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African Elephant Update

Recent News from the WWF African Elephant Programme

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Number 5 – June 2005

Cover photo: A herd of elephants on the move in Amboseli National Park, Kenya. The female in the middle of the herd has exceptionally long tusks.

This edition of *African Elephant Update* was edited by PJ Stephenson. The content was compiled by PJ Stephenson & Alison Wilson.

African Elephant Update (formerly *Elephant Update*) provides recent news on the conservation work funded by the WWF African Elephant Programme. It is aimed at WWF staff and WWF's partners such as range state governments, international and national non-governmental organizations, and donors. It is published at least once per year.

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In 2000 WWF launched a new African Elephant Programme. Building on 40 years of experience in elephant conservation, WWF's new initiative aims to provide strategic field interventions to help guarantee a future for this threatened species.

The long-term goal of the African Elephant Programme is:
to conserve forest and savanna elephant populations in Africa.

WWF's elephant interventions are organised around 4 objectives.

- Objective 1 (Protection and Management): To reduce the illegal killing of elephants through improved protection and management
- Objective 2 (Capacity Building): To increase capacity within range states to conserve and manage elephants
- Objective 3 (Conflict Mitigation): To increase public support for elephant conservation by reducing conflict
- Objective 4 (Trade Controls): To reduce the illegal trade in elephant products

For further information on the WWF African Elephant Programme please see our website:
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INSIDE THIS ISSUE

EDITORIAL

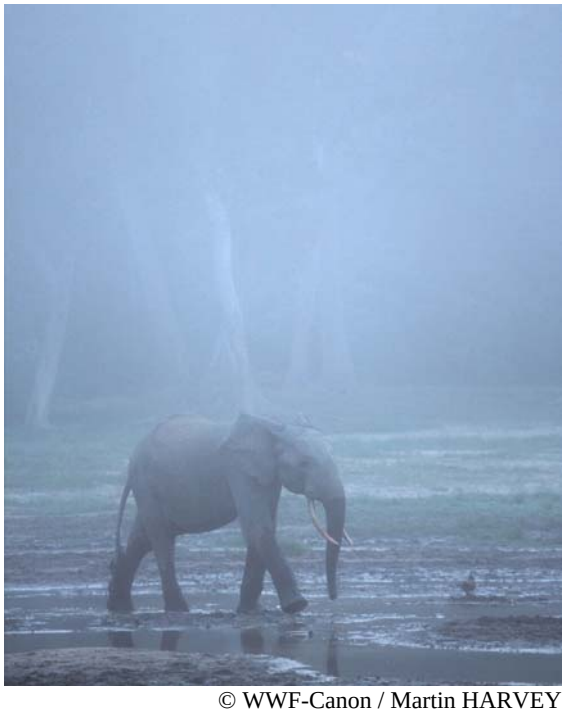
African elephant range states face up to emerging challenges

At the start of the twenty first century, more than ever, differences in elephant management issues are becoming clear across Africa. Reports from the Elephant Trade Information System and the programme for Monitoring the Illegal Killing of Elephants (see page 14) continue to show that many central African countries are having trouble stopping poaching and ivory trading. The action plan agreed by African elephant range states at the last CITES Conference of the Parties, which aims to reduce the domestic ivory markets that fuel the illegal international trade, is not yet being widely enforced. In contrast, elephant populations continue to thrive in southern Africa, to the extent that countries such as South Africa and Botswana are struggling with the problem of local over-population. Some herds are becoming too large for protected areas and are destroying their own habitat, as well as local people's farms and livelihoods.

In central and southern African range states are coming together with their neighbours at two separate workshops to develop sub-regional strategies for elephant conservation and to plan common approaches across borders (see page 17). It is hoped that strategic planning at this level will further encourage transboundary collaboration, of the sort we are seeing already around the Sangha Trinational in central Africa (see the article on page 2) and the transfrontier conservation areas in southern Africa (see an update on one of the sites on page 8). The process will also give range states the opportunity to tackle common emerging issues such as increasing human-elephant conflict (see pages 10-13).

Success in elephant conservation across the continent will require an integrated approach and a whole suite of management tools, with different priority actions needed in different sub-regions. WWF, through its African Elephant Programme, will continue to help enhance the capacity of range states to conserve their elephants and to face the many challenges ahead.

PJ Stephenson
Gland, Switzerland
20 June 2005



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ARTICLE

Monitoring radio-collared forest elephants (*Loxodonta africana cyclotis*) in southeast Cameroon

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Introduction

As more land is converted for human use, elephant habitat continues to contract (see Stephenson 2004). Protected areas become increasingly isolated and elephants increasingly confined within their borders, as their traditional seasonal migratory routes become cut off. Protected area systems are likely to be among the last secure refuges for elephants. This means that management for broader biodiversity goals and law enforcement will have to be improved.

Many African countries (particularly those in forest regions) are unaware of the size, distribution and population trends of their national elephant herds. Assistance in censusing populations and in developing reliable national and sub-regional databases is important, as is using these data to manage national herds. While the large-scale creation of new protected areas is likely to come to an end in the short to medium-term future, the development of transfrontier collaboration in the sub-regional management of herds presents the opportunity for creating corridors between protected areas. This is particularly the case for contiguous protected areas in central Africa where elephant herds move across frontiers.

The establishment of long-term ecological monitoring programmes is essential in protected areas (see e.g. Noss 1990, Kremen *et al.* 1994). They are required to assess trends and the stability of the ecosystem over time, and provide protected area managers with information they need for decision-making. Large mammals such as elephants are among the most frequently monitored species within protected areas due to their conservation importance and the hunting pressures they face. Radio telemetry has proven to be one of the best field methods for monitoring forest elephant movements and distribution patterns (Usongo 2003, WCS 2003).

Three countries in central Africa have launched an international conservation initiative aimed at managing at a landscape level three adjacent national parks: Lobeke in Cameroon, Dzanga-Sangha in the Central African Republic, and Nouabale Ndoki in the Republic of Congo. One objective of the transborder conservation initiative known as the "*Trinational de la Sangha"* is aimed at promoting joint management of natural resources using innovative, collaborative management approaches.

As part of the Sangha Trinational project, WWF works with the government of Cameroon in the southeast forests. The main objectives of this programme are:
1. To provide baseline data on elephant movement patterns and home ranges
2. To identify important elephant corridors (especially outside protected areas) for integration in to an elephant population management strategy
3. To collect data on elephant transboundary movements in view of establishing a transfrontier monitoring programme
4. To evaluate the impact of human activities on elephant movement and distribution patterns
5. To integrate data on species movements with other data from monitoring programmes such as MIKE (Monitoring Illegal Killing of Elephants) to enhance knowledge on elephant population ecology.

This article reports on recent work by WWF, the North Carolina Zoo and the government of Cameroon to monitor elephants in the southeast forest.

Study Area

The southeast forest of Cameroon is a dense semi-deciduous forest, characterized by a patchwork of high forest, secondary forest and low-lying swamp, interwoven with a mosaic of Maranthaceae forest, mono-dominant stands and forest clearings (see Letouzey 1985 for more detail). This patchwork of forest types promotes a high diversity and abundance of

large mammals such as forest elephant (*Loxodonta africana cyclotis*), western lowland gorilla (*Gorilla gorilla gorilla*), chimpanzee (*Pan troglodytes*), bongo (*Tregalaphus euryceros*) and forest buffalo (*Syncerus caffer manus*).

The national parks of Lobeke, Boumba Bek and Nki cover more than 700,000 hectares of the southeast forests. A surrounding area of 2 million hectares comprises multiple use zones for logging concessions, professional hunting areas, community hunting zones and village territories. The entire forest block consisting of core protected area with national parks and surrounding buffer zones is managed as a single management unit under different management regimes.

