Biodiversity Challenge Funds Projects
Darwin Initiative, Illegal Wildlife Trade Challenge Fund, and Darwin Plus
Half Year Report

Note: If there is any confidential information within the report that you do not wish to be shared on our website, please ensure you clearly highlight this.

Submission Deadline: 31st October 2023

Project reference	*30-028*
Project title	Promoting connectivity to create Living Landscapes in southern Mozambique
Country(ies)/territory(ies)	eSwatini (Kingdom of), Mozambique, South Africa, Zimbabwe
Lead partner	Drs. Carlos Lopes Pereira and Joao Almeida President and Vice-President of the Mozambique Wildlife Alliance (MWA)
Partner(s)	PAMS Foundation, Sensing Clues, For Elephants, Elephant Crises Foundation, Elephants Alive
Project leader	*Antonio Alverca; Mozambique Wildlife Alliance*
Report date and number (e.g. HYR1)	*HYR1*
Project website/blog/social media	*Regular updates via Elephants Alive social media page: https://elephantsalive.org/*

Outline progress over the last 6 months (April – Sept) against the agreed project implementation timetable (if your project has started less than 6 months ago, please report on the period since start up to end September).

Although we are not looking for specific reporting against your indicators, please use this opportunity to consider the appropriateness of your M&E systems (are your indicators still relevant, can you report against any Standard Indicators, do your assumptions still hold true?). The guidance can be found on the resources page of the relevant fund website.

We have collated our M&E resources within the attached document (HYR1 M&E.xlsx). This document details our project outcome (tab 1), BCF log frame which includes alignment with the BCF Standard Indicators (tab 2) and implementation table (tab 3). For the Standard Indicators alignment process, we would value any feedback for appropriateness to report against the 5 suggested core indicators that we selected to help inform this standardisation process. At this stage, we confirm that our indicators are still relevant for this project and will continue to monitor against these. We acknowledge that some suggested changes were made to the original log frame (December submission and confirmed with NIRAS) and we are working on the updated log frame for our M&E process.

In addition to these files, we are currently implementing an actual change diagram supported by the theory of change process, which will form as an output for our evaluation activities. These processes will enable us to achieve the most impactful monitoring and evaluation which will be shared in the first annual report (Annual report Year 1).

At this stage, we cannot exhaustively determine if our assumptions are aligned for all aspects of the project as we are still in the preliminary stages. However, during the following section, we demonstrate our detailed narrative report progress on all activities to support our monitoring progress (which is reflected in the aforementioned tab 3):

***Activities**:*

1.1 Collar 15, 10 and 5 elephants in strategic locations in compliance with animal ethics from Year 1-3, respectively (cooler months for elephant safety)

The Mozambique Wildlife Alliance (MWA) team aim to deploy 8 collars by the end of the year (2023). The MWA aim to deploy 5 collars by April 2024, which will bring the total for Year 1 to 15 collars, as anticipated at the start of the project and aligning with our log frame. However, this has been logistically challenging due to limitations in attaining resources i.e. helicopter time. Therefore, we are currently discussing amending the baseline of collaring operations to be 10 per year, which will be shared in the next reporting period (Annual report Year 1). This would mean that a lower tolerance limit would be achieved for year 1, and an upper tolerance limit would be achieved for year 3, and our aim of 30 collars for the full project period still being achieved. MWA are suggesting this process due to unforeseen weather challenges last year, that caused a 3 month delay in field work and believe the updated baseline would be more achievable.

1.2 Spatial analysis of elephant movements through remote sensing/GIS, and field-based data collection in Year 1-3

To date, the HEC (Human-Elephant Conflict) data has been used to develop an innovative model capable of generating monthly updatable maps that estimate the suitability of southern Mozambique for crop-raiding events at a 500 m^2 spatial scale (high resolution). This approach not only uses the HEC data itself but also the complementary elephant tracking data (GPS) by means of incorporating monthly home ranges into the model. This will be ongoing throughout the project, but the initial stages of the model capabilities are showing positive results.

1.3 Spatial analysis of natural resources (plant spp. or vegetation communities) through remote sensing/GIS (Year 1), ground truthing by Year 3 to determine movement drivers

With reference to the model that has been developed in 1.3 (see above), the GIS technician at EA is also testing these models with spatial variables such as “soil extractable phosphorous”, “enhanced vegetation index”, “digital elevations models” and more exploratory variables at this stage. This process is being implemented to understand what variables are the driving factor for crop-raiding events, which will inform the next stage of this spatial analysis activity. These maps can then be compared to where the RRU goes each year to see how the HEC events and crop-raiding suitability map overlap with the RRU operations.

