



Cheetah Conservation Fund

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1995 ANNUAL REPORT

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CONSERVATION STRATEGY FOR THE LONG-TERM SURVIVAL OF CHEETAH IN NAMIBIA

Loss of habitat, declining prey base, and competition with livestock/ agricultural interests and large predators are taking a heavy toll on wild cheetah populations throughout Africa. The largest wild population of cheetahs is found in Namibia; however, their numbers continue to decline due to conflicts with livestock farmers. Wild imports from Namibia continue to maintain the world's captive population, yet little is known about the behavior or physiology of this population.

The largest percentage of the world's remaining free-ranging cheetah are found outside of game reserves in Africa and are threatened with extinction due to growing human demands on resources. The cheetah's attraction to livestock farmland poses a direct threat to the species' survival. Significant local declines continue as farmers indiscriminately capture and remove a large number of cheetahs as "problem" animals. They perceive cheetahs as having a severe negative economic impact on their livestock and wild game; therefore, their attitudes must be reversed if we hope to save this endangered species.

CCF established its permanent base in Namibia since it is critical to the worldwide survival of the species to stabilize this, the largest, gene pool. The Fund's primary focus is in areas outside of the protected reserves, working with the local livestock farming communities to develop ways to reduce conflict between humans and cheetahs and devise a cheetah conservation management plan which secures habitat for the species and considers land use needs.

Objectives

- Evaluate current livestock practices and their impact on cheetahs. Identify key components in farmland ecosystems necessary for the sustenance of healthy cheetah populations.
- Conduct conservation education programs in Namibian schools to increase awareness about cheetahs and the environment and provide students with the opportunity to participate in cheetah conservation efforts.
- Address conflicts between farmers and predators in order to develop a conservation and management strategy that benefits both humans and cheetahs.
- Conduct field research to learn more about the biology and overall health of the southern African wild cheetah population and to gain information about the animals' movements through the farmlands.
- Adapt model programs developed in Namibia for use in other southern African countries.
- Coordinate work with wildlife officials and other non-governmental organizations working with cheetahs.

Methods and Activities

- o The Fund has finalized its farm survey report, sent it out to various qualified biologists for review and had it in the hands of the printer in December. The report identifies strategies for reducing livestock and wildlife conflict. It will also facilitate the development of policies and programs which strive to sustain cheetah populations and suitable prey populations, and thereby encouraging a balanced ecosystem.
- o To promote cheetah conservation in schools, CCF continues to:
(1) conduct interactive assembly programs which increase student awareness about their role in helping to conserve the cheetah; (2) distribute teachers' packets for cheetah education work in the classroom and activity sheets to learners to increase awareness about the plight of the cheetah; (3) conduct educational workshops for teachers and teacher-trainers; and (4) sponsor and promote social and cultural programs which focus on the environment; and 5) host field days at CCF Education Center.
- o Grass-roots communication with farmers and wildlife and agricultural officials form an important component in the program's work. At farmer association meetings throughout the country CCF presents information from its survey on wildlife and livestock management, farmer's attitudes toward predators, and non-lethal predator control measures. The Fund encourages farmers to think creatively about solutions to conflicts by sharing successful management practices employed by other farmers.
- o The Fund continues to collect biological samples for developing an extensive database on Namibia's wild cheetah population. To date, we have examined over 190 cheetahs, of which 43 were in 1995, some more than one time. We have 12 (6 male and 6 female) cheetahs radio-collared in our research area, which encompasses about 7 000 km² in the Waterberg region of the north-central part of the country. We are tracking animals twice a week by fixed-wing airplane.
- o Working cooperatively with organizations located in Botswana, South Africa, Zimbabwe and Zambia, we are beginning to expand CCF's programs to other southern African nations. These countries have geographically connected cheetah populations and are important in the long-term strategy to conserve this larger gene pool.

PROGRESS

During the past year, the CCF has made progress in many different areas both locally and internationally.

Setup of Farm Base for CCF's International Cheetah Research and Education Center

In October 1994, a 7 300 ha farm was purchased for CCF to establish an International Cheetah Research and Education Center and a permanent base of operations. The farm, Elandsvreugde, is located in the Otjiwarongo area and is being developed to contain research facilities and a public education center. CCF, over time, will incorporate a holistic livestock and wildlife management program into the Center. CCF defines holistic as "the consideration of the ecosystem as a whole unit". The Cheetah Conservation Fund moved to this farm base in December 1994. During 1995 a great deal of development has taken place at the Center.

