



2012 End-Year Progress Report

Reporting Period
JANUARY THROUGH DECEMBER 2012

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I. EXECUTIVE SUMMARY

Although the Cheetah Conservation Fund provides sanctuary to 46 captive cheetahs, our organisation works to conserve cheetahs in the wild. That said, when a cheetah is orphaned at a very young age, often there are no alternatives to captivity. These cheetahs would be unable to care for themselves and learn the skills a wild cheetah needs to survive. However, some of the cheetahs at CCF that had enough experience living in the wild do have a slight chance to one day return there.

CCF's re-wilding research, started in 2004, was designed to maximise this chance and since then we have successfully reintroduced a number of cheetahs via this programme. The release of five of CCF's cheetahs and two females released at the NamibRand Nature Reserve in 2008 and 2009 respectively, brought cheetahs back to a area of Namibia where cheetahs had been absent for 60 years. A female released into the Erindi Game Reserve in early January 2011 and three males released there this year continue to thrive. At home we continued our training strategies and currently have one female awaiting a suitable release site.

Along with CCF's international training courses, our re-wilding research is key to the conservation of wild cheetah as it has the potential of assisting countries where cheetah populations are dwindling or have entirely disappeared. This year, I was invited to participate in a rapid field survey in Uzbekistan, where the cheetah has been extinct since the 1970s and re-introduction is now deemed a possibility. Elsewhere, our international work in cheetah-range countries continued with our attendance to the West, North and Central African Regional Cheetah and Wild Dog Strategic Planning meeting and the Niger National Cheetah Planning Meetings, as well as a visit to Ethiopia's Born Free Foundation, where cheetah strategies were discussed, including the worrisome topic of illegal wildlife trafficking. This trip also offered us a perfect opportunity to visit one of our field project collaborators, Mary Wykstra, Director of Action for Cheetahs in Kenya.

The CCF's Model Farm has seen many births of Anatolian shepherd and Kangal puppies and goat kids in this period, including our first litter of eight Kangal dogs that will become our allies in our efforts to help livestock farmers prevent conflict with predators. Along with our livestock guarding dogs, CCF's efforts to create income sources for Namibians saw its second grape harvest that could become a new industry for Namibia. We were also fortunate to have a team of professors from Cornell University work with us on our goat dairy design and goat nutrition. Construction of our new creamery for goat milk products is under way. These are excellent examples of how the collaborative, community-based model of conservation works to provide rural and marginalized farmers provides with more economic growth opportunities.

The Cornell team also joined us for a meeting with the Greater Waterberg Complex (GWC), a group of custodians, managers and owners that share a common vision for the long-term management and development of an area that covers some 1.77 million hectares around the Waterberg Plateau Park and include the eastern communal lands as well as CCF. We also conducted a needs assessment survey of this area in December working on a major report to present to NamPlace, the UNDP programme supporting the GWC.

Collaborations such as these are important, and in June, a cooperative education and research initiative reached fruition with the signing of a Memorandum of Understanding between CCF, The National

Museum of Namibia, the State University of New York College of Environmental Science and Forestry (USA), and the Jacob Blaustein Institutes for Desert Research, Ben-Gurion University of the Negev (Israel). CCF will work with these partners to develop cooperation in the fields of environmental and biological education and research of desert ecosystems.

We continued to look into improvements to one of CCF's flagship projects, Bushblok, with the hiring of an engineering graduate to oversee daily production to optimise production and worker health and safety. Meeting demand is still a challenge. In addition, a recent grant will allow us to purchase and test harvest machinery. Biomass was a topic of discussions during various conferences we attended this year, including the Clinton Global Initiative (CGI) winter meeting, where Dr. Bruce Brewer and I made a commitment to expand thornbush biomass into a potential energy source that could restore millions of acres of land choked by thornbush to productive use as wildlife habitat and farmland –and create much needed jobs.

African wildlife draws millions of visitors every year, and Namibia has some of the healthiest and most stunning wildlife populations in the Continent. With this, the Namibian Tourism Board has been active promoting tourism to Namibia, and invited me to participate at various travel shows and events. We weaved these events into my annual spring fundraising tour.

My spring and fall tours this year included three countries, 18 states and 35 cities. Although my tours entail spending long periods of time away from home in Namibia, they offer me a unique opportunity to connect with long-time and new supporters, and raise much needed funds. This year, I was privileged to lecture for the first time at Purdue University, and to speak at Dartmouth College as part of the George Link Jr. Environmental Awareness Lecture series, convened by the Environmental Studies Program. I also lectured for the first time at the University of Ottawa (Canada) and had the honour to meet Canadian Parliamentarians of the City of Ottawa. Shortly thereafter I addressed the EU Intergroup for Animal Welfare and Conservation group in Strasbourg (France). Saying thanks is not enough to express the importance of the intense work by CCF's staff and Chapters to make my tours happen.

2013 will not be different from 2012 except with a greater sense of urgency. The cheetah doesn't have much time without help –yours and ours. Time is running out if we want to ensure that this magnificent animal continues to live and thrive...or it will be gone forever. We must continue our tireless work in Namibia and around the world. We know that we have programmes that work; we have evidence of successful collaboration with cheetah stakeholders that has benefitted the cheetah in Namibia. In fact, a National Geographic's Big Cat Initiative (BCI) committee that visited us in July concluded that CCF's integrated approach to wildlife, livestock and land management was an overwhelmingly important area in which CCF can contribute to the future of the cheetah and other wildlife.

All we need is to expand our programmes in Namibia and other countries, and we cannot do it alone. For this, I want to thank you.

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, United Kingdom, and Japan, and with partner fundraising organisations in the Netherlands, Italy, France and Germany.

CCF's International Research and Education Centre in Namibia is the primary base for all CCF's global activities. In 1991 CCF became a Namibian Voluntary Trust and in 2002 registered as a not-for-profit Namibian Section 21 Company. CCF's Namibian Board of Directors is comprised of leaders in the local community, business 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 of professional staff aided by short-term volunteers and students who assist with daily operations and data collection.

The Centre includes the farms Elandsvreugde, Osonanga, Boskop (Khayam's Kopje), Cheetah View, Bellebenno, Janhelpman and Bynadaar, totalling 46,000 hectares. CCF's Centre is located 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 show that they can live harmoniously with cheetah.

CCF is an active member of the Waterberg Conservancy, which abuts to CCF's property and 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, which in turn provides habitat and prey base for the cheetah.

III. RESEARCH

During 2012, CCF continued working towards achieving its research objectives and strengthening collaborative efforts. Research continued in overall health and genetics, as well as census, reintroduction of cheetah and ecosystem research.

In late July, the National Geographic's Big Cat Initiative (BCI) organised and funded a visit by a committee consisting of Luke Hunter (Panthera, USA), Theo Wassenaar (Gobabeb Research and Training Center, Namibia), Phoebe Barnard (SANBI, South Africa and University of Cape Town, UCT) and Gus Mills (WildCRU, UK), chaired by Thomas Lovejoy (Heinz Center and George Mason University, USA). The purpose was to assess CCF's strengths and weaknesses, and offer thoughts and recommendations for CCF's operations in the foreseeable future – a time that will be of great importance to cheetah conservation. The primary conclusion of the committee's report was that the integrated wildlife and livestock/land management is the overwhelmingly important area in which CCF can contribute to the future of the cheetah and other wildlife. This has particular promise in Namibia, and success there can be compelling and convincing to do similarly elsewhere in the cheetah's range.

The committee also sought to create stronger links between BCI and CCF, with the view that CCF's expertise in cheetah conservation will be extremely useful in advising and assisting the direction of BCI's grant-making.

A. Population Dynamics

As of 31 December 2012, CCF has 46 (17M, 29F) resident captive cheetahs, compared to 54 at the end of December 2011. Throughout 2012, only one new male cheetah (AJU 1627) has been added to the list of captive cats. He was placed with two similarly-aged males to form a coalition of three.

Eight adult cheetahs (4M, 4F) were soft-released as part of CCF's re-wilding research (see Soft-Releases & Translocations). A coalition of four males was translocated to Erindi Private Game Reserve to live out the remainder of their lives in the wild. A mother and three cubs (2M, 1F) as well as a group of four females (2 adult; 2 sub-adults) were hard-released onto CCF property.

Each cheetah that is evaluated under anaesthesia by CCF, both captive and wild, is assessed for general health and fitness. Each examination follows standard protocols. For the case of male individuals, semen samples are routinely collected, analysed and banked in the Genome Resource Bank (GRB).

1. **Medical Exams of CCF Captive Cheetahs**

Health-Related Medical Exams

Between 1 January and 31 December, CCF performed a total of 25 medical exams on 19 individual (11M, 8F) cheetahs (Table 1). Two of these exams were Herpes-viral dermatitis evaluation and treatment on resident male AJU 1245, including two cryotherapy treatments.

Table 1. Details of medical exams performed on CCF cheetahs from 1 January to 31 December 2012.

AJU	Sex	Date of Exam	Comment
1444	F	11 January 2012	Contraceptive (deslorelin) implant only
1541	F	11 January 2012	Contraceptive (deslorelin) implant only
1245	M	12 January 2012	Cryotherapy (and dental treatment)
1473	M	31 January 2012	Laceration on right <i>carpus</i> , cleaned, flushed and sutures placed.
1444	F	16 February 2012	GPS radio-tracking collar removed; annual exam
1245	M	17 February 2012	Evaluation of Herpes lesions; poor long-term prognosis and quality of life; euthanasia elected.
1516	M	20 March 2012	Radiographs of both front legs and neck to determine cause of chronic lameness; annual exam
1473	M	2 April 2012	Scrotal laceration from other pen-mates, castration performed; annual exam
1269	M	14 April 2012	Elective castration performed, to be housed with another male; annual exam
1382	F	19 May 2012	Chronic, severe kidney failure; euthanasia performed.
1603	F	13 June 2012	Mast cell tumour removed for histopathology; thoracic and abdominal radiographs, abdominal ultrasonography,

			and fine needle biopsy of the spleen were performed.
1560	F	25 June 2012	Post soft-release medical exam and collar removal.
1578	F	25 June 2012	Post soft-release medical exam and collar removal.
1539	M	28 June 2012	Medical exam and collar placement prior to re-wilding.
1540	M	28 June 2012	Medical exam and collar placement prior to re-wilding; radiographs of right stifle.
1561	M	28 June 2012	Medical exam and collar placement prior re-wilding.
1516	M	31 August 2012	Chronic lameness in right foreleg and collar removal. Radiographs taken of right and left front legs and neck.
1578	F	1 September 2012	Wound on left shoulder, re-opened and sutured closed. Wound acquired 1 June 2012.
1513	M	12 September 2012	Post soft-release medical exam and collar removal.
1515	M	12 September 2012	Post soft-release medical exam and collar removal.
1518	M	12 September 2012	Post soft-release medical exam and collar removal.
1518	M	18 September 2012	Exploratory laparotomy for removal of gastric foreign body.
1578	F	21 November 2012	Facial laceration 4cm x 2cm; vicryl 3-0 sutures placed.
1632	F	6 December 2012	Pre soft-release medical exam/dental and collar placement.
1630	F	8 December 2012	Pre soft-release medical exam and collar placement.

Specific Medical Cases

Resident male AJU 1245, Klein, was anaesthetised twice in early 2012 to evaluate and treat (cryotherapy and topical antibiotic) his leg wounds caused by Feline Herpesvirus. The wounds were located on the left front and left hind legs. After the first cryotherapy session the legs were bandaged and during the same anaesthetic episode he underwent dental treatment for an abscessed tooth. Despite over two and a half years of intensive treatment, the appearance of the lesion during the second anaesthetic procedure on 17 February made it apparent that regardless of every attempt to help him with the best medical care, his condition was progressively affecting larger areas over time. Given the ongoing concern for an overall poor quality of life, not only due to the chronic pain associated with his leg wounds but also associated with the multitude of anaesthetic episodes and their effect on his health, euthanasia was elected.

Resident male AJU 1473, Ron, was repeatedly the recipient of conspecific aggression from his pen-mates, which caused a major laceration on the right foreleg (31 January) and a significant laceration on the scrotum which exposed the testicular tissue (1 April), both requiring anaesthesia for wound care. Castration was performed while tending to the scrotal laceration as the testicle was no longer viable due to exposure to the elements.

Resident male AJU 1516, Darwin, has had a chronic lameness on the right front leg since October 2011. He was anaesthetised for radiographs and damage to growth plate of the long-bones of the forearm (the radius and ulna) was confirmed. This is thought to be the result of a nutritional deficiency (Ricketts)

that he suffered as a cub before coming to CCF. In July after being released into a larger camp his right forelimb lameness had become more severe. As it was suspected that there was now a pain element to the lameness, medical treatment with meloxicam (anti-inflammatory) was started. His lameness improved somewhat but still remained more severe than prior to the release. Radiographs were taken to verify that no additional complications were present, and the meloxicam was continued and progressively the dose was decreased to the lowest acceptable dose. Since the right *carpus* is anatomically abnormal and the lameness did not improve with the addition of pain medication tramadol, the remaining lameness is likely to be mechanical rather than secondary to pain, and the lameness is likely to be permanent. Darwin is currently only on the meloxicam low dose and the joint supplements and doing well.

During her annual exam on 10 April, resident female AJU 1382, Tempesta, was diagnosed with kidney disease (early kidney failure) and an abnormal, shrunken right kidney via ultrasonography. Subsequently her overall condition deteriorated slowly for a few weeks and then quite rapidly over one week in mid-May when she stopped eating, drank a lot of water, and was extremely lethargic and losing condition despite receiving numerous medications for kidney support. She was anaesthetised for a medical work-up and was found to be in severe kidney failure with a very poor prognosis for good quality of life, even with intensive treatment. Euthanasia was elected.

Ambassador female AJU 1603, Tiger Lily, had a mass on her right *carpus* that was first noted in late 2011 and was slowly growing at the time. The mass was surgically removed during her annual exam on 5 April; with histopathology results showing a mast cell tumour, a type of tumour that is generally considered benign in domestic cats. The tumour started to re-grow in mid-May and after consultation with various veterinary oncology specialists, a decision was made to remove it a second time and to perform "staging," which included thoracic radiographs and abdominal ultrasound to evaluate its potential spread systemically. A fine needle aspirate biopsy of the spleen was also performed and found no mast cell tumour cells. Results for histopathology of the tumour itself indicate recurrence. Complete surgical excision could not be confirmed histologically, however it has not come back and Tiger Lily is doing well.

Resident female AJU 1493, Amani, was evaluated in December 2011 for an eye problem (right eye) that was initially suspected to be Horner's syndrome. She was anaesthetised on 7 March to perform root canals of three broken canines and her annual wellness exam. At that time a corneal lesion was noted on the surface of the right eye that was opaque and circular. She was placed on antibiotic eye drops for 10 days to help prevent secondary bacterial infection in the case of ulceration, but the drops did not seem to help nor hinder healing. The lesion has remained exactly the same since the exam in early March, and the lesion is checked weekly by the veterinarian for any signs of progression or worsening, which has not occurred. It is thought that the lesion is a corneal scar and will remain opaque; it does not affect her vision and does not seem uncomfortable or bothersome to the cat. There has been no change in her eye, suggesting that the lesion is a scar and chronic stromal keratitis.

Resident male AJU 1540, Chester, had radiographs taken of his right stifle to re-evaluate the anatomy of the joint; he had sustained a fracture of the distal femur that involved the right stifle joint in late 2007 and was surgically corrected in January 2008. Radiographs showed abnormal congruity of the stifle joint and proliferative changes in the area of the previous fracture site, but palpation revealed good stability despite a mild reduction in normal range of motion. Early stifle joint arthritic changes were visible.

Overall the fracture has healed to a functional state and it is incredible that Chester is doing so well and is able to be released, given that Dr. Axel Hartmann (who performed the original fracture repair surgery in 2008) only gave him a 50% chance that he would ever walk again.

Resident female AJU 1578, Bella received a laceration wound (2cm length x 1 cm width) on left shoulder in June 2012, which re-opened (30 August). She was anaesthetised (1 September) for surgical closure. The wound edges were debrided and closed with sutures. Except some stiffness as a result of disuse she has had no further complications and the wound has healed well. Bella was anaesthetised on the 15 October for a tooth root abscess, which had ruptured leaving a large wound on the left side of her face. In an attempt to save the tooth, surgical dental work was performed to clean the tooth roots and surrounding tissues. The wound on her face was closed with sutures. She had no further tooth complications and the wound has healed well. On the 21 November Bella received an unrelated lacerating wound to the left side of her face. She was anaesthetised and the wound edges were debrided and closed with sutures. The wound has healed well and she has had no further complications.

Resident female AJU 1340, Misty had elevated kidney parameters on last blood collection. At the beginning of August she became unwell, she started to drink a lot and became anorexic as a result. A drug, benazepril, which can help with the side effects of kidney disease, was added to her diet. This improved her demeanour, increased her appetite and reduced her thirst. Omega3 was also added to her diet to help decrease kidney inflammation, which results from kidney failure. She continues to remain stable on medical treatment.

Wild-caught cheetah AJU 1632, had badly injured pads on all four feet and a severely damaged digit on her left hind foot. She was anaesthetized (8 November) and the digit was surgically amputated due to severe necrosis and extensive damage; the pads were also treated. She was subsequently anaesthetised two more times (15 November and 6 December) to re-check the wounds and for dental work, she also had a collar placed. She has now healed well with no complications and has been released into the Bellebenno soft release camp.

Annual Physical Exams 2012

Between 9 February and 8 June, routine annual physical examinations were conducted on 47 (20M, 27F) of CCF's resident cheetahs. Dr. Mathieu Werts and Dr. Martha Johnson joined Dr. Laurie Marker, CCF's veterinarians Dr. Gabriella Flacke and Dr. Anne Schmidt-Küntzel, veterinary nurse Rosie Glazier, and two visiting veterinary students, Molly Stock and Martha Dalton, to anaesthetise each cheetah and perform a complete health check. Two more females were anaesthetised for their annual physical exam on 7 July and 10 September.

The annual exam standard procedure included weighing, ocular and dental exam, and collecting samples such as blood, urine, hair, faecal material, semen (from males), vaginal cytology (from females), and ectoparasites. Vaccination boosters were administered for feline distemper, feline herpes virus, calicivirus (FVRCP) and rabies virus, and Frontline was applied for ectoparasite prevention. Ultrasonography of the cheetahs' kidneys was performed to assess size and shape, as well as to detect any abnormalities. Minor dental work was also carried out on the individuals that needed treatment. Multiple combinations of anaesthetic drugs were successfully used with no adverse reactions or complications. All the cheetahs were found to be generally in good health other than AJU 1382

(discussed in previous section) and AJU 1340, both of whom were found to have moderate to advanced age-related kidney disease. A low number in *Babesia spp.* hemoparasites were identified in one female cheetah, but this individual was not put onto medication as the condition is sub-clinical. Seven of the 49 cheetahs are to receive dental work based on exam findings, e.g. dental radiographs and root canals, within the next year.

2. Dental Procedures of CCF's Wild and Captive Cheetahs

Between 1 January and 31 December, 13 dental exams were performed on 10 (2M, 8F) CCF captive cheetahs and two dental exams were performed on a wild female cheetah (AJU 1632) (Table 2). In most cases root canals were performed on damaged teeth rather than extractions of these teeth. This work on the cheetahs' dentition is important for their general health and well-being as their teeth are very important for prehension and mastication of food/meat. Dr. Dennis Profitt, a human dentist in Otjiwarongo, graciously performs all of the dental radiographs and treatments on CCF's cheetahs, either at his office in town or at CCF.

Table 2. Details of dental exams performed on cheetahs from 1 January to 31 December 2012.

AJU	Sex	Date of Exam	Comment
1245	M	12 January 2012	Extraction of left upper premolar's retained abscessed root.
1233	F	9 February 2012	Extraction of upper left premolar and molar; annual exam
1493	F	7 March 2012	Root canals of upper right canine; lower right canine and lower 3 rd premolar; annual exam
1340	F	23 May 2012	Extraction of 3 rd and 4 th left upper premolar
1355	F	23 May 2012	Extraction of both 4 th upper premolars and a temporary root canal of left lower molar.
1545	M	27 June 2012	Root canal of left upper canine; medical exam and collar placement prior re-wilding.
1474	F	4 July 2012	Extraction of 3 rd upper left premolar.
1203	F	17 September 2012	Root canals done on upper right premolar and upper left canine
1355	F	17 September 2012	Temporary root canal replacement of lower left molar.
1119	F	9 October 2012	Root canals on both upper canines and lower right molar.
1578	F	15 October 2012	Root canals performed on upper 4 th premolar after root abscess flushed out.
1632	F	15 November 2012	Root canal of upper and lower left canines and third upper right incisor removed.
1632	F	6 December 2012	Root canal of left lower carnassial.

3. Wild Cheetah Exams

Between 1 January and 31 December CCF worked on nine (1M, 8F) wild cheetahs (Table 3). Three of them were approximately two-month-old cubs and did not require anaesthesia for the work-up.

Table 3. Details of exams performed on wild cheetahs from 1 Jan - 31 Dec 2012.

AJU	Sex	Date of Exam	Comment
1627	M	19 July 2012	Caught by farmer in Okakara region, Omotako ranch farm.
1629	F	7 November 2012	Caught by farmer in Gobabis region (first group)
1630	F	7 November 2012	Caught by farmer in Gobabis region (first group)
1631	F	8 November 2012	Caught by farmer in Gobabis region (first group)
1632	F	8 November 2012	Caught by farmer in Gobabis region (first group)
1634	F	18 November 2012	Caught by farmer in Gobabis region (second group)
1635	M	18 November 2012	Caught by farmer in Gobabis region (second group)
1636	M	18 November 2012	Caught by farmer in Gobabis region (second group)
1637	F	18 November 2012	Caught by farmer in Gobabis region (second group)

4. Re-wilded Cheetah Exams

On 10 March, nine-year-old female AJU 1348 (Hershey) was anaesthetised to replace the radio collar. A medical exam was performed and samples collected. She continues to reside in Erindi Private Game Reserve, where she was released in January 2011. Another female from the same release, twelve-year-old AJU 1243 (Chanel) was also anaesthetised on 1 April to replace the radio collar and was given a full medical exam. Sadly she was found dead in October 2012. See *Deaths, Euthanasia and Necropsy* below.

5. Deaths, Euthanasia, and Necropsies

Between 1 January and 31 December, CCF conducted 9 (5M, 3F; 1 UNK) necropsies on captive, wild and re-wilded cheetahs (Table 4). In addition, female AJU 1243 (Chanel) was reported dead at Erindi Private Game Reserve in October 2012, but no necropsy was performed at CCF. Cause of death is believed to be old age.

Table 4. Details of the nine cheetah necropsies performed between 1 January and 31 December 2012.

AJU	Sex	Date of Death	Comment
1351	F	24 January 2012	Death unknown due to decomposed body.
1626	M	16 February 2012	Gastric perforation with secondary peritonitis and septicaemia.
1245	M	17 February 2012	Severe, chronic Herpes dermatitis, chronic renal insufficiency and anal gland adenocarcinoma.
1382	F	21 May 2012	Acute-on-chronic renal failure with abnormal/malformed right kidney architecture.
1628	Unknown	6 September 2012	Body very decomposed and partly eaten. Cause of death not known. This cheetah was found dead alongside the road hit by a car.
1604	M	11 September 2012	Shot by farmer.
1605	M	11 September 2012	Shot by farmer.
1633	F	14 November 2012	Dehydration and heat exhaustion.
1638	M	19 November 2012	Diaphragm punctured due to dog attack.

6. Non-cheetah carnivore exams and necropsies

On 26 February a necropsy was performed on a female African wild cat. On 18 April a necropsy was performed on a male jackal found dead on CCF property. Hair, skin and tissue samples were collected and stored. On 27 November a young male jackal pup was found injured on CCF property. After radiographs of the leg were taken, a complete fracture of the distal femur was confirmed. Euthanasia was performed and a set of tissue samples were collected. The brain was sent for rabies testing and results are pending.

B. Health and Reproduction

1. Bio-Medical Research

Student Intern Projects

CCF accepts veterinary student interns and volunteers each year to assist in conducting clinical research and assist staff in long-term projects. There were three veterinary interns conducting research at CCF during this reporting period.

Martha Dalton, a first-year veterinary student from Mississippi State University, USA, conducted a project evaluating the viral disease orf (contagious ecthyma) in CCF's model farm goat herd. She specifically investigated the timing of outbreaks, the prevalence in our dairy versus Boer goats, the efficacy of treatment and vaccination, and options for developing our own vaccine at CCF.

Dr. Mathieu Werts, a veterinarian from Faculté de Médecine Vétérinaire de Liège, Belgium, completed a health survey overview of the captive cheetahs at CCF for his Master's degree and gathered his data during annual examinations in April. His study evaluated how different factors, including internal and external parasites, blood parameters, and dental disease affected and correlated with overall health, age, body condition score, and captive housing situation.

Marine Minnaert, a third-year veterinary student from Maisons-Alfort veterinary school in France, completed a health overview database for the breeding and working dogs in CCF's Livestock Guarding Dog and Scat Detection Dog programmes. Data for the project included dates of vaccination, internal and external parasite control, tongue biopsies and tongue photos for CCF's lingual squamous cell carcinoma surveillance (SCC) study, dates of oestrus cycles, breeding, and birth of puppies.

The project on the survey and treatment of cheetah parasitology performed by Marie Mény from the École Nationale Vétérinaire de Toulouse, France, during her internship in 2009 was accepted by the Journal of Zoo and Wildlife Medicine.

Crystal Ramsey, a final year veterinary student from Western State Colorado University, USA conducted a project evaluating literature on nutritional requirements and feeding of dairy goats. She then applied this study and specifically looked at the feed we currently use and the nutritional value to help improve the feeding in our dairy goat herd.

Sarah King a pre-vet student from Northern Michigan University, USA pulled data together for an overview of cheetah parasitology and treatment protocols.

Health Issues – Gastritis

Scientific reports that summarise the results of two studies on gastritis finalised in 2011 are currently in the process of being written and submitted for publication: a long-term (10-year) research project into the causes, levels and effects of gastritis in cheetahs, which has incorporated CCF captive cheetahs in the biopsy collection, and a three-year study titled, Improving Cheetah Health by Linking Physiologic and Behavioural Stress Metrics to Management, in collaboration with Drs. Karen A. Terio, Nadja Wielebnowski, Linda Munson, Julia Chosy, and Laurie Marker, and funded by the Morris Animal Foundation, was also finalised in 2011.

Findings of these studies indicate that cheetahs with certain temperaments are at higher risk for a detrimental stress responses and gastritis than cheetahs with other types of temperament. It was also found that gastritis and stress hormones varied significantly by facility indicating that overall management at that facility is important in development of disease and detrimental stress responses. Specific management variables were correlated with adverse or undesirable behaviours, gastritis and levels of stress hormones.

2. Genome Resource Bank

Since 2002, CCF has been collecting and evaluating cheetah sperm. Between January and December 2012, 15 semen collections were added to the CCF Genome Resource Bank (GRB). The CCF GRB now contains a total of 333 cryo-preserved sperm samples from captive and wild cheetahs in Namibia, representing 102 individual cheetahs.

CCF continues to bank sperm, serum, plasma, white and red blood cells as well as 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. Since 1991 blood samples have been obtained from over 900 individual cheetahs. Blood samples are used for over-all health and genetic purposes, with backups stored at both CCF Namibia and the Laboratory of Genomic Diversity at the National Institutes of Health in the USA. With the creation of CCF's genetics laboratory, most samples will be held at CCF. Currently CCF holds the world's largest wild cheetah database of biological material.

C. 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 the Cheetah Conservation Fund thanks to the generous support of Applied Biosystems and the Ohrstrom Foundation. The laboratory's main aim is to contribute to the ongoing research and conservation of cheetahs, working together with the ecology and biomedical departments in CCF's cross-disciplinary mode of operation. The scat detection dog programme is part of the cross-disciplinary approach and was put into place in order to provide the necessary samples to the various genetics projects. The main genetics projects are related to cheetah population structure, census, determination of relatedness, and assignment of individual ID to non-invasive samples such as scat. Projects related to other species are performed with outside funding and are so far limited to collaborative projects.

Janine Fearon joined the genetics laboratory from the beginning of March until end of October 2012 as a laboratory technician, replacing Frieda Idipo who obtained a government position and left CCF at the end of 2011.

In the second quarter (April-July) and the last quarter (September-December) of 2012, CCF geneticist Dr. Anne Schmidt-Küntzel spent three months in the U.S. During that time she continued her work for CCF at a distance, performed laboratory work on CCF samples that were sent to the US prior to her arrival, liaised with collaborators and worked closely with a database expert in order to develop a database for the CCF genetics laboratory, which will also serve as an electronic laboratory notebook. The database is taking longer than hoped and is highly anticipated by the genetics laboratory staff.

At the end of 2011 the genetics laboratory announced the opening for an internship for the beginning of 2012 to provide genetic laboratory training for Namibian graduates. Two post graduate students from the University of Namibia, Annastacia (Anna) Ekandjo and Lucia Mhuulu joined the CCF genetics team in February 2012. They have learnt many new skills and techniques and have been highly productive and very helpful in furthering our projects. The Wildlife Conservation Network generously provided the support for an extension on Lucia's internship as well as the cost of laboratory work. Lucia has decided to further her education and will be starting an MSc with CCF in conjunction with the University of Namibia in early 2013.

Laboratory work slowed down in July of this year due to a broken laser in the 310 genetic analyser. Life Technologies in the United States very kindly donated a brand new laser, which costs over US\$10,000 to replace. The South African branch of Life Technologies kindly donated the installation in early October. Work continued slowly due to dysfunctional reagents after this, but is expected to regain function in the beginning of the year with the arrival of replacement reagents.

1. Genetic projects

Annastacia (Anna) Ekandjo has contributed to obtaining the genetic signatures (genotypes) of our captive cheetahs, using DNA from blood collected during routine work ups. Five different multiplexes that amplify 16 different microsatellites are currently used to genotype an individual. Anna worked on a subset of CCF's captive cheetahs genotypes

Lucia has worked on the population study, which involves genotyping cheetah scat samples that have been collected around CCF. Many of these scat samples were collected with the help of the scat dogs Finn, Isha and Tiger. For her masters' Lucia will overlay the genetic signatures that she obtains with the photos obtained from the camera traps in order to assign a genetic profile to each of the cheetahs known from our pictures.

Scat from wild cheetahs was collected daily around the CCF centre since the start of the genetic component of the "wild boys" ('Hi-Fi', AJU 1543 and 'Sam', AJU 1542) project in 2008. Sam was found dead on 25 August 2010, therefore only Hi-Fi's scat continues to be collected. Lucia has been responsible for daily scat walks since February 2012. The samples are used with the intent to allow for long-term monitoring of stress and testosterone levels, diet, and parasite load in the "wild boys." Over 850 samples are currently available and of these samples, 160 have been extracted.

Ezekiel Fabiano continues with his doctorate degree and has spent the majority of this year at the University in Brazil. He has completed all course and laboratory work and is now focusing solely on data analysis and the drafting of manuscripts. He has completed and submitted the first draft of a paper focusing on estimating and monitoring trends in cheetah abundance and density using remote camera traps. This paper is based on the 10 three-month camera trap surveys conducted between 2005 and 2011. Preliminary results indicate that up to 50 individuals were captured during this period and that density estimates were similar across surveys, irrespective of the season in which trapping occurred. Fabiano is also finalising analysis for a second manuscript, which focuses on estimating the effective population size of the Namibian population. This is important as it provides a measure for the genetic dynamics of the population. Specifically looking at the rate at which the population might be losing genetic variation.

2. Collaborative genetics projects

A pedigree for white rhinoceros, performed in collaboration with Master's student Abigail Guerier from Ongava Wildlife Reserve's Research Centre, was completed in 2010 and a pedigree for the white rhinoceros was finalised using genetic information. The results have major implications for management of captive rhinoceros populations. A manuscript was published to report the study. Additional work is being performed on white rhinoceros to include additional generations and a project on black rhinoceros was started with Ongava Research Centre in the first quarter of the year.

A project involving the evaluation of genetic diversity of the lion prides in Ongava and Erindi reserve in collaboration with both Research teams was started. Samples are currently being collected and analysis of the Ongava samples was started at the beginning of 2012.

A new project in planning involves the identification of hybridization levels between wild cats and domestic cats in Namibia. A genetic toolkit for the identification of hybridisation is currently being developed. The project is on hold until outside funding can be secured.

A new collaboration was started in the beginning of 2011 with Dr. Eroid Naomab, head of the department of Chemistry and Biochemistry at the University of Namibia, for a study on gene expression in the cheetah. Samples were transferred to Dr. Naomab and his students are currently working on them.

A new collaboration was started in March 2012 with Dr. Karen Terio from the University of Illinois and Dr. Emily Lane from the National Zoological Gardens of South Africa for a study on oxalate nephrosis. Primers were designed by Dr. Anne Schmidt-Küntzel and are currently being tested and optimised at the CCF genetics laboratory. All exons have been successfully amplified except for one exon which will require further optimisation. The gene is currently sequenced in affected and unaffected samples. If this does not lead to any candidate mutations, then a whole genome approach will be started.

The results of a collaborative study on differential expression profiles in the cheetah's spot pattern showed an increased expression of the pigmentation genes in spots while it showed an increase in activity in the genes of the keratin pathway in the yellow background. The data was published in an article in science; the article also contained work from another group, which identified the mutation responsible for the king cheetah colour variant.

A mutation for white lion has been successfully confirmed in a sample set of South African Lions. This data will be included in a manuscript, which will be resubmitted in the beginning of the year 2013.

3. Detection Dogs

In August 2012, Len Edwards joined CCF's Scat Detection Team as Scat Dog Trainer. Len has had a lifelong carrier with working dogs prior to moving to CCF.

During the September period, Len began working with Isha. Much retraining was required to get Isha up to standard and this was completed in 12 days of hard training. Additionally, a lot of work was done with Stephanie Cunningham to help her increase her knowledge of working with scat dogs. Stephanie has turned out to be a superb handler, and she and Finn have become an asset to the scat dog team.

Two Springer Spaniels, Billy and Tiger, donated by Steve Austin in Australia, arrived at the end of August. Len Edwards took control of Billy and Tiger to bond with them. Unfortunately, Steve Austin was unable to come to CCF Namibia to do the handover in person, so he sent commands for Billy and Tiger via email and weekly Skype phone calls were conducted during the transition period. Work started on Billy and Tiger first using a training aid (box with holes in the lid, so that the scent could still escape but the dogs could not touch the scat) for 10 days. Tiger is an exceptional working dog with incredible drive; however, Billy's performance was not satisfactory and Steve Austin offered to replace Billy with another dog.

At present, CCF has three operational scat detection dogs: Tiger, Isha and Finn. Tiger and Isha currently work on-lead, and Finn works off-lead. Earthwatch volunteer Rami Cobb generously donated two tracking harnesses and retractable leads.

Since the arrival of Len Edwards as scat dog trainer in August, Finn, Tiger and Isha have found a combined 42 scat samples, at or near play trees on CCF farms.

CCF interns Sophia Bay and Kate Vannelli completed projects focused on the scat detection dogs during the second half of 2012. Sophia's project consisted of an assessment for the dogs, to determine at which distance from the line walked by the handler can the dogs detect scat, as well as the percentage of scat samples found. Kate performed an analysis on the data collected during live searches, and did a comparison between the three dogs on the number of scat finds, time searching and number of kilometres walked. These projects have given the scat detection dog team ideas on where to focus efforts in 2013 (Figure 1).

D. Large Carnivore Research and Ecology

1. Cheetah Census

Range-wide population estimates for cheetahs are critical for their conservation, but they are particularly difficult to study since cheetahs are highly secretive with widespread home ranges. For the seventh year, CCF continued its census research using non-invasive photographic captures via camera traps. CCF's objective has been to replicate camera trap surveys for establishing technique reliability and to conduct surveys in other parts of the country to acquire further knowledge of the species abundance. As we have collected a wealth of information on the cheetahs on CCF land, including positively identifying 22 cheetahs (10 males, 5 females, 7 cubs), we have decided to bring all the cameras in except one to monitor "Wild Boy" (see below) and start censusing other areas of Namibia to determine cheetah population numbers across the country.

2. Wild Cheetah Releases and Monitoring

While CCF has successfully reached $\geq 3,000$ Namibian farmers with its integrated livestock and predator management courses and programmes, much work remains to be done. In many areas of Namibia farmers still continue to kill cheetahs, but those who are aware of CCF contact us to seek help, and trap them, rather than kill them.

