Darwin Initiative Main: Annual Report

To be completed with reference to the "Project Reporting Information Note": (https://www.darwininitiative.org.uk/resources/information-notes/)

It is expected that this report will be a **maximum of 20 pages** in length, excluding annexes)

Submission Deadline: 30th April 2024

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● Darwin Initiative Project Information

Project reference	DIR29S2\1073
Project title	Promoting connectivity to create Living Landscapes in southern Mozambique
Country/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)
Project partner(s)	PAMS Foundation, Sensing Clues, For Elephants, Elephant Crises Foundation, Elephants Alive
Darwin Initiative grant value	£449,858
Start/end dates of project	01/04/2023 - 31/03/2026
Reporting period (e.g. Apr 2023 – Mar 2024) and number (e.g. Annual Report 1, 2, 3)	April 2023 - April 2024
Project Leader name	*Antonio ▉▉▉▉; Mozambique Wildlife Alliance*
Project website/blog/social media	*Regular updates via Elephants Alive social media page: https://elephantsalive.org/*
Report author(s) and date	Dr Michelle ▉▉▉, Antonio ▉▉▉, Dr Katie ▉▉▉, Cassaner ▉▉▉ (21/04/2024)

1. Project summary

Over half of African elephants occur outside Protected Areas (PAs), resulting in Human-Elephant-Conflict while human development isolates PAs. Solutions involve Biosphere Reserve declarations, consisting of PAs linked by community-owned corridors with occupants practicing elephant compatible livelihoods. We propose a phased approach in Mozambique where collared elephants delineate corridors while rapid response units (RRUs) ensure peoples' safety. Social surveys and educational subcentres enable an understanding of people's needs and facilitate knowledge transfer around crop protection. Overall, elephant corridors promote ecological connectivity.

Connecting ecosystems to enable essential ecological functions at landscape scale is of critical biodiversity importance. Linked ecosystems promote ecological functions such as migration, hydrology, nutrient cycling, pollination, seed dispersal, food security, climate resilience and disease resistance at landscape scale. A key target for the Global Deal for Nature involves the reconnection of isolated megafaunal reserves via corridors. Connecting Protected Areas (PAs)

across political borders, alongside building more sustainable, rural economies in collaboration with communities that live in and around corridors delineated by elephant movements, represents an important long-term solution to cooperatively address broader conservation concerns centred around biodiversity.

Elephants as keystone species and ecosystem engineers with large spatial requirements, are capable of forging vital corridors between PAs. However, these linkages are being threatened by ivory poaching practices and increasing competition over resources with burgeoning human populations. Escalating human-elephant-conflict (HEC) directed towards elephants, can thus differ in severity and take the form of poaching, retaliatory killing or crop-raiding. Continentally, elephants are listed as Endangered (IUCN Red List of Threatened Species). Currently, 54.7% of elephant's range is found outside of PAs and 76% of elephants are found in international transboundary populations such as those sharing borders between Mozambique, Zimbabwe, South Africa and Eswatini.

In 2018, Elephants Alive (EA) and the Mozambique Wildlife Alliance (MWA) identified corridors linking PAs across international boundaries. However, as 55% of Mozambique's human population lives on less than $1 per day subsistence farmers are often left vulnerable through climatic events and conflict over limited food sources with elephants. Poverty and corruption are known to be stronger catalysts of poaching than the lack of law enforcement. Consequently, Mozambique has been identified as one of the countries with severe levels of illegal elephant killings within PAs. Outside of PAs, where elephants cross human dominated landscapes primarily at night, HEC involves crop-raiding and it occurs most where people have neither the experience of coexisting with elephants nor the financial resilience or tolerance of such events.

If elephants are to survive, we need scientific knowledge and an intimate understanding of their movements and spatial requirements in combination with understanding the needs of the people that share the landscape with elephants. This is particularly necessary where vital corridors have been identified and where innovative ways are needed to make people's livelihoods compatible with conservation outcomes. These challenges call for an understanding of the socio-economic needs of the people sharing the landscape with elephants to empower them as benefactors of community owned corridors delineated by collared elephants. The corridors are needed to accommodate compressed subpopulations of elephants as part of a larger transnational meta-population, facilitating increased genetic resilience, ensuring the preservation of phenotypic traits (large tusks), and decreasing pressure on biodiversity within isolated reserves. We propose a transnational community-based approach to protect African elephants and their habitat through a unique multidimensional and integrated approach of community engagement, knowledge creation, and practical conservation action. We use innovative ways to increase people's tolerance and safety, protecting assets and increasing food security.

2. Project stakeholders/ partners

Lead Partner:
Mozambique Wildlife Alliance (Dr. Carlos ▮▮▮▮▮▮ and Dr. Joao ▮▮▮▮, Mozambique)

Other partners (name and country):
Elephants Alive (Dr Michelle Henley, Dr Katie ▮▮▮▮▮, Cassander ▮▮▮▮, Dr Silvia ▮▮▮▮; South Africa and remote)
The Elephants and Bees Project Save the Elephants (Dr. Lucy ▮▮, Kenya)
For Elephants (Dr. Kari ▮▮▮▮ United States)
Sensing Clues (Dr. Jan-Kees ▮▮▮▮, Netherlands)
PAMS Foundation (Krissie ▮▮▮, Tanzania)

Continental partnerships:
The MWA is mandated by ANAC (state entity) to operate on their behalf in conservation and HEC related subjects. Under EA's financial assistance and shared expertise, the two NGOs represent the implementation agents of the project.

The Elephants and Bees Project advises on bees as a mitigation strategy. Skills transfer initiatives between Kenya and Mozambique will take place through exchange programs and on-site training.

PAMS Foundation advises on community engagement methods, wildlife security and mitigation strategies involving capsicum and will be involved in skills transfer between Tanzania and Mozambique.

International partnerships
For Elephants assists in profiling faecal stress and health indices of corridor-moving elephants which will help to evaluate the success of the corridor.

Sensing Clues Foundation develops Digital Twins to model elephant behaviour. Its predictions will be used to prevent HEC.

The lead partner of this project is the Mozambique Wildlife Alliance (MWA), where Antonio Alverca (Head of Human Wildlife conflict) has been the lead partner based in Mozambique (please see section 1 for the summary of why Mozambique was suitable as a high priority country). The roles and responsibilities for the MWA throughout the project, was to administer the grant and coordinate the delivery and implementation of the project's outcomes. MWA have been organising, coordinating and implementing field work and maintaining close relationships with the communities in the targeted areas via the relationship-strengthening activities of the RRUs. Under the guidance of the Project Leader, the RRU will continue to train, organise workshops and disseminate information to build capacity within Mozambique throughout the project timeline. MWA has significant experience working locally due to the RRUs establishment and operations throughout southern Mozambique. Together with EA, MWA have been managing, disbursing and reporting on the majority of the donor funds. To date, MWA has been a key partner in the dissemination of training, RRU implementation and training for RRUs and community training. Please see section 3 for more details on achievements and lessons that have been achieved throughout the first full year of the project (full narrative report).

The other integral partner to the project is Elephants Alive, including Dr Michelle Henley and the other aforementioned staff. EA is a long-standing NGO that branched off from STE in earlier years, and which has extensive experience in researching transboundary elephants in southern Africa and has extensive experience finding science-based solutions and funds to the challenges elephants face today. EA has conceptualised the vision and designed the research work, thereby contributing extensive scientific and practical experience to the project since the first elephant was collared outside of PAs in 2018. EA staff have begun to analyse and delineate corridors over time, analysing baseline data to identify conflict hotspots and developing HEC probability maps, largely done by Cassander and Silvia (see section 3 for a full narrative report). EA are also working to publish the results in peer reviewed scientific journals together with the project partners.

All of the aforementioned partners have been involved with the project planning, monitoring and evaluation and decisions making. The project partners team have been holding regular meetings to discuss and review the M&E actions and decisions to date, and will continue to do these throughout the timeframe of the project. Dr Katie Thompson (Elephants Alive) works remotely in England, and manages the M&E reporting. Together, with regular partner discussions, the team reviews the detailed logframe, and records any progress along with challenges. Please see the main narrative report (Section 3) for more details including stakeholder and local communities involvement.

3.   Project progress

We have collated all M&E resources within the attached document (Annex 1: "FYR1 M&E.xlsx."). This document details our project outcome (tab 1), BCF log frame which includes alignment with the BCF Standard Indicators (tab 2) along with the activities to achieve these indicators. At this stage, we confirm that our indicators are still relevant for this project and will continue to monitor these indicators. We acknowledge that some suggested changes were made to the original log frame (December 2022 submission, confirmed with NIRAS) and we are working on the updated

logframe for our M&E process. We demonstrate our detailed narrative report progress on all activities to support our monitoring progress (which is reflected in the aforementioned tab 3):

3.1   Progress in carrying out project Activities

Please refer to the logframe (Annex 1: "FYR1 M&E.xlsx.", tab 2) to see the activities that align with the relevant phases, outputs, indicators and means of verification. The following numbers align with these headers:

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) have deployed 9 collars to date. MWA is working to deploy the remaining 2 collars to complete the first year baseline. However, this has been logistically challenging due to limitations in obtaining resources i.e. helicopter time. A lower tolerance limit will 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 is still being achieved. An upper tolerance for year 2 will also be achieved to align with the project output (12 collars FY2). 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 100 x 100 metre pixel resolution 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 for year 1 of the project. The preliminary results of the tracking data are shown below.

