Darwin Initiative Main and Post Project Annual Report

To be completed with reference to the "Writing a Darwin Report" guidance: (http://www.darwininitiative.org.uk/resources-for-projects/reporting-forms). It is expected that this report will be a **maximum** of 20 pages in length, excluding annexes)

Submission Deadline: 30th April 2020

Darwin Project Information

Project reference	26-007
Project title	Enhancing Tanzania human-wildlife coexistence through corridor restoration and livelihood projects
Country/ies	Tanzania
Lead organisation	Southern Tanzania Elephant Program
Partner institution(s)	Morogoro Regional Administration, National Land Use Planning Commission, Tanzania Forestry Services, Reforest Africa, Associazione Mazingira
Darwin grant value	£241,796
Start/end dates of project	April 2019 to March 2022
Reporting period (e.g. Apr 2019 – Mar 2020) and number (e.g. Annual Report 1, 2, 3)	April 2019-March 2020 Annual Report 1
Project Leader name	Trevor Jones
Project website/blog/social media	www.stzelephants.org
Report author(s) and date	Trevor Jones, Emma Impink, Kim Lim, Joseph Mwalugelo, Josephine Smit (STEP); Richard Nchasi (Associazione Mazingira) 30/04/2020

1. Project summary

The project will address the fundamental drivers of human-wildlife conflict in the Kilombero Valley, Tanzania through restoration of a key wildlife corridor and facilitation of community-led livelihood projects along the corridor. A bottom-up land use planning process will be followed to create and manage the corridor. Working with farmers and the wider community, beehive fence projects, agroforestry, community banks and coexistence tourism will increase and diversify incomes, reduce crop losses from wildlife and conserve biodiversity and ecological connectivity (Map in Appendix 0).

2. Project partnerships

Morogoro Regional Administration (MRA): MRA is the regional government authority of Kilombero District within which the project is located. To this end, the Regional Administrative Secretary has directed the Kilombero District Land Use Planning Team to lead the participatory process of preparation and planning for the wildlife corridor, together with the District Game Officer, District Agriculture Officer, and District Natural Resources Advisor, in alignment with national goals and policy. The Regional Natural Resources Officer (RNRO) has been assigned to support activities on the ground whenever required. During this period, the Regional Commissioner and his Regional Security Committee received a presentation from STEP in September 2019 on project progress, after which he and the Committee expressed their support for the project. We work closely with the RNRO who conducted large community meetings (200-300 people each) at four villages to discuss perspectives on human-elephant conflict and the corridor solution.

National Land Use Planning Commission: The NLUPC has agreed to work together with and provide technical support to the District Land Use Planning Team and STEP to complete the LUPs for four villages through which the wildlife corridor passes. We worked closely with NLUPC throughout this period, with members attending village sensitisation meetings, regular strategy discussions with the Director, and in January 2019 the Director attended a day-long meeting at STEP HQ, together with Government Land Valuers, to plan the compensation process for farm owners in the Corridor.

Tanzania Forestry Services: TFS will collaborate on restoration of the corridor as well as livelihood projects including beekeeping. TFS have already agreed to placement of beehive fences within the boundary of Magombera NR and to participating in sensitization and education activities with communities in support of the corridor solution (Appendix 0.1-0.2).

Reforest Africa: Experts in African forest and habitat restoration who will lead this component within the corridor area, also bringing match funding towards support of their team and work. Additionally, Reforest Africa entered into a partnership with TFS in 2019 to coordinate management of the new Magombera Forest Nature reserve, including patrolling by Village Game Scouts. STEP is supporting additional patrols of the corridor-adjacent area while designation of the corridor is on-going. 14 patrols were conducted during this period.

Associazione Mazingira: Mazingira contributes to the community outreach and education aspects of the project, through their tree nursery scheme in schools; tree planting and agroforestry within and outside of the wildlife corridor; environmental education in schools; and, through their community outreach, supporting village sensitization to the aims and outcomes of the project. They will also assist with monitoring and evaluation by recording and providing data and feedback on all the above activities. Among their activities completed during this performance period were delivery of environmental education to 2,991 students; 117 farmers trained in agroforestry; support to 12 tree nurseries in 5 villages; and supply of 51,161 seedlings of various species to plant in alley cropping and woodlot farms in 6 villages.

3. Project progress

3.1 Progress in carrying out project Activities

Output 1: Beehive fences established and operational and managed independently by registered farmers' cooperatives in four new villages

To enhance human elephant coexistence and reduce crop loss in the Kilombero valley, STEP is implementing beehive fences with farmers cooperatives. Beehive fences were first developed in Kenya and found to have a deterrent effect on elephants (King, Douglas-Hamilton and Vollrath, 2011). STEP uses a linear beehive fence model, so that the fence creates a barrier between forest edge and adjacent farmland. The design we use alternates real hives (hung on metal poles) with dummy hives (hung on bamboo poles) to extend fence length and reduce costs.

STEP focuses on this project being farmer led, hence in each project village we work to form a farmers group which is responsible for the beehive fence, registered as Community-Based Organization (CBO), from the start of the project. It is critical that farmers are involved from inception and that they contribute labour to help create a sense of ownership and ensure sustainability of the project once it is handed over by STEP. An overview of the group formation process is found in Appendix 1. During the reporting period, STEP established beehive fences and registered farmers' groups in three new villages: Katurukila, Magombera and Kanyenja (Appendices 2-4). These villages were selected because of their proximity to Magombera Forest Nature Reserve, a key elephant habitat within the ecosystem, and the frequency of elephant crop loss incidents they experience. In addition to drafting a constitution with the group to establish rules and outline responsibilities for leaders and members, STEP also signs a two-year Memorandum of Understanding with each group. This ensures that STEP and the group are both aware of their roles and responsibilities (Appendices 5-6).