CCF is on call 24/7 when farmers call to notify about a real or perceived cheetah problem. The CCF staff may assist with setting traps, or retrieving cheetahs already trapped. Direct contact with the farmers also allows the staff to provide them with information about CCF's non-lethal predator management methods. Since its founding in 1990, the CCF staff have retrieved over 800 cheetahs from farms or private owners across Namibia. Once at CCF, every cheetah's condition is evaluated by the veterinary staff to determine whether it is healthy and old enough to survive on its own. Consequently, over 600 cheetahs have been released back into the wild. Depending on the release location and the specific cheetahs, CCF attempts to monitor released cheetahs via radio or satellite collars.

During 2012, three adult cheetahs (3F), two sub-adults (2F) and three cubs (2M, 1F) were released back into the wild. All three adults were fitted with satellite collars and being monitored. CCF also continues to monitor wild resident cheetah "Wild Boy" and "Wild Mom 2."

- **The Gobabis Quartet**

On 8 November 2012, CCF staff picked up four female cheetahs (AJU 1629, 1630, 1631, 1632) that were caught inside traps set out by a farmer in the Gobabis region of Namibia. Another young female cheetah (AJU 1633) was also caught by the farmer and died from dehydration and heat exhaustion. The stressed cheetahs were brought to CCF in transport crates.

During their check-up, three of the females (2 sub-adults; 1 adult - AJU 1629, 1630, 1631) were in good condition. The last cheetah (AJU 1632) was also an adult female that had suffered severe paw and pad injuries from the trap cage. Due to the degenerative state of her paws, Otjiwarongo veterinarian, Dr. Axel Hartman, assisted in the amputation of one of her toes, which had been severely broken. After the procedure, the cheetah recovered normally in a safe, cemented quarantine pen, to prevent her from moving too much and possibly worsening the wounds on her feet.

The amputee female (AJU 1632), who was named “Toeless,” had two dentist appointments where she had three root canals and the removal of one of her incisors. She was fitted with a satellite collar, and with her feet healing nicely, the four were kept in one pen together to bond them.

On 8 December, the other adult female (“Mom”) was anaesthetised and also fitted with a GPS/VHF combination collar. The four were housed together for another week and shared several warthog carcasses. The two wild adult females quickly opened up the carcass, which can be a very difficult feat for the inexperienced. The two cubs were more hesitant and usually waited to feed after the carcass was already opened.

On 15 December, the four females were captured in transport crates and taken to CCF’s soft-release game camp, Bellebenno. This location was decided as it would give the females the best chance at survival, especially if they all split up. Since the release, the two adult females’ GPS collars have provided information of their daily locations in the game camp. AJU 1632 (Toeless) was observed once crossing a road in Bellebenno and her condition seemed healthy. Subsequently, they have moved in and out of Bellebenno, and are free and wild again.

- **"Mom and three cubs"**

On 18 November 2012, a mother cheetah (AJU 1634) and her three two-month old cubs (AJU 1635, 1636, 1637) (2M,1F) were picked up from the Gobabis region of Namibia. The cats were suspected of causing some of the farmers' game losses in the past year and he wanted them off his property. Before the pick-up, the farmer informed CCF a third male cub (AJU 1638) was bitten by his German shepherd dog and punctured through its chest, into its lung, which resulted in the cub’s death.

The day after the cats’ arrival at CCF the mother was anaesthetised and fitted with a GPS/VHF combination collar. The three cubs were sexed, blood was taken, transponders were inserted and their feet were checked. All four were placed into a small quarantine camp. They were fed a leg of game, while the cubs also received a tray filled with small cut-up pieces. Camera traps showed that the cubs ate both the leg and the cut up meat.

On 22 November the door to their quarantine camp was wired open and the cats were set to be released at their own pace. They were fed another leg of game, which camera traps revealed that they ate before they left the enclosure.

The mother's satellite collar showed that she did not move very far very fast, which is normal behaviour of cheetah mothers with cubs. Unfortunately on 28 November her collar malfunctioned and stopped transmitting. CCF no longer was certain of her whereabouts, until 11 December when a CCF staff member caught a visual of the mother running across the road. In all likelihood, she had her cubs denned away. CCF staff remains wary and vigilant of the family's presence, continually trying her VHF collar and looking for tracks whenever possible.

- **“Wild Boy”**

CCF’s resident wild male cheetah AJU 1542, “Hi-Fi”, continues to include the CCF centre within his home range. Hi-Fi’s movements and presence around the centre are monitored by daily tracking, camera traps, visual sightings as well as monitoring his satellite collar. Since January, Hi-Fi has spent on average 14.6 days around the CCF centre per month, with the lowest in May, September and October with only nine days per month and the highest in January and February with 22 days, each month. On average over the first six months of the year he spent two days at the centre and one day away, though he spent nine consecutive days at the centre in June and 17 days away in May. Throughout July and the beginning of August, Hi-Fi maintained this pattern of being around the centre for up to four days and then away for no more than two at a time; however, after catching him on 14 August to replace his faulty VHF collar with a VHF and satellite collar, there was no longer a strict pattern to him being around the Centre. He dropped down to only nine days in September and October before slowly increasing his time back in CCF over November and December. Hi-Fi’s presence is also monitored at our camera trap stations across the CCF farms. There are three camera trap stations on CCF centre and two at Field One play tree that are used specifically to monitor Hi-Fi’s presence. There are several other cameras located throughout the farms for various projects and if any photos of Hi-Fi are captured on them, they are shared with the cheetah team. In addition, details of two kills, both oryx, have been recorded near the Centre.

We plan to continue monitoring him over 2013 both remotely through his collar signals and camera trap photos, and directly through visual observations. Daily monitoring not only allows us to record his movement and presence at the Centre, as well as any hunting activities in the area, but also allows us to use him as an eco-tourism activity to further educate the public about the cheetahs’ plight and the research carried out at CCF.

- **“Wild Mom 2”**

At the end of November 2011, CCF received a call from a farmer who told us that he had trapped an adult female cheetah with two of her cubs (AJU 1623, 1624, 1625), which were presumed to be approximately six months old. Upon receiving the family unit into the CCF centre, a medical examination was carried out on each cheetah to establish the health of all individuals. Each cheetah appeared to be in perfect health. As a few months earlier CCF had received an orphaned litter of three cheetah cubs (AJU 1620, 1621, 1622) of approximately the same age, it was decided to see whether the mother would accept these new cubs as her own. After a trial period of placing both groups side by side in holding pens, the orphans were successfully integrated into the family. The entire group was then released onto CCF land on 9 December 2011 after radio and satellite collaring the mother. After her release, she spent almost all of her time to the south of CCF property beyond the Waterberg Plateau, having moved over 600 km over a five-month period (*Figure 3*). We are not certain if she still had her cubs at that time due to the distances she had moved. We continued to monitor her movements over a few months, but unfortunately she passed away around 30 July 2012. Her cause of death is unknown; however, all that was found was her collar in on the board of Hereroland and the farm Hamikari. She was travelling through Hamikari and we believe she was killed in Hereroland and the collar was thrown into another area of land.

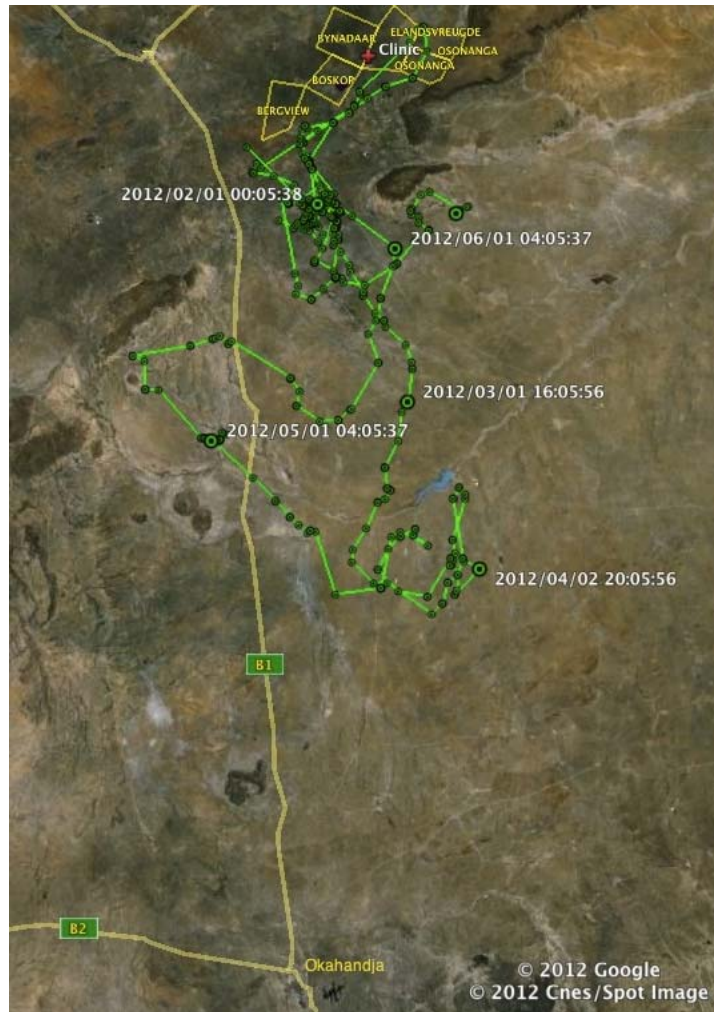


Figure 3: Movements of "Wild Mom 2" on CCF land and surroundings during Feb-Jun 2012

3. Cheetah Re-wilding and Reintroductions

Due to the extent of land under livestock production and the habituated cheetahs' need for large uninhabited areas, there is a lack of suitable habitat for release. It's very important to closely monitor the behaviours of individual cats to ensure their health and adaptation to their new environment.

As part of CCF's research into the possibilities of re-wilding wild-born cheetahs that were subsequently kept in captivity, a first release took place in 2004, when two captive-raised females (AJU 1355 and AJU 1354) were released into Bellebenno game camp. After six weeks they moved out of the game camp and caused CCF's neighbour problems near small stock. The two females were subsequently returned to captivity.

In 2006, a single captive female (AJU 1268) and four cubs were released in Bellebenno. They began hunting and were self-sufficient after three months and were released into the 50,000-ha Erindi Private Game Reserve.

The NamibRand Nature Reserve (NRNR), an area where cheetahs had been exterminated in the past, was identified as an ideally suited location for CCF's long-term reintroduction project. Consequently, during 2008 and 2009, seven previously captive-held cheetahs (5M, 2F) were released there, along with a wild mother cheetah AJU 1576 and her three cubs. Releasing captive cheetahs back into the wild has had many challenges. However, the NamibRand reintroductions have been a success as this re-wilding introduced cheetahs again in an area where they had been exterminated.

In January 2011, four previously captive female cheetahs dubbed "The Chocolates and Chanel" were released into the Erindi Private Game Reserve after a 3-month "training" in CCF's Bellebenno 4,000-ha camp. To date, one female remains and thrives, while two died of hunting accidents (2011 and 2012) and, more recently, the oldest one of the group, a 13 year-old female, died of old age.

During 2012, CCF soft-released eight cheetahs (4M, 4F) for re-wilding training, while four more (4M) that had been soft released in 2011 were taken to their final release site this year at the Erindi Private Game Reserve.

Re-wilding Updates

- **The NamibRand Reintroduction (2008-2009)**

During 2008 and 2009, seven previously captive-held cheetahs (5M, 2F) were released, in addition to a wild mother cheetah AJU 1576 with her three cubs.

While we have lost contact with five collared males (AJU 1347, 1326, 1327, 1347, 1350) released in December 2008, an orphan captive female (AJU 1506) released in the end of May 2009 appears to be surviving successfully.

A wild female (AJU1576) with three (2M.1F) nearly independent cubs (AJU1574, 1575, 1577) were translocated to NRNR in January 2009. The cubs dispersed from the female shortly after release and in December of that year the female was spotted with one cub most likely sired by one of CCF's five males. The GPS collar fitted to this female cheetah continued to return good data on her movements during the first half 2012. The map below (Figure 4) shows her yearly movements for 2012. Based on her movements, local farmers are contacted and a liaison is set to ensure that they are kept fully informed when she is in their area.

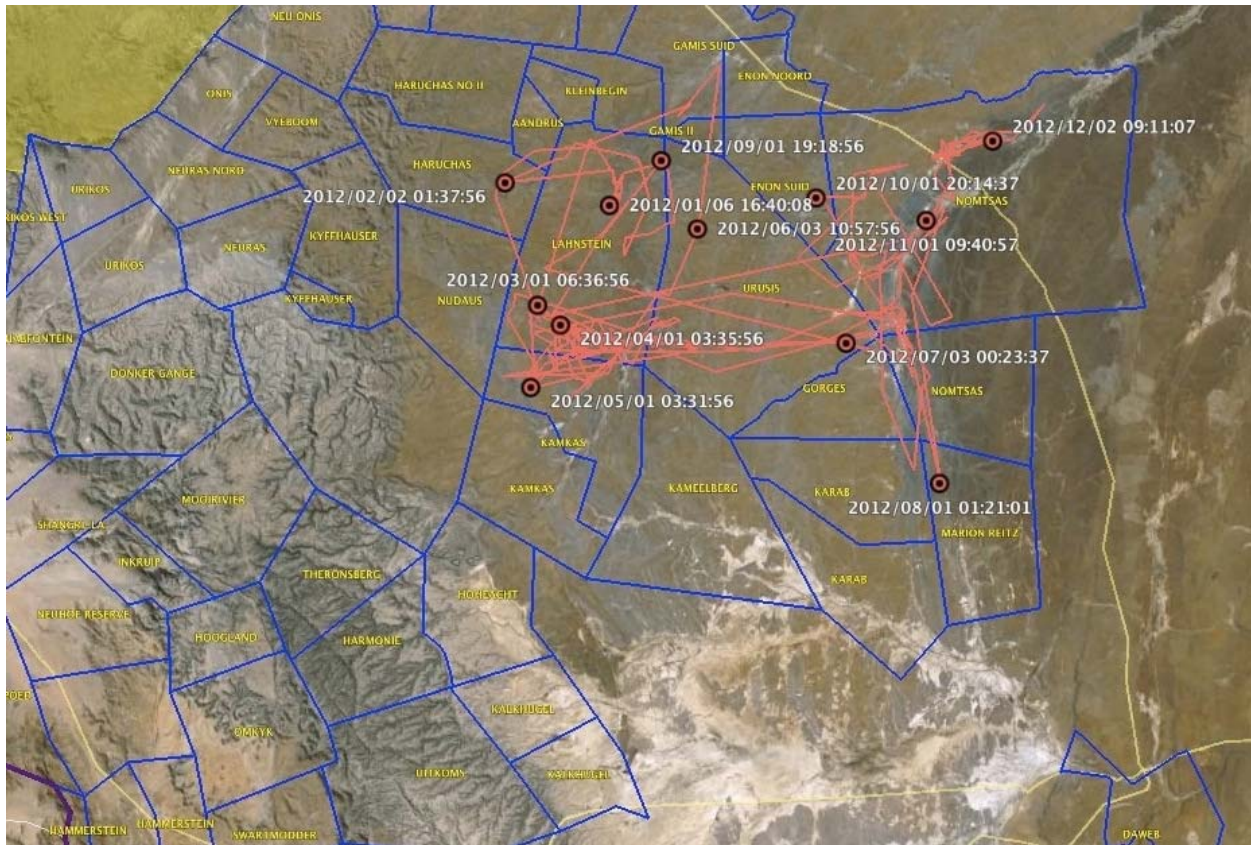


Figure 4. Movements in red of the NamibRand female (AJU 1576) from January to December 2012.

- **The “Chocolates and Chanel” (2011)**

Earlier this year we learned that Toblerone (AJU 1351), one of the four females released into the Erindi Private Game Reserve in January 2011, was killed in a fatal encounter with an ostrich. Her sister Nestle (AJU 1349) had died from an oryx encounter in November 2011. Subsequently in October 2012, CCF was informed about the death of Chanel (AJU 1243). She was reported to struggle with hunting in her final days, and eventually Erindi staff found her body near a waterhole. Her cause of death is unknown, but Chanel was nearly 13 years old, so geriatric age may have played a role. Hershey (AJU 1348), the final remaining Chocolate sister still resides at Erindi and has no recorded issues. Erindi staff has informed CCF that she has taken a liking to waterbuck in the recent months.

Bellebenno Game Camp “Training Ground” Reintroduction Project

Based on earlier successes CCF has had with releasing cheetah, the decision was made to use this 4,000-ha camp as a “training ground” in which to prepare previously captive cheetahs for life in the wild. The camp is a means of gathering information on the behaviour of the cats as well as feeding ecology, habitat preference and survival techniques/strategies. CCF hopes to continue this training method to release more cheetahs that have been held in captivity and as a basis for other organisations and countries to implement their own cheetah reintroductions and releases. In 2010, the first group, “Chocolates and Chanel”, was released in this camp, followed by “The Leopard Pen Boys” in 2011 (see

details below). In 2012, a total of eight cheetahs were soft-released into the fenced game camp, Bellebenno, for re-wilding training (Table 5).

Table 5. Details of soft releases from 1 January to 31 December 2012 in Bellebenno Game Camp

AJU	Sex	Date of Soft Release
1444	F	22 January 2012
1541	F	22 January 2012
1513	M	18 April 2012
1515	M	18 April 2012
1516	M	18 April 2012
1518	M	18 April 2012
1560	F	25 May 2012
1578	F	25 May 2012

- **The “Leopard Pen Boys”**

On 28 June, four captive male cheetahs, Omdillo (AJU 1539), Chester (AJU 1540), Anakin (AJU 1545) and Obi-Wan (AJU 1561), were translocated to Erindi Private Game Reserve in Namibia and successfully released. The four males had gone through re-wilding training at Bellebenno in late 2011.

A day before the release, they were immobilised for placement of VHF collars. Each cheetah was fitted with a collar to enable daily tracking; blood and scat were collected and medical exams were performed to ensure they were fit and healthy prior to release. Anakin received a root canal on his left upper canine and Chester had radiographs taken of his right stifle.

During the 16-day intensive monitoring of the coalition in Erindi, they were observed killing eland (n=2), steenbok (n=1), oryx (n=1) and other unknown prey species (n=3). On the eighth day of release, Omdillo was found with two massive puncture wounds on his left forelimb, near the armpit area, most likely a result of a warthog tusk. The injury left Omdillo immobile while his three coalition mates continued on exploring and searching for food. The following day all four males were together and Omdillo walked gingerly, but had no issues keeping up with the others.

Regrettably, in October 2012, Erindi staff notified CCF that Omdillo was observed escaping the game reserve several times, wandering onto their neighbour’s property. Under unknown circumstances, Omdillo was later shot by the neighbouring farmer.

Since Omdillo’s passing, Obi-Wan has temporarily sought a solitary life, which seemed atypical as he was mostly bonded to Anakin. Erindi staff has recorded observations of Obi-Wan reconnecting with Chester and Anakin, but never permanently. Chester and Anakin were also observed successfully hunting a giraffe calf. Anakin fended off the mother giraffe as Chester strangulated the calf. Ideally in the future, these males will find some wild females, or even Hershey to mate with.

In late December 2012, Erindi informed CCF that Chester, Anakin and Obi-Wan have reunited and remain a solid coalition. They frequently fight, as the three have dominance issues within their

hierarchy. Obi-Wan also now has a floppy left ear, which may have been an injury sustained from prey, or fighting within the coalition.

- **Xena and Luna**

On 22 January, CCF soft-released two females named Xena (AJU 1541) and Luna (AJU 1444) into our 4,000-ha Bellebenno game camp, both equipped with a GPS/VHF collar for daily monitoring. Prior to their release, the females were housed together in a 1-ha enclosure and strictly fed game, including oryx and warthog.

Once released the females separated from one another and never interacted again. It took Luna four days to make her first kill and Xena five days, both killing warthog piglets. Until 12 February, Luna was observed to have killed five animals including warthog piglets (n=3), duiker (n=1), and steenbok (n=1); Xena successfully hunted four animals, warthog piglets (n=3) and a duiker (n=1). Both cheetahs were supplementary fed once with two kilograms of donkey/horse meat on bone. Xena and Luna benefitted from the rainy season, drinking from puddles and feeding on the overly abundant warthog piglets.

Luna was darted (anaesthetised) and taken out of the release camp on 16 February as she was deemed a successfully released cat. During her twenty-six days in the soft-release camp, Luna gained three kilograms of muscle. She was placed back inside the 57-ha Bellebenno cheetah enclosure. She will hopefully be sent to Erindi Private Game Reserve when they are ready for more cheetahs.

Xena escaped from Bellebenno on either the 10 or 11 February (after hunting successfully) and made her way to CCF's Big Field, an open savannah-like habitat. Freeing herself, Xena carried on killing steenbok (n=3), duiker (n=1), and springbok (n=3). She remained a wild cheetah on CCF's farmland and in mid-April she began venturing northeast of CCF property (Figure 5). On 25 May we stopped receiving signal from Xena's GPS collar; however, on 18 June a farmer in an area northeast of CCF reported that he had shot Xena due to suspected livestock depredation and that he was in possession of her GPS collar. In late June Xena's collar was retrieved from the farmer by paying the compensation for the alleged livestock loss.

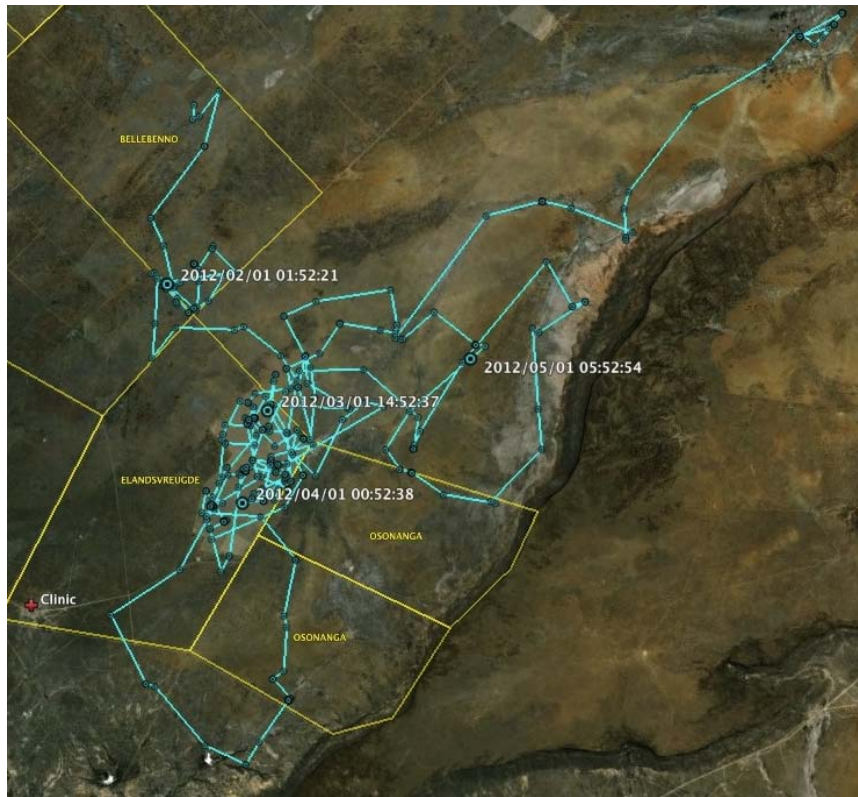


Figure 5 Movements of Xena from Bellebenno to CCF land and beyond

The Scientists

On 18 April, CCF undertook its second soft-release of the year with a coalition of four brothers called “The Scientists.” Livingstone (AJU 1513), Fossey (AJU 1515), Darwin (AJU 1516) and Mendel (AJU 1518) came to CCF with rickets and other malnourishment issues, leading to questioning into their capability to be wild. Based upon this year’s annual cheetah examinations, several of these males have extremely good genes, established via sperm evaluations. It was decided to release the coalition into CCF’s 4,000-ha Bellebenno game camp to test their ability to survive without human intervention. Each individual was equipped with a VHF collar used for daily monitoring and tracking of the cheetahs. Prior to release the males were fed a warthog carcass, which allows them to practice opening and feeding on game.

Within the first several days, all four were showing promising hunting behaviour. On 21 April, they were found feeding on an adult zebra, which, under further investigation, was determined to be either dead upon discovery or slowly dying from a devastating leg injury. Throughout the twenty-six days of their release, the males were observed feeding on zebra (n=1), oryx (n=2), steenbok (n=1) and warthog (n=1).

On 29 April, the coalition located Bellebenno’s captive female cheetahs. This fence line bordering the two game camps became their new territory in which they actively scent marked by spraying, scraping, defecating and scratching trees on a daily basis. The captive females distracted the males and it was decided that it would be best to relocate them to a distant waterhole in Bellebenno on 8 May. Upon release, the males made a beeline back to the captive females after two days of being disoriented. Towards the end of their release, the coalition continued to maintain their territory beside the captive

female fence line, but would leave in order to hunt and find water from one of CCF's permanent waterholes.

The coalition showed promising wild behaviours, but throughout their soft-release all four males, at one time or another, were observed limping. These injuries are a clear result of their improper diet during their rapid stages of early development. Due to this obstacle, and other ethical reasons, the chances of these four males finding a home in the wild are slim.

Bella and Padme

On 25 May, CCF began its third soft-release of the year with two four-year-old females, Bella (AJU 1578) and Padme (AJU 1560), into Bellebenno game camp. Within the first two hours of their release, the females separated and were not in contact with each other since. Staying on opposite ends of Bellebenno, both cheetahs have done well in terms of hunting.

Bella made eight total kills consisting of steenbok (n=5), warthog (n=1) and duiker (n=1) along with one small mammal (possibly a rabbit). Bella was supplementary fed two kilograms of donkey meat only once. Padme has made six kills including steenbok (n=4), warthog (n=1) and scrub hare (n=1) but has been supplementary fed a total of four times throughout the release. Bella and Padme both have showed an obvious preference for hunting the abundant steenbok.

On 1 June, Bella sustained a wound on her left shoulder, most likely from a warthog hunting accident. The wound was evaluated by CCF's veterinarian, Dr. Gabriella Flacke, and it was decided that anaesthesia and surgery were not needed. The CCF staff assisted in keeping the wound free of secondary infection by medicating Bella with daily antibiotics and anti-inflammatory medication. The wound, which cut into Bella's tricep muscle, fortunately did not hinder her ability to run or hunt and she kept her wound free of dirt and flies. The wound was healing well and did not cause any issues.

Both females struggled to find one of Bellebenno's four permanent watering holes and were provided water. With this exception and Padme's two-week long pacing behaviour, both females made good progress in the soft-release camp.

On 25 June both females were immobilised for collar removal and post soft-release medical check. At this time Bella's facial wound was cleaned and the veterinarian noted on how muscular she became after two months. Padme was recorded to have a small puncture wound behind her left knee joint, but otherwise deemed healthy.

Since their release, both females were placed back into captivity inside CCF's 57-ha Bellebenno cheetah pen, and in late November they were moved back to Eland's camp, near CCF's Centre, as their release was not considered completely successful. Padme had struggled in the beginning of the release, constantly pacing the fence line. All kills she made were near the fence line as well. Bella became too dependent on people after her injury and would approach the vehicles expecting food or water. Towards the end of her release, all hunting and attempts to find water ceased.

4. Ex-Namibia Re-introductions

India

Plans by the Indian government to re-introduce cheetah to its former range in India remained on hold during this reporting period.

Uzbekistan

The cheetah has been extinct in Uzbekistan since the late 1970's due to the decline of prey from primarily poaching and hunting pressures under the USSR structure. Today, Uzbekistan, having gained independence in 1991, is interested in reintroducing the cheetah into its former range. CCF was asked by the World Wildlife Fund for Nature (WWF) to assess the situation and area where the reintroduction would take place.

On 7-10 of August, 2012, Dr. Laurie Marker visited Bukhara's Ecocenter and participated in a rapid survey of the area. The Ecocenter team, headed by Natalia Soldatova, was joined by members from Uzbekistan's UNDP office, government officials from the region and Olga Pereladova, the Director of WWF Asia program. We conducted several meetings discussing the way forward.

The Ecocenter has a fenced reserve of 16,000 hectares and has been a main breeding centre for the Asian wild ass (kulan), Palwalski horses, and rare hoof stock including the goitered gazelle and the Bukhara deer. In the 1980's, the Ecocenter received cheetah from the Moscow Zoo to determine adaptation to the climate and to learn proper management.

In 2009, the Ecocenter received support (US\$50,000) from the UNDP-GEF small grants and started with expansion of the land increasing officially by 10,000 hectares and now looking at joint use of another 18,000 hectares. As 85% of the country is desert, the land is very arid with a low carrying capacity for game. These lands are surrounded by canals thus providing several borders of the reserve. The Uzbekistan Ecocenter programme with the support of the UNDP is to look at developing a system of protected species and protected desert areas. The cheetah has been identified as one of the flagship species. In addition, the plan is designed to recover the grazing area needed by the gazelles and stimulates growing vegetation through complex activities. They are looking at the restoration of their fragile ecosystems and, through the use of flagship species, bring attention of decision makers to the needs of the deserts.

The original plan was to look at the area where they were going to set up a breeding facility for cheetah to release their offspring. After discussions, the Ecocenter team was ready to change the initial plans to breed cheetah in captivity, and consider the following perspectives:

1. Getting 4 (2.2) adult cheetahs at the end of winter and keeping them for a few months in the enclosures of 2 hectares each; or
2. Getting 4 young (6-7 months) cheetahs in the early spring and keeping them for a year in the enclosures of 2 hectares each.

In both cases, the cheetahs would be trained to hunt for prey while observing how they spend the first winter. The animals would then be release into the 24,000-hectares territory, with constant monitoring.

Release at the preliminary stage will provide an opportunity not only to observe the animals, but to support them in case of emergency.

Given the differences between climatic conditions in Africa and Uzbekistan (especially in winter), it would be necessary to acclimatise the cheetahs before release. Data on cheetah's adaptations in the wild in Central Asia is scanty. However, previous experience of cheetah acclimatisation in Uzbekistan showed that in cold winter weather, the cheetah uses natural niches, caves and burrows for shelter.

The team is interested in the possibility of getting cheetahs from Namibia for their temporary keeping and subsequent release. This could only be facilitated if CITES permits are obtained and if the Namibian government agrees to the exportation following the submission of an import permit from Uzbekistan. The plan is do-able and the team is capable.

Rapid Survey and Habitat Assessment for Cheetah Reintroduction

The rapid survey assessed various factors within the EcoCenter. There were no GIS maps of the centre but there are some hand-made maps of vegetation from 20 years ago. The maps show that the borders of plant communities have seriously changed since then, as have some of the fence lines. Future analysis will include site-specific recommendations for reintroducing the cheetah in terms of development of a holding area for soft release, radio-telemetry monitoring and the long-term strategy, commitment and likely costs involved in the successful establishment of a viable cheetah population. Figure 6 shows the route taken during the rapid survey.

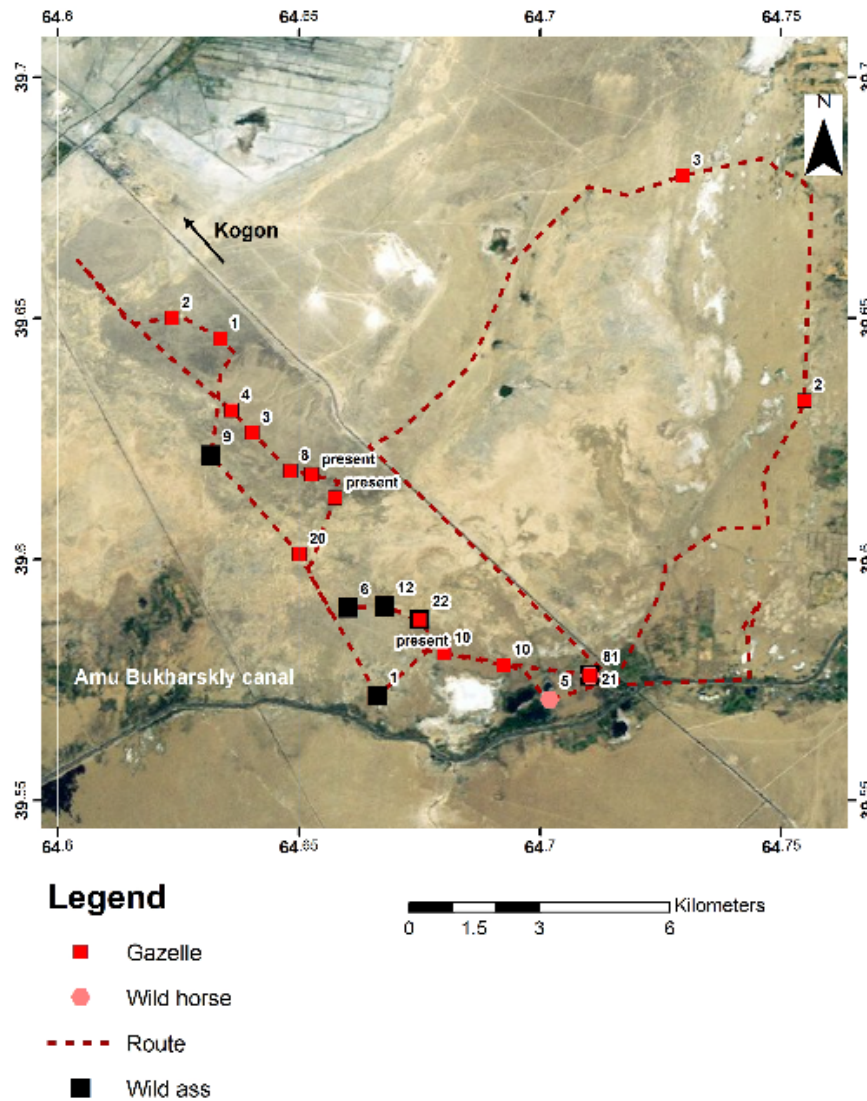


Figure 6: Location and details of a rapid survey in the Bukhara Ecocenter in Uzbekistan.

E. Ecosystem Research

As over 80% of the country’s game inhabits farmland, assessment of the Namibian ecosystem for long-term habitat viability for the cheetah and its prey is a part of CCF’s primary, ongoing research.

1. **Weather Monitoring**

We continued collecting rainfall data on our farms and daily high- and low-temperature readings. CCF’s farms had good rains during the wet season for 2012, averaging 734 mm. All dams had good levels of water by the end of the rainy season in April. Since then, the dam’s water levels have gone down and not picked up yet as we haven’t had a lot of rain for November and December. Two of the dams that

went completely dry gained a little water with the latest rainfall. We are optimistic that we will have more rain during the last week of December. The lowest average temperature recorded for 2012 was in August (5° C) and the highest average temperature was recorded in October (35° C) (Figure 7).

Average Minimum & Maximum Temperatures for 2012

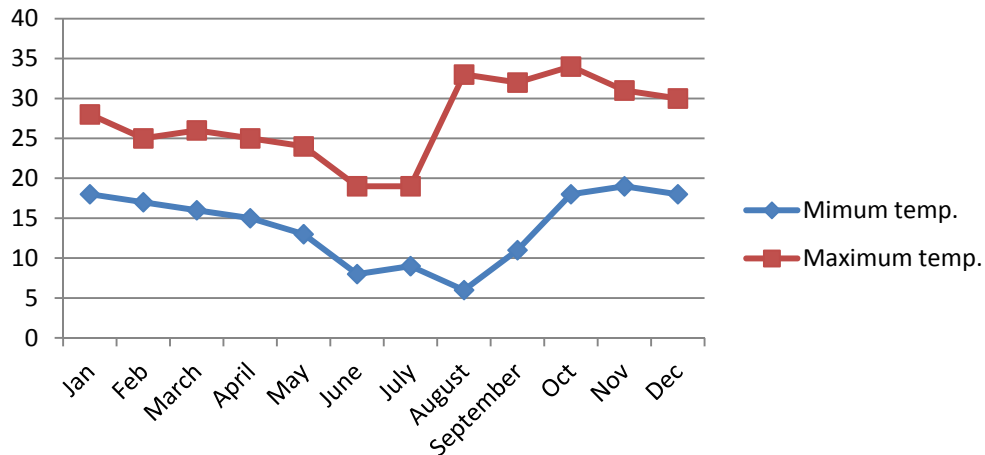


Figure 7. Average minimum and maximum temperature from Jan-Dec 2012.

2. Game Monitoring and Prey Habitat Preferences

CCF’s long-term wildlife monitoring programme continues with the assistance of Earthwatch volunteers and student interns. The research conducted on CCF farms is designed to understand patterns and trends of game density, movements, demographics and habitat utilisation. The monthly monitoring involves visual road counts, categorising vegetation types, densities, and distributions. This information is correlated with data collected on rainfall and temperature.