Methodology

Darting forest elephants requires the use of professional teams of trackers to find the elephants, and a veterinarian with a good knowledge of animal physiognomy, anatomy and the use of anaesthesia. If the animal is located in a suitable position (i.e. in forest not too dense to prevent rapid access), the vet applies the dart with the appropriate dose of etorphine HCI. It takes about 25 minutes or more for the animal to become anaesthetised. The placement of the animal once darted is critical - it is preferable to be lying in a lateral position that facilitates easy breathing. If the elephant is in a dorso-ventral position, it is rolled laterally. Once the elephant is down, it is provided with oxygen through a tube (see Plate 1) to facilitate breathing. Ventilation pulses and oxygen levels are simultaneously monitored during anaesthesia. A radio collar is rapidly placed around the neck of the animal prior to its re-animation with an antidote. The darting and collaring operation usually lasts about 30-45 minutes.

Each radio collar has two transmitters. A VHF transmitter is used to follow the elephant at close range; a receiver similar to an FM radio is used in picking up signals. In addition a UHF transmitter sends signals to weather satellites which relay the information to a processing centre in France. The processing centre converts the signals into latitudes and longitudes and sends the information by email to a server in North Carolina where it is then distributed to North Carolina Zoo and WWF. The elephant locations are then plotted on overlaid maps to provide information on movement and distribution patterns.

"Kernel home ranges" were determined from time-weighted means of how much time the animals spent in a particular area. The kernel home ranges were split into percentages of 25, 50, 75 and 95% indicative of the amount of time spent by the animal in an area.

Plate 1: An elephant receiving oxygen whilst being fitted with a radio-collar.

Results

The results presented here are based on satellite maps analysed for three elephants named Robinson, Desiré and Djako which were collared in the protected areas of Lobeke and Nki. All three animals were observed to travel long distances outside the national parks. During 8 months, male elephant ***Desiré*** was observed inside the park on two occasions, using two pathways. He moved out of the park during March which coincided with the short rainy season; he only returned for about 10 days during the long rainy period. Desiré spent a large part of his time in the northern peripheries of Lobeke National Park within logging concessions and professional hunting zones. One of the major corridors identified for Desiré ran across a professional hunting zone (#29) within the SEBAC logging concession.

Figure 1 presents movement patterns of male elephant ***Robinson*** over 14 months; Figure 2 presents results from April to November 2003 for female elephant ***Djako***, collared in the national park of Nki. Unlike Robinson and Desiré, Djako spent more time inside the park than in peripheral zones.

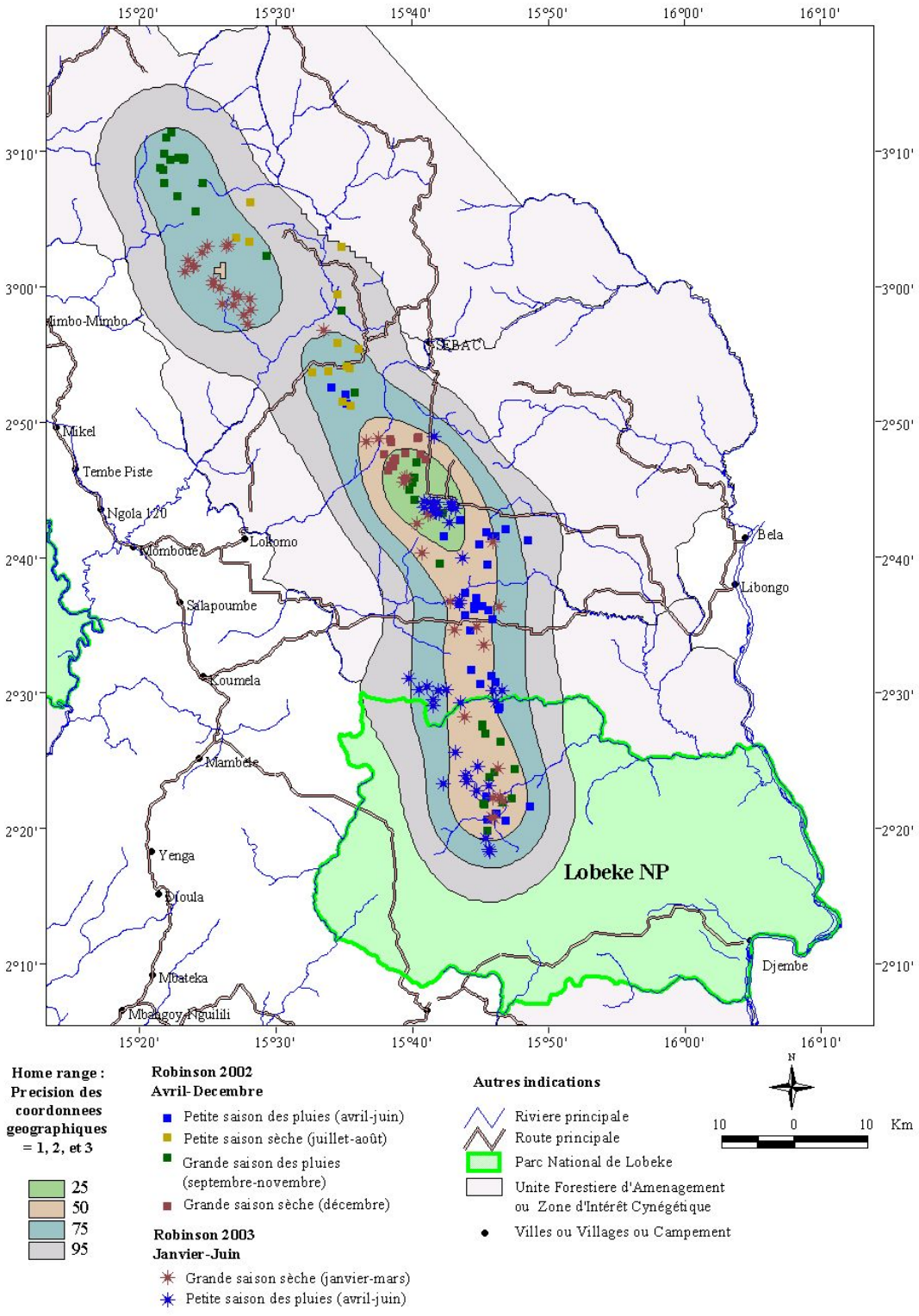


Figure 1: Movements patterns of male elephant ***Robinson***. Robinson was observed on three occasions to move out of the park into surrounding forest. During the month of September in the long rainy season, he made a long movement out of the national park, covering a distance of 135 km. Robinson went out of the park again during November 2002 to March 2003 and April to June 2003; these represent the long dry season and short wet season respectively. Robinson spent more time in surrounding forest areas than inside the national park. Two important corridors were identified in logging concessions situated north of Lobeke National Park. Analysis of satellite imagery maps indicates these areas were characterized by secondary vegetation and large swamps.

