information.
- Kiri (SB#451), a working dog on a commercial farm, was euthanized due to old age on 9 August 2023. See section, Dog Health, for more information.
- Isha (SB#347), a pet dog on a commercial farm, was euthanized due to old age on 18 August 2023.
- Unnamed Dog (SB#947), a female puppy from April's (SB#709) litter, was stillborn on 8 September 2023.
- Unnamed Dog (SB#943), a male puppy from April's (SB#709) litter, died from internal issues on 8 September 2023.
- Swartbek (SB#755), a working dog on a commercial farm died due to a snake bite on 8 October 2023
- Firat (SB#431), a pet dog on a commercial farm, was euthanized due to old age on 15 October 2023.
- Cheetah (SB#720), a working dog on a commercial farm, was killed by a baboon on 25 October 2023.
- Murize (SB#693), a working dog on a resettled farm died due to unknown reasons, on an unknown date. Murize was only found to be dead when the annual visit was completed on 8 November 2023.

- Target (SB#638), a working dog on a communal farm, was found dead on its farm on 10 November 2023. A report from the vets where the dog was taken, is still being collated.
- Kuvvet (SB#779), an onsite working and breeding dog died due to a snake bite on 21December 2023.

A.3.2 Rehomed Dogs

- Lady (SB#865), a working dog on a communal farm was confiscated on 13 December 2022 due to poor body condition. Her body condition improved while at CCF and she was re-evaluated with our herd and found to no longer be a working dog. She was rehomed as a pet dog on 5 April 2023.
- Swartbek (SB#817), a working dog on a resettled farm was confiscated on 8 December 2022 due to neglect. His body condition improved while at CCF and was re-evaluated with the herd and then rehomed as a working dog on a commercial farm on 21 February 2023.
- Wagter (SB#630), a pet dog was confiscated due to poor body condition on 26 November 2022. His condition improved while at CCF and was rehomed as a pet dog on 12 February 2023.
- Matwi (SB#811), a working dog on a communal farm, was confiscated on 15 December 2022 due to neglect. Her condition improved during her stay at CCF and was then re-evaluated with our dairy herd. She was rehomed as a working dog on a commercial farm on 25 January 2023.
- Shepherd (SB#771), a working dog on a communal farm was returned on 13 January 2023 as the farmer could no longer afford to keep the dog. She was rehomed as a working dog on a commercial farm on 24 January 2023.
- Wagter (SB#793), a working dog on a communal farm was returned to CCF on 5 February 2023 with a limp. On evaluation it was decided he could no longer be a working dog and he was rehomed as a pet dog on 17 February 2023.
- Cheetah (SB#679), a working dog on a communal farm was returned on 6 March 2023, because the farmer could no longer financially afford to keep the dog. He was rehomed as a working dog on an emerging commercial farm on 12 May 2023. Six months later he was returned on 17 November 2023 due to a severe allergic reaction. Furthermore, it was found on arrival that he had severe joint problems and thus retired from the working program. He will now be placed as a pet in 2024.
- Witvoet (SB#668), a working dog on a resettled farm was confiscated on 12 March 2023 due to the farmer using the dog to hunt leopards. He was re-evaluated with CCF's herd and found not to have a hunting instinct and was thus rehomed as working dog on a commercial farm on 3 May 2023.
- Tiger (SB#796), a working dog on an emerging commercial farm was confiscated on 20 March 2023 due to poor body condition and a bad limp. On evaluation it was decided he could no longer be a working dog and was rehomed as a pet dog on 25 December 2023.
- Tara (SB#927), a working dog on a commercial farm was confiscated on 8 June 2023 due to poor body condition. Her body condition improved while at CCF and she was re-

evaluated with the herd and then rehomed as a working dog on a commercial farm on 3 August 2023. Two months later she was returned on 11 October 2023 due to stealing lambs and hiding them outside the kraal. She was then re-evaluated with the CCF herd once again and then rehomed as a working dog on a communal farm on 20 October 2023.

- Captain (SB#856), a working dog on an emerging commercial farm was brought into CCF on 9 June 2023 due to a swollen leg and severe neglect. She was diagnosed with hemangiosarcoma of the bone and it metastasized throughout her body and was thus euthanized on 13 July 2023. See section, Dog Health, for more information.
- Wagter (SB#783), a working dog on a communal farm was confiscated on 14 June 2023 due to poor body condition. Her body condition improved while at CCF and she was re-evaluated with the herd and then rehomed as a working dog on a resettled farm on 14 July 2023.
- Oubaas (SB#922), a working dog on a resettled farm was confiscated on 18 June 2023 due to poor body condition. His condition was improved and has now been bonded to our CCF dairy herd and will remain at CCF as a working dog.
- Leila (SB#894), a working dog on a commercial farm was returned to CCF on 23 June 2023 due to behavioural problems caused by habituation of the dog. She was re-evaluated with the herd at CCF and then returned to the same farm on 29 August 2023.
- Burundi (SB#891), a working dog on a commercial farm was brought in on 5 July 2023 due to a broken leg. Unfortunately, the leg did not heal and was thus removed. She will be placed as a pet dog in 2024.
- Betty (SB#615), a working dog on a resettled farm was returned on 24 August 2023 due to old age, she was rehomed as a pet dog on 29 October 2023.
- Pinocchio (SB#958), a rescue dog who the SPCA had confiscated from a farm in Otjiwarongo due to severe neglect was brought into CCF after a period of quarantine on 04 September 2023. He is currently being evaluated with CCF's herd to determine if he can be rehomed as a working dog.
- Cleo (SB#959), a rescue dog who the SPCA had confiscated from a farm in Otjiwarongo due to severe neglect was brought into CCF after a period of quarantine on 4 September 2023. She is currently being evaluated with CCF's herd to determine if she can be rehomed as a working dog.
- Rex (SB#851), a working dog on an emerging commercial farm was returned on 6 September 2023 due to poor work ethic. He was re-evaluated with the CCF herd and then rehomed as a working dog on a communal farm on 11 October 2023. On 21 November he was again returned due to poor work ethic. He was re-evaluated once again with the CCF herd and then rehomed as a working dog on an emerging commercial farm on 23 November 2023.
- Feruno (SB#868), a working dog on a commercial farm was returned on 10 September 2023 due to poor work ethic. He was re-evaluated with the CCF herd and then rehomed as a working dog on an emerging commercial farm on 13 October 2023.
- Woef (SB#921), a working dog on a commercial farm was confiscated on 15 September 2023 due to the farmer using poison to kill predators on his farm. He was evaluated with

the CCF herd and then rehomed as a working dog on a commercial farm on 19 October 2023.

- Hans (SB#748), a working dog on a commercial farm was returned on 19 October 2023 due to poor work ethic. It was also found she had the start of SCC. She is currently being re-evaluated with the CCF's herd to be rehomed as a working dog in 2024.
- Piet (SB#737), a working dog on a commercial farm was returned on 2 November 2023 due to poor work ethic. He is currently being re-evaluated with the CCF's herd to be rehomed as a working dog.

Other than routine vaccinations, CCF provides de-worming tablets, veterinary supplies for minor injuries, and topical antiparasitic agents that are available from donations. The medical supplies ensure that the dogs' health is a priority. Dog food is offered for purchase at a discounted rate to the farmers to encourage that a correct diet is followed consistently. The dogs' working success has been correlated with good care from the owner. Many farmers are part-time and thus their attention is divided between their farm and other business activities; however, this is not a problem if they have good herders who assist with livestock and dog care. It is important that the owners are in touch with the developmental phases of their dogs so that problems can be dealt with immediately as they occur, preventing bad habits from developing and the dog failing as a result.

A.4 Dog Health

All CCF's Anatolian Shepherd and Kangal dogs, as well as the scat-detection dogs, are enrolled in a preventative medicine program. Every month, a broad-spectrum anti-parasite product for endo-parasites is administered. The product is rotated continually to help prevent the development of drug resistance. Every four weeks an ectoparasite prevention product is applied topically to prevent fleas, ticks, and mites. Each dog receives vaccinations annually against canine distemper virus, canine parvovirus, adenovirus, parainfluenza virus, and rabies virus. Each month every dog is weighed to make sure they are at healthy body weight. The following are some of the special cases CCF's veterinary team dealt with during this reporting period:

- Kuvvet (SB#799), an onsite breeding female, was brought into the clinic on 23 January 2023 due to an irritation in her ears, she was diagnosed with a chronic ear infection. Her ears were cleaned and she was given a course of antifungal/antibiotic ear drops until the infection subsided and she has since fully recovered.

- Jenny (SB#884), an onsite breeding female, was brought into the clinic on 24 January 2023 for a physical examination due to a subdued behaviour and a lack of interest in food. No issues were found on this examination. She was brought back to the clinic on 29 January 2023 with a fever of 41.1ºC and was treated with a course of antibiotics and has since fully recovered.

- Kiri (SB#451), an onsite retired breeding female, was taken to the clinic on 27 January 2023 as she could not stand on her hind legs and had a fever of 40.5ºC. It was noted her tumour had increased in size and this caused her to go into sepsis. Furthermore, the

tumour then ruptured. She was treated with a course of antibiotics and anti-inflammatories and has since recovered but the tumour remains.

- Koda (SB#772), an onsite breeding female, came into the clinic on 1 February 2023 for a warm and swollen/hard teat on the right side of her body. She was diagnosed with mastitis. She was given a heat pack on the teat three times a day and a course of antibiotics and anti-inflammatories and she has since recovered.

- Bruno (SB#651), an offsite working male on a communal farm, was rushed into the Otjiwarongo veterinary clinic on 2 February 2023 after getting bitten by a puff adder while out working. He received one vial of antivenom and then was placed on a treatment of prednisone (a steroidal anti-inflammatory) and antibiotics. Once his condition became stable, he was then transported to CCF where he completed his recovery. Two weeks later, he returned back to his farm.

- Repet (SB#507), a working dog on a commercial farm, was brought into the clinic on 07 February 2023 as she had a mass close to the anus. An FNA was performed and the slides were sent to the lab for analysis. On 10 May 2023, her mass was re-examined with the returned results, it was found to be a benign tumour of the anal gland. On 12 May 2023, her mass was removed. Once she had recovered from her surgery, she was sent back to her farm to carry on working. On 14 June 2023, she returned to CCF to have her stitches removed and was placed back on her farm the same day.

- Wagter (SB#793), a working dog on a communal farm, was returned to CCF on 5 February due to severe limp. He was brought into the clinic on 7 February 2023, where a series of X-rays and an evaluation was completed. No broken bones were found so he was given a course of non-steroidal anti-inflammatories. His limp subsided but it was deemed that he could not work again and was thus placed as a pet on 17 February 2023.

- Shaera (SB#659), a working dog on a commercial farm, was brought into the clinic on 2 March 2023 for a leopard wound on her left flank. The wound was cleaned and a drain was placed to reduce the chances of infection. She was given a course of antibiotics and anti-inflammatories and closely monitored until she fully recovered and was returned to her farm.

- Ana (SB#878), a working dog from a commercial farm, was brought into the clinic on 6 March 2023 for a warthog wound on her back right leg. She was sedated to allow cleaning of the wound and a bandage was placed. She was given a course of antibiotics and anti-inflammatories and closely monitored until she fully recovered. The bandage was removed on 14 March 2023 and has since returned to her farm.

- Sam (SB#899), a working dog on an emerging commercial farm, was brought into the clinic on 9 March 2023 for a tick bite wound that had become necrotic. The wound was cleaned and a blood smear was completed. It was found he had tick bite fever. He was then treated with a course of doxycycline. He has since made a full recovery and has returned to his farm.

- April (SB#709), an onsite breeding female, was found to have a swollen eye and was subsequently brought into the clinic on 15 March 2023. She was given a course of eye

drops. However, due to her temperament and the eye swelling not subsiding, she was sedated on 19 March 2023 to get her eye flushed. The eye had fully recovered a few days later.

- Bolt (SB#660), an onsite breeding male, was brought into the clinic on 16 March 2023 for a persistent hotspot on his left hind leg. Radiographs were taken for further analysis and he was sedated to allow the cleaning of the hotspot. He was given an antibiotic spray and has since fully recovered.

- Unnamed puppy (SB#918), an Ana (SB#810) puppy, was brought into the clinic due to a lack of interest in food on 19 March 2023. Her temperature was elevated, and was thus diagnosed with tick bite fever. She was started on a course of doxycycline and was placed on her farm once she fully recovered.

- Tiger (SB#796), a working dog on a commercial farm, was confiscated due to poor body condition. He came into the clinic on the same day to get radiographs taken for a noticeable limp and a blood smear was made. No broken bones were found so he was given a course of non-steroidal anti-inflammatories. His limp has since subsided but it was deemed that he could not work again and has subsequently been placed as a pet.

- Kiri (SB#451), an onsite breeding female, was brought into the clinic on 13 April 2023 because her tumour ruptured again. Her wound was cleaned and topical ointment was applied. On 14 April 2023, a FNA was performed on her abdominal mass and degenerative neutrophils were found. The tumour continued to grow as it was closely monitored for anymore abnormalities to the point where she lost her appetite. The decision was taken to euthanize her on 09 August 2023. Necropsy results to follow.

- Catalina (SB#883), an onsite breeding female, was brought into the clinic on 18 April 2023 for a wound on her left hind toe. The toe was cleaned, dipped, and bandaged. The wound has since recovered and she was returned to the kraal.

- Kuvvet (SB#799), an onsite breeding female, was brought into the clinic on 18 April 2023 due to an irritation in her ears again; the chronic ear infection had returned. Her ears were cleaned and she was again given a course of antifungal/antibiotic ear drops until the infection subsided and she has since fully recovered.

- Simba (SB#440), a retired onsite pet dog, was brought into the clinic on 21 April 2023 for a hotspot on her hind leg. Radiographs were taken for further analysis and the hotspot was clean. She was given an antibiotic spray and has since fully recovered

- Misty-Lee (SB#881), an onsite breeding female, was brought into the clinic on 21 April 2023 due to wounds sustained from a honey badger while out guarding the herd. The main wound was a scratch in the mouth. The clinic team cleaned the wounds and she was prescribed a course of antibiotics as well as given a rabies booster. She has since fully recovered.

- Spucky (SB#711), an onsite working male, was also brought into the clinic on 21 April 2023 from wounds sustained from the same honey badger while out guarding. He only received small scratches around the neck and front legs. The clinic team cleaned the wounds and

he was prescribed a course of antibiotics as well as given a rabies booster. He has since fully recovered and is working again.

- Bolt (SB#660), an onsite breeding male, was brought into the clinic on 22 April 2023 for a hotspot on his left hip bone. The hotspot was cleaned and he was given an antibiotic spray and has since fully recovered.

- Witvoet (SB#668), a confiscated working male, was brought into the clinic on 23 April for a puncture wound on his right flank from a warthog. The wound was cleaned and disinfected, and F10 ointment was applied to it. He was given a course of antibiotics and anti-inflammatories and closely monitored until he fully recovered. He has since been placed out on a farm as a working dog.

- Kuvvet (SB#799), an onsite breeding female, was brought into the clinic on 24 April 2023 for a wound on her foot. The wound was cleaned and sprayed with wound spray. The foot has since recovered and she was returned to the kraal.

- Owca (SB#765), an offsite female working dog, was brought into the clinic on 23 May 2023 for a swollen right eye. FNA and blood smears were performed. She was given a course of antibiotics and anti-inflammatories and closely monitored until she fully recovered. She was then returned to her farm on 31 May 2023.

- Captain (SB#856), a confiscated working female, was brought into the clinic on 9 June 2023 for a very swollen left hind leg. Radiographs were taken and a physical exam was performed: no obvious puncture or bite wounds were seen, except a healed laceration. She was prescribed a course of anti-inflammatories and antibiotics but no improvement was seen. On 16 June 2023, it was decided that we would amputate her leg. Leg samples were taken on 17 June 2023, to be sent for analysis. On 13 July 2023, further radiographs were taken, and numerous tumours were noted on and around her lugs. The decision was made for Captain to be euthanized. A necropsy was performed and found she had a rare cancer, Hemangiosarcoma of the bone.

- Lady (SB#487), a retired onsite pet, was brought into the clinic on 10 June 2023 due to abnormal behaviour and a lack of interest in food. She was on chronic medication for congestive heart failure. Numerous radiographs were taken and fluid was found in the diaphragm. A few days later she went into cardiogenic shock caused by hydro-pericardium and hydrothorax.

- Shaera (SB#659), a working dog on a commercial farm, was brought into the clinic on 27 June 2023 for a baboon puncture. The wound was cleaned and a drain was placed to reduce the chances of infection. She was given a course of antibiotics and anti-inflammatories and closely monitored until she fully recovered and was returned to her farm on 18 July 2023.

- Miracle (SB#836), a working female on a commercial farm, was brought into the clinic on 28 June 2023 after sustaining a blunt force trauma from a car on her right shoulder. Radiographs were taken which showed a broken scapular and thus started on a course of pain medication. The radiographs were sent away for further analysis and it was decided

she would not need surgery and that with bone management and physiotherapy, she would make a full recovery. She underwent daily physiotherapy and made a full recovery.

- Cheetah (SB#673), a working dog on a communal farm was brought into the clinic on 4 July 2023 for deep scratches around her head and neck due to a leopard. On 5 July 2023, the wounds were cleaned and she was stitched up and given a course of antibiotics and anti-inflammatories and closely monitored until she fully recovered. She returned to her farm 17 July 2023

- Burundi (SB#891), a working dog on an emerging commercial farm was brought into the clinic on 5 July 2023 for a broken left hind leg (femur). She was subsequently sent to Windhoek for a surgery to have a plate put in on 10 July 2023. The bone did not heal even with the assistance of the plate and the decision was taken to amputate the leg on 28 November 2023. After the surgery, she was given a course of antibiotics and anti-inflammatories and closely monitored until she fully recovered. Due to the leg amputation, it was deemed that she could not work again and she will subsequently be placed as a pet.

- Ana (SB#878), an onsite breeding female, was brought into the clinic on 18 July 2023 for a wound on the right side of her thorax. The wound was cleaned and debrided to allow new healing and then stitched. She was thus given a course of antibiotics and closely monitored. On 25 July 2023 she opened her stitches and needed to be re-stitched. On 29 July 2023, she again removed her stitches, therefore the necrotic tissue was removed and the wound treated as an open wound with constant cleaning and F10 ointment.

- Kuvvet (SB#799), an onsite breeding female, was brought into the clinic on 20 July 2023 due to an irritation in her ears again; the chronic ear infection had returned. Her ears were cleaned and she was again given a course of antibacterial/antibiotic ear drops until the infection subsided and she has since fully recovered.

- Bets (SB#879), a working dog on a commercial farm was brought into the clinic on 1 August 2023 due to a wound on her bottom lip from a warthog. The wound was cleaned, disinfected and stitched up. She was given a course of antibiotics and anti-inflammatories and closely monitored until she fully recovered. She has subsequently returned to her farm.

- Cheetah (SB#679), a working dog on an emerging commercial farm was brought into the clinic on 9 August for wounds caused by a warthog. The wounds were cleaned and he was stitched up and given a course of antibiotics and anti-inflammatories and closely monitored until he had fully recovered. He has subsequently returned to his farm.

- Kuvvet (SB#799), an onsite breeding female, was brought into the clinic on 14 September 2023 due to an irritation in her ears again; the chronic ear infection had returned. Her ears were cleaned and she was again given a course of antibacterial/antibiotic ear drops until the infection subsided and she has since fully recovered.

- Spucky (SB#711), an onsite working male, was brought into the clinic on 24 September 2023 for a hotspot on his back right leg. The hotspot was cleaned and he was given an antibiotic spray and has since fully recovered.

- Oubaas (SB#922), an onsite working male, was brought into the clinic on 11 October 2023 for an inter-digital dermatitis. The paw was cleaned and he was given a course of inflacam. He has since fully recovered and returned to working.

- Catalina (SB#833) and Jenny (SB#884), two onsite breeding females had a fight on 11 October 2023 while working. The wounds were both minor, however, were cleaned and disinfected and sprayed with wound spray. All the wounds were monitored closely and healed quickly.

- Oubaas (SB#922), an onsite working male, was brought into the clinic again two days later on 13 October 2023 for two wounds on his left pelvic limb (deep in the muscle) and on his back. The wounds were cleaned and disinfected before being stitched up. He was then put on a course of anti-inflammatories and antibiotics and monitored closely. His stitches were removed on 23 October 2023 and then returned to working.

- Ana (SB#810) and Nahaani (SB#833), two onsite breeding females had a fight on 18 October 2023 while working. The wounds were both minor, however, were cleaned and disinfected and sprayed with wound spray. All the wounds were monitored closely and healed quickly.

- Cleo (SB#959), a confiscated working female from the SPCA, was brought into the clinic on 06 November 2023 due to bloody diarrhea. She got a course of Prokolin, Buscopan and Luftal and has since fully recovered.

- Shaera (SB#659), a working dog on a commercial farm, was brought into the clinic on 10 November 2023 for another baboon wound on her flank. The wound was cleaned and a drain was placed to reduce the chances of infection. She was again given a course of antibiotics and anti-inflammatories and closely monitored until she fully recovered and was returned to her farm on 24 November 2023.

- Robin (SB#673), a working dog on a communal farm was brought into the clinic on 14 November 2023 for a swelling around his neck caused by a previous leopard bite. On 15 November 2023, the swelling had drastically decreased; however, X-Rays were still taken for precaution and found no abnormalities. He was subsequently returned to his farm on 19 November 2023.

- Cheetah (SB#673), a working dog on a communal farm was brought into the clinic on 20 November 2023 for a severe allergic reaction which occurred on his farm. He initially was admitted to Rhino Park Veterinary clinic on 17 November 2023 to receive urgent care. On arrival at CCF, he was checked over again and continued his course of antibiotics and antihistamines. He has since made a full recovery and due to a severe joint problem has subsequently been retired from the working program. He will now be placed as a pet in 2024.

A.4.1 Squamous Cell Carcinoma (SCC)

Each dog that comes into CCF with Squamous Cell Carcinoma (SCC) begins treatment. Each dog first receives a biopsy of the tongue which is taken to confirm the damage is caused by SCC. While

under sedation, a prednisolone injection will be inserted into the tongue along the lines of damage. The prednisolone will help decrease inflammation and reduce pain but it only lasts for one month. Monthly biopsies and injections will be completed to continue pain treatment and see if there is any cellular change. All dogs will be fed a soaked pelleted diet to ease eating. The condition of the dog and tongue will be monitored from month to month. CCF is working on finding a suitable chemotherapy drug to help treat any confirmed SCC cases.

- Fisch (SB#583), a working dog on a communal farm, had experienced problems with eating in the past, and we had encouraged the farmer to pre-soak his pelleted food, but his condition worsened. The farmer asked that the dog be returned and looked at on 9 November 2019 as he felt we could better provide for him. He was started on meloxicam tablets to reduce pain and inflammation although his case is moderately severe as he is missing the sides of his tongue. Fisch underwent blood draws in July and again in October to compare vitals, which were fine. He started on oral PetCam treatment which appeared to be better for him as it increased his appetite. He was brought into CCF again on 15 May 2021 and completed his first biopsy and treatment. It was discovered that his inflammation had since reduced, and his body condition had improved. On 9 October 2021 another biopsy was taken and a resection was performed as well. On 6 March 2022 a follow-up was conducted, which showed no further signs of SCC; however, a new biopsy was taken. He was treated with Depo-Medrol and sent back to his farm. A further follow-up was conducted on 10 November 2022; again, it showed no further signs of SCC. He was given Depo-Medrol and sent back to her farm. Another follow-up was conducted on 16 June 2023; again, it showed no further signs of SCC. He was given Depo-Medrol and sent back to his farm.
- Repet (SB#507), a resident working dog, had been experiencing some trouble eating since March 2018 and would return from working with a limp. She was prescribed Meloxicam to help with inflammation for a few months and was taken off it once she had a litter in July 2018. In December 2018 her tongue started to look sore as she was throwing her head back to eat pellets properly, she started back on meloxicam and received it until the decision was made to try a tongue treatment with Methylprednisolone and biopsy procedure on 6 March 2019. Since then, she had not been prescribed medication, but underwent her second treatment on 28 October 2020, as her tongue had worsened. Two biopsies were taken for a diagnosis. On 24 July 2021 she had another biopsy done, and 4cm of her tongue was removed due to the cancer spreading. Her follow-up tongue evaluation on 8 October 2021 showed the tongue is doing well, and Depo-Medrol was injected. Her tongue was checked again in December, which showed it had not significantly spread. On 19 June 2022 a follow-up was conducted, which showed no further signs of SCC; however, a new biopsy was taken. She was treated with Depo-Medrol and sent back to her farm. A further follow-up was conducted on 10 November 2022; again, it showed no further signs of SCC. She was given Depo-Medrol and sent back to her farm. Another follow-up was conducted on 20 June 2023; again, it showed no further signs of SCC. She was given Depo-Medrol and sent back to her farm.
- Bamse (SB#804), a working dog on a communal farm, appeared to show signs of SCC on 14 December 2022 and was subsequently brought in. He was taken to the clinic for treatment on 15 January 2023 and three samples were taken for diagnosis. During his biopsy it was determined that a partial resection of the tongue was necessary. He was given Depo-Medrol and returned to his farm a few days later.
- Murize (SB#768), a working dog on a communal farm, had experienced problems with eating in the past, and we had encouraged the farmer to pre-soak his pelleted food, but

his condition worsened. On 27 January 2023 he was subsequently brought in. He was taken straight to the clinic for treatment and three samples were taken for diagnosis. During his biopsy it was determined that a partial resection of the tongue was necessary. He was given Depo-Medrol and returned to his farm a few days later.

- Wagter (SB#582), a working dog on a communal farm, appeared to show signs of SCC on 5 February 2023 and was subsequently brought in. He was taken to the clinic for treatment on 28 February 2023 and three samples were taken for diagnosis. During his biopsy it was determined that a partial resection of the tongue was not necessary. He was given Depo-Medrol and returned to his farm a few days later.
- Kiri (SB#451), a retired working and breeding dog on a commercial farm (CCF), came into the clinic on 6 March 2023 for a routine health checkup due to her age, here it was discovered that there was a possibility of SCC. Three samples were taken for diagnosis. Due to her age, it was suggested not to sedate long enough for a tongue resection but she was given Depo-Medrol and returned to the kraal a few days later.
- Wagter (SB#783), a working dog on a communal farm, was confiscated from her farm on the 14 June 2023. On arrival at CCF, a health evaluation was completed which appeared to show signs of SCC on her tongue. She was taken to the clinic for treatment on 26 June 2023 and three samples were taken for diagnosis. During her biopsy it was determined that a partial resection of the tongue was not necessary. She was given Depo-Medrol and is currently being reevaluated with CCF's herd.
- Cheetah (SB#673) a working dog on a communal farm, was brought into the clinic from her farm on 4 July 2023 due to a leopard scratch on her head. On arrival at CCF, a further health evaluation was completed which appeared to show signs of SCC on her tongue. She underwent treatment on 5 July 2023 and three samples were taken for diagnosis. During her biopsy it was determined that a partial resection of the tongue was not necessary. She was given Depo-Medrol and returned to her farm on the 17 July 2023.
- Happy (SB#743), a working dog on a commercial farm, appeared to show signs of SCC was subsequently brought in. On 3 October 2023 he was brought in. He was taken to the clinic for treatment on 4 October 2023 and three samples were taken for diagnosis. During his biopsy it was determined that a partial resection of the tongue was necessary. He was given Depo-Medrol and returned to his farm on the 16 October 2023.
- Rocks (SB#749), a working dog on a commercial farm, appeared to show signs of SCC and was subsequently brought in on 8 October 2023. He was taken to the clinic for treatment the same day and three samples were taken for diagnosis. During his biopsy it was determined that a partial resection of the tongue was not necessary. He was given Depo-Medrol and returned to his farm on the 17 October 2023.
- Hans (SB#748), a working dog on a commercial farm, was returned on 19 October 2023 due to poor work ethic. On arrival at CCF, a health evaluation was completed which appeared to show signs of SCC on her tongue. She was taken to the clinic for treatment on 30 October 2023 and three samples were taken for diagnosis. During her biopsy it was determined that a partial resection of the tongue was not necessary. She was given Depo-Medrol and is currently being reevaluated with CCF's herd.
- Piet (SB#737), a working dog on a commercial farm was returned on 2 November 2023 due to poor work ethic. On arrival at CCF, a health evaluation was completed which appeared to show signs of SCC on his tongue. He was taken to the clinic for treatment on 3 November 2023 and three samples were taken for diagnosis. During her biopsy it was

determined that a partial resection of the tongue was not necessary. She was given Depo-Medrol and is currently being reevaluated with CCF's herd.

B. CCF Model Farm

CCF's farm provides the opportunity to practice and experiment with optimal methods of livestock and non-lethal farm management practices, especially acting as a showcase model of success. The cattle, goat, and sheep herds at CCF continue to increase and selected herds have been used during various Farmer Training programmes. Table 11 provides an overview of CCF's livestock.

Table 11: CCF livestock from 1 January 2023 to 31 December 2023.

	Stock Start	Born	Purchased	Sold	Died	Slaughtered / CCF use	Stolen	Stock End
Cattle	420	135	4	51	7	1	0	500
Boer Goats	100	34	0	17	18	0	5	94
Damara Sheep	111	43	0	9	5	0	23	117
Dairy Goats	211	74	0	63	20	0	0	202
Donkeys	66	3	96	0	11	82	0	72
Horses	39	3	36	0	3	41	0	34

CCF's Farm Manager, Johan Britz; Large Stock Assistant Manager, Johan Gibson; Small Stock Manager, Calum O'Flaherty; Small Stock Herder, Armas Shanika, and the animal health team carry out proper management to maintain the general health and welfare of the animals.

During this period, CCF farm staff continued to work on fence repairs and basic farm maintenance. Work also continued on firebreaks, road maintenance, provision of water as well as weed control and eradication of alien species.

B.1 Cattle

CCF cattle are managed in a 100% predator-friendly environment. A cow-calf system is in place and weaners are sold before one year of age based on market conditions. Factors such as severe bush encroachment and theft continue to be a challenge.

Normal management is done in coordination with nature, therefore mating seasons differ yearly but generally, it is from January to the end of April. This period has been extended due to a shortage of bulls. When necessary, CCF utilizes six to eight bulls that are on loan. Pregnancy determination is normally done in July or August. Dehorning and castration are done as needed during the calving season. During this reporting period, we received average to above-average rainfall with good grazing availability.

B.1.1 Vaccination Program

CCF firmly believes in farming with animals adapted to the Namibian climate with a strong natural resistance to most diseases. As such, unnecessary vaccinations are avoided to minimize costs and reduce stress on the animals. Compulsory brucellosis and anthrax vaccinations are administered and other vaccinations are done purely as needed. Periodical internal and external parasite control is also in place.

B.1.2 Other

Since cattle fall under the Farm Assured Namibian Meat (FAN Meat) scheme of Namibia, CCF must ensure compliance with the European Union (EU) and the FAN Meat scheme. FAN Meat is a standard for meat production, specifically for cattle, that involves the traceability, animal health and welfare, record keeping, and animal movement in Namibia. The CCF cattle recordkeeping and data have passed inspection every year, and our cattle operation is mentioned by the Directorate of Veterinary Services as an excellent standard when it comes to the fulfilment of these requirements. Good results were also obtained during the annual weaner auctions.

B.2 Small Stock

Goats and sheep are an essential part of CCF's LSGD program as the puppies must be raised amongst the goats and sheep in order for them to form a close bond with the livestock. As part of CCF's Model Farm, dogs and small stock are used during farmer-training programs as a method to raise livestock around predators without using lethal methods to prevent predation.

In addition to the 25 adult livestock guarding dogs mentioned in the previous section, as of 31 December 2023, the kraal contains 203 (25M, 178F) Dairy goats, 96 (6M, 90F) Boer goats, and 117 (8M, 109F) Damara sheep.

Between 1 January 2023 and 31 December 2023, 89 small stock were sold, 63 dairy goats (2M, 52F, 9W), 17 Boer goats (8M, 9F), and 9 Damara sheep (1M, 2F, 6W), bringing in a total of N$151,760.00.

B.2.1 Boer Goats

The Boer goat herd stood at 96 (6M, 90F) at the end of this reporting period, down from 110 at the end of 2022.

Seven does were accidentally bred due to meeting an unknown male from another herd in the field in November; these females gave birth in March and April 2023 to a total of 12 kids (8M, 4F). Furthermore, 25 Boer goats were bred in January 2023. This number was reduced due to results experienced during breeding soundness exams. Of these 25 females, 12 gave birth in June and July 2023 to a total of 22 kids (13M, 9F) (Table 12). Where UNK is placed for the Dam and Sire, it is because the Dam has lost her tag since breeding, a tag has been replaced since but we cannot 100% confirm it is the correct tag.

Table 12: Boer goat births from 1 January 2023 to 31 December 2023.

SB #	Tag #	Sex	Date of Birth	Dam	Sire	Alive or Dead
904	1-23	M	22-Mar-2023	6-19	UNK	Alive
905	2-23	M	22-Mar-2023	6-19	UNK	Dead
906	3-23	F	25-Mar-2023	36-17	UNK	Alive
907	4-23	F	28-Mar-2023	22-19	UNK	Alive
908	5-23	M	01-Apr-2023	24-19	UNK	Alive
909	6-23	M	11-Apr-2023	47-19	UNK	Dead
910	7-23	M	11-Apr-2023	47-19	UNK	Alive
911	8-23	F	11-Apr-2023	47-19	UNK	Dead
912	9-23	M	11-Apr-2023	41-15	UNK	Alive
913	10-23	M	11-Apr-2023	41-15	UNK	Alive
914	11-23	M	16-Apr-2023	UNK	UNK	Dead
915	12-23	F	16-Apr-2023	UNK	UNK	Alive
916	13-23	M	24-Jun-2023	16-21	SB#894	Dead
917	14-23	F	24-Jun-2023	16-21	SB#894	Alive
918	15-23	M	26-Jun-2023	35-17	SB#894	Alive
919	16-23	M	27-Jun-2023	9-21	SB#894	Dead
920	17-23	F	27-Jun-2023	9-21	SB#894	Alive
921	18-23	M	28-Jun-2023	48-21	SB#894	Dead
922	19-23	M	28-Jun-2023	48-21	SB#894	Dead
923	20-23	F	28-Jun-2023	31-21	SB#894	Alive
924	21-23	F	28-Jun-2023	31-21	SB#894	Alive
925	22-23	M	28-Jun-2023	44-17	SB#894	Alive
926	23-23	F	28-Jun-2023	44-17	SB#894	Alive
927	24-23	M	28-Jun-2023	41-21	SB#894	Alive
928	25-23	M	28-Jun-2023	41-21	SB#894	Dead
929	26-23	M	28-Jun-2023	3-19	SB#894	Dead
930	27-23	F	28-Jun-2023	3-19	SB#894	Dead

931	28-23	F	28-Jun-2023	3-19	SB#894	Alive
932	29-23	M	02-Jul-2023	UNK	SB#894	Alive
933	30-23	F	02-Jul-2023	UNK	SB#894	Dead
934	31-23	F	03-Jul-2023	13-21	SB#894	Alive
935	32-23	M	03-Jul-2023	16-18	SB#894	Alive
936	33-23	M	03-Jul-2023	25-18	SB#894	Dead
937	34-23	M	03-Jul-2023	25-18	SB#894	Dead

Between 1 January 2023 and 31 December 2023, 18 Boer goats (13M, 5F) died due to causes listed in Table 13.

Table 13: Boer goat deaths from 1 January 2023 to 31 December 2023.

SB #	Tag #	Sex	Date of Death	Cause of Death
899	95-22	M	24-Jan-2023	Enteritis
905	2-23	M	22-Mar-2023	Euthanized – Born with deformity
911	8-23	F	11-Apr-2023	Still born
914	11-23	M	16-Apr-2023	Still born
909	6-23	M	07-May-2023	Pneumonia
835	31-22	F	21-Jun-2023	Euthanized
919	16-23	M	28-Jun-2023	Hypothermia
922	19-23	M	28-Jun-2023	Stillborn
928	25-23	M	28-Jun-2023	Stillborn
929	26-23	M	28-Jun-2023	Stillborn
921	18-23	M	02-Jul-2023	Pneumonia
937	34-23	M	03-Jul-2023	Stillborn
936	33-23	M	05-Jul-2023	Pneumonia
933	30-23	F	07-Jul-2023	Starvation
UNK	UNK	F	01-Aug-2023	Peritonitis
916	13-23	M	12-Sep-2023	Enteritis

930	27-23	F	28-Sep-2023	Pneumonia
474	Poitjie	M	19-Nov-2023	Interstitial nephritis

CCF's Boer goats are managed for meat production and castrated males and old or inferior bucks and does are sold to farmers. Between 1 January 2023 and 31 December 2023, 17 goats (8M, 9F) were sold, amounting to N$8,600.00. Table 14 provides an overview of CCF's Boer goat sales.

Table 14: Boer goat sales from 1 January 2023 to 31 December 2023 (M = male, F = female, W = wether).

SB #	Tag #	Sex	Date of Birth	Date of Sale	Price
367	8-15	F	01-Aug-2015	21-Jan-2023	N$1800.00
890	86-22	F	23-Nov-2022	15-Mar-2023	N$350.00
893	89-22	F	25-Nov-2022	15-Mar-2023	N$350.00
894	90-22	F	27-Nov-2022	15-Mar-2023	N$350.00
896	92-22	M	28-Nov-2022	15-Mar-2023	N$350.00
808	94-22	F	01-Dec-2022	15-Mar-2023	N$350.00
900	96-22	M	04-Dec-2022	15-Mar-2023	N$350.00
902	98-22	M	05-Dec-2022	15-Mar-2023	N$350.00
903	99-22	F	05-Dec-2022	15-Mar-2023	N$350.00
904	1-23	M	22-Mar-2023	29-Aug-2023	N$ 500.00
906	3-23	F	25-Mar-2023	29-Aug-2023	N$ 500.00
907	4-23	F	27-Mar-2023	29-Aug-2023	N$ 500.00
908	5-23	M	02-Apr-2023	29-Aug-2023	N$ 500.00
910	7-23	M	02-Apr-2023	29-Aug-2023	N$ 500.00
912	9-23	M	11-Apr-2023	29-Aug-2023	N$ 500.00
913	10-23	M	11-Apr-2023	29-Aug-2023	N$ 500.00
915	12-23	F	16-Apr-2023	29-Aug-2023	N$ 500.00
				Total:	**N$8,600.00**

CCF's strategy is to keep improving the quality of its Boer herd by bringing in quality bucks and continuing to improve the selection of animals for breeding. This will provide more income from the sales of these goats, as some can be sold as breeding animals versus only meat.

B.2.2 Damara Sheep

The Damara sheep herd stood at 117 (8M, 109F) at the end of this reporting period, up from 111 at the end of 2022.

Out of the 83 Damara Sheep that were bred in December 2022, one of the females died. Out of the remaining 82 females, 39 gave birth from May to June 2023 to a total of 43 lambs (28M, 15F) (Table 15). This number was reduced due to results experienced during breeding soundness exams. UNK is placed for the Dam and Sire, it is because the Dam has lost her tag since breeding, a tag has been replaced since but we cannot 100% confirm it is the correct tag.

Table 15: Damara sheep births from 1 January 2023 to 31 December 2023.

SB #	Tag #	Sex	Date of Birth	Dam	Sire	Dead or Alive
775	1-23	M	13-May-2023	UNK	Meatmaster 2/3	Alive
776	2-23	F	13-May-2023	UNK	Meatmaster 2/3	Alive
777	3-23	F	13-May-2023	50-18	Meatmaster 2	Alive
778	4-23	F	13-May-2023	52-16	Meatmaster 2	Alive
779	5-23	F	14-May-2023	23-19	Meatmaster 2	Alive
780	6-23	F	17-May-2023	UNK	Meatmaster 2/3	Alive
781	7-23	F	17-May-2023	22-19	Meatmaster 2	Alive
782	8-23	F	18-May-2023	5-20	Meatmaster 3	Alive
783	9-23	F	18-May-2023	UNK	Meatmaster 2/3	Alive
784	10-23	F	18-May-2023	44-16	Meatmaster 2	Alive
785	11-23	M	18-May-2023	2-19	Meatmaster 2	Alive
786	12-23	M	18-May-2023	27-19	Meatmaster 2	Alive
787	13-23	F	19-May-2023	UNK	Meatmaster 2/3	Alive
788	14-23	F	19-May-2023	39-17	Meatmaster 2	Alive
789	15-23	F	20-May-2023	52-18	Meatmaster 2	Alive
790	16-23	F	20-May-2023	12-19	Meatmaster 2	Alive
791	17-23	F	20-May-2023	39-17	Meatmaster 2	Alive
792	18-23	M	21-May-2023	34-18	Meatmaster 2	Alive
793	19-23	M	21-May-2023	55-18	Meatmaster 2	Alive

794	20-23	M	22-May-2023	24-20	Meatmaster 3	Alive
795	21-23	F	23-May-2023	31-21	Meatmaster 3	Alive
796	22-23	M	23-May-2023	16-21	Meatmaster 3	Alive
797	23-23	F	23-May-2023	28-19	Meatmaster 2	Dead
798	24-23	M	24-May-2023	UNK	Meatmaster 2/3	Alive
799	25-23	M	24-May-2023	3-19	Meatmaster 2	Alive
800	26-23	M	24-May-2023	31-18	Meatmaster 2	Alive
801	27-23	F	24-May-2023	31-18	Meatmaster 2	Alive
802	28-23	F	24-May-2023	31-21	Meatmaster 3	Alive
803	29-23	F	25-May-2023	34-19	Meatmaster 2	Dead
804	30-23	F	25-May-2023	34-19	Meatmaster 2	Alive
805	31-23	M	28-May-2023	5-21	Meatmaster 2	Alive
806	32-23	M	28-May-2023	7-19	Meatmaster 2	Alive
807	33-23	F	29-May-2023	19-19	Meatmaster 2	Alive
808	34-23	F	29-May-2023	25-19	Meatmaster 2	Dead
809	35-23	F	03-Jun-2023	UNK	Meatmaster 2/3	Dead
810	36-23	F	03-Jun-2023	12-21	Meatmaster 3	Alive
811	37-23	F	03-Jun-2023	21-20	Meatmaster 3	Alive
812	38-23	F	04-Jun-2023	47-18	Meatmaster 2	Alive
813	39-23	M	09-Jun-2023	16-19	Meatmaster 2	Alive
814	40-23	M	09-Jun-2023	22-20	Meatmaster 3	Alive
815	41-23	M	10-Jun-2023	52-18	Meatmaster 2	Alive
816	42-23	F	10-Jun-2023	52-18	Meatmaster 2	Alive
817	43-23	F	24-Jun-2023	36-21	Meatmaster 3	Alive

In 2023, five sheep (2M, 3F) died due to causes listed in Table 16.

Table 16: Damara sheep deaths from 1 January 2023 to 31 December 2023.

SB #	Tag #	Sex	Date of Death	Cause of Death
695	76-21	F	04-Jan-2023	Fracture in the cervical spine
797	23-23	F	23-May-2023	Still born
803	29-23	F	25-May-2023	Still born
808	34-23	M	31-May-2023	Internal bleeding
809	35-23	M	03-Jun-2023	Still born

CCF's Damara sheep are managed for meat production and castrated males and old or inferior bucks and does are sold to farmers. Between 1 January 2023 and 31 December 2023, nine sheep (1M, 2F, 6W) were sold, amounting to N$6,830.00. Table 17 provides an overview of CCF's Damara sheep sales.

Table 17: Damara sheep sales from 1 January 2023 to 31 December 2023 (M = male, F = female, W = wether).

SB #	Tag #	Sex	Date of Birth	Date of Sale	Price
785	11-23	W	18-May-2023	11-Sep-2023	N$ 780.00
786	12-23	F	18-May-2023	11-Sep-2023	N$ 780.00
796	22-23	F	23-May-2023	11-Sep-2023	N$ 630.00
799	25-23	W	24-May-2023	11-Sep-2023	N$ 690.00
813	39-23	M	09-Jun-2023	11-Sep-2023	N$ 800.00
794	20-23	W	22-May-2023	15-Oct-2023	N$ 600.00
806	32-23	W	28-May-2023	15-Oct-2023	N$ 700.00
798	24-23	W	24-May-2023	15-Oct-2023	N$ 700.00
793	19-23	W	21-May-2023	15-Oct-2023	N$ 700.00
				Total	**N$ 6,380.00**

CCF's strategy is to keep improving on the quality of its Damara sheep herd by bringing in quality rams and continuing to improve the selection of animals for breeding. This will provide more income from the sales of these sheep, as some can be sold as breeding animals versus only meat.

B.2.3 Dairy Goats

The dairy goat herd stood at 203 (25M, 178F) at the end of this reporting period, down from 211 at the end of 2022.

The dairy goat does are managed in a way that when half of them are being bred, the other half are lactating to keep a continuous production of milk for the creamery. However, over the past year and a half during breeding soundness exams we have experienced results which have caused a reduction in breeding. In November 2022, four does were bred with three breeding males; Michel (SB#580), Leo (SB#590) and Raphael (SB#801). One of the four does that was bred, fell pregnant and gave birth to a total of three kids (1M, 2F) in April. Another 19 does were bred in March 2023 with the same breeding males; Michel, Leo and Raphael. Fifteen of the 19 does that were bred fell pregnant and gave birth to a total 28 kids (10M, 18F) in July and August 2023. Another 49 does were bred in June and July 2023 with the same breeding males; Michel, Leo and Raphael. Thirty-one of the 49 does that were bred fell pregnant and gave birth to a total of 43 kids (18M, 24F, 1U) in July and August 2023 (Table 18).

Table 18: Breeding and kidding months for 9 Dairy does from 1 January 2023 to 31 December 2023. (Abo = aborted, NP = not pregnant).

Goat	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Abbi			Bred					Kid				
Amelia 2			Bred					Kid				
Autumn			Bred					Kid				
Chianti			Bred					NP				
Chive				NP								
Erin 2			Bred					NP				
Halali			Bred					Kid				
Kendall			Bred					Kid				
Kwando			Bred					Kid				
Lillibet			Bred					Kid				
Lizzie			Bred					Kid				
Lunda			Bred					Kid				
Malbec				NP								
Marie-Antoinette			Bred					Kid				
Maya			Bred					Kid				
Meredith				NP								
Ndahafa			Bred					Kid				
Rose			Bred				Kid					
Ruacana				Kid								
Stella			Bred				Kid					
Vistoria			Bred				Kid					
Veneto			Bred					NP				
Zemba			Bred					NP				
Alex							Bred					Kid

Alice 2						Bred					Kid	
Amanda							Bred					NP
Amaryllis							Bred					Kid
Amber							Bred				Kid	
Amelia 2							Bred					NP
Bianca 2							Bred					NP
Blackfoot							Bred			NP		
Carolina							Bred				Kid	
Cecilia							Bred					NP
Cosmos							Bred					Kid
Dolcetto							Bred					Kid
Elma							Bred					Kid
Frida							Bred			NP		
Gabela							Bred					NP
Gardenia							Bred			NP		
Gize							Bred					Kid
Indigo						Bred					Kid	
Isabel							Bred				Kid	
Kalahari							Bred				Kid	
Kariba							Bred					NP
Kaylee							Bred					NP
Khenzi							Bred					Kid
Kir							Bred				Kid	
Lola						Bred					Kid	
Madeira						Bred					Kid	
Malachite							Bred					NP
Maria							Bred					Kid
Marsala							Bred				Kid	
Martha							Bred					Kid
Modesta							Bred					Kid
Monique							Bred					NP
Moon(stone)							Bred					NP
Nala							Bred			NP		
Ngoma							Bred					Kid
Nicole						Bred					Kid	
Philippa							Bred					NP
Posey							Bred					Kid

Purros							Bred					NP
Robin						Bred					Kid	
Rue							Bred					NP
Sage							Bred					NP
Shila							Bred					Kid
Shiraz							Bred					Kid
Susan							Bred					Kid
Tanaka							Bred					Kid
Thistle							Bred					Kid
Trendy						Bred					Kid	
Zara							Bred					Kid

A total of 74 (29M, 44F, 1U) dairy kids were born during 2023 (Table 19).

Table 19: Dairy goat births from 1 January 2023 to 31 December 2023 (M = male, F = female, U = unknown).

SB#	Name	Sex	Date of Birth	Dam	Sire	Alive or Dead
899	2899	M	10-Apr-2023	Ruacana	Michel	Alive
900	Opuwo	F	10-Apr-2023	Ruacana	Michel	Alive
901	Uutapi	F	10-Apr-2023	Ruacana	Michel	Alive
902	3902	M	31-Jul-2023	Stella	Michel	Alive
903	Tresia	F	31-Jul-2023	Stella	Michel	Alive
904	Ruth	F	31-Jul-2023	Stella	Michel	Alive
905	Hyacinth	F	31-Jul-2023	Rose	Raphael	Alive
906	Flower	F	31-Jul-2023	Rose	Raphael	Alive
907	3907	M	02-Aug-2023	Marie-Antoinette	Raphael	Alive
908	Kayla	F	02-Aug-2023	Marie-Antoinette	Raphael	Alive
909	Maddy	F	02-Aug-2023	Marie-Antoinette	Raphael	Alive
910	3910	M	03-Aug-2023	Lizzie	Raphael	Alive
911	Alva	F	03-Aug-2023	Lizzie	Raphael	Alive
912	3912	M	04-Aug-2023	Halali	Michel	Alive
913	Namutoni	F	04-Aug-2023	Halali	Michel	Alive
914	Anahi	F	04-Aug-2023	Vistoria	Raphael	Alive
915	Rakel	F	04-Aug-2023	Vistoria	Raphael	Alive
916	3916	M	04-Aug-2023	Kwando	Raphael	Alive

917	Cubango	F	04-Aug-2023	Kwando	Raphael	Alive
918	3918	M	04-Aug-2023	Lunda	Michel	Alive
919	Bantu	F	04-Aug-2023	Lunda	Michel	Alive
920	Aspen	F	07-Aug-2023	Maya	Raphael	Alive
921	3921	M	09-Aug-2023	Ndahafa	Raphael	Dead
922	Mahi	F	09-Aug-2023	Ndahafa	Raphael	Alive
923	3923	M	09-Aug-2023	Amelia 2	Raphael	Alive
924	3924	M	23-Aug-2023	Lilibet	Raphael	Alive
925	3925	M	26-Aug-2023	Kendall	Raphael	Alive
926	Valencia	F	29-Aug-2023	Kendall	Raphael	Alive
927	Cassie	F	29-Aug-2023	Autumn	Raphael	Alive
928	Devon	F	29-Aug-2023	Abbi	Raphael	Alive
929	Amina	F	29-Aug-2023	Abbi	Raphael	Alive
930	3930	F	05-Nov-2023	Lola	Raphael	Dead
931	3931	F	21-Nov-2023	Indigo	Raphael	Alive
932	3932	U	21-Nov-2023	Indigo	Raphael	Dead
933	3933	M	21-Nov-2023	Madeira	Raphael	Alive
934	3934	F	21-Nov-2023	Madeira	Raphael	Alive
935	3935	M	21-Nov-2023	Alice 2	Raphael	Alive
936	3936	M	21-Nov-2023	Nicole	Raphael	Alive
937	3937	F	21-Nov-2023	Nicole	Raphael	Alive
938	3938	M	21-Nov-2023	Trendy	Raphael	Alive
939	3939	M	26-Nov-2023	Robin	Raphael	Alive
940	3940	M	26-Nov-2023	Kalahari	Michel	Dead
941	3941	M	27-Nov-2023	Isabel	Raphael	Alive
942	3942	F	27-Nov-2023	Isabel	Raphael	Alive
943	3943	M	27-Nov-2023	Kir	Raphael	Alive
944	3944	F	27-Nov-2023	Kir	Raphael	Alive
945	3945	F	27-Nov-2023	Kir	Raphael	Alive
946	3946	F	28-Nov-2023	Marsala	Raphael	Alive
947	3947	F	28-Nov-2023	Marsala	Raphael	Alive
948	3948	F	28-Nov-2023	Marsala	Raphael	Alive
949	3949	F	30-Nov-2023	Amber	Michel	Alive
950	3950	F	30-Nov-2023	Caroline	Michel	Alive
951	3951	F	03-Dec-2023	Gize	Raphael	Alive
952	3952	F	04-Dec-2023	Alex	Michel	Alive
953	3953	F	04-Dec-2023	Martha	Michel	Alive

954	3954	M	05-Dec-2023	Susan	Raphael	Alive
955	3955	M	05-Dec-2023	Dolcetto	Raphael	Alive
956	3956	M	05-Dec-2023	Khenzi	Michel	Alive
957	3957	F	05-Dec-2023	Khenzi	Michel	Alive
958	3958	M	05-Dec-2023	Shila	Michel	Alive
959	3959	F	07-Dec-2023	Modesta	Raphael	Alive
960	3960	F	07-Dec-2023	Tanaka	Raphael	Alive
961	3961	M	07-Dec-2023	Cosmos	Raphael	Dead
962	3962	M	07-Dec-2023	Cosmos	Raphael	Dead
963	3963	M	07-Dec-2023	Elma	Michel	Alive
964	3964	M	08-Dec-2023	Thistle	Raphael	Alive
965	3965	F	11-Dec-2023	Thistle	Raphael	Alive
966	3966	F	14-Dec-2023	Ngoma	Michel	Dead
967	3967	M	15-Dec-2023	Posey	Raphael	Alive
968	3968	M	20-Dec-2023	Zara	Michel	Alive
969	3969	F	20-Dec-2023	Zara	Michel	Alive
970	3970	F	20-Dec-2023	Maria	Raphael	Alive
971	3971	F	20-Dec-2023	Shiraz	Raphael	Alive
972	3972	F	20-Dec-2023	Amaryllis	Raphael	Alive

Between 1 January 2023 and 31 December 2023, 20 (8M, 11F, 1U) Dairy goats died to causes listed in Table 20.

Table 20: Dairy goats that have died from 1 January 2023 to 31 December 2023.

SB #	Name	Sex	Date of Death	Cause of Death
59	Diana	F	01-Jan-2023	Euthanized – Old Age
896	2896	F	08-Jan-2023	Clostridia
487	Selena	F	09-Jan-2023	Poisonous plants
895	2895	M	11-Apr-2023	Cachexia
789	Mai-Tai	F	25-Apr-2023	Killed by a predator
808	Sasha	F	29-Apr-2023	Killed by a predator
898	2898	M	29-Apr-2023	Killed by a predator
897	2897	F	29-Apr-2023	Killed by a predator

568	Jared	M	10-May-2023	Pneumonia
830	Tinkerbelle	F	22-Jun-2023	Killed by a predator
921	3921	M	09-Aug-2023	Stillborn
607	Ndahafa	F	04-Oct-2023	Pneumonia
580	Michel	M	28-Oct-2023	Acute Heart Failure
930	3930	F	05-Nov-2023	Premature
932	3932	U	21-Nov-2023	Stillborn
940	3940	M	26-Nov-2023	Starvation
838	Willow	F	05-Dec-2023	Internal parasites
961	3961	M	10-Dec-2023	Trauma caused by Mum
962	3962	M	12-Dec-2023	Enteritis
966	3966	F	16-Dec-2023	Starvation

CCF's Dairy goats are managed for milk production and castrated males and old or inferior bucks and does are sold to farmers. Between 1 January 2023 and 31 December 2023, 63 dairy goats (2M, 52F, 9W) were sold, amounting to sales of N$136,780.00. Table 21 provides an overview of CCF's Dairy goat sales.

Table 21: Dairy goat sales from 1 January 2023 to 31 December 2023 (M = male, F = female, W = wether).