Big Field Game Counts

CCF’s big field, know also the “little Serengeti”, is an old cultivated land of 1,492 ha. The field, one of the largest open uncultivated areas in the north central farmlands, attracts high number of free-ranging game. This area provides an ideal case study to monitor ecological successional trends. Apart from being a high prey density area for cheetahs and leopards, this area has huge potential for ecotourism. For this reason, CCF has been conducting monthly counts since 2004.

During this period, a total of 37 replicate counts were conducted on the big field with the assistance of Earthwatch volunteers, students, and CCF staff, resulting in a sampling effort covering 610 km. All data from these surveys were entered into the main database and preliminary results on trends were produced. Population estimates for the common animal species during this period were compared to the same period in 2011, showing an overall decline in density amongst most species (Figure 8).

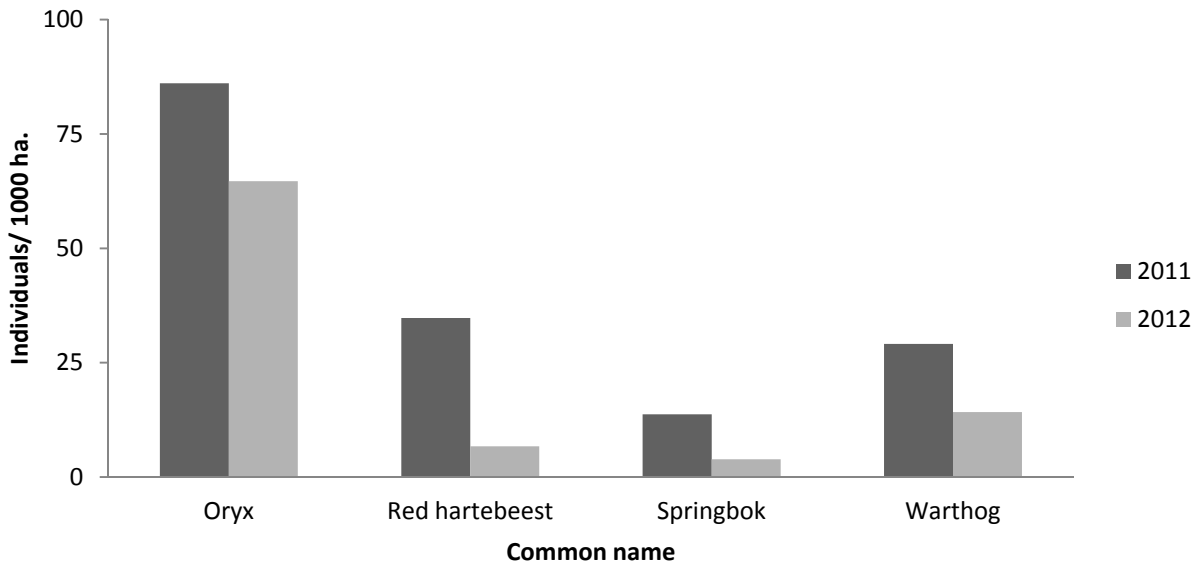


Figure 8: Comparisons of density estimates for common game species on the CCF big field in 2011 and 2012.

Table 6. Mean ($\pm 95\%$ CI) number of individuals (1000 ha) of common game species found on the CCF big field in 2012.

(Based on actual number of animals sighted). Common names: FR (RB) Franklin red billed; GF = Guinea fowl; KB = Kori bustard; KH (BLK) = Black korhaan; KU = Kudu; OR = Oryx; OS = Ostrich; RH = Red hartebeest; SB = Springbok; ST = Steenbok; WH = Warthog.

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
FR (RB)	2	1.8	5.8	2.9	0.7	0.4	1.8	0.2	3.1	0.2		
\pm	3.3	1.9	4.6	1.6	0.8	0.9	1.6	0.4	3.2	0.4		
GF	12.3	1.1	16.5			3.8	0.2	8.9		11.2		6.7
\pm	5.2	2.2	13.4			7.4	0.4	10.1		16.2		10.5
KB	2.2	0.9	0.2	0.2	0.2	0.4	0.7	3.4	2.5	2.5	1.1	2.3
\pm	0.4	0.9	0.4	0.4	0.4	0.4	0.8	2.0	0.4	1.4	0.4	2.0
KH (BLK)	2.5	1.1	4	7.1	6	4.2	4.5	2.2	1.6	4.0	4.9	8.4
\pm	3.6	0.4	2	3.1	4.6	0.9	1.6	3.1	1.6	1.1	2.9	3.3
KU	2		0.2	2.7	1.8	1.3	0.4	1.1				
\pm	3.9		0.4	4	3.5	1.3	0.9	2.2				
OR	30.2	55.6	74.2	49.2	52.5	50.5	55.9	62.1	101.2	42.9	47.4	154.2
\pm	14	29.1	17.4	8.2	12.8	5.5	11.1	20.2	13.0	10.3	18.9	5.3
OS	6.9	4.5	4.2	3.1	4.9	4.2	4.7	3.4	5.8	3.8	4.7	7.0
\pm	0.4	2.7	1.9	2.3	1.2	1.9	0.8	1.3	3.1	1.0	4.7	2.0
RH	0.7	8.5	9.4	1.8	16.3	5.6	14.3	14.1		0.9		9.0
\pm		4.4	9.5	0.4	14.4	6.9	12.9	16.0		1.0		9.9
SB		2.2	1.3	0.7	15	2.2	9.8	4.9	8.9	0.9	0.2	0.3
\pm		3.1	2.6		13.5	1.2	18.6	2.4	8.9	0.8	0.4	0.7
ST	0.7		0.4		0.4	0.7	0.4		0.4	1.6	0.4	
\pm			0.9		0.4	0.8	0.4		0.4	2.1	0.4	

WH	14.5	12.3	18.3	8.7	25.5	15	13.0	16.5	8.3	17.2	3.1	17.8
±	1.9	5	14	2.3	5	3.8	3.9	2.4	1.6	10.7	3.5	0.7

Circuit Counts

Since 1996, CCF has been conducting a 55-km road strip count transect on farm Elandsvreugde to investigate game distribution in relation to habitat type and trends in density.

During the year, a total of 27 game counts were conducted on circuits A & B, covering over 742 km of farm routes. Of these, only seven were conducted on circuit A and analysis presented hereafter were mainly based on Circuit B (Figure 9).

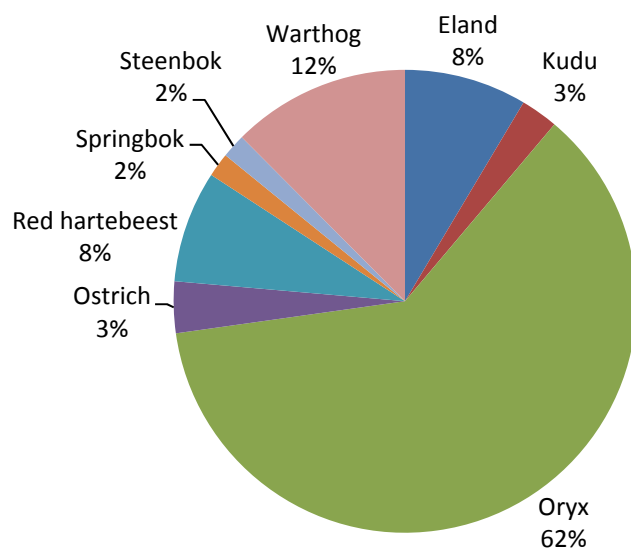


Figure 9. Common game distribution on the CCF circuit counts from Jan-Dec 2012.

Oryx encounters in 2012 were the most frequently observed, followed by warthog and red hartebeest (**Error! Reference source not found.9**). Game sightings were mostly common on the CCF big field. Sightings of the common wildlife species are presented in **Error! Reference source not found..**

Game density

Strip density estimates (Figure 9) showed a significant overall-density decline amongst the oryx ($X^2 = 4.57$, $df = 1$, $p = 0.03$) and Red Hartebeest ($X^2 = 12.48$, $df = 1$, $p < 0.00$) if compared to 2011. Slight increases in game density were observed amongst the eland and kudu (Figure 10).

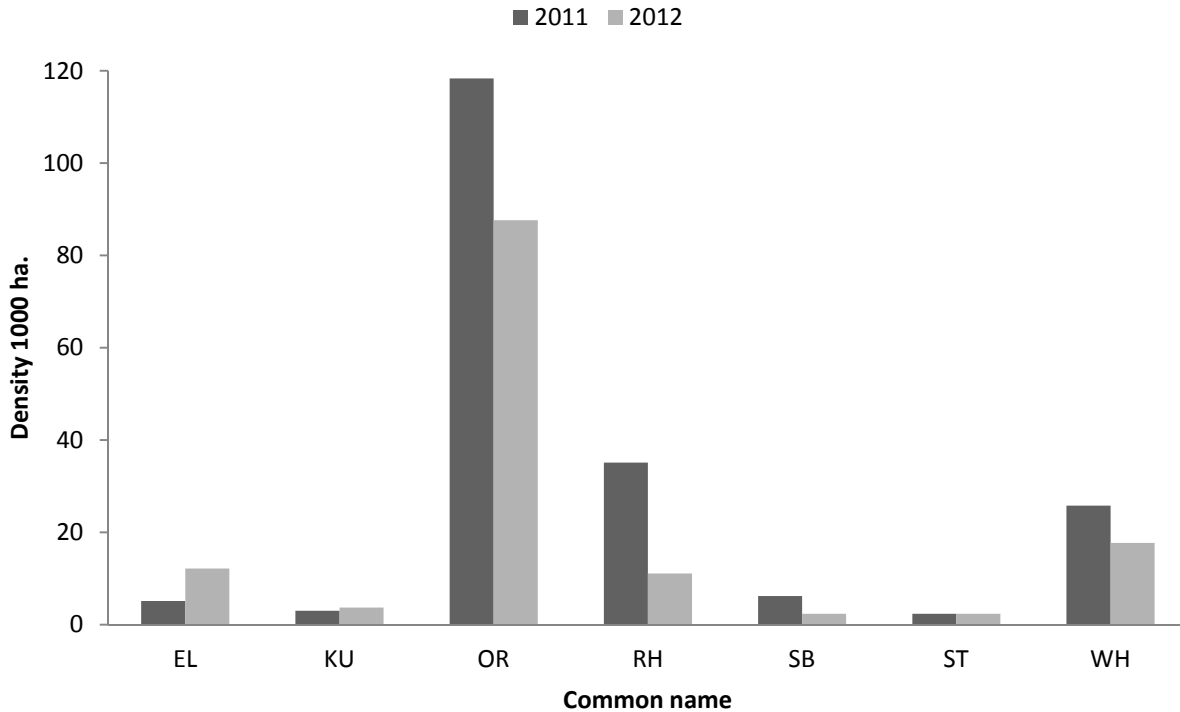


Figure 10. Abundance estimates (animals per 1000ha) of common wildlife species observed on farm Elandsvreugde for the reporting period . January – December 2011 and 2012 circuit counts. Estimates were derived from distance sampling method.

Table 7. Density (1,000 ha.) of the most common wildlife species observed on CCF’s circuits A & B in 2012.

Common name	Distance sampling					Strip count sampling			
	Circuit A	Circuit B	Mean	95% CI -	95% CI +	Circuit A	Circuit B	Mean	95% CI ±
Kudu	4.41	1.56	2.99	1.26	7.05	10.79	1.44	6.12	9.16
Oryx	5.39	23.12	14.25	6.38	31.83	11.43	64.77	38.10	52.28
Red hartebeest	0.00	2.21	1.29	0.56	2.93	3.17	12.67	7.92	9.30
Springbok		2.30		0.15	34.98		1.76		
Warthog	34.9	85.3	60.12	22.1	163.7	13.33	15.87	14.60	2.49

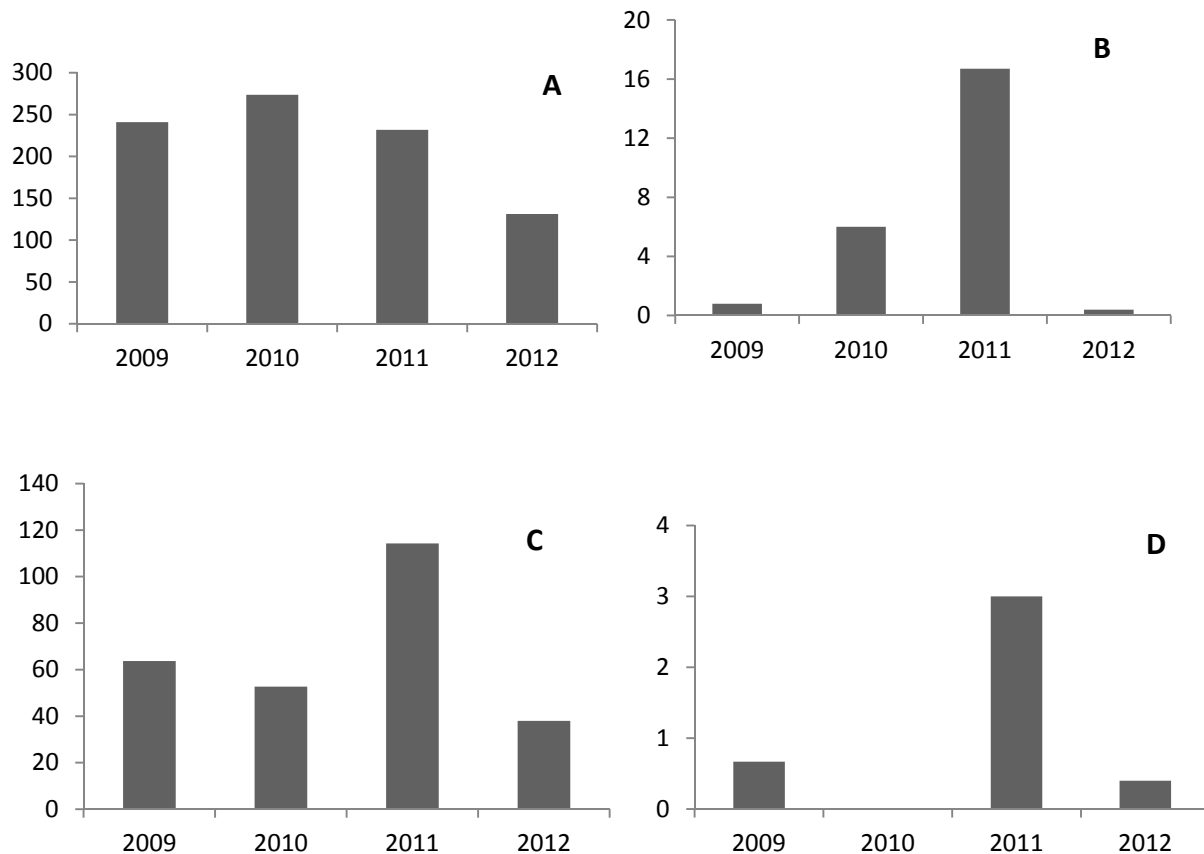
Bellebenno 12-hour Waterhole Counts

To assist in developing a management plan for the 4,000-ha game-fenced Bellebenno camp, CCF started monthly 12-hour waterhole counts in 2008. Earthwatch and other CCF volunteers and staff members assist with these ongoing counts, which involve being positioned in hides at each of Bellebenno’s four waterholes and counting animals that come to the waterhole. Information such as species, age, sex and condition are recorded on standardised sheets, as well as whether the animals utilise the waterhole or the salt lick placed at the site. These counts are designed to help us understand patterns and trends in

game numbers, such as survival rates in juveniles and sub-adults, and recruitment from one age class to the next. The counts take place from 6 a.m. to 6 p.m., with two counters in each hide.

From January-December 2012, waterhole counts were conducted for each month of the year with the exception of June. A total of 4,643 animals were counted from 24 different species.

Warthog, guinea fowl and oryx were the most commonly sighted species in the first half of the year whereas warthog, eland and plain zebra were the most commonly sighted species during the second half of the year. The average number of warthogs counted each month in 2012 was 696.2 (Figure 11A **Error! Reference source not found.**). The graph of the kudu displays a large decrease in the average amount, going from 16.7 in 2011 to 4.9 in 2012 (Figure 11B). This decrease is due to a probable rabies outbreak, which has greatly reduced the number of kudu observed on CCF land. Oryx showed a slightly lower number of animals than those counted in 2011 with only 102 animals in 2012 (Figure 11C). Red hartebeest continue to be seen in very low numbers, with an average of 1.9 per count in 2012 (Figure 11D), which is again less than was seen in 2011. The average number of eland counted was 201.4, which is an enormous increase in comparison with eland counted in previous years (Figure 11E). In general, however, there has been a marked decline in wildlife sightings during 2012.



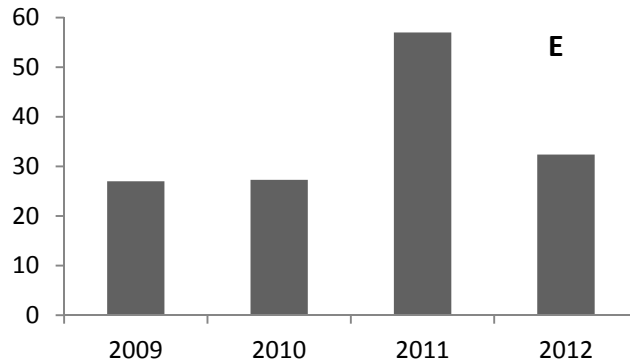


Figure 11: Average number of animals counted per waterhole count for warthog (A), kudu (B), oryx (C), red hartebeest (D) and eland (E) over January to December 2009 - 2012.

Annual Waterhole Count

A 12-hr new moon waterhole count was conducted in the Waterberg Conservancy on 31 July. We also conducted a few counts for 24 hour periods to compare the results with those of the 12h waterhole counts. The annual Waterberg Conservancy waterhole count provides population and density estimates and trends of various game species on the Waterberg Conservancy farms. The count also provides information on group sizes, population demographics and is vital for long-term monitoring. Through continued regular monitoring of wildlife populations utilising the Conservancy lands, more effective conservation of game species will be possible. Data from the counts is used to determine which species and sexes should be hunted to sustain a healthy population, as well as to highlight those that need to be conserved. Regular monitoring of key indicator species gives an indication as to the health of the ecosystem in general, signalling problems as they emerge and while they are still manageable.

This year 27 waterholes were counted across seven farms within the Waterberg Conservancy. The observers (two persons per waterhole) consisted of CCF staff, interns, volunteers, Earthwatchers, members of the Earth Expeditions group, and members of the Otjiwarongo Art School. A total of 5,127 individual animals (compared with 3,220 in 2011 and 5,963 in 2010) representing 35 species (23 mammals, 12 birds) were recorded. Warthog, guinea fowl, francolin, greater kudu and Chacma baboon were the most common species. The actual numbers counted, the extrapolated totals (taking into account the proportion of counted waterholes vs. available waterholes on each farm) and the densities for the five main game species (warthog, kudu, oryx, eland and red hartebeest) across the Conservancy are shown in Table 8. For all species a drinking frequency of once per day was assumed ($a=1$), additionally a frequency of $a=5$ was also used for oryx, eland and red hartebeest as there is limited data available on the drinking frequency of these species.

Table 8: Actual numbers of animals counted, extrapolated totals and densities (animals per 1000ha) for the five main game species in the Waterberg conservancy

Species	Actual No. Counted	Extrapolated Total	Density (per 1000 ha)
Warthog ($a=1$)	1111	34	213.9
Kudu ($a=1$)	189	-62	29.7
Oryx ($a=5$)	183	233	194.8
Eland ($a=5$)	99	-83	104.5
Red Hartebeest ($a=1$ - $a=5$)	51	3.6-41	30-233

The change in densities of the five main game species, in combination with rainfall, is shown in Figure 12. During the past 17 years we can see some trends appearing in the populations of main game species. Red hartebeest have increased in numbers since 1995 but still remain at relatively low densities with a high level of variation. Kudu numbers have fluctuated a lot since 1995 and seem to have increased in the past year. The density of other species such as eland, oryx and warthog was also higher than in 2011. Typically game densities are correlated to precipitation thus high rainfall yields high game density in the following year. This trend was observed in 2012 with the improvement in game densities as a result of high rainfall during the past wet season in 2011.

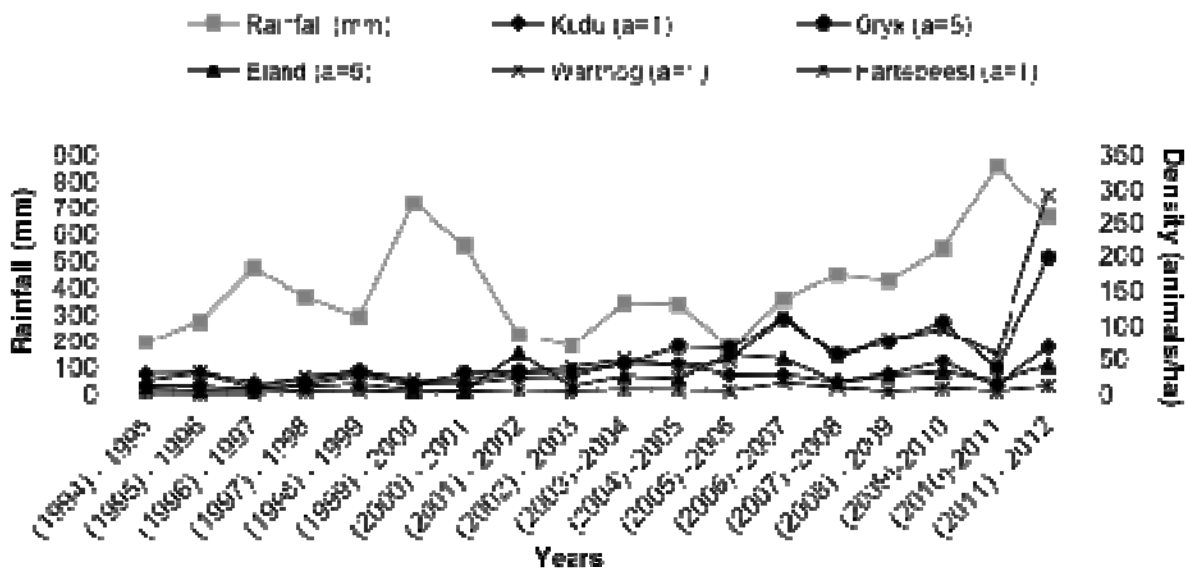


Figure 12. Density estimates (animals per 1000ha) for the five main game species across the Waterberg Conservancy 1995-2011.

3. Fixed Point Photography

To monitor long-term vegetation changes, CCF has taken fixed-point photographs since 1998. In 2012 photographs were taken during the dry and hot season (Sep-Dec) seasons at 11 locations at farms Elandsvreugde and Osonanga, using digital cameras.

4. Bush Encroachment and Biodiversity

Research continued around CCF's bush project. While bush encroachment is considered a major problem in Namibia, it also has potential as a renewable resource for alternative energy, especially in rural areas, and may alleviate electricity shortages projected to affect Namibia in the near future (see Bushblok section).

Between August and October 2010, bird and camera trap surveys were conducted in areas previously thinned. The aim of the project was to evaluate the response of the local biodiversity towards bush thinning operations on a short-, medium- and long-term basis. CCF Bush (Pty) Ltd. has adopted an

adaptive management framework and relies on feedback derived from the social, economic and ecological aspects of the restoration project. As such, significant negative indicators could signal altering or halting the process. Results obtained did not show large discrepancies between harvested and non-harvested sites, suggesting that the current methods and scale of harvesting should be encouraged to minimise any significant negative impacts.

CCF will utilise the results obtained as a baseline for further ecological research and monitoring of harvested sites. From this survey we will be able to identify common and elusive species, methodological and logistical constraints and will strive to improve on these aspects in subsequent surveys. The findings will guide CCF to expand the research to address more scientific questions with feedback loops for policy. Although birds and mammals were chosen as monitoring targets, it will be beneficial to include species with smaller home ranges, such as reptiles, and identify specific monitoring targets. We would like to make our findings available for peer review and publication in order to reach a wider audience and influence public policy.

5. Non-target Camera Trap Photos

At the beginning of 2011, intern Marjolein van Dieren of Van Hall Larenstein University in the Netherlands helped ecology staff investigate the use of non-target camera trapping photos to estimate game species richness and density. Her work was continued by Desiree Vermeulen also of Van Hall Larenstein University at the end of 2011 and start of 2012.

Remote camera traps have been used to investigate a wide diversity of research questions ranging from ecological to behavioural studies. However, their use in estimating the density of non-target species has been limited. CCF is testing this new approach which models the underlying process of contact between animals and cameras to investigate abundance indexes.

The model provides a factor that linearly scales trapping rate with density, depending on two key biological variables (average animal group size and day range) and two characteristics of the camera sensor (distance and angle within which it detects animals). Its primary assumptions are that cameras are independent, the population is demographically and geographically closed during the sampling period, and the sampling follows a systematic approach.

Camera trap studies on rare and elusive carnivores often do not follow a random or systematic sampling approach. However, these stations can be considered random sampling sites for other wildlife species. This study's primary goal was to establish the monitoring value of these non-target datasets. Therefore, we tested, evaluated and refined a density estimator for non-target species devised by Rowcliffe (2008). Obtained estimates were compared to those obtained from other count-based estimates (i.e., waterhole and strip counts).

Since a closed population is needed, five species of game (steenbok, oryx, red hartebeest, warthog and kudu) were selected. These species are known to live in the study area and are not expected to be migratory. The research used data collected during 2005-2009. We also obtained results on the characteristics of the camera sensor.

We found that, based upon a random encounter model (REM) created by Rowcliffe et al. (2008) our estimates were not significantly different from those calculated from our annual game count estimates.

However, this difference was often larger than 10%, which could be due to several factors, the most important being the non-random camera trap placement and a large variation in day ranges and group sizes of the selected species. Even though collecting accurate data on the REM parameters will most likely be challenging, we believe the REM will provide to be an efficient and fairly objective density estimation method in the future.

6. Bitter Bush Research

Bitter bush is an invasive perennial pioneer shrub, which has increased in recent years across the CCF big field. As this shrub is considered unpalatable, it can potentially reduce the grazing/browsing capacity of the big field for herbivores, which may explain the reduced numbers of game observed on field counts.

Our previous research indicates that the bitter bush does not contribute to forage for large herbivores and is currently very prevalent across CCF's big field. This baseline data can be used as a starting point for monitoring the encroachment of this species or to evaluate the effectiveness of any eradication efforts.

7. Swing Gates

CCF's swing gate project continued in the first half of 2012 (Figure 13). A Van Hall Larenstein University student, Joel Kasser, undertook a study on the 172 swing gates along the Bellebenno game fence to determine: 1) what species pass through the swing gates, 2) to what effect various environmental factors influence the number of re-opened and opened holes along the fence line, 3) the effect of the successive distance between swing gates on the number of holes that were (re)opened, 4) if there was a decrease in holes (re)opened over time post-installation of swing gates, and 5) the cost effectiveness of swing gates as a predator exclusion method when compared to electric fencing.



Figure 13: An active swing gate in the Bellebenno game fence.

Analysis revealed that digging animals such as warthog (*Phacochoerus africanus*), cape porcupine (*Hystrix africaeaustralis*) and armadillo (*Orycteropus afer*) are able to compromise the safety of fenced-in farmlands by digging holes under game fences, thus providing access for predators such as cheetah

(*Acinonyx jubatus*) and leopard (*Panthera pardus*). Results further showed that warthog, porcupine and armadillo commonly used swing gates while cheetah and leopard did not. Soil substrate, grass height, vegetation density, distance to the nearest permanent water source and season were identified as factors that influenced digging activity. Swing gate costs were found to be substantially lower than fence electrification. The study concluded that swing gates may be an effective and economic alternative to electric fencing by reducing hole digging and thus have the potential of combining protection of livestock and game species with a reduction of lethal predator control of threatened carnivore species.

8. CCF Rhino Reserve

CCF is part of the Namibian Ministry of Environment and Tourism's (MET) Black Rhino Custodian Programme. This programme fits perfectly with CCF's goals for its own land, which include the preservation of indigenous species and biodiversity, with a focus on endangered species such as the cheetah and the black rhinoceros.

Intensive monitoring continues in CCF's 14,640-ha rhino reserve, where a small population of southwestern black rhinos (*Diceros bicornis bicornis*) resides. The rhinos continue to be monitored via camera traps.

CCF's monitoring programmes provide ongoing protection for these critically endangered animals. Trail cameras are deployed across the reserve at key points that include waterholes, dung middens, game trails and roads (Figure 14). Their placement is determined by a number of factors, including spoor and scat sighted by the monitoring teams. Cameras are regularly moved, as the rhinos themselves migrate across the reserve. Individuals can be identified in photographs by a number of features, including ear notches, horn profiles and hide scars. Waterhole counts, afternoon- and night-time monitoring patrols are also conducted, while a number of additional, hi-tech monitoring methods are under investigation.



Figure 14. Recent photo of rhino male M2 taken from a remote camera trap placed next to a dam

As part of our ongoing commitment to environmental education, all volunteers and a number of Babson House guests have spent time with our rhino patrols and are taught about the rhino's 50 million-year history and the current problems they face from the multi-million-dollar illegal horn trade.

9. Predator-prey relationships

Year-long student intern, Suzie Kenny from Cardiff University, UK is currently completing a project on predator-prey relationships on CCF land. This involves using the cheetah densities calculated from the cheetah census that was conducted between 2005 and 2012 and performing a linear regression against prey abundance in order to analyse this relationship. Prey abundance was calculated from waterhole and strip counts that are conducted throughout the Waterberg Conservancy annually.

It is important to understand the relationship between predator and prey outside of protected reserves in order to plan and prioritise conflict mitigation strategies. Once this study is complete, the relationship found can then be used throughout the conservancies of Namibia in order to estimate cheetah densities, from prey abundance, on farmland in Namibia.

10. Play Tree Research

Student intern Eli Walker spent three months at CCF (May-August 2012), as part of his senior thesis research project required for his undergraduate Wildlife Biology degree at Unity College in Maine, USA. Eli's project aims to determine which factors or characteristics of cheetah play trees affect the rates at which cheetahs visit those trees. Though many studies have utilised cheetah play trees for various purposes (as sites for camera traps, scat collection, live capture, etc.), little has been done to describe these trees themselves fully. These trees play a vital role in cheetah biology and ecology so the results of Eli's study may offer very valuable information that CCF and other scientists/conservationists can use to make their wild cheetah studies, conservation efforts and management more effective.

11. Alien Invasive Species Removal

CCF is known for helping to rescue and protect cheetahs. Yet, this is only a part of what we do in our mission to save this threatened species and the habitat in which it lives. A team consisting of staff, interns, volunteers and Earthwatchers assisted with the removal of alien invasive species: the Mexican poppy (*Aeghmonia ochroleuca*) and the thorn-apple (*Datura innoxia*) present on CCF farms.

Our first priority, because the thorn-apple is toxic, was to remove all of these plants from the areas around our model farm that our goat herds have access to. From there, we moved on to clearing other areas on CCF property infested with these plants. We shall be heading out again in the forthcoming months to tackle this challenge.

F. Scientific Publications and Papers Presented

CCF staff continues to collaborate and publish in peer-reviewed journals and to present at scientific conferences. The following are papers that are accepted, submitted or in preparation.

Papers published

Farhadinia, M. S., Hosseini-Zavarei, F., Nezami, B., Harati, H., Absalan, H., Fabiano, E. & Marker, L. L. Feeding ecology of the Asiatic cheetah *Acinonyx jubatus venaticus* in low prey habitats in Northeastern Iran: implications for effective conservation. *Journal of Arid Environments* 2012 December; 8:206-2011.

- Guerier A, Bishop JM, Crawford SM, Schmidt-Küntzel A, Stratford KJ. Parentage analysis in a managed free ranging population of southern white rhinoceros: genetic diversity, pedigrees and management. *Conservation Genetics* 2012. 13:811-822.
- Kaelin CB, Xu X, Hong LZ, David VA, McGowan KA, Schmidt-Küntzel A, Roelke ME, Pino J, Pontius J, Cooper GM, Manuel H, Swanson WF, Marker L, Harper CK, van Dyk A, Yue B, Mullikin JC, Warren WC, Eizirik E, Kos L, O'Brien SJ, Barsh GS, Menotti-Raymond M..Specifying and sustaining pigmentation patterns in domestic and wild cats. *Science* 2012 Sept; 337(6101):1536-41.
- Mény, M., Schmidt-Küntzel, A. and Marker, L. *Diagnosis-based treatment of helminths in captive and wild cheetahs (Acinonyx jubatus)*. *Journal of Zoo and Wildlife Medicine* 43(4): 934-938. 2012.

Papers submitted

- Epps CW, Castillo JA, Schmidt-Küntzel, A., du Preez P, Stuart-Hill G, Jago M, Naidoo R. "Contrasting historical and recent gene flow among African buffalo herds in the Caprivi Strip of Namibia." *Journal of Heredity*. Accepted.
- Fabiano E.C., Nghikembua M. T., Eizirik E, Marker L.L, Using remote camera traps for surveying and monitoring trends in abundance and density; a case study of a cheetah population in north-central Namibia.
- Johnson, S., Marker, L., Mengersen, K., Gordon, C.H., Melzheimer, J., Schmidt-Küntzel, A., Nghikembua, M., Henghali, J., Fabiano E., Gaiseb, B., Wachter, B., Modelling the viability of the free-ranging cheetah population in Namibia - an Object Oriented Bayesian Network Approach. Re-submitted.
- Nghikembua M., Harris J., Tregenza T., Marker L. Interactions between bush encroachment and large carnivore habitat selection: a case study on GPS satellite collared cheetahs in northern Namibia.
- Potgieter, G.C., Marker, L.L., Avenant, N.L., and Kerley, G.I.H. The Effective Use of Livestock Guarding Dogs by Namibian Farmers.
- Quirke T., Forsythe K., Ramsey R. and Marker L. Comparative behaviour of a four female cheetah coalition pre- and post-release into a large game camp in Namibia.
- Rust, N., Marker, L. Attitudes of communal residents towards conservancies and predators in Namibia.
- Rust, N., Marker, L. Factors affecting depredation in communal conservancies across Namibia.
- Gehring, T.M., VerCauteren, K., Landry, J-M., Marker, L. Dogs as mediators of conservation conflicts. Book Chapter.

Papers in preparation

- Fabiano, E., Vermeulen, D., Van Dieren, M., Rust, N., Marker, L. Camera trap based density estimates: suitability for estimating densities of non-individually identifiable species
- Shrivastava S, Nghikembua M, Schmidt-Küntzel A, Marker L. "The release of captive-raised cheetahs in Namibia: management implications and lessons learned." In preparation.
- Cho YS, Hu L, Hou H, Lee H, Xu J, Kwon S, Oh S, Kim H-K, Jho S, Kim S, Shin Y-A, Kim BC, Kim H, Kim C-U, Luo S-J, Johnson W, Schmidt-Küntzel A, Turner JA, Marker L, Harper C, Miller S, Jacobs W, Bertola L, Kim TH, Lee S, Zhou Q, Jung H-J, Xu X, Gadhvi P, Xu P, Xiong Y, Luo Y, Pan S, Gou C, Chu X, Zhang J, Liu S, He J, Chen Y, Yang L, Yang Y, He J, Liu S, Wang J, Kim CH, Kim J-S, Hwang S, Ko J, Kim C-B, Kim S, Bayarlkhagva D, Paek WK, Kim S-J, O'Brien SJ, Wang J, Bhak J. "The tiger genome and comparative analysis with other feline genomes."
- Fabiano E.C., Schmidt-Küntzel A, Marker L, Eizirik E. The effect of vital rates on the effective population size of the Namibian cheetah population. In preparation.

Forsythe K., Kreijtz S., Schmidt-Kuentzel A. and Marker L.. Diet of cheetah on game and livestock farms in central and North-central Namibia.

Marker L., Forsythe K., Dickman A. Pilot Study of Conditioned Taste Aversion Trial on Wild-Caught Leopards.

Schmidt-Küntzel A., Williams J., Marker L. A formula-based rearing method for cheetah cubs.

Switzer A.D., Munson L., Wilkins P., Hoffmaster A., Marker L. Free-ranging Namibian farmland cheetahs (*Acinonyx jubatus*) demonstrate immunologic naivety to anthrax (*Bacillus anthracis*).

Reijneker, M., Winterbach, C., Marker, L. The effect of rainfall on herbivore population estimates from water point counts.

Kasser, J., Nghikembua, M., Rust, N., Marker, L. Assessing the factors that influence swing gates as a non-lethal predation prevention method.