Table 1: Deployment date, date when tracking data were downloaded (end date), the GPS logging rate, as well as number of GPS points logged and total distance travelled within the given time period, for the eight elephants collared in southern Mozambique.

	Elephant name	Sex	Deployment date	End date	GPS log rate (hr)	Number of GPS points	Distance travelled (km)
*Six-hourly GPS logging will result in shorter	Phenix	Female	2023/06/21	2024/04/03	6	1 027	1 450*
	Sugar	Male	2023/08/14	2024/04/11	1	5 748	2 564
	ERPF1	Female	2023/08/14	2024/04/11	1	5 736	2 324
	Molwene	Male	2023/09/08	2024/04/11	1	5 157	2 439
	Sunday	Male	2023/11/26	2024/04/11	1	3 266	1 338
	Edu	Male	2023/12/12	2024/04/11	1	2 889	1 042
	Anks	Female	2024/02/08	2024/04/11	1	1 502	1 188
	Mr HP	Male	2024/04/04	2024/04/10	6	17	58

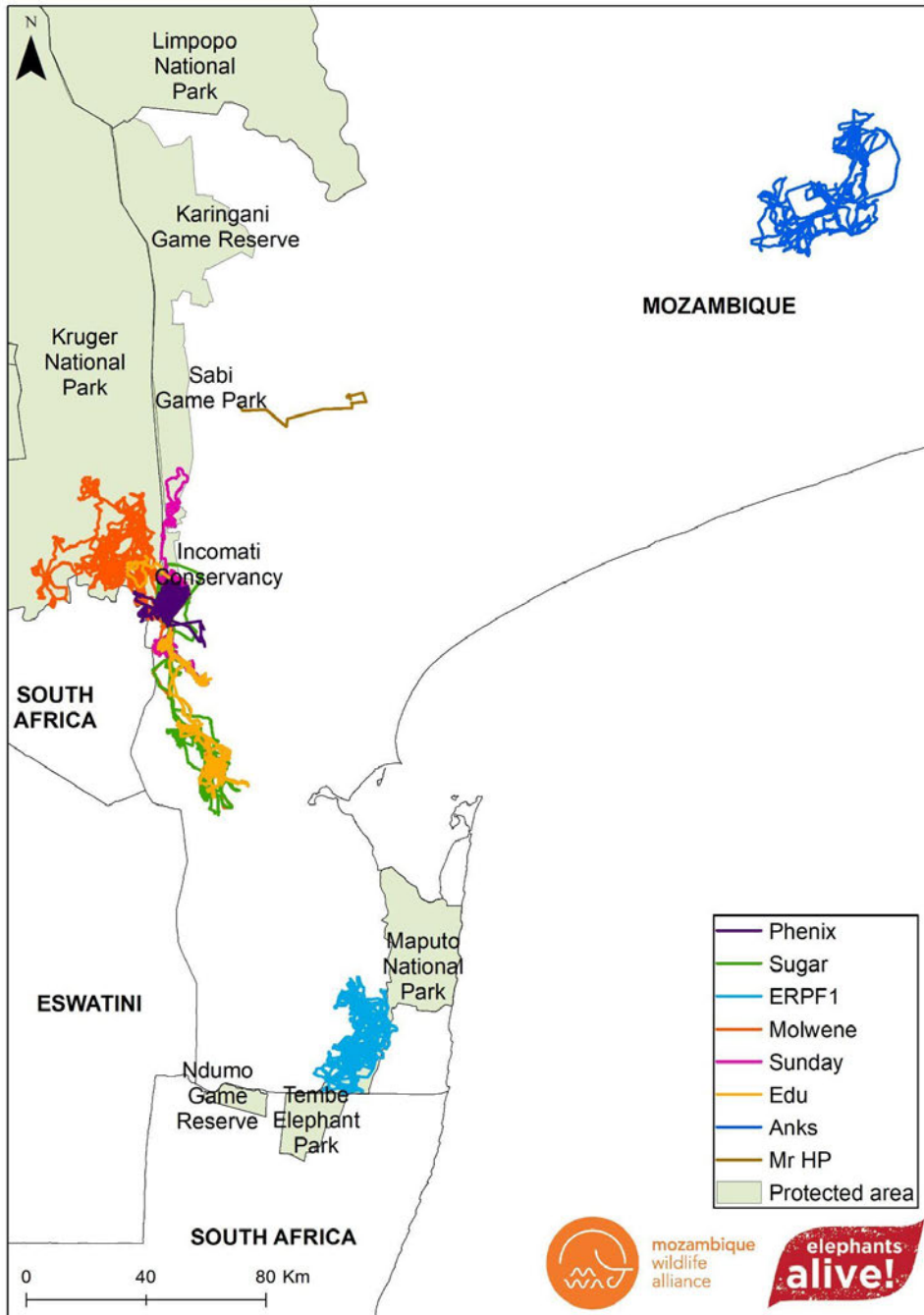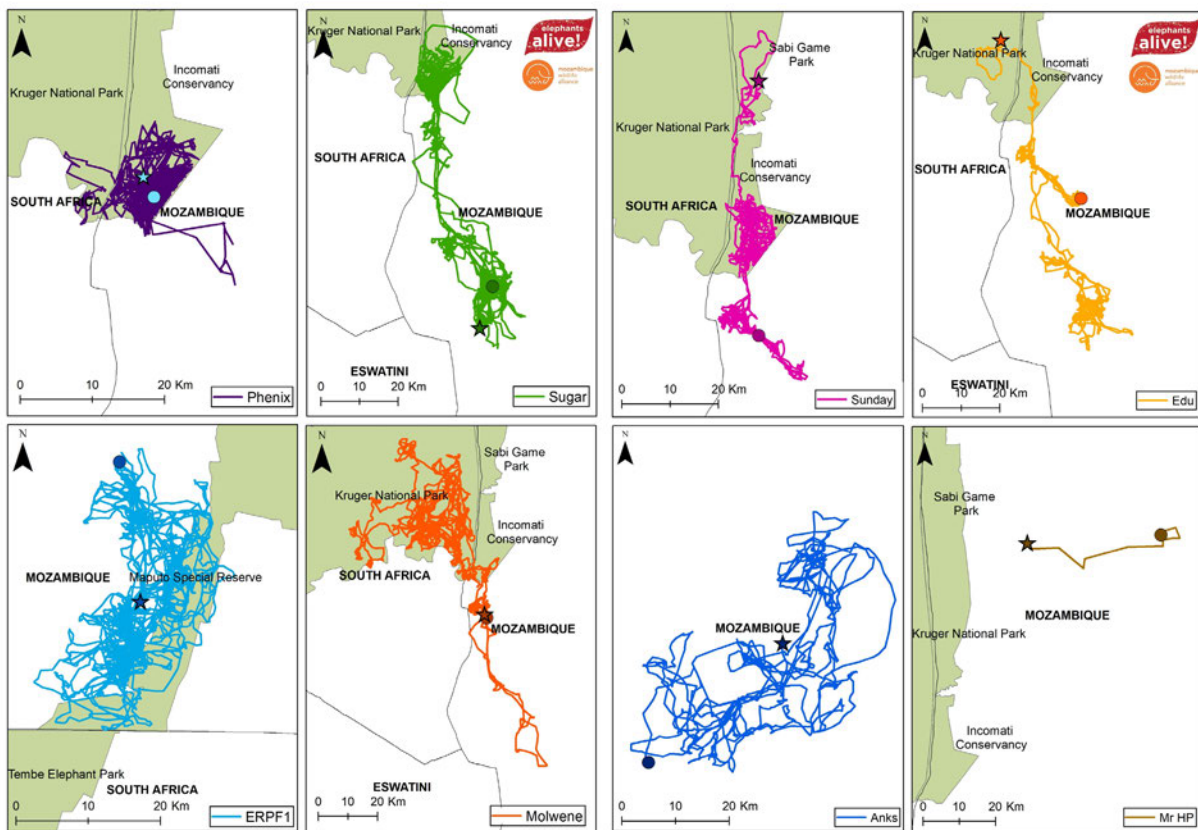distances than one-hourly GPS logging.

Figure 1: Tracks for all eight elephants collared in southern Mozambique, for the time periods as given in Table 1

Figures 2a and b: Tracks for each of the eight collared elephants for the time periods as given in Table 1. The circle indicates the deployment date and the star indicates the end date (last tracking point downloaded).