SB #	Name	Sex	Date of Birth	Date of Sale	Price
344	Erin 2	F	06-Aug-2015	26-Mar-2023	N$2500.00
271	Nigella	F	30-Aug-2016	26-Mar-2023	N$2500.00
841	Ash	F	09-Aug-2022	12-May-2023	N$2500.00
574	Aune	F	21-Dec-2019	12-May-2023	N$2500.00
877	Bacardi	F	17-Aug-2022	12-May-2023	N$2500.00
589	Belle	F	07-Aug-2020	12-May-2023	N$2500.00
342	Beulah	F	23-Aug-2017	12-May-2023	N$2500.00
315	Blanc	F	06-Nov-2016	12-May-2023	N$2500.00
182	Brenna	F	05-Dec-2014	12-May-2023	N$2500.00

277	Bridget	F	04-Sep-2016	12-May-2023	N$2500.00
364	Brier	F	15-Sep-2017	12-May-2023	N$2500.00
354	Burgandi	F	31-Aug-2017	12-May-2023	N$2500.00
593	Catherine	F	07-Aug-2020	12-May-2023	N$2500.00
508	Charlotte	F	11-Aug-2019	12-May-2023	N$2500.00
383	Claret	F	15-Oct-2017	12-May-2023	N$2500.00
617	Clover	F	13-Aug-2020	12-May-2023	N$2500.00
514	Constantia	F	14-Aug-2019	12-May-2023	N$2500.00
716	Dallas	F	05-Aug-2021	12-May-2023	N$2500.00
206	Daisy	F	08-Aug-2015	12-May-2023	N$2500.00
257	Denali	F	01-Apr-2015	12-May-2023	N$2500.00
291	Diamond	F	31-Oct-2016	12-May-2023	N$2500.00
810	Dory	F	31-Jul-2022	12-May-2023	N$2500.00
778	Fern	F	13-Dec-2021	12-May-2023	N$2500.00
741	Flint	F	20-Aug-2021	12-May-2023	N$2500.00
619	Foibe	F	13-Aug-2020	12-May-2023	N$2500.00
370	Glory	F	17-Sep-2017	12-May-2023	N$2500.00
296	Henrietta	F	01-Nov-2016	12-May-2023	N$2500.00
681	Holly	F	24-Dec-2020	12-May-2023	N$2500.00
174	Jane	F	16-Aug-2022	12-May-2023	N$2500.00
541	Kylie	F	29-Aug-2019	12-May-2023	N$2500.00
506	Lily 2	F	11-Aug-2019	12-May-2023	N$2500.00
265	Lolita	F	30-Aug-2016	12-May-2023	N$2500.00
542	Louise	F	30-Aug-2019	12-May-2023	N$2500.00
473	Malbec	F	11-Nov-2018	12-May-2023	N$2500.00
743	Margarita	F	23-Aug-2021	12-May-2023	N$2500.00

800	Marjorie	F	28-Dec-2021	12-May-2023	N$2500.00
284	Marigold	F	26-Oct-2016	12-May-2023	N$2500.00
451	Matilda	F	26-Oct-2018	12-May-2023	N$2500.00
806	Maple	F	31-Jul-2022	12-May-2023	N$2500.00
880	Michelle	F	17-Aug-2022	12-May-2023	N$2500.00
280	Olifa	F	25-Oct-2016	12-May-2023	N$2500.00
385	Orchid	F	15-Oct-2017	12-May-2023	N$2500.00
186	Pear	F	10-Dec-2014	12-May-2023	N$2500.00
564	Petit	F	16-Dec-2019	12-May-2023	N$2500.00
319	Princess-Eugene	F	12-Nov-2016	12-May-2023	N$2500.00
489	Rosemary	F	09-Aug-2019	12-May-2023	N$2500.00
837	Shuri	F	08-Aug-2022	12-May-2023	N$2500.00
504	Takue	F	11-Aug-2019	12-May-2023	N$2500.00
561	Tayla	F	15-Dec-2019	12-May-2023	N$2500.00
309	Tulip	F	03-Nov-2016	12-May-2023	N$2500.00
873	Veisy	F	14-Aug-2022	12-May-2023	N$2500.00
266	Wendy	F	30-Aug-2016	12-May-2023	N$1400.00
677	0677	M	22-Dec-2020	12-May-2023	N$3000.00
890	2890	M	27-Nov-2022	12-May-2023	N$400.00
902	3902	W	31-Jul-2023	27-Oct-2023	N$220.00
907	3907	W	02-Aug-2023	27-Oct-2023	N$220.00
910	3910	W	03-Aug-2023	27-Oct-2023	N$220.00
912	3912	W	04-Aug-2023	27-Oct-2023	N$220.00
916	3916	W	04-Aug-2023	27-Oct-2023	N$220.00
918	3918	W	04-Aug-2023	27-Oct-2023	N$220.00
923	3923	W	09-Aug-2023	27-Oct-2023	N$220.00

924	3924	W	23-Aug-2023	27-Oct-2023	N$220.00
925	3925	W	26-Aug-2023	27-Oct-2023	N$220.00
				Total	**N$136,780.00**

B.2.4 Milk Production

There are several major factors that play a role in the amount of milk given by a specific goat. These factors include; the breed, age of the animal, lactation stage, amount and type of feed, temperature, milking frequency, availability and duration of free-ranging, animal health condition, and the type of management practice. Each goat is milked twice a day, although the number of goats milked each month depends on their lactation stage.

Between 1 January 2023 and 31 December 2023, up to 72 goats were milked every day for a total production of 41,418.63kg of milk (Table 22). All of this milk was supplied to the creamery, as the new kid raising protocol allows the kids to feed from their mothers instead of being bottle fed.

Table 22: Goats milked, amount produced (kilograms), and how much allocated to kids and creamery from 1 January 2023 to 31 December 2023.

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Goats Milked	2	69	70	67	68	36	33	28	30	42	44	42
Total Produced	4880.31	4776.34	5401.57	4791.57	3702.57	2649.06	2513.45	2502.40	2338.26	2435.18	2774.57	2653.35
Used to Raise Kids	0	0	0	0	0	0	0	0	0	0	0	0
To Creamery	4880.31	4776.34	5401.57	4791.57	3702.57	2649.06	2513.45	2502.40	2338.26	2435.18	2774.57	2653.35

The amount of milk each individual goat produces is monitored on a daily, weekly, and monthly basis. This allows us to determine when they are producing the most milk and then compare the amounts produced to the feed they are given. Table 23 shows the amount of milk production per goat per month.

Table 23: Milk production (kilograms) per goat per month from 1 January 2023 to 31 December 2023.

Goat	SB#	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Abbi	651	-	-	-	-	-	-	-	-	-	2.06	37.86	50.23

Ablonia	492	62.81	69.03	62.67	67.40	25.64	-	1.51	-	-	-	-	19.97
Amber	553	115.35	108.06	112.33	98.42	98.25	94.58	80.15	85.46	77.48	57.95	4.92	
Amelia 2	591	-	-	-	-	-	-	-	-	-	6.92	64.90	62.90
Aune	574	1.17	-	-	-	-	-	-	-	-	-	-	-
Autumn	764	-	-	-	-	-	-	-	-	-	6.16	67.28	85.54
Barolo	521	41.29	41.55	58.03	65.91	68.85	64.99	70.19	71.66	68.40	79.40	80.08	79.80
Beulah	342	79.48	64.61	58.01	46.05	14.77	-	-	-	-	-	-	-
Blackfoot	622	77.76	79.53	90.35	78.39	90.40	90.33	86.79	78.54	83.55	94.18	100.30	96.29
Blanc	315	38.47	38.24	38.64	28.70	15.31	-	-	-	-	-	-	-
Brenna	182	95.31	89.97	94.36	81.87	33.59	-	-	-	-	-	-	-
Bridget	277	102.78	99.82	63.35	65.01	24.93	-	-	-	-	-	-	-
Brier	364	78.91	81.92	67.68	58.07	23.72	-	-	-	-	-	-	-
Burgandi	354	5.25	5.66	83.03	80.08	18.98	-	-	-	-	-	-	
Caitlin	132	1.84	-	-	-	-	-	-	-	-	-	-	-
Carolina	621	19.96	57.51	87.28	84.53	85.43	86.10	77.47	92.63	89.53	62.10	5.17	-
Catherine	593	35.38	39.53	52.06	48.74	18.64	-	-	-	-	-	-	-

Charlotte	508	9.32	23.43	32.30	36.79	17.94	-	-	-	-	-	-	-
Chianti	384	105.37	93.44	109.09	108.02	108.65	104.16	102.28	98.70	90.06	104.94	124.41	126.24
Chive	558	97.31	83.91	93.13	90.75	96.16	88.09	83.39	83.56	73.70	85.34	90.55	93.51
Chloe	434	161.19	156.60	158.73	129.96	124.37	115.22	139.26	142.87	143.66	164.39	161.93	171.90
Claret	383	111.74	98.18	90.86	72.80	30.10	-	-	-	-	-	-	-
Clover	617	47.48	75.77	91.34	78.76	31.86	-	-	-	-	-	-	-
Constantia	514	-	-	14.26	53.18	22.42	-	-	-	-	-	-	-
Cosmos	612	-	-	-	-	-	-	-	-	-	-	-	28.17
Crystal	510	121.12	114.54	140.03	121.05	122.84	115.68	122.53	128.54	115.42	120.56	113.30	116.20
Daisy 2	468	93.24	92.82	96.10	78.33	24.83	-	-	-	-	-	-	-
Denali (SA)	257	92.57	74.30	94.43	80.35	30.27	-	-	-	-	-	-	-
Dominique	554	84.33	71.14	95.34	106.64	121.26	102.29	98.98	110.24	106.85	125.77	36.96	38.33
Erin 2	203	97.63	88.54	77.89	-	-	-	-	-	-	-	-	-
Foibe	619	50.07	53.95	58.41	47.94	16.07	-	-	-	-	-	-	-
Gardenia	646	75.22	51.04	86.43	85.32	93.17	92.49	105.48	95.08	91.83	108.80	111.87	109.38

Glory	370	-	-	0.82	-	1.25	-	-	-	-	-	-	-
Halali	279	58.02	46.28	57.76	44.35	44.64	23.30	2.01	-	-	8.05	60.13	55.86
Helena	433	107.57	104.63	101.38	69.80	72.65	78.39	88.76	91.96	96.25	98.61	109.64	103.63
Henrietta	296	103.04	98.65	111.44	94.51	37.94	-	-	-	-	-	-	-
Indigo	645	-	-	-	-	-	-	-	-	-	-	1.25	46.12
Isabel	595	49.87	54.58	50.27	48.32	52.79	51.34	56.66	56.37	56.45	35.25	0.71	-
Kalahari	790	-	-	-	-	-	-	-	-	-	-	-	29.07
Kendall	664	-	-	-	-	-	-	-	-	-	2.16	49.10	37.33
Khenzi	628	42.49	53.79	42.84	30.90	25.97	13.28	6.31	-	0.66	-	0.71	-
Kir	346	114.13	110.20	131.20	123.40	130.04	128.57	133.61	133.25	85.22	31.54	-	-
Kwando	609	75.37	56.31	49.67	29.66	5.55	0.91	-	-	-	11.67	70.74	54.67
Kylie	541	22.24	48.69	58.88	51.56	19.46	-	-	-	-	-	-	-
Lilibet	699	-	-	-	-	-	-	-	-	-	6.30	61.34	76.54
Lizzie	289	101.63	94.75	102.02	91.47	90.41	76.94	8.90	-	-	7.28	84.53	57.40
Lola	751	-	-	-	-	-	-	-	-	-	-	2.11	41.67
Lolita	289	49.99	66.43	61.19	32.12	13.54	-	-	-	-	-	-	-

Lotus	484	13.78	63.48	97.49	94.98	103.12	92.71	91.85	89.77	93.75	107.49	114.76	106.42
Louise	542	0.35	1.48	17.89	65.96	31.91	-	-	-	-	-	-	-
Lunda	600	-	-	-	-	-	-	-	-	-	1.87	33.29	17.25
Madeira	522	58.16	69.53	68.92	42.94	63.16	54.55	66.93	65.00	49.77	40.15	6.96	0
Malbec	317	110.85	101.18	115.11	91.07	36.51	-	-	-	-	-	-	-
Maria	508	66.17	68.49	52.81	47.66	55.15	54.98	48.04	67.79	70.19	71.80	79.87	39.78
Marie-Antoinette	301	4.49	19.91	66.41	69.29	59.42	26.30	-	-	-	6.57	56.82	48.24
Marigold	284	58.32	18.86	-	-	-	-	-	-	-	-	-	-
Marsala	301	114.74	99.60	115.34	111.42	109.89	104.16	94.88	92.09	66.64	39.43	1.22	-
Matilda	356	23.28	57.64	73.33	68.47	28.84	-	-	-	-	-	-	-
Maya	759	-	-	-	-	-	-	-	-	-	1.89	34.00	4.58
Meredith	498	125.16	109.09	120.89	100.16	94.36	83.55	85.88	89.13	83.19	102.06	104.13	92.65
Moyo	512	72.52	73.18	102.67	99.35	106.52	100.22	102.49	86.68	82.34	93.66	86.15	79.50
Nala	599	74.90	99.53	101.87	88.61	99.81	100.18	104.69	96.46	104.14	115.56	130.53	133.61
Ngoma	686	-	-	-	-	-	-	-	-	-	-	-	26.21

Nicole	513	128.53	113.38	122.18	98.64	108.96	105.19	102.77	83.27	62.56	13.40	-	-
Nigella	407	94.39	97.99	83.18	-	-	-	-	-	-	-	-	-
Olifa	271	117.45	94.05	77.60	61.49	20.54	-	-	-	-	-	-	-
Orchid	385	-	-	14.22	58.36	29.13	-	-	-	-	-	-	-
Pearl	368	47.06	56.86	74.36	70.44	25.47	-	-	-	-	-	-	-
Petit	564	51.79	43.47	47.68	44.52	17.79	-	-	-	-	-	-	-
Princess Eugenie	138	81.84	69.95	81.49	74.20	26.32	-	-	-	-	-	-	-
Quartz	515	0.67	-	45.63	62.35	68.00	66.80	68.22	76.07	72.46	75.37	80.43	70.83
Robin	107	93.45	93.67	100.12	85.15	85.31	83.59	81.86	80.46	79.72	87.30	44.29	-
Rose	417	107.40	92.21	93.36	83.59	72.45	4.55	-	-	-	11.28	105.93	72.90
Rosemary	489	34.71	27.85	35.56	32.43	10.31	-	-	-	-	-	-	-
Ruacana	462	30.24	1.63	-	-	-	-	-	-	-	-	2.57	12.28
Sage	613	-	-	-	-	-	-	-	-	-	-	-	1.72
Selena	487	17.09	-	-	-	-	-	-	-	-	-	-	-
Shiraz	674	-	-	-	-	-	-	-	-	-	-	-	2.16

Simone	572	91.00	76.95	88.29	75.98	78.35	65.22	71.15	73.79	79.03	89.78	90.82	87.60
Stella	144	6.00	8.13	26.17	18.14	8.89	3.43	-	-	-	1.18	70.40	53.25
Takue	504	43.91	42.52	39.29	26.27	15.18	-	-	-	-	-	-	-
Tayla	561	19.41	51.25	54.86	54.37	24.26	-	-	-	-	-	-	-
Topaz 2	511	72.29	67.43	99.64	80.51	82.60	84.52	89.44	99.05	104.63	118.97	123.18	117.10
Tulip	309	93.28	88.08	104.25	103.98	35.84	-	-	-	-	-	-	-
Veneto	570	37.03	42.59	55.25	54.09	58.02	54.49	52.67	43.60	37.98	46.09	54.98	56.02
Vistoria	562	72.23	77.62	83.03	79.39	77.58	60.21	6.25	-	0.14	8.29	54.84	48.87
Wendy	359	48.77	78.94	70.39	46.87	19.46	-	-	-	-	-	-	-
Zara	543	92.39	86.69	99.35	100.00	94.98	85.08	88.23	86.20	84.68	78.63	10.45	-
Zemba	367	149.97	95.70	99.48	91.82	101.84	92.74	93.86	104.21	88.01	104.99	49.19	1.69
Total (kg)	-	4880.31	4776.34	5401.57	4791.57	3702.57	2649.02	2513.45	2502.40	2338.26	2435.18	2774.57	2653.35

Figure 41 displays the number of goats milked each month and the total milk production per month.

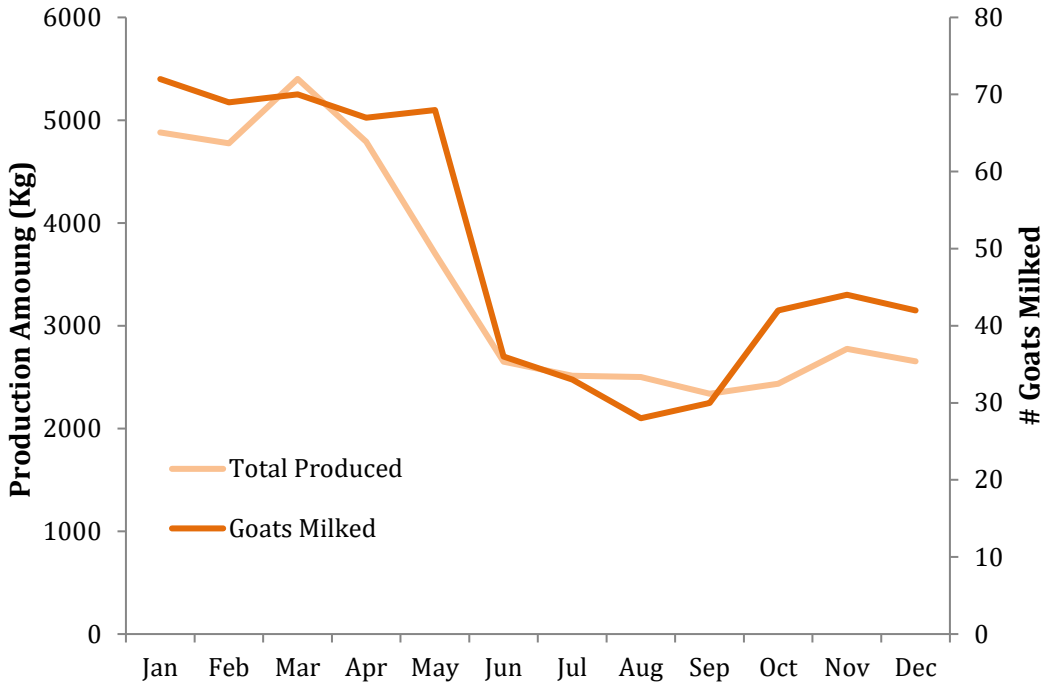


Figure 41: Milk production versus goats milked from 1 January 2023 to 31 December 2023.

B.2.5 Feed Provided to CCF Small Stock

To ensure the health of all our goats and sheep we constantly monitor their food requirements and intake. We currently use four feed products to provide the correct variety of nutrients to our animals. They include Alfalfa hay; ram, lamb, and ewe pellets; milk goat pellets; and grass hay. Figure 42 shows the amount of feed used for each type during this reporting period.

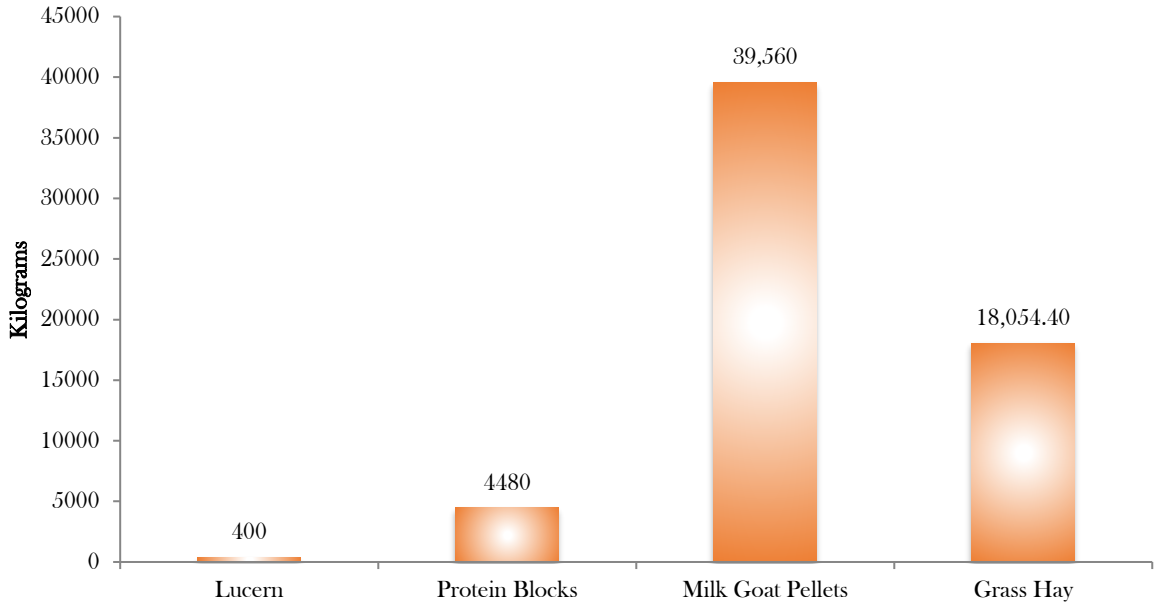


Figure 42: Amount of feed provided to CCF small stock from 1 January 2023 to 31 December 2023.

B.2.6 Vaccinations and De-worming

All of CCF's small stock is treated for internal and external parasites on a quarterly basis in January, April, July, and October of each year. The product used for internal parasite treatment rotates between the following four products: Fenbendazole, Ivermectin, Albendazole, and Doramectin. The product used at each treatment is determined by which product was used previously; antihelminthic products are rotated between drug classes in order to help prevent the development of resistance among the parasites, which can happen when the same product is used repeatedly. Before and after each quarterly parasite treatment, a herd-wide faecal Egg Count (FEC) is performed to determine the internal parasite burden in the animals. This is done by collecting representative faecal samples from various areas in the kraal. The pre- and post-treatment testing helps ensure that the treatments reduce the parasite burden in the animals, which helps to ensure the efficacy of the products used. For external parasite (tick, fly, and lice) prevention Paracide (Pfizer Animal Health) and Ultra-Boss Pour-On (Schering-Plough Animal Health) are rotated at each quarterly treatment. Vaccines are applied as follows. In addition, this year CCF vaccinated all small stock herds against Anthrax.

- Actinomyces – for the control of Caseous lymphadenitis (C*orynebacterium pseudotuberculosis*) – also known as cheesy gland.
    - All new-borns are vaccinated at two weeks old, three injections must be given 10 days apart and then one injection should be given every 6 months thereafter.
    - Adult animals are vaccinated every 6 months.
- MultiVax P Plus – for the control of dysentery, pulpy kidney disease (*Clostridium perfringens* Type D), tetanus (*Clostridium tetani*), Pasteurella (*Pasteurella haemolytica*) respiratory infection, blackleg (*Gangraena emphysematosa*), clostridial metritis, blood gut, and infections.
    - All new-borns are vaccinated at four weeks old, then a booster after a month and then annually thereafter.
    - Adult animals are vaccinated annually.
- Brucellosis – for the control of *Brucella ovis* and *Brucella melitensis*, a bacterial infection of the reproductive tract.
    - This vaccine is given only once and provides life-long immunity; all young animals are vaccinated at four months of age.
- Enzootic Abortion – for the control of *Chlamydophilapsittici*, an organism that causes early and late-term abortions.
    - All of the female animals are vaccinated one month before breeding on an annual basis.
- Rabies – for the prevention of rabies virus which causes fatal encephalitis.
    - All new-borns are vaccinated at four months of age, then a booster after a month and then annually thereafter.
    - All adult animals are vaccinated yearly.

B.3 Hay Production

From 1 January 2023 to 31 December 2023, CCF produced 4,000 bales of hay.

B.4 Wild Game Hunted on CCF Property

As part of CCF Model Farm's sustainable wildlife management practices, CCF hunts several wild game species for consumptive purposes, including oryx, kudu, red hartebeest, and warthog. Figure 43 below displays the amount of wild game removed for consumptive use for this reporting period.

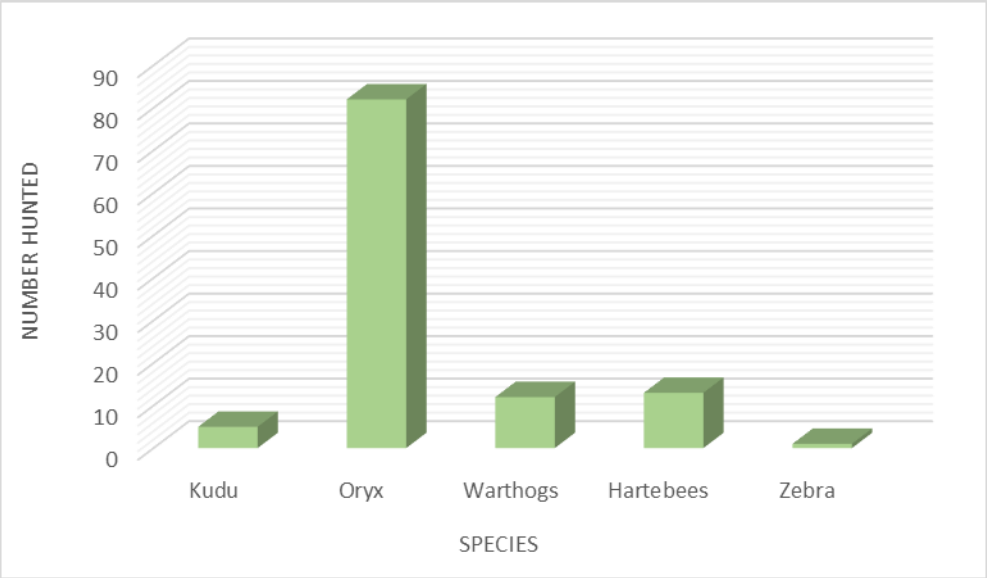


Figure 43: Amount of game utilised by CCF during 1 January 2023 to 31 December 2023.

C. Sustainable Economic Programmes Supporting Local Communities

If the world's fastest cat is to survive in the wild, humans must coexist with it. The following progress has been made on CCF's activities that seek to assure the economic well-being of people living within the cheetah's range and provide resources to support CCF's long-term activity.

C.1 Certified Wildlife Friendly

CCF is a co-founder of The Wildlife Friendly Enterprise Network (WFEN), which is a global community dedicated to the development and marketing of products that conserve threatened wildlife while contributing to the economic vitality of rural communities. The WFEN provides the 'Certified Wildlife Friendly' trademark (Figure 44) that distinguishes enterprises that meet the

highest standards of being wildlife friendly. CCF's Bushblok and Dancing Goat Creamery are both Certified Wildlife Friendly.

Figure 44: Certified Wildlife Friendly logo.

C.2 Bushblok and Fuelwood

C.2.1 Operations: Bushbolk

Production in 2023 amounted to 529 tonnes with sales of 560 tonnes. Table 24 shows the monthly block production during this reporting period.

Table 24: Monthly block production January to December 2023.

Month	Amount (tonnes)
January	20
February	33
March	49
April	50
May	58
June	64
July	71
August	76
September	48
October	22
November	24
December	14
Total	**529**

C.2.2 Operations: Fuelwood

Production in 2023 amounted to 311 tonnes with sales of 326.374 tonnes. Table 25 shows the fuelwood production during this reporting period.

Table 25: Monthly fuelwood production January to December 2023.

Month	Amount (tonnes)
January	2
February	25
March	28
April	32
May	28
June	29
July	34
August	31
September	8
October	32
November	6
December	56
Total	**311**

C.3 Cheetah Country Initiatives

C.3.1 Dancing Goat Creamery

Background

CCF began producing fresh goat cheese in August 2009 using the milk from six CCF's dairy goats, which came from the award-winning dairy farm Fairview in South Africa.

The herd has grown slowly over the past few years, as it takes approximately one and a half years to get a goat kid into production. At the end of December 2023, there were 203 dairy goats at CCF with up to 72 being milked daily for a daily average of 113.48kg per day. Milk yields from the dairy goats have steadily increased since the inception of the dairy goat programme. The programme aims to facilitate training and skill development around the production of dairy goat products, thus enabling livelihood diversification, and supplemental income to both CCF and community members.

In early April 2013, CCF opened the Dancing Goat Creamery, where high-quality artisanal fresh goat cheeses, as well as a variety of goat milk ice creams, fudge, and soaps, are produced daily by CCF's Creamery Manager Raul Carlos, Head Cheese Maker, Fransina Simson, and Cheese Maker Simeon Heita, who was a long-term intern before his position. The Dancing Goat Creamery is an essential part of CCF's Model Farm, which alongside its celebrated Livestock Guarding Dog Programme, allows CCF to demonstrate how cheetahs and livestock can live together and how local farmers can be successful using non-lethal predator management and alternative income source strategies to protect their livestock and thus their livelihoods.

As with the CCF International Research and Education Centre, the CCF Model Farm and Dancing Goat Creamery are open to the public daily and local farmers are encouraged to visit.

Production

CCF's Dancing Goat Creamery was supplied with a total of 41,418.63kg of milk from January to December 2023, however, due to human error, spilling and different/faulty scales, only 40,079kg of milk was actually used in the creamery. Of the total milk used for creamery products, 22% was used to produce two of the creamery's original cheeses, feta and chèvre. Table 26 shows amounts of milk allocated to the production of each creamery product.

Table 26: Milk allocation per product in January to December 2023.

Product	Milk Used (kg)
Feta	6220
Chevre	2598
Ricotta	168
Mozzarella	6486
Hard cheese	1495
Yogurt	15589
Fudge	423
Ice cream	279
Soap	53
Milk to farm staff	2953
Cream cheese	248
Halloumi	2125
Fresh milk	1373
Powdered Milk	70
Total	**40079**

Table 27 shows the amounts of two of these varieties produced each month from January to December 2023. In addition, the creamery produced a total of 91kg of fudge, 395kg of ice cream, 15kg of ricotta, 130kg hard cheese, 20kg cream cheese, 193kg Halloumi and 14,485kg yoghurt. In addition, 70kg of milk was used to experiment with making powdered goat milk. All cheeses that were produced were used at the staff kitchen, Cheetah Café and the Cheetah View Lodge.

Table 27: Feta and Chèvre monthly production (kilograms) from January to December 2023.

Month	Feta	Chèvre	Total
January	62.10	37.45	99.55
February	27.81	21.78	49.59
March	44.91	39.15	84.06
April	38.25	27.63	65.88
May	63.95	18.90	82.85
June	44.37	10.34	54.71
July	24.90	6.38	31.28
August	59.67	7.25	66.92
September	54.00	13.50	67.50
October	47.76	15.28	63.05
November	49.41	23.17	72.58
December	43.23	13.28	56.51
Total	**560.36**	**234.11**	**794.47**

Expenses

Creamery expenses such as cheese cultures, packaging, labelling, herbs, labour, gas, and electricity are estimated at N$36,542.00 for this period, averaging N$1.42 per kilogram of product. Total milk costs amounted to N$424,092.33 at N$10.60 per kg. The average amount of milk required to produce a kilogram of cheese is 11.33kg, whereas ice cream requires 0.71kg and fudge requires 4.64kg. Table 28 shows the breakdown of costs for the various creamery products as well as the total cost per kilogram of product.

Table 28: Production costs (N$) of creamery products in January to December 2023.

Product	Production (kg)	Milk per kg	Total Milk Used (kg)	Total Milk Cost	Total Other Cost	Total Production Cost	Total cost per kg
Feta	560	11.10	6,219.50	65,926.70	797.86	**66,724.56**	**119.08**
Chevre	234	11.10	2,597.50	27533.50	333.34	**27,866.84**	**119.03**
Ricotta	15	11.11	168	1780.80	21.53	**1,802.33**	**119.20**
Mozzarella	6486	1.00	6486	68751.60	0.00	**68,751.60**	**10.60**

Hard cheese	130	11.52	1495	15845.94	184.78	**16,030.72**	**123.53**
Yogurt	14485	1.08	15589	165238.10	20624.69	**185,862.79**	**12.83**
Fudge	91	4.64	423	4483.80	129.83	**4,613.63**	**50.60**
Ice cream	395	0.71	279	2956.45	562.59	**3,519.03**	**8.91**
Soap	94	0.57	53	562.86	133.34	**696.20**	**7.43**
Milk to farm staff	2960	1.00	2953	31306.04	0.00	**31,306.04**	**10.57**
Cream cheese	20	12.14	248	2628.80	29.09	**2,657.89**	**130.10**
Halloumi	193	11.01	2125	22519.70	274.65	**22,794.35**	**118.17**
Fresh milk	1373	1.00	1373	14558.04	0.00	**14,558.04**	**10.60**
Total	**27037.53**	**77.96**	**40008.71**	**424092.33**	**23091.69**	**447184.02**	**840.65**

Sales

The Dancing Goat Creamery also creates a secondary industry for CCF with increased revenues for its ecotourism business by offering its products for sale to visitors at the Cheetah Gift Shop at retail price. Total profit from creamery products in January to December 2023 was N$161,002. Creamery product amounts totalled 175,42kg, while 258kg were distributed as promotional samples and gifts at events such as agricultural shows, farmer's markets, and tourism fairs (Table 29).

As shown in Table 29, during this period the Creamery supplied the Gift Shop with 2,075kg of product (cheese, fudge, yoghurt, ice-cream, fresh milk and soap). The Creamery also supplied products to the CCF kitchens at Babson House, Cheetah Café, Hot Spot and Farm Workers. During this period, the CCF kitchens and staff were supplied with 3,966kg of ice cream, fudge, cheese, yoghurt, milk and soap.

Table 29: Creamery product sales (N$) in January to December 2023.

Product	Kg	Cost/Kg	Total Cost	Revenue	Profit
Feta	70.75	119	8425	11,490.00	3065
Chevre	30.20	119	3595	5,000.00	1405
Ricotta	1.90	119	226	400.00	174
Mozzarella	-	11	0	-	0
Hard cheese	32.70	124	4039	5,760.00	1721

Yogurt	9,869.00	13	126632	106,745.00	-19887
Fudge	1.70	51	86	425.00	339
Ice cream	-	9	0	-	0
Soap	8.00	7	59	2,800.00	2741
Milk to farm staff	-	11	0	-	0
Cream cheese	5.75	130	748	920.00	172
Halloumi	37.40	118	4420	6,345.00	1925
Fresh Milk	1,184.00	11	12550	16007	3457
Stores and Lodges	**11241**	**841**	**160781**	**155892**	**-4889**
Fudge (Gift Shop)	38.30	51	1937.95	11,391.00	9453
Soap (Gift Shop)	62.43	7	464.07	23,190.00	22726
Cheese (Gift Shop)	60.45	122	7345.76	9,945.00	2599
Yogurt (Gift shop)	1,579.00	13	20260.64	16,410.00	-3851
Fresh milk (Gift shop)	48.00	11	508.80	533.00	24
Ice cream (Gift Shop)	287.35	9	2559.24	83,705.00	81146
CCF Gift Shop	**2,075.53**	**212**	**33076.46**	**145,174.00**	**112098**
Ice Cream (Babson)	15.20	9	135	3648	3513
Soap (Babson)	-	7	0	0	0
Cheese (Babson)	113	122	13780	17010	3230
Yogurt (Babson)	-	13	0	0	0
Fudge (Babson)	22.39	51	1133	5596.25	4464
Total (Babson)	151	201	15048	26254.25	11206
Ice Cream (Café)	70.89	9	631	15594.7	14963
Yogurt (Café)	-	13	0	0	0

Cheese (Café)	503.88	122	61230	75582	14351
Fresh milk	-	11	0	0	0
Total (Café)	574.76	154	61861	91176	29315
Cheese (Hotspot)	211.56	122	25709	31735	6026
Yogurt (Hotspot)	-	13	0	0	0
Ice Cream (Hotspot)	4.95	9	44	1089	1045
Total (Hotspot)	216.51	143	25753	32824	7071
Milk to Farm	2953	10.57	31232	35441	4209
Milk to farm staff	6486	11	68752	77832	9080
Total (CCF Farm)	2953	11	31232	35441	13289
Total (CCF)	**3966**	**628**	**142319**	**197185**	**60881**
Cheese samples	33.40	122	4058	0	4058
Fudge samples	5	51	245	0	245
Yogurt samples	210	13	2695	0	2695
Ice cream samples	10.08	9	90	0	90
Promotional samples	258	194	7088	0	7088
Total All Products Sold	**17542**	**1874**	**343264**	**498251**	**161002**

At the end of this period, the remaining inventory in CCF's freezers was 17.29kg of cheese, 0.58kg fudge, and 8.73kg of ice cream and 0kg of soap (Table 30).

Table 30: Amount of product left in inventory from January to December 2023.

Product	Amount Inventory (kg)	Amount Spoiled (kg)
Fudge	0.58	2
Ice Cream	8.73	0
Yoghurt	100	2727
Soap	0	0
Cheese	17.29	73.16
Fresh Milk	0	165
Total	**126.70**	**2969.16**

Client Development

All the cheese recipes have been perfected to ensure consistent high quality and to ensure client satisfaction. Based on customers' suggestions, the Creamery team worked on the development of a variety of flavours for its existing cheeses.

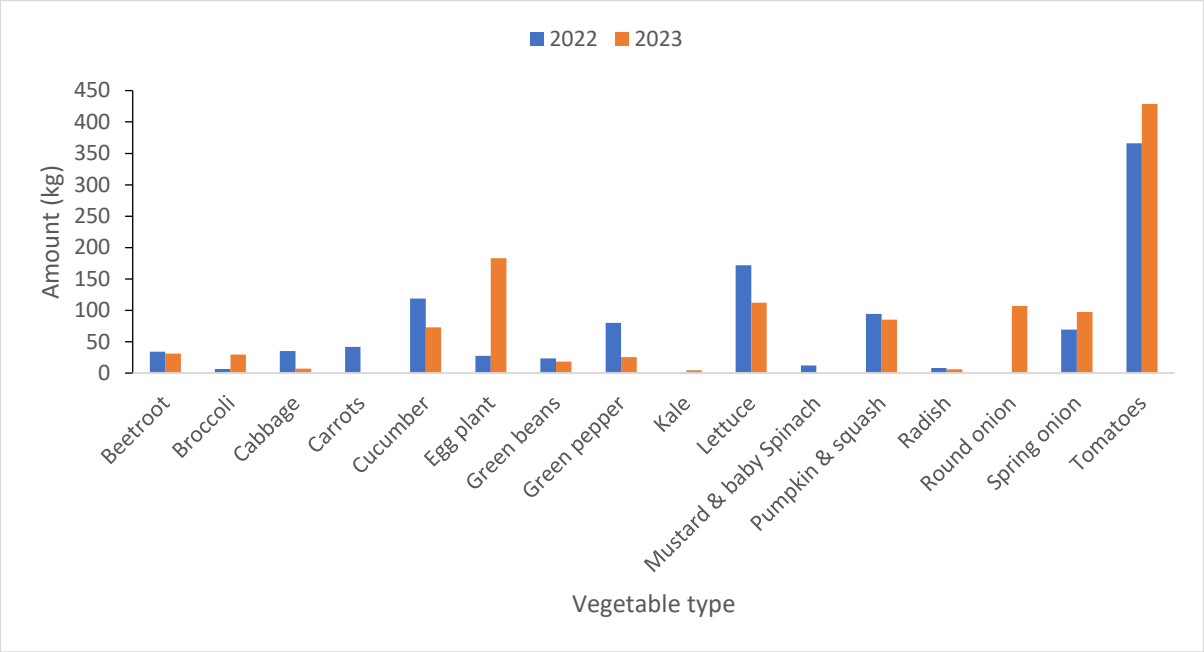
CCF will continue to place special emphasis on customer satisfaction and quality assurance in an effort to continue its growing sales trend. In addition, CCF will intensify the marketing and sales of its new cheese types while continuing to develop new products.

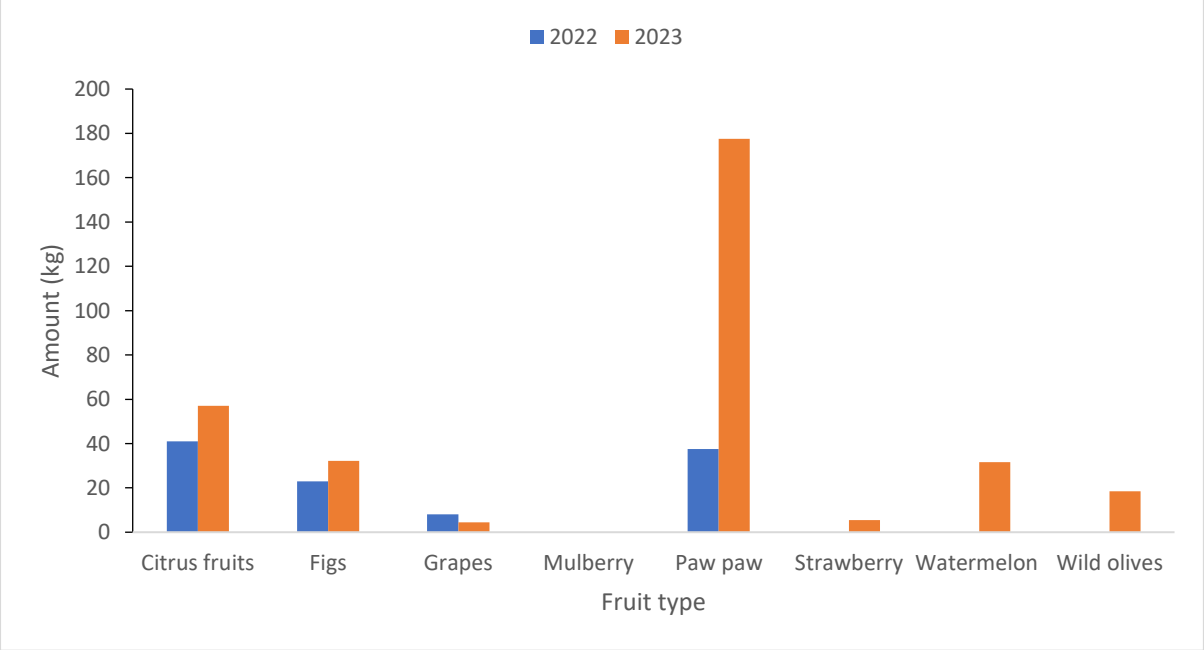
C.3.2 The Chewbaaka Memorial Garden

CCF's Chewbaaka Memorial Garden continues to produce fresh vegetables for consumption by more than 40 CCF staff and volunteers, as well as visitors to the Cheetah Café, Cheetah View Lodge and Babson House guests. Namibia imports approximately 80% of its fruits and vegetables, mostly from South Africa, transporting them across long distances and increasing the use of fossil fuels and carbon emissions that contribute to climate change. By localising food production, CCF is not only reducing the environmental and social impacts of transporting food, but is also providing fresher, tastier, and more nutritious meals while saving money.

To counteract the heavy clay-sand soil, CCF uses aged manure from its farm animals, composting and a by-product from its Bushblok production: wood dust. These materials are mixed into parent soil to improve fertility and organic matter content. CCF is also creating compost from food scraps, which is an essential ingredient for any organic garden. CCF staff, volunteers, and CCF gardeners, Hendrik Hoeseb and CCF interns have been trained in proper composting techniques. CCF is consistently harvesting a variety of salads and vegetables including; beans, beetroot, squash, lettuce, rocket, spinach, basil, kale, peppers, eggplant, tomatoes, cucumber, spring onion. During this reporting period, CCF's Chewbaaka Memorial Garden also harvested a variety of fruits; fig, grape and paw-paw. A total of 1,420.9kg of fresh produce was harvested from the garden between January and December 2023, equivalent to 88.9 % of the amount from the previous reporting period (2022). Figure 45 shows the amounts of the various produce harvested during the reporting

period. Tomatoes, eggplant and lettuce were the most harvested, representing 51% of the overall produce.





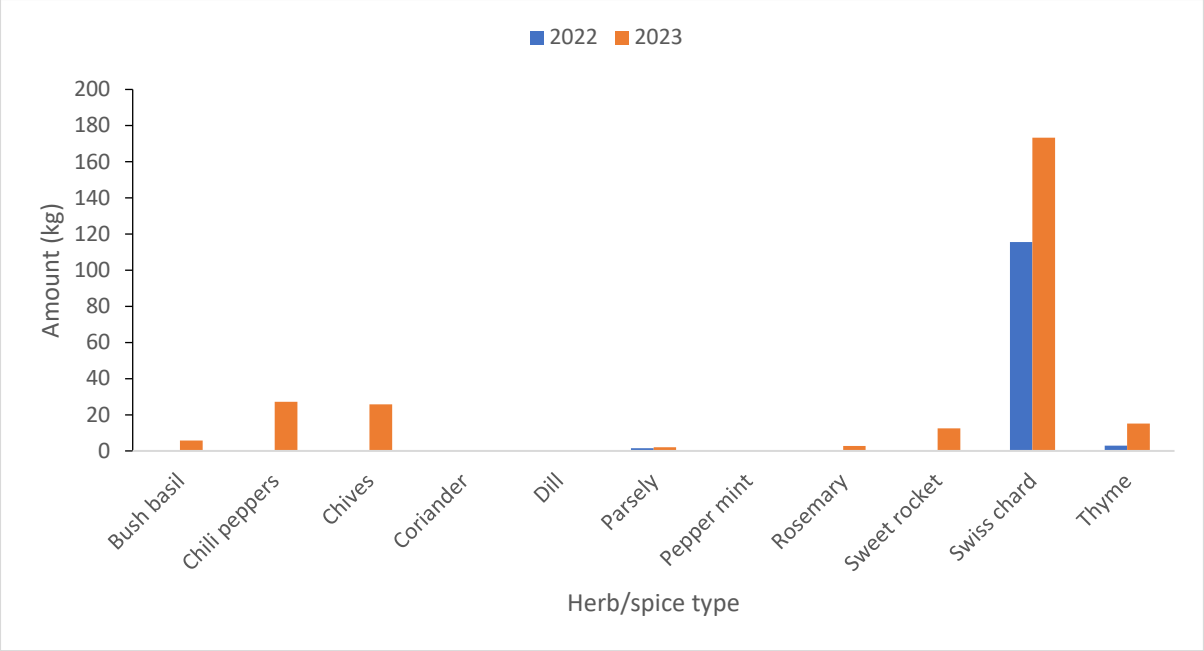


Figure 45: Vegetables, fruits and herbs harvested from the Chewbaaka Memorial Garden during January -December 2022 and 2023.

Since its inception, the garden's harvest has continued to grow. By having diverse plantings in a small space, the garden remains chemical-free because it invites beneficial insects to do the work of managing unwanted insects. Sunflowers and other flowers attract pollinators. The vegetables are therefore healthier for the environment, the growers, and the consumers. Seeds were provided courtesy of Baker Creek Heirloom Seeds, an American company based in Missouri that distributes from California. We have 42 varieties of heirloom vegetable seeds.

Because of a designated gift from CCF USA Trustee Candice Clough in honour of her father, a new greenhouse and pond were installed in May 2018, including electric and water servicing. The garden is one more step in CCF's sustainability programme, which includes an extensive recycling programme and composting. CCF includes the Chewbaaka Memorial Garden and Sustainable Practices in farmer training programmes as yet another way to promote alternative livelihoods and economic growth in Namibia.

C.3.3 CCF Vineyard

The grapes were harvested in January 2023 and produced 350kg of grapes. In September 2023 all the grapevines were pruned.

The grapes that were planted in the CCF garden were looking very good at the end of December 2023 and they had a lot of unripen fruit on the vines. We expect 2024 to be a better harvest than 2023 and the grapes will be harvested around 20 January 2024.

D. Eco-Tourism

Tourism is one of Namibia's largest growing industries, with a large number of developments emerging in the Otjiwarongo area over the past couple of years. CCF's ecotourism potential continues to grow, as it has become one of the region's leading travel and tourism destinations, thus boosting the local businesses of Otjiwarongo. CCF strives to provide supporters and guests the best stay and experience at its accommodations and during day visits at our Centre.

D.1 Visitors to CCF

By the end of 2023, CCF had received a total of 15,829 visiting tourists, of which 1,591 (Cheetah View Lodge & Babson guests) were overnight tourists. This represents a 60.1% increase from 9,889 overall visitors in 2022. In terms of total revenue, this reporting period saw a 62% increase at N$ 14,592.495.38 for 2023, compared with N$ 9,128,507.16 in 2022. In addition to school groups and film crews mentioned separately, CCF hosted many CCF friends, supporters, and collaborators in 2023, many of them on return visits. The beginning of July and August is usually the peak season for visiting guests, however this year's peak season was from May to October.

The following friends, supporters, and collaborators visited CCF during this reporting period;

January

- Dr. Mark Thomas at Cheetah View Lodge Dr. Mark Thomas is from the Madison Area Technical College and spent a night at Cheetah View lodge to discuss future collaboration between CCF and the College.
- Selama Lemdelvo met up with Dr. Laurie Marker to consult regarding the programme on Global Cleantech Innovation Programme: Accelerating climate technology innovation and entrepreneurship to be funded by GEF through UNIDO and coordinated by the Ministry of Environment, Forestry and Tourism (MEFT).
- Mid-January Peter Kaestner (retired American Diplomat as well as an avid birder) and Kimberley Kaestner visited Cheetah View lodge for a couple of nights. They are longtime friends and supporters of CCF.

February

- Clive Johnson, the Director and the President of B2Gold since December 2006 and Chief Executive Officer since March 2007 and a Group from B2Gold did a cheetah Run and spent time meeting up with Dr. Laurie Marker and our General Manager Dr. Bruce Brewer. He also came to see Teja the cheetah named after Clive's son Teja Brian Johnson.

March

- CCF hosted the Annual Steambio Meeting for a week. We had about 52 attendees from all over Namibia and abroad. Hosting people like Dave Wakefield, Huw Parry from the UK, and old-time friend of CCF, Heike Knicke from Switzerland.

- Lynn and Becci Rodgers stayed at Babson house and booked through Infinite. They were at the Empress event Fall 2022. They also supported the Greater Sacremento AZAK chapter in the anaesthesia machine funding (funding was provided through a bequest and they selected CCF as one of the recipients).
- Kathleen LaMattina and Paola Bari, visiting for five days in March. Kathleen (Bronx Zoo) loves and supports CCF and is a strong part of the NY Chapter, does fundraising on a high level and believes in CCF's mission. Her support is vital to the success of the NY Chapter alongside Paola Bari. Paola is on the Board of Trustee USA, recurring donors, Wildlife Conservation Society (Bronx Zoo). Paola is a past Board of Trustee USA member, she helps support CCF with Etsy Crafts and does a heavy lift with the NY Chapter (previous leader). She has been to CCF several times. The NY Chapter would not be what it is without the support of Paola with her artwork, fundraising, children's summer camps, as well as online auction.

April

- Bonnie and Robert Tucker (SoCal) Won ASACV for a 2-night, 3-day Vacation Stay to include activities during the 2022 SPRING online auction. They also attended the Living Desert Zoo fall 2022 event. They have been donating since 2016.

May

- Uli Drömann, a return guest from April 2022, visited for 10 nights. He is a retired eye doctor, who loves cheetahs. He is a friend and great supporter from Germany.
- Cynthia and Gordon Olsen stayed at Babson House. Cynthia is on the CCF International Scientific Board of Advisors. Along with her husband, Gordon, their friend, Vicki Williams and her daughter, Marty Woehrle (first-time travel to Namibia), and her granddaughters, Samantha and Skyler Woehrle (studying in Tanzania), stayed at CCF and had in-depth tours of each department.
- Kathy Snowden (MO) and her family stayed at Babson house for one night. Kathy, Board of Trustee USA Spouse: James Snowden, lifetime giving since 2012. She came with Nell Blatherwick (she was at CCF in 2017), Cindy Brinkley, Martha Gragg, Jack McEnery (grandson of Kathy).
- Patricia Sullivan (NorCal), and Pam Murray also stayed at Babson house in May 2023. Patricia and Pam both won an ASAC voucher. Pam visited CCF in 2017 on a group Safari and returned with her dear friend Patricia Sullivan.
- Martin Zordan is a longtime friend of CCF, he is a veterinarian. He is also the CEO of the World Zoo association. He is eager to learn about CCF after hearing so much about our work for such a long time and was happy to visit.
- Jane Galton from CCF UK Chapter, stayed as a working guest for a few nights. She travelled with Vanessa, who is a longtime friend and supporter of CCF through CCF UK and stayed an extra week to help as a volunteer

- Mr. Raul Pinto and Ms. Leticia Quintero stayed at Babson House for one night and very quickly became CCF friends after meeting Dr. Laurie Marker and Dr. Bruce Brewer. They also became annual supporters.
- Returning Italian CCF supporters Mr Gianluca Rebolini and Ms. Valentina Rossi stayed at Cheetah View Lodge and took part in a fully inclusive schedule specially made for them.

June

- Jeff Muntifering, an old friend and colleague of CCF visited with his family at the beginning of June for one night. They stayed in Babson house celebrating an early birthday gift for his son, Kanus Jeff is an Adjunct Professor at Namibia University of Science and Technology and a Science Adviser at Save the Rhino Trust (SRT).
- Jim Edwards and Michelle Mass, from Oregon, USA also visited for three nights. This was their second time to bid on a Stay at CCF during the Portland Event. They visited Dr. Laurie Marker in Namibia last time during Christmas of 2018. They love CCF and have supported us since 2017 and have donated $21.1K since 2017. They are looking forward to returning.
- Laura Hahns and Deborah Johnston (sisters) and Deborah's son, Spencer, stayed at the Cheetah View Lodge. This was Laura's first time visiting CCF Namibia and has been a donor since 2018.
- Ms. Gailey Browning stayed at the Cheetah View Lodge for a couple of nights. She is from the USA and met up with Dr. Laurie Marker during her stay.
- Returning guests and long standing CCF donors, CCF Randy and Terri Patee stayed for their second time at Babson house again. During their first stay, they sponsored Jaya and in 2021 they supported CCF with a donation to put their name on her enclosure.
- Michelle Gadd and her family stayed at Cheetah View Lodge for 1 night. Michelle is a conservation advisor and part of the U.S. Fish and Wildlife Service. She also is part of the directors and supporters of the ONGAVA Game Reserve in Namibia that borders Etosha National Park.

July

- Dan Beringer, our CCF USA Director and his partner Shauna flew with Laurie from Somaliland after volunteering there to come visit and volunteer at CCF Namibia for two weeks
- CCF supporter, Stephen Snively, visited with his three friends in mid-July. Steve's friend, Stephen is the principal at Khomas Consulting, Inc. and advises U.S. real estate developers and investors doing business in Namibia.
- CCF USA Board member Sally Davidson visited us for two nights at the Cheetah View Lodge. They enjoyed a full schedule of in-depth tours of each department and seeing some of our orphaned Cheetahs.

August

- Brian Hanson, Maddy Bassi, Constance Difede and Emilie Difede stayed at Babson House as VIP Working guest learning and helping hands on with daily tasks that are vital to the fight for the survival of the cheetah.
- We hosted a special group of seven CCF USA supporters with Mango African Safaris at Cheetah View Lodge for a couple of nights.
    - Sherry Atterbury - CCF Board of Directors, Seattle, WA
    - Chrysty Johnston - CCF, Portland
    - Jamie McCulloch - CCF, SC
    - Keith Thompson & Molly Morton, US Citizens living in Europe
    - Marci Rubin - CCF, Oakland, CA
    - Karen Corona - joining Marci Rubin from CA and new to CCF

September

- Donor and friend since 2022, Amy and Ismael Dorsch stayed at Babson House. They got to see CCF while learning all about the work we do.

October

- Loree Ryan stayed at Cheetah View Lodge. She has been a donor since 2015 and winner of the ASACV in 2022. Loree owns The Secret Garden at the Olympia Farmers Market and completed a continuing education course at SPSCC.
- James Hanaway, the development director of CCF UK visited CCF for the first time. James is looking to bring a CCF UK donor group each year.
- Long time friend and collaborator John Kasona who is the head of IRDNC (Integrated Rural Development and Nature Conservation) brought three guests to visit and learn about CCF. They joined our Center feeding, did a Cheetah Drive and visited the Livestock Guarding Dogs and model farm
- Elfi Stark returned as a working guest, who volunteered at CCF for two weeks. During her time here she painted three beautiful new paintings of a cheetah against the Cheetah Cafe wall.

November

- Robert Skidmore, CCF Director of Operations and Finance in the USA, came to have a look at what CCF Namibia has to offer and to experience and learn more about the Namibian Centre.
- Long time friend and great supporter for both Namibia and Somaliland, John Lehr visited for two weeks and stayed at the newly built rooms of Cheetah View Lodge as one of our VIP working guests.
- Mario Krznaric, a German Auction Voucher winner, stayed at Babson house.
- Fred Bakker stayed at Cheetah View Lodge for a fully inclusive insight at CCF. This is called the Kangal Anniversary package. Annemiek van Gijn is the owner of All of Nature a Tour company in the Netherlands that booked through Namibian Tracks & Trails, we discussed a great package for her guests so her guests get to go out to a farmer and meet a working

dog for a day, they thank the farmer for the experience by donating things like dog food and blankets.

December

- Eileen Flynn, long term cheetah friend and returning working guest stayed at Babson house for a week this was her second visit in 2023.

D.2 Visitor and Guest Analysis

As tourists are increasingly becoming seasoned international travellers, they become more discerning and choose those destinations that can provide a more memorable experience and good value for their money. Therefore, CCF strives to ensure that the product offered to the tourism sector is sufficiently attractive. COVID-19 had a huge decreasing impact in 2020 on the revenue and number of guests visiting CCF, but numbers are greater and have gone back to normal showing that tourism is now flourishing and visitor numbers have gone past the numbers of 2019. Below we see the increases between 2022 and 2023.

