

A National Plan for Carnivore Conservation in Tanzania

SECOND ANNUAL PROGRESS REPORT



Institute of Zoology, Zoological Society of London

In collaboration with

Tanzania Wildlife Research Institute

funded by

The Darwin Initiative for the Survival of Species



Darwin Initiative for the Survival of Species

Annual Report

1. Darwin Project Information

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Author(s), date	Sarah Durant, Maurus Msuha, Charles Mlingwa 14 th June 2004

2. Project Background

Tanzania is recognised to be a hotspot for African carnivore biodiversity (Mills et al. 2000). Not only does the country contain high species richness, holding a total of 35 species of carnivores recorded, among the highest carnivore biodiversities in Africa, but it also contains significant populations of 6 threatened carnivores: cheetah, wild dog, lion, striped hyaena, spotted hyaena and spotted-necked otter. In particular, Tanzania is home to a third of the world's estimated 5700 wild dogs, which include the global largest single population in the Selous Game Reserve, which is estimated to hold an estimate of 1000 individual dogs, over one sixth of the world's population. Tanzania also holds the fourth largest population of cheetahs in the world, including one of the largest single protected populations of 250 cheetahs in the Serengeti National Park and surrounding protected areas. Despite its global importance for carnivore biodiversity, the country lacks information on population trends and distribution patterns of its carnivore species, particularly its smaller species.

Carnivore conservation is, however, often problematic. Wherever carnivores occur, there are varying degrees of conflict with people. With large carnivores the causes of conflict are obvious, in terms of physical danger for people and livestock; however conflict often occurs even with smaller carnivores. For example, in the UK most carnivore species have been persecuted at some stage in their history, and many still face antagonism today. Badgers have been gassed, foxes and otters hunted, and wolves and bears eliminated. Even the smallest carnivores such as weasels and stoats have been trapped and poisoned by gamekeepers.

Given the long human history of persecution of carnivores in many parts of the world, countries like Tanzania that still support large and healthy carnivore populations are unusual, and are especially critical to the conservation of this taxa. However, with population growth and land use change, the future of Tanzania's carnivore populations cannot be guaranteed, without an assessment of the national distribution and status of different species and appropriate conservation and management action. If Tanzania is to be able to conserve its carnivore populations for the future, it needs to be able to monitor and manage them effectively in the face of increasing threats. The purpose of this project is to help build Tanzania's capacity to monitor the carnivores within its borders and to formulate an action plan for their long-term conservation.

3. Project Purpose and Outputs

This project aims to help Tanzania increase its capacity to monitor and conserve carnivores through the establishment of a Carnivore Conservation Centre at the headquarters of the Tanzania Wildlife Research Institute (TAWIRI) in Arusha. The Centre will collect data from a wide range of sources and manage this information in a national database on carnivore distribution. It will have a special focus on two species of large and easily individually identifiable carnivores that are particularly threatened: cheetahs and wild dogs. The Centre will have four key national functions, all of which will assist Tanzania in meeting its obligations under the Convention on Biodiversity: 1) to establish and monitor the current distribution of all carnivore species; 2) to monitor individually recognised cheetahs and wild dogs; 3) to train Tanzanian wildlife professionals in carnivore monitoring techniques; and 4) to increase national awareness of carnivore conservation issues. The ultimate objective is to build an action plan for carnivore conservation in Tanzania to prioritise actions required to conserve threatened carnivores and hence safeguard carnivore biodiversity across the country.

The start of the project, originally April 2002, was late due to a delay in the start of the contract, which was not finalised until August. In addition, we have made a number of changes, partly as a result of our mid term review in February, to our planned objectives, and these will be discussed in detail under each objective heading. In general, there has been a shift away from specific training objectives towards a more extensive outreach program of information dissemination, talks and visits and direct contact, as this has proven to be more effective at generating information for the centre. We adjusted the timing of the project's objectives in our last annual report, hence our main objectives for this reporting period can be grouped as follows:

1. Initial workshop for stakeholders (April 2003)
2. Recruitment of Project Assistants and Secretary (September 2003)
3. Printing and distribution of publicity materials (throughout)
4. Complete office construction, equip offices, move in and hold opening ceremony (Sep 2003)
5. Training for project staff and wildlife professionals in Carnivore Monitoring and conservation (Sep 03 - Mar 04)
6. Complete first year of data collection for a national database on carnivores (Mar 2004).

We have made considerable progress in achieving the project objectives for the period under review. The original logical framework for the project has been attached as Appendix 1, which also provides details of the achievements.

4. Progress

Over the last reporting period the project was five months into operation. During this period the project manager Maurus Msuha, was recruited through an open interview process; temporary offices were established and equipped; the carnivore centre building was designed, the site selected and building commenced; leaflets for the data gathering activities of the project were designed and printed and cheetah matching software was written and established on project computers.

4.1 Initial stakeholders workshop

The first Tanzania Carnivore Monitoring Workshop was held in Arusha on 29th April 2003 to launch the new Carnivore Project within TAWIRI. The main aim of the workshop was to inform stakeholders about the project, and to obtain feedback from them about how they would like to see the project proceed. The workshop drew 62 participants from various stakeholders including the government wildlife sector, academic institutions, major tour operators, professional hunting companies and wildlife lodges. All the participants at the workshop had considerable experience and knowledge of the wildlife sector in Tanzania. The morning session consisted of a series of papers introducing the purpose and proposed work of the Carnivore Centre. In the afternoon participants split into working groups to discuss their views and requirements from the centre. All the working groups were unanimous about the need for more information on wild carnivores, training and public education and in their desire to participate actively in the Centre's activities, particularly through training and data collection. There were differences between groups on specific information and training requirements and in the ways in which they felt they could contribute to the Centre's activities, based on differences in the kinds of expertise and the major concerns of different stakeholder groups. Workshop proceedings have been printed and distributed to participants and other stakeholders including the TAWIRI Board Members. The proceedings are attached as Appendix 2.



Fig.1. The first workshop.

