

CONSERVATION OF THE CHEETAH IN NAMIBIA

Progress Report

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Reporting Period

January – December 2005

1. INTRODUCTION.....	3
2. ORGANISATIONAL STRUCTURE.....	3
3. PROGRESS DURING REPORTING PERIOD: JANUARY – DECEMBER 2005.....	4
3.1. FACILITY DEVELOPMENTS.....	4
3.1.1. Construction and Maintenance.....	4
3.1.2. Historical Land use of the CCF farms.....	4
3.2. CHEETAH RESEARCH.....	4
3.2.1. Historical Data 1991-2005.....	5
3.2.2. Population Biology – Cheetahs.....	7
3.2.3. Health and Reproduction.....	8
3.2.4. Large Carnivore Research and Ecology.....	11
3.2.5. Ecosystem Research.....	16
3.3. HUMAN IMPACTS.....	20
3.3.1. Livestock Guarding Dogs Programme.....	20
3.3.2. Meetings with Farmers.....	23
3.3.3. CCF’s Farm and Livestock.....	24
3.3.4. 4. Associations and Conservancies.....	25
3.3.5. Cheetah Country Beef (CCB).....	27
3.4. EDUCATION ACTIVITIES.....	27
3.4.1. Schools and Community Education.....	27
3.4.2. Education and Training at CCF.....	30
3.4.3. Other Collaboration with Educational Institutions.....	33
3.5. ECO-TOURISM.....	34
3.5.1. CCF Tours.....	34
3.5.2. Tourism Outreach.....	34
3.6. INTERNATIONAL PROGRAMMES.....	34
3.6.1. Cheetah Conservation Fund - Kenya.....	35
3.6.2. Cheetah Conservation Botswana (CCB).....	39
3.6.3. North African Cheetah Meeting - France.....	40
3.6.4. Algeria Field Survey.....	40
3.6.5. Captive Cheetah Management - International Cheetah Studbook.....	42
3.7. CCF ORGANISATIONAL ACTIVITIES.....	43
3.7.1. Development and International Fundraising.....	43
3.7.2. CCF USA Administration.....	48
3.8. INTERNATIONAL MEETINGS AND CONFERENCES.....	49
3.8.1. North African Cheetah Group.....	49
3.8.2. IUCN Cat Specialist Group Meeting.....	49
3.8.3. Southern African Regional Cheetah Workshop.....	50
3.8.4. International Kangal LSGD Conference, Kangal, Turkey.....	50
3.8.5. American Zoo Association (AZA) Annual Conference.....	50
3.8.6. Jackson Hole Wildlife Film Festival.....	50
3.9. MEDIA AND PUBLIC RELATIONS.....	51
3.9.1. Local Media (Namibia and South Africa).....	51
3.9.2. 2. International and U.S. Media.....	52
3.10. SPECIAL VISITORS TO CCF.....	54
3.11. VOLUNTEER PROGRAMME.....	55
3.12. CCF STAFFING.....	55
3.12.1. Staff Transitions.....	55
3.12.2. New Additions to Staff.....	56
3.12.3. CCF Permanent Staff.....	57
3.12.4. CCF USA Staff.....	57
4. PLANNED ACTIVITIES: JANUARY – JUNE 2006.....	57

1. INTRODUCTION

The Cheetah Conservation Fund (CCF), founded in 1990, has as its mission “to be an internationally recognised centre of excellence in research and education on cheetahs and their eco-systems, working with all stakeholders to achieve best practice in the conservation and management of the world’s cheetahs.” CCF undertakes basic research regarding cheetah and their habitat; maintains a major public education programme and creates and disseminates education materials worldwide; conducts programmes of community enrichment and predator conflict resolution; assists in the management of captive and free-ranging cheetah throughout the world; and publishes scientific papers on its research findings.

CCF's base of operations is in Namibia, which has the largest and one of the few sustainable populations of free-ranging cheetah in the world. The cheetah's survival depends on a total ecological system of farmland management, prey species management and habitat stability. CCF’s Namibian focus is to work with livestock farming communities in order to develop ways to reduce conflict. This is achieved by devising a conservation plan that secures habitat for the species, while still accommodating farmers’ land use needs.

CCF carries out scientific research programmes in areas such as cheetah population biology, cheetah ecology, cheetah health and reproduction and human impacts on the cheetah. CCF researchers develop, test, and promote alternative land-management practices such as conservancy development, non-lethal predator control, relocation of problem cheetahs and eco-tourism. Additionally, CCF conducts both Namibian and international education programmes to raise awareness of the cheetah’s endangered status. These illustrate ways in which the species can be protected and encourage worldwide support.

2. ORGANISATIONAL STRUCTURE

The Cheetah Conservation Fund is an international organisation with registered not for profit organisations in Namibia, the United States, Canada, and the United Kingdom. In 1991, CCF became a Namibian Voluntary Trust and in 2002 completed the registration of the Cheetah Conservation Fund as a not-for-profit Namibian Section 21 Company. CCF’s Namibian Board of Directors is comprised of leaders from the local community, businesses, and agricultural sectors. Additionally, an International Science Advisory Board assists in planning and advising on research projects. CCF’s Executive Director is assisted in the management and operations of CCF by a core professional staff, short-term volunteers, and students.

CCF’s International Research and Education Centre is the base for all CCF’s activities. The Centre is located near Otjiwarongo, Namibia on the farms Elandsvreugde, Osonanga, Boskop (Khayam’s Kopje), Cheetah View, Bellebeno, and Janhelpman, with a total of 39,000 hectares. The farm base is in prime cheetah habitat and a wildlife friendly area, with neighbouring farmers who believe in conservation ethics. This ensures a large prey population, which is important for the cheetah population.

CCF is an active member of the Waterberg Conservancy, which encompasses over 175,000 hectares of private farmland surrounding the Waterberg Plateau Park - a national game park

dedicated to rare and endangered species. The Conservancy's farmers cooperatively manage wildlife for long-term sustainability, providing habitat and prey base for the cheetah.

3. PROGRESS DURING REPORTING PERIOD: January – December 2005

3.1. Facility Developments

3.1.1. Construction and Maintenance

Over the last year, CCF has developed new infrastructure and conducted maintenance work on existing structures. This included the construction of a new house and bathroom facility as well as smaller changes to existing houses on Janhelpman, helping to solve the shortage of housing for farm personnel on that farm. A new office was constructed adjacent to the Education Centre and Museum for the education staff. Changes were made to the buildings and the workshops at Elandsvreugde and Janhelpman to meet Forestry Stewardship Council (FSC) standards.

Two new dog pens were constructed next to the existing goat kraal at Boskop. This pen will support the expansion of CCF's Anatolian Shepherd Livestock Guarding Dog breeding programme.

Ongoing maintenance continued on all CCF farms. All of the major roads were graded, the airstrip was cleaned and graded, and fences were repaired. Due to the higher rainfall, grass in and around the cheetah pens was mowed several times, and firebreaks around cheetah pens were made. In addition, game count roads were fixed, and markers replaced along the circuit roads.

Changes in the water supply infrastructure for the CCF centre and work on new water distribution lines on all parts of CCF farms continued.

One new John Deere tractor, two road-grading implements, a John Deere Mini vehicle (grader), a rotary cutter, a flexi wing mower, and auger were donated by the Howard G. Buffet Foundation to CCF to assist in much needed farm maintenance and production.

3.1.2. Historical Land use of the CCF farms

Matti Nghikembua compiled historical information related to the land use for most CCF farms. Historical information related to deeds was obtained from the Ministry of Lands and Resettlement, and interviews were conducted with past farm workers and farm owners. Some information was also obtained from the media, especially for Elandsvreugde.

3.2. Cheetah Research

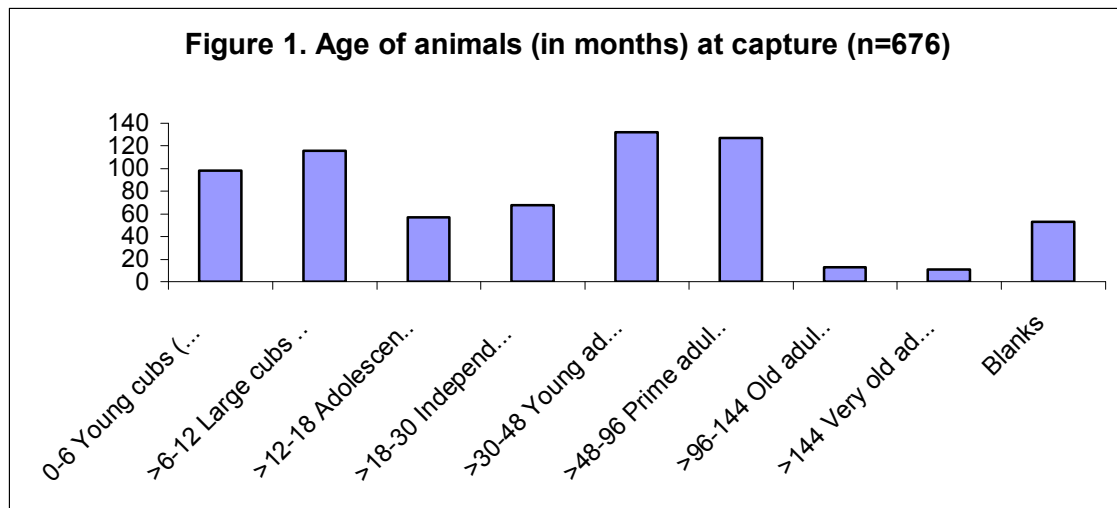
CCF conducts research to gather data on distribution, behaviour, biology, demographics, reproduction, the overall health of the Namibian cheetah population, and livestock/cheetah interactions. Semen samples are used in ongoing research and collected in the Genome Resource Bank (GRB). An extensive database has been developed with new data continually

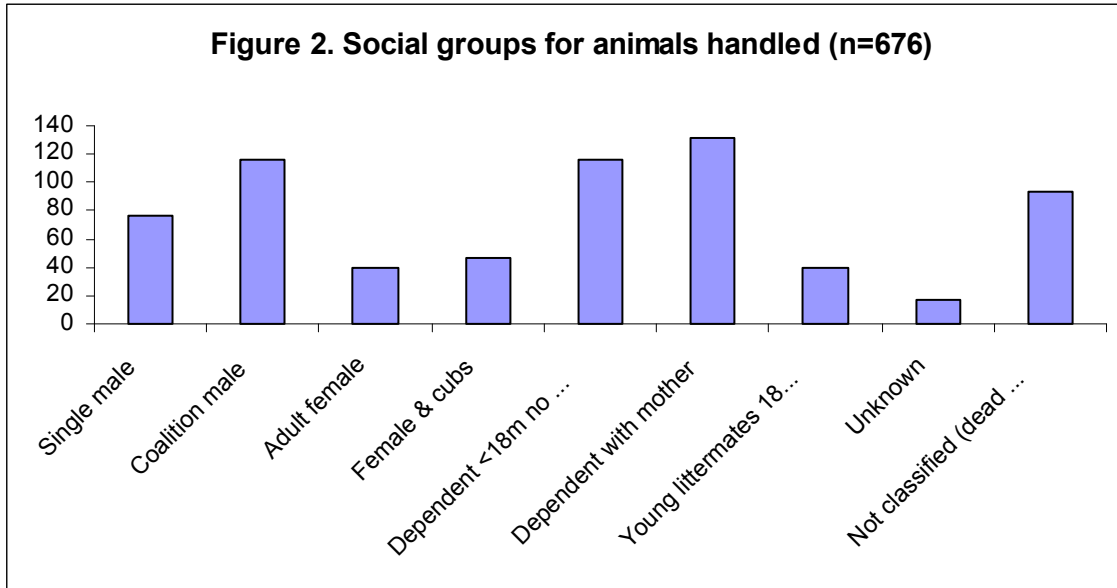
being added. Samples are stored meticulously and serve as a reference database for future studies.

CCF staff work directly with farmers on cheetah issues. Farmers participate in the research through live capture of cheetah on their farms that allow for biological sampling and measuring, ear tagging and release. CCF collaborates with researchers and institutions from the United States, Europe, Namibia, and South Africa whose experts contribute in areas of genetics, reproduction, veterinary medicine, pathology, and conservation work.

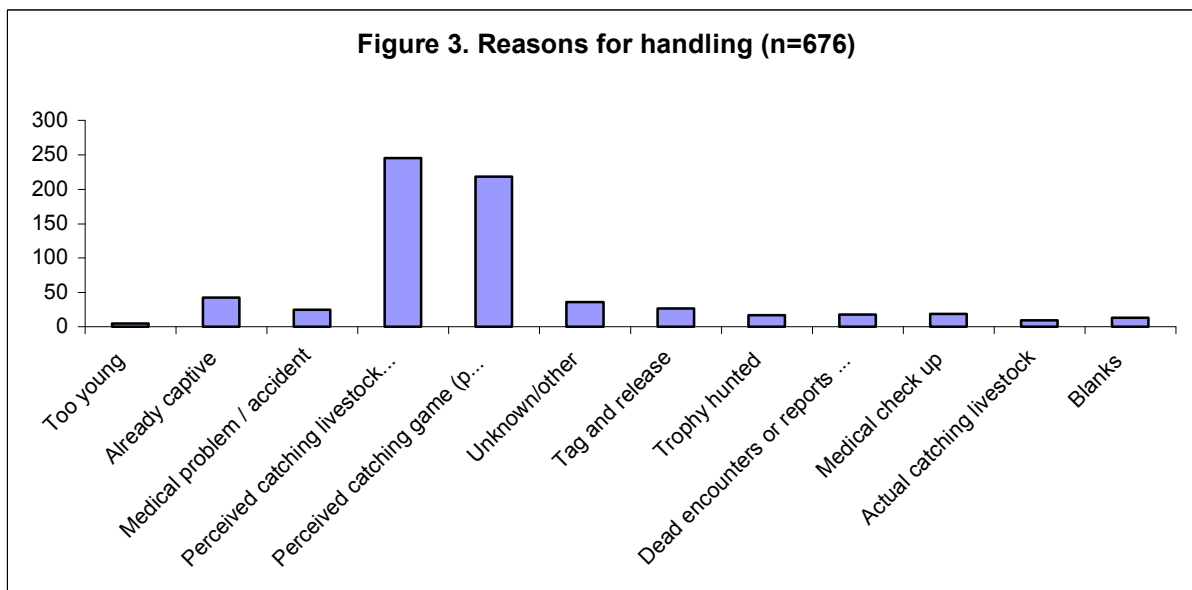
3.2.1. Historical Data 1991-2005

Since 1991, CCF has worked on 676 individual animals, many of which have been handled multiple times. The first time CCF handled them showed that 500 (74%), were wild caught animals, 100 (15%) were already in captivity, and the remaining 76 (11%) were dead animals from the wild. Figure 1 shows the ages of the animals handled and Figure 2 shows the number of animal captured in the different social groups.

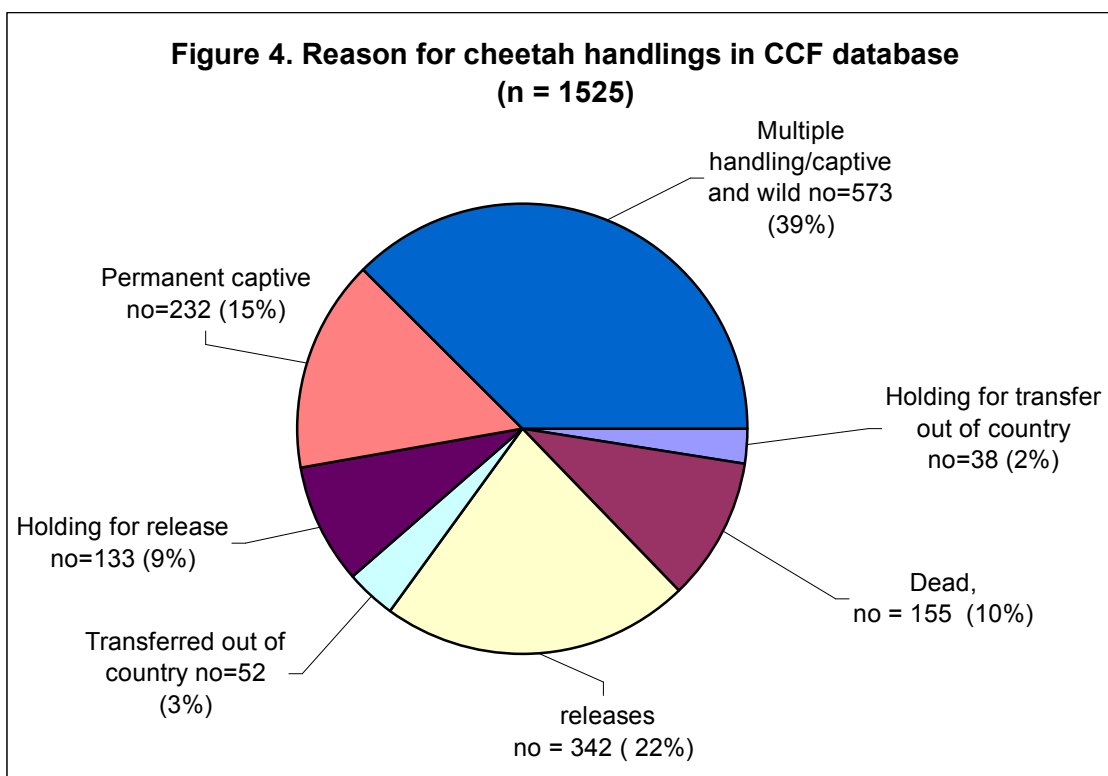




Of these, 316 (47%) were caught on livestock farms, 259 (38%) came from game farms, 85 (13%) were in captivity, and 16 (2%) were unknown. Out of the 676 animals that CCF has dealt with over the years, 342 (50%) were released back into the wild and 52 (8%) were transferred out of country both into the wild in South Africa and Zambia, and others went into captivity in South Africa and the United States. Figure 3 shows the reasons for handling the individual animals.