D.2.1 Day Visitors

This reporting period shows an increase of 65.1% in day visiting tourists, from 8,624 in 2022 compared to 14,238 in 2023 (Figure 46).

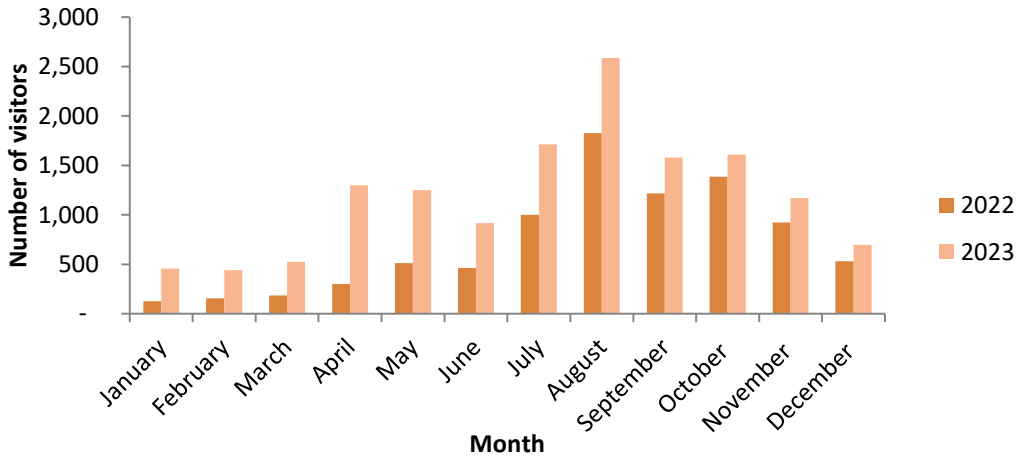


Figure 46: Number of visitors to CCF per month from January to December 2023.

The predominant language spoken by visitors during this period was German (25%), followed by French (21%) and English (18%). During this reporting period, local visitors were received who spoke local languages; Otjiherero, Afrikaans and Khoekhoegowab (Figure 47). The majority of day visitors were from the following nationalities; Germany (23%), France (18%), and Italy (15%) (Figure 48).

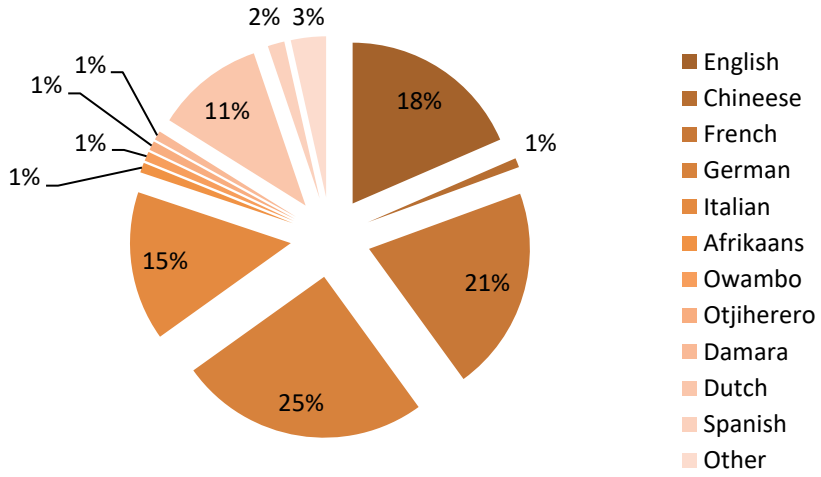


Figure 47: Languages spoken by visitors during January 2023 to December 2023.

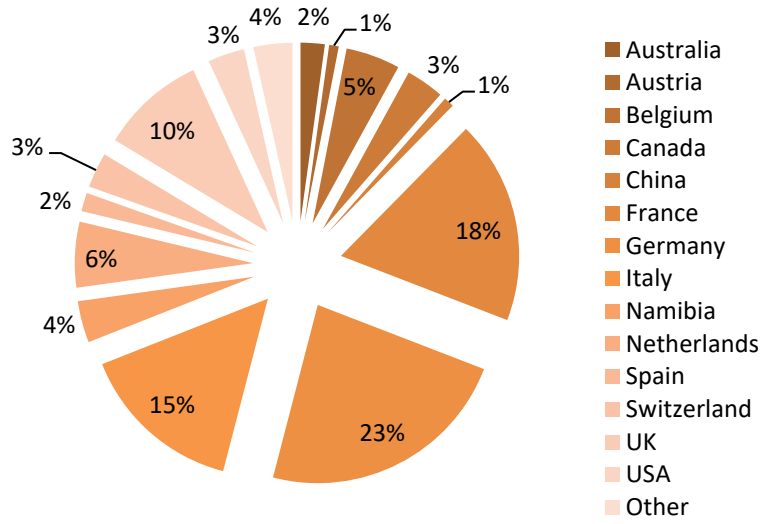


Figure 48: Percentage of visitors per country from January 2023 to December 2023.

Most visitors continue to be walk-ins at 65%, this includes direct bookings from our reservation office, Exclusive Reservations, who also represent 24% of guests from all our tour operators. Surrounding lodges continue to support us with a total of 11% of all the guests received for 2023 (Figure 49).

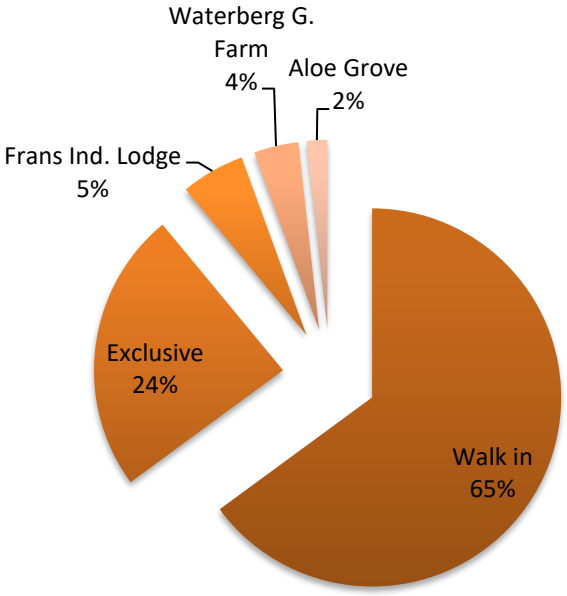


Figure 49: Source of visitors from January 2023 to December 2023.

D.2.2 Financial

In terms of tourism revenue from day visiting guests, CCF saw an increase of 62.8% in revenue for 2023 at N$10,019,041.77, compared to N$6,153,652.66 in 2022 (Figure 50).

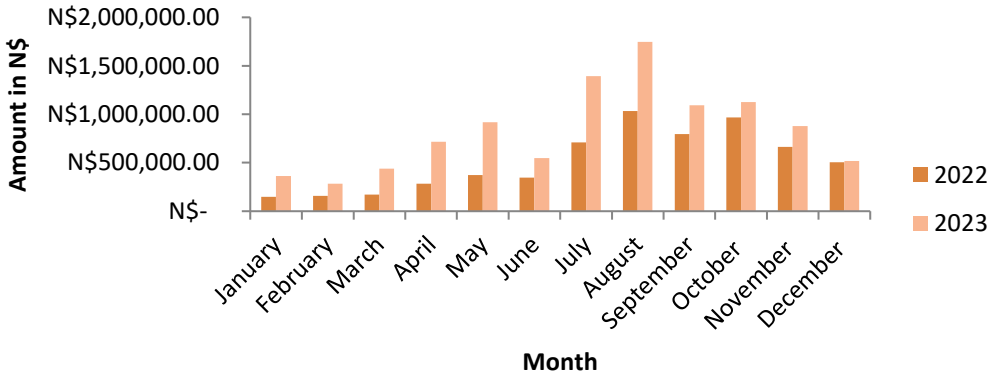


Figure 50: Tourism income (N$) comparison during 2022 versus 2023.

Table 31, provides the monthly breakdown of income per activity and number of visitors, showing that the month with the highest average of expenditure per visitor was March 2023 at N$ 832.97 and the lowest month was April 2023 with N$ 552.55. The average amount spent by visitors at CCF shows a 1.38% decrease in 2023 with N$703.68 compared to N$713.55 in 2022. Cheetah

Drives (Elands) still represented the highest income source during this period, at 44.85% of the total income with an amount of N$4,493,292.45. Gift Shop revenue showed an 39.39% increase at N$1,965,270.62 in 2023 compared to N$1,409,875.85 in 2022 and places Centre Tours/Entrance fees as the third-highest revenue driver at 10.46%.

Table 31: Breakdown of revenue (N$) to the nearest dollar in 2023 based on activity.

ACTIVITY	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
CHEETAH DRIVE	157,121	121,543	137,511	316,151	388,501	214,506	666,593	921,900	471,556	515,079	384,103	198,728
GIFT SHOP	87,827	59,152	145,184	117,856	175,538	104,318	293,063	302,132	240,229	202,307	166,613	71,051
ED CENTER	15,206	21,408	4,1162	100,680	159,550	52,361	125,520	160,786	120,060	114,143	106,147	31,252
RUN	34609	44,780	35,029	78,158	72,153.25	54,972	121,292	149,885	119,430	116,785	85,290	57,770
ACCOM	18,133	1,200	950	1,500	8,650	11,430	1,500	0	0	2,625	0	0
CAFÉ	22,052	19,972	31,162	54,328	78,310	56,596	105,889	154,503	86,593	81,243	80,839	31,010
SERENGETI	10,094	1,360	8,203	17,340	17,340	12,920	27,795	16,023	14,195	14,195	16,570	3,740
BEHIND THE SCENES	5,805	1,320	20,434	16,830	10,890	25,369	25,491	20,125	21,780	35,460	10,890	10,890
DONATIONS	1,000	0	0	0	1,000	10,000	1,000	0	0	2,000	0	100,000
OTHER	6,193	6,523	5,860	2,235	0	0	10,185	1,050	2,290	11,285	4,075	2,322
CHEESE	4,650	5,845	11,815	12,680	5,790	5,536	14,224	22,004	16,460	29,220	22,100	11,170
TOTAL	**362,689**	**283,103**	**437,310**	**717,758**	**917,722**	**548,008**	**1,392,552**	**1,748,407**	**1,092,592**	**1,124,342**	**876,627**	**517,933**
VISITORS	456	441	525	1299	1249	916	1712	2586	1580	1609	1170	695
Avg Exp/ Visitor	795.37	641.96	832.97	552.55	734.77	598.26	813.41	676.10	691.51	698.78	749.25	745.23

D.2.3 Cheetah View Lodge

Cheetah View Lodge hosted 1,487 guests in 2023 compared to the 1,167 in 2022, a 27.4% increase. Overnight guests were recorded from January to December during this reporting period according to the number of bed nights. The total number of bed nights during this reporting period was 2,207 beds compared to 1,535 in 2022, representing a 43.8% increase (Figure 51).

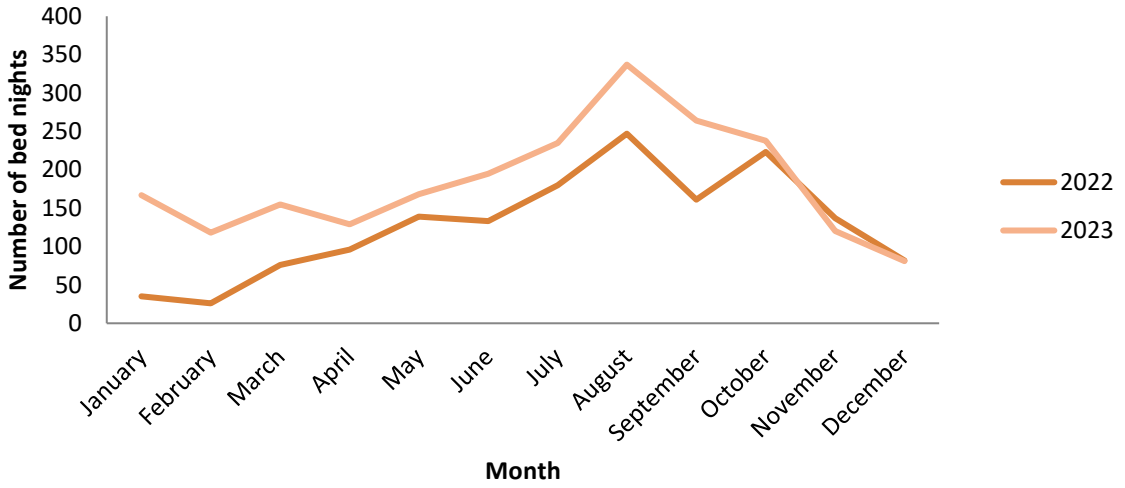


Figure 51: Number of bed nights at Cheetah View Lodge comparing 2022 to 2023.

Revenue from the Cheetah View Lodge saw an increase of 58.8%, from N$2,388,144.50 in 2022 to N$3,72,787.36 in 2023 (Figure 52).

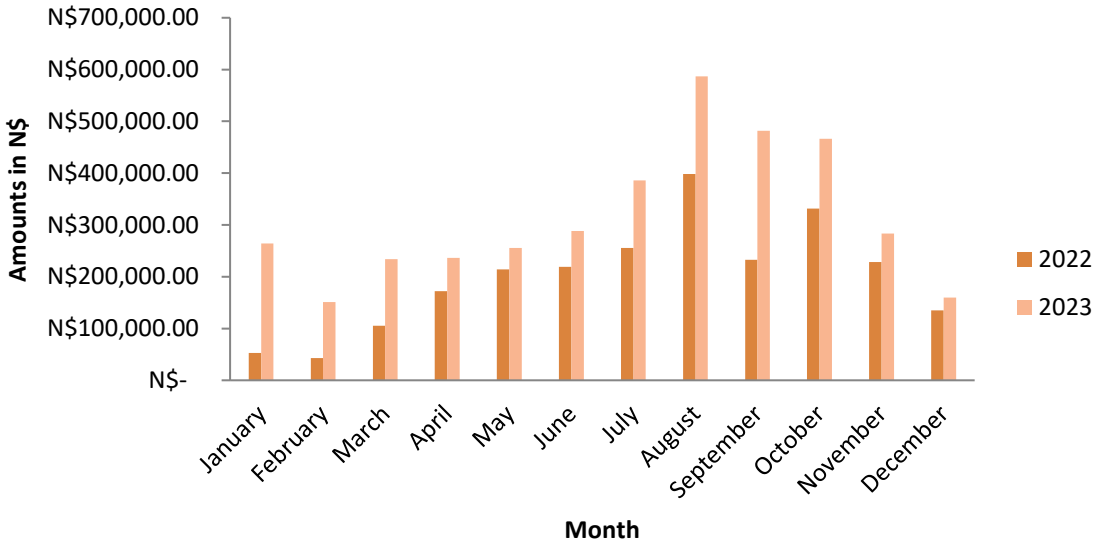


Figure 52: Revenue from Cheetah View Lodge comparing 2022 to 2023.

Visitors were booked by various companies with the majority booking through our reservation office, Exclusive Reservations, representing 52.4% with 399 bookings. Direct private CCF bookings and from the CCF website, as well as private enquiries make up a total of 10.5% at 80 bookings, including donors, friends of CCF, and Board Members. Online bookings from Booking.com and Expedia are also responded to by Exclusive reservations; they are at 283 consisting of 37.14% of all reservations. CCF received a total of 532 confirmed bookings throughout this reporting period

(Figure 53). The current tour operators (TO) that make use of CCF are 66 different companies. Exclusive Reservations also handles all of CCF's tour operator bookings such as Namibia Tracks & Trails (with the most TO bookings a total of 58 bookings for 2022), Damarana Safaris with 38 Bookings, Katika Safaris with 35 , Ultimate Safaris with 30 and Namibia Individual Travel with 20 Bookings for this year and others with fewer than 20 bookings such as Wilderness Safaris, Mango Safaris, Infinite Safaris, Abenteuer Afrika Safaris, Compass Travel, Sense of Africa, Namibia Tours & Safaris, Nam Click, Natures Friend, Africale Travel & Leisure, Great Explorations Namibia and Many more.

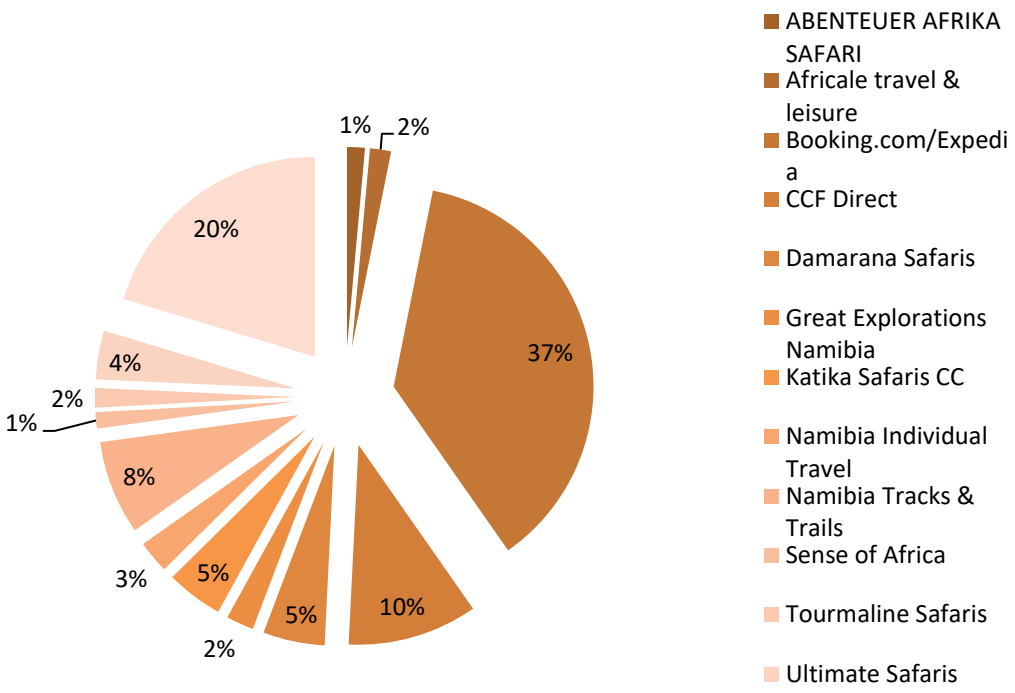


Figure 53: Booking sources for Cheetah View Lodge, January 2023 to December 2023.

In terms of nationalities, most guests at Cheetah View Lodge were from Germany (23%), followed by France (15%), the USA (11%) and Italy (8%) (Figure 54).

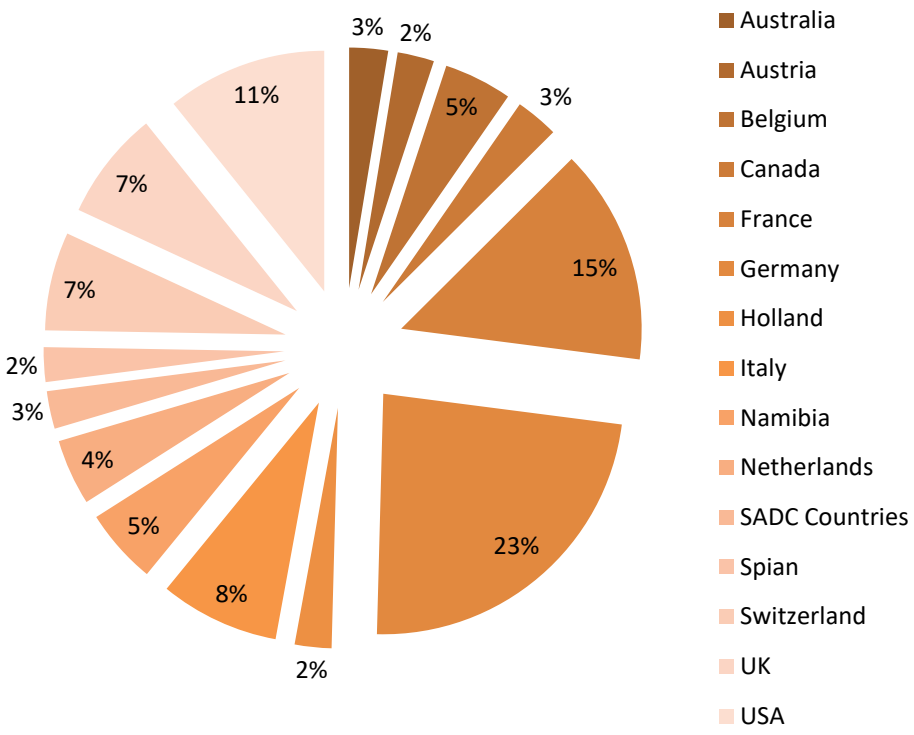


Figure 54: Nationalities of visitors staying at Cheetah View Lodge, January 2023 to December 2023.

D.2.4 Babson House

Babson House is CCF's luxury guest house and is booked on a fully inclusive basis. This means that all our normal tourism activities and in-depth tours of each department, meals and drinks are included in this booking.

Babson House is usually very quiet during the first quarter of the year, with guests expected as of May to November. CCF hosted a total of 104 guests at Babson House in 2023, compared to 98 guests in 2022 representing a 6.1% increase in guests. There was surprisingly a significant increase in bed nights and revenue too during this reporting period. Babson House had a 38.9% increase in Bed Nights at 243 in 2023, compared to 175 in 2022 (Figure 55).

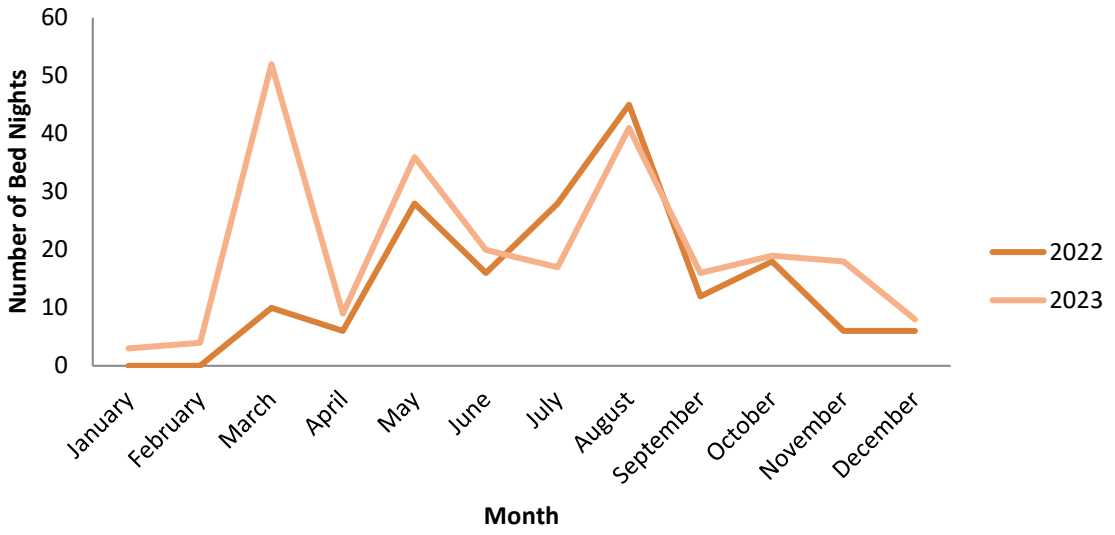


Figure 55: Number of bed nights for Babson House comparing 2022 to 2023.

Revenue from the Babson House saw an increase of 66.4%, from N$586,710.00 in 2022 to 976,434.75 in 2023 (Figure 56).

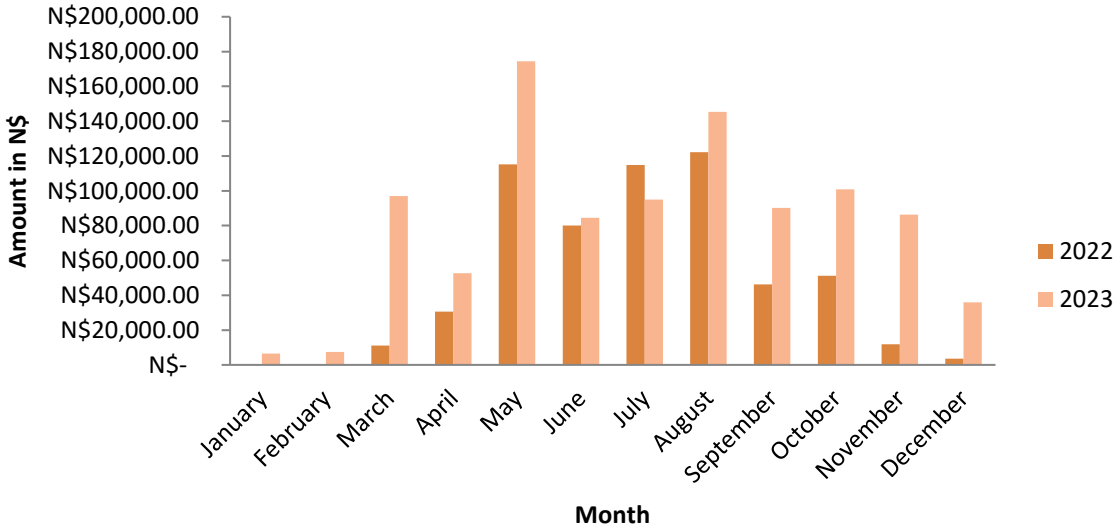


Figure 56: Revenue from Babson House comparing 2022 to 2023.

Most Babson House bookings were private Exclusive Reservations/CCF bookings at 21%. CCF received a total of 28 bookings for this reporting period. The majority (43%) of Babson House guest bookings were Tour Operator bookings made through Exclusive Reservations, including Ultimate Safaris and booking.com with most bookings of 11% of all the Babson Bookings and other tour operators (12 bookings) through Exclusive were Namibia Tracks & Trails, Mango African

Safaris, Nature Friends Safaris, ERM Tours & Safaris, Wild Wind Safaris & ATI Holidays each having one to two bookings at Babson house (Figure 57).

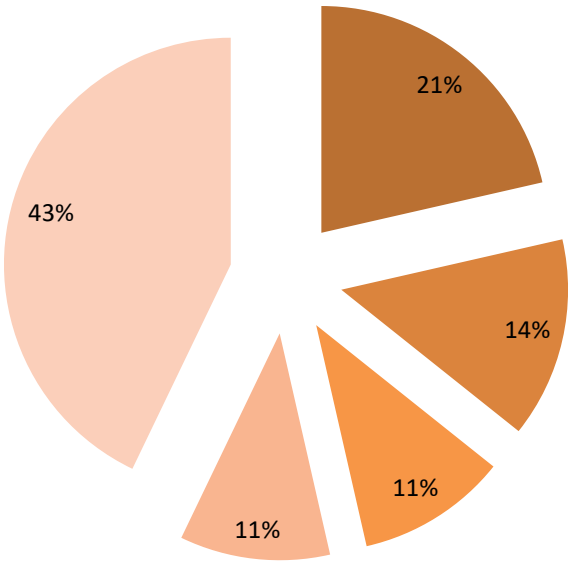


Figure 57: Sources of Babson House bookings in 2023.

Most overnight visitors at Babson House came from the USA (44%), followed by the UK (23%) and German (8%) (Figure 58).

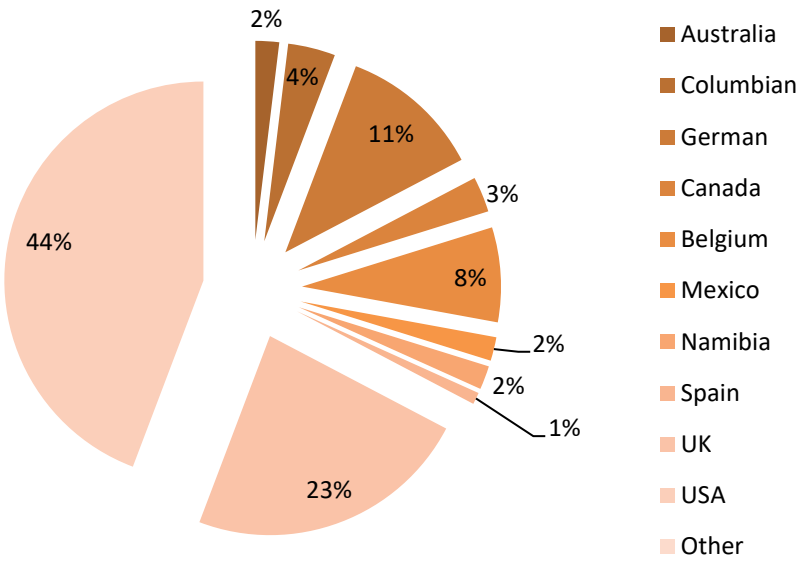


Figure 58: Nationalities of overnight visitors at the Babson House in 2023.

D.3 Food Expenses

The number of people eating at CCF differs every day in accordance with the various guests, working guests, volunteers, and interns arriving and leaving CCF.

Table 32 shows the number of lunches and dinners that were cooked at CCF's community dining room, the Hot Spot, each month. A total of 24,223 meals were cooked during January to December 2023 for an average of 65 meals per day.

Table 32: Number of meals served at CCF's Hot Spot from January to December 2023.

Meal	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Lunch	860	1,065	856	712	968	1184	1174	1004	1173	1045	915	978
Dinner	965	1,090	890	713	975	1228	1221	1004	1164	1081	903	1055
Total	**1825**	**2155**	**1746**	**1425**	**1943**	**2412**	**2395**	**2008**	**2337**	**2126**	**1818**	**2033**
Average/day	61	72	58	48	65	80	80	67	78	71	61	68

Most of the meals (43%) served at the Hot Spot were for CCF staff members. Volunteers and interns represented (41%), while Working Guests (WG) and other guests represented (16%) (Figure 59).

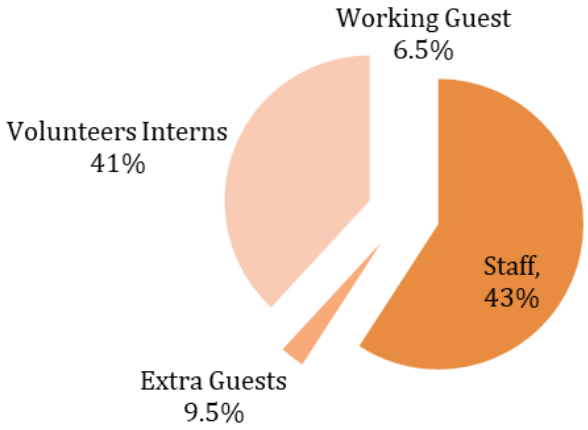


Figure 59: Overall categories of people served at the Hot Spot in January to December 2023.

D.4 Marketing

We received Great Trip advisor reviews this year as follows; six excellent, one very good, one average and one poor due our rate charges.

Between January and December 2023, CCF hosted different agents for an educational/familiarisation visit. We had four agents for African Eagle here for a day visit. They took part in guided walking tours, saw the centre feeding and had a look at Babson House and Cheetah View Lodge. Also, here for a site inspection was Marylis Carrere from Belharra Voyages agency, they sent her ahead of the two incentive groups in June 2024 called SIDV groups who will be visiting CCF. We had a great site inspection with Namibia Tracks & Trails staff members, Anita Hoppe, Ellen Smit, Tina Smit, we showed them both lodges and a quick visit around the centre.

CCF's marketing agent, Exclusive Reservations, continues to support our eco-tourism efforts both with reservations, bookings, and its objective of transforming the CCF brand to make it distinctive and different. Exclusive Reservations also promotes CCF by regularly visiting other tour operators in Windhoek at their offices and organizing meetings for companies based in Swakopmund. They also sent CCF's updated 2024 rates to all tour operators during this period. Exclusive Reservation participated in expos based in South Africa, including Africa's largest travel show, INDABA Durban and the World Travel Market in Cape Town in which they represented CCF. Exclusive also organized an educational visit with some of the Namibian tour operators throughout the year to promote CCF's accommodation facilities, Cheetah View Lodge and Babson House, and to familiarise the tour operators with CCF's work as an education and research centre.

Throughout 2023, CCF has continued its advertising partnerships with numerous publications and online channels adding a few new ones to the accommodations. These included Where to Stay, Namibian Holiday & Travel, and This is Namibia. Namibia Travel App, Venture Media, Namibia

Travel Info, CCF advertises with PAKO Kids Magazine as this also supports school children of Namibia. Work with Brochures Namibia, who distributes CCF brochures to the airports, border posts and hotels in Windhoek. All these magazines will be at the ITB in Berlin in 2024. CCF boosts local advertising and marketing on social media and by putting up posters throughout Otjiwarongo, Windhoek and the rest of Namibia.

Attractions that encourage tourism operators to market CCF as a destination continue to be evaluated, as do the information and materials supplied to visitors on departure, to encourage them to become engaged and share their experience with their closer and wider networks once they have returned to their homes. CCF staff actively promote our social media websites (Facebook, Twitter, YouTube, TripAdvisor, and LinkedIn) to all guests visiting CCF.

D.5 CCF Cheetah Café

Since the opening of CCF's Dancing Goat Creamery early in 2013, menu items at the Cheetah Café include the very popular CCF goat cheese platter, local platter, and baked feta, as well as fresh muffins, scones, quiches, wraps, a cake of the day, and goat milk ice cream, which is a favourite on hot days. Fudge produced at the Creamery is also offered for sale at the Gift Shop.

After a lightning fire on 16 October 2013 destroyed the CCF Visitor Centre, which housed the Cheetah Café, the Cheetah Café operated from a small room in the Cheetah Museum building, until the re-opening in June 2017, which is now seeing benefits as Lodge guests can now enjoy a light lunch, snack or coffee at the café between activities at CCF.

Total revenues from the Cheetah Café during this period was N$802,496.00, showing a significant increase of 63.21 % compared to N$ 491,704.00 during the same period in 2022 (Table 33).

Table 33: Cheetah Café sales from January 2023 to December 2023 (N$).

Month	Pre-Booked	A la Carte	Total
January	2640.00	19412.00	22052.00
February	1540.00	18432.00	19972.00
March	6380.00	24782.00	31162.00
April	16940.00	37388.00	54328.00
May	26220.00	52090.00	78310.00
June	22700.00	33896.00	56596.00
July	20560.00	85329.00	105889.00
August	30750.00	123753.00	154503.00
September	22530.00	64063.00	86593.00
October	27560.00	53683.00	81243.00
November	28920.00	51919.00	80839.00
December	4970.00	26040.00	31010.00
Total Sales	211710.00	590787.00	802497.00

E. Association and Conservancy Relationships

E.1 Large Carnivore Management Association (LCMAN)

CCF is a founding member of LCMAN and continues to work as a stakeholder of this group of NGOs, researchers, farmers, and governmental departments to help guide the conservation and management of large carnivores in the country, and facilitates communication among the stakeholders to ensure a coordinated approach. Dr. Laurie Marker has been the Chair of LCMAN since 2015 and CCF's Lauren Pfeiffer has been the Secretariat since 2019. CCF's Tim Hoffman also regularly attends the LCMAN meetings and acts as a representative for CCF and for the Conservancies of Namibia (CANAM). LCMAN also functions as a resource for the Namibian Ministry of Environment, Forestry and Tourism (MEFT) to provide expert advice and guidance during policy making procedures.

LCMAN continues to work with farmer organizations such as Namibia Agricultural Union (NAU) and CANAM, along with the Professional Hunters Association of Namibia (NAPHA) in providing support to the farming community to reduce human wildlife conflict (HWC). A farmer hotline is available at CCF and a LCMAN email exists to ensure constant communication with farmers and other members of the community when they have questions or conflict with large carnivores in or near their farms.

Only one ordinary meeting was held for LCMAN during 2023. The meeting was held in July, which CCF staff were in attendance and shared CCF's current work with other LCMAN members. The AGM was planned to be held in December however the AGM was unable to be held due to members' busy December schedules.

E.1.1 2023 LCMAN Focus Areas

After the publication and book launch of the *"Conservation Status and Red List of the Terrestrial Carnivore of Namibia"* in November 2022, no new focus areas have been highlighted for LCMAN. In the July meeting, it was decided that any new focus areas are still open for discussion and members were encouraged to bring forward any suggestions.

Throughout 2023, there was no further progress with the Namibian Carnivore Working Group (NCWG), after the Namibian Chamber of Environment help implemented NCWG at the end of 2022. By the end of 2023, there had been no discussion about another NCWG meeting or any correspondences. If the Namibian government wishes to procced with NCWG, then LCMAN will be willing to contribute towards this working group.

E.2 The Ministry of Environment, Forestry and Tourism (MEFT)

During this reporting period, CCF continued to work with various stakeholders such as the Ministry of Environment, Forestry and Tourism (MEFT) and communities to find lasting solutions to HWC issues.

CCF and MEFT carried out several releases of cheetahs as part of CCF's Early Warning System program that alerts farmers when collared cheetahs enter their farms, and also implemented translocations of cheetahs from human-wildlife conflict incidents. CCF partnered with MEFT and other organizations to prepare a funding proposal towards developing a toolkit for human-wildlife conflict mitigation on select communal conservancies. The proposal was submitted for competitive funding to the UK Government (DEFRA).

E.3 Communal Conservancy Development

E.3.1 Rabies Vaccination Campaign in the Greater Waterberg Landscape Communal Conservancies

Introduction

The primary goal of this project is to vaccinate domestic pets (dogs and cats) against rabies to join in the World Organization for Animal Health (WOAH), the Food and Agriculture Organization of the United Nations (FAO) and the Global Alliance for Rabies Control (GARC) in their Global Strategic Plan 'Zero by 30'. This Strategy aims to eliminate rabies death cases in humans by 2030.

CCF's One Health program assists in the health and development of the four communal conservancies in the Greater Waterberg Landscape (GWL). CCF helps remote communities with preventative veterinary care for livestock and domestic animals. Since 2019, CCF has conducted rabies vaccination campaigns for domestic dogs and cats in the Eastern Communal Conservancies of the GWL.

Additionally, CCF's farmers' training programs assist in reducing livestock farmer-carnivore conflict in the four communal conservancies of the GWL. CCF's Future Farmers of Africa (FFA) program teaches farmers rangeland management, along with livestock and wildlife management which has resulted in a reduction in the retaliatory or prophylactic killing of cheetahs and African Wild Dogs (AWDs).

The long-term impact is expected to reduce the cases of rabies in humans to zero, as well as reducing the number of rabies cases in domestic animals and wildlife. Furthermore, it aims to reduce livestock losses and therefore farmer-predator conflict, which ultimately reduces the killings of cheetahs and AWDs. In addition, the program aims to increase the income of farming families by not getting exposed to rabies, whilst having healthier livestock and pets, and thereby creating additional livelihood opportunities.

The vaccination campaign ran from May to November. The team was able to complete 11 trips across (Table 34). Due to a vehicle issue the first morning of the fifth trip, the trip had to be abandoned for the vehicle issue to be fixed. An additional trip was added to compensate for the shorten fifth trip.

*Table 34: Summary of trips performed for vaccination campaigns in the Eastern Communal Lands during the reporting period, in chronological order. Including date of the start of the trip, region visited within the communal lands, number of villages visited and the number of animals vaccinated. *Larger villages were visited on more than one occasion in order to vaccinate all animals, hence the number of villages visited per trip is larger than the total number of villages visited.*

Trip	Dates	Region visited	Villages visited	Animals vaccinated
1	5 May	North	21	330
2	1 June	North	18	186
3	27 June	Central/West	14	304
4	27 July	South	17	378
5*	15 August	Central/South	4	7
6	3 September	Central/South	18	191
7	15 September	Central	20	330
8	3 October	Central/West	21	272
9	26 October	West	21	362
10	8 November	West	22	215
11	22 November	Central/east	20	727
Total	-	-	152*	3,302

The team visited 152 villages and vaccinated a total of 3,302 animals. Larger villages were visited more over multiple trips in order to vaccinate all animals, hence the number of villages visited per trip is larger than the actual total number of villages visited.

The villages visited during 2023 includes (Figure 60):

Trip 1. Okahumba, Otjomikambo 1 and 2, Stryd Plaas (Orukango), Okatumuama, Okatjiparanga, Otjiperongo, Okahua, New Field, Omarindiuzogombo, Okatjoruu, Otjikango (north), Gunib, Otiitii, Ongombe Ombapa, Otjomunguindi, Omboora (north), Ondjombojotjitundu, Omutima, Okomumbonde and Erindiromipanda.

Trip 2. Ondjamo 2, Ende, Okalongo (Grace Land), Orukango, Omarindivirongo, Ozongombo, Okambumbuu, Omutoindundu, Ourarua, Otjinatjomipapara, Ozonjanga, Ozonjune, Ozongune, Okatumba Kozohe, Orukango Romungondo, Otjondundu, Ondjamo 1, Otjiurutjokatjove, Ondojombojomungondo.

Trip 3. Otjiwanomaso, Ozongune, Olumbango, Okarupuka, Otjiwanomaso, Okamatotjindo, Otjoruhapo, Okatjozongindi, Okanguindi, Otjikango, Omungondovineja, Okumotenja, Onderajakurupa, Okaperongo.

Trip 4. Okamatako, Ombujombandje, Okatjau, Otjovahonge 1 and 2, Otjitaazu, Okatembakatjovahone, Ohorongombaranga, Okatemba kotjikango, Okatemba Ka Mbumenje, Okatemba Kotjindanda, Okotjove, Otjonguvi, Okamangongua, Omapumba, Okotjitundu, Okomumbonde

Trip 5* and Trip 6. Otjitemunua, Ondojoura, Otjitazu, Otjiuaketambo, Otjekongo, Omipandatjongo, Otjiwapihuri (First Graze), Omungondowonguvi, Okamburaso, Otjiuaporui, Okousaona, Okonyota, Otjengondo, Otjiyamangombe, Otjamukuru, Otjiuaporui, Omumbondewekuva, Otjozondjuendu, Omitiomire, Okamanaehe.

Trip 7: Ondundazonga (Ozonahi), Akuapa, Okaundja, Okanguindi (long community on the road), Ozondema, Okauha Ombujondjou**,** Okarupuka, Okamatutjindo Village, Okatjiozongondi,

Otjiruhapo, Ombujondjou, Erakarombi, Otjihozu Otjiserandu, Oruaku, Okavarongo Village, Okangoho, Oruiorure.

Trip 8: Otjitaazu, Otjikoto, Otjihuze, Ehuarokara, Okawarongo, Ovindjuee, Okapandja Katjongo, Osakua, Okapanda, Okapanda 2, Omaundjiro, Onderaombapa, Elandspan (Otjikango), Okakangorindi, Otjiamutenja, Ouanomake, Otjozonjusi.

Trip 9: Okomita, Okangeama, Okozombo, Omboora (entrance by Otjinakui)**,** Coblenz Plot 1, Coblenz, Orukango Orundjomuvia, Ongombe, Okavare, Otjinakui, Okatuakoverua, Omingerenjeu, Ondjiripumua, Otjiere, Okamuparara, Okombungo, Ongongoro, Okozombuka, Ovitsete, Orundjiri, Otjisep

Trip 10: Homeland, Homeland 2, Ombora, Otjiwapehuri, Orui-Orupe, Okaruvahona, Otjomunguindi, Otjomumbonde, Onduombapa, Omutumbondundu, Otjovengi, Otjetoveni, Vergendeg, Omuramboviruru, Otjiere (Otjiuuo), Omusorakuumba, Onderombua, Ondohaka**,** Okamatapati, Okatuhoro 1, Okatuhoro 2, Otjoruharui.

Trip 11: Ukuvas, Okambukonde, Okakarara, Okatuo, Outa, Omerihungirio, Otumorombonga, Ozoseu, Ongongombonde, Okakango, Okarui Okape, Otjitasu, Okagondo 1, Okagondo 2, Ombuyohorongo, Ombiyondjupa West, Ombujohimbo, Okovimboro, Omupanda, Ombuyondjupa.

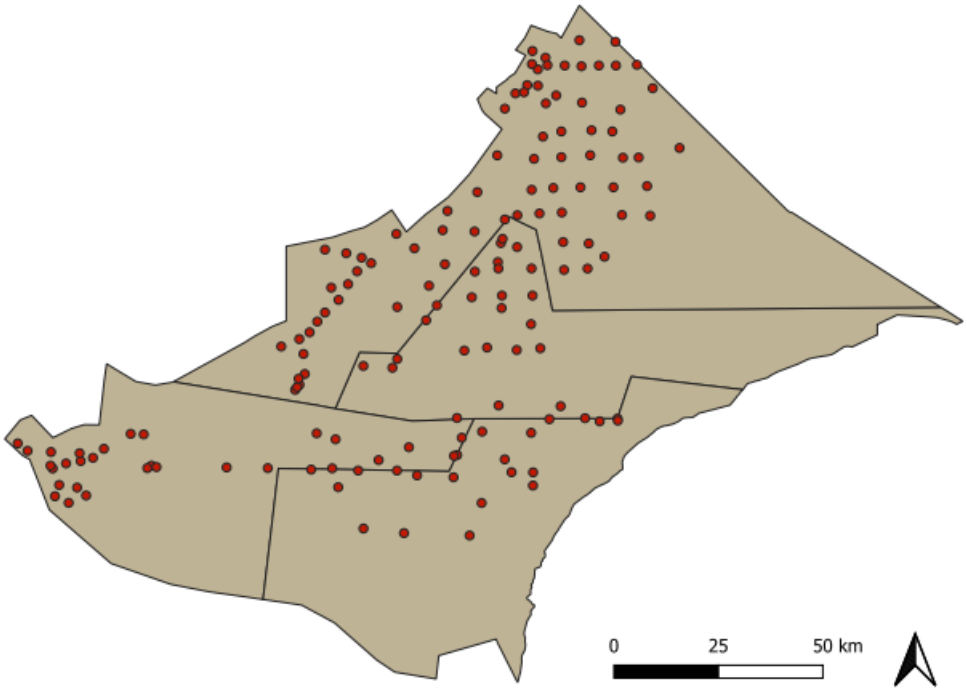


Figure 60: Map of the four conservancies where Cheetah Conservation Fund works and villages visited by the rabies vaccination campaign in the 11 trips made in 2023.

Rabies Vaccinations – New and Booters

- This year we were able to vaccinate a total of 3,302 animals, comprised of 2,623 dogs and 679 cats.
- From that total,
    - 94 animals had been previously vaccinated against rabies
    - 3,208 animals had not been previously vaccinated against rabies.

It is worth noting that the low number of revaccinated animals is due to the fact that many of the villages (n=90; 59.2%) were visited for the first time in 2023. In addition, there is an overall high mortality of dogs in the area, due to snake bites, car accidents, animals being stolen for food and other diseases

Rabies Surveillance in Animals and People

In 2023, CCF's team was contacted by state veterinarians to address a pressing concern—an ongoing outbreak of rabies cases in Namibia, notably within the area where we are focused. It was reported to us that jackals, kudus, dogs and goats were confirmed cases of rabies in the villages, the state veterinarian of the area is responsible for bringing the data to central Namibian government and being transparent with publishing information. This recent development has vividly underscored the significance of our dog vaccination initiatives.

In response to this urgent situation, our team swiftly mobilized efforts to visit villages and households that had confirmed rabies cases. By proactively engaging with affected communities, we have not only offered vital support but have also fostered a heightened sense of awareness about the importance of rabies vaccination in preventing the further spread of the disease.

Maintaining a strong line of communication with both state health technicians and veterinarians has been paramount in ensuring that our efforts are accurately targeted where they are most needed. This collaboration has enabled us to align our actions with the broader strategy aimed at curbing the outbreak and safeguarding both human and animal populations.

Spay/Neuter Interest and Status

When questioned about the interest in spaying and neutering their animals, most people didn't seem willing. Of the 3,302 animals vaccinated, 1,163 showed interest in spaying their animals. The main voiced concern is due to high mortality of dogs in the area, especially puppies with parvovirus, and villagers are worried that they would not have dogs if all were spayed and neutered.

Our team did its best to explain about animal health care, explaining how these procedures are helpful and that can actually help animals live longer, as many diseases and accidents happen when animals are mating or seeking a mate. The elucidation of the topic was helpful but the population was still doubtful.

Ectoparasite Control and Other Treatments

In 2023, CCF team received the kind donation of ectoparasite control treatments from MSD and it allowed us to help over 500 animals with tick and flea prevention prior to the rainy season, which is of key importance to the high prevalence of *Erlichia spp* transmitted by ticks in the region. Even though it is not our main focus or goal, the vet team does eventually help cats, dogs and livestock that need emergency treatments such as wounds, prolapses and parvovirus in puppies.

Education

In 2023, CCF team created and distributed educational material to local communities, regarding Rabies, Parvovirus, Canine Distemper and Livestock management guidelines. Besides English and Afrikaans, all material was done in several different traditional languages.

In all trips, our community officer took part and while vaccinating campaigns occurred, she provided educational guidelines regarding disease control, responsible ownership and human-wildlife conflict in the local language. The close communication with community chairpersons was extremely helpful as they assisted in education.

Mortality Investigation

In April 2023, we performed a trip to investigate some mortalities that were reported by the communities after the vaccination trips in 2022. CCF's team was eager to investigate the cases and reassure the communities regarding the safety of vaccines. The team visited a combined total of nine villages in two conservancies, namely Okamakapati and Otjituuo. There were 44 mortalities reported in the area. Seventeen of the dogs hadn't even received rabies vaccine. Furthermore, based on symptoms described, the majority of cases could be attributed to Parvovirus, against which community dogs are not being vaccinated. We were thus able to reassure the communities about the safety of the rabies vaccination and about CCF's commitment to the wellbeing of animals and the communities. Deceased dogs were buried or burned by the owners.

Comparison Over the Years

The travel restrictions due to the COVID-19 pandemic, negatively impacted CCF's ability to vaccinate animals in the Easter Communal Lands during 2020 and 2021. Last year, we were able to greatly improve CCF's capability to reach more animals, even compared to the baseline from 2019 (Figure 61). However, for 2023 CCF planned to vaccinate more animals than in all the other years, by making more trips and reaching more villages.

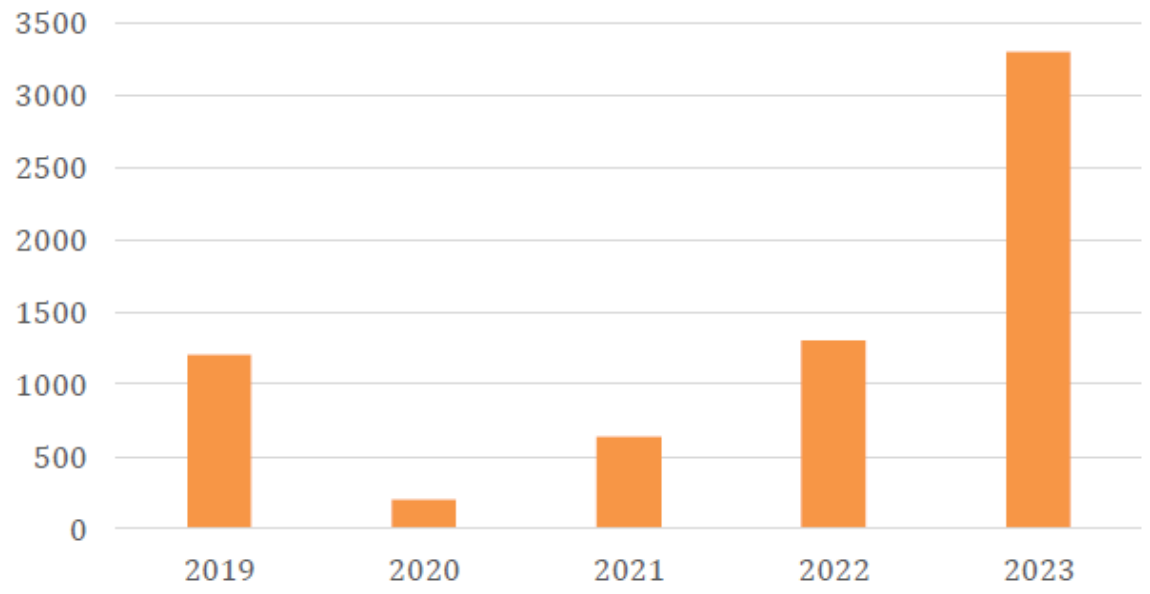


Figure 61: Comparison of the number of dogs and cats vaccinated from 2019 to 2023.

This year we vaccinated a total of 2623 dogs and 679 cats, with dogs representing 79% of the vaccinated animals (Figure 62). The percentage of vaccinated dogs is slightly more than previous year of 76% dogs. This shows a possible preference for the farmers having more dogs than cats, as they can be used for more purposes than just being companion animals, such as livestock guardian dogs, house guardians, or even hunting animals. The higher percentage of vaccinated dogs to cats could also be due to dogs being easier animals to capture, restrain and vaccinate. On top of their roaming activities, cats are also more likely to move around freely without any supervision, and only come back to their house to be fed.

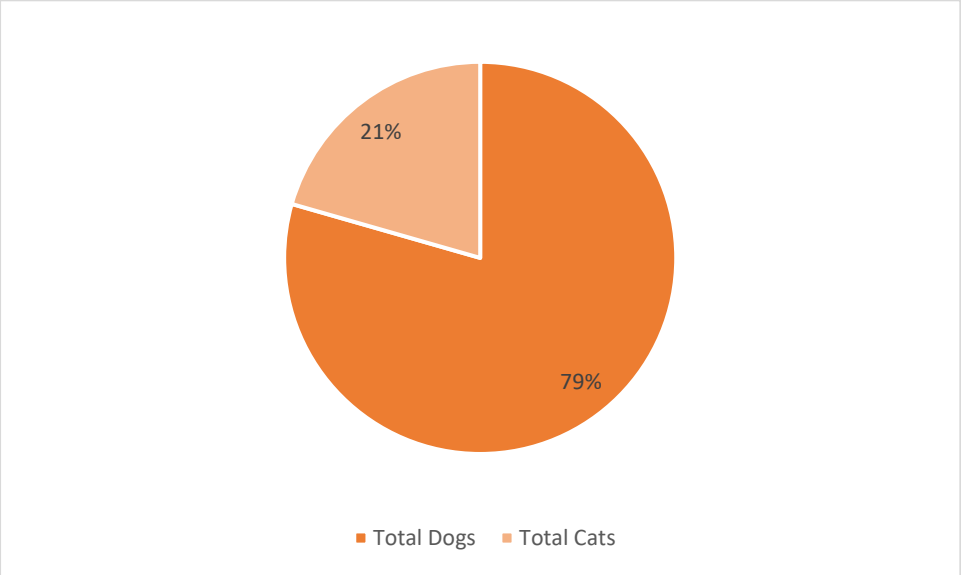


Figure 62: Percentage of dogs and cat vaccinated in 2023.

Plans for 2024

In 2024, we plan to maintain our growing efforts to vaccinate and assist animals in the GWL area by reaching new villages that haven't been vaccinated yet and revisiting the main areas of vaccination. We plan to achieve 10 trips and 2,600 animals in 2024.

Cheetah Conservation Fund is currently planning on establishing a partnership with the university of Namibia, to get a masters student who could join the team doing the vaccines in the field.

E.4 CCF East – Carnivore Conflict Field Station

The CCF East Field Station experienced a few changes since the start of 2023; we moved to a new office, and our Community Development Officer, Veisy Kasaona, returned to CCF Otjiwarongo.

The new CCF East Field Station office is larger than the previous office, and there is now ample space to invite small groups of farmers to attend presentations, and a nature club for the children of Gobabis is also in the pipeline.

A fundamental aspect of the CCF East team's responsibilities involves consistently fostering and managing positive relationships with commercial, resettlement, and communal farmers in the Omaheke District. This entails participating in and delivering presentations at Farmer Association meetings, attending AgriBank Farmers Training workshops, conducting on-site visits to address and provide guidance on human-wildlife conflict issues, and engaging in one-on-one discussions.

E.4.1 Human-Wildlife Conflict Incidents

During 2023, the CCF East team responded to 25 reports related to Human-Wildlife Conflict (HWC). Among these, 14 incidents involved cheetahs, four involved leopards, one incident involved baboons, and one involved an African wild dog pup. In four reported HWC incidents, the farmers were uncertain whether the responsible predators were leopards or cheetahs.

Throughout 2023, the CCF East team was involved in the rescue of 14 cheetahs and one African wild dog (AWD) as detailed in Table 35. Among the rescued cheetahs, six were collared and released back onto farmland. Additionally, three cheetahs are scheduled to be collared and released upon the arrival of new collars. Consequently, nine out of the 14 cheetahs (64%) trapped by farmers will ultimately be reintroduced to their natural habitat.

Table 35: The species and age classification of predator rescues by CCF East in 2023.