4.2 Recruitment of staff

Project Assistants Alexander Lobora and Jerome Kimaro and Secretary Flora Kipuyo were appointed during the period under review through an open interview process. Alexander holds a BSc. degree in Forestry from Sokoine University of Agriculture (SUA) and an MSc. degree in Natural Resources Management (Geo-information Science) from the International Institute for Geo-information Science and Earth Observation, Netherlands. He has practical skills in the use of Geographical Information Systems (GIS) and remote sensing. Before joining the project Alexander was working with the Rufiji Basin Development Authority (RUBADA) as a Senior Ecologist. Alexander is now responsible for database management and data analysis. Jerome Kimaro is a graduate from SUA with a BSc. in Agriculture. Jerome is a capable artist, and has worked as a freelance consultant on a number of projects, including the Wildlife Conservation Society of Tanzania, producing environmental education materials such as calendars, leaflets and posters. Jerome is the public relations officer for the project and is responsible for the production of promotional materials. Flora Kipuyo holds a certificate in secretarial services and computer studies. She has many years of secretarial and administrative experience including working on the Cross Borders Biodiversity Project (UNDP/GEF).

4.3 Printing and distribution of publicity materials

Dissemination of information to stakeholders is an integral and essential part of this project. A key component of this activity is developing an extensive list of potential contributors of information to the project's data gathering activities. By the end of this reporting period the project had drawn up a list of a total of 284 potential contributors, including researchers, safari operators, lodge and camp managers and amateur naturalists. The project distributes its carnivore atlas sheets to interested individuals within the wildlife sector, whilst its cheetah and wild dog watch campaign sheets are distributed to tourists, who are more likely to have travelling with cameras with suitable lenses with which to photograph these animals. For the latter the project makes use of links with Tanzania National Parks (TANAPA), Tanzania Association of Tour Operator (TATO), other tour operators, hunting companies, lodges and hotels to ensure leaflets are distributed to tourists. During the period under review the project has developed and printed a number of publicity materials. It has continued to print and distribute those materials presented in the last annual report, including the Cheetah Watch Campaign leaflets, Wild Dog Watch Campaign leaflets and Carnivore Atlas Packs (including information sheets, maps and checksheets). A total of 8,900 cheetah and wild dog leaflets have been printed over this reporting period, out of which 7,000 have been distributed to safari companies, park gates and lodges. A total of 701 Carnivore Atlas Packs have been distributed to a total of 284 potential atlas contributors. Copies of these sheets are included in Appendix 3.

WILD DOG CONSERVATION



Wild dogs used to be widespread across Africa, and were found in all habitats except rainforest and desert. However, their population has declined to less than 100 individuals. Tanzania is a critical country for wild dogs, as it holds the largest population of wild dogs, including the largest single population of wild dogs, the African wild dog. However, despite protected areas, wild dog populations continue to decline due to conflict with people.

SOME INFORMATION ABOUT WILD DOGS

Wild dogs have a social system and live in packs. They are found in the savanna and open woodlands of East Africa. Wild dogs are most often found in the savanna and open woodlands of East Africa. They are found in the savanna and open woodlands of East Africa.

WILD DOG FRIENDLY WATCHING

We hope you are lucky enough to see wild dogs during your stay in Tanzania. If you do, then please help them by making use of wild dog friendly watching practices. The national parks and game reserves in Tanzania are a sanctuary for the wild dog, where they should be free of persecution of all kinds.

Wild dogs are fascinating to watch. Because they are very social, individuals communicate with other members of the pack constantly through sound, smell and body language. However, while you are watching them, please ensure you keep your impact on them to a minimum through a few simple rules:

1. Never drive directly at wild dogs. Approach slowly at an angle or in a zig-zag fashion.
2. Please frequently do you approach and observe through binoculars.

THE CHEETAH WATCH CAMPAIGN



Tanzania is home to the Serengeti Cheetah Project, a 27 year study of known individual cheetahs that has told us much of what we know about wild cheetahs.

ECOLOGY AND BEHAVIOUR

Cheetahs do well in a wide variety of habitats, ranging from mountains and desert through to open grassland and bush. Cheetahs have a social system, which is unlike any other of its species. Cheetah females are tolerant of other females, and do not maintain territories, whilst cheetah males are social, forming groups of 2 or 3, usually brothers, which stay together for the rest of their life. Males in groups are more likely than single males to take and retain a territory, which they will then defend against male intruders. In the Serengeti, male territories average 50km², while females and males without territories move over 800km² every year.

REPRODUCTION

Cheetahs give birth to their first litter at two years after a 3-month pregnancy. The cubs are kept in a lair for the first 2 months of their life, when their mother leaves them to hunt every morning, and returns at dusk. Cheetah cub mortality is high - out of 20 cheetah cubs born, only one will survive to independence. Cubs die mostly because they are killed by lions or hyenas; their mother cannot defend them against these much larger predators. Cubs may also die from exposure or fire, or from abandonment if their mother is unable to find food. If they survive, cheetah cubs will stay with their mother until they are 18 months old, after which they will roam with their littermates for another 6 months.

HUNTING

Cheetahs are predominantly active by day. They hunt by a stealthy stalk followed by a fast chase. Because of their unrelaxed speed and acceleration cheetahs can hunt successfully even if they start a chase at a much greater distance than bull and heavier large cats, such as lions and leopards. They take a wide variety of prey, depending on habitat and geographic location, but they prefer prey of 15-30kg, the size of an adult Thomson's gazelle or impala.

HOW YOU CAN HELP

Please help us to monitor cheetahs in Tanzania by sending us your photographs and filling in the form below for each group of cheetahs seen:

Your Name: _____
 Your Address: _____
 Where were you on safari? _____
 How many cheetahs did you see in the group? _____
 What was the sex of the cheetahs you saw? _____
 If there were cubs with the cheetahs you saw how big were they (please tick box)?
 Less than half size
 Half size
 Three-quarter size
 Full grown
 What was the name of your safari company? _____
 Where did you see the cheetahs (please give a rough location)? _____
 If you would like us to post information about your sighting on the web please could you sign below:
 Signature: _____
 (This is an easy way for us to inform you about the cheetahs you have seen)
 Please send your form and photographs to:
 The Tanzania Carnivore Conservation Centre,
 TAWARI, Box 661, Arusha, Tanzania
 Or you can email us at carnivores@habari.co.tz

Observer Grid square Year

(degrees N, degrees E and a, b, c or d)

Visits to square over year (please circle most appropriate):

Pass through once / A single trip of 1-7 days / Several trips or one long trip of 7-30 days /