During the first month, a cheetah holding facility was built for cheetah being held temporarily at CCF base for various reasons. The proper design of the holding pens was of utmost importance to the health and well being of the animals being held. For this reason, the pens have been designed according to international cheetah facility recommendations. The facility was built to accommodate up to four groups of cheetahs of up to eight animals total. The pens were constructed with quarantine holding areas as well as large and small holding areas for ease in re-capture without anesthesia. The holding pen system allows for plenty of room for the wild caught cheetahs. Smaller holding areas were designed for easy recapture when it is necessary to re-capture the cats for transport to their final destination usually for release. Since it is the aim of CCF's program to return wild-caught cheetahs back to their original territory, the holding pens are off limits to the public. The wild cheetahs are not a part of public display.

A number of developments of the farm take place during the year including trying to find water. The farm is basically a dry farm and water was barely available for personal use. Several bore holes were drilled and one was found with water. A solar pump was purchased and with regular monitoring of this and another borehole there is just enough water for the Center's immediate needs and does not include enough for livestock production. Further water development must continue and a German Hydro-geologist donated time at CCF to assist in this strategy. Several of the small dams on the farm were worked on and their size increased and dug deeper in hopes of holding more rain water when the rain comes. In addition to the water development projects, the roads through the farm were all cleared of bush.

Further developments include painting and minor renovations of the main buildings, conversion of a part of the main building for a small clinical pathology and reproductive physiology laboratory. The lab is used for processing of blood and skin samples and fecal analysis as well as reproductive samples and work began on developing the equipment to begin Genome Resource Banking (GRB). This laboratory, along with office areas, a library resource room and male and female dorm rooms are located in a large farm house that was on the property when purchased. An education room has also been set up in another building on the farm including displays and posters to help better explain the Namibian farmland ecosystem and the role of the cheetah. This room is used when school groups come to the Center. It is very rustic, but plans are underway for more improvements. A grant has been submitted for the further development of this room and educational displays and materials.

Running of the farm, in the long-term, will hopefully be self-sufficient. To this end, in 1995 the farm produced an income through the sales of hay. CCF's farm has one of the largest hay fields (1 300) in the country and several farmers harvested hay (33 000 bales) from the field providing CCF with an income. Due to the drought situation in the country there was an exceptional demand for hay this year. The income of the farm has allowed the purchase of a tractor, welder and other tools and equipment for the farm. It has also supported five full-time farm employees and during the haying season 4 part time employees. At present, CCF's program budget is maintained separately from the farm operations and this income can not be counted on annually.

The purchase of CCF's farm base was made possible through grants from the Cincinnati Zoo's Angel Fund, Cathryn and Carl Hilker, Phil Osborne, Sidney Schultz along with a short term, low interest loan. The first interest payment on the farm was paid in December to the International Fund for Land and Wildlife. While the purchase of the farm and the establishment of a permanent center is a central component of the Fund's program, continuation and growth of the operating budget is critical to CCF's international conservation programs.

In 1995, CCF joined the Waterberg Conservancy which is made up of 130 000 ha and combines the lands of eight farmers. The Waterberg Plateau National Park is located in the middle of the Conservancy and is soon to become a member. The main aim of this Conservancy is to develop management strategies sensitive to the farmland ecosystem as a whole. CCF views the farmlands as an entire ecosystem in need of holistic management sensitive to both the wildlife and the farming interests. A main concern of the farmers in the Waterberg Conservancy is the level of sustainable utilization (harvesting for meat and trophy hunting) for which they should manage. This not only is critical for an over-all healthy farmland ecosystem, but it directly affects the survival of the cheetah. Therefore, CCF feels that it is important to learn more about the natural prey's demographics, density, distribution and health before effective farm or wildlife management techniques can be designed and implemented. The members of the Conservancy have allowed CCF's researchers to conduct all aspects of CCF research on their lands, including radio-tracking of cheetahs, monitoring playtrees and setting up catch cages.

In August, CCF students and volunteers assisted in the coordination of the first cooperative farmland waterhole count ever to be held in Namibia on private land. During the week of the August full moon, over 70 volunteers assisted in observing 41 waterholes throughout the Conservancy. Further, CCF analyzed the information gathered by the count and presented it in written form to both the Conservancy members as well as the Ministry of Environment and Tourism. In October CCF hosted the Conservancy membership meeting and presented the overview. The Conservancy has requested that CCF coordinate development of cooperative wildlife research on the Conservancy for better understanding the distribution and demographics of the game populations within the Conservancy.