Even though the model is performing well thus far, it is essential to incorporate more data layers over time as the suitable area is still significantly extensive. By for instance, incorporating layers that indicate the types of crops being grown, the growth stage of the crops and a dynamic layer of phosphorus in the vegetation (instead of the soil), we expect the model to be even more specific and classify less areas as suitable, ultimately enhancing the mitigation process.

1.4 Link laboratory analysis (glucocorticoids) with movement data for between year comparison (Year 1-3) and compare with baseline (KNP complex) in Year 3

Within South African the collection of glucocorticol-steroid data from the faecal samples of collared elephants is ongoing and will be used as a baseline for comparison in the corridor regions of Mozambique. Dr. Kari Morfeld, as the expert endocrinologist working on this part of the project, has only recently developed methods that would make allowance for extracting the required steroids from dry faecal samples. This makes the collection of samples within Mozambique more feasible as the areas used by elephants are often remote and away from any facilities that would be needed to keep the samples frozen for extended periods of time.

2.1 Deploy RRUs to mitigate HEC Year 1-3

The MWA team identified 2 potential candidates for the role of responders for RRU. One potential candidate is based in Moamba District (North of Namaacha valley) and another the other is based in Matutuine/Kassimate (South of Namaacha valley); both districts being in the defined “corridor” area of this project. These candidates have been identified as within the two districts where there is very high incidence of HEC, particularly in Moamba. At this stage of the project, the MWA team have distributed bicycles and basic equipment to these candidates to determine their potential and motivations for the positions. Once the job role requirements are aligned, the MWA team will provide a extensive training session and effective equipment such as motorbikes. Determining the capabilities of the candidates at this stage of the project is imperative as the job role is dangerous, specific and challenging and the ideal candidate needs to be identified in order enable successful project progression.

2.2 RRU hosts educational workshops in Year 1

Between the period of January (prior to the start date of the project where 178 people were trained) to September 2023, the MWA team have implemented 11 training sessions for 420 people in total (244 men and 144 women). We are currently in internal discussion whether 16 workshops will be achievable; we aim to enhance this by having smaller workshops with larger groups and therefore greater impact. The baseline participants number will be achieved by end of Year 1 (242 total in the HYR1 period).

2.3 Comparative data analysis of HEC where RRU operate in relation to other areas in Southern Mozambique within each year (Year 1-3)

This is in the preliminary stages of implementation, via the modelling process outlined in 1.2 and 1.3. The EA team are working to collate this information using indicators within the modelling approach to compare HEC activities where RRU operate.

2.4 Establish 4 types of non-income generating barriers as demonstration plots in the Namaacha Valley (Year 1)

In May 2023, the EA team embarked on an HEC barrier implementation mission to the Namaacha Valley in Southern Mozambique. The EA team, as well as delegates from the Save The Elephants’ Elephants and Bees project (Kenya) and the PAMS Foundation (Tanzania), came together in an inspirational cooperation exercise to implement a fence combining four types of soft barriers surrounding three fields in the Namaacha valley region. These fields had been identified through field research, as well as GPS tracking data, as high-risk for elephant crop-raiding. The mission was an example of how four African countries came together in unity, to help each other learn and protect the livelihoods of rural populations affected by human-elephant conflict.

With the expertise assistance from Derick Wanjala from STE Kenya, one side of the fence was built by hanging beehives. As the hives start to become occupied with wild swarms, we will keep training local farmers on how to keep hives and colonies healthy, by assessing the frame structures and checking if the bees have enough pollen to produce honey. This knowledge will allow Mozambican farmers to increase both their crop production, protect crops from hungry elephants and supplement their income from honey sales. The second side of the fence was made up of metal strip fencing, the noise and sight of which has been proven to deter elephants from breaking into farmers' fields. With the expert assistance from Krissie Clark & Max Jenes from the PAMS foundation in Tanzania, we set up the third side of the fence with chilli rags. The fourth side of the soft barrier fence was comprised of flashing lights, a technique successfully used in Botswana. We also prepared two large drums of smelly elephant repellent and left the contents to ferment. During the growing season, the smelly elephants repellent will either be sprayed onto the plants when they are most vulnerable or one of the existing barriers will be reinforced with bottles of hanging smelly elephants repellent.