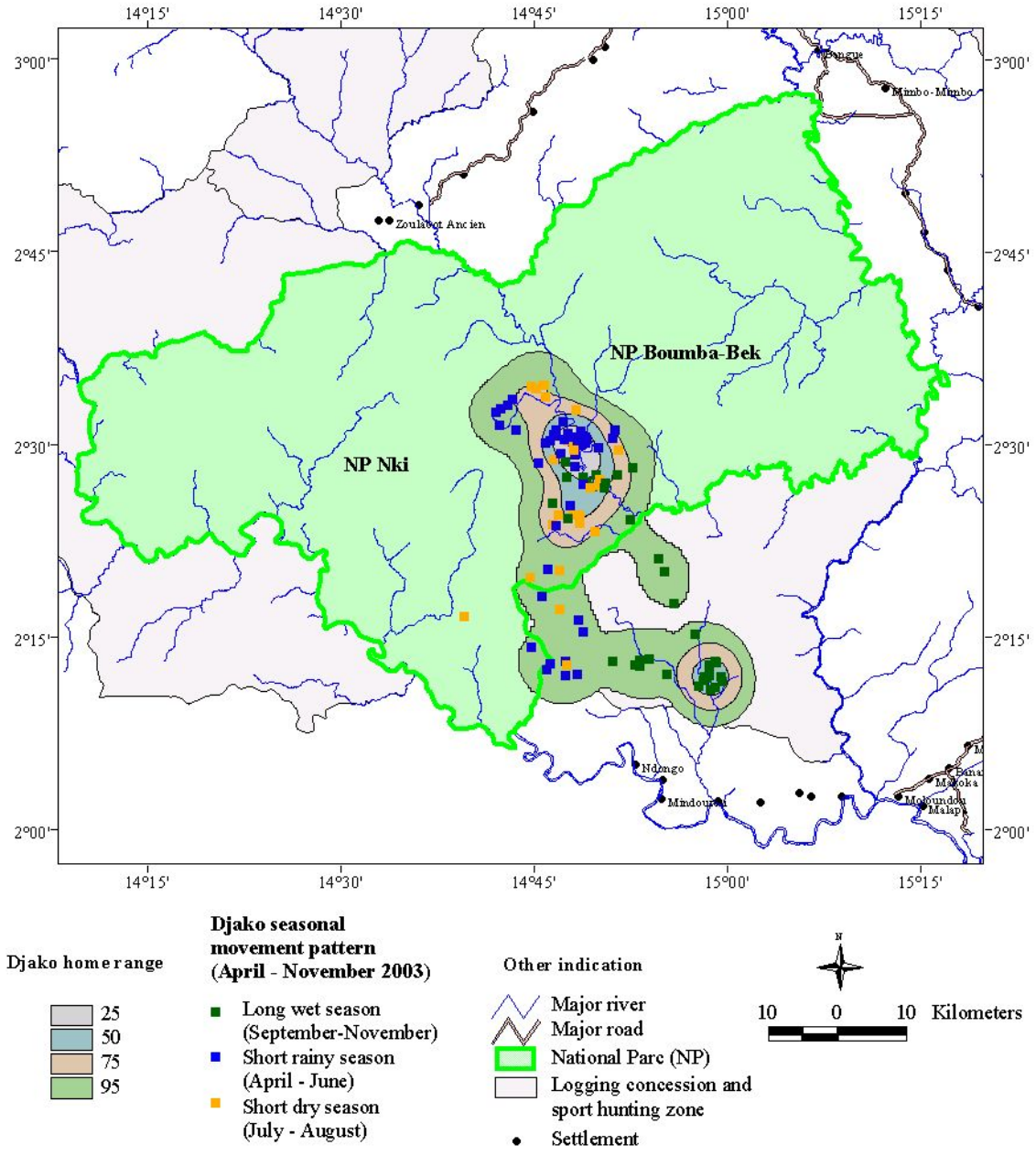


Figure 2: Movements patterns of female elephant ***Djako***. Djako was observed to spend most time within the Nki river basin and surrounding forest clearings. Over the study period, Djako moved three times towards the north of the protected areas during 1. the short rainy season period of April to June; 2. the short dry season of July to August; and 3. the long wet season period starting in September. She spent most of the time in a river basin area situated between Nki and Boumba Bek national parks. Djako occasionally moved to the east into a logging concession. Vegetation of the logging concession was predominantly secondary with patches of pristine forest and swamps.

Discussion

Results of the on going radio-collaring studies indicate elephants spend more time in forest surrounding protected areas than within the protected areas. This reinforces the need for national parks authorities to collaborate actively with local stakeholders in neighbouring areas, especially logging companies and local communities.

Explanations as to why species spend more time in certain areas can only be determined on the basis of long-term studies, but the results allow some preliminary conclusions. Movement patterns appear largely influenced by seasonality and food abundance, although

human factors such as poaching may have been significant in areas outside parks.

Seasonal factors

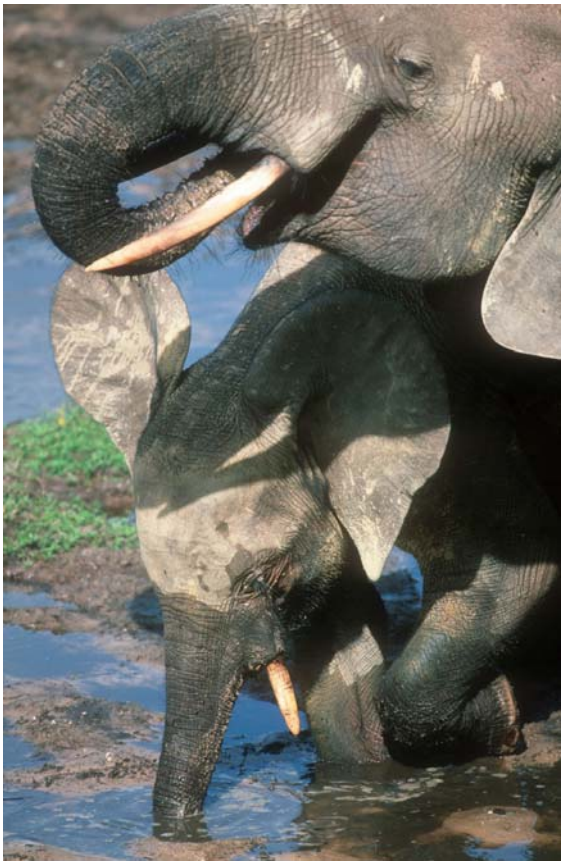
During the dry season period of June-August that coincides with less tree fruiting, the elephants were observed to cover a wider range searching for food. Robinson spent more time during this period in forest areas with large swamps and salt licks. In the dry season period from November through March, elephants in Lobeke spent more time in the swamps and large forest clearings while in the wet season, notably during the months of April through June and September through November, they often roamed more than 54 km out of the national park.

The distribution of resources has a profound effect on elephant ranging patterns (Blake 2000, Thouless 1995). In addition, long distance movements are possible under any rainfall level in the forest since the risk of an elephant finding itself too far away from water does not exist (Thouless 1995). This allows elephants to be nomadic in their search for high quality forage.

Habitat preference

Most of the forest areas outside parks, especially logging concessions, are characterized by secondary vegetation. Researchers (e.g. WCS 1996, Ekobo 1995, White 1992) have reported the impact of commercial logging on forest vegetation and elephant population distributions. The high prevalence of secondary vegetation types such as *Maranthaceae* are reported as choice food items for elephants (Stromayer & Ekobo 1991, WCS 1996). The elephants are also attracted to surrounding forest areas by artificial salt licks which are maintained by professional hunters. These salts licks attract many wildlife species that are easily hunted by sport hunters even though the practice is against national wildlife laws.

Another factor yet to be fully investigated is the impact of commercial hunting on species movements and distribution patterns. Human disturbance is known to profoundly influence the distribution of elephants (Barnes *et al.* 1998, Fay & Agnagna 1991, Tchamba & Seme 1993, Tchmaba *et al.* 1995). Powell (1997)



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suggested that the individual home ranges of elephants in Cameroon are shaped by the distribution of farms and logged forests and that elephants avoid areas of current human activity rather than being compressed by them.

Most logging centres in southeast Cameroon and villages such as Nyangoute (in CAR), Libongo and Bela (Cameroon) are notorious centres of poaching including elephant hunting (Ekobo 1995, Hardin *et al.* 1998) and result in high-risk foraging areas for elephants. Powell (1997) suggested that in addition to humans, logged forest shaped the home ranges of elephants since it offered high browse availability and was a preferred habitat type for feeding. The ability of forest elephants to cover long distances demonstrates their responses to geographic distribution of resources over a large spatial scale.

Elephant home ranges

Only subtle differences in home range was noted between seasons. This is most likely explained by the fact that water is not a range limiting factor in the forest. However, in the savanna zone, range is dictated by the presence of water so large seasonal fluctuations occur,

with dry season water sources influencing movement (see Tchamba *et al.* 1995).

Conclusions

The present elephant monitoring programme was designed to provide basic scientific information on species movements inside and outside protected areas in order to identify important corridors that require protection. Results suggest the elephants spend at least 80% of their time in buffer forest areas such as logging concessions and professional sport hunting zones. Effective protection of elephant populations will therefore require combined efforts of law enforcement inside and beyond national parks and the active collaboration of logging companies and professional hunting companies operating in surrounding areas. Park authorities are now planning their anti-poaching operations accordingly.

