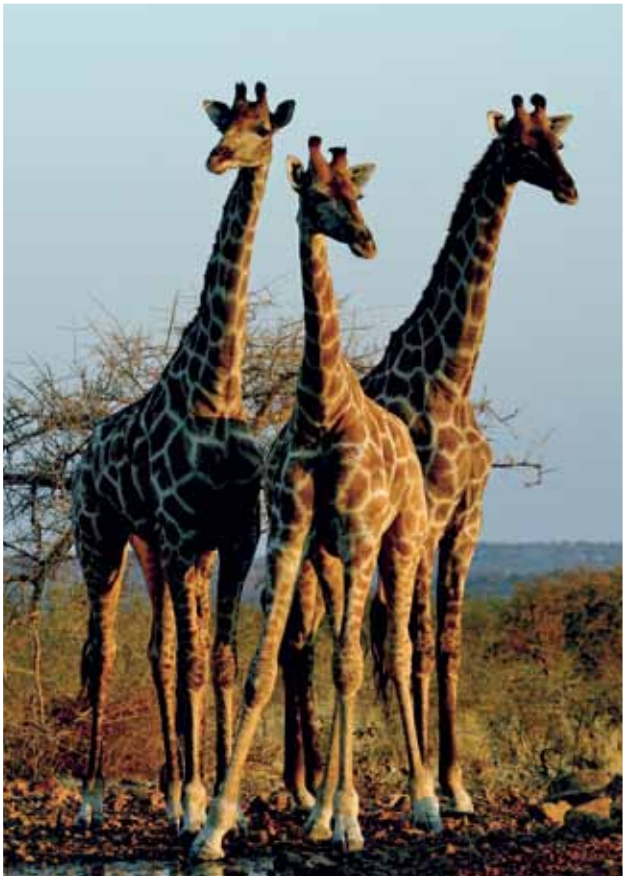
2010 ANNUAL REPORT

WILDERNESS
WILDLIFE TRUST



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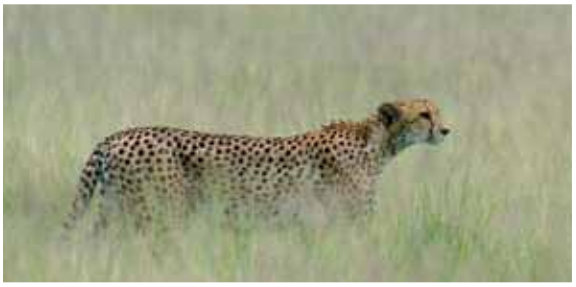

The Wilderness Safaris Wildlife Trust seeks to make a difference in Africa, to its wildlife and its people. These projects address the needs of existing wildlife populations, seek solutions to save threatened species and provide education and training for local people and their communities.

Since its formation, the Trust has supported a wide variety of wildlife management, research and education projects in southern Africa, making use of a number of methods and types of projects to do so.

One kind of project studies and monitors a particular species in its natural environment and in so doing also contributes to its protection. The long-running Maputaland Turtle Project in South Africa, the Namib Brown Hyena Project and the Namibian Desert Elephant and Giraffe Project are cases in point. Moving beyond research into hands-on management is another variation on this theme.

Study of a species sounds like a purely academic pursuit, but within such investigation lie the seeds for its protection and survival. The better we understand a species and its environment, the more efficiently we'll be able to protect it in a world where the struggle for space becomes paramount and human-animal interactions become increasingly conflicted. Most of the Trust's projects have this as an ultimate objective and some amazing headway has been made, for example in the Lake Ngami Bird Monitoring Project, which brought the Lake and this Important Bird Area (IBA) to the attention of the Botswana government, resulting in its being declared a "no-hunting area."

The Trust is involved financially in a number of such projects, supporting research, habitat management, and practical conservation measures such as anti-poaching projects, while Wilderness Safaris contributes logistically in terms of human resources and equipment.

But conservation of flora and fauna is limited as long as the people who live in the vicinity are unconvinced or left out of the process. Financial and educational empowerment of local communities so that they benefit from the wildlife on their doorsteps is therefore vital, and as such, broad-based and comprehensive initiatives are in fact the bedrock of the Trust, providing skills, knowledge and education necessary to communities to value and manage their wildlife populations.

Wilderness Safaris is acknowledged as a leader in the educational process thanks to its innovative formal and informal education projects, supported by the Trust in the form of grants and bursaries. The Children in the Wilderness programme aims to educate the youth of Africa, inspiring and assisting them to preserve their magnificent natural heritage.

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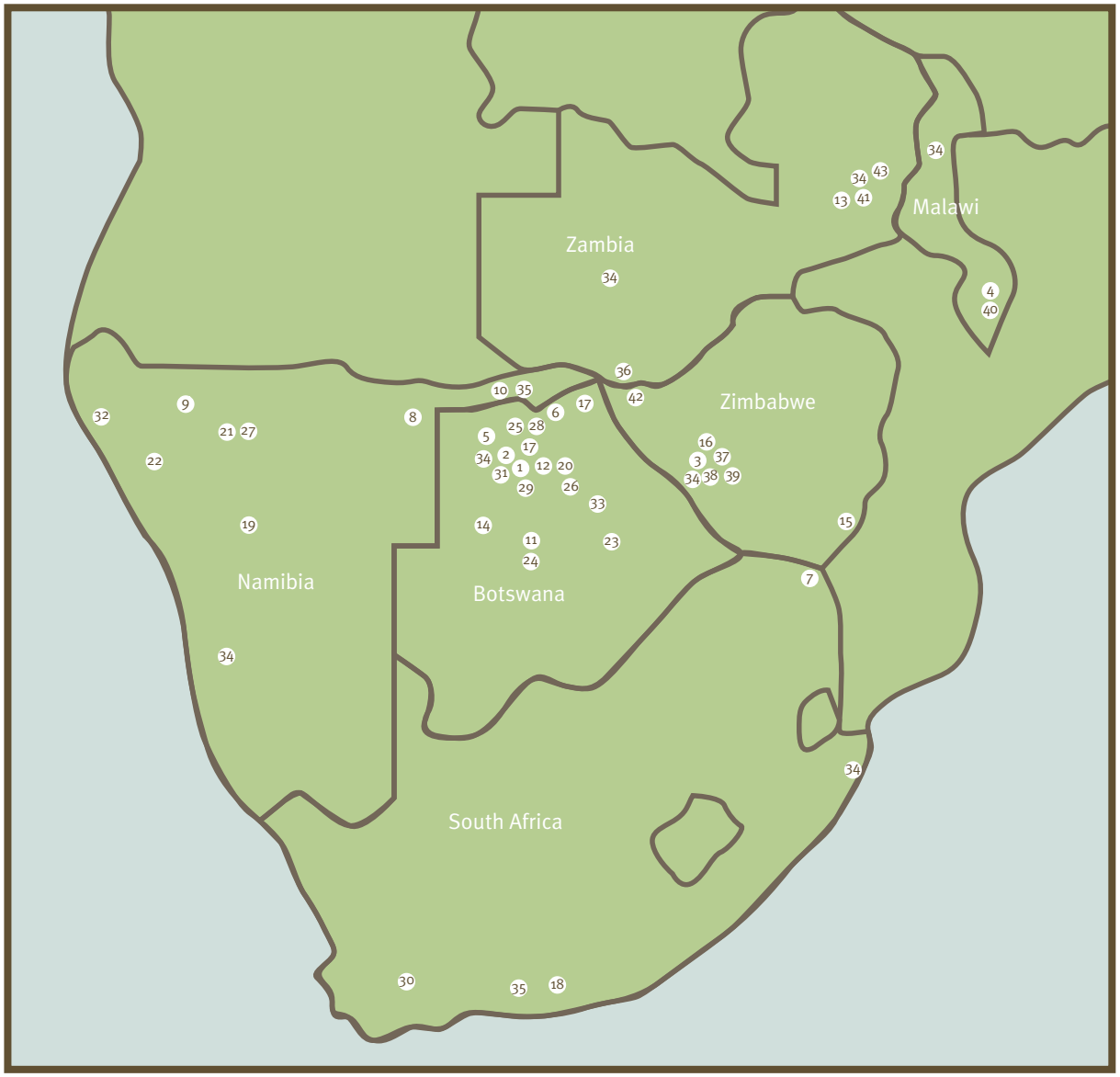

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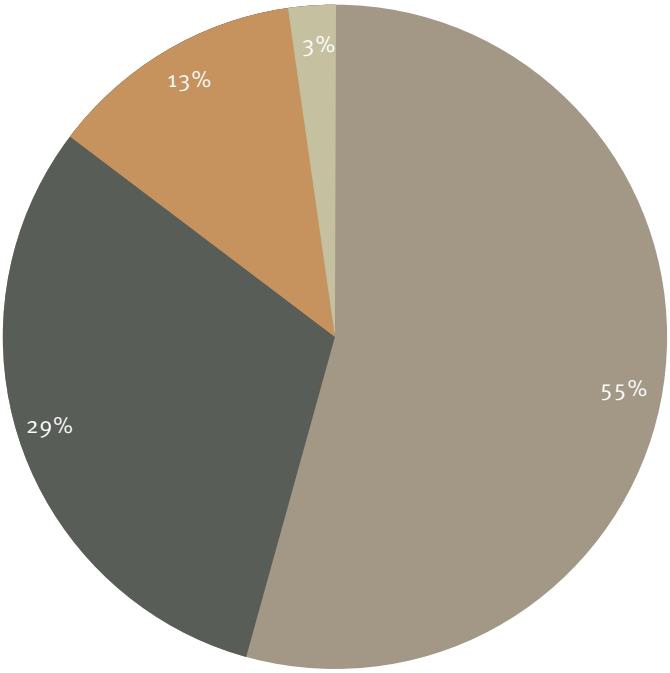
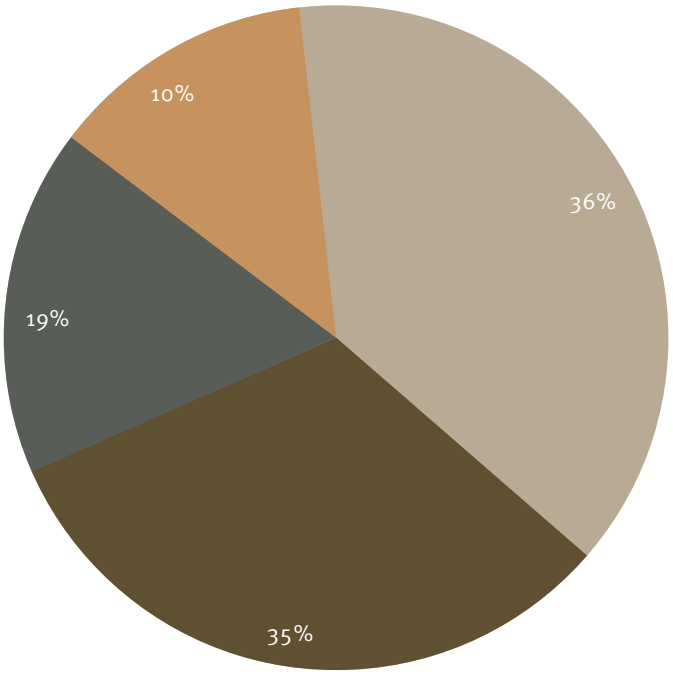


DISTRIBUTION OF FUNDS, FINANCIAL YEAR: 2009/10

- Research and Conservation
- Community Empowerment and Education
- Anti-Poaching and Management
- Administration (brochure, website, printing)



SOURCE OF FUNDS, FINANCIAL YEAR: 2009/10

- Wilderness Safaris Guests
- Wilderness Safaris
- Wilderness Warmers
- Funding Agencies

FROM THE TRUSTEES

The 2009/10 financial year was a challenging one. The Wilderness Safaris Wildlife Trust anticipated a reduction in donations and a consequent reduction in the extent of its project funding ability. To combat this anticipated reduction the fundraising strategy of the Trust was changed. For the first time the Trust actively attempted to raise its profile with our various donor constituencies, at the same time developing new income streams in the form of various initiatives, the most successful of which was the introduction of Wilderness Warmers which are now sold in Wilderness Safaris camps throughout southern Africa with the entire proceeds going to the Trust. As a result of these initiatives the reduction in income experienced by the Trust was minimal.

We are thus pleased and proud that the Trust was able to continue making a difference to Africa, its wildlife and its people over 2009/10. In fact, in some ways, the past year has been one of the most successful in the Trust's history with a growing cohesion in strategy and the strengthening of relationships with our donors, our partners and the southern African conservation community. We are exceptionally proud of the efforts and achievements of those who received funding from the Trust during the past year in our three target areas:

- **Research and conservation;**
- **Community empowerment and education;**
- **Anti-poaching and management.**

Together they are all having a tangible and significant impact.

The amount expended on administration continues to be small, approximately 3% of funds raised. This expenditure comprises the Annual Report, awareness platforms such as the website, block-mounted posters displayed in Wilderness Safaris camps and information cards distributed in the camps and on Sefofane aircraft.

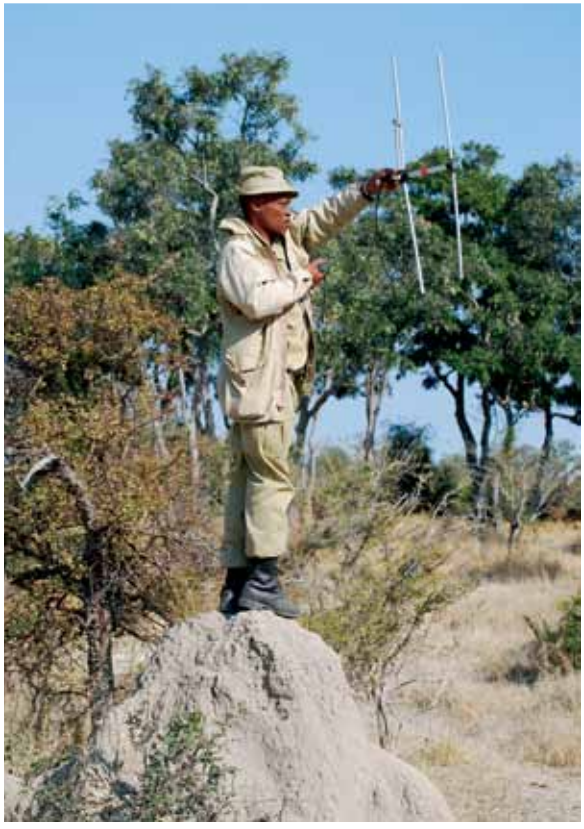
Costs outside of this realm have been covered by Wilderness Safaris and donations in kind by a number of our partners, including auditors Deloitte & Touche, legal advisors Bell-Dewar, website designers Buynary, printers Colorpress, Amos Eno and Laura Dover from the Resources First Foundation, and of course the individuals who donate their time to the Trust: administrator Mari dos Santos, accountant Richard van der Wel, advisor Chris Roche and editor Ilana Stein. The design of this year's Annual Report was ably handled by Mary-Anne van der Byl and Mike Myers. Other design work throughout the year was fulfilled by both Mary-Anne and Ulrike van der Hoven while Martin Benadie and Paula Chaplin have kept the website up to date. A big thank you to all the Wilderness Safaris camps for continuing to support the Trust via the placement of the Annual Report in the tents and their enthusiasm in informing guests about our work.