Partially resident in square / Mostly resident in square

Latin name	Common name	Seen?
Family : CANIDAE Dogs and allies		
<i>Canis adustus</i>	Side-striped Jackal	
<i>Canis aureus</i>	Golden Jackal	
<i>Canis mesomelas</i>	Black-backed Jackal	
<i>Lycan pictus</i>	Wild Dog	
<i>Otocyon megalotis</i>	Bat eared fox	
Family : FELIDAE Cats		
<i>Acinonyx jubatus</i>	Cheetah	
<i>Caracal caracal</i>	Caracal	
<i>Felis silvestris</i>	Wild cat	
<i>Leptailurus serval</i>	Serval	
<i>Panthera leo</i>	Lion	
<i>Panthera pardus</i>	Leopard	
Family : HERPESTIDAE Mongooses		
<i>Attilax paludinosus</i>	Marsh mongoose	
<i>Bdeogale crassicauda</i>	Bushy tailed mongoose	
<i>Galerella sanguinea</i>	Slender mongoose	
<i>Helogale hirtula</i>	Desert Dwarf Mongoose	
<i>Helogale parvula</i>	Dwarf mongoose	
<i>Herpestes ichneumon</i>	Egyptian mongoose	
<i>Herpestes naso</i>	Long snouted mongoose	
<i>Ichneumia albicauda</i>	White-tailed mongoose	
<i>Mungos mungo</i>	Banded Mongoose	
<i>Rhynchogale melleri</i>	Meller's Mongoose	
Family : HYAENIDAE Hyenas		
<i>Crocuta crocuta</i>	Spotted Hyena	
<i>Hyaena hyaena</i>	Striped Hyena	
<i>Proteles cristatus</i>	Aardwolf	
Family : MUSTELIDAE Weasels and allies		
<i>Aonyx capensis</i>	African clawless otter	
<i>Ichneumia striatula</i>	Zorilla	
<i>Lutra maculicollis</i>	Spotted-necked otter	
<i>Mellivora capensis</i>	Honey Badger	
<i>Poecilogale albinucha</i>	Striped Weasel	
Family : VIVERRIDAE Genets and Civets		
<i>Civettictis civetta</i>	African Civet	
<i>Genetta angolensis</i>	Miombo Genet	
<i>Genetta genetta</i>	Common Genet	
<i>Genetta maculata</i>	Large Spotted Genet	

Fig. 2 The Wild Dog and Cheetah Watch leaflets and the carnivore atlas checksheet

We have also developed a range of new materials, including two copies of our newsletter, 'Carnivore NewsBites', (Appendix 4) and the proceedings of our first workshop (Appendix 2). We have also established a project web site on www.habari.co.tz/carnivores. In our original proposal we proposed to print the project's newsletter on a monthly basis. However, during our mid term review we revised this proposal and are now planning to print the newsletter every two months. We agreed with our reviewer that there was little to be gained from a monthly newsletter over a two monthly newsletter, whilst a more frequent newsletter requires substantially more inputs in terms of time and manpower. The newsletter is printed in colour and distributed to our list of contributors, and is also posted on our website. We encourage contributions to the newsletter from stakeholders, and have already received a number of articles, some of which appeared in our second issue. We have also established a listserver on tzcarnivores@habari.co.tz to encourage 'carnivore chat'. This listserver aims to encourage data collection, but also provide a forum for discussion on carnivore conservation issues.

Posters for the Cheetah and Wild Dog Watch Campaigns and the Carnivore Atlas have been designed, however their production is behind schedule as Jerome Kimaro, needed additional training in graphic design before final production. There has been substantial local media coverage on the project activities. The initial project workshop was well covered by the local media, including the Daily News and radio Tanzania. The project has provided articles locally, including to the 'Twiga Times' - the newsletter for the Tanzania Tour Operator Association (TATO).

Towards the end of the reporting period, after consultation with tour operators, a program of presentations was initiated, during which project staff visited different tour operators, and talked to staff and presented the activities of the project to guides and

drivers. These presentations were designed to inform the staff about the project and to encourage participation in terms of data collection.

4.4 Office construction

Office construction was completed in September 2003 and 5% of the construction cost was retained as agreed under the contractual arrangement. The remaining 5% will be paid after a six-month period during which the consultant ARCHI Consult will check for any defects such as roof leakage. The project staff moved into the new office building in October 2003. The building has 5 large offices, a reception area, a tea and coffee area, store room, WC and a large meeting room. The offices have been equipped with four desktop computers, a laptop and a scanner. The computers have been networked and connected to a fast ethernet link. Construction of the building was slightly over budget, due to unanticipated high costs of networking. TAWIRI provided funds for landscaping and fencing, in recognition of the importance that TAWIRI attaches to the project. The official opening of the building was due to be held in September 2003, however it has been delayed to ensure that all project staff were appointed prior to the ceremony, and to ensure that all construction defects were corrected before the ceremony. We will hold the opening ceremony in the next reporting period, and hope to have the Minister of Natural Resources and Tourism of the Tanzanian Government to officiate the opening, and would very much like the DI to encourage a high ranking member of the British government to also attend. The precise time of the opening will depend on the schedules of these people.



Fig. The Carnivore Centre at TAWIRI headquarters in Arusha, Tanzania

The centre's facilities are increasingly being used by wildlife researchers and conservationists linked to carnivores in Tanzania.

4.5 Training

One of the functions of the centre is to provide training to wildlife professionals in carnivore monitoring techniques. Over the past year our training has focussed on training for project staff. Furthermore, after discussions with our mid term reviewer, our training objectives have changed from their original conception in the proposal.

Originally we intended to take on 1-2 masters students who would do their dissertations at the centre. However we feel that our time would be better used and would have a wider and longer lasting impact if it were invested in training for existing wildlife professionals who are already in permanent positions. We are therefore developing our links with TANAPA to provide a training program for Park Ecologists and Rangers in order to improve carnivore data collection and increase the involvement of stakeholders in carnivore monitoring and conservation. Similar links will be established with the Forest and Beekeeping Division (FBD) , Tanzania Fisheries Research Institute (TAFIRI) and Wildlife Division (WD). We have additionally established links with the IUCN Otter Specialist Group who will be providing a training workshop in otter surveys and monitoring in January 2005. This training course will be open to staff at the carnivore centre, as well as key wildlife professionals at TANAPA, TAFIRI, FBD and WD.