The project's work will continue. Activities to be implemented during coming months include: tagging of more elephants; testing drop-off collars; continuation of vegetation analysis of elephant corridors; collection of information on elephant hunting and ivory trade within the region; and the development of communication and awareness raising materials for various target audiences.

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NEWS FROM THE FIELD

Conserving elephants across borders: the Futi Corridor

WWF-South Africa is involved in a new Peace Parks Foundation project that will help local people live alongside elephants and benefit from their presence.

Tourism is the fastest growing industry in the world, and the conservation of southern Africa's biodiversity is a means to ensure that the region gets its fair share of this market. Increasing realization of southern Africa's tourism potential will result in an increase in employment opportunities and local and national development. After many years of effective conservation efforts, elephant populations are expanding across southern Africa. This can lead to increased human-elephant conflict when animals raid crops and cause a nuisance in nearby settlements. If elephants can however be prevented from conflicting with people, and tourism benefits from the animals and their habitat can be accrued to the local population, support for conservation is expected to grow.

In recent years a number of Transfrontier Conservation Areas (or TFCAs) have been proposed within southern Africa, linking conservation and development projects across national borders. The Peace Parks Foundation, in partnership with the Southern African Development Community's official tourism body, RETOSA, and the Development Bank of Southern Africa, spearheaded a study to review potential and existing TFCAs throughout the region. Fourteen possible transfrontier initiatives were identified. These included the Ndumo-Tembe-Futi TFCA (commonly known as the Futi Corridor) - an important area for elephants on the border of South Africa and Mozambique (Figure 3).

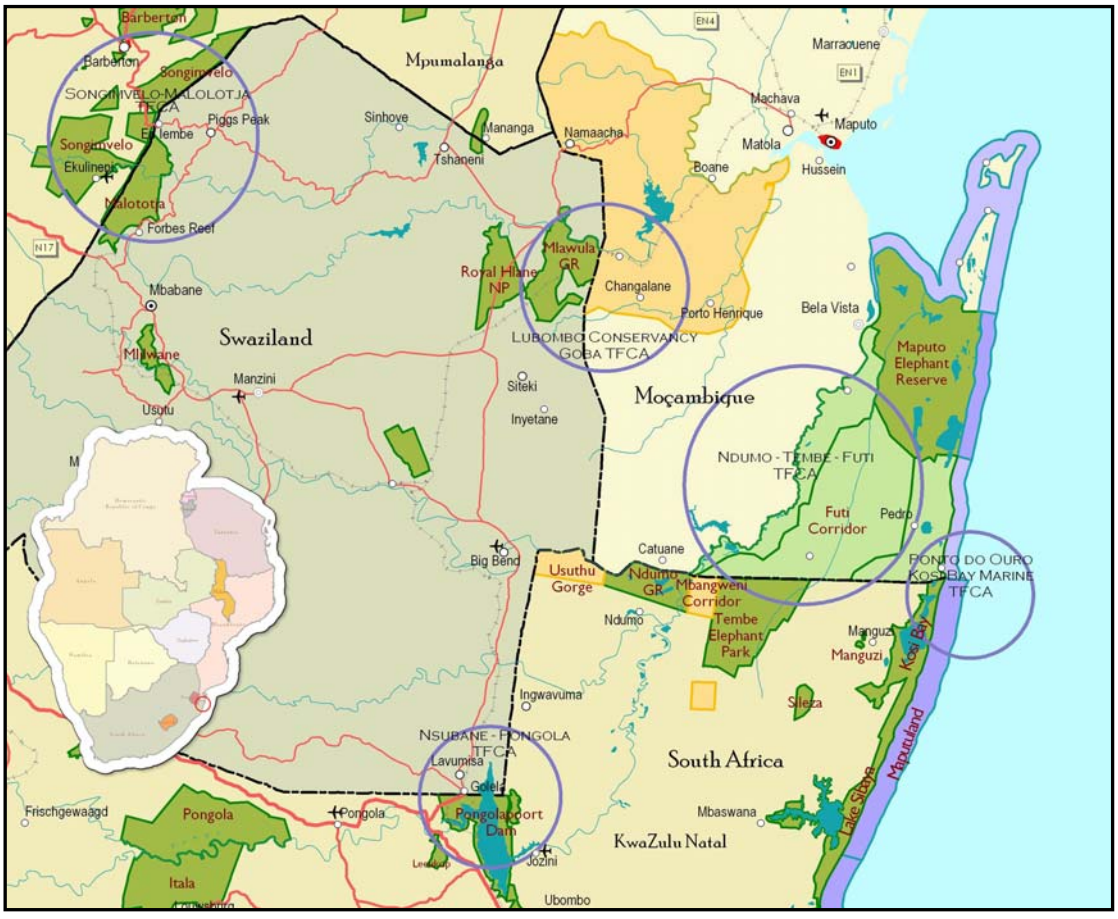

Figure 3: Map to show Transfrontier Conservation Areas between South Africa, Mozambique and Swaziland, including the Ndumo-Tembe-Futi TFCA (also known as the Futi Corridor).

In 1986 the South African Defence Force erected an electrified fence between South Africa and Mozambique due to the civil war across the border. This blocked a natural elephant migration path. However, following extensive consultations with local communities it has been agreed that the existing fence can be removed and a transfrontier conservation area established to protect the migration corridor. The Ndumo-Tembe-Futi TFCA will conserve 79,500 hectares of elephant habitat and link the Maputo Special Reserve (78,500 hectares) in Mozambique with the Tembe Elephant Park (30,500 hectares) in South Africa. It will address WWF-South Africa's target of expanding elephant range and protecting the habitat of key populations. The approximate number of elephants in this area is 1,350: 500 in Tembe, 600 in Ndumo, and 250 in Maputo Special Reserve.

The Ndumo-Tembe-Futi TFCA will also provide support for the estimated 5,000 people living alongside the corridor. The boundaries of the TFCA have been defined through local consultation and through analysis of data on elephants tracked with satellite collars by the Conservation Ecology Research Unit of the University of Pretoria (Figure 4).

WWF-South Africa has embarked on funding a Peace Parks project to conserve the Futi Corridor in partnership with local people and the Ministry of Tourism's TFCA Unit, the local authorities and the Directorate of Protected Areas. The main aim of the project is to help local people stop elephants damaging their crops and water boreholes. To address this problem, an elephant stay line (or restraining line) will be erected along the Futi Corridor. The elephant stay line is not a traditional fence but comprises three strands of electrified wires suspended between 2.4m and 1.8m above the ground. The innovative design allows free movement of people and domestic animals underneath, but acts as a barrier to elephant movement. It will thereby prevent elephants accessing the community's crops and villages but will still allow people freedom of movement in to the area to collect medicinal plants, fruits and other natural resources that can be harvested sustainably.

WWF is supporting the fencing of a 25.4 km segment of the Futi Corridor as a pilot project. It is expected that the stay line will be in place by mid-2006. Maintenance and construction costs are low. A team comprising of members of the local governments, local communities and staff from Maputo Special Reserve will be formed to monitor the project and to supervise the maintenance of the elephant stay line. The Mozambican government has agreed to continue maintaining the fence at the end of the two-year project.