Lastly, thank you to all our donors and contributors over the past year, as well as those who have continued to perform their conservation work in the field. Thanks in no small part to your generosity and efforts, the Trust continues to go from strength to strength.

Russel Friedman, Andrew Leontsinis & Dr. Jennifer Lalley

BOTSWANA RHINO ECOLOGY PROJECT

Researcher: Pelotshweu Pearl Galebotswe



This project, which forms part of the Botswana Rhino Relocation and Reintroduction Project, is progressing well, albeit slower than anticipated. This is primarily due to limited access to the study area thanks to exceptionally high rainfall and flooding over the past year. However, to date 50 rhino (27 in 2001, 6 in 2006 and 15 in 2009) have been radio collared, six of which were successfully tracked over seven months, gaining a greater understanding of rhino habitat use in this protected area. The Department of Wildlife and National Parks' Anti-Poaching Unit has been providing security and monitoring the rhino on a daily basis since 2001, at the same time recording the GPS positions of the animals.

Where radio transmitter lifespans expired, rhino were also tracked on foot. In order to determine the diet of various individuals, a method known as "back-tracking" was used, where a rhino's feeding path is covered on foot and all grass species consumed in a number of 1x1m^2 quadrants identified. The preferred species in the diet can then be determined.

Three calves were born in 2009 bringing the total number of calves born in the reserve since 2001 to more than 23. Territorial fighting has recently been observed between the dominant males and a few newly recruited subordinate males, but with no known mortalities. Five territorial males have been identified in the study area.

This study has thus far shown that rhino distribution is largely influenced by the availability of water, food and vegetational cover. Rhino sightings and signs (rubbing posts, middens, scrape-markings, etc) were primarily located along the river channels during the dry season but were distributed more throughout the reserve during the wet season as water and food were readily available. Fieldwork will continue as soon as the floodwaters subside.

BOTSWANA RHINO RELOCATION AND REINTRODUCTION PROJECT

Coordinators: Kai Collins & Map Ives

Over 2009, the rhino of the Okavango Delta continued to be monitored daily by Poster Mpho Malongwa and his assistant George Njunja James based out of Mombo Camp on Chief's Island in close collaboration with the Department of Wildlife and National Parks (DWNP), the Anti-Poaching Unit (APU). Three white rhino were born during the year, affirming how well the species is doing in the Okavango.

A major horn implant replacement operation was carried out in 2009. Horn implants are replaced every couple of years due to battery life limitations. The operation was made possible by the combined efforts of Wilderness Safaris staff, the DWNP, APU, the DWNP Air Division, Sefofane Air Charters, Northern Air Maintenance and highly skilled vets. The operation was highly successful thanks to the hard work and dedication of all involved as well as generous funding from guests and from the Wilderness Trust.

In 2003 four black rhino, two males and two females, were released into the Okavango Delta. The animals adapted well to their new surroundings, but as is typical of black rhino being reintroduced into the wild, they did not breed as readily as the white rhino that were introduced previously. There was great joy in September 2009, when a tracking team consisting of Malongwa and three members of the APU carried out a rhino patrol to check up on these animals and found one of the females with her calf, estimated to be about six months old. The name of the new calf is 'Boipuso' – meaning 'Independence', as it was located during Botswana's Independence week.

The current focus of the project has shifted to raising funds to bring in more black rhino in order to form a healthy founder population in the Okavango Delta. With a large enough population of black rhino to make up a minimum viable population, it is hoped that they will begin reproducing and re-expanding their range into parts of Botswana where they have not been seen in many years.

HWANGE WHITE RHINO REINTRODUCTION PROJECT

Coordinator: Marwell Trust Zimbabwe

In 2009, two more white rhino were translocated from Matobo National Park to the Wilderness Concession in Hwange National Park. While funds were originally allocated for the relocation of five animals, for various reasons, including limiting the off-take from Matobo (pending age to gender ratio analysis) only two females were relocated. Pregnancy tests carried out on blood samples taken from these animals confirms that both are pregnant.

Once captured the crated rhino were loaded onto a truck and transported to Hwange. Since the sandy road conditions in Hwange make it imperative to have four-wheel-drive and there is only one suitable vehicle available, these transport costs made up the bulk of the funding from the Trust. During the course of the journey to Hwange the rhino were continually monitored by an attending veterinarian to ensure their comfort and safety. The veterinarian also ensured that the animals were correctly offloaded from the crate and settled in the boma.

Before offloading, the rhino were fitted with radio transmitters, allowing personnel to locate and monitor them rapidly and reliably. Data obtained will also provide information on space use, home ranges and individual associations. The animals were also ear-notched for ease of identification and dehorned to reduce the risk of poaching.

Removal of excess numbers of rhino in Matobo creates more space and resources for the remaining animals and encourages breeding and ongoing population growth. Hwange's population will benefit from the genetic diversity introduced by the Matobo population. The increased opportunity for tourists to encounter rhino in National Parks contributes to tourism revenue for Zimbabwe, and raises awareness about rhino conservation.

LIWONDE BLACK RHINO PROJECT

Coordinator: Wikus Swanepoel

Within the Liwonde National Park is a fenced 4000ha sanctuary area used as a breeding refuge for rare species, including a small population of black rhino. The founder population was introduced in 1993 and at the time was the only such population in Malawi. The intention was to allow this species to establish itself and thrive here, ultimately contributing to establishing other nuclei in the country as time and circumstance allowed and thus contribute to its conservation in Malawi. This has indeed been the case with one other breeding population established relatively recently and the two now managed as Malawi's meta-population. While this has been a fantastic success, the limited capacity of both populations for growth has brought its own challenges. Black rhino social dynamics allow for only one dominant reproductive male within limited space of these intensively protected sanctuaries.

In 2009, the birth of a new calf in the Liwonde Sanctuary resulted in the enforced independence of an existing sub-adult, known as 'Sausage.' Without the protection of his mother, Sausage was targeted by the dominant male and, shortly after separating from his mother, was found in very poor condition, with the typical inguinal wounds associated with this kind of conflict in black rhino. Condition of this young animal was such that without intervention the wounds would have been fatal. As a result the rhino was darted and its wounds treated over an extended period in a purpose-built boma.

Having apparently recovered under the care and observation devoted to him, it was decided by all stakeholders in the project (Malawi's Department of National Parks and Wildlife; Endangered Species of Malawi) to release the bull into the greater Liwonde National Park rather than the Sanctuary from which he had been removed. This decision was taken to prevent any contact with the dominant male who had caused his wounds and also to pursue the next stage in black rhino re-establishment in Malawi's national parks. To this end a radio transmitter, funded by the Trust, was implanted into his horn prior to release to enable park authorities to monitor his movements and ensure his security. Sadly, while the operation was performed successfully and the animal released into Liwonde, the young rhino was located a few days after release, having died as a result of an infection picked up at some point during the boma recovery period.

The incident, the first of its kind in the history of the sanctuary, has resulted in a strategic review of the Liwonde Sanctuary and the Malawi black rhino meta-population management.

HUMAN-ELEPHANT CONFLICT IN THE OKAVANGO DELTA

Researcher: Anna Songhurst

The 2009 crop-raiding season took place from January to June, with 12 community enumerators working on the project in the following areas: Mohembo-East, Kauxwi, Xakao, Tobera, Sekondomboro, Ngarange, Mogotho, Seronga, Gunotsoga, Eretsha, Beetsha and Gudigwa. Many of the 2008 enumerators continued working on the project while new enumerators were selected by village chiefs, then trained by the researchers. Crop-raiding assessments began after the training workshops.

Overall, there were fewer elephant raids in the 2009 crop season, with 208 fields raided compared to 413 fields in 2008. This may have been due to higher rainfall in 2009 keeping elephants near rain-filled pans for longer, rather than coming to the river and hence near the fields. A total of 160 non-raided fields were visited for comparison in 2009. Eight elephants were killed in 2009; one person lost his life to an elephant near Xao.

Ground transects were driven three times a month to collect data on the spatial use of elephants, people and livestock in the study area. Night watches were conducted at main elephant pathways around full moon, when elephants were observed moving to the river in large numbers. 332 interviews were conducted between February and July with farmers from elephant-raided and non-raided fields. The farmers were very cooperative.

A small-scale aerial survey took place in May (with the assistance of Wildlife Flyers Syndicate) to identify elephant daytime refuges during the crop season and assess water availability for elephants away from the river. 3.5 hours were flown across the study area, NG11, and elephants were mainly sighted between 30-40km from the river and road.

In September, two training workshops were held for farmers in the eastern Okavango Panhandle and Chobe Enclave to discuss new methods of community-based conflict management, including the use of chilli pepper as an elephant deterrent. Feedback from the workshops was positive and trainees were enthusiastic to implement methods learnt.

Educational talks were conducted in four primary schools during 2009, with the remaining five primary schools receiving talks in 2010. Two educational talks were also given at schools in the UK in July to help promote awareness of elephants and conflict issues to children in the UK.

LINYANTI ELEPHANT AND BIODIVERSITY PROJECT

Researcher: Gabriella Teren

Elephant impact has caused substantial changes in the woodlands of on the Linyanti region, northern Botswana, over the past few decades. Elephants are found at higher densities here than anywhere else, compressed along the river during the dry season. Visually the woodland is dominated by skeletons of dead trees with a dense shrub undergrowth, but no emergent trees. Aerial photographs, funded in part by the Trust, and fieldwork across 40km of riverfront have documented woodland change over the past 16 years. Fieldwork has been completed, with over 10 000 living and dead trees identified, and 480m² of seedlings sampled.

There are many more dead canopy trees than there are living. The average density of dead acacias is 30 trees/ha, 11 times higher than the average density of living acacias. *Acacia erioloba* (camelthorn) has almost disappeared from the tree layer (with only 8 living individuals found) largely as a result of debarking by elephants. *Acacia nigrescens* (knobthorn) has also declined, but appears more resistant to debarking. These acacias are not being replaced by sapling recruits, although seedlings of most tree species are still present. These seedlings are able to survive and grow where they are protected from elephants such as fenced-off staff areas. There was also increased survival of tree seedlings in the woodland in 2009, as extremely high rainfall and the newly flowing Savute Channel supported elephants into the dry season. This holds out hope that over time trees may 'escape' elephants and a process of natural woodland cycling will take place.

The greatest concern here is the conversion from this woodland to a shrubland dominated by a single species: *Combretum mossambicens* (knobbly bushwillow), which has formed a dense shrub layer, with an average density six times greater than all canopy tree species combined. This shrub invasion appears to be a regional effect, unrelated to elephant impacts, and may be a startling consequence of carbon fertilisation effects of climate change. Whilst elephants do not feed on this shrub, it is favoured by other browsers such as giraffe and kudu, both seen in increasing numbers. Understanding both the spatial and temporal dynamics of this woodland is the key to unlocking the effects of elephants on biodiversity in Africa.

MAKULEKE TRANSBOUNDARY ELEPHANT MOVEMENTS

Researchers: Dr. Michele Henley and Dr. Steve Henley

Over the course of 2009 the Makuleke Transboundary Elephant Movement Project has made dramatic strides. We are confident that a sufficient range of elephant clans have been collared so as to provide some insight into the extent of cross-border movements of this elephant sub-population.

While the identikit study conducted by Pafuri Camp guides continues apace, all 12 elephants permitted by the Kruger National Park (KNP) to form part of this study have now been darted, immobilised and collared. This number comprises the original young elephant bull collared in October 2008, as well as a further 6 adult cows and 5 adult bulls.

All GPS satellite collars are producing excellent movement data that has already resulted in a greater understanding of elephant movements in far northern Kruger and the role played by water resources influencing these on a seasonal basis.

Dry season movements for both cows and bulls were relatively limited in range. This was particularly marked in the cows which remained in close proximity (<5km) to the Luvuvhu River, obviously constrained by the presence of young animals in the herd, with resulting lower range of movement and a far greater dependency on reliable water sources. The bulls in contrast moved greater distances and were not necessarily confined to this area.

Following the first rains in November, the cows moved immediately away from their small dry-season ranges south into the KNP. Bull movements were not nearly as uniform, moving outside the Kruger both upstream and downstream along the Limpopo River into a South African military corridor and Mozambique's Limpopo National Park respectively. Two other bulls moved long distances to the south, 150km and 90km respectively, along the western and eastern boundaries of the KNP. Movements across the Limpopo River into neighbouring Zimbabwe have so far been limited to occasional incursions onto the northern bank by a couple of the bulls and a single cow.

The summer movements will now be monitored with great interest as they will reveal the full extent of the collared animals' annual range.

NAMIBIA ELEPHANT POPULATION DYNAMICS PROJECT

Researcher: Werner Killian & Dr Conrad Brain

Aerial photogrammetry provides a rapid assessment of the age structure of the elephants. The age structure is then used to:

1. *provide an indicator of the potential of the population to increase;*
2. *perform comparisons between populations;*
3. *determine the timing or phenology of births.*

During the past year, aerial photogrammetry of elephant herds was conducted at several localities in Namibia including Etosha, Kaudum, and the Kunene. These areas are characterised by differences in local rainfall, incidence of disease and human impact and can thus be used to adequately describe and compare the response of the elephants' regulating mechanisms to variation in rainfall and disease. Where possible, post-mortem examinations were also carried out on elephant and cause of death noted. Results from these post-mortems together with photogrammetry-determined demographic data are under analysis. Preliminary data analyses show significant differences in recruitment in the respective areas.

The assessment of the age structure of elephants in Etosha was done by means of fixed-wing and helicopter surveys across the entire Park from west to east. This provided a sample size in excess of 600 elephants, which is representative of approximately 25% of the estimated number of elephants in Etosha. A helicopter survey of Kaudum and the Nyae Nyae Conservancy provided a sample size in excess of 1 500 elephants, which represents approximately 50% of the estimated elephant population in this area. A dedicated helicopter survey of elephant numbers and demography of the ephemeral river systems and adjacent areas of the Kunene Region provided a sample size in excess of 200 elephants.

NAMIBIA ELEPHANT AND GIRAFFE PROJECT

Researcher: Dr. Keith Leggett

Since the start of GPS collaring for this project in September 2002 there have been five separate collaring operations in north-west Namibia.

By August 2008 all of the GPS collars fitted between 23rd and 28th October 2007 had failed and no data was available. Only two of the collared elephants were observed continually throughout the rest of the year; the 2009 wet season was one of the highest rainfalls on record, resulting in widespread dispersal of the elephants. It also made observations and field trips difficult between February and May 2009, with many of the ephemeral rivers still flowing during this time.