Note for figures 3 and 4: As the distance between two GPS downloading points is given as a straight line distance between two points, it can not always accurately portray the subtle circumvention of the barriers happening in real life. This can either only be overcome by increasing the download frequency to 10 minute intervals (which will compromise the battery life substantially), or by depending on the subsistence farmer's reports. We have opted for the latter in all cases.
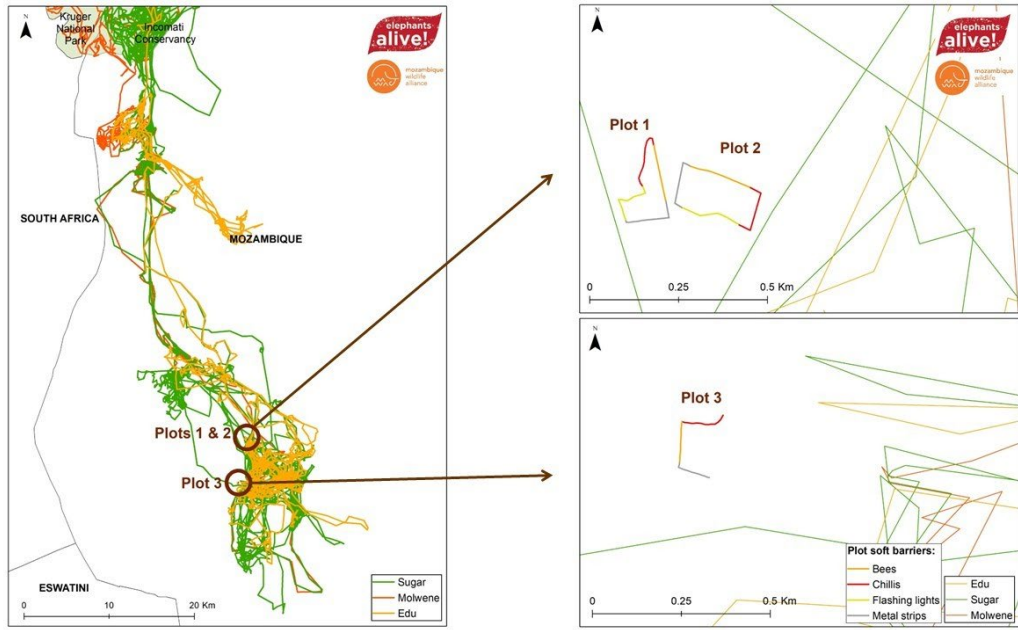
Figure 3: The three soft barrier plots set up in southern Mozambique (inside the brown circles), within the greater elephant movement landscape and zoomed in. The plots consist of bees, chillis, flashing lights and metal strip soft barriers. Three of the collared elephants have moved very close to the plots (Sugar, Molwene, Edu). None of the elephant tracks seem to have passed through the plots.
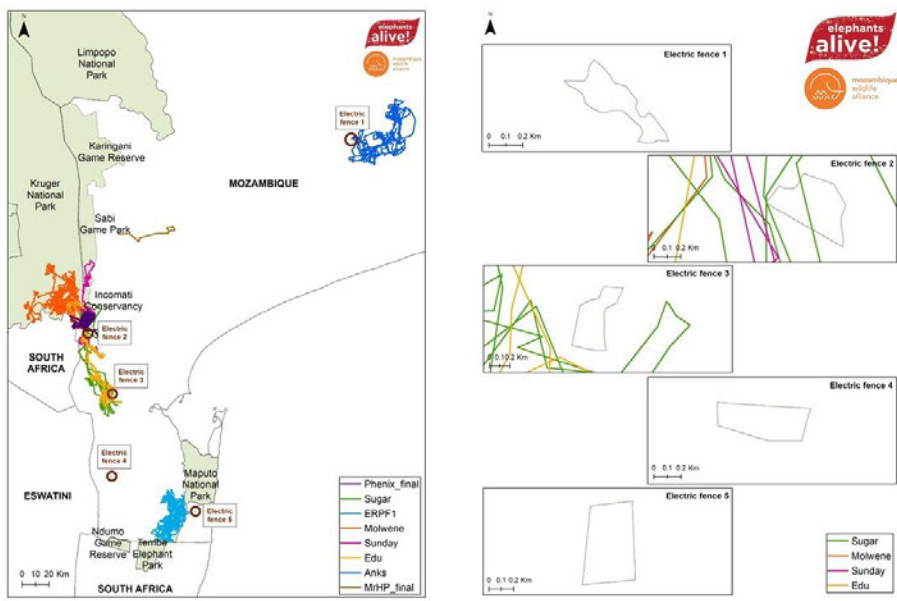

Figure 4: The five electric fences set up in southern Mozambique (inside the brown circles), within the greater elephant movement landscape and zoomed in. Four of the collared elephants have moved very close to two of the electric fences (Sugar, Molwene, Sunday, Edu). None of their GPS positions were found inside the fenced areas.
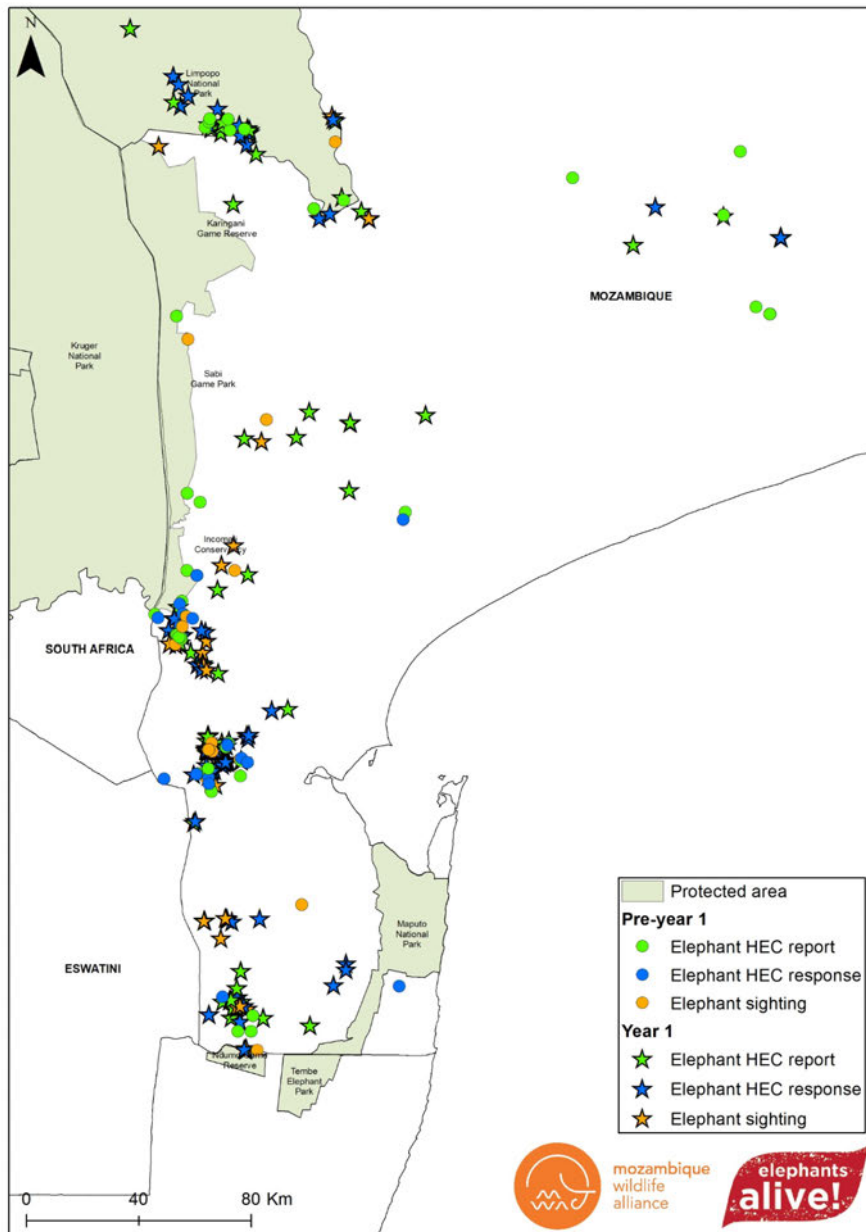
Figure 5: Human-elephant conflict (HEC) reports and responses, as well as elephant sightings, in southern Mozambique, for pre-year 1 and year 1 of the Darwin project. Each time-period ranges from 1 September to 31 March, to standardise the months for which data were available.

For southern Mozambique only, and from 1 Sep to 31 Mar each period (212 days) (pre-year 1 and year 1):

- Pre-year 1 = 1 September 2022-31 March 2023.
- Year 1 = 1 September 2023-31 March 2024.

These time periods were used as these data were supplied from the MWA (data starts from end of August 2022), and have subsequently been standardised to enable comparison. The maps (figures 1-5) focussed on the southern Mozambique area to match the other maps. Data outside of this region were not included.

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

Over the past few months, the Elephant's Alive GIS technician's main focus has been on developing a model specifically aimed at evaluating the relative risk of elephant crop-

raiding incidents occurring across Southern Mozambique, down to a resolution of 100 X 100-metre pixels. This model utilises a diverse range of static and dynamic spatial layers as predictors of crop-raiding risk. The ultimate goal is to deepen our understanding of the underlying factors driving these incidents, with a particular emphasis on the elephants' nutritional preferences.

By delving into these driving variables, our aim is to develop new and effective mitigation methods. Additionally, we seek to direct existing mitigation efforts towards areas at higher risk of crop-raiding incidents. This strategic approach is crucial for minimising the impact of crop-raiding on local communities, hopefully reducing tensions between humans and wildlife. Ultimately, this could lead to an increased adoption rate of conservation efforts.

Currently, having an accuracy of around 90%, our model classifies over 90% of the study area as low-risk for crop-raiding, highlighting less than 10% of the region as requiring more targeted mitigation strategies. While the model is nearing completion for publication, our work continues at this stage of the project. As new spatial layers become available and our knowledge of crop-raiding behaviour expands, we will update the model to reflect these advancements. Our ultimate goal is to develop a model that can accurately predict where crop raiding is likely to occur next, enabling preventative measures to be implemented effectively and in supporting achieving this indicator.

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 and the potential for Dr. Kari to partake in this work in the laboratory in Mozambique.

