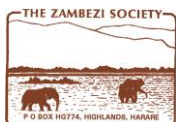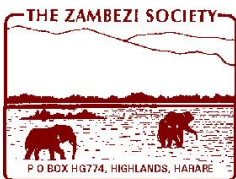ELEPHANTS,

LAND

AND

PEOPLE -

in MAGOE,
GURUVE
AND
MUZARABANI
DISTRICTS -

PROCEEDINGS
OF A
TRANSBOUNDARY WORKSHOP
HELD BY
THE ZAMBEZI SOCIETY
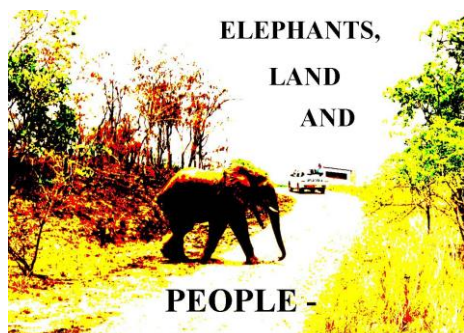## on
TUESDAY, WEDNESDAY & THURSDAY
JULY 10-12 2001

THE ZAMBEZI SOCIETY
PO BOX HG 774
HIGHLANDS, HARARE

PROCEEDINGS OF THE KANYEMBA WORKSHOP

CONTENTS

FOREWORD

I have spent many hundreds of hours flying over Muzarabani, Guruve and Magoe districts in northern Zimbabwe western Tete province, Mozambique. Although my main task has been to concentrate on tracking our "sample" of elephants, I have never failed to be awed by the landscape that unfolds beneath me. Within the Mavuradonha, in Muzarabani – a wilderness area designated by, and for, local communities – rugged hills tumble down to winding river valleys.

Further north, the Zambezi escarpment falls away to the patchwork of forests, villages, fields and rivers of Muzarabani and Guruve districts. Further still, and the ground climbs gently to the forests of the Gonono Sand Ridge, and from there on the gently-undulating wooded savannas of Magoe district extend to the shores of Lake Cabora Bassa, through the proposed Panhame Wilderness Area. Seen from this aerial perspective, this is an idyllic landscape tailor-made for conservation in its entirety – of its wildernesses, its beauty, its wildlife – including, in particular, the elephants that move from Muzarabani, through Guruve and on into Magoe, without passports and visas, without even any knowledge of the barriers to travel, communication and collaboration imposed by mankind upon its collective self.

In other words, it is – in a small, and therefore very practical way – an ideal candidate for a "transboundary conservation area", in current language. But it's a different story on the ground, in the human landscape. Elephants trample crops – and sometimes people. The income from the Mavuradonha barely pays for the essentials of managing the area, let alone provide any real incentive to local people to conserve elephants and their habitats. In Guruve, people rely on food handouts while we talk about conservation. In Magoe, villagers exhausted by decades of civil strife scratch a living from arid lands. And people who cross a border to kill an animal to feed their families are breaking a whole edifice of "laws", inherited from the past and irrelevant in the face of the one law that reigns here: survival.
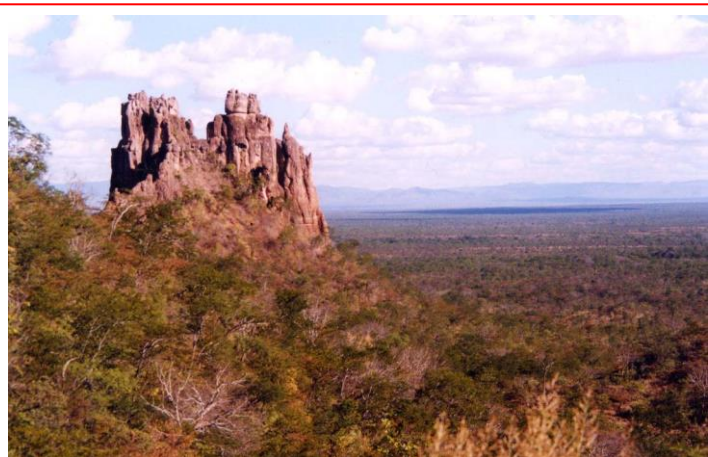
Magoe district, Mozambique – part of a transboundary landscape extending through Guruve to Muzarabani's Mavuradonha mountains

There are many sound reasons why the conservation of landscapes, wilderness and biodiversity benefit mankind. But they tend to be long-term. We can forget about conservation until and unless we recognize the immediacy of poverty and reconcile the duality of these diametrically opposed landscapes. Nor are natural resources the be-all and end-all of development. Industry, agriculture, housing, health and schooling facilities must all be accommodated in this landscape. But it will be much sounder to do so on the basis of farsighted land planning, than of *ad hoc* development that destroys vital biological assets. I would like to believe that this workshop is the beginning of a process that will see the planning of a superb landscape for – in the words of The Zambezi Society's mission statement – *the benefit of its human and biological communities.*

Director,
The Zambezi Society

ELEPHANTS,

LAND

AND

PEOPLE -
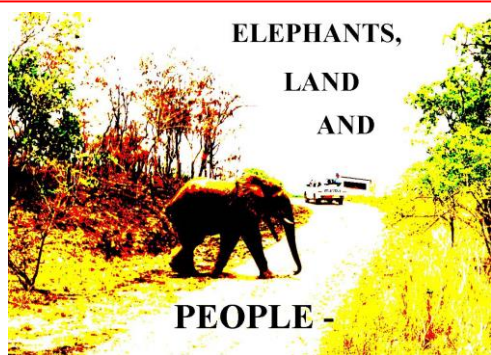
SUMMARY

During the past four years The Zambezi Society has undertaken a number of biological research projects in Guruve and Muzarabani districts (Zimbabwe) and Magoe district (Tete province, Mozambique). This research has focused on the acquisition of information to assist these local authorities to formulate strategies for the sustainable management of elephants and their habitats, and has been undertaken in collaboration with the Mid-Zambezi Elephant Project (MZEP).

The research has focused on several topics. Elephant movement within the three districts has been monitored for a three-year period, utilising radiocollaring and aerial tracking techniques. Dry forests within the project area were also identified as critical habitats in terms of both biodiversity importance and elephant management, and a research project was implemented to evaluate the impacts of human and elephant populations and to identify indicators of forest condition. Meanwhile the MZEP has been developing low-technology methods for the reduction of conflict between humans and elephants

The most critical findings to emerge from this research were the transboundary nature of the elephant population and its preferred habitats, the existence of important transboundary biodiversity and wilderness areas; the existence of well-defined transboundary elephant movement routes; and the need to implement and extend the methodologies developed by the MZEP.

The Society therefore held a meeting of senior officials from the three local authorities at Kanyemba in July 2001 with the following objective:

"To develop and plan a collaborative elephant management framework and strategy for Magoe, Guruve and Muzarabani districts in Mozambique and Zimbabwe."

The workshop was attended by a total of 47 delegates. These included eight councillors and officials from Guruve district, seven from Muzarabani district, 14 representatives from the Tete provincial authorities, the Zimbabwean Deputy Minister of Environment, the Member of Parliament for Guruve North, and representatives from IUCN ROSA and WWF Harare (See list of partipants, Appendix I). The major outcomes were:

1. A set of objectives and actions required in order to promote the establishment of a collaborative elephant management framework and strategy, as follows:

OBJECTIVE ONE: To identify and implement collaborative land planning, wildlife management and biodiversity maintenance options ACTIVITY	IMPLEMENTING AGENCY	BY…
a. Put in place mechanisms for collaborative land planning for habitat maintenance throughout the project area	Zambezi Society, local authorities, WWF, MZEP	June 2002
b. Provide information to local communities throughout the project area on land, wildlife and biodiversity management and development options, and ensure feedback.	District authorities, Zambezi Society, MZEP	Ongoing
c. Develop and adopt standardised set of elephant, habitat & biodiversity monitoring protocols.	Zambezi Society, WWF, management authorities in Zimbabwe and Mozambique	December 2002

OBJECTIVE TWO: To develop and implement activities designed to improve agricultural productivity and land use, and to reduce conflict between humans and wildlife		
ACTIVITY	**IMPLEMENTING AGENCY**	**BY…**
a. Develop and implement elephant management options.	Local authorities, Zambezi Society, MZEP, in consultation with relevant rural communities	December 2003
b. Extend community-based crop protection activities into Magoe district	MZEP	December 2002
c. Test and implement alternative agricultural options to improve rural income and reduce land pressures.	MZEP, DPAP Tete, local communities	December 2003
d. Identification and implementation of non-agricultural land use options	Local authorities, Tete provincial authorities, Zambezi Society, WWF	December 2002

OBJECTIVE THREE: To improve the biological knowledge base for sustainable management of natural resources, biodiversity and wildlife		
ACTIVITIES	**IMPLEMENTING AGENCY**	
a. Fill gaps in biological and other information	Zambezi Society	December 2003
b. Identify minimum biological requirements to ensure long term maintenance of key habitats and viable elephant population.	Zambezi Society	December 2003

2. A unanimous mandate from the meeting for The Zambezi Society to facilitate the implementation of these outputs. The Zambezi Society formally accepted this mandate, and subsequent to the meeting has developed proposals designed to attract funding for this purpose.

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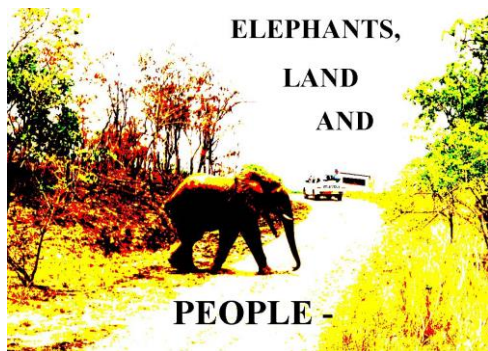
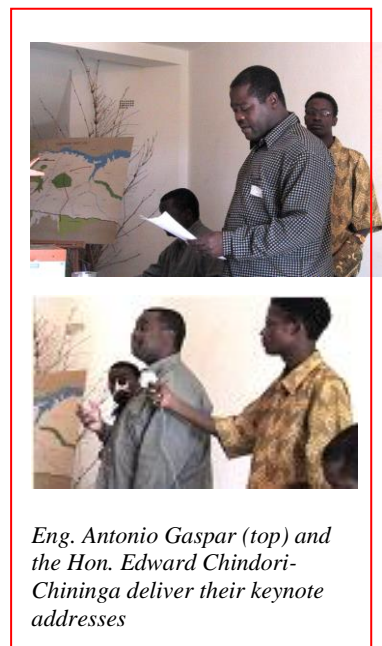**A. BACKGROUND AND INTRODUCTORY SESSIONS**