Behavioural studies continued however, with an observed change in feeding behaviour: from mostly browsing during "normal" years to mostly grazing during the current year. It is too early to tell whether the increase in the abundance of vegetation will have any effect on the elephants' reproductive potential. However, after two good wet seasons back to back (2008 and 2009), it is expected that there should be an increase in reproduction rate.

Recently the seven years of data were analysed for annual variations in home range. Only five elephants out of the 21 that have been collared were analysed in detail. This was due to the fact that either the collars failed before two consecutive years of data could be gathered or insufficient data was gathered over the time-span of the collar. The home range of the elephants was determined by minimum convex polygon (MCP) analysis.

GPS collaring will take place again as soon as additional funding becomes available.

CAPRIVI SPOTTED HYAENA PROJECT

Coordinator: Lise Hanssen

The overall aim of the Caprivi Spotted Hyaena Project is to determine the demography, land use characteristics and limiting factors of spotted hyaena in the Caprivi Region, including protected areas. The project is the first of its kind in the Caprivi Region and the first large carnivore research to be undertaken in the west Caprivi.

The project will produce an overall management plan for spotted hyaena within protected areas and the surrounding human settlement areas of the Caprivi Region. This management strategy will be relevant to policies for the greater Kavango Zambezi (KAZA) Transfrontier Conservation Area (TFCA) of which the Caprivi forms a significant part.

The project focuses on human-wildlife conflicts in the east Caprivi in conservancies falling within the Mudumu North Complex (MNC), a human and livestock settlement area that falls between two national parks, i.e. the newly proclaimed Bwabwata National Park and Mudumu National Park. As large-scale poisoning of problem animals is no longer practised, spotted hyaena have become significant predators of livestock in this area.

A hyaena clan originating from Mudumu is being studied intensively to monitor movements both within the Park and in the livestock farming areas on the park boundary. Data on diet through scat analysis is being collected to determine whether livestock is a significant food source for this clan. Once home range and areas of intense activity have been determined through GSM collar data, any livestock farming and animal husbandry practices falling within the same area will be examined. Suggested changes in livestock management will be monitored for reduction in carnivore-related conflicts.

CENTRAL KALAHARI WILD DOG RESEARCH

Research team: Glyn Maude and Botilo Tshimologo

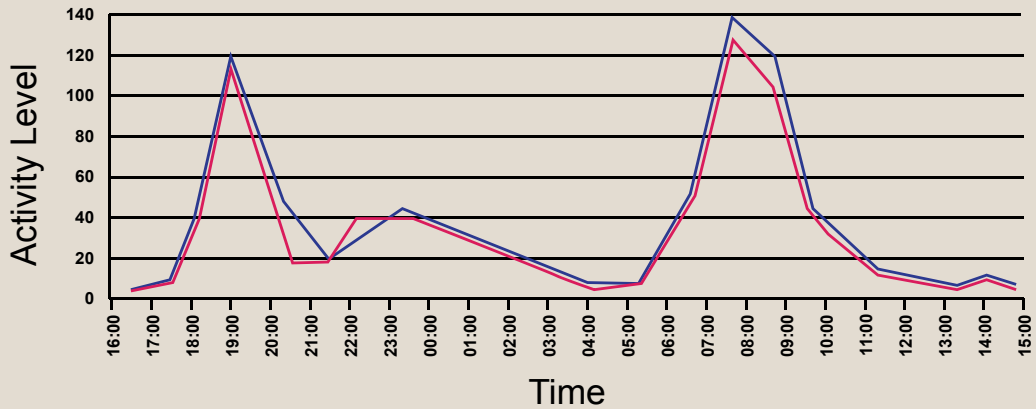
Several key objectives have been achieved by the research on the Central Kalahari Game Reserve (CKGR) wild dogs in the last 12 months. In February 2009 the first wild dog in a pack within the CKGR was located and GPS-collared. She is the alpha female of what was then a pack of ten. In March a VHF collar was placed on a second female in the same pack which was down to nine members. The alpha female had pups on 12 June and denned until the end of August. As of 12 December 2009 the pack consisted of four adults and two seven-month-old pups.

The GPS collar worked as programmed and has taken 4 fixes a day for the last 11 months. The home range calculated is in excess of 3 000km² which is one of the largest recorded for the species. In the dry season, the home range was similar to that of the wet season. Further analysis of movement data will be conducted to determine how their space use varies through time and alongside other variables.

The pack was observed hunting gemsbok, springbok, steenbok, duiker and kudu with hunts often taking place on moonless nights. The lower lion density in the Kalahari area relative to other environments in which wild dogs live, as well as the absence of spotted hyaena, may give the pack more freedom to operate at night. At present the estimate is approximately one lion per 100km² .

Data collated up until now indicates that there are an estimated 16 wild dog packs in the CKGR and Khutse Game Reserve with a population of approximately 155 wild dogs.

In order to achieve the research objectives further work is planned, including spending more time with the existing study pack and locating and collaring individuals from other neighbouring packs.



CKGR Wild dog activity levels, note the activity between 22:00 and 02:00

CHEETAH NICHE SEGREGATION IN THE OKAVANGO DELTA

Researcher: Femke Broekhuis



Although sympatric carnivores have coexisted for thousands of years, cheetah are often negatively influenced both by lion (*Panthera leo*) and spotted hyaena (*Crocuta crocuta*), for example in the stealing of kills and direct mortality. In addition, as a result of human-induced habitat loss, species are being forced into smaller areas, increasing the frequency of competitive interactions. With less than 7 000 individuals left in the wild, the cheetah is scrambling for survival. Understanding the factors that influence cheetah population dynamics is crucial; this project investigates the ecological and behavioural mechanisms that allow cheetah to coexist with lion and spotted hyaena.

Research began in October 2008 and is being carried out in the Okavango Delta. To investigate coexistence, on both a spatial and temporal level, of cheetah, lion and spotted hyaena, all three species (in an overlapping space) were fitted with GPS radio collars which automatically collect location data. There are now GPS collars on six lion prides, six spotted hyaena clans and four cheetah individuals, two of which were funded by the Wilderness Trust.

Now that all the necessary collars have been fitted, next year's focus is to collect field data on all three carnivore species. Density estimates of all three species will be carried out using camera traps for cheetah and calling stations for lion and spotted hyaena. In addition, herbivore and vegetation visibility surveys will be carried out. All field data will be combined with the GPS data.

With this research, cheetah conservation is being driven towards a multi-species, rather than the conventional single-species, approach. Understanding the mechanisms by which cheetah can coexist with other large carnivores in a natural system is important for developing conservation strategies in areas where these species are more actively managed.

EASTERN ZAMBIA WILD DOG CONSERVATION PROJECT

Researcher: Dr. Matthew Becker

The African Wild Dog Conservation Trust continued work on describing and maintaining Eastern Zambia's populations of African wild dog in 2009 throughout the extensive network of national parks and Game Management Areas (GMAs) in the region. This season was also marked by an expansion into intensive study of lion and spotted hyaena, the two main competitors with wild dog in most ecosystems.

Connectivity and exchange between wild dog populations in North Luangwa, South Luangwa, and Luambe National Parks and adjoining GMAs was demonstrated by documenting movements of wild dog dispersal groups successfully immigrating and forming breeding packs, further indicating that the region was operating as a functional meta-population (population of populations).

Extensive disease research was also undertaken on wild dog, lion, hyaena, and domestic dog in the Luangwa Valley in order to evaluate disease exposure and transmission risks; a domestic dog vaccination programme was initiated in the South Luangwa area. Snaring continued to pose the greatest human threat to wild dog packs and a four-person anti-snaring team targeting areas of high risk was again coordinated through the South Luangwa Conservation Society. The team conducted patrols throughout the year, finding and confiscating over 500 snares in and around South Luangwa National Park.

The known minimum population of wild dogs for the region has increased to 148 dogs in at least 20 packs and 9 dispersal groups, over a third of the most recent countrywide estimate and of increasing importance given its potential connectivity to Southern and Eastern African populations bordering this region.

Capacity-building and educational efforts continued with the employment and secondment of Zambian students and professionals on the Ecology Staff, the expansion of teachers' resource packs on wild dogs throughout the country, and the establishment of an internship programme with the University of Zambia.

EDUCATION FOR PREDATOR CONSERVATION

Coordinator: Rebecca Klein

The cheetah is Africa's most endangered large cat with an estimated 12% of the remaining world population found in Botswana, making it one of the last strongholds of the species. Botswana's activities with regard to cheetah conservation are therefore essential to the maintenance of the Southern African population.

Cheetah Conservation Botswana (CCB) runs an Education Programme that aims to raise awareness for the importance of predators in healthy ecosystems, encourage good environmental stewardship and promote alternatives to existing in conflict with predator species. Aimed at schoolchildren and teachers throughout Botswana, it includes the following activities:

Teacher training workshops: Teachers are invited to a two-day residential workshop at a facility in the region i.e. Khama Rhino Sanctuary, Mokolodi Nature Reserve, Jwana Game Park. Here they are trained in using predator conservation as a learning tool in education. All teachers are provided with Teachers' Resource Activity Guides and predator education resources.

School visits: Schools are visited by CCB educators who give presentations, talks, games and activities suited to different age groups and in line with Botswana education curriculum. Schools are provided with predator education resources including books, posters, DVDs and teachers' resource books.

Visits to CCB sites: Local schools visit CCB's project bases in Ghanzi, and Jwana Game Park. Schools visiting Mokolodi Nature Reserve also receive talks and materials.

Resource distribution: Predator education books, posters, Spirit of the Kalahari DVDs and teachers' resource books are provided to all schools and teachers attending workshops. CCB also worked with the Ministry of Education to ensure the resources were relevant to the Botswana school curriculum.

GLTCA WILD DOG PROJECT

Researcher: Dr. Rosemary Groom

This project investigates the abundance, distribution, conservation status, and trans-border movements of endangered African wild dogs in Gonarezhou National Park, Zimbabwe.

In 2009, the Lowveld Wild Dog Project (LWDP) in Zimbabwe expanded to Gonarezhou National Park, which holds a key position within the Greater Limpopo Transfrontier Conservation Area (GLTFCA), spanning South Africa, Zimbabwe and Mozambique. Little is known about carnivore populations in the park, so LWDP is investigating the status of the highly endangered African wild dogs, with the aim of determining whether or not viable populations exist there, and the extent to which they cross international borders.

A comprehensive, park-wide spoor survey was taken of all large carnivore species (lion, leopard, cheetah, hyaena and wild dog) to gain a preliminary idea of abundance and distribution. This produced some interesting results: Hyaena and leopard are doing very well, whilst the lion population seems to be very low, considerably lower than in the early 1990s. Future work will focus on investigating the causes of decline.

The spoor survey, together with collation of sightings reports and time spent in the field, established a minimum population estimate for wild dog in Gonarezhou. Two large packs are resident within the park, with at least one smaller pack suspected. Minimum number of adults last year was estimated at 23 individuals in three packs as of September 2009.

There has been no evidence of movements of the pack in the south between Gonarezhou and Kruger National Park. Genetic samples are being collected from all immobilised wild dogs however, and future genetic tests should show whether the populations are connected.

Unfortunately no den sites were found and no collars fitted during 2009, but with the knowledge gained, there is a good chance of doing so next year. Once collars are fitted, we will be able to investigate movement patterns, pup survival rates, causes of adult mortality and conflict with hyaena and/or humans outside the park.

HWANGE LEOPARD POPULATION DYNAMICS

Researchers: Dr. Andrew Loveridge, Byron du Preez, and Dr. Gianetta Purchase

Despite their wide geographic range, the ecology and conservation status of leopards is not well understood compared with the other big cats, possibly because research into this secretive species is extremely challenging. Nevertheless, leopard populations are thought to be declining (IUCN has upgraded the threat status of the African leopard from 'Least Concern' to 'Near Threatened') and face a suite of threats ranging from habitat loss, to loss of prey species, persecution and, in some areas, trophy hunting.

This project is a collaboration between the Zambezi Society and the Wildlife Conservation Research Unit at the University of Oxford. The Trust provided the project with ten camera traps in April 2009 for trial to test their suitability for field surveys in determining population size using a mark-recapture approach. Field trials suggested that the cameras have a trigger speed too slow to ensure that photos of animals passing the trap would be taken (in the absence of bait). This might bias any population estimate derived from the study, so the project intends using a different make of camera trap with a faster trigger speed.

In addition to camera trapping the project will be radio-collaring leopards in Hwange and surrounding hunting areas to study the population dynamics of the species in these two land-use areas. A particular area of interest is whether leopard populations are adversely impacted by competition with lions. In addition the project's fieldwork is set to expand in 2010 to population surveys in many of the protected areas and key leopard areas of the country.

OKAVANGO WILD DOG RESEARCH PROJECT

Researchers: Botilo Thato Tshimologo & Kai Collins

This study aims to compare wild dog packs in two locations within Okavango Delta Ramsar site to wild dog packs in the Central Kalahari Game Reserve (CKGR) using data from three GPS collars and behavioural observations. Due to recent advances in technology, collars have become lighter than ever before (important for such a highly mobile species) as well as being able to store GPS fixes onboard that can be downloaded remotely later on, or from the air.

The same data collection methodology and time period of data collection will be used across study sites in order to gain a better understanding of how wild dogs have adapted to survive in such different habitat types. Information gained from the comparison of the species in the two habitat types as well as movement of the species across fence lines and into communal rangeland areas can be used in proactive conservation of this endangered species.

One of the significant threats for wild dog packs is the potential spread of diseases such as canine distemper and rabies, often contracted by coming into contact with domestic dogs that are carrying the diseases. One of the primary focuses of this project is to determine wild dog pack movements in relation to the closest villages and human settlements and then to create a concentrated canine disease vaccination programme for domestic dogs in these villages, in an attempt to minimise the risk of these diseases spreading into free-ranging wild dog populations.

This study forms part of an MSc research project being carried out by student Botilo Thato Tshimologo, through the University of Botswana, Harry Oppenheimer Okavango Research Centre. This project is closely linked to the Central Kalahari Wild Dog Research Project; both projects are being used as a comparative study.

PREDATOR-FARMER CONFLICT RESOLUTION MANUAL

Project Manager: Dr Bool Smuts

The Trust helped to fund the publication of a predator management manual in English and Afrikaans, which is aimed at some 10 000 of the 20 000 livestock farmers in South Africa, promoting new methods of ethical farming and thus helping reduce the conflicts between economic practices and predators. The manual is being published through the Landmark Foundation. Predators are indicators of ecosystem health and as such their conservation, together with associated wildlife species, is the objective of the Foundation's programme.

Promoted in the manual are both new and adapted methods of dealing with predators that are being used in various areas across the world. These proven methods are leading the industry in promoting ecological and ethical rangeland livestock husbandry. The methods are thus innovative in scope, and generally regarded as best practice the world over.

The content of the manual is divided into four sections:

1. Explanation of the non-lethal, ethical and ecologically acceptable approach.
2. Predator species descriptions, ecology, and social behaviour.
3. Assessment of predatory losses.
4. Alternative methods being promoted.