We have established links with University of Dar es Salaam (UDSM) and Sokoine University of Agriculture (SUA) for undergraduate training courses due to start August 2004 with students from UDSM and January 2005 with SUA students. The project is also taking advantage of other training opportunities available through its expanding links, particularly on cheetahs and wild dogs. The Cheetah Census Working Group within the Global Cheetah Forum has organised a cheetah census workshop to be held in Tanzania in June 2004. The workshop is intended to develop a reliable, cost effective, long-term and repeatable census methodology for cheetahs, and prioritise areas for surveying cheetahs. All project staff will participate in the workshop, to expose them to international scientists and conservation managers as well as key members of the international community working in carnivore conservation. In addition, cheetahs are a key species in the final national plan for carnivore conservation, and hence the information and materials produced by the workshop will help provide a framework for the development of this plan.

The Carnivore Centre at TAWIRI has a seminar room able to seat 40 people, and hence has facilities for holding seminars on carnivore research and conservation. The seminar room is also useful for training wildlife researchers and other interested stakeholders. Since the seminar room has been equipped, we have held a number of seminars and meetings, including a seminar for TAWIRI staff, and a presentation to a group of American Zoo Directors. We intend to use the room to give presentations to stakeholders about the centre's activities, and to update them on data collection. We will also be conducting a formal seminar program and establishing a journal club over the next reporting period. The seminar room will also house the project's expanding carnivore library.

4.6 National carnivore database

One of the key functions of the Carnivore Centre is to build up a national database on the 35 species of carnivores in the country. The Centre aims to achieve this objective through three national data collection campaigns:

- (i) The Carnivore Atlas Project
- (ii) The Cheetah Watch Campaign
- (iii) The Wild Dog Watch Campaign

All these campaigns were presented to stakeholders at the first workshop and were enthusiastically received. This enthusiasm has been reiterated in informal follow up meetings and presentations. However, now in the second reporting period, the project has had to address the problem of translating professed enthusiasm into hard data collection. To this end there has been a marked increase in dissemination and PR activities towards the latter end of the reporting period (see section 4.5). This will remain a major focus of the project's activities over the next year.

(i) The Carnivore Atlas Project

The Carnivore Atlas project aims to collect distribution data on all Tanzania's carnivore species. It is modelled on the Bird Atlas model, and uses a network of interested wildlife professionals and amateur naturalists for data collection. The database has been established, and 1300 carnivore sighting records have been entered into the database representing 33 species of carnivores by March 31st 2004. Because of a lengthy lag time in submission of data, there remains a substantial amount of data for this period that we have been promised but are yet to receive. Distribution maps of all species have been posted on the project web site, and these maps serve as an effective encouragement for further data contributions. To date, we have received no records of two carnivore species: these are the Miombo Genet *Geneta angolensis* and the Desert dwarf mongoose *Helogale hirtula*.

Lara Foley, from Wildlife Conservation Society (WCS-US), has joined the project team and has been instrumental in assisting the project's database manager, Alexander Lobora, in designing the atlas database and drawing up preliminary distribution maps. The project has also been collecting and collating existing GIS databases for Tanzania to facilitate analysis of the distribution data for the Conservation Action Plan. To this end the project has been an active member of the recently established Tanzania GIS Group, who have used the centre's seminar room for their regular meetings.

The project reviewed atlas data collection at the end of 2003 as it drew together all its data for that year. Because of the low level of data received at that point (81 records by Jan 31st 2004) we have since vigorously promoted the campaign, through direct contact, email and visits and presentations to local safari operators. Since this time the amount of data received has increased dramatically (1219 records received in February-March 2004), and we are confident that this data collection activity is now on track within the northern sector of Tanzania. However we need to encourage and promote data submission in the southern sector, and this will be a key objective over the next reporting period.

(ii) The Cheetah Watch Campaign

The Cheetah Watch Campaign is one of our two campaigns targeted at monitoring individuals within Tanzania's most endangered carnivore community. This Campaign is targeted at tourists rather than at the resident community, as it depends on photographs of individual animals, and tourists tend to be more likely to have camera equipment with them. However, the campaign still depends for its success on the support of resident tour guides who collect the project's leaflets at the park gates and lodges, or through regular deliveries of leaflets from the centre to tour company offices. Photographs received from contributors have dropped noticeably since the initial pilot survey in the Serengeti National Park through 2001 and 2002, prior to this project, and we are attempting to address the reasons for this decline in photographic contributions.

Since the start of this project only 69 records of a total of 146 cheetahs have been received from 54 contributors, however only 24 of these records were for the last reporting period. Whilst there is a substantial lag between photographs taken and receipt of these photographs at the Carnivore Centre, this still suggests a decline in contributions over the last year. In order to address this we have worked with WCS International to produce a web site that provides profiles of individual cheetahs and where we can post contributors names. Members of the project team have also written feature articles on the campaign for Wildlife Conservation and Lifewatch magazine that will be published in the next reporting period.

(iii) The Wild Dog Watch Campaign

Over the reporting period we have received photographs of only 3 Wild Dog packs totalling 29 dogs. The lack of response from this campaign is probably due to the majority of dogs occurring in the south of the country. Encouraging a higher response in this campaign will be a key target as the project focuses on the southern sector over the coming year.

4.7 Other activities

Research

In addition to long term monitoring of carnivore biodiversity across Tanzania the centre aims at delivering quality research that will meet international standards in peer reviewed journals. However, high quality research requires specialist collaborators who can help the Centre realise its aims. To this end we are expanding on existing links within ZSL to establish a technical monitoring advisory group who can assist project personnel in conducting surveys in areas where little data is coming through via the atlas database network. We are also building up links with an international network of advisors through the IUCN specialist groups (canid and wild dogs, cats, otters etc.) as well as through existing members of the project team. The project is becoming well known within the international scientific community.

Significant difficulties and modifications of planned progress

We have outlined most of our major difficulties and modifications in detail within the specific relevant sections of the report, they are also covered in our mid term review (further details are provided below). The most significant difficulties faced over the first 18 months relate to the quantity of data received particularly from southern Tanzania. Another important issue is that given the centre's geographic location in northern Tanzania, there has been a natural tendency to focus our initial efforts on developing and consolidating our linkages in northern Tanzania. There is now a need to focus greater effort on strengthening our relationship with Wildlife Division and other governmental sectors with headquarters in Dar es Salaam and who operate in southern Tanzania. Additionally we have had difficulties finding in country training as well as technical problems with our cheetah matching software. These problems and some proposed changes are discussed in greater detail below.