Between 1991 and 2005, CCF has worked on these 676 cheetahs in 1,525 handlings, as many were handled many times including those in captivity for annual physicals, and other research, wild cheetahs that were tagged and released and re-captured, and animals that CCF first saw alive then during necropsy of dead animals. Figure 4 shows an overview of the different categories of why CCF handled the cheetahs.



3.2.2. Population Biology – Cheetahs

Between 1 January and 31 December 2005, CCF worked on 80 (43M, 37F) cheetahs as shown in Table 1. Of those 23 (14M, 9F) were tagged and released back into the wild, six (4M, 2F) remained in captivity as they were orphaned and too young to be released back into the wild, and 41 (21M, 20F) were captive animals that received annual physical examinations, including 13 (13M, 0F) of CCF's cheetahs on loan to guest farms. Six cheetahs worked on by CCF either died at CCF (1M, 1F) or were already dead when they were collected. The following table summarizes the year's procedures:

Table 1. Number of cheetah CCF worked on in 2005, including wild, captive and dead.

	Male	Female	Total
Wild Caught & Released	14	9	23
Captive - Resident at CCF	21	20	41
Captive - New at CCF	5	5	10
Dead – Necropsy	3	2	5
Dead - Only few parts	0	1	1
Total	43	37	80

3.2.2.1. New Captive Cheetah

Six wild-caught cheetahs (4M: 2F) were kept at CCF, as they were too young to release without an adult. The three male cheetahs are littermates and were approximately eight-months old when captured in the Karibib district. Their mother, one sibling, and two adult males were shot prior to CCF being called. In September, three more orphaned cheetahs (1M: 2F) came to CCF from south of Otjiwarongo. CCF was called by a farmer who had hand-captured two cheetah cubs with a third still out in the bush by herself. The cubs were easily caught, due to their young age and weak condition; it appeared that they had lost their mother. Sadly, her fate remains unknown. The third cub was caught a week later and reunited with her siblings. They are healthy and adapting very well to their new surroundings at CCF.

One of CCF's captive female cheetahs gave birth to four cubs (1M: 3F) in July. She was bred by a wild male that climbed over the fence of the 64-hectare pen at Bellebeno, where 12 females are held. The females were contained the next day and the male recaptured.

As of the end of December, CCF is housing 38 cheetahs.

3.2.2.2. Wild Cheetah Releases

One approximately three-month-old cheetah was released after staff spoke to the farmer who had caught it. The mother was still in the area and it was only a matter of hours since the capture.

One of the wild cheetahs tagged by CCF was only released following surgery to remove the necrotic remains of his tail. He was held at CCF until the wound had healed. His brother, caught at the same time weighed in at 60kg, the heaviest wild-caught cheetah CCF has worked on to date.

3.2.3. Health and Reproduction

3.2.3.1. Health Issues - Gastritis

Collaborative research continues with Drs. Linda Munson and Karen Terio, from the University of California Davis, investigating the levels and causes of gastritis in captive and wild caught cheetahs.

During 2005, endoscopies were performed by Dr. Bagot-Smith on both wild and CCF's resident cheetahs to obtain gastric biopsy samples. Eight resident cheetahs received these procedures at six-month intervals, with additional procedures scheduled to occur annually to support the ongoing research. During three of the endoscopy procedures in December, Dr. Bagot-Smith trained the Cheetah Conservation Botswana (CCB) project veterinarian on this vital procedure.

Results from the research of Drs. Linda Munson, Karen Terio, and Laurie Marker have been published in the Journal of Clinical Microbiology in January 2005 entitled Comparison of *Helicobacter* spp. in Cheetahs (*Acinonyx jubatus*) with and without Gastritis.

3.2.3.2. Nematode Identified

A nematode (*Ollulanus tricuspis*), previously recorded in cheetahs in a zoo in New Zealand (paper published in the International Cheetah Studbook, 1998), was recently recorded in southern Africa for the first time in cheetahs residing at CCF. This nematode adversely affected the health of five cheetahs over a prolonged period of time before being diagnosed by Dr. Emily Lane, a veterinary pathologist in South Africa. The diagnosis was made from stomach biopsies taken from the sick cheetahs. Symptoms caused by an infestation of this nematode include passing undigested meat in the faeces and vomiting, causing a chronic loss in weight and deteriorating condition.

Fortunately, following a specific de-worming regime, all five cheetahs have completely recovered. Regular de-worming will not eliminate this nematode and it does not show up in faecal floats as it is passed on through vomitus. We are still puzzled as to where the infestation came from, given that all the other cheetahs on site appear unaffected. We suspected that Daisy and Rosy, two of the five sick cheetahs, picked up the initial infestation when they were held illegally, prior to being confiscated by CCF, in very small and extremely unhygienic conditions on a farm near Omaruru. However, their brother showed no signs of health problems and gastric biopsy showed the nematode was not present in his stomach.

3.2.3.3. Reproduction

In 2005, CCF staff conducted 24 semen collections from 23 cheetahs. This included seven wild cheetah (tagged and released), five from captive cheetahs on loan to Amani Lodge, one from a captive cheetah on loan to Bagatelle lodge, four from captive cheetahs residing at Naua Naua Guest Lodge, and six from CCF's resident cheetahs. All semen collections from captive cheetah were done in conjunction with annual physical health examinations. From these collections, 15 sperm samples were frozen and stored in the CCF Genome Resource Bank and nine sperm samples were utilised for cryopreservation studies by Smithsonian/CCF reproductive post doc, Dr. Adrienne Crosier.

The CCF Genome Resource Bank now contains 145 sperm samples from captive cheetahs, wild-caught cheetahs, captive lions, leopards, and aardwolf.

3.2.3.4. Hair Samples Used for DNA Analysis

3.2.3.4.1. Bushmanland

A hair sample was collected from an adult female cheetah in Gainku, Bushmanland and brought to CCF by the Namibia Wild Dog Project leader; it will be banked for future DNA studies, as we do not have representative samples from this part of the country.

3.2.3.4.2. South Africa

CCF is contributing to an ongoing court case in South Africa concerning the alleged illegal transportation of Cheetahs, possibly from the Okavango region of Namibia. Samples of hair collected by CCF from cheetahs from the Okavango area were given to Mr. Deon Cilliers of the National Cheetah Management Forum, South Africa. These samples will be used to perform genetic analysis to help confirm the region-of-origin of the disputed cheetahs.

3.2.3.5. Chewbaaka Visits Dentist

In July, CCF's ambassador cheetah, Chewbaaka, made a visit to Otjiwarongo Dentist, Dr. Dennis Profit, for an infected gum. The day before, the famous ambassador cheetah was observed to have a swollen lower jaw, extreme salivation, and tenderness to the touch. Local veterinarian, Dr. Marc Jago, from the Otjiwarongo Veterinary Clinic was contacted and arrangements were set to more closely observe the cause of the problem. Chewbaaka has had several visits to the dentist over the years because of a malformation of his teeth resulting in what is known as Focal Palatine Erosion (FPE). FPE occurs when the lower molar causes erosion in the upper palate of the cheetah's mouth. This is one of the physiological problems CCF has studied in wild, Namibian cheetahs.

Following anaesthesia at the Otjiwarongo Veterinary Clinic, Dr. Jago transported the cheetah to Dr. Profit's dental office where digital x-rays were taken showing a problem under the gum line. Chewbaaka was given a root canal four years prior and a remnant of the root was left, which was found to be causing the acute infection. The root was extracted and Chewbaaka's mouth stitched. The next day, the swelling was down and Chewbaaka was returned to his cage at CCF.

3.2.3.6. Unusual Medical Case

In December, CCF cheetah keepers were very worried after the two-year-old cheetah Tempesta did not eat for a few days and looked to be in pain. She was taken to the Otjiwarongo Veterinary Clinic for emergency surgery, which showed that her spleen had ruptured. Luckily, the operation went smoothly and a few weeks later Tempesta was reunited with her pen mates. To this day, it is uncertain what exactly happened to her, something that will most likely remain a mystery.

3.2.3.7. Necropsies

A full necropsy was performed on one of CCF's resident adult males that died following surgery to repair the damage caused by a 15cm piece of bone that exited through the stomach wall into the abdominal cavity. Two sets of tissue samples, including vital organs, lymph nodes, bone, muscle, skin and reproductive organs were obtained. One will be kept at CCF, the other was sent to Dr. Linda Munson at the University of California, Davis.

Two adult wild male cheetahs were also necropsied. One male was shot on a farm in the Okahandja area for suspected livestock predation. The second male was euthanized after being brought to the veterinarian by a farmer from Otavi with bullet injuries to its kidney and front legs. Full biomedical collections of three sets of samples, including vital organs, lymph nodes, bone, muscle, skin and reproductive tracts were taken. Organs were weighed and the intestinal tract measured. This information was collected on behalf of a researcher looking at nutritional and digestion issues. This cheetah had been tagged by CCF and released on Elandsvreugde in January, but returned to its home range in the Otavi area.

A necropsy was performed on one female cub that was caught by workers in the Gobabis area. Unfortunately, she suffered a head injury during capture and died a few weeks later following a massive seizure.

CCF collected one dead cheetah but a necropsy was not done due to the advanced stage of decomposition. This was a young female cub tagged and released with its mother and siblings in September. During its examination in September, it was found to have an abnormality of the humerus (The skeleton showed that this was in fact an old injury, most likely compounded by osteomyelitis. In retrospect, treatment would not have been an option anyway.) Since the mother was relatively old (8 years) and older cheetahs are known not to do well in captivity, the decision was made not to treat the cub and to release the entire family. It was noted that the mother was in excellent condition and proved to be the heaviest female (49kg) ever worked on at CCF.

3.2.4. Large Carnivore Research and Ecology

3.2.4.1. Cheetah Identification for Population Estimates

Range-wide population estimates for cheetahs are critical for their conservation, but they are particularly difficult to study due to their highly secretive nature and large home ranges. Most population estimates are based on presence/absence or questionnaire data and not scientifically driven. To better understand the issues facing the cheetah, it is important to develop techniques that enable accurate and timely population estimates.

There are two ways of non-invasively catching individual cheetahs from a population: photographic captures, and DNA-based captures. In photographic trapping, the animal will trigger self-activating cameras and take their own pictures. In the DNA-based captures, instead of a picture of the animal, the individual identification is provided by a sample of a body hair that is snagged by a device placed in the animal's path. DNA material can then be extracted from the root of the hair and used to identify individuals. At present, DNA-based methods for identifying individual cheetahs using hair samples have not been developed; although identifying individual cheetahs using DNA derived from blood samples has been done using micro satellite markers. CCF's research during the past six months has focused on developing techniques to employ both these advanced census methodologies.

3.2.4.2. Scent Stations

A continuing study from last year using scent stations continued into January and February of this year. Scent stations are a relatively inexpensive and simple way to enable population surveys at photographic capture and hair capture stations. Several studies have been successful in determining the best commercial lure to attract different species and to cause them to rub against a hair capture station.

The continuing study from last year uses CCF's captive cheetahs to test their response to a variety of substances. Scents used included: Scent A, B and C, mountain lion urine, mint and cod liver oil. Three of the scents A, B and C, all with a different mix of active ingredients, were made in Canada specifically for this study. They are made by Envirotel 3000, Inc. and are specifically made to attract cheetahs. The other scents, such as mountain lion urine, mint and cod liver oil, have been used to attract carnivores in previous field tests. The preliminary results show that Scents A and B were successful. Further trials involving captive and wild cheetahs will be performed.

3.2.4.3. Photographic/Camera Traps and Cheetah Census

Sampling animal populations by repeatedly catching identified animals can generate capture histories. From these histories, capture frequency statistics and estimates of capture probabilities can be derived. Estimates of capture probabilities then provide the necessary data to estimate the abundance and density of animals in the surveyed area without catching all the individuals in a population.

Traditional mark-recapture studies use an artificial tag and the animal must be handled to administer the tag. Alternatively, the cheetahs could be identified using their natural markings – their spots – and camera traps. This is a much less traumatic method of identifying the individual animal and provides high-quality data to generate population abundance and density estimates.

In early 2005, CCF began to use camera traps in the field. Forty Deer CAM passive motion/heat sensor cameras were purchased during this reporting period. Five sets of two cameras each were set at various locations to calibrate the cameras and test their effectiveness. CCF staff has mapped out a research study area and have digitised farm roads and water points using satellite imagery to enhance the usability of the data generated.

In the second half of the year, camera trapping was used to support the cheetah census projects in progress on CCF farms and on two neighbouring farms (Okosongomongo & Uitsig). Two study designs for camera trapping are being tested to determine how to obtain the optimum number of photos of individual cheetahs in the study area. In the first study, two camera traps per location were placed within three areas, each encompassing a surface area of 200 km² for a total study area of 600 km². Each area consisted of 20 grid cells of 10 km² each. Cameras were located at strategic locations within each cell either at play trees or across roads and animal paths. Trapping sessions were conducted over seven days in

each area. In the second study, camera traps were placed near known play/marketing trees at 13 locations in Bellebeno, Elandsvreugde, Droehout, Okosongomingo, Boskop, and Cheetah View. The film rolls from both these studies have been developed and are being scanned into databases.

3.2.4.4. Captive Cheetah Behaviour

In the wild, female cheetahs are solitary unless they are raising cubs. A female cheetah typically only seeks male company when ready to breed. Captive cheetahs are often housed in “unnatural” social groupings comprised of multiple females or even males and females that are kept in the same enclosure or in adjacent enclosures. These forced social groupings may affect both the stress levels and the oestrus (heat) cycles of captive females.

Jessica MacManus, a Fulbright Scholar, spent 6 months studying cheetah behaviour and endocrinology on CCF’s captive cheetahs. MacManus is investigating questions such as: Is there a linear dominance hierarchy? Are dominant females suppressing oestrus in submissive females? How do the stress levels of animals compare in high and low densities? Are oestrus cycles similar? Are amicable social groups found in high and low-density enclosures? Do amicable social groups cycle synchronously?

To answer these questions, daily behaviours were observed and daily faecal samples were collected from two different groups of female cheetahs. The high-density group is an enclosure at CCF’s Education Centre, and consists of four cats in a four-hectare pen. The low-density group has six cats in CCF’s 64-ha pen. Cortisol and estradiol hormones were extracted from the faecal samples at the CCF endocrinology lab. Cortisol is a stress hormone and estradiol indicates where in the oestrus cycle each cheetah is.

The initial results show that adult females in captivity will indeed form social bonds and social groupings, most probably associated with factors such as relatedness and whether they were raised together. In the larger 64-ha enclosure some females were able to maintain a much looser peripheral degree of social activity. The behaviour data did not provide conclusive evidence regarding the emergence of dominant/submissive relationships in the groups. This may be due to the short duration of the study and is an area for possible future studies. The hormone profiles are not yet completed and the results of this portion of the study will be made available in a future report.

3.2.4.5. Soft Releases

At the end of 2004 and the beginning 2005, two cheetahs (Daisy and Rosie) were released into a 4000 ha game camp on the CCF farm, Bellebeno. This release was done in order to learn more about how wild-born, captive-raised cheetahs would adapt to being self-sufficient. Five days after their release, Daisy and Rosie successfully hunted and captured wild prey. However, after 5 weeks, Daisy and Rosie left the Bellebeno camp through a warthog hole in the game fence and killed a neighbour’s goat. Because they were habituated to the presence of humans, they were unafraid of nearby workers. At this point,

they were returned into captivity having demonstrated their ability to survive in the wild and showing potential problems of releasing habituated cheetahs on farmland.

Following from this research in 2004/05, CCF has identified another candidate to be released into Bellebeno, the female cheetah Shiraz and her four cubs. Before this release takes place, CCF will implement an extensive swing gate project (see next section) to prevent warthogs from digging holes thus allowing the cats to escape.

3.2.4.6. Swing Gates

In 2001, CCF conducted research on the use of swing gates on one of the Waterberg Conservancy game-fenced farm. Swing gates are a method of keeping predators on one side of a fence while letting determined diggers, such as warthogs, to move through the fence. Game farmers use fencing to keep common species such as kudu, as well as imported exotic game such as blesbok in, and predators out. This pilot project tested the effectiveness of swing gates to evaluate the reduction of fence maintenance, and to ascertain which species use the gates and how diggers travel, thus determining maximum distance between gates. The research was written up as a part of CCF assistant researcher Mandy Schumann's master thesis in 2005.

Results of the pilot study indicate that swing gates are most effective if installed in the holes most frequently used. The study also showed that warthog, porcupine, and aardvark will use the gates and cheetahs will not.

In 2006, a habituated female cheetah (Shiraz) and her four cubs will be released into the 4000 ha Bellebeno fenced game camp. To keep them in the game camp, 133 swing gates have been installed on the most frequently used holes along the fence line. The whole fence line is 26 km, and on average, there is one gate per 180 metres. The effectiveness of the gates will be evaluated through February 2006 using five photographic traps installed at the most active gates.