Farm Survey Report

CCF spent three years surveying livestock and wildlife farmers to identify problem areas in livestock and wildlife management which are leading to the cheetah's decline. The Namibian commercial farmers offer the greatest hope in the struggle to sustain a free-ranging cheetah population for future generations. The survey, conducted by CCF from 1991 through 1993 has identified the key problems causing conflict between cheetahs and livestock/game farmers, and has identified the priority areas to intensify research and conservation efforts.

After extensive review by various biologists, the final form of this survey document has been formalized into a book, Cheetah Survival on Namibian Farmlands, and was taken to the printer in December. The book will be distributed widely throughout the country and includes suggestions by the Namibian farmers and CCF for improved livestock management techniques to reduce loss to predators.

Since the report is all encompassing and lengthy, a summary of the report was compiled and distributed to all farmers as an accompany piece to the Cheetah Conservation Fund's Newsletter. The Newsletter was distributed to CCF's mailing list of nearly 2000 people.

RESEARCH ACTIVITIES

Biomedical

The Fund has continued to develop its biological data-base on wild-caught cheetahs. Detailed information, including body measurements, ID characteristics, vital statistics, skin biopsies and blood samples, is obtained on each animal. In 1995, CCF dealt with 43 cheetah, of which 20 (14 males and 5 females) were ear tagged and released back into the wild on the farmlands and 12 of these (8 males and 4 females) were released with radio collars and 3 males were subsequently shot; 11 (9 males and 2 females) were sent to the Umfolozi Reserve in South Africa; 9 (7 males and 2 females) were placed in captivity; and 4 (1 male and 3 females) died. CCF's policy is to release non-problem animals in the same area where they were caught when possible and re-locate problem animals.

Samples taken from wild-caught cheetahs make a significant contribution in the assessment of the over-all health of the wild population. CCF is working in cooperation with two serology labs for a comparative analysis of infectious diseases: Dr. Jenni Spencer's lab in the Department of Biology at Medunsa in South Africa, and Dr. Jim Evermann's Animal Disease Laboratory, College of Veterinary Medicine at Washington State University in the United States. One of the primary objectives of working with these two labs is to develop an assay in South Africa that duplicates the one in the USA, so that samples can be analyzed similarly and quicker. For this purpose, laboratory reagents were brought from Dr. Evermann's lab to be used in Dr. Spencer's lab. This is a very significant international collaboration. Viruses being screened include FIP, FeLV, FIV, Herpes Virus, Calici Virus, and Panleukopenia. During this screen, a random selection of samples were tested for Canine Distemper of which 2 samples were positive.

CCF collaborates with several individuals and labs in the United States, South Africa and Namibia. In February 1995, Dr. Linda Munson, a pathologist from the University of Tennessee and one of CCF's Research advisors and collaborators, spent the month working with the co-Directors in analysis of cheetah blood results to-date for monitoring the stress factors. The preliminary findings suggest that blood chemistry levels increase shortly after capture and fail to drop even after long periods of time in captivity, indicating stress in captivity. These finds are proving to be significant when evaluated along with other disease problems affecting captive cheetahs.

Dr. Stephen O'Brien of the National Cancer Institute is currently analyzing blood and tissue samples for genetic studies. The majority of CCF's samples have been run for DNA analysis and family relatedness.

In collaboration with a veterinary student from Tufts University, a year-long collection of fecal sample analysis is now complete. Fecals were collected and behavioral observations conducted daily on CCF's two tame cheetahs. Fecals were also collected by a farmer on two tame female cheetahs in the Hochfeld region. Preliminary results show that the females' cycles can be detected in feces. The results have been written up and are in the final stage for publication. We are collaborating with another Tufts student on lymphosarcoma in a cheetah. One cheetah that was under CCF's direct care was diagnosed with FeLV and died from lymphosarcoma. This was the first time that this disease was documented in a cheetah. The case history is presently being compiled for publication.