1. GENERAL BACKGROUND

The Zambezi Society has worked with Muzarabani RDC since 1988, with Guruve RDC since 1994 and with DPAP Tete since 1996, and the project area that is the subject of this workshop includes Muzarabani and Guruve districts in Zimbabwe, and Magoe district west of the Musengezi estuary on Lake Cabora Bassa (Map 1, page 2). Since 1996 the Society's major emphasis has been on research designed to assist these authorities with the formulation of sustainable elephant, habitat and biodiversity management strategies. Much of this research is complete, and it is now imperative that research findings be translated into concrete conservation and management strategies. A major finding has been the transboundary nature of most of the resources that have been the topic of research by the Society and its partner agencies, the Mid-Zambezi Elephant Project (MZEP) and WWF Harare. The Society's interest in some form of transboundary resource management within this landscape extends back to 1998, when The Zambezi Society flighted the concept with donors such as the Ford Foundation, but the political climate at that time was such that it was considered unlikely to succeed. However, the then Zimbabwean Deputy Minister of Environment, the Hon. Edward Chindori-Chininga, subsequently approached IUCN ROSA with a request to facilitate a high-level political initiative to create a suitable environment for transboundary natural resource management between Zambia, Mozambique and Zimbabwe, focused on Kanyemba, Zumbo and Luangwa districts.
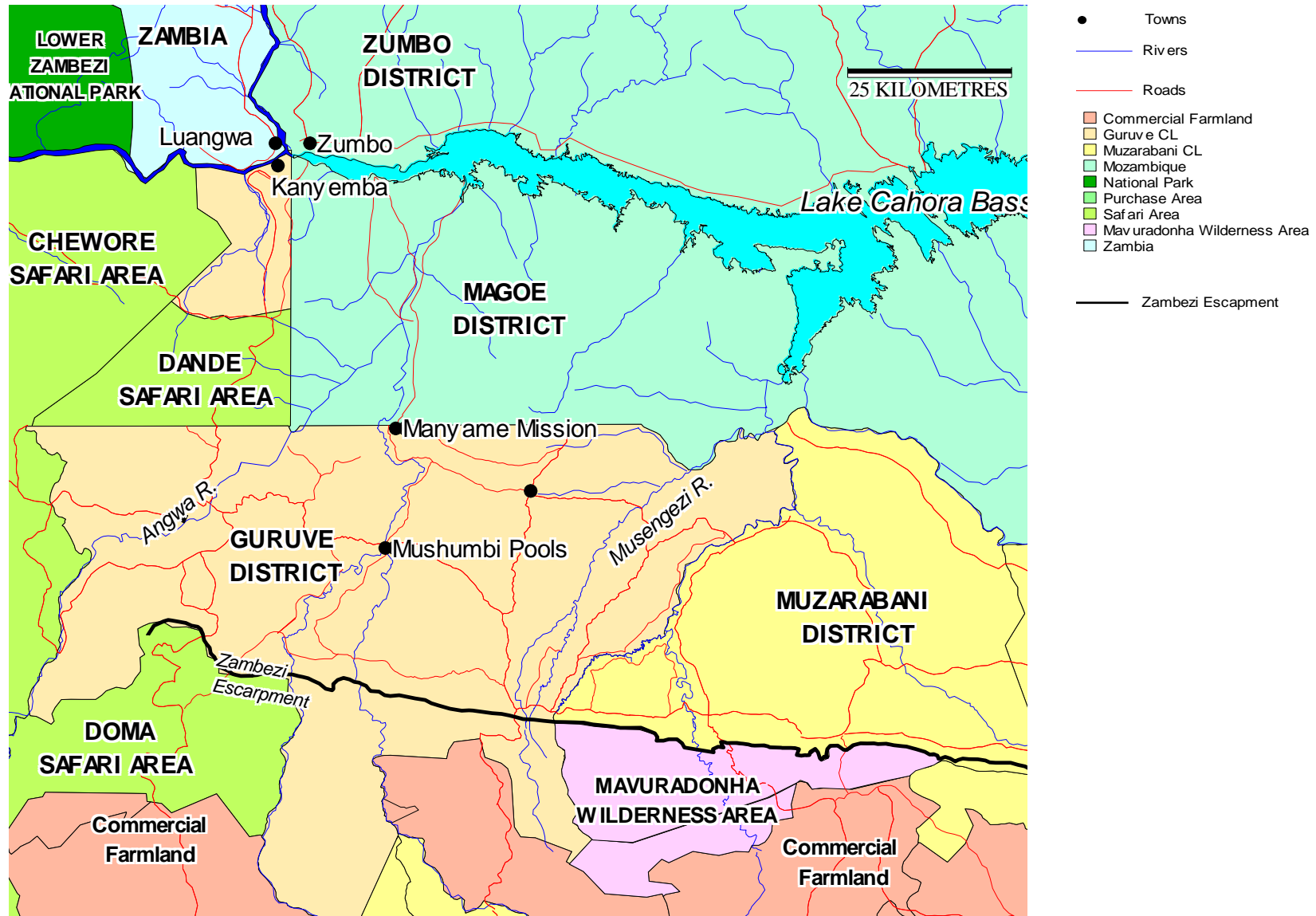
The boundaries of the ZIMOZA initiative are still fluid, and there are some differences in geographical coverage between ZIMOZA and the Zambezi Society project area. As examples: the Zambezi Society project area does not currently include either Zumbo district (Mozambique) or Luangwa district (Zambia) and therefore involves only two of the three ZIMOZA countries. Conversely, ZIMOZA does not currently include Muzarabani district, in Zimbabwe. Regardless of this, the ZIMOZA initiative provides a high-level and generalised political umbrella for practical transboundary management initiatives involving districts within ZIMOZA countries regardless of the details of geographical demarcation.

The political and legislative processes involved in the ZIMOZA initiative are likely to require some time to come to fruition. However, as was discussed at a ZIMOZA meeting in June 2001, expectations have already been raised among constituent communities. Not only is there a need for the rapid implementation of practical moves towards transboundary collaboration: such moves can be initiated before the finalisation of the political and legislative processes.

The Zambezi Society's intention to hold the Kanyemba meeting on the basis of its long research and other involvement in Magoe, Guruve and Muzarabani districts was endorsed by the Zimbabwean Deputy Minister of Environment and the Governor of Tete province, Mozambique, as a means of initiating such moves. The Society therefore thought it appropriate to organise a meeting of key stakeholders in order to present the major findings derived from its own research and that of the MZEP; to explore

Eng. Antonio Gaspar (top) and the Hon. Edward Chindori-Chininga deliver their keynote addresses

the potential for added value resulting from collaborative and transboundary management of the elephant resource and its habitats, and of important biodiversity areas; and to explore the potential for the extension of the technologies developed by the MZEP into Magoe district, Mozambique. The workshop opened with keynote addresses by the Hon Edward Chindori-Chininga and by Eng AS Gaspar on behalf of the Governor of Tete Province. Both speakers emphasised the transboundary nature of the resources concerned, the need to utilise these resources to alleviate poverty in the area, and the need to embark on concrete and visible action in order to satisfy the expectations of the communities concerned. See Appendix II for the text of the keynote address by the Hon Edward Chindori-Chininga, and a summary of the address by Eng Gaspar.

Map labels:

LOWER ZAMBEZI ATIONAL PARK

ZAMBIA

ZUMBO DISTRICT

Luangwa

Zumbo

Kanyemba

CHEWORE SAFARI AREA

MAGOE DISTRICT

Lake Cahora Bass

DANDE SAFARI AREA

Manyame Mission

Angwa R.

GURUVE DISTRICT

Mushumbi Pools

Musengezi R.

MUZARABANI DISTRICT

Zambezi Escarpment

DOMA SAFARI AREA

MAVURADONHA WILDERNESS AREA

Commercial Farmland

Commercial Farmland

Legend:
- Towns
- Rivers
- Roads
- Commercial Farmland
- Guruve CL
- Muzarabani CL
- Mozambique
- National Park
- Purchase Area
- Safari Area
- Mavuradonha Wilderness Area
- Zambia
- Zambezi Escarpment

25 KILOMETRES

Map 1: The general project location

The map shows the general location of the elephant research project and land classification in the surrounding areas. Magoe, Guruve and Muzarabani districts form a single contiguous landscape, extending across local and international boundaries and with no natural or manmade barriers to the movement of elephants or other wildlife.

2. TECHNICAL BACKGROUND

Detailed technical background on the research projects implemented by The Zambezi Society and the Mid-Zambezi Elephant Project were presented to workshop participants in the form of briefing papers. These are available on request as a separate document, but are summarized as follows.

a. Summary of presentations by The Zambezi Society and MZEP

A major objective of the meeting from the Zambezi Society perspective was the translation of scientific research into conservation action. In 1996 the Society was asked to assist Muzarabani Rural District Council with information to assist in the formulation of effective and sustainable strategies for the management of the district's elephant population.

The Society obtained funding from the Royal Netherlands Government to implement a three-year elephant monitoring project within the district, designed to identify key elephant habitats and movement routes. It rapidly became apparent that the Muzarabani elephant population formed part of a contiguous population, now numbering some 3000 animals, that extends throughout the neighbouring Guruve and Magoe districts (the latter forming part of Tete province, Mozambique). The project was therefore extended to include sample animals from the border areas of these districts, and subsequently demonstrated significant transboundary elephant movement. The Society also acquired Netherlands funding to undertake a preliminary investigation of habitats important to both elephants and to biological diversity in the area. This project component focused on the *Xylia torreana* "dry forests", a vegetation type confined almost exclusively to this part of the mid-Zambezi Valley and of major local and global biodiversity importance.

Radiocollaring an elephant bull in Muzarabani district

A further Zambezi Society project also contributed to the background of this meeting. Since 1995 the Society has been assisting rural communities with the identification of conservation mechanisms for a range of sites of high biological importance within Guruve and Muzarabani districts. These sites include the dry forest sites noted above, together with other vegetation types such as riverine woodlands. Several of these sites extend across the international border, notably on the Angwa and Mukumbura rivers and in the vicinity of the Gonono Sand Ridge.

The most significant outcome from these projects is the transboundary nature of the elephant resource and its habitats (Map 2, page 4), and of a range of sites of high biodiversity importance (Map 3, page 5), and the apparent suitability of the Magoe-Guruve-Muzarabani area for a landscape approach to the management of these resources. During the same period the Society has collaborated closely with the Mid-Zambezi Elephant Project, which was established in order to analyse a growing problem of conflict between humans and elephants in Muzarabani and Guruve districts, and to develop low-technology methods of reducing these conflicts. The MZEP is also carrying out trials of high-value crops that are unpalatable to most wildlife species.

3. NATURAL RESOURCE MANAGEMENT BACKGROUND

a. Summary of local authority presentations

All three districts concerned are underdeveloped and their constituent communities depend largely on subsistence agriculture for their survival. There are, however, considerable remaining areas of relatively undisturbed habitat that have enabled a significant population of elephants and other species to survive. All three districts have initiated natural resource management schemes that conform in general to the Campfire principles developed in Zimbabwe during the 1980s and 1990s. However, these schemes differ in some important aspects.

The three local authorities situated within the project area were asked to make presentations dealing with problems, opportunities, constraints and issues involved in the management of elephants and their habitats.