In late 2018, STEP began the process of establishing the first new CBO: Katurukila Beekeeping Group (33 members: 17 women and 16 men, 43% youth) in Katurukila village, following a thorough selection process of members who showed commitment and enthusiasm for the project. The beehive fence is 1km long with 50 real hives and 50 dummy hives. In February 2019, STEP began the formation of the second newly added Community Based Organization: Ujasiri Beekeeping Group (35 members: 19 men and 16 women, 48.5% youth) in Magombera village. The beehive fence is 1.6km long with 40 hives from STEP and 61 hives from Tanzania Forest Service (TFS), the beehive fence is located in Magombera Nature Reserve.

In August 2019, STEP facilitated the formation of the third new Community Based Organization: Kanyenja Beekeeping Group (33 members: 14 women and 19 men, 82.5% youth) in Kanyenja village. This group has the highest percentage of youth that STEP has ever worked with before, the group have shown commitment to the project and have been working well with fence installation. The beehive fence has a length of 1.4km with 40 real hives and 40 dummy hives. Photos from this process are found in

Appendix 6. During the project period, membership of these groups has decreased, due to conflicting responsibilities, health issues and, in some cases, unmet expectations of honey sales. As outlined in the discussion of Assumptions and Sustainability, honey markets remain a challenge for farmers' groups. STEP will begin a more dynamic sales program during Year 2 of the project to try and move inventory more rapidly. There is also an opportunity to manage expectations better with farmers' groups, speaking more openly about the challenges of marketing and access.

1.1 Training local elephant monitors to record elephant activity in each village

STEP recruited and trained three new local elephant monitors to collect data on elephant activity in project villages. The local elephant monitors are trained on which data to collect and how, how to fill in data sheets, how to use GPS units to collect tracks and waypoints, as well as how to introduce themselves and speak to farmers when recording crop damage (Appendix 7).

1.2 Establishing four farmers' groups and registering CBOs

As outlined in 1.1, STEP established three farmers groups and registered the groups at the District level. (Appendices 2-4).

1.3 Determining optimal beehive fences configuration through ground surveys

Data collected by elephant monitors (1.2) shows where crop damage incidents occur most frequently, and therefore, which areas should be prioritized for beehive fence placement. After candidate sites were identified from crop damage data, we conducted ground surveys with village government representatives to determine suitability and potential risks in terms of bee habitat, the location of elephant trails and corridors, land ownership, and flood risk. These ground surveys helped us to determine the final location of the beehive fences in each new village (Appendix 8).

1.4 Constructing beehive fences

See detailed explanation in Appendix 1 (and in Section 1.1) and photos in Appendix 9.

1.5 Monitoring and maintenance of beehive fences by farmers' groups

STEP supports the farmers' groups to monitor and maintain the beehive fences on a weekly basis with follow up from locally-based Human-Elephant Coexistence Officers. In order for the fence to be effective, it has to be occupied with bees. In order for bees to occupy the hives, the environment must be suitable. Bees are quite particular: hives must be clean with no other insects present. This means the area must be carefully maintained to ensure there are no shrubs or grass providing 'bridges' to the hive. Hives should be out of direct sunlight but well-sealed so that they stay dry during the rainy season. The STEP Team has years of experience with bees in the area, therefore the weekly support of HEC Officers is critical on groups' weekly visits to provide advice and guidance.

1.6 Monitoring of elephant crop damage by local elephant monitors

Local elephant monitors (LEMs) in each village collected data for a minimum 10 days per month. STEP's research officer met with each local monitor to collect data and provide performance feedback. Between March 2019 and February 2020, LEMs recorded 305 crop loss incidents across 10 villages (Appendix 7).

Output 2: Establishment and development of sustainable and gender equitable income-generating opportunities for local people increase outcomes for 220 people through beekeeping, VSLAs and coexistence tourism

2.1 Beekeeping and financial skills training for farmers' groups

In March 2019, STEP facilitated a two-day beekeeping training for Katurukila Beekeeping Group in Katurukila village. The first day included a theoretical training whereby the District beekeeping officer, Mr. John Mlulu, taught the group members about beekeeping as an activity (Appendix 10 outlines this content very simply and Appendix 11 is an in-depth version in Swahili.) Day Two of the training was the practical session, conducted by Mr. Leonard Ngoda from Lushoto District in northern Tanzania. Mr. Ngoda has years of experience in beekeeping and is a professional trainer. STEP has used him to train farmers groups since beginning operations in Kilombero. This training had a practical focus: five group members wore bee suits and then the trainer took them to an occupied beehive for experiential learning. The practical session focused on best practices to capture colonies, how to avoid hive abandonment, how to determine if a hive is ready for harvest, harvest best practices, post-harvest hive maintenance and general best practices for maintenance. This training was provided to all three new farmers groups, Katurukila Beekeeping Group, Ujasiri Beekeeping Group and Kanyenja Beekeeping Group during the Reporting Period (Appendices 12-13).
In addition to capacitating groups, these trainings provide the STEP HEC team and the senior management with a direct opportunity to monitor farmers and their fence. Additionally, this helps STEP's HEC team to improve upcoming training for other project site locations. Connecting the farmers groups with the District Beekeeping Officer gives the government insight into what exactly STEP does to

empower the local community. It is important to be able to demonstrate how STEP works together with the government and other stakeholders.