In November 1995, through the collaborative research between CCF, NOAHS Center and the North American zoos, the first cheetah cubs were born through Artificial Insemination using frozen, thawed sperm. The sperm was frozen in Namibia in February 1994 from a wild-caught Namibian cheetah being held by CCF prior to relocating the cat to Phinda Reserve in South Africa. This male was later killed by a take-over of his territory by other wild cheetah in Phinda. Because his semen was previously frozen, his genes could be passed on to offspring after his death representing the potential and benefit of Genome Resource Banking.

Radio-Tracking

CCF's radio-tracking program continues, with twelve (6 males and 6 female) cheetahs being tracked by airplane twice a week. This number represents 12 groups and includes 26 animals. Ten of these are new cheetahs over the past year, of which three are in groups of two or three males and three are females, one which has two, eight-month old cubs and the other two are single females. Two cheetah groups have been tracked for nearly two years and their collars have been replaced to allow at least two more years of monitoring. The monitoring (ear-tagging and radio-tracking) is important to our work with the farming community. By learning more about the movements of the cheetahs, valuable information is gained and shared with the farmers about the movements of the animals. Through this, one can begin to identify if there are certain regions where cheetahs are more prone to travel and what times of the month or year the cheetahs frequent specific farms.

The data from the past year shows a continued wide range of movements ($\pm 1,500 \text{ km}^2$) for each animal. Very interesting and important information concerning the movements of several social groupings of cheetah continues to be gathered covering some 10 000 km^2 in CCF's research area. In some cases the research is relatively pure, in that the cats are released in the same area as caught. But in other cases, we are learning more and more about homing instincts of different social groupings to aid in relocation efforts into unfenced regions.

In October 1994, CCF began monitoring a mother with 8-month young. This group has been interesting to observe as she is still being seen with these, now 22-month old, cubs. A female which has been monitored since February 1995 gave birth to 4 cubs in May. CCF went with the farmer on whose land she gave birth and was able to observe the mother and young cubs. It is interesting to note that once the cubs were approximately two months old the mother lead them steadily south a distance of over 30 km before turning back to the birthing area and when the cubs were approximately 6-months of age she took them approximately 30 km eastwards. Since the cubs were able to follow the dam, she has moved continuously.

Another interesting observation was that when one male cheetah was killed by a snake bite last May, another of our collared males took over this territory. This single male had, until that point, covered a huge area after the death of his brother which had been radio tracked for the previous two years. A cheetah that had been monitored for nearly three years since the beginning of the telemetry project and whose collar had expired was shot and the collar was returned. The same farmer shot a second CCF collared cat two months later. This cat was originally caught and released in an area 55 km southwest of CCF.

CCF is now using a GIS computer mapping program (ArcView) to help monitor the movements of its radio-collared cheetah. In June, the ArcView software was donated to CCF and a GIS specialist volunteered his time to come to Namibia and teach the co-Directors how to use it. The radio-tracking location data fixed by a Global Position Satellites (GPS) and other information about the cheetahs, livestock and wildlife in the area is recorded into the program. Each of the consecutive points of cheetah sightings are then connected to show the specific movements of each animal. This graphic display is a useful tool in working with the farmers to help them understand the large amount of space that cheetahs cover.

Behavior Studies

In December 1994, a diplom biology student from Friedrich-Alexander-Universitat Erlangen-Nurnberg, Germany, joined CCF for one year, leaving in November 1995. The purpose of this collaborative study is to investigate the issue of playtrees and their significance to the Namibian cheetah on commercial farmlands. Now several of these trees in CCF's research area are regularly monitored for activity and trip cameras have been set up at three of the trees. It took several months of hard work, patience and the cooperation of farmers to develop the technique, but in July we got our first photograph of a cheetah using a playtree.

CCF Holding

Currently five cats are being held at the CCF base; four will be relocated to South Africa's Umfolozi Reserve, early in 1996, as part of a re-introduction program. We now have 11 cheetahs being monitored in this new habitat. All has been very positive and successful with this association in relocation and research with the Natal Park Board. The fifth cheetah being held at CCF has a cataract in one eye and will not be released back into the wild.

It is not always easy to find a solution for each cat caught, but CCF works in cooperation with farmers and other conservation organizations to find the best solution. Over the past four years, the vast majority of cheetahs that CCF has dealt with were not trapped because of livestock predation but rather because the farmers saw the cats or their spoor. This indiscriminate catching can cause greater problems by opening up territories, thus allowing other cheetahs access to the area. In certain cases, indiscriminate catching can actually create a problem animal, for example, through the separation (breaking up) of a family unit (female and sub-adult cubs) where the sub-adult cubs may turn to livestock predation.