- Muzarabani is the smallest of the three districts in geographical area. Much wildlife habitat has already been lost to settlement and agriculture, and the district's elephant population is estimated to be much
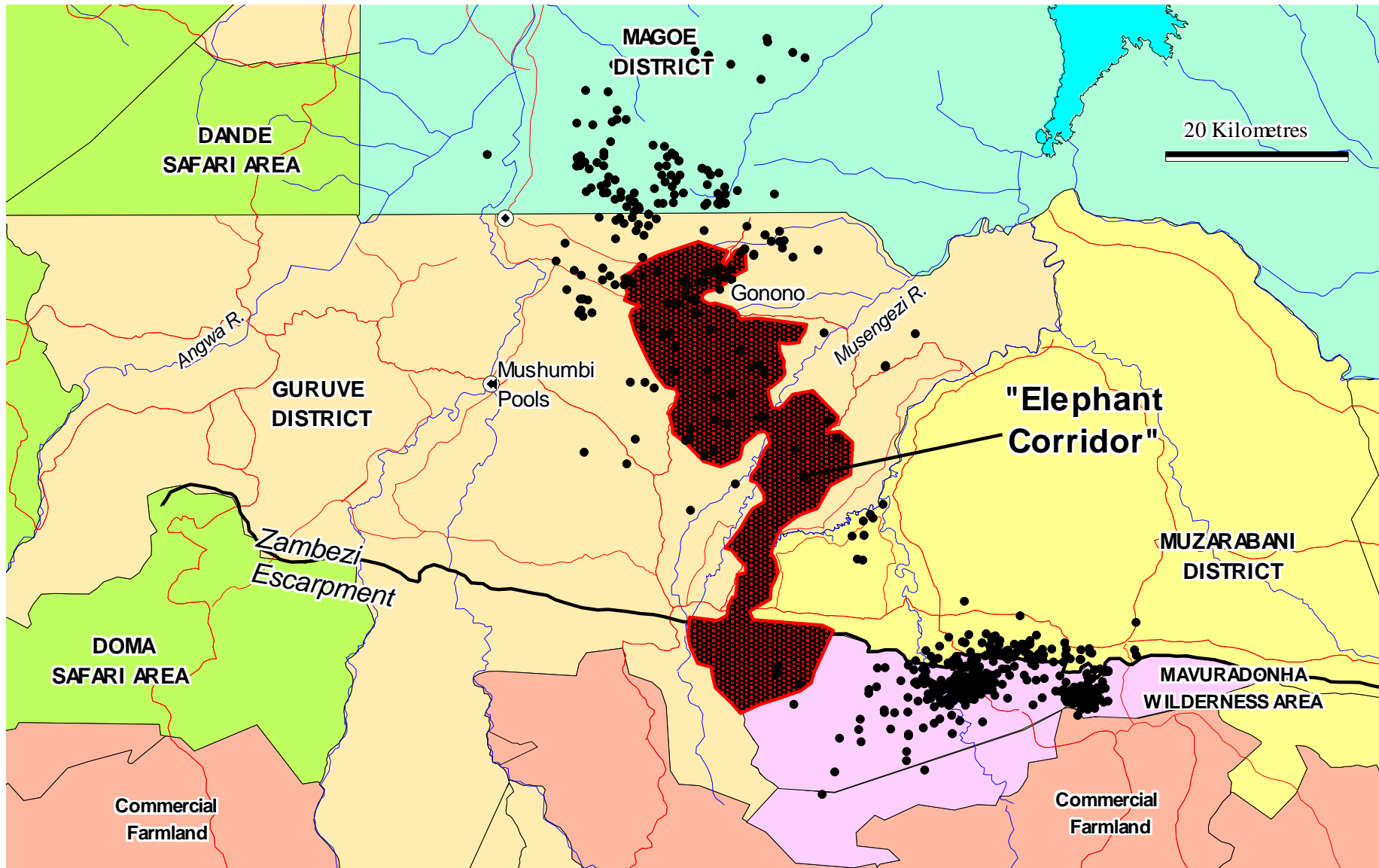
Map 2: Elephant movements in Muzarabani, Guruve & Magoe districts

This map shows the locations of selected elephants monitored by The Zambezi Society over a three-year period. It clearly shows that elephants move freely across district and international boundaries in the project area. Note the position of the proposed "elephant corridor" between Magoe and Muzarabani districts.

This map shows the sites of high botanical importance identified by The Zambezi Society and the Biodiversity Foundation for Africa in Guruve and Muzarabani districts. Further research is needed in Magoe district, where other sites may well be identified in future.

It is important to note that several of the sites already identified extend across the international border, and require collaborative management if their integrity is to be maintained.

These sites include several patches of *Xylia torreana* dry forest – a vegetation type of importance to both regional and global biodiversity.

Map 3: Sites of high botanical importance in the project area

lower than that of the other two districts. The RDC gazetted the 500sq km Mavuradonha Wilderness Area (MWA) within the Zambezi Escarpment in 1988. A safari hunting company holds a concession for sport hunting throughout the district, including the Zambezi valley floor, but in recent years most animals have been hunted within the MWA itself. The MWA elephant population is linked to that of Guruve and Magoe districts via a "movement corridor" that has been identified in the course of research carried out by The Zambezi Society and MZEP.

Muzarabani RDC says that "seventy percent of (Campfire) income is from comsumptive tourism and elephants bring in the bulk of the money. The positive aspect of the project is that communities have benefitted immensely from wildlife…the negative aspect is that wildlife, and elephants in particular, raid maize and cotton crops…. Apart from raiding crops, they attack people, at times fatally."

Work on human-elephant conflict by the MZEP is seen by Muzarabani as ameliorating the negative impacts of the district's elephant population. However, the use of Campfire income for collective projects rather than individual dividend distribution is seen as reducing the incentive to maintain wildlife.

- Guruve has large remaining areas of relatively undisturbed wildlife habitat and important populations of elephant and other species. The RDC has not as yet gazetted areas similar to Muzarabani's MWA, but there are two sport hunting concessions operating within the district. Guruve has the highest overall wildlife income of the three project districts, with a commensurately significant distribution of income to its constituent communities. Large areas of Guruve's surviving wildlife habitat are contiguous with Magoe district, and there is considerable transboundary movement of elephant across the international border.

Guruve RDC acknowledged the values attached to its elephant population in economic terms, but also highlighted the high social and economic costs of maintaining the population incurred through crop damage, human injury and the destruction of ecosystems. These conflicts are increasing as elephant populations grow, while available habitat shrinks due to increasing demand for agricultural land.

Transborder collaboration: Eng. Luis Namanha of DNFFB Tete translates into Portuguese while Mr Matake, Guruve's Natural Resources Officer, makes a presentation on behalf of Guruve Rural District Council.

The RDC saw opportunities arising from increased income, effective land planning and new techniques for controlling human-elephant conflict. Finance, habitat loss, community perceptions and the CITES ban on ivory sales were considered to be constraints. Major issues included compensation for crop damage; the possible further devolution of management authority to community-based institutions, the implications of which are seen as "enormous and disastrous" for the RDC; ongoing tsetse control; a proposed veterinary fence that will effectively divide Lower Guruve in two; and inequities in the distribution of Campfire income. The overriding issue is that levels of income from wildlife management must outweigh the actual and perceived disadvantages of maintaining the elephant population.

- Magoe district forms part of the Tchuma Tchato wildlife utilisation project established during the 1990s with funding from the Ford Foundation. Though modelled on the CAMPFIRE principle, there are significant differences. Firstly, until recently the sport hunting of elephant - the major income earner in the Zimbabwean schemes - has been prohibited throughout Mozambique. This has depressed the income available to constituent communities. Secondly, this available income has been further depressed by the retention of a considerable proportion of gross earnings by central government. However, Magoe district also has opportunities unavailable to the other two districts in the form of a considerable potential for sport fishing and other waterborne recreational activities such as sailing on Lake Cabora Bassa. The area west of the Musengezi river has an elephant population estimated at 1000 animals or more. Recent

surveys by WWF have also identified important populations of other large mammals, including the wild dog *Lycaon pictus,* and available wildlife habitat also currently extends eastward almost to Songo and Tete.

See Appendix II for the full texts of the presentations by Muzarabani and Guruve districts.

b. The ZIMOZA initiative
The local authority presentations were followed by a summarisation of the ZIMOZA initiative by IUCN ROSA. The initiative is focused on the creation of a conducive policy and legislative environment for transboundary collaboration on natural resource management within the Magoe and Zumbo districts of Mozambique; Luangwa district in Zambia; and Guruve district in Zimbabwe. As noted previously, the ZIMOZA project differs in detail from the area under consideration at the Zambezi Society workshop, but the resulting policy environment will nevertheless facilitate transboundary management activities in this area.

4. LANGUAGE
The meeting was conducted primarily in English. Translation from English into Portuguese and *vice versa* was undertaken by Eng Luis Namanha, of DNFFB Tete, a leading member of the Mozambiquan delegation.

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ELEPHANTS,

LAND

AND

PEOPLE -
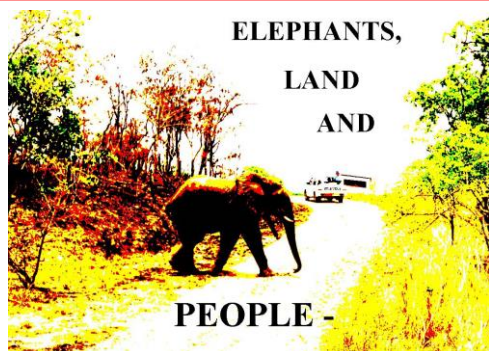
B. FACILITATED SESSIONS

The introductory presentations were followed by facilitated working sessions, utilising the Metaplan methodology and facilitated by Dr Russell Taylor of WWF SARPO. The full results of the Metaplan working sessions are included in Appendix III.

1. STRENGTHS, WEAKNESSES, OPPORTUNITIES, CONSTRAINTS, INCENTIVES AND ADDED VALUES RESULTING FROM TRANSBOUNDARY MANAGEMENT.
For this session, delegates were divided into three groups by local authority. An additional group was made up of the technical experts attending the meeting. Detailed results of the Metaplan facilitated session are given as Tables 1-4, Appendix III.

a. Strengths
The most significant strength available to the implementation of a potential transboundary approach was seen as the existence of an identifiable set of common resources, i.e. the elephant population and habitats, and the biodiversity features of the area. Existing political support, uniformity in the principle of community resource ownership, the existence of ongoing research programmes and of a body of past research were also seen as important strengths.

b.Weaknesses
Unequal resource distribution between the three districts, difficulties in controlling illegal settlement, a potential for increased bureaucracy and failure to address land tenure and devolution issues were considered to be major weaknesses.

c. Opportunities
Collaborative management was seen as presenting opportunities for more equitable use of resources; improved funding; the development of ecotourism; improved law enforcement; improved agricultural practices; and improved land management.

d. Constraints
Language barriers, bureaucratic inertia, land pressures, legislative differences, poor road networks, insufficient technical information and a lack of funding were all considered to be important constraints.

e. Incentives
Improved financial benefits for participant communities emerged as the strongest single incentive for transboundary management. These were seen as arising from improved opportunities for ecotourism and the setting of more equitable sport hunting quotas. Other incentives included the potential for information sharing; improved living standards; the maintenance of aesthetic values; improved biodiversity protection; opportunities for social and cultural interaction; employment creation; better marketing opportunities; and improved crop protection.

f. Added values
The major added values were considered likely to arise from improved economic potential resulting from collaborative management. Opportunities for stronger marketing of an improved ecotourism product again featured strongly, together with improved trophy values from sport hunting. Economies of scale resulting from joint beneficiation, reduced donor dependence, improved livelihoods, and improved contributions to macro-economic performance were also cited.