Date	Species	# Adult male	# Adult female	# Cubs	Notes
23-Feb-23	Cheetah	1			Collared and released
3-May-23	Cheetah		1		Collared and released
28-May-23	Cheetah			3	Transported to CCF HQ
30-May-23	Cheetah		1		Collared and released
14-Oct-23	Cheetah	2			Collared and release

26-Nov-23	Cheetah		1		Collared and released
16-Dec-23	Cheetah	1	2		Await collaring and release
16-Dec-23	Cheetah			2	Release candidates
24-Oct-23	AWD			1	Euthanized by MEFT
Total		**4**	**5**	**6**	
Grand total				**15**	

Five reported incidents involved cheetahs killed, including a cheetah cub killed on a district road and brought to the CCF East office for sampling by a vigilant farmer. One collared cheetah died from unknown causes, likely attributable to secondary poisoning, and three cheetahs, one of which was collared, were fatally shot by farmers.

E.4.2 Cheetah Rescues

Adult male – Janus (EWS Collar ID 6554)

On 23 March 2023, an adult male cheetah was trapped by a farmer in a HWC incident. The farmer consented to fitting the cheetah with an Early Warning System (EWS) satellite collar and releasing it back onto the farm as part of the EWS project.

The CCF East team in Gobabis, along with Ms. Jackie Hoeses (MEFT Gobabis Officer), and under the MEFT Gobabis Permit No 113158, picked up the cheetah and transported it to Gobabis where he was immobilized, underwent a work-up, and was then fitted with the EWS collar (Figure 63).

The male was estimated to be 5 – 6 years old, was in good condition, and weighed 51.3kg. The cheetah, named Janus, was then successfully released onto the same farm on the same day.

Figure 63: Images showing the adult male cheetah, Janus (left), Ms Jackie Hoeses (MEFT Officer) and Dr P Nel (veterinarian) (middle), and Mr J Viljoen (CCF East team) at release of the collared cheetah (right).

Adult female – Sofia (EWS Collar ID 6555)

On 1 May 2023, a farmer reported the capture of an adult female cheetah. Despite being part of the EWS project, the farmer declined to release the female back onto his farm, because he was

criticized at a farmer association meeting for allowing a prior release of a cheetah. The farmer did consent, however, that the female may be released on any other farm in the vicinity.

Dr. Winterbach secured permission from another local farmer to release the female cheetah on his farm. Ms. Jackie Hoeses (MEFT Gobabis Officer), and under the MEFT Gobabis Permit No 113159, accompanied the CCF East team to transport the cheetah to Gobabis, where the cheetah was immobilized, underwent a work-up, and was fitted with the EWS collar (Figure 64).

The female cheetah, named Sofia, was estimated to be 6-7 years old, based on the wear of her teeth and the recession on her upper canines. Two of her left lower incisors were missing.

Figure 64: Images showing the adult female cheetah, Sofia, being processed by Dr H Winterbach (left), fitted with the satellite collar by J Viljoen and observed by Ms Jackie Hoeses (MEFT Officer) (middle), and undergoing a sonar check for pregnancy by the veterinarian (right).

Three orphan cubs

A farmer from the Maltahöhe area contacted CCF Otjiwarongo to report three cheetah cubs had been found by workers after the mother cheetah was killed by the herder's dogs. It is believed that the mother had killed five of the farmer's sheep over a few days. The herder saw the female cheetah had milk, and subsequently found three cubs.

On 29 May 2023, the CCF East team together with Mr. J. Tashiya (MEFT Mariental Control Warden), and under the MEFT Mariental Permit No. 68241, went to pick up the cubs. One of the three cubs, a male was very weak, undernourished, and icy cold. The other two cubs (a male and a female) were in a healthier condition, and alert and feisty (Figure 65). The three cubs were around 8 weeks old.

Figure 65: Mr J Viljoen (CCF East), left, and Mr. J. Tashiya (MEFT Mariental Control Warden), right, holding the two healthy cheetah cubs rescued in Maltahöhe.

The CCF East team drove the three cubs to the VetsWeb Animal Clinic in Mariental where the veterinarian, Dr. Erna Meyer, tried to stabilize the weak cub. The cub's glucose levels were too low for the tester to register, and a glucose solution was administered IV (Figure 66). Dr. Meyer kept the weak cub under observation throughout the night, but it unfortunately died the following day. The CCF team took the healthy two cubs to CCF HQ in Otjiwarongo.

Figure 66: Images showing Dr. Erna Meyer with the weak cub (left), the two healthy cubs feeding during the trip to CCF HQ, and the two healthy cubs safely at CCF HQ.

Adult female – Scarlett (EWS ID 6555)

On 30 May 2023, a participating EWS project farmer trapped an adult female cheetah. Despite the cheetah having killed a goat the previous day and being found in the trap cage with the same dead goat, the farmer was willing for the female to be collared and released on his farm again.

The next day, with verbal authorization from MEFT Gobabis, the CCF East team transported the female cheetah to a veterinarian in Gobabis, where she was immobilized. An examination revealed she had a severe thigh wound penetrating through the thigh muscles (Figure 67). In addition, an entry wound on the left side of the abdomen, coupled with a significant abdominal infection detected through x-ray examination, was also noted. It is plausible that the origin of these wounds was wildlife-inflicted.

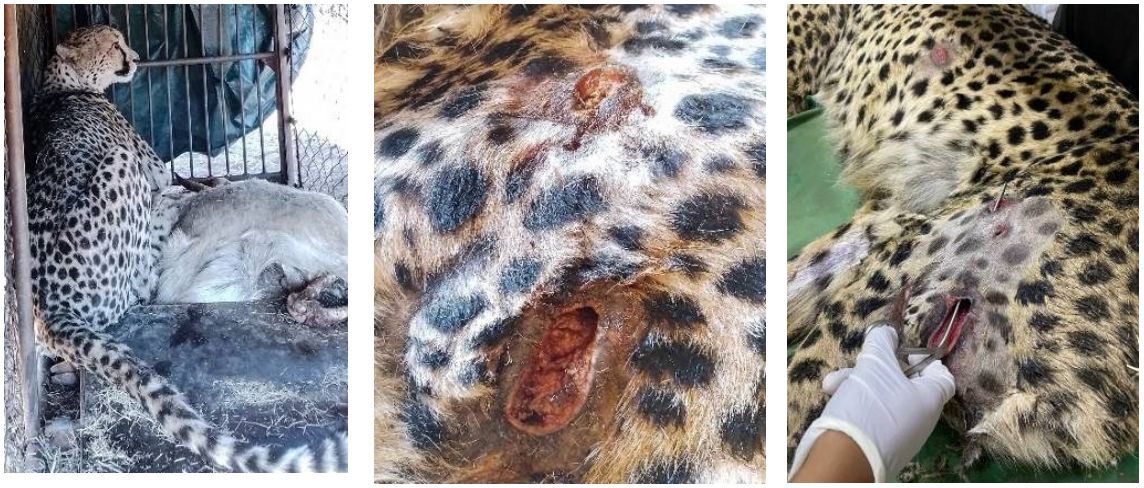


Figure 67: Images showing the adult female cheetah (left), and the wound on her left hip (middle) and the puncture wound in the abdominal area (right).

It became evident that the cheetah could not be collared and released back onto the farm, as she would be ineffective in hunting wild prey, likely leading to a return to livestock killing and an increased risk of being killed in a HWC incident. Consequently, the cheetah was transferred the following day to CCF HQ in Otjiwarongo, under MEFT Gobabis Permit No. 113160, for extended medical care and rehabilitation. The female cheetah was estimated to be between 7-8 years of age, based on tooth wear. She weighed 44.6 kg.

The female, named Scarlett, was fitted with a EWS satellite collar at CCF HQ and released on a "cheetah friendly" farm in Otjozondjupa on 8 September 2023, under the MEFT Windhoek Permit No. 137831 (Figure 68).

Figure 68: Release of adult female cheetah, named Scarlett (EWS ID 6555), by staff from CCF HQ and CCF East on 8 September 2023.

Two adult males – Janus (EWS Collar ID 6554) and uncollared male

On 14 October 2023, a farmer reported trapping two adult male cheetahs, of which one was the male named Janus (EWS Collar ID 6554). The farmer did not want the cheetahs released back on his farm, and on 17 October 2023, the two cheetahs were moved to CCF HQ in Otjiwarongo (Figure 69), under MEFT Gobabis Permit No. 113161. The unknown male cheetah will be fitted with a EWS

satellite collar upon the arrival of the new collars. Subsequently, both males will be released simultaneously at CCF's Elandsvreugde farm in Otjiwarongo.

Figure 69: Images showing the adult male cheetah named Janus (EWS Collar ID 6554) (left), the unknown adult male trapped at the same location with Janus (middle), and the CCF East team and Ms E. Mohotsi from MEFT Gobabis transporting the two cheetahs.

Adult female – Lily (EWS Collar ID 6979)

On 26 November 2023, a farmer reported capturing an adult female cheetah. Despite efforts, the farmer remained unwilling to permit the collaring and release of the cheetah on his farm as his calving season had started.

On 28 November 2023, Ms. Hengari (MEFT Gobabis Officer), and under the MEFT Gobabis Permit No 113163, accompanied the CCF East team to transport the cheetah to Gobabis, where the cheetah was immobilized, underwent a work-up, and was fitted with the EWS collar. The female was released later on the same day on a "cheetah-friendly" farm in Otjozondjupa by the CCF East team and Ms Hengari from MEFT Gobabis (Figure 70).

Figure 70: Images showing the adult female cheetah named Lily (EWS Collar ID 6979).

Two adult females, a male and two cubs

On 15 December 2023, a farmer reported trapping three adult cheetahs, a male and two females, together on one farm, and two cubs around 7 – 8 months old on a second farm. The adults were

trapped inside the calving camp, and the two cubs were trapped after the mother had killed a number of the worker's goats.

On 16 and 17 December 2023, the CCF East team accompanied by Ms. Hengari (MEFT Gobabis Officer), loaded the cheetahs into travel crates and they were then moved to CCF HQ under the MEFT Gobabis Permits No. 113164 and 113165 (Figure 71).

The three adult cheetahs will be fitted with EWS satellite collars and released on CCF's farm Elandsvreugde in Otjiwarongo. The two cubs are old enough to be release-candidates when they are two years of age. Before being released back onto farmland, they will be collared.

Figure 71: Images showing Dr Hanlie Winterbach covering the trap cage containing an adult female (left) and coaxing the two cubs into the travel box (middle), and J. Viljoen and farm workers loading two of the travel crates onto the vehicle.

E.4.3 Predator Early Warning System (EWS) Project

The Predator Early-Warning System (EWS) project, initiated in August 2021, utilizes GPS satellite collars with integrated geofencing capabilities. These collars incorporate a programmed virtual fence corresponding to the farm boundaries. When the collared cheetah crosses this boundary, an internal sensor triggers the collar to transmit a breach alert. The system then sends a breach notification directly to the farmer via email, SMS, or WhatsApp. This proactive communication empowers farmers to employ non-lethal methods promptly, mitigating livestock losses and fostering improved coexistence with cheetahs on their farmland.

By the end of 2023, a total of 10 cheetahs have been fitted with the EWS GPS satellite collars, of which four were males and six were females (Table 36).

Table 36: Number and sex of cheetahs fitted with EWS satellite collars from 2021 to 2023.

Year	Males	Females	Total cheetahs collared
2021	1	2	3
2022	1	1	2
2023	2	3	5
Total	**4**	**6**	**10**

Only two cheetahs, one female (Kike, EWS Collar ID 5069) and one male (Duma, EWS Collar ID 5067), carried the EWS collars up to the time when the automatic drop-off mechanism engaged

at 18 months (Table 37). One male, Janus (EWS Collar ID 6554) was captured and released twice. The second release occurred on CCF's farm Elandsvreugde in Otjiwarongo, as the farmer declined to have the cheetah released back on his farm.

Table 37: Information regarding the cheetahs fitted with EWS satellite collars from 2021 to 2023.

Cheetah name	Cheetah sex	Cheetah age at collaring	EWS Collar ID	Place Collared	Date Released	Date Monitoring Ended	Length Cheetah Collared (Mths)	Collar status
Kike	Female	~ 2 y	5069	CCF HQ	30-Aug-21	13-Jan-23	18	Dropped-off
Duma	Male	~ 2y	5067	CCF HQ	30-Aug-21	13-Jan-23	18	Dropped-off
Calypso	Female	Adult	5071	CCF HQ	30-Aug-21	29-Mar-22	7	Found cheetah dead
Summerdown	Male	~ 4y	5071	CCF HQ	20-Jul-22	13-Jan-23	6	Collar inactive
Daylight	Female	~4-5y	5162	Gobabis	8-Nov-22	6-Jan-23	2	Found cheetah dead
Janus	Male	~ 5-6y	6554	Gobabis	24-Feb-23	14-Oct-23	8	Active
Sofia	Female	~ 6-7y	6555	Gobabis	4-May-23	29-May-23	1	Killed by farmer
Scarlett	Female	~ 7-8y	6555	Gobabis	8-Sep-23	Current	4.3	Active
Janus	Male	~ 5-6y	6554	CCF HQ	31-Oct-23	Current	2.5	Active
Unnamed	Male	~ 4y	6982	CCF HQ	31-Oct-23	31-Oct-23	0.0	Collar inactive
Lily	Female	~ 5-6y	6979	Gobabis	28-Nov-23	Current	1.6	Active

Three collared cheetahs died and the collars were retrieved (Table 38). The cause of death of two of the cheetahs could not be confirmed as the carcasses were discovered in an advanced state of decomposition due to elevated temperatures exacerbated by intermittent rainfall. Nevertheless, the most probable cause is secondary poisoning, wherein the cheetahs' ingested poisons intended for other carnivores. The third cheetah that died, Sofia (EWS Collar ID 6555) was shot by the farmer on whose farm she stayed for almost a month. This farmer did not want to participate in the EWS project, despite frequent attempts by the CCF East team.

Table 38: Cheetahs fitted with EWS satellite collars that have died since the start of the program.

Year Cheetah Died	Cheetah Name	Satellite Collar ID	Sex	Length Cheetah Collared	Notes
2021	Calypso	5071	Female	7 months	29-Mar-22, Farm Sachsenwald #186: Found female dead - cause of death unknown
2022	Daylight	5162	Female	2 months	6-Jan-23, Farm Otjere #164: Found female dead - cause of death unknown
2023	Sofia	6555	Female	1 month	29-May-23, Farm Rustig #728: Female killed by farmer in HWC incident

Three EWS satellite collars were still active at the end of 2023 (Table 39).

Table 39: Currently active EWS satellite collars fitted on cheetahs (Length collared calculated up to 14 Jan 2024).

Cheetah name	Sex	Satellite Collar ID	Date Released	Farm Name and Number Released	Length Cheetah Collared (Days)	Length Cheetah Collared (Months)
Scarlett	Female	6555	8-Sep-23	Daylight #94	128	4.2
Janus	Male	6554	31-Oct-23	Elandsvreugde #367	307	10.5
Lily	Female	6979	28-Nov-23	Daylight #94	47	1.5

By the end of 2023, 35 farmers, covering 76 farms, had signed the Memorandum of Agreement to participate in the EWS project (Figure 72).

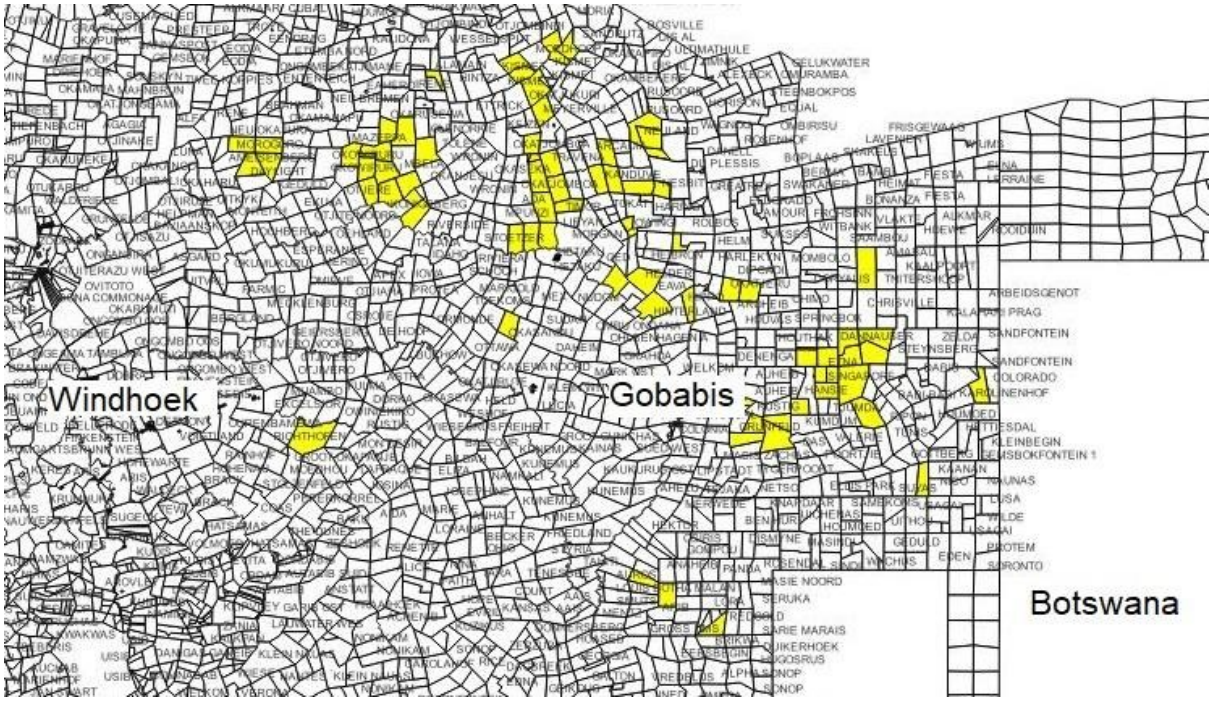


Figure 72: Map showing the farms (yellow) participating in the Predator Early Warning project by the end of 2023.

E.4.4 Environmental Education in the Omaheke District

Education is a foundational element in the multifaceted strategy employed by the Cheetah Conservation Fund to secure the existence of the free-roaming cheetah population. Given that the commercial, resettlement, and communal farmlands of the Omaheke region serve as the primary habitat for a substantial number of these cheetahs, engaging with students in regional schools remains a paramount objective. By instilling understanding through education, there is potential

for these learners to develop an affinity and, ultimately, a commitment to safeguarding these remarkable creatures. This philosophy aligns with the wisdom expressed by Baba Dioum, who asserted, "In the end, we will conserve only what we love; we will love only what we understand, and we will understand only what we are taught."

Throughout the year, our team in the Omaheke region diligently reached out to numerous schools. Undaunted by considerable distances, we visited 23 schools, 11 secondary schools, 11 primary schools, and 1 combined school between February and October (Table 40). Notably, the receptiveness of school staff often surpasses that of some learners, providing opportune moments to disseminate knowledge to adults. The continuing support of the regional education director further bolsters our educational endeavours.

Table 40: Statistics of the environmental education school visitations by CCF East in 2023.

School Name	Town	Area	# Learners	# Teachers
Gobabis Gymnasium	Gobabis	Town	79	4
Wennie Du Plessis	Gobabis	Town	924	8
Delta SS	Windhoek	Windhoek	926	16
Windhoek High School	Windhoek	Windhoek	533	5
St. Georges High School	Windhoek	Windhoek	83	2
Waldorf School (High School)	Windhoek	Windhoek	94	6
Centaurus High School	Windhoek	Windhoek	427	5
Windhoek Afrikaans Private	Windhoek	Windhoek	312	8
Hippo PS Gr 4 - 7	Gobabis	Town	45	1
Rakutuka PS Gr 4 - 7	Gobabis	Town	283	6
Gobabis Primary School	Gobabis	Town	556	8
Khoandawes	Gobabis	Town	488	8
Ben v/d Walt	Gobabis	Town	355	6
Gobabis Projects PS	Gobabis	Town	384	2
Ben v/d Walt	Gobabis	Town	583	9
Nossobville	Gobabis	Town	324	7
Johannes Dohren	Gobabis	Rural	408	12
Isaac Buys	Leonardville	Rural	112	2
Nossob Combined School	Witvlei	Rural	960	18
Blouberg PS	Buitepos	Rural	243	12
Ernst Meyer PS	Buitepos	Rural	186	6
Mokganedi JS	Drimiopsis	Rural	843	13
Drimiopsis PS	Drimiopsis	Rural	218	5
Total			9366	169
Grand Total			**9535**	

The subsequent pie chart (Figure 73) illustrates the distribution of attendees, delineating learners in both the secondary and primary phases, as well as teachers and other adults participating in the presentations.

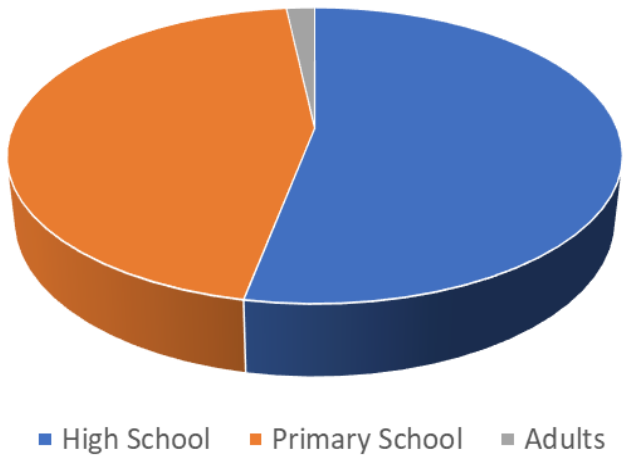


Figure 73: Demographics of participants in CCF's environmental education programs during 2023.

During the year, our outreach initiatives expanded to include western Windhoek high schools situated in the Khomas region, with a predominant emphasis on private institutions.

In the Khomas region, students were made aware of the ecological role of predators, defining the nature of predators, human-predator conflict, and strategies for mitigation. The instructional approach involved utilizing the PowerPoint presentation designed for high schools. A pre-presentation assessment revealed that, generally, learners possessed limited knowledge and comprehension regarding carnivores and their ecological functions. Conversely, the post-presentation evaluation indicated a notably improved understanding among learners, on average, regarding the specific roles of carnivores in nature.

Conversely, schools in the Omaheke region were introduced to the Livestock Guardian Dog program, illustrating how it could aid farmers in mitigating human-wildlife conflict. During these presentations, attendees had the opportunity to meet Brooks, our Anatolian Livestock Guardian Dog ambassador.

In the second half of the year, the focus was to reach all the secondary phase schools in the Omaheke region and conduct some teacher training sessions. Unfortunately, the limiting factors remain the cost of fuel, the distance needed to be covered, and academic pressure on learners and teachers to complete the syllabus.

F. Global Management Planning & Policy Involvement

CCF assists in international programme development and adapts model programmes developed in Namibia for use in other countries, distributing its materials and information throughout Africa and the rest of the world.

F.1 International Cheetah Studbook

Dr. Laurie Marker is the International Cheetah Studbook Keeper. The International Cheetah Studbook is a voluntary register of all cheetahs in the world held in both zoological and private facilities, and provides information about existing animals by publishing the studbook contents, thus creating the preconditions for selecting breeding animals. The Studbook records captive animals from around the world. It includes wild-caught and captive-born individuals alive in 1980 and after, as well as founders with live offspring since 1980. Each registered animal has a studbook number. Bi-annual questionnaires are sent to all facilities holding cheetahs and information is checked through the support of the Zoological Information Management System (ZIMS Species360) and personal communications.

The 2022 studbook was published in August 2023. In 2022, 220 (103.102.15) new animals were registered, representing births and newly imported wild-caught animals during this period, as well as animals that had been brought into the captive population prior to 1 January 2022 but had not been reported until after the publication of the 2021 Studbook. Captive-born cubs from known breeding facilities totalled 150 (74.63.13) born in 47 litters in 27 facilities in 11 countries. The captive cheetah population on 31 December 2022 was 1,814 (908.906) animals in 294 known facilities in 43 countries (Figure 74).

The 2023 studbook is still currently in progress. As of 1 January 2024, there have been 142 (64.47.31) new animals registered. Captive born cubs from known facilities totals 122 (53.38.31) at 20 facilities. There have been 136 (68.56.12) deaths reported at 80 facilities.

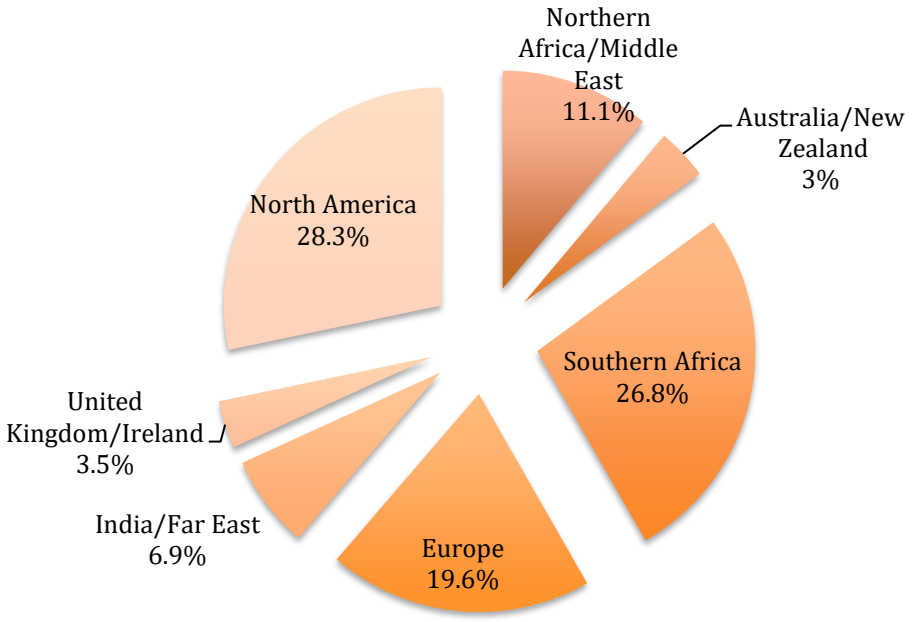


Figure 74: Captive cheetah populations by region, 2022: 1814 (908.906).

F.2 Illegal Wildlife Trafficking (IWT)

F.2.1 Confiscations

During 2023, CCF recorded eight events related to cheetah poaching, trade, and trafficking in the Horn of Africa, involving 27 cheetahs (Figure 75 & Figure 76; Table 41). All these events involved cubs confiscated by authorities in Ethiopia and Somaliland.

- CCF was directly involved in five cases involving 12 cubs in Somaliland
- Ethiopian federal and regional authorities were involved in three cases involving 15 cubs in Ethiopia.

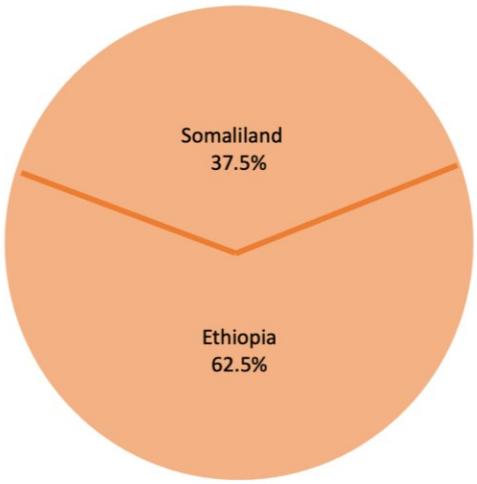


Figure 75: Confiscations events by location.

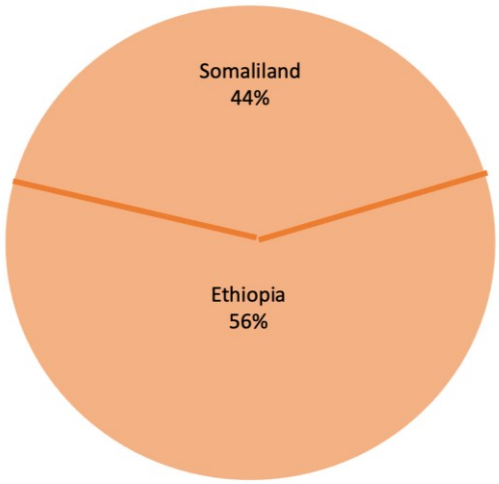


Figure 76: Confiscated cubs by location.

Table 41: Confiscated cubs in the Horn of Africa during 2023.

Date of Confiscation	Type of Event	Country of confiscation	Number of animals involved	Species	Sex	Age
03 Feb 2023	confiscation	Somaliland	3	*Acinonyx jubatus*	M (3)	3-4m
11 Apr 2023	confiscation	Somaliland	1	*Acinonyx jubatus*	F	5m
1 Apr 2023	confiscation	ETH	2	*Acinonyx jubatus*	UNK	UNK
16 Apr 2023	confiscation	ETH	5	*Acinonyx jubatus*	UNK	UNK
16 Apr 2023	confiscation	ETH	8	*Acinonyx jubatus*	UNK	UNK
17 October 2023	confiscation	Somaliland	2	*Acinonyx jubatus*	M/F	4-5 wks
13 Dec 2023	confiscation	Somaliland	3	*Acinonyx jubatus*	M	UNK
25 Dec 2023	confiscation	Somaliland	3	*Acinonyx jubatus*	M (3)	3m

Ethiopia

Ethiopian authorities in the Somali Regional State (SRS) confiscated 15 cubs in 2023, all in a series of related incidents during the first half of the year. One was reported to have died at the time. The remaining 14 were retained in the custody of the Somali Regional State (SRS) authorities at Jijiga. CCF's partner BeWildAid (BWA), which was involved in caring for the cheetahs, indicated that the holding facility in Jijiga provided room for the cats to move around during the day but the night quarters were less satisfactory. BWA was concerned about a lack of capacity on the part of caregivers, who were not always diligent about their duties. BWA bought food for the cheetahs and ensured the cold chain was preserved to keep the food fresh. BWA had difficulties finding adequate veterinary care, a situation CCF began to address in 2023 through project activities (see below). At the end of the year, CCF had heard unconfirmed reports that most or all of the cubs are now dead and is working to confirm the current status of these animals.

The SRS authorities have made no decision on the permanent disposition of these cubs, assuming they are still alive. The authorities would like BWA to find a permanent solution. BWA would prefer to rewild the cats, but for those that cannot be rewilded, another solution would be needed. The only permanent wildlife sanctuary in Ethiopia is operated at Holeta by the Born Free Foundation. This facility has taken confiscated cheetahs in the past but is not located in the SRS, which creates political issues, and is likely limited in how many more it can take. BWA, as well as CCF, do not support euthanasia as an option.

BWA wants to build a wildlife holding facility in the SRS that would include a veterinary clinic and education centre and has requested 2000+ hectares of land for this purpose to allow enough space for cheetahs. This would not be a permanent sanctuary but only a temporary facility for cats and other wildlife until they can be rewilded or another disposition found. The SRS authorities want their own wildlife sanctuary, and BWA's goal fits well with CCF's interest in establishing an education and training centre in the SRS, so there is a convergence of interest, but currently no funding to establish and maintain an SRS sanctuary.

BWA estimates there could be as many as 40 more cheetahs in captivity in the SRS, but this is unconfirmed as of the date of this report.

Somaliland

CCF recorded five confiscation events in Somaliland in 2023 (Table 42). On each of these occasions, CCF collaborated with the Ministry of Environment and Climate Change (MoECC), which carried out the confiscations. The first of these events occurred in February 2023, and yielded three male cubs, each about four months of age. The second confiscation took place in April 2023 and involved a single female cub judged to be about five months old. All four cubs were placed in the custody of CCF and taken to the CCF cheetah centre in Hargeisa for assessment and treatment. They are now at the new centre at Geed Deeble.

Table 42: Confiscated cheetahs from Somaliland in 2023.

Assigned Name	IT-AJU	Gender	Date Confiscated	Estimated DOB
Oklahoma	2124	M	3 Feb 23	15 Oct 22

Abdi	2125	M	3-Feb-23	15-Oct-22
Hasani	2126	M	3-Feb-23	1-Oct-22
Lily	2127	F	11-Apr-23	11-Nov-22
Aamiina (Mina)	2128	M	17 Oct 23	18 Sep 23
Miss Behave (Missy)	2129	F	17 Oct 23	18 Sep 23
Blue*[+]	2130	M	11 Dec 23	TBD
Red*	2131	M	11 Dec 23	TBD
Orange*	2132	M	11 Dec 23	TBD
Red*	2133	M	25 Dec 23	25 Sep 23
Blue*	2134	M	25 Dec 23	25 Sep 23
No Colour*	2135	M	25 Dec 23	25 Sep 23

Notes:

*When multiple cubs arrive at the CCF Centre, each is initially marked with a non-toxic colour spot to distinguish them for evaluation and treatment. These cubs will be named in due course.

[+] Due to his poor condition, this cub died about 24 hours after arriving at the CCF Centre.

In October, two more cubs were confiscated in a community not far from the Cheetah Center in Geed Deeble and brought to the Center. Authorities arrested six traffickers. This confiscation was notable because it was aided by information received from community Wildlife Observers trained by CCF. In early December, the Ministry confiscated three young cubs in connection with the arrests of two traffickers in the Awdal region. On arrival at the CCF Center on 13 December, one of the cubs was found to be severely (80%) dehydrated and probably suffering from an intestinal obstruction and died within 24 hours despite the best efforts of Dr. Marker and the Center staff (Table 43). The remaining two were in better condition and are recovering well. The final confiscation of the year took place around Christmas Day and involved three male cubs estimated to be about three months old. All are doing well at the CCF Center. The last two confiscations were facilitated by the budding Somaliland Environmental Crime Unit (the UNIT), developed and established by CCF with the aid of funding from the EU (EUSOM1058 project) and UK DEFRA. Our project UNIT consultant - Rod Potter guided this engagement to offer the first cases of official UNIT collaboration.

Table 43: Overview of IWT events and confiscations during 2023.

IWT Events	
Total IWT events	8
Total confiscation events	8
Total "reports only" events	0

Total cheetahs confirmed to be in trade (confiscated + reported but not confiscated)	27
Total confiscated	27
Ethiopia	15
Somaliland	12
Alive on Arrival at CCF Center	12
Dead on Arrival	0
Confiscations Mortality Rate upon confiscation (n=12)	0%
Died at CCF after confiscation during 2023	1
Confiscations Mortality Rate at CCF (n=12)	8.3%

Analysis

The most notable change relative to IWT incidents over the past 12 months is the reduced number of such incidents in Somaliland. Somaliland authorities reported only five confiscations during 2023, which represents a significantly lower rate than in 2022, when 19 incidents were recorded. The reasons for this decrease are not fully clear. Somaliland authorities arrested two prominent traffickers in late 2022, which could have had a chilling effect on illegal trade, however there is insufficient evidence to determine this. The greater number of cubs confiscated in Ethiopia – 15 compared to four in 2022 - could mean that fewer cubs were entering Somaliland in the smuggling pipeline, but again there is insufficient evidence that this was the case. CCF's community outreach and education programs could also be having a positive impact. Ecological surveys to determine cheetah distribution and habitat, and social surveys in target communities conducted under CCF's current suite of projects (see below) will help create a more comprehensive database for analysing trafficking trends in Somaliland and the Horn of Africa region.

Demand: Purchasing and Ownership

CCF collaborated on a six-month survey with TRAFFIC from October 2022 to March 2023 with the goal of determining if any notable changes had taken place, or if new trade dynamics had emerged, in relation to incidents of suspected trade in live cheetahs or private ownership of live cheetahs as pets. The survey revealed that at least 23% of users identified in the past by CCF (2009-2019) as sellers are still active online, and a further 23% might still engage in illegal activity as they changed their security settings, not allowing open examination of their profiles. The survey reaffirmed that the internet continues to be used to trade in live cheetahs and to display live cheetahs as pets, potentially in violation of national and international laws. Social media appeared to be the dominant mechanism used for these purposes (70% of posts found). This correlated with previous research, including work by CCF. The survey also noted the use of e-commerce platforms, online forums, and specifically dedicated websites seemingly created to trade in many exotic wildlife pets including cheetahs.

The survey was not able to quantify the number of unique individual animals involved due to resource constraints, but was able to identify some noteworthy patterns:

- Suspected cheetah sellers preferred prominent social media platforms such as Facebook, Instagram, Snapchat, TikTok and YouTube;
- Suspected sellers made efforts to avoid scrutiny, including by restricting public access to their sites, posting only images of cheetahs with no accompanying text, or creating new or multiple profiles;
- There were links between cheetah trade and trade in other wildlife as pets including birds, reptiles, primates, and other big cats and small mammals.
- Countries in the Arabian Peninsula continued to play a dominant role in the trade of live cheetahs online, many linked to private or individual ownership in addition to zoos or safari parks. Two thirds (66%) of the URLs involving the intention to trade in live cheetahs were traced to the Arabian Peninsula countries – with Saudi Arabia and Kuwait leading, 15% to North America (principally the U.S.), and 11% to Africa.
- There were also many posts that show possession, as opposed to sale, of cheetahs, reaffirming the status symbol that is exotic pet ownership. Top five countries where URLs involve the display of live cheetahs as pets.
    - United Arab Emirates (40 / 32%)
    - Saudi Arabia (31/ 25%)
    - Kuwait (11 / 9%)
    - South Africa (7 / 6%)
    - United States of America (6 / 5%)
- Discrepancies existed for several countries between the number of URLs advertising or displaying live cheetahs and CITES reported imports of live cheetahs into those countries.

Based on its findings, the survey made a number of recommendations including expanded online surveys, more in depth monitoring of identified websites, further work to accurately quantify and identify individual animals linked to specific websites, further research to understand the motivations and behaviour of users and their preferences for exotic pets, and continued public awareness campaigns. CCF is using the survey results to strengthen its knowledge of the status and dynamics of illegal cheetah trade, which is critical to demonstrating the impact of current project activities and devising additional strategies for future efforts.

Research

Genetics

CCF's work on cheetah genetics contributed to the most significant development of the year concerning the international status of cheetahs: the long-sought recognition by IUCN of the Horn of Africa cheetah population (*Acinonyx jubatus soemmeringii*) as a separate population and its uplisting to Endangered status on the IUCN Red List.[3] This action by IUCN is a major achievement for CCF and other contributors that should strengthen the basis for protecting this population of cheetahs under international conventions and policy, and can be used by CCF and partners to generate more attention to efforts to protect this population of cheetahs.

Funding from the U.S. Fish and Wildlife Service project (below) will enable CCF to continue genetic sample collection and analysis for wild cheetahs and confiscated cubs in the Horn of Africa to keep learning about the origin and genetic makeup of these cats and expanding baseline knowledge about the population of cheetahs in northeast Africa, including their presence, habitats, and diet.

[3] Durant, S.M., Broekhuis, F., Evangelista, P., Tricorache, P., Asfaw, T., Gedow, O. & Marker, L. 2023. *Acinonyx jubatus* ssp. *soemmeringii*. *The IUCN Red List of Threatened Species* 2023: e.T231957008A232671735; available at https://www.iucnredlist.org/species/231957008/232671735.

The analysis will be based on hair and scat samples. A more comprehensive genetic database will also provide stronger forensic evidence for wildlife crime prosecutions in the region. CCF's project plans include training prosecutors and judges on the value and use of genetic evidence.

CCF-led Projects

LICIT – Legal Intelligence/Cheetah Illicit Trade

By the end of May, CCF project staff submitted the final report and audit for the UK/DEFRA-funded LICIT project, which wrapped up activities in November 2022. The project is now officially closed. DEFRA's final assessment was that the project "met expectations" – a very positive outcome given the impact of the pandemic on implementation. LICIT has an important legacy, however, as key project concepts such as legal strengthening, network building, and community level conservation, have provided a basis for further actions under current CCF IWT projects. The LICIT project also provided CCF with valuable organizational experience in managing and implementing large-scale projects funded by government donors.

LICIT-II Project (IWT-113) - Legal Intelligence and Community Governance for Cheetah Illicit Trade

Following the success of LICIT, UK/DEFRA awarded CCF a follow-on grant for the "LICIT-II" project (Legal Intelligence and Community Governance for Cheetah Illicit Trade). LICIT-II began in July 2022 and will run for three years, until June 2025. CCF and the Somaliland Minister of Environment and Climate Change (MoECC) held a formal launch ceremony in Hargeisa on 13 May, 2023 for LICIT II and CCF's U.S. Fish and Wildlife Service-funded project (see below). Dr. Laurie Marker and MoECC officials made remarks at the event, which was covered live by Somaliland media. LICIT II, for which CCF is the lead partner, continues CCF's productive relationship with Legal Atlas, as well as engaging a new partner, TRAFFIC. LICIT-II counterparts include national government authorities, regional networks, and local communities. LICIT II will enhance national and regional capacity in the Horn of Africa to fight wildlife crime by leveraging gains made through LICIT and synergies with other current CCF projects (see below) in three main areas:

1. **WILDLIFE CRIME DATA COLLECTION & EXCHANGE PLATFORMS**:

   Working with TRAFFIC, develop a TWIX information platform for Ethiopia. TWIX (Trade in Wildlife Information eXchange) is a data platform for wildlife crime information and intelligence sharing among governments, developed by TRAFFIC, that is operational in the European Union and among the SADC countries in Southern Africa. A multi-stakeholder initiative is underway to establish an East Africa regional TWIX that will cover the IGAD member countries and Tanzania. The LICIT II work connects Ethiopia with this expanding regional platform to facilitate communication and cooperation against cross border cheetah trafficking and other wildlife crime. During the past year, TRAFFIC conducted a scoping study in Ethiopia, prepared TWIX familiarization materials, and organized a two-day workshop in Addis Ababa in April on basic TWIX skills for 25 officials from Ethiopian law enforcement agencies participating in the TWIX platform. TRAFFIC then conducted follow up one-on-one training for TWIX focal points of Ethiopian law enforcement agencies on the usage of the Eastern Africa-TWIX website and on how to train additional users.

   Develop a TWIX-compatible database for wildlife crime incidents for Somaliland. Because Somaliland has not yet achieved recognition as a fully sovereign country, it is not eligible

to participate in the East Africa TWIX. However, Somaliland can still collaborate with its neighbours to fight wildlife crime and will benefit by having an information exchange platform compatible with other countries in the region. During 2023, TRAFFIC prepared a draft template and guidelines for a TWIX-compatible Somaliland database. CFF engaged a consultant who travelled to Somaliland to begin building and operationalising the database during the second half of the year. The consultant developed questionnaires that were approved by the MoECC and shared with government agencies that will use the database, to solicit input on its structure and functioning. CCF obtained a free two-year license for SemanticAI software to be used in Somaliland to support the database, and the MoECC approved its use. CCF organized and delivered a workshop on a TWIX-compatible wildlife crime database for Somaliland Forestry, Range, and Wildlife Crimes Task Force members.

2. **STRENGTHENING LEGAL FRAMEWORKS TO COMBAT CHEETAH TRAFFICKING**:

a. *Working with Legal Atlas, Revise Somaliland's Forestry and Wildlife Law*. CCF hired a local legal consultant in Somaliland and identified stakeholders in the revision process. The MoECC formed a legal drafting committee, which began meeting regularly in May 2023 under the guidance of the legal consultant to familiarize the members with the legal concepts involved and prepare to begin the formal drafting process. Legal Atlas prepared a printed handbook for the Committee containing legal revisions drawn from legal research conducted under the first LICIT project. With continued input and oversight from the legal consultant, legal Atlas, and CCF, the drafting process was completed in November and a proposed text presented to the MoECC. The draft text is currently undergoing review within the Somaliland government, as well as a public consultation process. This is expected to conclude by the end of 2023 to allow the new law to be finalized and introduced in Parliament in January 2024.

b. *Draft an IGAD-level regional protocol on Environmental Crime Units (ECUs)*. An ECU is a multi-agency government task force for coordinating responses to wildlife trafficking and other environmental crimes. During 2023 Legal Atlas prepared a benchmark study analysing global legal standards applicable to the structure and functioning of ECUs and used this research to produce a Drafting Guide for IGAD-member governments. As of this report date, CCF and Legal Atlas are awaiting an opportunity to present this work to IGAD and the Executive Committee of the Horn of Africa Wildlife Enforcement Network (HAWEN). The HAWEN is a specialized network of IGAD focused on strengthening regional cooperation against illegal wildlife trade. This element of the LICIT II project builds directly on achievements of the first stage of the CCF/CMS Legal Harmonization project (see below).

3. **COMMUNITY NATURAL RESOURCE GOVERNANCE UNITS**:

a. *Build upon results of the IUCN project and develop a pilot Community-Based Natural Resources Management (CBNRM) governance unit in the Awdal region, training governing bodies in Future Farmers of Africa (FFA) and governance principles*. CCF and MoECC convened a stakeholders' workshop in Hargeisa in February 2023, to generate input for developing a CBNRM model suitable for communities in Somaliland. Based in part on the workshop results, the project governance consultant prepared guidance for fieldwork to gather direct community input to the model development process. The consultants then conducted initial assessment surveys in potential pilot communities to collect data needed

to choose the pilot location. The MoECC approved the survey questionnaires. CCF used the consultant's findings to recommend five potential conservancy sites to the Ministry, which made the final selection of an area including 29 villages centred on the communities of Bown and Harirad. CCF also collected data from the pilot area to establish a monitoring and evaluation (M&E) baseline for future project activities. CCF conducted an FFA assessment in the LICIT II pilot communities in February. FFA training sessions conducted in February in similar communities under the parallel EU-funded project (see below) provided valuable input for developing the assessment for LICIT II. FFA training materials prepared for use in the EU project provided an opportunity for Partners to get a head start on preparing similar materials for LICIT II use.

b. *Continue developing the Somaliland Association of Civil Society Organizations (SACSO) as a support coalition for CBNRM governance units*. CCF and SACSO members convened their third meeting immediately following the LICIT II project launch in Somaliland in May. CCF led the participants through a discussion of how the SACSO should organize and operate. Members agreed to form a four-member steering committee to develop terms of reference for the group. Members held organizational discussions in July, August, and November. In November, CCF initiated a survey among member organizations to map programs and resources. At the end of 2023, CCF was gathering responses from the survey, obtaining formal endorsement of the SACSO from member organization leadership, and working to bring in new members. When fully functional the SACSO will also support community-level activities under the CCF project funded by the European Union (see below) and serve as a vehicle for encouraging coordination and cooperation among members.

European Union, "Engaging Somali communities to improve wildlife trafficking and forest crime control" (2022-2024)

CCF has partnered with Deutsche Welthungerhilfe e.V. (World Hunger Help/WHH), on a European Union-funded project to merge established anti-trafficking and protected area methodologies to reduce wildlife trafficking and forest crime. This project is a test of the idea that communities will more readily accept wildlife conservation initiatives if they are integrated with other, more traditional community development initiatives. This is also the first time CCF has received funding from the European Union, which makes it an important opportunity for CCF to establish itself with this major donor. WHH is the lead partner for the project, which will run for two years, from June 2022 to May 2024.

The project focuses on five villages, chosen with input from the MoECC, along the Somaliland-Ethiopia border, an area previously identified as impacted by cheetah trafficking. WHH is building community water systems and creating livelihoods through beekeeping operations, while CCF is bringing anti-trafficking and wildlife conservation initiatives to the communities. CCF-led activities during 2023 included:

- *Building an NGO coalition (SACSO) in Somaliland* to support community resource governance initiatives. This action is shared with the LICIT-II project (see above) and draws resources from both projects; As discussed above, SACSO member NGOs held several organizational meetings during 2023, building toward a formal launch in early 2024;

- *Supporting development of the Somaliland Environmental Crime Unit (ECU)* as a coordinating body for government responses to wildlife crime. The ECU was announced

by the MoECC in September 2021 but had not become active for lack of capacity and resources. CCF's ECU consultant travelled to Somaliland in June and November. In June he shared initial questionnaires with eight prospective member agencies to assess their institutional capacities to participate in the ECU and gather data on their enforcement mandates and database needs. The consultant conducted a two-day training to introduce the ECU concept to the participating agencies. The consultant used the input he received to prepare a draft Charter and other working documents for the ECU, which he presented to the member agencies in November for review. As 2023 drew to a close, the ECU Charter was with the member agencies for final approval and signature by Ministers. Even though it is not yet formally launched, the ECU participated in the government's response to the December report of possible trafficking in Bown (see above), as the ECU Chair travelled to the area with Ministry representatives to assist with the investigation;

- *Introducing the Spatial Monitoring and Reporting Tool (SMART) platform* for monitoring wildlife and wildlife crime/human-wildlife crime incidents in Somaliland, through training specialized Wildlife Observers. CCF worked with the MoECC to identify two wildlife observers in each of the five project villages, who were hired directly by the MoECC using project funds transferred for that purpose. In June, CCF provided SMART platform training to the observers and they began their work in the field, with regular follow up by CCF project staff. In October, these observers were able to provide information to the MoECC that contributed to the arrest of six traffickers and recovery of two cubs (see above). SMART data will feed into the national database under development through the LICIT II project (see above);

- *Preparing and disseminating media messages* promoting awareness of cheetah trafficking and highlighting MoECC successes in fighting trafficking. CCF signed an agreement with the Somaliland Ministry of Information covering the production and broadcasting of anti-trafficking awareness messaging on Somaliland state radio and television. CCF prepared content for the spots, which was approved by Radio Hargeisa and the MoECC. These spots aired in May and June. The media campaign also included communicating with village elders and mayors to increase listenership. A second phase of the campaign is in development that involves extending the messaging to social media by posting the spots on YouTube and creating a WhatsApp group of key community stakeholders to allow access to the spots via phones;

- *Revising the Somaliland Wildlife and Forestry Law*. This work is also shared with the LICIT II Project (see above) and is led by project partner Legal Atlas;

- *Conducting eco-social surveys and training* in the five project communities. In February, CCF conducted evaluation visits to the five villages, including social science surveys that interviewed a total of 105 male and female community members. This was followed by an initial round of CCF's Future Farmers of Africa (FFA) training directed to both male and female community members. FFA focuses on teaching better animal husbandry techniques including predator management and avoiding human-wildlife conflict, and is a key element in persuading communities to take an active role in protecting cheetahs and other wildlife. Participants learn the benefits of wildlife resources, and how integrating livestock husbandry and wildlife management can decrease losses of both livestock and wildlife, improve productivity of pastoral livelihoods and sustainability of natural resources in the target communities, and promote reduction or elimination of wildlife crimes

including illegal trafficking, hunting, poisoning and trapping. CCF delivered refresher FFA training to 125 participants in the five communities in July to review and reinforce the concepts and lessons from the initial training.

U.S. Fish and Wildlife Service: Creating systems to monitor and care for wild cheetahs and determine drivers of illegal trade in the Horn of Africa

CCF received funding for the first time from the U.S. Fish and Wildlife Service, as part of its Species Conservation Catalyst Fund. This was the result of a long policy development process at USFWS, which included input from CCF and other NGOs. The USFWS grant began in 2022 and runs for five years, with the final two years contingent on renewed USFWS funding. During this report period, CCF signed project implementation agreements with counterpart authorities in Ethiopia, Puntland, and Somaliland. CCF held a joint project launch event on 13 May, 2023 in Hargeisa with the Somaliland MoECC for the USFWS and LICIT II projects (see above). This project will help solidify cooperation between the Ethiopian SRS, Puntland, and Somaliland and allow these governments to combat trafficking and conserve biodiversity in the region more effectively. For CCF, the project brings together the Wildlife Crime, Genetics and Research, and Ecology Programs in a joint endeavour covering the following areas of work:

- *Camera trap surveys* in Ethiopia's Somali Regional State (SRS), Puntland, and Somaliland to gather better data about cheetah presence in these areas. As of this report date, camera traps and other equipment have been identified, tested, and ordered. Some of the equipment has already reached Somaliland; the remainder is in transit in preparation for surveying and training activities in 2024. Surveys in Somaliland have been integrated with similar surveys conducted under the Rainforest Trust project (see below).

- *Genetic sample collection and analysis* for wild populations and confiscated cubs to learn more about their origin and genetic makeup. This data will also support wildlife crime prosecutions in the form of forensic evidence. In 2023, genetic samples obtained by CCF from 118 cheetahs recovered from illegal trade were processed at the CCF Genetics Laboratory in Namibia to obtain a mitochondrial and genomic (microsatellite) signature of each trafficked cheetah. These samples will become the starting point for a larger regional genetic database. Additionally, genetic sequences of relevant prey species were gathered and combined for a joint analysis to help identify ideal target regions for the next stage of surveys. Also, in preparation for surveys, primers were designed to assess presence of prey species in cheetah scat samples.

- *Training for Ethiopia's wildlife veterinarians*, in partnership with BeWildAid, an NGO chosen by the Ethiopian government to establish the country's National Wildlife Veterinary Service. CCF's work will be focused on cheetah cub medicine and training for confiscation teams on emergency treatment for recovered animals and personal security. CCF and BeWildAid prepared and delivered a full program of cheetah veterinary training in September-October for the first Ethiopian Wildlife Veterinary Service (EWVS) veterinarian selected by BeWildAid as well as a local counterpart who works for the Somaliland MoECC. The training was delivered at the CCF Center in Somaliland by CCF's local staff and covered a comprehensive range of theoretical and practical veterinary subjects related to caring for confiscated cheetah cubs. The training also addressed the role of the veterinarian in a confiscation and focused on a broader scope than just medical responsibility, including collecting forensic evidence and working with rural communities

on mitigation strategies for poaching and trafficking including human-wildlife conflict. The trained veterinarian will now be expected to be available to support future cheetah confiscations in Ethiopia. This initial training will serve as a model for training additional EWVS veterinarians in 2024.

- *Preparing veterinary course materials*: CCF worked with BeWildAid to prepare three modules for the EWVS Annual Conservation Medicine Course. This online course is scheduled to be delivered in February 2024. A Confiscation Veterinary Bag supplies list was compiled, including identification of vendors who could reliably supply these items. The supplies will be purchased and sent to EWVS Headquarters in the Ethiopian SRS in 2024 once the location of the SRS Wildlife Service HQ is determined and adequate storage and oversight can be assured. A hot line reaching the Ethiopian Wildlife Veterinary Service (EWVS) was created and its number disseminated to wildlife, veterinary, and law enforcement officials. CCF compiled informational materials, including a detailed sample collection checklist, and provided them, with guidance, to the EWVS veterinarians.

CMS-IGAD Legal Harmonization Project

CCF and the Convention on Migratory Species (CMS) Secretariat continued the second round of their collaborative work on legal harmonization in the Horn of Africa, which is funded through the EU “Cross-Regional Wildlife Conservation in Eastern and Southern Africa and the Indian Ocean” Program. Based on input from the Horn of Africa Wildlife Enforcement Network (HAWEN) Executive Committee, contractor Legal Atlas conducted research on legal standards and instruments applicable to potential trans-boundary conservation areas in the IGAD/HAWEN region and produced a guideline document: “List of Standards related to Trans-Frontier Conservation Areas (TFCAs). The analysis included IGAD member countries Djibouti, Ethiopia, Kenya, Somalia, Sudan, South Sudan, and Uganda. CCF, CMS, and Legal Atlas are working to arrange a presentation of the research results to IGAD and organize a drafting process for a new IGAD regional protocol on TFCAs. Due to capacity issues at IGAD (see below), it is not yet clear when this will happen. This project is closely integrated with work under the LICIT II project (above) to prepare a draft IGAD protocol on national ECUs.

IUCN Grant

IUCN has provided financial support for CCF’s work in the Horn of Africa to eradicate illegal trade in cheetahs through a two-year grant. The objective of the proposed project is to "To mitigate human-wildlife conflict and eradicate illegal trade in cheetah while building resilience and creating better livelihoods for people in northwestern Somaliland." Work under this grant has focused on assessing the viability of adapting Namibia’s Community Based Natural Resource Management (CBNRM) approach and conservancy model for Somaliland to decrease human-wildlife conflict and improve livelihoods in rural communities impacted by cheetah trafficking. There is an intentional overlap between this project and other current CCF projects, especially LICIT II, and activities under these projects have been conducted with an integrated approach.

For 2023, a principal activity was an initiative for conservation education in schools in several villages and districts in Somaliland’s Awdal region, based on CCF’s Future Conservationists of Africa (FCA) program. Topics covered by the FCA curriculum include basic conservation principles, sustainable wildlife utilization, and the role and value of predators, as well as considerations of

biology, ecology, and sustainable agriculture. Awdal is the site for the pilot conservancy developed under the LICIT II project and is also the location of the EU project target communities (see above). The IUCN project training thus supports the governance work of these projects by enhancing conservation awareness and skills in the region. The initial phase of this activity was launched in May/June and involved reviewing, adapting, and translating FCA training manuals, planning the schedule and budget, and identifying initial groups of teacher trainees. All plans and materials were submitted to the Somaliland Ministry of Education for review and approval.

The training itself was carried out in December, beginning with a training workshop for 40 teachers selected from schools in the target area. This event was held in Boroma, the Awdal regional capital. CCF and the Ministry then supported the trained teachers in delivering the FCA program to students in their community schools. A total of 1,945 elementary and secondary students, of whom approximately 55% were male and 45% female, participated in the FCA training courses.