Farmland Ecosystem Research

Assessment of the farmland ecosystem for long-term habitat viability for the cheetah is the next step in CCF's research activities. The farmlands support a rich prey base as seventy percent of the country's game inhabits these commercial farmlands. One of the assessments of the farmland ecosystem involves monitoring the wildlife prey base which is available for predators in CCF's intense research area. This research is conducted in cooperation with members of the Waterberg Conservancy and on CCF's 7,300 ha farm. Several techniques are used for these assessments and include on-going research and monitoring.

A student of the British Royal Veterinary College, spent the month of June with CCF on a project for his Masters Degree. He worked with CCF in their efforts to begin compiling a long-term study of the health of the wild game population on the Namibian farmlands. A field protocol was developed that could be used by the local farmers for collection of various samples from harvested wildlife (hartebeest, gemsbok, kudu and warthog). Farmers were asked to collect the abomasum, faeces, blood, and kidney fat and to score the animal's condition. There was very good cooperation from the farmers on this project. The parasites that were found in the abomasum were Haemonchus contortus. These blood-sucking worms produce an acute hemorrhagic anemia in animals they parasitize. Haemonchus tend to be a particular problem in young animals (under two years of age) that have developed only limited immunity. However, immunity in older animals may be broken down by drought conditions leading to poor nutrition. Furthermore, heavy congregations of animals at watering points encourages the spread of parasites from animal to animal. The information gathered is useful for monitoring the affects of drought on the wildlife species.

CCF began an on-going wildlife monitoring program on its 7,300 ha farm. Studies have been designed to understand game densities, movements, demographics, and habitat utilization. The studies involve: conducting visual road strip counts of game at regularly measured points throughout the farm at various times of the day; tracking and counting spoor at regularly measured intervals through out the farm; and categorizing vegetation densities and distributions. All of these studies have been carefully planned; the assays have been derived from other studies and extensive research undertaken by several of CCF's students in developing the protocols. One of CCF's student volunteers conducted a preliminary vegetation survey on the CCF farm.

Information derived from these methods and techniques should yield estimates as to which animals are utilizing CCF's farm. Furthermore, they should indicate, as a percentage, the utilization of the various sample areas within the farm, by the species identified. Information gathered from these results will be useful in helping identify areas and patterns of utilization of the farm by wildlife and provide valuable information leading to management decision and further methods of monitoring wildlife and the ecosystem in this area. All of the information derived from these studies can be used in application to other farms. The methods of each study are carefully planned as to be easily repeatable.

International Cheetah Studbook

Another area of CCF's collaborative research is in the long-term monitoring of the international captive cheetah population. One of the co-Directors, Laurie, is the International Cheetah Studbook Keeper. On a bi-annual basis, CCF volunteers assist with the computer data entry and correspondence from the facilities holding cheetahs. Annually a Studbook, or registry is published which includes all births, deaths, transfers and additions to the world's captive cheetah population. In addition, the Studbook includes a variety of research papers about current activities with cheetahs both in captivity and in the wild. The 1993 International Cheetah Studbook was published and distributed during this reporting period. The Studbook is sponsored and published through NOAHS Center of the Smithsonian's National Zoo in Washington, DC.

IUCN/Cat Specialist Group

The co-Directors of CCF have been appointed as one of the five vice-chairs of the World Conservation Union (IUCN) Species Survival Commission's (SSC's) Cat Specialist Group. This is a great honor as they were appointed in recognition of the leading role they play in various aspects of cat and cheetah conservation.

Livestock Guarding Dog Program

The Livestock Guarding Dog Program, in cooperation with Hampshire College (Massachusetts, USA) continues to make great progress and a network of farmers has been established who are committed to the success of the program, the protection of their stock, and the survival of the cheetah. At the end of May, CCF's breeding bitch had eight more puppies which were placed on livestock farms in July.

The performance of this second litter was monitored carefully by a third year Namibian Polytechnic student, for her Resource Management Project. CCF regularly calls on farmers with the guarding dogs to evaluate the status of this project, to provide assistance with the raising of the dogs and to better understand the basic requirements for raising effective livestock guarding dogs. The puppies from this last litter are all doing very well, and the farmers who took them are quite pleased.