Three plots with 4-way mitigation barriers were erected by two different villagers under the leadership of Mr. Mabuto (Elephant Shepherd) for one demonstration plot and Mr. Mkwakwa for the two other demonstration plots.

Graeme Madsen from KwaZulu Natal in South Africa had premanufactured the panels for 24 top-bar beehives. These were transported to Maputo where Joao Williamo and Antonio Mario (Supported by ECF), kindly assembled and painted them at the MWA head offices. Elephants Alive also sent five catcher hives from our apiary. One was occupied immediately and had to be left at MWA HQ. The other four were taken with to Namaacha and Mr. Mabuto was trained by Ronny how to deploy them around his house (Figure 1 and Table 1)

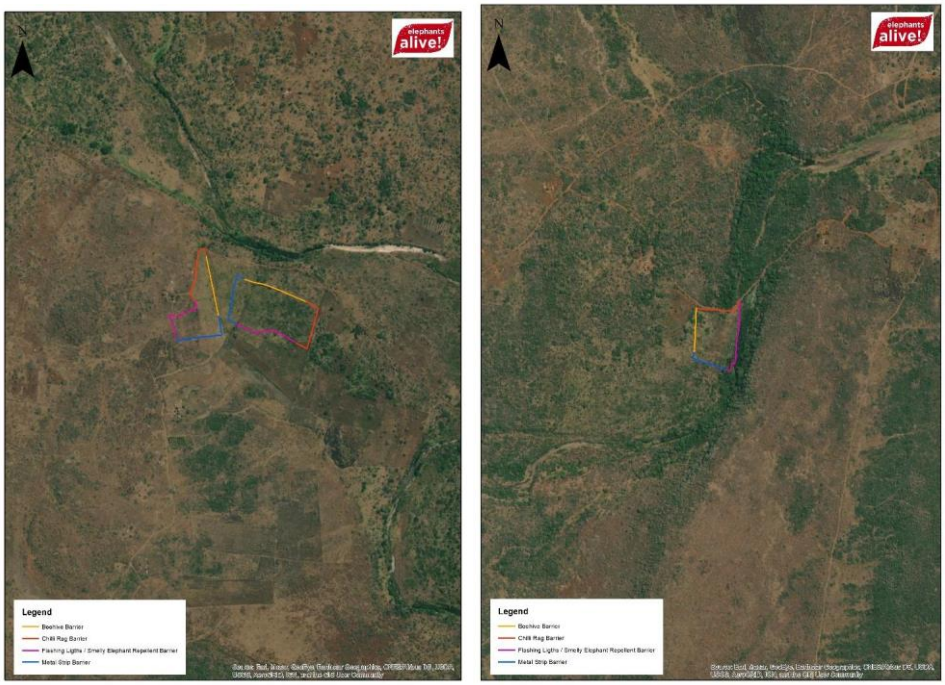

Figure 1: GPS locations of mitigation lengths of 4 barrier types erected at three demonstrations plots in Namaacha valley

Table 1: Mitigation lengths of 4 barrier types erected at three demonstrations plots in Namaacha valley

Mr. Mabuto's plot situated alongside a river	**Chief Mkwakwa's plots:**
Beehive fencing of 120m	Beehive fencing of 160m X 2

Metal-strip fencing of 120 m	Metal-strip fencing of 160 m X 2
Flashing light fence posts of 120m	Flashing light fence posts of 160m X2
Chilli rag fencing of 120m	Chilli rag fencing of 160m X2
None	1 camera trap for testing and training, deployment of others on next trip
None	5 swarms occupied the beehives within a week of erection
Total length: 480m	**Total length: 1280m**
Total length across all plots	**1.760m**

The women from the various villages were the most participatory. Both Mr. Mabuto and Mr. Mkwakwa were very involved and set excellent examples for their respective communities regarding participation. Participatory groups (outside of the EA staff that consisted of Michelle Henley, Ronny Makukule, Tshepo Ngobeni and Valerio Baloi), varied between 6 to 20 people at any one time.