Taiwan Grant

This grant provided funds for training and fielding Community Wildlife Observers in the area around Geed Deeble, Somaliland, where CCF's Cheetah Center is now located. These observers are in addition to those trained under the EU project (above). The observers are equipped to use the SMART platform to record information about wildlife presence and incidents of wildlife crime in their communities. To date CCF has hired, trained, and deployed three observers under this project. The observers meet with CCF staff on a regular basis to submit SMART data and report on their patrols. CCF has also introduced "SMART Connect" to automatically upload data from the SMART application, which allows delivery of patrol observations in real-time. The Government of Taiwan has provided additional funds to extend the work of the observers through 2024.

Rainforest Trust Grant

This grant provided funds for conduct of surveys in Somaliland including first-ever camera trap surveys in the Geed Deeble area around the proposed national park/protected area and the CCF cheetah centre. This was needed to complete the ecological study required to estimate the biodiversity of the area in preparation for physically demarcating its boundaries. Demarcation is an important prerequisite to protecting the area from illegal activities that could harm resident cheetahs and other wildlife. Together with the new Wildlife and Forestry Law (see above) demarcation will also provide a legal and geographic framework to support MoECC in negotiating with communities that currently use the land. Training and placement of camera traps took place from 4-17 May 2023. The three Geed Deeble Community Wildlife Observers hired under the Taiwan project (see above) took part in this activity. The team visited the camera trap locations regularly to gather data from the cameras and reinstall cameras that had been removed or tampered with. Numerous species were observed, including cheetahs and others previously undocumented in the area. During the survey work the CCF team encountered several unexpected pastoral settlements within the proposed boundaries of the protected area. These people will need to be consulted and their presence could affect the type of protected area that can be established. CCF and the MoECC jointly conducted an awareness campaign in these communities in June to sensitize them on the purpose of the camera traps and identify community liaisons to help oversee the cameras. At year end, CCF was working with the MoECC on preparations for the physical demarcation. The timetable will be determined by the status of MoECC's consultations with the pastoralists found in the park area. To accommodate this, CCF has obtained a six-month extension of the project.

One Earth Foundation

This grant focused specifically on community training in the Geed Deeble and Darasalaam areas of Somaliland. CCF has a particular focus on these communities because they are adjacent to the CCF cheetah centre. CCF conducted FFA training for 100 women at four sites in these communities. The program provided four days of training at each site. As with other community training programs, CCF submitted plans and materials for approval by the MoECC. This program has been completed; further activity is contingent upon approval of additional funding.

International and Regional Policy

Multilateral Environmental Conventions: CITES and CMS

Cheetahs are listed as globally Vulnerable on the IUCN Red List of Threatened Species™, and the cheetah has been included in the Convention on Trade in Endangered Species (CITES) Appendix I since 1975[4]. As noted above, the IUCN recognized the Horn of Africa cheetah population as a separate population and uplisted it to Endangered status in 2023. In 2009, the cheetah was listed in Appendix I of the Convention on the Conservation of Migratory Species of Wild Animals (CMS), except for its populations in Zimbabwe. Populations in Botswana and Namibia are also not listed as the two counties are not Parties to CMS. CCF has continued to be active in promoting action on cheetahs in both CITES and CMS.

At the CITES Conference of the Parties (CoP) in Panama in November, 2022, the parties adopted the Big Cats Task Force (BCTF) Terms of Reference (ToR) and Modus Operandi (MO). Because of continued delays in launching the BCTF, CCF had supported discussing the illegal trade in cheetahs as a separate item. This was not agreed by the CoP, which meant that any work on trade in cheetahs would be conducted within the BCTF. However, the CoP, did direct parties affected by illegal trade in cheetahs to report to the Secretariat in advance of the 78th Standing Committee meeting in 2024, which will then develop recommendations for consideration at the next CITES CoP in 2025.

The BCTF held its second meeting of range states in Entebbe, Uganda in April 2023, as part of a joint event with the CMS African Carnivores Initiative (see below). CCF was represented by a consultant who participated as an observer. The meeting endorsed general measures to:

- Strengthen effective implementation and enforcement of the Convention with regards to illegal trade in big cat specimens;
- Strengthen regulation of facilities breeding big cats in captivity to prevent and detect any illegal trade from such facilities and deploy strengthened enforcement measures;
- Reduce demand to combat illegal trade in big cat;
- Identification of big cat specimens in trade; and,
- Strengthen regional and international collaboration to address illegal trade in specimens of big cats,

[4] The CITES listing holds the following annotation: "Annual export quotas for live specimens and hunting trophies are granted as follows: Botswana: 5; Namibia: 150; Zimbabwe: 50. The trade in such specimens is subject to the provisions of Article III of the Convention".

These measures were then presented to the 77th meeting of the CITES Standing Committee in Geneva in November 2023.

The meeting also made more specific recommendations, among which were several that correlated directly with CCF's priorities for its current set of projects in the Horn of Africa, including: establishing or strengthening multi-agency units responsible for wildlife law enforcement, using data analysis to inform strategies and approaches to wildlife law enforcement, sharing information to harmonize legislation to address wildlife crime, including illegal trade in big cats, and developing Memoranda of Understanding (MoUs) or similar bilateral or regional agreements to facilitate transboundary monitoring and intelligence-sharing, collaboration and information exchange to address illegal trade in big cat species.

In December 2023, CCF participated in a CITES expert workshop in Nairobi. Under the CITES Convention (Article III) a permit issued by a government for the export or import of an endangered species must be supported by a scientific finding that the export, or the purpose of the import, are not detrimental to the species. These "Non-detriment Findings" (NDFs) are an essential element of the CITES framework, but there is no standard guidance on how to prepare them. The workshop was part of a process to establish such guidance and involved discussions on proposed criteria and processes. CCF's particular focus was on guidance for trade in Appendix 1-listed species including cheetahs. CCF collaborated with other NGOs to push for comprehensive criteria on a broad scope of scientific inquiry for NDFs. The workshop produced initial draft guidance texts that will be the subject of further discussion and debate among CITES members.

CMS – Convention on Migratory Species

Within the CMS, three main issues are of concern to CCF: the joint CMS-CITES African Carnivores Initiative (ACI), listing of missing populations through the convention, and work related to Asiatic cheetah populations.

The ACI: The CMS and CITES secretariats worked alongside range states to develop ACI's Program of Work (PoW) in 2021. The PoW was approved by both conventions. The two Secretariats are now exploring long-term funding mechanisms for the ACI's ongoing operations. The CMS Secretariat convened the second meeting of the ACI Range States in Entebbe, Uganda in May, 2023, back-to-back with the second meeting of the CITES Big Cats task Force (above). Dr. Laurie Marker and CCF Senior Adviser for IWT and Policy, Edwin Brown, represented CCF as observers. The range states present agreed on general conservation priorities for the four big cat species and African Wild Dogs that included:

- Strengthening policies and actions to enhance human-carnivore co-existence;
- Promoting partnerships between the ACI Range States and within the global conservation community;
- Improving information and tools available to Range States, including by developing Lion, Leopard and African Wild Dog resource kits based on the Cheetah Trade Resource Kit; and,
- Securing funding for the implementation of the ACI Program of Work.

The Range States also agreed that a species-specific priority for the cheetah was expanding sustainable conservation financing and improving information exchange about northeast African cheetah populations. The cheetah discussion ended with an exercise asking the range states to

review the elements of the ACI program of work relative to cheetahs and rank them according to priority and urgency. There was no consideration of recommendations or proposals. For CCF the discussion served as a kind of validation exercise to see how well CCF's projects and activities were aligned with the priorities of the range states. Based on the discussion, they appeared to align very well, so in that sense the outcome of the meeting was a good result for CCF. The outcomes of the ACI meeting will be carried forward in the work of the CMS, including at the 14th Conference of the Parties (CoP14) in Uzbekistan in February, 2024.

The CMS Intersessional Working Group on the Asiatic Cheetah, established at the 5th Meeting of the Sessional Committee of the CMS Scientific Council, has a mandate to consider options for the recovery of the Asiatic and North-East African Cheetah. The terms of reference of the working group include considering assessments of the genetic status of the Asiatic cheetah, assessing its current population status, and determining whether supplementation from other cheetah populations is needed to secure its genetic viability. The Working Group has not met yet.

The Intersessional Working Group on reviewing the conservation status of Cheetah populations of Botswana, Namibia and Zimbabwe and their potential inclusion in Appendix I of CMS, was established by the CMS Scientific Council Sessional Committee at its 5th meeting. CCF took part in its first meeting on 8 February 2023.

Ethiopia

Beyond partnership in the FWS project described above, CCF and BeWild Aid (BWA) have developed a concept for deeper cooperation in Ethiopia. BWA proposes to build a wildlife conservation education centre in the Somali regional State (SRS) of Ethiopia on land donated by the regional Government. CCF would participate in operating the centre, which would provide a focal point for training that would support current CCF projects in Ethiopia as well as eventual expansion of the initiatives on community conservation and governance that CCF and partners are developing in Somaliland. Examples of training that could be offered include: FCA and FFA programs; basic veterinary training on care of confiscated cheetahs and other wildlife; other practical training for wildlife veterinarians; training on evidence collection for government confiscation teams; and community wildlife observer training.

There are also longer-term possibilities for partnerships to extend the community conservancy model CCF is piloting in Somaliland to the SRS. Similarities in language, culture, and lifestyle between the SRS and Somaliland indicate that, in principle, the Somaliland model could also work in the SRS, with adjustments for local circumstances and the necessary support from government authorities. Any such initiative would, of course, require new funding.

CCF staff visited Ethiopia in May and November for discussions with the Ethiopian Wildlife Conservation Authority (EWCA) and other partners. EWCA will serve as co-host of the Global Cheetah Summit CCF will convene in Addis Ababa in January 2024.

IGAD

The Intergovernmental Authority on Development (IGAD) is the regional cooperation organization for the countries in the Horn of Africa, and provides a critical platform for cross-border collaboration against cheetah trafficking among countries that are primary sources of illegally

traded live cheetahs. CCF supported the establishment of the Horn of Africa Wildlife Enforcement Network (HAWEN) within IGAD in 2017 as a vehicle for wildlife enforcement cooperation. CCF's current suite of projects include further actions in support of IGAD and the HAWEN, in particular technical legal assistance under the LICIT II project (above), led by partner Legal Atlas, to strengthen and formalize the legal framework for cooperation within the IGAD member states and IGAD itself. CCF's efforts are complementary to actions by other donors and partners that have an interest in strengthening the HAWEN. CCF's work with IGAD encountered challenges in 2023 due to changes in IGAD leadership and the organization's continuing lack of capacity. CCF is working with other NGO partners and governments to build relations with the new management and ensure that ongoing projects can be carried through to completion.

Somalia

Somalia was included in the original LICIT project. Full implementation of LICIT activities was not possible in Somalia, however, due to the state of conflict there as well as election disputes and bureaucratic changes that paralysed the Somali government for long periods of time. Despite these obstacles, Legal Atlas provided a legal analysis and recommendations for strengthening Somalia's wildlife laws, and Somali officials participated in LICIT training workshops and stakeholder meetings.

Late in 2022, the Somali government established a new Ministry of Environment and Climate Change, which replaced the former Department of Wildlife with a new administrative structure and a new team of officials. Over the past year, CCF has established contact with the new Ministry and resumed dialogue on potential collaboration with Somalia, building on the LICIT project outcomes. CCF currently has no funds specifically earmarked for Somalia, but IWT staff will look for opportunities within the framework of CCF's current projects and activities in the region. Such opportunities could include providing survey and awareness related training materials and supporting institution building efforts by the UN and other international organizations. Maintaining a cooperative relationship with Somalia is important, since the range of the Horn of Africa cheetah population likely extends into Somalia, traffickers are active in Somalia, and Somalia's support will be needed for project work in Puntland. Somalia has been invited to participate in the Global Cheetah Summit in January 2024.

F.3 CCF Somaliland

In 2023, CCF continued to expand its knowledge about the illegal cheetah trade in Somaliland through its rescue mission activities, and the relationships the team has formed with local Somaliland partners and the international community. CCF now has solid evidence the trade exists, both in an organised form of professional activity, and also in an ad-hoc manner driven by community necessity and the desire to mitigate livestock predation. Despite initially thinking all cubs being confiscated in Somaliland are taken to supply the illegal pet trade, CCF now sees a new layer to this threat. Cheetahs and leopards in Somaliland and Ethiopia's border regions are threatened by conflict with rural farmers seeking to mitigate livestock predation. Removing predators is not the answer. Other animals will take their place, and the cycle will continue until there are no more cheetahs on the landscape.

Our operations in 2023 included wildlife education, training for pastoralists, geological surveys, camera traps, and government exchange visits to promote the value of wildlife. We continued to

nurture our relationship with various ministries and organisations throughout Somaliland in support of our mission. In addition, there are specific training programs currently in development for practical training of local veterinarians of cheetah medicine, as well as online courses for conservation medicine and human-wildlife conflict.

At the end of December 2023, CCF was caring for 98 animals in total: 96 cheetahs plus one leopard and one caracal, both of which were cases of mistaken identity and were confiscated as cheetahs.

F.3.1 Facilities

Some of the cheetahs under CCF Somaliland's care were in one Safe House facility built and maintained by CCF in Hargeisa, and all were moved to the Cheetah Rescue and Conservation Centre (CRCC) in Geed Deeble by the end of July 2023.

As the number of confiscated animals grows, we are creating larger groups of animals to create more available space in anticipation of more cheetahs arriving at any time. This comes with its challenges and added costs, as we are constantly building larger living areas to allow for increasingly larger numbers and groups.

Currently, we have five staff houses and a manager house in Geed Deeble for staff and volunteer housing.

Our food costs for both humans and wildlife have increased dramatically with the cost of living in Hargeisa constantly increasing. We use approximately 70-90 goats per week to feed the animals under CCF's care.

CCF made great progress in construction of its new facility to hold our animals in a better, more naturalistic environment.

Cheetah Rescue and Conservation Centre (CRCC) at Geed-Deeble

In December 2021, CCF began building the Cheetah Rescue and Conservation Centre (CRCC) at Geed-Deeble. The centre is now operational, housing 96 cheetahs. During the past year, new staff accommodation has been added. In addition, upgrades to the meat processing building have been completed. Over 18 cheetah compounds have been completed, ranging in size from 2ha to 8ha, and one leopard enclosure has been built. There are currently eight CCF international staff, and 10 local staff living at the CRCC permanently. During the last couple of months of 2022 and into 2023, CCF had technical support from individuals and volunteers from various zoos worldwide.

F.3.2 Staff

As of the end November 2023, the entire international staff consisted of 8 people. A typical team was expected to be 10-12 people. Local staff in typical daily operations on all sections fluctuate

between 12-15, and most have been relocated to Geed-Deeble with the rest of the team. Additional construction staff are employed from the local community.

Managers

- Project Manager - Chris Wade (Contract ended 25 Jun 2023)
- Prospective Project Manager – Vivienne Bleske Rademan (Contract started 25 Nov 2023)
- Veterinary Clinic Manager - Karlene Parrish (Contract ended 25 Jun 2023)
- Animal Care Manager - Wilma Kirsten - (Contract ended 30 Nov 2023; Acting Project Manager Jun – Nov 2023)
- Animal Care / Facility / Construction Manager – Marcel Tournier (Contract ended 19 Dec 2023)

Local Staff

- Abdiriham Mohamed Diirye- CCF Operations Book Keeper
- Khalif Hussein- Community Awareness Officer (resigned Aug 2023)
- Xamse Ahmed Yusuf- Operations Manager
- Khaalid Mawliid Saxardiid – Operation / Driver / Animal Care
- Ahmed Yusuf Ibrahim- Animal Keeper / Local Veterinarian
- Farah Wali Awabdi- Meat prep / Cleaner
- Jamal Wai Cabdi- Meat Prep / Animal Keeper
- Abdirahman Ismail Axmed- Meat Prep / Animal Keeper / General Labour
- Biliso Mawad Saxardii – Cleaner / Cook / Housekeeping
- Shukri Axmed Xuseen - Animal Keeper / Cub Keeper
- Khalid Jamaac – Construction / Driver / animal Keeper
- Siclid Kayse - Construction / Driver
- Mustafe Ahmen - Gardener

Veterinarians

- Dr. Lindsey Scott (Sep 2022 - Mar 2023)
- Dr. Jullia De Pino Borba (Sep 2022 - Apr 2023)

- Dr. Anahi Hidalgo (Jan - Jun 2023)
- Dr. Ann Fan (Mar - Jul 2023)
- Dr. Jacky Chen (12 Jul 2023 - 09 Jan 2024)
- Dr. Roxane Declercq (Aug - Nov 2023)
- Dr. Calum Cairns (21 Aug - 10 Oct 2023)
- Dr. Nikhil Banghar (29 Nov 2023 - 06 Feb 2024)
- Dr. Chelsey Staab (22 Nov 2023 - 01 Dec 2023)

Dr. Lindsey Scott and Dr. Julia Borba were replaced in the first quarter of 2023 by Dr. Anahi Hidalgo (a returning former CCF SLD vet), and Dr. Ann Fan. In the third quarter of 2023, Dr. Jacky Chen joined the team as a long-term volunteer, thanks to the collaborative efforts between CCF and TaiwanICDF, while Dr. Roxane Declerq joined to replace Dr. Ann Fan. From August to October 2023, Dr. Calum Cairns, a former CCF Somaliland staff veterinarian from 2021-2022, returned to join the team in a short-term support role. In the last quarter of 2023, Dr. Nikhil Banghar and Dr. Chelsea Staab joined the team, the latter as a short-term volunteer. In January 2024, Dr. Calum Cairns will return to the CCF SLD team again as a staff member.

International staff are from Canada, France, Netherlands, Australia, South Africa, Taiwan, the United States, and Kenya with most people staying between 6-12 months. New staff members are being encouraged to stay for 12-24 months to assist with the continuity of the project.

2024 staff

- Prospective Clinic Manager and Lead Veterinarian - Calum Cairns (Contract starts 18 January 2024)
- Prospected Facility / Construction Manager - Sean Smith (Contract start date 7 February 2024)

Volunteers

Between January to December 2023, 15 international volunteers supported CCF's efforts in Somaliland. Volunteers provide significant support both operationally and financially for the program. In December 2022, CCF signed a volunteer agreement with TaiwanICDF to provide volunteers with specialties from Taiwan, and the first two Taiwanese volunteers (Dr. Jacky Chen and Lynn Hsu) arrived in July 2023.

F.3.3 Somaliland Resident Cheetah Health

Overview

The team at Cheetah Conservation Fund Somaliland, actively manages a growing resident population of juvenile, sub-adult, and adult cheetahs, plus one leopard and one caracal. These

carnivores depend on and require intensive daily management and treatment, including: nutrition; hygiene; biosecurity; and clinical assessments. Overall, health assessments can be performed at a distance or while interacting with the resident carnivores during their daily feeding or training sessions. Evaluations are conducted daily on each and every animal, especially those individuals undergoing treatment.

As always, CCF staff always put the carnivore's health, welfare, and safety as top priority. In 2023, the main focus was to finalise the construction of the cheetah holding facilities at the Cheetah Rescue and Conservation Centre (CRCC) in Geed Deeble, in order to transport the animals out into a more natural environment. Beginning in February 2023, when the 1st group of cheetahs were transported to Geed Deeble, the CCF staff successfully translocated 91 animals (89 cheetahs and one caracal, and one leopard) from Hargeisa to the new Cheetah Rescue and Conservation Centre (CRCC) in Geed-Deeble. The move was completed by July 2023.

Pre - Move Cheetah Groups Management

Safe House 1
Pre-move faecal collection and blood draw was done prior to moving the cheetahs to CRCC.

Safe House 2
There was no pre-movement faecal collection, blood draw or microchip verified from this SH2 due to the unpredictability of the date of transfer.

Safe House 3
Pre-move faecal collection, blood draw and microchip checks were verified prior to moving the cheetahs to CRCC.

The majority of the cheetahs received Distemper vaccines prior to moving to CRCC with the exception of some individuals from Safe House 2 (lack of stock). These animals have since been vaccinated.

All cheetahs were trained and conditioned in a positive reinforcement program to enter the crate calmly prior to moving, eliminating stress and helping the keepers to efficiently crate all the cheetahs in a short period of time and get on the road.

The keepers introduced the smaller groups of cheetahs from Safe House 2 together to create larger groups before transferring the cheetahs to spacious enclosures in Geed Deeble.

Successful introduction

- Mist and Cloud were successfully introduced
- Sif, Sol and Kariir were successfully introduced to Margarita, Faduma and Janet
- Kurro, Libbo and Andromeda were successfully introduced to Little Star and Moonlight

Failed introduction - not compatible

- DJ group (DJ, Meeko, Rajo and Emmet) and JMF (Johnny, Mickey and Frigga)
- Mist and Hanuman
- Hanuman and JMF (Johnny, Mickey and Frigga)
- Gamma group (Gamma, Halo, Hatari, Hakim, Charlie and Absame) and Newton group (Newton, John Cheeto, Abdi, Hasani and Oklahoma)
- Jabari group (Jabari, Bilane, Gashaan, Boqor and L.H.) and Azaar group (Azaar, Yaku, Sahmiye, Nasiib, Salim, Bashir, Kaise and Lorenzo)

F.3.4 Details of all the Cheetah Translocations from Hargeisa to Geed Deeble

The transport of all animals from Hargeisa to Geed Deeble was conducted without any major issues (Table 44). All 89 cheetahs, one caracal, one leopard and six dogs arrived safely to their new home and have been adapting really well to a more natural life. Some of the cheetahs took a little bit longer to settle in but with the help of the keepers they are now thriving and enjoying their new surroundings.

Table 44: Cheetah transfers from Hargeisa to Geed Deeble (Male.Female.Juvenile)

Date of transport	Species	Numbers of animals	Gender	Group Names	Vehicle type
24 February 2023	Cheetah	13	6.7.0	Teresa Group Gamma Group (x4) Serge and Major	Flatbed truck
26 February 2023	Cheetah	12	0.12.0	Calla Group	Flatbed
27 February 2023	Cheetah	6	0.6.0	Pacha Group	Flatbed
3 March 2023	Cheetah	2	2.0.0	Gamma and Halo	CCF vehicle
7 March 2023	Cheetah	19	11.0.8	Bagheer Group Idris Group Jasiri Group	Flatbed/CCF
18 March 2023	Cheetah	13	13.0.0	Jabari Group Azaar Group	Flatbed
19 March 2023	Caracal	1	0.1.0	Honey	CCF vehicle
18 April 2023	Cheetah	1	1.0.0	Hanuman	CCF vehicle
24 April 2023	Cheetah	12	7.5.0	Kurro Group DJ Group JMF group	Flatbed
25 May 2023	Cheetah	1	0.1.0	Kariir	CCF vehicle

1 June 2023	Cheetah	2	0.2.0	Mist and Cloud	CCF vehicle
13 June 2023	Cheetah	4	0.4.0	Kariir Group	CCF vehicle
14 June 2023	Cheetah	1	0.1.0	Janet	CCF vehicle
21 July 2023	Leopard	1	1.0.0	Milo	Flatbed
21 July 2023	Cheetah	3	3.0.0	Storm Group	Flatbed
8 December 2023	Domestic Dog	6	4.2.0		CCF vehicle

All cheetahs were not given the food the day before being transported to prevent vomiting during transit. Each cheetah was transported individually in medium to large dog kennels as per the training and routine that was established pre-transport, unless otherwise mentioned in the detailed transfer information below. Each crate was covered in blankets during transport to keep the cheetahs as calm as possible and not overstimulated. All of the translocations went well with the exception of Kurro Group. All animals are now thriving and very well adapted to their new surroundings in Geed Deeble.

Transport # 1 (6.7), 24 February 2023
Teresa Group
0.7.0 (Teresa, Venus, Ayaan, San, Vicki 2, Zelda, Zero)
ITAJU2015, ITAJU2037, ITAJU2012, ITAJU2031, ITAJU1995, ITAJU2033, ITAJU1994

From: Hargeisa, Safe House 3 - Enclosure C4
To: Geed Deeble Enclosure 1

Health / Medication
Teresa and Ayaan received water based perphenazine (0.3 mg/kg injection) at 6:15pm on 23 February.
Reasons for using a tranquiliser:

- Teresa is a very anxious cheetah in new situations - she can be very reactive towards keepers or her group mates
- Ayaan is highly reactive to new situations - she can be difficult to manage and very unpredictable under stress.

Loading of the cheetahs
It took less than 10 minutes to have all of them crated and ready to transfer onto the truck.

Travel
All females did really well during transport but San struggled the most and showed signs of higher stress levels than the others (vocalising a lot, pawing at the door of the crate, panting, very restless). She did calm down once we opened the door and let her free. A consideration of using Perphenazine for San if she has to move again in the future.

Unloading the cheetahs at Geed Deeble
All females did really well after being unloaded into their new home. They were exploring, drinking water, finding good shaded areas to lay down. Teresa took longer to walk out of the crate but this was expected from her, as she needed time to assess the new situation and was under the effects of perphenazine also. The group was unloaded in the Management Pen, where they were kept for 48 hours before giving them access to the big yard.

Gamma Group

4.0.0 (Absame, Charley, Hakim and Hatari)
ITAJU2082, ITAJU2097, ITAJU2113, ITAJU2116

From: Hargeisa, Safe House 1 - Enclosure C1
To: Geed Deeble enclosure cub Yard 1

Health / Medication
Due to medical reasons Gamma and Halo were not transported on 24 February with the rest of the group. Gamma was not fit to travel so Halo stayed behind for companionship. The group was not given any food (except for Gamma and Halo) on 23 February 23 to prevent vomiting during transport.

Travel
All cheetahs travelled well.

Unloading the cheetahs at Geed Deeble
They were unloaded without any issues.

Serge and Major

2.0.0 (Serge and Major)
ITAJU1997, ITAJU1996

From: Hargeisa Safe House 2 - Enclosure C6
To: Geed Deeble Enclosure 3

Health / Medication
No medical issues nor medication needed

Travel
Both cheetahs travelled well, although Serge seemed a bit more restless than Major.

Unloading the cheetahs at Geed Deeble
They were unloaded in the Management Pen. After the first night in the Management Pen, it was decided to give them access to the big yard as both Serge and Major exhibited a lot of stress overnight (pacing all night, very wary and reactive/jumping to everything around them). The Management Pen had very little coverage at the time and they probably felt very vulnerable. As soon as they had access to the big yard, both cheetahs calmed down quickly, found a safe place to lay down and then started exploring and enjoying their new environment.

Transport # 2 (0.12), 26 February 2023

Calla Group

0.12.0 (Calla, Idil, Leylo, Myza, Dahab, Betty White, Ruhi, Hani, Echo, Delta, Badia, Basimah)
ITAJU2089, ITAJU2091, ITAJU2090, ITAJU2086, ITAJU2087, ITAJU2115, ITAJU2084, ITAJU2111, ITAJU2110, ITAJU2094, ITAJU2093

From: Hargeisa Safe House 1 - Enclosure C2, C3 & C4
To: Geed Deeble Cub Yard 3

Health / Medication

Dahab, Leylo and Betty White received water based perphenazine (0.3mg/kg injection) at 6:00pm on 25 February 2023. These cheetahs were tranquilised because they are very anxious cheetahs and do not fare well with being in close contact with people and very reactive under stress.

Travel

They travelled very well.

Unloading the cheetahs at Geed Deeble

They were unloaded in Yard 2 for 48 hrs and then transferred to Yard 3. While the group was in Yard 2, Calla and Idil climbed the gate between Yard 1 and 2 and joined the Gamma group overnight.
The keepers were able to separate Calla and Idil from the male group and returned both females to their group. Electric wires were installed right away. During the second night, Calla climbed the gate between Yard 2 and 3 and spent the night in Yard 3. The decision was made to transfer the group to Yard 3 permanently. Electric wires were installed the same day from Yard 2 and 3.

Transport # 3 (0.6), 27 February 2023

Pacha Group

0.6.0 (Pacha, Amaterasu, Delphina, Dhiirin, Bishaaro and Sanu)
ITAJU2044, ITAJU2043, ITAJU2047, ITAJU2046, ITAJU2073, ITAJU2074

From: Hargeisa Safe House 3 - Enclosure C5
To: Geed Deeble Enclosure 2

Health / Medication

Health status: Active gastritis
Bishaaro was found fit to travel by the veterinary team

Loading of the cheetahs

All females went into the crates very nicely without any stress as per the training and routine we established pre-transport. It took less than 10 minutes to have all of them crated and ready to transfer onto the truck.

Travel
All cheetahs travelled well.

Unloading the cheetahs at Geed Deeble
They were unloaded in the Management Pen. We kept the group in the Management Pen for 48 hrs before giving access to the big yard. Upon arrival the females were exhibiting stress by pacing at the gate, panting a lot and restlessness. There were a number of people around the enclosure, which could have contributed to their stress level. They finally settled in late afternoon.

Transport # 4 (2.0), 3 March 2023

Gamma and Halo
2.0.0 (Gamma and Halo)
ITAJU2098, ITAJU2099

From: Hargeisa Safe House 1 - Enclosure C1
To: Geed Deeble Enclosure Cub Yard 1

Health / Medication
Health status: Unknown diagnostic, his status is mediocre but stable
Gamma was cleared and confirmed fit to travel
Gamma and Halo received water based perphenazine (0.3mg/kg) at 7:00am on 3 March 2023. Gamma was tranquilised due to being a very nervous cheetah and previous medical condition and Halo was tranquilised due to being a very nervous cheetah.

Travel
They travelled well and were monitored by the veterinarian and keepers.

Unloading the cheetahs at Geed Deeble
Gamma and Halo were unloaded without any issues and quickly reunited with their group (Hakim, Absame, Charley and Hatari)

Transport # 5 (11.0.8), 7 March 2023

Bagheer Group
5.0.0 (Bagheer, CZ, Astur, Darth and Shamsi)
ITAJU1981, ITAJU1980, ITAJU2007, ITAJU1984, ITAJU2000

From: Hargeisa Safe House 3 - Enclosure C3
To: Geed Deeble Enclosure 4

Health / Medication
Health status of Bagheer, CZ, Astur and Darth; active gastritis, stable and fit to travel

Bagheer and CZ received water based perphenazine (0.3 mg/kg) at 6:00 pm on 6 March 2023 because both cheetahs are anxious with new situations and get overwhelmed easily and the perphenazine helped to manage the active gastritis and stress during the first couple days of adaptation.

Travel
They travelled well, Bagheer was the most reactive and the most uncomfortable during transport, even with the perphenazine on board.

Unloading the cheetahs at Geed Deeble
All males were unloaded calmly. They quickly found a shaded area and settled down.

Idris Group
6.0.0 (Idris, Link, Pluto, Mars, Amiir and Amiin)
ITAJU2008, ITAJU2032, ITAJU2035, ITAJU2034, ITAJU2028, ITAJU2027

From: Hargeisa Safe House 3 - Enclosure C2
To: Geed Deeble Enclosure 5

Health / Medication
Health status of Pluto, Amiir, Amiin and Link; active gastritis, stable and fit to travel
Amiir, Amiin, Mars and Pluto received water based perphenazine (0.3mg/kg injection) at 6:00 pm on 6 March 6 2023
Reasons for using a tranquiliser:

- Active and persistent gastritis - the perphenazine helped managing the stress during the first couple days of adaptation
- All four males are very uncomfortable to be in close contact with humans and exhibit aggressive behaviour under stress.

Note:
Pluto and Mars experienced strong effects under the perphenazine (very slow reaction and daze)
Amiin reacted well with the effect that we wanted
On reflection, Amiir ideally would have needed a double dose - the tranquiliser injection had hardly any effect on him at all

Travel
They travelled as well as expected. However, Amiir would have benefited from a double dose of perphenazine as he was very vocal from the moment he was crated to the time of unloading. He was pawing a lot at the door of the crate during transport, panting a lot and overheating (due to stress and not settling down at all during transport).

Unloading the cheetahs at Geed Deeble
All males unloaded calmly. Pluto needed convincing to come out of the crate (he was laying down not wanting to move, probably due to the effects of the perphenazine). All were overwhelmed by their new home. They stayed untypically close to the keepers for safety and comfort, which is very abnormal behaviour for this group. Eventually they found a shaded area and settled down.

Jasiri Group (cubs)

0.0.8 (Abdi, Hasani, Oklahoma, Newton, Shukri, Faysa, Jasiri and John Cheeto)
ITAJU2125, ITAJU2126, ITAJU2124, ITAJU2119, ITAJU2123, ITAJU2122, ITAJU2121, ITAJU2120

From: Hargeisa Safe House 1 - Enclosure C5
To: Geed Deeble Cub Yard 2

Health / Medication
No health issues nor need for medication

Loading of the cheetahs
Type of transport crate: Small - medium Dog kennel
Crate 1: Abdi, Hasani and Oklahoma
Crate 2: Faysa, Jasari
Crate 3: Newton and Shukri
Crate 4: John Cheeto

Travel
John Cheeto was very uncomfortable and stressed. Shukri was very restless and stressed, making Newton also nervous and uncomfortable. For future transport, it is strongly recommended transporting all cheetahs in individual crates unless they are under 12 weeks old. Overcrowding can cause overheating, injuries and create additional stress for all the cheetahs.

Unloading the cheetahs at Geed Deeble
Unloaded in the holding area for a few hours before giving access to the big yard. They were very thirsty and overheating due to stress and weather.

Transport # 6 (13.0), 18 March 2023

Jabari Group

5.0.0 (Jabari. Bilane, Gashaan, L.H. and Boqor)

ITAJU2068, ITAJU2069, ITAJU2070, ITAJU2048, ITAJU2045

From: Hargeisa Safe House 3 - Enclosure C4
To: Geed Deeble Enclosure 6

Health / Medication
No health concerns nor need for medication

Travel
They travelled well as expected.

Unloading the cheetahs at Geed Deeble

The cheetahs were unloaded in the Management Pen. All five males were really eager to come out of the crates. They unloaded well and started to explore right away. They stayed 48 hrs in the management pen before having access to the Big Yard.

Azaar Group

8.0.0 (Azaar, Yaku, Sahmiye, Nasiib, Salim, Lorenzo, Bashir and Kaise)
ITAJU2041, ITAJU2042, ITAJU2049, ITAJU2071, ITAJU2075, ITAJU2083, ITAJU2072, ITAJU2076

From: Hargeisa Safe House 3 - Enclosure C6
To: Geed Deeble Enclosure 7

Health / Medication

Azaar received water based perphenazine (0.6mg/kg injection) at 5:30am and Kaise (0.3mg/kg injection) at 7:00am on 18 March 2023.
Reasons for using a tranquiliser:

- Azaar has panic attacks during high level of stress and when in close contact with specific people
- Originally, Kaise was not supposed to receive perphenazine; however, he received an injection after he broke out of his crate. We had to use a smaller crate than planned and we needed him to stay calm to prevent another escape or hurting himself.

Travel

Azaar travelled in the back of the Hard Top (CCF vehicles) to allow close monitoring. He was very restless, rolling around the crate, biting at his feet, panting a lot. The rest of the group travelled well.

Unloading the cheetahs at Geed Deeble

All cheetahs unloaded really well in the management Pen. They explored their new home right away and were very curious about trees and sounds and smells. Azaar required monitoring as the effect of the perphenazine was at its highest peak. He did not have full control of his back legs, so he would stay in the same spot under the sun. Keepers helped him to find a shaded area and stayed to keep him company. Within a couple of hours, he was back to his normal self, moving and exploring with his group mates. The group stayed in the management pen for six days due to urgent repairs in the big yard.

Transport # 7 (0.1), 19 March 2023

Honey

0.1.0 (Caracal)

IT-CCA0019

From: Hargeisa - Quarantine holding area in Training house
To: Geed Deeble Cub room 2 at the Clinic

Health / Medication
No health issues, no need for medication.

Loading of the cheetahs
Type of transport crate: Small Dog kennel.

Travel
Honey travelled really well.

Unloading of Honey at Geed Deeble
Went as good as we expected. She was a little overwhelmed for the first 48 hours but eventually settled in nicely.

Transport # 8 (1.0), 18 April 2023

Hanuman

1.0.0 (Hanuman)

ITAJU2011

From: Hargeisa Safe House 2 - Enclosure C7
To: Geed Deeble Enclosure 3a (Management Pen of Serge and Major)

Health / Medication
No health issues, no need for medication.

Travel
Hanuman travelled really well.

Unloading the cheetahs at Geed Deeble
Went as well as we expected.

Transport # 9 (7.5), 24 April 2023

Kurro Group

0.5.0 (Kurro, Libbo, Andromeda, Moonlight, Little Star)

ITAJU1930, ITAJU1926, ITAJU1938, ITAJU1838, ITAJU1839

From: Hargeisa Safe House 2 - Enclosure C1
To: Geed Deeble Enclosure 8

Health / Medication

All females received water based perphenazine (0.3mg/kg injection) at 5:00pm on 23 April 2023 to prevent diseases that flare up from stress like coronavirus and gastritis.

Loading of the cheetahs

Little Star, Moonlight, Libbo and Andromeda loaded well. Kurro refused to go into the crate so the keepers had to use a wooden board to encourage her to go in.

Travel

They travelled as well as expected.

Unloading the cheetahs at Geed Deeble

Andromeda

She stayed in the back right corner, hissing & growling at all the cheetahs, even her littermates (Kurro and Libbo). The keepers tried to get her to the shade but she refused to walk anywhere towards the other cheetahs. She was panting and breathing heavily. The keepers were really concerned about her overheating so they got her a bloodsicle. They were finally able to coax her to come under the A frame with the bloodsicle, but she would only stay if Jamal (keeper) stayed with her. Every time Jamal tried to walk away, she would follow him and hiss at the other cheetahs. Jamal stayed with her for about an hour until everyone was happy with her breathing and after she consumed the bloodsicle. The keepers moved the A frame at the opposite side of the Management Pen away from the other females and placed it in a different direction so she would not have a visual on the other cheetahs. She finally settled down.

Kurro

Settled down with Libbo in the A frame right away. She looked high from the effect of the tranquiliser, but aware of her surroundings. She was walking around and cowering. Reactivity to her keeper was very low, she could be easily approached (abnormal for her). Kurro at some point decided to walk around and explore but everything freaked her out. After getting swatted at by Andromeda, she panicked and tried to escape. She climbed the gate between the Management Pen and the Big yard, then grabbed the top of the fence on her left and was left dangling on top of the fence, getting shocked by the electric wires. Two keepers ran towards her as she was a few seconds away from escaping the Management Pen. Luckily, she fell backwards into the Management Pen, pacing and freaking out. The keepers opened the big gate to the big yard to give her more space.

Libbo

Settled down with Kurro in the A frame right away. She was panting a lot and drank a bit of water. She was aware but too easy to approach, reactivity was low. Out of the Kurro group, Libbo responded best to the effects of the tranquiliser and the new environment.

Moonlight

Settled down in the A frame with Little Star. She had lots of panting and fast breathing. She was offered water and she drank a little bit. Her reactivity was very low, and easily approachable. She couldn't keep her balance while sitting up. She tried to get up a couple of times but she seemed to have very little control over her back legs.

Little Star

Settled down in the A frame with Moonlight. She had lots of panting and fast breathing. When offered water, she laid her head on the edge of the water bowl and tried to drink. It almost appeared like she had no strength to lift her head. She kept her head onto the water bowl drifting in and out of sleep, where her head would move into the water bowl and touch the water. At this point the vets walked up to her and Moonlight, to move her away from the water bowl. When the vets approached the females, Little Star looked up at the vets, hissed and laid her head back down beside the bowl. Her reactivity was very low and concerning. Star would also lose balance while sitting up (later in the day) and have a lack of coordination of her back legs.

***Note: we would strongly recommend avoiding tranquilisation of all members of a group at the same time. Due to a stronger reaction to tranquilisation on specific animals than anticipated, we would also recommend avoiding its use for transport, unless necessary for safety or a specific medical condition. In the case of Moonlight and Little Star, due to their excessive response to the drug used, either a reduced dose or avoiding use of a tranquiliser altogether is advised.

Post arrival

Due to the low reactivity, lack of coordination and the fast breathing, a keeper monitored both Moonlight and Little Star all day. We implemented a plan for the night and early morning (baboon watch). We had quite a big thunderstorm in the afternoon, which probably helped them to cool down their body temperature and forced them to move around to find a better shelter. It took three days for them to regain normal behaviour and proper food drive, with the exception of Little Star who took a couple weeks to regain normal food intake.

DJ Group and JMF group

7.0.0 (DJ, Meeko, Rajo, Emmet, Johnny, Mickey and Frigga)
ITAJU1949, ITAJU1960, ITAJU1961, ITAJU1962, ITAJU1944, ITAJU1945, ITAJU1998

From: Hargeisa Safe House 2 - Enclosure C8 & C9
To: Geed Deeble Enclosure 9

Health / Medication

All males received water based perphenazine (0.3mg/kg injection) at 5:00pm on 23 April 2023 to prevent diseases that flare up from stress like coronavirus and gastritis.

Loading of the cheetahs

All the males went into the crate nicely with the exception of Rajo who needed some convincing.

Travel

They travelled well with no issues.

Unloading the cheetahs at Geed Deeble

All males were unloaded in the management pen. They unloaded really well and were curious about their new environment. Some tension was noticed by the keepers right away between the two groups. JMF were extremely uncomfortable and appeared scared to be in a small environment with the DJ group. A couple hours after arrival, Emmet climbed up the fence and got into the big

yard. The decision was made to open the door to the big yard and give them access to more space and to avoid another escape. JMF and DJ group were two separate adult male groups in Hargeisa but they were put together to form one group in Geed Deeble, but in less than a week we made the decision to separate them due to constant fighting as the DJ group were very territorial. JMF kept hiding in the dense bush and refusing to come for food. The welfare of the JMF (Johnny, Mickey and Frigga) was very poor and needed to be addressed immediately. JMF was put in the management Pen of E9 and DJ group in the big yard of E9. Both groups were a lot more relaxed and enjoying their new surroundings after being separated.

Transport # 10 (0.1), 25 May 2023

Kariir

0.1.0 (Kariir)
ITAJU2005

From: Hargeisa Safe House 2 - Enclosure C2
To: Geed Deeble Clinic holding area

Health / Medication
Due to medical reasons (anorexia) Kariir had to be transported to the clinic in Geed Deeble for further diagnostics and potential surgery. She was fully anaesthetised for transport.

Loading of the cheetahs
She was put in the crate by the vet team after being anaesthetised. However, anaesthesia was light and the effects wore off quickly, and she was almost fully back to normal mentation by the end of the transportation to Geed Deeble. Therefore, the decision was made to modify treatments and monitor a few more days before she was re-anesthetized for further diagnostics/procedures.

Travel
Kariir was monitored closely by the vet team during transport, she did well under the circumstances.

Unloading the cheetahs at Geed Deeble
She was put in a holding area at the clinic for monitoring and treatments. Another anaesthesia was performed the next day (26 May) due to further decline and poor response to treatments. Exploratory laparotomy was performed and FIP was diagnosed based on organ appearance. She recovered from anaesthesia well and was kept in the care of the vet team for roughly two weeks.

Transport #11 (0.2), 1 June 2023

Mist and Cloud

0.2.0 (Mist and Cloud)
ITAJU1837, ITAJU1836

From: Hargeisa Safe House 2 - Enclosure C5
To: Geed Deeble Enclosure 1.5

Health / Medication
No medical issues so no need for medications.

Travel
They travelled really well.

Unloading the cheetahs at Geed Deeble
The females unloaded really well, curious about the new environment and their new neighbours.

Transport #12 (0.4), 13 June 2023

Kariir Group

0.5.0 (Kariir, Sif, Sol, Faduma and Margarita)
ITAJU2005, ITAJU2001, ITAJU 2002, ITAJU1958, ITAJU1964

Sif, Sol, Faduma and Margarita
From: Hargeisa Safe House 2 - Enclosure C2
To: Geed Deeble Enclosure E9a / Management Pen

Kariir
From: Geed Deeble Clinic holding area
To: Enclosure E9a

Health / Medication
Kariir was cleared by the vet team to reunite with her group mates. The other four females had no medical issues and no need for medications.

Travel
They travelled well.

Unloading the cheetahs at Geed Deeble
Kariir was transferred from the Geed Deeble Clinic to E9a to rejoin her group mates. They were all unloaded at the same time. Kariir and Margarita had a little argument but settled quickly and went their own ways. We monitored them all day to make sure that Kariir's reintroduction to the group went well.

Transport # 13 (0.1), 14 June 2023

Janet

0.1.0 (Janet)
ITAJU1950

From: Hargeisa Safe House 2 - Enclosure C2
To: Geed Deeble Clinic holding area

Health / Medication
Janet went into surgery to repair her left hindlimb calcaneus fracture a few weeks prior. She needed to have her movement restricted for an uneventful recovery. Janet was anaesthetised for transport to prevent her from injuring herself and to avoid a re-fracture of her leg.

Travel
Janet was monitored closely by the vet team during transport. She had convulsions and respiratory arrest when she was first anaesthetised. However, she quickly stabilised with emergency treatments and the rest of the transportation was unremarkable. A review of her anaesthesia protocol/drugs used during this specific procedure will be done and analysed to prevent convulsions in the future.

Unloading the cheetahs at Geed Deeble
She was placed in the holding area prepared for her at the clinic. She recovered well from the anaesthesia.

Transport # 14 (1.0) and (3.0), 21 July 2023

Milo

1.0.0 (Leopard)
SOPPA0093

From: Hargeisa Safe House 2 - Leopard Enclosure
To: Geed Deeble Milo's Enclosure

Health / Medication
Chronic vomiting, and metronidazole induced pancreatitis. At the time of transport, Milo was clinically well and stable for transport.

Loading of the leopard
Milo was loaded into a large metal crate modified specifically for Milo's transportation. He was fully anaesthetised for the transportation. He responded well to the anaesthetic drugs with smooth induction and recovery, but required high and frequent repeat doses.

Travel
Milo was anaesthetised during the entire trip. Monitoring Milo was challenging due to the small space and extreme road conditions. He appeared to remain in a good anaesthetic plane and remained stable through the transportation.

Unloading the leopard at Geed Deeble
Milo was unloaded into his night house/management area of his brand-new enclosure. Recovery was fast and smooth. He stayed in the night house for the first night. Overall, he did well except for being agitated at around 2am, we suspect due to wildlife encounters. Milo was allowed access to the entire enclosure the next morning. He appeared calm and interested in his new environment.

Storm Group

3.0.0 (Storm, Leo, Duma)
ITAJU1935, ITAJU1928, ITAJU1939

From: Safe House 2 - Enclosure C10
To: Geed Deeble Enclosure E6a / Management Pen

Health / Medication
No medical issues so no need for medications.

Travel
They travelled well.

Unloading the cheetahs at Geed Deeble
All three males unloaded calmly. They explored their new environment for a little while, met Azaar and Jabari group at the fence and eventually found a good shaded area under a tree to relax and take in the new smells and scenery.

Transport # 15 (4.2), 8 December 2023

The cheetahs were temporarily housed upon arrival in a Management Pen adjacent to another group, and will be transferred to a large spacious enclosure in the near future.

- Hanuman (temporary housed upon arrival in E3 Management Pen)
- DJ, Meeko, Rajo and Emmet (temporary housed upon arrival in E9 Big Yard)
- Johnny, Mickey and Frigga (temporary housed upon arrival in E9 Management Pen)
- Kariir, Margarita, Sif, Sol, Faduma (temporary housed upon arrival in E9 Management Pen)
- Janet (temporary housed upon arrival to the clinic)
- Storm, Leo and Duma (temporary housed upon arrival in E6 Management Pen)
- Gamma group (temporary housed upon at the clinic)

Street Dogs from Hargeisa transfer to CRCC

4.3 (Wonky, Charlie, Goofy, Casper, Cow and Franscesca)

From: Street of Hargeisa to CRCC staff living quarters

Health / Medication

No medical issues but to help calm the dogs for transport, they all received Diazepam. They also received an ectoparasites and endoparasites treatment before departure.

Loading of the cheetahs
Type of transport crate: medium and Large Dog kennel
Five of the dogs crated really well without any issues with the exception of Goofy. Goofy needed to be sedated to crate him and he recovered fast and very well.

Travel
They travelled well as expected. Wonky and Casper vomited in transport.

Unloading the cheetahs at Geed Deeble
All the dogs unloaded well without hesitations. They right away investigated the compound and interacted with the staff. Charlie and Francesca took a little more time to settle but eventually calmed down nicely.

F.3.5 Settling into Geed Deeble

Since moving to Geed Deeble, some of the cheetahs have had the opportunity to hunt and consume some natural prey (Table 45).

Table 45: Natural prey hunted by captive cheetahs in Geed Deeble (male.female.juvenile).

Group Name	Group Composition	Prey
Pacha Group	0.6.0	Baboon, Birds, Striped polecat
Azzar Group	8.0.0	Baboon, Dik dik
Kurro Group	0.5.0	Dik dik, Bush hares
Calla Group	11.0.0	Dik dik, Birds
DJ Group	4.0.0	Dik dik, Bush hare

There are probably more successful hunts by the cheetahs but we have not witnessed it. Their natural instincts are strong and very impressive for captive cheetahs raised in Hargeisa with limited space and opportunities.

Internal Animal Transfer at CRCC

During 2023, there were 14 internal animal transfers at CRCC. These transfers are listed below:

- 21 May 2023: DJ group were transferred from E9 to E10
- 21 May 2023: JMF were transferred from Management pen E9 to Management pen E10

- 21 May 2023: Calla group (0.12) were transferred from Yard 3 from the clinic to their permanent enclosure E9
- 27 September 2023: Bagheer Group (5.0) were transfer from E4 to their new permanent enclosure E11
- 27 September 2023: Serge and Major (2.0) were transfer from E3 to their new permanent enclosure E12
- 27 September 2023: Hanuman (1.0) was transferred from E3 Management Pen to his new permanent enclosure E4
- 28 September 2023: Storm Group (3.0) were transferred from E6 Management Pen to their new enclosure E3
- 18 October 2023: DJ group (4.0) were transferred from E10 to their permanent enclosure E14
- 18 October 2023: JMF (3.0) were transferred from the Management Pen of E10 to their new enclosure permanent enclosure E13
- 19 October 2023: Janet (0.1) was transferred from the Clinic to the Management Pen of E10
- 30 October 2023: Kariir Group (0.6) were transferred from the Management pen of E9 to their permanent enclosure E10
- 3 November 2023: Gamma group (6.0) were transferred from Yard 3 from the clinic to their new permanent enclosure E15
- 16 December 2023: Hanuman (1.0) was transferred temporary to the management pen of E9
- 17 December 2023: Jasiri group (5.4) were transferred from the clinic to a temporary bush enclosure E4

F.3.6 Cheetah Rescue and Conservation Centre (CRCC)

CRCC offers 16 cheetah enclosures located in three different areas; Gazelles plains, Dik dik district and Bush Baby Valley (Figure 77). Three cub yards are located at the clinic. One leopard enclosure is located at Jackal Hill.

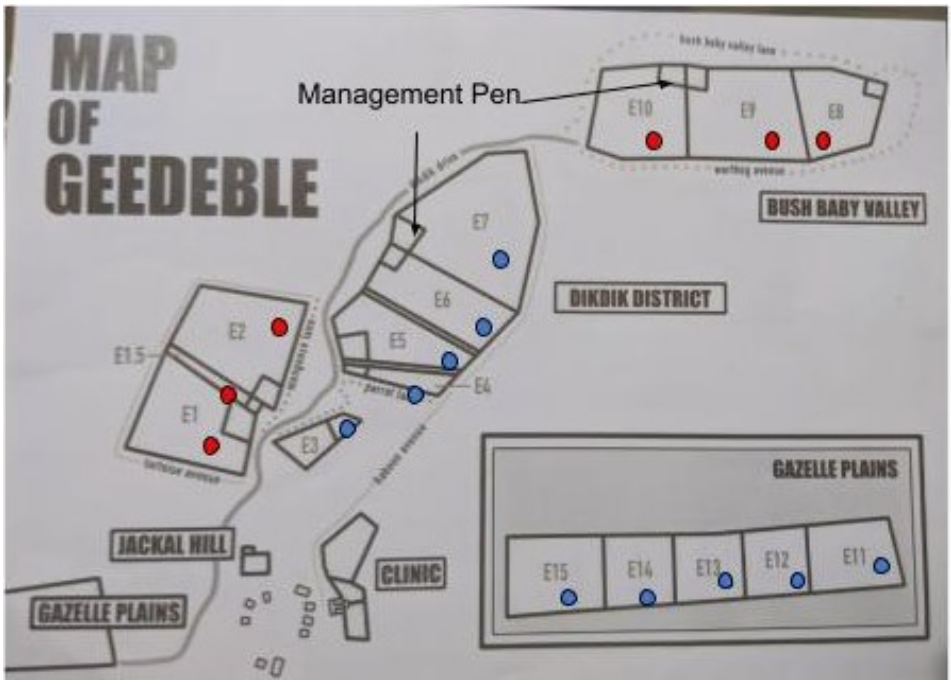


Figure 77: Distribution of all the animals under CCF care by the end of the year, 31 December 2023.

Each enclosure has its own management pen. The female enclosures are represented by the red dots and the male enclosures are represented by the blue dots in Figure 77.

F.3.7 Resident Captive Population at CRCC

As of 31 December 2023, CCF Somaliland supports a population of 96 cheetahs (54M, 42F), one leopard (M) and one caracal (F) (Table 46). There are slightly more males than female cheetahs in CCF Somaliland's care (Figure 78).

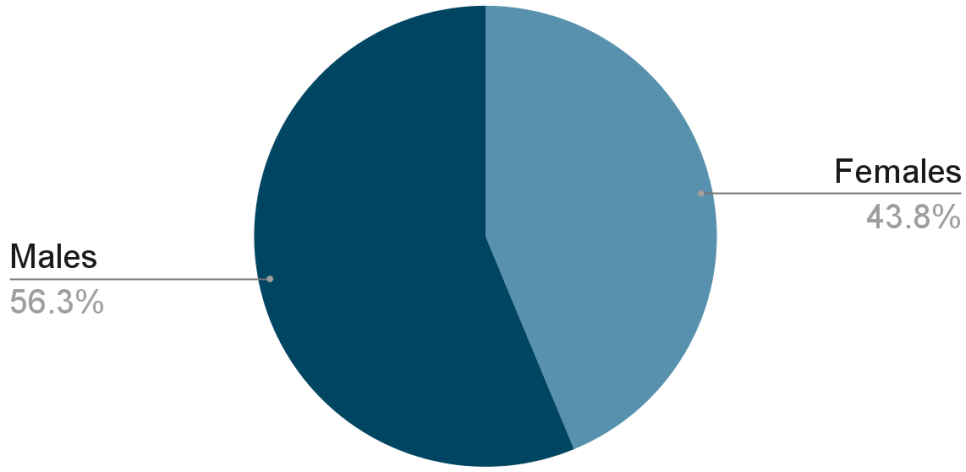


Figure 78: Gender distribution of CCF Somaliland resident cheetah population as of 31 December 2023.

Table 46: List of current resident population as of 31 December 2023.