At present there are 22 Anatolian Shepherds protecting livestock on 22 farms in Namibia. There is a waiting list for puppies and considerable interest from the farming community in continuing the program. A breeding program will begin with the younger dogs that farmers have already, as these dogs come from different bloodlines and will be old enough to breed in 1996. A second Namibian Polytechnic student will help CCF monitor the program in 1996.

CCF and the Namibian Professional Hunters Association

It is legal to trophy hunt cheetahs in Namibia, and many farmers are interested in the sustainable use of the cheetah. CITES has set a quota of 150 animals for legal annual removal from Namibia. Trophy hunting is one form of legal removal, therefore, the Namibian Professional Hunters' Association (NAPHA) has asked for CCF's input in developing strategies for ethical and sustainable use of the cheetah.

NAPHA members have been asked to sign a COMPACT by the Safari Club International to hunt cheetah for sustainable conservation and the enhancement of the species. Furthermore, they have been asked to use predator friendly livestock management practices versus indiscriminately killing cheetah. At present, over 90 member of the organization have signed the COMPACT placing over 900,000 ha of Namibia's livestock farmland into cheetah conservation. It is interesting that of the farmers/hunters that signed the agreement, most were personally interviewed by CCF.

CCF is a member of NAPHA's cheetah subcommittee to provide guidance and share research findings. As a member of this sub-committee, CCF was asked to develop a brochure for use by NAPHA and the Ministry of Environment and Tourism. The brochure outlines the cheetahs problems for survival and how hunters can assist with long-term survival strategies. It also covers ethical and non-ethical ways of hunting cheetah. It is hoped that the hunting and farming community will follow the guidelines and help conserve the cheetah. NAPHA members have been asked to cooperate with CCF's on-going research.

CCF will remain active in NAPHA as it relates to the cheetah. This is not to say that CCF endorses or promotes the hunting of cheetah, but since hunting of cheetah is legal, CCF will do what it can as an organization to influence those involved towards conservation measures.

CCF EDUCATION PROGRAMS

The Fund's involvement in education continues to grow. CCF continues to conduct educational assembly programs at schools throughout the country and distribute educational activity sheets and informational materials to all student audiences. In the past year CCF has given programs at several schools, reaching over 10,000 students

CCF conducted several more teacher training workshops at schools using their Teacher's Resource Guide, entitled Cheetah: A Predators Role in the Ecosystem which emphasizes cheetah and general predator conservation. Teacher training workshops were also given to two volunteer organizations, Peace Corps and Volunteers in Action as a part of their program introduction sections prior to beginning their jobs at schools. Over 100 teachers were trained in this way and many of these teachers have called on CCF to conduct further teacher training at their schools as well as conducting assembly programs for their learners. Teachers are introduced to the guide and are taught how to use it. These workshops have met with great enthusiasm and will continue to be an important component to CCF's educational program.

Educational materials continue to be shared with schools and various environmental organizations throughout southern Africa as well as Europe and the United States.

CCF has begun to accommodate groups at its Center. Several school and community groups have already used the Center. The Center's use includes an introduction to CCF's activities through slide or video presentations as well as participatory discussions with CCF researchers and students. Following this introduction, nature walks or drives are included to expose them to the natural environment. The donations of funds to purchase an educational vehicle (through the American Zoo and Aquarium Association) has facilitated the expansion of CCF's educational endeavors.

As a part of the sister school exchange program started in February of 1994 between a local school, Rogate, and one in the USA, CCF assisted in a poetry and art project. The poems and artwork done by both schools has been compiled into a small booklet entitled Shared Voices Shared Hopes. While in the USA in November 1995, CCF's Co-Directors met with Kilgoure students and presented a video tape about Rogate School. Kilgour sent home items for Rogate School which will be presented to the school when it returns from summer holiday in 1996. This exchange continues to stay active and a few other sister school programs may take off in the next year using this as a model.

The students from Otjiwarongo Secondary School, near CCF's base, that worked with CCF for their CONSERVO project in 1994 continued their involvement with CCF in 1995. In May, CCF coordinated a trip to England for the students to see some of the zoological institutions where cheetahs are held and bred. The students gave a public lecture about their work with CCF at Whippsnade Breeding Center. The program was very well attended. Local press covered their talk and they gave an international BBC Radio interview. Due to CCF's friendship with the Otjiwarongo High School, Laurie and one of CCF's students substituted the Biology classes for two weeks when the teacher was sick.