3.2.4.7. Cheetah Home Range Maps

Following up on the 10-year home-range study of over 55 radio-collared cheetahs, CCF's research assistant Matti Nghikembua used the Geographic Information System (GIS) programme, ArcView, to produce home-range maps for each cat. A total of 736 maps showing kernel and minimum convex polygon home ranges were completed. These maps deliver a useful visual representation of the breadth of cheetah movements on the commercial farmlands during the study period of 1993-2000.

3.2.4.8. Waterberg Carnivore Project Namibia (WCPN)

The Waterberg Carnivore Project Namibia (WCPN) is collaboration between CCF and lead researcher Andrew Stein and is now in its second year. Stein, a PhD candidate and Fulbright scholar stationed at CCF, is doing extensive research on leopards and brown hyenas in the Waterberg area. The project was initiated in response to concerns of local

researchers and farmers to address issues of large carnivore conflict and interaction between the co-occurring large carnivore species.

Leopards, brown hyenas, and cheetahs are the largest of the remaining predators on the farmlands of central Namibia and, although cheetahs have been studied extensively, the ecology of leopards and brown hyenas is relatively unknown. The conservation of both species is dependent on understanding their ecology in farmlands and, in particular, in buffer zones surrounding protected areas.

During 2005, the Waterberg Carnivore Project Namibia conducted intensive field trials of hair-snares, completed the brown hyena diet study and began GPS tracking leopards. The population survey for the brown hyenas was greatly enhanced with the testing of a non-invasive technique for collecting hair samples in the field. Ten hair-snare stations were erected throughout the Osonanga Farm to test station design, location, and a variety of commercial lures. The stations were highly successful at collecting hairs. In 86% of the cases where tracks were present, the station successfully collected hair, with an average of 2.5 samples comprised of 16 hairs each. In the cases where tracks were present and no hair sample was collected, it was determined that the station had been constructed on uneven ground and that the wire height was not low enough for hair collection. Station location was also important, with the stations closest to the cliffs of the Waterberg Plateau being the most successful. Finally, the commercial predator trapping lures were determined to be the most successful in attracting brown hyenas. The hair follicles collected will eventually be sent to a genetics lab for DNA analysis and the results will be shared in future reports.

The ongoing brown hyena diet study now has results for the entire year. Comparisons between the wet and dry season diet show a marked differences in diet between the seasons. Although kudu and warthog were the primary prey species for both seasons, kudu were most prevalent in the dry season (43%) while warthogs were present in only 20% of dry season scats. During the wet season, warthogs were most prevalent (37%) while kudus were the next most prevalent with 31% of the diet. Livestock were not a substantial part of the hyenas diet (<10% for either season).

In the first part of the year, two leopards and one hyena were radio-tracked at least three times weekly in order to establish home range and movement. The male leopard has the largest home range of the three animals, estimated at 116 km². The female leopard's range is 47 km², within the range of the male, and the brown hyena's range is 24 km². As part of the routine tracking, nocturnal studies were conducted showing large distances moved at night.

The carnivore-tracking project has benefited from the introduction of new GPS-based technology. The GPS collar automatically determines and stores four locations per day (every 6 hours) and, upon a remotely generated request, transfers stored data to a computer for analysis. This capability enables a very rapid calculation of home range and detailed movement data. In late September, a female leopard was captured and fitted with the new GPS collar and over 300 locations have since been logged. The detailed nature of the movement data has allowed the researcher to identify specific kill sites by identifying

clusters, where the leopard repeatedly visits the same location. The date, time, and location of a kill can be determined and, in conjunction with a site visit, the species, age, and habitat can be assessed. Since the deployment of the collar, 27 kill sites have been found comprising kudu (24%), duiker (20%), and oryx (16%). Of the remains, only 12% have been found in trees, and 67% of available kills have been scavenged by hyenas. This information has shed new light into the interactions of these two secretive species.

3.2.4.9. Carnivore Home Range Papers

During the reporting period, two research papers were published on CCF's preliminary research on leopard and caracal home ranges: Factors affecting leopard (*Panthera pardus*) spatial ecology, with particular reference to Namibian farmlands, by L. Marker & A. Dickman, published by the *South African Journal of Wildlife Research*, and Notes on the spatial ecology of caracals (*Felis caracal*) with particular reference to Namibian farmlands, by L. Marker & A. Dickman, published by the *African Journal of Ecology*.

3.2.5. Ecosystem Research

As 70% of the country's game inhabits farmlands, assessment of the Namibian farmland ecosystem for long-term habitat viability for the cheetah and its prey is part of CCF's primary ongoing research.

3.2.5.1. Game Monitoring and Prey Habitat Preferences

To assist in developing a game-monitoring programme for the Waterberg Conservancy, CCF continued its ongoing wildlife monitoring. The research is conducted on farms and is designed to understand patterns and trends of game density, movements, demographics, and habitat utilisation. EarthWatch volunteers, CCF volunteers and students assist with this research. The monthly monitoring involves visual road counts, tracking and counting spoor, categorizing vegetations, densities, distributions, and soil analysis. This information is correlated with data collected on rainfall and temperature.

Forty-five (45) game count surveys on circuits A and B were conducted on the Elandsvreugde farm between January and December 2005. Forty-eight (48) additional game counts were conducted on the CCF big field with the assistance of EarthWatch volunteers, students, and CCF staff. Twenty-six (26) spoor tracking surveys were conducted on Elandsvreugde. In addition, 30 strip counts were conducted as part of the pre- and post-counts in conjunction with the 24-hour waterhole counts. Data is currently being analysed for the year.

3.2.5.2. Full Moon Waterhole Count

CCF staff worked with Conservancy members to plan the 10th annual Waterberg Conservancy's Full Moon Waterhole Count held on 20-21 August. CCF was responsible for conducting volunteer orientation, preparing record sheets and identification guides, and for transporting volunteers. Over 81 counters consisting of CCF volunteers and staff, Otjiwarongo district youth forum, U.S. Peace Corps, and Khorixas district youth forum,

participated in the activities. A total of 37 waterholes were observed for 24 hours on nine farms within the Waterberg Conservancy.

Before the Full Moon Waterhole Count, CCF conducted six replicate strip counts on Cheetah View, Boskop, Elandsvreugde, Osonanga and Bellebeno. The strip counts were done three days before and after the waterhole counts. The results of the strip counts and the waterhole count were analysed by CCF staff and the results compared between the two methods. Fixed-point Photography

To monitor long-term vegetation changes CCF takes regularly scheduled fixed-point photography pictures. During 2005, fixed-point photography was taken at 11 locations at Elandsvreugde and Osonanga. All pictures were developed and catalogued.

3.2.5.2.1 A Decade of 24-hour Waterhole Counts at the Waterberg Conservancy

Five major indicator species have been monitored by the Waterberg Conservancy over the past 10 years (1995-2005), including, warthog (*Phacochoerus aethiopicus*), kudu (*Tragelaphus strepsiceros*), oryx (*Oryx gazella*), red hartebeest (*Alcelaphus buselaphus*), and eland (*Tragelaphus Taurotragus*). In addition, rainfall data has been collected with an overall average and standard deviation (SD) of 354.6mm (SD: ± 163.3 mm). Water dependence is a vital variable when interpreting the results because these species have different water dependence levels. Limited literature on the water dependency of the species reports that warthog and kudu are more water dependent than the other three species, thus, having a higher waterhole visitation frequency. As a result, densities for eland, oryx, and red hartebeest presented in Figure 5 and Table 2 are multiplied by five as a factor to account for these low waterhole visitation frequencies (visitation of water every 5 days vs. daily). Over the years, the rainfall and game species densities have shown significant fluctuations that have provided further understanding into the relationship between these variables.

Figure 5 shows the five game species-densities per 1000 ha along with rainfall (measured in millimetres) for the past 10 years. The number of farmers, thus farms, taking part in the waterhole count varied per year with an annual average of 113,967 ha (SD $\pm 12,155$) of farmland and 8ha for the 10-year period.

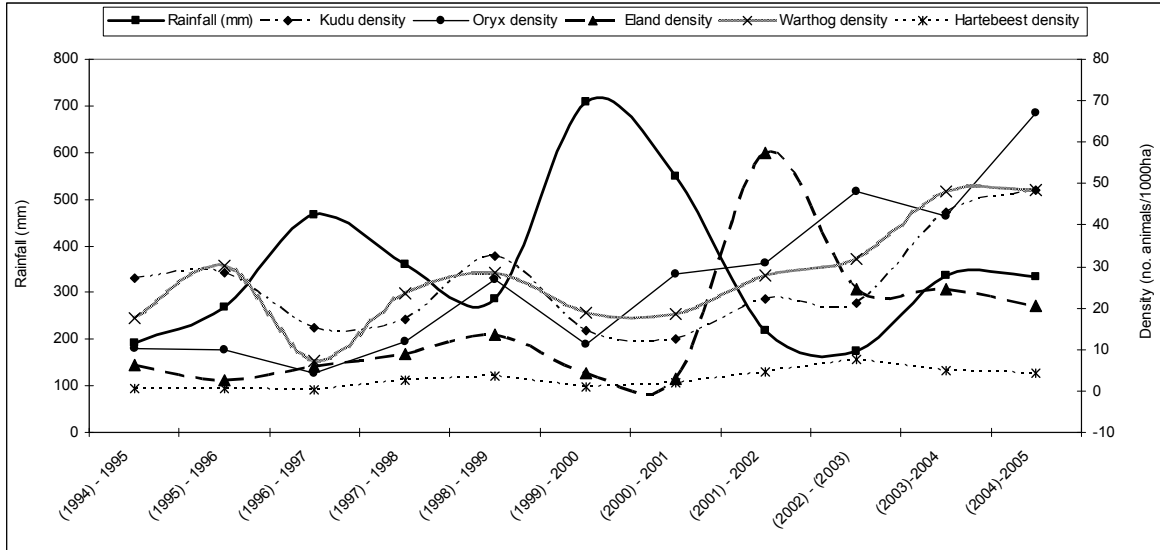


Figure 5. Waterberg Conservancy main species densities and the respective rainfall averages for the period 1995-2005.

Over the years, the species densities fluctuated (Figure 5), and in 2005, oryx had the highest density of 66.9/1000 ha, followed by warthog and kudu both with densities of 48.4/1000ha, than eland with a density of 20.7/1000 ha, and red hartebeest with the lowest density of 4.4/1000 ha.

Table 2 presents the different game species density averages the 10-year period. From 2000, warthog and oryx densities increased annually with oryx showing a slightly decline in 2004. Kudu densities fluctuated in 1997, 1999 and 2001 and have then increased since 2001.

Table 2. Density averages of the five major species showing standard deviation (SD) and density range for the 1995-2005 period.

Species (water dependency day=a)	Average density	SD (+)	Densities Range (1000 ha)
Kudu density (a=1)	25.7	11.7	12.7- 48.4
Oryx density (a=5)	26.4	19.6	4.4- 66.9
Eland density (a=5)	15.6	16.2	2.6- 57.3
Warthog density (a=1)	27.4	12.5	7.4- 48.4
Hartebeest density (a=5)	2.9	2.3	0.4- 7.5

Eland densities have remained fairly steady prior to 2002, at which point they experienced a sharp increase and declined thereafter, but not as low that prior to 2002. The red hartebeest is the species with the lowest variation (Table 2) and with the lowest annual densities for the 10-year period (Figure 5). It showed a slow increase since 2001, and then a decrease in 2005 by 8.3% from 2004 (Table 3).

Table 3. Percent changes of species densities annually when compared to 2005 species densities.

Years	Kudu (%)	Oryx (%)	Eland (%)	Warthog (%)	Hartebeest (%)
1995	77	556	234	177	529
1996	69	583	696	60	633
1997	218	1421	245	554	1000
1998	181	458	130	104	69
1999	49	148	53	70	19
2000	234	503	381	156	389
2001	281	137	639	163	144
2002	117	118	-64	74	-2
2003	127	39	-16	52	-41
2004	13	59	-16	0.4	-8

Overall, all species have shown fluctuations over the course of the past 10 years but the general trend is for growth. Red hartebeest is the only species where densities have remained fairly low for the decade. Thus, there is a need to understand this species in relation to water usage/dependence.

Since 2003, the Cheetah Conservation Fund began conducting strip counts prior and post the waterhole count, as a mean to compare visual distance sampling counts to the results obtained in the 24 hours' waterhole count. This will provide comparative sampling methods and provide some insight into better technique density precision estimates. The Waterberg Conservancy will continue monitoring its game to look at trends over time.

3.2.5.3. Bush Encroachment Biodiversity Studies and CCF Bush Pty Ltd

In March, the Governor of Otjizondjupa, the Mayor of Otjiwarongo, members of the Diplomatic Corps, CCF Board members, the Minister of Agriculture, Water and Rural Development and other cheetah friends gathered to officially open the CCF Bushblok plant in Otjiwarongo.

At CCF Bush, selectively harvested invasive bush is chipped, milled, and compressed to produce an eco-fuel log called Bushblok. Bushblok is a renewable resource that provides a smoke-free fire that outlasts any regular wood fire. By removing the bush, cheetah habitat is restored and the production potential of the land is increased by restoring the bush-grass balance. In addition to the environmental benefits, the Bushblok project also creates jobs. CCF Bush currently employs 20 personnel at the Bush plant and hires the services of an additional 12 contractors for harvesting and chipping raw material.

Run initially as a pilot research project, this next phase of the plant's development was been to reach the full production capacity for the plant. During the first half of 2005, 8 tons of logs were being produced per week. In the second half of 2005, the plant has been running nearly fulltime, with a second shift that was put on in October to meet the European shipping deadlines. By the end of the year, 25 tons of logs were being produced

per week. Distributors in Namibia and the UK began wholesale distribution of Bushblok packs. Since September, 425 tons of Bushblok have been shipped to the UK.

Dr. Bruce Brewer and Matti Nghikembua developed a management plan for the CCF bush project, a requirement for Forest Stewardship Council (FSC) Certification. In December, CCF was inspected for FSC Certification and passed. In addition to CCF Bush being certified, all of CCF's farms and the Research and Education Centre were inspected to ensure that they conformed to appropriate environmental management principles.

3.3. Human Impacts

Livestock loss to cheetahs is an economic and emotional issue. Farmers perceive cheetahs as having an excessive economic impact on their livestock and wild game industries. Many Namibian farmers have done little to alleviate their problems in a non-lethal manner through appropriate livestock and predator management. By addressing the farmer-predator, conflict through a conservation management strategy that benefits both humans and cheetahs CCF is ensuring the species' survival on Namibian farms and has raised greater awareness of better farm practices.

During this reporting period, one international journal paper was published: *The Journal of Human Dimensions of Wildlife*, in an IUCN special issue on human and wildlife conflict entitled Human Aspects of Cheetah Conservation by Dr. L. Marker and A. Dickman.

3.3.1. Livestock Guarding Dogs Programme

CCF's Livestock Guarding Dog Programme (LSGD) has continued its success with Kangal dogs, a breed of Anatolian Shepherd, working with livestock on both communal and commercial farms. Since 1994, more than 230 dogs have been placed as livestock guardians. Anatolian Shepherds provide a method of non-lethal predator control that protects the farmer's livelihood while conserving predator species. The Livestock Guarding Dog programme received support again this year from both WWF Sweden and the Disney Conservation Fund. A portion of these funds was used to purchase a used vehicle to support aspects of this creative and successful program.

During this reporting period, two international journal papers were published: Perceived Effectiveness of Livestock-Guarding Dogs Placed on Namibian Farms in the *Journal of Rangeland Ecology & Management*: and Survivorship and Causes of Mortality for Livestock-Guarding Dogs on Namibian Rangeland in *Rangeland Ecology & Management* journal Volume 58, Number 4, July 2005. By invitation, Dr. Laurie Marker, CCF's executive director, presented a paper entitled Effectiveness of Livestock Guarding Dogs in Namibia at the 2nd International Kangal Guarding Dog Conference in Kangal, Turkey. CCF's Livestock Guarding Dog programme was highlighted during this conference and many good contacts were made from the private sector as well as the Turkish government. The government monitors the Kangal dog breed, now recognised as a rare breed.

During the first half of 2005, CCF Research Assistant Mandy Schumann monitored dogs and trained Michael Mumbalu and Berta Helondo in all aspects of the Guarding Dog Programme. They then completed bi-annual evaluation of all dogs and monthly evaluations for puppies.

At the end of 2005 there are 123 (69M: 54F) LSGD Anatolian Shepherds in Namibia, of which 105 are working dogs and 18 are pets. Zero deaths were reported in 2005.

3.3.1.1. Breeding and Puppy Placements

This year one litter of seven Anatolian puppies (3 F, 4 M) was placed during February by CCF staff. So far, the reports on the puppies remain positive.

3.3.1.2. Review of Prior Placements

CCF Education Officer Gebhardt Nikanor collected two dogs from communal areas. One was a female, born in 1999, who was returned to CCF as she was injuring the neighbour's livestock. She will be placed as a pet in South Africa in January. The second dog's owner reported that the dog was salivating a lot. The dog was diagnosed with Squamous Cell Carcinoma (SCC) of the tongue. CCF will monitor its condition and the affected area of the tongue may be removed at a future date.

Gebhardt and CCF Herder Armaas Shipaka visited the Bahr families and their dogs near Okahandja. Armaas had a good session with the herders on how to train and care for the dogs. Gebhardt also went out to Grootberg Farmers' Union to find out why their Anatolian dog is in such bad health. The Farmers' Union was then given six weeks to improve the dog's overall condition. After the six weeks, Gebhardt returned, and the dog seemed to have gained a little weight. The Union members agreed it would be beneficial for the dog to visit the vet to have a proper health check-up, and agreed to pay for the vet costs. The veterinarian diagnosed tongue cancer and advised that the dog needs to be brought back for surgery. The vet gave several recommendations to ensure that the dog remains in good health. Gebhardt also vaccinated three of the one-year old dogs that were previously placed and they were all determined to be in excellent health.