	Name	Gender	ITAJU	Location	Birth date	Microchip #	Confiscation date
1	Aamiina	M	2128	GD Clinic Cub room	18-Sep-2023	992003000381847	17-Oct-2023
2	Abdi	M	2125	GD CY1 & CY2	15-Oct-2022	992003000381840	03-Feb-2023
3	Absame	M	2082	GD CY3	25-Jan-2022	956000012180977	01-Mar-2022
4	Amaterasu	F	2043	GD E2	16-Aug-2021	956000012205207	06-Sep-2021
5	Amin	M	2027	GD E5	1-May-2020	956000012181633	23-Sep-2020
6	Amir	M	2028	GD E5	1-May-2020	956000012205329	23-Sep-2020
7	Andromeda	F	1938	GD E8	1-Feb-2019	953010003494644	06-Sep-2019
8	Astur	M	2007	GD E4	1-Feb-2020	953010004073864	15-Aug-2020
9	Ayaan	F	2012	GD E1	1-Jul-2020	956000012205256	14-Sep-2020
10	Azaar	M	2041	GD E7	16-Aug-2021	956000012205186	06-Sep-2021
11	Badia	F	2094	GD E9 Big pen	12-Dec-2021	992003000143058	12-Mar-2022
12	Bagheer	M	1981	GD E4	1-Jan-2020	953010004073806	31-Jan-2020
13	Bashir	M	2072	GD E7	19-Sep-2021	956000012204875	12-Dec-2021
14	Basimah	F	2093	GD E9 Big pen	12-Dec-2021	956000012205709	12-Mar-2022
15	Betty White	F	2087	GD E9 Big pen	01-Dec-2021	992003000143029	01-Mar-2022
16	Bilane	M	2069	GD E6	7-Sep-2021	956000012181934	12-Oct-2021
17	Bishaaro	F	2073	GD E2	19-Sep-2021	956000012205579	12-Dec-2021
18	“Blue”	M	2134	GD Clinic Cub room	25-Aug-2023	992003000143038	25-Dec-2023
19	Boqor	M	2045	GD E6	20-Aug-2021	956000012205710	04-Oct-2021
20	Buzz	M	2135	GD Clinic Cub room	25-Aug-2023	992003000143037	25-Dec-2023
21	Calla	F	2089	GD E9 Big pen	01-Oct-2021	992003000381840	01-Mar-2022

22	Charley	M	2097	GD CY3	28-Mar-2022	992003000142977	19-Apr-2022
23	Cloud	F	1836	GD E1.5	4-Mar-2018	953010003504307	04-Aug-2018
24	CZ	M	1980	GD E4	1-Jan-2020	953010004073778	31-Jan-2020
25	Dahab	F	2086	GD E9 Big pen	01-Nov-2021	992003000143051	01-Mar-2022
26	Darth	M	1984	GD E4	1-Feb-2020	953010004073769	18-Apr-2020
27	Delphina	F	2047	GD E3	20-Aug-2021	956000012205387	04-Oct-2021
28	Delta	F	2110	GD E9 Big pen	28-Mar-2022	992003000142974	19-Apr-2022
29	Dhiirin	F	2046	GD E2	20-Aug-2021	956000012204860	04-Oct-2021
30	DJ	M	1949	GD E10 Big pen	1-Aug-2019	941000016884981	04-Oct-2019
31	Duma	M	1939	SH2 C10	1-Jul-2019	953010003494354	06-Sep-2019
32	Emmet	M	1962	GD E10 Big pen	1-Sep-2019	981020023220871	18-Oct-2019
33	Faduma	F	1958	GD E9 Man pen	1-Aug-2019	981020023210942	18-Oct-2019
34	Faysa	F	2122	GD CY1 & CY2	19-Sep-22	992003000143028	08-Nov-2022
35	Frigga	M	1998	GD E10 Man pen	1-May-2020	941000016884984	24-Jul-2020
36	Gamma	M	2098	GD CY3	19-Dec-2021	992003000143050	19-Apr-2022
37	Gashaan	M	2070	GD E6	7-Sep-2021	956000012181620	12-Oct-2021
38	Hakim	M	2113	GD CY3	1-Jan-2022	992003000142979	13-May-2022
39	Halo	M	2099	GD CY3	19-Dec-2021	992003000142978	19-Apr-2022
40	Hani	F	2084	GD E9 Big pen	01-Feb-2022	956000012205350	01-Mar-2022
41	Hanuman	M	2011	GD E3 Man pen	1-Jan-2020	956000012205763	14-Sep-2020
42	Hasani	M	2126	GD CY1 & CY2	1-Oct-2022	992003000143026	03 Feb 2023
43	Hatari (tail)	M	2116	GD CY3	10 Jun 2022	992003000142975	31 Jul 2022
44	Honey	F	IT-CCA0019	GD Clinic room 2	24 Aug 2022	992003000142973	28 Sep 2022

45	Idil	F	2091	GD E9 Big pen	01-Oct-2021	992003000143054	01 Mar 2022
46	Idris	M	2008	GD E5	1-Jul-2020	953010004073273	22-Aug-2020
47	Jabari	M	2068	GD E6	7-Sep-2021	956000012205636	12-Oct-2021
48	Janet	F	1950	GD Clinic room 8	1-Aug-2019	941000016884268	04-Oct-2019
49	Jasiri	F	2121	GD CY1 & CY2	31-Aug-2022	992003000381844	16-Oct-2022
50	John Cheeto	M	2120	GD CY1 & CY2	31-Aug-2022	992003000142971	16-Oct-2022
51	Johny	M	1944	GD E10 Man pen	1-Jul-2019	981020023212750	10-Sep-2020
52	Kaise	M	2076	GD E7	23-Nov-2021	956000012205400	20-Jan-2022
53	Kariir	F	2005	GD E9 Man pen	1-Jan-2020	953010004073927	05-Aug-2020
54	Kurro	F	1930	GD E8	1-Dec-2018	953010003493103	06-Sep-2019
55	Leo	M	1928	SH2 C10	1-Jan-2019	953010003504274	19-Feb-2019
56	Leylo	F	2088	GD E9 Big pen	01-Nov-2021	992003000143053	01-Mar-2022
57	LH	M	2048	GD E6	16-Aug-2021	956000012204927	10-Oct-2021
58	Libbo	F	1926	GD E8	1-Dec-2018	953010003504265	19-Feb-2018
59	Lily	F	2127	GD CY1 & CY2	1-Dec-2022	992003000143022	14-Apr-2023
60	Link	M	2032	GD E5	1-Aug-2020	956000012207957	17-Oct-2020
61	Little Star	F	1838	GD E8	1-Apr-2018	953010003494423	05-Sep-2019
62	Lorenzo	M	2083	GD E7	01-Oct-2021	992003000143055	01-Mar-2022
63	Major	M	1996	GD E3 Big pen	1-Jul-2020	953010004073362	18-Jul-2020
64	Margarita	F	1964	GD E9 Man pen	1-Aug-2019	981020023220320	18-Oct-2019
65	Mars	M	2034	GD E5	1-Jun-2020	956000012205415	17-Oct-2020
66	Meeko	M	1960	GD E10 Big pen	1-Oct-2019	981020023234354	18-Oct-2019

67	Mickey	M	1945	GD E10 Man pen	1-Jul-2019	941000016884985	10-Sep-2020
68	Milo	M	SOPPA0093	SH2 Milo	1-Jun-2020	953010004073792	15-Aug-2020
69	Miss Behave	F	2129	GD Clinic Cub room	18-Sep-2023	992003000381843	17-Oct-2023
70	Mist	F	1837	GD E1.5	18-Mar-2018	953010003494497	04-Aug-2018
71	Moonlight	F	1839	GD E8	1-Apr-2018	953010003494590	10-Sep-2020
72	Myza	F	2090	GD E9 Big pen	01-Nov-2021	992003000143057	01-Mar-2022
73	Nasiib	M	2071	GD E7	8-Jun-2021	956000012181057	08-Nov-2021
74	Newton	M	2119	GD CY1 & CY2	30-Jun-2022	992003000142972	16-Oct-2022
75	Oklahoma	M	2124	GD CY1 & CY2	15-Oct-2022	992003000143024	03-Feb-2023
76	Pacha	F	2044	GD E2	16-Aug-2021	956000012205524	06-Sep-2021
77	Pluto	M	2035	GD E5	1-Jun-2020	956000012205246	17-Oct-2020
78	Rajo	M	1961	GD E10 Big pen	1-Oct-2019	981020023200324	18-Oct-2019
79	“Red”	M	2133	GD Clinic Cub room	25-Aug-2023	992003000143039	25-Dec-2023
80	Ruhi	F	2115	GD E9 Big pen	1-Jan-2022	992003000142976	13-May-2022
81	Sahmiye	M	2049	GD E7	8-Jun-2021	956000012205800	08-Nov-2021
82	Salim	M	2075	GD E7	15-Jul-2021	956000012205780	13-Jan-2022
83	San	F	2031	GD E1	1-Aug-2020	956000012181095	17-Oct-2020
84	Sanu	F	2074	GD E2	4-Oct-2021	956000012180826	03-Jan-2022
85	Serge	M	1997	GD E3 Big pen	1-Jul-2020	953010004073360	18-Jul-2020
86	Shamsi	M	2000	GD E4	1-Nov-2019	953010004073852	29-Jul-2020
87	Shukri	F	2123	GD CY1 & CY2	22-Aug-2022	992003000143027	22-Nov-2022
88	Sif	F	2001	GD E9 Man pen	1-Dec-2019	981020023219624	05-Aug-2020

89	Sol	F	2002	GD E9 Man pen	1-Dec-2019	981020023225174	05-Aug-2020
90	Storm	M	1935	SH2 C10	1-Sep-2018	953010003493788	06-Sep-2019
91	Sunny-Joe	M	2131	GD Clinic Cub room	13-Aug-2023	992003000143021	13-Dec-2023
92	Teresa	F	2015	GD E1	1-May-2020	953010004073282	19-Sep-2020
93	Turo	M	2132	GD Clinic Cub room	13-Aug-2023	992003000143020	13-Dec-2023
94	Venus	F	2037	GD E1	1-Jun-2020	956000012204859	17-Oct-2020
95	Vicki 2	F	1995	GD E1	1-Jul-2020	953010004073276	18-Jul-2020
96	Yaku	M	2042	GD E7	16-Aug-2021	956000012205032	06-Sep-2021
97	Zelda	F	2033	GD E1	1-Aug-2020	956000012205670	17-Oct-2020
98	Zero	F	1994	GD E1	1-Jul-2020	953010004073274	18-Jul-2020

The majority of the cheetah population is housed in the Dik Dik District (Figure 79 and Table 47).

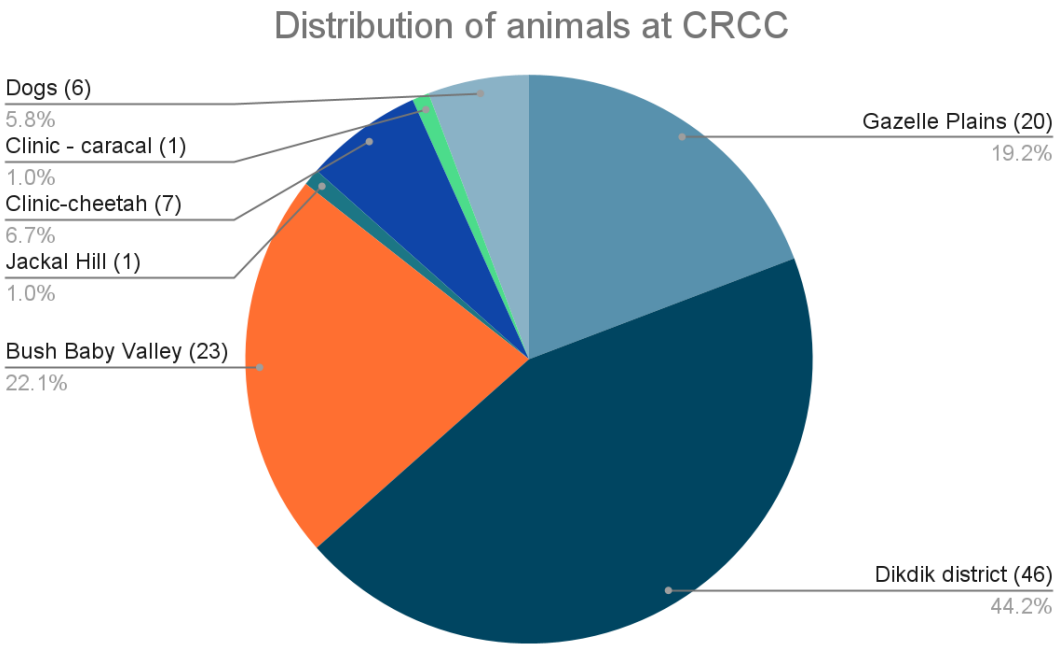


Figure 79: Distribution of animals at CRCC as of 31 December 2023.

Table 47: Current location of animals by sector at the end of 2023.

CLINIC AND CUB ENCLOSURES		
Cub room 1	**Aamiina, Miss Behave (1.1) - Quarantine**	**Temporary**
Cub room 2	**Honey the caracal / no permanent enclosure at this time**	**Temporary**
Cub room 3	**Turo and Sunny Joe (2.0) - Quarantine**	**Temporary**
Cub room 4	**No animals**	
Cub room 5	**No animals**	
Cub room 6	**No animals**	
Cub room 7	**Buzz, Red and Blue (3.0) - Quarantine**	**Temporary**
Cub room 8	**Kaise (ITAJU2076) - hospitalise for orthopaedic condition**	**Temporary**
Yard 1	**No animals**	
Yard 2	**No animals**	
Yard 3	**No animals**	

GAZELLE PLAINS		
Enclosure 11	**Bagheer Group (5.0)**	**Permanent**
Enclosure 12	**Serge and Major (2.0)**	**Permanent**
Enclosure 13	**JMF Group (3.0)**	**Permanent**
Enclosure 14	**DJ Group (4.0)**	**Permanent**
Enclosure 15	**Gamma Group (6.0)**	**Permanent**

DIKDIK DISTRICT		
Enclosure 1	**Teresa Group (0.7)**	**Permanent**
Enclosure 1.5	**Mist and Cloud (0.,2)**	**Temporary**
Enclosure 2	**Pacha Group (0.6)**	**Permanent**
Enclosure 3	**Storm Group (3.0)**	**Permanent**
Enclosure 4	**Jasiri Group (5.4)**	**Temporary**
Enclosure 5	**Idris Group (6.0)**	**Permanent**
Enclosure 6	**Jabari Group (5.0)**	**Permanent**
Enclosure 7	**Azaar Group (8.0)**	**Permanent**

BUSH BABY VALLEY		
Enclosure 8	**Kurro Group (0.5)**	**Permanent**
Enclosure 9	**Calla Group (0.11)**	**Permanent**
Management Pen E9	**Hanuman (1.0)**	**Temporary**
Enclosure 10	**Kariir Group (0.6)**	**Permanent**

JACKAL HILL		
Leopard E	**Milo (1.0)**	**Permanent**

STAFF LIVING QUARTERS		
Compound	**4.2 Dogs**	**Permanent**

F.3.8 Wildlife at CRCC

In addition to all our captive residents, the Centre offers a sheltered environment for wildlife away from local herders and the overwhelming number of livestock surrounding the facility.

Developing the CRCC Centre and cheetah pens had some challenges and unfortunate situations with the wildlife living on the land (Table 48). There were some active hyena dens which were destroyed during construction of enclosures and some losses of snakes, reptiles, monitors, birds, tortoises, bush hares as a result of contact with the electric wires. The two resident troops of baboons adapted to the construction however, the troop learned the hard way to stay out of the cheetah enclosures, a young female was hunted and killed by our cheetahs. The baboons do come within the perimeter fencing regularly to feed and have no interest in our cheetahs, us nor the staff area.

The three resident gerenuks died after nearly a year of being inside the perimeter fence, by running into the fence all in one day.

One male bat-eared fox got shocked by the electric fence at E8, he was found unresponsive but alive by the keepers. The vet team came to evaluate him and gave him shock therapy. We kept him in a crate for 30 minutes safely away from predators and gave him time to recover. After 30 minutes the fox was active and trying to dig itself out of the crate. As soon as the fox heard and saw people, he exhibited thanatosis in our presence. He was vaccinated against rabies and distemper before being released. Once released he ran out of the crate, marked his territory and disappeared into the bush.

One male wild cheetah was seen at E9 fence line on 17 December 17 2023.

The resident wild spotted hyena clan are present within the perimeter fence each night. There have been no major incidents to report. They patrol the site at night and go out of the perimeter to feed. We have identified two zones known as hyenas den areas. We can confirm that the clan has five adults, two sub-adults and three young pups. There may be more individuals but we have not seen them.

Table 48: Wildlife spotted on site at CRCC during 2023.

Species	Notes	Species	Notes
Spotted Hyenas		Bush Babies	
Golden Wolves		Savannah Monitor	
Black-Backed Jackal		Leopard Tortoise	
Caracal	Female with cub	Bell's Hinged Back Tortoise	
Leopard	Female	Spur Tortoise	
Cheetah	Male x3	Bush Hares	
White Tail Mongooses		Dik Dik	
Bandit Mongooses		African Wild Cat	
Bat-Eared Fox		Hamadryas Baboon	
Aardwolf		Warthogs	
Civet		Snakes	Multiple species
Genet		Insects	Multiple species
Striped Polecat		Reptiles	Multiple species
African Porcupine		Foam Nest Tree Frog	
Aardvark		Birds	Multiple species

F.3.9 New Arrivals (Cub Intakes)

Between 1 January 2023 and 31 December 2023, CCF Somaliland staff, with the aid of the Somaliland Ministry of Environment and Climate Change (MoECC), were involved with five confiscations (Table 49). Summary of facts from these confiscations below:

- Intake of 12 new cubs (10M, 2F) (Figure 80)
- Cub ages at the time of confiscation were estimated to be between 4 – 20 weeks old
- Number of individuals per intake group varied from 1 to 3 individuals

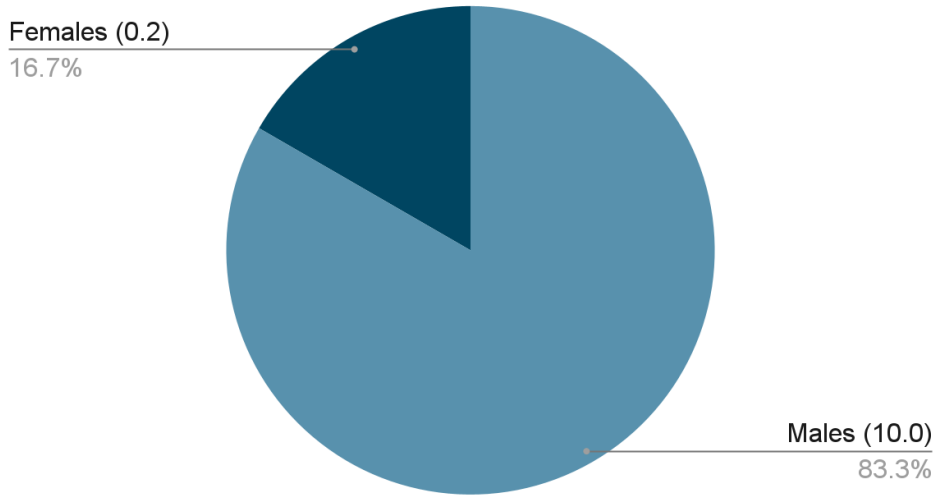


Figure 80: Gender distribution of confiscated cheetah cubs in 2023.

Table 49: List of new arrivals to CCF Somaliland due to confiscations between 1 January 2023 to 31 December 2023.

Confiscation Date	ITAJU	Name	Gender	Approx. age on arrival (weeks)	Health status and notes at intake
03-Feb-2023	2124	Oklahoma	M	16 (+/- 2 weeks)	Physical status: poor Demeanour: Alert, aggressive, anxious. Weight on arrival: 2.8kg. Body condition Score: 2 out of 9. Hydration status: Moderate 7% dehydration
03-Feb-2023	2125	Abdi	M	16 (+/- 2 weeks)	Physical status: poor. Demeanour: Alert, aggressive, anxious. Weight on arrival: 2.7kg. Body condition Score: 2 out of 9. Hydration status: Moderate 7% dehydration
03-Feb-2023	2126	Hasani	M	16 (+/- 2 weeks)	Physical status: poor. Demeanour: Alert, aggressive, anxious. Weight on arrival: 3.4 kg Body condition Score: 2.5 out of 9 Hydration status: Mild 3% dehydration
14-Apr-2023	2127	Lily	F	20 (+/- 4 weeks)	Physical status: Good Demeanour: Alert and tame Weight on arrival: 3.8kg. Body condition Score: 3 out of 9 Hydration status: Moderate 8% dehydration Wounds on L shoulder, neck and L thigh
17-Oct-2023	2128	Aamiina	M	4 (+/- 2 weeks)	Physical status: Good. Demeanour: Bright, alert, responsive Weight on arrival: 1.0kg Body condition score: 4 out of 9 Hydration status: Mild/moderate 5% dehydration No visible injuries or wounds
17-Oct-2023	2129	Miss Behave	F	4 (+/- 2 weeks)	Physical status: Good. Demeanour: Bright, alert, responsive. Weight on arrival: 0.9kg Body condition score: 4 out of 9 Hydration status: Mild/moderate 5% dehydration

					No visible injuries or wounds
13-Dec-2023	2130	Blue	M	16 (+/- 4 weeks)	Physical status: Very poor, reduced hair cover, distended abdomen Demeanour: Weak and lethargic Weight on arrival: 2.67kg Body condition score: 3 out of 9 Hydration status: Moderate/severe 8-10% dehydration No visible injuries or wounds
13-Dec-2023	2131	Sunny Joe	M	16 (+/- 4 weeks)	Physical status: Very poor, reduced hair cover, multiple ecto- and endoparasites Demeanour: Unfriendly and scared Weight on arrival: 1.93kg Body condition score: 3 out of 9 Hydration status: Moderate/severe 8% dehydration No visible injuries or wounds
13-Dec-2023	2132	Turo	M	16 (+/- 4 weeks)	Physical status: Very poor, reduced hair cover, multiple ecto- and endoparasites Demeanour: Unfriendly and scared Weight on arrival: 2.67kg Body condition score: 3 out of 9 Hydration status: Moderate 5-8% dehydration
25-Dec-2023	2133	Red (3.0 Trio)	M	20 (+/- 4 weeks)	Physical status: Good Demeanour: Unfriendly, fiery temperament Weight on arrival: 3.9kg Body condition score: 3.5 out of 9 Hydration status: very mild (<3%) Injuries: none; arrived with rope around neck but no sign of injury
25-Dec-2023	2134	Blue (3.0 Trio)	M	20 (+/- 4 weeks)	Physical status: Good Demeanour: Unfriendly, fiery temperament Weight on arrival: 3.9kg Body condition score: 3.5 out of 9 Hydration status: very mild (<3%) Injuries: none; arrived with rope around neck but no sign of injury
25-Dec-2023	2135	Buzz	M	20 (+/- 4 weeks)	Physical status: Good Demeanour: Unfriendly, fiery temperament Weight on arrival: 4.43kg Body condition score: 3.5 out of 9 Hydration status: very mild (<3%) Injuries: none; arrived with rope around neck but no sign of injury

After confiscation and arrival to the CRCC, a basic triage assessment is performed, initial intake bloodwork is performed to obtain a baseline, and stabilisation of medical condition begins. Further intake procedures (including sample collection and measurements) are performed approximately 48-72 hours after arrival, to allow the cubs time to stabilise and adjust.

The most common changes (some or all per individual) observed on intake bloodwork in 2023 include:

- Biochemistry:
    - Low calcium (nutritional or metabolic disorders)

    - Low creatinine (commonly seen at young age but could also indicate muscle atrophy due to malnutrition)
    - High amylase (due to diet previous to arrival, such as camel milk)
- Haematology:
    - Increased basophils, increased eosinophils, and increased lymphocytes

The most common health issues encountered at confiscation in 2023 were (Table 49):

- Mild to moderate dehydration (5% - 10%)
- Mild to severe malnutrition - presented clinically as underweight, poor body condition (typically BCS 2 or 3 / out of 9), and varying degrees of muscle atrophy/muscle wasting
- Mild to severe hypothermia
- Mild to severe hypoglycemia
- Poor skin/hair condition (alopecia, lichenification)
- Wounds/lacerations

The majority of the health issues and clinical symptoms were corrected within the first few days of arrival by intensive management and support. Fluid replacement was administered as necessary to correct dehydration (by subcutaneous or intravenous routes, depending on the severity). Depending on clinical status, a 7 to 10- day course of antibiotics was administered prophylactically (due to weakened immune status) from October 2023 onwards, and Vitamin B-complex was administered for immune support. In certain cases, a one-off dose of glucocorticoid (Dexamethasone at a dose rate of 0.3-0.5mg/kg) was administered on intake to replace reduced endogenous glucocorticoid that is believed to be due to adrenal insufficiency (as a result of severe metabolic stress). Parasiticides (oral and topical) were typically administered 3 days after arrival, and wound care (cleaning and application of topical antiseptics) administering antiseptic ointment) was performed as required.

Malnutrition and nutritional disorders were corrected over a longer period (weeks to months), with appropriate mineral and vitamin supplementation, provision of nutritionally complete milk, probiotics, and an appropriate diet for life stage and bodyweight (primary protein source being goat meat and in some cases chicken).

Gastroenteritis is commonly encountered after intake. Changes in appetite, intermittent diarrhoea, regurgitation or vomiting, and undigested meat have been associated with adjustment to a new/more appropriate diet, stress, and infections (bacterial, parasitic). Intensive treatment and support are commenced as soon as possible, and include deworming (based on faecal analysis, and if not already administered at intake), gradual food transitions, subcutaneous or intravenous fluids, antiemetics, gastrointestinal protectants, and probiotics. After diagnostic workups (faecal analysis and bloodwork), appropriate antibiotics are included in the treatment plan, if appropriate.

F.3.10 Husbandry, Animal Management and Clinical

Overview

Visual observations and checks from a distance are routinely performed daily by the keeper team and with the involvement of the veterinary team. Many of the resident population are approachable and will allow varying degrees of human contact, depending on temperament.

In combination with regular behavioural training, this allows the veterinary team to perform basic close-up visual evaluations, hands-on clinical examinations, collect blood, and administer vaccines and treatments without requiring sedation/anaesthesia. When the animal allows, hands-on physical examinations were performed on animals that were reported to have any clinical, physical or behavioural abnormalities. These examinations were also carried out in sick individuals, when close monitoring was required to adjust treatment plans or to perform further diagnostic tests, including imaging.

Animals that do not allow safe close physical contact were examined using protected contact methods. Depending on temperament, this would include using a fence as a barrier or having the animal in a training crate or in a squeeze cage. The keeper and veterinary teams continue to work diligently to accustom and train individuals to undergo conditioning for medical purposes, such as physical examinations, voluntary blood collection, radiographs and voluntarily entering the squeeze cage.

All cheetahs and the leopard are trained for basic medical procedures including blood sampling, injections, and radiographs. Cubs are regularly familiarised with being touched on the neck, shoulder area, pelvic area, and base of tail while feeding in preparation for injections or medications that will need to be administered in the future.

Enrichment, Mental and Physical Stimulation

Once the cheetahs were settled and enjoying their new lives in spacious enclosure, they were introduced to the lure system. They were all eager and participated with a lot of enthusiasm. It is a great tool to exercise the cheetahs and also mentally challenge them by changing the course every run and giving them more challenges. Unfortunately, our lure system broke in July 2023 and has been at a workshop for repair.

The cheetahs run after the trucks daily also but give very little mental stimulation but good daily exercise.

Carcass feeding is also good stimulation and a good bonding moment for the groups. It helps with improving mastication apparatus, body musculature and oral health.

The environment is the best enrichment we can offer our animals as it is providing them with the best mental and physical stimulation.

Daily Husbandry

Daily tasks are very important for the safety of the cheetahs and for the staff. The environment and surrounding wildlife are more challenging than in the Safe Houses in the city. At the CRCC, all fence lines and electric wires are checked daily and fixed if needed. In the rainy season, a lot of work goes to manage the damage caused by the water by adding gabion, rocks and sand. A daily tortoise check especially in the rainy season is important to prevent more mortality. Cleaning and refilling the water bowls. Cleaning feeding areas (plywood, racking branches and thorns, etc.). Bush clearing is always needed when the time allows.

The meat room is maintained in high standard of hygiene, with daily cleaning to provide a clean environment including the refrigerators, and freezers.

Behavioural Issues

To prevent unwanted stereotypical behaviour and frustration from our cheetahs, we are housing the females in a different sector than the males. Taking away the visual and smell of females decreases typical mating behaviour, confrontations between group mates, frustration and stress level. We have noticed a significant decrease of “pacing” from the cats, especially cheetahs from the previously known Safe House 2.

All of our cheetahs are very well adapted and comfortable in their group setting and housing provided by CCF. Some of the cheetahs have completely stopped stereotypical behaviour; one of the major unwanted behaviours in our collection in the Safe Houses in the city was cheetahs suckling each other in moments of stress or comfort (Nasiib, Meeko, Delphina, Pacha). Most of these unwanted behavioural issues were caused by overcrowding, living in close proximity with the same gender (natural competition) and from the opposite gender (promoting breeding behaviour), lack of stimulation and the sound pollution. Since moving to Geed-deeble the cheetahs have not exhibited those behaviours and are thriving.

There are a few behavioural issues:

- Jabari Group and Storm Group - Enclosure 6 – Aggression
    - Strom group were the last cheetahs to move to Geed Deeble due to the lack of enclosure and unforeseen reasons the group of 3 needed to be moved to Geed Deeble on 21 July 2023. The only available area at that time was the Management Pen of E6. This was challenging as Jabari group (5.0) are territorial males. As expected, there were daily fights at the fence line which caused a lot of stress to both groups. The fence had to be reinforced due to the constant slapping weakening the fence.
    - 23 August 2023 - Jabari group broke the latch of the big gate, giving them access to the management pen. A big fight broke out between the two groups and keepers heard the commotion and intervened right away, separating the two groups. Some minor injuries were caused to Storm, Duma and Gashaan. The wounds were attended by the veterinarian and antibiotics were prescribed. When the Storm group moved to their permanent enclosure E3, both groups became less aggressive, more relaxed and exhibited normal sleep patterns.
- Shamsi (ITAJU2000) – Anxiety

    - During his stay at the clinic recovering from abdominal surgery, Shamsi over groomed himself, causing a large wound to his lateral abdomen and a few small wounds to his right forelimb and rump. The overgrooming was caused by anxiety and boredom, Shamsi was prescribed gabapentin to help manage his anxiety. As soon as Shamsi returned to the bush and to his group, gabapentin was no longer needed and he stopped the unwanted behaviour.
- Milo (SOPPA0093) – Anxiety
    - Milo has the tendency of growling, biting his back legs and compulsively licking himself to relieve his anxiety. We have also correlated these unfavourable behaviours to early symptoms of his medical condition. He will also pace rapidly when he's overly excited. He is getting better and keepers have noticed less stereotypical behaviour in the last months.
- Hanuman (ITAJU2011) – Aggression and Anxiety
    - Hanuman was living in E4 prior to 17 December, he was thriving and acting more and more like a cheetah. He had less interest or need for people's attention. He was transferred to the Management Pen E9 to give temporary housing to the Jasiri group. Hanuman has reverted back to his clinginess toward people and unwanted behaviour of pacing at the gate. He has been progressively more aggressive towards his cheetah neighbours in E9 (big yard), some areas of the fence separating Hanuman and Calla group needed to be boarded to prevent injuries, damage to the fence, daily fights and aggressive behaviour.
- Idris group (6.0) – Aggression
    - The decision was made to only work in protective contact with Amiir, Amiin, Pluto and Mars (Idris and Link are ok) after many mock charges and aggressive behaviour towards staff, the unpredictability of those four individuals is concerning in free contact and the staff safety takes priority. The keepers were able to build a shift area for managing the group in protective contact and it is working really well for both staff and cheetahs.

Data Recording

Since May 2022, Species360 ZIMS has been the primary software used by the animal care and veterinary teams, to record all keeper notes and medical records pertaining to each individual. Such records include: clinical notes, diagnostic procedures and outcomes, treatments and medical interventions have been and continue to be available on Species360 ZIMS cloud-based software for each individual at CCF Somaliland.

Efforts have been made to successfully upload and transcribe pre-ZIMS records into this digital database (including but not limited to confiscation details, intake examinations, anaesthetic procedures, and bloodwork). One exception is Cub B (2022 intake), as his physical record was kept in the possession of the Somaliland courts system. Google Drive and a suite of apps are used to ensure data and documents are shared and worked on collaboratively, including (but not limited to) protocols, diet calculations, and case reports.

Preventive Health and Management Procedures - Summary

The following procedures have been performed during the period January to December 2023:

- Parasite control

    - Monthly ectoparasite prevention – either topical Frontline, or injectable Ivermectin
    - Oral endoparasite control every 3 months (depending on the outcome of the pooled faecal analysis for each enclosure); the active substance is alternated with each use to reduce the risk of resistance to one particular substance
- Vaccinations
    - Primary and booster courses of FVCRP and Rabies for all new arrivals
    - Annual booster vaccinations of FVCRP and Rabies for all resident animals
- Bloodwork
    - Intake bloodwork and disease testing (FIV/FeLV) for all new arrivals
    - Annual blood work – Sept / October/November
- Faecal collection (every 3 months)
    - Pooled samples per enclosure - for in-house faecal analysis
    - Individual samples for storage in Namibia and for external FCoV-PCR testing

Diet and Nutrition

Predator powder and Carnivit powder are calculated with consideration to individual and group (enclosure) body weights, then added to the diets. Currently, the adults alternate between the two supplements every feeding (i.e. Predator at feed 1, Carnivit at feed 2, Predator at feed 3 etc).

Cubs and growing animals (subadults) up until 24 months of age have a higher calcium requirement compared to adult cheetahs and other large carnivore species. Although Carnivit contains taurine (unlike Predator powder), the only supplement that satisfies the calcium requirement is Predator powder.

The diet schedule for sub-adults and adult cheetahs is one feeding day every two days; 15 feeding days per month. Some individuals will require supplemental feeding or a special diet for medical reasons or low body condition scores.

Cheetah cubs have multiple feeds a day. A strict diet is established by the vet team considering medical condition, body condition, and weight, but as the cubs grow, their diet is adapted according to their nutritional needs. Milo (leopard) is fed five times a week with two lean days. Honey (caracal) is fed daily.

We mainly feed goat carcasses to all the cheetahs and Milo (leopard). Honey (caracal) receives a chicken base diet with some food enrichment at times (eggs and bugs). The diets are managed by the head keepers and are based on body condition, nutritional needs and special requirements.

Medical Conditions and Cases in Resident Population

Medical conditions encountered in the resident population are summarised in this section, divided into organ systems (e.g. gastrointestinal, musculoskeletal etc). Individual cases of interest are mentioned. Summaries of procedures performed under sedation/anaesthesia can be found later in this section.

Chronic (long-term) cases

Ongoing cases that are being monitored and managed long-term include animals with an absent right femoral head (numerous animals - see section *Absent right femoral head* under Orthopaedic cases), neuromotor impairment (Kariir ITAJU 2005), dermatological lesions due to chronic herpesvirus (Yaku ITAJU 2042), and animals with instances of suspected seizure activity (Kaise ITAJU 2076).

Musculoskeletal Cases

Conditions affecting the musculoskeletal system are noted within the resident population of cheetahs. There are a number of ongoing (chronic) cases that are under constant monitoring and review, primarily in cats with a known history of an absent right femoral head or historical fracture - conditions suspected due to metabolic bone disease, nutritional imbalances, and/or a genetic component. Since moving to the new facility at CRCC Geed-Deeble, incidence of lameness caused by foreign body intrusion (usually in the limbs and paws) has increased, due to the change in environment where plants suited to an arid environment predominate. Known cases of musculoskeletal symptoms are detailed further below.

- Absent right femoral head:
    - DARTH (ITAJU 1984), YAKU (ITAJU 2042), PACHA (ITAJU 2044), DELPHINA (ITAJU 2047) and JASIRI (ITAJU 2121) have all been diagnosed with a absent right femoral head (in Darth's case, due to atrophy). This presents clinically as intermittent lameness or gait abnormality. The cause is suspected to be due to metabolic bone disease, nutritional imbalances and/or due to a genetic component. Radiographs indicate varying degrees of luxation and deviation of the right femur. Management includes daily supplementation of calcium (discontinued on August 13th 2023), joint supplements, and short courses of anti-inflammatories if lameness is associated with inflammation and/or pain. Follow up radiographs have been and will continue to be taken if lameness or severe pain is presented.
- Historical fractures (occurred pre-2023):
    - AMATERASU (ITAJU 2043), DUMA (ITAJU 1939), MOONLIGHT (ITAJU 1839), CLOUD (ITAJU 1836), JANET (ITAJU 1950), and SIF (ITAJU 2001) are all individuals that experienced fractures earlier in life, which have since healed and do not affect their current mobility or quality of life. Suspected causes include trauma, metabolic bone disease, and early-life stage nutritional deficiencies/imbalances. Current management practices include joint supplements and calcium supplementation when necessary.
- Fractures (occurred in 2023):
    - Orion (ITAJU 1936) experienced a traumatic fracture of his left scapula on 16 April which at the time was linked to neuromotor deficits that first appeared in December 2021 (signs that appeared in a number of other SH2 inhabitants at the time, most of which are now deceased). Orion sadly passed away during surgical intervention to resolve gastric obstruction due to foreign material (hay) ingestion after being in confinement to prevent further trauma to the scapular fracture. The use of hay being provided as a bedding material for animals requiring confinement for medical reasons will be reviewed on a case-by-case basis. Observation

methods will also be improved to more closely monitor patients in these situations.
    - SHUKRI (ITAJU 2123) was anaesthetized on 28 April due to severe non-weight bearing right forelimb lameness and a swollen distal forelimb. Fracture in the carpal/distal ulnar region was identified. Complete recovery was achieved with application of a stiffening cast around the carpus, restricted exercise, and pain relief.
- Lameness - ongoing case, unresolved:
    - KAISE (ITAJU 2076) displayed sudden onset of progressively abnormal hindlimb mobility in December 2023, manifesting primarily as right hindlimb lameness (although the lameness did shift briefly to the right forelimb), and an abnormally short-stepped hindlimb gait. No pain was elicited on examination of affected limb and spinal region, and there was zero response to pain relief trials using NSAID (meloxicam) and gabapentin. Radiographs were performed under sedation, and after discussion with external veterinary professionals, both a pelvic fracture and sacroiliac luxation were ruled out. To date there is no known cause, however Kaise has responded positively to initial management with restricted exercise.
- Lameness - due to foreign body penetration:
    - CALLA (ITAJU 2089) and DHIIRIN (ITAJU 2046) both underwent procedures under anaesthesia to remove penetrative foreign bodies (thorns) in their paws, primarily affecting the palmar and plantar surfaces. Both cases were resolved swiftly post-surgery, through restricted exercise, use of NSAIDs, and use of antibiotics when infection was present.
- Lameness (self-resolved):
    - Forelimb and hindlimb lameness self-resolved in many cases with no known cause of symptoms (Table 50).

Table 50: Cases of lameness with no known cause in 2023.

DATE	NAME	ITAJU
12-April-23	Vicki 2	1995
26-April-23	Amaterasu	2043
01-May-23	Vicki 2	1995
03-May-23	Amaterasu	2043
07-May-23	L.H.	2048
18-May-23	Delphina	2047
23-May-23	Azaar	2041
24-May-23	Major	1996
31-May-23	Nasiib	2071
02-June-23	Link	2032
04-June-23	Pacha	2044

05-June-23	Leylo	2088
11-June-23	Boqor	2045
11-June-23	Hani	2084
11-June-23	Vicki 2	1995
11-June-23	Zelda	2033
12-June-23	Amaterasu	2043
12-June-23	Dahab	2086
15-June-23	Boqor	2045
20-June-23	Badia	2094
25-June-23	Amaterasu	2043
25-June-23	Serge	1997
25-June-23	*Rajo*	1961
28-June-23	Dahab	2086
07-July-23	Sahmiye	2049
10-July-23	Astur	2007
20-July-23	Kaise	2076
16-Aug-23	Betty White	2087
30-Aug-23	Kaise	2076
05-Sep-23	Echo	2111
06-Sep-23	Andromeda	1938
01-Oct-23	Meeko	1960
19-Oct-23	Johnny	1944
08-Nov-23	Yaku	2042
15-Nov-23	Calla	2089
25-Nov-23	Amaterasu	2043
06-Dec-23	Bagheer	1981
18-Dec-23	Delta	2110

* Rajo hindlimb lameness resolved after 2 weeks *

Neurological cases

- Neuromotor:
    - **KARIIR (ITAJU 2005)** continues to show neuromotor abnormalities, manifesting primarily as bilateral hypermetric forelimb gait. Hypervitaminosis A has been proposed as a possible cause, with changes made to dietary supplementation since to eliminate Vitamin A from her diet. The severity of the hypermetric gait has remained stable throughout the fourth quarter of 2023 with no obvious adverse effects to her quality of life; though occasional fluctuations were experienced earlier in 2023. Kariir's long-term management regimen includes the administration of Gabapentin BID which appears to have aided her condition and provided a form of neuropathic pain relief. Kariir is also receiving a calcium supplementation due to decreasing calcium levels (non-inoised) in serum biochemistry; an improvement in serum calcium was noted after starting supplementation.
- Convulsions / seizure activity:
    - **JANET (ITAJU 1950)** was sedated for the translocation process from SH2 in Hargeisa to Geed-Deeble on 14 June. In the early stages of sedation, she experienced two convulsions with an interval of 10 minutes - each episode lasted 5-15 seconds. She was successfully stabilised with administration of low-dose atropine and has since recovered with no known complications or repeat episodes.
    - **MILO (SOPPA0093)** experienced two convulsions with a 5-minute interval between each, when sedated for a diagnostic workup on 14 October. Each episode lasted for 10 seconds and was attributed to a high dosage of ketamine used in the protocol.
    - **KAISE (ITAJU 2076)** has experienced two observed incidents of seizure activity; the first episode had an unknown cause, where Kaise was observed during and in the recovery stages (post-ictal). The second episode was due to contact with the lower electric wires at the enclosure perimeter (designed to prevent climbing and excursions out of the enclosures. No further episodes have been observed; however, we cannot rule out further episodes that may or may not have occurred when staff are not in the vicinity. Kaise is stable and is not currently on anti-seizure medication, and is constantly being monitored for any changes.

Gastrointestinal Cases

Gastrointestinal related symptoms are commonly encountered in the resident population of cheetahs, although the incidence of cases has noticeably decreased since the translocation from the previous safe house facilities in Hargeisa, to the new facility at CRCC Geed Deeble. This has been primarily attributed to various management changes, including:

- Change to a more appropriate diet, from camel to goat - improved meat quality, more easily digestible, less fat
- Change to feeding regime - feeding every two days led to improved gastric emptying and digestive function, and reduced incidence of bloating, inappetence, and vomiting
- Introduction of carcass feeding using goat carcasses - more similar to natural diet
- Reduced stressors (more spacious enclosures, more natural environment, reduced ambient noise pollution)

Signs of GI disturbance varied in type and severity, but most commonly presented as the following, either alone or in multiple: regurgitation or vomiting; variable and/or decreased appetite, poor faecal scores (4 or 5 out of 5), presence of undigested meat, blood, or mucus in faeces, abdominal distension, abdominal discomfort, and delayed gastric emptying. Many of these signs are attributable to gastritis, a condition that is commonly encountered in cheetahs. Since many of the resident population have had a degree of Feline Coronavirus (FCoV) exposure, underlying FCoV infection cannot be ruled out as a possible cause of gastrointestinal issues.

Diagnostic methods used to investigate gastrointestinal symptoms included: clinical examination (if temperament allowed); blood collection and analysis (CBC and biochemistry); faecal collection and analysis (faecal flotation to identify parasitic eggs and McMaster's to quantify); diagnostic imaging (radiographs and/or ultrasonography); and if indicated, explorative or corrective surgery under GA.

Gastritis

Causes of gastritis can be attributed to various causes, including but not limited to: stress, dietary intolerance, infectious (viral, bacterial, or parasitic); medications that may have an irritant effect; ingestion of foreign gastric material. Clinical signs typically manifest as loss of body condition, changes to appetite, poor faecal scores with presence of undigested meat. Extreme pica was a consequence of gastritis in February 2023 (further details can be found later in the report).

Members of the population that experienced signs relating to gastritis in 2023 that required medication include:

- **Teresa Group (7 out of 7 animals):** ZERO (ITAJU 1994), VICKI 2 (ITAJU 1995), AYAAN (ITAJU 2012), TERESA (ITAJU 2015), SAN (ITAJU 2031), ZELDA (ITAJU 2033), and VENUS (ITAJU 2037)
- **Pacha group (2 out of 6 animals):** PACHA (ITAJU 2044)***,** BISHAARO (ITAJU 2073)*****
- **Idris group* (6 out of 6 animals):** IDRIS (ITAJU 2008), AMIIN (ITAJU 2027), AMIIR (ITAJU 2028), LINK (ITAJU 2032), PLUTO (ITAJU 2035)
- **Azaar group (3 out of 5 animals):** SAHMIYE (ITAJU 2049)***,** SALIM (ITAJU 2075), BASHIR (ITAJU 2072)
- **Jabari group (1 out of 5 animals):** BOQOR (ITAJU 2045)***,**
- **Bagheer group* (5 out of 6 animals):** CZ (ITAJU 1980), BAGHEER (ITAJU 1981), DARTH (ITAJU 1984), ASTUR (ITAJU 2007)
- **Kariir group (3 out of 6 animals):** KARIIR (ITAJU 2005), SIF (ITAJU 2001), JANET (ITAJU 1950)

Animals with a * experienced gastritis in February 2023 and displayed extreme pica during these episodes - more details are found in the following subsection titled "Pica"

Treatment protocols used in these individuals varied depending on severity of symptoms and clinical status, but generally a good response to treatment was achieved after 14-21 days. Medications used (alone or in combination) include: pre- and probiotics with or without faecal binders, gastroprotectants (sucralfate and proton pump inhibitors (for example omeprazole and lansoprazole), broad-spectrum antibiotics (for example, amoxicillin-clavulanic acid), fluid support

(either SQ or IV). Maropitant (Cerenia) in either injectable or oral form was used in certain cases of inappetence and/or vomiting. Diet adjustments were made in some cases, with a switch from carcass or chunk meat to feeding mince, to aid absorption and digestion and thus promote an improved faecal score.

Anti-parasitics (dewormers including praziquantel with/without fenbendazole) were administered in the event parasitic stages were identified on faecal flotation under microscopy (organisms encountered included Coccidia, hookworm, tapeworm - the latter two species being attributed to hunting prey species in enclosures and/or reduced meat quality from carcass feeding).

Pica

In February, a number of Safe House 2 and Safe House 3 residents displayed extreme pica (definition: the consumption of non-nutritional, non-food items), during episodes of gastritis. This manifested as uncontrollably eating sand when given access to the outdoor enclosures, with some cats becoming aggressive when attempts were made to redirect. Conscious radiographs were performed on some individuals, due to the concern of sand impaction arising as a result of the pica. Some individuals became anorexic (notably Bagheer group), while others (Idris group) still maintained an appetite, albeit reduced. Immediately prior to these episodes, Coccidia was identified in a number of the aforementioned animals; oral toltrazuril was used to treat the infection. The gastritis and pica displayed in these animals successfully resolved due to prolonged conservative treatment (using medications including sucralfate, omeprazole, antibiotics) and after translocation to their new enclosures at the CRCC in Geed Deeble.

Suspected Intolerance of Dietary Supplement (Milk Powder)

OKLAHOMA (ITAJU 2124), ABDI (ITAJU 2125), and HASANI (ITAJU 2126) experienced intermittent episodes of abdominal distension and reduced appetite until April 2023. All symptoms improved after discontinuing the addition of milk powder into their diet.

Gastrointestinal foreign bodies / obstruction

Most cases of gastrointestinal foreign bodies / obstruction were identified and successfully corrected by surgery under GA in SHAMSI (ITAJU 2000) and SIF (ITAJU 2001). ECHO (ITAJU 2111) had a perforative intestinal foreign body where surgical correction was attempted but sadly, she did not survive the procedure. More details about these cases can be found in the earlier section “Procedures Performed Under Anaesthesia - Case Summaries”.

ZELDA (ITAJU 2033) experienced severe lethargy, dehydration and reduced appetite. These symptoms and her health status self-resolved after passing a gastrointestinal foreign body (3cm x 2.5cm height rubber piece from an unknown object) in faeces, found by keepers during enclosure checks)

Dietary indiscretion:

SAHMIYE (ITAJU 2049) and BASHIR (ITAJU 2072) experienced abdominal discomfort, abdominal bloating and decreased appetite after hunting and eating a dik-dik in their enclosure. Both animals recovered within 3 days of initiating supportive treatment (including SC fluid, Buscopan).

Oral /Dental Cases

2023 Cases

JOHNNY (ITAJU 1944), MICKEY (ITAJU 1945) and FRIGGA (ITAJU 1998) experienced inflammatory and ulcerative lesions affecting the oral cavity, which manifested in hypersalivation and reduced appetite. An infectious cause (due to historical FHV / FCV exposure) was initially suspected, however adjacent enclosures were not affected despite the highly contagious nature of such viral infections. Ultimately, a toxic cause was suspected. All animals responded well to supportive treatment (pain relief) and dietary changes (minced meat).

Historical (pre-2023) Cases

Multiple individuals have erosions and/or ulcers present in their oral cavity and on their tongue - these lesions are a result of historical FHV and FCV viral outbreaks manifesting in oral lesions. As of 31 December 2023, these lesions are mainly aesthetic and do not cause discomfort or issues regarding eating or drinking.

- EMMET (ITAJU 1962) and RAJO (ITAJU 1961) had oral assessments performed under sedation in December 2021, due to concerns about oral and dental abnormalities. The Triadan system is in use when specific teeth have a numeric identifier. EMMET has a missing lower left (304) canine, while the lower right (404) canine had an exposed dental canal; erosions to the palate and tongue were noted. RAJO has moderate to severe enamel degeneration to the lower right (404) canine and multiple molars; erosions to the tongue were also noted. No further action has been taken since, as both individuals have remained stable with no evidence of oral discomfort.
- JANET (ITAJU 1950) had palatine erosions identified during a procedure under sedation on 22 April with one perforation at the left upper premolar. No complications have arisen since, although the findings have been noted due to the potential of respiratory issues arising from this defect.

Ophthalmic Cases

Ocular Issues Arising from Suspected Contact with Spitting Cobra Venom

Some of the resident cheetahs experienced suspected encounters with spitting cobra venom (Table 51), which primarily manifested with acute onset of severe blepharitis, ocular secretion, and in a few instances superficial corneal ulcers in one or both of the affected eyes. Treatment is supportive in nature, with a higher dose of Dexamethasone 0.3mg/kg by IM injection to reduce the inflammation, copious flushing with NaCl on the day the issue was identified and then as needed, plus topical antibiotics in some cases to prevent bacterial infection.

Table 51: Cases of resident cheetahs with suspected contact with spitting cobra venom in 2023.

Date	Name	ITAJU
18-Mar-23	Betty White	2087
21-Mar-23	Calla	2089
21-Mar-23	Dahab	2086
21-Mar-23	Myza	2090
02-Apr-23	Hani	2084
23-Apr-23	Ayaan	2012
04-May-23	Teresa	2015
04-May-23	Zelda	2033
04-May-23	Jabari	2068
04-May-23	LH	2048
16-May-23	Idil	2091
17-May-23	Serge	1997
18-May-23	LH	2048
23-May-23	Bishaaro	2073
23-May-23	Kurro	1930
29-May-23	Amiir	2028
29-May-23	Link	2032
29-May-23	Zero	1994
30-May-23	Delta	2110
30-May-23	Ruhi	2115
24-May-23	Bishaaro	2073
01-Jun-23	Bishaaro	2073
01-Jun-23	Dhiirin	2046
01-Jun-23	Sanu	2074
10-Jun-23	Delta	2110
16-Jul-23	Andromeda	1938
19-Jul-23	Idil	2091
31-Jul-23	Zero	1994
10-Aug-23	Venus	2039
15-Aug-23	Echo	2111
15-Aug-23	Basimah	2093
15-Aug-23	Badia	2094
15-Aug-23	Delta	2110
26-Aug-23	Bagheer	1981
26-Aug-23	CZ	1980
26-Aug-23	Shamsi	2000
26-Aug-23	Darth	1984
26-Aug-23	Astur	2007
01-Sep-23	Sol	2002
01-Sep-23	Faduma	1958
29-Sep-23	Sanu	2074
07-Oct-23	Basimah	2093
07-Oct-23	Hani	2084

07-Oct -23	DJ	1949
19-Oct-23	Delta	2110
19-Oct-23	Basimah	2093
16-Nov-23	Bashir	2072
22-Dec-23	Jasiri	2121
22-Dec-23	Faysa	2122
22-Dec-23	Shukri	2123
22-Dec-23	Hasani	2126

Enucleation Due to Foreign Body Penetration

BETTY WHITE (ITAJU 2087) experienced a penetrative corneal foreign body in her RIGHT eye due to intrusion of a thorn. Due to the emergency nature of this ocular condition, enucleation was performed under GA - a case summary of which can be found in the later section *"Procedures performed under anaesthesia - case summaries"***.**

Nictitating Membrane (Third Eyelid) Protrusion

Bilateral protrusion of the third eyelid has been observed in multiple individuals, primarily in cubs and sub-adults. Case frequency tended to be higher in the safe houses in Hargeisa compared to in Geed Deeble. This symptom is attributed to suspected viral flare ups (and therefore depressed immune status) caused by either: Feline Herpesvirus (FHV); Feline Calicivirus (FCV); Feline Coronavirus (FCoV); or Torovirus when concurrent with gastrointestinal signs.

At Geed Deeble, primarily cubs and sub-adults living at the clinic enclosures have experienced third eyelid protrusion, notably members of Gamma group and Jasiri group. These issues resolved quickly after the groups were moved to their new enclosures in the bush.

Stress and resulting immune suppression cannot be ruled out as contributing factors, although ultimately the exact pathogenesis is unknown and clinical signs tend to be self-limiting within 4-6 weeks of onset.

Dermatological cases

YAKU (ITAJU 2042) has experienced facial dermatitis lesions (suspected due to chronic FHV) for several months, although an improvement has been noted since translocation to Geed Deeble. At their most severe in 2022, lesions tended to be alopecic, erythemic, crusting, with secondary bacterial infections localised mainly on his nose, muzzle, and neck. As of December 2023, there are no signs of dermatitis. His hair has regrown and there are no pigmentation changes, or other skin lesions evident. Ongoing management involves daily administration of Famciclovir (as of 31 December 2023, 1500mg BID), and skin health support (Omega-3 fish oil and Vitamin E).

BISHAARO (ITAJU 2073), KURRO (ITAJU 1930), MARGARITA (1964), MEEKO (1960) presented with varying severity of facial alopecia, erythema, and/or crusting - suspected cause was FHV flare up. The lesions in each case improved with weeks of supportive treatment to boost skin and immune health (supplementation of Omega-3 fish oil, Vitamin E, and Vitamin B complex). have been presented with facial alopecia and/or facial erythema and/or crusting of varying degrees. Suspected to be due to Herpesvirus infection. All of the lesions improve after several weeks of supportive treatment (supplementation of Omega 3, Vitamin E, Vitamin B-complex). KURRO, BISHAARO and MARGARITA received daily oral famciclovir, while BISHAARO and MEEKO also received daily topical Aciclovir cream.

Miscellaneous cases

GAMMA (ITAJU 2098) was found with a preputial adhesion to the penis during a workup under anaesthesia on 15 March 2023. The adhesion was causing strangulation of the penis, and the area was infected with pustular discharge observed. The adhesion was corrected surgically, and the colour of his penis changed from purple/blue to pink.

AYAAN (ITAJU 2012) was observed with abnormal behaviour, blood on her lower chin and hypersalivation on 22 March 2023. Dilated pupils and a swollen tongue were observed but did not affect deglutition (swallowing). Suspected contact with toxin (origin unknown, possible snake or scorpion). Responded within 24h to dexamethasone IM injection administered at dose rate for shock. On 7 May, her lower jaw was observed to be grossly swollen by unknown cause but suspected to be a snake bite. It was resolved with a three-day course of prednisolone.

AMIIR (ITAJU 2028) had a puncture wound approximately 2.5cm wide at the base of his tail. The wound was not infected, and did not require treatment and the lesion healed by itself within five days.

NASIIB (ITAJU 2071) was diagnosed with a hygroma over his right elbow in December 2023; surgical correction and drainage was attempted, with laboratory analysis of the effusion showing mixed inflammatory cells. Since the procedure, the swelling has refilled. As of 31 December 2023, it is not currently causing any pain nor mobility issues, and is being monitored for any changes and drained as deemed necessary by the vet team, as recommended by external veterinary specialists. Drainage is performed as and when deemed necessary by the on-site veterinary team.

Viral diseases in resident population

The resident population has been exposed to and experienced various contagious viral diseases during their life to date, including Feline Coronavirus (FCoV) (and in some cases, the strain that mutates into FIP); Feline Herpesvirus (FHV); and Feline Calicivirus (FCV).

Efforts are made to practise good biosecurity and prevent viral disease transmission, although challenges arise from the environmental conditions (shifting sand, dirt, dried faecal matter), and nose to nose contact between animals in adjacent enclosures that were constructed without a “squeeze gap”.

Current biosecurity measures include washing of hands and arms plus changes of clothes and footwear when moving between: the clinic enclosures and bush enclosure, between cub and sub-adults/adults, and between sick and healthy animals.

Feline Coronavirus (FCoV)

Feline Coronavirus (FCoV) serum antibody titres are present within most individuals of the resident population, indicating exposure. Since transmission is achieved through various routes including: directly between animals by the faecal-oral route, indirectly by environment (spreading of contaminated sand/soil by water and wind), or through fomites (clothing, footwear, cleaning or feeding implements), management and control is a constant challenge. Although the virus is fragile, it can survive for up to seven weeks in dry environments.

Surveillance and monitoring of the animals through serological and faecal testing is routinely performed via the following methods: faecal samples are collected every three months, and processed for external FCoV PCR testing in either the UK or USA. Blood is collected throughout the year, and spun down into serum; the serum is then tested at external institutions for FCoV antibody titres.