CCF has learned of two ways to monitor CCF's effectiveness in their educational programs. The first is that the Ministry of Education has placed a question about cheetahs in their end of the year test. The Ministry has offered to assist CCF in getting the results of how the question was answered. Next, the cheetah has been placed in a new 6th grade book.

CCF's work with colleges is an important part of its education programs, as these students will soon take on roles as teachers, wildlife managers or farmers. Our most recent involvement included organizing a week long field trip for the Nature Conservation and Agriculture students of the Polytechnikon. During the week, the students met with local game and livestock farmers and learned about land use, grazing systems, and livestock and wildlife management. The students camped at CCF base and used CCF's farmland for practical. The students learned about radio-tracking, cheetah biology and non-lethal predator control methods. Another group of 30 students from Polytechnikon helped with the August Conservancy waterhole count.

In September, students and teachers from the Ongongo Agriculture College spent a week at the CCF Education Center to participate in a variety of activities focusing on bush encroachment. The workshop dealt with issues such as the deforestation in the north as compared to the problems of bush encroachment in the central part of the country. Several local farmers presented information about local problems with bush encroachment which is one of the major issues on the commercial livestock farmland in Namibia and affects the cheetahs' habitat and prey.

A Namibian Polytechnicon student spent five months at CCF for her in-service training. As a part of her requirements in environmental education, she worked with CCF in the town of Otjiwarongo to begin a recycling program. The project received good support from the local community and the ground work has been laid for a full program to begin in 1996.

In June, Laurie Marker-Kraus and a long-term CCF volunteer, Sandy Hurlbut, attended the Namibian Environmental Education Network (NEEN) meeting held in Etosha. Laurie gave a presentation on formal and non-formal environmental education and how CCF has worked with the Ministry of Basic Education and Culture in CCF's education program development. NEEN is a new organization coordinating the efforts and exchange of ideas of environmental educators around Namibia. CCF has been active in the development of NEEN and supports its growth and activities. Sandy represented CCF at the Environmental Education Association of Southern Africa's meeting in July held in Durban and took part in the Namibian delegation's environmental presentation.

In 1994, CCF was involved with an art competition and sponsored a writing competition. Selections of these art and writing pieces have been compiled into a children's book for publication. The book, entitled The Orphan Calf and the Magical Cheetah, includes not only the short stories and poems written by Namibia's youth, but also factual information from CCF's teacher's guide. The book has been sponsored by the British High Commission and will be distributed to schools and libraries throughout Namibia. The editing and layout of the book was done by one of CCF's volunteers. The book went to the printer the end of December and will be available in February 1996. A separate poster using one of the children's drawings is also being printed with funds donated in 1994 by the Deutsch Oberschule (German High School) in Swakopmund.

CCF was commissioned by the National Museum of Namibia to develop an exhibit at the State Museum. The exhibit makes use of photos, maps and diagrams which focus on the Namibian cheetah and includes: its life cycle; its use of playtrees; how it hunts; how it runs; its population distribution throughout history; why it is endangered and the problems it faces along with prescriptions for its long term survival. The exhibit was completed in December 1995 and an official Government opening will be held in May 1996.

Public Awareness

During 1995, CCF has received more exposure through media. Several national and international newspaper and magazine articles have been written about CCF. TV programs done on CCF over the past two years have been shown repeatedly in many countries, and a CNN international news program about CCF's new base and the International Cheetah Research and Education Center was shown earlier in the year. In October a TV crew from Australia filmed CCF's programs for a show called Wildlife.

In mid-April through the mid-May of 1995, one of CCF's Co-Directors (Laurie) conducted a four-week lecture tour in the United States. Over 20 lectures were given in 11 cities to a diverse array of audiences. The lecture tour was arranged in cooperation with the African Wildlife Foundation. Many of the lectures were at zoological facilities which house cheetahs.

In November, CCF's co-Directors conducted a three-week lecture tour in the United States. Over 15 talks were given in eight cities to a diverse array of audiences. Some of the lectures were at zoological facilities which house cheetahs and others were private fund raising events. These lecture tours continue to be important in developing funding for and providing exposure to CCF's efforts. During the tour, CCF received media attention that included newspaper, radio and television in several cities. The co-Directors met with several foundations while in the United States and several proposals have been submitted, with more to be finished in the next few months.