2.1 Deploy RRUs to mitigate HEC Year 1-3

The MWA team identified 2 potential candidates during the HY, and have now implemented these for the role of responders for RRU. They are based on the Moamba District (North of Namaacha valley) and Matutuine/Kassimate (South of Namaacha valley); both districts being in the defined "corridor" area of this project. The MWA have distributed bicycles and equipment to these responders and extensive training (see table 2).

Table 2: MWA metrics on RRU

	2022	2023
Districts involved	22	32
HWC reports	230	186
Elephants	161	152
Predators	28	23
Ungulates/other species	39	27
Wildlife sightings	49	61

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Response reports (RRU)	58	104
Successful responses	46	84
Number of trainings	306	509
Trained individuals	305	509
Mileage RRU	20200	37257

2.2 RRU hosts educational workshops in Year 1

The MWA team has implemented 12 training sessions for 420 people in total (276 male and 144 women). 16 workshops were not achievable for FY1, however the MWA aims to enhance this by having smaller workshops with larger groups and therefore greater impact. However, the baseline participants number will be achieved by the end of Year 1 (420 individuals in total).

There are two levels of training as follows:

1. Training is directed to district authorities and communities (HWC management training, that involves legal framework clarification (who is responsible and what are the responsibilities of each in HWC problematic) in Mozambique + MWA approach to HWC conflict and also mitigation and prevention techniques
2. Training aimed at community mitigation officers or shepherds and so on (same as point 1, but with a larger focus on strategic use of mitigation equipment + animal behaviour and so on)

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. Table 3 reflects the data that was supplied by MWA for HEC activities. Please refer to Figure 5. There were slightly more HEC reports during year 1 of the Darwin project, than during the same time period the year before the project. However, HEC responses were three times higher during year 1 of the project (likely due to the deployment of the RRU during year 1). Elephant sightings were similar between the two time periods. Please refer to 1.3 for elephant movement data.

Table 3. Pre project and FY project HEC activities.

Category	Number of reports/responses/sightings		Number of unique days of reports/responses/sightings (percentage of total 212 days)	
	Pre-year 1	Year 1	Pre-year 1	Year 1
Elephant HEC report	47	63	41 (19%)	50 (24%)
Elephant HEC response	24	92	23 (11%)	69 (33%)
Elephant sighting	21	22	21 (10%)	19 (9%)
Total	**92**	**177**		

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 expert 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 consisted 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 elephant 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 elephant 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 6 and Table 4)
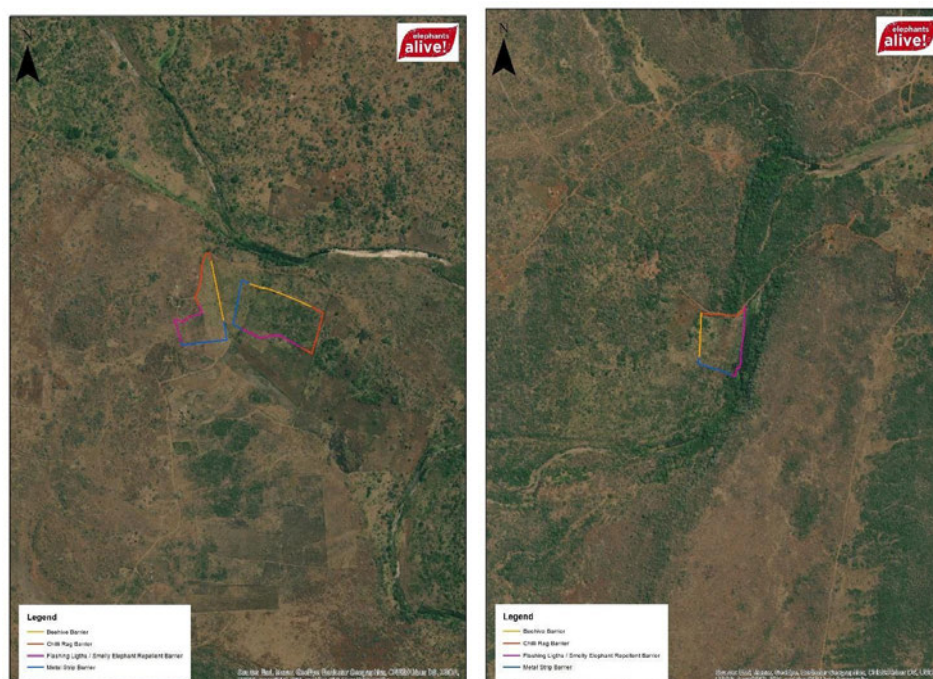
Figure 6: GPS locations of mitigation lengths of 4 barrier types erected at three demonstration plots in Namaacha valley (please also refer to Figure 3).

Mr. Mabuto's plot situated alongside a river	Mr. 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**

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

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. 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 come over to share where we could, which also helped 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. All the beehives are active in the one plot where cultivation is taking place so 8 in total (See figures 7 and 8).

Figure 7: Beehive fences from the watchtower, highlighting the scale of the barrier

Figure 9: Beehive fences from the watchtower, showing the cropland edges

Moving into the next stage of this project, the MWA team would would like discuss the potential site Moamba for one of these barriers for the below reasons:

1. Moamba is recording high levels of conflict reports that need to be addressed.
2. The MWA needs projects in this district that can show that a positive and tolerant environment can be achieved 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 spotlights 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 see figure 9 and 10.

Since the crops have been maturing, Mr. Mkwakwa and his wife have taken turns sleeping in the tower using the powerful flashlights (6500 Lumens with a 1500 metre beam

distance) that were sponsored to add an additional level of protection to the surrounding fields. The tower was situated on a high point that could overlook a number of crop fields. Reports back have indicated that the flashlights are offering an additional layer of protection. In addition, the extra material in the storage compartment of the tower was used on the 18th of January to help neighbouring farmers who were interested in also erecting chilli rag and metal strip fences.

Figure 9: The outer building of the watchtower, highlighting the roof and railings of the tower.

Figure 9: A view from the watchtower viewing platform with local community members and All the beehives are active in the one plot where cultivation is taking place so 8 in

16

total. Note the educational posters attached to the railings from the STE HEC toolbox manual which have been translated into Portuguese.

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 Elephants Alive Human-Elephant Conflict (HEC) Baseline Survey was commissioned to assess the scope and impact of HEC in the Gumbe and Muswazi regions, supported by Jamma international. The primary purpose of this study was to understand community experiences with HEC, evaluate the effectiveness of current mitigation strategies, and develop informed recommendations for future interventions.

Survey and data collection approach:
The survey utilised a mixed-methods approach, combining structured questionnaires administered to a sample size of 102 individuals with key informant interviews. The methodology ensured comprehensive data collection and the capture of diverse perspectives within the affected communities (see Annex 1 for full details of the survey design and implementation).

Key Findings: The survey revealed that:
Incidence of Conflict: A substantial proportion of respondents from both regions reported experiencing property damage caused by elephants. The level of impact varied, with some areas reporting higher incidents, reflecting the localised nature of the conflicts.

Community Engagement: There is a notable commitment among the community members to engage in mitigation projects. This is evidenced by a significant majority expressing willingness to participate in communal farming and to employ innovative methods such as surrounding these fields with crops unpalatable to elephants.

Awareness and Effectiveness of Mitigation Strategies: While bee-fencing emerged as a recognized and effective strategy among those aware of it, a considerable segment of the community had not been informed about this method. This indicates a gap in communication and outreach efforts.
Land Availability and Willingness to Change Practices: The community's willingness to shift to communal farming practices was matched by their confidence in the availability of land for such an approach. This reflects a readiness to adapt agricultural practices for better HEC management.

Perceptions of Deterrents: The survey also highlighted diverse perceptions regarding the effectiveness of various deterrents, with some strategies receiving more favour than others. This suggests that no single method is universally applicable or effective, and a combination of strategies tailored to specific community needs is required.

Recommendations:
Enhance Community Education and Outreach: Efforts should be intensified to raise awareness about the benefits of bee-fencing and other deterrent methods. Education campaigns could leverage community structures and leaders to disseminate information effectively.

Support Communal Farming Initiatives: Given the strong willingness to pursue communal farming, resources should be allocated to support these initiatives, ensuring that adequate land is available and that best practices for crop selection and management are shared.

Monitor and Evaluate Deterrent Strategies: Ongoing monitoring and evaluation of deterrent methods should be implemented to assess their effectiveness, make necessary adjustments, and scale successful practices.

Strengthen Reporting Mechanisms: Improved systems for reporting HEC incidents should be established to ensure that all cases are documented, and appropriate responses are initiated, potentially involving community leaders and rapid response units.

Facilitate Knowledge Exchange: Create platforms for knowledge exchange between regions to share successes and challenges in HEC management, fostering a collaborative approach to conflict mitigation.

Conclusion:
The Elephants Alive, HEC Baseline Survey highlights the urgency and complexity of HEC in the Gumbe and Muswazi communities. The findings emphasise the need for collaborative efforts between communities, policymakers, and conservation entities to address the multifaceted nature of HEC. Empowering communities through education, resource allocation, and policy support is essential for the sustainable management of HEC and the promotion of coexistence between humans and wildlife.

Please refer to Annex 1 for the detailed report and the full methodology.

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

To date, a carpenter from South Africa has gone to Mozambique to teach how to build the beehive barriers. Ronnie from Elephants Alive in South Africa has also been to Mozambique and ran three courses. We will continue to foster exchange of knowledge through watchtower education, implementation as well as social survey participation.