Ronny Makukule and Tshepo Ngobeni were wonderful translators of the excellent demonstration on the techniques provided by Derick Wanjala (Beehive fences, Metal strip fences and Smelly Elephant Repellent preparation). Max Jenes gave a wonderful demonstration and clear instructions on the preparation of Chilli Rag fences. Tshepo Ngobeni can a great presentation on preparing Mbulas with elephant impregnated dung for mobile repellent smoke screens. It really left a great impression with each of the communities that members from three countries came to help and that we were all experiencing the same challenges but were very happy to share mitigation strategies that have been tried and tested across Africa. Our greatest concern was a potential lack of participation from the community as MWA got no community support while erecting a cluster electric fence. This was overcome as the EA team spoke the local dialect (Xitsonga) which kept the motivation very high during our demonstrations. Tinyiko Masia (Elephants Alive) also did a fantastic job catering every day where we camped at Mr. Mabuto. Her food was so delicious that we often had visitors coming over to share where we could which also help communication between all parties. Mr. Mkwakwa built a lovely bee watering station near his fences after we informed him that the bees would require water during the dry season. The respective community members completed the chilli rag fences and metal strip fences at their plots while we were busy at the other plots and after the demonstrations. Both communities built the shades over the hives after we left after having taught them to do so.

Moving into the next stage of this project, the MWA team would like to propose Moamba for one of these barriers, instead of Namaacha valley, for the below reasons:

1. Moamba is recording high levels of conflict reports that needs to be addressed.

2. The MWA need projects in this district, that can show that a positive and tolerant environment can be achieved to between humans and elephants. This can only be achieved by creating security and safety among people, which will be followed by reduction of conflict, food security, motivation and trust.

3. An electric fence is a barrier that works with a high success rate which needs to be tested within this area.

The MWA will then receive results for a new version of buck off mix (called buck off max), which has been receiving some very promising preliminary positive results in some of the coutadas in the centre of the country. This inexpensive and practical way could be very interesting because with less cost, the MWA team could cover a greater area range. In addition to this, the application process is not unfamiliar to farmers, meaning that they just need to spray the product around the area they want to protect. This product is made of natural substances therefore it does not harm the farmers produce.

3.1 Construction of watch towers for hosting of educational orientated workshops setup and record keeping of attendees in Year 1-3 with one tower a year

In October 2023, the Elephants Alive team returned to the Namaacha valley to construct the first HEC watch tower in southern Mozambique. This tower has been partly funded by the Elephant Crisis Fund. The tower will serve a dual purpose. The bottom section will be used as a storeroom and honey processing room for when the honey needs to be harvested in the summer months. The top section will serve as the viewing platform to watch elephants at night. The roof will be fitted with a solar panel so strong spot lights can be fully charged from the battery backup system. The railings of the tower will be fitted with educational posters from the STE HEC toolbox manual which have been translated into Portuguese. Please refer to the attached figure for the details (please see attached "Watch_tower_plans_final.pdf").

3.2 Community field surveys by social scientist following non-medical human ethics guidelines in Year 1 and 3 with focus on gender-based analyses

The first social surveys have been conducted within the Namaacha Valley. Questionnaire surveys were completed by 102 respondent and the results will be analysed by the Centre for Impact Evaluation and the results shared during the next reporting period (Annual report Year 1). The current surveys were supported by Jamma International.

3.3 One exchange program per year between South Africa and Mozambique to facilitate transfer of skills regarding growth of unpalatable crops and beekeeping. In addition, community field surveys by social scientist will follow non-medical human ethics guidelines in Year 1 and 3 with focus on resource use analyses

Elephants Alive looks forward to welcoming the members of MWA's RRU in 2023 where we will exchange skills and information to assist with permaculture, beekeeping and elephant mitigation strategies. The MWA and EA team aim to arrange a trip for this exchange in early 2024.

4.1 Replication and testing of 2 income generating barrier types (beehive fences Year 1, Plant based agriculture Year 2-3) at 2-3 farms (20-25 study sites)

See detailed explanation in 2.4.

4.2 Spatial analysis through remote sensing/GIS, and field-based data collection of elephant movements in Year 1-3 to determine reduction in HEC

Please refer to the monitoring process outlined in 1.2 and 1.3. This is an ongoing process throughout the project determining HEC events. More data is currently being collected to achieve this and will be implemented throughout the project timeline.

4.3 Community field surveys by social scientist following non-medical human ethics guidelines in Year 1 and 3 to assess efficacy of HEC strategies and combinations

The first social surveys have been conducted within the Namaacha Valley. Questionnaire surveys were completed by 102 respondent and the results will be analysed by the Centre for Impact Evaluation and the results shared during the next reporting period (Annual report Year 1). The current surveys were supported by Jamma International.

4.4 Community field surveys by social scientist following non-medical human ethics guidelines in Year 1 and 3 to quantify increased use of barriers over time

This will be implemented next year, and is therefore not applicable for this reporting period.