In December, a local art store, Namib Wildlife Art, hosted a reception for CCF and held a 10 day photographic exhibit where part of proceeds will benefit CCF. This was the first public event CCF has been involved with in Windhoek. Over 80 people turned up for the opening.

CCF continues to present information at farmer association meetings, and two talks were given during the reporting period. In November, another farmers' newsletter was mailed to over 1000 individuals in Namibia and southern Africa as part of CCF's outreach program.

CCF's co-Directors have become Honorary Presidents of the organization Cheetalert!, a newly formed project in the United Kingdom dedicated to helping the cheetah win its race for survival. Cheetalert!'s first magazine has been distributed and they are targeting new members throughout western Europe. It is hoped that support from Cheetalert! will assist CCF's programs.

CCF Volunteer and Student Program

CCF's volunteer program continues to provide valuable support. There are typically four or five full-time volunteers working with CCF at any one time, and volunteer terms overlap. During the past year, a total of 20 volunteers have assisted in all aspects of CCF's programs. The terms of these volunteers have ranged from three weeks to over one year.

Botswana Expansion

CCF's expansion into Botswana has been underway since September 1994 under the direction of Matt Carpenter, a Master's student from the United States. Matt is currently conducting a country-wide survey using personal interviews, in-depth questionnaires and sighting surveys in order to learn about attitudes toward cheetahs and investigate human interaction with cheetahs. The information will help to determine the present status of the cheetah in Botswana, the extent and nature of predator/livestock conflicts in the country, and to assess the composition and abundance of the prey available to cheetah.

Planned Activities for 1996

During the next year CCF will:

1. Distribute its farm survey book, Cheetah Survival on Namibian Farmlands throughout Namibia.
2. Distribute the children's book, The Orphan Calf and the Magical Cheetah, compiled from the CCF art and writing competitions.
3. Organize the Population and Habitat Viability Assessment (PHVA) workshop for the southern African cheetah and lion to be held in February. The workshop is being organized and hosted by CCF in collaboration with the Namibian Ministry of Environment and Tourism and sponsored by the World Conservation Union's Species Survival Commission's (IUCN/SSC) Conservation Breeding Specialist Group (CBSG) and the North American Cheetah and Lion Species Survival Plans (SSP). About 60 biologists, wildlife specialists, farmers and educators from Africa, Europe and North America are expected to attend the week-long workshop.
4. Organize a 2-day National Veterinarian Congress following the PHVA.
5. Conduct a two-week long collaborative research project in conjunction with the American Association of Zoological Parks and Aquarium's SSP and NOAHS Center from the Smithsonian's National Zoo. CCF and this team will collect sperm from Namibian cheetah. The team will provide equipment and train CCF for Genome Resource Banking of Namibian cheetah.
6. Continue CCF's radio-tracking program to include more collared cheetahs, with an emphasis on female cheetahs. Continue to use ArcView to input cheetah locations. Begin an in-depth evaluation of CCF's radio-tracking data.
7. Continue working with other farmers in the region on the tag-and-release program and biological sampling of wild-caught cheetahs.
8. Continue re-location research of cheetahs from Namibia into South Africa and Zambia. Educational components will be incorporated into the re-location projects.

9. Continue the Livestock Guarding Dog Program. A second Namibian Polytechnic student will assist with the program.
10. Continue to conduct educational assembly programs in schools throughout Namibia and assist teachers in the use of CCF's Teacher's Resource Guide through teacher training workshops.
11. Expand student research. During the next six months, several students will be joining CCF for projects. Students will join CCF from universities in Germany, England, the United States, Belgium and Namibia.
12. Expand multi-disciplinary and integrated programs on prey populations within CCF's research area.
13. Continue expanding programs into other southern African countries. The survey in Botswana will begin to identify conservation priorities and geographic areas where more concerted attention is needed. Extension work will identify and promote solutions to predator/livestock conflicts. Environmental education programs will also be introduced and taken to rural communities to promote an ecosystem approach to the environment. Programs developed in Namibia will be adapted for use in this expansion to Botswana.
14. Continue development of the International Cheetah Research and Education Center. Development of the education center will include exhibits and an information pamphlet and nature trails.
15. The establishment of a permanent center is a central component of the Fund's program, continuation and growth of the operating budget is critical to our international research and education. Grants will continue to be written to support this. The purchase and maintenance of the research/education center will require long-term financial support.