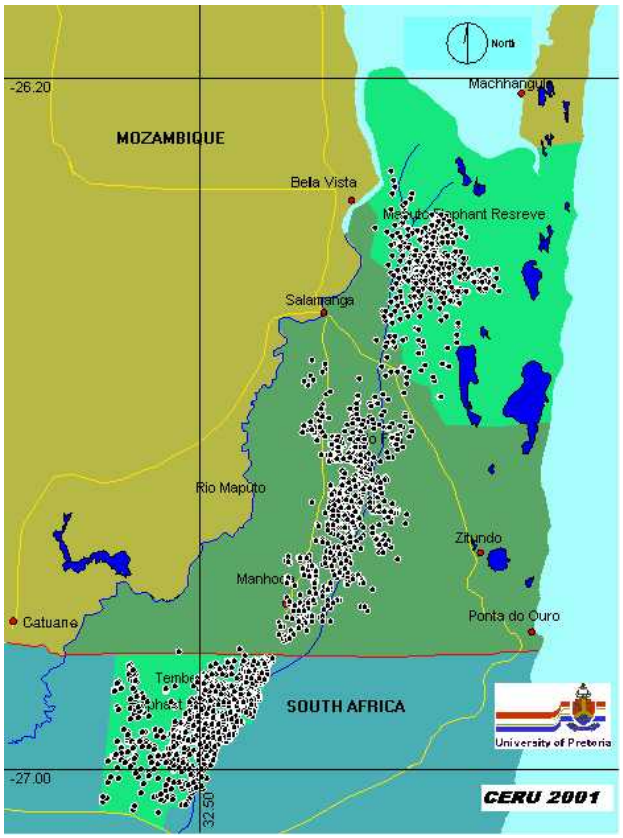

Figure 4: Elephant movements in the Futi Corridor, 1999-2001, as monitored by the University of Pretoria. Note the movement of elephants up to the international boundary fence between Mozambique and South Africa.

The project will also support local communities directly. A borehole will be drilled to allow people access to clean drinking water. Community members will also be employed to construct the elephant stay line, and four more will patrol and maintain the fence over a two-year period. The VHF radio system will be upgraded to enable effective maintenance of the stay line and communication with park officials in the event of problems or human-elephant conflict.

Institutional and technical support will also be provided for the development of the Maputo Special Reserve which is an integral component of the Ndumo-Tembe-Futi TFCA

and the associated biodiversity conservation and tourism potential of the region. The western boundary fence of the Reserve will be upgraded to prevent elephants entering community land.

Community support for the TFCA is primarily dependent on the authorities reducing human-elephant conflict. The two governments will be assisted in this task by the Peace Parks Foundation who will provide training of rangers in elephant protection and training of local communities in human-elephant conflict mitigation techniques. It is hoped that in the long-term conflict will be reduced to more acceptable levels and local people will benefit from tourism within the Futi Corridor.

For more information on the conservation work of WWF-South Africa check their web-site at http://www.panda.org.za/
For more information on the Peace Parks Foundation go to http://www.peaceparks.org/

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Quirimbas elephant project moves into its last phase

Efforts to mitigate human-elephant conflict (HEC) in Mozambique's Quirimbas National Park are beginning to bear fruit. Between September 2003 and September 2004, the number of fields destroyed by elephants in and around the park was reduced by 68% (250 were lost in 2003-2004 compared with 781 the year before).

Villagers from 22 villages have now been trained in HEC mitigation techniques such as chilli 'bombs' and cordoning their field with ropes smeared with chilli-oil (see reports in *Elephant Update* Numbers 3 and 4). HEC mitigation support and materials have been made available to all communities living in the park and its buffer zone. The demand for these materials means that chilli production and rope-making are now burgeoning micro-enterprises for many local communities! After visiting Zimbabwe to attend an HEC seminar, the Provincial Wildlife Director was able to pass along several hot new tips for deterring marauding elephants. The project is now working with the District Agriculture Department and the Aga Khan Foundation to extend HEC mitigation know-how to other communities surrounding the park.

Experience in the Quirimbas has further emphasized the observation that fields concentrated in blocks can be successfully defended, whereas isolated fields scattered around the forest are much more vulnerable.

"As soon as one farmer chases the big guys out, they go into the field just down the river", says WWF Project Executant, Peter Bechtel. "Fields must be in blocks so that elephant and human areas are clearly defined and a collaborative effort can be made to defend them. In addition this creates a natural deterrent. Elephants which are used to dense bush are reluctant to come into the open, so larger blocks of fields tend to be invaded less often than smaller, scattered plots."

Peter added, "It would also be extremely interesting to have some funds to experiment with various types of natural fencing, for example Euphorbia or sisal".

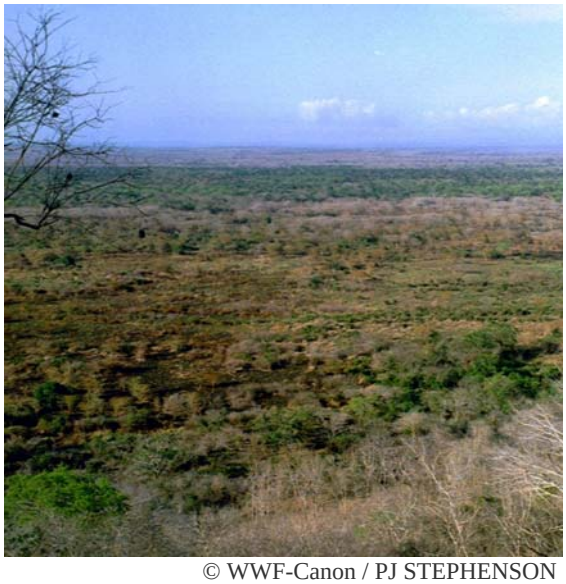

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Plate 2: Quirimbas National Park, seen from Guludu viewpoint.

The project's recently completed second phase also saw progress in improving park infrastructure and management capabilities: another vehicle and new equipment and material for park staff were purchased and 20 more rangers were trained at Gorongosa Wildlife College. The Department of National Parks has adopted the Namibian 'Event Book System' which has been tested in Quirimbas. In addition, a transect-based elephant census was conducted.

The next steps

The project is now in its third and final phase. HEC remains the biggest issue in and around Quirimbas, so the project will try to consolidate its early successes by enhancing the capacity of park rangers to implement HEC mitigation and protect elephants. Adequate numbers of Global Position System (GPS) units are needed to provide geo-referenced data, as is further training for villagers in areas such as anti-poaching, HEC mitigation, wildlife and park legislation, and village zoning to cluster fields and plan development. An important aspect will be to try to discourage illegal wild fires that are set by communities to clear land for agriculture – these cause widespread damage to park habitat, with the result that elephants are more likely to seek forage in farmers' fields.

Another cause of conflict between people and elephants is water: in many cases, especially where village wells are inadequate, dried up or out of order, people resort to sharing water sources with elephants, inevitably leading to conflict. The project will start experimenting with the use of wells to reduce this problem.

During Phase Three, a longer-term, larger-scale programme will be developed with stakeholders to tackle the conservation of the northern Mozambique metapopulation of elephants. Observations suggest there is widespread movement of elephant herds between the Niassa Reserve and Quirimbas. Other movements occur along the River Ruvuma (Rio Rovuma) on the border with Tanzania, from Meluco to the Niassa Reserve, from Mahate to Quiterajo along the coast, and along the River Messalo from Quiterajo to Quirimbas in Meluco. Thus, in order to conserve this important metapopulation, conservation activities are needed far beyond the borders of Quirimbas and Niassa. A workshop involving key governmental and non-governmental stakeholders is planned for July 2005 to identify potential elephant migration corridors in need of study and protection. The workshop will discuss the concept and status of elephant corridors, prioritize areas of potential intervention, and investigate the possibility of managing elephant corridors to guide economic and conservation development over the long term in the north of Mozambique. The appropriate and effective legal status of these corridors will need to be confirmed.

Plate 3: Children collecting water near Guludu village on the edge of Quirimbas NP. Due to the drying up of wells, people are now taking water from pools such as this that are habitually used by elephants as drinking holes. This inevitably leads to increased conflict.

Rangers will continue to be trained in using the Namibian Event Book system to build a database on elephant numbers and movements. The project will also seek additional financial support to develop a suitable Geographical Information System (GIS) for using geo-referenced data from GPS-equipped patrols to create maps for use in park monitoring and management decision-making.

Lessons from the successful Quirimbas project are already being replicated at other sites in the region. From July 2004 to June 2005 the WWF African Elephant Programme has been supporting partners such as the Elephant Pepper Development Trust to conduct HEC mitigation trials in other sites in southern Africa: the Caprivi strip in Namibia, around the South Luangwa National Park in Zambia, and around Niassa Reserve in northern Mozambique. WWF will continue to look for ways of further expanding this vital work to

ensure people can live alongside expanding elephant populations.