Table 1. Participation of newly added farmers groups attending beekeeping training in Kilombero valley

Date	Farmers Group	Number of people	Number of hours
30/03/2019	Katurukila Beekeeping Group (Katurukila)	23	7
21/09/2019	Ujasiri Beekeeping Group (Magombera)	30	7
30/10/2019	Kanyenja Beekeeping Group (Kanyenja)	27	7.5

2.2 Establishment of VSLAs with farmers' groups and monthly monitoring of progress

Village Savings and Loans Associations (VSLAs) are small-scale, community-organised systems which enable people who do not have access to formal financial services to save, invest and access loans. A VSLA involves 15-30 people who buy shares on a weekly basis, providing capital for loans. Loans are typically issued to members for a three-month period and are repaid with interest. Members also contribute an agreed-to amount in a social fund that is available to members experiencing emergencies as an interest-free loan. The share value, interest rate, and social fund contribution are decided by the group at a meeting prior to the start of each annual VSLA cycle. At the end of the yearly VSLA cycle (lasting 12 months), a share-out is held whereby members are repaid the value of their shares plus interest. To help buffer farmers financially from crop losses to elephants, STEP operates VSLAs together with beehive fences.

During the reporting period, STEP supported three new villages, Katurukila, Magombera and Kanyenja to establish Village Savings and Loans Associations. STEP currently supports 5 VSLA's in the Kilombero valley, the year of establishment of the group influences when a group starts their cycle and hence the older groups have been involved in more VSLA cycles.

Table 2. Start Dates for VSLA Cycles in Kilombero

VSLA Group	Status During Reporting Period	Current Cycle Start Date	Current Cycle End Date
Uadilifu Beekeeping Group	Partial Cycle Within Period	December 6 2018	December 6 2019
Katurukila Beekeeping Group	Partial Cycle Within Period	December 28 2018	December 28 2019
Usajiri Beekeeping Group	Partial Cycle Within Period	February 12 2019	February 12 2020
Udzungwa Beekeeping Group	Full Cycle Within Period	April 12 2019	April 12 2020*
Kanyenja Beekeeping Group	Partial Cycle Within Period	February 16 2020	February 16 2021

*Share out for Udzungwa Beekeeping Group will be delayed due to heavy rainfall and agricultural challenges

Table 3. Summary of status of Udzungwa Beekeeping Group VSLA under grant period

Summary Figures for Udzungwa Beekeeping Group	
Number of members	17
Number of weeks	50
Price per share	
Social Fund Contribution	
Capital as of end March 2020	
Total shares as of end March 2020	
Total social fund as of end March 2020	
Total number of loans issued as of end March 2020	
Total value of loans issued as of end March 2020	
Total interest as of end March 2020	

2.3 Monitoring of beehive occupancy, hive condition and honey yields

As explained in 1.6, STEP supports the farmers groups to monitor and maintain the beehive fences on a weekly basis with follow up from locally-based Human-Elephant Coexistence Officers. Table 4 summarizes key performance indicators for beehive fences during the reporting period.

Table 4. Status of all STEP farmer led beehive fences in the Kilombero valley as of April 2020

	Njokomoni Group (Mang'ula B)	Udzungwa Beekeeping Group (Mkula)	Uadilifu Group (Msolwa Station)	Katurukila Beekeeping Group (Katurukila)	Ujasiri Beekeeping Group (Magombera)	Kanyenja Beekeeping Group (Kanyenja)
No. hives along fence	108	54	34	40	101	40
No. hives occupied by bees	19	28	11	11	12	10
Percent Occupancy	18.%	52%	20%	22%	11.8%	25%
No. hives damaged	5	0	0	0	0	0
Honey yields (litres)	20	20	30	0	13	0
Honey processed	20	20	30	0	13	0
Honey sold (500g jar)	3 jars	45 jars	16 jars	0	0	0

2.4 Harvesting, processing and selling honey

Beehive occupancy is influenced by a number of factors such as access to flowers and water, cleanliness of the hive, application of bee attractions such as beeswax and weather conditions. During the reporting period, farmers' groups supported by STEP harvested 223 litres of honey and have sold 63 500 gram jars (the unit of sale currently used by STEP).

2.5 Developing elephant-friendly honey market by increasing links with tourism industry and honey retailers

As outlined in this proposal, STEP hopes to utilize existing tourism opportunities to expand the elephant-friendly honey market. STEP also hopes to do this with existing honey retailers. Over the reporting period, STEP has continued to sell elephant friendly honey through an opportunistic approach. This has led to modest sales. In Year 2, with the help of a Communications Volunteer, STEP will expand marketing for its coexistence tourism (see 2.7) and through that will seek new opportunities for honey sales. STEP will also explore a 'portfolio approach' to honey sales with groups whereby groups may opt to sell a percentage of harvest via a high end, opportunistic market and a percentage of harvest to a slightly lower-end but constant market (Appendix 14).

2.6 Training 100 farmers in agroforestry by partner Associazione Mazingira

Our partner Associazione Mazingira trained 117 (45% women) farmers on sustainable agricultural techniques and agroforestry practices, including alley cropping, woodlots, and soil management and enrichment. Farmers were selected according to the following parameters: land property and extension, project awareness and ownership, motivation, and reliability. In 2019/2020, 55 farmers were practicing alley cropping and 62 farmers planted woodlots, and farmers were supplied with over 51,000 seedlings. Seedling survival rates were 74%. More details are available in Appendix 15.

2.7 Developing and marketing coexistence tourism package in collaboration with tour operators

To increase coexistence tourism in the project area, STEP rehabilitated Njokomoni beehive fence (built in 2011) located in Mang'ula B, making it an educational beehive fence for tourists to visit. The Njokomoni beehive fence has not only been a tourist attraction but also a site where other organizations can come and learn more about the module with hopes of implementing it in their own context.