Data submission

Due to the success of our initial workshop, at which all participants professed their keenness to contribute to our data gathering campaigns, we originally saw no need to vigorously promote data collection. However, when the project reviewed atlas data

collection at the end of 2003 we realised that enthusiasm for the project did not automatically translate into data submission, and since then we have vigorously promoted the campaign, through direct contact, email and visits and presentations to local safari operators, and the amount of data received has increased dramatically because of this.

Extending linkages

During the course of the first 18 months of the project we have developed and strengthened our linkages with the tourism, research and TANAPA sectors, especially in northern Tanzania. However our linkages with certain key sectors in Tanzania need to be developed or strengthened, particularly with Wildlife Division (responsible for wildlife management in game reserves and outside the protected area system), the Forestry and Bee-keeping Division (responsible for forest reserves), and the Tanzania Fisheries Research Institute (responsible for fisheries research e.g. in rivers and lakes, and hence has special relevance to otters). These institutions are all based in Dar es Salaam and will be visited whenever project staff are visiting tour companies within the southern sector (see above). We will make use of existing linkages to these institutions within TAWIRI and the project team to facilitate this wherever possible.

The southern sector

Most of our direct contacts and our contributor list are focussed on the northern sector. This is in part due to the more developed tourism sector in northern Tanzania and in part due to the location of the project in Arusha at the centre of the northern safari sector. We are therefore particularly keen to encourage and promote data submission in the southern sector, and this will be a key objective over the next reporting period. We aim to do this by increasing visits by project personnel to Dar es Salaam (where most companies working in the southern sector have bases), and building up links with the hunting community and Wildlife Division who both have strong links in the southern sector.

Modification of training objectives

As stated above, our training objectives have changed from their original conception in the proposal after discussions with our mid-term reviewer. Originally we intended to take on 1-2 masters students who would do their dissertations at the centre. However we feel that our time would be better used and would have a wider and longer lasting impact if it were invested in training for existing wildlife professionals who are already in permanent positions. We are therefore developing our links with TANAPA to provide a training program for Park Ecologists and Rangers in order to improve carnivore data collection within the national park network and use extended linkages to implement similar programs with other stakeholders. This change in our strategy means that we will have an impact on the training of permanent staff within the wildlife sector rather than on a handful of masters students, who may not necessarily choose jobs within the wildlife sector after qualifying.

Lack of in-country training

Our PR officer urgently needs training in web site construction and graphic design, and our Database manager needs training in Access database management. There are no good formalised training schemes for these skills within Tanzania. We have established some informal links with people in country with relevant expertise who have provided

some training, but such people have limited time and no formal training in teaching. Such a lack of expertise in these skills is probably common in many developing countries, whilst such skills are important for the production of PR materials and for promoting conservation within country. The Darwin Initiative (DI) might want to consider producing some guidelines on such courses, or even promoting courses either in the UK or on a regional level.

Matching software

The cheetah matching software developed by Conservation Research Ltd. is an extremely powerful means of matching cheetahs, however the system has been hampered by continuing bugs in the software and a slowness on the part of the designer to address these issues. We have also been hampered by ZSL's IT department requirements to set up project laptops with security systems with strong password protection. This has led to various problems when networking to other systems in Tanzania. IT expertise in Tanzania is limited, and we do not have access to expert IT personnel who can deal with the non-standard installations operated by ZSL. We have repeatedly had to reinstall windows on project machines, which has led to conflicts in our systems and problems in reinstalling matching software, which could only be remedied by returning machines to the UK. This combination of factors has led to severe delays in matching cheetahs, reaching up to 6 months at one point, and hence also delays in our ability to provide feedback to contributors. This might in part explain our drop in response to this campaign. We are considering purchasing and setting up all our project laptops in Tanzania, as we have already done with our desktops, but this will not correct the problem of continuing bugs in the matching software. The current status of the software is that it works most of the time, but is not 100% effective. We will continue to impress upon the software designer the urgent need to get the remaining bugs in the program removed.

Contribution of external advisors to the project team over the reporting period

Dr. Sultana Bashir, Serengeti Cheetah Project

General assistance with project planning, reporting and implementation. Specific guidance on the Cheetah Watch Campaign and assistance with implementation. Facilitator at the inception workshop.

Lara Foley, Tarangire Elephant Project, WCS

General assistance with project planning and implementation. Designed and established the Carnivore Atlas Access database. Works closely with the database manager providing specific guidance and training in GIS.

Dr. Charles Foley, Tarangire Elephant Project, WCS

General assistance with project planning and implementation. Has detailed knowledge of carnivore taxonomy and provides advice on carnivore species identification and examines data contributions for errors.

David Moyer, Tanzania Program co-ordinator, WCS

Assistance with project implementation, including sitting on interview panels, chairing meetings, and facilitating project linkages.

Sandie Wood, Bytes, Karatu

Sandie Wood is a qualified graphic designer, and has provided training for the PR officer in graphic design. She has also assisted with poster design and established the project web site.

Emmanuel Gereta, TANAPA

Assistance with liasing with TANAPA.

Timetable (workplan) for the next reporting period

Throughout	7 16A, 16B,	Print and continue with distribution of leaflets and posters to request information from tourists and interested resident experts (e.g. researchers, safari operators, lodge and camp managers etc.). Bimonthly A4 newsletter to inform participants of the progress of the project and to encourage future participation distributed to: 1. Tourist and local staff associated with tourism development (5000 copies bimonthly), 2. Local resident experts targeted for contributions of distributional data (500 copies bimonthly).
June 2004	6A, 6B	Demonstrate monitoring techniques and the potential of the facility to interested individuals from TANAPA, NCAA, Wildlife Division, KWS etc.
July 2004	6A, 6B	Tanzanian research assistants to undertake training in the use of matching software, database management and statistical analysis from Project leader and Lara Foley.
August 2004	4A, 4B	The centre will provide training for 2-4 final year projects undertaken by third year degree students at the universities of Dar es Salaam
Sept. 2004	6A, 6B	Demonstrate office facilities to TANAPA, NCAA, Wildlife Division, KWS etc. and set up links for future collaboration and use Arusha office to act as a model for a similar system in Kenya
October 2004	18A, 19A	Opening ceremony for the Carnivore Centre
Nov 2004	6A, 6B	One month training program in GIS provided by WCS staff for GIS staff at the centre
Nov. 2004	2	Provide training to Park Ecologists and Rangers in carnivore monitoring and identification techniques
Nov 2004	12A, 12B	Second year database completed: <ol style="list-style-type: none"> 1. Individually identified wild dogs 2. Individually identified cheetahs 3. Preliminary carnivore distribution maps
January 2005	14A	Otter monitoring and identification workshop
January 2005	4A, 4B	The centre will provide training for 2-4 final year projects undertaken by third year degree students from SUA
Throughout	17A, 18A 18B, 19A 19C, 19D	Wherever sufficient time allows then media interest will be actively encouraged through press releases locally and the ZSL press office. Particular efforts will be made to encourage broadcasts within country, however this is likely to be primarily radio as TV has limited coverage in Tanzania.