These methods not only provide for ethical farming, but also aim to produce benefits for biodiversity on farms. The array of acceptable production methods, their application, and details of further assistance will be made available in the publication.

SHADOW HUNTER PROJECT

Researcher: Sara Tromp

In 2009, the project expanded from the study of one species – the black mongoose – to that of genetic exchange between populations of other fauna endemic to the same habitat as the black mongoose. With regards to the black mongoose, it was found that populations are well linked despite high levels of habitat fragmentation across the landscape. This linkage means mongooses have to travel vast distances between rocky outcrops; thus the same question is being asked on an ecosystem level.

As well as being globally relevant with regard to the long-term effects of habitat fragmentation, this study should reveal more about the relative strength of any barriers that small mammals and reptiles encounter with regard to dispersal between inselbergs.

Therefore between January and July two species of rock mouse (one endemic to Namibia's granite inselbergs and one a habitat generalist) and two species of agama (again, one a habitat specialist and the other a habitat generalist) were trapped at the six study sites. These species were chosen because they were easily trappable – thus guaranteeing reasonable sample sizes – and because all together they allow for two very powerful comparisons:

1. Comparing the phylogeography (genetic movement across the landscape) of three habitat specialists endemic to the granite outcrops of north-west Namibia, each of which has a very different biology, behaviour and dispersal capability to the others; and
2. Comparing the phylogeography of habitat specialists vs. habitat generalists.

Further trapping for mongooses continued so as to boost the sample size of this species. Over 270 genetic samples were obtained by the close of the trapping season. In addition, two collared mongooses in Hobatere were sighted within a few days of tracking, in excellent condition and well within their home ranges.

In July analysis of all genetic samples collected in the field commenced. This work is ongoing with numerous challenges related to the genetic analysis of species that have never before been studied in this way.

ECOLOGY OF BUFFALO IN THE OKAVANGO DELTA

Researcher: Emily Bennitt

Research into the ecology of the African buffalo (*Syncerus caffer*) in the Okavango Delta made good progress in the last year. Satellite-enabled GPS collars fitted to buffalo cows yielded valuable information, including seasonal patterns of habitat use, daily activity and herd dynamics. To date, the collars have collected a full year's worth of data from six individual cows, with a further six currently collared and two more collars ready to go out.

A change in flooding patterns this year compared to last has shown that buffalo react to water levels. Higher floods caused herds to stay mostly on islands, barely using the floodplains until the water started to drop in the last quarter of 2009. The unusual rainfall this year (with only two completely dry months the whole year) also impacted on buffalo movements. Instead of staying in the floodplains until November December, they grazed more in grasslands close to channels in order to benefit from fresh green annual grasses as well as permanent water.

Two collared cows performed several migrations in response to early rains followed by dry spells, which caused the buffalo to move back and forth between their wet and dry season home ranges, possibly because the dry spells caused the pans to dry up, so that buffalo had to walk back to the floodplains to find water.

A clear difference in seasonal patterns of habitat use is emerging. During the wet season (December – March), buffalo are found in habitats dominated by mopane woodland and grassland, whereas they utilise floodplain-dominated areas during the flooding seasons. Secondary floodplain (which is flooded most of the time) is only used at the beginning and end of the flooding seasons, when it is driest, and avoided at other times. The peak in physical fitness of buffalo in the Delta comes during the early flooding season (April – July), i.e. after herds have spent several months in their wet season home ranges consuming high-quality annual grasses. Birthing occurs throughout the year, but the peak seems to be in January – March, again during the period when highly nutritional grasses are abundant. Generally, cows with calves are in worse physical condition than cows without calves, but at no time does the average body condition fall below the 'fair' category.

GIRAFFE SOCIAL ORGANISATION STUDY – ETOSHA

Researchers: John and Kerryn Carter

The project studies the social organisation of a fission-fusion species, the giraffe (*Giraffa camelopardalis*), in Etosha National Park, Namibia.

In the seven months since the project began (May 2009) in Etosha National Park, 115 adult females with their offspring and 30 sub-adult females have been identified and catalogued. Interestingly, 61 of these adult females were known to be present in the study area in 2004/2005, suggesting a stable ranging pattern and site fidelity for these individuals. However, approximately half the adult females that have now been seen in the study area were not present four years ago, which may indicate immigration of female giraffe from other areas.

Data is gradually building regarding the strength of associations between individual females, and it is clear that there are stronger bonds between some pairs of giraffe than others. For example, female giraffe with young foals have been recorded associating in pairs over a number of days, and this may be because they have similar nutritional or anti-predator needs as a result of having young foals. There is also some evidence that older adults hold leadership roles and make decisions about movement of the group between feeding patches, suggesting that younger giraffe follow those with more experience.

The aims for the next year are to complete data collection through all seasons to study giraffe interactions with each other and whether this changes by season, to analyse their social network, and to understand what is important in female giraffe societies. Following this, it is hoped that DNA analysis of relatedness between females will increase understanding of the bonds formed, if any, between related females.

HARTMANN'S MOUNTAIN ZEBRA CONSERVATION PROJECT

Researchers: Jeff Muntifering & Dr. Tara Harris

Little is known about Hartmann's mountain zebra, which primarily inhabit the dry and mountainous regions of Namibia. Working closely with Namibian partners, the project aims to identify important conservation management areas and measures for this threatened subspecies, using data collected on their behaviour, ecology, distribution, and movement patterns.

The pilot project focuses on the Kunene Region of north-western Namibia, where several thousand mountain zebra are thought to exist. Based on insights from local experts, 630km of established track in two national parks, three concession areas, and two community conservancies was covered collecting data on zebra locations and group compositions. The locations of over 1200 mountain zebra were mapped and different methods for estimating relative population densities were tested. Preliminary results suggest that two of the ecotourism concessions (Hobatere and Etendeka) and western Etosha National Park had relatively high densities of the species in the 2009 dry season. Survey results also identified specific areas across the study region in which to focus future studies.

175 mountain zebra dung samples were collected from the seven study areas and the DNA from these samples will be used for genetic analyses. This will help understand whether mountain zebra in the Kunene Region belong to one large breeding population or whether they move around and breed within more localised areas. Genetic analyses on dung samples collected at permanent water springs will be analysed to better understand zebras' use of these critical resources and to test whether dung counts at springs are useful for estimating local zebra population sizes.

The next phase will involve placing GPS and radio telemetry collars on zebra in different areas of the Kunene Region to track their seasonal movements and better understand the ecological and human-induced factors that drive their habitat selection. Observational data will also be collected to document seasonal and yearly changes in mountain zebra distributions and densities across the study area.

MAKGADIKGADI ZEBRA MIGRATION PROJECT

Researcher: James Bradley

2009 had rain falling in every month except July and August which has meant that the quantity of grazing and water resources was much higher than in a normal year; this has consequently had a significant effect on the movement patterns of large numbers of animals.

During April 2009, ten GPS collars were placed onto zebra within the Makgadikgadi in order to record their movement patterns throughout the year and to assess how they were using available grazing and water resources. These collars have worked well, providing over 18 000 GPS fixes for each collared zebra. During early December all collars were removed in order for them to be refurbished with a new battery pack and then redeployed on different zebra mares in March 2010.

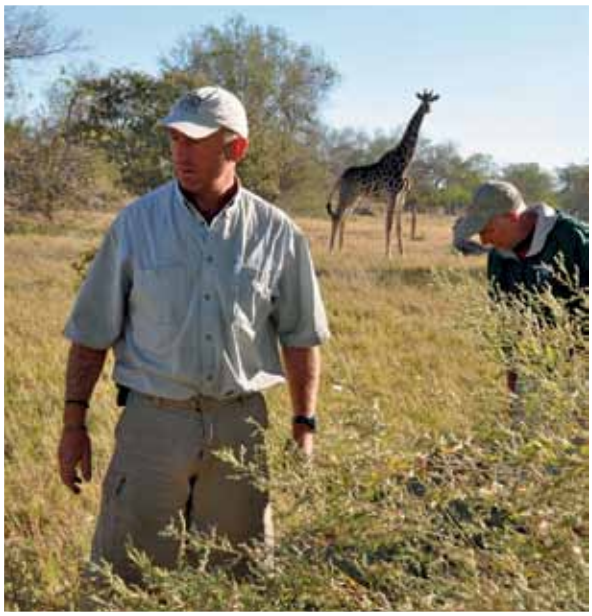
The zebra of the Makgadikgadi made the most of the rainfall in 2009 by spending most of the year grazing in the open grasslands of the eastern Makgadikgadi near the saltpans. During an average rainfall year zebra within the Makgadikgadi would spend up to eight months of the year in the western Makgadikgadi, relying on the water available to them along the Boteti River. However during 2009 the collared zebra spent an average total of 33 days within the Boteti region. By being able to graze for most of the year on the open grasslands, the population is currently having a bumper period: adult zebra have remained strong and healthy while juvenile zebra have had the best possible chance of reaching adulthood.

The collared zebra were followed throughout the year to conduct behavioural observations, population and body condition counts as well as to collect data on the grass which they grazed. In this way, evaluations could be done on how the zebra were able to make the most of the resources available to them and how this might be influenced by the Makgadikgadi fence.

NORTHERN BOTSWANA GIRAFFE POPULATION STUDY

Researcher: Dr. Julian Fennessy

Following on from collaborative research undertaken by the Giraffe Conservation Foundation and Omaha Zoo, this project seeks to clarify the taxonomic classification of Botswana's giraffe which is currently unknown – listed as either *Giraffa camelopardalis giraffa* (Cape or Southern giraffe) or *G.c. angolensis* (Angolan giraffe) depending on which taxonomic reference one uses. On a broader level, all giraffe taxonomic classifications are outdated and limiting, thus this research, using the giraffe's DNA, aims to unravel the mystery of giraffe speciation across Africa.



Giraffe occur naturally throughout northern and central regions of Botswana; however those in the south were reintroduced from founding populations in both Namibia and South Africa. Although numbers of Botswana's giraffe are assumed to be stable – approximately 11 000 individuals reported in 1998 and similar in 2004– recent information indicates their numbers may be dropping.

Botswana's giraffe population is the 'giraffe in the southern African sandwich' with regard to understanding southern African giraffe systematics and population genetics. This understanding was boosted by the preliminary assessment on the Thornicroft's giraffe of Zambia in 2009 (supported project by Wilderness Trust). The cumulative recent genetic research undertaken highlights that many of the historically classified (sub) species of giraffe are genetically distinct at a species level which is very exciting for science, and more importantly invaluable for the various populations' conservation and management.

The project, the first ecological research project on giraffe in Botswana, is collecting DNA from key populations in Moremi, Chobe and Central Kalahari areas. Importantly, the outcomes of this project will hopefully better understand giraffe numbers, status and therefore, conservation management outcomes. Wilderness Safaris Wildlife Trust funding supported field costs for the project including travel, accommodation, food and equipment.

OKAVANGO SABLE RESEARCH PROJECT

Researcher: Michael Hensman

The main objectives of the study are to determine home range extent and utilisation distributions of sable antelope, to determine regional landscape units available but not occupied by sable, to identify the use of habitats within the home ranges and to determine how the nutritional status of sable changes seasonally. This project is part of the greater Botswana Wildlife Research Project taking place in the Okavango Delta.

In 2009, three female sable antelope from three herds consisting of 12, 19 and 12 individuals respectively were fitted with GPS collars. Over 12 000 hourly GPS positions for the females and their respective herds have been recorded since the collars were fitted. Apart from revealing areas of high utilisation, the GPS telemetry has interestingly revealed the areas that sable avoid, so far showing an avoidance of dry floodplain grasslands where wildebeest, zebra and tsessebe concentrate. Whether this is due to direct competition from the above-mentioned species or due to predators that follow these species is still to be established.

However, predation is clearly a threat as herd sizes reflect a gradient in the presence of lion. Sable also avoided the teak woodlands that had very little grass during the late dry season. The rains in late November and early December resulted in a flush of new grass within the teak woodlands and as a result, sable began using it extensively. The characteristics of this and other habitat types will continue to be measured for the duration of the study to determine how they change seasonally and if the changes influence use by these antelope.

Although literature already recognises that sable antelope browse to some extent during the dry season, very little has been documented about which species are browsed and what proportion of the diet consists of browse. An opportunity for detailed feeding observations has been made possible at Vumbura because the sable are very habituated to vehicles and allow an approach of within a few metres. During the dry season, all three herds spent a large portion of their time browsing the leaves and stems of *Combretum mossambicense*, leaves and flowers of *Lonchocarpus nelsii*; and *Kigelia africana* flowers. Over 50 faecal samples will help to analyse the nutritional status of the sable during different seasons as well as the quality of the graze and browse being utilised.

BOTSWANA BATELEUR EAGLE PROJECT

Researchers: Pete Hancock & Glynis Humphrey

Bateleur eagles are medium-sized raptors that are presently listed as globally threatened and are classified as a Bird of Conservation Concern due to a rapid decline in large parts of their range. The presence and absence of Bateleurs inside and outside protected areas of southern Africa have thus raised some pertinent questions: what are Bateleur numbers inside and outside of protected areas and where are juvenile Bateleurs dispersing to from protected wildlife areas? Although Bateleur eagles are regularly encountered in wildlife areas, there is scant information regarding their population numbers.

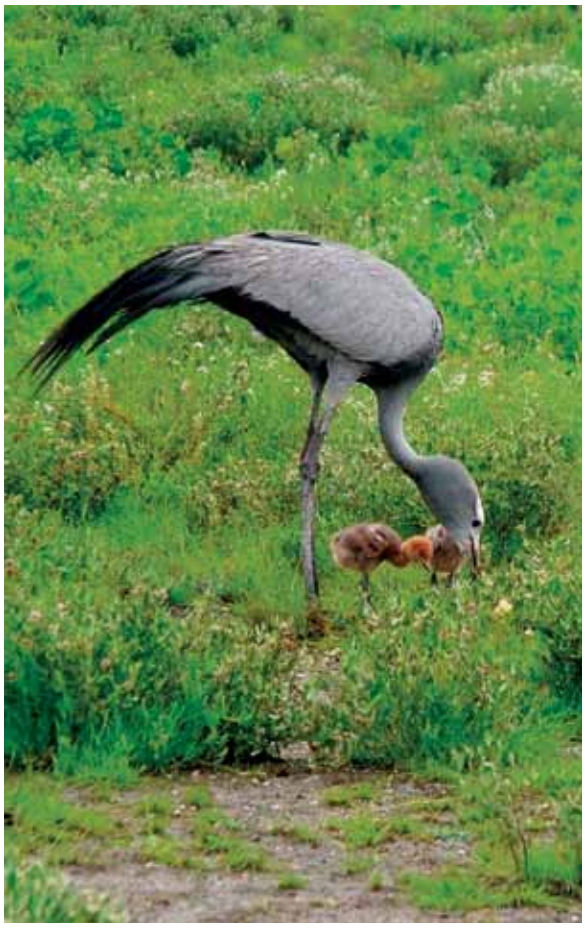
This project aims to determine the spatial and temporal distribution of Bateleur populations in Botswana in order to determine possible anthropogenic or natural factors impacting on their numbers.