Table 5. Visitors to the Njokomoni Beehive fence

Date of visit	Name of Organisation/ Guests	# of guests
12/03/2019	TAMISEMI	3
05/05/2019	International student	1
14/05/2019	International tourists	2

16/05/2019	African Wildlife Foundation (AWF)	5
03/09/2019	Kokoa Kamili and international tourists	12
25/09/2019	Kokoa Kamili and international tourists	8
05/11/2019	Kokoa Kamili and international tourists	3
06/02/2020	USAID	5
21/02/2019	Saving Africa's Nature – SANA	3
28/02/2019	World Wildlife Fund - WWF	4
	Total Visitors	46

A significant contributor to tourism at the Njokomoni Fence has been visits from Kokoa Kamili, a social enterprise focused on creating market linkages for Tanzanian cocoa farmers. During the reporting period, 23 visitors came to the fence from Kokoa Kamili as part of wider visits to the Kilombero Valley. A total of 230,000 Tsh (£80) was earned from these visits. In addition, STEP worked on designing a leaflet which will be available at Udzungwa Mountains National Park (UMNP). Tourists visit the park from all over the world, offering wide exposure for STEP's work (Appendix 16).

2.8 Monitoring tourist visitation to coexistence projects

To help farmers increase income with tourist visitation, STEP supports group visits. Most of the visitors only speak English which is not a first language for most people in the rural area. Therefore, STEP staff work as translators between visitors and the farmers. A normal visit includes guests reaching out and scheduling a day to come and visit the beehive fences. The guests arrive in the morning when the bees are less aggressive. An HEC officer explains briefly about the HEC project and the beehive fence model. Then the guests walk the fence with the HEC officers and farmers both present. Afterwards the guests sit down with the farmers and ask questions concerning the project. It is important for guests to speak directly to the farmers and hear from them how they have benefited from the project. As STEP supports the development of other projects in the area, we will increase capacity for groups to run their own support.

Output 3: Restoration and community-managed protection of the Udzungwa-Selous Corridor

At the outset of the project, following Tanzanian protocols, before embarking on village-level sensitisation, it was important to engage Regional and District Commissioners and other officials, which was successfully carried out. The project has strong support throughout these levels of Government.
Over the past year, a variety of different approaches to sensitisation and education have been deployed at village level, including visual aids (photos and videos), village assembly sensitisation, Focus Group Discussions, school education programme, and preparing leaflets that have been widely distributed at the village level. The project has focused a lot on education and empowering communities to take ownership of the project through a range of approaches, such as individual sensitisation, face to face meetings with leaders, local groups and village councils. The goal of sensitization efforts was to discuss with community leaders and members the long-term benefits of the corridor, the land use planning, corridor designation and compensation process, and to address concerns.

3.1 Ongoing sensitization and discussion meetings in corridor villages
Initial support was strong from all three village councils in the villages that are part of the corridor area, and in particular Kanyenja and Sole villages gave STEP' corridor team the go ahead to continue with wider sensitization efforts (See also Activity 4.1). In September, the Kanyenja and Sole Village Governments provided their full support. These two villages make up most of the corridor area. However, a more mixed response was received from Mang'ula A village, in part due to local politics ahead of the November 2019 village elections, and STEP decided to pause corridor sensitization activities here until after the elections. In January to March 2020, STEP conducted successful meetings with the newly elected Village Councils of Kanyenja and Sole about the corridor project, who confirmed their ongoing support. We also restarted engagement with the newly elected Mang'ula A Village Government through one-on-one meetings with members of the Village Government, and positive progress was being made towards a whole Village Government meeting, however this was delayed at the last minute due to the outbreak of COVID-19 (see also 3.2).

Table 6. Local Government Sensitisation Efforts

Sensitisation to Village government				
Village	Members of village council Attend	District Representative	Selous Game Reserve	TANAPA
Kanyenja	27	2	1	1
Sole	25	2	0	1
Mang'ula A	0	0	0	0
Total	**52**	**4**	**1**	**2**

Table 7. Sensitisation Efforts for Individual Community Members

Sensitisation to Individual Communities Members				
Village	Influencers	Politicians leader	Village leaders	Individual members
Kanyenja	4	1	6	70
Sole	3	3	15	38
Mang'ula A	8	5	13	24
Total	15	9	34	132

3.2 Formation of Corridor Management Committee involving all stakeholders

STEP has made very encouraging progress towards the joint Village Land Use Plan (joint agreement of all three corridor villages by the end of March 2020). This joint village agreement is important as it is a prerequisite to the formation of the Corridor Management Committee, involving stakeholders from all villages. Meetings with the Kanyenja and Sole Village Governments yielded meeting minutes confirming support of these two villages. In Kanyenja, surveys and mapping of the whole corridor area has been completed in collaboration with the District Land Use Planning team and 116 farm owners.
Similarly, in Mang'ula A, separate meetings with the Chairman, other Council members and key influencers, were positive and were leading up to a Village Government meeting. However, in mid-March, meetings of more than 10 people were prohibited by the central Government, preventing the scheduled meeting of the Mang'ula A Village Government. The current worldwide pandemic of virus COVID-19 has therefore delayed progress of the joint Village Land Use Plan.
Other potential Committee members from the Ministry of Natural Resources and Tourism Wildlife Division, Tanzania Wildlife Authority (TAWA), Regional Office, District Office have been consulted and are eager to be involved soon after finalization of the Joint Land Use Plan Agreements.

3.3 Preparation, finalization and approval by all stakeholders of technical corridor implementation plan
This is expected to be prepared in Year 2, pending COVID-19.