5. Actions taken in response to previous reviews

The project was a focus of a mid term review in February which was carried out by the reviewer of the project's first years annual report. Concerns raised in the review were addressed during this review and are well documented in the reviewers report. Key issues raised were ensuring systems were in place to ensure a high return of data and ensuring web sites were kept up to date. These issues, together with means of addressing them, are discussed in the sections above. Another concern raised by the reviewer was a perceived haziness about training objectives and raising general awareness and a lack of detail about how the project would actually work towards the final plan. These are all issues addressed during the mid term review, and the project team now has clear workplans and objectives in working towards these issues, whilst our training objectives have changed (see section 4.5). A final concern raised by the reviewer was the impact of bushmeat poaching on carnivore populations. Whilst we agree with the reviewer that this is a concern, it is outside the scope of this project. However this project aims to set up monitoring programs in place that should assess the impacts of all human activities on carnivore distributions.

6. Partnerships

There are a number of collaborators and partners in the project that have been supportive to the project since its inception. We are also encouraging new collaborators and partners.

Collaboration with existing projects and institutions in Tanzania

Tanzania Wildlife Research Institute (TAWIRI): TAWIRI is mandated to carrying out and co-ordinating all wildlife research in the United Republic of Tanzania and dissemination of information on the same to the management authorities and the general public. This project involves building capacity of TAWIRI to fulfil its mandate of wildlife research with a special focus on monitoring carnivore biodiversity in the country. The project is based at the headquarters of TAWIRI and the main partner is the Director General of the Institute. The Director General of TAWIRI visited ZSL May 2003 in an effort to strengthen links between the ZSL and TAWIRI. All members of TAWIRI have been extremely supportive of the project. Copies of the proceedings of the first workshop were distributed to members of the TAWIRI Board. TAWIRI provided funds for construction of a fence around the Centre and connection of telephone extension to administrative building. This is a testimony of TAWIRI's commitment to the project. The staff at the Centre are under contract to TAWIRI and occasionally assist with other duties of the Institute e.g. organising Annual Scientific Conference.

Tanzania National Parks (TANAPA): TANAPA has continued to support project activities. They are one of our distributors of the leaflets we produce for seeking information on carnivores. The TANAPA Chief Ecologist Mr. Inyasi Lejora was a guest of honour representing the Director General during the first stakeholders workshop held in April 2003. We are formalising links with the Ecology Department at TANAPA thorough a memorandum of understanding to enhance our current collaboration.

WCS Tanzania Program: The project has strong links with the WCS Tanzania Program, and has obtained additional funding from WCS. Both the project leader and the project manager are in regular contact with David Moyer, the co-ordinator for the WCS

Tanzania Program, who has been extremely supportive of the project. The project leader and project manager and the WCS staff based in Tanzania attended WCS strategic planning meeting for the Eastern and Southern Africa in November 2004 in Uganda. Lara and Charles Foley of the WCS Tanzania Program have particularly been helpful in assisting data collection and training personnel at the centre in GIS and database management. Charles and Lara run the Tarangire Elephant Project.

The Serengeti Cheetah Project: This project has been instrumental in the genesis of the Carnivore project, and there continues to be strong on-going collaboration. It is led by the project leader, and managed by Sultana Bashir, both key members of the Carnivore Program team. The project has written the profiles for the cheetahs featured on the Cheetah Watch web site, and assists with matching cheetahs and managing the cheetah watch database.

The Serengeti Carnivore Disease Project: Our collaboration with this project continued to be good. This project is being implemented by TANAPA in collaboration with University of Edinburgh. Members of the project attended the first stakeholders workshop and made presentations linking carnivore diseases and carnivore monitoring. The project leader and the project manager are in regular communication with TANAPA and the carnivore disease project staff.

Tanzania Bird Atlas Project: This project has objectives similar to one of our key objectives that is, determining current distribution pattern of all the carnivore species in Tanzania. We have therefore been in regular communication with this project from the beginning. The Bird Atlas Project staff attended the first workshop and made a presentation on seasonal distribution of birds in Tanzania and how such information has been collected over years. The Bird Atlas Project has been of great assistance in establishing our protocol for the carnivore atlas including sending us data on carnivore sightings. Both the project leader and the project manager are in regular contact with the Bird Atlas Project.

Other: We continue to develop a network of people involved in carnivore research and biodiversity conservation projects who may be interested and keep them informed on our project activities. To this end we have established links with a number of other projects including the Serengeti Lion Project, the Serengeti Hyena Project, the Serengeti Jackal Project, the Serengeti Disease Project, the Serengeti Biodiversity Project, the Southern Highlands Conservation Program, the Katavi Research Project, the Gombe Research Project and the Mahale Mountains Research Project.

Collaboration with existing projects internationally

Frankfurt Zoological Society (FZS): FZS has had a strong historical association within Tanzania and operates a number of conservation programs within the country. The project manager and the project leader have continued to ensure that FZS is informed on the project activities. FZS fieldstaff in Mahale provide data from this remote area. FZS has also provided invaluable links to the IUCN otter specialist group.

WCS International: WCS International has continued to support the project. WCS has assisted in establishing a cheetah website on www.wcs.org which provides profiles of the cheetahs in the Serengeti. It has also provided additional funding of US \$ 11,900 to support various project activities. The project manager and the project leader attended

WCS strategic planning meeting for eastern and southern Africa November 2003. We continue to liaise with WCS's Africa and Global Carnivore Programs.