Information being collected includes sex and age class structure as well as mapping of the distribution of the species, which may indicate important breeding sites, habitat requirements and any seasonal or local movements. Another important aspect of the project is to locate Bateleur nesting sites, of which there are very few known locations in Botswana. Due to the large study area of the Okavango Delta and northern Botswana, data collection is being conducted via aerial surveys from two gyrocopters flying at 70km/h at an average height of 25m above the tree canopy in the morning and the afternoon.

This information will be used to inform the Ministry of Environment, Wildlife and Tourism, Botswana's Department of Wildlife and National Parks and BirdLife Botswana of Bateleur numbers as well as update their status and the trends of adults and juveniles in Botswana.

NAMIBIA CRANE AND WETLAND BIRD CONSERVATION PROJECT

Researchers: Mike Scott & Ann Scott



Three and a half years after this research project was initiated on Namibia's isolated population of Blue Cranes, we still do not have all the answers about the seasonal movements of these charismatic yet elusive birds. The good rains during summer 2006 and flood conditions at Etosha Pan in 2008 and 2009 further complicated efforts at arriving at any conclusions.

One of the main findings to date is that since a count of 67 in April 2006, total numbers have not reached more than 35 birds. This could be related to good rains at Etosha and/or within the Cuvelai catchment in 2006, 2008 and 2009. A combined aerial/ground survey in March 2009 yielded only 12 adults and seven chicks, and no Blue Cranes at the flooded Lake Oponono. We believe that there may be a "floating" population of non-breeding birds that may have found suitable habitat elsewhere – hopefully in a crane-friendly area. From June/July to October 2009 however as conditions became drier, a group of 35 Blue Cranes was consistently recorded at Andoni, in the north-east of the Park; this now appears to be the total population in Namibia.

Despite these relatively low numbers, breeding has been successful with one chick in 2007 and seven chicks each in 2006, 2008 and 2009; chick production and survival appear to be directly related to rainfall. Since April 2006, 14 of the 22 chicks recorded have been marked with uniquely coded rings. Our intrepid ringing team has braved many odds, included having to pursue a crane group for considerable distances on foot through cold water and slippery, ankle-deep mud on Etosha Pan, with 15 lions lurking just around the corner (When predators threaten, the adult cranes take the chicks straight out into the water as an escape route)! Based on resighting data, chick survival is presently estimated at a relatively high 43%. The first crane ringed as a chick (in April 2006) took up a breeding site in March 2009 although no offspring were produced.

In 2009 two birds – one juvenile and a young adult – were captured and fitted with radio telemetry. Ongoing signals received from the juvenile have enabled our team to keep close contact with the group of cranes at Andoni, and to arrive at the present population estimate.

The Blue Crane is rated as globally Vulnerable, and Critically Endangered in Namibia. The isolation of the small subpopulation and its survival in an arid, predator-rich environment within Etosha and the Lake Oponono wetlands to the north pose a conservation enigma. In 1992, the Namibian population of Blue Cranes was estimated at 80 with an apparent decline to 60 in 1994. The Namibia Blue Crane Project was initiated in March 2006, the findings of which are to be used as a basis for compiling a species management plan for Blue Cranes in Namibia.

OKAVANGO NEST BOX PROJECT

Researcher: Dr. Steve Boyes

Africa has the highest deforestation rate in the world and as a result its indigenous forests and woodlands are under grave threat, with most countries deforested at rates of over 10% per year. Cavity-nesting species are under threat of habitat loss. Artificial nest boxes might support breeding in highly-disturbed forests and woodlands or during the early phases of forest restoration when no large trees with dead wood dominate. The project thus set out to determine whether artificial nest boxes could be used as a conservation tool and if so, what nest box design and location specifications best suit the cavity-nesting bird, mammal and reptile species.

In early 2007, 105 nest boxes were erected along four forest habitat transects on Vundumtiki Island in the Kwedi Concession. A comprehensive database of natural and excavated nest cavities in the study area was compiled to improve understanding of how resident cavity-nesters interact and compete for nesting opportunities. In December 2009, the results of the 24-month survey of the artificial nest boxes were compiled.

The project proved to be a success with an occupancy rate of over 75% of the nest boxes. Over 50% of all nest boxes were however occupied by tree squirrel, lesser bushbaby, and woodland dormouse, with several of these nests made over nesting material laid down by cavity-nesting birds. Both tree squirrel and woodland dormouse had young, while lesser bushbabies were found alone or in pairs, and utilised 3-4 nest boxes within a defined territory. On the other hand, nest boxes in riverine forest patches and acacia-combretum marginal woodlands were dominated by cavity-nesting bird species. African Grey Hornbills, Woodland Kingfishers, and Green Woodhoopoes were actively nesting during the survey, while several nest boxes had signs of historical occupation by Meyer's Parrots and other secondary cavity-nesting bird species. The findings demonstrate that given certain modifications to nest box design and location specifications, occupancy could be increased.

BIODIVERSITY AND CONSERVATION OF AMPHIBIANS IN THE OKAVANGO DELTA

Researcher: Marleen le Roux

The global decline in amphibians is one of the most worrying current conservation issues. Recent drastic population reductions and species extinctions, with the chytrid fungus *Batrachochytrium dendrobatidis* (*Bd*) as a possible factor, have resulted in amphibians being globally labelled the most threatened vertebrate class.

The Okavango is a well documented system, yet its amphibians are poorly known. This project aims to establish the species diversity relative to degree of isolation; determine the effect of hydrology on breeding behaviour; and determine the status and prevalence of chytrid fungus in amphibians in the region.

Study areas were established in the Xigera, Kwedi and Mombo Concessions, each representing varying degrees of isolation i.e. dependent on distances and level of connectivity between islands and surrounding mainland. To date, 15 amphibian species and 33 voucher specimens have been recorded. Based on relative isolation and habitat diversity for each area, it is predicted that amphibian diversity will increase from Xigera to Mombo to Kwedi.

Results for this portion of the study provided novel insights into amphibian breeding in the Delta. It was always assumed that moisture limitations and temperature requirements resulted in amphibians in southern Africa breeding in the summer rainfall months. It was therefore significant to observe breeding indicators for some amphibian species (namely *Ptychadena, Amietophrynus* and possibly *Xenopus*) during a field trip in the winter, non-rainy (but peak flood) season. This phenomenon was only realised as the project progressed; monitoring will continue in 2010.

All results from chytrid swabs analysed to date (34.8% of total samples) have proved negative for *Bd*. These preliminary results suggest that *Bd* may not be present in the system (dependent on future results), which is surprising, since Africa is believed to be the origin of amphibian chytrid fungus. The absence of amphibian chytrid fungus (as well as the alternative of its presence) will have major conservation implications for the Okavango Delta.

SELF-MEDICATIVE BEHAVIOUR IN CHACMA BABOONS

Researcher: Paula Pebsworth

This study aims to determine the home and daily ranges, and the feeding ecology of a troop of chacma baboons *(Papio ursinus)* found on Wildcliff Nature Reserve in the Western Cape of South Africa. Emphasis is placed on self-medication in order to gain insight into how and what baboons need to maintain their health.

There is mounting evidence to suggest that primates obtain medicinal benefits from plant ingestion and this belief is gaining acceptance among primatologists. It has been hypothesised that secondary compounds present in plants and other non-nutritive sources have properties that help animals fight pathogens and parasites, improve the reproductive fitness of an individual, and lessen the many diseases caused by parasites.

The resident troop of chacma baboons at Wildcliff engage in geophagy – the practice of eating earth or soil-like substances, to obtain essential nutrients. Geophagy, one of the oldest known forms of self-medicative behaviour, has been observed in 20% of all primate species, but to date is undocumented in baboons. It is apparent that geophagy is an important aspect of this troop's repertoire, based on preliminary findings.

The troop is being followed from November 2009 to August 2010, and one adult female has been radio collared to allow home and daily range analysis. Foraging behaviour is being documented and faecal samples collected.

These observations, documenting the relationship between health, plant and clay use by free-ranging baboons, are expected to provide valuable insight in areas such as conservation, wildlife management, captive care and the field of primatology in general.

BOTSWANA WILDLIFE RESEARCH – INCREASING CAPACITY

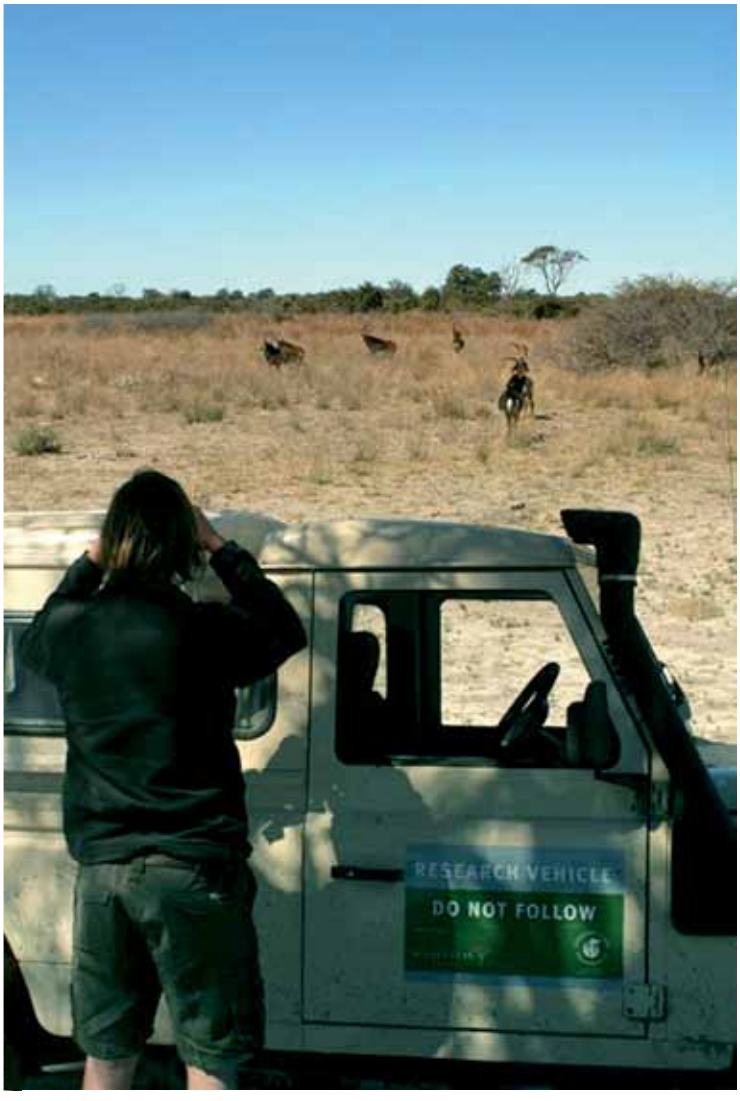
Coordinator: Kai Collins

In 2008, the Trust secured funding to develop three research camps in key areas of northern Botswana. In this way, research capacity within private concession areas in northern Botswana has been increased by hosting and funding researchers and research which addresses questions of national and international importance in the fields of ecology and endangered species protection.

In 2009, the research units in Mombo, Kings Pool and Vumbura Plains camps were set up and the last of the three research vehicles obtained and kitted out for rugged fieldwork and driving in extremely harsh conditions.

A number of research projects are currently benefiting from the research units and facilities associated with them. One of the major benefits is the logistical support provided by the Wilderness Safaris camps including food, access to vehicle workshop and mechanics, and logistical support, allowing researchers to operate in such remote areas.

Currently the new research tents and research vehicles are being very well utilised. During the course of 2009 these facilities have hosted researchers focusing on sable antelope ecology, wild dog range and energetics, amphibian diversity, bateleur eagle density, arachnid diversity, bat diversity and disease, and the interaction between elephants and vegetation dynamics including the possible role of climate change.



KUNENE REGIONAL CONSERVATION STRATEGY

Researcher: Chris Lockhart

With the proposal for a new national park in Namibia's Kunene Region, the chief challenge is that current land management strategies and activities in the Kunene are nonexistent, ad hoc or rudimentary in nature and are not informed by conservation science. In addition, state lands that will eventually form the proposed park comprise a large area, but do not effectively connect the Skeleton Coast with Etosha – one of the park's primary purposes. Surrounding communal conservancy private lands – which make up the vast majority of the area – must also support the protective area system if the park is to be ecologically viable and serve as a functionally effective corridor.

In order to address these issues, the Kunene Regional Conservation Strategy was initiated by Round River Conservation Studies in 2007. It is a long-term multi-faceted programme with particular emphasis on supporting the development and implementation of synchronised, scientifically informed land management plans for the proposed protected area system in the Kunene.

In 2009, Round River successfully developed summary land management plans for five communal conservancies, including Torra, Purros, //Huab, Twyfelfontein-Uibasen, and Doro !Nawas. The plans for these conservancies were community-based and endorsed, and informed by current regional ecological analysis. Drawing on these documents as a basis for further work and refinement, the Ministry of Environment and Tourism (through the Integrated Community Based Ecosystem Management Project) has proposed developing similar plans for all communal conservancies in Namibia.

In 2010, Round River will continue to support the Ministry of Environment and Tourism with this work.

The Kunene area represents one of the last true wildernesses remaining in southern Africa. The stated purposes of the proposed park are to conserve this vast wilderness and its wildlife, while also serving to link the Skeleton Coast and Etosha National Park, thereby facilitating wildlife migrations and creating one of the largest conservation area complexes in the world.

WILDLIFE MIGRATION CORRIDOR STUDY - NORTHERN BOTSWANA

Researcher: Hattie Bartlam

The recently discovered Okavango-Makgadikgadi zebra migration, the second longest zebra migration in Africa, has presented an opportunity to study the reasons behind migration in general and the specifics of this migration in particular. The first of the three-year study got underway in 2009.

It has been a confusing year for the zebra! The zebra left their dry season home range in the Okavango Delta at the onset of the rainy season in November 2008. All those hypothesised as migratory did indeed migrate and all survived the 280km trek to the Makgadikgadi grasslands. In May, as the last waterholes dried up in the Makgadikgadi, all the zebra returned to the Delta, taking approximately 14 days to make the journey. However, unlike in previous years when they remained in the Delta until the end of the year, unseasonal storms in June saw them return the Makgadikgadi. Apart from another short trip back to the Delta they have spent the vast majority of the year in the Makgadikgadi grasslands, utilising the high-quality resources and benefiting from relatively low predator densities.

Overall, the zebra undertook five migratory movements this year, covering an impressive 1400km in long distance movements. The collars collected excellent data on their daily movement patterns, allowing researchers to begin quantifying the energetic benefits gained by migrating rather than remaining in the apparently productive Delta year round.