3.4 Physical demarcation and legal gazettement of corridor
A roadmap to determining compensation for land owners was deliberated and developed with leading national and district experts, and mapping efforts continued in parallel to consultations, to advance our headstart on the final Joint Land Use Planning and compensation process. STEP's GIS expert, the District GIS expert and the PLUM team coordinator drafted the proposed Land Use Plan 2020- 2030 for Kanyenja with Wildlife Corridor. This map is to be presented to the village assembly after the compensation process has been completed as required by law. Sole and Mang'ula A will be included in the interim master plan, which will allow experts from various national and regional organizations to sit down and prepare the proposed master plan for the wildlife corridor. The activities will be delayed due to the outbreak of COVID-19 and until the government announces that the meeting can go ahead.

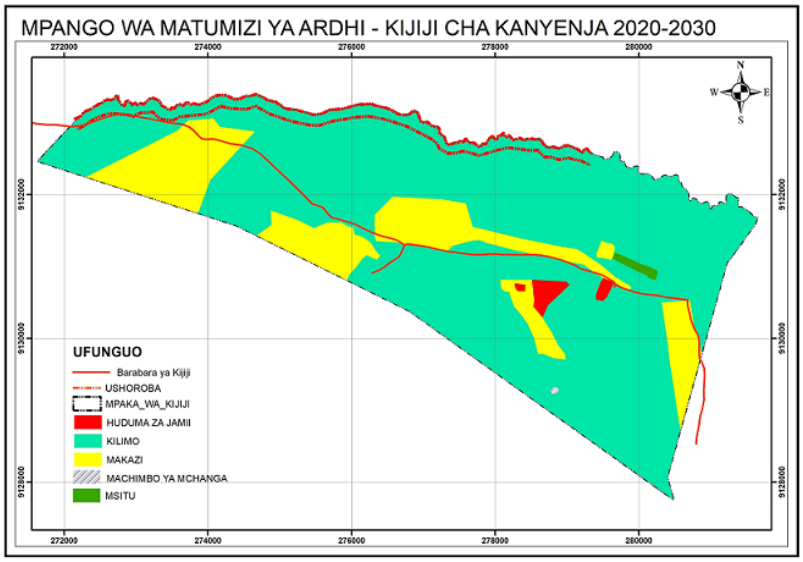

Figure 1. Proposed land use plan for Kanyenja showing the location of the wildlife corridor

3.5 Initiate agroforestry along corridor boundary
Not applicable in Year 1

3.6 Habitat restoration led by Reforest Africa (primarily planting of indigenous saplings from local school tree nurseries) within corridor
Not applicable in Year 1

3.7 Ongoing fundraising for road and rail underpass
STEP secured funding from the European Union for Tanzania's first Elephant Underpass, for which construction will begin during 2020 at the location where the corridor will cross the highway from Ruaha-Kilombero to Ifakara. The road contractor has confirmed receiving all the required letters from relevant authorities to proceed with construction. The contractor also shared the final design of the structure, developed with STEP, to accommodate elephants crossing at the agreed location. STEP is still in the initial stage of discussions with Tanzania Zambia Railways about a rail underpass.

3.8 Surveillance and patrolling of corridor for habitat and wildlife protection
STEP has partnered with Reforest Africa to support patrols of the Magombera Forest Nature reserve at the eastern end of the corridor, prior to commencement of corridor patrols once the corridor is designated. From 4th November 2019 to 30th March 2020, 16 patrols covering >160 km were successfully completed by Village Game Scouts. Eight arrests were made and threats observed included charcoal burning, pole cutting, and stripping of bark by poachers to make canoes. It was reported that these activities have reduced and that no timber harvesting or poaching of large mammals were recorded during this period.

3.9 Monitoring of corridor use by elephants and other wildlife
STEP's research team ground-truths any attempted and successful crossing by elephants of the whole corridor area by walking and tracking the entire route taken by the elephant(s). We have documented four successful elephant crossings and minimum four unsuccessful crossing attempts between October 2018 and March 2020, demonstrating that elephants continued to make attempts to cross between Magombera and Mwanihana but face challenges without a well-managed corridor to follow (an estimated 50% of crossing attempts are successful).
We are also using camera traps to monitor use of the corridor and its endpoints by elephants and other wildlife. In Year 1, we set camera traps on elephant trails used to exit and enter corridor endpoints: Mwanihana forest (6 cameras) and Magombera forests (12 cameras) (Figure 2). As soon as the corridor is demarcated and secure, we will also deploy camera traps along the corridor route. Camera traps detected 18 mammal taxa at corridor endpoints, including elephants, buffalo, hippopotamus, African wild dog, forest antelopes and primates. Between June and December 2019, elephants were detected on 218 unique occasions (unique events are defined as detections of one or more elephants when images are > 15 minutes apart).The majority of events (90%) captured by the camera traps involved elephant bulls. Most elephant activity detected by the camera traps was crepuscular and nocturnal, with 72% of events occurring between 18:00 and 06:59.