FIP Cases

Feline Infectious Peritonitis (FIP) arises from the mutation of FCoV into a highly virulent strain that can result in various forms: wet FIP (with effusions), dry FIP (no effusions), neurological and ocular forms. The strain causing FIP, the mutated virus, is cell-associated and is not commonly transmitted directly between cats. The combination of multiple stress-associated risk factors is suspected to contribute to the mutation of FCoV into the FIP-inducing strain.

Risk factors contributing to the occurrence of the mutation are primarily stress-related. All of the animals experienced some or all of the following stressors in the weeks before diagnosis:

- High density per area (overcrowding in the previous safe house facilities due to limited space)
- Dietary stress (poor quality meat or less appropriate diet when the diet was primarily camel)
- Infections (including FHV, FCV, Coccidia) and resulting immune suppression
- Stress arising from animal introductions and translocation

In 2023, five cases of FIP were diagnosed after translocation to Geed Deeble (Table 52). The earliest diagnosis was made in March, with the latest diagnosis made in November. Three cases were of wet FIP and were diagnosed in animals less than 2 years of age, while there were two cases of dry FIP diagnosed in animals aged more than three years of age.

Table 52: Overview of FIP cases in cheetahs during 2023.

Animal name and details	Case details
GAMMA (ITAJU 2098) Male Date of birth (approx.): 19-Dec-2021 Age at time of FIP diagnosis: 1y 4m	**Date of diagnosis:** 25 March 2023 **Form of FIP diagnosed:** Wet **History and findings at time of diagnosis:** Repeated episodes of anorexia, slow movement on walk, undigested meat found in faeces. Anaesthetised for workup due to temperament; pendulous abdomen on clinical examination with free peritoneal fluid observed on ultrasonography - aspirate tested positive on Rivalta test. A/G ratio 0.5 on serum biochemistry at time of diagnosis **Date treatment started: 25** March 2023 **Treatment details:** GS-44 injection (43 days total; started on 6mg/kg/day, reduced to 5mg/kg/day for 13 days and 4mg/kg/day for 9 days due to insufficient stock to treat 2 animals). Switched to GS-44 oral on7 May 2023 when stock arrived. GS-44 oral treatment duration of 41 days total to complete recommended 84 day total treatment course (doses varied between 12-15mg/kg/day depending on capsule availability). Liver supplements introduced after elevation in liver enzymes noted on bloodwork. Developed necrotic skin lesions at injection sites - resolved with supportive treatment. **Date treatment completed: 16** June 2023 **Current status:** stable and healthy, A/G ratio improved to 1.2 by 31 December, no relapse since cessation of GS-44 treatment
DAHAB (ITAJU 2086) Female Date of birth (approx.): 01-Nov-2021 Age at time of FIP diagnosis: 1y 5m	**Date of diagnosis: 7** April 2023 **Form of FIP diagnosed:** Wet **History and findings at time of diagnosis:** Anorexia for four days, abdominal discomfort. Pendulous abdomen and reactive lymph nodes on clinical examination under sedation. Free peritoneal fluid identified on ultrasonography - aspirate tested positive on Rivalta test. A/G ratio 0.8 on serum biochemistry at time of diagnosis **Date treatment started: 7** April 2023 **Treatment details:** GS-44 injections (30 days total at reduced dose of 4mg/kg/day due to insufficient stock to treat 2 animals)**.** Switched to GS-44 oral on 7 May 2023 when stock arrived. GS-44 oral treatment duration of 54 days total to complete recommended 84 day total treatment course (doses varied between 12-15mg/kg/day depending on capsule availability). **Date treatment completed: 23** June 2023 **Current status:** stable and healthy, A/G ratio improved to 1.2 by 31 December, no relapse since cessation of GS-44 treatment
BISHAARO (ITAJU 2073) Female Date of birth (approx.): 19-Sep-2021 Age at time of FIP diagnosis: 1y 8m	**Date of diagnosis: 15** May 2023 **Form of FIP diagnosed:** Wet **History and findings at time of diagnosis:** Abdominal pain, pendulous abdomen, suspected weight loss. Abdominal radiographs - distended stomach with full contents, gas-filled intestines. Free peritoneal fluid. identified on ultrasonography - aspirate result positive on Rivalta test. A/G ratio 0.7 on serum biochemistry at time of diagnosis **Date treatment started: 15** May 2023 **Treatment details:** GS-44 injections (14 days total at 6mg/kg/day). Switched to GS-44 oral 5 June 2023 due to development of necrotic skin lesions at injection sites which resolved with supportive treatment. GS-44 oral treatment duration of 70 days total at dose rate of 14mg/kg/day to complete recommended 84 day total

	treatment course (initial 7 days of oral treatment mistakenly given at higher dose of 42mg/kg/day due to communication error - no adverse effects were identified). **Date treatment completed: 6** August 2023 **Current status:** stable and healthy, A/G ratio improved to 1.4 by 31 December, no relapse since cessation of GS-44 treatment
KARIIR (ITAJU 2005) Female Date of birth (approx.): 01-Jan-2020 Age at time of FIP diagnosis: 3y 5m	**Date of diagnosis: 26** May 2023 **Type of FIP diagnosed:** Dry **History and findings at time of diagnosis:** Anorexic for four days, progressive lethargy and abdominal pain. Exploratory laparotomy performed on May lesions consistent with Dry FIP observed (lymphocytic plaques on spleen). A/G ratio 0.6 on serum biochemistry at time of diagnosis **Date treatment started: 26** May 2023 **Treatment details:** GS-44 injections (dose of 6mg/kg/day for two days initially); lack of expected response to treatment resulted in combination of injectable and oral GS-44 being administered (14-15mg/kg/day) for 6 days. Switched to GS-44 oral only on 3 June 2023 due to arrival of new (higher concentration) capsules. GS-44 oral only treatment total duration of 90 days at dose rate of 15mg/kg/day (recommended 84 day treatment course extended with consideration to clinical response to GS-44 earlier in treatment course). Total treatment course for Kariir lasted 98 days (14 days longer than the typical 84 day schedule). Developed necrotic skin lesions at injection sites, which were resolved with supportive care. **Date treatment completed: 17** August 2023 **Current status:** stable, A/G ratio improved to 1.2 by 31 December, no relapse since cessation of GS-44 treatment for chronic neurological condition (bilateral hypermetric forelimb gait since December 2021) ongoing with no deterioration
SIF (ITAJU 2001) Female Date of birth (approx.): 01-Dec-2019 Age at time of FIP diagnosis: 3y 11m	**Date of diagnosis:** 17 November 2023 **Form of FIP diagnosed:** Dry **History and findings at time of diagnosis:** Abnormal gait - concerns about historical forelimb fracture. Diagnostic workup performed under sedation - radiograph of abdomen revealed intestinal abnormality. Exploratory laparotomy performed to remove intestinal mass. Post-surgical recovery inadequate - not as expected, GS-44 trial initiated - responded positively within 24h. A/G ratio 0.7 on serum biochemistry at time of diagnosis **Date treatment started: 26** May 2023 **Treatment details:** GS-44 injections (three days total at 6mg/kg/day), switched to oral GS-44 on 20 November 2023 due to concerns of prolonged injections causing necrotic injection site skin lesions. GS-44 oral treatment duration ongoing, planned for 81 days to complete recommended 84 day treatment course. **Expected treatment completion date: 8** February 2024 **Current status:** undergoing GS-44 treatment as of 31 December 2023, significant improvement to health status to date. A/G ratio improved to 1.2 at time of writing

All cases were placed onto GS-44 treatment (injectable and oral forms). This medication was generously provided by a donor based in the USA, and without their assistance, these cases would likely have succumbed to the fatal nature of the FIP disease process when left untreated. To the donor, we owe our immense gratitude.

All FIP cases undergo frequent monitoring: blood samples are collected and analysed once weekly (or as needed depending on response to treatment) for the first two to three weeks after starting GS-44 treatment, then monthly for the duration of treatment. Faecal samples are collected weekly for the entire duration of treatment.

After the cessation of treatment, blood samples are collected weekly for the first two weeks post-end of treatment, then monthly for 12 months post-end of treatment. Faecal samples are collected one week post-end of treatment, then once monthly for six months, then every three months, finally syncing into the routine preventive faecal collection schedule.

Feline Calicivirus (FCV) and Feline Herpesvirus (FHV)

Viral flare ups of FCV and FHV, while previously a frequent occurrence in the population when residing at the safe houses in Hargeisa, have almost never encountered by the resident population throughout the remainder of 2023, since translocating to Geed Deeble.

Due to the lack of specialised veterinary laboratories in this region, testing (by serology or other methods) is not a possibility, so tracking the exact cause of the flare up is not possible. Differential diagnoses are made based on: the onset, duration, and severity of clinical signs and transmission of such clinical signs to adjacent enclosures.

Clinical signs for FHV observed in the resident population are typically upper respiratory in nature, manifesting as sneezing with protruding bilateral nictitating membranes, and in cases like YAKU (ITAJU 2042), facial dermatitis lesions. Clinical signs for FCV observed in the resident population are typically oral and tongue ulcers with associated pain and inflammation, hypersalivation, suspected pyrexia and reduced appetite. Treatments for both FHV and FCV are supportive in nature, including but not limited to: fluids to correct dehydration, pain relief, or antibiotics (if concerns about secondary bacterial infection exists).

All residents are vaccinated using a FVRCP killed type vaccine. The primary brand used throughout 2023 was the Elanco truFel HC2P vaccine.

A management decision has been made to bring forward all booster vaccinations to February 2024, to ensure all animals are vaccinated at the same time of year.

Rabies

No cases of rabies have been encountered in the resident population to date. All animals are vaccinated to prevent infection due to the number of potential wildlife sources residing in the CRCC area, and also for public health and safety, to prevent zoonotic transmission to CCF staff.

All residents are vaccinated using a Rabies killed type vaccine. The primary brand used throughout 2023 was the Nobivac Rabies (10 ml multidose) vaccine.

A management decision has been made to bring forward all booster vaccinations to February 2024, to ensure all animals are vaccinated at the same time of year.

Canine Distemper Virus (CDV)

Although CDV is primarily a canine viral infection, other carnivores can become infected (e.g. dogs, polecats, mongoose, etc). As such animals inhabit the Geed Deeble facility, there is a potential risk of transmission to the resident population of cheetahs. All residents were vaccinated as a preventative measure against CDV infection. By June 2023, all animals had completed a primary vaccination course.

Vaccinations were also performed with consideration to the deaths of two cheetahs during 2022, both of which experienced neurological symptoms and progressive decline in health status. Although the cause in both cases was undetermined, and testing for CDV was inconclusive, it was still a possibility. Booster doses are scheduled to be completed by the end of May 2024.

Anaesthetic Procedures and Exams

Between January and December 2023, CCF Somaliland performed a total of 59 procedures under sedation and/or general anaesthesia. (Table 53). In total there were 19 cases requiring surgical intervention (minor or major), with the remainder being diagnostic or therapeutic in nature.

Table 53: Procedures performed under sedation / general anaesthesia from January to December 2023.

#	ITAJU	Name	Sex	Date of Procedure	Reason
1	2005	Kariir	F	02/Jan/23	Oral foreign body removal - cartilage stuck in mouth
2	1950	Janet	F	12/Jan/23	Bandage change
3	1950	Janet	F	08/Feb/23	Bandage change
4	1950	Janet	F	15/Feb/23	Bandage change
5	2098	Gamma	M	16/Feb/23	Diagnostic workup due to ill health
6	2098	Gamma	M	20/Feb/23	Diagnostic workup and treatment due to ill health Dx. Gastritis
7	1950	Janet	F	22/Feb/23	Bandage change
8	2098	Gamma	M	23/Feb/23	Diagnostic workup and treatment due to ill health
9	1837	Mist	F	02/Mar/23	Laceration on lateral tarsus, left hindlimb
10	1950	Janet	F	05/Mar/23	Bandage change
11	2120	John Cheeto	M	11/Mar/23	Laceration R forelimb
12	2098	Gamma	M	15/Mar/23	Diagnostic workup due to anorexia and minor surgical procedure due to strangulation of penis
13	2087	Betty White	F	19/Mar/23	Enucleation of R eye under GA
14	2087	Betty White	F	20/Mar/23	Wound dehisced due to suture breakdown
15	2046	Dhiirin	F	20/Mar/23	Laceration R hindlimb, length approx. 10-15 cm
16	2086	Dahab	F	21/Mar/23	Bilateral blepharospasm and ocular discharge. Sedation required to examine due to temperament
17	2090	Myza	F	21/Mar/23	Unilateral blepharospasm and ocular discharge. Sedation required to examine due to temperament

18	2089	Calla	F	22/Mar/23	R forelimb lameness. Sedation required to examine due to temperament. Diagnosed embedded thorns and infected tissue
19	2087	Betty White	F	24/Mar/23	Bandage removal from the eye socket
20	2098	Gamma	M	25/Mar/23	Poor appetite, lethargy, and abdominal pain. Dx. Wet FIP
21	2099	Halo	M	25/Mar/23	Blood donor for Gamma
22	2087	Betty White	F	28/Mar/23	Bandage removal post-enucleation
23	1950	Janet	F	28/Mar/23	Bandage change
24	1950	Janet	F	5/April/23	Bandage change
25	2086	Dahab	F	07/April/23	Anorexic for 3 days, lethargic. Sedation for diagnostic workup. Dx. Wet FIP
26	SOPPA0093	Milo	M	08/April/23	Reduced pelvic mobility and musculoskeletal pain. Muscle atrophy, lethargy and reduced appetite
27	2087	Betty White	F	10/April/23	Wound cleaning and suture removal
28	2087	Betty White	F	16/April/23	Sedation required to examine due to temperament. Small but deep wound on R side neck, near jugular sulcus and ear canal.
29	1936	Orion	M	16/April/23	Pain and non-weight bearing lameness L forelimb. Diagnostic workup revealed L scapula fracture
30	1950	Janet	F	22/April/23	Radiographs pre-surgery and synovial fluid obtained for antibiogram
31	1936	Orion	M	23/April/23	Surgical intervention - obstruction due to gastric foreign body. Passed away under GA.
32	1997	Serge	M	28/April/23	Non-healing mandibular abscess
33	2123	Shukri	F	28/April/23	Non weight bearing lameness R forelimb - fracture
34	2098	Gamma	M	03/May/23	Surgery to repair non-healing wound on left hindlimb
35	1950	Janet	F	11/May/23	Orthopaedic surgery to repair historical left calcaneus fracture - ankylosis
36	1950	Janet	F	12/May/23	Severe swelling from bandage post-surgery
37	2073	Bishaaro	F	15/May/23	Poor appetite, lethargy and abdominal pain. Sedated for diagnostic workup - abdominal imaging Dx. Wet FIP
38	2127	Lily	F	17/May/23	Pelvic x-rays - odd position noticed when lying
39	IT-CCA0019	Honey	F	18/May/23	Removal of maggots and treatment of wounds
40	2005	Kariir	F	23/May/23	Sedation required to examine due to temperament. Diagnostic workup - abdominal imaging due to anorexia lasting 3 days
41	2005	Kariir	F	25/May/23	Follow up - still anorexic, lethargic, abdominal pain. Surgical intervention - exploratory laparotomy. Dx Dry FIP - lesions observed during surgery
42	2073	Bishaaro	F	01/Jun/23	Sedated to clean and debride GS-44 injection site wounds
43	1950	Janet	F	14/Jun/23	Translocation to GD under anaesthesia 4.5 weeks post-surgery ankylosis.
44	1950	Janet	F	11/Jul/23	Removal of loose screws after the second surgery
45	SOPPA0093	Milo	M	21/Jul/23	Translocation to GD under anaesthesia

46	1950	Janet	F	03/Aug/23	Surgery - left hindlimb amputation
47	2111	Echo	F	16/Aug/23	Sedated for full diagnostic workup
48	2046	Dhiirin	F	30/Sep/23	Left forelimb lameness, not responsive to conservative treatment. Sedated to examine - thorns found in paw pad and removed
49	2046	Dhiirin	F	07/Oct/23	L forelimb lameness not improved. Surgical intervention under GA to explore and remove deep embedded thorns in paw.
50	SOPPA0093	Milo	M	14/Oct/23	Full clinical and diagnostic examination - including bloodwork, radiography, ultrasonography. Indication: abnormal blood parameters, decreased appetite, reduced movement
51	2001	Sif	F	09/Nov/23	Anorexia, lethargy, reduced activity. Sedated for diagnostic workup. Radiography showed partial GI obstruction
52	2001	Sif	F	12/Nov/23	Follow up abdominal imaging (radiography and ultrasonography) - proceeded to surgery for enterectomy to remove intestinal mass
53	2001	Sif	F	17/Nov/23	Follow up abdominal imaging (radiography and ultrasonography) as still inappetant post-surgery
54	2000	Shamsi	M	23/Nov/23	Vomiting and diarrhoea. Surgery to remove small intestinal obstruction
55	2000	Shamsi	M	25/Nov/23	Follow up abdominal imaging (radiography and ultrasonography) for post-surgical monitoring
56	2071	Nasiib	M	12/Dec/23	Swelling on R elbow - increased in size. Surgery performed to clean and drain. Dx hygroma
57	2076	Kaise	M	15/Dec/23	Abnormal R sided gait particularly affecting pelvic region. Sedated for diagnostic workup (radiographs, bloodwork)
58	2111	Echo	F	24/Dec/23	Sedated for diagnostic workup due to decreased appetite, lethargy - intestinal foreign body detected on abdominal radiographs
59	2111	Echo	F	25/Dec/23	Sedated for follow up due to rapid deterioration and severe pain. Ultrasonography and abdominocentesis revealed gastric fluid in abdomen, proceeded to surgery. Passed away under GA during recovery.

Propofol was administered IV as needed, to maintain sedation for short procedures where General Anaesthesia (GA) was not indicated. It was also used to induce a deeper anaesthetic plane in cases when proceeding to a GA. Alfaxalone was used for maintenance in three cases; two patients experienced zero complications, while one fatality was experienced during a procedure that used this anaesthetic agent. Cases requiring general anaesthesia were maintained on inhalant anaesthesia (isoflurane and oxygen mixture). Reversal agents used included atipamezole for reversal of alpha-2 agonists, and flumazenil for reversal of benzodiazepines.

Procedures performed under anaesthesia - case summaries

KARIIR (ITAJU 2005) underwent numerous procedures under anaesthesia during the course of 2023. In January, sedation was required to remove a piece of cartilage (dietary origin) from her oral cavity. In May, two procedures were performed. The first occurred on 23 May, where a

diagnostic workup (abdominal imaging) was performed under sedation due to prolonged anorexia and lethargy for three days. Bone fragments were observed in the stomach on radiography during this procedure, so the second procedure was performed on 25 May after a lack of improvement in symptoms. An exploratory laparotomy was performed. Lesions consistent with FIP (splenomegaly with lymphocytic plaques) and minimal free abdominal fluid were observed. 1ml of the free fluid was collected and a Rivalta test revealed a POSITIVE result. Diagnosis of Dry FIP was concluded and GS-44 treatment initiated for 84 days (mixture of SQ injections and oral capsules).

GAMMA (ITAJU 2098) underwent numerous procedures under anaesthesia during the course of 2023. Gamma is a cheetah who is not approachable with free contact, therefore numerous sedations were required to perform clinical examinations and diagnostic procedures. During February, several sedatives were performed for diagnostic purposes, due to ongoing gastrointestinal symptoms including reduced appetite, undigested meat in faeces, abdominal pain, and sporadic lethargy; a working diagnosis of gastritis was concluded. In March, continued hyporexia and strangulation of the penis required a further anaesthesia to investigate and correct. On 25 March, a diagnostic workup (including radiographs, ultrasonography, abdominocentesis) and a positive Rivalta test on abdominal effusion (540ml extracted) results in diagnosis of Wet FIP and GS-44 treatment initiated for 84 days (mixture of SQ injections and oral capsules). On 3 May, a procedure under anaesthesia was performed to surgically repair a 1.5 cm open wound that occurred at a GS-44 injection site on the left hindlimb, lateral aspect mid-thigh; a Penrose drain was placed, which was removed (while conscious) on 8 May.

JANET (ITAJU 1950) underwent numerous orthopaedic related procedures under anaesthesia during the course of 2023, due to issues relating to a left hindlimb calcaneus fracture that occurred in Sep 2021. Failure of the first surgical repair attempt in 2021 led to a second surgical repair attempt in May 2023, thanks to the orthopaedic surgical expertise provided on-site by Dr Ross Elliot of the University of Pretoria, South Africa. On 11 May, surgical ankylosis of the joint was performed, involving a medio-cranial incision, dissection of ligaments and vessels, and an L-shaped cut in the condyles that allowed an oversized L plate to be placed on the cranial portion. A synthetic bone graft filled the small space between the bones, and three remaining wires from the first surgery attempt in 2021 were removed. At the time of translocation from Hargeisa to Geed Deeble (approximately five weeks post-surgery, Janet was sedated for transport using a protocol containing ketamine; she experienced respiratory arrest and two convulsions 10 mins apart, each episode lasting 5-15 seconds. She was stabilised with 0.25ml Atropine and recovered with no known complications. Radiographs performed during the nine weeks post-surgery revealed an inadequate healing process (Figure 81), and in August 2023 the decision was made to amputate the affected limb. Since the amputation, Janet's quality of life has increased considerably, with no obvious detrimental impact on her mobility.

Figure 81: Hindlimb radiographs, JANET (ITAJU 1950), 14 June 2023.

MIST (ITAJU 1837) was anaesthetised on 2 March, due to a laceration on the lateral tarsal aspect of the hindlimb that required suturing to repair.

JOHN CHEETO (ITAJU 2120) was anaesthetised on 11 March to suture a clean laceration, length approximately 3cm.

BETTY WHITE (ITAJU 2087) was anaesthetised on 19 March due to a foreign body (thorn) penetrating the cornea. Surgical enucleation under GA was performed due to the severity of the condition. Numerous anaesthesias were performed during post-surgery management, due to the animal's non-approachable temperament and to allow for appropriate clinical care.

DHIIRIN (ITAJU 2046) was anaesthetised in March due to a laceration on the right hindlimb, approximately length 10-15cm. On closer examination, torn muscle fibres and organic material (hair) were observed within the wound. The wound was cleaned, debrided, and sutured. In September and October 2023, two procedures were performed under sedation and GA respectively, to investigate and correct the cause of an ongoing left forelimb lameness. The cause was thorns embedded in the paw, which were extracted under GA.

MYZA (ITAJU 2090) was anaesthetised on 21 March to perform an examination to investigate unilateral periorbital swelling, blepharospasm and ocular discharge - Myza is normally non-approachable. Fluorescein stain was applied and uptake was positive with multiple pinprick areas on the corneal surface, consistent with a pattern expected with venom contact from a spitting cobra encounter. The eyes were flushed, antibiotic ointment (chloramphenicol) applied for seven days, and a dexamethasone injection administered (50% dose IV, 50% dose IM). The issue was resolved with conservative treatment.

DAHAB (ITAJU 2086) was anaesthetised on 21 March to perform an examination to investigate bilateral periorbital swelling, blepharospasm and ocular discharge - Dahab is normally non-approachable. Fluorescein stain was applied and uptake was negative. The eyes were flushed and antibiotic ointment (chloramphenicol) applied for seven days. The issue was resolved with conservative treatment. Dahab was anaesthetised again on 7 April to perform a diagnostic workup, due to prolonged anorexia lasting four days and abdominal discomfort. A diagnosis of Wet FIP was confirmed due to clinical presentation (pendulous abdomen), swollen lymph nodes,

and free peritoneal fluid which tested positive during a Rivalta test. GS-44 treatment initiated for 84 days (mixture of SQ injections and oral capsules).

CALLA (ITAJU 2089) was anaesthetised on 22 March after pronounced right forelimb lameness to allow an examination as Calla is normally non-approachable. Several embedded thorns in various paw pads, some with inflammatory discharge and others with pustular discharge. Resolved with conservative treatment including antibiotics and pain relief.

HALO (ITAJU 2090) was anaesthetised on 25 March to donate blood for a blood transfusion to Gamma, who underwent anaesthesia due to a diagnosis of Wet FIP on the same day.

MILO (SOPPA 0093) underwent numerous anaesthesias during 2023, initially to investigate musculoskeletal abnormalities affecting the pelvis. Narrowing of the thoracolumbar spine on spinal radiographs was suspected but ultimately inconclusive after discussion with external veterinary professionals. Milo was anaesthetised for his translocation from Safe House to Geed Deeble on 21 July, and again to perform a further diagnostic workup relating to abnormal blood work, reduced appetite, and abnormal hindlimb gait.

ORION (ITAJU 1936) was anaesthetised on 16 April after an impact trauma event that occurred on 13 April, where he suffered multiple fractures affecting his left scapula, after high-speed contact with a metal pole in the enclosure after chasing an enclosure mate. Anaesthesia to perform surgery on 23 April after investigations revealed a distended abdomen due to gastric foreign material (ingested hay). Sadly, Orion passed away during the surgery, after rapid decreased gastric perfusion, which was attributed to cardiac arrest at the time.

SERGE (ITAJU 1997) was anaesthetised on 28 April due to a non-healing abscess. A 0.5x0.5cm closed abscess with a small amount of pus was identified on the mandibular surface. An incision was made and two small pieces of organic material (thorn/hay) were extracted, the lesion was flushed, and resolution was achieved with conservative management.

SHUKRI (ITAJU 2123) was anaesthetized on 28 April due to severe non-weight bearing right forelimb lameness and a swollen distal forelimb. Fracture in the carpal/distal ulnar region was identified. Complete recovery was achieved with application of a stiffening cast around the carpus, restricted exercise, and pain relief.

BISHAARO (ITAJU 2073) was anaesthetized on 15 May due to intermittent anorexia, lethargy, and abdominal pain. Imaging revealed an enlarged stomach full of contents, gas filled intestines with scant contents, peritoneal free fluid which was extracted via abdominocentesis and tested positive during Rivalta test. A diagnosis of Wet FIP was made. GS-44 treatment initiated for 84 days (mixture of SQ injections and oral capsules).

LILY (ITAJU 2127) was anaesthetised on 17 May to perform pelvic radiographs, due to an unusual position being observed by staff when Lily was seen lying down. No abnormalities detected - both femoral heads present on the radiographs at the time of imaging.

HONEY (IT-CCA0019) was anaesthetised on 18 May to clean wounds and remove maggots (impregnated by flies). Eleven subcutaneous masses were identified (two on the back, two on the right hip, six on the legs and one on the chest area). Issues were resolved with conservative treatment.

ECHO (ITAJU 2111) was anaesthetised multiple times during the second half of 2023, initially in August for a full diagnostic workup due to abnormal reduced activity and inability to gain weight. No abnormalities were found during the diagnostic imaging process. In late December, Echo was anaesthetised to perform abdominal imaging after a prolonged period of lethargy, anorexia, and progressive weakness. Radiographs performed on 22 and 23 December (conscious), and 24 December (under sedation) revealed the presence of a suspected foreign mass which was not moving through the gastrointestinal tract. Due to a severe deterioration, further imaging and abdominocentesis revealed the presence of gastric contents in the abdomen; surgery was performed on 25 December, during which a perforative foreign body (thorn) was identified in the intestine. Sadly, Echo did not survive the procedure, attributed to sepsis, decreased gastrointestinal perfusion and a severely weakened health status at the time of surgery.

SIF (ITAJU 2001) was anaesthetised on multiple occasions during November, initially for a diagnostic imaging workup due to hyporexia, lethargy, and reduced activity. A partial GI obstruction was identified. After a deterioration in health status, the decision was made to perform an exploratory laparotomy. An obstructive intestinal mass was identified and removed surgically by enterectomy. A follow up diagnostic imaging procedure under sedation was performed post-surgery due to continued inappetance; GS-44 treatment was commenced and the good response (significant improvement to health status within 24-48h of starting treatment) led to a diagnosis of FIP. GS-44 treatment initiated for 84 days (mixture of SQ injections and oral capsules).

SHAMSI (ITAJU 2000) was anaesthetised on two occasions in November to investigate possible causes of lethargy, vomiting, discomfort, and diarrhoea. A deteriorating health status and a lack of response to conservative treatment (including maropitant) led to the first sedation for a diagnostic imaging workup, where a small intestinal obstruction was identified and the decision was made to proceed directly to surgery due to the health status. Follow up radiographs were performed under sedation, two days post-surgery, to assess intestinal motility and contents.

NASIIB (ITAJU 2071) was anaesthetised on 12 December to investigate and correct a swelling on the right elbow that had progressively increased in size. Surgery was performed to drain and clean the area. Based on examination of the fluid from this region, a hygroma was diagnosed and is being monitored to date.

KAISE (ITAJU 2076) was anaesthetised on 15 December to investigate sudden onset of reduced mobility, abnormal gait and right hind lameness that progressed rapidly over the previous 24h. The progression of clinical signs, and a lack of response to meloxicam and Gabapentin resulted in a radiographic assessment under sedation. No fracture or luxation was evident and after consultation with external veterinary professionals, a working diagnosis of either musculoskeletal or spinal origin was proposed. Restricted exercise was commenced and is currently ongoing.

F.3.11 Deaths, Euthanasia and Necropsies

During 2023, the resident cheetah population suffered three deaths. Two occurred during procedures under anaesthesia (ORION ITAJU 1936 and ECHO ITAJU 2111), while one occurred within the first 24h of arrival to the CRCC (CUB “B” ITAJU 2130). Table 54 summarising these cases is found below.

Table 54: Summary of deaths that occurred in the resident population during 2023.

Animal name and details	Case details
ORION (ITAJU 1936) Microchip # 953010004394348 Male 4y 2m at time of death	**Date of birth (approx.):** 01-Feb-2019 **Confiscation date:** 06-Sep-2019 **Date of death:** 23-Apr-2023 **History at time of death:** Left scapula fractured after impact trauma; ingestion of foreign material (hay) while kept in confinement during management. **Cause of death:** Suspected adverse reaction to IV alfaxalone; entered cardiorespiratory arrest (>3min), decreased gastric perfusion. Non-responsive after 3 rounds of CPR. **Significant necropsy findings:** Gastric dilation with contents (no volvulus), two fractured ribs left side thorax, multiple fractures to left scapula, congested spleen, adhesions between left lung and thoracic wall
CUB "B" (ITAJU 2130) Male 0y 4m at time of death	**Date of birth (approx.):** 13-Aug-2023 **Confiscation date:** 13-Dec-2023 **Date of death:** 14-Dec-2023 **History at time of death:** Intake on 13-Dec-2023, presented in malnourished, lethargic, weakened state. Alive and vital signs stable at last overnight check at 03:00. **Cause of death:** Found deceased at first morning check at 06:00 on 14-Dec-2023 **Significant necropsy findings:** Foreign body airway obstruction - choked on piece of meat (given prior to arrival at CRCC)
ECHO (ITAJU 2111) Microchip # 956000012181501 Female 1y 11m at time of death	**Date of birth (approx.):** 19-Jan-2022 **Confiscation date:** 18-Apr-2022 **Date of death:** 25-Dec-2023 **History at time of death:** Progressive anorexia, lethargy, abdominal pain with rapid deterioration over 4 days **Cause of death:** Intestinal foreign body perforation, sepsis, entered cardiorespiratory arrest during anaesthesia immediately prior to recovery **Significant necropsy findings:** Thorn perforating small intestine with necrotic tissue at perforation site, poor tissue viability in adjacent portions, necrotic omentum, leakage of gastric contents into abdomen, septic peritonitis

F.3.12 Butchery / Carcass Processing Inspections

During the goat butchery and meat processing, inspections of the carcasses and organs are performed by the veterinarians to assess the potential for disease transmission and zoonotic risk (Figure 82). The majority of the carcasses and organs are considered healthy and safe for animal consumption. Organs or meat that do pose a threat of disease transmission are discarded.

The most common pathology findings in the goat carcasses were:

- Caseous lymphadenitis abscessation of lymph nodes, lungs, and liver
- Liver abscessation

- Lung abscessation
- Parasitic cysts in lungs, liver, kidneys, diaphragm, heart
- Black/metallic discolouration of renal medulla
- Contamination of organs with tapeworm from gastrointestinal tract

Figure 82: Common pathological findings during butchery/processing.

Specific attention is assigned to the thorax and lungs, especially for tuberculosis and brucella lesions. Some carcasses have been found with abscess and/or suspected lesions of tuberculosis; these carcasses are typically discarded. One goat butchery all the goats were discarded due to tuberculosis found in one of the goats, unfortunately the handling of the carcass caused potential contamination of the rest of the goats. However, the majority of the animals presented to butchery have been in acceptable health conditions.

Due to several electrical problems in Geed Deeble, we have lost a lot of carcasses when they didn't freeze, or they were without refrigeration for too long, increasing the production of bacteria, causing changes of discoloration, rotting conditions with a strong smell of food not suitable for consumption. Most of the power issues have been addressed but we still have some sporadically.

The walk-in freezer is still not reliable and shuts off three times a day, therefore not keeping the temperature stable nor keeping the meat frozen. Meat is stored in the small freezers and only enrichment bones are stored in the walk-in freezer.

V. Education

Public education and the development of an active grassroots constituency are integral components of CCF's overall cheetah conservation programmes. CCF educates farmers, students, educators, public-policy makers, and the public in general on the value of sustainable practices in conservation, as well as on the importance and value of predators for a healthy ecosystem. Public education and the development of national pride in the cheetah are both critical to its survival, and other natural resources in Namibia. CCF's Education Department welcomed Shannon Kandjai who took over from Ndamonengenda Hamunyela as Education Manager on 1 February 2023.

A. Future Conservationists of Africa

During this reporting period, CCF's Education department engaged with 17,780 Namibian students from primary and secondary school levels, as well as 410 teachers in both its outreach and centre-based programmes.

A.1 Outreach Programme

The outreach programmes are tailor made for specific audiences and run for approximately 45 minutes covering CCF's research, conservation, and education efforts. They also cover cheetah behaviour, ecology, and its conservation. The presentations and talks go further into; different predator ID's, rangeland management, biodiversity as well as Human-Wildlife Conflict (HWC) mitigation strategies, collaborative management tools to sustainably live with wildlife, and the economic and environmental benefits of having healthy, and balanced ecosystems.

The Education Department visited 56 schools during this reporting period, reaching a total of 17,209 students and 352 teachers (Table 55).

Table 55: Namibian schools reached with CCF's school outreach program from January – December 2023.

Namibian School Outreach Groups				
Date	**School**	**Students**	**Adults**	**Total**
08 Feb 23	Paresis Secondary School	250	4	254
08 Feb 23	Karundu Junior Sec School	293	6	299
08 Feb 23	Osire Secondary School	33	2	35
14 Feb 23	Edugate Academy	38	1	39
14 Feb 23	Monica Geingos Sen Sec School	680	8	688
14 Feb 23	Khorab Secondary School	242	5	247

15 Feb 23	Otjiwanda Secondary School	396	10	406
15 Feb 23	Friedrick Awaseb Sen Sec School	560	8	568
20 Feb 23	Outjo Secondary School	385	7	392
21 Feb 23	Kamanjab Combined School	314	5	319
22 Feb 23	Alpha Combined School	410	12	422
22 Feb 23	Orumana Combined School	427	10	437
22 Feb 23	Putuavanga Secondary School	380	5	385
22 Feb 23	Mureti High School	410	9	419
23 Feb 23	Welwitchia Secondary School	182	6	188
23 Feb 23	Cornelius Goreseb High School	140	8	148
28 Feb 23	Martin Luther High School	275	10	285
28 Feb 23	SI !Gobs Secondary School	267	5	272
28 Feb 23	Karibib Jun Secondary School	423	9	432
01 Mar 23	Kolin Foundation Sen Sec School	267	3	270
06 Mar 23	Okakarara Secondary School	150	5	155
06 Mar 23	Waterberg Jun Sec School	215	9	224
07 Mar 23	Okondjatu Combined School	220	7	227
07 Mar 23	Coblenz Combined School	70	3	73
07 Mar 23	Okamatapati Combined School	950	15	965
15 Mar 23	Okakarara Primary School	100	4	104
15 Mar 23	Waterberg Primary School	76	1	77
29 Mar 23	Spesbona Primary School	200	5	205
29 Mar 23	Orwetoveni Primary School	166	7	173
29 Mar 23	Staraxa-Aibes Primary School	135	4	139
29 Mar 23	Rogate Primary School	240	5	245
24 Apr 23	Goreangab Junior Sec School	700	8	708
25 Apr 23	Jakob Marengo Secondary School	52	1	53
25 Apr 23	Havana High School	75	3	78
25 Apr 23	Havana Primary School	210	8	218
26 Apr 23	St. Barnabas Primary School	115	3	118
26 Apr 23	Hage Geingob High School	1183	10	1193

26 Apr 23	St Josephs R.C High School	110	3	113
27 Apr 23	Groot Aub Secondary School	160	4	164
27 Apr 23	Groot Aub Primary School	107	2	109
28 Apr 23	Augustinuem Secondary School	1030	15	1045
28 Apr 23	KhomasTura High School	800	12	812
29 Aug 23	Ludwigshafen Primary School	152	6	158
29 Aug 23	Tsinsabis Combined School	152	8	160
29 Aug 23	!Khomxa Khoeda Primary School	22	4	26
30 Aug 23	St. Francis Primary School	388	6	394
30 Aug 23	Tsumeb Sen Sec School	598	8	606
30 Aug 23	Tsumeb English Meduim School	80	6	86
31 Aug 23	Etosha Secondary School	562	9	571
31 Aug 23	Francis Galton Primary School	300	9	309
31 Aug 23	Kuvukiland Primary School	522	6	528
17 Oct 23	Osire Primary School	300	8	308
17 Oct 23	Otjozondu Primary School	260	5	265
17 Oct 23	Uitkoms Primary School	65	2	67
18 Oct 23	Oruua Primary School	153	4	157
15 Nov 22	Ludwig Ndinda Primary School	219	4	223
Total Namibian School Outreach Groups:		17209	352	17561

A.2 Centre-Based Programme

Organised education programmes at CCF during this reporting period involved 14 Namibian groups totalling 571 students and 58 teachers (Table 56).

Depending on the length of stay and the group's focus, activities included cheetah runs, museum tours, guarding dog and goat kraal talks, predator-kill identification exercises, ecological talks, and game drives.

Table 56: Namibian school groups participating in centred-based programmes at CCF, January – December 2023.

Namibian Day Visiting School Groups			
Date	**School**	**Students**	**Adults**
03 Mar 23	River Higher Institute of Technology	25	4
06 Apr 23	University of Namibia	124	2
27 May 23	Kids Club Otjiwarongo	45	3
08 Aug 23	Usiel Ndjavera Primary School	64	6
09 Sep 23	Grashoek Primary School	28	5
09 Sept 23	Theo Katjimune Primary School	40	7
11 Sept 23	Groot Aub Primary School	20	3
11 Sep 23	Nicolas Witbooi Memorial School	38	7
12 Sept 23	Okapembambu Primary School	45	5
12 Sept 23	Unam Genetics Class	41	3
19 Oct 23	Omafo Private School	45	4
23 Oct 23	NUST Engineering Department	15	2
26 Oct 23	German Private School	15	4
25 Nov	Kalkfeld Children's Centre	26	3
Total Day Visit:		**571**	**58**

A.3 Ambassador Animals

The Education Department continued to work with some of the kraal and scat detection animals to serve as Ambassadors for the different school groups that came to CCF. Sadly, Kiri, our 10-year-old female Livestock Guarding Dog (LGD) Programme ambassador, died at the beginning of the year. Bolt, a seven-year-old male took over as onsite ambassador for the LGD programme (Figure 83). The scat detection dogs also play a major role in the conservation of cheetahs and other predators and are popular with school learners for their ability to perform tricky tasks. Gameni is our onsite ambassador for the scat detection team.

By allowing children to meet Bolt and the other animals, the children can have hands-on experience, touch a dog, and a livestock animal, which in many rural areas are not well taken care of or in which many children are not always taught to take good care of the animal. Interactive experiences have always left a big impact on children, and CCF's ambassador animals work well together to represent the farming and livestock management programme as they are comfortable with small children.

Figure 83: Onsite ambassador animals with school learners. Left is Bolt and on the right is Gameni.

A.4 Camp Lightfoot

Our outreach officer, Ignatius Davids, repainted the numbers and animals on the Lightfoot huts. The facelift was welcomed as they had worn off over the years to weather conditions (Figure 84).

Figure 84: Repainted dorm numbers on the Lightfoot huts.

A.5 Higher Education and In-Service Training

CCF is committed to empowering Namibians in the conservation and protection of their wildlife. For many years, CCF has been working towards this goal by fostering Namibian college students' interest in wildlife conservation. CCF offers in-service training programmes for students from the Namibia University of Science and Technology (NUST), Vocational Training Centres (VTC) and the University of Namibia (UNAM). These students conduct research projects with the goal of producing a research paper at the conclusion of their internships. Several former interns have gone on to work at conservation organisations or for the Ministry of Environment, Forestry and Tourism (MEFT).

In addition to the in-service training students, CCF welcomes groups from Namibia's higher-education institutions to participate in programmes aimed at enriching their skills in various study areas. CCF did not host any overnight groups from Namibian based tertiary institutions during this reporting period.

B. Other Collaboration with Educational Institutions

During this reporting period, CCF Centre hosted six overnight international groups from the USA and Australia (Table 57). The groups participated in educational programmes, including game counts, lectures on HWC, cheetah runs, and tours of CCF's Centre.

Table 57: International groups attending educational programmes at CCF from January – December 2023.

Overnight International School Groups						
Date In	**Date Out**	**School**	**Country**	**Students**	**Adults**	**Total**
09 Jan 23	11 Jan 23	Colby College	USA	16	2	**18**
25 Feb 23	27 Feb 23	University of Hampshire	USA	28	2	**30**
12 June 23	21 June 23	Earth Expedition Group 1	USA	19	3	**22**
2 July 23	5 July 23	Murdoch University	Australia	14	2	**16**
21 July 23	30 July 23	Earth Expedition Group 2	USA	18	3	**21**
17 Sept 23	19 Sept 23	Dartmouth College	USA	16	2	**18**
Total Overnight International School Groups				**111**	**14**	**125**

C. Working Guests and International Interns

Working Guests are the backbone of CCF and vital in daily operations. They play an extremely important role with CCF's student interns, as they bring experience and skills with them and through daily interactions help to share and develop skills in our students. Integrating the Working Guests with student interns allows for sharing of knowledge, life experiences, cultures, and traditions. During this reporting period, CCF hosted 17 working guests.

In addition to 19 Namibian student interns, CCF welcomed 38 international student interns from the USA, UK, Ireland, Canada, France, Italy, Australia and Germany. The interns were trained in veterinary medicine, zoology, ecology, wildlife science, animal science, environmental studies, and genetics.

D. Future Farmers of Africa

CCF's Future Farmers of Africa (FFA) programme is crucial in CCF's mission to educate farmers about coexistence with predators. HWC and wildlife management training are among the most important aspects of this programme. This training covers topics such as predators in the ecosystem, kill identification, negative effects of poaching, and livestock health.

During this reporting period, CCF engaged a total of 124 farmers and community members in its FFA programme from Okatjoruu, Coblenz, and Okondjatu in the Okakarara District.

E. Conferences, Workshops and Other Activities

E.1 Namibia Environmental Educational Network (NEEN)

The NEEN Conference took place at Hardap Dam NWR Resort from 05 - 08 October 2023. The theme for 2023 NEEN Conference was "The Role of Learning and Agency in the Transition to the Decarbonisation of the Namibian Economy and the attainment of the Sustainable Development Goals (SDGs)".

CCF was represented by Ignatius Davids from the Education Department at the conference (Figure 85). CCF had an information booth set up which attracted a lot of participants who wanted to learn about the work we do in mitigating human-wildlife conflict and about our conservation education programs. We also presented our conservation work at the research and education centre.

Figure 85: CCF Educator Ignatius Davids with participants from the 2023 NEEN conference (Left) and CCF's information booth (Right).

E.2 Environmental Education Association of Southern Africa (EEASA) Conference

The 41st EEASA Conference took place from 18 – 22 September 2023, in Pretoria, South Africa. The theme for this year was "Education, Advocacy and Action to Advance ESD in Southern Africa". Education Manager, Shannon Kandjai attended the conference and gave a PowerPoint presentation on "An integrated approach to conserving the cheetah at CCF" (Figure 86).

The conference was attended by 235 representatives from South Africa, Namibia (CCF and NaDeet), Botswana, Malawi and Zambia. Numerous sessions, led by dedicated chairs, touched on diverse topics, from biodiversity conservation, plastic waste management to the role of technology in strengthening ESD and the power of community-based research.

The conference was a great opportunity to learn from other organizations and to network. The conference ended on a high note of emphasizing the significance of partnerships and collaborations in achieving Sustainable Development Goals and advancing ESD.

Figure 86: CCF Education Manager presenting at the EEASA Conference.

F. International Cheetah Day

This year, International Cheetah Day (ICD) was celebrated on Sunday 3 December to allow as many people as possible the opportunity to celebrate the day with us. CCF celebrated the ICD by hosting an open day, where staff and interns had booths to educate visitors about the different departments at CCF.

The ICD open day was promoted around the town of Otjiwarongo, targeting mostly the local schools and businesses. There were also promotions on the morning NBC TV show "Good Morning Namibia" where Utarera Katjavivi and Tangeni Shaama represented CCF (Figure 87). ICD was also promoted on various radio stations in local languages like Oshiwaambo, Otjiherero, Afrikaans, Khoikhoi Gowab, Rukwangali and English were done by different CCF staff members.

Figure 87: CCF Staff members Utarera Katjavivi and Tangeni Shaama promoting ICD on national TV and radio stations.

There were a total 136 people who turned up for the ICD open day, majority being school children. All departments had information and activity booths which presented a fun and informative way to learn how the different departments work together to conserve the cheetah. An intern from France presented on the acoustic and vocalizations of cheetahs, which gave participants the opportunity to listen to the different sounds that cheetahs make in different environmental/social conditions.

Visitors had the opportunity to win prizes if they were able to complete all the activities from all the booths. A total of 63 people were able to complete all the activities and entered the draw for the grand prize, a Cheetah Drive for five people. Other participants walked away with a bag of Bushblok, creamery hamper and a CCF T-shirt and cap.

VI. Structural Activities

A. Namibian Facility Developments

A.1. Existing Structural Projects and New Projects

This reporting period saw continued investment in the CCF Namibia infrastructure. Improvements include:

- Main campus security camera system assessed and brought back to full operation with additions in key areas of risk.
- Steam Bio Africa biomass processing plant delivered and assembled. Commissioning is ongoing.
- 300kW PV array and 240kVA/860kWh power system installed to support the operations of Steam Bio Africa. 280kVA diesel genset delivered and installed as standby.
- Six-unit housing block constructed at the BTDC to house Steam Bio related personnel. Includes four single rooms with ensuite bathroom units and two apartment units with bedroom, living room, kitchenette and ensuite bathroom.
- New signage put up for Steam Bio Africa and the BTDC
- Control room constructed for Steam Bio plant. This houses the control panel and HMI panel for operation of the plant as well as desk space and a camera monitoring system.
- BTDC break area moved and expanded with more environmental protection, additional seating and more removed from operations.
- Steam Bio Africa woodchip management shed was erected.
- 20m x 35m chip processing slab poured adjacent to the Steam Bio Plant. This slab intakes all biomass woodchips from the field, it is then screened into three different sizes for use in the Steam Bio plant and with BushBlok
- Containerized sewage treatment plant modified to increase intake holding capacity. Output holding capacity also increased by 8,000L. Use frequency has increased.
- BTDC training room porch expanded and covered.
- Cheetah View Lodge Units 1-5 renovated. All cracks repaired, fresh coat of paint on all internal and external walls. Minor leaks found and repaired; floors refinished.
- Main centre entrance bricks re-laid at a higher elevation to prevent flooding in the rainy season.
- Livestock Guardian Dog pens renovated with double lined fencing to prevent escapes. Three additional pens added.

- Bush clearing and roadwork was begun to establish a new 200ha cheetah compound on Elandsvreugde Farm.
- Wi-Fi coverage improved for south staff including access point upgrades at Hotspot and the dormitory.
- Boskop worker housing Wi-Fi coverage is in progress. CVL Wi-Fi coverage improved in July.
- Wi-Fi coverage expanded to BTDC training room and new BTDC housing units.
- Boskop power distribution improvements to eliminate overload issues. Three phase cable installed for the main house to spread load more evenly.
- Extensive roadwork and firebreaks were undertaken by the heavy equipment (bulldozer, road grader). This included extensive gravel laying on all roads in and around the main campus.
- Stairwell and guardrails installed at lodge units 6/7.
- Babson kitchen cabinets, veranda cabinets and main access door renovated.
- The older house at Farm Cheetah View was renovated.
- A duplex housing unit at North Staff Area was extensively renovated.
- New road created between leopard road and reserve entrance for access to six bush plots that have been established for a multiyear biodiversity survey.

A.2 Automotive

Vehicles and tyre repair continue to be an expensive and time-consuming problem at CCF. Table 58 lists CCF's vehicles and their condition in December 2023.

Table 58: CCF's vehicle fleet and each vehicle's status in December 2023.

Vehicle	Status
Safari vehicles	
Safari Green cruiser	Running
Safari Small white cruiser	Running
Safari white ford	Running
Safari White Toyota cruiser	Running

Allocated Vehicles	
Toyota GD6 D/cab (Bruce & Laurie)	Running
Toyota GD6 C/cab (Scat dog)	Running
Toyota GD6 C/cab (Gebhard)	Running
Toyota s/cab base (Facilities Engineer)	Running
Toyota Land cruiser s/cab Farm manager	Running
Toyota Land cruiser d/cab (clinic)	Running
Toyota Land cruiser s/cab (APU)	Running
Toyota Land cruiser s/cab (Assistant Farm Manager)	Running
Toyota legend c/cab Education outreach	Running
Toyota legend c/cab Husbandry	Running
Toyota GD6 Single cab Brown (storeroom)	Running
Nissan N5947OT (EU)	Running
Nissan N4456OT (Tika)	Running
Nissan N7025OT (CCF East/ Gobabis)	Running
Nissan N7032OT (Education)	Running
1997 Toyota 22R (Tracking)	Running
1987 Toyota 4Y (ecology)	Running
White Isuzu KB (used by Bush Block in town for Pickups)	Broken/being repaired
Farm Vehicles	
Brown Toyota D4D d/cab (Farm vehicle)	Running
White Land Rover Defender (farm vehicle Janhelpman)	Running
Tata s/cab (farm vehicle)	Broken/being repaired
Silver Toyota D4D (farm vehicle)	Running
Brown Toyota 3F land cruiser (mechanics vehicle)	Broken
Toyota 4y (old scat Dog vehicle)	Broken
Toyota raider Petrol Rebuild (Uri) (Janhelpman farm)	Running

Silver Isuzu Kb Single cab (Padberg farm)	Running
Toyota Raider (Janhelpman farm)	Running
Staff Transporters	
Quantum Minibus #1 (staff transport)	Running
Isuzu Truck (staff transport)	Running
Trucks	
Mercedes- Benz Truck (Janhelpman Farm) (old)	Running
Isuzu Truck (Janhelpman Farm) (Transport of material)	Running
Mercedes- Benz Truck (Material transporter from and to town)	Running
Electric Golf carts	
Tourism	Running
Tourism management	Running
Kitchens	Running
LSGD program	Running
Clinic	Running
Bruce	Running
Cheetah team	Running
Engineering team	Running
Biomass	Broken/ being repaired
John Deer UTV/Gator (petrol operated)	Broken (in for repair)
Skid steers	
Gehl V400	Broken/being repaired
Gehl R150	Running
John deer 332	Running

CAT 289D (Bruce)	Running
CAT 289D YV8N57	Running
Heavy Machinery	
D6 Bulldozer	Running
12K Road grader	Running
Tractors	
Big John Deer 6603	Running
Small John Deer 5775E	Running
Messy Ferguson 290	Running
Messy Ferguson 290	Running
Messy Ferguson 290	Running
Messy Ferguson 6711	Running
Old small Messy Ferguson 135	Running
Old small Messy Ferguson 135	Running
Big Messy Ferguson 680 4x4	Running
John Deer 2140	Broken
Trailers	
Skid steer Trailer	Working
Diesel Trailer	Working
Clean water 2500l Trailer	Working
Grey water 2500l Trailer	Working
Grey water Trailer (old)	Working
3x Tractor tipper Trailers	Working
Manure spreader Trailer	Working
4x old Bush tipper Trailers	Working

Others	
Blue V-Mac Bush Harvester	
2x Hay Baler	Working
Hay grass rake	Working
3x Bush Movers	Working
Big butterfly grass mower	Working
Seed planter	Working
Gandini woodchipper	Working
Heizohack woodchipper	Working
Morbark woodchipper	Working
Forklift (Bush Block)	Working
Husqvarna ride on Mower	Working

B. Staffing

B.1 CCF Namibia Staff

CCF Namibia employs a total of 165 people. The technical staff are listed below.

Laurie Marker, DPhil – Founder and CEO

- Barth Bali – Cheetah Ranger
- Ana Basto – Veterinarian
- Anne-Marie Bekker – Business Manager
- Bruce Brewer, PhD - General Manager
- Johan Britz – Farms & Biomass Manager
- Tanya Britz – Controller
- Raul Carlos – Executive Chef
- Cameron Carver – Facility Engineer
- Bogdan Cristescu – Asst. Director Ecological Research

- Ignatius Davids – Education and Tourism Officer
- Modesta Fabianus – Animal Technician
- Karin Falk – CCF Accountant
- Mercelin Gawanas – Veterinarian
- Sebronia Gephard - Ecology
- Johan Gibson - Assistant Farm Manager
- Hafeni Hamalwa – Laboratory Manager
- Tim Hofmann – Scat Detection Dogs
- Simeon Heita – Creamery
- Immanuel Helao – Engineer
- Eveline Ikondja – Small Stock
- Wilma Immanuel – Cook
- Job Iyambo – Tour Guide & Cook
- Secelia Iyambo – Cook
- Bianca Jacobs – Tourism Manager
- Ruan Jacobs – Tourism Assistant
- Becky Johnston – Studbook Keeper
- David Kadhila – Engineer
- Ester Kalenga - Ecology
- Frans Kambanda – Mechanic
- Shannon Kandjai – Education Manager
- Veisy Kasaona - Community Programs Assistant
- Utarera Katjavivi – Ecologist
- Himeezembi Kuhanga – Tourism Assistant Manager
- Johannes Kweyo – Small Stock Assistant Manager
- Johanna Lukas – Veterinary Technician
- Tracy Maketo – Tourism

- Mike Mikael– Small Stock Assist
- Justin Moya – Cheetah Keeper
- Elifas Nashini – Cheetah Keeper
- Matti Nghikembua – Forest Steward & Chief Ecologist
- Gebhardt Nikanor – Education and Tourism Officer
- Calum O'Flaherty – Livestock Guarding Dog Program Manager
- Kennedy Pendukeni - Cook
- Lea Petersen – Chief Cheetah Keeper
- Lauren Pfeiffer– Personal Assistant to the Director
- Annetjie Pointenin – Educator
- Johnny Roi – Equipment Operator
- Chrizelda Sawas – Tourism
- Anne Schmidt-Küntzel, DVM, PhD - Research Geneticist & Asst. Director for Animal Health and Research
- Nafimane Shapi – Cook
- Abraham Shihepo – Biomass Technician
- Teresia Shihepo - Genetics
- E. Shipiki – Mechanic
- David Shipingana - Forestry and Safety Officer
- Tryves Shivolo – Tour Guide
- Francsina Simson – Creamery
- Winnie Skryer – Tourism
- Heike Stackmann - Volunteer Co-ordinator and Public Relations Officer
- Jappie Swartz – Stockman
- Carolina Torres - Ecologist
- Vistoria Tushemwe – Veterinary Technician
- Anastasia Turenko – Genetics Lab Technician

- Tjipena Tuuandi - Tourism Guide
- Stijn Verschueren – Ecologist
- Johannes Viljoen – Educator
- Hanlie Visser – Creamery
- Paul Visser – Estate Manager
- Eli Walker – Ecologist
- Lukas William - Chef
- Hanlie Winterbach – Carnivore Research

B.2 CCF Global Staff

B2.1 Untied States of America

In 2023, CCF hired two new individuals to assist with Development and Fundraising. Current staffing as of 31 December 2023 is as follows:

- Brian Badger – Director of Conservation and Outreach
- Lexi Beaty - Development Associate
- Jennifer Johnson - Senior Development Manager (Major Gifts and Corporate Outreach)
- Susan Kauffman - Constituent Relationship Manager
- Paula Martin – Executive and Development Assistant
- Heather Ravenscroft - Digital Media and Graphic Design Manager
- Dr. Indrani Sasmal – Grants Program Director
- Robert Skidmore - Director of Operations and Finance
- Jessica Sorrentino - Development Associate
- Dionne Stein – Development Manager (Events and Special Projects)

B.2.2 Israel

- Shira Yashphe, DVM – Director of Wildlife Crime and International Policy

B.2.3 United Kingdom

- James Hanaway – Development Director
- Zilá Motta – Social Media Manager
- Matt Smithers – Head of Fundraising

VII. Organisational Activates

A. Fundraising

A.1 Namibia

A.1.1 Board of Governance

In March the annual financial audit was performed by the Namibian firm of Grant Thornton and Neuhaus. On 11 August the Forest Stewardship Council (FSC®) conducted the annual audit and certified our forestry activities as sustainable. The CCF Namibia Annual General Meeting was held on 11 October in Windhoek.