The zebras' absence from the Delta has, however, caused a few problems by disrupting planned collaring sessions; Okavango-Makgadikgadi migrating zebra that are not collared can only be distinguished from Makgadikgadi resident animals when they return to their Okavango dry season home range. The remaining reconditioned collars, along with additional new GPS collars, will be deployed next year as soon as the animals return to the Okavango.

Next year, we will continue fieldwork focusing on movement strategies, energetic observations, resource analysis and body condition scores in our effort to increase understanding of how migratory routes vary and to quantify the physiological costs and benefits that migrating incurs.

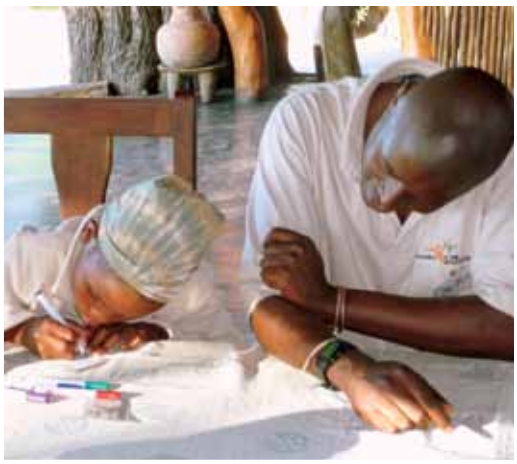
CHILDREN IN THE WILDERNESS

Now entering its ninth year, Children in the Wilderness (CITW) has gained momentum and grown in stature. Through its innovative programmes, African children are being taught the importance of conservation, whilst instilling in them a passion for the environment, so that these children can become the custodians of the wild areas on their doorsteps. The core objective of the CITW programme is to facilitate sustainable consservation through leadership development. The programme is now operational and well-established in all seven southern African countries in which Wilderness Safaris operates.

World circumstances are constantly changing and CITW's eco-curriculum is continually being evolved and developed to ensure delivery on key environmental issues, which we believe will have a material impact on the planet in the long term. It is a constant challenge as to how to teach sustainability to communities that live from hand to mouth and understandably are primarily worried about their immediate future. With this in mind, Children in the Wilderness has spent significant time and energy on staff training and will look at further finetuning the programme curriculum in 2010.

Over the course of the past year, the programme's regional coordinators and directors revisited the long-term goals and objectives of CITW. Whilst the programme continues to be aimed at hosting rural children who live in communities alongside wilderness areas, CITW realises that if the programme is to have an impact environmentally, it will also need to include children who show leadership potential and who may be economically more advantaged in the community. In other words, the focus on the child selection criteria is less based on the child's specific economic standing within the community and now looks at leadership skills as well. CITW believes that by hosting children with leadership skills, the content of the programme will be more sustainable in the long run, as there is more chance that these children will have the wherewithal and influence to become role models for the programme within their communities.

CHILDREN IN THE WILDERNESS



In line with this philosophy the coordinators recognised that it is almost as important to train the teachers, heads of schools and community chiefs as it is to host the children on the programme. Therefore going forward, CITW is looking at developing a leadership programme specifically for these influential community members.

Children in the Wilderness aims to:
FACILITATE SUSTAINABLE CONSERVATION THROUGH LEADERSHIP DEVELOPMENT

Children in the Wilderness focuses on the next generation of rural decision-makers as well as on bridging the divide that exists between communities and wildlife. Through well-thought-out educational programmes we teach the children the importance of conservation and strive to instil in them a passion for the environment so that they become the custodians of these areas in the future.

For weeks at a time and across seven southern African countries, Wilderness Safaris closes some of its safari camps to paying guests and hosts rural children. Groups of between 16 and 45 rural children are invited to spend five nights in camp and participate in a life skills and environmental educational programme. The programme covers topics such as wildlife, conservation, health, HIV/AIDS awareness, nutrition, life skills, geography, geology, arts and crafts, and theatre.

The Children in the Wilderness programme and curriculum:
- *Practises and teaches sustainable environmental education.*
- *Develops leadership qualities in Africa's children.*
- *Exposes the children to new experiences and new friends.*
- *Uses a planned programme to help build self-esteem and life skills and to strengthen the children's capacity to cope with challenges in life.*
- *Inspires the children to continue with their education.*

CHILDREN IN THE WILDERNESS

Fundraising

Funding for the Children in the Wilderness programmes comes for various sources. Wilderness Safaris guests and agents continue to contribute generously to the programme, and many motivated "CITW ambassadors" have taken the lead by creating fundraising initiatives with the proceeds being donated to CITW. The CITW cycle tours also continue to be well received and in demand. These events are now operated under the umbrella term of "Tour de Wilderness," which will play a large part in organising fundraising events for Children in the Wilderness going forward.

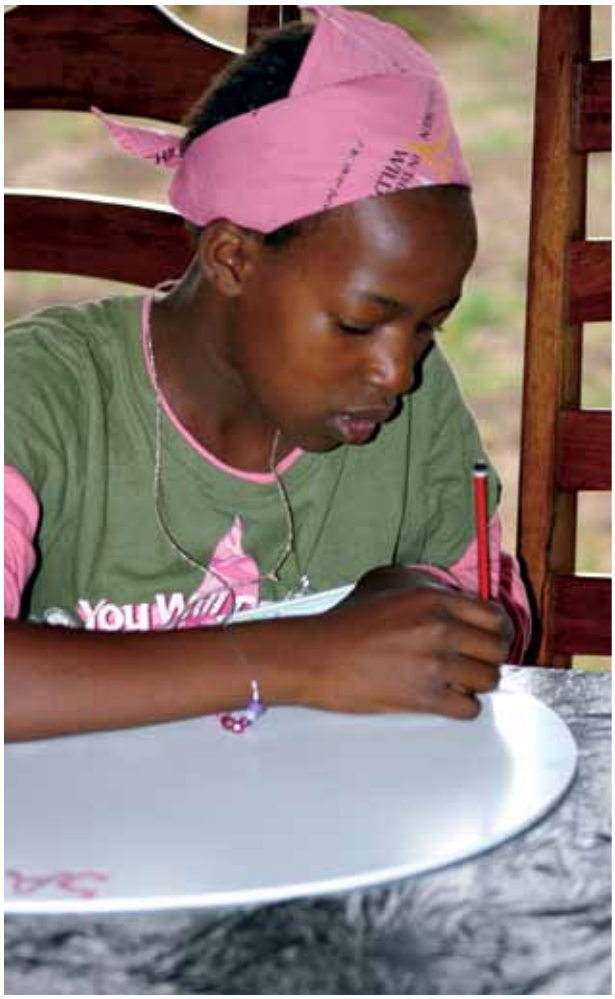
All of the above form a significant part of the Children in the Wilderness income and therefore ensure the sustainability of the programme.

Country Reports

As of the end of 2009, Children in the Wilderness has hosted 3 013 children throughout southern Africa. As the programme has been rolled out to all the regions in which Wilderness Safaris operates, so its contribution has become greater, with 431 children participating in the programme throughout the regions in 2009. Countries such as Botswana, Namibia and Malawi host just under 100 children per year with smaller numbers being hosted in South Africa, Zambia, Seychelles and Zimbabwe annually or biennially.

Botswana

Botswana managed once again to host 96 children: 32 at Jacana and 64 at Vumbura Plains. This year also saw the continuation of the Environmental Stewardship programme in Botswana – this programme hosts children that have already participated in a CITW camp and have shown an aptitude and interest in conservation. This programme expands the initial concepts



CHILDREN IN THE WILDERNESS

begun at the children's first CITW camp. During the programme, the children learn about the environment, how they can become conservation leaders and how to choose careers related to the environment. These lessons include conservation in our communities, environmental awareness, survival in the bush, animal adaptation, the tourism industry in Botswana and workshops on HIV/AIDS.

Malawi

The 2009 camps were held at Mvuu Camp in Liwonde National Park and at Chintheche Inn on the northern shores of Lake Malawi, altogether hosting 106 participants. Two of the groups came from CITW Malawi's partner organisations: the Steka Orphanage, an organisation that takes care of street children in and around Blantyre (Malawi's biggest city), and the Baylor Teen Club from the Baylor Hospital in Lilongwe, children with serious medical challenges. CITW accepted these partnerships with the aim of helping such children to discover more of their potential.

In addition, CITW Malawi ran weekly Follow-up sessions throughout the year with activities and games on conservation topics that have been capturing the souls of both children and their communities. Follow-up sessions also include individual "child follow-ups" where the local mentors and the Follow-Up Coordinator visit the homes of individual children to encourage them to continue their schooling. During the past year, some 300 children were visited in their homes. Excitingly, most children were found practising permaculture – a technique that they were taught at CITW camp – with many planting and caring for a number of trees in their home settings.

Namibia

CITW's reach was extended once more in Namibia with the running of a camp at Lianshulu Lodge in the Caprivi Strip. The main theme of this programme was human and animal conflict, ecology of the Kwando River (protecting our natural resources), elephants and conservation, birding in the Caprivi Strip, HIV/AIDS and sexual rights, alcohol and prevention of alcohol abuse, art and sport.

Namibia also held a further two camps at Sossusvlei Wilderness Camp, hosting 96 children overall in the country.

Seychelles (North Island)

The Seychellois community is a small one, so the regional coordinators felt that it would be more viable to host a Children in the Wilderness camp at North Island every second year. Therefore, another 30 Seychellois children will participate in the programme on North Island in 2010.

CHILDREN IN THE WILDERNESS

South Africa

The focus for 2009 has been to successfully implent and run Environmental Clubs in the Makuleke communities. These clubs will be a good grounding for selecting future CITW participants and to ensure long-term environmental practices in this area. Environmental Clubs were thus successfully introduced at all five Makuleke primary schools as an expansion of CITW programmes so that learning can continue to take place within the Makuleke Village. All children belonging to the clubs were selected based on criteria such as those who showed a keen interest in the environment, leadership potential, commitment and academic excellence. 200 learners signed up for the clubs this year. The clubs meet once in two months, and deal with topics such as ecotourism, littering, recycling, poaching and wildlife.

Meanwhile in KwaZulu-Natal, Rocktail Beach Camp held its first camp with 26 participants. The local teachers were involved in the programme and were hugely enthusiastic and supportive. In this way it is hoped that they will include environmental concepts in their curricula.

Zambia

This year, Zambia held its camp with 48 participants at Lufupa River Camp in the Kafue National Park. The Headmaster of the Kabulwebulwe Basic School took part and was so impressed that he wrote to the Ministry of Education requesting permission for them to start up their own conservation club, with the group of 24 children to be the pioneers of this club. This is excellent news for CITW and will definitely be a way to work with the children and the school on the follow-up programmes.

Zimbabwe

CITW Zimbabwe ran its first camps at the end of 2008 with a further three in 2009. Given the malnourished state of the children from the participating villages, it was decided that instead of a Follow-up Programme, it would be better to help the children in their communities and in their schools by running feeding programmes at Ziga, Mpindo and Ngamo schools. The project provided a meal a day for 430 children for every school day of 2009.

But a school is nothing without teachers. Since poor remuneration for teachers had taken its toll, the schools were struggling to find dedicated teachers; at one stage there was only a headmaster. The teacher support programme was begun where coordinators pulled in 'O' and 'A' level school leavers from the community to teach under instruction from the headmasters, and supplied the wages. The system worked perfectly; in fact qualified teachers began reappearing and CITW began to assist with salaries as well, supplementing the government wages to make the remuneration more attractive.

"I am a leader when it comes to explaining about the life of crocodiles to my friends. I will go home shining with this knowledge and information. I have learnt it and it will be part of my life forever!"

Meria Wilard (Steka Orphanage) 10 yrs: Grade 5

CHILDREN IN THE WILDERNESS

EDUCATION BURSARIES

Coordinator: Dr. Jennifer Lalley

In its continuing efforts to help build capacity in the youth of southern Africa, the Trust's Education Bursaries Programme funds bursaries for students at the post-graduate level in the wildlife and environmental fields. In 2008, more funding was committed so that more than one student per year could be assisted. Students funded in 2009 in this way were Inke Schomer, University of Cape Town, and Alida de Flamingh, University of Pretoria.

In addition, many of the Trust's projects in fact assist researchers – whether directly or indirectly – in completing their MSc. or PhD. studies, so that the Trust not only helps individuals with their continuing education but aids in the progress or completion of their research projects, so that conservation in Africa as a whole benefits. Bursaries of this nature included the following:

Botilo Tshimologo is conducting wild dog research as part of team of researchers in the Central Kalahari area and in the Okavango Delta/Linyanti areas of Botswana. His research is part of an MSc. programme through the University of Botswana and will be done as part of a holistic research project that works with several key species efforts across the Kalahari.

Bakker Manuel is taking a year off from his duties as Chief Warden at Namibia's Ministry of Environment and Tourism to study a B.Tech through Nelson Mandela Metropolitan University, Port Elizabeth. He will thus return to the MET with added formal knowledge and skills to better deal with the complex broader conservation issues in his daily working environment.

Finally, funds were provided by the Stephen & Nyeska Mut Scholarship Fund to cover all the student fees at Lizauli School in the Caprivi Strip for the academic year 2010. Lizauli School neighbours the Mudumu National Park, in which Lianshulu Lodge is situated.

SIMONGA VILLAGE PROJECTS

Coordinator: Peter Jones

The Wilderness Safaris Wildlife Trust has been working with The River Club in Zambia in its partnership with the nearby village of Simonga since 2000. In the ten years a range of projects in the village have been carried out, which have been funded by the generous donations of guests in conjunction with the Trust. Projects to date have focused particularly on assisting children via schooling, and include those that help the inhabitants in general generate an income and therefore help the entire community. While there are specific once-off projects (e.g. school buildings etc), various projects have been running for a number of years which incur yearly expenses. These include:

Water Project

The water project was begun a few years ago with the construction of a borehole, pump, pipes and storage tanks. In addition, distribution points for running water were installed in the village. The water project has provided 50 000 litres of water per day to the 4 000 villagers since June 2006. Upkeep of the Water Project – including maintenance for the water system, funds for diesel consumption for the generator, and water carrying equipment for the villagers – is ongoing.

School Project

Continued funding of the school project include the school and exam fees for all Grade 8 and 9 school children at Simonga and all internal and external sports activities. The school continues to receive donated books from the USA and UK from guests staying at The River Club.

Finally, a community hall has been built as requested by the villagers so they can use it for funerals, meetings, delivery of donations, weddings – in short for any and all communal gatherings.

HWANGE ECOLOGY RESEARCHER AND COORDINATOR

Coordinator: Jaelle Claypole

2009 has been a successful year with the basing of a research coordinator in the south-eastern part of Hwange National Park. Throughout the year we have continued to work in close collaboration with Zimbabwe Parks and Wildlife Management Authority (PWMA) and other research groups in the area. Data regarding wildlife populations and trends have been collected and collated which are further used as recommendations for management decisions.