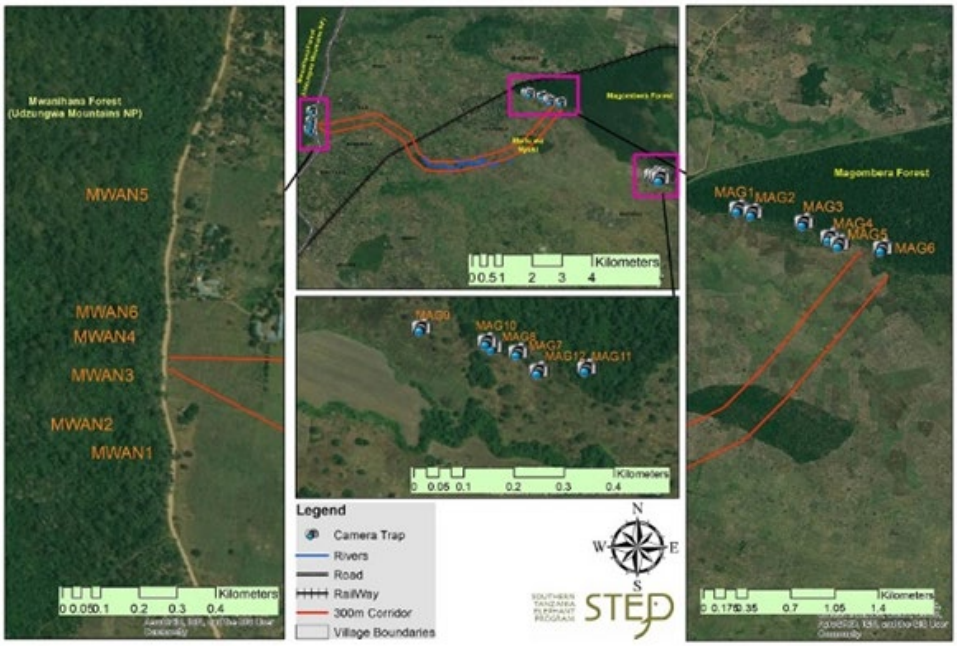

Figure 2. Corridor camera trap locations in Mwanihana and Magombera forests

3.10 Monitoring of elephant use of corridor endpoints via dung surveys

To monitor elephant use of Mwanihana and Magombera forests, STEP's research officers walk five foot transects (6 km in length) every month to count and record the location of elephant dung piles. STEP began this monitoring in Mwanihana forest in late 2015. Between 2016 and 2019, two of the Mwanihana transects (Campsite 3 and Sonjo) showed an increase in dry season dung encounter rates, and two transects showed a stable trend (Sanje and Msolwa). The Magombera transect, begun in 2019, has demonstrated year-round presence of elephants in this forest.

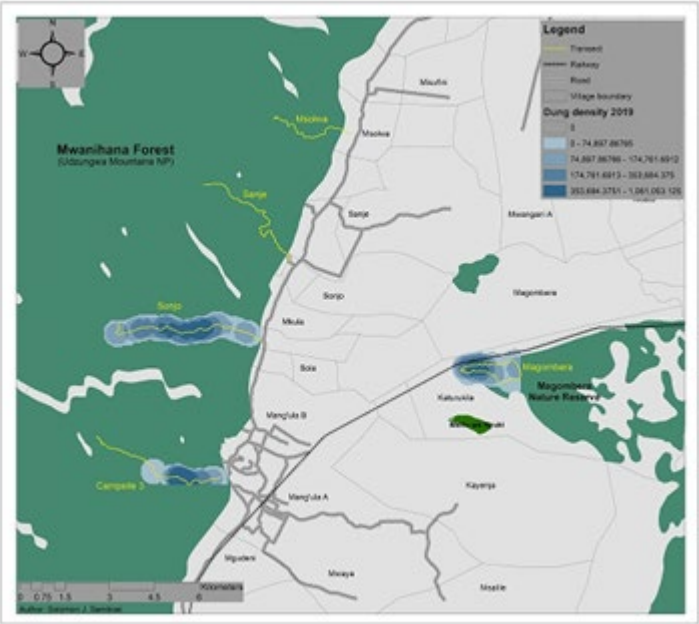

Figure 3. Dung densities along five forest transects in Mwanihana and Magombera in 2019.

Output 4: Increased knowledge and research on human-wildlife coexistence (HWC) and ecological connectivity at local and national level

4.1 Conducting community meetings and awareness days about human-wildlife coexistence and ecological connectivity

Extensive awareness-raising was done by STEP's corridor team in the villages of Kanyenja, Sole, Mang'ula A, Magombera, and Katurukila on the role of ecological connectivity for human-wildlife coexistence Focus Group Discussions (FGDs) were held in Sole and Kanyenja villages to discuss the corridor project and to allow people to express their views, raise concerns, and ask questions. Focus Groups engaged 60 women, 60 youth, 60 men, and 60 elders across the two villages. STEP also facilitated Village Assembly meetings for all project villages with the Regional Natural Resource Officer, District Commissioner, District Game Officer, Kilombero Valley Game Control Officer, Head of Msolwa

Station sector, Assistant Division Officer, and STEP to discuss the corridor project. Attendance was estimated at 900. During FGDs and village assembly meetings, STEP handed out 800 Swahili-language leaflets about the corridor project. Feedback received during FGDs was also used to prepare a Frequently Asked Questions handout.

STEP conducted six film nights in Sole village and 5 film nights in Kanyenja village between May and September 2019, with an estimated total attendance of more than 750. Various short films were shown, including one about elephant responses to bees, and a short documentary produced by STEP about the visit of four village leaders from the project areas to the Mt. Kenya Elephant Corridor in 2018. The STEP team also answered questions about the wildlife corridor during the meeting.

STEP also supported four student-led community awareness days about human-elephant coexistence which reached 1,575 pupils, parents and guardians in three villages. In these events, students wrote and performed songs and plays to share their knowledge about human-elephant coexistence and ecological connectivity.

4.2 Environmental education and raising awareness about biodiversity conservation in 10 schools in corridor area by Association Mazingira

In Year 1, our partner, Associazione Mazingira taught environmental education in 14 primary and 4 secondary schools, reaching 2,991 pupils. Topics included basics of environmental conservation, forest biodiversity and conservation, energy use and sustainable energy sources, tree nurseries, and climate change. As part of this program, STEP's education officer taught three supplementary modules: 1) elephant ecology, behaviour and conservation, 2) human elephant coexistence and 3) wildlife corridors and connectivity during 50-minute lessons. Module 1 reached 2210 students, Module 2 reached 2309 students, and Module 3 reached 1870 students. Students were given hand-outs of each topic for further reading and references as well as exercises, group work and homework. Associazione Mazingira also organized study tour trips to Udzungwa Mountains National Park for 2,196 pupils and 52 teachers from 18 schools.