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 the 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

1. Programme Overview

The Livestock Guarding Dog (LGD) programme at CCF continues to be one of the most successful conservation projects to assist farmers with predator conflict in Namibia. As of December 2012 there were 149 dogs (68M, 81F) alive in the programme, of those, 109 (49M, 60F) are working dogs and 40 (19M, 21F) are retired or pets.

Of the working dogs, 58 (26M, 32F) are on commercial farms including eight at CCF, 14 (8M, 6F) are on communal farms, 29 (10M, 19F) are on emerging commercial farms and 5 (3M, 2F) are on resettled farms. In addition, one male dog is working in Kenya and two dogs are working in South Africa (1M, 1F). Of the dogs placed as pets, 35 remain in Namibia and five dogs reside in South Africa.

The LGD programme is a crucial part in CCF's mission of conserving the wild cheetah and its continuing success is due to the efforts of dedicated CCF staff. Gebhardt Nikanor has been at CCF for over 10 years and Anja Bradley replaced Gail Potgieter who left CCF in May of this year, after completing her MSc on Livestock Guarding dogs in April 2012.

2. Breeding and Puppy Placements

After conducting pre-approval farm visits, a total of 25 puppies from four litters were placed during this period: six Anatolian shepherds born last November 2011, followed by 13 Kangals and six Kangal/Anatolian puppies born during this period.

Uschi (SB#269) had eight puppies (3M, 5F) in November 2011. Two of the puppies, both female, failed to thrive. One died in November 2011, two days after birth, and the second died in January 2012 due to a heart defect. Of the remaining six puppies, after confirming their good health, one female was placed on a commercial farm, one male was placed with an emerging commercial farmer, three puppies (1M, 2F) went to communal farms and the remaining male puppy was placed with a resettled farmer.

Kiri (SB# 451), a Kangal imported from Germany by her owner and brought to CCF for breeding purposes, was bred to our Kangal male Firat (SB # 431) and gave birth to CCF's first Kangal litter: eight healthy puppies (5M, 3F) on 1 February. A ninth puppy from this litter, a female, was still-born. As Kiri was loaned to CCF for breeding purposes, half of her litter went to her owners, who took two of the puppies to their farm and placed two with friends as working dogs on commercial farms. CCF placed three of the remaining four puppies with commercial farmers, while one female puppy was placed as a pet for future breeding purposes. Kiri continues to reside at CCF but is still considered on loan from Drenam (PTY) Ltd.

Feliz (SB# 430) and Firat (SB# 431), two unrelated Kangal dogs imported from France in 2010, were bred in mid-June and Feliz had her first litter of six puppies (3M, 3F) in August 2012. One of the male puppies was stillborn. Of the remaining five puppies, four (2M, 2F) were placed with emerging commercial farmers whilst the remaining female was placed with a commercial farmer for future breeding purposes.

Aleya (SB# 424) was bred to Amos (SB# 285), and gave birth to six healthy puppies (2M, 4F) in September 2012. Three of the puppies went to emerging commercial farmers (3F), and three puppies went to commercial farmers (2M, 1F). Aleya's donor, Kristina Peez of Germany, visited CCF with her partner and a friend in November 2012 to see Aleya and her puppies.

The farmers receiving puppies participated in CCF's mandatory one-day course, "puppy information day," where the farmers are trained on the correct methods of raising a livestock guarding dog. The courses cover care and training of livestock guarding dogs as well as predator-friendly livestock management.

Hediye (SB# 382), a Kangal female, was bred for the second time to Amos (SB# 285) at the end of November and a litter of puppies is expected at the end of January 2013. Cappuccino (SB# 407), one of a litter of puppies produced by artificial insemination (AI) in 2010 that was placed as a pet with the US ambassador to Namibia in Windhoek, was brought to CCF for breeding purposes at the beginning of December. She was bred to Amos (SB#285) and another litter of puppies is expected in February 2013.

In preparation for the placement of these two litters, visits will be conducted to farms selected from the CCF waiting list.

3. Follow-Up on Prior Placements and Health Survey

CCF staff visited 86 dogs during this period, including 17 puppies that were born in 2011.

Eleven puppies born in August 2011 were visited in February 2012 as part of the standard dog visits to ensure that they are properly cared for and working correctly. One of the puppies (SB#435, M) died after being kicked by a horse and the owner called us to report the incident. Another dog from the same

litter (SB# 432, M) died of a puff adder bite and the farmer informed us immediately. He was devastated by the loss and has been put back onto the waiting list for another puppy.

In June we received a call from one of our farmers to say that his older dog (SB#248, F) was not working well with his herder and their puppy (SB#456, M) and asked us to find a new home for her. She came back to CCF for two weeks so that we could conduct a health assessment before she was re-homed in July at an emerging commercial farm. Her new owner reported that she settled in very quickly and is a much appreciated addition to the kraal.

The six puppies born in November 2011 were visited during April and May 2012, as they turned six months old, for routine health checks and to check on the puppies training and working success. They were visited again in November 2012 for their first year visits and routine booster vaccinations. One of these dogs (SB# 450, M) was removed from a farm in November following a request from the farmer who was concerned for the dogs' health and well-being. After spending ten days at CCF, this dog was successfully re-homed on an emerging commercial farm.

Four puppies born in February and five puppies born in August 2012 received their three-month visit. As part of standard procedure, the puppies were vaccinated against rabies and other canine diseases during these visits. The remaining puppies from the February litter were placed after three months of age and had already received the necessary vaccines prior to placement. They all received their six month visit in August 2012 to check on their progress.

The puppies born at the end of September will receive their three month visits in January 2013.

Other than routine vaccinations, CCF provides de-worming tablets, veterinary supplies for minor injuries and topical anti-parasitic agents, when 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. While many farmers are part-time and thus their attention is divided between their farm and other business activities, 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 developing and the dog failing as a result. 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 pertinent, or placed as pets if the dogs are no longer able to work as livestock guarding dogs due to health or behavioural problems.

4. Dog Health

On 9 January, 2012, CCF's Kangal breeding male Firat (SB# 431) was attacked by a female warthog protecting her babies while he was out guarding the goat herd. He sustained a puncture wound that extended through the abdominal wall and into the intestinal tract, resulting in leaking of intestinal contents into his abdominal cavity. He underwent a four-hour surgical procedure (resection and anastomosis) to remove the damaged intestine and clean the contamination and infection out his abdomen. He stayed in the CCF clinic ICU for several days, but eventually made a full recovery and has been doing well since.

All of CCF's Anatolian and Kangal dogs, as well as our scat-detection dogs, are involved in a preventative medicine program. Every two months a broad-spectrum anti-parasite product for endoparasites is administered and the product utilised is rotated continually to help prevent development of resistance. Every six 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. Wellness blood work is run annually to evaluate overall health.

5. Squamous Cell Carcinoma (SCC) Research

In February 2012 the CCF veterinary team began chemotherapy treatment for three of our Anatolian shepherd dogs with lingual squamous cell carcinoma (SCC). Breeding male Amos (SB # 285), retired breeding female Tylee (SB# 240) and retired working dog Cheetah (SB# 255) had all previously been diagnosed with lingual SCC (tongue cancer) via tongue biopsy. The chemotherapy protocol involves three sequential treatment sessions spaced three weeks apart with a final session to perform a biopsy only to determine if therapy was successful. By the end of June, all three dogs had undergone the full chemotherapy and biopsy regime outlined in the treatment protocol. The tongue biopsy samples have been sent to the USA for analysis to determine the efficacy of the chemotherapy in reversing the microscopic progression of the tongue cancer.

In the month of July a mongrel working with Anatolian SB# 292 was sedated for an initial tongue biopsy and no treatment was done. One of CCF's breeding female Kangals, SB# 382, was sedated for a tongue biopsy and no treatment was done. Since July 2012 there have been no further biopsies taken or chemotherapy treatments.

For the lingual (tongue) SCC study, serum samples from affected and unaffected dogs were also sent to the USA for nutritional analysis in order to determine whether dogs with tongue cancer may have signs of nutritional deficiencies. The hypothesis behind this is that nutritional deficiencies in certain trace elements may make dogs more susceptible to the high UV index present in Namibia. This aspect of the tongue cancer research is supported by a Morris Animal Foundation Pilot study grant.

6. Student projects

Gail Potgieter was awarded her MSc qualification in April 2012 following her study on the guarding dog programme. She investigated the efficacy of the guarding dogs as non-lethal predator control method as well as the expectation and satisfaction level of the farmers who work with them. Two of the chapters will be submitted to peer-reviewed journals as separate scientific articles. Gail has since left CCF.

B. CCF Model Farm

CCF's farm provides the opportunity to practice and experiment with optimum methods of livestock and non-lethal farm management practices, especially acting as a showcase model of success. CCF's cattle, goat and sheep herds continue to increase and selected herds have been used during various farmer training programmes. Table 9 provides an overview of CCF's livestock. CCF also rents grazing land to three farmers for their cattle (approximately 500 head total).

Table 9. CCF Livestock. 1/1/2012 – 31/12/2012

	1-Jan-2012	Born	Purchased	Sold	Died	Slaughtered /CCF use	Stolen	31-Dec-2012
Cattle	424	200	0	108	5	9	0	507
Boer Goats	62	23	2	8	4	0	0	70
Dairy Goats	57	23	0	18	11	0	0	52
Damara Sheep	40	42	0	4	2	5	0	71
Donkeys	0	0	340	0	13	238	0	89
Horses	5	0	122	0	6	86	0	30

During this period, CCF farm staff were active in fence repairs and basic farm maintenance. Work continues on fire breaks and road maintenance.

1. Cattle

Under the direction of CCF's Farms Manager Johan Britz and Assistant Farm Managers Bessie Simons and Engelhardt Awaseb, CCF actively manages a large cattle herd under model conditions. By 31 December 2012, CCF has 507 cattle (36 more than in 2011). Total cattle production for 2012 includes 200 calves born, 5 dead, 108 cattle sold and 9 slaughtered for own consumption. Fortunately, no cattle were stolen from CCF property this year.

2. Small Stock

Goats and sheep are an essential part of CCF's LGD programme as the puppies must be raised amongst the goats and sheep in order for them to form a close bond with the livestock. In addition, the small stock herd have been used for demonstrations during farmer-training programmes. CCF's small stock herder Armas Shanika, farm management staff and the animal health team carry out proper management to maintain the general health and welfare of the animals.

In addition to eight Anatolian shepherd and Kangal dogs mentioned in the previous section, at the end of December 2012, the kraal has a total of 52 dairy goats, 70 Boer goats and 71 Damara sheep. The CCF staff is working on increasing the amount of shade and rain protection for the dairy goats and has built a new milking stand so two people can milk at the same time to reduce the amount of time it takes to milk the dairy goats. New ways of managing CCF's animals are being considered. In the future CCF would like to lower the amount of animals in the kraal to increase the individual health of each animal. In consequence, CCF is in the process of selling some of its animals.

- **Boer Goats**

The goat herd numbers stood at 62 at the beginning of January 2011, and 70 on 31 December 2012. Out of 24 does that were mated from mid-November to the end of December 2012, 14 gave birth for a kidding rate of 58% with a male to female ratio of 7:15. Five gave birth to a single kid, nine gave birth to twins. Ten did not kid possibly due to old age or low fertility of the buck used. In total, 23 kids were born in 2012, with only one loss due to still birth. CCF controls the herd size by selling or slaughtering

unproductive animals such as castrated males and old or inferior does that need to be replaced. In 2012, three goats died. One died due to an oryx injury in the bush, one had to be euthanised due to severe lesions caused by Orf, and the third one died due to problems after surgery. A total of eight goats were sold in 2012, which included our breeding buck. A new buck has been bought.

21 females were re-bred to the new buck between October and November 2012 and are expected to kid between March and April 2013.

- **Dairy Goats**

The dairy goat herd decreased from 57 on 1 January 2012 to 52 by 31 December 2012. The dairy goat does are managed in such a way that when half of them are being bred, the other half are lactating to keep a continuous production of milk. Fourteen does bred between February and June 2012 gave birth to a total of 17 kids between July and November 2012. A total of 11 dairy goats died in 2012. 18 were sold.

The does were bred at different times during those months: six were bred between February and March; five were bred between April and May, and three, between May and June.

At the beginning of our dairy goat kidding season in August 2012, we suffered from several doe and kid losses as a result of pregnancy toxemia. Pregnancy toxemia occurs for several reasons, including multiple fetuses, lack of exercise, overfed goatlings, under-nutrition, stress and being over fed concentrates during the dry period. In our herd we suspect the cause to be a combination of multiple fetuses and the result of inappropriate nutrition during the dry period. This was mainly due to the poor quality grass hay, which was unpalatable to our goats and consequently our goats were eating too many concentrates and not enough roughage to satisfy their needs. Eating large amounts of just concentrates mean the goats are overfed and become fat. Intra-abdominal fat deposits build up, which reduce rumen capacity and thus decrease feed intake. This meant that during the critical end period of pregnancy our goats could not eat enough to fulfill the energy requirements for their multiple fetuses.

Tina was our first goat to suffer from the problem; she aborted all four of her kids but after intensive treatment survived and is currently doing well. We sadly lost Grace, Karen and their kids. Sophia unfortunately did not survive either; however we managed to save her two kids (Rupey bear and Princess Saba) with intensive neonate care; they are both strong and healthy kids. The post mortem exam on Karen, Grace and Sophia all revealed large amounts of intra-abdominal fat, which aided our diagnosis that the problem may be linked to diet and poor quality roughage. Subsequently we changed the diet to incorporate a better quality and more palatable roughage: peanut hay. Also we increased the palatability of our grass hay by adding molasses to it. This diet change proved to be a success with the last three goats to kid (Diana, Yarrow and Camilla), which gave birth, unassisted, to healthy kids (White stripe, Whinnie, Apricot, Apple, Salt and Pepper). All of them are thriving now.

- **Damara Sheep**

The Damara sheep herd increased from 40 in January 2012 to 70 by 31 December 2012. Twenty-two sheep were mated from mid-August to late September 2011 and finished lambing by February 2012

with a conception rate of 81% and a male to female ratio of 8:10. Out of the 22 ewes mated, 18 gave birth to a total of 18 lambs, and only three did not conceive.

A total of twenty-four ewes were bred from mid-May to June 2012 and lambled between October-November 2012 with a conception rate of 92% and a male to female ratio of 11:13. Out of the 24 ewes mated, 22 gave birth to a total of 24 lambs, and only 2 did not conceive.

The herd size of the Damara sheep is controlled by replacing old ewes and wethers through selling and culling. During 2012, three sheep were sold, one died due to injuries caused by a baboon and one died due to a broken neck caused by unknown reasons. Fourteen wethers were ready for meat sales by end June 2012, of which five were slaughtered for our kitchen in late November 2012.

3. Small Stock Vaccinations and De-worming

Glanvac 3 – for the control of caseous lymphadenitis (*Corynebacterium pseudotuberculosis*) and prevention of enterotoxemia and pulpy kidney disease (*Clostridium perfringens Type D*) and tetanus (*Clostridium tetani*):

- Adult female animals are vaccinated one month before giving birth (parturition),
- Adult male animals are vaccinated once annually (Dec 15th in 2011),
- Newborns are vaccinated at 3 and 4 months of age and then annually thereafter.

Pasteurella – for the control of *Pasteurella haemolytica* respiratory infection (“shipping fever”):

- All adult animals are vaccinated annually,
- Newborns are vaccinated at 3 and 4 months of age and then annually thereafter.

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 5 to 6 months of age.

Orf – for the control of the poxvirus causing contagious ecthyma:

- All newborns are vaccinated within the first month of life.

Enzootic Abortion – for the control of *Chlamydophila psittici*, an organism that causes early and late term abortions:

- All female animals are vaccinated one month before breeding on an annual basis.

Rift Valley Fever – for the prevention and control of Rift Valley Fever virus:

- All animals over 6 months of age are vaccinated in May of each year (on the 6th in 2011).

Rabies – for the prevention of Rabies virus which causes fatal encephalitis:

- All adult animals are vaccinated in October of each year (on the 25th in 2011),
- All newborns are vaccinated at 8 to 9 months of age and then annually thereafter.

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; anthelmintic products are rotated between drug classes in order to help prevent development of resistance among the parasites, which can happen when the same product is used repeatedly. Both 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 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.

4. Hay Production

A total of 4,200 bales of hay were produced this year, ensuring that there are more bales produced than the actual numbers needed for CCF's growing needs (3750).

5. Wild Game Hunted on CCF Property

CCF hunts several wild game species for consumptive purposes, including oryx, kudu, red hartebeest and warthog. Table 10 below displays the number of wild game species removed for consumptive use over a six-year period.

Table 10: Numbers of game utilised in 2012 compared with totals from previous years.

	2007	2008	2009	2010	2011	2012
Oryx	33	45	45	82	80	28
Male	28	43	39	76	66	22
Female	5	2	6	6	15	6
Kudu	0	4	5	41	7	6
Male	0	4	5	14	1	3
Female	0	0	0	27	6	3
Hartebeest	0	5	12	35	22	0
Male	0	5	10	31	13	0
Female	0	0	2	4	9	0
Warthog	1	8	2	22	23	24
Male	1	8	2	22	12	18
Female	0	0	0	0	11	6
Zebra	0	0	0	0	0	1
Male	0	0	0	0	0	1
Female	0	0	0	0	0	0
Total	34	62	64	180	132	59

C. Association and Conservancy Relationships

1. Large Carnivore Management Association (LCMAN)

CCF continues its work with the LCMAN as one of the stakeholders and secretariat of this group of NGOs, researchers, farmers and governmental departments. LCMAN helps guide the conservation and management of large carnivores in the country and facilitates communication among the stakeholders to ensure a coordinated approach. This association further functions as a resource for MET to provide expert advice and guidance during policymaking procedures.

In 2012, CCF representatives attended four LCMAN general meetings, one held at CCF and another at Dusternbrook Game Lodge near Okahandja and the other two in Windhoek. One exciting item discussed included the use of a new online mapping database, the-eis.com, which we hope will map out carnivore presence/absence across Namibia with input from NGOs, government and private bodies. Other items of interest included reflecting upon the new captive large carnivore law put into place in Namibia in March 2012, providing information to MET on carnivore translocation regulations and a discussion on the use of hounds for hunting leopards.

2. Conservancy Association of Namibia (CANAM)

After serving as Chairperson of CANAM for years, Dr. Laurie Marker continues to support CANAM's efforts throughout Namibia; however, CANAM was not very active in 2012.

3. Greater Waterberg Complex

CCF's Field Research and Education Centre is neighbours to the Waterberg National Park and is on the steering committee of the Greater Waterberg Complex (GWC). The GWC encompasses some 1.77 million hectares, including the Eastern Communal lands known as Hereroland. CCF is working with the communal conservancy farmers in the GWC to assist in habitat restoration, reintroduction of wildlife into the target area, and training of integrated wildlife and livestock management skills. When fully operational, these communities will be empowered to manage and develop their livestock and wildlife resources, restore their land to productive use, and promote tourism.

As part of this effort, in June CCF hosted four visiting professors from Cornell University, USA, led by Dr. Alex Travis. During this visit, CCF held a meeting with community members of the GWC. In addition, the Cornell team that included veterinary, animal nutrition, food science, and sustainable business specialists provided over-view and assistance relevant to our creamery design, goat nutrition, bush harvest and biomass electricity ideas and rural development. In addition, fire expert Winston Trollope, from South Africa, visited CCF to advice on fire management both on CCF land and the GWC.

The Namibia Protected Landscape Conservation Areas Initiative (NAMPLACE), a Ministry of Environment and Tourism (MET) project, working in association with the United Nations Development Programme (UNDP) and the Global Environment Facility (GEF), is currently administering a five-year development plan for the GWC. NAMPLACE is responsible for selecting and implementing developmental projects that will benefit the community, satisfy the needs of the people and assist in the progression of the region.

CCF was selected by the NAMPLACE steering committee to implement a needs assessment survey for the project encompassing several conservancies and commercial farms within the GWC. The survey was conducted in November 2012, after which CCF analysed the data and presented the results to the GWC leadership in January 2013. As part of the GWC with ecological and research expertise, CCF will also continue to play a role in the implementation of the various recommendations and action plans resulting from the survey.

4. Combined Conservancy Report

Last year, intern Teresia Robitschko of Van Hall Larenstein University worked on combining the rapid surveys from all the conservancy visits made as part of the International Conservation Biology Courses over the last few years. Analysis was then continued by CCF ecologist, Niki Rust, and compared results of human-wildlife conflict surveys within the different communal conservancies and emerging farms visited. Questions to local farmers included those about livestock losses, farming techniques and livestock protection methods. Questionnaires also asked about predator abundance and wildlife in the area, as well as attitudes towards conservancies and carnivores.

Degree of livestock depredation differed in the various study areas, with loss being greatest where predators were thought to be most abundant and where herders were not used. Livestock guarding dogs did not appear to decrease depredation, but this is most likely because the dogs were generally small- to medium-sized and therefore not large enough to defend their herd from predators such as cheetahs and leopards. Most livestock loss appeared to happen during the day in the veld. Jackals were the most common predator of sheep and goats; lions and hyenas killed the most cows; leopards were the main livestock predators of horses and donkeys; African wild cats were responsible for the most amount of chicken depredation. Jackals were the most common predator seen across all study areas, followed by cheetahs. It appeared that there was a correlation between the amount of predators removed and the amount of depredation experienced.

Attitudes towards both conservancies and predators were more positive where people received direct benefits from wildlife, such as compensation for livestock loss, game meat, social support and money from trophy hunting. This stresses the importance of conservancies offering members tangible benefits from the wildlife that outweigh the costs of living in coexistence with predators to decrease human-wildlife conflict. Further studies into the importance of offering economic benefits to Namibians will be continued by Niki Rust in a PhD funded by the British Economic and Social Research Council at the University of Kent, UK.

D. 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.

1. Bushblok

In January the factory hired a Canadian engineering graduate, Degnan Hembroff, to oversee daily production. Incremental improvements have optimised production and improved worker health and safety. The business has achieved sufficient market demand for Bushblok but production is still

challenged by wear rates and harvesting sufficient wood during the dry months to cover the wet periods of the year. Advanced extrusion parts were purchased from a new supplier in November; preliminary results show reduced production costs due to longer lifetime and ease of rebuild.

In September, CCF made a pledge to the Clinton Global Initiative to scale up the Bushblok operations. Funding and partners have been sought. A comprehensive business plan and financial model were completed as a plan to reach breakeven scale.

On 22 December we were saddened to learn of the death of our friend and colleague, Lodewyk Puren, while he was on vacation diving for crayfish on the coast. Lodewyk had collaborated with us for years, first as the manager of Indongo farms, then as a Bushblok plant manager, and finally as our harvest and chip contractor. He will be missed.

Lodewyk was contracted as part of CCF's plan to encourage entrepreneurial SME development with different parts of the Bushblok process. In the immediate future CCF Bush will revert to directly hiring and supervising the crews for harvesting and chipping the bush.

Production

Production totalled 240 tons. The factory has kept pace with wood chip deliveries, but harvesting was slowed by a protracted rainy season, transport equipment breakdowns and vandalism. The scale of harvesting has increased and deliveries were steadier in the second half of 2012. In June, CCF was awarded a grant of N\$ 650,000 for the purchase and test of harvest machinery.

Costs of diesel and electricity have increased by more than 5%, which increases transportation and production costs. This has necessitated analysis into moving the factory closer to harvested bush and moving off the electrical grid. An outline was written for moving the factory closer to CCF to reduce wood transport distances. The remaining obstacle is sufficient three-phase electricity, which will require substantial capital to build a 250 kW power plant or a grid connection to CCF.

To reduce process time between sawing briquettes and packaging, a spreader bar was designed and built according to engineering safety standards for lifting equipment. Additionally, it has reduced redundant stacking and lifting labour.

The drum dryer was instrumented and characterised: with additional insulation it can only remove 1% of moisture from wood chips. This is insufficient during the intermittent rains of January-April when the chips cannot be reliably dried in the sun. A new dryer to remove 5 to 10% moisture will cost between N\$ 150,000 and N\$ 1,000,000. It will allow more productive hours during wetter periods of the year.

Health and Safety

The welding station was moved inside and improved by installing doors to protect workers from welding flash and sparks. The previous station was an outdoor lean-to and subject to wind and rain. A TIG welding machine was purchased for use with the new extrusion technology.

The storage rooms for tools and spare parts were organised to create a dedicated clean space for pneumatic and electronics parts.

Lifting and hoisting procedures have been improved by agreeing upon rules including one signal person for the lift operator, standard signals for each movement, and keeping out of the path of danger of lifted loads. There have been no lifting accidents to date.

A small dust filter was attached to inner dust extraction to reduce the airborne dust from the factory. A blower and filter was connected to the cut-off saws to pull sawdust away from the machinery. One saw was used as a prototype and the other saws will soon be connected.

Sales

Annual demand in Namibia has increased to about 80 tons, with seven main distributors supplying Windhoek and Swakopmund (Figure 15). Two South African distributors purchased several hundred tons for the Western Cape region. Another South African distributor purchases packs of half-length blocks; other block waste is sent to CCF and sold to local industrial customers. Total unmet South African demand remains in the thousands of tons.

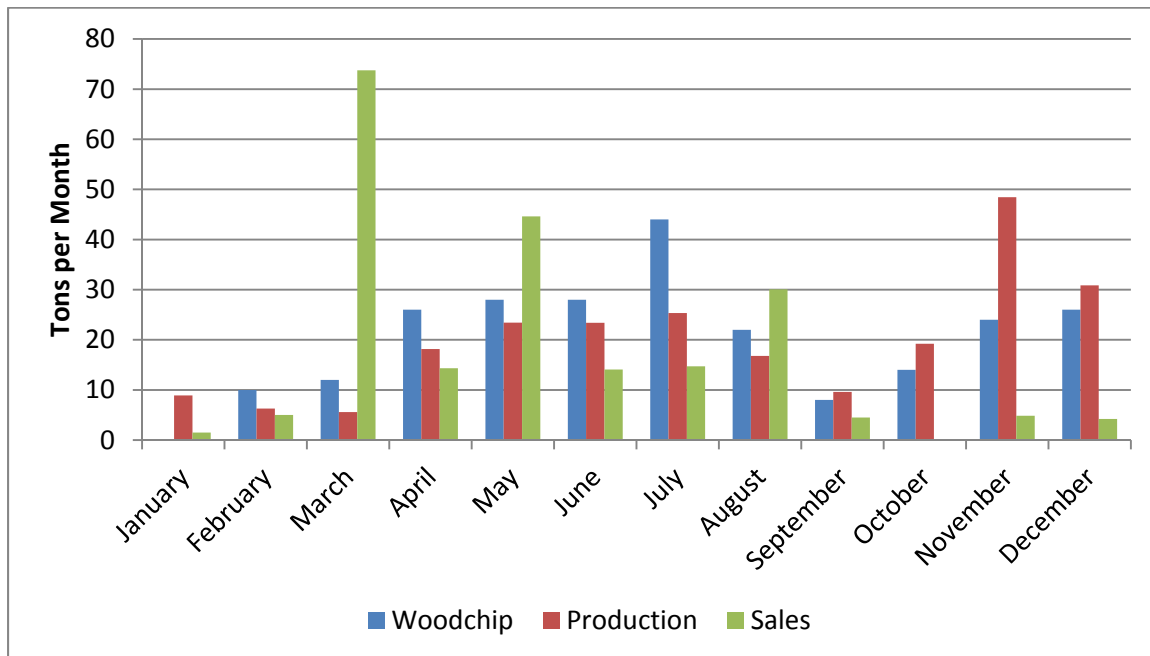


Figure 15. Bushblok production, woodchip and sales for 2012

Certification

The Forest Stewardship Council (FSC) inspected CCF for certificate renewal in April and issued approval. Several observations were raised regarding paperwork and record keeping, and these issues were rectified within several weeks. A report titled “Identification of High Conservation Value Forest (HCVF) on north central commercial farmlands, Namibia” was written for this certificate (for Executive Summary APPENDIX III: Identification of High Conservation Value Forest (HCVF) on north central commercial farmlands, Namibia.).

Visitors and Samples

Samples of raw woodchip and finished briquettes have been sent to German and South African clients investigating pellet production and to consultants for NAMPOWER, who are investigating biomass

electricity production for Namibia’s grid. Every week the factory gives tours to Namibians looking for cost-effective solutions to bush encroachment.

2. Cheetah Country Initiatives

Cheetah Country Goat Cheese

Background

CCF began producing fresh goat cheese in August 2009 using the milk from CCF’s dairy goats. The program aims to facilitate training and skill development around the production of goat dairy products, thus enabling livelihood diversification and supplemental income to community members. The goats and their Anatolian Shepherd guard dogs also serve as a model farm that demonstrates to other farmers the ability to raise livestock around predators without using lethal methods to prevent predation.

CCF’s farming strategy has evolved in order to increase their milk production by selecting high-quality breeds of livestock based on phenotypes and body scoring. The system involves reducing the number of Boer goats and Damara sheep through selection of best quality, and increasing the dairy goats for maximum milk production. Milk yield from the goats has steadily increased since the inception of the dairy goat program.

Milk Production

During 2012 CCF produced 11,026 litres of milk, of which 76.14%, 8,395 litres, was used to produce dairy products. The remainder of the milk was used to raise goat kids. The average monthly milk yield was 918 litres, with significant decreases in June and July. There are several major factors that play a role in milk variance. The amount of milk given by a specific goat depends on the following factors: the type of breed, age of an 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. Overall, milk production was sufficient in supplying the creamery with the amount of milk it required. The following table shows the total amount of milk produced, the amount that was used to raise kids, and the amount that was used to make dairy products from January to December 2012 (Table 11).

Table 11. Milk Produced from Jan-Dec 2012

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Total	1,196	1,098	979	1,063	857	609	527	939	978	896	915	969
Kids	419	228	44	113	0	0	0	246	303	34	84	139
Kitchen	845	748	818	477	581	632	512	699	630	769	826	858

Total Milk Produced	Total Milk Given to Kids	Total Given to Kitchen	Total Minus Variance
11,026	1,610	8,395	7,319

Cheese Production

The milk that was converted into cheese provided 798.8 total kilograms of cheese, 122 kilograms of chevre and 676.8 kilograms of feta. Fudge is also made by CCF but requires a smaller amount of milk to produce. It takes approximately 9.16 litres of milk to make 1 kilogram of cheese (7,319lt/798.8kg). If 100 litres of milk are subtracted for other uses, i.e. yogurt, fudge, waste, the milk required to make 1 kilogram of cheese decreases to 9.04 litres. It is safe to assume that 9 litres of milk yields 1 kilogram of cheese (Table 12).

Table 12. Litres of milk used to produce cheese, chevre and Feta from Jan-Dec 2012.

Litres of Milk Used by Kitchen	Kg of Cheese Produced	Litre of Milk per kg Cheese
7,319	798.8	9.16

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Feta	73.8	69.9	67.4	40.9	30.6	33	25.3	94.2	46	49.6	79.7	66.4
Chevre	0	1.2	0	6.4	21.9	6.1	10.5	8.6	25.9	24.5	3.2	13.7

Milk Expenses

CCF volunteers helped staff work on determining the milk expenses. Some of the expenses related to milk production include veterinary costs and vaccines, feed, cleaning supplies and labour. While not all expenses were included in this figure, it is estimated that the annual milk expenses total N\$53,230.07. Based on this figure, it costs N\$4.83 to produce 1 litre of milk (N\$53,230.07/11,026lt). If the goat farm is operating sustainably the cost per litre of milk should be N\$7.27 (N\$53,230.07/7,319lt), where the creamery covers the cost of the milk given to the goat kids.

However, it is not clear how much of these expenses were directly related to milk production because these costs include the veterinary expenses of the other non-milking goats and sheep. Milking goats are only about 26% of the population covered by N\$17,882.26 worth of veterinary bills. Therefore, it can be assumed that the total annual milk expenses are actually closer to N\$39,997.20 (N\$53,230.07 - (N\$17,882.26*74%)), and the cost of a litre of milk is approximately N\$5.46 (N\$39,997.20/7,319lt) (Table 13).

Table 13. Milk expenses from Jan- Dec 2012

Milking Goat Expenses	Litres of Milk Sold to Kitchen	Cost per Litre of Milk
N\$39,997.20	7,319 Litres	N\$5.46

Cheese Expenses

Cheese expenses include goat milk, cheese cultures, packaging, labelling, herbs, labour, gas and electricity. While not all expenses were included in this figure, it is estimated that the annual cheese

expenses total N\$8,006.25. Given that it takes 9.16 litres of milk to make 1 kilogram of cheese, and milk costs N\$5.46 per litre, cheese costs N\$50.01 per kilogram. During 2012, 798.8 kilograms of cheese were produced at a cost of N\$39,947.99. When added to the annual cheese expenses we can assume that the annual creamery expense to produce 718.7 kilograms of cheese is N\$47,954.24 (Table 14).

Table 14. Cheese Expenses from Jan-Dec 2012

Litres of Milk per kg Cheese	Cost per Litre of Milk	Cost per kg of Cheese
9.16	N\$5.46	N\$50.01

Annual Cheese Expenses	Cost per kg of Cheese	Annual kg of Cheese Produced	Annual Creamery Expenses
N\$8,006.25	N\$50.01	798.8	N\$47,954.24

Cheese Sales

Total amount of cheese sold to customers differed greatly from total amount of cheese produced. Whereas 798.8 kilograms of chevre and feta cheese were produced during 2012, only 213.15 kilograms were actually sold to customers, 138.8 kilograms of feta and 74.35 kilograms of chevre.

Total revenue from cheese sales for 2012 was N\$26,984.74 including 18.2 kilograms of fudge at N\$150 per kilogram. If fudge sales are subtracted the revenue from cheese sales is N\$24,254.74. At N\$50.01 per kilogram of cheese, the 213.15 of cheese produced cost a total of N\$10,659.63. The annual cheese expenses of N\$8,006.25 should be lowered to N\$2,136.07 because it is 26.68% of the total amount of cheese produced (213.15kg/798.8kg). Therefore, the total cost of cheese sold during 2012 was N\$11,998.39, yielding a profit of N\$8,578.75 (Table 15).

Table 15. Cheese sales for the year 2012

Kg of Cheese Sold	Cost per kg of Cheese	Annual Cheese Expenses	Cost of Goods Sold
213.15	N\$50.01	N\$2,136.07	N\$12,795.70

Revenue from Cheese	Cost of Goods Sold	Profit from Cheese	Profit Margin
N\$24,254.74	N\$12,795.70	N\$11,459.04	47.24%

2012 Total Sales and Client Development

Goat cheese sales rose steadily throughout 2012 which is evident in the quarterly sales summary (Table 16).

Table 16. Goat cheese sales rising steadily throughout the four quarters of 2012.

Q1	Q2	Q3	Q4	Total
\$3,428.24	\$5,983.00	\$8,176.20	\$8,929.30	\$26,516.74

The rise in sales is attributed to CCF staff becoming steadily more proactive in facilitating cheese sales as the year progressed. Also, by developing new methods of product distribution and actively pursuing more clients in new markets, such as Swakopmund and Walvis Bay, CCF was able to expand its clientele base and increase sales. Cheese deliveries were made to approximately 25 different customers throughout the year, with about eight customers ordering on a regular basis. *Table 17* lists CCF's five best customers and their total annual purchases.

Table 17: CCF's top cheese customers

Maerua Superspar	Fruit and Veg City	Geocarta Namibia	Gathemann's	Frans Indongo Lodge
\$7,616.00	\$1,915.20	\$1,875.00	\$1,635.00	\$1,750.00

2013 Outlook

The steady increase in sales and client development will continue into the first quarter of 2013. Both new and old customers have stated that they intend to order more goat cheese on a regular basis beginning in January 2013. If milk production stays relatively stable compared to last year's production, there should be plenty of room for sales growth as only 26.68% (213.15kg/798.8kg) of the total amount of cheese produced last year was sold to customers. This amount of cheese production amounts to N\$95,856 of potential cheese sales.

An upgrade to the CCF restaurant featuring a new chef and new menu are planned for early January. The menu items will incorporate CCF goat cheese which will lead to an increase in goat cheese sales. 2013 will also see the completion of the new goat cheese creamery which should streamline the cheese production process and possibly help produce a greater amount of cheese per litre of milk supplied. A grand opening event and a press release will generate a greater awareness of CCF's goat cheese production throughout Namibia and potentially attract new clients and increase sales.

E. Eco-Tourism

Tourism is one of Namibia's fastest growing industries, with a large number of developments emerging in the Otjiwarongo area over the past couple of years. CCF's eco-tourism 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.

Dr. Marker attended the opening of the Namibian Tourism Expo in Windhoek in June, with the Namibia Tourism Board. It was a great opportunity to see most everyone in Namibia conservation celebrating Namibia's wildlife and wild places. Chris Seek from Solimar International and Digu //Naobeb from the Namibian Tourism Board shared the Conservation Destination campaign's successes and held the lucky draw for the trip to Namibia, of which CCF offered an exclusive visit to this trip. Many people who talked to us thanked CCF for all our efforts on behalf of Namibia, the Cheetah Capital of the World.