7. Impact and sustainability

The project has had considerable impact to date in terms of creating and developing a wholly new institution, the carnivore centre, within TAWIRI and in setting up systems to achieve the projects ultimate objectives including developing infrastructure, hiring appropriate qualified personnel, establishing networks. We are now increasingly looking at issues of long term sustainability of the project. Developing lasting capacity is a slow process of which funding is only one aspect. Possible options include:

- An application made to WCS for additional funds totalling US \$11,900 was successful for the US financial year 2003/4 and the project is now listed as one of WCS's core funded projects. These funds provide additional funding for project activities, and WCS is a possible option for funding beyond the expiry of the DI grant.
- TAWIRI has limited funds, but has provided support in kind, including land for the Centre's building, and administrative support. In addition it has provided a small amount of cash funding from its core funds to a tune of US \$2000. This is a testimony of commitment of TAWIRI to this project.
- ZSL has agreed to link a new planned Africa exhibit at Whipsnade Zoo to the Tanzania Carnivore Centre. Interpretative materials at this exhibit will inform visitors about the centre and will ask for contributions for the centre's activities. Similar exhibits at other zoos have been successful in providing long term funds for conservation activities.
- The possibility of forming a Tanzania Carnivore Forum, on the Madagascar Forum model, whereby zoos are sign up to carnivore conservation in Tanzania and contribute funds to the centre's activities was raised during a visit of American Zoo directors. The Project Leader is exploring this option as a possible source of long term funding.

8. Post Project Follow up activities

NA

9. Outputs, Outcomes and Dissemination

Table 1. Project Outputs (According to Standard Output Measures)

<i>PROJECT OUTPUTS</i>		
<i>Code No</i>	<i>Quantity</i>	<i>Description</i>
21	1	Carnivore Centre completed at TAWIRI HQ
20	3	Existing facilities moved to new office, computers networked and linked to fast internet
5	10	Applicants short listed and interviewed for two posts of Project Assistant and a Secretary

5	3	Project Assistants and a Secretary employed at the centre
20	4	Two additional desktop computers, a laptop and a scanner purchased
6A, 6B	3	Project staff trained in carnivore monitoring techniques and database. The PR officer trained in graphic design
14A	1	First internal workshop for stakeholders held. Proceedings printed and distributed to stakeholders
7	8,900	Leaflets for Cheetah Watch and Wild dog Watch Campaigns printed and distributed.
7	5000	Checksheets for carnivore distribution database printed and distributed.
6A, 6B	1	Project Assistant responsible for database trained in GIS. Training is ongoing for PR officer.
4A, 4B	2	Links with University of Dar es Salaam and SUA established for undergraduate training

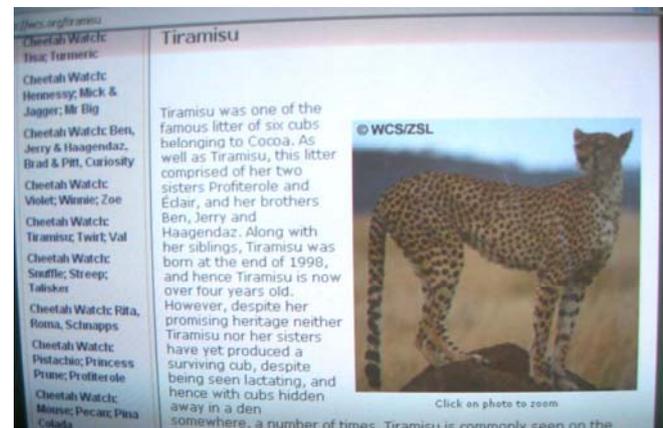
PROJECT OUTPUTS		
Code No	Quantity	Description
12A,12B	1	First year databases are complete: <ol style="list-style-type: none"> 1. Individually identified wild dogs 2. Individually identified cheetahs 3. Preliminary distribution maps produced
16A, 16B	500	A bimonthly newsletter designed, printed and distributed to: <ol style="list-style-type: none"> 1. Tourists and local staff associated with tourism development 2. Local resident experts targeted for contributions of distributional data on carnivores
17A	2	E-mail network and a list server established for the dissemination of information generated at the centre, as well as for obtaining advice for present and future monitoring, data analysis and fundraising.
	16A, 16B	A4 bimonthly newsletter designed, printed and distributed
17A,18A, 18B, 19A, 19B, 19C, 19D	2, 2, 1,1	Two websites established, articles on newsletter published and first workshop covered in radio

Table 2: Publications

Type * (e.g. journals, manual, CDs)	Detail (title, author, year)	Publishers (name, city)	Available from (e.g. contact address, website)	Cost £
Leaflet	Cheetah Watch Campaign Leaflet	Arusha Printing Press, Arusha	Carnivores@ habari.co.tz www.wcs.or g/cheetahs	free
Leaflet	Wild Dog Watch Campaign Leaflet	Arusha Printing Press, Arusha	Carnivores@ habari.co.tz www.habari. co.tz/cheetah s	free
Leaflet	Carnivore Atlas Project Leaflet	Arusha Printing Press, Arusha	Carnivores@ habari.co.tz, www.habari. co.tz/carnivo res	free
Type * (e.g. journals, manual, CDs)	Detail (title, author, year)	Publishers (name, city)	Available from (e.g. contact address, website)	Cost £
Newsletter	Issue 1	Arusha Printing Press, Arusha	Carnivores@h abari.co.tz www.habari. co.tz/carnivo res	free
Newsletter	Issue 2		Carnivores@h abari.co.tz www.habari. co.tz/carnivo res	free
Workshop Proceedings		Arusha Printing Press, Arusha	Carnivores@h abari.co.tz www.habari. co.tz/carnivo res	free

Dissemination activities

Dissemination of information is an integral part of this project. By March 31st 2004 we had printed 13,900 leaflets for the Wild Dog Watch and the Cheetah Watch Campaigns and the Carnivore Atlas project. A total of 11,000 of these have been distributed across Tanzania. Proceedings from the first workshop were distributed to all participants and other stakeholders. We have also developed an extensive website for the Cheetah Watch Campaign on www.wcs.org and for the Carnivore Atlas on www.habari.co.tz/carnivores. The cheetah website provides profiles of cheetahs in the Serengeti, and carry the names of contributors to the cheetah watch campaign under the cheetahs they have seen. The atlas website provides up to date maps of carnivore sightings across the country. A similar website to that of cheetahs will be developed for the Wild Dog Watch Campaign. We have also designed draft posters for the Cheetah and Wild Dog Watch Campaigns and for the Carnivore Atlas.