2. MANAGEMENT OPTIONS
Working groups were then reselected at random to discuss management options for the four key biological components discussed during the initial presentation sessions. These were: elephants; dry forests; land use; and wildlife movement corridors. The full results of these sessions are included in Appendix III.

a. Elephants
Detailed results of the Metaplan facilitated session are given as Table 5, Appendix III. The group that discussed elephant management identified a range of desirable information needs and management interventions. These included:

- The need for collaborative land use planning between the three districts;

- Improved communication & collaboration on law enforcement, quota setting and sport hunting;

- Increased collaboration on safari hunting;

- Improved information on elephant movement and distribution;

- Improved habitat monitoring

- Extension of MZEP activities into Magoe district;

- Development of innovative activities such as elephant-back safaris;

- Collation and review of existing social science research;

- Harmonisation of legislation.

The group proposed the development of standardised monitoring protocols for elephant numbers and distribution; quota setting; trophy quality; and illegal offtakes. The group also noted two major issues. Firstly, what are the values of elephants, and to whom? There is a range of stakeholders in elephant conservation with differing interests and attitudes, and there is a need to allocate costs and benefits equitably across these stakeholders. Secondly, constituent communities should be kept fully informed and aware of current moves towards transboundary management.

b. Dry forests and other important habitats
Detailed results of the Metaplan facilitated session are given as Table 6, Appendix III. Uncontrolled felling, fires, clearance for agriculture and cattle grazing all emerged as having adverse impacts on important habitats. Possible measures for combatting these problems were identified as -

- Evaluations of the root causes of adverse behaviours and the identification of alternatives such as innovative sustainable livelihoods; alternative fuels; and "look and learn" visits to other areas dealing with similar issues;

- Improved direction of wildlife and natural resource income to constituent communities;

- Identification of sacred areas;

- Development of specialised ecotourism;

- Full protection for critically important sites;

- Improved education.

The group discussed differing habitat types separately, but the results of these discussions have been aggregated in this report as they are applicable across the range of habitats discussed.

c. Land use options
Detailed results of the Metaplan facilitated session are given as Table 7, Appendix III. The group dealt with this issue under a number of headings: agricultural options, non-agricultural options, research, management, training and infrastructure.

- *Agricultural options:* the development of entrepreneurial wildlife ranching activities, the promotion of activities such as beekeeping, livestock production and the use of unpalatable crops were listed as options.

- *Non-agricultural options:* Ecotourisn and safari hunting were considered to be the main non-agricultural options.

- *Research:* Research is required to develop innovative agricultural and non-agricultural land use options. The MZEP cropping trials currently being undertaken in Guruve district should be extended into Magoe district.

- *Management:* A collaborative land use plan should be developed across the three districts. Settlement bylaws should be introduced and harmonised, a fire control regime should be developed, and crop protection methods should be implemented.

- *Training:* Entrepreneurial training should be provided. More extension work is required, and training given in improved agricultural practices.

- *Infrastructure:* Irrigation should be considered as a means of intensifying agriculture and reducing land pressures. The provision of artificial water for elephants was suggested as a means of reducing human-elephant conflict, but this will need further detailed investigation in the light of experience elsewhere.

d. Wildlife corridors and wilderness areas

Detailed results of the Metaplan facilitated session are given as Table 8, Appendix III. Several potential wilderness areas and known wildlife movement corridors were identified by this group. One formal wilderness area, the Mavuradonha Wilderness Area, already exists, and it was proposed that part of western Magoe district, informally named the Panhame Wilderness Area, should also be formalised. These two areas are linked by a known elephant movement corridor (Map 4, page 11). The establishment of a Hoya-Mukumbura-Magoe wilderness area was also suggested.

Several further elephant movement routes have also been provisionally identified. These include:

- A Chewore-Dande-Magoe corridor;

- A Hwata-Gutsa-Magoe corridor;

- An escarpment corridor.

Several critical issues arose in connection with the proposed wilderness areas and movement corridors. More research is needed to confirm and define wildlife movement routes and to ensure "connectivity" between important landscape and habitat components. The viability of the proposed areas and corridors and areas needs to be established, and questions of existing land use and land use planning addressed.

Intensive local consultations will be required in order to resolve these issues. The relocation of existing human settlement is not felt to be an appropriate approach, but intensification of agriculture, improved natural resource income, agreement on restrictions of new settlement and the formulation of bylaws should be considered. Associated issues included the "fate" of elephants moving outside these corridors and the possible location and timing of the proposed veterinary fence, which may bisect the project area.

3. POLICY NEEDS AND ARRANGEMENTS

Policy needs, arrangements and agreements were divided by the working groups into macro- and micro-level categories, the former requiring to be addressed at transborder and transdistrict levels, the latter by local communities. Detailed results of the Metaplan facilitated session are given as Table 9, Appendix III.

LOWER ZAMBEZI NATIONAL PARK

ZAMBIA

ZUMBO DISTRICT

25 KILOMETRES

Luangwa ● ●Zumbo

Kanyemba

Lake Cahora Bass

CHEWORE SAFARI AREA

MAGOE DISTRICT

DANDE SAFARI AREA

●Manyame Mission

Angwa R.

Gonono

Mushumbi Pools

Musengezi R.

GURUVE DISTRICT

MUZARABANI DISTRICT

Zambezi Escarpment

DOMA SAFARI AREA

MAVURADONHA WILDERNESS AREA

Commercial Farmland

Commercial Farmland

� red■ Settlement

▩ Elephant Corridor

Areas of settlement are shown here, together with their relationship to the proposed elephant movement corridor between Magoe and Muzarabani districts.

Note the very narrow "neck" available for elephant movement at the southern end of the corridor, close to its junction with the Mavuradonha Wilderness Area. Urgent agreement with local people is needed in order to avoid the closure of the corridor.

Settlement and agriculture are also rapidly closing elephant movement routes across the Angwa river in Magoe district.

Measures to reduce conflicts between humans, elephants and other wildlife will also be vitally important.

Map 4: Settlement and the Mavuradonha-Magoe elephant corridor

a. Macro-level

Some of the identified needs are likely to be addressed by the IUCN-facilitated ZIMOZA project, including notably issues such as the harmonisation of legislation and amendments to immigration procedures to facilitate ease of movement in the area. Such issues are likely to be addressed at national levels.

There is, however, a requirement for a local-level management body that meets regularly to supervise practical collaborative arrangements and to share and disseminate information. A range of activities to be carried out under the supervision of this body, and that will contribute to the establishment of transboundary collaboration, was identified as follows:

- The establishment of joint arrangements for the pricing and marketing of ecotourism and sport hunting products in the area;

- The establishment of collaborative land planning arrangements, including wilderness areas and movement corridors for elephants and other species, and the formulation of a management plan for the area;

- The formation of an elephant management committee with technical support from NGOs;

- The extension of ecotourism initiatives across the area;

- The establishment of collaborative protocols for resource monitoring throughout the area and for resource extraction in movement corridors and wilderness areas;

- The extension and harmonisation of research activities throughout the area;

- The creation of a joint anti-poaching team;

- Regular communication and feedback meetings with local communities to create awareness of past and future research.

The removal of mines within the area was also felt to be a high priority that should be addressed by national authorities. The meeting then reconvened in plenary session to consider further issues.

4. STAKEHOLDERS

An identification of major stakeholders was carried out. The stakeholders were analysed and ranked, with higher rankings allocated to those groupings most affected by proposed transboundary activities. Identified stakeholders are listed in full in Table 10, Appendix III, but the following broad groups and rankings were identified:

RANKING	STAKEHOLDER GROUPS
1	Community-based committees and organisations, traditional leaders.
2	Local authorities (RDCs in Zimbabwe; District Administration in Magoe)
3	Government departments
4	Private sector concessionnaires and operators
5	NGOs
6	Aid & donor agencies

5. ISSUES

A number of issues of potential concern, and that need acknowledgement and resolution, were identified by the plenary session, as follows:

- The initiation of a transboundary initiative may catalyse a tendency to recentralise responsibility and accountability that has been devolved to individual authorities and communities;

- There have been several previous land planning initiatives within the project area. These should be revisited in the light of the decision to adopt a collaborative approach to land planning and management;

- Within Zimbabwe, a proposed veterinary fence may have a profound impact on natural resource management. The status of the proposed fence, and of community perceptions of the fence, should be identified;

Dr Russell Taylor of WWF SARPO facilitates one of the working sessions

- More information is required concerning other NGO initiatives, notably the identification of wilderness areas and wildlife movement corridors by CIRAD in Guruve district, Zimbabwe;

- The minimum biological requirements to ensure the long term viability of important biodiversity components, including elephants, need evaluation;

- The formal establishment of the Panhame Wilderness Area should be investigated by DPAP Tete;

- The absence of "institutional memory", notably the presence or otherwise of records of past work and decisions related to natural resource management, may present problems.

Overall, the need for constituent community ownership and "buy-in" of the project was considered to be the prime factor in promoting successful transboundary management within the area. ZIMOZA has already undertaken several community consultations, but an ongoing programme of consultation and information dissemination is essential.

6. OUTPUTS AND RESPONSIBILITIES

The plenary meeting then drew on its previous discussions to identify a set of objectives and activities designed to promote transboundary collaboration on the management of elephant, habitats and biodiversity within the project area. Three major objectives were identified, together with implementing agencies and proposed timescales. These would be developed into concept papers and proposals for submission to a range of appropriate potential donor agencies. The results of this session follow -

OBJECTIVE ONE: To identify and implement collaborative land planning, wildlife management and biodiversity maintenance options		
ACTIVITY	**IMPLEMENTING AGENCY**	**BY…**
a. Put in place mechanisms for collaborative land planning for habitat maintenance throughout the project area	Zambezi Society, local authorities, WWF, MZEP	June 2002
b. Provide information to local communities throughout the project area on land, wildlife and biodiversity management and development options, and ensure feedback.	District authorities, Zambezi Society, MZEP	Ongoing
c. Develop and adopt standardised set of elephant, habitat & biodiversity monitoring protocols.	Zambezi Society, WWF, management authorities in Zimbabwe and Mozambique	December 2002

OBJECTIVE TWO: To develop and implement activities designed to improve agricultural productivity and land use, and to reduce conflict between humans and wildlife		
ACTIVITY	**IMPLEMENTING AGENCY**	**BY…**
a. Develop and implement elephant management options.	Local authorities, Zambezi Society, MZEP, in consultation with relevant rural communities	December 2003
b. Extend community-based crop protection activities into Magoe district	MZEP	December 2002
c. Test and implement alternative agricultural options to improve rural income and reduce land pressures.	MZEP, DPAP Tete, local communities	December 2003
d. Identification and implementation of non-agricultural land use options	Local authorities, Tete provincial authorities, Zambezi Society, WWF	December 2002

OBJECTIVE THREE: To improve the biological knowledge base for sustainable management of natural resources, biodiversity and wildlife		
ACTIVITIES	**IMPLEMENTING AGENCY**	
a. Fill gaps in biological and other information	Zambezi Society	December 2003
b. Identify minimum biological requirements to ensure long term maintenance of key habitats and viable elephant population.	Zambezi Society	December 2003

The Zambezi Society was given a unanimous mandate to seek funding to progress these activities within the project area.