4.3 Monitoring and evaluation of environmental knowledge in schools involved in environmental education program

2,922 (97.8%) pupils completed an annual environmental education examination administered by Associazione Mazingira. 98.9% of students passed the exam (scoring grades A, B, C and D), with 41% of students scoring an A or B. In addition, STEP administered pre and post training questionnaires to students to test prior knowledge and short-term knowledge retention for its three-module education program on human-elephant coexistence. Questionnaires indicate that student comprehension of key concepts improved as a result of the education program, with a 19% to 52% increase in the percentage of correct answers provided (by question). Prior to the program, 74.3% of students perceived wildlife corridors to be important. After the program, 86.5% of students stated that wildlife corridors are important – a positive increase of 12%. Before the program, most students were not aware of the reasons why wildlife corridors are important. In the endline questionnaire, students provided a range of answers, including reducing human-wildlife conflict (36.8%), increasing income-generating activities (18.5%), and habitat and wildlife conservation (14.8%).

Table 8. Annual Environmental Education Examination Scores

Classes	**Grades**				
	A	**B**	**C**	**D**	**F**
Standard V	68	506	342	161	06
Standard VI	166	417	264	165	04
Form I	11	44	346	402	20

Total grades	**245**	**967**	**952**	**728**	**30**

Table 9. Knowledge Retention Results

Knowledge question	% Correct in Baseline	% Correct in Endline	% Change
Is an elephant family led by a male or a female elephant?	49	93	44
Is Tanzania's elephant population increasing, decreasing or stable?	10	62	52
What is a wildlife corridor?	74	93	19
Why are corridors being lost?	71	89	19
Can you name a threat to elephants?	46	89	43

4.4 Establishment of tree nurseries in 10 local schools for corridor habitat restoration (Association Mazingira and Reforest Africa)
Associazione Mazingira established and continued to support tree nurseries in 5 villages and 5 schools, with a total of 213,600 seedlings provided in 2019. Tree nurseries focus on five indigenous tree species.

Table 10. Seedling Distribution

Name of School	Seedlings
Mwanihana secondary school	7000
Kisawasawa secondary	6500
Bokela secondary	5000
Mangula primary	5200
Mgudeni primary	4900
5 Villages with tree nurseries	185,000

4.5 Recruit researchers for studies on beehive fence and corridor projects, writing of popular articles with Dr. Katarzyna Nowak
In 2019/20, we established research collaborations with the University of Kent, the Agrisys project at the University of Newcastle (PI: Marion Pfeiffer), and Colorado State University, which will focus on 1) understanding drivers of community tolerance of elephants in the Kilombero valley, 2) identifying predictors of crop loss hotspots and modelling and evaluating changes in crop losses to elephants as a result of corridor restoration, as well as changes to well-being of farmers and crop productivity, health and damage following corridor restoration and 3) an economic cost-benefit analysis of corridor restoration. We will publish popular articles describing the results of this research in Years 2-3 of the project.

4.6 Updating of Tanzania Wildlife Corridors website and creation of interactive website for Udzungwa-Selous corridor
Updating of www.tzwildlifecorrdors.org by the consultant is proceeding well 'behind the scenes', in preparation for the live launch. We are working closely with the team from USAID PROTECT, Ministry of Natural Resources and Tourism and the Tanzania Wildlife Research Institute on preparation of the National Corridor Priority Action Plan (NCAP) project (2019-20), to which STEP CEO Trevor Jones is a technical advisor. In a major boost and honour for the site, agreement was reached to include all new maps, data and information gathered during the process of this project on to the website. NCAP has held two consultative workshops (attended by STEP) with local corridor experts between September 2019 and January 2020, and further regional workshops were planned for spring 2020, however they had to be postponed due to COVID-19. They are currently strategizing how to complete the project and provide all their updated information for the website by June 2020. In the meantime, other preparatory and development work completed on the website includes: migration of the website and domain and development of site set up on new, low-carbon server; upgrading to https; updated theme and structure built; preparation of new content provided by STEP; test content in place and testing for going live.

3.2 Progress towards project Outputs

Output 1: Beehive fences established and operational and managed independently by registered farmers' cooperatives in four new villages.
Beehive fences have been established and are operated and managed independently by registered farmers' groups, with support from STEP, in three new villages: Katurukila, Magombera and Kanyenja. This leaves one village remaining to complete Output 1. Through monitoring beehive fence occupancy each week and through monitoring elephant movements in the area, we know that these fences are established and operational. Through monitoring attendance sheets, we know that farmers' groups are active in their supervision of these fences.