1. Visitors to CCF

Throughout the year CCF hosted many friends, supporters and collaborators as well as visitors to CCF. In February, CCF was delighted to host Jonathan and Angela Scott, of “Big Cat Diaries” fame. The Scott’s, who are patrons of CCF UK, were the highlight of a fundraising event in Windhoek on February 14 for an aptly-named “A Valentine’s Date with Big Cats.” The US Ambassador, Wanda Nesbitt, and the British High Commissioner, Marianne Young, attended the event to show support for CCF’s work.

July was a busy month as we geared up for CCF’s Annual Fundraising Gala. Gala speakers Douglas Tompkins, President of the Foundation for Deep Ecology, and Kristine McDivitt Tompkins, Vice President of the Foundation for Deep Ecology and Founder and President of Conservación Patagónica, were able to visit our Centre and learn firsthand about our work. The Minister of Environment and Tourism, who was this year’s Gala keynote speaker, also visited CCF in the beginning of the year to learn more about our dog programme and our dairy goats. The Minister has since received one of our Livestock Guarding Dog puppies.

Newly-elected CCF USA board member and long-time donor from Portland, Oregon, Colleen Sorensen arrived for the Gala and then volunteered at CCF for the next couple weeks, before accompanying Dr. Marker on her trip to Uzbekistan and Russia. Long-time CCF friend, Annie Beckhelling and two of her staff from Cheetah OutReach (South Africa) spent a couple days at CCF after the Gala. Adrian Nisbett, an Australian volunteer who visits annually and has re-located to South Africa, assisted again this year with the Gala by writing press releases and welcome speeches.

Long time friend and research collaborator, Dr. Scott Turner from the University of New York in Syracuse (USA) and Professor Berry Pinshow from the Ben Gurion University in Israel, spent time at CCF working out details for a MOU between the various institutions in studying desert ecosystems. As a follow up to this visit, the Israeli Ambassador to Namibia, H. E. Mr. Dan Shaham-Ben Hayun, visited a couple months later to embrace the MOU.

Other visitors during this period included

- Elisabetta (Betty) von Hoening, from Italy, has been supporting CCF for several years by organising fundraising events and this year made possible Dr. Marker’s lecture for the European Parliament last October.
- Coinciding with Betty’s visit, CCF’s Asst. Director for International Programmes, Patricia Tricorache, returned to Namibia for a few days. Patricia’s first visit to CCF was as an Earthwatch volunteer in 2001.
- CCF USA Trustee Manny Friedman with Kindy French and family. Manny supports CCF’s dairy products enterprise.
- Kevin Starr –a connection made at the 2011 Skoll World Forum, and Laura Hattendorf, from the Mulago Foundation gave us the great news of a grant for our biomass activities during their visit.
- Leland and Vicki Gourley, with Carol and Gary Sander from Oklahoma City visited in June. As past member of the Oklahoma City Zoo Board, Vicki has been following Dr. Marker and CCF for over 12 years and this year was elected as a CCF USA Trustee. Subsequently, Vicki has joined the CCF USA Board of Trustees. The Gourleys and the Sanders hosted Dr. Marker in Oklahoma City in September.

- In June, CCF hosted a team of four experts from Cornell University, led by veterinarian, Dr. Alex Travis. The team consulted on the CCF creamery design and on projects in Hereroland (see Greater Waterberg Complex).
- Dr. Vera Holna, a long-time friend and donor, visited in June from Germany for her 12th annual visit.
- Judy Koch, a friend Bill Miller from Stanford, CA visited with her family and invited Dr. Marker to be a speaker at the Stanford Rotary meeting.
- Dr. Hanspeter Steinmetz, the veterinarian from the Kinderzoo Zoo Basel, and family spent a day at CCF during their Namibian vacation. The vet has known Dr. Marker for many years, as he had done veterinary training at the Wildlife Safari where Dr. Marker began her work. He will be looking at support for CCF through his zoo.
- Marie-Claude Erian and Carol Farquhar from Ottawa, Canada, stayed with us at Babson house. Carol loves cheetahs and has followed CCF for a number of years. They subsequently had Laurie visit Ottawa where they organised Dr. Marker's talk at the University and a meeting with Canadian parliamentarians. Carol is now Co-Chair of the Cheetah Conservation Fund Canada board.
- Elizabeth (Betty) Hudson and photographer Boyd Matson from the National Geographic TV brought a group for a few hours visit to see CCF. During their quick trip, they learned about CCF's LGD programme and watched a cheetah run. Dr. Marker then was a guest on Boyd Matson's National Geographic radio show during her fall USA tour in September.
- In September, long-time friend of Dr. Bruce Brewer's, Cynthia Vernon, who is the VP for education at the Monterey Bay Aquarium in Northern California, visited with several Aquarium colleagues. Cynthia has since facilitated an introduction to Julie Packard of the Packard Foundation, and met with Dr. Marker during her US trip in September.
- In October we welcomed US embassy attaché Chris Burney, followed by CCF USA board Chair, Dr. Stephen O'Brien, who was accompanied by renowned Johns Hopkins' HIV specialist, Dr. Max Essex. Dr. Essex, who works in Botswana, and his wife Elizabeth, a veterinarian, spent a couple days at CCF learning about our programmes.
- Robert M Johnson, Senior Trainer at The Institute of Greatly Endangered and Rare Species (TIGERS), spent a couple days at CCF. Rob has helped CCF extensively through editing and packaging promotional DVDs. While at CCF, he filmed many aspects of CCF's work and produced a short year-end video that was posted on CCF's YouTube channel.
- In December, the Otjiwarongo Rotary Club members and their families visited CCF for their Christmas party. They spent an afternoon of learning about cheetahs and ended the day with a cheese and wine tasting. Many of the Rotarians had not visited CCF before.
- CCF UK friend and donor, Sara Vaughan, visited for the first time at the end of December and learned firsthand about all CCF's programmes.

2. Visitors Analysis

Despite the ongoing financial crisis, Namibia became more affordable as the Namibian dollar weakened against major foreign currencies. This provides CCF with the opportunity to capitalise on the projected 2% increase in visitors to our country. However, as tourists are increasingly becoming seasoned international travellers, they will become more discerning and choose those destinations that can provide a more memorable experience and a good value for their money. Therefore, CCF strives to ensure that the product offered to the tourism sector is sufficiently attractive.

In 2012, we have seen a good number of tourists and students come to visit CCF. This number has slightly increased in the number of visitors, as well as a steady increase in income compared with 2011. This demonstrates that although the amount of people visiting CCF in 2012 increased from 2011 with just 346 visitors, these visitors spent an average of N\$ 289.00 more per visitor than in 2011.

The highest number of visitors during this period was seen in August (Figure 16). As with previous years, there were fewer visitors at the start of the year. The majority of visitors were walk-ins (Figure 17).

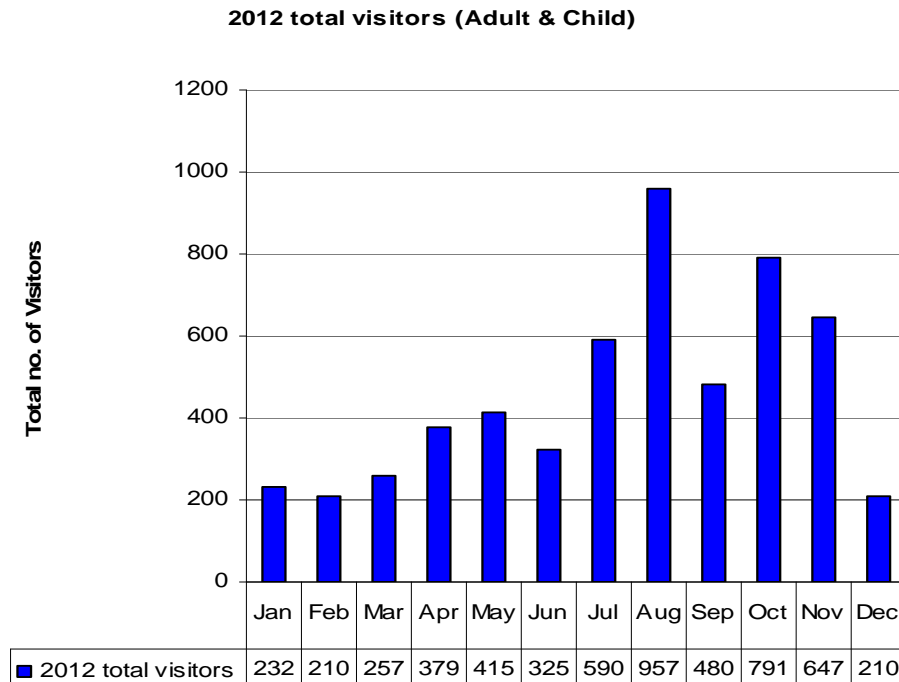


Figure 16. Number of visitors to CCF per month, Jan-Dec 2012.

2012 Total Visitors to CCF

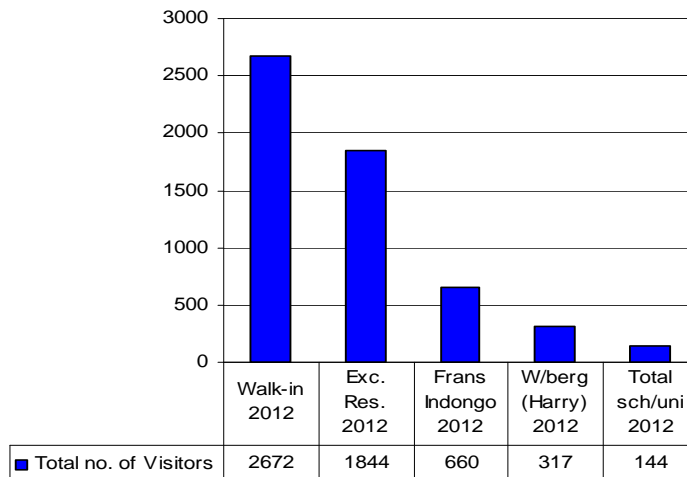


Figure 17. Source of visitors to CCF.

The school and youth groups were mostly concentrated in April and May, with the amount of visitors evenly distributed between day and overnight Camp Lightfoot visitors (Figure 18).

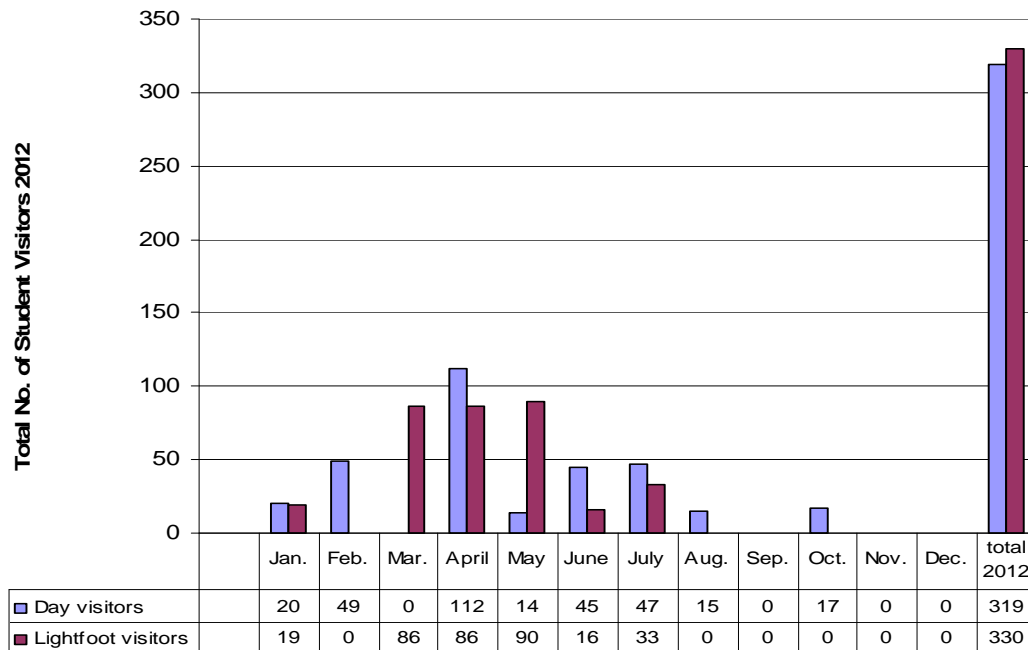


Figure 18. Number of school visits Jan-Dec 2012.

When comparing number of visits during 2012 with the number of visits in 2011, we have seen a slight increase in visits (Figure 19Error! Reference source not found.), from 4,993 in 2011 to 5,339 in 2012.

Total no. of visitors 2011 & 2012

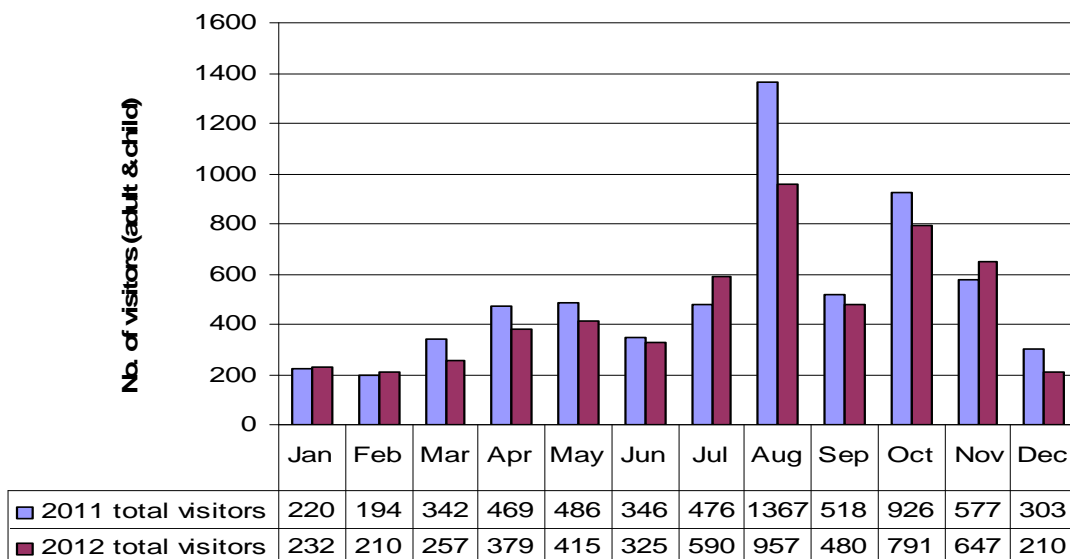


Figure 19. Number of tourists visiting CCF, Jan-Dec 2011 & 2012.

Overall, there has been a steady increase in the amount of tourism income in 2012 compared with 2011 (Figure 20).

Total monthly revenue 2011/2012

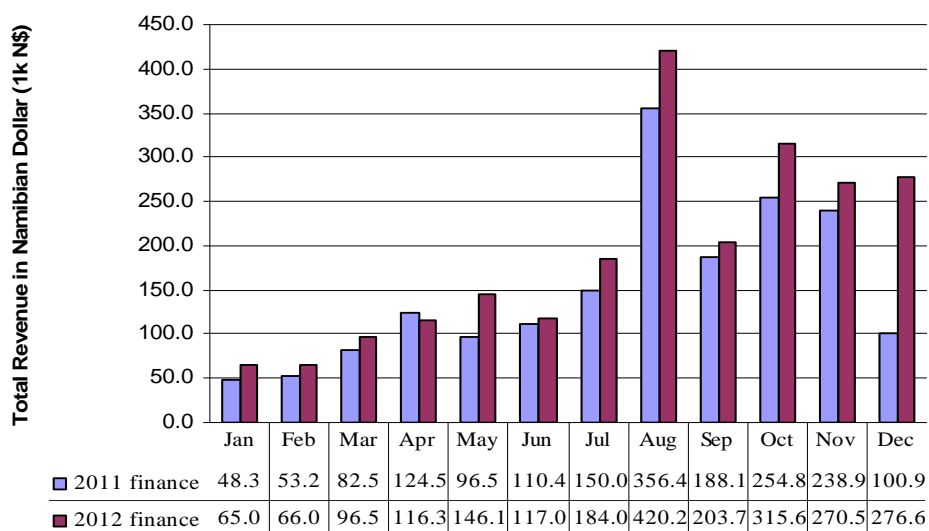


Figure 20. Income from tourism, Jan-Dec 2011 & 2012.

The main sources of tourism income were entry fees and cheetah drives (Figure 21).

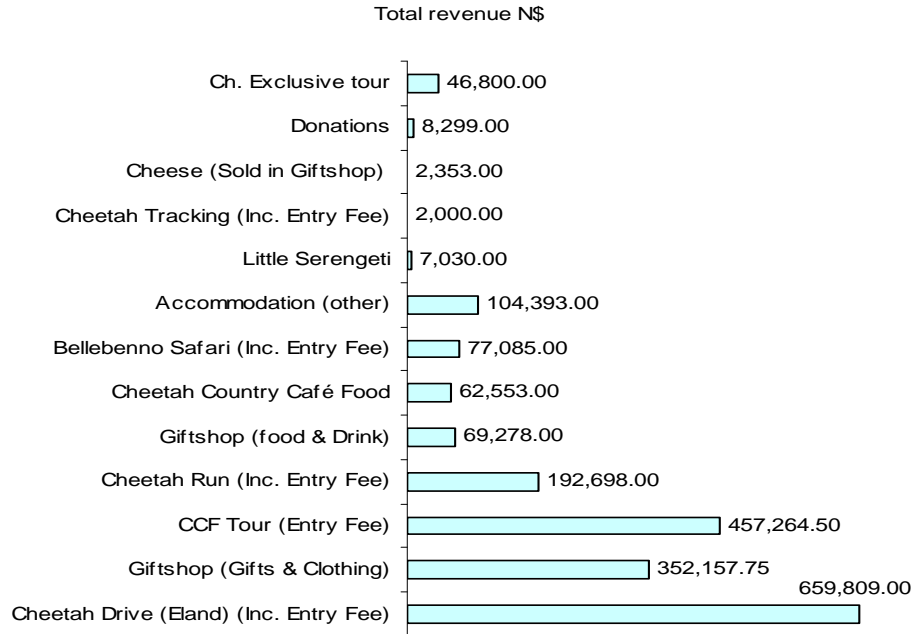


Figure 21. Sources of tourism income, Jan-Dec 2012.

April, followed by June, were our best months in terms of number of guests staying in CCF's luxury accommodation, the Babson House (Figure 22).

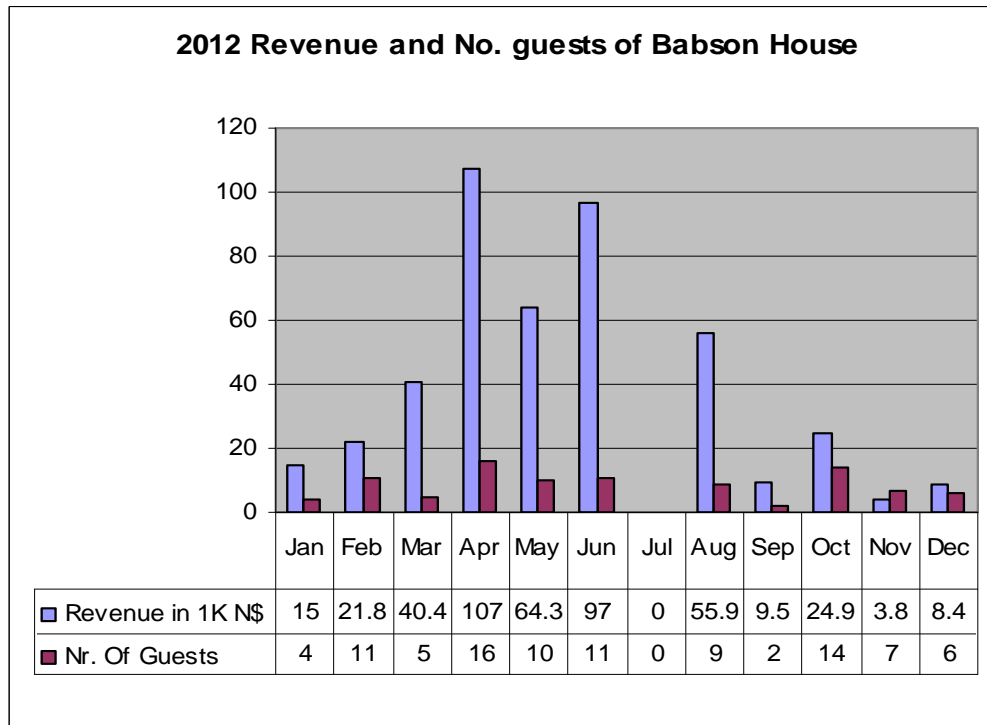


Figure 22. Babson house income and number of guests.

3. Food Expenses

As the amount of people living on the CCF property constantly changes, there are a lot of fluctuations in the amount of meals cooked as well.

Figure 23 shows the average amount of monthly individuals boarding at CCF. These consist of staff, volunteers and interns, Earthwatch volunteers, as well as school groups and any extra guests. Considering three meals per individual per day, the average amount of meals cooked for the year 2012 was estimated at 40,181.

Average of monthly individuals eating at the Hotspot area during 2012

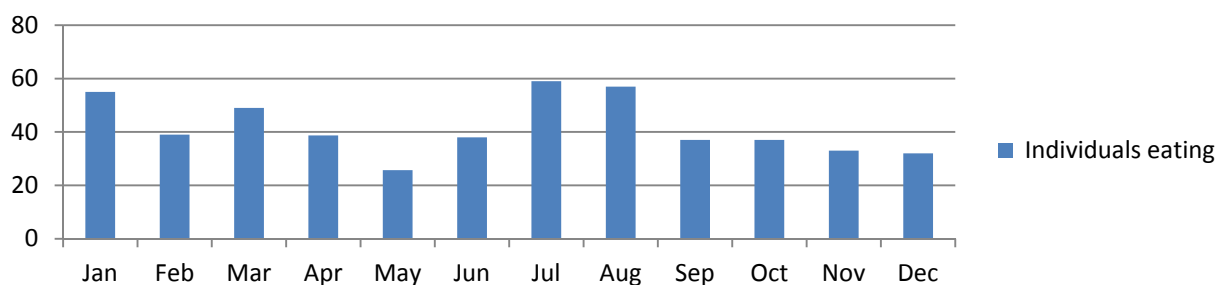


Figure 23. The overall average amount of people eating at the Hotspot.

Figure 24 shows the various groups eating at the Hotspot by categories. Overall, the percentages are made up as follows, Earthwatch (5%), school groups (11%), staff (59%), volunteers and interns (21%), and extra guests (4%).

Average number of people eating at hotspot divided by group

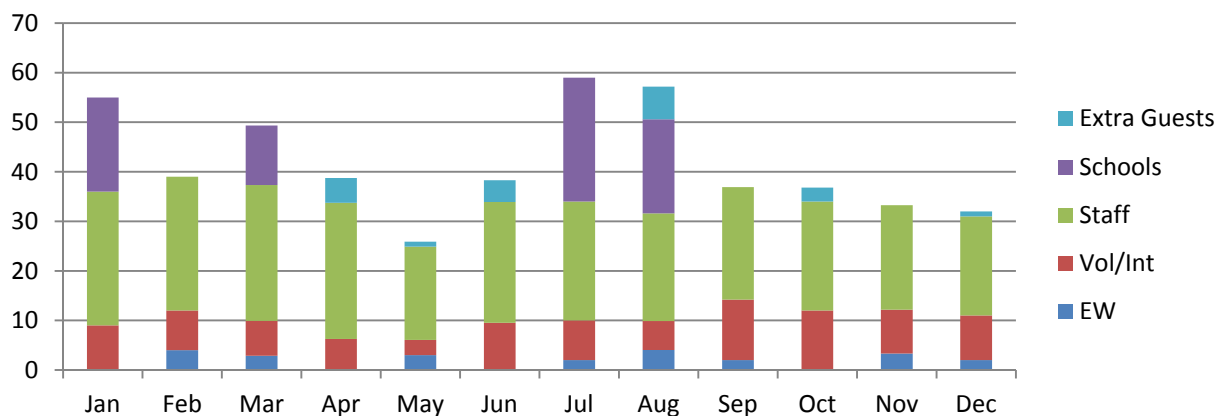


Figure 24. The Overall average of people eating at the Hotspot categorised by the different groups.

In addition, the estimated amount of meals prepared for CCF's Babson House in 2012 was 285 (Figure 25).

Average number of monthly Babson Guests in 2012

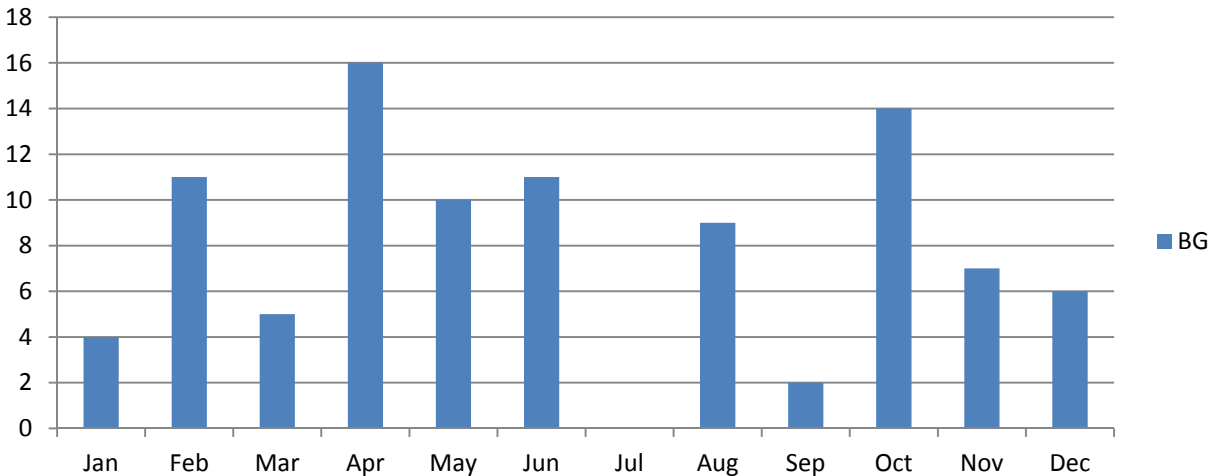


Figure 25. The Average amount of guests visiting the Babson House each month from Jan-Dec 2012.

4. Marketing

CCF's marketing agent, Exclusive Reservations, continues to support our eco-tourism efforts, both with bookings, as well as with its objective of transforming the CCF brand to make it distinctive and different. Attractions that encourage tourism operators to market CCF as a tourism destination continue to be evaluated, as are the information and materials supplied to visitors on departure in order to encourage them to become engaged and share their experience with their closer and wider networks once they have returned to their homes. We are actively promoting our social media websites - Facebook, Twitter, Blogger, YouTube, Trip Advisor and LinkedIn to all guests visiting CCF.

5. Visitor Attractions

April 2011 saw the launch of the 'Cheetah Restaurant', which, in addition to light lunches and snacks, began offering light meals intended to prolong visits while providing CCF with the chance to get closer acquainted with its guests. In addition, CCF continues to offer set menus and buffets to larger groups. This facilitates the effectiveness of the kitchen and helps clients to move through the lunch period without delays.

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.

1. International Cheetah Studbook

The 2011 International Cheetah Studbook was published in November 2012. The captive cheetah population for 2011 was 1614 (831.772.11) animals, at 241 known facilities (not including an unknown

number of private facilities) in 43 countries. Of the 1614 animals, 78% or 1257 (648.606.3), are captive-born and 20% or 328 (168.152.8) animals, are wild born (Figure 26). The origin of 29 (15.14), or 2%, animals is unknown.

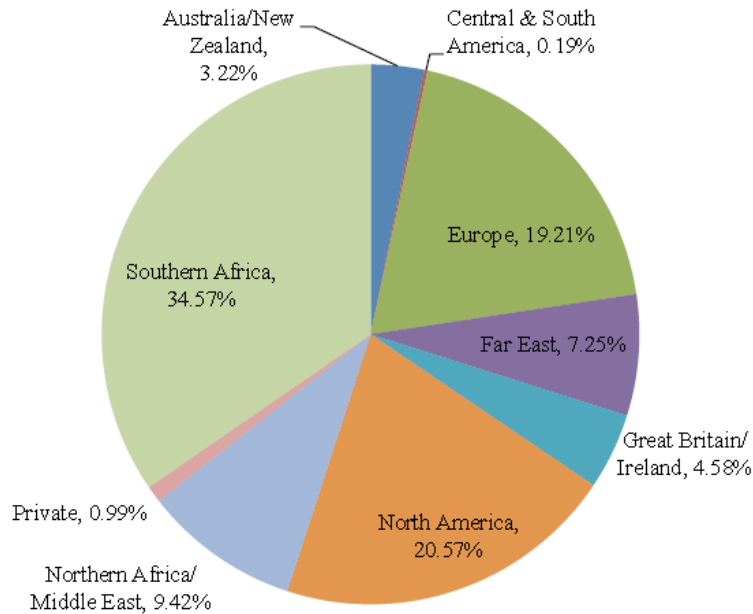


Figure 26. 2011 Captive Cheetah Population by Region, 1614 (831.772.11) Individuals

From 1 January 2011 to 31 December 2011, 191 (86.82.23) new animals were registered, representing newly imported wild-caught animals and births. Of the new additions, 165 (79.73.13) were births, and 25 (7.10.8) animals were wild caught and transferred to three facilities in Namibia and one facility in South Africa. In addition, there were 64 (33.27.4) new animals registered that had been brought into the captive population prior to 1 January 2011, but the studbook keeper did not receive notification until after the publication of the 2010 Studbook. Of these, 25 (11.10.4) were captive born, 13 were wild-caught (8.5), and 26 (14.12) were of unknown origin.

During 2011, 165 (79.73.13) cubs were born in 47 litters in 33 facilities in 15 countries. Total cub deaths less than six months of age were 41 (16.12.13), which represents 24.85% cub mortality. This is higher than the 2010 cub mortality, which was 21.1% (38 cubs). There were 33 facilities with reproductive success during 2011. Of those facilities, 27 had previous reproductive success, and 6 of the facilities had success for the first time in 2011.

Deaths for the 2011 totalled 140 (68.59.13) animals. Of the animals that died, 56 (25.31) animals, or 40%, were within the prime breeding age group of 3-10 years of age. There were 44 (19.12.13) animals, or 31.43%, that died before reaching 3 years of age. Of these, 90.91%, or 40 (17.10.13) animals died at less than 1 year of age. There were 40 (23.17) animals, or 28.57%, that were more than 10 years old.

The 2012 International Cheetah Studbook is in progress, with studbook numbers having been assigned to the new additions from the first half of the year. Preparations are being made to send out the 2012 year-end questionnaire to all facilities that cooperate with the studbook, so that the 2012 studbook may

be finalised in the first part of 2013. Data collected up through early December 2012 shows the current captive population is at 1654 (826.789.39) cheetahs; however a final number for the year cannot be determined until all the year-end questionnaires have been received.

2. International Meetings

Africa Tour: Niger, Kenya, Ethiopia –January 2012

At the end of January, Drs. Laurie Marker and Anne Schmidt-Kuentzel attended the West, North and Central African Regional Cheetah and Wild Dog Strategic Planning meeting and the Niger National Cheetah Planning Meetings at Park W, Niger. The meetings were held in collaboration with the IUCN Cat and Canid Specialist Groups, the Zoological Society of London and the Wildlife Conservation Society, and were supported by the Howard G. Buffett Foundation. The Regional Workshop highlighted the critical endangerment and lack of knowledge of cheetahs and wild dogs in these regions as well as the extreme need for conservation research initiatives.

At Dr. Marker's invitation, both the US and German Ambassadors joined Dr. Marker and Dr. Schmidt-Kuentzel at the Park W in Niger to learn about the needs of the region for cheetah conservation. During the meeting, the ambassadors engaged with local government representatives with hope for continued collaboration and support for some of the conservation efforts of the Niger Wildlife authorities.

During a stop in Kenya, Marker and Schmidt-Küntzel met with CCF's Kenya partner Mary Wykstra from Action for Cheetahs in Kenya and visited the Kenyan Wildlife Society to discuss the potential for training a Kenyan researcher in genetic laboratory techniques at CCF in order to contribute to the development of genetic expertise. Also, progress was made in the permit process to send samples from Kenya to Namibia to allow for analysis at CCF until the Kenyan laboratory is ready to process genetic samples.

After the meetings in Niger, they went to Ethiopia where they met with Stephen Brend, Project Director of the Born Free Foundation Ethiopia (BFFE). They assessed the facilities and health of four confiscated cheetah cubs in order to evaluate their long-term future. CCF has been in contact with BFFE since the cubs were confiscated at about six weeks of age, and has provided guidance in proper diet and care. The four cubs were in good physical condition and significantly smaller than the cheetahs in southern Africa; they are very habituated to people and will not be good candidates for release. Ethiopia and Somaliland continue to be hotspots for illegal trade and are among the focal areas that CCF has been working on to bring awareness and action. To this effect, CCF has worked with BFFE and the Ethiopian Wildlife Department for several years, as illegal trade in the region is extensive, with cubs being caught and sold in the Middle East.

This trip also allowed Drs. Marker and Schmidt-Küntzel to meet with past international course students to discuss the future of cheetahs in their countries.

Namibian Tourism Board - US, February 2012

In February, Drs. Bruce Brewer and Laurie Marker travelled to the east coast of the United States (Washington DC and New York City) with a Namibian tourism delegation. The team is developing contacts to help grow the United States tourism market. Events included the launch of Network Namibia: The NTB North American Road Show in Washington, DC with a cocktail reception at the

National Press Club. Drs Marker and Bruce Brewer, CCF staff and members joined the event which included a special visit by the Namibian Ministers of Environment and Tourism and the Namibian Embassy and their delegation. The Ministers and NTB representatives were also hosted by the International Conservation Caucus Foundation (ICCF), of which CCF is a member, for a dinner to honour Drs. Brewer and Marker.

The group then travelled to the New York Travel Show to meet with many of the US largest travel agents to bring people to Africa.

Clinton Global Initiative (CGI) Winter Meeting – US, February and September 2012

Drs. Brewer and Marker were invited to the CGI winter meeting where they joined the Environment and Energy group and discussed CCF's initiatives with biomass. In September, Dr. Laurie Marker returned to New York for CGI's Annual Meeting. Through the summer, CCF had been working with CGI to develop a CGI "Commitment" – a commitment to action around which CGI builds opportunities to network within its organisation. Dr. Marker made a Commitment to expand the Bushblok programme's capacity with the goal of encouraging the biomass fuel industry in Namibia.

CCF announced Dr. Marker's CGI Commitment on September 25, 2012, with a press release, a Huffington Post blog post, and a You Tube video created with the assistance of CGI. Since the September CGI meeting, CCF has been utilizing the networking opportunities to make connections in the larger energy industry and within CGI's networks.

Skoll World Forum - Oxford, UK, March 2012

Dr. Laurie Marker was invited again to be a delegate at the prestigious Skoll World Forum held in Oxford, UK in March. The Forum provides an opportunity for hundreds of delegates from the social, finance, private and public sectors to convene for three days and nights of critical debates, discussions and working sessions aimed at innovating, accelerating and scaling solutions to social challenges. Dr. Marker was able to make new connections and follow up with others met during the Forum last year. One of the connections made during this year's SWF was Arianna Huffington, head of the prestigious Huffington Post, who invited Dr. Marker to become a regular blog contributor.

Global Development – Cape Town, South Africa, May 2012

In early May Dr. Brewer attended a meeting in Cape Town regarding the Millennium Development Goals. Exhibit space had been donated by contacts Dr. Marker had made at the Skoll Congress.

Biomass Conferences, Sweden – June 2012

Later in May, Dr. Brewer travelled to Sweden to attend the World Bioenergy 2012 Congress and the meeting of the World Bioenergy Association, of which he is a member. He took place in business-to-business meetings with parties interested in biomass investments in Namibia and made site visits to two potential suppliers of biomass harvest equipment.

European Parliament's (EP) Intergroup on the Welfare and Conservation of Animals – Strasbourg, France – October 2012

The EP Intergroup on the Welfare and Conservation of Animals invited Dr. Marker to its 287th session held on 26 October 2012. The Intergroup is the focal point for animal welfare in the European Parliament. It is open to all MEPs that are eager to debate and promote this policy issue. Dr. Marker's presentation focused on conservation efforts and strategies of cheetahs in Africa.