A.1.2 Fundraising

Grants

In 2023 CCF Namibia was fortunate to receive direct contributions from partner organisations in the United States, United Kingdom, Australia, Canada, France, Italy, and from an EU grant to the biomass operations.

A.2 International

CCF has registered charitable organisations in the US, Australia, Belgium, Canada, Italy, and the UK. CCF also has fundraising partners in France, Germany and the Netherlands. All CCF's partner organisations promote education, fundraising and conservation awareness.

A.2.1 CCF USA

Board of Governance

During this period, the USA Board of Directors and Trustees had four meetings via teleconference: 3 March, 2 June, 1 September, and 1 December. Seven resolutions were passed during these meetings. Resolutions and Dates are listed in Table 59 below:

Table 59: Resolutions passed from 1 January to 31 December 2023.

Number	Date Passed	Resolution Title
1109	3-March-2023	Resolution to Recognize Restricted and Designated Funds (4th quarter 2022)
1110	3-March-2023	Resolution to Authorize Changes to Accounts with First Republic Bank

1111	2-June-2023	Resolution to Recognize Restricted and Designated Funds (1st quarter 2023)
1112	2-June-2023	Resolution Accepting 2022 Audited Financial Statements
1113	1-Sep-2023	Resolution to Recognize Restricted and Designated Funds (2nd quarter 2023)
1114	1-Sep-2023	Resolution to Establish Accounts at Rockefeller Capital Management
1115	1-Dec-2023	Resolution to Recognise Restricted and Designated Funds (3rd quarter 2023)

All committees of the board are meeting regularly and have been reporting at board meetings.

Operations

CCF continues to rent an office at 200 Daingerfield Rd., Suite 200, Alexandria, VA 22314. Most CCF employees do not work within commuting distance of the office, so remote work has been a part of the CCF culture prior to Covid-19.

Rogers & Company, CPAs, conducted CCF's annual audit for 2022 and completed the process in June 2023.

CCF transferred our investment accounts from First Republic to Rockefeller, where our long-time investment counsellor, Mary Hayes, now resides. We completed the transfer process in September 2023.

Fundraising

CCF USA set the goal of raising US$4,372,500 for 2023 including revenue from all sources. The total revenue raised towards reaching that goal was US$5,305,131 (unaudited - Table 60).

Table 60: Fundraising goals versus actual funds (USD) from 1 January – 31 December 2023.

Campaign	2023 Goal	Actual	Difference
Bequest	360,000	1,429,360	1,069,360
Book Sales	2,500	180	-2,320
Chapter Events	110,000	32,372	-77,628
Chewbaaka	700,000	651,094	-48,906
Designated	900,000	1,028,964	128,964
Endowment		20,000	20,000
Fall	60,000	90,498	30,498
General Merchandise	1,000	2,189	1,189

Gift In Kind		28,150	28,150
Fall Tour	300,000	234,918	-65,082
Spring Tour	250,000	137,665	-112,335
Namibian Merchandise	4,000	3,431	-569
Newsletter	70,000	126,683	56,683
Recurring	145,000	138,561	-6,439
Sponsorship	160,000	137,210	-22,790
Spring	160,000	36,482	-123,518
Volunteer Fees Namibia		39,393	39,393
White	300,000	188,222	-111,778
Year End	850,000	979,759	129,759
Totals:	4,372,500	5,305,131	932,631

Campaigns

The CCF's Annual Fund Campaign includes four direct mail appeals: the Spring Appeal, the Chewbaaka Memorial Challenge, the Fall Appeal, and the Year-End Challenge. Each direct mail appeal includes several mailing components to targeted audiences during the time period of the appeal and supported with e-mail solicitations. In addition to these major campaigns, several smaller, independent e-blast efforts are incorporated throughout the year, as well as two printed newsletters, two electronic newsletters, and two electronic 'Notes from the Field'.

Appeals

Spring Appeal

An initial mailing to 10,553 USA subscribers was sent in March 2023 that included various levels of the high, medium, low and non-donors segmentations (Table 61). Spring Campaign letters were sent and targeted to annual and recurring donors. The campaign raised US$36,482.

Chewbaaka Challenge

An initial mailing to 10,628 USA subscribers was sent in July 2023 that included various levels of the high, medium, low and non-donors segmentations (Table 61). A second effort was mailed to 2,917 USA subscribers in August 2023. The campaign raised US$651,094.

Fall Appeal

An initial mailing to 10,810 USA subscribers was sent in October 2023 that included various levels of the high, medium, low and non-donors segmentations (Table 61). Fall Campaign letters were sent and targeted to annual and recurring donors. The campaign raised US$90,498.

Year- End Challenge

An initial mailing to 8,495 USA subscribers was sent in November 2023 that included various levels of the high, medium, low and non-donors segmentations (Table 61). A second effort was mailed to 4,323 USA subscribers in December 2023. The campaign raised US$975,311.

Table 61: Number of donors giving year-end in each stage in 2022 versus 2023. Includes individual donors only.

Donation Amount in US Dollars	Number of Donors YE 2022	Number of Donors YE 2023
1 - 49	1,192	864
50 - 99	785	626
100 - 249	1050	1001
250 - 499	407	416
500 - 999	283	300
1,000 - 2,499	247	257
2,500 - 4,999	65	50
5,000 - 9,999	37	46
10,000 - 19,999	38	26
20,000 - 49,999	19	20
50,000 - 74,999	1	4
75,000 - 99,999	1	0
100,000 and above	2	1

Cheetah Sponsorship

Total revenue from cheetah sponsorships in the USA for 2023 at Year-End was US$137,210. Bi-annual video updates on 32 of CCF's resident cheetahs as well as CCF's releasable cheetahs and Livestock Guard Dogs are scheduled to be sent out in early July and late December 2023. Many of our appeals and Facebook posts promote cheetah sponsorships.

Newsletters and e-Blasts

Cheetah Strides

Two 'Cheetah Strides' newsletters were mailed in 2023. Issue no. 25 was mailed in March 2023 to 10,924 people and Issue no. 26 was mailed in September 2023 to 15,474 people in the USA, generating $126,683.

Dr. Laurie Marker's 'Notes from the Field'

Alternatively, with 'Cheetah Strides', CCF sent out three 'Notes from the Field' e-letters worldwide. The Mid-Year e-letters were sent in the months of February, April, and June to between 22,489 to 30,776 subscribers. The number of subscribers in the mailing lists has fallen due to the new General Data Protection Regulation (GDPR) rules for the European Union (EU) that requires consent given from the constituents that are in the database that allows CCF permission to send communications to them.

Chapter Events

Complementing Dr. Marker's visits to the US, regional chapters have been encouraged to support events during tour as well as throughout the year to spread the word of CCF in their regions. Brian Badger, CCF Director of Conservation was a keynote speaker who backed Laurie's 2023 tours and shared his holistic conservation message in Portland, Denver, Michigan as well as in his hometown in Ohio. In 2023, these events were supported and shared with Social Media posts, community calendar invites, and lots of friend-sharing via email and text. The total revenue for these events for Year-end 2023 totalled $ $141,450.38 which includes Spring & Fall Tous, the online auction and speaking engagements and events that Dr. Marker attended in person in these regions, and several "education only" events. There are a total of 14 Chapters with the new additions of Nebraska, Tennessee and Louisiana.

Welcome Series e-blasts

An automated Welcome Series e-blasts are sent to new constituents as they are added to the database. The Welcome Series includes a total of five emails that focus on these topics: Welcome to CCF, Educational Programming at CCF, Human-Wildlife Conflict Solutions, Research Program at CCF and CCF Survey questionnaire.

Management of Constituent Information

CCF continues to track more information on each constituent record in our donor database system, Raiser's Edge. All email blasts, mailing campaigns, and phone calling campaigns are tracked through Raiser's Edge. Each individual record shows the communications sent and the responses received from that constituent. All web donations, events registration and Email

marketing are processed and managed now through Blackbaud's Online Express (OLX) that fully integrates with the Raiser's Edge. There are 113,284 constituent records in the Raiser's Edge database. There are 18,745 USA email subscribers and 14,233 USA subscribers on the appeal mailing lists. The creation of our online auctions remains hosted through Bidding for Good.

Designated Giving/Grants/Awards

CCF has been focusing on applying for some Foundation grants as well as United Kingdom Government grants, Global Environmental Facility Grants, European Union Grants, Rotary Club Grants, and Canada Government Grants based on the needs of different programs in Somaliland and Namibia. Beside applying and researching for new grant opportunities, CCF has been involved in monitoring and evaluating as well as managing the ongoing grant funded project. Some of the new grants that CCF has applied between January 2023 to December 2023 include One Earth Grant for $50,000, Happy Hollow Zoo Grant for $25,000, Columbus Zoo grant for $10,000, Arthur L and Elaine Johnson Foundation (25,000), Department of Environment, Food and Rural Affairs (DEFRA) UK Government's Illegal Wildlife Trade Program for £1.5 million, and DEFRA Darwin Initiative Grant for £600,000 among others. The Phase 1 proposals for both the DEFRA grant applications were successful, following which we submitted the Phase 2 applications for both pending final decisions. We are also working on a strategic planning document for grants. The active grants that CCF is managing are as follows:

CCF received a six month no cost extension on a 2-year grant from **International Union for Conservation of Nature (IUCN)** Save Our Species Funds in the amount of €246,500 for the project "Assessing Community Based Natural Resource Management (CBNRM) and Conservancies in Somaliland'' from January 2022 to December 2023. The purpose of the project is to assess the viability of adapting Namibia's CBNRM approach and conservancy model for Somaliland and to determine if these strategies can help rural communities mitigate conflict with wildlife and reduce wildlife crime while building local governance systems and increasing community resilience. This funding initiated the process of Conservancy development in Somaliland for Community Based Natural Resource Management following Namibia's and Kenya's model. The LICIT II is a continuation grant initiated through the IUCN grant.

This is the second year of the 3-year grant CCF received from **Department of Environment, Food and Rural Affairs UK Government's Illegal Wildlife Trade Program** in the amount of £593,587 for the project "LICIT-II: Legal Intelligence and Community Governance for Cheetah Illicit Trade" from July 2022 to June 2025 in Somaliland. This project will enhance national and regional capacity in the Horn of Africa to fight wildlife crime by leveraging gains made through the LICIT project (IWT-066). In addition, proposed community conservation governance will increase community capacity and ownership over wildlife resources, thereby tackling human wildlife conflict driving IWT. Developing new capacity and ownership over wildlife resources, thereby tackling human wildlife conflict driving IWT. Developing new wildlife crime information and intelligence exchange platforms, and strengthened national and regional level legal capacity will allow national enforcement agencies to work better together and, with neighbouring jurisdictions, to stop IWT. We submitted the yearly report to the funder and received a very positive response about the status of the project.

This is the second year of another five-year grant that CCF received from the **United States Fish and Wildlife Service** in the amount of $1,000,000 for the project "Creating systems to monitor wild cheetahs and determine drivers of illegal trade in the Horn of Africa" from September 2022 to August 2027. We propose to develop an intensive, multidisciplinary monitoring and analyses strategy for cheetahs to understand the source of cheetah cubs and drivers of the cub trade in the HoA. We have been able to work with the Government of Somaliland, Puntland and Ethiopia to begin working on this project and the project has shown good progress. The camera trap study in Somaliland will begin this year.

CCF has also received a six-month no cost extension for a one-year grant from the **Rainforest Trust** in the amount of $96,716 for the project "Somaliland Geed-Deeble National Park creation for the cheetahs in Somaliland" from January 2022 to December 2022. The purpose of this grant is to help create the first officially recognized, properly legally gazetted and fully operational National Park Protected Area (PA) in Somaliland in line with international standards, Geed-Deeble National Park. CCF field team has been able to survey the proposed project area of Geed-Deeble and surrounding area designated for Phase 2 and Phase 3 development in CCF-Somaliland's Master Plan, and were able to deploy camera traps to document the wildlife species present in that area. So far, we have received very interesting findings from some of the camera trap data which includes confirmation of wild cheetah presence in that region. We have been able to complete the amended and new laws and regulations regarding Protected Areas in Somaliland in alignment with the international laws and regulations which will be presented in the Parliament for approval. We have support for the laws and regulations of Protected Areas from the Somaliland Government and anticipate them getting passed in the parliament to be implemented soon towards fulfilling the grant activity. The Protected Area boundary demarcation activity has been planned to be carried soon in collaboration with the Somaliland Government. The next step is the formation of the Geed-Deeble Protected Area which Rainforest Trust has previously shown interest to continue funding.

This is the final year of the funding that CCF received from the **European Union** grant in the amount of €235,452 in partnership with Deutsche Welthungerhilfe e.V. (WHH), a German Organization with a branch office in Somaliland, for the project "Engaging Somali communities to improve wildlife trafficking and forest crime control" from June 2022 to May 2024. The proposed project action will, for the first time in Somaliland, merge established anti-trafficking and area protection methodologies to achieve sustainable reduction of wildlife trafficking and forest crime and mutual reinforcement of rural livelihoods and conservation in Somaliland (the overall objective). The action will 1) build on previous efforts by CCF and WHH and 2) provide targeted support to fill capacity gaps that will enable progress toward the overall objective.

The list below (Table 62) provides information on how much funding has been raised through Grants and Designated Giving between January 2023 to December 2023. CCF's future strategy is to continue searching for grant opportunities and funders to apply for more grants relevant to the CCF project needs for achieving CCF's strategic goals. Some of the potential funders we are planning to target are Johnson Foundation, Canadian Government Grant, European Union Grants, and National Science Foundation. We will continue seeking funds from IUCN, Rainforest Trust, and other current funders.

The list below also provides designated funds that were raised through targeted campaigns and asked by the development team in the USA.

Table 62: Awarded Strategic Ask/Designated Giving and Awarded Grants/Proposals from January – December 2023.

Gift Date	Gift Amount	Gift Reference	Name
20-Jan-2023	$27,010.00	Restricted for Golf Carts	Bruce Brewer
26-Jan-2023	$10,000.00	Enhancing conservation education program in rural schools of Namibia. Date of Award: 20 Dec 2022; Funds Awarded: $10,000/3yrs; Grant Period: Dec 2022 - Dec 2025	Columbus Zoo & Aquarium
26-Jan-2023	$10,000.00	Nutritional support for confiscated cheetahs in Somaliland. Date of Award: 20 Dec 2022; Funds Awarded: $10,000; Grant Period: Dec 2022 - Dec 2023	Columbus Zoo & Aquarium
15-Feb-2023	$100,000.00	Designated for Somaliland - $60K Fencing; $20K Food & Medical Care; $20K Veterinary & Keeper Staff	Elinor Patterson Baker Trust
16-Feb-2023	$25,000.00	Designated for education centres and FFA training of women pastoralists in Somaliland. Women's Livelihoods in Somaliland ("the Project") and Somaliland Centre	One Earth, Inc (Daughters for Earth)
17-Feb-2023	$20,836.43	Restricted for Engaging Somaliland communities to improve wildlife trafficking and forest crime control	EU-WHH (Welthungerhilfe)
28-Feb-2023	$150,000.00	Restricted for Sponsorship of Global Cheetah Summit 2023	NEOM
13-Mar-2023	$10,000.00	John and Kellie Lehr. Designated for One Health. John Lehr is matching Martine Work and (FHREE)'s donation. She said that she would donate to the Rabies program if CCF would find a match.	John F. Lehr
24-Apr-2023	$58,098.97	Legal Intelligence for Cheetah Illicit Trade Grant (LICIT Grant)	Department for Environment Food & Rural Affairs (DEFRA)

28-Apr-2023	$10,000.00	Designated for CCF Rabies Program	Foundation for Human Rabies Education & Eradication (FHREE)
26-May-2023	$77,534.91	Legal Intelligence for Cheetah Illicit Trade Grant (LICIT Grant)	Department for Environment Food & Rural Affairs (DEFRA)
30-May-2023	$30,000.00	Designated for the "Horn of Africa Survey"	U.S. Fish & Wildlife Service
16-June-2023	$27,177.76	Legal Intelligence for Cheetah Illicit Trade Grant (LICIT Grant)	Department for Environment Food & Rural Affairs (DEFRA)
3-July-2023	$25,000.00	Designated for Somaliland Cheetahs confiscated from the Illegal Wildlife Trade	Bronx Zoo/Wildlife Conservation Society
14-July-2023	$61,180.19	Legal Intelligence for Cheetah Illicit II Trade Grant (LICIT Grant)	Department for Environment Food & Rural Affairs (DEFRA)
21-July2023	$75,564.98	CMS - TFCA Protocol	CCF UK
20-July-2023	$15,000.00	Expenditure - CCF Somaliland - EU restricted donation $15K	EU-WHH (Welthungerhilfe)
16-Aug-2023	$15,000.00	Expenditure - CCF Somaliland - EU restricted donation $15K	EU-WHH (Welthungerhilfe)
12-Sep-2023	$62,049.21	Restricted	U.S. Fish & Wildlife Service
14-Sep-2023	$5,000.00	Restricted	AZA Association of Zoos and Aquariums
2-Oct-2023	$56,785.34	Legal Intelligence for Cheetah Illicit II Trade Grant (LICIT Grant)	Department for Environment Food & Rural Affairs (DEFRA)

23-Oct-2023	$2,926.71	Restricted - Travel to Namibia for Robert Skidmore	Brooks H. Browne
23-Oct-2023	$10,000.00	Restricted - Food Storage and Preservation Support in Feeding Confiscated Cheetahs in Somaliland	Columbus Zoo & Aquarium
23-Oct-2023	$10,000.00	Restricted - Enhancing Conservation Education Program in Rural Schools of Namibia	Columbus Zoo & Aquarium
23-Oct2023	$15,000.00	$5K Designated for Teresa Delaney Scholarship Fund 2024 and $10K YE matching fund drive. Perhaps allocate this to LM's October event in Portland per Steven Eklund	Steven H. Eklund
12-Dec-2023	$10,799.00	Restricted for Assessing Community Based Natural Resource Management (CBNRM) and Conservancies in Somaliland	IUCN SOS
13-Dec-2023	$20,000.00	Expenditure - CCF Somaliland - EU restricted donation $20K	EU-WHH (Welthungerhilfe)
13-Dec-2023	$20,000.00	Expenditure - CCF Somaliland - Rainforest Trust restricted donation $20K	Rainforest Trust
22-Dec-2023	$40,000.00	Designated for 'General Managers Discretion at CCF Namibia (IRA distribution)	Bruce Brewer
31-Dec-2023	$4,000.00	Designated for Rabies Program and for YE Challenge Match	Martine J. Work
31-Dec-2023	$25,000.00	Designated for Future Conservationist of Africa program delivery among Somaliland students (FCA Somaliland)	Arthur L. and Elaine V. Johnson Foundation

Corporate Giving

Standard strategic tasks have been designed based upon existing ongoing programs. The team continues to develop template proposals with basic CCF information, allowing for Fund a Need type content based upon feedback from the field and strategic program plans.

Corporate Giving continues to work closely with Grants to identify the best prospects for which identified projects and needs. It is important to note that we do receive discounts from many companies that are reducing our costs, therefore improving our bottom line. We are working on a process to quantify the true valuation of their support.

The team began the planning stages of the 2024 Fundraising Plan which will rework and refine the previous global corporate development plan in cooperation with the international affiliate CCF organizations. A pipeline of lapsed and new prospects will be prioritised and cultivated, in partnership with the communications, grants team and corporate strategy subcommittee members.

Additional Highlights:

- Finalised a partnership agreement with Joeyy Toys out of India who will produce a series of age-appropriate cheetah puzzles from which a percentage of sales will benefit CCF with expectation of the puzzles being ready by Spring 2024
- Chantecaille, with much stewardship of this long-time corporate supporter, will be creating a campaign around the Cheetah in 2024 as part of their endangered species collection. They select one of their conservation partners approximately twice a year to do a promotional and informational campaign. There is a permanent eyeshadow called cheetah from which Chantecaille donates a percentage of sales to CCF quarterly.
- Third Party funding mechanisms such as Benevity include matching gifts Company/Employee giving. Additionally, have included Facebook to show another Third-Party funding mechanism which is not a true Corporate Donor but is listed as an organization within the reporting. The second half of the year should have messaging educating donors on employee matching opportunities.
- AmazonSmile has eliminated this giving program as of April 2023.

Events

CCF Year-end Report, Spring 2023: Let's Make the Wild a Better Place **Fundraising Tour**
Dr. Marker's North American fundraising tour for 2023 was the second in-person tour since 2020 following the Covid pandemic. Dr. Marker travelled from Namibia and Somaliland to the USA to support the endangered cheetah with numerous VIP events celebrating the theme, "Let's Make the Wild a Better Place." The national tour started on 18 March and lasted for six weeks ending on 30 April. Dr. Marker flew from the East Coast to West Coast visiting nine states and 17 cities.

The VIP fund raising events were hosted by CCF Board of Directors and Trustees in the following major cities: Washington, DC., New York, Denver, Seattle, Los Angeles, San Francisco, San Diego with the addition of Tampa, FL. Each sponsoring host of the respective areas donated a special amount ranging from $5,000 to $20,000 to be matched by the CCF attending guests. This VIP challenge match was very successful with each fundraising event reaching its goal for the spring tour challenge. Outside of the USA, Dr. Marker attended a special Canadian event hosted by B2Gold in Vancouver, BC which garnered over $45,000.

In conjunction with this year's spring tour, CCF also fundraised through the annual CCF Online Auction raising $25,683, the Spring Appeal and Cheetah Strides in which all donations captured support CCF's ongoing research and conservation programs in Namibia for the endangered cheetah.

The Spring Let's Make the Wild a Better Place fundraising revenue totalled $128,250.11 (Table 63).

Table 63: Fundraising amounts by cities during the Spring Let's Make the Wild a Better Place Fundraising Tour.

Event	**Amount**
Amy Tan Dinner - NYC	$ 42,210.00
Animal Ark - Reno NV	$ 4,095.00
Central Florida Zoo	$ 3,045.00
Cynthia Smoot/Laura Nachbur - Tampa FL	$ 400.00
David Dolan Dinner	$ 2,420.00
Explorer's Club Award Dinner	$ 600.00
General	$ 50.00
Katie Adamson Con Fnd/Wildlife Protection Solutions	$ 1,875.00
Kris and Drew Willison - DC	$ 1,220.00
LA (Studio City) - Feldstein and Shipp Hosting	$ 2,900.00
Lesley Ewing - EC Chapter Mtg	$ 115.00
Linda Pauer Dinner - Santa Cruz	$ 4,270.00
Meetah Cheetah Dinner OKC (Sanders)	$ 5,500.00
Palazzolo - So Cal - Huntington Beach	$ 165.00
Regis University - Denver	$ 4,258.74
San Diego Humane Society	$ 7,465.00
Stephen Edmonds Event - Centennial CO	$ 4,650.37
Structure Cellar Winery - WA	$ 30,220.00
Vashon Island - Cocktails and Dinner	$ 250.00
WCN	$ 2,045.00
Whale Watching	$ 10,496.00
Grand Total	**$ 128,250.11**

The Fall, Let's Make the Wild a Better Place fundraising tour revenue totalled $217,400.38 (Table 64).

Table 64: Fundraising amounts by cities during the Fall Let's Make the Wild a Better Place Fundraising Tour.

Event Date	Event Name	Total
17-Sep	Empress Yacht	$51,600.00
23-Sep	Reid Park Zoo	$1,115.00
24-Sep	Benefit at Culinary Dropout & Phoenix Zoo	$2,054.00
28-Sep	Fundraiser at The Meeting house	$19,584.00
30-Sep	Book Signing and Meet Greet	$1,590.00
3-Oc	Thaden School	$10,320.00
7-Oct	Living Desert	$130.00
7-Oct	Cody Place Clubhouse	$21,249.00
9-Oct	Orfila Winery	$2,513.95
13-Oct	WCN Expo	$560.00
15-Oct	Safari West	$4,285.00
22-Oct	Fundraiser at Erath Winery	$11,450.00
28-Oct	CCF Benefit Georgetown DC	$38,605.00
11-Nove	Paint Night at Narative Fermentations	$1,500.43
Public:		**$166,556.38**
23-Sep	Jordan Sacks	
24-Sep	St Louis Event	$1,260.00
2-Oct	Conservation, Conversation, Coffee & Cheetahs	$6,055.00
4-Oct	Sara Nicholes	
6-Oct	Meet and Greet with Dr. Laurie Marker in San Diego, CA	
8-Oct	Brunch at Jake's San Diego, CA	$15,074.00

20-Oct	Blanco Denver Restaurant Fundraiser	$225.00
26-Oct	Fundraiser at National Sporting Library Museum Middleburg, VA	$8,210.00
30-Oct	Brown & Brown	
30-Oct	The Barn Miami	$1,870.00
31-Oct	Miami Zoo	$5,320.00
1-Nov	An Evening with Dr. Laurie Marker in Tampa, FL	$12,075.00
2-Nov	Harvard Club	
3-Nov	Ann Passer NYC	$250.00
7-Nov	Happy Hollow Zoo Talk	$505.00
Private:		**$50,844.00**
TOTAL:		**$217,400.38**

Chapter Events

Arizona Chapter

- Planned Meetings (12 times): 5-8 active members, Added two new members
- Attended Inner Chapter Meetings Monthly
- CCF's Annual Online Auction - Contributed four items, Monies raised: $2,625
- Earth Day- 15 April 2023 @ Phoenix Zoo, Educational booth -Staffed by two volunteers & supported by a chapter member/Phoenix Zoo employee
- Fall tour with Laurie - 23 September 2023 @REID Park Zoo/public, approximately 125 attendees, Merch table staffed by five volunteers (chapter & Cheetah Kids') Monies raised: $2,115.00 (donations & merchandise)
- Fall tour with Laurie -24 September 2023 @ Phoenix Zoo/in-house event, approximately 75 attendees - Merch table staffed by three volunteers, Monies raised: $650 (donations & merchandise)
- Fall tour with Laurie - 24 September 2023 @ Culinary Dropout Restaurant/public, approximately 55 dining supporters, Monies raised: $375 (% of food sales & donations)
- International Cheetah Day - 2 December 2023 @ Phoenix Zoo, Educational booth, Cheetah Zookeeper chats by chapter member/Phoenix Zoo employee, Staffed by five volunteers

- International Cheetah Day - 3 December 2023 @ REID Park Zoo, Educational booth, Staffed by three volunteers
- Jordan/Kevin's Arts and Crafts Booth – various dates Oct. – Dec. 2023, Namibian jewellery & book sales, staffed by two to three volunteers, Monies raised: $120
    - Total AZ Chapter Monies raised: $5,885

Colorado Chapter

- Chapter meets Quarterly and a few volunteers attend the All chapter Zooms
- 2023 Spring Tour Fundraising Events with WPS & KACF Monies raised: $1,708, Stephen Edmonds Monies raised: $5,705 and Regis University Monies raised: $4,108 all events supported by chapter volunteers.
- 3 June 2023 - Keenesburg Wildlife Sanctuary community outreach table and crafts, raised: $ 660.00
- CCF's Annual Online Auction, multiply items Monies raised: $727
- Fall Tour cancelled - Dionne Stein and Brian Badger met with donors at Blanco & Chapter Restaurant Fundraiser 30% proceeds to CCF Monies raised: $225
- Chapter in-person, (merchandise & educational) Monies raised: $75.00
    - Monies raised: $13,148

Indiana Chapter

- Kristen Latzke-assisted with updating all Chapter Fundraising documents.

Louisiana Chapter

- NEW - Emma Sumpter, December 2023

Michigan Chapter

- Spring Event -projected for Fall Tour with Dr. Laurie Marker 2023,
    - Total MI Chapter Monies raised: $19,584

Nebraska

- Jackie Halsey-new chapter started
- First meeting held in March 2023
- "Conservation Boutique" inside of Omaha's Henry Doorly Zoo, Volunteer Run
    - Total NE Chapter Monies raised: $260

Northern California Chapter

- Chapter members have variably attended monthly All Inner Chapter Zoom's
- Whale watching event Monies raised: $10,496.00
- San Jose Paint Night, Monies raised: $1,500.00
    - Total North California Chapter Monies raised: $15,496.00

Southern California Chapter

- Spring Tour Event at San Diego Humane Society on 25 March ($ 7465.00)

- Hidden Meadows Children's Fair on 22 April (educational booth)
- Hidden Meadows Seller's Fairs monthly from May onwards (May=$62)
- CityFest Hillcrest on 13 August ($144.15)
- The Living Desert ($130)
- Cody Place Clubhouse Event ($21,249)
- Orfila Winery Event ($1293.95)
- Kendra Scott for ICD ($247.28)
    - Total SoCal Chapter Monies raised: $30,987.23

Texas Chapter

- Held 12 monthly online meetings
- Online Chess Tournament Monies raised: $300
- CCF's Annual Online Auction Monies raised: $100
- Attends Monthly All Inner Chapter Zooms, 5-10 Active Volunteers
- Planning 2024 as a children's and youth chapter moving forward
    - Total TX Chapter Monies raised: $400.00

Tennessee

- New Chapter started in 2023
- CCF's Annual Online Auction Monies raised: $125
- Attends Monthly All Inner Chapter Zooms-still recruiting more volunteers
- Memphis Zoo relationship established
- Attended ICD at Memphis City Zoo and local cheetah's (Dapper & Donovan's birthday party) on 20 September 2023.
- Facebook Birthday/Giving Tuesday Fundraiser ($103) raised.
    - Total TN Chapter Monies raised: $223.00

New York Chapter

- Team walked at the WCS Fundraiser at Bronx Zoo
- CCF's Annual Online Auction, Monies raised: $1,565
- Active with seven chapter volunteers who attend the All Inner Chapter Zooms & hold monthly meetings
- Ann Passer, 3 November 2023, Monies raised: $250
- Kids Juried Art Contest, 11 November 2023, Monies raised: $345
- Chillin' for Cheetah - 3 December 2023. Polar plunge, Coney Island. Money raised: $3,096
    - Total NY Chapter Monies raised: $ $5,256

Minnesota

- New - 1 September 2023 - The Minnesota Chapter was officially started. One active volunteer

Portland

- Attends Monthly All Inner Chapter Zooms
- Erath Monies raised: $12,032 - Chapter Led Fall Tour Event Dionne Stein/Brian Badger
    - Total NY Chapter Monies raised: $ 12,032

Washington, DC

- Established and does not meet regularly.
- Supported Fall Tour in DC with Dr. Laurie Marker, Monies raised: $38,605
    - Total NY Chapter Monies raised: $38,605

Accumulative Chapter Fundraising Totals: $141,450.38 to include tours, online auctions and miscellaneous fundraising activities not limited to educational booths, and fundraising activities.

A.2.2 Ationsgemeinschaft Artenschutz (AGA) e.V.

AGA was able to show the cheetah exhibition all together 10 times at schools, fairs, the zoo Magdeburg, the NaturVision film festival, the library in Moeglingen and Wilhelma (in September and December).

Through two matched fundraisers at the online-fundraising platform betterplace.org AGA was able to raise about 6,500 Euro for cheetah conservation. AGA was also able to secure another donation of 2,000 from the Serengeti-Park Zoo. AGA has held some auctions with Europe's largest online auction platform “United Charity” in March, October and December 2023. It was possible to raise 4,465 euro for cheetah conservation.

AGA was able to secure a grant of the 24-good-deeds Advent calendar. The project “care for cheetah babies in Somaliland” made it into the 2022 advent calendar. We received 53,888 euro in 2023. We submitted three proposals for detection dog projects. One proposal was submitted to the Heidehof Stiftung. Unfortunately, we received a rejection. The second proposal was submitted to the SEZ (Stiftung Entwicklungszusammenarbeit BadenWürttemberg) for 19,835 euro. Unfortunately, we received a rejection for this grant proposal. The third proposal was submitted to the German Postcode Lottery for 28,935 euro. AGA has once again received a donation of 12,300 euro from Konrad Mayer and Peter Scheufler Stiftung. Together with other donations, we were able to send 132,550 euro for cheetah conservation in Namibia and Somaliland.

Throughout the year AGA used its social media channels, a newsletter tool at the online-fundraising page betterplace.org, AGA´s mail newsletter, homepage and email newsletter to inform its donors and raise awareness and donations for cheetah conservation. In December AGA promoted the International Cheetah Day on social media and highlighted it on AGA´s website. Birgit was interviewed for a podcast from DeineTierwelt for International Cheetah Day.

A.2.3 Cheetah Conservation Fund Australia (CCFA)

During 2023, Cheetah Conservation Fund Australia received an AU$5,000 donation from ZOOSSA and an AU$1,880 donation from Taronga Conservation Society, which added to the regular donations from The Henry and Cecilia Foundation, Goodwill Wine and a number of private donors,

enabling us to send AU$10,000 to CCF Namibia, while preserving an adequate balance in Australia. CCF Australia also received funding from the National Zoo and Aquarium (in Canberra) this year.

In February, ZoosSA hosted their annual gala dinner, with the funds going towards cheetah conservation for the first time this year. Previous years, the gala dinner has raised funds for rhinos and hippos. CCF's Lauren Pfeiffer was invited to the gala as a special guest to share more information about CCF's programs and the work that is being done in Namibia and Somaliland to save the cheetah. CCFA's director, Michelle Lloyd was also in attendance as a representative of CCF Australia and as the Senior Cheetah Keeper at Monarto Safari Park. The event was a great success and CCF Australia expects to receive an additional donation from ZoosSA from the monies raised at the Cheetah Gala.

Also in February, Lauren travelled to Sydney to visit with the Director of Wild Cat Conservation Centre to continue the discussion about building a partnership between the two organisations, after initial communication started in the second half of 2022. CCFA director, Steven Prasses, joined Lauren for a tour and meeting with the Director of the Wild Cat Conservation Centre. The meeting was successful and we look forward to working with the Wild Cat Conservation Centre. While in Sydney, Lauren and Steven also had a meeting with Taronga Conservation Society about developing a partnership with them after CCFA received a large donation from them earlier in the year. There is promising future development between CCF and Taronga Conservation Society and an opportunity to submit a grant application during the first quarter of 2024.

Lauren also had the opportunity to visit the new Sydney Zoo, during her time in Sydney and had a meeting with David French and Mauritz Basson from Sydney Zoo. However, at this stage Sydney Zoo is not interested in working with CCF despite positive interactions when Steven and Tom Lewis (CCF Australia supporter) visited the site in 2019 while the zoo was still under construction.

Due to limitations of the original Facebook page, the decision was made in June 2023, to create a new Facebook page, "Cheetah Conservation Fund Australia – CCF Australia" to overcome these limitations. With the launch of the new Facebook page, we have been able to share more information about the work that is happening in Namibia and Somaliland, and the work throughout Australia by our Australian zoo supports to save the cheetah. However, the number of people following the page still remains low at the end of 2023. We are hoping to encourage more people to follow the new Facebook page in 2024.

In September, long term director Ruth Wetter resigned after 10 years of service to CCF Australia. The vacant Director's position was filled by Lauren Pfeiffer, who has been working alongside the CCF Australia Directors since mid of 2018.

The Executive Board are still working on ways to promote CCF more in Australia. We are continuing to hold monthly meetings and publish our own newsletter, Cheetah Spots, a couple of times throughout the year. Lauren is also sharing with Australian visitors who visit CCF Namibia about joining CCF through CCFA.

A.2.4 Cheetah Conservation Fund Canada (Cheetah Canada)

Funds Transferred

We have moved to making two transfers each year, in an effort to reflect the funds that are being generated by Vanier College interns. In the first few months of 2023, we transferred CDN$164,609

to CCF Namibia and CCF Somaliland. This equates to roughly US$122K, US$10K of which was transferred to support the care of cheetah cubs in Somaliland.

Events and Outreach

Vancouver, April 2023 – B2Gold Head Office

In April, during a visit to Vancouver, Dr. Laurie Marker was the guest speaker at a fundraising event hosted by B2Gold, a company operating in Namibia, and one that takes its environmental commitment seriously. The event was attended by leaders in business and the broader public sector in greater Vancouver, as well as our long-time donors and supporters from the area.

The CEO of B2Gold, Clive Johnson, welcomed the attendees, noting that "We've always had the idea that we can leave a community better off than before we got there. We met Laurie and CCF, and we quickly became kindred spirits in what we were looking to do in Namibia."

The event was fully sponsored by B2Gold, including expenses for all CCF staff. With the silent auction, the event raised close to $18,000.

The B2Gold team is nearing completion of a professional quality video that will highlight the work of CCF in Namibia and the partnership between the two organizations to enhance conservation of the cheetah.

Update on Somaliland for Canadians

We held an online town hall in April with our donors and supporters from across Canada to update them on CCF's work. Brian Badger was the featured speaker and he provided an excellent and timely update on the work in Somaliland, benefiting from the time he spent in Somaliland earlier this year.

We edited his presentation to share with our supporters. https://youtu.be/es1X232zHNU

Education – Canadian students

Vanier College Delegation Visits Interns at CCF Namibia

CCF Namibia has welcomed quite a few Canadian students from Vanier College's Environmental and Wildlife Management and Animal Health Technology programs this spring. The Vanier College collaborative project began in earnest in January and continued into May, providing ten students (in groups of two and three) with 5-6 weeks of internship experience at CCF.

Under the leadership of Dean Alena Perout, an eight-person delegation from the College visited CCF Namibia in April to learn about all aspects of CCF's work, especially the student intern program. Brandee Diner, Program Coordinator, Environmental and Wildlife Management, who is the key liaison between Vanier and CCF, also joined the delegation.

This is the first full year in this multi-year partnership, and there is a very good chance that the intern opportunities will expand across other disciplines at Vanier College.

Ontario Vet College – Number 1 in Canada

Three vet students from Guelph University's Ontario Veterinary College (OVC), travelled to CCF Namibia in August, as part of the College's Global Vets international program. Three students spent a month at CCF Namibia. OVC's participation in the student intern program, through the Global Vets program began in 2017.

One of the early student leaders, now Dr. Jaden Dales, is profiled in the just-published "Cheetah Tracks".

Cheetah Fit Challenge 2023

We launched our third Cheetah Fit Challenge that took place in September. Our goal this year was to raise $35,000 to care for the cheetahs in Somaliland.

24 Good Deeds selects Cheetah Conservation Fund Canada. Our charity has been chosen again to be part of this advent calendar fundraiser in Canada. The 24 Good Deeds project started in 2011 in Germany, and has expanded to a number of countries including Canada. We were selected and our fundraising focus will be on the feeding of puppies in the LGD program at CCF.

A.2.5 Cheetah Conservation Fund United Kingdom (CCF UK)

Fundraising Highlights

1. Campaigns: IWT in Q1 raised over £17,000 and FFA in Q2 with a target of £10K.
2. Grants:
    a. £2,000 for cheetah care, another five proposals for cheetah care submitted to UK Trusts awaiting outcomes.
    b. Submission to Rufford Foundation for £6,000 as follow on to previous grant for genetics research, outcome expected soon.
3. Conservation Circle: £4,000
4. Upgrading Databases and Fundraising Platforms:
    a. Database of supporters and donors now transferred to Raisers Edge (Hosted by USA but free to CCF UK)
    b. Donorbox new donation platform, easy reporting on donations attached to each event, appeal and income stream.
5. Direct Mail: Waiting on GDPR legislation to come into effect, ETA November, then we will be able to double our existing email audience to 6000 and more easily add others to the database
6. Corporate and Zoos:
    a. £5,000 from Anglo American Ambassadors for Good – education in Namibia
    b. £13,700 from Glencore
    c. £1,200 from Dartmoor Zoo
    d. £4,000 pledged from Exmoor Zoo to be used as matched funding for Big Give campaign in November and December.
7. Legacies: Two legacies for a total of £24,000
8. Adoptions, Membership, Sponsorship

   a. Adoption offering ready early, soft launch in summer with big push for Christmas Gift market in November once database is bigger.
   b. Membership to be added for this push too with offer of free Adoption if people join at £8 per month
9. Events:
   a. Engagement event held 29 June with over 40 guests including Volunteers, Conservation Circle supporters, Partners, HNWI and new prospects.
   b. Race for Cheetahs: people to take part at Schools, Works, Running Clubs etc. Launch in July
   c. CCF Namibia Fundraising Trip in October 2023, 10 visitors raising £2,000 each target £20,000
   d. Fundraising event to be held in November with Princess Michael of Kent and Laurie attending. Target £50,000.
   e. Laurie's visit: Small dinners and other events at exclusive venues to engage HNWI and a talk at the Big Cat Sanctuary

PR, Filming and Social Media

1. PR:
   a. Mail on Sunday YOU Magazine – agreed opportunity for a feature story on Lily Ludovici Gray (star of "Made in Chelsea") TV show, with many followers about adoption of Lily the cheetah plus content from Dr. Laurie Marker. Support will be requested through adoptions/ sponsorship to be published in November in line with Christmas gift market push
   b. Giles Clark CCF UK Trustee and Wildlife TV Presenter: Giles will be fronting 12 episodes of a wildlife series produced by the BBC and funded by National Geographic and Disney. CCF and the cheetah will be featured in one episode most likely filming in Somaliland. James to look at marketing fundraising opportunities off the back of filming.
2. Social Media
   a. Facebook: Increase of 940 followers (+16.1%) to give a total of 6,600, with an engagement rate of 11.1%. Cheetah stories performed extremely well on Facebook, especially those featuring anything to do with cubs. Wildlife photographer takeovers also did well as did a eulogy post
   b. Instagram: Increase of 216 followers (+5.7%) to give a total of 3,100, with an engagement rate of 19.4%. Our most popular posts were a mix between wildlife photographer takeovers, cheetah stories and trivia.
   c. Linked In: Increase of 90 followers to give a total of 668, with an engagement rate of 13.3%. The most popular posts were a mix between cheetah stories, jokes, trivia, donation asks and supporter stories - the most mixed bag out of all of our profiles.
   d. Twitter: Increase of 37 followers (+2.27%) to give a total of 1,700, with an engagement rate of 10.4%. Our most popular Twitter posts were a mix between cheetah trivia, jokes, wildlife photographer takeovers and cheetah stories. Our World Wildlife Day post also performed well, which would have been due to a trending hashtag.

CCF UK Organisational Update

1. Volunteers: Fundraising presentation, posters and other materials made available for their use and target for them to reach out to local groups – Rotary's, WI's etc and promote Adoptions and Membership when ready.
2. Director of Development: James Hanaway from the Big Cat Sanctuary joined CCF UK in February 2023 tasked with building all income streams with support from Matt Smithers (part-time Individual Giving consultant) and Hannah Mulvany (part-time Social Media/Digital consultant).

Finances

1. Income January to May 2023: £83,580
2. Expenditure: £32,084 (consultant fees)
3. Funds sent to CCF: Total £61,191 (an additional £52,000 will be sent in July)
    a. £35,000 to CCF Somaliland for cheetah care and £3,191 for analysers and equipment
    b. £23,000 to CCF Namibia (LGD)

A.2.6 Cheetah Conservation Fund France (CCF France)

In February 2023, the second CCF France newsletter was sent out to all supporters and donors. During May and June 2023, CCF France was busy with conferences in schools in Les Moulineaus with école de la philantropie and a school fair in Doué la Fontaine.

CCF France also has a good relationship with Zoos in France. In June, Beauval Zoopark donated 5,000 euros, which was sent to CCF Namibia. In June, CCF France was invited to have a stand at Bioparc Zoopark to raise awareness and to sell jewellery. In August, Arcachon Zoopark and Auvergne Zoopark both invited CCF France to have a stall to sell jewellery and raise awareness about CCF programs.

Recruitment

The recruitment of two new administration potential council members is still ongoing by the end of this reporting period.

Projects

02/2023 Partner O Anrigot - Communication about CCF in MONACO with the Education Ministry for a donation for CCF (7,000 euros from O Anrigot needed to start the project (crowdfunding & Rothschild Foundation) stand by

03/2023 Play for Nature Pascal Pierre French Rugby International World & Cup Finalist - How to raise funds for NGOs by involving high-level sport?

Network Development

Follow-up: young people met IUCN Congress & School Vet Students & Help or questions from CCF France members 2022.

05/2023 Danish CCF in Europe: Contact with Dansk Zoologisk Selskab (work with Lea Petersen CCF).

23/08 2023 Play for Nature

- CCF candidate for a Donation in 2023 for 4000 euros
- CCF must show we link cheetah to sport,
- CCF events with race for cheetah and a communication showing the parallel between cheetah and sport

07/2023 CCF France Mailing Campaign for 600 French visitors in CCF Namibia since 2016 to be relaunched in 2023 Entreprises : Tratel + Ministry of the Environment in France: + Sport and Cheetah: Michel Dufour Sports Physiotherapist and Writer

Voldalen éditions

CCF France 2021-2023

PARTNAIRS

Tyger: 93 euros en 2022

Donations

Beauval / BIOPARC / Safari de Peaugres/ Planète Sauvage / + Arcachon/ + Auvergne Park (talk ongoing).

Play for Natures and the NGOs, including CCF France, have a collective interest in getting together to create a French event. This event would be centred on nature and biodiversity and jointly animated by Play for Nature and the NGOs. This annual event would be first and foremost a celebration for Nature and its NGOs, and would be centred on sports and culture.

A.2.7 Cheetah Conservation Fund Italy (CCF Italia)

During 2023, we mainly worked for CCF Somaliland, organizing items to be shipped from Italy thanks to our cooperation with an Italian NGO. However, we had some interesting events during the year:

Our education Program was followed by five new schools (the secondary schools near CCF Italia's office) in 2023. The presentation was appreciated, and the teachers asked to continue in 2024 involving both Primary and Secondary School. The students all made Cheetah masks on 4 December and sent them to us. The 2024 program will take place in February and March.

On Italian Tv RAI "GEO" afternoon program on 20 April 2023, Betty introduced the situation of the cheetahs in Somaliland, with some comments about the Project in India, underlining the need to promote support in all areas.

On 28 October, Betty was invited by LIPU, the Italian League for the safeguard of birds, in Milan to talk about CCF. Along with her lecture, Betty was also able to sell some CCF t-shirts to help raise money for CCF. It was a brilliant day.

Again, on TV for the 4 December Cheetah International Day in Rome, Andrea Melandri introduced on “GEO” the latest news about CCF in Namibia and Somaliland. The TV show had a national audience which allowed us to reach more people. We received donations and also registered new members after the broadcast.

We sold as usual our 100 calendars from October to December, kindly donated by our Board Member Raffaella Giavazzi.

We helped the student Luna Pantusa from Venice University Ca'Foscari, (Master in Wildlife Management) to prepare herself for the internship at CCF Namibia. Having contacts also with the two teachers responsible for the Wildlife Management Master, we would like to continue promoting CCF at the University for student internships at CCF Namibia.

During 2023, we tried to be more involved with the tourists and visitors of CCF Namibia in donating or becoming members of the Italian association. We succeeded, and still send out Mailchimp newsletters and emails to all addresses (1000 more or less).

Our biggest highlight for 2023, was being able to send all the items that CCF Somaliland CRCC had asked for. It's been difficult at times, but we decided to choose only and foremost Italian products, with 100% Italian manufacturers, unless differently requested by the Project Manager in Geed Deeble (i.e. Daninject cartridges are imported from Denmark). The good quality/price ratio has been confirmed by Somaliland staff. All of the donated items arrived safe and sound in somaliland. We would like to acknowledge Mr Maurizio Gatti from Terre Solidali (NGO) for his massive help during the customs operations upon arrival.

CCF Somaliland provided us with a wish list for donations. These are the donations in kind during 2023:

- First shipment: These are the items we shipped at the end of March from Italy to Somaliland:
  1) 3 boxes of DANINJECT CO2 16 gr. cartridges (total of 36 pieces) - 106,14€
  2) Rete Plastic cutters, carabiner hook, hog ring gun top, galvanized hog rings – 436,80€
  3) Terremerse fence wire 75,000kg – 192,15€
  4) Transformer – 99,99€
  5) 2 cases of Hi-Spec set steel drill bits - 14, specifications DT40283 - 54,97€
  6) Customs fee: 42,80€
  7) Dr. Max Neo Calcium AD3 powder 89,94€
  8) Chainsaw STIHL MS 189 - 312,50€
  9) Alkaline Batteries Amazon Basics 2 boxes – 33,26€
  10) Cake Mould, plum-cake mould, cake tray for the kitchen

  Amount of this shipping: 1368,55€

- Items that were sent in the second shipment in September:
  1) 1 Scale: GRIFOVET SOEHNLE mod.6858 for Vet Clinic – 550€
  2) 1 Bar scale for outdoor: NUOVA BIEMME Srl - 1300€
  3) 1 Borehole submersible Pump by CAPRARI 1611,92 €
  4) 1 box multiport hub USB adapter – 25,98 €
  5) 3 boxes HI-Spec drills (99x3 pieces)- 135€
  6) 4 Daninject CO2 anaesthesia cartridges (x12 each)- 190,32 €
  7) Terremerse fence wire 14 2,2 mm 4.000.000kg. - 7617.60€ * (Paid by CCF) * (still stand-by at shipping agency) *

Total amount paid by CCF Italia: 3813,22€

- Items that were sent in the third shipment in December 2023 - on standby due to Red Sea Issues

1) 3,2m Y Standards x 600 - About 3.6 ton weight, 1,6mm Binding Wire 50kg x 30 rolls – 1. Terremerse, 2mm Binding Wire 50kg rolls x 30 rolls – 2. Terremerse - 5472,60€ *(Paid by CCF US)*
2) 12V Deep cycle battery x 10 – Progetto 2050: 1686,10€ (Paid by CCF US)
3) Electric fence tensioner x 600 – Reteplastic - 594,30€
4) Double insulated wire 500m - DATAMARS – 382,50€
5) Aluminium fence post paint 20l x 30 - About 600kg weight RUST-Oleum - 6400,00€ (CCF US)
6) Transport fee: 183,00€
7) GRIFOVET special kitten and dog food: 751,68€

Total amount paid by CCF Italia:3414,58€

CCF Italia donated a total of 9096,35€ during 2023.

B. PR, Marketing, and Media

B.1 Social Media

B.1.1 Facebook

@CCFCheetah: As of 31 December 2023, CCF's Facebook page has 252,429 followers, up from 252,173 on 31 December 2022.

- The post with the most reactions (5,963) this reporting period, was a video of confiscated cheetah cub "Lily" sleeping in recovery from 19 April.
- The post with the second most reactions (5,408) this reporting period, was a video of Scarlett's release into Erindi Private Game Reserve from 16 September.

@DrLaurieMarker Fan Page: Dr. Laurie Marker's Facebook page is primarily photos of Dr. Marker with visitors and focuses on sharing the work of CCF from Dr. Marker's perspective. As of 31 December 2023, Dr. Marker's Facebook page has 5,756 followers.

- The post with the most reactions (164) this reporting period, was a video of Dr. Laurie Marker before she left Namibia for travel.

B.1.2 Twitter

@CCFCheetah: As of 31 December 2023, CCF's Twitter page has 23,272 followers, up from 23,156 on 31 December 2022. CCF pays a monthly charge of $8 US for Twitter Blue verification.

- The post with the most likes (948) this reporting period, was a video of the cubs in India from #ProjectCheetah on 29 March.

B.1.3 Instagram

Instagram is a social media site for photo/image sharing. Posted photos use hashtags to be collected into groups and searchable within the site. As of 31 December 2023, CCF's Instagram has 45,209 followers, up from 41,502 followers, on 31 December 2022.

- The post with the most likes during this reporting period was an image of a wild cheetah cub taken by Corey Raffel with the hashtag #WildlifePhotography on 9 May.

B.1.4 TikTok

TikTok is a social media platform that allows users to create, share, and discover short-form videos, ranging from entertainment to educational content. CCF began its TikTok account in July 2022. As of 31 December 2023, CCF's TikTok account has 30 followers from 17 posts with 7,259 total video views.

- The post with the most engagements (likes, comments, and shares) during this reporting period was a video of a mom and cub with 64 likes and one share.

B.1.5 Pinterest

Pinterest is a social media site where users can collect online content from anywhere on the internet and curate "walls" on which they display this content. Pinterest is used by teachers to collect lesson plans from each other, and by people interested in cooking, DIY (Do it yourself) and crafting. As of 31 December 2023, CCF's Pinterest page has an audience of 211,760 users, up from 113,580 users on 31 December 2022. CCF's pins had 290,680 impressions and 10,110 engagements this reporting period, up from 155,270 impressions and 5,350 engagements on 31 December 2022.

B.1.6 YouTube

YouTube is a media platform that allows users to post and view video content. As of 31 December 2023, CCF's YouTube Channel has 31,400 subscribers down from 31,600 subscribers on 31 December 2022. CCF's content has gotten 65,061 views during this reporting period, up from 42,104 views.

- The post with the most reactions (151) was a video of cheetah "Aasha" released into Kuno National Park on 19 May.
- The post with the second most reactions (134) was a video of the cheetahs released into Geed Deeble on 27 February.

B.2 Website

B.2.1 Google Search Console and Google Analytics

Search by device from 1 January 2023 - 31 December 2023:

- 186 thousand Clicks on CCF's content from Google's search engine results across all platforms (desktop, mobile, and tablet)
- 19.2 million Impressions of CCF's content from Google's search engine results, across all platforms (desktop, mobile, and tablet)
- CCF's average position in Google's search results for desktop users is 9.6
    - Desktop position is 13.4
    - Mobile position is 7.1
    - Tablet position is 7.3

Site traffic by device from 1 January 2023 - 31 December 2023:

Total pageviews: 442,000

Total users: 198,000

Returning users: 2,000

- 58,041 Desktop users visited CCF's site
- 43,597 Mobile users visited CCF's site
- 3,000 Tablet users visited CCF's site

B.2.2 Navigation

Focus on promoting the three main desirable actions for users to the website: donation, visitation, and volunteerism. The kids' page and learn about cheetahs page are also desirable destinations on the website. The top performing pages accurately reflect our target focus areas for this reporting period.

Total Pageviews Across Website: 1 January - 31 December 2023 - 424,057 pageviews

- /learn/about-cheetahs: 1 January - 31 December 2023 - 101,709 pageviews
- /kids/cheetah-facts: 1 January - 31 December 2023 - 34,067 pageviews
- /get-involved/visit-ccf: 1 January - 31 December 2023 - 19,933 pageviews
- /get-involved/volunteer: 1 January - 31 December 2023 - 11,933 pageviews

/donate: 1 January - 31 December 2023 - 12,617 pageviews

B.2.3 Donation Page Tracking

CCF's Donation Page: 1 January – 30 June 2023

- Donate Once: 12,601 pageviews
- Donate Sponsor: 10,997 pageviews

- Recurring: 678 pageviews

B.3 Google Ads

CCF spent $8,890 to place Google Ads based on a suite of keywords. The cost for these advertisements is covered by CCF's Google for Nonprofits agreement. The highest performing campaign was Donate - Raikes with 700 clicks, Publications campaign was the second highest performing with 34 clicks.

B.4 Media

CCF issued nine press releases between 1 January and 31 December 2023.

- Cheetah Conservation Fund awarded five grants to combat cheetah trafficking in Horn of Africa - 9 February 2023
- Cheetah Conservation Fund and Somaliland Ministry of Environment and Climate Change Hold Community Based Natural Resource Management Workshop - 20 February 2023
- Fifty-two cheetahs rescued from illegal wildlife trade given new home by Cheetah Conservation Fund and Republic of Somaliland - 9 March 2023
- Cheetah Conservation Fund Founder and Executive Director Tours the United States to Raise Awareness and Funds to Assure the Survival of the Species - 10 September 2023
- Celebrating the One-Year Milestone of Project Cheetah: Triumphs, Challenges, and Renewed Commitment - 17 September 2023
- Cheetah Conservation Fund – Trained Wildlife Observers Help Catch Cheetah Traffickers - 16 November 2023
- Cheetah Conservation Fund Invites Guests to its Annual Celebration of the Cheetah - 3 December 2023
- Cheetah Conservation Fund Celebrates International Cheetah Day at COP28 in the UAE - 3 December 2023
- New CCF Study Links Illegal Wildlife Trade to Decline of Northeast African Cheetah - 14 December 2023