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. The team aims to implement a watch tower at the Gumbe community near Mr. Mabutu at the start of year 2 (May/June 2024), and implement training on soft barriers at this location.

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 respondents and the results will be analysed by the Centre for Impact Evaluation. The current surveys were supported by Jamma International. Please see 3.2 for full details of the social survey element of the project. This activity will take part in Year 2-3, implementing learnings from the social surveys in year 1.

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. These data are seasonally dependent, and full reporting will be achievable in October when occupancy is high.

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 respondents and the results will be analysed by the Centre for Impact Evaluation. The current surveys were supported by Jamma International. Please see 3.2 for full details of the social survey element of the project. This activity will take place by the end of year 2, implementing learnings from the social surveys in year 1.

5.1 Community field surveys by social scientists 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 respondents and the results will be analysed by the Centre for Impact Evaluation. The current surveys were supported by Jamma International. Please see 3.2 for full details of the social survey element of the project. This activity will take part in Year 3, implementing learnings from the social surveys in year 1. The social surveys have reflected there is a limited understanding on biodiversity protection, and a raised awareness of the HEC deterrent methods is required.

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. The model is currently being developed and will be published in a scientific journal in year 2.

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

3.2　　Progress towards project Outputs

Our 5 project outputs are the following:

1. Further understanding of the motivation behind elephant movements from core conservation areas into peripheral PAs, as well as their crop-raiding strategies (Phase 1).

- Please refer to section 3.1 and the following subsections: 1.1; 1.2; 1.3 and 1.4

2. Ensuring human and elephant safety with the establishment and deployment of an additional Rapid Response Unit (RRU) and ensuring the protection of human assets through the establishment of non-income generating barriers (Phase 2).

- Please refer to section 3.1 and the following subsections: 2.1; 2.2; 2.3 and 2.4

3. Training and capacity building in sustainable and gender-equitable non-income and income-generating HEC mitigation opportunities promoted at watch towers as discussion sub-centres, whilst facilitating the understanding of the socio-economic needs of affected communities and their attitudes towards wildlife (Phase 3).

- Please refer to section 3.1 and the following subsections: 3.1; 3.2; and 3.3

4. Establishment and development of income generating barriers within the corridor (beehive fences and elephant unpalatable crop types with a market value) (Phase 4).

- Please refer to section 3.1 and the following subsections: 4.1; 4.2; 4.3, 4.4, 4.5 and 4.6

5. Increased knowledge and research on human-elephant coexistence and ecological connectivity at local and national level. Successful models (post-application period) are replicated to upscale solving HEC at landscape level resulting in the establishment of biosphere reserves and reforestation schemes functioning as vegetation stepping stones for elephants using the corridors.

- Please refer to section 3.1 and the following subsections: 5.1; 5.2; 5.3, 5.4 and 5.5

3.3 Progress towards the project Outcome

Elephant crop losses significantly reduced, perceptions towards elephants improved and retaliatory killings reduced. Sustainable HEC mitigation strategies, facilitating financial resilience, are adopted by communities living alongside a recognized wildlife corridor. Established models are replicated and upscaled to landscape level leading to land reform and biosphere reserves (post-project period).

At this stage of the project, we are pleased to report that we are making steady progress towards our desired project outcome. Despite encountering challenges, such as unforeseen weather conditions leading to a reduction in the number of elephants collared, we have swiftly adapted our strategies to remain aligned with our project goals.

Our confidence in staying on course is bolstered by the robust means of verification we have in place. We are effectively monitoring elephant crop damage through Rapid Response Units (RRUs) and meticulously analysing collar movement data. Additionally, our project surveys are meticulously designed to align with project indicators, such as assessing household income per person per month and evaluating collar movement data. These surveys also serve to gauge the upskilling of the community as a result of Human-Elephant Conflict (HEC) mitigation efforts and to track communal farm production of unpalatable crops.

We are committed to maintaining the highest standards in data monitoring to track key criteria and ensure alignment with project indicators. This diligent approach will enable us to conduct effective Monitoring and Evaluation (M&E) throughout the project duration.

Overall, we remain confident that we are on track to achieving our project outcome within the specified timeframe. Our proactive adaptation to challenges and rigorous monitoring mechanisms position us well for success in mitigating HEC and fostering sustainable community development.

3.4 Monitoring of assumptions

Outcome assumptions (refer to outcome above in 3.1):

- All mitigation methods are effective and applied and maintained correctly. Elephants do not become habituated to methods:
    At this stage of the project, this assumption remains valid.
- Viable market for income generating crops/products, particularly the essential oil market, local and international:

At this stage of the project, this assumption remains valid.
- HEC incidents are reported accurately:
 At this stage of the project, this assumption remains valid.
- Elephant collars remain active for the study period without malfunctioning or dropping off:
 At this stage of the project, this assumption remains valid. There has been a temporary issue with one of the collars that was implemented.
- Crop protection efforts, upskilling, training opportunities and near immediate support from the RRUs are effective in fostering tolerance towards elephants:
 At this stage of the project, this assumption remains valid. Preliminary training sessions has facilitated the knowledge of the local communities on the mitigation methods, enhancing a tolerance towards elephants.
- Increased tolerance towards elephants facilitates the approval of establishing a wildlife corridor amongst the communities & within government:
 The project is not advanced enough to determine if this assumption remains valid.
- Other motives for elephant killing (i.e., poaching) do not override tolerance efforts:
 At this stage of the project, this assumption remains valid.
- Political interference does not negatively affect communities' support for corridor conservation:
 The project is not advanced enough to determine if this assumption remains valid.
- Collared and non-collared elephants, including herds, utilise the established corridors:
 We will continue to monitor these collared elephant movements to determine this.
-The project site's Gender Inequality Index is above that of the national average:
 At this stage of the project, this assumption remains valid.

Output assumptions (refer to outputs above in 3.2):

Output 1:

- Elephants of a particular sex and age group will be found in the optimal location for collaring and research purposes:
 At this stage of the project, this assumption remains valid.
- The collars remain active for the study period without malfunctioning, individuals dying or illegally killed.
 At this stage of the project, this assumption remains valid.
- Partner organisations remain committed and able to support collaring operations and data analyses:
 At this stage of the project, this assumption remains valid.
Output 2:

- Additional funding is acquired to equip another RRU to ensure all impacted communities feel supported and integrated into the RRU deployment plans.
 At this stage of the project, this assumption remains valid.
- An additional RRU is able to provide further HEC relief along the corridor
 At this stage of the project, this assumption remains valid.
- Communication channels for reporting HEC remain operational and available throughout the corridor via already-established platforms.
 At this stage of the project, this assumption remains valid.
- The RRUs continue to train the District Services of Economic Activities (SDAE) on HEC mitigation strategies to ensure a successful handover of responsibility once long-term mitigation strategies have been implemented.
 At this stage of the project, this assumption remains valid.
- Each mitigation method is applied and maintained properly
 At this stage of the project, this assumption remains valid, and project progression will help to determine this.

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Output 3:

- Keen interest in upskilling opportunities from the community.
    At this stage of the project, this assumption remains valid. Preliminary social research methods have shown that there is a willingness to engage with the educational aspects of the project.
- Socially acceptable for women to gain new skills and generate their own income.
    At this stage of the project, this assumption remains valid.
- Continued efficacy of income and non-income generating HEC mitigation methods.
    At this stage of the project, this assumption remains valid.
- All new agricultural endeavours follow sustainable practices that do not result in increased biodiversity loss or degradation.
    At this stage of the project, this assumption remains valid.
- Increased financial security will decrease dependency on natural resource use.
    At this stage of the project, this assumption remains valid.
- Watch towers prove to become a knowledge and discussion sub centres where communities from outside the corridor visit and learn from.
    At this stage of the project, this assumption remains valid. This has already started to become apparent at this stage.

Output 4:

- Each mitigation method is applied and maintained properly.
    At this stage of the project, this assumption remains valid.
- Following comprehensive beekeeping training and set-up of a monitoring system, the beehive fence will be maintained.
    At this stage of the project, this assumption remains valid. There is already an excitement around the beehive, and an eagerness to learn from the communities.
- Bee colonies have enough available resources to prevent colonies absconding from hives.
    At this stage of the project, this assumption remains valid. This will become apparent in October (seasonal dependence)
- Essential oil crops are not negatively impacted by environmental conditions (i.e., drought).
    At this stage of the project, this assumption remains valid.
- Communities are open to alternative crop production and willing to apply mitigation strategies to prevent crop-raiding.
    At this stage of the project, this assumption remains valid.
- An interest from local and international markets for produced-essential oils and/or honey-related items. Knowledge and skill transfer from Proof of Concept Projects established in South Africa.
    At this stage of the project, this assumption remains valid.

Output 5:

- Outputs 1 - 4 lead to greater understanding of ecological connectivity and increased tolerance towards elephants.
    At this stage of the project, this assumption remains valid.
- Academic interest in project results and the model can be replicated elsewhere.
    At this stage of the project, this assumption remains valid.This will become apparent in the latter stages of the project.
- Funding bodies understand the worth of the project and find value in the replication of the model.
    At this stage of the project, this assumption remains valid.This will become apparent in the latter stages of the project.
- Governmental agencies promote and support biodiversity objectives and are prepared to review current legislation and policies.

At this stage of the project, this assumption remains valid.This will become apparent in the latter stages of the project.