Rhino monitoring using telemetry equipment continues to be a successful monthly exercise. Newly-introduced rhino, as well as previously introduced rhino, are located either by plane, vehicle or on foot. Such monitoring has been vital in establishing their movement patterns as well as individual wet and dry season ranges.

Assistance has been given to the Leopard Research Team and the Lion Research Group in the form of setting camera traps and providing monthly data on leopard sightings within the Wilderness Safaris concession in the former, and providing assistance at lion immobilisations, spoor transects, and data recorded regarding lion sightings in the latter.

Various other research projects relevant to the management of the south-eastern part of Hwange National Park have been augmented. These include monthly full moon game census, monthly vulture surveys, weather data compilation and analysis, bird and mammal analysis using monthly sightings from camp data, environmental back of house reporting and borehole water depth measurement and sampling exercise. Road strip counts for CIRAD/HERD have been conducted three times this year.

HWANGE ANTI-POACHING PROJECT

Coordinator: Jaelle Claypole

Anti-poaching efforts over the last year have been increased – with 5.5 patrols conducted per month in 2009 compared to an average of 3.7 patrols in 2008. The increase in patrols makes it possible to cover larger areas, and regular patrols are a huge deterrent against poaching. Having this increased presence in the field has had positive results with a total of 172 snares removed from the field in 2009, compared to 87 in 2008.

Although anti-poaching efforts are yielding rewarding results, a reactive approach also needs to be implemented in the Park. Therefore Hwange Coordinator, Jaelle Claypole, has undertaken a Dangerous Drugs Course to obtain her Chemical and Physical Capture of Wildlife Licence, thanks to Trust funding. The overall objective is to have a qualified person with such knowledge based in the south-eastern corner of Hwange National Park to treat snared animals rapidly and appropriately.

Jaelle, in collaboration with the anti-poaching unit in the area and various guides, is now on standby at all times in the case of a snared animal being reported, particularly in the dry season during which time there is an increase in the level of snaring.

HWANGE GAME WATER SUPPLY

Coordinator: Jaelle Claypole

To date, with the help of funding from the Wilderness Wildlife Trust, Wilderness Safaris Zimbabwe has assisted the National Parks Department with supplying diesel engines and the drilling of 18 boreholes in the south-eastern area of Hwange National Park.

Due to further restrictive resources under which National Parks have to operate, the Trust assisted with supplying one Lister engine in 2009 to relieve pressure in vulnerable wildlife areas. This assistance is critical to the consistent running of Hwange National Park.

The windmill installed at Mbiza in 2008 continues to provide a constant supply of water to the animals. Even though the windmill does not pump as much water as a Lister engine, high water levels in the pan were experienced throughout the dry season. Since the installation of the windmill in August 2008 an average of 9 500 litres of water is being pumped a day.

The option of a windmill combined with a diesel engine is currently being investigated; the idea being that for the bulk of the year, water will be pumped by the windmill and when significant wildlife pressure mounts during the dry months (September – November) a diesel engine can be installed to keep up with the high water demand. In this way, diesel usage will be reduced from 11 months to only three months per year, a significant decrease in carbon emissions while still providing essential water to the Park's inhabitants.

LIWONDE ECOLOGICAL MONITORING

Coordinator: Wikus Swanepoel

A helicopter aerial game census of Liwonde National Park, Malawi, has taken place on an annual basis since 2006, making 2009 the fourth consecutive year of this research. The 2009 census was carried out from 16 to 18 October 2009, before the rains began and when leaf cover was at a minimum, using a Bantam B22J two-seat microlight. The pilot, Derek Macpherson of Cluny Wildlife Management Services, kept a GPS track log of each flight, marked waypoints along the way and assisted with spotting and counting the game animals seen. Two observers, Wikus Swanepoel and Jimmy Chikombe, alternately observed, spotted, counted and recorded the data on predesigned data sheets.

Conforming to previous aerial counts – and accounting for limits to visibility resulting from vegetation and daily behaviour and movement patterns of the species – the following strata were recognised:

- The Shire River, Lake Malombe, lagoons, swamps and riverbanks
- The floodplain grasslands and grassland/ woodland ecotone
- The *Colophospermum mopane* woodlands
- The Liwonde Rhino Sanctuary, a fenced area of approximately 4 200ha, was excluded from the aerial count, with the exception of elephant.

Results

For elephant, buffalo, sable, waterbuck, impala, warthog and hippopotamus the authors are confident that the minimum total count is accurate and can be used to make management decisions. There are at least 501 elephant, 324 buffalo, 539 sable, 2 046 waterbuck, 1 124 impala, 765 warthog and 1 017 hippo in Liwonde National Park.

The species kudu, reedbuck, bushbuck, duiker and klipspringer are all difficult to see from the air due to their light colouring, small size or secretive nature. These species were thus all significantly undercounted.

Comparative to previous surveys done in 2006, 2007 and 2008 the total number of animals in Liwonde appears to be increasing. It can be confidently stated that Liwonde National Park has a collective large wild mammal population of at least 6 391 head of more than 15 species.

SOUTH LUANGWA CONSERVATION SOCIETY

Coordinator: Rachel McRobb

The South Luangwa Conservation Society (SLCS) in conjunction with ZAWA (Zambian Wildlife Authority) have been coordinating wet season anti-poaching fly camps in remote areas of the South Luangwa National Park for the past five years.

Historically poaching tends to increase immensely in certain areas of the Park during the rains. This is partly due to difficult access, thereby reducing patrol deployments and patrol coverage, and partly due to a lack of tour operator presence in the Park during the rains, which act as a deterrent to poachers during the dry season and would typically report poaching incidences.

Three fly camps have been created again this year: at Luamfwa, West Mwamba and Kapamba. All three areas have high game populations and are targeted by poachers in the rains. The fly camps consist of eight scouts who patrol on a 20-day rotational period conducting day patrols and long field patrols. Detailed patrols reports are filed for every patrol and data such as patrol trends is analysed and mapped to produce density and probability maps on an ongoing basis.

The fly camps are fully equipped with solar, communications equipment, GPS and patrol kit. The Luamfwa fly camp also has an outboard engine and boat to ensure access to both the western and eastern sectors of the Park.

In 2008/09 the fly camp at Luamfwa proved to be very effective and produced good results, including the highest number of apprehensions and confiscation of snares and muzzle loading guns. This can be attributed to the fact that the fly camp is in its infancy and poachers are still unaware of its continued presence. The Trust is fully funding this year's (2009/10) fly camp in the Luamfwa area.

VICTORIA FALLS ANTI-POACHING UNIT

Coordinator: Charles Brightman

The Victoria Falls Anti Poaching Unit (VFAPU) has been fighting the menace of poaching within the Victoria Falls region for the last ten years. Through out this time, VFAPU has experienced many ups and downs regarding poaching but continues to remain committed to doing everything possible to deter all forms of poaching.

Working with the appropriate authorities, VFAPU has been able to achieve many positive results, thanks to past and present support from the Wilderness Trust. During 2009, a total of 394 snares were removed from the bush and a total of 436 poachers were apprehended within the operational area. Through its darting programme, VFAPU was able to dart and treat a number of mammals that sustained injuries due to wire snares from poachers.

Unfortunately 23 buffalo, 5 elephant, 3 giraffe, 5 eland, 3 sable, 6 kudu, 6 warthog, 7 impala and one lion were poached in areas surrounding Victoria Falls during 2009. But the general situation on the ground would be worse if the Unit was not able to conduct anti-poaching operations.

On a positive note, throughout 2009, our scouts were busy conducting a number of talks and presentations to local schools and have linked up with other conservation initiatives to spread the important conservation message to the communities.

The support that VFAPU receives is vital to continue the work being done in and around Victoria Falls.

ZAMBIA POACHER TRANSFORMATION PROJECT

Coordinators: Dale Lewis, Community Markets for Conservation (COMACO)

This project aims to 'transform' some 95 local hunters from Serenje and Chinsali Districts on the western side of the Luangwa Valley away from wildlife hunting to more sustainable employment, focusing on those areas with serious poaching threats. The project will also monitor transformed poachers in compliance with COMACO guidelines, and continue to support and link them to COMACO-provided market opportunities.

Community Markets for Conservation (COMACO) is a Zambian-registered non-profit company that forms business partnerships with rural communities living in areas of important biodiversity. In the spirit of conservation, COMACO links villagers with urban consumers through a value chain of environmentally smart products that drives solutions for conservation, food security, and improved rural incomes. COMACO improves rural development by helping farmers plan their future around conservation.

An important subset of people who partner with COMACO are the local hunters, whose dependence on wildlife has earned them the title of "wildlife poachers". Over the past six years, COMACO has worked with 647 such hunters living on the eastern side of the Luangwa Valley, transforming their livelihoods away from wildlife destruction to more profitable strategies linked to markets that COMACO helps to build.

The aim of this project is to extend the poacher transformation efforts to the western side of the Luangwa Valley where the threat of poaching remains high and into which COMACO has recently expanded its operations.

PAST PROJECTS

RESEARCH AND CONSERVATION

Communal Conservancy Black Rhino Relocation

Namibia holds almost a third of all the black rhino remaining in Africa, and 95 percent of the south-western subspecies. While numbers have increased, the annual growth rates of the Kunene black rhino have declined. Therefore, a number of translocation and tagging operations were carried out in 2006 and 2007 to expand black rhino range into specific identified areas within communal conservancies. The operation was successful; it is hoped the colonisation of new suitable black rhino habitat will allow increased population growth rates and the continued survival of this endangered subspecies.

Kunene Black Rhino Custodianship Programme

The successful growth of the black rhino population in Kunene, Namibia, meant that in 2009, the Ministry of Environment and Tourism (MET) and Save the Rhino Trust (SRT) under the Rhino Custodianship System were able to translocate some individuals to the southern portion of the species' historical range in the Kunene Region. Following the success of these operations, SRT conducted both aerial and ground monitoring of the individual rhino fitted with radio transmitters. The Trust assisted with funding to make the aerial monitoring possible.

Makuleke Large Mammal Reintroduction Project

In 2005, six white rhino were moved from the central district of the Kruger National Park to the Makuleke Concession in the far north. This was followed with daily tracking and monitoring of the animals to gain an understanding of the local ecology of the white rhino in an area from which it has been absent for more than 120 years, and in so doing to provide this information to the broader conservation community. This increased level of understanding can only improve the likelihood of establishing a viewable breeding nucleus with the potential to range further into the Greater Limpopo Transfrontier Park.

Namibian Black Rhino Habitat Assessment

Carried out by MSc. student, Basilia Shivute, this study explored the use of habitat by the black rhino within its range, taking into account plant density, diversity, tree and shrub species composition, and investigated the influence of terrain on both the vegetation and on the black rhino. This study was carried out in the 144 255km^2 Kunene Region where tourism has been identified as a key development sector for the region. This study also formed a foundation to guide creation of multiple black rhino habitat suitability models across their historical range to prioritise optimal sites for translocation.

Namibia Black Rhino Monitor Training Project

Black rhino populations established on private land or communal conservancies under the Black Rhino Custodianship Programme (BRCP) in Namibia require constant monitoring and protection if they are to be successful. The Ministry of the Environment (MET) and Save the Rhino Trust (SRT) selected suitable candidates from custodian communities and landowners and ran a basic training course, thus providing trained and dedicated field monitors to record the daily progress and to protect these sub-populations in the field. The monitors now have up-to-date knowledge of each population of rhino (distribution, social interaction, dynamics), while the rhino themselves benefit from improved protection.

Linyanti Elephant Impact Study

The study confirmed that loss rates of large tree species in the Linyanti vary considerably from year to year – regardless of whether this is as a result of local climatic variation or factors such as elephant

browsing – but importantly also emphasised that these loss rates have high variability over longer time periods as well. Additional and longer-term studies in the region are needed to understand exactly what impact the elephants have on the system.

Nyae Nyae Human-Elephant Conflict Research Project

Conflicts between elephants and people are occurring with increasing frequency in Africa, particularly in rural areas on the border of protected regions and specifically at waterholes. The project was developed to help develop effective strategies to reduce human-elephant conflicts in the Nyae Nyae Conservancy, where the Ju/'hoansi people live. The aim was to identify the behavioural, environmental and anthropogenic factors influencing such conflicts in this part of Namibia as a basis for sustainable development and conservation of elephants. One of the key findings of the research was that drinking points for elephants being located further from villages than they are at present may reduce the conflict.

TFCA Elephant Populations in the Okavango

Working in collaboration with the Botswana Department of Wildlife and National Parks and other partners, this study provided vital information on the abundance, distribution, population structure, habitat needs, and movements of elephants in northern Botswana, and particularly the transboundary movements of elephants within the Okavango-Upper Zambezi Transfrontier Conservation Area. This data, along with a digital land-cover map and a spatial elephant population model has hopefully provided wildlife managers with tools for developing an elephant management programme for Botswana as well as for the larger Transfrontier Conservation Area.

Brown Hyaena Research Project

This project studied the brown hyaena population in south-western Namibia to ensure the long-term conservation and survival of this species and its ecosystem. Data retrieved from GPS collars provided information about brown hyaena ecology and behaviour. Studies took place in three different habitats in Sperrgebiet and Namib Naukluft Parks: the coastal area, the area around Luderitz and inland areas. Data indicates that water source distribution is more important to brown hyaena than previously suggested and that brown hyaena occupying territories inland also make use of the coast on regular excursions out of their territory. Although seals are a primary food source, the brown hyaena population is limited by factors other than food availability and quality. Intra- and inter-specific competition, habitat limitations and the general clan structure seem to influence population growth.

Kunene Lion Project

Namibia supports a unique population of desert-adapted lions that survive in the harsh Namib Desert. However local communities suffer financial losses when lion prey on their livestock, upon which the lion is often (legally) killed. This project focused on improving the tourism potential of desert-adapted lions and developing a system where its benefits would reach the appropriate communities. A sound understanding of lion ecology and behaviour can lead to increasing the success rate of finding and approaching desert lions by tour operators during game drives, thereby improving their tourism value. A "Lion Fund" was implemented where income from lion-related tourism is managed and used to compensate conservancy members if livestock losses occur.

Lowveld Wild Dog Project

The resultant changes in land tenure in parts of Zimbabwe resulted in the Savé Valley Conservancy in the south-east lowveld of Zimbabwe being a microcosm of the problems facing wild dog conservation

PAST PROJECTS

over large parts of their geographic range. Finding tools to reduce conflict and promote coexistence between wild dogs and game ranchers and subsistence livestock farmers were the key objectives of the research project.

Small Carnivore Project

This project, beginning in 2000, studied the habitat, ecology, breeding and feeding habits of small carnivores on the Kulala Wilderness Reserve, including the bat-eared fox. It also focused on the education of farmers and communities about the differences between an aardwolf (an insectivorous small carnivore) and a hyaena. Farmers often kill aardwolves, mistakenly regarding them as threats to their livestock. It is hoped that education will be a way forward in the conservation of this rare small carnivore.