For further information on WWF's work in Quirimbas see: http://www.panda.org or http://www.wwf.org.mz

Human-elephant conflict mitigation work expands around the Masai Mara

The potentials and pitfalls of mitigating human-elephant conflict or HEC in Kenya's Transamara region are highlighted in Noah Sitati's most recent report from the field. Monitoring of HEC incidents is now in its 48th month in this joint project of WWF, the Durrell Institute of Conservation and Ecology (DICE) and Kenya Wildlife Service. The information making up this long-term data set will be critical for understanding the underlying factors for spatial and temporal patterns of conflict and for underpinning future decisions on conflict mitigation.

Thirty-nine local farmers have visited the ten HEC mitigation trial plots to learn how to discourage marauding elephants. The trial plots have watch towers, front line communal guarding, early warning systems, and are encircled by ropes smeared with engine oil, chilli and tobacco. Community interest in HEC mitigation measures has grown considerably, and some 23 farmers have been encouraged to start their own trial plots, supported by training in mitigation monitoring and techniques.

Several valuable lessons have been learned in the past year. While conflict has declined on trial plots, including those initiated by farmers, elephants now appear to be targeting those farms not deploying mitigation measures – so it appears that HEC is simply shifting from trial sites to non-trial sites. Another observation is that the success of the mitigation trials, together with higher returns on maize crops, has encouraged people to establish new farms which have started encroaching further into elephant habitat: at the same time, fewer farms are being abandoned. This emphasizes the need for clear land use policies and plans in areas where humans and elephants co-exist, even where mitigation techniques are implemented on the ground. On the positive side, elephant attacks on humans have declined during the project period.

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Plate 3: Transmara project executant Dr Noah Sitati (centre) checking elephant tracks at a salt lick with two students from Moi University.

Besides conflict monitoring and mitigation, the project has gained ground in monitoring and highlighting incidents of illegal killing of elephants, hunting for bushmeat, logging and charcoal burning. Helped by a good relationship between the project and local communities, who have volunteered information, scouts have recovered six elephant tusks, and timber and bags of charcoal have been impounded. Since the formation of community-based natural resource management groups, it has become clear that the local community is keen to conserve their natural resources as long as they derive some benefits.

Outreach and education about HEC in local schools is continuing: two well-wishers who read about the project on the WWF website donated 17 footballs, which have been distributed to 15 school teams and one community team within the elephant range. The schools are now preparing to compete for an "Ndovu (Elephant) Cup". T-shirts bearing printed elephants were donated to a school that has an active conservation club.

Lessons from the project are being disseminated far and wide. The project's methods are now being tested in Amboseli National Park. One of Noah's team members was also invited by Kenya Wildlife Service to Tsavo West National Park where he participated in four community meetings to discuss human-elephant conflict mitigation.

Outreach activities have not been confined to Kenya. Noah has recently given presentations to a Society for Conservation Biology

conference in New York, to elephant keepers at Chicago's Brookfield Zoo, and at the East Africa Wildlife Society's monthly public lecture in Nairobi. In September, a team of 12 Asian elephant researchers from nine different countries inspected the project, and in December a team of ten politicians from the US Congress visited the Transmara to learn about living with elephants in the wild – not your everyday experience on Capitol Hill!

As Noah emphasizes, "Promoting awareness among the local and international community of the progress and pitfalls in HEC mitigation is one of the best approaches to alleviating the threats facing elephants".

For more information on the Transmara project check out WWF's special *On The Ground* feature on Noah and his work at:
http://www.panda.org/about_wwf/where_we_work/africa/where/eastern_africa/kenya/human_elephant_conflict/index.cfm
Also see the DICE website at:
http://www.kent.ac.uk/anthropology/dice/

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The elephants of Campo Ma'an

The Campo Ma'an forests of southwest Cameroon belong to the Atlantic forest eco-region, a wilderness area of outstanding natural beauty and biodiversity shared with Equatorial Guinea. Campo Ma'an National Park is an important sanctuary in the heart of this ecoregion. It provides protection for more than 500 forest elephants as well as some 80 species of other large and medium sized mammals including buffalo, western lowland gorilla, central chimpanzee, leopard and the giant pangolin. The park is surrounded by two major agroforestry plantations, community forest zones, hunting zones and logging concessions which, along with the park, cover an area of some 772,000 hectares.

More than 59,000 people live around Campo Ma'an within 119 settlements and 17 agro-industrial camps and logging camps. There are about seven main ethnic groups in the area, the most prominent minority being the Bagyeli pygmies.

Very little is known of the status, distribution and cross-border movement of the elephants of Campo Ma'an. They frequently range beyond the park in to farmlands, hunting zones, logging concessions and land adjacent to agro-industrial plantations, where they become vulnerable to poaching. There is an increasing demand for land by the human population which is growing, largely through immigration stimulated by the existence of jobs at the agro-industrial plantations. Combined with limited government budgets to manage elephant populations inside the protected area, unsound land-use planning, and illegal hunting for the bushmeat trade, the park and its elephants are coming under increasing threat.

In 2003 WWF started a programme with the government of Cameroon to improve management of Campo Ma'an National Park and to ensure sustainable use of natural resources in the buffer zones. In early 2005 an elephant-focused project was initiated with funding from WWF and the International Elephant Foundation. This project aims to conserve the forest elephants of Campo-Ma'an National Park and its environs within the context of improved livelihoods for local farmers. Specifically, the project aims:
1. to assess elephant density and distribution
2. to reduce elephant poaching

3. to monitor and mitigate human-elephant conflict
4. to assist local populations in establishing effective policies for reducing human-elephant conflicts, and to raise awareness about conservation issues (including bushmeat hunting).

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Plate 4: Bertin Tchikangwa (right), WWF Project Leader in Campo Ma'an, discussing park issues with Mathieu Messamela, Chief of Nkongo village and a prominent member of the Bagyeli community.

The elephant project will complement the broader WWF Campo Ma'an Programme and contribute towards the implementation of the park's management plan. It will also support the implementation of the third component (Biodiversity) of Cameroon's Forest and Environment Sector Programme, the blueprint for the management of Cameroon's rich floral and wildlife resources.

For more information on WWF's work in Campo Ma'an see the special On The Ground communications feature on our website at:
http://www.panda.org/about_wwf/where_we_work/africa/where/central_africa/cameroon/campo_maan/english/index.cfm
or contact: Bertin Tchikangwa Nkanje WWF Campo-Ma'an Project Leader.
btchikangwa@wwfcarpo.org
For information on the International Elephant Foundation see:
http://www.elephantconservation.org/

Domestic ivory markets under continued investigation

TRAFFIC - the wildlife trade monitoring programme of WWF and IUCN - has been working closely with the WWF African Elephant Programme on a number of initiatives to curtail the illegal ivory trade and to implement the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES). Recent joint projects have included the assessment of domestic ivory markets in three west African states (see *Elephant Update* Number 4), and the development of the Elephant Trade Information System, ETIS.

Managed by TRAFFIC as one of the two formal monitoring systems for elephants under CITES, ETIS has played an instrumental role in focusing global attention on the detrimental impact of the world's domestic ivory markets on elephant conservation. The ETIS analysis of over 9,400 elephant product seizure records, presented by TRAFFIC to the thirteenth meeting of the Conference of the Parties to CITES (CoP13) in October 2004, demonstrated that illicit trade in ivory is most directly correlated with the presence of large-scale unregulated domestic ivory markets in Africa and Asia where law enforcement is weak or altogether absent. These markets rely upon illegal sources of ivory for the local production and supply of ivory curios and other elephant products.

A recent study[1] estimated that between 4,800 and 12,200 African elephants are illegally killed each year just to supply the annual needs of ivory carvers in 25 selected markets in Africa and Asia. The ETIS report to CoP13 also showed that the illicit trade in ivory has continued to increase from 1995 through 2002, and that Cameroon, China, the Democratic Republic of the Congo (DRC), Ethiopia, Nigeria and Thailand are the countries most highly implicated in such trade. The Chinese market was also shown to be the principal driving force behind the increasing trend in illicit trade in ivory worldwide.