3.5   Impact: achievement of positive impact on biodiversity and poverty reduction

Positive impact on biodiversity:

The project aims to mitigate Human-Elephant Conflict (HEC) by implementing short-term strategies such as increased protection and behavioural modification for elephants, resulting in reduced hostility among communities and enhanced safety for both elephants and humans. In the long term, facilitating safe linkages between Protected Areas (PAs) promotes genetic transfer and biodiversity, while community involvement and improved socio-economic conditions reduce reliance on natural resources. Scaling involves creating a network of collared elephant corridors within a Biosphere Reserve, fostering ecosystem resilience and supporting healthy elephant populations across borders:

Short-term:
- Increased transboundary movement of elephants (35) between Protected Areas (PAs), facilitated by enhanced protection through short-term Human-Elephant Conflict (HEC) mitigation strategies.
- Reduced HEC leads to diminished hostility among communities towards crop-raiding elephants, resulting in fewer grievances and ultimately decreasing the need for wildlife authorities to intervene.
- Implementing short-term HEC mitigation strategies disrupts elephants' crop-raiding behaviour, encouraging behavioural modification.

Long-term:

- Enhanced safety benefits for elephants encourage greater utilisation of potential corridors and reduce stress-related behaviours, such as predominantly nocturnal movements and faecal stress hormone levels.
- Facilitating safe linkages between PAs promotes the transfer of genetic traits, particularly phenotypic traits like large tusks, among isolated populations.
- As human-elephant coexistence persists, elephant herds, not just bulls, begin utilising the corridor.
- Corridor movement alleviates pressure on biodiversity in previously isolated habitats, allowing for seasonal habitat recovery.
- Linking two Transfrontier Conservation Areas across national boundaries and involving up to 10 PAs.
- Removing migration obstacles.
- Elephants moving along corridors maintain "institutional knowledge" of suitable routes, aiding in compatible land-use planning.
- Designating a community wildlife corridor decreases development and deforestation rates, expands PA coverage, particularly in areas classified as Other Effective Area-Based Conservation Measures (OECM).
- Improving the socio-economic circumstances of communities within/near the corridor reduces their reliance on natural resources.
- Realising improved ecosystem resilience and supporting biodiversity objectives where elephants and people coexist.

Potential Scaling Approach:

Scaling this approach involves developing a network of corridors delineated by collared elephants and embedding these vital linkages within a Biosphere Reserve spanning neighbouring countries sharing elephant populations. This will enhance ecosystem resilience, supporting healthy elephant populations and biodiversity objectives.

Poverty Reduction:

The project targets poverty reduction in a region inhabited by corridor-moving elephants, covering six districts and impacting over 138,000 individuals. Short-term strategies focus on decreasing crop-raiding incidents through measures like beehive fences, enhancing food security. Long-term efforts include introducing income-generating crops and promoting tourism to bolster financial security and socio-economic development. Empowering women as social role models is integral to community decision-making processes. Scaling up involves establishing discussion centres for knowledge transfer and leveraging women's influence to foster coexistence values and cultivate future conservationists.

The area frequented by corridor-moving elephants encompasses 6 specific districts, spanning 36,707km2 and accommodating 138,466 individuals. Short-term poverty reduction efforts focus on rapidly decreasing crop-raiding incidents, which threaten food security. Implementing beehive fences not only mitigates crop damage but also boosts crop production through pollination services.

Long-term:

- Introducing income-generating alternative crops enhances community financial resilience and food security by diversifying income sources.
- Developing tourism strategies aimed at bolstering local financial security fosters socio-economic development while considering wildlife needs.
- Empowering women through upskilling positions them as social role models, amplifying their influence in community decision-making processes.

Potential Approach to Scale Up:

- Establishing discussion sub-centers/watchtowers as hubs for knowledge transfer allows local and continental NGOs to learn about effective mitigation methods.
- Leveraging women as social role models facilitates skills transfer to younger generations, fostering coexistence values with elephants and cultivating future conservationists within communities.

4. Project support to the Conventions, Treaties or Agreements

National Strategy and Action Plan of Biological Diversity of Mozambique (2015-2035) (NBSAP)
Contributing to all four of the strategic goals by reducing the causes of biodiversity loss/degradation, protecting biodiversity, improving benefit-sharing and participation amongst citizens.

Strategy and Action Plan for the Conservation and Management of Elephants in Mozambique 2010-2015
Conserving free-roaming elephants and their habitats whilst ensuring economic development for co-existing communities.

African Convention on the Conservation of Nature and Natural Resources
Protecting natural resources to ensure the well-being of the Mozambican population.

Framework Convention on Climate Change:
Facilitating the development of a healthier ecosystem which can act as a carbon sink.

National Ivory and Rhino Action Plan (NIRAP) 2020-2022 (CITES):
Contributing to awareness of the importance of elephants within an ecosystem whilst highlighting the socio-economic costs of poaching.

CBD
8 & 10 – Implementation of human-elephant-coexistence management incorporates both community HEC practices and considers biodiversity in decision making.

12 – Training of RRUs, women and community members in HEC mitigation and alternative income sources.

13 – Promoting biodiversity conservation through media and educational programmes.

CITES
African elephants in Mozambique are classified as Appendix I. This project promotes human tolerance of and protection over elephants. Mozambique is also part of the CITES Mike Programme which aims to provide objective information on illegal elephant killings.

CMS
African elephants are a migratory species covered by CMS. This project aims to facilitate safe passage for transboundary migratory.

Sustainable Development Goals (SGBs)
The conservation impact will contribute to three of the SGSs:

By protecting, restoring and promoting sustainable use of terrestrial ecosystems Life on land is improved and, in the process, Clean Water and Sanitation as well as Climate Change will be buffered against because of the socio-economic support and reforestation activities of people sharing the elephant corridor.

The social impact will contribute to nine of the SGBs:

No poverty; Zero Hunger; Good Health and Wellbeing; Gender Equality; Decent work and Economic Growth; Reduced Inequalities due to sustainable livelihoods; Responsible Consumption and Production, Peace, Justice and Strong Institutions will be realized due to the strong Partnerships for the Goals.

MoU between South Africa and Mozambique in the field of Biodiversity, Conservation and Management:
Promote increased cooperation for the management of transboundary protected areas.

Lubombo Transfrontier Conservation Area (LTFCA) agreement between South Africa, Mozambique and Eswatini:
Linking the Great Limpopo Transfrontier Conservation Area to the LTFCA increases the potential for socio-economic upliftment whilst improving regional ecosystems management.

BIODEV2030 project:
Integrating biodiversity conservation considerations into economic sectors

5. Project support for multidimensional poverty reduction

Stakeholders in our initiative encompass a diverse range of actors, including community representatives, participating NGOs, researchers, wildlife managers, government officials from countries sharing trans-boundary elephant populations, and our esteemed benefactors.

We've strategically organised workshops in the Namaacha Valley, serving as the epicentre of our efforts, as a model to be replicated elsewhere. Recognizing the pivotal role of corridor communities, we've established watch towers and discussion sub-centers as vital hubs for dialogue on biodiversity-poverty issues.

Our demonstration projects are instrumental in showcasing a spectrum of mitigation techniques to visitors, empowering them to select strategies best suited to their local contexts. From small-scale implementations of both non-income and income-generating mitigation barriers, such as beehives and marketable unpalatable crops, we aim to offer tangible evidence that coexisting with elephants can be mutually beneficial.

To bolster educational efforts, our Rapid Response Units (RRUs) play a crucial role in mentorship and messaging. We are also exploring avenues for additional funding to facilitate exchange programs with the Black Mamba Anti-Poaching Unit, particularly focusing on enhancing women's skills.

We gauge the shift from conflict to coexistence through ongoing social surveys, which have shown promising insights to date (see section 3.1). Furthermore, we ensure transparent communication with other stakeholders through regular updates via social media, news articles, presentations, and reports.

To ensure accessibility, we present methodologies and results in illustrated manuals tailored for community comprehension. Additionally, partnering organisations provide open access to resources and know-how via their websites.

As part of our commitment to transparency and collaboration, elephant tracking data is available through the Earth Ranger platform, accessible to users for management purposes, ensuring responsible and informed decision-making without compromising elephant security.

6. Gender Equality and Social Inclusion (GESI)

In southern Mozambique, women play a crucial role in small-scale commercial farming and informal commerce, often stepping in to sustain households when men are away for migrant work. However, challenges such as high illiteracy rates and limited access to resources and markets hinder their ability to enter the commercial agricultural sector while managing domestic responsibilities. To address this, our focus is on providing equal opportunities for upskilling and income generation, empowering women to achieve financial resilience and independence.

Building on successful initiatives like the Black Mamba Anti-Poaching Unit (APU) in South Africa, we are training select women in Mozambique in beekeeping, permaculture techniques for growing unpalatable crops, and medicinal plant cultivation. This diversified skill set not only enhances their abilities in wildlife conservation but also equips them for broader roles as specialised agricultural extension officers. In the post-project phases, these women can further expand their skills to include tasks like snare sweeping and wildlife security, contributing to broader conservation efforts such as reforesting vegetation safety nets essential for elephants.

Importantly, knowledge transfer is a central aspect of our approach. We recognize the importance of intergenerational exchange and plan to facilitate the transfer of coexistence knowledge across generations of women. Furthermore, exchange programs between South Africa and Mozambique will be instrumental in facilitating the sharing of best practices and lessons learned, enriching both communities' approaches to sustainable agriculture and wildlife conservation.