One older female re-homed as a working dog at a farm earlier this year was returned to CCF. She will now be placed as a pet, since she is already seven years old and this second placement was not successful. Another 18-month-old female was returned from the Helmeringhausen area. The owner followed all guidelines, but despite his best efforts, the dog proved not to be trustworthy, killing two adult sheep and some lambs. She was extremely hyperactive from a young age and has been placed as a pet.

Two owners sold their goatherds and the dogs moved with the herd to their new owners.

3.3.1.3. New Breeding Male Imported

A male Kangal puppy was brought up from South Africa to replace the young breeding male that died last year. CCF periodically imports new males to supplement the Kangal dog bloodlines in Namibia and maintains a register of all the Kangal dogs in this country. Cheetah Outreach in South Africa helped to arrange the transport and selection of the puppy. The puppy has been getting to know his new herd and is being housed with young goat kids. CCF's herder, Armaas, has named the new puppy Amos.

3.3.1.4. Cross-Breeding for Communal Areas

CCF is conducting a trial to crossbreed Anatolian Shepherds and mongrel dogs in order to meet the needs of communal farming areas where a smaller sized dog was requested due to nutritional constraints. The ongoing trial will evaluate the effectiveness of the crossbreed in protecting livestock.

This programme will assist the Emerging Eastern Communal Conservancies to develop their own livestock guarding dog programme. Combining the hardiness of local mongrels with the guarding talent of Anatolians will hopefully produce a dog more suited to the working conditions in this area. The CCF health survey carried out last year showed that nutritional problems are of concern in the communal areas. A smaller dog may be more suited to the diet, as it will not experience the long-bone growth of the large breeds. As the predators are mainly jackals, the smaller dog will still be able to guard the small stock effectively.

CCF's bitch Tyger delivered a crossbreed litter of two puppies in mid-July. One puppy was placed in collaboration with the African Wild Dog Communal Conservancy Committee. CCF will work closely with the conservancy to monitor the progress of the dog to ensure the community is providing adequate care and training. The second puppy has been kept by CCF as a future breeding dog.

3.3.1.5. Worcester Polytechnic Students

Students from the Worcester Polytechnic Institute (WPI) in the USA, in a cooperative programme with the Namibian Polytechnic, visited again this year. Four of the students, Melissa Coonradt, Matthew Field, David Gibson, and Jessica Tatem were hosted by CCF and chose aspects of the Livestock Guarding Dog programme (LSGD) as their topic. The students developed extension materials for owners of livestock guarding dog owners. A poster and instructional video with the topic "Raising and training a livestock guarding dog" were developed as tools to raise awareness and convey information to new owners. These extension tools will be produced for future livestock guarding dog owners.

3.3.1.6. Squamous Cell Carcinoma

Squamous Cell Carcinoma (SCC) has been diagnosed in another Anatolian, with two more suspected. This brings the total dogs with SCC, either confirmed (biopsy) or suspected

(visually) to 10. This is cause for concern, as this is a very high incidence rate. This emerging problem will require further investigation in the coming year, including research to establish if other populations have reported the same problem, notably South Africa and Australia, as it is suspected that exposure to the sun could be the cause. Without further investigation, this is still speculation. Two out of 9 mongrels examined during the Anatolian health survey in October 2004 had the same problem, and one additional dog owner reported three of her working mongrels developing the same problem over the years.

3.3.1.7. Livestock Guarding Dog Programme in South Africa

CCF has continued to be helpful in the development of a Livestock Guarding Dog program in South Africa through the support of Cheetah OutReach with the DeWildt Wild Cheetah Program conducting the program. Currently there are five working dogs in South Africa as a part of the cooperative programme.

3.3.2. Meetings with Farmers

Maintaining open communication and trusting relationships with regional farmers and conservancies is vital to the success of CCF's work. In 2005, the staff continued to dedicate time to learn and to share information with these important stakeholders:

- CCF staff was invited to attend meetings with the Swakoptal, Ngarangombe and Seis Conservancy and the Steinhausen Farmers Association to share information on CCF projects.
- Staff met with the emerging African Wild Dog Conservancy to consult on developing a livestock guarding dog programme for the conservancy, and attended their official launch of the African Wild Dog project.
- Staff also visited the Ozonahi, Okamatapati, and Otjituuo conservancies in the eastern communal area. CCF has worked closely during the past two years with these conservancies through the Namibian Development Trust and is in the process of planning additional training courses for next year focusing on integrated livestock and wildlife management for them.
- Staff members attended a Livestock Production, Predator & Poison Use workshop in Otjiwarongo and this information has been shared with the rest of the CCF staff.
- CCF attended the Platveld Farmers' Association meeting and addressed a group of 60 emerging commercial farmers at the Otavi farmers' day (under the auspices of the Emerging Farmers' Support Services). Livestock kills were being experienced and the farmers were unsure which predator was responsible. CCF was able to provide information for predator identification and livestock management.
- Josephine Henghali and Gebhardt Nikanor met with farmers near Hochfeld, who were experiencing problems with leopards and cheetahs.
- CCF Community Development Officer, Michael Mumbalu, travelled to Caprivi to attend the quarterly planning workshop for the Okavango and Caprivi conservancies.

- Michael also undertook a trip to the Eastern communal areas to share information with regional MET personnel and farmers, and attended farmers' meetings in Omaheke and Maria Mwengele.
- Gebhardt Nikanor attended the first congress of the Otjombinde Conservancy where he addressed the members on the important role that wildlife and predators can play in improving the standard of living of people in a conservancy and about CCF's livestock guarding dog program. Topics discussed were predator management and the potential of conservancies. In addition to representatives from the Ministry of Environment and Tourism (MET) and the University of Namibia, the Governor of the Omaheke region attended.

In addition to the above meetings, numerous farmers were consulted by telephone and information was posted to them. Through direct contact with individuals, farmer association meetings, and a bi-annual Farmer's Newsletter, CCF informs the community of its progress and encourages it to remain actively involved in all aspects of its programmes. The book, *Cheetah Survival on Namibian Farmlands*, published by CCF, printed in both English and Afrikaans, is given to all farmers CCF meets.

During this reporting period, one newsletter was produced and mailed to over 4,000 people in Namibia, and internationally, updating them on CCF's activities and research findings. Several articles were written for the press.

3.3.3. CCF's Farm and Livestock

CCF's farm provides the opportunity to practice and experiment with the optimum methods of livestock and non-lethal farm management practices. CCF has active cattle and small stock (sheep and goats) farms. Each of the small stock herds has a breeding group of Livestock Guarding Dogs with them for protection.

As of 31 December, CCF had 381 head of cattle. CCF's herds included 161 goats and 166 sheep. Twenty-four calves were born during the last 6 months.

CCF pastures donkeys and horses for feeding resident captive cheetahs. Nearly 75 animals, mostly donkeys and a few horses were slaughtered over the six-month period (about 13 animals per month) to feed resident cheetahs.

This year 1800 bales of hay were produced on CCF's hay fields to be used for CCF's livestock.

3.3.4. 4. Associations and Conservancies

3.3.4.1. Large Carnivore Management Association (LCMAN)

The LCMAN held its 4th AGM and 16th General Meeting in April. Dr. Mark Jago, well-known Otjiwarongo veterinarian, was elected as the Chairman for the third consecutive year. CCF staff member Bonnie Schumann was elected Secretary again. Two more general meetings were held on 2nd August and the 7th November 2005.

Bonnie Schumann continues to disperse regional information received by CCF on cheetahs to all association members. An article was published in the Agriforum following the LCMAN AGM informing readers of the role and structure of the LCMAN. CCF's Jen Newlin Bell designed a poster for the LCMAN that was printed and taken to agricultural shows in the latter half of the year and exhibited at the CCF stand.

The LCMAN's primary objective is to ensure the conservation of Namibia's large carnivores through collaboration with all stakeholders. As the farmer/predator conflict zone is the most critical arena within which to achieve that objective, it is gratifying to note that the Namibian Agriculture Union has re-committed its participation in LCMAN by appointing Mr. Jasper Brand as their representative.

During the past year, LCMAN has continued to address a number of issues ranging from research to conflict resolution on farmlands. In his Chairman's Report, Dr. Jago stated that the need for a national cheetah census remains a priority and noted that LCMAN has been proactive over the past year in taking the first steps towards making this a reality. The LCMAN currently has 15 members and their open meetings are regularly attended by other interested parties.

Namibia, the Cheetah Capital of the world, is also home to a host of other predators including lion, leopard, wild dog and hyena, and the potential for human/predator conflict is great. It is only through collaboration with all stakeholders that practical solutions to this conflict can be found, ensuring that both predators and farmers can survive on Namibia's farmlands.

3.3.4.2. Waterberg Conservancy

Two conservancy meetings were held during this reporting period. Results from the 9th annual Full Moon 24-hour Waterhole Count that were compiled by CCF were presented to the members of the Waterberg Conservancy at their Annual General Meeting. CCF's General Manager, Dr. Bruce Brewer, was elected as Treasurer.

The Conservancy also held its 10th annual Waterhole Count in August. Conservancy members worked together to collect data on the trends of the game species. The Conservancy members are all committed to participating in the Cheetah Country Beef initiative once it gets officially underway.

3.3.4.3. Conservancy Association of Namibia (CANAM)

CCF's Executive Director, Dr. Laurie Marker, was elected as the Chairperson for the Conservancy Association of Namibia (CANAM) for the third year running at the Annual General Meeting in May. CCF is an active partner in CANAM. The CANAM AGM was opened by the Honourable Deputy Minister of Environment and Tourism, Mr. Leon Jooste, who highlighted some of the issues surrounding community-based natural resource management in the form of conservancies. Ms. Jacqueline Asheeke, CEO of the Federation of Namibian Tourism Association (FENATA) followed with a lively talk on the direction FENATA is taking and plans to improve the tourism industry in Namibia.

The CANAM AGM was preceded by a daylong workshop, during which Cheetah Country Beef was highlighted during the morning session. Questions and concerns, as well as suggestions regarding Cheetah Country Beef were discussed. CCF has been spearheading the Cheetah Country Beef initiative with good progress over the past several months.

During 2005, CANAM Executive Committee met twice. The Deputy Director of the Namibian Ministry of Environment and Tourism (MET) came to their July meeting to discuss ways that CANAM and MET could continue to improve their relationship and supportive collaborations in wildlife.

CCF continued leading the Cheetah Country Beef (CCB) project and CANAM formed a CCB committee to work with the Meat Corporation of Namibia (Meatco). CCF is working with a lawyer to finalise contracts between all parties involved in the CCB initiative, including the farmers, Meatco and CANAM.

3.3.4.4. Communal and Commercial Conservancy Relations

Conservancies in Namibia are institutional mechanisms to enable group management of natural resources in a sustainable manner that provides a range of benefits for conservancy members. Currently, there are two approaches to conservancy development based on the dual land tenure system in Namibia. On commercial (freehold) land, individual farm owners have conditional rights over the use of wildlife. They voluntarily form conservancies through agreeing to collaborate in the management of wildlife and other natural resources. There are currently 25 freehold conservancies covering about 4.7 million hectares and supporting some 30 000 people. On communal land, residents acquire conditional rights over wildlife use and commercial tourism through the formation of a conservancy and its registration by government. There are 31 registered communal area conservancies covering almost 8 million hectares and supporting more than 100 000 people.

CCF supported an assessment through a partnership with CANAM, which represents conservancies on freehold land, and the Namibian Association of Community-based Natural Resource Management Organisations (NACSO), which represents NGOs and individuals that work with communal area conservancies. The assessment was commissioned in order to take stock of the two conservancy approaches and to identify

key issues, constraints, and opportunities for collaboration between communal and commercial (freehold) conservancies in Namibia. A consultant, Brian Jones, was hired to develop a blueprint to move forward in conservancy cooperation.

A draft report entitled “Critical Stocktaking Assessment and Report on Communal and Freehold Conservancies to Explore Areas of Mutual Cooperation, Collaboration and Synergy” has been presented and will provide the basis to move collaborative efforts forward.

3.3.5. Cheetah Country Beef (CCB)

The Cheetah Country Beef initiative is moving along nicely. In May, CCF Director Dr. Laurie Marker visited Meatco’s distributor in the UK, Allied Meats, to discuss brand development and marketing options for CCB. Former CCF staff member responsible for CCB, David Bell, was employed in December by Meatco and is now based in the UK working with Allied Meats to promote brand development and marketing options for Cheetah Country Beef.

CCF staff and representatives from CANAM attended the Meatco Procurement Officers meeting on 30 March to discuss the Cheetah Country Beef project, a collaboration among CCF, CANAM, Meatco and cattle producers. Issues and concerns raised by the procurement officers were discussed and CANAM explained the producer’s role in this innovative new project.

CCB is to be launched over the next six months in collaboration with CANAM and Meatco.

3.4. Education Activities

3.4.1. Schools and Community Education

Public education and the development of an active grassroots constituency are integral components of CCF's overall cheetah conservation programme. CCF educates farmers, teachers, and the public about the need and methods to conserve Namibia's rich biodiversity and the role of the cheetah and other predators in healthy ecosystems. Public education and the development of national pride in the cheetah are critical to its survival.

Between 1 January and 31 December, over 10,603 people attended a CCF educational programme, either at the Centre or through outreach programmes. This number includes students, teachers, youth group members, and day visitors. This number does not include farm or tourism shows or farmer outreach.

3.4.1.1. Education Outreach

In 2005, CCF’s Education Outreach team travelled throughout Namibia visiting schools in the Otjozondjupa, Kunene, Oshikoto and Omaheke regions. Each student walked away with a cheetah activity book and a better understanding of the cheetah and its fight for

survival. Seventy-one (71) schools were visited with presentations given to approximately 6,500 students, an average of 92 students per school. Students were generally excited to take part in CCF's programme, and the demand for presentations at schools continues to increase. CCF's outreach team will not only focus on increasing numbers of students presented to, but will work on enhancing the presentation to make the most of the outreach programme.

3.4.1.2. CCF's Field Research and Education Centre

CCF's Field Research and Education Centre continues to receive visitors from schools, regional youth groups, youth officials, tourists, teachers, health officials, farmers, conservation and agriculture extension officials, students and the general public.

The Centre provides on-site public education and student training to local students of all ages and Namibian and foreign university students. It allows students to be exposed to CCF's integrated research programmes on the cheetah's ecology, habitat and prey base and the demonstration of CCF's non-lethal livestock/predator management techniques. Participants learn about the issues affecting the survival of the cheetah by participating in various interactive activities and presentations, and about factors that affect conservation efforts at community level.

On average, CCF's Centre had two to three groups of walk-in day visitors each day, totalling 2,252 visitors during 2005 of which 521 were Namibian and 1731 were International. The majority of the day visitors were from the European Union.

3.4.1.3. Youth Forums and Schools

Organised education programmes at CCF are designed mainly for groups accommodated at either CCF's Wilderness Camp or tented Camp Lightfoot. CCF hosts school and community groups, exposing them to different environmental education activities including a nature trail, team building activities, games and other environmental awareness activities. Groups usually spend two nights with CCF. All participants are exposed to CCF research and conservation efforts by presentations and to the Namibian farmland ecosystem through the nature trail. Team-building activities are designed to highlight the importance of team efforts in conservation. Role-play and drama are also included in the programmes and include scenarios of livestock and predator management.

Between 1 January and 31 December, 38 groups (six youth groups, 23 Namibian schools, six university groups, and three others) totalling over 1100 students, stayed at CCF's campsite. These groups came from Okahandja, Okakarara, Omungwelune, Otavi, Tsumeb, Windhoek, Otjiwarongo, Katutura, Tsumkwe, and Rehoboth in Namibia, and from Oxford in England, and Dartmouth and North Carolina Universities in the U.S.A, to name just a few.

3.4.1.4. Community Outreach

3.4.1.4.1. Agricultural Shows

CCF staff members Mandy Schumann and Josephine Henghali attended the Gobabis Cattle Country Meat and Cattle Festival, where they manned a CCF exhibit. Free books, newsletters and other literature produced by CCF for farmers were handed out on the show grounds as well. Hot off the press, CCF's new Afrikaans translation of "Integrated Livestock and Predator Management: A Farmer's Guide," "Geïntegreerde Vee en Roofdier Bestuur: 'n Gids vir die Boer," was well received. The Channel 7 radio station interviewed CCF staff, who were able to share even more information with farmers around Namibia.

In September and October, CCF attended and manned stalls at the Otjiwarongo Environmental Show, the Grootfontein and Windhoek Agricultural shows, and the Ongwadiva Trade Fair.

Throughout the shows, CCF newsletters, books, youth activity guides, and colouring sheets for kids were distributed. CCF's booth is always busy and the children particularly enjoy colouring pictures of cheetahs. Samples of Bushblok were displayed at all the shows and generated a lot of interest. CCF was pleased to discover that many locals already knew about the Bushblok product. Our display posters included Raising and Training a Livestock Guarding Dog, What is Killing my Livestock?, Is my Problem Predators or Management?, Spot the Difference Between Cheetahs and Leopards, Bushblok (with processing and factory pictures), Cheetah Conservation Fund (general info), Cheetah Country Beef, and Large Carnivore Management Association of Namibia (LCMAN).