[1] N. Hunter, E. Martin & T. Milliken, 2004. Determining the number of elephants required to supply current unregulated ivory markets in Africa and Asia. *Pachyderm* 36: 116-128.
Report available at http://iucn.org/themes/ssc/sgs/afesg/pachy/index.html

A preliminary analysis of elephant mortality data generated through implementation of the Monitoring of Illegal Killing of Elephants (MIKE) programme under CITES further suggests that elephant poaching is currently most severe and unsustainable in central Africa. This region harbours many important domestic ivory markets, and is also most frequently mentioned as the source of raw ivory used by carvers in other markets in west and east Africa.

Under the "action plan for the control of trade in African elephant ivory" approved at CITES COP 13, all African elephant range States committed:

- to prohibit unregulated domestic sale of ivory, whether raw, semi-worked, or worked
- to instruct all law enforcement and border control agencies to enforce such laws
- to engage in public awareness campaigns to publicise these prohibitions.

The states are also obliged to report to the CITES Secretariat on their ivory trade policy and demonstrate compliance with CITES requirements for internal trade in ivory. Lack of compliance could result in the imposition of punitive sanctions, including the suspension of all international trade in CITES-listed species. The Secretariat's first report on this matter will be considered at the 53rd meeting of the CITES Standing Committee from 27 June to 1 July 2005, with continuing oversight and review of this iterative process expected to occur at each successive meeting of the Standing Committee and at CoP14.

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Plate 5: An ivory carving. Large, unregulated domestic sales of ivory carvings and curios continue to fuel the illegal international trade.

TRAFFIC has launched a new project with support from WWF entitled: *Assessment of Ivory Markets and Ivory Trade Policy in 15 Selected African Countries of Importance.* This project is designed to support the important oversight process that is currently in progress under the direction of the CITES Standing Committee to curtail all unregulated domestic ivory markets in Africa. It is focused on assessing the ivory markets and policy in the 15 African nations identified in the ETIS analysis as being the most highly implicated in the illicit ivory trade. It will help meet the urgent need to provide substantive independent assessments of the domestic ivory trade, policy and law enforcement capabilities in these countries to shape and guide the CITES process towards successful implementation.

The specific objectives of this project are:

- to undertake detailed ivory market assessments in selected African countries that document not only the scale of the trade, but also analyze the ability of these countries to comply and implement the CITES requirements for internal ivory trade controls and the CITES action plan for the control of trade in African elephant ivory
- to produce a series of reports on the findings of these studies, including specific recommendations for government action and national follow-up
- to use the information on the scale and regulation of these markets to update the subsidiary database in ETIS pertaining to domestic ivory markets around the world
- to focus the attention of the conservation community, the media, international donors and others on the situation in countries which continue to tolerate unregulated domestic ivory markets
- to feed important results of these studies into the CITES oversight process and the CITES Secretariat's action plan to control unregulated domestic trade in ivory in Africa and elsewhere around the world.

The first phase of the project has begun. A comprehensive survey of the ivory trade in Egypt, focused upon the cities of Cairo, Luxor, Aswan, Hurghada and Sharm el-Sheikh, was undertaken in March and April 2005. Results will be reported in the next edition of *African Elephant Update*.

For further information on TRAFFIC's work on domestic ivory markets see their website

http://www.traffic.org/ or contact Tom Milliken, Director of TRAFFIC Eastern/ Southern Africa (traffic@wwf.org.zw)
For further information on WWF's work on unsustainable and illegal wildlife trade and CITES see http://panda.org/about_wwf/what_we_do/speces/problems/illegal_trade.cfm
or contact Cliona O'Brien, WWF's CITES and Wildlife Trade Officer (cobrien@wwf.org.uk)

Support for CITES enforcement in Ethiopia

WWF has teamed up with TRAFFIC again to help Ethiopia develop its capacity to implement domestic wildlife legislation and CITES.

TRAFFIC has long been concerned about illegal wildlife trade in Ethiopia, and reports from the Elephant Trade Information System identify it as a country of concern with respect to illegal trade in ivory. Addis Ababa, the capital city, hosts the largest domestic ivory market in East Africa. With a very small national population of elephants, Ethiopia's ivory carvers depend on supplies of raw ivory from other countries, such as Kenya, the Democratic Republic of Congo and Sudan (see http://www.traffic.org/cop12/ivory_markets.pdf). In turn, Ethiopia has been identified as a major supplier of raw ivory to Asian markets, particularly Thailand. TRAFFICs Rhino Horn Database has also identified Ethiopia as a hub for the rhino horn trade.

A workshop was organized in mid-2004 in Addis Ababa that brought together over 40 key people from the wildlife management department, police, customs, Ministry of Trade and Industry and conservation non-governmental organizations. The workshop was organized by the CITES Secretariat and TRAFFIC, in conjunction with the Wildlife Conservation Department of the Ethiopian Ministry of Agriculture and Rural Development. Funding for the workshop was provided by WWF - both the African Elephant Programme and the African Rhino Programme. Kenya Wildlife Service helped with facilitation and passed on lessons from its own experiences with implementing CITES.

Presentations were provided on a range of subjects relating to wildlife trade, legislation and ETIS. The presentations were supplemented by practical exercises. Delegates welcomed the opportunity to discuss wildlife law enforcement issues, share experiences and engage in inter-agency networking - this was probably the first occasion this had been done on such a scale in Ethiopia.

An outcome of the presentations and supplementary discussions was a common realization among the delegates and agencies represented that poaching and illegal trade in wildlife has reached serious levels in Ethiopia, which was noted to be a country of export, re-export and transit for specimens of CITES-listed species. Delegates noted that many wildlife populations in Ethiopia have declined dramatically and that urgent action is required to safeguard their future.

Participants, assisted by the workshop facilitators, charted a way forward on how to control illegal trade in ivory and rhino horn in the domestic market. In particular they identified the need

- to update and strengthen national wildlife legislation
- to encourage prosecutors to bring before the courts persons who commit significant violations of wildlife legislation
- to combat the poaching of, and illegal trade in, wildlife and to gain political support for law enforcement
- to improve inter-agency cooperation and coordination in combating wildlife crime (with the Wildlife Conservation Department taking the lead)
- to report enforcement actions, especially seizures of ivory to the CITES ETIS
- to train more wildlife law enforcement personnel
- to establish publicity and appropriate campaigns to raise awareness of wildlife trade issues and regulations.

Simon Milledge of TRAFFIC East/Southern Africa said, "As a result of the training workshop, other follow-up by TRAFFIC and a renewed commitment to eliminate unregulated domestic ivory markets by the Government of Ethiopia, there have been several positive enforcement results. These have included a large-scale enforcement campaign in early 2005 leading to a marked reduction in ivory openly sold at souvenir shops across Addis Ababa. Long-awaited revisions to wildlife policy and legislation have also taken place,

along with the completion of an outstanding stockpile theft case. ETIS reporting has also improved."

Milledge concluded, "There remains a strong need to maintain momentum at domestic markets in Addis Ababa, as well as working on further improvement to ETIS implementation, law enforcement at customs points, stockpile management, legislative reform and raising awareness. WWF and TRAFFIC will continue to look at ways of helping Ethiopia implement these priority actions for CITES implementation."