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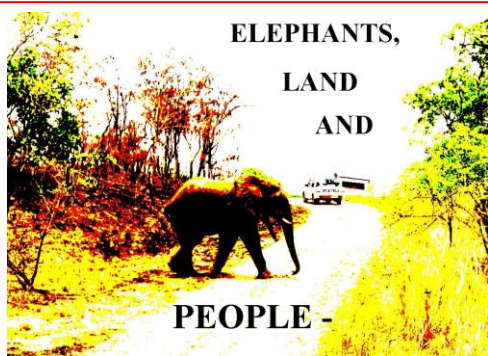
C. CONCLUSION AND THANKS

C. CONCLUSION & THANKS

The Director of The Zambezi Society thanked the meeting for the mandate given to the Society to pursue the topics and issues identified by the workshop, and emphasised the willingness of the Society to do so. He noted that some funding would be required in order to undertake these activities satisfactorily, but felt that the funding required would not be unduly large. The proposed activities were practical and immediate and, as such, should prove attractive to potential donors.

He expressed the Society's thanks to: - Dr Russell Taylor for his highly efficient and effective facilitation; The Hon Edward Chindori-Chininga and Eng A S Gaspar for their keynote addresses; Eng. Luis Namanha for translating the discussions and presentations; Dr Richard Hoare and Mr Guy Parker for their technical presentations; Ms Bertha Nherera of IUCN ROSA for her presentation on ZIMOZA; DPAP Tete, Guruve RDC and Muzarabani RDC for their presentations; Mr Gary Dalkin and the staff of the Kanyemba Zambezi Lodge; Zambezi Society staff for meeting preparation and management; and all delegates for the success of the meeting.
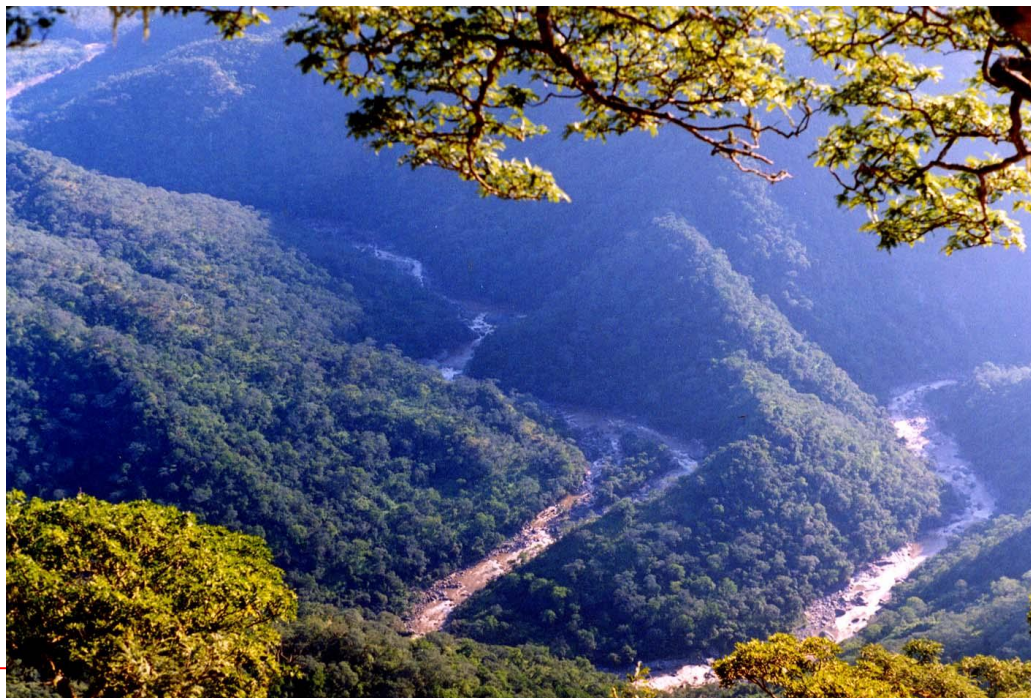
Muzarabani's communities gain cash benefits from the magnificent scenery, wilderness and wildlife of their Mavuradonha Wilderness area, in northern Zimbabwe.

The area will be linked to Magoe district, Mozambique, via a proposed "elephant movement corridor"

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APPENDICES
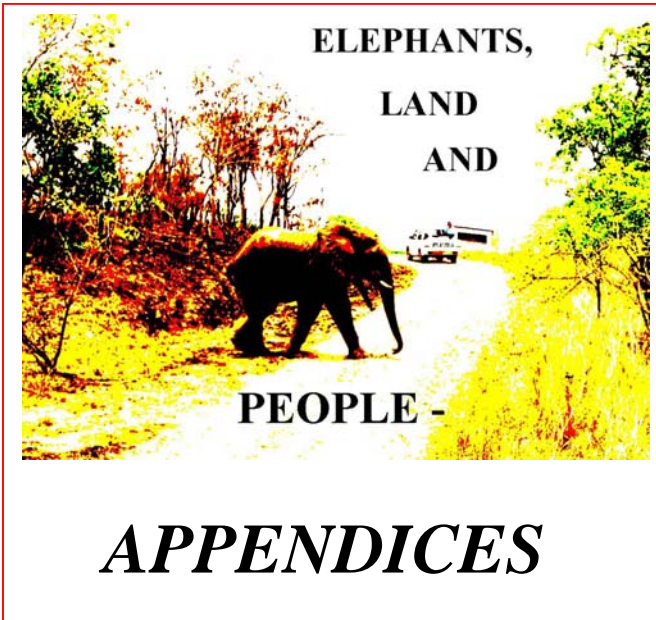
APPENDIX I: LIST OF PARTICIPANTS

Muzarabani Rural District Council	Mr R Ngandu	Chief Executive Officer
	Mr E Mhasvi	Council Chairman
	Mr I Musona	Nat Resources Committee Chairman
	Mr A Mufunga	Natural Resources Officer
	Mr A Chiraya	Assistant District Administrator
Muzarabani Community	Mr R Muza	Resource Monitor
	Mr P Kurai	Resource Monitor

Guruve Rural District Council	Mr C Mabharanga	Council Chairman
	Mr D Chisunga	Nat Resources Committee Chairman
	Mr C Majaya	Chief Executive Officer
	Mr S Mutake	Natural Resources Officer
	Mr E Rupiya	District Administrator
	Hon P Mazikana	MP, Guruve North
	Mr G Butau	Ward 1 Secretary
	Mr C Kachasu	Ward Councillor, Kanyemba

Tete Province	Eng A S Gaspar	Director of Agricultural and Rural Development, Tete (representing the governor, Tete province)
	Mr A Cardoso	Director of Immigration, Tete province
	Mr J Ferreira	Director of Industry, Commerce and Tourism, Tete province
	Mr J Daude	Director of Agriculture and Rural Development, Tete province
	Eng L d S Namanha	Director, DNFFB, Tete province
	Mr J B Miguel	Director, SPFFB, Tete province
	Mr J Amoda	SPFFB/Tchuma Tchato, Tete province
	Ms D G Gonzanga	Department of Environment, Tete province
	Mr I Mangera	Department of Immigration, Tete province
	Mr P Fasenda	District Administration, Zumbo district
	Mr S Coutinho	Director of Agriculture, Zumbo district
	Mr J Z Mabuwa	District Administration, Magoe district
	Mr M Murphree	Consultant, Tchuma Tchato
Safari operators	Mr M Chambral	Consultant

Zimbabwe Ministry of Environment & Tourism	Hon E Chindori-Chininga	Deputy Minister of Environment & Tourism
Royal Netherlands Embassy	Mr J Van der Heide	First Secretary (Environment)
IUCN-ROSA	Ms Bertha Nherera	ZIMOZA, IUCN ROSA
Facilitator	Dr R D Taylor	WWF SARPO

Media	Mr S Zirongwe	ZBC, Bindura
	Mr A I Romao	Mozambique
	Mr Z Milice	Mozambique
	Mr M Mahachi	Mozambique

Mid-Zambezi Elephant	Dr L Osborne	Director, MZEP

Project		
	Mr G Parker	Technical Specialist, MZEP
	Mr K Mariba	Field Officer,MZEP
	Mr I Masarirevhu	Administrative Officer, MZEP

The Zambezi Society	Mr D Pitman	Director
	Mr F Mugadza	Executive Officer
	Ms S Wynn	PR/Information Officer
	Dr R Hoare	Consultant
Guests	Ms R Van der Heide	
	Ms J Taylor	

Invited, but not present	Mr P Poilecot	CIRAD
	Mr N Monks	Zimbabwean Department of National Parks
	Hon E Manyika	Provincial Governor, Mashonaland Central
	Mr J Jaji	Provincial Administrator, Mashonaland Central

APPENDIX II: ADDRESSES & PRESENTATIONS

KEYNOTE ADDRESS BY THE ZIMBABWEAN DEPUTY MINISTER OF ENVIRONMENT AND TOURISM, THE HON EDWARD CHINDORI-CHININGA

First, let me thank The Zambezi Society for inviting me to this workshop, which I think will be very interesting indeed. I also want to take this opportunity to welcome all the participants, especially our brothers and sisters from Mozambique.

At a recent ZIMOZA meeting the point was made that the political process of establishing transboundary collaboration on natural resource management is a lengthy one. At the same time, expectations are raised by the very existence of such an initiative. People on the ground, often living in severe poverty and keen to enjoy the benefits of good natural resource management, want to see immediate action. My response to this was - and is - that there is no need to await the outcome of these higher level negotiations before laying the groundwork for collaborative action between local authorities designed to assess and indeed realise the benefits of transboundary co-operation.

Sometimes, a critical point is overlooked in the general enthusiasm to establish such cooperation in these transboundary areas. The point is: why are we doing it and what are the benefits that can be realised, over and above those resulting from a continuation of the *status quo* of largely unco-ordinated management by individual authorities? In two words: what are the *added values* that can be translated into concrete benefits for the people who live in the area? Unless these added benefits can be clearly demonstrated, there is little point in pursuing transboundary natural resource management for its own sake.