CCF yearly attends the Otjiwarongo Show. This continues to be a low-attendance show, although many local contacts are made and community support is developed. CCF also attended the Grootfontein Show but the stand was not very busy. Apparently, numbers through the gate were less this year and the cattle section seemed somewhat smaller. However, there were many familiar faces and many farmers talked with CCF staff.

The Windhoek Show took place over a week with two groups of CCF staff splitting the week. The first half was focused on education and community awareness, while the second half of the show was focused on the farmers who were there to show livestock. During this period, newsletters and CCF's Integrated Livestock and Predator Management books were given to members of the Namibian Agriculture Union and to the cattle clubs.

For the first time, CCF staff attended the Northern Trade Fair held at Ongwediva. Matti Nghikembua represented CCF Bush PTY LTD and had the opportunity to launch Bushblok in the north. This was a very well attended show and next year more CCF staff will participate.

CCF staff member Michael Mumbalu also attended the Okakarara, Okamatapati, Ongongoro/Otjituuo, Okotjituwo and Okondjatu shows in the eastern communal areas. CCF Community Development staff attended the quarterly planning meetings of the Kavango and Caprivi conservancies and distributed extension materials.

3.4.1.4.2. Human Wildlife Conflict Management Workshop Attended

In May, four CCF staff members attended a workshop in Windhoek titled, “Human Wildlife Conflict Management” (HWCM).

The objectives of the workshop were to develop a framework for future HWCM policy directions in Namibia; to initiate the development of a standardized monitoring system for HWCM issues in Namibia; to discuss best practice mitigation measures in Namibia and throughout the region; and to launch a survey on human/wildlife conflict in two areas.

3.4.1.5. CCF Predator Education Materials

CCF’s book, entitled “Integrated Livestock and Wildlife Management: A Farmer’s Guide” was published in Afrikaans this year: “Geïntegreerde Vee en RoofdierBestuur: ‘n Gids vir die Boer.” This book covers a wide variety of topics in a precise and easy-to-read manner for farmers. Both the English and Afrikaans versions of this book are available free to farmers.

3.4.2. Education and Training at CCF

3.4.2.1. Training Courses at CCF

3.4.2.1.1. Integrated Livestock and Predator Management Training Course

In 2005, CCF hosted five one-week Integrated Livestock and Predator Management Training Courses. Two courses were held in February, in collaboration with the Wild Dog Project and the Namibian Development Trust. The courses reached 55 communal conservancy farmers and members. Three courses were held in July in collaboration with the Smithsonian Institution, Wilderness Safaris and the Ministry of Environment and Tourism (MET). Over 90 communal conservancy farmers from over 30 conservancies along with representatives from MET and other NGOs attended each week. Participants came from conservancies in the northern, northwestern and eastern communal areas, the Kavango and Caprivi. Held at the CCF Research Centre, the courses included theory and practical training on a variety of aspects related to integrated livestock and predator management.

The objectives of the course were to provide all participants with an understanding of the economic and ecological value of predators as well as their behaviour and ecology; to train participants to correctly identify causes of livestock losses; to provide information on livestock husbandry and management to reduce losses to disease, poisonous plants,

birthing problems and predators; to instil a desire to protect and integrate predators into their farming and conservancy areas; to provide basic administrative and wildlife management skills; and to emphasize the importance of their participation in the success of their conservancy.

CCF Chairman and local veterinarian and farmer, Dr. Arthur Bagot-Smith, and Johan Britz (CCF farm manager) lectured and led practice exercises on the veterinary care, selection, and husbandry of cattle, goats and sheep. Herd productivity and record keeping were highlighted. CCF staff, Bonnie Schumann, Michael Mumbalu, Josephine Henghali, Gebhardt Nikanor and Engelhardt /Awaseb shared information with participants on topics including predator identification and the use of livestock guarding dogs. Robin Lines of the Wild Dog Research Project discussed the difficult issue of wild dogs on farmlands and shared his research results with the groups.

A variety of other lecturers joined the July courses, bringing their areas of expertise to the participants: Colin Nott talked on rangeland management; Selma Nangulah talked on reasons for conservancies; Karin LeRoux, from the Rossing Foundation, covered small business initiatives; Laly Lichtenfeld, from Tanzania's Predator and People project, presented her experiences with human and predator conflict in East Africa; Tommy Hall and Betsy Fox from MET lectured on elephant behaviour and conflict; and Tammy Hoth, from AfriLeo, talked about conflict with lions.

CCF has run a number of similar courses over the past two years ago and plans to run more in collaboration with the Smithsonian Institution, Wilderness Safaris and the Ministry of Environment and Tourism in 2006, including other workshops for extension officers in cooperation with the Ministry of Agriculture. These courses have proven to be very popular and CCF has had very positive responses to their content.

3.4.2.1.2. Second Applied Environmental Education Workshop

The second Applied Environmental Education Workshop was held in Namibia from 11 – 22 April this year. The Smithsonian Institution, in collaboration with Cheetah Conservation Fund, the Ministry of Environment and Tourism (MET) and the Ministry of National Youth Services, Sports and Culture (MNYSSC), conducted the workshop. The workshop focussed on training Namibian co-instructors to conduct this kind of workshop, while at the same time, teaching applied environmental education skills to participants. A broad range of subjects were covered, including social marketing aspects, programme planning tactics, media as education tools, fundraising and writing of project proposals, how to integrate environmental education into school curriculum, how to utilise volunteers' services and how eco, cultural and nature tourism could complement each other to directly benefit local communities.

The president of Environmental Education and Conservation Global (EECG), Edward McCrea, James Massey, also from EECG, and Professor Debora Simmons from Northern Illinois State University joined forces with Laimi Erckie and Hiskia Tyapa from MET, and Siegfriedt Bandu !Aebab and Alma Otto from MNYSSC to present the

course. The course was well represented by 21 participants from MET, Polytechnic of Namibia, The National Museum, communal conservancy members, Wilderness Safaris, MNYSSC and CCF environmental education staff.

The curriculum included writing individual project proposals, with the John Judy Award, worth US\$ 500 going to the winning projects. Benson Muramba, a technical assistant in the department of Arachnology and Myriapoda at the National Museum of Namibia, and Josephine Henghali, a Senior Research Assistant at CCF, produced outstanding proposals and both received awards.

3.4.2.2. CCF Staff Education

Senior Research Assistant, Josephine Henghali has submitted her Master's thesis, which is being completed through the University of Namibia and sponsored by the African Wildlife Foundation. Her thesis is entitled "Conservation Attitudes and Patterns of Biodiversity Loss in Ohangwena and Oshikoto Regions of Namibia".

Research Assistant Mandy Schumann has nearly completed her Master's Degree in Nature Conservation at the Nelson Mandela Metropolitan University in South Africa. The title of her thesis is "Predator Conflict Resolution in Namibian Conservancies". Final submission will be in early 2006.

Research Assistant Ezekiel Fabiano has returned to CCF from his year at the Centre for Environment and Development at the University of KwaZulu-Natal in Pietermaritzburg, South Africa. He is currently writing up the research for his Master's thesis that will analyse CCF's spoor counts and data from the mark-recapture database to produce a comparison in census techniques between the two methodologies.

3.4.2.3. CCF In-Service Training

CCF regularly provides in-service training, typically lasting six months, for students from local educational institutions. This year five students were hosted:

- Amon Andreas, a second-year Nature Conservation student, completed an ecology project on resource partitioning between the leopard (*Panthera pardus*) and the brown hyena (*Hyena brunnea*). The aim of the study was to determine the spatial distribution and level of interaction between these species in order to understand how these species interact with their local environment. This information will be used to help create requirements for conservation planning outside of protected areas. The study was supervised by Andrew Stein, a PhD student from the University of Massachusetts, U.S.
- Paulus Amaambo, a 3rd year BTECH Agriculture Management student, conducted a systematic rangeland condition evaluation study on the Elandsvreugde farm. This study was urgently needed to understand levels of bush encroachment in the local ecosystem.

- Lukas Shimooshili, a 3rd year BTECH Agriculture Management student, conducted an assessment study of the grazing carrying capacity on the Bellebeno farm. The aim of the project was to determine the grazeable carrying capacity of the farm and to determine the number of large stock units (LSU) with an average weight of 450 kg that could be supported without overgrazing the veld. CCF Senior Research Assistant Matti Nghikembua was primarily responsible for the supervision of tasks and projects.
- Georginah Santambwa, a Hospitality and Tourism Management student, spent 4 months training at CCF and assisted with the Education and Eco-tourism programme while acquiring the skills that would enable her to pursue a career as a tour consultant.
- Magreth Tjijahura, a Hospitality and Tourism Management student, also completed 5 months of training and assisted with CCF's Education and Eco-tourism programme.

3.4.2.4. Short Courses

The CCF also regularly hosts students for short educational programmes:

- In April, 22 Nature Conservation students and 3 lecturers from the Polytechnic of Namibia visited CCF.
- In October, 40 first-year students from the Tourism & Hospitality Management department at the Polytechnic of Namibia visited CCF.
- Three lecturers from the Worcester Polytechnic Institute (WPI) in the U.S.A visited CCF to discuss their 2006 in-service training programme at CCF. From 1-4 September, 21 Conservation and Biology students and two staff members from the University of Namibia visited CCF to participate in a mini field biology course taught by CCF staff members Ezekiel Fabiano and Josephine Henghali.
- On 19 October, students from Round River Conservation Studies from the United States visited CCF to learn about CCF's programs.

3.4.3. Other Collaboration with Educational Institutions

Matti Nghikembua attended a Namibian Environmental Education Networks (NEEN) stakeholders' workshop in March at the Rossing Foundation in Windhoek. The objectives of the meeting were to discuss the constitutional amendments of NEEN and report on progress. He also represented CCF at a NEEN steering committee meeting in June.

Matti also attended a bush encroachment decision support system workshop at CCF on 2 June. The workshop was organized by the Natural Resource Management and the Information Technology (IT) departments at the Polytechnic of Namibia. The meeting was attended by farmers and CCF staff. He also represented CCF at a strategic workshop organized by the Otjozondjupa regional council on 28 – 30 June. The workshop was aimed at bringing together all stakeholders within the region as part of ongoing development.

Finally, Matti also attended the first Namibia Geographic Information System (GIS) user conference held at the Polytechnic of Namibia on 14 October. The event was organized by the Lands Department at the Polytechnic of Namibia. Matt presented on how CCF uses GIS related to their conservation and management of cheetahs in Namibia, especially the radio tracking and mapping project conducted from 1993-2000.

3.5. Eco-Tourism

3.5.1. CCF Tours

CCF continues its eco-tourist activities. Nuevas Ideas, a Windhoek-based booking company, has been acting as CCF's agent. Special tours booked through Nuevas Ideas include watching CCF's resident cheetahs exercise. This is done by means of a lure, which the cheetahs chase. The "Cheetah Run" activity is very popular with visitors. Guests get to experience the speed of the cheetahs and have the opportunity to take photos. Other special tours include the Bellebeno Safari, where guests take a guided safari drive through CCF's 64-hectare enclosure and have the chance to view and take photos of the cheetahs in their natural habitat, a nature drive through the "Little Serengeti Field" that offers ample game viewing, and the "Chewbaaka Exclusive" where guests can meet and spend time with CCF co-founder and Executive Director Dr. Laurie Marker and Chewbaaka, CCF's cheetah ambassador. These activities will continue to be offered by CCF in the 2006.

A total of 127 eco-tour groups including over 900 people visited CCF during 2005. These groups consisted of families, photographers, journalists and individual travellers, and ranged in size from one to twenty-eight (28) people. Two special tour groups visited CCF, which included 42 volunteers from zoos throughout the United States from the American Association of Zoo Docents (AAZD).

In addition to the groups scheduled through Nuevas Ideas, CCF also receives many day visitors who come to view the facilities and learn more about the work being done by the organisation. These visitors have the opportunity to see the five cheetahs housed close to the main offices, tour the Education Centre, visit the gift shop, and to enjoy the view on the veranda while enjoying a cool beverage or a packed lunch. Day visitors can also see the cats being fed in the afternoon

3.5.2. Tourism Outreach

CCF had a stand at the 2005 Namibia Tourism Board Expo. The stand at the Expo, combined with advertisements in various Namibian tour publications, has generated a variety of visitors to CCF's Research and Education Centre. In November, CCF staff members, Lorraine Bowden and Italy //Awaseb attended the Tourism Forum 2005.

3.6. International Programmes

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. CCF's Dr. Laurie Marker is a member of the Core Group of the IUCN's Cat Specialist Group (CSG), and maintains international communications on the status of cheetah populations worldwide, including their relationship with man, and threats to their survival. In June, Marker attended a Core Group meeting in Brazil where the business of the CAT Specialist Group was addressed. Following the meeting, a 3-day workshop was held by the CSG on South American cats. The workshop was attended by over 80 cat biologists and conservationists.

3.6.1. Cheetah Conservation Fund - Kenya

From 2001 through July 2005 the Kenya project team was based on the Delamere Estates (DE). It was the support of the Delameres and other friends on Soysambu - especially Tom and Sally Cholmondely and the late Simon Combes and his wife Kat- that allowed CCF to work within the network of Kenyan farming communities. Bad roads, the need to be closer to the Kiu project(s) site triggered the decision to find a new home base in Nairobi. It was with a heavy heart that CCF Kenya made the decision to leave the Soysambu Ranch. CCF Kenya's base of operations is now in the Mt. View Estate just 3 km north of Westlands, Nairobi. CCF Kenya continues affiliation with the Kenya Wildlife Services (KWS) under a permit through the Ministry of Education and Technology through 2007. Kenya Representative Mary Wykstra and Research Assistant Cosmas Wambua represent the Cheetah Conservation Fund (CCF) in conducting research and education projects. Lumumba Mutiso works for CCF Kenya as the Community Liaison Officer in the Machakos Wildlife Forum.

A case study in the Machakos Wildlife Forum (MWF) was launched in January 2004 utilizing community participation in cheetah monitoring and as of March 2005 includes telemetry monitoring of a female cheetah. A nationwide cheetah census was launched in cooperation with KWS and East African Wild Life Society (EAWLS) in July 2004 with completion of the report for the first phase of the study in July 2005.

3.6.1.1. National Census

The status of cheetah is needed on which to base long-term program development in Kenya. While information on behaviour and demographics is interesting and necessary for cheetah survival, we cannot apply conservation actions until we know cheetah numbers and where our efforts will have the most impact on the future of cheetah survival. Phase 1 of the nationwide cheetah census project, in affiliation with KWS and EAWLS, was initiated in July 2004, covering ¼ of Kenya through literature searches, driving transects and KWS conflict analysis. The Region evaluated included the Nakuru, Narok and Kajiado districts from the Mombasa/Nakuru Highway to the Tanzanian border. The second phase was initiated in November 2005, focusing first on the Laikipia, Samburu, Isiolo, and Voi (Tsavo East) regions. The KWS conflict data will be used to determine field sites for 2006.

3.6.1.2. Human Impacts on Cheetah

Land use changes and an increase in human population and activity levels throughout Kenya affect land use by wildlife. While pocketed populations of game are still strong on

large commercial farms and on unsettled public land, these populations are changing over time. Subdivision of land, disease, human-wildlife conflict, and poaching has reduced prey base throughout unmanaged ranch land. Livestock loss to cheetah is typically viewed as a minimal threat compared to that of lion, leopard, jackal and hyena.

The case study in the Kiu region of the MWF allows the opportunity to identify the pattern of cheetah movement and livestock losses attributed to cheetahs in the region that have been opportunistically killing goats and sheep since August 2002. This problem provides CCF Kenya with the opportunity to involve community members in research and awareness of cheetah. Herders and managers assist in recording cheetah sightings. Telemetry studies were initiated in March 2005 when a family of 6 cheetahs killed a calf on a commercial ranch. The collared family had been tracked through dense vegetation, steep hills, and areas of high human settlement, thus challenging the traditional thoughts of cheetah movement and habitat preference.

The female gave birth to four cubs in August 2005. As she crossed the Mombasa Highway, two of the cubs were killed on the road. As of December 2005, she remains with two cubs. Through this monitoring, we have become more aware of the impact of this highway on the cheetah population of the region, as there have been five cheetah deaths on a section of about 15 km since 2003. Additionally two cheetahs were killed in poacher's snares and two have been reported as killed by herders.

Two awareness programs assist in determining cheetah distribution:

- **GREAT CHEETAH CENSUS.** This program requests tourists to submit photos of cheetah to assist with individual identification. Over 2000 brochures were dispersed into lodges and 2000 laminated brochures into tourist vehicles. CCF Kenya maintains a database of over 800 photos, with more submissions being entered as they arrive.
- **SNAP-A-CHEETAH.** This program delivers cameras to residents of remote areas in order to capture cheetah photos. Throughout CCF Kenya studies, it has been difficult to know if people have seen cheetah or leopard. While questions about the animal behaviour have frequently assisted in determining which type of cat has been seen, it often leaves CCF Kenya with undetermined results. CCF Kenya initiated distribution of 500 one-time use cameras into rural areas and requests the submission of photos including cheetahs, other wildlife, livestock losses, and general habitat. Prizes for participation encourage the return of the cameras and prizes for best photos of cheetahs will aid in awareness of cheetah presence. The 40 test cameras distributed in 2005 have resulted in less than a 50% recovery rate. A new distribution method is being evaluated and the need for financial reward for participation is needed.