Dr. Marker's speech was well received by the nine MEPs including President Dan Jørgensen, EP staff members and over 50 guests and CCF supporters. As a result of this lecture, a visit to CCF will be put forward by the MEPs to the responsible authorities, to better understand the activities of CCF and try to apply this approach of human/predator conflict resolution to European countries.

3. Illegal Wildlife Trafficking

CCF first became actively involved in issues involving the illegal taking of live animals in November 2005, when it arranged for the confiscation of two extremely unhealthy cheetah cubs being held in chains outside a restaurant in Ethiopia. Since then, CCF's Assistant Director of International Programmes Patricia Tricorache has been monitoring illegal cheetah trafficking and assisting with confiscations through the proper authorities whenever possible. Between direct reports and various media articles, CCF has knowledge of at least 375 cheetahs that are victims of the illegal wildlife trade.

Although geographically widespread, most of the reports compiled by CCF involve the Horn of Africa (HoA) and the Middle East. 105 of the 109 cheetahs reported in 2012 were located in these areas. Only 12 survived.

The HoA is an area of particular concern due to political and economic factors that make enforcement more difficult. The HoA region borders the Indian Ocean, a well-known smuggling route to the Middle East, where ownership of exotic pets is considered a status symbol. Consequently, Patricia works closely with a network of concerned individuals and NGOs in the HoA to find solutions for dealing with cheetah cubs smuggled around this region. During 2012, the CCF network was able to arrange the confiscation of nine cheetah cubs, seven of which survived and were transferred to safe locations in Ethiopia and Djibouti. In addition, there is knowledge of 26 other cubs confiscated by the Somaliland authorities, but only one is known to be alive and currently negotiations are in progress to retrieve it. The group is also trying to locate 12 cheetah cubs reportedly being sold near the border between Ethiopia and Somaliland.

A facility that received two confiscated cheetah cubs in Zimbabwe approached CCF for advice on cheetah nutrition and care. Elsewhere, illegal wildlife traffic reports include two cheetah cubs purchased in a "souk" (market) in Haradh, Yemen. After lengthy negotiations the owner agreed to allow CCF's partner in Yemen to transfer the cubs to a facility in Djibouti; unfortunately, both cubs died shortly after the discussions concluded.

Public Policy

CCF is a founding member of the Coalition Against Wildlife Trafficking (CAWT), a voluntary public-private coalition started by the Bureau of Oceans and International Scientific and Environmental Affairs of the

US Department of State. CAWT's membership includes six governments and 14 NGOs, including the IUCN, TRAFFIC, Conservation International and WWF. Its aims are to focus public and political attention and resources on ending the illegal trade in wildlife and wildlife products.

In its capacity as a CAWT member, CCF was invited to submit data on illegal cheetah operations, which was part of a [document](#) submitted to CITES for inclusion in its Conference of the Parties to be held in Bangkok in March 2013. The document, submitted by CITES Parties Kenya, Uganda and Ethiopia, calls for a range-wide consultation for a detailed CITES-authorized study on the legal and illegal trade in cheetah and for assistance in that process across all range states. This document, which has been tabled for CITES CoP16, is the first statement in a major international forum about the serious problem of illegal trade in wild cheetahs. Most crucially, the results of the study could form a solid basis for devising future practical measures to tackle this issue.

On 8 November 2012, Secretary of State Hillary Clinton announced that the United States would now treat poaching and illegal wildlife trade issues as a matter of national security. In preparation for this major address, CCF was invited to attend briefings at the U.S. State Department on the issue. Communications Coordinator Liz Georges attended on behalf of CCF. CCF was also invited to attend a Joint Congressional hearing hosted by the International Conservation Caucus Foundation (ICCF), of which CCF is a member. In conjunction with these meetings, CCF prepared and distributed a legislative testimony to both U.S. State Department leaders and to the Congressional hearing regarding CCF's position on illegal wildlife trade issues.

In December, Dr. Laurie Marker met with United States' Under Secretary of State for Economic Growth, Energy, and the Environment Robert D. Hormats to discuss a number of issues, including illegal wildlife trade, the role that detection dogs and genetics analysis can play in enforcement, and large landscape-based conservation efforts. As part of this meeting, CCF presented the Under Secretary with a briefing and request to ensure that the illegal pet trade is consistently included in all policies, actions and legislation relevant to the illegal wildlife trafficking as a whole.

The sum effect of our efforts this year is that CCF is more consistently represented in higher level discussions of these issues and is now positioned to become a more powerful advocate for cheetahs in the context of illegal wildlife trade.

V. EDUCATION

Public education and the development of an active grassroots constituency are integral components of CCF's overall cheetah conservation programme. 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.

CCF continues to host school groups of all ages at Camp Lightfoot and visiting schools as part of our outreach program. CCF also continues to host national and international university students and interns.

A. Future Conservationists of Africa

This year, the Teachers' Resource Guide titled "Cheetah: A Predator's Role in the Eco-system," was revised and printed in its 3rd edition thanks to a grant by the First National Bank of Namibia.

Between January and December 2012, the CCF Education team reached nearly 11,000 Namibian children and youth through school outreach and Centre-based programmes.

1. School Outreach

Seventy-five schools were visited during 2012. Over 10,000 children learned about cheetah behaviour, ecology, conservation and how people can help save the cheetah during 45-minute presentations by the CCF staff.

In March, the team conducted outreach at 10 schools in the Otjozondjupa area, totalling 2,192 children in grades 5-9 and six schools in Tsumeb reaching 716 children in grades 5-10. Many of the schools in the Tsumeb region are in very remote, rural areas and thus were grateful to CCF for making an effort to reach them since few others do, with the result that sometimes rural learners are behind when it comes to basic general knowledge.

In April, seven schools were visited in the Otjiwarongo area, where the team reached 1,287 pupils in grades 5-8.

In June, 10 schools were visited in the Hardap region in the south of Namibia. The team reached 1,606 pupils in grades 4-8.

July was a busy month with the team visiting 28 schools in the Khomas, Omaheke and Otjozondjupa regions, totalling 3,654 children from grades 1-8.

The last of this year's school outreach visits were made in October, when the team visited 14 schools in the Erongo and Kunene regions, totalling 1,162 children ranging from pre-primary school up to grade 7.

2. Centre-based Programmes – Primary to High School

Organised education programmes at CCF involved 23 groups (831 children and youths), accompanied by 80 teachers, parents or volunteers (Table 18). Twelve of these groups (472 children/youth and 36 adults) participated in overnight programmes at CCF's Camp Lightfoot. Depending on the length of stay and the group focus, programmes include activities such as a cheetah run, museum tour, guarding dog and goat kraal talks, predator kill identification exercises, 'preyground' activities, ecological talks and game drives.

Table 18 Namibian Schools hosted by CCF during 2012

Date In	Date Out	School	Learners	Adults	Total
19-Jan-12	21-Jan-12	Kuisebmond Sec. School	16	3	19
5-Mar-12	9-Mar-12	St. Georges Prep. School	49	3	52
16-Mar-12	18-Mar-12	Paresis Secondary School	20	2	22

27-Apr-12	29-Apr-12	Young Achievers Youth Group	30	1	31
29-Apr-12	30-Apr-12	Napofi Secondary School	50	5	55
6-May-12	7-May-12	Negumbo Secondary School	74	3	77
28-Aug-12	30-Aug-12	Martin Luther High School	50	5	55
21-Sep-12	23-Sep-12	Emma Hoogenhout Primary School	66	6	72
24-Sep-12	27-Sep-12	Amazing Kids Private School	51	4	55
12-Oct-12	14-Oct-12	SpesBona Primary School	30	2	32
19-Oct-12	21-Oct-12	Hiland Christian School	36	2	38
Total Lightfoot Overnight Visitors			472	36	508
2-Feb-12		Okatjikona Enviro Education Center	2	1	3
5-Apr-12		Edugate Academy (Gr 6+7)	27	3	30
20-Apr-12		Little Ducklings Pre Primary School	45	5	50
10-May-12		Elakalapwa Combined School	12	2	14
23-Jun-12		Otjikoto S.S.S. (Enviro Club)	32	4	36
29-Jul-12		Festus Gonteb Primary School	44	4	48
9-Aug-12		Marco Polo Vocational Training Centre	16	1	17
25-Aug-12		Rudolf Ngondo Primary	70	6	76
31-Aug-12		Otjiwarongo Art Centre	40	6	46
14-Sep-12		Otjiwarongo Youth Group	35	3	38
18-Sep-12		Train Occasion Inclusive Needs/Special School	11	7	18
20-Nov-12		Edugate Private School	25	2	27
Total Day Visitors			359	44	403
Total Education Programmes Visitors			831	80	911

3. Higher Education and In-Service Training

CCF is committed to empowering Namibians to take over the conservation and protection of their wildlife. Toward this goal, for many years CCF has fostered Namibian college students' interest in wildlife conservation. CCF offers in-service training programs for students from the Polytechnic of Namibia or University of Namibia (UNAM). The students conduct research projects, with the goal of completing a research paper at the conclusion of their internships. Several former interns have gone on to work at conservation organisations or with the Ministry of the Environment.

During this period CCF fostered four students from the University of Namibia: Gervasius Uunona and Tamara E. Njirenda for 6-week internships; and Anna Ekandjo and Lucia Mhuulu, who worked with the genetics lab during 3-12 month internships. Other interns here for three months were Titus Shaanika, who helped with the Greater Waterberg Complex Survey; Lucia Simon, who worked on a springbok research paper; and Philipus Shilongo, who helped greatly with the kraal work.

CCF hosted a group from UNAM on 21 July (39 students and 3 lecturers), and a group from St Paul's College in Namibia (29 students) for an overnight programme at Lightfoot Camp.

B. Future Farmers of Africa

This year CCF did not impart any farmers' training courses, since efforts were focused on working more with the farmers who already have CCF's Livestock Guarding Dogs.

C. Community Outreach

CCF staff travelled to three of the major agricultural shows in September and October: Grootfontein, Otjiwarongo and Windhoek, reaching nearly 4,000 adults and children. Unfortunately, clashing dates and lack of response from the show organisers deterred us from participating in the Gobabis, Okakarara or Outjo shows.

In addition to a slideshow of predator pictures which drew people to the stand, this year's CCF exhibit featured CCF's new banner posters, detailing CCF, the LGD programme and CCF's model Farm.

CCF's LGD programme drew much interest at all three shows, with many people applying for a dog at the shows and subsequently by email. Another area of interest was the CCF's Model Farm, including the dairy goats. CCF staff were able to discuss the benefits of goat mil with many of the show attendees.

The "Predator ID" game was very popular and helped to bring people to the stand to talk about predators. Both the names of the animals and the tracks were used in the game and children and adults were interested in playing. The game was used as the start of a conversation to discuss the size, behaviour and general distribution of the carnivores presented on the board. The 12 carnivores used were: lion, leopard, cheetah, wild dog, caracal, black-backed jackal, spotted hyena, brown hyena, serval, bat-eared fox, aardwolf and African wild cat. Most of the incorrect answers were of the smaller cat species and the hyenas. Knowledge shown by many of the children playing the 'Predator ID' game demonstrated the value of CCF's school outreach programme.

Anja Bradley was responsible for the CCF stand at the Grootfontein show, where the CCF stand was awarded second place for design and impact, information, message and product knowledge, presentation of theme, initiative and staff attitude and appearance. Tyapa Toyvo led the staff that assisted at the 3-day Otjiwarongo show, which this year shifted its focus to entertainment. At the 3-day Windhoek show, which is the largest of the year, three teams of two CCF staff worked to reach out to the show's more than 3,000 attendees. Items from the CCF gift shop, as well as the CCF fudge, were available and sold well at this venue.

Interested farmers were given the CCF Guide to Integrated Livestock and Predator Management handbooks and the Cheetah on Namibian Farmlands books.

D. CCF Staff Education

Research Assistant Ezekiel Fabiano continued with his PhD studies that started in March 2009 with a scholarship from the Wildlife Conservation Network and Dr. Eduardo Eizirik at Pontificia Universidade Catolica do Rio Grande do Sul, Brazil. In December, Fabiano passed his qualifying exams and is expected to graduate early in 2013.

Masters Degree student Gail Potgieter from Nelson Mandela Metropolitan University in South Africa joined CCF in early 2009 to conduct her research on human-wildlife conflict in Namibia, focusing specifically on CCF's LGD programme. Gail graduated from her Masters this year with an excellent grade.

Ecologist Niki Rust gained a grant from the British Economic and Social Research Council to undertake a PhD in collaboration with Durrell Institute of Conservation and Ecology at the University of Kent in the UK. She will be starting her research in September of this year on the economics of conservation.

Intern Lucia Muuhulu stayed at CCF after her internship and will be doing her masters at the CCF genetics laboratory; she registered at the University of Namibia for the beginning of the year 2013.

Education Officer Gabriel Angala is studying Environmental Economics through the Institute of Bankers.

E. Other Collaboration with Educational Institutions

The CCF Centre hosted 13 groups (>250 students and teachers) from international schools and universities participating in education programmes including cheetah runs, tours of the centre, and lectures on human wildlife conflict (Table 19). Seven of these groups (113 students and 20 teachers) stayed at Camp Lightfoot.

Various groups returned to CCF this year, including Rhodes University and Dartmouth College. In August, the Miami University of Ohio's Earth Expeditions visited for their sixth consecutive year and assisted with the annual waterhole count.

In addition, a group of 10 Texas A&M University graduate students in agriculture communications visited CCF in July as part of their Study Abroad Programme with Samantha Alvis and faculty. As a part of their university credits, they assisted in developing signage for CCF's goat yard area. Subsequently, three signs have been completed and erected as a part of CCF's visitor walk to learn about the livestock guarding dogs and model farm.

Table 19: International groups attending educational programmes at CCF, 2012.

Date In	Date Out	School	Country	Learners	Adults	Total
18-Aug-12	20-Aug-12	Schools Worldwide	UK	15	4	19
9-Mar-12	16-Mar-12	Wakefield School	USA	10	2	12
3-Jun-12	5-Jun-12	Indaba Explorations	USA	14	2	16
1-Jul-12	2-Jul-12	Bundi International School	USA	25	4	29
25-May-12	27-May-12	Rhodes University	USA	10	3	13

27-Jul-12	5-Aug-12	Earth Expeditions	USA	23	2	25
22-Oct-12	25-Oct-12	Dartmouth College	USA	16	3	19
Total Lightfoot Overnight Visitors				113	20	133
12-Feb-12		Warlingham School England	UK	6	2	8
3-Feb-12		Mandel School Berlin Germany	Germany	34	4	38
14-Jan-12		Pacific Lutheran University	USA	19	1	20
9-Apr-12		Worcester Polytechnic Institute	USA	29	3	32
29-Jun-12		University of Arizona	USA	8	1	9
25/26-Jul-12		Texas A&M	USA	11	2	13
Total Day Visitors				107	13	120
Total Education Programmes Visitors				220	33	253

F. Volunteers and Interns

Volunteers are the backbone of CCF and vital in daily operations. CCF has worked with Earthwatch since 1996, welcoming monthly volunteer teams of up to 2-6 people each visit. During 2012, CCF hosted eight Earthwatch teams totalling 23 volunteers.

In addition to Earthwatch, a further 99 volunteers visited CCF during 2012 from January to December. Among these were: six zookeepers from Sweden, US and UK; 10 international working-guests and 83 national and international student interns training in veterinary, wildlife biology, conservation biology, or animal husbandry from partner university programmes, including the IE3 Global Internships Oregon University System in the USA, and the Wildlife Management in-/ ex-situ Dept. Animal Management from Van Hall Larenstein in the Netherlands. In addition, several interns came from South Africa, Australia, Germany, France, UK and US, and two interns from the University of Namibia have been working in the genetics laboratory while two more are doing animal care. CCF capitalises on professional specialities and interests of all volunteers, which adds to the volunteer experience.

VI. **STRUCTURAL ACTIVITIES**

A. Namibian Facility Developments

1. **Existing Structural Projects and New Projects**

Electricity in Camp Lightfoot is fixed.

The road system suffered due to the extensive rains and some roads became impassable. Frequent grading of the runway became necessary.

The goat dairy creamery next to the Visitor Centre has been completed. The walkway from the creamery to the goats' yard still needs to be developed.

2. The Rhino Reserve

Some roads were temporarily impassable due to the heavy rains. Work is ongoing to repair these roads, cut branches and fill in warthog and aardvark holes.

Perimeter fence repair and removal of old interior fence was ongoing. The main dams retained water well.

3. Automotives

Several of the older *bakkies* (pick-up trucks) experienced failures and were taken out of service. Tyre repair continued to be an expensive and time-consuming problem.

The Cheetah Bus repairs, both Toyota Quantums, as well as all other vehicles used are serviced and up to date.

4. Fires

No fires have occurred on CCF property during 2012.

B. Staffing

Laurie Marker, DPhil – Founder and CEO

Bruce Brewer, PhD - General Manager

Anne Schmidt-Küntzel, DVM, PhD - Research Geneticist and Asst. Director for Animal Health and Research

Patricia Tricorache - Asst. Director, International Programmes

Gabriel Angala - Tourism Officer

Engelhardt Awaseb – Assistant Farms Manager

Brian Badger - Operations Manager

Jenny Bartlett - Cheetah Keeper/Educator

Johan Britz – Farms Manager

Tanya Britz - CCF Bush Accountant

Stephanie Cunningham – Scat Dog Handler and Cheetah Studbook Keeper Assistant

Ignatius Davids – Education & Tourism Officer

Juanita de Villiers - Ecologist Assistant

Juliette Erdsieck - Cheetah Curator

Len Edwards - Scat Dog Training Unit – Head Trainer

Ezequiel Fabiano - Research Assistant, PhD candidate

Karin Falk – CCF Accountant

Rosie Glazier, DVN - Veterinary Nurse

Degnan Hembroff – Bushblok Engineer

Alfred Hendricks – CCF Bush Foreman

Chavoux Luyt- Ecologist

Mariandekua Muzuma - Smallstock Assistant

Priskila Nepela - Eco-tourism Educational Aide

Matti Nghikembua - Senior Ecologist and Education Officer
Gebhardt Nikanor – Education & Tourism Officer
Bessie Simon – Assistant Farm Manager
Max Simon - Mechanic
Heike Stackmann - Volunteer Co-ordinator and Public Relations Officer
Ryan Sucaet – Assistant Cheetah Keeper – social media assistant
Rob Thomson – Rhino Ecologist
Tyapa Toivo– Small Livestock Supervisor
Amelia Zakiewicz, MRCVS - Veterinarian

CCF Namibia also employs 27 Namibian farm and domestic workers, 15 contract workers and 9 Bushblok factory workers.

CCF USA Staff

Liz Georges - Communications Coordinator
Paula Martin - Executive Assistant and Outreach Coordinator
David Dolan - Chief Development Officer
Laurie Payne - Fundraising Project Manager and CCF NoCal Chapter Leader
Shannon Sharp - Director of Operations and Finance

David Dolan was hired in November of 2012 as CCF’s Chief Development Officer. David is based out of southern California and will lead the organisation in all development initiatives.

VII. ORGANISATIONAL ACTIVITIES

A. Fundraising

1. Namibia

CCF’s 14th annual fundraising gala was held on 13 July at Windhoek’s Country Club. This year’s theme, Making Strides for Cheetahs, recognised key Namibians as well as CCF staff and volunteers who make strides in the conservation of cheetahs to ensure their survival in the wild. The lively evening included a musical performance by the well-known Trio Feminale con Ferdi, as well as a silent auction, candlelight dinner, conservation awards ceremony, and conservation speeches. Approximately 270 people attended, including individuals from the business, conservation, agriculture and government sectors in Namibia and internationally.

Dr. Bruce Brewer was the evening’s Master of Ceremonies. Doug and Kris Tompkins, visiting from Chile and Argentina and President and Vice President respectively of the Foundation for Deep Ecology, were the special guest speakers and called attendees to action with their impassioned speech on conservation and philanthropy. With illustrious careers in the retail industry, Doug and Kris are widely recognised environmental activists who work to protect wildlands, biodiversity and communities, primarily in Chile and Argentina and specifically in Patagonia. Together they have received accolades such as the “Good Steward Award” from the International Conservation Caucus Foundation and “Environmental Leader of the Year” award from Latin Trade.

Dr. Laurie Marker showed several short videos on CCF - Making Strides for the Cheetah - and emphasised the need to continue making strides into the future in applied conservation efforts in Namibia. She then presented three 2012 Cheetah Conservation Awards, recognising conservationists, farmers, and smart business practitioners who help conserve the cheetah and the Namibian environment.

Dr. Dennis Profitt was honoured as the 2012 Cheetah Conservationist of the Year. Dr. Profitt has had a successful dental practice in Otjiwarongo for over 25 years and has been looking after the dental health of CCF's cheetahs for almost 20 years. CCF thanked him for his long-term contribution to their cheetahs' health. Continental Outdoor Media was honoured as the 2012 Cheetah Conservation Business of the Year for their innovative and highly effective use of company resources in support of wildlife conservation. Accepting the award Continental's General Manager in Namibia, Mr. Harald Fülle. Melba Tjozongoro, an Agricultural Extension Officer in Gobabis, received the 2012 Cheetah Conservation Farmer of the Year Award. A woman of admirable achievement who started in subsistence farming, Melba sets an example to all Namibian farmers in her determination to learn farming skills, her desire to reduce livestock/predator conflict and her work in teaching and guiding new farmers.

The evening's keynote speaker, the Hon. Netumbo Nandi-Ndaitwah, Minister of Environment and Tourism, talked about the importance of the balance between the cheetah and conservation for the entire country's ecosystem.

The silent auction once again was a huge success, with over 100 items donated by local businesses, including recreational 'get-aways' at exclusive tourist venues, artwork, jewellery and Namibian craftwork.

2. International Review

CCF USA

(1) Campaigns

CCF's Annual Fund Campaign includes three direct mail appeals: 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. They are supported with e-mail solicitations during that time period as well. In addition to these major campaigns, several smaller, independent E-blast efforts are incorporated throughout the year, as well as two printed and four electronic newsletters.

Appeals

- **February: Explore Your Wild Side this Valentine's Day** – An e-mail appeal directed at 33 countries that celebrate this holiday, sent to 15,272 recipients on 14 February.

Description	Distribution	Date	Coverage
Explore Your Wild Side this Valentine's Day	13,131	14-Feb-12	USA
Explore the Wild Side of Valentine's Day	4,573	1-Feb-12	Non-USA

- **Chewbaaka Memorial Campaign** – An e-mail appeal commemorating the date of Chewbaaka’s passing. Sent one e-blast to European and US subscribers on 3 April to 19,263 emails.

Description	Distribution	Date	Coverage
Chewbaaka Memorial Campaign	19,263	3-Apr-12	USA and Europe

- **Chewbaaka Memorial Challenge (CMC)** – An initial mailing to 11,377 US partners was sent on 7 May. On 28 June the appeal was sent to partners who were added to the database after the initial mailing. A secondary mailing was sent on 15 June to 1,390 partners who had not responded to the appeal who gave gifts of over US\$100.00 in the past. The campaign ran through 31 July.

Description	Distribution	Date	Coverage
Appeal Kick-Off Letter (four pieces)	11,377	7-May-12	USA
Appeal Follow-up Mailing	1,745	15-Jun-12	USA
Appeal mailing to Spring Tour Attendees	282	21-Jun-12	USA
Appeal Mailing to Major Donors	18	12-Jun-12	USA

In support of the direct mail components of the appeal, the following e-mails were sent.

Description	Distribution	Date	Coverage
Announcement of CMC	13,941	24-May -12	USA
Announcement of CMC	6,143	31-May-12	Non-USA
The Race is On	14,130	14-Jun-12	USA
The Race is On	6,121	14-Jun-12	Non-USA
Healthy Dogs Equal Happy Cheetahs	14,098	21-Jun-12	USA
Healthy Dogs Equal Happy Cheetahs	6,103	21-Jun-12	Non-USA
Chewbaaka’s Birthday	6,076	3-Jul-12	Non-USA
Chewbaaka’s Birthday	13,939	3-Jul-12	USA
Eyes	13,892	12-Jul-12	USA
Eyes	6,066	12-Jul-12	Non-USA
German Challenge	1,237	23-Jul-12	German Speaking Countries
Changing Fate	6,048	26-Jul-12	Non-USA
Changing Fate	14,021	26-Jul-12	USA
Time is Running Out	6,023	30-Jul-12	Non-USA
Time is Running Out	13,819	30-Jul-12	USA
Final Thanks	5,979	8-Aug-12	Non-USA
Final Thanks	13,606	8-Aug-12	USA

- **Fall Appeal (FA)** – An initial mailing to 11,461 US partners was sent on 9 Sept.

Description	Distribution	Date	Coverage
Appeal Letter	11,461	9-Sep-12	U.S.

In support of the direct mail components of the appeal, one e-mail solicitation was sent.

Description	Distribution	Date	Coverage
Announcement of Fall Appeal	13,328	19-Oct -12	USA
Announcement of Fall Appeal	5,695	19-Oct-12	Non-USA

- **Year End Campaign (YE)** – A US\$225,000.00 challenge campaign was held for the end of the year. An initial mailing to 11,781 US partners was sent on 8 Nov. A secondary mailing was sent on 12 December to 2,548 partners who had not responded to the appeal who gave gifts of over US\$100.00 in the past.

Description	Distribution	Date	Coverage
Appeal Kick-Off Letter (four pieces)	11,781	8-Nov-12	USA
Appeal Follow-up Mailing	2,548	12-Dec-12	USA

In support of the direct mail components of the appeal, a series of e-mail solicitations were scheduled. As individuals donated to the campaign, they were no longer solicited. The following e-mails were sent.

Description	Distribution	Date	Coverage
Announcement of YE	13,338	20-Nov -12	USA
Announcement of YE	5,556	31-May-12	Non-USA
Second Announcement	13,166	7-Dec-12	USA
Jeff Corwin – Donors	2,339	18-Dec-12	USA Donors
Cheetah Sponsorship	13,122	20-Dec-12	USA
Cheetah Sponsorship	790	20-Dec-12	UK
Jeff Corwin – Lapsed and Non Donors	10,785	21-Dec-12	USA Lapsed and Non Donors
Dogs – International/not translated	3,980	23-Dec-12	Non-USA, FR, IT, DE and UK
Dogs – Italian Translation	412	23-Dec-12	Italy
Dogs-French Translation	331	23-Dec-12	France
Dogs – USA	12,678	23-Dec-12	USA
Happy Holidays (No Solicitation)	22,883	24-Dec-12	All
Challenge Graph	12,591	26-Dec-12	USA
Dogs – German Translation	772	26-Dec-12	Germany

Release	12,561	27-Dec-12	USA
Video	12,450	28-Dec-12	USA
Release – French translation	328	28-Dec-12	France
Release – International/not translated	3965	28-Dec-12	Non-USA, FR, IT, DE and UK
Release – Italian translation	412	28-Dec-12	Italy
Release – German Translation	771	28-Dec-12	Germany
Bush Block	12,434	29-Dec-12	USA
Human Touch	12,415	30-Dec-12	USA
Last Chance Non USA	5,443	31-Dec-12	Non USA
Last Chance #1 USA	12,301	31-Dec-12	USA
Last Chance #2 USA	12,223	31-Dec-12	USA
Final Thank You	18,203	3-Jan-13	All non Africa

Newsletters

- **Cheetah Strides newsletter** – Issue no. 3 of CCF’s newsletter was mailed on 23 March to 13,006 people in the US. 610 additional newsletters were mailed to people who were added to the database after the original mailing. In addition, two e-versions of Cheetah Strides (US and non US) were sent out in lieu of Notes from the Field on 27 March to 15,190 e-mails in the US and 9,789 e-mails outside the US. 1,143 e-versions of the newsletter were sent to people who were added to the database after 27 March.

Issue no. 4 of CCF’s newsletter was mailed on 9 September to 13,660 people in the US. 335 additional newsletters were mailed to people who were added to the database after the original mailing. An Electronic version of the newsletter was sent on 15 October to all 24,048 active emails worldwide.

- **Dr. Laurie Marker’s Notes from the Field** - In late June CCF sent out one e-letter to 22,432 email addresses in non- African countries and 2,550 in Africa. On 3 December a second e-letter was sent to 21,273 email addresses in non-African countries and 2,307 emails in Africa.

Bi-annual updates on 39 of CCF’s resident cheetahs were e-mailed to approximately 320 cheetah sponsors in early June and again December.

Informational/targeted E-blasts

One targeted e-blast was sent to 1,524 Namibian subscribers on the occasion of Jonathan and Angela Scott’s Valentine’s Day fundraising event organised by CCF.

Ten targeted E-blasts were sent to invite partners to events associated with Dr. Marker’s Spring Tour. See schedule below:

Description	Distribution	Date	Coverage
Anatolian Event	820	16-Apr -12	So Cal
Invitation to Berman Event	33	20-Apr-12	Guest list
Wakefield	829	25-Apr-12	VA, MD
Berman Event	54	25-Apr-12	WA
Anatolian Event	828	30-Apr-12	SoCal
Studio City	103	21-Jun-12	So Cal donations over \$250
Cheetah Aid	133	7-May-12	MD and DC
Anatolian Event	825	8-May-12	SoCal
Mother's Day	822	9-May-12	All California
Wakefield	381	15-May-12	VA, MD

Twenty five targeted E-blasts were sent to invite partners to events associated with Dr. Marker's Fall Tour. See schedule below:

Description	Distribution	Date	Coverage
DC Gala Invitation	1987	2-Aug -12	DC, Va, WV, PA, DE, NJ, MD, NY
DC Gala Invitation	1931	14-Aug-12	DC, Va, WV, PA, DE, NJ, MD, NY
BCBP	3159	28-Aug-12	Northern CA, OR, WA and Vancouver, Canada
Fall Tour Announcement	14,777	7-Sep-12	US
New York Dinner	102	10-Sep-12	NY \$100+
DC Gala Invitation	1915	11-Sep-12	DC, Va, WV, PA, DE, NJ, MD, NY
Vancouver	68	11-Sep-12	British Columbia
Vancouver Update	68	14-Sep-12	British Columbia
Oklahoma events	35	21-Sep-12	OK
Ottawa event	105	21-Sep-12	Ontario
Vancouver	68	24-Sep-12	British Columbia
CGI Announcement	23,897	26-Sep-12	All non-media
St. Louis Invitation	113	26-Sep-12	MO
Cincinnati Invitation	608	27-Sep-12	OH, KY, IN
Syracuse and Cornell	841	28-Sep-12	PA, NY
Big.Cat.Big.Party	3,147	1-Oct-12	Northern CA, OR, WA and Vancouver, Canada
WCN and Happy Hollow	2,391	1-Oct-12	CA
Botanic Gardens	573	3-Oct-12	WA , BC and Vancouver, Canada
WCN and Happy Hollow	2,381	5-Oct-12	CA
Big.Cat.Big.Party	3,135	5-Oct-12	Northern CA, OR, WA and Vancouver, Canada
St. Louis Invitation	113	8-Oct-12	MO

Tour final announcement	14,770	9-Oct-12	US
Golf Tournament	3,135	15-Oct-12	CA, NV, AZ, NM
Botanic Gardens	573	17-Oct-12	WA , BC and Vancouver, Canada
Golf Tournament	3,245	17-Oct-12	CA, NV, AZ, NM

(2) Governance

The US Board of Directors and Trustees had three meetings in 2012. The first two were held on 16 February and 19 July respectively via teleconference. The third was the organisation's Annual Meeting, held 18-19 September in Washington DC and via teleconference. Five resolutions occurred during 2012: 1) the formal adoption of the 2012 Budget; 2) a resolution authorising 2011 CCF employer contributions to the CCF Retirement Plan; 3) and 4) resolutions to recognise restricted and designated funds (this occurred twice in 2012) and; 5) a resolution accepting the 2011 Financial Statement and Audit Report.

During the Annual Meeting held in Washington, DC the following individuals were elected as new Trustees: Alan Feldstein, Vicki Gourley, Brad Andrews and Richard Wiese. Colleen Sorensen was elected as a new Director.

The 2011 audit was successfully completed by Michaud and Accavallo, Certified Public Accountants, LLC. The organisation's financial statement was audited and the 990 was filed under an extension.

In an effort to provide more support to CCF USA Chapters, CCF has purchased a 1-year subscription to the event and auction software, Tofino Auctions. The software was used for CCF's gala, Big Cat Big Party.

CCF USA has undertaken operational changes that assist in making the organisation more sustainable and effective. Liz Georges has been hired as CCF's new Communications Coordinator. This is a newly created position for the organisation that will be involved in all aspects of marketing and communications. This position is full-time out of the Alexandria, VA office. This brings the number of full-time staff in the DC Metro area (CCF USA HQ) to four.

In late May, CCF's Assistant Director of International Programmes, Patricia Tricorache, elected to work on a part-time basis, with a greater focus on strategic communications and international cheetah issues. Patricia continues to provide training and guidance to staff that absorbed some of her previous responsibilities, including those assigned to the newly created position of Communications Coordinator, and has also stepped in to cover the Grants Manager position currently vacant.

(3) Tours and Events

Dr. Marker travelled to the USA for her spring tour from 24 April to 21 May and her fall tour 17 September to 22 October. Her fall tour was extended beyond the USA borders to the Canadian provinces of British Columbia and Ontario, and culminated in France. Dr. Marker's combined travel consisted of visiting three countries, 18 states and 35 cities in 2102. Highlights include:

Fundraisers Spring 2012

- Wildlife Conservation Network (WCN) held a special afternoon fundraiser in Cupertino, CA for CCF with WCN members and CCF guests. Dr. Marker lectured to more than 60 supporters.
- Kim and Paul Gutowski hosted a private dinner for Dr. Marker during a stopover in Denver, CO with CCF Trustee Peter Warren and CCF Chapter Head, Elise Ward.
- Over 20 Earthwatch and CCF supporters gathered at the home of Harold Nahigian and Linda Kooligan in Cambridge, MA, to meet Dr. Marker.
- The home of world-class explorer and host of ABC's Born to Explore Richard Wiese, and his wife Nicci was the setting for a cultivation event where 18 guests from the Connecticut area met Dr. Marker for the first time.
- CCF Trustee Eric Berman and wife Luann hosted 25 CCF members at a cultivation evening set in their Woodinville home outside of Seattle, WA. In attendance was former CCF USA Director, Carol Hosford attended, who later hosted Dr. Marker and David Moore, CCF Development Director, at her home.
- CCF's Livestock Guarding Dog programme was the theme during an Open House hosted by Jordan Sack and David Masterjohn with the CCF SO CA chapter for over 40 attendees.
- Dr. Marker lectured at a Mother's Day Brunch hosted by Zoofari's Jackie Navarro with ambassador cheetah, Victor. Over 50 guests from the Bonsall, CA area, including new cheetah supporters, were in attendance. Tickets: \$60, attendance over 50.
- Alan Feldstein, of Wildlife Safaris and Adventures, writer/journalist Diane Haithman, and the CCF SO CA Chapter hosted a special evening with Zoofari cheetah Victor and Dr. Marker to raise funds for CCF. Tickets were \$100 with 60+ guests in attendance.
- Dr. Marker returned to Wakefield School with the Columbus Zoo cheetah Moya for a Saturday morning cheetah encounter with students and faculty supporting CCF. Tickets were \$5-20.
- Cheetah Aid 2012 was an event hosted by CCF supporters Nicole Petrosky and Kali Hopson and with special aid by CCF benefactor Lorraine Petrosky. This roof-top event overlooking Washington, DC with the Columbus Zoo and CCF supporters was attended by 100 people. Tickets were \$20-50.
- CCF USA Trustee Gary Kopff and his wife Judy co-hosted with CCF USA Director Claudia McMurray and Trustee Angela Weisskopf a cultivation event at the Kopff residence in the Cleveland Park area of Washington, DC. Over 100 guests met Dr. Laurie Marker in the presence of CCF USA Trustee Suzi Rapp from the Columbus Zoo and ambassador cheetah Moya.
- Vashon Island, WA was the location of a brief stopover for Dr. Marker as she lectured to CCF members hosted by Dr. Martha Johnson, "Namibia, Africa to Vashon Island – A Race to the Future".

Fundraisers Fall 2012

- On 19 September, the Washington, DC Chapter hosted the 11th Annual DC Gala at the scenic offices of Foley & Lardner overlooking the Potomac River. It was a huge success with over 225 guests and VIPs, as well as additional support from CCF Trustee Emanuel Friedman, and wife Kindy French, who hosted EJP Capital members at the gala. *Tickets sold for \$125/\$250 for VIPs.*
- Drs. Marker and Brewer were guests at a small fundraiser held at the Sea Shore Restaurant in City Island, NY. The dinner for 15 on 22 September was a unique way for Dr. Marker to visit with CCF board members and donors in this area. The pre-set dinner tickets sold for \$150 each.