Luangwa Thornicroft's Giraffe Project

The Thornicroft's giraffe (*Giraffa camelopardalis thornicrofti*) is a morphologically distinct population of giraffe endemic to the Luangwa Valley in Zambia. It is biologically isolated from other populations and as such ecologically and potentially genetically unique. The project was the first in-depth scientific research of the species since the late 1970s and aimed to provide baseline estimates of the current population size and whether it is stable, increasing or decreasing, social structure and dynamics. A genetic and population census took place in July 2008, the peak period of giraffe congregations in their preferred habitats. Trust funding enabled a number of the key elements to be supported for this project and its ongoing management e.g. support for flights, food, accommodation and equipment.

Okavango Delta Large Herbivore Ecology Project

The project aimed to understand the present seasonal population densities, demographics and distribution of the key large-bodied herbivores – Cape buffalo, African elephant, blue wildebeest, giraffe, greater kudu, impala, Burchell's zebra, red lechwe and tsessebe – within the southern Okavango Delta. Season-, habitat- and area-specific data was gathered on available resource characteristics, local flooding regime and fire incidence, hopefully increasing the understanding of the current state of the Okavango Delta's herbivore population and how they utilise the Okavango system.

Cape Griffon Vulture Project

The Cape Griffon Vulture Project, run by the Rare & Endangered Species Trust (REST), monitors Namibia's most endangered resident bird species. REST is the first organisation in Africa to fit satellite telemetry to vultures. The resulting assessment is that poisons have the largest single fatal impact on raptors and scavengers and it is vital that land-use managers are informed of the negative impact of their use in both the short and long term. Overall, the Cape Griffon Vulture population in Namibia is stabilising, with concurrent success with major awareness campaigns by REST.

Monitoring of Bird Populations at Lake Ngami

Bird counts were done twice a week between April and May 2004, after which the Lake began to fill with water. The Project took note of both numbers and species and costs were shared between the Trust and Wetlands International.

Maputaland Sea Turtle Project

In 1963, an initiative by the Natal Parks Board (now Ezemvelo KZN Wildlife) and Dr George Hughes set out to protect and monitor the 56km stretch of beach now known as the Maputaland Marine Reserve. Since then, donations made via the World Wildlife Fund, Wilderness Safaris Wildlife Trust, and Rocktail

PAST PROJECTS

Bay Lodge have ensured that this project has been in operation for 46 years, making it one of the longest and most successful running turtle research projects in the world.

Over 2008 and 2009, in addition to its ongoing protective function, the project obtained an added academic aspect as MSc. researcher Chris Boyes conducted a study on "The Nesting Ecology of Leatherback and Loggerhead Sea-turtles along the Maputaland Coast of South Africa." Accommodation and food for Chris and his research assistant was funded by the Wilderness Trust and provided by Wilderness Safaris at Rocktail Bay Lodge. Boyes took part in 95% of Rocktail Bay Lodge's Turtle research drives allowing for a more consistent beach patrol during this season.

Findings of 2008/2009 Season
Successful loggerhead egg-laying this season totalled 212 loggerhead nests and 49 leatherback nests successfully laid. 135 loggerhead females chose to come up the beach but did not lay and the same happened on five occasions with leatherbacks.

Busanga Aerial Census 2007
An aerial census of the extended Busanga Plains area (150 000 ha) in northern Kafue National Park, Zambia, was conducted in September 2007. The census was undertaken to provide accurate baseline data of large mammal and bird populations on the Busanga Plains during the dry season and produce an analysis of numbers and distribution of these key species. 21 large mammal species were recorded. Detailed population estimates and average herd sizes were obtained for large ungulates such as Lichtenstein's hartebeest (227), lechwe (2 098), puku (1 888) and wildebeest (1 119). The number of Wattled Cranes estimated (402) suggested that this is area is one the top five most significant wetland sites in Africa.

Chitabe Fire Ecology Research Project
This project studied the impacts of fire on small mammal populations in the Delta. The study team monitored the populations of small mammals of six grassland species, both before and after a fire. Results showed that the immediate effect of a fire is drastic with complete emigration from the area; none of the study individuals that were present before were ever recaptured afterwards. However, within a few months new individuals of some of the species began to arrive, with some species recovering quicker than others.

Mana Pools Tree Conservation Project
The project looked at the decline of the tall albida trees (*Faidherbia albida*, known also as the ana tree) that line the banks of the Zambezi River in the Mana Pools National Park. Possible causes of the decline include elephant feeding, part of a natural cycle or change in the Zambezi's flood patterns.

North Island Rehabilitation Project
In 1990, North Island was identified as a potential sanctuary where natural habitats could be transformed and Seychelles animal and plant species reintroduced. North Island therefore aimed at becoming a "host island", a place where species indigenous to the Seychelles could be reintroduced and increase in numbers in a safe environment. For this to take place, pest eradication and vegetation rehabilitation (removal of invader plants, remnants of its time as a coconut plantation, and subsequent planting of endemic species) had to take place.
The North Island Rehabilitation Project provided necessary assistance in accelerating the vegetation

PAST PROJECTS

rehabilitation of the island by adding casual labour to the resident Landscape Team, and in 2007 supported the introduction and subsequent monitoring of Seychelles White-eyes, a critically endangered endemic bird species, in support of the Government's management programme to safeguard the survival of this species. In July 2007, after nearly ten years of intensive rehabilitation, 25 Seychelles White-Eyes, around 8% of the world's population, were released on North Island.

The Seychelles White-Eye Introduction was made possible through the funding of the Annenberg Foundation (www.annenbergfoundation.org) which exists to advance the public wellbeing through improved communication.

Skeleton Coast Lichen Project

A ground survey of all lichen communities in a 3 000-km² concession of the Skeleton Coast Park in the northern Namib Desert assessed the long-term impacts of human activity on lichens and the Namib Desert ecosystem as a whole. The project contributed greatly to the management plan of the Skeleton Coast Park as well as an increased awareness of the role played by lichen in stabilising fragile desert soil and the threat that human activities present to this delicate environment.

COMMUNITY EMPOWERMENT AND EDUCATION

Educational Bursary 2006

Gayle Pederson submitted her Master's thesis at the end of 2008 on a white rhino behaviour study in 2006. Findings, after a year of tracking the rhino daily and a year of analysing their diet composition from faecal samples, as well as movements across the landscapes from GPS data recorded, confirmed that Pafuri is a suitable habitat for this metapopulation of white rhino. At their current rate of increase the available grazing and surface water is sufficient to maintain the population, although future interventions may need to be considered if their genetic diversity is to continue.

Education Bursary 2008

Enos Mngomezulu, one of the recipients for 2008, completed his studies in Natural Resource and Protected Area Management at the Southern African Wildlife College. The overall aim was to have someone within the Makuleke community trained with the knowledge necessary to manage the resources of the Makuleke Concession in the Kruger National Park.

Kunene Community Perceptions Project

Black rhino are increasing in many areas of Namibia, with rhino reintroductions taking place within the species' historical range, many in community conservancies. The Kunene Community Perceptions Project assessed local communities' perceptions towards, and experiences with, the reintroduced black rhino in the ≠Khoadi //Khoas Conservancy and the bordering conservancies (Torra and //Huab Conservancy). Findings showed that people generally have positive attitudes toward the reintroduced black rhino. The only negative perception was that of the black rhino being dangerous and aggressive, possibly connected to the human-elephant conflict in the conservancy over limited water and grazing. Understanding the relationship between the two is critical, ultimately ensuring the success of the reintroduction programme.

Makuleke Small Business Support

The Makuleke Small Business Support Company (SBSC) is a joint venture between the Makuleke Community Property Association (CPA) and Wilderness Safaris to encourage, support and diversify

tourism related enterprise. The CPA is the landholder both in and outside of the Kruger, whilst Wilderness Safaris is a concessionaire in the Makuleke Contract Park that attaches to the Kruger National Park. Through the Trust, an ITC station (Information Technology and Communications Station) was set up with PCs connected to the Internet for training of community-based enterprises in the tourism industry and to support the various environmental resource use programmes and activities over the longer term. The ITC stations would also be used for education and learning and will link to the Makuleke Indigenous Knowledge Centre (IKC) being developed in conjunction with Earthwatch. This includes links to national channel learning, adult basic education and vocational courses such as in conservation and tour guiding.

Mkambati School Programmes

A combination of donations from the Trust and private sponsors saw significant improvements in two schools in the Pondoland area in South Africa's Eastern Cape Province. Additional funds from private individuals through the Trust have allowed these schools to be completed with regard to buildings and equipment. The schools included Mkambati Junior Secondary School, sponsored by family and friends of Bruna Zacks, and Zimisele School, sponsored by the Ultimate Travel Company UK. These donations have improved the quality of education in this poverty-stricken area.

ANTI-POACHING AND MANAGEMENT

Savé Conservancy Bush-Meat Survey

This project focused on the extent and impact of the bush-meat trade in Savé Valley Conservancy (SVC). Its goals were to develop tools to reduce the impact of snaring, by addressing the underlying causes for the bush-meat trade and enhancing the ability of the conservancy to protect its wildlife. Preliminary data showed that in parts of the conservancy, illegal off-takes are unsustainable. In a year, 9 239 snares resulting in the death of 869 animals were removed from SVC by anti-poaching scouts. However, the data also highlighted that incidences of illegal hunting tend to occur in predictable patterns, both in time and space. By predicting these patterns, anti-poaching scout patrols can be deployed more effectively.

MAKE A DIFFERENCE TO AFRICA

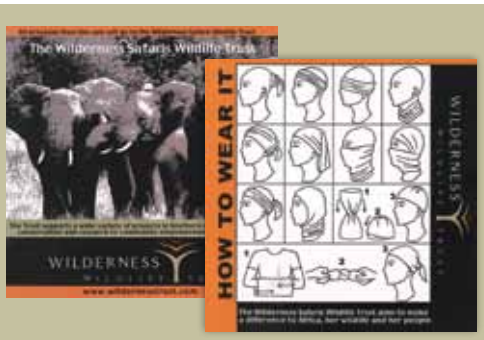
www.wildernesstrust.com/trust/donations.jsp

Africa's conservation needs are enormous and in urgent need of money and logistical support. The Trust is therefore grateful for all donations received either for specific projects or those donated in general to be used wherever they are needed most.

If you would like to assist us in these efforts, please contact Mari dos Santos at
marid@wilderness.co.za
or telephone +27 11 257 5057

Donations from the USA can also take place via the Resources First Foundation. This facility is tax-deductible through a 501c facility and levies an administration fee. Its online donations facility can be found via our website:
www.wildernesstrust.com/trust/donations.jsp
Please contact Laura Dober at
lmass@resourcesfirstfoundation.org
or 207-221-2753 for more details.

About Resources First Foundation:
The Wilderness Safaris Wildlife Trust is supported by the Resources First Foundation (RFF), a non-profit organisation formed to promote and design conservation and education tools and solutions to promote conservation and restoration activities for fish, wildlife and other natural resources primarily on privately owned lands across the United States and in southern Africa. Many community-based and private landowner conservation techniques and policies were first initiated and developed in a number of countries in southern Africa. Because the Foundation's financial resources are relatively small, grants will be made only upon the invitation of the Foundation's officers and board. An area of grant-making focus includes training and education programmes for wildlife professions and innovative wildlife restoration projects (from the tagging of marine turtles to the reintroduction of white rhinoceros). Donations via RFF are tax-deductible in the USA.



Wilderness Trust Warmer:
One of the Trust's exciting and practical fundraising initiatives for 2009 is the "Wilderness Trust Warmer", the costs of which have been generously covered by Wilderness Safaris. In return for a donation of US$20, guests at Wilderness Safaris camps receive this versatile and stylish headwear that has a multitude of practical applications for use on safari. All proceeds accrue to the Trust and will be ploughed back into conservation projects in southern Africa.

MAKE A DIFFERENCE TO AFRICA

HOW YOUR DONATIONS ARE USED

Donors to the Trust have the choice to contribute to the general funds, to be used wherever needed most urgently, or to a particular theme (Anti-poaching & Management, Research & Conservation or Community Empowerment & Education), project, or even specific part of a project. Since less than 5% is spent on administration costs, donors can be assured of their monies being spent almost completely on their chosen component. Below are a few examples of some of the costs involved:

1 day on a Children in the Wilderness Camp for one child – US$ 80*

1 week on a Children in the Wilderness camp for one child – US$ 400* (incl. Follow-up programme)

1 camera trap for wildlife surveys – US$ 460

1 year's post-graduate conservation tuition – US$ 3 300

1 GPS satellite collar – US$ 4 500

1 aerial survey of 100 000 hectares – US$ 6 000

1 second-hand 4x4 research vehicle – US$ 15 000

1 entire Children in the Wilderness camp – +/- US$6 400 – US$10 000**

1 endangered black rhino – US$ 30 000

* Average cost only

** Dependent on region/number of participants

ACKNOWLEDGEMENT AND DONORS

Thanks to the generosity of many donors over the past year, we have achieved some notable successes in the conservation of animal and plant species, a furthering of knowledge of ecosystems and the ongoing engagement of neighbouring communities. We would like to thank all our donors in this regard.

The Trust is dependent on funds donated by individuals and we applaud those committed individuals who have undertaken to raise funds of their own accord. Such people include many who have cycled, run or walked for our conservation and community projects.

Individuals and Organisations (more than $5 000 donated)

B&H Photo Video
Bushnell
Canon
Classic Africa, Pierre and Margaret Faber
Craig Beal – Nama Karoo Africa Fund
George Orban
Insurance Underwriters Trip:
- Aegis London – Toby Sawyer
- Amlin – Simon Jeffreys
- Chaucer – William Alderton
- Emerald Risk Transfer – Steve Wilson
- Marketform – Mark Hayden and Oliver Lister
- RFIB – Danny Snowden
- SATIB – Anthony Courtenay
- Savage Jooste and Adams – Wayne Forrester
- Steve Bessunt

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Madeleine Delman Cohen and Jerome CohenMerle Mullins
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Sefofane Air Charters
Steve Rimer
The Leading Travel Companies Conservation Foundation
The Wild Foundation, Vance Martin
The Wild Foundation, Maggie Bryant
Wilderness Safaris

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Individuals (less than $5 000 donated)

Albert Narath
Albert Williams
Bataluure Beauty, llc, in honour of Ms. Corey McNeil-Perles
Bellus Public Relations, Lesley Bellus Kilman
Charlotte and Harry Turner
David Hart
Dean and Sharon Banks
Deborah and Francis DeSilva, in honour of John and Betsey Cronon
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Expedia, Jenne Pierce
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Grosvenor and Margaret Richardson
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If we have left anyone out, this has not been intentional and we apologise.

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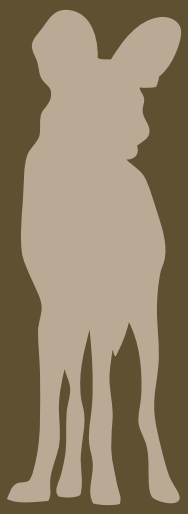

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