The project area that is under discussion at this workshop does not coincide exactly with the current definition of the proposed ZIMOZA area. The Zambezi Society and its partners have not, as yet, been able to extend their activities into Luangwa province, in Zambia, or into Zumbo province in Mozambique. Meanwhile, Muzarabani district, which forms an important component of the Society's project, has not yet been included in ZIMOZA. Nevertheless, the districts of Guruve, Magoe and Muzarabani collectively represent, not only a very large percentage of the ZIMOZA area, but also a landscape with an abundance of natural resources and apparently great potential for collaborative management.

I am informed that the research carried out by The Zambezi Society, WWF, and the Mid-Zambezi Elephant Project confirms that there are excellent grounds for the collaborative management of this area from a biological perspective. Magoe, Guruve and Muzarabani districts share an elephant population of some 3 000 animals that roams freely across internal and international boundaries, but that is currently managed individually by the local authorities concerned. The three districts also share transboundary forests of a type found in few places outside the Mid-Zambezi Valley. These forests are therefore of particular importance to local and indeed global biodiversity, but at the same time may be suffering from the impacts of overuse by both humans and elephants. Both elephants and forests can be regarded as "surrogates" for a wide variety of other shared wildlife populations and their habitats. In short, these districts together form a single biological landscape, which is likely to suffer from fragmentation and degradation unless it is carefully and - hopefully collaboratively - managed. However, added biological value - though of great importance - is not in itself enough, especially when rural people are living in poverty, and often suffering from the costs involved in maintaining wildlife habitats. How do we indeed translate this into the alleviation of rural poverty?

The first point to be made is that human populations are ultimately dependent on functioning ecosystems and ecosystem processes, and on the "goods and services" they deliver. The degradation of ecosystems will in itself, if permitted to take place, contribute to a deepening spiral of poverty. This is of course a matter of global as well as local concern. It is against this background that international efforts to conserve our natural heritage such as the Convention on Biological Diversity are initiated.

But even the results of ecosystem degradation - and conversely the benefits of ecosystem conservation - can seem very remote from the immediate concerns of rural people whose activities are focused almost entirely on survival, especially in an environment that is as hostile to agriculture, and often to human well-being, as the Zambezi Valley. We have to turn these problems into opportunities, and such opportunities do exist, in abundance. Wildlife and wilderness give these areas a huge comparative advantage - they are what marketing people used to be fond of calling "unique selling points". Meanwhile, I am informed that in the

background papers to this workshop you will find reference to innovative ways of reducing crop damage and other conflicts between people and wildlife, and ways of enabling local people to monitor the status of valuable forests. But - I emphasise once again - this must all be looked at in the light of the concrete benefits for rural people that may result from trans-boundary management.

Research is often criticised as being remote from the needs of ordinary people, and indeed research for its own sake, destined to gather dust, is clearly inappropriate when we are dealing with pressing human needs. The research undertaken by The Zambezi Society and its partners was very carefully designed, from the onset, to contribute to the formulation of natural resource management strategies that are both sustainable in biological terms and contribute to human well-being - the core, in fact, of sustainable development. This research, I am told, was initially requested by individual local authorities and did not, at that point, incorporate a transboundary element. It was only after some time that the interim results of the research showed the need to adopt a transboundary perspective. Research goals were therefore modified accordingly and the eventual results present an initial foundation upon which management strategies can be built.

We however, need to come back to added values. The superstructure to be erected on this foundation requires a critical evaluation of the potential for a joint, collaborative approach, as equal partners, especially when we consider bread and butter issues such as land-use planning, species and habitat management, ecotourism, quota-setting, the control of illegal hunting, and many other issues. If I may come back to my opening remarks: initiatives such as ZIMOZA can set the high level policy stage, but this takes time to finalise the process of collaboration at all levels. In fact, my Ministry is now working on a draft policy on transboundary natural resources management areas. As you very well know, we had not had any prior experience in managing such issues and neither do we have any policy guidelines for implementation of such initiatives. We will as usual circulate the draft policy to all our stakeholders for their input before finalising it. You, the invited delegates from the three local authorities concerned know better than anyone the circumstances and conditions prevailing in your areas and amongst your constituents. You are in a better position to consider these issues and to act on the outcome of these discussions. The research to be presented to you shortly at this workshop, lays some of the foundations and act as springboard for broader discussion. I wish you well in your deliberations.

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SUMMARY OF KEYNOTE ADDRESS BY THE GOVERNOR OF TETE PROVINCE, DR TOMAS MANDLATE, DELIVERED ON HS BEHALF BY ENG A GASPAR

The Mozambican government places great emphasis on the importance of community participation and involvement in natural resource management. Tete Province is no exception. Indeed, the area is fortunate in that the Tchuma Tchato community natural resources management project is well established and has considerable similarities of purpose to the CAMPFIRE and ADMADE initiatives across the borders in Zimbabwe and Zambia respectively.

If natural resource management in this trans-boundary area is to succeed, then all three countries (Mozambique, Zimbabwe and Zambia) must collaborate - even if this involves modifying policies to achieve agreement; and the communities directly involved in this area must see visible and tangible results emanating from the initiatives involved, such as this workshop.

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PROBLEMS, OPPORTUNITIES AND CONSTRAINTS ON ELEPHANT MANAGEMENT IN MUZARABANI DISTRICT: PRESENTATION BY MR R NGANDU, CHIEF EXECUTIVE OFFICER, MUZARABANI RURAL DISTRICT COUNCIL

Muzarabani District is one of the three districts in which The Zambezi Society and the Mid-Zambezi Elephant Project (MZEP) are working. In Muzarabani, as in the other two districts - Guruve in Zimbabwe and Magoe in Mozambique - communities are utilising wildlife through consumptive and non-consumptive tourism under the Communal Areas Management Programme for Indigenous Resources (CAMPFIRE) programme. Seventy percent of CAMPFIRE income is from sport hunting, and elephants bring in the bulk of the money.

The positive aspect of the project is that communities have benefited immensely from wildlife as they have embarked on various projects of their choice using proceeds from wildlife use. The negative aspect is that wildlife, and elephants in particular, raid maize and cotton crops around the Mavhuradonha during the rains, and green maize along valley river lines. Apart from raiding crops, they also attack people, sometimes fatally. This paper discusses opportunities, problems and constraints in the management of elephants in Muzarabani.

According to Council statistics crops worth thousands of dollars are destroyed every year by elephants. Meanwhile, people are also attacked. Between 1994 and June 2001, Council game scouts have received more than twenty reports of problem elephants and were forced to shoot five animals. The communities live in perpetual fear.

The Mid-Zambezi Elephant Project offers an opportunity to Council and communities to live with elephants, if not in harmony, then at least with less conflict, by using very simple techniques and locally-available materials. We understand that research has revealed that some elephants are resident in the Mavhuradonha throughout the year, but some elephant bulls make long distance movements from Mavhuradonha into Guruve district and across the border into Mozambique. The movement is made via a relatively unsettled corridor extending from the western Mavhuradonha across the Kadzi River. The Zambezi Society and the Mid-Zambezi Elephant Project have recommended that the elephant movement corridor be retained. Adoption of the above recommendation has many advantages to Council, among them improved trophy quality and less contact between rural communities and elephants.

Ideally the corridor should be completely unsettled, but relocating the few people in the corridor could turn out to be an expensive exercise. Fortunately we have been advised that this may not be necessary, as communities living within the corridor can apply other problem animal control techniques being promoted by the project.

Identification of a corridor also presents a challenge to Council, as it may be necessary to review its proceeds distribution system so that it has a bias towards communities living close to the corridor.

Communities have not been benefiting personally as no cash pay-outs are being made. Instead, funds are used for communally owned projects such as classroom blocks. Under such circumstances, individuals may be reluctant to sacrifice their lives and crops for the sake of the community: thus any techniques that lessen the negative impact of human-elephant conflict will be more than welcome.

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PROBLEMS, OPPORTUNITIES AND CONSTRAINTS ON ELEPHANT MANAGEMENT IN GURUVE DISTRICT: PRESENTATION BY MR S MATAKE, NATURAL RESOURCES OFFICER, GURUVE RURAL DISTRICT COUNCIL
Elephant management is a major challenge. Are elephants a valuable asset or a liability? If a valuable asset, how do we co-exist with them? If a liability, should we destroy them to extinction? We need to adopt a historical perspective as this has an impact on the options, treatments and valuation that has been attached to the animal.

Elephants are not a recent introduction to Zimbabwe but are a part of the Korekore culture. This is evidenced by the totem Nzou Samanyanga. The ivory was not initially used for trade but to pay respects to the spirits of the land. All ivory from animals killed for meat was handed to the custodians of the land though the chief. A recent trip to Hurungwe to the spirit medium Chimombe with ivory is a major example. The coming of outsiders introduced a market value for ivory, thus opening the Dark Continent to trade.

Problems
Although the elephant has a unique and conspicuous value attached to it because of its ivory, meat quantity, tourist attraction and trophy hunting, the costs of managing them are very high. These costs are inter-twined. There are social costs, when people have to spend sleepless nights in traditional blinds protecting crops. The blinds are a common sight throughout the lower part of Guruve. Economic costs include the horror of helplessly watching fields of crops being stamped on, injuries and death sustained, the destruction of already

harvested cops in granaries and the destruction of terrestrial ecosystems as elephants destroy both vegetation and soil. The animal eats about 300 kg of vegetation a day and travels in maternal clans of between thirty and fifty animals, causing soil erosion. Sustainability in such an ecosystem is threatened.

The population of the species is also a major issue to consider here. A recent survey indicated that Guruve's elephant population is about 9000. While there is a great demand for land due to rises of prices of cotton, retrenchments in mines, and allocations of agricultural land to those who were not considered by the Mid-Zambezi resettlement programme, the elephant population grows at about 7% per year, leading to competition for land and habitats. Newly established farmers create buffer zones by allocating land further from their plots; as a result, agricultural frontiers extent on a yearly basis. This also increases the zones of conflict, resulting in more deaths, trauma, and crop damage.

Council has put in place measures that try to establish co-existence but there are areas which still need attention.

- False reports of elephant damage are made as people anticipate an elephant will be killed and they will get the meat. During this year alone, in the peak period of human-elephant conflict, sixteen false reports were made. The paradox here is that where habitat has been maintained, for instance in Masoka and Angwa and across the river to Kanyemba, people do not keep cattle because of tsetse. This leaves wildlife, elephants included, as the only major source of protein. There could be other sources of protein but they are difficult to access. Domesticated animals are either owned by the few rich or eaten by wild predators. Poaching is illegal. This leaves problem animal destruction as the only legal way of getting protein.

- Use of snares by the community. Africa's rural areas are marginalised and communities lack a legal protein source, resulting in poaching for the pot. Intensive anti-poaching patrols have seen a drastic reduction in the use of modern weaponry. Locals have returned to the use of snares. Three elephants have been killed as problem animals because they had been wounded by snares. Also the stringent measures introduced to satisfy CITES requirements reduced elephant poaching, and buffalo are now the target. In Guruve district commercial elephant poaching has been limited to the Mozambican and Zambian borders. Last year carcasses were seen along the Zambian borders and one collared elephant was found to have been shot in Mozambique.

