

Proposal to the African Elephant Fund

- 1.1 Country: Zimbabwe
- 1.2 Project Title: Habitat use by African elephants in the Zambezi Valley, Zimbabwe: An inquiry into the effectiveness of corridors and the suitability of the environment to sustain the species.
- 1.3 Project Location: Zambezi Valley, Zimbabwe.
- 1.4 Overall Project Cost: USD 70 000
AMOUNT Requested from African Elephant Fund: USD 39 230
- 1.5 Project Duration: 3years
- 1.6 Project Proponent: Zimbabwe Parks and Wildlife Management Authority, Scientific Services Department.
- 1.7 Name of Project Supervisor: The Deputy Director General Conservation.
Mr G. Matipano
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- 1.12 Date proposal submitted: 31/ 12/ 2017

2.0 Project Summary: (not more than 250 words)

The Zambezi Valley is located in Northern Zimbabwe, forms part of a Man and Biosphere Reserve and is made up of eight protected areas. The landscape recorded a 40% decline in elephant populations between 2001 and 2014. The decline could be ascribed to changes in the environment, migration, poaching (though carcass ratios from the aerial surveys did not relate to the 40% loss) and or resource availability. The project as such aims at establishing factors contributing to the decline in elephant populations and recommendations towards the protection of the species.

The study will assess the movement of elephants, distribution, home ranges and effectiveness of corridors in the area which shares its border with Zambia; forming the Lower Zambezi Trans-frontier Conservation Area.

The greater part of the Zambezi Valley elephant population is concentrated in Mana Pools National Park, which is a core area surrounded by Safari Areas. Known individual elephants in the core national park have been reported not to be crossing over to Zambia nor to safari areas where hunting is taking place.

Understanding movement and habitat use of elephants in a biosphere reserve made up of protected areas with different management systems; communities and a Trans-frontier Conservation Area with a major river forming a boundary between two countries, will assist in planning management for the species. The effectiveness of corridors and the TFCA will also be established as such. Environmental stressors influencing elephant movements in the area will be established so as to advise management on determining ways of ensuring connectivity between areas and maintenance of migration corridors.

3.0 Which Priority Objectives and Activities (there may be more than one) in the African Elephant Action Plan does this project fall under? (For ease of reference, Priority Objectives are attached under Appendix 1)

The study aims at fulfilling Priority objective 5 and objective 2 in the long term.

PRIORITY OBJECTIVE 5: Strengthen Range States knowledge on African elephant management.

Activities:

Activity 5.1.2. Conduct inventories for unknown/less known populations to ascertain their biological status and their habitats.

Activity 5.1.3. Provide satellite collars to monitor prioritized populations within and amongst range States.

Activity 5.2.2. Coordinate research efforts, compile and disseminate research findings.

Activity 5.2.3. Establish fora for exchanging information between and among range States for better monitoring of transboundary movements of elephants

Priority objective 2: Maintenance of elephant habitats and restoring connectivity

Activities:

Activity 2.1.1. Identify and prioritize opportunities for range expansion and creation of corridors within the broader land use planning.

Activity 2.1.2. Undertake feasibility studies to determine ways to maintain connectivity between elephant populations within, between and among range States.

Activity 2.1.3. Create and / or restore, where possible, the connectivity between areas of elephants within, between and among range States.

Activity 2.1.5. Identify and rehabilitate migration corridors and dispersal areas for effective protection of the African elephant.

Activity 2.1.6. Identify and provide capacity, where appropriate, to ensure connectivity between elephant range States, both within and among range States.

Activity 2.2.3. Assess and monitor habitat change and fragmentation, with a focus on transboundary populations.

Activity 2.3.3. Monitor the movements of elephants across borders to support management

Activity 2.4.5. Investigate impacts of climate change on elephant habitat and elephant populations through appropriate research.

4.0 Project Rationale – why is this project necessary and urgent? What threats face this elephant population (give, for example, what information you have regarding population details, trends in population (downward or upward), ivory seizure information, details about levels of poaching, human/elephant conflict, etc.).

The Zambezi Valley elephant populations declined by 40% between 2001 and 2014. The carcass ratios however did not relate to the percentage decline. As such mortality may not have been a major cause of declines in the populations (ZPWMA, 2014). There is therefore need to understand movements of elephants in the area to establish migratory routes and ensure their maintenance.

Poaching remains a threat to the populations as well as unsustainable offtake. Resources (Food, water) for the existence of elephants in the landscape also may be influencing habitat use and migration. In a changing environment, ecological shifts as a result of climate change may be determined through habitat use by elephants. As such, this research also intends to investigate the multiple stressors determining the geospatial distribution of elephants in the Zambezi Valley.

5.0 Detailed Proposal – including activities to be carried out, milestones (at least quarterly milestones), timelines, equipment to be purchased, reporting procedures, etc. (not more than 1000 words). It will be helpful in evaluating this Project Proposal if you to divide it into Phases such as Planning; Procurement; Implementation; Evaluation and Reporting

Should include anticipated benefits (including benefits to the conservation and management of elephant populations and communities) and outputs from the project, and how the project will be monitored and evaluated.

Project Proposal

Movement in elephants has also been recorded to be dependent on disturbances or exposure to stressors. This has been noted mostly in corridors with human activities; where they move faster (Jachowski et al, 2013). The establishment of

corridors and TFCAs has been adopted in wildlife conservation and has been effective in carnivores; whereby animals disperse at great distances; promoting genetic variability.

This study aims at understanding habitat use by elephants in a biosphere reserve made up of protected areas with different management systems; communities and a Trans-frontier Conservation Area with a major river forming a boundary between two countries. The effectiveness of corridors and the TFCA will be established as such.