- CCF Trustee Vicki Gourley and Carol and Gary Sanders hosted CCF at a private fundraiser at the Oklahoma Country Club on 26 September. This was Dr. Marker's first visit to Oklahoma City which proved to be very successful and resulted in many new donors.
- A second fundraiser in Oklahoma City was held by Vicki & Leland Gourley and the Sanders at the Esperanza North Club House. Many CCF supporters from the OK area attended and got to meet Dr. Marker for the first time. Oklahoma will become a new CCF Chapter in 2013.
- A special CCF fundraiser was held in St. Louis at the Racquet Club hosted by Explore Green's Paul Zemitzsch. The successful event introduced Dr. Marker to many new conservation donors from Missouri. *The evening dinner and reception ticket was \$150 per couple.*
- Dr. Marker's Northern California visit included her annual cheetah fundraiser at Safari West in Santa Rosa, titled a *Celebration of Elegance* hosted by Nancy and Peter Lang. *The evening dinner and lecture ticket sold for \$65 and was attended by 80 attendees.*
- Charlotte & Bob Baron hosted a cocktail party for Dr. Marker at their home with supporting co-host CCF USA Trustee Peter Warren and CCF Chapter Head, Elise Ward. *It was a small, intimate evening with Dr. Marker.*
- In Seattle, with the help of CCF USA Trustee *Emeritus*, Teresa Delaney, CCF arranged a cheetah talk/fundraiser with the newest ambassador cheetah cubs from Wildlife Safari. The afternoon event was held at the University of Washington Botanical Gardens and was attended by 16 families and 38 supporters and volunteers. *Tickets sold for \$75. A new Seattle Chapter will develop from this fundraiser.*
- The CCF Oregon Chapter hosted the annual Big Cat. Big Party at the Oregon Zoo on Dr. Marker's last day of her fall tour with a live auctioneer. This added excitement and drama increased the financial benefit to CCF. This was the highest grossing event in CCF Chapter's history. *Tickets sold for \$125 and the fundraiser was attended by over 200 guests.*
- In December, Dr. Marker made a return visit to Washington, DC to attend the *National Geographic Live!* Presentation, "Cheetahs: Survivors on the Run" with famous photographer Frans Lanting and videographer Christine Eckstrom at the Grosvenor Auditorium. Cinematographer Greg Wilson also shared his speed images of cheetahs in action with cutting-edge technology. Within this exciting event, CCF and National Geographic hosted a behind the scenes fundraiser to meet Frans, Chris, Greg and Laurie in the Editorial Offices before the programme. *Only 30 tickets were available at \$250 each for the cocktail party and lecture which was a sold out.*

Lectures and Conferences Spring 2012

- Indianapolis Zoo with hosts, CCF USA Director Polly Hix and Tony Fair. Dr. Marker lectured to zoo members and CCF followers on the status of the cheetah and how the funds are used from the Race-a-Cheetah exhibit to support CCF.
- Purdue University hosted Dr. Marker in West Lafayette, IN for their special Discovery Lecture Series on "A Race to the Future to Save the Wild Cheetah". Dr. Marker had the opportunity to meet with the Veterinary school and discuss future projects for CCF.
- Dartmouth College invited Dr. Marker to participate in the George Link Jr. Environmental Lecture series. There she spoke with over 200 students and faculty on the status of the cheetah and CCF's work, and discussed with the college future efforts in Namibia.

- The Metropolitan Club in San Francisco, CA was the location for Dr. Marker's first introduction to the Club and its private members for a lecture on the cheetah and its race to the future. CCF benefactors, Lee and Misty Tyree helped to secure this cultivation venue for CCF.
- San Diego Zoo was the venue for Dr. Marker's lecture to AAZK members and CCF supporters. Bob Cisneros, AAZK President, and Anne Knutson hosted Dr. Marker with the support from CCF SO CA Chapter to build awareness of the plight of the endangered cheetah.

Lectures and Conferences Fall 2012

- Dr. Marker's tour in Oklahoma City was very active as she gave a talk at the OKC Zoo for zoo staff and trustees, with CEO Dwight Scott. Dr. Marker also lectured at the OKC School of Science and Mathematics with 144 students, and the KIPP School, addressing 5th-6th Graders interested in saving the wild cheetah.
- The Northern Chapter of the Explorers Club hosted Dr. Marker in Big Sur, CA at the home of Dede and Harry Hicks. The cheetah talk was attended by organiser Anders Viking with 40 Explorer Club members who became new cheetah friends and donors to CCF.
- Dr. Marker made a brief stopover at the Rainer Fellows' Alumni dinner in Bolinas, CA to thank CCF supporter Kevin Starr and the Mulago Foundation, which gave a Fellows Catalyst Grant designated for the CCF Bushblok Harvesting project.
- Dr. Alex Travis from Cornell University invited Dr. Marker to speak at the College of Veterinary Medicine on 4 October to the faculty and students. The lecture was titled, "Cheetah Futures: Roles for Biofuels, Economic Development and Livestock."
- Syracuse University also hosted Dr. Marker at the Marshall Hall with a fundraiser and talk, "A Race to the Future to Save the Wild Cheetah." Dr. Scott Turner, SUNY ESF, organised this visit and continues to support CCF's programmes in Namibia.
- The Cincinnati Zoo was the setting for a lecture by Dr. Marker and a Cheetah Run hosted by Dan Marsh and special CCF friends, Cathryn and Carl Hilker. Earth Expeditions members and cheetah friends all attended this unique event at the Cincinnati Zoo to celebrate Dr. Marker's visit in Ohio.
- Paul Zemitzsch helped to organize a special talk at the St. Louis Zoo with Dr. Marker's cheetah friends, as well as special visit to the Endangered Wolf Center with Ginny Busch, Executive Director and also a CCF supporter.
- The Mission Bay Conference Center hosted the 2012 WCN Expo in San Francisco, where Dr. Marker continued her lecture series to fellow cheetah supporters and conservationist from around the world. The lecture took place in the Fisher Banquet Hall with over 350 attendees.
- On 15 October 15, Dr. Marker returned to the Happy Hollow Zoo with Laurie Payne to continue her lecture series in the San Jose area. The event, attended by 75 cheetah friends, was sold out with standing room only. Tickets sold for \$20.
- Dr. Marker was a keynote speaker at the Denver Zoo for their special evening on Africa with over 220 zoo members attending the dinner presentation organised by CEO Craig Piper and Richard Reading.

Other USA Events 2012

- International Conservation Caucus Foundation (ICCF) Gala, Washington, DC - Dr. Marker attended this event organised by CCF Trustee David Barron, and Director Susan Lylis, held on 24

April at the Andrew Mellon Auditorium. CCF hosted a table for 10 with cheetah benefactors, CCF Board and staff.

- Judith Walls, from Concordia University in Montreal, interviewed Dr. Marker for a grant received by the David O'Brien Centre for Sustainable Enterprise. This is research project focuses on how Dr. Marker and CCF have played a role in changing the way Namibians consider environmental issues.
- Dr. Marker and CCF USA's former Development Director attended a National Wildlife Federation dinner in Washington, DC, hosted by Busch Gardens on 17 May.

(4) Chapter events

In celebration of Earth Day, the CCF SO CA Chapter created awareness at the EarthFair 2012 in San Diego again this year with a CCF cheetah booth. This major event included over 3,000 participants and 350 exhibitors. Chapter member Brienne Miller also had a CCF booth at the Moorpark Spring Event in March for the second consecutive year.

The Run for the Cheetah events in Chicago, Portland and Phoenix have been postponed this year and will restart in the spring of 2013.

The SO CA Chapter held its 2nd Annual Golf Tournament for CCF at the Stoneridge Country Club in Poway, CA on 12 November 2012. This special holiday golf invitational was host to ceremonial speaker Julie Scardina, Sea World/Busch Gardens Animal Ambassador and recent author of Wildlife Heroes, and cheetah Karroo from the San Diego Zoo. The Four-Man Scramble was a fun time for all the returning golfers. The golf tournament's head sponsor was Chris Liebenberg with Piper and Heath Travel, San Diego. CCF USA Trustee Alan Feldstein also co-sponsored the event with Farmers Insurance. The evening was exciting with over 65 participants. The tickets for dinner sold at \$65 and \$155 for single player vs. \$600 for foursome tickets- a most enjoyable event with raffles and silent auction items from CCF.

In honour of International Cheetah Day on 4 December, CCF and its Chapters launched an exciting fundraiser with the national restaurant chain Elephant Bar. With 46 locations across the US, Elephant Bar donated 20% of its participating sales to CCF to celebrate this important Cheetah Day. All of the CCF Chapters participated in various locations throughout the US. We are thrilled to be associated with Elephant Bar and appreciated the opportunity to increase the visibility of the endangered cheetah to new customers and potential new members on International Cheetah Day.

Also on International Cheetah Day, CCF USA Chapters, Trustees and Board members hosted informal viewing parties of "Born to Explore" to raise additional awareness and funds. The episode was filmed earlier at CCF Namibia by CCF Trustee Richard Wiese with Dr. Laurie Marker, and broadcast on 10 November on ABC's affiliate stations across the US. Because of the interest created by this documentary, kids and adults were encouraged to organise activities to celebrate this special day with donations to support CCF's programmes in Namibia. More viewing parties are planned for 2013.

UK: CCF UK

The CCF web master and international director, Patricia Tricorache, continued to provide web maintenance support to CCF UK during January-May, ensuring that information contained in the UK site

is compatible with the global CCF web site. A plan is in place to redesign the CCF UK web site following the completion of the global CCF site update.

Patricia also continued to support CCF UK with donation fulfilment until she retired from her full-time position in May. Beth Fellenstein, Constituent Relationship Manager, has been assigned the task of assisting CCF UK with responding to donor or supporter inquiries, and with donation acknowledgement.

Anja Bradley, CCF UK's Development Research Consultant and long-time volunteer, continued working to revitalise CCF UK by cultivating volunteers and supporters. In addition, Anja lectured at Dr. Challoner's Grammar School in Amersham on the ecology of the cheetah and CCF's work. Fifteen of their Year Twelve students will be visiting CCF Namibia in August.

As indicated under International Meetings, Dr. Marker visited the UK to attend this year's Skoll World Forum in Oxford. Her quick visit in the UK allowed her to connect with old and new supporters during lectures at the Paradise Wildlife Park and the Wildlife Heritage Foundation. She also had an opportunity to visit with and give a lunch-time series presentation to Earthwatch Institute employees.

Netherlands: SPOTS Foundation

SPOTS continues to raise funds via cheetah and dog sponsorships, as well as through Dutch Zoos.

France: AMIFELINS

AMIFELINS continued to translate into French various sections of the CCF website, as well as newsletters and appeals (e.g., CCF's End of the Year campaign), for a broader reach among French-speaking cheetah lovers.

As of this fall, the Internet site of AMIFELINS has been completely re-designed: www.amifelins.fr
Photos and videos can be easily added, and there is a detailed section on Cheetahs and CCF.

AMIFELINS' member Ms. Serena LEHOCQ was accepted to act as Webmaster for the new site, with the continued support of Cyril LeDuc and Catherine Ebbs-Perin. Bridget Petraz has created an education section to be used by teachers in their schools, called "Coin des Enseignants" (Teacher's Corner). This will be most helpful to circulate information on the cheetah, its ecosystem and how to protect from extinction, especially among the younger generations and their teachers.

Germany: Action Campaign for Endangered Species (ACES)

The 1st International Convention of Environmental Laureates under the motto 'On the Way to Rio+20' was held in Freiburg, Germany, 8-11 March 2012. 63 environmental prize winners from all over the world, including winners of the Rolex Awards, St. Andrews Prize for the Environment, Nuclear-Free Future Award, and the Goldman Environmental Prize met for the first time to discuss some of the most pressing global environmental and social issues of our time. The event provided laureates with an opportunity to exchange new perspectives amongst each other and with young locals and sharing innovative ideas for change. Dr. Laurie Marker, a Tyler Prize Laureate, was unable to participate due to scheduling conflicts, therefore Birgit Braun, Director of ACES, attended on her behalf to share

information about CCF with other participants. The conference concluded with the adoption of “The Declaration on Rio+20 by International Environmental Laureates”. Dr. Marker has already been invited to attend the next Laureates convention planned for March 2013.

As reported during the last period, ACES registered CCF for an eco-friendly power campaign that generates 20 Euros for everyone who switches electric suppliers. ACES succeeded in enrolling German actor, Hannes Jaenicke, as the campaign spokesperson in 2012 and is using special postcards to help promote the campaign.

Italy: Associazione Ambiente, Storia e Natura (ASN)

CCF’s volunteer Elisabetta von Hoenning organised a fundraiser titled “Namibia for All Tastes”, held at the Euro Hotel in Milan on 13 January. Approximately 40 attended the event where they learned about CCF’s activities through a presentation by von Hoenning, and a film and slide shows.

A second fundraiser titled “Run against Extinction” was held 10 August in Milan at the Euro Hotel. The event, hosted by CCF volunteer and Italian liaison Elisabetta von Hoenning, aimed at raising funds and awareness, and it was very successful with approximately 60 people in attendance.

Elisabetta continues to translate CCF news for Save the Cheetah blog in Italian. In addition, she has been actively seeking to increase CCF’s links with the European Parliament (EP). As a result of her efforts, and with the help of Mrs. Christina Muscardina, an Italian MEP and a Vice Chair to the EP, Dr. Marker was invited as an Expert of Excellence to participate in the regular meeting of the EU Intergroup for Animal Welfare and Conservation (see International Meetings). Dr. Marker’s visit in Strasbourg took place on 24-26 October with the support of CCF’s International Chapters from Italy, France and Germany, who hosted a dinner fundraiser and cheetah photo exhibition for special guests. This helped to spread the mission of CCF and introduce Dr. Marker’s scientific research and programmes to the EU participants. CCF is grateful to its International Chapters that organised such a successful event this fall with a special thanks to Elisabetta von Hoenning (Italy); Catherine Ebbs-Perin (AMIFELINS, France); and Birgit Braun (ACES, Germany).

Canada: Cheetah Conservation Fund Canada (CCFC)

CCFC maintains a blog and a Facebook page, while continuing to promote online donations through CanadaHelps.org. The CCFC board is in the process of identifying potential new directors and development opportunities.

In Vancouver, BC, CCFC Directors Carol Petersen and Evlyn Anderson hosted a special lecture at the West Vancouver Library for over 30 cheetah friends. The talk “Cheetah Futures,” held on 2 October, helped to raise funds for CCF and to reintroduce Dr. Marker to the Vancouver area. In addition, the University of Ottawa was the location of Dr. Marker’s first visit to this Ontario province, where she gave a lecture “Saving the Wild Cheetah: A Race to the Future” to over 125 attendees. Carolyn Farquhar and Marie-Claude Erian hosted Laurie and later introduced her to Parliamentary guests from the City of Ottawa.

Japan: Cheetah Conservation Fund Japan (CCFJ)

Although not registered to receive donations on behalf of CCF, CCFJ continues to support our efforts of spreading awareness about the cheetah via their web site, www.ccfjapan.org. In addition, with a team of volunteers, CCFJ has added Japanese subtitles to two of CCF's videos that broaden CCF's presence amongst the Japanese-speaking people. The videos are available at the CCFJ YouTube channel, www.youtube.com/user/ccfjapancheetah.

Other International Travels

- During her visit to Uzbekistan to discuss potential cheetah re-introduction (see Uzbekistan), Dr. Marker made a brief stop in Russia, where she gave a lecture at the Moscow Zoo and connected with long-time CCF friend Elena Chelysheva, who is continuing research on cheetah in Kenya.
- After her fall US tour, Dr. Marker travelled back to Namibia by way of France for a fundraiser and meetings with the EU Parliament's Intergroup for Animal Welfare and Conservation (IAWC) in Strasbourg, facilitated by CCF's Italian volunteer and liaison Elisabetta von Hoenning. CCF's International partners in Europe (France, Germany and Italy) hosted Dr. Marker and helped to spread awareness of the plight of the cheetah. See ASN Italy section below.

B. PR and Marketing

The viral nature of social media makes it a valuable tool. While CCF undertook efforts to use social media only in 2010, growth continues at impressive rates. The CCF page on Facebook, which on 31 December 2011 had 7,021 followers, continued its consistent growth trend and now boasts 12,636 likes as of 31 December 2012, an 80% increase from year to year (Figure 27). Consistent with this growth, the page views have increased and rarely dip below 100 views per day. The top three countries represented among our Facebook followers are the United States, United Kingdom and Italy. CCF's Twitter page had 3,871 followers at the end of this period.

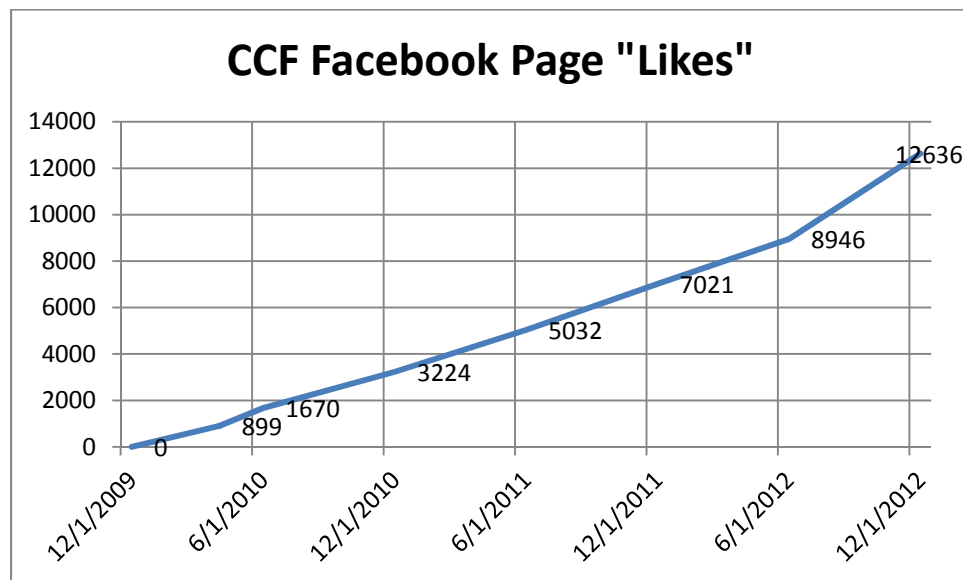


Figure 27: Number of "Likes" on CCF Facebook page since inception (April 2010).

During the second half of this period, CCF’s Communications Coordinator, Liz Georges, with the assistance of a team of students from Texas A&M and electronic media consultant Susie Goldring, worked to implement a social media strategy that includes a steady stream of content on a variety of topics originating in Namibia and being posted to Facebook at regular intervals during peak viewership.

As part of International Cheetah Day, CCF hosted a “Virtual Cheetah Day Party” on its Facebook page and promoted related hashtags on Twitter. The net effect of the activity was 212 new “likes” to CCF’s Facebook page from 3-5 December, and 1,074 page views during the same period.

CCF is also promoted by other social media pages on Facebook including one created by CCF alumni (volunteers), seven chapter pages (DC, SoCal, Oregon, Chicago, Canada, Italy, Japan), and various independent Causes pages accepting donations for CCF, which added to the official CCF Causes page currently total 14,884 members, up 3,242 from the same period last year. The [Cheetah News blog](#) and [Twitter](#) continue to attract new followers.

Two new CCF videos ([The OK Cubs' first Big Field run](#) and [India Cheetah Reintroduction](#), edited by CCF volunteer Eli Walker) were posted on the CCF’s YouTube channel in January 2012 and attracted much attention. Another pair of videos created by CCF intern Jed Winer, [Helping Farmers, Helping Cheetahs](#) and [Rewilding Success - June 2012](#) were posted on 24 August and also received significant attention. [A Message from Dr. Laurie Marker and Cheetah Conservation Fund](#), created by Rob Johnson of TIGERS, was posted as part of the End of Year fundraising campaign and also received significant interest. A total of eight new videos were uploaded during 2012. A Google Checkout button for donations is available to channel users. All videos have been rated five stars and have received very positive comments. CCF’s YouTube Channel, CCFcheetah currently has 1,060 subscribers.

Error! Reference source not found.Figure 28 shows the monthly distribution of 26,572 views of all CCF videos during this period. Viewership rose considerably when the OK Cubs video was posted on 26 January, and even more significantly when A Message from Dr. Laurie Marker and Cheetah Conservation Fund was uploaded.

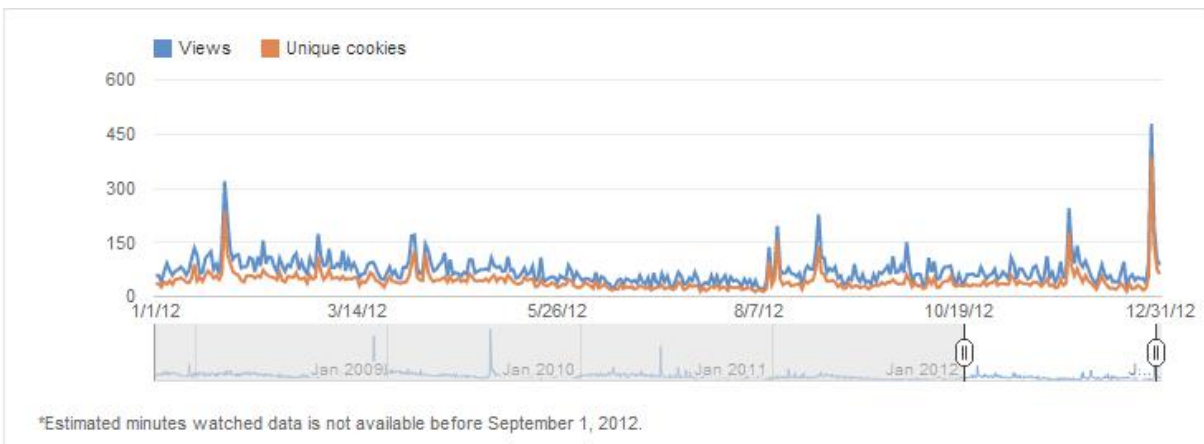


Figure 28: YouTube CCF channel monthly video views January-Dec 2012.

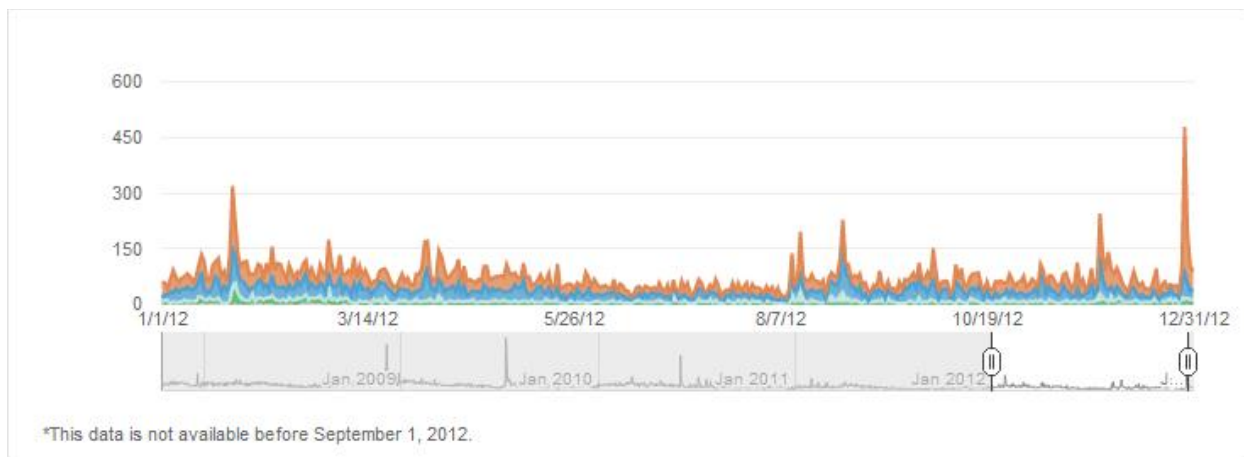
Table 20 lists the 10 most viewed CCF videos. It is important to note that this tracks videos over the lifespan of its time on the YouTube, so videos that have been on the channel for a long period of time

will maintain an advantage if people continue to view them. Because of this, the most important thing to note is not the top performing video, but rather how quickly more recent videos have garnered a place among the top 10.

Table 20: CCF's 10 most-viewed videos on YouTube during January-Dec 2012.

	Video	Views	Estimated minutes watched	Likes
1.	Year-end message with Jeff Corwin - 2009	6,160	3,053	9
2.	The OK Cubs' first Big Field run.	2,708	424	22
3.	India Cheetah Re-introduction	2,059	910	11
4.	The Indianapolis Prize 2010: Dr. Laurie Marker	1,270	360	2
5.	Run with the Wind: Chewbaaka	1,245	898	17
6.	Rewilding Success - June 2012	1,089	1,447	15
7.	Emily's Cheetah Song	1,058	125	1
8.	CCF segment on One Africa TV 13 Dec 2011	957	382	5
9.	Welcome to the Cheetah Conservation Fund	815	765	6
10.	Helping Farmers, Helping Cheetahs	690	982	5

Figure 29 shows the location of playback for all of the views of all the CCF videos during the period. This information is interesting because it shows that nearly half of our viewers (48%) are watching our videos on other locations as embedded files – either on our website or on Facebook or some other website. Only ten percent of our audience watches our videos on a mobile device currently.



<input checked="" type="checkbox"/> Playback location ?	Views ↓	Estimated minutes watched
<input checked="" type="checkbox"/> ● Embedded player on other websites ?	12,767 (48.0%)	7,547 (49.3%)
<input checked="" type="checkbox"/> ● YouTube watch page ?	10,515 (39.6%)	6,048 (39.5%)
<input checked="" type="checkbox"/> ● Mobile devices ?	2,770 (10.4%)	1,652 (10.8%)
<input checked="" type="checkbox"/> ● YouTube channel page ?	517 (1.9%)	0 (0.0%)

Figure 29: Location of playback Jan – Dec, 2012

The CCF web site is constantly being revised or updated to maintain its dynamism. The CCF web master worked with Digital Cheetah to eliminate spam from mailing list sign in forms. Although a final solution has not been found, steps taken resulted in a considerable reduction of spam.

1. Advertising

Google Grants continues to donate free advertising through its popular search engine. During January-December 2012, CCF benefited from over \$70,000 worth of free advertising via 3.1 million ad impressions that generated 140,503 clicks.

2. Other PR Efforts

The CCF’s web master receives frequent inquiries which are handled directly or forwarded to the appropriate staff. Inquiries are handled within 24 hours. Between January and June 2012, the web master received 151. This responsibility is now assigned to CCF’s Constituent Relations Manager, Beth Fellenstein, who handled 184 inquiries between July-December, for a total of 340 web-based inquiries handled during this reporting period. These are emails sent by donors and/or supporters and include school projects, hunting or cheetah-health related issues, visiting CCF or volunteering, media inquiries and issues with donations, among others.

- **International Cheetah Day**

To celebrate the second annual International Cheetah Day, as noted in Section [chapters section] above, CCF organised opportunities for the public to celebrate and help the cheetah. To supplement those

efforts, CCF undertook a coordinated publicity push and online campaign, including a special Huffington Post blog, press releases, and a special emphasis on Facebook and Twitter in the form of a “Virtual Cheetah Day Party.”

The online celebration proved very popular, with dozens of people posting their personal experiences to a special Facebook event page and to our main Facebook page. On Twitter, several people took it upon themselves to promote the hashtag created for the event, #VirtualCheetahParty. Still others retweeted our tweets and shared Facebook posts that were made throughout the day.

Because of the Elephant Bar Restaurants promotion, a special effort was made to ask zoo organizations, particularly those that were co-located in areas with an Elephant Bar, to distribute flyers and promote International Cheetah Day with their visitors. At least one zoo partner, the Indianapolis Zoo, ended up with an evening news segment on local news on WISH-TV about its celebration of International Cheetah Day.

- **Huffington Post Blog**

As mentioned under the International Meetings section, Dr. Marker was invited by Arianna Huffington – whom she met the Skoll World Forum-- to become a contributor of the popular *Huffington Post Blog*. On 2 May 2012 Dr. Marker published her first post, and seven more were published through the end of 2012. The Huffington Post is now considered one of the more influential Internet-based news sources, and content posted to Huffington Post very often goes viral. Whenever possible, blog posts were timed to coincide with significant publicity pushes – particularly in the case of CCF’s Clinton Global Initiative commitment announcement and International Cheetah Day. Blog posts also have provided a convenient way to introduce CCF and Dr. Marker to potential programming partners, as the links are easily forwarded, and the blog posts are designed to be engaging to a general audience. Dr. Marker’s Huffington Post blog has become a valuable tool in promoting CCF’s work.

3. Media

This year was particularly active. Along with some controversial media coverage and major developments in the issue area of illegal wildlife trade, CCF made a major announcement of a Clinton Global Initiative commitment and an extended effort for the 2nd Annual International Cheetah Day. The media plan to promote Dr. Marker’s fall tour resulted in a number of television appearances and other press in the markets targeted. Press release support was also supplied to the Southern California Chapter for their fundraiser in November.

CCF issued 17 releases in 2012. Local releases were not posted to the website. Only releases announcing events of interest to all of our audience were included on the website (Table 21).

Table 21. Press Releases Issued between 1 Jan and 31 Dec 2012

Date	Title	Distribution
18-Jan-12	“Love your Predators: A Valentine’s Date with Big Cats”: Cheetah Conservation Fund Hosts World-famous Photographers and Authors in Windhoek (Press Release)	Namibia
14-Mar-12	Article: Cheetah struggling to reproduce due to climate change, scientists warn – Unfounded (Statement)	The Guardian UK & others

16-May-12	CCF Comments on Transfer of Mara Cubs to KWS Facility (Statement)	Africa
16-May-12	CCF's Founder and Executive Director Comments on Stay of Cheetah Reintroduction by India Supreme Court. (Statement)	Worldwide
13-July-12	Cheetah Conservation Fund Awards Namibians Making Strides for Cheetahs at 14th Annual Gala. (Press Release)	Worldwide
3-Aug-12	The Cheetah Conservation Fund Comments on the Namibian Government's Noah's Ark II Project (Statement)	Web only
11-Sep-12	Meet a Cheetah and Dr. Laurie Marker at the 11th Annual Cheetah Conservation Fundraising Benefit (Press Release)	DC Event Media
14-Sep-12	Dr. Laurie Marker, Leading Cheetah Expert and Innovative Conservationist, Tours the United States this Fall (Press Release)	US Only
21-Sep-12	Meet Dr. Laurie Marker, a "Hero of the Planet," at the Cheetah Party on September 27 th (Press Release)	OK Media
24-Sep-12	Cheetah Conservation Fund Commits to Expand Bushblok Programme for 2012 Clinton Global Initiative Annual Meeting (Press Release)	Worldwide
25-Sep-12	Dr. Laurie Marker, Leading Cheetah Expert and Innovative Conservationist, Visits Canada in October (Press Release)	Canada
1-Oct-12	Dr. Laurie Marker, Leading Cheetah Expert and Innovative Conservationist, Visits St. Louis October 9 th (Press Release)	STL Media
2-Oct-12	World Renowned Cheetah Expert is Keynote Speaker at Cheetah Conservation Fund Benefit on Saturday, October 20 (Press Release)	Seattle Media
10-Oct-12	Meet a Cheetah at Piper& Heath Cheetah Conservation Golf Tournament on Veterans' Day at Stone Ridge Country Club (Press Release)	Southern California
29-Oct-12	Dr. Laurie Marker and Cheetah Conservation Fund (CCF) Featured on Litton's Weekend Adventure on November 10 (Press Release)	US Media
8-Nov-12	Cheetah Conservation Fund's Official Statement Regarding Illegal Wildlife Trade (Statement)	Web Only
20-Nov-12	Cheetah Conservation Fund Celebrates Second Annual International Cheetah Day, Dec 4, 2012 (Press Release)	US & Int'l Media (2 releases)

CCF's media lists are currently being reorganised into new sub-segments to allow a more targeted approach to press contacts that will result in better opportunities to reach out to local and niche media outlets.

Media Inquiries and Filming

CCF staff handled 82 media inquiries this year. These inquiries included 29 print (magazines/newspapers), 35 broadcast media (radio/ TV), 8 independent films and photo shoots and 10 electronic media. Highlights include:

- Four image requests published or awaiting publication, including Bare Essentials Magazine (Australia), Republikein newspaper (Namibia) and Landbouweekblad (South Africa). CCF also provided visuals and data for the educational displays at Little Rock Zoo in Arkansas opened in July 2012, and for the Smithsonian Cheetah Conservation Station, which is being updated.

- Twenty-one published or scheduled print media articles, including Africa Geographic (South Africa), Bare Essentials Magazine (Australia), Natural Dog Magazine (USA), PAKO Magazine (Namibia), BBC Travel/Lonely Planet, Zambezi Traveller (UK), Dog News Magazine (USA) and The Robb Report (USA). CCF was also mentioned in the November issue editorial of National Geographic Magazine. An article on the cheetah's genetic diversity by Time Magazine is in progress.
- Eight published web articles including Eco-Chick, World Footprints and IEEE Spectrum Radio. In addition to this, Dr. Laurie Marker is now a regular blogger on the Huffington Post and this year published eight blogs (See Other PR Efforts section above).
- Five radio interviews, including one with Radio 1 (Dubai) regarding illegal wildlife traffic and one aired on NPR on 30 June as part of its Living on Earth series. In addition, a radio interview with Boyd Matheson was held during the fall tour at National Geographic's offices and aired on the NG Weekend radio show of 12 October.
- 35 TV/film inquiries included eight inquiring seeking CCF's expert opinion (quiz shows and NatGeo) and 23 documentary or film inquiries resulting in three film crews hosted by CCF in Namibia. Two of these crews were arranged by the Namibia Tourism Board (NTB). Dr. Marker was also interviewed by filmmaker Kate Simerly during her US tour, for a project involving a documentary on the impact that CCF's LGD programme has made on its ecological and humanitarian efforts.
- In November, Thomas Kettner, a noted photographer, did a photo shoot at CCF as part of a promotional campaign on behalf of big cats by Anna Fenninger. Ms. Fenninger is an Austrian World Cup ski racer and the photo shoot was in furtherance of a European PSA campaign aimed at big cat conservation. Ms. Fenninger specifically chose to focus on cheetahs and on CCF.
- During her spring tour, Dr. Marker was interviewed by Good Morning Indiana on ABC's WRTV6, Indianapolis, IN, and by Fran McLean of the Society of Woman Geographers for an Oral History interview. During the fall tour, Dr. Marker scheduled three appearances on television news shows to talk about her appearances on her fall tour and about CCF programming: Fox 5 in Washington, DC, and KDSK-TV and KTVI-TV in St. Louis, Missouri. In addition, a radio interview with Boyd Matheson, held at National Geographic's offices, aired on the NG Weekend radio show of 12 October.

Eight documentaries filmed at CCF aired during this period:

- In January 2012, [The Hostel Life](#), a web site that takes adventure-seeking people as the host backpacks around the world, filmed one of four episodes on Namibia at CCF. [Episode 2](#), filmed at CCF aired on the Internet on 11 June (arranged by NTB).
- In April 2012, ABC's [Born to Explore](#), a weekly adventure travel show airing nationally in the US and hosted by Richard Wiese, filmed at CCF for an episode that aired on 10 November (arranged by NTB). This airing was promoted jointly with Litton Entertainment via a joint press release, and on Facebook, CCF's website and via eblast. Richard Wiese (now a CCF USA Trustee) and his production team also graciously provided a Public Service Announcement (PSA) that CCF has been able to promote via You Tube and which Litton Entertainment has submitted in rotation on ABC affiliate

stations on Saturday mornings (when “Born to Explore” airs), making a particular effort to promote the PSA for International Cheetah Day. The Born to Explore series was a 2012 Daytime EMMY nominee.

- In June 2012, a TV crew filmed at CCF for a documentary series entitled “[Out on a Limb](#)” with a team led by Bushy McKelvey, a bilateral below the knee amputee. The aim of “Out on a Limb” is to raise funds for disabled people by producing a series for broadcast that documents his travels and experiences by motorcycle through 30 countries/destinations visiting and assisting numerous non-profit organisations and covering approximately 28,000 km’s within 100 days. The documentary aired at the Rome Film Festival (Georgia) on 7 September.
- In February 2011 Simon Cowell, producer and host of the UK TV series [Wildlife SOS](#), visited CCF to film an episode for the series which aired in the UK April 2012 and is expected to air in 23 other countries including Animal Planet in the US.
- In June 2011 Tigress Productions visited CCF to film a segment on thornbush causing eye injuries to cheetahs, for the National Geographic TV series “[Wild Case Files](#).” The segment aired in the UK, South Africa and other countries in September 2012, and in the US in November 2012.
- In November 2011, NHK Japan filmed CCF’s OK Ambassadors in November to clock their speed using slow motion cameras and special collars. The show, [Darwin Goes Wild](#), was a New Year Day’s special that aired in Japan on 1 January with a 20-min segment on CCF.
- In December 2011, CCF hosted a joint crew from NBC TV (Namibia) and the Deutsche Welle (Germany). The documentary aired in Namibia in the same month and in Germany on 6 July 2012 on the [Deutsche Welle’s section World Stories](#).