- Lack of resources: vehicles are available to react but are over-used and are constantly down. If you were to analyse the fleet, you would find that most of the vehicles are donated. The area of coverage is large and requires a lot of traveling.

- Fuel cost have risen significantly and it is impossible to sustain the management of natural resources with the travelling that is associated with it. Ammunition to scare the elephants and the T & S for game guards is expensive. Council spends about $36 000 weekly for these purposes, which renders the 15% administration fee paid by the community inadequate.

- Manpower is available in numbers but short on skills. The need to co-exist with elephants is new to both Council and National Parks. Game Guards have been trained in anti-poaching activities and problem animal control but it does not go beyond that.

- CITES also presents a challenge to the district. There has been increased shooting of elephants to show the international world that Zimbabwe is incapable of protecting the species.

Opportunities
The opportunities for the survival of both the elephant and benefits they bring to communities lie in the values attached to the animal and changes in attitude by the communities. A sustainable quota will trigger improvement in trophy quality and a thriving sport hunting industry. Though trophy hunting is highly consumptive, it generates a lot of income in a short period of time. Ecotourism does not generate money in short periods but requires heavy investment. For example, Z$7million was spent to develop the Masau camp

but only $300 000 has been realised from the camp. Maintenance cost have also been high for the safari operator.

A combination of the sport hunting and ecotourism can generate dollars for the district. Elephant riding could be a new introduction that the district should be exploring further.

It is however difficult to manage ecotourism alongside trophy hunting. Negotiated land use plans is one way to do it. Non-hunting zones could be established for ecotourism, and prime hunting areas also created. This has been done on a small scale around some safari camps such as Murara and Masau Camp. This could be explored further and developed.

A negotiated land use plan by the CIRAD biodiversity project will also ensure that people do not encroach into animal habitats and conflict zones are reduced to controllable sizes as both animals and humans will sizable areas in which to manoeuvre.

Other common areas of conflict are along the major water sources such as the Manyame River, Angwa River, Musengezi River and to some extent the Kadzi and Dande rivers. It is said that these rivers cannot be dammed after they reach the valley due to excessive siltation, but an earth dam constructed by Ingwe Safaris in the south holds water until the end of the dry season. Natural water pans are scattered all over the valley: for example, the one that determined the location of the impala ranch could be further developed after the necessary consultations with the local community, whose cultural values and beliefs need to be taken into account as their spiritual world holds the custodianship of natural resources.

The research work by the Mid Zambezi Elephant Project and the Zambezi Society is a major step towards effective elephant management. It has become easier for game guards to locate problem animals and to deal with cropraiding animals by means of innovative, low-technology options.

Constraints

As alluded to earlier on, lack of resources limits effectiveness and efficient delivery of services to producer communities. Lack of fuel, skills, funding and at times an attitude that treats the elephant as a liability other than an asset all make it very difficult for Council to operate the Campfire Programme. Natural resources management requires the spending of large amounts of money in communal areas on problem animal control, anti-poaching unit patrols and training, and this is very expensive for Council. Although we have disseminated information designed to change attitudes, this is only appreciated or utilised when dividends are being shared. Communities tend to claim elephants as theirs when dividends are being distributed, but disown them to Council during crop raiding periods.

Population growth of both animals and humans has made it even more difficult for the Council. There is continuous loss of wildlife habitat for agriculture, yet demands for Campfire proceeds have risen.
Poaching has at times been rampant but, because of social fabrics, communities do not supply information. It is painful to them to see a relative or neighbour being arrested for poaching by police or game guards. Information can only be acquired through threats. This makes it difficult for Council to get reliable information on levels of poaching in a particular community. This makes it difficult for Council to impose bylaws to curb poaching.

The CITES limitations on trade in elephant products make it very costly to manage elephants. Trophy fees and tourism can be good sources of income, but elephant leather and ivory from problem animal control can also create reliable sources of income for the Council and communities. The last major ivory sale brought Guruve Z$2.5 million, which was used to buy a community ambulance.

Issues

There is an ongoing issue of compensation. Two levels of compensation need to be addressed: crop damage and human injury or death. As regards crop damage; a compensation scheme was tried, but reports were exaggerated and at times over-dramatised and the money generated through CAMPFIRE did not suffice to pay all farmers in need of compensation. Emotions overruled reasoning, and the scheme was eventually stopped.

The second level - human injury and death - has been discussed in different fora at both national and local level, but I want to discuss this issue at the district level. Several people are usually trampled to death by elephants each year. The major difficulty here has been how we value human life.

At times people are trampled in wards where Campfire is not active. Where does Council get the money to compensate? What Council has done is to pay the bereaved family some money to help towards the cost of the funeral, but is this enough?

The RDC leases the Dande Safari Area from the Department of National Parks, but it appears that the venture is now not as attractive as it appeared at the inception of the programme. Adverse publicity reduced the number of hunters, and there has been a decline in trophy quality (from 75lbs to about 35lbs compared with the availability of 80 - 100lb trophies in Botswana. The impact on the district has been great. Is it worthwhile for us to continue with this lease? If not, will the Dande North Concession survive on its own?

The much-publicised devolution of appropriate authority to sub-district structures is nothing to cheer about for RDCs as this will reduce their revenue base. The implications are quite enormous and disastrous for RDCs. If communities become the appropriate authorities, they will not release a cent for administration. However, experience has shown that the RDC is still the only institution capable of dealing with anti-poaching as some game guards within lower-tier structures have been arrested for poaching; hence the creation of the Central Unit by Council. Devolution to lower levels is still in its infancy elsewhere and no-one knows whether it will be successful or not. Better prevent than cure.

The ongoing tsetse control programme will see elephant habitat that is currently conserved and intact being turned into agricultural and grazing land. This is a challenge to Council, as it has to compromise between continuing with the Campfire Programme and opening up land for agriculture. The buffalo fence planned by the Veterinary department is another challenge. The fence will extend from the Zambezi Escarpment to a point ten kilometers west of the Manyame River by the international border, and across to Chikafa on the Kanongo side. What is the future of elephants left on the wrong side of the fence? Can Council or the Veterinary Department foot the bill for driving them to the tsetse zone? Or will they be destroyed because they would attract tsetse?

There has been little co-ordination on elephant management between Mozambique and Zimbabwe, especially in the eastern wards. Poaching is on the increase in Mozambique, yet elephants have no boundaries. Should Guruve spend resources on protecting elephants that are then poached in Mozambique? Elephants cross to Mozambique when they are being sport hunted, and sometimes run across the border when they have been shot and fall on the Mozambican soil, when Mozambicans benefit. Lastly, there are other wards in the district that are used by elephants as maternity zones or grazing zones. Elephants destroy crops in these wards but go elsewhere during the hunting season. The hunting income goes only to the wards where the elephants have been shot, and the wards where crops have been damaged do not benefit from the programme.

Conclusion

Elephant management for the district has been very difficult, and several options have been tried without bringing satisfaction of the communities. The Masoka electric fence was a success during its inception, but the stealing of solar panels, batteries and wire reveals the community's attitude towards efforts at crop protection. The traditional method of firing live bullets in the air has been used all over the district, and elephants seem to have become habituated to the sounds of gun shots. The hypothesis that an elephant that smells its own blood will not linger in the vicinity has also been proven false: elephants have been killed all over the district but they still raid fields where their own relatives have been slaughtered. The success of the recent introduction of piri piri sprays and the growing of pepper has yet to be proven, as it has only been tested on a small scale. It is imperative that the communities living with elephants must have tangible benefits derived from tourism and sport hunting, but these benefits must compensate for the disadvantages of co-existence with the animal.

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APPENDIX III: RESULTS OF THE FACILITATED METAPLAN SESSIONS
TABLE 1 - SWOT ANALYSIS, TRANS-BOUNDARY NATURAL RESOURCE MANAGEMENT: MAGOE DISTRICT

STRENGTHS	WEAKNESSES	OPPORTUNITIES	CONSTRAINTS	INCENTIVES	VALUE ADDED
Zonation	Centralised power	Existing natural resources	Coordination and cooperation between neighbouring districts	More equal distribution of resources	Rural development
Ownership of the land and the resource	Uncontrolled bush fires	Extension of the areas for tourism	The possibility of calamities arising (e.g. floods?)	Construction of schools, hospitals and more	Increase in tourism
Helps combat poaching	Reduction of crop production	Employment of local people	Evasion of responsibility	Improve the standard of living - social and economic - of the resident populations in the districts involved	Better stability in the life of the population
Benefits can be retained by communities	Harmonisation of land ownership	community management projects in the two countries	Poaching	Appearance of a research project in the area	Improvement in trophy quality
Biodiversity conservation	Difficulties in circulating across the borders	Involvement of the communities in conserving natural resources	Asymmetry of socio-economic development between the districts involved	Benefit the communities involved in disbursement of returns	Better control of wildlife potential
Improving the livelihood of the people	Difficulties in harmonizing national by-laws and customary laws	Development of eco-tourism	Existence of mined areas	Improved tourism, improved tourism receipts, improved benefits for the population	More schools and hospitals
Helps avoid risks and attacks by elephants on people	Destruction of border signs	Appreciation of the culture of local communities	Social/economic/ scientific	Facilitate the movement of people between countries	Free movement of people in TBNRM areas
Helps avoid uncontrolled immigration of people	Weakness in knowing real value of elephants	Control of poaching and its origin	Difficulty in moving across borders	International market in wildlife products	Improvement in knowledge on available resources
More linkage between elephants and humans	Weak involvement of communities in the definition of strategies	Siting of elephant corridor within the district	Difficulty in complying with international laws/regulations (e.g. CITES)	Advantage of managing natural resources	Sustainability of conservation units
Integration of Mozambican policy/politics into elephant management	Deforestation	Existence of a large number of elephants	Disrespect for the laws of the countries involved	To facilitate resource marketing	Contribution to decision making by the population
Protection of people and crops		Common analysis of management issues of the elephant	Confusion between politics and economics	Implementation of intensive agricultural methods	Improvement of knowledge about management of natural resources
Uniformity in management of elephant		Existence of laws which allow community wildlife and natural resource management	Lack of access to land by local communities	Better distribution of knowledge on the ecotourism potential of Magoe	Maximisation of income to the population

Table 1 - Swot Analysis, Trans-Boundary Natural Resource Management: Magoe District, cont'd

STRENGTHS	WEAKNESSES	OPPORTUNITIES	CONSTRAINTS	INCENTIVES	VALUE ADDED
		Existence of good habitat and abundant water	Lack of technical knowledge	Implementation of the policy on land use	Improved management of natural resources
		Available natural resources	Lack of a single transfrontier programme		Improved local and national income
		Replacement of resources	Lack of effective collaboration between the border populations		Improvement in local employment
		Involvement of resident population in border areas in protecting the border and conserving the border line	Lack of knowledge on elephant routes		
		Better control of migratory movement of people and elephants along the border (define routes)			
		Existence of the Tchuma Tchato programme			
		Existence of international organisations that finance community management of natural resources			
		Give publicity to the existing resources			
		Necessity for better border control			