Problem statement

The Zambezi Valley elephant populations declined by 40% between 2001 and 2014. The carcass ratios however did not relate to the decline, ruling out mortality from being the major cause of declines in the populations (ZPWMA, 2014). There is therefore need to research into the multiple stressors determining the geospatial distribution of elephants in the Zambezi Valley.

Objectives

- a. To model habitat use in elephants in non-hunting core areas as compared to the surrounding safari areas;
- b. To assess the effectiveness of the TFCA in enhancing game movement between countries;
- c. To explore factors influencing habitat preferences in elephants in the Zambezi Valley;
- d. To establish the impacts of multi stressors (hunting, poaching, human presence, resource availability on elephant movement in the Zambezi Valley);

Materials and Methods

The study will be carried out in protected areas in the Lower Zambezi Valley; Hurungwe, Sapi, Chewore Safari Areas; and Matusadonha and Mana Pools National Parks. Satellite collars will be fitted on ten (10) elephants, two (2) in each protected area.

Vegetation maps for the areas will be produced using cloud free 30 m multi-spectral Landsat 5 images for the period of study and at different seasons in the different protected areas. Landsat images will be acquired from United States Geological Survey (USGS) (www.usgs.gov). Movement of elephants will therefore be analysed and time spent in certain habitats assessed from data obtained from the satellite collars.

Ground trothing will be done in habitats that are avoided, most preferred and where streaking behavior is established; to assess stressors that influence movement of elephants. This will be done using drones to ensure coverage of inaccessible areas and limited disturbances.

Elephant movements will also be used to identify corridors and migratory routes. To establish effectiveness of the TFCA, some of the elephants that utilize the river will be collared as they have a high chances of crossing over to Zambia. Most of the data collection and analysis will be done using GIS technologies.

Project benefits:

- The project will give insight to the causes of declines in elephant populations in the Zambezi Valley, and hence assist in planning management towards the conservation of the species.
- Elephant home ranges, habitat preferences and migration patterns will be determined and hence assist in their maintenance and rehabilitation where possible.
- Elephant corridors will be established and enhanced to ensure elephant conservation in the entire landscape.
- Landscape land cover changes will be analysed and maps produced to understand environmental changes in the area over time. Understanding resource availability will assist in understanding elephant populations that can be sustained by the area.
- Publications will be produced and transboundary collaboration in the management of elephants will be enhanced.

Targets and milestones

First quarter- January to April: Planning and purchase of equipment. Research team to be put in place, vegetation maps finalised and in place. A detailed work plan in place and shared.

Milestone: Equipment to be acquired: 10 satellite collars, GPS devices, 2 drones.

Second quarter-May –August.

Landscape land cover changes ground trothing (objective 'c' and 'd')

Milestone: Data collection in progress and project progress reporting.

Third quarter September to December.

Finalisation of land cover assessment maps. Data collection from collared elephants continues.

Milestone: Report on elephant movements and land cover maps produced.

Final quarter:

Milestone: at least one publication produced.

6.0 Project Timeline – outline the timeline for proposed activities within this project. You may find it helpful to relate the timeline to the Phases identified in Section 5.0 above.

The study will require long term monitoring of collared elephants for conclusive results for a scientific publication. The project is thus expected to take 3years.

BUDGET

7.0 Has this project received or been pledged any other sources of funding (external)? Give all relevant details (for example, amount, source of funds, timetable, any restrictions):

The Zimbabwe Parks and Wildlife Management Authority has received four (4) satellite collars, which have been fitted on elephants. The donation was worth US\$25 000.

7.1 Please provide a detailed proposed budget for this project (in US\$). You may find it helpful to relate expenditure to the Phases you have set out in Section 5.0

Details included in Table annexed to the document:

Any other budget lines:

7.2 Please specify the proponents contribution towards the project

Please submit the completed proposal by:

Email: africanelephantfund@unep.org

You should receive acknowledgement of receipt of your proposal within 14 days. If you do not receive such an acknowledgement, please telephone: (254) 20 7625069 / (254) 20 762 5046

Further details on any of the above details may be requested by the Steering Committee of the African Elephant Fund.

FULL PROPOSAL BUDGET

BUDGET LINE	Quantity/Days/ Participants	Cost/Unit	Expected source of funds and amounts		
			AEF	PROPONENT (GOVT.)	Other (please specify)
EQUIPMENTS/ GEAR/ SUPPLIES					
(If applicable list all purchases)					
Satellite collars	10	5000	20000		30000
Immobilisation drugs			2000		
GPS and Camera fitted drone	2	5000	10000		
Range finder	1	300	300		
Laptop	1	1200	1200		
Printer	1	400	400		
Cyber Trackers	6				AWF
Garmin GPS units	6	180	1080		
TRAINING/CAPACITY BUILDING					
(If applicable: note number of participants, locations/venues, fees involved, activities involved,etc.)					
Specialised training for modelling land cover changes, GIS and GIS software applications, database management. Experts from the University of Zimbabwe. Mandel training Centre, Harare	6people		2000		
CONSULTANCY/PROFESSIONAL BACKSTOPPING SERVICES					
(If applicable note all services, number of consultants)					
University of Zimbabwe, Chinhoyi University Technology				500	
MEETINGS AND WORKSHOPS					
(If applicable note all activities, number of participants involved, venues, etc.)					
Research experts from Zimbabwe and Zambia; Directors and Management (15participants). Presentation of final findings from the project. Chirundu Safari Lodge.			2250		
TOTAL			39230		