3.6.1.3. Ecosystem Research

The focus of CCF Kenya's research is the assessment of farmland ecosystems for the long-term habitat viability for the cheetah. Information from Wildlife Forum interviews and Census data can now be combined to determine areas in need of further evaluation and areas of model programmes for supporting sustainable cheetah habitat.

3.6.1.4. Predator Conflict with Cheetah

In other studies throughout Africa, it is known that cheetah are negatively affected by conflict with other predators. Interviews show that there are perceived to be problems with large numbers of hyena and leopard in the NWF and MWF and large populations of lion, leopard and hyena in LWF. Linking with the other large carnivore programs allows the monitoring of the effects of other predators on cheetah populations. Affiliations with KWS include predator conflict data searches and access to data on predator numbers within and around KWS managed National Parks.

3.6.1.5. Biomedical sampling

CCF Kenya continues cooperation with the KWS to develop protocols for biomedical sampling (blood, hair, skin), knock down (tranquilizing) procedure, necropsy procedure and measurements of cheetahs.

3.6.1.6. Education

3.6.1.6.1. School Education

An art and creative writing contest, *Cheetah Expressions: Living in Harmony with the Cheetah* held in 2004 resulted in over 400 entries. Representatives from eight regions (Nakuru, Bagoria, Laikipia, Samburu, Wajir, Tsavo West, Machakos and the Masai Mara) requested varying numbers of schools to submit for the competition. The pieces selected by judges were distributed to the US and UK and have been on display in a variety of venues including the Cranleigh Arts Museum, schools and museum in Middlebury Vermont, Binder Park Zoo, Utah's Hogle Zoo, and the Children's Museum of Memphis.

Local and International volunteers developed a draft of a Kenya teaching workbook and activity pamphlet for Kenyan schools. Editing and evaluation of the book will continue in 2006. Teacher workshops will evaluate the materials and funding will be sought for publishing materials for distribution in Kenyan Schools.

3.6.1.6.2. Higher Education

CCF Kenya continues its relationship with the St. Lawrence University programme in Kenya. Lindsey Seefeld and Becky Timbers conducted their four-week Independent Field Study by assisting CCF Kenya with MWF cheetah tracking, data input and

interview analysis. Michigan State University interns Crystal Morris, Kelly Orris and Jennifer Jones received undergraduate credits for 8, 12, and 14-week internships respectively. These students assisted in developing the photo library, edited project reports, assisted in grant writing, and developed screen saver and calendars to be sold for fund raising activities for 2006. The University of Erlangen-Nürnberg in Germany is also developing an internship program for undergraduates with Melanie Dopfer being the first participant.

Cosmas Wambua received a scholarship from ESRI and a grant from the Disney Fund for continuing education in mapping through attending courses in the U.S. in July. Course work is being applied to CCF Kenya activities through computer software and written materials. Other mapping experts from Kenya have set goals for information sharing and joint projects in the mapping of information, which will benefit research and policy making on environmental issues.

3.6.1.7. Cheetah and Predator Workshop

Over 40 Kenyan and international participants from researchers to educators to private sector, governmental and non-governmental interests attended a Cheetah and Predator workshop to discuss the issue of predator conservation. Dr. Laurie Marker, Mary Wykstra and Dr. Sam Andanje (KWS) led workshop discussions of important predator issues within Kenya, including predator conservation through census, research collaboration inside and outside of parks and reserves, community development and education objectives.

Participants took a close look at the ongoing cheetah census conducted by CCF Kenya and the need for collaborative census work on all of the large carnivores throughout Kenya. Predator specialists, community representatives, and conservation biologists participated in desperately needed analysis of human and predator conflict within and outside of parks. Conversations resulted in action plans for predator conservation initiatives throughout Kenya.

Education was also top priority for workshop participants, with a specific focus on working within local communities to increase predator conservation awareness and support. Participants recognized the importance of community group alliances in order to achieve progress in integrated livestock, wildlife, and predator management throughout Kenya. Tour operators and lodges were also identified as potential partners in cheetah and other predator conservation efforts.

3.6.1.8. Community Development

CCF Kenya works with the Kiu community in tracking and identifying cheetah in the southern region of the Machakos Wildlife Forum. Community meetings are held to discuss dealing with the problem cheetah in the area. Proposals for programs dealing with livestock dips, insurance/compensation, crafts, and water issues are being developed with the CCF Kenya Community Liaison Officer. Community cattle dip improvements aim to

reduce parasites on livestock and allow CCF Kenya to collect information on livestock health while sharing information on cheetah conservation.

Through interaction in a large number of communities, CCF Kenya has developed a relationship with a number of craft persons. CCF has initiated a program in *Cheetah Country Kenya Crafts*, developing styles, colours, and patterns for crafts specifically to raise funds for cheetah research in Kenya. The products were well received at the American Zoo and Aquarium Association and American Association of Zoo Keepers annual conferences in 2004 and 2005. A business plan is being developed with an expected merchandise launch in 2006.

3.6.1.9. Eco-tourism

Presentations continue through a number of tourism organisations including U.S. operators Classic Expeditions, World Discovery Safaris, and FunSafaris, and Kenya operators JH Safari, Origin Safaris, and Vintage Africa. CCF Kenya staff remains members of the Kenya Professional Tour Guides Association as bronze members. Ongoing work with tour groups and the association raise the awareness of the plight of cheetah in Kenya.

3.6.1.10. Volunteer Programme

Reduced Travel Warnings have resulted in increased interest in intern and volunteer programs in Kenya. Melanie Dopfer (Germany) volunteered from January through March. Liz Larsen (USA) volunteered in Kenya and became the Utah CCF Chapter representative and liaison in initiating volunteer and fundraising programs within the American Association of Zoo Keepers. Major John Ritter assisted in April by involving the U.S. Embassy in de-snare activities in MWF. Jonathan Ward of CCF Canada and Sandy Ball, long-term CCF volunteer and supporter, visited the Kenya project. From the Netherlands, Anouk Vastert and Rein van Vliet volunteered to assist in the ongoing development of education materials and the Lapidaire family (Nancy, Hein Maxime and Melony) assisted in the development support facilities. Susanne Garrison continues with voluntary and financial support through craft sales and education interests. Jenny Barnett of Binder Park Zoo and Carol Gault of Pfizer Drugs assisted in community activities and information gathering for the next phase of census work. Local Kenya residents Amanda Perret, Alex Joji and Cheryle Robinson continue assisting with education materials, program development and fundraising activities. Interns, Milkah Njoki Kahiu and Wallace Isaboke, from East African Wildlife Society assist with the census project.

3.6.2. Cheetah Conservation Botswana (CCB)

CCF staff member Bonnie Schumann travelled to Botswana in February to join Cheetah Conservation Botswana at a farmers' workshop entitled "Sharing the land with predators", hosted by CCB. Latest research results on the ecology and behaviour of predators such as cheetahs, leopards and hyenas were presented to the farmers by CCB, together with guest speakers working on brown hyena and leopard research projects based in Botswana. The integrated approach to human/predator conflict, based on the CCF publication developed in

Namibia, "Integrated Livestock and Predator Management: a Farmers guide", was presented throughout the workshop.

Botswana farmers shared their experiences and solutions to predator problems with the group. The meeting was well attended, with 40 of the 55 participants being local farmers. The reception to the information presented was very positive. All agreed that there was a critical need for more such workshops to exchange information and develop solutions to predator conflict in Botswana.

3.6.3. North African Cheetah Meeting - France

In February, Dr. Marker travelled to the first meeting organized in the Museum National of Natural History in Paris, where a cheetah group for the North African region was formed. Dr. Marker presented an overview of CCF Namibian programmes and the need for community-based conservation in cheetah range countries. The group's objective is to develop an informal group who will be involved in developing cheetah conservation in French speaking countries in North Africa.

3.6.4. Algeria Field Survey

In March, Dr. Marker spent a week in the Ahaggar Mountains in Algeria with several other biologists from the Sahal Saharan Interest Group (SSIG) looking for signs of cheetah and desert gazelle. Central Saharan massifs of Algeria are home of last fragile free-ranging North African cheetahs. Algerian populations are endangered and primarily threatened with the decline and extinction of native antelopes, their prey-base, and direct conflicts with local livestock keepers, particularly camel owners. Though the species is legally protected in Algeria, cheetahs are regularly killed by locals in reprisal for livestock attacks. For several years, CCF has identified Algeria as an important country for cheetah and they are eager to get involved in cheetah conservation. Last year, during one of CCF's conservation biology training courses at CCF Namibia, an Algerian biologist, Farid Belbachir, participated, sponsored by SSIG. Following his time at CCF Farid worked on developing contacts in areas where cheetahs are present and organised this field survey.

The international survey team comprised Algerian representatives from Office du Parc National de l'Ahaggar (OPNA), Université Abderrahmane Mira de Béjaïa (UAMB), and Agence Nationale pour la Conservation de la Nature (ANN), with SSIG members from Nature Division, Ministry of Flemish Community (Belgium), Zoological Society of London (ZSL, United Kingdom) and Cheetah Conservation Fund (CCF, Namibia).

An introductory meeting was held at Tamanrasset between SSIG team and the director of OPNA, Mr. Ighilahriz, mainly focusing on conservation and restoration of endangered and vanished antelopes, and the flagship Saharan cheetah as well. Dr. Marker inquired about the situation of cheetah population in Ahaggar, such as recently seen or killed individuals and the nature of conflicts between livestock owners and cheetah. CCF and SSIG explored completion of memorandum-of-understanding letters with OPNA to provide a formal

framework for conducting future collaboration on cheetah and antelope conservation and monitoring in Ahaggar Mountains.

Focusing simultaneously on the distribution and relative abundance of cheetah and their prey base, the team explored rarely-visited areas to the north and east of the Ahaggar massif within Parc National de l'Ahaggar. The trip also provided training for the Algerian team members in field census methodologies and equipment use.

The team discovered good evidence that the Ahaggar continues to support an internationally important population of cheetahs. No estimates of population size can be made on present data, but the survey demonstrated an area of occupancy of at least 10,000 km². Information from other parts of Algeria suggests that cheetahs are found over a much wider area. Although the gazelle prey base was encountered at only moderate rates, compared to more southerly dorcas populations, they are consistently distributed. In conjunction with Barbary sheep, hares, and feral donkeys, they are likely to provide an adequate prey base without a need to include livestock in their diet. Local people mentioned that they considered cheetah a nuisance to camels, but not so much to small stock, which are protected by herding and guard dogs.

During the survey, 48 faecal samples, most likely from cheetah, were collected and brought back to Namibia. Volunteers have carefully washed and examined the samples to determine whether cheetah hairs are present, thus confirming that it is indeed cheetah scat. This technique has been used in Namibia to document cheetah prey selection. Thirty samples had cheetah hair. Figure 6 shows where the scat was collected during the survey. The next step will be to have the confirmed samples analysed for genetic material in order to evaluate the Algerian cheetahs at a genetic level. This will be done at the Zoological Society of London. The remaining hair can also, at a later stage, be identified to establish the prey base of cheetahs in Algeria, as each hair can be identified to species level. This technique has been used in Namibia to document cheetah prey selection.

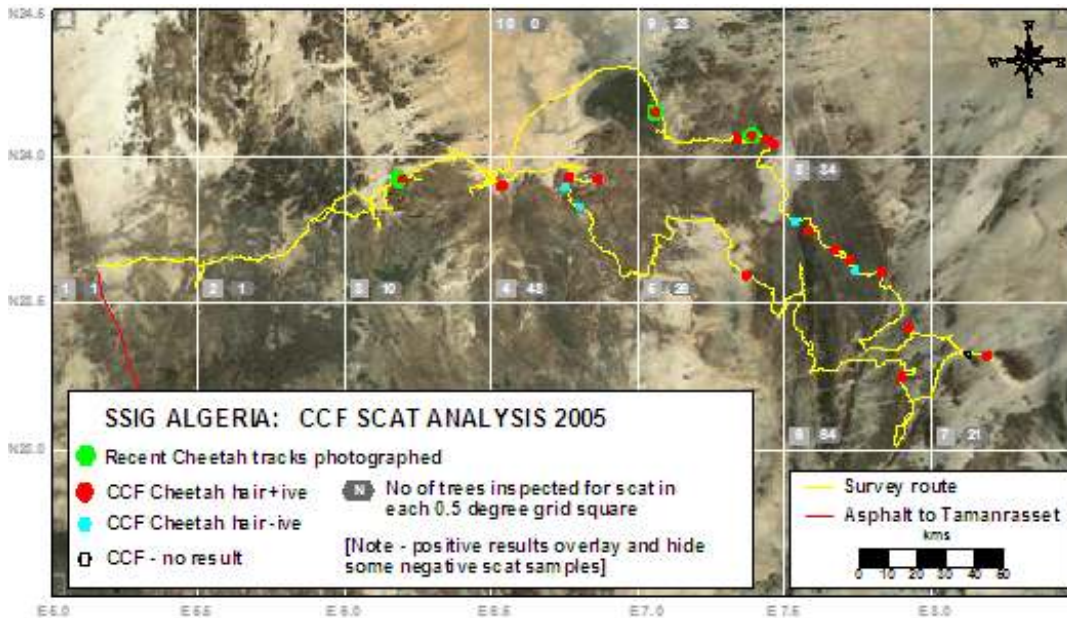


Figure 6. Locations in the Tamanrasset National Park where identified cheetah scat were found during the 2005 Algerian survey.

3.6.5. Captive Cheetah Management - International Cheetah Studbook

CCF manages the International Cheetah Studbook, a comprehensive register of all known captive cheetahs in the world held in both zoological gardens and private facilities. The studbook, which is updated yearly, provides information about existing animals, births, deaths, and transfers of cheetahs. The studbook is a vital international resource for managing and breeding the captive population. The CCF UK identified the production and distribution of the International Studbook as their main yearly project to support.

While the studbook data is constantly being collected, the production of the final annual versions of the studbook typically is done much later. The final versions of the 2003 and 2004 International Cheetah Studbooks are in the process of being compiled by CCF staff members and volunteers. Bonnie Schumann continues to enter data for the studbook, while Ms. Louise Holm, a records keeper from South Africa, spent time this year working on updates and corrections to the master database. Ms. Holm also crosschecked the master database with the International Species Information System (ISIS) database for discrepancies. The database is now current through July 2005 and returns for the second half of the year are being gathered.

The 2004 studbook will show that there are 1393 cheetah (675F: 711M: 7UNK) living in the known global captive population, representing an increase of 36 cheetahs (2.6%) from 2003 studbook total.

3.7. CCF Organisational Activities

3.7.1. Development and International Fundraising

3.7.1.1. Namibian Trust

During 2005, the CCF Namibia Trust planned its annual fundraising dinner held in July, and conducted its annual general meeting.

3.7.1.2. Annual CCF Fund-Raising Gala

The 7th annual CCF fund-raising gala dinner and auction was held at the Windhoek Country Club on 30 July 2005. The evening, themed 'Cheetah Country' was attended by over 380 guests and raised over N\$69,000 for continued support of CCF programmes.

Namibia's Founding President, Dr. Sam Nujoma, gave the welcoming speech and the evening's guest speakers were Dr. Brian Jones, an Environment and Development Consultant who has worked in Namibian conservation since 1988, and Ms. Mary Wykstra, Programme Director of CCF Kenya. Entertaining guests for the evening were the Cocktail Suite Trio from Windhoek and the drumming Ongoma Capella group from Swakopmund.

Each year CCF presents awards to various individuals to recognize their contributions to cheetah conservation. The **2005 Cheetah Conservation Farmer of the Year Award** was presented to two outstanding farmers from both the commercial and communal farming community. One award was presented to Hellmut von Leipzig, a farmer from the Otavi region and an active member of the Ngarangombe Conservancy. The second award was presented to Mr. Garson Kaposi from the Wild Dog Conservancy in the Eastern communal area.

The **2005 Cheetah Conservation Educator Award** was presented to two of CCF's senior staff members whose outstanding contribution to environmental education, and especially predator conservation, helps to ensure the cheetah will be enjoyed by future generations. This year the awards were presented to Ms. Bonnie Schumann and Mr. Matti Nghikembua.

The evening highlighted CCF's new conservation initiatives including Bushblok and Cheetah Country Beef. Bushblok is a fuel log that is made from harvested encroached bush. Table decorations displayed samples of this new product that is now available in Namibia as an alternative fuel source for heating and braais. Cheetah Country Beef, provided by Meatco and conservancy farmers who support cheetah-friendly farming methods, was served as a main course by the Windhoek County Club. Cheetah Country Beef is a new eco-friendly initiative, in cooperation with Meatco and CANAM, which will eventually offer cheetah friendly Namibian conservancy farmers premium rates for their beef.

The silent auction items were donated by businesses within the community supporting the evening's Cheetah Country theme and raised over N\$ 69 000 (US\$11,500). The wide

range of items brought in contributions for CCF's programmes that are all supported through donations.

3.7.1.3. U.S. Foundation and Fundraising Activities

3.7.1.3.1. U.S. Spring Tour

In March and April, Dr. Laurie Marker, CCF Executive Director conducted her Spring U.S. tour to the United States. Dr. Marker met in Cincinnati with CCF USA's team for a Vision Workshop, looking at the present and future needs of CCF. From there, she travelled to New Jersey for meetings and special dinners with supporters. Then she went to southern California to the Living Desert Museum, where she was their Honouree for their 3rd annual "Footprints in the Sand" conservation award, during their annual 'Wild Affair'. In Northern California, two events helped raise awareness about CCF's work: one at the San Francisco Zoo and one with the Golden Gate Berkeley Audubon Society.