For more information on the capacity building workshop in Ethiopia and similar work by TRAFFIC contact: Simon Milledge (traffictz @raha.com)

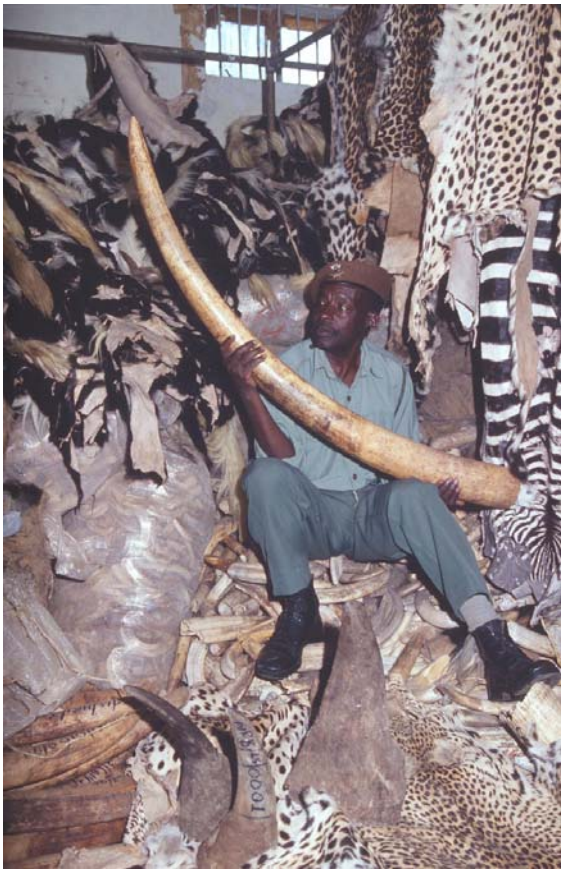

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Plate 6: A Kenyan ranger with ivory and other confiscated wildlife products in Nairobi. Kenya Wildlife Service participated in the CITES enforcement workshop held in Addis Ababa. Some of the ivory traded in domestic markets in Ethiopia originates from elephants poached in Kenya.

Planning with the neighbours: sub-regional elephant management strategies

In recent years WWF has co-funded the development of a sub-regional elephant management strategy for west Africa and national strategies in Mozambique, Cameroon and Ghana. The strategies were developed in a participatory manner to produce a framework of hierarchical objectives and priority actions. In most cases the development of the strategies is facilitated by the IUCN Species Survival Commission African Elephant Specialist Group (IUCN/SSC AfESG), and some of the finalized plans can be found on the group's website (see http://iucn.org/themes/ssc/sgs/afesg/tools/index.html). The planning process allows range states to identify for themselves where their priorities lie, and this in turn allows partners such as WWF to see where their support can be best targeted.

Central African countries have collaborated on a number of environmental issues in recent years, including the Yaoundé process to conserve and sustainably manage forests. Now the respective ministries and wildlife departments have decided to develop a sub-regional elephant conservation strategy. This will help central African states identify common approaches to issues such as the development of capacity to monitor and protect elephants, transboundary protected areas, implementation of MIKE and ETIS, mitigation of human-elephant conflict, and reduction in habitat loss and poaching. The WWF African Elephant Programme, along with other partners such as the Wildlife Conservation Society and US Fish and Wildlife Service, has provided funding to the AfESG which has been asked to facilitate the process. A planning meeting is scheduled for later in 2005 and a draft strategy is expected by the end of the year.

Southern African states are also collaborating on elephant management. Besides developing Transfrontier Conservation Areas (see page 8) and sharing knowledge on conservation, they are planning how to tackle mutual problems with elephant management. However, their problems differ from those facing the states in central Africa. In southern Africa, many years of hard work and investment in wildlife management and protection has led to improved and successful elephant conservation. As a result, many countries in the sub-

region - in particular Botswana, Namibia, South Africa and Zimbabwe - report a steady increase in elephant numbers. Botswana and Zimbabwe hold the largest populations in the sub-region and some of the largest on the continent. This favourable situation has been acknowledged by CITES which, since 1997, has down-listed populations from four southern African states to Appendix II allowing a controlled trade in ivory and other elephant products.

The increase in elephant numbers is causing a dilemma for wildlife management authorities across southern Africa. As numbers grow, some parks have become over-populated with elephants. These large populations cause damage to their own habitat, reducing their food supply and threatening other protected species. Elephants increasingly leave protected areas to search for food and water, and often come in to conflict with people as they enter fields to feed on crops. Human-elephant conflict is a growing problem, threatening the livelihoods of many rural communities.

With many elephants crossing national boundaries, their management is increasingly becoming an international issue requiring transboundary co-operation. The Greater Limpopo Transfrontier Park (on the border of Mozambique, South Africa and Zimbabwe) and the Kavango-Zambezi Transfrontier Conservation Area (Botswana, Namibia, Zambia and Zimbabwe) represent some initiatives already underway to address sub-regional conservation.

In May 2005 a technical meeting of the African Wildlife Consultative Forum (a consortium of the elephant range states' wildlife directorates) fleshed out the outline of a common, sub-regional elephant management strategy. The meeting identified concrete recommendations for action that will help the states conserve elephants whilst safeguarding their habitat, their protected areas and the livelihoods of local people. The strategy will be finalized over coming months. WWF will continue to support southern African countries as they strive to manage their elephants and to deal with challenges not yet facing range states on other parts of the continent.

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NOTICE BOARD

Information needed for the African Elephant Database

The IUCN/SSC African Elephant Specialist Group (AfESG) is currently working towards the production of a new African Elephant Status Report (AESR), to be published in 2006. AESR's are produced generally every three years, using information contained in the African Elephant Database (AED) - which is the most comprehensive resource on the distribution and abundance of the African elephant throughout its range. For more details, and to view previous AESRs, please visit http://iucn.org/afesg/aed/.

If you have recent information on elephant distribution and/or abundance in any African country, we would be most grateful if you would share it with us by completing our AED Data Collection Questionnaire. This is available online at http://iucn.org/afesg/aed/aedquest/. From there you can download English or French versions of the questionnaire (in PDF format) as well as country-specific maps to demarcate current elephant distribution (also in PDF). From the same web page you can also download our Elephant Point Record Sheet for recording and submitting elephant sightings.

If you have Internet access problems or cannot open PDF files, please write to the AfESG at the address below including your full postal address and the country (or countries) of expertise, and we will mail you a paper copy of the questionnaire.

If you feel you do not have information to contribute to the AED but know people who might, please ask them to help. Your co-operation will be most appreciated.

Julian Blanc
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Job opportunity for elephant conservation biologist

The Bioacoustics Research Program in the Cornell Lab of Ornithology, Ithaca NJ, USA, is seeking a conservation scientist at the Research Associate level to serve as Principal Investigator of the Elephant Listening Project. This is an established project which, in its first five years, has developed acoustic protocols for monitoring African forest elephants for purposes of ecosystem and species conservation.

Primary responsibilities:

- To design a sampling scheme to reveal trends in the status and health of forest elephant populations using acoustic information
- To collect and interpret baseline information on selected forest elephant populations, initially in west and central Africa
- To involve national and international regulatory and scientific institutions in using findings from acoustic monitoring in management design
- To raise the funds needed for the project's field and lab work.

Location: Cornell Lab of Ornithology in Ithaca, NY, USA; two to four months annually in field sites and research stations in west or central Africa, initially Gabon

Qualifications required: PhD or equivalent experience in a relevant field. Candidates should have previous international field experience, previous success in fund-raising, proficiency in statistical analysis, interest in elephants, bioacoustics, and conservation. Working knowledge of French would be a great help.

Timing: This initially 3-year position could begin as early as August 2005. Salary will be based on experience.

To apply: Please send your C.V., a letter of application stating your qualifications and interests, a writing sample of your choice, and the names and addresses of three recommenders to the e-mail and/or postal mail address below.

Closing date: 1 July 2005, or until position has been filled.

For further information please contact:
Katy Payne, Bioacoustics Research Program, Cornell Lab of Ornithology, 159 Sapsucker Woods Rd, Ithaca, NY 14850, USA. Tel: +1 607 539-6538, Email: kp17@cornell.edu

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WWF is one of the world's largest and most experienced independent conservation organizations, with almost 5 million supporters and a global network active in more than 100 countries.

WWF's mission is to stop the degradation of the planet's natural environment and to build a future in which humans live in harmony with nature by:
- conserving the world's biological diversity
- ensuring that the use of renewable natural resources is sustainable
- promoting the reduction of pollution and wasteful consumption.

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