4.5 Field base data collection on apiary (monthly with overall annual assessments each year since installation (Year 1 – 3)

Data is being collected monthly as anticipated.

4.6 Community field surveys by social scientist following non-medical human ethics guidelines (Year 1 and 3) to quantify the use of income generating barriers strategies

The first social surveys have been conducted within the Namaacha Valley. Questionnaire surveys were completed by 102 respondent and the results will be analysed by the Centre for Impact Evaluation and the results shared during the next reporting period (Annual report Year 1). The current surveys were supported by Jamma International.

5.1 Community field surveys by social scientist following non-medical human ethics guidelines (Year 1 and 3) focussed on value-based statements involving biodiversity and coexistence values.

The first social surveys have been conducted within the Namaacha Valley. Questionnaire surveys were completed by 102 respondent and the results will be analysed by the Centre for Impact Evaluation and the results shared during the next reporting period (Annual report Year 1). The current surveys were supported by Jamma International.

5.2 Publishing of a scientific paper in a peer-reviewed scientific journal, as well as publishing popular articles through major news outlets in Year 3 and beyond

Not applicable for this reporting period

5.3 Organising meetings and setting up MOAs with strategic organisations in Year 3

Not applicable for this reporting period

5.4 Strategic fundraising endeavours for additional sources of income starting in Year 2 but secured by Year 3

Not applicable for this reporting period

5.5 Workshops to discuss the formulation of policies and legislation (Year 3) to enable the development of Biosphere Reserves and ensure governmental gazettement (post Year 3)

Not applicable for this reporting period

2. Give details of any notable problems or unexpected developments/lessons learnt that the project has encountered over the last 6 months. Explain what impact these could have on the project and whether the changes will affect the budget and timetable of project activities.

We summarise the unexpected developments below:

1. Due to logistical challenges and unforeseen circumstances (unseasonal weather which is out of our control), we have experienced challenges with collaring sufficient elephants within this HY period. We have a solution to change the baseline, which will need to be discussed with NIRAS.
2. We were concerned that for the non-income generating barriers activity, we would be unable to attain community support. However a key lesson learned here was that we were able to gain high levels of engagement through active participation with the local community.

3. An additional unexpected development was that the MWA team would like to propose Moamba for one of these barriers, instead of Namaacha valley. We will need to raise this with NIRAS, however this is within budget.
4. Recently developed methods for the collection of glucocorticol-steroid data are in progress. This shouldn't affect the project timeline, but we are noting that this will make the collection of samples more feasible and is a key lesson learned.

3. Have any of these issues been discussed with NIRAS and if so, have changes been made to the original agreement?

Discussed with NIRAS:	Yes/**No**
Formal Change Request submitted:	Yes/**No**
Received confirmation of change acceptance	Yes/**No**
Change request reference if known:	

4a. Please confirm your actual spend in this financial year to date (i.e. from 1 April 2023 – 30 September 2023)

Actual spend: ([redacted]

4b. Do you currently expect to have any significant (e.g. more than £5,000) underspend in your budget for this financial year (ending 31 March 2024)?

Yes ☐ **No** ☒ Estimated underspend: £

4c. If yes, then you need to consider your project budget needs carefully. Please remember that any funds agreed for this financial year are only available to the project in this financial year.

If you anticipate a significant underspend because of justifiable changes within the project, please submit a re-budget Change Request as soon as possible. There is no guarantee that Defra will agree a re-budget so please ensure you have enough time to make appropriate changes if necessary. Please DO NOT send these in the same email as your report.

NB: if you expect an underspend, do not claim anything more than you expect to spend this financial year.

5. Are there any other issues you wish to raise relating to the project or to BCF management, monitoring, or financial procedures?

As mentioned in the first section, we would like to continue discussions on core indicators alignment in order to achieve the most effective M&E process. This will also support us in determining effective evaluation results to inform our actual change model development.

If you are a new project and you received feedback comments that requested a response, or if your Annual Report Review asked you to provide a response with your next half year report, please attach your response to this document.

All new projects (excluding Darwin Plus Fellowships and IWT Challenge Fund Evidence projects) should submit their Risk Register with this report if they have not already done so.

Please note: Any planned modifications to your project schedule/workplan can be discussed in this report but should also be raised with NIRAS through a Change Request. Please DO NOT send these in the same email.

Please send your **completed report by email** to BCF-Reports@niras.com. The report should be between 2-3 pages maximum. **Please state your project reference number, followed by the specific fund in the header of your email message e.g. Subject: 29-001 Darwin Initiative Half Year Report**