Two issues of the project newsletter have been produced, and further issues will be printed every two month. The newsletter provides feedback on the project activities to the stakeholders. In addition to the newsletter we have contributed articles other local publications, including the 'Twiga Times' the newsletter of TATO. Further articles will appear in the Wildlife Conservation and Lifewatch magazine over the next reporting period. We have also set up a list server, which is intended to provide a forum for exchange of information on carnivore sightings and to encourage contributors to send us data on carnivores. Finally, we have encouraged the local media to report on the project's activities. The inception workshop was covered in the national media: Radio Tanzania and the Daily News newspaper.

10. Project Expenditure – to be completed

Table 3: Project expenditure during the reporting period

Item	Expenditure
Salaries (specify)	
Rent, rates heating lighting etc	
Office administration costs	
Travel and subsistence	
Printing	
Conferences, training programmes, seminars	
Capital items/equipment	
Other	
Total	

11. Monitoring, Evaluation and Lessons

The activities of the project are monitored against workplans drawn up at quarterly meetings attended by the entire project team. Workplans are based on the logical framework in the original proposal. The project manager submits weekly informal reports to the project leader in order to monitor progress against the workplans. In February the project underwent an extensive mid term review undertaken by an external reviewer contracted by the Darwin Initiative. The review covered all aspects of the project's activities, including its key data collection projects, dissemination, and training, and the reviewer has produced a detailed report to the DI on his findings.

12. Outstanding achievements

- **I agree for ECTF and the Darwin Secretariat to publish the content of this section**

The project created and developed a wholly new institution, the carnivore centre, within TAWIRI and has set up completely new systems to achieve the projects ultimate objectives including developing infrastructure, hiring appropriate qualified personnel and establishing networks of voluntary data contributors. In order to achieve the project's data gathering objectives, it aims to bring together the private and governmental sectors in the common goal of carnivore conservation. This is an innovative approach for Africa, and in taking this approach it has begun to break down the boundaries between these sectors.

Appendix 1

Annex 1 Report of progress and achievements against Logical Framework for Financial Year: 2003/2004

Project summary	Measurable Indicators	Progress and Achievements April 2003-Mar 2004	Actions required/planned for next period
<p>Goal: To draw on expertise relevant to biodiversity from within the United Kingdom to work with local partners in countries rich in biodiversity but poor in resources to achieve</p> <ul style="list-style-type: none"> • The conservation of biological diversity, • The sustainable use of its components, and • The fair and equitable sharing of the benefits arising out of the utilisation of genetic resources 			
<p>Purpose <i>(insert original project purpose statement)</i></p> <p>To establish a national Carnivore Conservation Centre that will conduct long term monitoring of carnivores and train wildlife professionals in carnivore monitoring techniques</p> <p>The production of a Carnivore Conservation Action Plan for Tanzania, that will assess the degrees of threat for each species where sufficient information exists, and prioritise further research on data deficient species and areas.</p>	<p><i>(insert original purpose level indicators)</i></p> <p>Centre established and fully operational at TAWIRI headquarters</p> <p>Three year database on carnivore distribution and status generated by March 2005</p> <p>Increased expertise in carnivore monitoring skills within the Tanzania wildlife professional community</p> <p>Carnivore Conservation Action Plan supported and endorsed by governmental wildlife agencies in Tanzania</p> <p>Implementation of recommended priorities for conservation</p> <p>Further research in data deficient areas activated</p>	<p><i>(report impacts and achievements resulting from the project against purpose indicators – if any)</i></p> <p>Centre established and fully operational</p> <p>First year of database completed</p> <p>Expertise in carnivore monitoring skills increased within TAWIRI staff</p> <p>Final year objective</p>	<p><i>(report any lessons learned resulting from the project & highlight key actions planning for next period)</i></p> <p>Data gathering and information dissemination activities need to be strengthened. Key actions planned are ensuring web site is extensive and regularly updated, promoting newsletter, project staff to actively visit contributors to encourage data contribution.</p>

Outputs			
<i>(insert original outputs – one per line)</i>	<i>(insert original output level indicators)</i>	<i>(report completed activities and outcomes that contribute toward outputs and indicators)</i>	<i>(report any lessons learned resulting from the project & highlight key actions planning for next period)</i>
Carnivore Conservation Centre established at TAWIRI headquarters in Arusha, Tanzania	Buildings erected with six offices and one small meeting room	Building completed and offices and meeting room equipped and in use	
Capacity for carnivore monitoring within Tanzania established	Office equipped with appropriate facilities and suitable staff selected	Office equipped, and three scientific staff with appropriate qualifications appointed as planned.	
Assessment of distributional range of all species of carnivore in Tanzania	Maps of distributional ranges of large carnivores and GIS analysis produced by end of project	Data obtained for 33 species out of Tanzania's 35 species of carnivores and up to date maps of all species are posted on the project web site	Frequent feedback and dissemination necessary for effective data contributions.
Assessment of cheetah and wild dog in Tanzania	Estimates of cheetah and wild dog distribution, population size and demographic parameters by end of project	Limited data obtained under this output, partly due to inefficient feedback as outlined in this report	Project is reevaluating this aspect of the project and is planning new forms of feedback and encouraging data submissions. Whether this has worked will be known at the end of the next reporting period.
Carnivore Conservation Action Plan for Tanzania	Plan published in March 2005 and endorsed by government	Project in data gathering phase, work on plan expected in final year of project	Due to delays in initiating project plan now expected to be finalised in October 2005
Submission of a minimum of four scientific papers in international journals	Peer review and acceptance of these papers by March 2005	Data obtained for 33 species out of Tanzania's 35 species of carnivores and up to date maps of all species are posted on the project web site	Frequent feedback and dissemination necessary for effective data contributions.
A core of wildlife professionals trained in carnivore monitoring techniques	A minimum of three wildlife professionals trained and experienced in using these techniques and a minimum of ten students and wildlife professionals exposed to short courses in carnivore monitoring by the end of the project	The project's three scientific staff are being trained in carnivore monitoring. Short courses are planned in the next reporting period	Additional courses for parks ecologists and planned workshop on otter monitoring planned for next reporting period. Cheetah Census workshop to be hosted by the project in the next reporting period.

Note: Please do NOT expand rows to include activities since their completion and outcomes should be reported under the column on progress and achievements at output and purpose levels.