In Portland, Oregon, she met with supporters and planned for CCF's Premier Cheetah Run, which was held later in the year at the Oregon Zoo. The run's patron will be ex-governor of Oregon, Dr. John Kitzhauber, and media photos were taken for pre-publicity. Other sponsors for the run include the Internet company Comcast, and the REI outdoor stores.

Dr. Marker then attended the National Science Teachers Science Conference in Dallas, where CCF sponsored a booth. In Atlanta, she was interviewed by CNN-TV, and in Detroit, Michigan, she gave sponsored talks at Cranbrook School and Academy of Science -a great source of new young supporters for the cheetah cause. She then met with several of CCF's Board of Directors where a phone board meeting was held and then with the DC Chapter to plan for the Fall Tour. Then on to Middleburg, Virginia where she appeared with cheetah ambassador Sahara from the Cincinnati Zoo at three schools, along with a fundraiser and a talk at The Nature Conservancy.

On the 15th of May, the Phoenix Chapter of CCF held the inaugural "Run for the Cheetah", which was a great success with over 325 people participating. In addition, many kids who came out to run the 100-yard kids dash and each received a sticker saying they ran like cheetahs. The event raised over \$7,000 for CCF and was coordinated by Phoenix Chapter head, Claudia Whitehead. There was great support from volunteers, sponsors and the community and there were great positive comments from the runners about how organized, fun and smooth everything went. The in-kind media sponsors, the East Valley and Scottsdale Tribune, were very generous in donating the 'goodie bags' and placed 11 free ads for us at a value of \$13,924.50. There was free ice cream, bagels, fruit, coffee, water, and juice for everyone. Booths were set up for CCF, the Tucson Chapter of AAZK, a massage company, the Phoenix Zoo with animals, and Liberty Wildlife with an owl and vulture. For the participants in the race there were 108 awards handed out (framed photos of cheetahs with the CCF logo) for place finished and age category. The oldest participant was 85 years old. The run took place in the park next to the Phoenix Zoo and ran along the canal.

3.7.1.3.2. U.S. Fall Tour

In September and October, Dr. Laurie Marker conducted her annual U.S. fundraising tour. During the seven weeks of travel, she was in 13 cities and states. Marker met with many research collaborators, media representatives (see Media section), congressional representatives, CCF USA Headquarters' staff, and CCF friends and supporters.

Immediately after her arrival in New York on 13 September 2005, Dr. Marker met with newly elected Namibian President, His Excellency Hifikepunye Pohamba and many of his Ministers during a CCF sponsored luncheon that included members of the CCF USA Board of Directors and Trustees at the Explorers' Club. President Pohamba expressed his support of CCF's continued work in Namibia.

In Vermont, Dr. Marker, along with CCF USA's Interim Director, Lynda Gearheart and CCF Trustee Teresa Delaney, were invited to meet with the Orvis management team to discuss the ways forward in 2006. CCF is the grantee of the Orvis 2006 Conservation Award and will be working closely with Orvis during the year.

On the 8-9 October 2005, Dr. Marker joined some of the world's most respected conservationists, including Jane Goodall, Ian Douglas-Hamilton and Lawrence Frank at the Wildlife Conservation Network (WCN)'s Expo. CCF board member Charlie Knowles' team of WCN staff and volunteers put on the event, which was attended by approximately 1500 people. Other public appearances included a lecture to a full house at the Houston Zoo and an event held at Safari West.

Many private events were organized by CCF Chapters and supporters throughout the country, including an evening reception at the home of Pat and Bill Miller, CCF Trustees and long-time supporters in Northern California; and an evening event in Evanston, IL hosted by CCF USA/UK supporter Kathy Tate-Bradish. Dr. Marker's fundraising tour also included *An Evening on the African Savannah – A Celebration Benefiting Cheetah Conservation*, organized by the CCF DC Chapter and led by long-time friend and supporter Beth Wallace and her able committee.

During her travels, Dr. Marker attended a luncheon and a dinner for legislative aides, planned by CCF Trustee David Barron from the International Conservation Caucus. CCF thanked congress for their support of the USAID grant that allowed CCF to develop the Bushblok plant in Otjiwarongo and to get support for the H.R.1707, the Great Cats and Rare Canids Act of 2005, also known as the Wild Cat and Dog Bill. If the bill is passed, there will be designated funds for work to save 13 species of endangered wild carnivores.

3.7.1.3.3. Audi/Cheetah Conservation Fund “Drive To Survive”

CCF was successful in securing a national promotional relationship with Audi of America. Out of this collaboration, CCF received an Audi TT Coupe at no cost. Audi of

America donated the Audi TT to CCF. The car was thematically decorated by acclaimed New York artist, Lynn Chase, and was raffled off as a part of the fundraising efforts. Audi provided promotional support, as well as Audi dealer relationships for holding fundraising events. This program was successful not only from a fundraising perspective, but also contributed to CCF's increased brand awareness.

On 1 October, Dr. Marker helped launch the Drive to Survive Tour, chaired by CCF Trustee Susan Babson, at a fundraising event in co-operation with The Nature Conservancy of New Jersey at the Doris Duke Estate. The tour crew made national news headlines in the Columbus Day Parade in New York and travelled through New York, Philadelphia, Miami, Atlanta, Louisville, Nashville, Memphis, Little Rock, Fort Worth, Grand Canyon, Napa Valley, Santa Rosa, San Francisco, Las Vegas, Palo Alto, Beverly Hills and ended in Los Angeles in mid-November 2005.

In Atlanta, Dr. Marker joined the Audi/CCF team for a fundraising event hosted by Phil Osborne, Founder and President/CEO of Bush Homes Africa Safaris. He was presented with the 2005 Cheetah Conservation Fund Lifetime Conservation Award for his continued dedication and support.

On 17 December, CCF announced that San Francisco Bay supporter Gregor Freund was the lucky winner of the Audi TT. Gregor has since donated the Audi TT back to CCF for re-sale or auction.

3.7.1.3.4. Run for the Cheetah

On 16 October 2005, Dr. Marker joined the first annual Run for the Cheetah events held at the Oregon Zoo with over 625 runners and walkers participating, and several cast members of "The Lion King" joining in. CCF's 4th annual Dinner and Auction, BIG CAT, BIG PARTY, concluded the weekend and was a huge success.

The first of several interviews started with KINK FM where Dr. Marker joined former Oregon Governor Dr. John A. Kitzhauber. Following were interviews with KATU TV's AM northwestern program and OPB's Oregon Territory radio program hosted by Christy George. Print media coverage appeared in The Oregonian, Lake Oswego Review, and Portland Monthly Magazine. Governor Kitzhauber invited Dr. Marker to be his guest at his City Club address, where they met over 400 people.

3.7.1.4. Cheetah Conservation Fund UK Fundraising Activities

In May, Dr. Laurie Marker conducted her second annual UK Spring Tour. The tour was launched with a fundraising lunch and illustrated presentation by Dr. Marker in Guildford, sponsored by CCF UK Trustee Peter Stewart. Then, in London, TV co-host of BBC's *Animal Park* and the new *Wild in Africa* TV programme, Ben Fogle introduced Laurie to a full house of cheetah supporters at the English Heritage Theatre. Friends of Conservation UK, under the new management of Amanda Bleasby, co-sponsored the London event with CCF UK. The presentation was preceded by a reception and a stunning wildlife photography show from Andy Rouse. Talks were also given at the Marwell Zoological

Society and the Chester Zoo, where as part of her presentation, Dr. Marker introduced two Kangal Anatolian Shepherd Livestock Guarding Dogs. CCF International Programme Director Leona Graham and her husband Richard Elen continue to develop CCF's profile in the UK and Europe, including organising Dr Marker's annual tours (including media contacts such as the Daily Telegraph article and *Animal Park* contacts), promoting CCF's work through a UK News/E-Letter, launching and maintaining a new UK website (www.cheetah.org.uk), continuing development and maintenance of the main/international site (www.cheetah.org), as well as developing with CCF Namibia the new online UK/Europe/International "Sponsor A Resident Cheetah Programme," followed in August by a USA version.

In November, Dr. Laurie Marker was in the UK for a day at the EarthWatch office and also presented a lecture for EarthWatch at the Royal Geographic Society titled "Conservation and the Community – Conflict Resolution" along with Dr. Nick Oguge who talked about the Samburu Conservation Research Initiative.

3.7.1.5. Netherlands Fundraising Activities

In February, Dr. Marker visited several zoos in the Netherlands and attended a meeting with 'Stitching Spots', supporters of CCF in the Netherlands. Discussions resulted in possible long-term fund raising activities. Consideration was also mooted about possible joint efforts between CCF and Zodiac Zoos, in talks with CCF supporter Sabine Boucherie.

3.7.1.6. Cheetah Conservation Fund Canada

In March 2005, the non-profit entity Cheetah Conservation Fund Canada received its official charitable status and thus can now offer Canadian tax paying donors a tax-deductible status for donations. The team consists of a Board of Directors: Jonathan Ward (Chair), Dianne Girard (Treasurer) and Carol Petersen (Alberta Chapter Head), plus Dhun Ward (Recording Secretary) Robin Stewart (Membership/Communications), Kim-Ellen Hurst (PR/Events) and Leona Graham (International Liaison). For details, see the website page: <http://www.cheetah.org/?nd=canada>

In the fall 2005, Diane Girard, Director/Treasurer of Cheetah Conservation Fund Canada, made a visit to Brampton School with a representative from the Toronto Zoo and met the kids in assembly. The school is trying to meet a goal of C\$5,500 to adopt one of CCF Namibia's resident cheetahs, which they have named Ohana because of a competition to name the cheetah.

With only a few months since obtaining its charitable status last March, the Cheetah Conservation Fund Canada has been working hard on their plans for a new web site, which will support their fundraising efforts for the specific schedule of projects maintained with Revenue Canada. Some of these projects include GSM collars for tracking cheetahs, and developing a Volunteer Program. This program would involve selecting Canadian Citizens and Permanent Residents of Canada to volunteer with CCF Namibia. To this end, they are

planning the creation of a bursary program, designed to enable donors to the Cheetah Conservation Fund Canada to help fund eligible volunteers (aged 18 and over who are studying in a recognised conservation program) work at CCF Namibia as part of their study program.

Jonathan Ward, Chair of Cheetah Conservation Fund Canada, spent two weeks working with Mary Wykstra in CCF Kenya in July. On his return, the organisation decided to assist CCF Kenya in their programs while continuing to support other specific projects at CCF Namibia.

3.7.1.7. Japanese Cheetah Conservation Society

During the last week of 2005, the Japanese Cheetah Conservation Society representative, Kumiko Watanabe visited CCF Namibia. Over the past two years, Ms. Watanabe has been actively supporting CCF through the JCCS, raising awareness and funds for CCF in Japan and Asia.

Her visit to CCF brought about the signing of a MOU, resulting in JCCS now being the official Japanese CCF affiliate. This will enable Asians, to become more involved with cheetah conservation, removing the language barrier and enabling them to donate and support CCF from Japan, rather than via the U.S. or the UK.

The JCCS, primarily active in Tokyo, Japan, has 80 members and volunteers, meeting with other conservation organisations in Asia and spreading the word of the plight of the cheetah.

3.7.2. CCF USA Administration

A meeting was held in March with CCF U.S. Board members at the Cincinnati Zoo to map a way forward for CCF USA, headed by Zoo CEO/Director Gregg Hudson and development consultant Scott Schultz. A CCF USA telephonic board meeting was also held in Washington DC in April. Lynda Gearheart continues to serve as Interim Operations Manager at CCF USA.

A CCF board meeting was held on 25 October 2005 with CCF U.S. Board members in Washington, D.C. at Sagamore & Associates. The meeting was headed by CCF Chair Annie Graham and organized by Cincinnati Zoo CEO/Director Gregg Hudson. Attendees reviewed outcomes of Dr. Laurie Marker's U.S. Fall tour as well as the CCF/Audi Drive to Survive Tour and Portland's first Run for the Cheetah events. It was agreed that a 2006 development strategy outline would be created for review. Lynda Gearheart reported on the many activities carried out since April's last Board meeting, particularly on the developmental and governmental relationship fronts.

U.S.-based Judith Walls, a repeat volunteer at CCF Namibia continues to coordinate CCF Namibia's Volunteer Programme between U.S., international and Namibian parties. Liz Larsen, of Hogle Zoo, coordinates CCF Kenya's Volunteer Programme.

Patricia Tricorache, another invaluable long-term volunteer to Namibia, now based in the U.S., has joined CCF staff and continues to serve in a multi-tasking way, assisting with databases, grants, editing, website support (for www.cheetah.org) as well as many other aspects of CCF.

3.8. International Meetings and Conferences

3.8.1. North African Cheetah Group

In February, Dr. Marker made a presentation in France at the Museum National of Natural History in Paris during the inaugural meeting that created the North African regional cheetah group. The North African Regions Cheetah Action Group (NARCAG) developed a declaration in cooperation with the IUCN Cat Specialist Group. The declaration recognises: that cheetahs belong to natural and cultural heritage of Africa where their number continues to decrease; that a lack of data on cheetah in North African regions exists; that the development of human activities entails degradation and isolation of cheetah habitat in North African regions and that cheetah can be a source of conflict with farmers; that a sharp decrease in the gazelle population has occurred, subject to high poaching pressure; and that cheetah, as an emblematic species, can contribute to sustainable development by eco-tourism.

Participants agreed accomplish the following objectives in partnership with the Cat's Specialist Group of the IUCN: create a cheetah study and conservation group in North African regions, made up of specialists and individuals wishing to be involved in cheetah monitoring and conservation *in* and *ex-situ*; reinforce or create bonds amongst involved partners or those to be involved in cheetah conservation *in* and *ex-situ*; obtain and pool the abilities and means to implement North African cheetah studies and conservation programmes; train students and field agents in observation and data collecting with the goal of establishing a long-term North African cheetah population monitoring and conservation programme; carry out a harmonised and standardised data collection of cheetah distribution, abundance, behaviour and threats; favour the creation of micro-projects providing means of subsistence to the local population in keeping with cheetah conservation; sensitise and involve local populations in cheetah conservation and actively reduce threats to cheetah; share acquired knowledge with local, regional and international organisations; and finally, create an on-line information platform on the cheetah in North African regions.

3.8.2. IUCN Cat Specialist Group Meeting

Dr. Marker travelled to Brazil for the IUCN Cat Specialist Group meeting; she is a member of the core group that deals with the group's business aspects. The three-day meeting developed two-year plans for the Cat Specialist Group and discussed issues around all cat species. Following the Core group meeting, the Cat Specialist Group hosted a conference on the 10 species of South American cats in which over 80 biologists attended.

3.8.3. Southern African Regional Cheetah Workshop

On the 6th and 7th December 2005, 32 people from 6 different countries attended the Southern African Regional Cheetah Workshop, held at the CCF and facilitated by the Conservation Breeding Specialist Group (CBSG) Southern Africa, of the International World Conservation Union's (IUCN) Species Survival Commission. The workshop brought together experts in the field of cheetah conservation from the southern African region; including South Africa, Zimbabwe, Botswana and Namibia, as well as the co-chair of the IUCN's cat specialist group, Dr. Christine Brietenmoser. The aim was to assess and evaluate what has been accomplished in the Southern African region and to set new objectives for the future. Issues surrounding the development of methodologies for estimating cheetah populations, conservation of cheetah outside and within protected areas, human predator conflict issues, and extension and education initiatives were discussed in depth. Strategies for improved collaboration and co-operation between the regional cheetah conservation organisations were also addressed.

3.8.4. International Kangal LSGD Conference, Kangal, Turkey

In July, CCF was hosted and honoured in Turkey at the 2nd International Conference on the Kangal Shepherd Dogs for saving cheetahs and keeping this rare dog breed working. During the conference, which was held in the Kangal part of the Anatolian Plateau, the sheep dogs' native area, Dr. Marker presented the paper "Evaluating the Effectiveness of Livestock Guarding Dogs as a Method of Conflict Resolution". Dr. Marker also visited local villages to observe working dogs and to learn more about the success of the breed throughout its 6,000-year history.

3.8.5. American Zoo Association (AZA) Annual Conference

Dr. Marker, along with CCF Kenya's Program Director Mary Wykstra and CCF USA's Interim Director Lynda Gearheart, attended the AZA Annual Conference held in Chicago in September. Dr. Marker participated in two sessions, one on the Conservation Challenges of Big Cats and the other an overview of Cheetah SSP Research.

3.8.6. Jackson Hole Wildlife Film Festival

Also in September, Dr. Marker attended the 2005 Jackson Hole Film Festival in Wyoming with CCF's supporters Darlene and Jeff Anderson, Cathryn Hilker, and National Geographic's researcher Mike Fay and photographer Nick Nichols. Mutual of Omaha's Wild Kingdom CCF Special "Return of the Cheetah", shot in Namibia in 2004, and "Chance and Bravo", a short about the two new ambassador cheetahs being raised by Cathryn Hilker at the Cincinnati Zoo, were both nominated for a Wildlife Film Festival Award.