TABLE 2 - SWOT ANALYSIS, TRANSBOUNDARY NATURAL RESOURCE MANAGEMENT: MUZARABANI DISTRICT

STRENGTHS	WEAKNESSES	OPPORTUNITIES	CONSTRAINTS	INCENTIVES	VALUE ADDED
Improved relations	Difference in development structures	Joint-venture projects	Difference in legislation	Increased income	Economies of scale in adding value (e.g. tannery)
Initiative in progress	Inequitable natural resources	Increased quota	Language barrier	Improved standard of living	Trophy quality improved
Political willingness	Technical skills	Sustainable conservation of natural resources	Increased human and wildlife conflicts	Preservation of areas high scenic beauty	
Positive support from NGOs	Lack of financial resources	Trade exchange programmes			
Attractive eco-tourism package (marketing)	One party's weakness affects the others (e.g. GKG)				

TABLE 3 - SWOT ANALYSIS, TRANSBOUNDARY NATURAL RESOURCE MANAGEMENT: GURUVE DISTRICT

STRENGTHS	WEAKNESSES	OPPORTUNITIES	CONSTRAINTS	INCENTIVES	VALUE ADDED
Common resource (elephants)	Illegal settlement	Interest of researchers to carry out research in the region	Communication problem (language)	A well managed resource	Community impowerment
Land (habitat)	Poor land-use planning	Equitable distribution of the resource	Lack of funding to implement the programme	Financial benefits	Improved livelihood of some communities
Availability of manpower	Lack of Co-ordination among the three districts	Habitat conservation	Lack of regional policy - planning	Co-ordinated conservation effort (regional)	Contribution to macro-economic performance
Availability of institutional structures	Ineffective and incapacitated institutions	Business opportunities (e.g. eco-tourism)	Poor road network	Social interaction	Reduced donor dependence
Indigenous knowledge on elephant movement trends/population estimates	Non-utilization of available information	Improved agriculture practices	Restrictive laws	Employment creation to locals	
On-going programmes in relation to elephant management		Joint fund-raising		Information sharing	
Current programmes are community owned		Reduced poaching			

TABLE 4 - SWOT ANALYSIS, TRANS-BOUNDARY NATURAL RESOURCE MANAGEMENT: TECHNICAL SPECIALISTS

STRENGTHS (inherent)	WEAKNESSES (present)	OPPORTUNITIES	CONSTRAINTS	INCENTIVES	VALUE ADDED
Improved understanding of the resource base	Different legal frameworks	Effective collaborative anti-poaching unit	Language barriers	Tourism and hunting income	Preventing isolation of elephant populations
Sharing information and experiences	Loss of sovereignty (partial)	Building on existing information collaborations	Bureaucratic inertia	Reaping perpetual benefits	Maintaining trophy quality
Political endorsement obtained	Increased potential for bureaucracy	Increased fundraising opportunities	Increasing demand for land	Improved biodiversity conservation	Improved livelihoods
	Not addressing land tenure and devolution	Improved tourism opportunities	Limited elephant habitat	Improved crop protection	
	Resource is not equally shared	Enhances CAMPFIRE and Tchuma Tchato programmes			
		Improved land management			
		Influencing policy and legal framework			
		Reduced monitoring costs			
		Reducing border restrictions			

TABLE 5 - ELEPHANT MANAGEMENT OPTIONS

ISSUES	INFORMATION NEEDS	MANAGEMENT INTERVENTIONS	MONITORING
Community awareness and involvement	Population structure	Quota settings - collaboration	Monitoring protocols: • Numbers and distribution • Quotas • Trophy quality • Illegal offtakes
Elephant value: value for whom?	Population surveys	Establishment of radio tracking programme in Magoe	

Table 5 - Elephant Management Options, cont'd

	Radio tracking programme redefined and expanded	Establishment of radio tracking programme in Dande Safari Area, Chewore and Dande communal land	
	Population distributions and movement	Population management	
	Habitat monitoring	Land use planning in Muzarabani, Guruve and Magoe	
	PAC techniques	Continuation and replication of MZEP PAC methods	
	Human/elephant conflict. Social issues - research	Improve communications between the districts	
	Law enforcement and illegal use	Harmonise existing laws	
	Elephant use options	Develop mechanism for improved collaboration between districts (local authorities) and law enforcement	
		Collate and review existing social science research and identify research needs	
		Increased collaboration on safari hunting	
		Alternative use: elephant back safaris. Tillage programme	

TABLE 6 - OPTIONS FOR MANAGEMENT OF DRY FORESTS & OTHER HABITATS

MOPANE	MIOMBO	RIVERINE (FLOREST RIBEIRINHA)	THICKETS & DRY FOREST (FLOREST SECA)
Control bush fires	Control bush fires	Control bush fires	Control bush fires
Zonation for human settlement, safari hunting, ecotourism, grazing	Zonation for human settlement, safari hunting, ecotourism, grazing	Zonation for human settlement, safari hunting, ecotourism, grazing	Zonation for human settlement, safari hunting, ecotourism, grazing
Avoid uncontrolled cutting	Avoid uncontrolled cutting	Avoid uncontrolled cutting	Avoid uncontrolled cutting
Control poaching	Control poaching	Control poaching	Control poaching
Increase environmental education	Increase environmental education	Increase environmental education	Increase environmental education

Table 6 - Options For Management Of Dry Forests & Other Habitats, cont'd

Commercial	Young men (returning) taking up zoned grazing		Restrict/stop streambank cultivation

cutting	land for settlement	Full protection	
Alternative livelihoods: (start with school children)	Local use		Identify surface water in late dry season
The extent to which sacred areas may protect habitats			Identify well sites in rivers
Diversification			Share wells between people and elephants
Directing wildlife benefits to the community			Install boreholes and windmills
Hierarchy of needs (Masrow)			Construct dams and pools
Exposure visits on how others are dealing with the problem			Full protection
Alternatives e.g. stoves using less firewood, plant trees, uilding materials			

TABLE 7 - LAND USE OPTIONS

TRAINING	INFRASTRUCTURE	MANAGEMENT	AGRICULTURAL OPTIONS	NON-AGRICULTURAL OPTIONS	RESEARCH
Provide entrepreneur training	Water ponds for elephants	Formulation of by-laws for land settlement	Promote bush projects e.g. beekeeping	Safari hunting for international market	Experimenting with unpalatable crops
Improve of some extension work	Introduction of irrigation scheme	Veld fire control	Wildlife ranching	Eco-tourism for local, regional and international markets	Agri-improvements Agri options
Improve agricultural practices		Landuse planning (settlement plan)	Livestock production		
		Community crop protection	Unpalatable crops		

TABLE 8 - WILDERNESS AREAS & WILDLIFE CORRIDORS

CORRIDORS AND WILDERNESS AREAS	IMPLEMENTATION	ASSOCIATED ISSUES
Chewore-Dande-Magoe corridor	Relocation of people not a good option	Urgent need to address use of corridors/wilderness areas
Chewore-Kanyemba-Magoe corridor	Intensify agriculture (reduce land clearing)	Research and definition of corridors/wilderness areas
Hwata-Gutsa-Magoe corridor	Limit encroachment into the corridor	Are the corridors/wilderness areas viable?
Escarpment corridor	Consultations over use of the corridor	Mozambique to name the "Panyame" wilderness area
Hoya-Mukumbura - Mozambique wilderness	Formulation of by-laws	What do we do with elephants outside the corridors?
Establish the "Panyame/Manyame" wilderness area	Enforcement of by-laws	Need to look at mid-Zambezi Development corridors
	Establish regional TBNRM	Where/when is the veterinary fence coming?

TABLE 9 - POLICY NEEDS, AGREEMENTS AND ARRANGEMENTS

LEVEL	POLICY NEEDS	AGREEMENTS	ARRANGEMENTS

MACRO-LEVEL (trans-boundary trans-district)	Establishment of a regional "body" or mechanism which meets regularly to collaborate and share and disseminate information	Harmonisation/standardisation of conservation policy/by-laws/illegal hunting patrols/penalties for the whole area	Management plan for the area
	Joint land planning	Official agreement by the three districts to establish corridors/"wilderness" areas	Harmonise existing TBNRM initiatives in the area
	Establish common resource marketing e.g. regional "Elephant Marketing Board" for eco-tourism/photographic/ hunting/products	Collaborative protocol for resource extraction in "corridors"	Formation of 3-district elephant management committee with technical support from NGOs e.g. Zamsoc/MZEP/WWF/IUCN ROSA
	Establish common resource pricing (e.g. cost of hunting, photographic safaris)		Extend eco-tourism initatives across the whole area
	Bring Luangwa district on board		Widen focus of elephant research to include all districts and the general environment
	Immigration procedure to be established to allow ease of movement for people in the area (e.g. ID cards)		
MICRO LEVEL (community level)			Form three-district anti-poaching team
			De-mining of the project area - national efforts
			Community consultations and awareness meetings throughout the region on research already carried out and future plans
			Vocational training in nature & environment for local schools

TABLE 10 - STAKEHOLDERS & INTEREST GROUPS   (* indicates key stakeholder)

RANKING: 1 COMMUNITY-BASED ORGANISATIONS	RANKING: 2 LOCAL AUTHORITIES	RANKING: 3 GOVERNMENT DEPARTMENTS	RANKING: 4 PRIVATE SECTOR	RANKING: 5 NGOs	RANKING: 6 AID AGENCIES
Ward natural resources and wildlife committees *	Guruve & Muzarabani RDCs *	Zimbabwe Dept. of National Parks & Wildlife Management *	Private Sector Operators Eco-tourism/ Photographic/ Non consumptive *	Zambezi Society *	CIRAD (Biodiversity Conservation Project) *
Community wildlife councils and Tchuma Tchato *	District Administrator Magoe *	Zimbabwe Department of Natural Resources/Ministry of Environment & Tourism*	SOGIR (GPR) *	MZEP *	Ford Foundation *

Table 10 - Stakeholders & Interest Groups, cont'd   (* indicates key stakeholder)

Community leaders (Moz) *	Head of Immigration (Chefe do Posto) Chintopo (Moz) *	Zimbabwe Ministry of Local Govt.	Fishing Operators	WWF *	FUTUR *

		DAs Offices *			
Traditional leaders *	DDADR	Zimbabwe Ministry of Agriculture Agritex *	Hunting Safari Operators	IUCN/ROSA *	FFA *
		Zimbabwe Ministry of Home Affairs (i.e. Immigration/Police) *		Campfire Association *	IDRC
		Mozambique DNFFB/SPFFB/DNAC *			
VIDCOs (Zim)		Mozambique Wildlife Dept (DPADR) *		ZERO	
ZINATHA (Zim)		Mozambique/Zimbabwe Police *		GTZ	
		Mozambique Ministry of State Administration e.g. District Administrators		Zimtrust	
		Zimbabwe Dept. of Vet Services		LGDA	
		Zimbabwe Forestry Commission			
		Zimbabwe Enterprise Dept (Ministry of Industry & International Trad)			