A documentary filmed on the occasion of Dr. Laurie Marker’s nomination for the 2010 Indianapolis Prize was selected by the Colorado Environmental Film Festival. The 42-minute film is one of only 50 inspirational movies selected from among hundreds of submissions for this Festival, which presents thought-provoking stories with environmental themes.

CCF and/or Cheetah-related Media Monitoring

CCF staff monitors media only through Google’s free News Alerts service. During this period, Google reported over 198 articles or electronic media items that directly included CCF or its projects. All but two (Busch Gardens and Jonathan/Angela Scott’s Valentine’s Day event) mentioned CCF and/or Dr. Laurie Marker by name specifically.

95 articles were the result of CCF’s pro-active media outreach, such as press releases, direct interviews and Dr. Marker’s tour and events coverage.

The remaining 103 articles were unsolicited and in great part generated by volunteers, partners, or quoting information from the CCF web site. For full listing and details, see APPENDIX II: Overall Media Coverage (source: Google News Alerts).

4. Book Collaborations

In April, CCF self-published the book “CCF 2011 Highlights” and distributed among high donors. In addition, four books with chapters dedicated to CCF or reviewed by CCF, and one featuring a foreword by Dr. Laurie Marker, were published during this period:

- [“Wildlife Heroes”](#) featuring 40 leading conservationists, authored by IFAW’s Jeff Flocken and Sea World Parks & Entertainment’s Julie Scardinia. Published in March 2012 (Running Press - USA).
- [“Portraits Nature”](#) by Sorbonne University lecturer Fabrice Delsahut. The book analyses issues related to the preservation of animal biodiversity awareness about the impact of humans on their environment, evoking his predatory action, pollution and introduction of alien species. The author pays tribute to individuals who are committed to preserving the environment and includes an article authored by Dr. Laurie Marker. Published in June 2012 (Pascal Galode Editors – France).
- [“Africa: An Artist’s Safari”](#) a collection of memoirs by wildlife artist, author and safari expert Fred Krakowiak, featuring a foreword by Dr. Laurie Marker. Published in May 2012 (Book Clearing House).
- [“Five Cheetahs: Grandma Goes to South Africa series \(Volume 2\)”](#) features fun-filled descriptions and carefully chosen facts about the cheetah reserve animals, their personalities, and families, with large, colourful pictures and charming stories that “we can make a difference in the lives of animals that are valuable and vulnerable,” by Linda Sheehan. Published in February 2012
- [“Galloway Falls”](#) dedicates a page to the CCF creamery as one of the activities supported by the Patricia Galloway and Kris Nielsen Foundation.

CCF staff worked on twelve book collaboration requests (review, edits and images), including three children’s books. One of the books published 2011, *In the Company of Cheetahs* by Earthwatch volunteer Sharon Neil, is being re-printed in its second edition. In 2011, CCF supplied images for “Big Cats,” a book by Michael Cox that was published in March 2012 by the Zoological Society of London and Bloomsbury Publishers. CCF also assisted with data for a cheetah exhibit on speed being built at the Perot Museum of Nature and Science in Dallas, TX (USA).

VIII. PLANNED ACTIVITIES: JANUARY - JUNE 2013

In line with CCF's Mission Statement, our Goals for 2013 are as follows:

- *Continue long-term scientific research on cheetah health, reproduction, genetics, ecology and species survival;*
- *Create and manage long-term conservation strategies for the cheetah throughout their range, including the development and implementation of better livestock management practices and economic benefits to rural Namibians, eliminating the need for ranchers to kill cheetah;*
- *Conduct conservation education programmes for local villagers, ranchers and school children and expand them throughout other cheetah-range countries;*
- *Continue fundraising to maintain programmes.*

To achieve these goals we will be undertaking the following objectives and planned activities.

A. Research

- Continue with tag-and-release programme and biomedical sampling, as well as research into population dynamics and cheetah densities.
- Continue to develop CCF's genetics lab to extract DNA from scat and work with collaborators throughout the cheetah's range.
- Continue to use trained scat-detection dogs for scat collection.
- Continue with cheetah re-wilding/relocation research, including the use of CCF's Bellebenno game farm for first stage of reintroductions.
- Continue providing guidance and assistance with cheetah reintroductions in India, Uzbekistan and other countries where our assistance is helpful.
- Continue research on squamous cell carcinoma (SSC, tongue cancer) on Livestock Guarding Dogs.
- Continue ecology projects: game/strip counts, Waterberg Conservancy annual waterhole count, research/education plots of grasses and bush, and expand use of camera traps as a census technique in known and possible cheetah-range areas in Namibia and other countries as requested.
- Publish peer-reviewed scientific papers on CCF's research and continue to contribute to popular publications.
- Publish the 2012 International Cheetah Studbook and begin working on the 2013 International Studbook.

B. Conservation

- Continue implementing strategies planned at the 2007 eastern and southern African strategic planning meetings with partner organisations.
- Continue working with the Large Carnivore Management Association (LCMAN).
- Continue working with farmers on cheetah-related issues and reducing conflict with cheetahs.
- Continue working with the Conservancy Association of Namibia (CANAM), the Waterberg Conservancy, the Greater Waterberg Complex, Namibia Protected Area Landscapes

(NAMPLACE) and various communal conservancies in wildlife and habitat monitoring, eco-tourism activities, and promoting the concept of conservancies.

- Continue researching into providing economic benefits to people living with cheetahs to increase tolerance and behaviour towards cheetahs.
- Continue to expand the Livestock Guarding Dog programme through breeding, placement and monitoring of dogs.
- Work with the ministries of Agriculture, Environment and Tourism, and Trade and Industry on bush encroachment-related research and bush industry development.
- Continue CCF habitat restoration project and the production, marketing and sales of Bushblok, nationally and internationally, in line with CCF's Clinton Global Initiative Commitment.
- Attend Namibian agricultural and industrial shows.
- Continue to assist other cheetah-range countries with their cheetah programmes, including working with the Middle East, India, Uzbekistan and Zambia on their planned reintroduction programmes.
- Continue communications in Angola, Zambia, Mozambique and other North and West African countries on cheetah programmes, as well as collaborating with colleagues in Kenya and Botswana.
- Continue to monitor rhinos on the CCF Rhino Reserve.
- Continue Model Farm operations and use farm for training programmes as well as to determine the feasibility of alternative livelihood practices such as goat milk products and grape growing.
- Expand CCF's Future Farmers of Africa program to other cheetah-range countries.
- Continue fighting the illegal taking of cheetahs for the pet trade through monitoring and assisting with confiscations when possible, as well as through efforts to affect public policy.
- Continue to develop the CCF Field Research and Education Center as an eco-tourism destination.

C. Education

- Continue to expand CCF's community development programme through youth camps and participation in agricultural, tourism and other trade shows and events.
- Continue to conduct educational assembly programmes in schools throughout Namibia and distribute teacher and student materials.
- Continue to conduct farmer and farm worker training courses in cooperation with various Namibian industry partners.
- Host high-school students and university students from various international travelling schools for a number of days when they visit Namibia.
- Host Earth Expeditions in cooperation with the Cincinnati Zoo and Miami University (Ohio).
- Continue with student internships in cooperation with Polytechnic of Namibia, teacher training colleges, the University of Namibia, the Oregon's Global Graduate Program and other international universities, including Master's Degree students.
- Continue acting as a field station for Earthwatch and work with Earthwatch volunteers.
- Provide training to CCF's professional staff.

D. Fundraising

- CCF Executive Director to travel to US and Europe for fundraising and lectures.

- Continue developing CCF USA, CCF UK and CCF Canada, as well as international fundraising arms in Germany, France, Holland, Italy and Japan.
- Continue to host national and international journalists and film crews.

IX. APPENDIX II: Overall Media Coverage (source: Google News Alerts)

Source	Date	Title	Publication	Country	Mention
Direct	1-Jan-12	A heart warming story	<i>Bare Essentials Magazine</i>	Australia	YES
Press release	10-Jan-12	Indië vra jagluiperds (India requests cheetahs)	<i>Republikein</i>	Namibia	YES
Direct	24-Jan-12	Indië gee ja-woord (India gives yes word)	<i>Republikein</i>	Namibia	YES
Press release	25-Jan-12	Sterre van Big Cat Diaries kom na Namibië	<i>Republikein</i>	Namibia	YES
Press release	25-Jan-12	Conservationists share their love of big cats	<i>Namibia Economist</i>	Namibia	YES
Press release	25-Jan-12	Sterre van Big Cat Diaries kom na Namibië (Star of Big Cat Diaries come to Namibia)	<i>Republikein</i>	Namibia	YES
Direct	26-Jan-12	Namibia Day 2	<i>The Hostel Life</i>	Web	YES
Direct	26-Jan-12	Clever cheetah conservation in Namibia - Marianne Young	<i>UK Foreign Office</i>	Web	YES
Partnerships	26-Jan-12	Sacred Hearts School students adopt a beehive in Africa	<i>Lahaina News</i>	Hawaii, USA	YES
Partnerships	26-Jan-12	Nonprofits in this Story - Generocity: Front Page	www.generocity.org	Web	YES
Press release	26-Jan-12	A love for predators	<i>The Namibian</i>	Namibia	YES
Unsolicited	26-Jan-12	A race for survival- Cheetahs - NHU Africa	<i>Natural History Unit</i>	South Africa	YES
Partnerships	31-Jan-12	The Lesson of the Cheetah	<i>Adventure Conservation News</i>	Australia	YES
Partnerships	31-Jan-12	The Lesson of the Cheetah	<i>Bare Essentials Magazine</i>	Australia	YES
Partnerships	3-Feb-12	We are pleased to support the following organizations in 2012	<i>World Footprints Media</i>	USA	YES
Chapter	8-Feb-12	Second Annual Cheetah Conservation Golf Tournament	<i>Golf Link</i>	Web	YES
Unsolicited	8-Feb-12	When Biodiversity Comes Into the Lab	<i>mysciencework.com</i>	Web	Photo credit
Direct	13-Feb-12	We Can Live Together	<i>The Hostel Life</i>	Web	YES
Partnerships	13-Feb-12	Colorado Environmental Film Festival Selects Indianapolis Prize Documentary	<i>Borschoff (PR)</i>	World	YES
Partnerships	13-Feb-12	Conservation BREC's Baton Rouge Zoo - The #1 Family Year ...	<i>Baton Rouge Zoo</i>	Louisiana, USA	YES
Partnerships	15-Feb-12	Author shares knowledge with Marburn students	<i>ThisWeekNews</i>	Ohio, USA	YES
Press release	16-Feb-12	Wildlife stars light up Valentine's day	<i>The Namibian</i>	Namibia	NO
Press release	17-Feb-12	Wêreldberoemde paartjie gaste van CCF (World famous guest of CCF)	<i>Republikein</i>	Namibia	YES
Partnerships	19-Feb-12	Cheetah visits Marietta school	<i>Parkersburg News</i>	West Virginia, USA	YES
Tour	19-Feb-12	Occidental College :: Occidental College Graduate Wins Prestigious ...	<i>Occidental College News</i>	California, USA	YES
Direct	27-Feb-12	TravelSharkpix Charities	<i>TravelShark</i>	Web	YES
Direct	28-Feb-12	BOKLAM (visitors to CCF)	<i>Republikein</i>	Namibia	YES

Direct	28-Feb-12	CCF, 'n plek om te besoek (A place to visit)	<i>Republikein</i>	Namibia	YES
Direct	28-Feb-12	Jagluiperdwelpies volg in voetspore van Chewbaaka (Cubs follow Chewbaaka steps)	<i>Republikein</i>	Namibia	YES
Partnerships	28-Feb-12	TravelShark(TM) Counts User Votes and Names Three Charity Partners ...	<i>DigitalJournal.com</i>	Web	YES
Partnerships	28-Feb-12	TravelShark™ Counts User Votes and Names Three Charity Partners ...	<i>Hospitality Net</i>	Web	YES
Press release	28-Feb-12	Agt nuwe hondjies om vee te beskerm (Kiri's puppies)	<i>Republikein</i>	Namibia	YES
Press release	28-Feb-12	Namibië 'n juweel vir fotograwe	<i>Republikein</i>	Namibia	YES
Direct	28-Feb-12	TravelShark™ Counts User Votes and Names Three Charity Partners for TravelSharkPix	<i>Hsyndicate</i>	Web	YES
Partnerships	29-Feb-12	Aberlady venue for Carol's art	<i>East Lothian News</i>	UK	YES
Partnerships	1-Mar-12	TravelShark™ Counts User Votes and Names Three Charity ...	www.hospitalitynet.org	Web	YES
Partnerships	1-Mar-12	Oceana Wins TravelShark Charity Hunt The Beacon: Oceana's Blog	<i>Oceana</i>	Web	YES
Partnerships	1-Mar-12	Wildlife Warrior: Jenna Townsend	<i>Bare Essentials Magazine</i>	Australia	YES
Partnerships	5-Mar-12	Vandals caused £800 worth of damage to a sign at Eagle Heights in ...	<i>News Shopper</i>	UK	YES
Volunteer	5-Mar-12	European Environment Foundation - Participants	<i>European Environment Foundation</i>	Web	YES
Partnerships	7-Mar-12	More - Azumano Travel-	Azumano Travel	Web	YES
Unsolicited	7-Mar-12	Cheetah struggling to reproduce due to climate change, scientists warn	<i>The Guardian</i>	UK	YES
Unsolicited	7-Mar-12	Conservation - Wolwedans NamibRand Reserve - Namibia	Wolwedans	Namibia	YES
Unsolicited	7-Mar-12	DARPA's Robot Cheetah Breaks Speed Record for Legged Robots [VIDEO]	<i>International Business Times</i>	World	YES
Partnerships	8-Mar-12	Press Release Distribution - TravelShark.flv - YouTube	<i>Travel Shark YouTube Channel</i>	Web	YES
Direct	11-Mar-12	South Africa: Educational Cheetah Conservation Documentary ...	globalanimal.org	Web	YES
Unsolicited	12-Mar-12	Agrimovie series: The Cheetah Conservation Fund Crop Production	Crop Production	Web	YES
Volunteer	12-Mar-12	Cheetah Conservation Fund d travels 'round	www.dtravelsround.com	Web	YES
Unsolicited	13-Mar-12	Cheetah « Great Cats of the "World"	Greatcatsoftheworld Blog	Web	YES
Volunteer	13-Mar-12	Volunteer with rescued cheetahs at Namibia's Cheetah ...	Lonely Planet	Web	YES
Volunteer	14-Mar-12	Euro Cruises: Volunteer with rescued cheetahs at Namibia's ...	eurocruisehols.blogspot.com	Web	YES
Unsolicited	16-Mar-12	Great trek into the wide open	<i>Independent Online</i>	South Africa	YES

Chapter	22-Mar-12	America's Teaching Zoo to hold Spring Spectacular	<i>Ventura County Star</i>	California, USA	YES
Direct	22-Mar-12	Breaking: The Guardian prints fake cheetah climate-threat story, fails ...	<i>junkscience.com</i>	Web	YES
Direct	23-Mar-12	Namibia's cheetah rehab holidays	<i>BBC Travel</i>	Web	YES
Unsolicited	23-Mar-12	Women's History Month: Women Helping Wildlife Petside	<i>Petside</i>	Web	YES
Volunteer	25-Mar-12	Ryan accepted into veterinary school	<i>Zanesville Times Recorder</i>	Web	YES
Tour	28-Mar-12	Discovery Park to mark 10 years of innovation with 4 Discovery ...	<i>PressZoom</i>	Web	YES
Unsolicited	31-Mar-12	Afrikai nyaralás gepárdmenhelyen	<i>MIX online</i>	Hungary	YES
Tour	5-Apr-12	Discovery Park to mark 10 years of innovation ...	<i>Purdue News</i>	Indiana, USA	YES
Partnerships	6-Apr-12	Steve Austin trains dogs to help endangered Cheetahs	<i>Pet Industry Assoc.</i>	Australia	YES
Unsolicited	7-Apr-12	N/a'an ku sê Foundation - Partners	<i>N/an ku se</i>	Namibia	YES
Volunteer	8-Apr-12	Features - VCU Center for Clinical and Translational Research	<i>VCU Center for Clinical and Translational Research</i>	Virginia, USA	YES
Unsolicited	10-Apr-12	Gladys KAHAKA: a student of endangered species from Namibia	<i>StarAfrica.com</i>	Africa	YES
Unsolicited	11-Apr-12	Bringing the Lost Cheetah Back to India – But at What Cost?...	<i>Inter Press Service</i>	World	YES
Partnerships	13-Apr-12	Rs 1.9 cr for Cheetah introduction programme	<i>Times of India</i>	India	YES
Partnerships	14-Apr-12	Mary Wykstra — SAGE Magazine	<i>Yale University Sage Magazine</i>	USA	YES
Unsolicited	14-Apr-12	Bringing The Lost Cheetah Back To India — But At What Cost ...	<i>www.globalissues.org</i>	Web	YES
Partnerships	15-Apr-12	Unlikely friendship spotted at Busch	<i>Tampa Bay Online</i>	Florida, USA	NO
Partnerships	20-Apr-12	Taronga Conservation Partnership Grant @ @ Ruaha Carnivore ...	<i>Ruaha Carnivore Project.com</i>	Web	YES
Volunteer	20-Apr-12	Advertorial: Oxford University	<i>The Ecologist</i>	UK	YES
Partnerships	21-Apr-12	A Race to Save the Cheetah Inside Conservation Blog	<i>www.insideconservation.com</i>	Web	YES
Chapter	22-Apr-12	Visitors to EarthFair find plenty of things to save	<i>U-T San Diego</i>	California, USA	YES
Tour	25-Apr-12	Cheetah Conservation Fund founder to speak ...	<i>Purdue News</i>	Indiana, USA	YES
Partnerships	26-Apr-12	NTB launches 'Conservation Destination' campaign	<i>The Namibian</i>	Namibia	YES
Tour	27-Apr-12	Cheetah Conservation Fund Mother's Day Celebration Wild Wonders	<i>Wild Wonders</i>	California, USA	YES
Partnerships	28-Apr-12	Race a Cheetah for Conservation - YouTube	<i>Indianapolis Zoo You Tube Channel</i>	Web	YES
Partnerships	29-Apr-12	Bridgette Frazier Raises Earthly Awareness, Brings In the Cheetahs	<i>Little Rock Soirée</i>	Arkansas, USA	YES

Direct	1-May-12	On Guard	<i>Africa Geographic</i>	South Africa	YES
Direct	3-May-12	Job (Alexandria): Communications Coordinator - idealist.org	www.idealists.org	Web	YES
Direct	3-May-12	Dr. Laurie Marker: Why Helping People Is Key to ...	<i>Huffington Post</i>	Web	YES
Partnerships	3-May-12	SureAid Get a quote	<i>Sure Aid</i>	UK	YES
Partnerships	3-May-12	Tourism Board launches Conservation Destination campaign	<i>Namibia Economist</i>	Namibia	YES
Tour	3-May-12	Cheetah expert to speak at Dartmouth	<i>Associated Press via The Boston Globe</i>	Massachusetts, USA	YES
Partnerships	5-May-12	Namibia: NTB Launches 'Conservation Destination' Campaign ...	www.balancingact-africa.com	UK/Africa	YES
Tour	5-May-12	Expert on cheetahs to present at Dartmouth College tonight ...	<i>Nashua Telegraph</i>	New Hampshire, USA	YES
Unsolicited	5-May-12	Palpur to be home for 3 cheetahs from Namibia	<i>Daily Bhaskar</i>	India	YES
Partnerships	7-May-12	Tourism Board launches Conservation Destination campaign	<i>Namibia Economist</i>	Namibia	YES
Partnerships	9-May-12	Dynamic duo: The cheetah and the Anatolian shepherd ...	<i>Fort Worth Zoo Blog</i>	Web	YES
Partnerships	9-May-12	Mary Wykstra-Ross, Action for Cheetahs in Kenya (ACK) - SafariTalk	safariatalk.net	Web	YES
Unsolicited	9-May-12	India rejects Nam cheetahs	<i>The Namibian</i>	Namibia	YES
Unsolicited	9-May-12	Project to ship cheetahs from Africa to India 'totally misconceived'	<i>Telegraph</i>	UK	YES
Unsolicited	9-May-12	India's Cheetah Restoration Plan Killed	<i>Newsy World</i>	Web	YES
Partnerships	10-May-12	Minister sê vroeër al (India cheetah reintroduction)	<i>Republikein</i>	Namibia	YES
Partnerships	10-May-12	Cheetah Conservation Fund- Namibia	<i>Namibia Adventure</i>	Namibia	YES
Partnerships	11-May-12	Conservation Sweepstakes - Lonely Planet travel forum	<i>Lonely Planet</i>	World	YES
Tour	12-May-12	Mother of Cheetah! San Diego Reader	<i>San Diego Reader</i>	California, USA	YES
Tour	13-May-12	A Cheetah in Studio City—For Charity, of Course	<i>Patch.com</i>	California, USA	YES
Unsolicited	14-May-12	India's Cheetah Restoration Plan Halted - YouTube	<i>Newsy World YouTube Channel</i>	Web	YES
Volunteer	14-May-12	Q&A: Richard Seeley, software engineer turned wildlife photographer	<i>Daily Camera</i>	Web	YES
Unsolicited	16-May-12	Indian Supreme Court rejects cheetah reintroduction plan	<i>Wildlife Extra</i>	Web	YES
Tour	18-May-12	0 comments - Fauquier Now -	<i>Fauquier Now</i>	Virginia, USA	YES
Press release	21-May-12	Cheetah Conservation Clears the Air	<i>The Namibian</i>	Namibia	YES
Press release	21-May-12	Import of cheetahs to India could	<i>Namibia Economist</i>	Namibia	Yes

		work			
Direct	22-May-12	Cheetah Think Tank	<i>National Geographic News Watch</i>	World	YES
Direct	22-May-12	Dr. Laurie Marker checks up the CCF goats – News Watch	<i>National Geographic</i>	World	YES
Volunteer	23-May-12	In Dixon's eyes, cheetahs always win	<i>Charlotte Observer</i>	N. Carolina, USA	YES
Direct	27-May-12	Feeding the Cheetah - YouTube	<i>Cheetah Watch YouTube Channel</i>	Web	YES
Partnerships	29-May-12	Nuwe renoster by lodge	<i>Republikein</i>	Namibia	YES
Direct	1-Jun-12	My Unforgettable Experience: CCF Internship	<i>Bare Essentials Magazine</i>	Australia	YES
Direct	1-Jun-12	Wildlife Heroes: Dr. Laurie Marker	<i>Bare Essentials Magazine</i>	Australia	YES
Direct	1-Jun-12	A Passion for Predators	<i>Bare Essentials Magazine</i>	Australia	YES
Partnerships	1-Jun-12	The Chewbaaka Challenge	<i>Adventure Conservation News</i>	Australia	YES
Unsolicited	7-Jun-12	Vogelwelt hautnah (Birds up Close)	<i>Allgemeine Zeitung Namibia</i>	Namibia	YES
Direct	8-Jun-12	Cheetah Shepherds: Hope for Cheetah Conservation by Kate ...	www.kickstarter.com	Web	YES
Press release	9-Jun-12	Cheetah owners' plan runs out of steam	<i>The National</i>	UAE	YES
Volunteer	10-Jun-12	Among the cheetahs in Namibia [Student] Resource	<i>Van Hall Larenstein University</i>	Netherlands	YES
Unsolicited	11-Jun-12	Support the Cheetah Conservation Fund	Miss Marple's Musings	Web	YES
Partnerships	14-Jun-12	Cheetah : Dan Inject Dart Guns and Darts – The Only Official ...	<i>Dan Inject Dart Guns</i>	Web	YES
Tour	15-Jun-12	"Somebody Grab the Cat! There's a Cheetah in the Backyard ...	<i>Discovery</i>	USA	YES
Unsolicited	25-Jun-12	Central Illinois zoos play a part in conservation of endangered ...	<i>Bloomington Pantagraph</i>	Illinois, USA	YES
Chapter	28-Jun-12	Event : 2nd Annual Cheetah Conservation Golf Tournament	<i>North County Times</i>	California, USA	YES
Partnerships	28-Jun-12	Where the wild things are	<i>The Chautauquan Daily</i>	New York, USA	YES
Partnerships	28-Jun-12	Why leave the Cheetah out?	<i>Teheka</i>	India	YES
Direct	30-Jun-12	Living on Earth: Cheetah on the Run	<i>Living on Earth - NPR</i>	USA	YES
Unknown	1-Jul-12	Le Chien Berger d'Anatolie, meilleur ami des guépards.	<i>Le Chien Magazine</i>	Switzerland	YES
Direct	2-Jul-12	Cheetahs Without Borders	<i>Huffington Post</i>	Web	YES
Partnerships	2-Jul-12	Chewbaaka Memorial Challenge	<i>Bare Essentials</i>	Australia	YES
Unsolicited	2-Jul-12	'Conservation Dogs' Help to Save an Endangered Species	Canidae Petfood Blog	Web	YES
Partnerships	3-Jul-12	Zookeepers raise funds to support polar bears in the wild	<i>Coldwater Daily Reporter</i>	Michigan, USA	YES
Partnerships	4-Jul-12	Little Rock Zoo's "Cheetah Outpost" schedules Saturday opening	<i>Magnoliareporter</i>	Arkansas, USA	YES
Partnerships	4-Jul-12	LR Family: Fun ideas for everyone	<i>Today's THV</i>	Arkansas, USA	YES
Partnerships	5-Jul-12	Cheetah Couple Retires to Naples	<i>eReleases</i>	Web	YES
Direct	5-Jul-12	Cheetahs in race of their lives – to save their species	<i>Public Radio International PRI</i>	World	YES
Partnerships	6-Jul-12	Cheetah reintroduction stirs up	<i>Times Of India</i>	India	YES

		debate			
Partnerships	7-Jul-12	Trainer Steve Austin is taking spaniels Tiger and Billy to Africa to sniff out endangered cheetahs	Daily Telegraph	Australia	YES
Partnerships	7-Jul-12	Dog Train for African Safari	ABC Australia	Australia	YES
Partnerships	7-Jul-12	Cheetahs Zazi, Maggie LR zoo's newest stars	Arkansas Online	Arkansas, USA	YES
Partnerships	7-Jul-12	Little Rock Zoo To Unveil Laura P. Nichols Cheetah Outpost	inArkansas.com	USA	YES
Unsolicited	8-Jul-12	Progress in Race to Save Cheetahs - YouTube	VOA YouTube Channel	Web	YES
Direct	11-Jul-12	Noah's Ark' for Cuba as Namibia ships 148 animals	UK Telegraph	UK	YES
Partnerships	13-Jul-12	Ambassador Cheetah Majani	SanDiegoZoo.org	Web	YES
Volunteer	27-Jul-12	Earth Expedition Namibia Audubon Nature Institute	Audubon Institute Blog	Web	YES
Direct	31-Jul-12	Namibia begins trapping wildlife to send to Cuban zoo	Examiner.com	Web	YES
Direct	1 Aug 12	Cheetahs taken from Namibia to Cuban zoo 'will be OK,' says animal protection group	Animal Issues Reporter	Web	YES
Direct	7-Aug-12	Speed Matters: In the Olympics, in Business, and for Cheetahs	Huffington Post	Web	YES
Tour	29-Aug-12	A Walk on the Wild Side TailsInc.com	Tails Magazine	Web	YES
Direct	31 Aug 12	Cheetah Conservation Fund's Livestock Guarding Dog Program Helps the African Cheetah	Petside.com	Web	YES
Volunteer	2-Sep-12	On the Run - AFAR	AFAR Travel Guide	Web	YES
Tour	19-Sep-12	Morning show appearance with Dr. Marker and ambassador cheetah	Fox 5 in the Morning	Washington, DC (USA)	YES
CGI	24-Sept-12	CCF Commits to Expand Bushblok Programme for 2012 CGI Annual Meeting	African Conservation	Cameroon	YES
Tour	25-Sept-12	Happy Hollow Park and Zoo: Dr. Marker Conservation	Happy Hollow Park and Zoo	California, USA	YES
Unsolicited	25-Sept-12	Dr. Laurie Marker: Biomass Energy: Burning Bushes to Save Cheetahs	news.silobreaker.com	Web	YES
CGI	25-Sept-12	CCF Commits to Expand Bushblok Programme	Wildlife Warriors	Web	YES
Unsolicited	26-Sept-12	Asiatic Cheetahs Forced to Hunt Livestock	BBC Nature	UK	YES
Unsolicited	26-Sept-12	Cheetahs being Driven to Prey on Livestock	UPI.com	World	YES
Direct	27-Sept-12	Dr. Laurie Marker: Committing to the Future: For Cheetahs and Everyone Else, Too	Huffington Post	Web	YES
Press Release	28-Sept-12	Namibia: More Bushblocks from CCF	AllAfrica.com	World	YES
CGI	1-Oct-12	Heroines for the Planet: CCF Founder Dr. Laurie Marker	Celebrityballa.com	Web	YES
CGI	1-Oct-12	Heroines for the Planet: CCF Founder Dr. Laurie Marker	Eco-Chick	Web	YES

Tour	2-Oct-12	Dr. Laurie Marker, Leading Cheetah Expert and Innovative Conservationist, Visits St. Louis October 9th	stltoday.com	Missouri, USA	YES
Tour	3-Oct-12	Clabash! Celebrating Gourd Art in Forestville	PressDemocrat.com	California, USA	
Partnerships	3-Oct-12	Cheetah Conservation Fund	Studio City Patch	California, USA	YES
Partnerships	3-Oct-12	Cheetah Futures: Roles for Biofuels, Economic Development and Livestock in Conserving Wildlife	Cornell University	New York, USA	YES
Tour	3-Oct-12	A Race to the Future to Save the Wild Cheetah	nsnews.com	British Columbia	YES
Tour	4-Oct-12	Leading Cheetah Expert to Visit St Louis Zoo	Edwardsville Intelligencer	Illinois, USA	YES
Tour	5-Oct-12	Our Best Bets for the Week Ahead: Editor's Pick: Dr. Laurie Marker	STLtoday	Missouri, USA	YES
Tour	8-Oct-12	Dr. Laurie Marker in town to speak at Saint Louis Zoo	5 KSDK (NBC local station)	Missouri, USA	YES
Unsolicited	11-Oct-12	Cheetah Euthanized at BREC's Baton Rouge Zoo	BREC.org	Baton Rouge, LA	YES
Tour	11-Oct-12	Concerts - Cocktail Reception & Benefit with Dr. Laurie Marker - KDHX	KDHX.org	St. Louis, MO	YES
Direct	12-Oct-12	Boyd Matson interviews Laurie Market	National Geographic Weekend Radio	USA/Web	YES
CGI	14-Oct-12	Bushblok-Cheetah conservation, agriculture enabling and economic stimulation	Openideo.com	Web	Yes
CGI	20-Oct-12	At Work: Doing good can be noble career choice	USATODAY	Web, Syndicated	YES
Syndicated	21-Oct-12	At Work: Doing good can be noble career choice	Shreveport Times	Syndicated	YES
Syndicated	22-Oct-12	At Work: Doing good can be noble career choice	Statesman Journal	Salem, OR	YES
Syndicated	22-Oct-12	At Work: Doing good can be noble career choice	Great Falls Tribune	Great Falls, MT	YES
Unsolicited	26-Oct-12	Fast Forward and Replay	National Geographic Magazine	World	YES
Syndicated	29-Oct-12	At Work: Doing good can be noble career choice	Green Bay Press Gazette	Green Bay, WI	YES
Syndicated	30-Oct-12	At Work: Doing good can be noble career choice	Greenville News	Greenville, SC	YES
Direct	30-Oct-12	Momentum: Moving at Cheetah Speed Towards Solutions	Huffington Post	Web	YES
Unsolicited	31-Oct-12	Dr. Laurie Marker: Momentum: Moving at Cheetah Speed Towards Solutions	Cleanenergysector.com	Web	YES
Partnerships	6-Nov-12	The Cheetah Conservation Fund: Helping Animals to Help Other Animals!	Jamboeveryone.com	Web	YES
Direct	10 Nov 12	Richard Wiese's "Born to Explore" Episode #206	Litton Entertainment	TV	YES
Unsolicited	12-Nov-12	We are Cheetah Friendly – Part I	National Geographic	Web	YES
Partnerships	14-Nov-12	An Evening with a Cheetah	Tigertail Foods	Web	YES

		(video)			
Direct	15-Nov-12	Embracing the Cheetah, Embracing the World	<i>Huffington Post</i>	Web	YES
Tour	24-Nov-12	Scene and heard: Architecture Foundation of Oregon, Cheetah Conservation Fund and more	<i>The Oregonian</i>	Portland, OR	YES
Unsolicited	27-Nov-12	Puppies to the rescue in southern Africa?	<i>WildOptimism.com</i>	Web	YES
Press Release	28-Nov-12	Elephant Bar helps Cheetah Conservation Fund celebrate International Cheetah Day	<i>Palos Verde Peninsula News</i>	Palos Verde, CA	YES
Volunteer	29-nov-12	Cheetah Day Seeks Friends in LO	<i>Lake Oswego Review</i>	Lake Oswego, OR	YES
Direct	30-Nov-12	The Day of the Cheetah	<i>Huffington Post</i>	Web	YES
Direct	4 Dec 12	Interview w/ Dr. Laurie Marker, International Cheetah Day	<i>Hltradio Namibia</i>	Radio, Namibia	YES
Press Release	4-Dec-12	Indy Zoo celebrates Cheetah Day	<i>WISH-TV</i>	Indianapolis, IN	YES
Press Release	4-Dec-12	International Cheetah Day	<i>Tiniest Tiger Blog</i>	Web	YES
Press Release	5-Dec-12	International Cheetah Day celebrated	<i>Informante</i>	Windhoek, Namibia	YES
Press Release	7-Dec-12	Namibia: Even Cheetahs Have a Day	<i>AllAfrica.com</i>	Web	YES
Direct	7-Dec-12	Big Cats in Crisis as Populations Decline	<i>Sci-Tech.com</i>	Web	YES
Direct	15-Dec-12	A Green Solution for Cheetah Conservation	The Natural Dog Magazine/ DogChannel.com	USA	YES

X. APPENDIX III: Identification of High Conservation Value Forest (HCVF) on north central commercial farmlands, Namibia.

Report submitted as a requirement for the Forest Stewardship Council certification Scheme for the Cheetah Conservation Fund FMU's (Cheetah View, Boskop, Elandsvreugde, Osonanga, Bellebenno, and Janhelpman). Mr. Matti T. Nghikembua and Dr. Bruce Brewer

Executive Summary

High conservation values forests is an FSC certification condition aimed at identifying significant aspects of biology, ecology, social or culture within registered forests. Since its inception in 1999, the assessments are done in order to “help conservation and natural resource planning, policy, advocacy and improving advocacy and improving purchasing policies for wood-based materials by private sector companies and NGOs” (Jarvie, 2003). We used FSC criteria to assess the presence of HCV's on the Cheetah Conservation Fund farms hereafter referred to as forest management units (FMU), in north central Namibia.

The objectives were to determine the presence on any HCV, delineated boundary extent and expanse and identify relevant management, monitoring and evaluation methods necessary to maintain and enhance the integrity of the identified HCV's. The assessment team consisted of CCF senior staff and research assistants who had lived on these farms for more than 13 years. Data from different sources such as CCF ecological research and literature review were collated and analyzed using the assessment methodology as stipulated by Steward et. al. (2008). Classifications of species according to different conservation categories were done using relevant national and international sources.

The FMU is an important area for biodiversity conservation, especially for species which are known to occupy vast ranges such as the cheetah. Analyses of the fauna and flora assemblages (HCV 2) have revealed that species of critical concern did exist within the boundaries of the FMU. However this did not constitute a critical concentration. Analyses have revealed the absence of most HCV's within the FMU. However, precautionary measures were identified for HCV 1.2 and HCV 4 in order to protect endangered species and reduce water erosion. A total area expanse representing 12.62% of the FMU was delineated under precautionary approach especially on farms Cheetah View, Boskop, Elandsvreugde and Janhelpman. Management recommendations to maintain high conservation values were developed for the CCF FMU.