3.9. Media and Public Relations

3.9.1. Local Media (Namibia and South Africa)

3.9.1.1. Press Releases

CCF actively promotes itself via the media and has received extensive coverage during 2005. The Namibian press covered the 7th annual Gala Fundraiser held in July, as well as press releases on the following topics:

- July 2005:** *Chewbaaka visits dentist*
August 2005: *24-hour Full Moon Waterhole Count*
September 2005: *Cheetah Numbers on the increase on Namibian Farmlands, and Livestock Management – new calving season.* Published in the *Agriforum*, *Republikein* and the *Namibian*.
October 2005: *Cheetahs captured on farmlands – to release or not to release.* CCF and AfriCat's joint article clarifying cheetah tag and release policy The article was printed in the *Republikein* and *Namibian* Newspapers, as well as the farmers' magazine *Agriforum*.
November 2005: Internationally Recognized Geneticists visit Namibia (Dr. Steve O'Brien and Dr. Michael Bennish visit CCF and give talks)
December 2005: CCF hosts Southern African Cheetah Workshop.

In addition, the South African weekly magazines (also sold in Namibia): *Landbou Weekblad* and the *Farmer's Weekly* ran articles on Cheetah Country Beef and the use of Swing Gates to reduce fence maintenance, respectively.

3.9.1.2. Conservation Magazine 2005/2006: "Putting Research into Action – Improving Life for Namibians"

Newly launched Namibian periodical, Conservation Magazine, published an insightful article about CCF. It emphasised the fact that CCF "has its foundation in sound scientific research" and gave an insightful look into CCF's research, education and conservation programmes. The article also highlighted the Livestock Guarding Dog project, Bushblok and CCF's involvement and influence on conservancies, and the Cheetah Country Beef initiative

3.9.1.3. New Era: "The Cheetah Woman"

On the 17th August 2005, New Era newspaper did an editorial on Dr. Laurie Marker and her role in cheetah conservation in Namibia. The editorial covered her dedication to Namibia and its cheetah as well as her achievements to date.

3.9.1.4. Space Magazine: "Catwomen of Namibia (Part 1)"

In October 2005, a Namibian magazine, Space, did an editorial on Dr. Laurie Marker, the first in a series of articles about women leading in their field of conservation in Namibia.

3.9.1.5. African TV

African TV is a Johannesburg-based production company producing for the SABC education strand. The series aims to inspire young South Africans to take up careers in science, technology and conservation, as well as showing some of the great innovations that are coming out of South Africa and Africa. The final product is a 13 part series of half hour episodes with three segments in each episode. The CCF segment was between 4 and 8 minutes.

The segment was a great opportunity to showcase CCF to a South African audience generating an awareness amongst younger viewers who might never have known such projects existed and weren't aware of the problems faced by researchers and animals alike in working towards protecting and conserving African wildlife. The segment focused on CCF as a whole and highlighted the Cheetah Conservation Fund's research, conservation and education programmes.

3.9.1.6. Other Local Media

In March, Matti Nghikembua was interviewed by the Namibian Broadcasting Corporation (NBC). The interview was conducted in Oshiwambo language and was aimed at informing the Nation on CCF programmes. NBC TV also covered the Environmental Education Workshop in March.

In June, CCF was highlighted on Namibian NBC News, showing the meeting CCF USA had with Namibia's new President and stating the government's support of CCF.

In August 2005, CCF published the 22nd edition of its International newsletter. The newsletter was mailed to over 4100 people in Namibia, and about 500 internationally. This issue featured articles on the Integrated Livestock & Wildlife Management training courses hosted at CCF, the 7th annual gala fundraiser, cheetah health and reproduction, educational outreach, livestock guarding dogs, international news, business initiatives, and community news.

3.9.2. 2. International and U.S. Media

3.9.2.1. The Daily Telegraph: "Survival of the Fastest"

The Daily Telegraph, in its Saturday Supplement, featured cheetah conservation efforts in Namibia. The Daily Telegraph has a circulation of 1 million copies and won the 2005 Newspaper Awards for National Newspaper of the year. Once again highlighting the contribution cheetahs make in drawing attention to Namibia in the international media arena. The strength of this "cheetah draw card" to boost tourism must not be underestimated and Namibians should continue to make every effort to ensure that

Namibia lives up to its reputation as the “Cheetah Capital of the World”, a title no other country can challenge.

3.9.2.2. Animal Planet Features CCF

Namibia’s cheetahs have featured prominently on international television, with a superb production by Granada Films for Animal Planet, called “Race Against Time.” The programme, broadcast around the world during prime time, highlighted cheetah conservation efforts in Namibia.

3.9.2.3. ABC- TV News

In late September, a 5-minute special news report was done by ABC-TV News about CCF and highlighting the Livestock Guarding Dog program. Dr. Laurie Marker discussed the problems facing the cheetahs and the success of the dogs in helping to reduce livestock loss and the associated killing of cheetahs by farmers. The program aired on the 6pm news throughout the U.S.

3.9.2.4. CBS TV

In October, as a part of the Audi Drive to Survive Tour, Dr. Laurie Marker and the specially painted Audi TT, appeared on CBS Morning Show's weather report. CCF was given about 3 minutes to tell about the Audi tour as well as CCF programs to assist the wild cheetah.

3.9.2.5. Sky News

On the 31st October 2005, Sky News aired a 4-minute piece titled “Cats and Dogs Work Together” shedding light on CCF and the role that the Livestock Guarding Dog project plays in the conservation of the cheetah. The piece was aired internationally on Sky News World Report, every hour on the hour for a full 24 hours. This was an important piece due to the huge coverage it obtained, as Sky News reaches 80 million viewers in more than 40 countries across the world.

3.9.2.6. Highlights Magazine for Kids

In October, CCF was featured on the HighlightKids.com. The article was written by past CCF Namibia volunteer Rosanna Hansen. This is a web site for subscribers only. *Highlights Magazine's* current circulation of more than 2 million places it as the largest paid subscription based circulation of any general interest magazine for kids.

3.9.2.7. Japan TV

In July, CCF hosted a Japanese TV crew who filmed all aspects of CCF’s research and conservation programmes for a 30-minute TV special that was aired in Japan.

3.9.2.8. Associated Press Coverage of Ethiopian Cheetah Cubs' Rescue

In November, CCF coordinated the rescue of two orphaned cheetah cubs in Gode, Ethiopia. The cubs, estimated to be approximately 5 months' old, were illegally purchased at a market by a local. They were tied to the ground by an 8-inch rope and one had a severely infected eye. Members of the U.S. Military Civil Affairs Unit based in Gode were offered the cubs for \$1000. They realized that buying the cubs would encourage more poaching and illegal trade in these animals and contacted CCF for assistance. CCF worked alongside a group of Ethiopian officials and concerned individuals who were aided by the U.S. Embassy in Addis, as well as the U.S. military unit and the Ethiopian Wolf Conservation Program to confiscate the cubs and fly them to Addis. Here they were given veterinary attention and proper care and housing with the Ethiopian Wildlife Department. Both cubs were in critical condition. Once the cubs had undergone a full medical check-up and it was certain that they were healthy enough for air transport, they were flown on board a U.S. military plane to the Ethiopian National Palace in the capital where they are being housed and given proper care. The news received ample coverage worldwide by the Associated Press (AP). As a result, CCF was inundated with enquiries from concerned individuals who wanted to make sure that the cubs were being taken care of. Regular updates on the progress of the cubs are posted on the Cheetah News page on the CCF website.

3.10. Special Visitors to CCF

Two groups of Docents from U.S. zoos visited CCF in May.

The East Rand Youth Orchestra visited CCF on 29th September 2005. They performed at the Otjiwarongo Secondary School Hall; unfortunately, the turnout for the evening was poor due to four other events being hosted in Otjiwarongo on the same night. Those CCF staff and volunteers who did not attend the Otjiwarongo Municipality gala fundraiser for an HIV/Aids project went to see the orchestra perform. It was a wonderful performance and CCF was presented with a certificate of thanks for having them stay and showing them what we do at CCF.

On the 7th of November 2005, two world-renowned geneticists visited Namibia and were hosted by the CCF. They presented talks in Windhoek and Otjiwarongo on conservation genetics and HIV/AIDS. Dr. Steve O'Brien is the Chief of the Laboratory of Genomic Diversity at the National Cancer Institute (NCI) and National Institutes of Health. He presented a talk titled: "Human genes that determine AIDS susceptibility: Lessons for the African pandemic." Dr. O'Brien is also one of CCF's International Science Board Members. He is internationally recognized for his research contributions in human and comparative genetics, evolutionary biology, AIDS and retrovirology. In collaboration with his students, fellows, and colleagues, Dr. O'Brien has researched areas as diverse as mapping the genome of the cat to the discovery of *CCR5-32*, the first human gene shown to block infection by HIV among its carriers. Dr. O'Brien is the author or co-author of more than 500 scientific articles that have appeared widely in National Geographic, Scientific American, Nature, and Science.

The second geneticist was Professor Michael Bennish, the first Director of the Wellcome Trust-funded Africa Centre for Health and Population Research in Mtubatuba, South Africa. He presented a talk on “Surveillance, education and treatment for AIDS in southern Africa: Building the Africa Centre in KwaZulu Natal”. He is currently Professor of Medicine, Paediatrics and Community Medicine at New England Medical Center-Tufts University School of Medicine; Visiting Professor of International Health at the Nuffield Department of Clinical Medicine, University of Oxford; and Professor of Infectious Diseases at the University of KwaZulu-Natal.

3.11. Volunteer Programme

Volunteers are the backbone of CCF’s programmes. During 2005, 58 EarthWatch volunteers assisted CCF. CCF has been working with EarthWatch since 1996 with four volunteers participating monthly for a two-week period. This year, CCF has increased the number of volunteers per team to six.

Also during this period, 49 people (21 international students, 5 Namibian students and 23 others) were accepted as volunteers. Some are volunteers from our U.S. and international branches were repeat volunteers, while others had experience in animal or veterinary care, as well as business and marketing.

3.12. CCF Staffing

3.12.1. Staff Transitions

CCF said farewell to a number of staff and long-term volunteers in 2005.

- Dr. Adrienne Crosier, Reproductive Physiologist who was based at CCF for over three years as part of a collaboration with the Smithsonian Institution, has returned to the National Zoo in Washington DC. Dr. Crosier’s research focused on cheetah reproduction, and developing best practice techniques in cheetah sperm cryopreservation.
- Mandy Schumann, who worked with CCF for four years as a Research Assistant heading up the Livestock Guarding Dog programme and carrying out farmer extension work, has left CCF to take up a position with the new Jubatus Reserve in South Africa as their Research and Conservation Coordinator.
- Leona Graham, our past International Program Director, left CCF this year after having been a key member of our team and helping us become a truly international organisation.
- The yearlong contract for James Young, CCF Bushblok project manager, ended and he returned to the UK where he will be taking up new challenges in conservation.

- Volunteers Jen Newlin-Bell, who worked on graphics and design, and Dave Bell, who worked on the Cheetah Country Beef initiative, are now on an African trek before heading home to the U.S.
- CCF also said farewell to a few short-term staff and long-term volunteers: Education Officer Italy //Awaseb; Community Development Officer Michael Mumbalu; Livestock Guarding Dog Assistant and Educator Berta Helondo; and Alden Whittaker, a 5-month volunteer from the U.S. who assisted in donor development and fundraising activities.

3.12.2. New Additions to Staff

New additions to CCF staff include:

- Lorraine Bowden from the UK to assist in administrative tasks, volunteer coordination, and the education programme.
- Trix Malan, from Otjiwarongo, joined CCF staff as Public Relations Officer and CCF Gala dinner organizer.
- Ed Jenkins, a past EarthWatch volunteer, joined CCF from the California Wolf Center, bringing with him experience in carnivore conflict and conservation of a slightly different predator facing many of the same issues as the cheetah.
- Alden Whittaker a long-term volunteer from the U.S. has joined CCF to assist the Director in donor development and fundraising activities.
- Marianne De Jonge, from Holland, who had previously done two years of student internship with CCF, has rejoined the team. She has worked at the Wassenaar Cheetah Breeding Centre and the Burger Zoo in Holland for the past 7 years. She is caring for the cheetahs and will be involved with the soft release of Shiraz and working on the Swing gates research project.
- Gebhardt Nikanor and Terence Lisher, both from Namibia who had previously worked at CCF, rejoined our team. Gebhardt travelled through the UK and Ireland for six months, and now back returns to his responsibility for the Education Centre, School Outreach programmes and assisting with the Livestock Guarding Dog programme. Terence was given an opportunity to work on a ranch in the U.S. through the support of a past EarthWatch volunteer, and is back to assist in the Education Centre and with cheetah care.
- Patricia Tricorache, from Mexico and based in the U.S., has taken on most of Leona Graham's past responsibilities. Patricia has been collaborating with CCF since she first came to Namibia as an EarthWatch volunteer in March 2001. After leaving her Fortune 10 corporate job in 2002, she became a full-time CCF volunteer in both Namibia and the U.S., assisting with many projects and activities such as newsletters

and annual reports, web page maintenance, and PR/Outreach support, among many others.

3.12.3. CCF Permanent Staff

CCF's permanent staff is now comprised of:

Dr. Laurie Marker – Executive Director
Dr. Bruce Brewer – General Manager
Lorraine Bowden - Administration Officer
Johan Britz – Farm Manager
Engelhardt Awaseb – Assistant Farm Manager
Tanya Britz – Accountant and Administrative Assistant
Trix Malan – Public Relations Officer
Bonnie Schumann – Senior Research Assistant
Josephine Henghali – Senior Research Assistant
Matti Nghikembua – Senior Research Assistant & Education Officer
Marianne De Jonge – Research Assistant
Terence Lisher – Research Assistant
Gebhardt Nikanor – Education Officer and Livestock Guarding Dog Programme Officer
Bessie Simon – Janhelpman Supervisor
Max Simon – Maintenance Supervisor
Ed Jenkins – Volunteer Staff Cheetah Keeper
Andrew Stein – Fulbright Scholar (Leopard & Hyena Research)
Patricia Tricorache – Assistant Director, International Relations

Mary Wykstra – Senior Research Assistant – Kenya
Cosmas Wambua – Research Assistant – Kenya
Lumumba Mutiso – Community Development Officer – Kenya

CCF also employs 19 Namibian farm and domestic workers

3.12.4. CCF USA Staff

In the United States, CCF employs:

Lynda Gearheart – CCF USA Interim Operations Manager
Angie Larimer – CCF USA Book Keeper
Paula Cullum - CCF USA Administration Officer

4. PLANNED ACTIVITIES: January – June 2006

During the next six months, CCF will:

- Continue work with farmers on cheetah-related issues and reducing conflict towards cheetahs.

- Host weeklong workshops for communal, emerging, and resettled farmers at CCF's Centre in cooperation with the Ministry of Agriculture, and the Smithsonian Institution, Wilderness Safari's, and the Ministry of Environment.
- Continue with tag-and-release programme and biomedical sampling and continue reproductive physiology studies on male cheetahs at CCF's Centre.
- Collaborate with University of Davis and Namibian veterinarians on stress related disease research and collection of gastric biopsies.
- Continue work with the Large Carnivore Management Association (LCMAN).
- Continue work with the Global Cheetah Forum. Work will include collating all the information for Namibia on cheetahs for a Regional Cheetah Plan.
- Continue work with the Cat Specialist Group. Developing a Cheetah Compendium, which will include all information currently available on cheetahs internationally and historically. This information will be housed on the Cat Specialist Group Web Site.
- Work with USAID, and the Ministries of Agriculture, Environment and Tourism, and Trade and Industry on bush encroachment-related research and bush industry development. Continue to develop a market and sales for logs, both nationally and internationally.
- Continue work with the Conservation Association of Namibia (CANAM), the Waterberg Conservancy, and communal conservancies in wildlife and habitat monitoring, eco-tourism activities, and promoting the concept of conservancies.
- Continue work with CANAM on Cheetah Country Beef import into the UK.
- Continue to expand the Livestock Guarding Dog Programme through breeding, placement and monitoring of dogs.
- Continue to expand CCF's community development programme.
- Continue to conduct educational assembly programmes in schools throughout Namibia, and distribute and evaluate student activity books.
- Work with the Ministry of Basic Education, Culture and Sports in the developing and adoption of predator conservation in the national school curriculum.
- Host university groups at Cheetah View or at Lightfoot Tented Camp.
- Continue with student internships in co-operation with Namibia's Polytechnic, the University of Namibia, and Oregon's Global Graduate Programme, the Worcester Polytech and other international interns.
- Continue as a field station for EarthWatch and work with EarthWatch volunteers.
- Travel to the U.S. in April/May for fundraising and lectures.
- Continue developing CCF USA's base of operations for fundraising.
- Travel to the UK in May for fundraising and to assist with the development of CCF UK.
- Plan CCF Namibia's annual fund raising dinner in July 2005.

- Assist Algeria, Iran and Kenya with developing cheetah programmes in those countries, as well as Botswana, Zimbabwe and South Africa.
- Continue work on peer-reviewed scientific papers on CCF's research.
- Continue to host national and international journalists.

CCF-Kenya will:

- Conduct ongoing nationwide cheetah population trend analysis with KWS and EAWLS in Central and Northern Kenya and utilize the information to develop focused projects for the benefit of the cheetah.
- Continue the development education and awareness programs for primary, secondary, adult, and tourism sectors.
- Continue development of local and international student intern programmes.
- Evaluate information on cheetah sightings throughout Kenya using submissions from the "Great Cheetah Census" campaign
- Establish focal areas for the "Snap-A-Cheetah" campaign.
- Continue development of biomedical sampling and measurement protocols in cooperation with KWS for nationwide use.
- Participate in Large Carnivore Working Group to promote links with other predator projects in Kenya for the benefit of ecosystem preservation.
- Continue linking Kenya research with the goals of the Global Cheetah Master Plan.
- Monitor case-study cheetahs in the Machakos Wildlife Forum, and link monitoring program with Global Satellite to Mobile network technology.