By empowering women with diverse skills and opportunities, we not only enhance their economic prospects but also strengthen community resilience and promote environmental sustainability. This holistic approach aligns with our commitment to fostering inclusive and sustainable development in southern Mozambique.

Please quantify the proportion of women on the Project Board[1].	83%
Please quantify the proportion of project partners that are led by women, or which have a senior leadership team consisting of at least 50% women[2].	75%

Our GESI scale will be determined in the next HY report (Year 2). At this stage, we would identify that our project is not yet sensitive. We are proud of the fact that many females are delivering on the project both at the farmer level and at the managerial level. We are thus empowering women and addressing gender equality and welcome further discussions with the Darwin Initiative on this.

GESI Scale	Description	Put X where you think your project is on the scale
Not yet sensitive	The GESI context may have been considered but the project isn't quite meeting the requirements of a 'sensitive' approach	X*
Sensitive	The GESI context has been considered and project activities take this into account in their design and implementation. The project addresses basic needs and vulnerabilities of women and marginalised groups and the project will not contribute to or create further inequalities.	
Empowering	The project has all the characteristics of a 'sensitive' approach whilst also increasing equal access to assets, resources and capabilities for women and marginalised groups	
Transformative	The project has all the characteristics of an 'empowering' approach whilst also addressing unequal power relationships and seeking institutional and societal change	

* Our GESI scale will be determined in the next HY report (Year 2) but at this stage, we would identify that our project is not yet sensitive. We are proud of the fact that many females are delivering on the project both at the farmer level and at the managerial level. We are thus empowering women and addressing gender equality and welcome further discussions with the Darwin Initiative on this.

7. Monitoring and evaluation

Demonstrating the contribution of project outputs and activities to project outcomes involves establishing clear links between them and measuring their impact on achieving the desired results. We have done this by:

1. **Outcome Mapping**: We defined the project's desired outcomes or impacts. The outcome represented the changes or benefits the project aims to achieve. We then mapped out the specific outputs and activities that contribute to each outcome. This helped us to establish a logical connection between what the project produces (outputs) and the ultimate changes it seeks to bring about (outcomes).

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[1] A Project Board has overall authority for the project, is accountable for its success or failure, and supports the senior project manager to successfully deliver the project.

[2] Partners that have formal governance role in the project, and a formal relationship with the project that may involve staff costs and/or budget management responsibilities.

2. **Theory of Change models**: We are developing a theory of change model that illustrates the causal pathways between project inputs, activities, outputs, outcomes, and impacts. This visual representation helps stakeholders understand how project components are expected to lead to desired outcomes. We aim to have a current situation, theory of change and actual change models by the completion of this project.
3. **Monitoring and Evaluation**: We have implemented robust monitoring and evaluation (M&E) mechanisms to track progress and measure the effectiveness of project outputs and activities in contributing to outcomes. Collect both quantitative and qualitative data to assess changes over time and understand the factors influencing outcomes.
4. **Outcome Indicators**: We have defined outcome indicators that reflect the desired changes resulting from the project. These indicators are specific, measurable, achievable, relevant, and time-bound (SMART). We regularly measure and analyse these indicators to gauge progress toward outcomes and adjust strategies as needed.
5. **Feedback Mechanisms:** Establish feedback mechanisms to gather input from beneficiaries, partners, and other stakeholders on the effectiveness of project outputs and activities in achieving desired outcomes. Incorporate this feedback into project planning and implementation processes to improve performance.

By employing these approaches, we can continue to effectively demonstrate the contribution of outputs and activities to project outcomes, enhancing accountability, learning, and decision-making throughout the project lifecycle. We have found these approaches suitable for the M&E process to date.

In the context of empowering women in southern Mozambique through agricultural upskilling and income generation, indicators of achievement can be both qualitative and quantitative. For example:

Quantitative Indicators:

a) Number of Women Trained: This indicator measures the outreach and impact of the project in terms of providing opportunities for skill development. It can be measured by tracking the total number of women who have completed training programs in beekeeping, permaculture techniques, and other agricultural practices.
b) Increase in Household Income: Assessing the project's economic impact can be done by measuring the increase in household income among participating women. This can be quantified by conducting surveys or interviews to gather data on household income levels before and after participating in income-generating activities facilitated by the project.
c) Crop Yield: Another quantitative indicator is the increase in crop yield resulting from the adoption of improved agricultural practices. This can be measured by comparing the quantity of crops harvested by participating women before and after implementing the techniques learned through project training.
d) Number of Sustainable Enterprises Established: This indicator measures the sustainability of the project's impact by tracking the number of women who have successfully established and maintained their own income-generating enterprises, such as beekeeping businesses or small-scale farming operations.

Qualitative Indicators:

a) Women's Empowerment: Qualitative indicators can capture the empowerment experienced by participating women. This may include changes in self-confidence, decision-making autonomy, and leadership roles within their households and communities. Qualitative data can be collected through interviews, focus group discussions, and participant observations.
b) Community Resilience: Assessing the broader impact of the project on community resilience involves qualitative indicators such as changes in social cohesion, mutual support networks, and community participation. These changes can be observed and

documented through community meetings, storytelling sessions, and participatory workshops.

c) Knowledge and Skills Acquisition: Qualitative indicators can also capture the acquisition of knowledge and skills by participating women. This includes their ability to apply new agricultural techniques, innovate in their farming practices, and share their knowledge with others in the community. Qualitative data can be gathered through open-ended survey questions, skill demonstration sessions, and peer-to-peer learning activities.

To measure indicators, we are using a combination of data collection methods including surveys, focus group discussions and document reviews. By triangulating data from multiple sources and using both quantitative and qualitative approaches, we are able to gain a comprehensive understanding of the project's achievements for the relevant indicators for the project (See "FYR2.xlsx" for all project indicators)

Throughout the inaugural year of our project, we've experienced one revision to our Monitoring and Evaluation (M&E) plan. Specifically, the activity titled "Collar 15, 10, and 5 elephants in strategic locations in compliance with animal ethics from Year 1-3, respectively (cooler months for elephant safety)" encountered unforeseen weather-related challenges. Consequently, the baseline for collared elephants during the initial year fell short of projections.

Despite these setbacks, our commitment to the project's overarching goals remains steadfast. While the initial collaring operation may have faced delays, we are fully dedicated to completing the total collaring operation within the project's designated timeframe. This adjustment underscores our adaptability and determination to overcome obstacles, ensuring the project's continued progress towards achieving its objectives.

Partners of the project typically share the responsibility for Monitoring and Evaluation (M&E) collaboratively. Collaboration among multiple organisations allows for the pooling of resources, expertise, and perspectives, which can enrich the M&E process and ensure comprehensive coverage of project activities and outcomes. Information sharing among partners and stakeholders is facilitated through various channels and mechanisms. We have focussed on the following:

1) **Regular Meetings**: Partners and stakeholders may convene periodic meetings to discuss M&E progress, findings, and challenges. These meetings provide opportunities for collaboration, alignment of efforts, and collective decision-making.
2) **Shared Documentation and Reporting**: Partners may collaborate on the development of M&E plans, tools, and templates to standardise data collection and reporting processes. Shared documentation, such as M&E frameworks, indicator matrices, and progress reports, ensures transparency and consistency in information sharing.
3) **Online Platforms and Communication Tools**: Digital platforms and communication tools, such as shared drives, project management software, and online collaboration platforms, facilitate real-time sharing of data, documents, and updates among partners. These tools promote efficient communication and coordination, particularly in geographically dispersed projects.
4) **Feedback and Learning Mechanisms**: Establishing feedback and learning mechanisms allows partners and stakeholders to exchange insights, lessons learned, and best practices throughout the project lifecycle. Feedback loops, reflection sessions, and after-action reviews enable continuous improvement and adaptation based on M&E findings.

By sharing M&E work and information among partners and stakeholders, collaborative projects can leverage collective expertise, enhance accountability, and maximise the impact of monitoring and evaluation efforts.

8.   Lessons learnt

What worked well:

1. **Community Engagement**: Engaging with local communities proved successful in garnering support for project initiatives and fostering collaboration.
2. **Skill Development**: Training programs, particularly in beekeeping and permaculture, were well-received and effectively equipped participants with new skills.
3. **Data Collection**: Data collection efforts, including elephant tracking and social surveys, yielded valuable insights into project impact and community perceptions.
4. **Partnership Building**: Collaborating with NGOs and governmental agencies facilitated resource sharing and enhanced project reach and effectiveness.
5. **Raising awareness of HEC**: Awareness campaigns on human-elephant conflict mitigation strategies received positive feedback and increased community understanding.

What didn't work well:

1. **Weather-Related Delays**: Unforeseen weather conditions disrupted planned activities, such as elephant collaring, leading to delays in project timelines. However this is beyond our control.
   a. Solution: Develop contingency plans for activities affected by weather, such as elephant collaring, including alternative timing or locations. Increase flexibility in project timelines to accommodate unexpected weather events.
2. **Logistical Issues:** Logistics, such as transportation and equipment availability, occasionally posed challenges in implementing field activities and data collection.
   a. Solution: Improve logistical planning and coordination to ensure timely procurement of equipment and transportation arrangements. Invest in logistical capacity-building initiatives to strengthen the project's operational efficiency.

9.   Actions taken in response to previous reviews (if applicable)

This is not applicable as this is the first full year report, and we have not received any feedback from the HY report to date.

●   10. Risk Management

In light of the contextual risk associated with in-country socio-political events or unrest, an additional risk has emerged due to unforeseen weather circumstances, preventing reaching the original baseline. Nonetheless, we have proactively adjusted our project approach to mitigate this risk. As a result, we plan to collar more elephants in years 2 and 3, compensating for the lower baseline in year 1. For further details, please refer to the updated risk register in the file titled "2024-Biodiversity-Challenge-Funds-Risk-Framework_DIR29S21073."

10.   Sustainability and legacy

The project holds a significant profile within the country/ies where it operates, garnering attention and recognition for its innovative approach to mitigating human-elephant conflict (HEC) and promoting sustainable development. Efforts have been made throughout the year to raise awareness, build partnerships, and promote the work through various channels. Evidence of increasing interest and capacity resulting from the project can be observed through various indicators and outcomes:

1. **Community Participation**: Growing involvement and engagement of community members in project activities, such as training sessions, workshops, and decision-making processes, indicate increased interest and capacity building. High attendance rates and active participation reflect a heightened level of community ownership and commitment to project goals. Please refer to section 3 for actual data of workshop attendees.
2. **Skill Development**: Demonstrable improvements in the skills and knowledge of project participants, particularly in areas relevant to human-elephant conflict mitigation and sustainable livelihoods, serve as evidence of increased capacity. This includes increased

proficiency in beekeeping, permaculture techniques, conflict resolution strategies, and conservation practices.

3. **Adoption of Practices**: The adoption and implementation of project-recommended practices and technologies by community members demonstrate both interest and capacity building. For example, the establishment of beehive fences, the cultivation of unpalatable crops, and the use of elephant-friendly deterrents indicate a willingness to embrace new approaches and solutions.

4. **Partnership Engagement**: Growing interest and engagement from partner organisations, governmental agencies, and other stakeholders indicate increased recognition of the project's importance and potential impact. This may manifest through expanded collaboration, resource mobilisation, and knowledge-sharing initiatives.

5. **Policy Influence**: The project's influence on policy development and decision-making processes at local, regional, or national levels serves as evidence of increasing interest and capacity. This may include the adoption of project-supported strategies or the integration of project findings into policy frameworks related to conservation, agriculture, or community development.

6. **Monitoring and Evaluation Data**: Quantitative and qualitative data collected through monitoring and evaluation activities has provided insights into changes in interest, attitudes, and capacity among project participants over time. Surveys, interviews, focus groups, and participant observations can capture perceptions, behaviours, and experiences related to project interventions.

By systematically monitoring these indicators and outcomes, we can assess the extent to which interest and capacity are increasing as a result of project interventions, thereby demonstrating the project's effectiveness and impact in building sustainable solutions to human-elephant conflict and promoting community resilience. Please refer to the "FYR2 M&E.xlsx" file for the complete M&E framework.

Project interest:

The project is gaining interest, especially within South Africa where the techniques applied have been noted and Elephants Alive has been asked to play a consulting role on various other projects also looking at diminishing HEC. The IUCN has thanked us and acknowledged us for the work we did on a bequest application. There has also been a number of individuals offering to create market chains for the various products that will come out of the work. The intended sustainable post-project benefits are still valid as we are on track.

11.   Darwin Initiative identity

The project has made concerted efforts to publicise the Darwin Initiative, showcasing its support and promoting funding opportunities and projects through various channels.

1. **Project Website and Materials**: The Darwin Initiative logo and information about the funding support received are prominently featured on the project's website and promotional materials. This includes project brochures, leaflets, and presentations distributed to stakeholders, partners, and interested parties.

2. **Social Media Campaigns**: The project leverages social media platforms such as Twitter, Facebook, and LinkedIn to raise awareness about the Darwin Initiative and highlight its contributions to biodiversity conservation and sustainable development. Posts, updates, and multimedia content showcase the project's achievements and impact, with acknowledgment of the Darwin Initiative's support.

3. **Participation in Darwin Initiative Events**: The project actively participates in Darwin Initiative events, workshops, and conferences to share experiences, lessons learned, and best practices with the wider conservation community. This includes training events which Dr Katie Thompson participated in such as the M&E indicator development. These events serve as platforms to promote the Darwin Initiative's funding opportunities and showcase successful projects.

4. **Collaborative Partnerships**: Collaborations with other Darwin Initiative-funded projects and partners facilitate mutual support and knowledge exchange. Joint initiatives, co-authored publications, and shared resources amplify the impact of Darwin-funded projects and promote the initiative's objectives, which is an activity we are currently working on.

5. **Networking and Outreach**: The project engages in networking activities and outreach efforts to connect with potential partners, donors, and stakeholders interested in biodiversity conservation and sustainable development. Participation in relevant forums, working groups, and conservation networks helps raise awareness of the Darwin Initiative's work and funding opportunities.

12. Safeguarding

Has your Safeguarding Policy been updated in the past 12 months?	No
Have any concerns been reported in the past 12 months	No
Does your project have a Safeguarding focal point?	Yes/No [*If yes, please provide their name and EA:* ▮▮▮▮ *and MWA:* ▮▮▮▮
Has the focal point attended any formal training in the last 12 months?	No [*If yes, please provide date and details of training*]
What proportion (and number) of project staff have received formal training on Safeguarding?	Past: 58% [7 staff, 9 courses] Planned: 3 more first aid courses

Has there been any lessons learnt or challenges on Safeguarding in the past 12 months? Please ensure no sensitive data is included within responses. No, there have been no eventful safeguarding events required. The Elephant Shepherds are continually learning more and more about human safety in response to elephants in the daily activities.
Does the project have any developments or activities planned around Safeguarding in the coming 12 months? If so please specify. No
Please describe any community sensitisation that has taken place over the past 12 months; include topics covered and number of participants.
Have there been any concerns around Health, Safety and Security of your project over the past year? If yes, please outline how this was resolved. There was a concern about Malaria during visits and this has been resolved by getting the right medication to take before and during the trips, based on local knowledge. Water disinfectant medication is also always taken as the recent flooding could have infected water sources. We have also consulted with medical practitioners on what are additions to the standard first-aid kit that we need to consider.

13. Project expenditure

- **Table 1: Project expenditure <u>during the reporting period</u> (1 April 2023 – 31 March 2024)**

Project spend (indicative since last Annual Report	2023/24 Grant (£)	2023/24 Total Darwin Costs (£)	Variance %(including +/- difference)	Comments (please explain significant variances)

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Staff costs (see below)				1. Foreign exchange differences between foreign currencies. 2. GIS Technician 3. Mozambique Taxes budget lines (£4054.80) was used for Elephant Barriers as the Taxes was not applicable 4. 10% overtime paid to Co project leader S Kirkman ██████)
Consultancy costs				1. Mozambique Taxes budget lines (£992.64) was used for Elephant Barriers as the Taxes were not applicable. 2. 10% overtime was paid out to Accounting Services (██████
Overhead Costs				N/A
Travel and subsistence				1. Foreign exchange differences between foreign currencies.
Operating Costs				1. Foreign exchange differences between foreign currencies.
Capital items (see below)				1. Foreign exchange differences between foreign currencies. 2. Mozambique taxes (██████ + ██████) was utilised for the expense for Additional Elephant Barriers and balance left on GIS Technician
Others (see below)				1. Foreign exchange differences between foreign currencies.
TOTAL	147,352.56	147,149.66	0% (202.90)	

Table 2: Project mobilised or matched funding during the reporting period (1 April 2023 – 31 March 2024)

	Secured to date	Expected by end of project	Received by which organisation	Sources
Matched funding leveraged by the partners to deliver the project (£)	████████		Both EA and MWA	USFWS, JAMMA Foundation, Oak Foundation
Total additional finance mobilised for new activities occurring outside of the project, building on evidence, best practices and the project (£)	████████		MWA Only	SCIF - Safari club international
		████████	MWA Only	Biofund - to be confirmed

Please note the exchange rate is from USD to GBP ██████). There are variable amounts per year in costs, from OAK foundation allocated to MWA - for HWC specifically it is really hard to mention a value as these types of operations involve VET pilar as well, for animal collaring's etc.

11.   Other comments on progress not covered elsewhere

N/A

● Annex 1: Onwards – supplementary material (optional but encouraged as evidence of project achievement)

Please see the FY M&E.xlsx for the logframe, progress update and Standard indicators.

2024-Biodiversity-Challenge-Funds-Risk-Framework_DIR29S21073

EA_HEC_Baseline_Survey_15012024_NamaachaValley1

- **Checklist for submission**

	Check
Different reporting templates have different questions, and it is important you use the correct one. Have you checked you have used the **correct template** (checking fund, type of report (i.e. Annual or Final), and year) and **deleted the blue guidance text** before submission?	Yes
Is the report less than 10MB? If so, please email to BCF-Reports@niras.com putting the project number in the Subject line.	Yes
Is your report more than 10MB? If so, please discuss with BCF-Reports@niras.com about the best way to deliver the report, putting the project number in the Subject line.	Yes
Have you included means of verification? You should not submit every project document, but the main outputs and a selection of the others would strengthen the report.	Yes
If you are submitting photos for publicity purposes, do these meet the outlined requirements (see Section 16)?	Yes
Have you involved your partners in preparation of the report and named the main contributors	Yes
Have you completed the Project Expenditure table fully?	Yes
Do not include claim forms or other communications with this report.	

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