Output 2: Establishment and development of sustainable and gender equitable income-generating opportunities for local people increase outcomes for 220 people through beekeeping, VSLAs and coexistence tourism
All new farmers' groups began with at least 30 members to ensure enough labour for fence construction and to ensure enough potential share purchasing power to ensure sufficient capital to enable lending for VSLAs. Due to other conflicting responsibilities, reduced interest and lower than expected honey harvests (as expanded upon in Section 3), membership numbers have dropped slightly. From the three new groups, 71 individuals are currently part of beekeeping activities and 65 are part of VSLAs with STEP. This is an increase from the 42 individuals involved in beekeeping activities previously. From sales records, we know that three beekeeping groups have earned 1,042,500Tsh (£) between April 2019-March 2020 from the sale of honey. Of the newly formed groups, only one harvested honey during this time. Increasing sales opportunities is a focus of Year 2 as outlined in the update for Output 2.5. During the reporting period, four Village Savings and Loan Associations (two of which were newly formed) distributed an average of £of loans, exceeding the Year 1 target of £. Katurukila Beekeeping Group distributed £via 26 loans, Usajiri Beekeeping Group distributed £1197 via 31 loans and Uadilifu Group distributed £via 53 loans. Only Udzungwa Beekeeping Group did not meet the target, distributing only £via 7 loans. During the reporting period, as explained in 2.7, 46 tourists visited the Njokomoni Beehive Fence. This generated 230,000Tsh or £in revenue for the eight individuals still involved in the operation of the fence.
Therefore, if we sum up the number of group members in groups which sold honey, the number of loans issued and the number of farmers positively-impacted by coexistence tourism, 121 individuals have been exposed to income generating opportunities.

Output 3: Restoration and community-managed protection of the Udzungwa-Selous Corridor
3.1 Number of Village Land Use Plans approved (target 4, one per village) by Year 2. [Signed approval of VLUP and CMP by Village and District Government Officials]
None yet due partially to delays in the process since mid-March caused by COVID-19, however this can be completed in three months, pending COVID-19. Significant progress was made towards the Kanyenja Land Use Plan, including surveys and mapping with all farm owners (Appendix 17).
3.2 Number of corridor Management Plans approved by end of Year 2 (1) [Signed approval of CMP]
Not applicable to Year 1; in progress, pending COVID-19.
3.3 50% of corridor area has undergone habitat restoration by end of Y3 (2018 baseline 0%)
This activity was not started in Year 1, and will follow corridor designation.
3.4 Number of community patrols of the corridor by Village Game Scouts (target: 52) by end of Year 3.
The corridor per se is not yet patrolled pending completion of the designation process, however 16 patrols of the corridor area along the edge of and within the adjacent Magombera forest (which forms one end of the corridor) were completed by Village Game Scouts from November 2019 to March 2020.
3.5 Elephants and minimum four other species are documented to use the corridor by end of Y3.

From October 2018 to March 2020, STEP recorded 4 successful crossings of the corridor area by elephants, and minimum 4 attempted crossings. These all occurred prior to completion of corridor restoration. In addition, camera traps detected elephants and 17 other mammal taxa at corridor endpoints. We will continue to monitor wildlife use of the entire corridor following corridor designation.

Output 4: Increased knowledge and research on human-wildlife coexistence (HWC) and ecological connectivity at local and national level

4.1 Number of Community members in four project villages showing increased understanding of ecological connectivity and HWC in Y3 (Target: relative to pre-project baseline)

STEP conducted corridor-themed film nights with Q&A sessions for the villagers of Sole and Kanyenja from May to September 2019, with an estimated attendance of 750. STEP also supported four student-led community awareness days about human-elephant coexistence which reached 1,575 pupils and parents in three villages.

4.2 3000 school children show increased understanding of ecological connectivity and HWC in Y3 relative to pre-project baseline

In Year 1, 2,991 pupils were reached by Associazione Mazingira's environmental education program. A subset of these pupils (approximately 2,000 students) were reached by STEP's module on human-elephant coexistence and wildlife corridors and connectivity. Prior to the program, 74.3% of students perceived wildlife corridors to be important. After the program, 86.5% of students stated that wildlife corridors are important. Before the program, most students were not aware of the reasons why wildlife corridors are important. In the endline questionnaire, students provided a range of answers, including reducing human-wildlife conflict (36.8%), increasing income-generating activities (18.5%), and habitat and wildlife conservation (14.8%).

4.3 Number of research articles (target: 1) and popular articles (target: 3) published at end of Y3. Baseline is zero. STEP established three research collaborations in Year 1. No research articles or popular articles published in Year 1, however a paper on lessons learned from the corridor restoration project is in preparation. Publishing is a priority for Year 2 and Year 3 using results from our research collaborations.

4.4 Number of visitors to TZ Wildlife Corridors website

Baseline from April 2018 to March 2019 was 7,126 unique visitors, and this number from April 2019 to March 2020 was 5,642. The lack of increase is because we will be launching the new updated site later in 2020, after which we expect increased traffic.

3.3 Progress towards the project Outcome

Elephant crop losses are significantly reduced and retaliatory killing of elephants is eliminated. Environmentally-friendly and sustainable enterprise increases incomes for 220 people. A crucial ecological corridor is restored with community support.

0.1: 50% reduction in the number of elephant visits to farms per year protected by beehive fencing by project end relative to pre-project baseline of 34 days with crop losses in 2018-2019.

In Year 1, we recorded 155 days with crop losses across 9 villages (NB: a date may be included more than once if more than one village experienced crop damage on the same date) and 305 crop-loss incidents. This increase relative to 2018 is primarily the result of expanded coverage and increased survey effort (e.g. LEMs began data collection in April 2019 in Magombera and Kanyenja villages). Our Year 1 data serves as a better baseline because of improved data coverage and quality.

0.2: Zero elephant mortality from retaliatory killing or Problem Animal Control in project area by project end relative to 2009-2017 baseline (0.6 elephants killed/year)

Zero elephant mortality in Year 1.

0.3: By project end, 220 project beneficiaries report an increase in income from beekeeping, agroforestry and coexistence tourism relative to project baseline of zero

To date, 121 people are involved in beekeeping activities and Village Savings and Loan Associations. Eight individuals are involved in initial coexistence tourism efforts at one of the beehive fences. 117 individuals are involved in agroforestry. STEP plans to conduct a baseline survey in the next three-six months, depending on COVID-19.

0.4 Gazettement of Udzungwa-Selous corridor completed by project end, relative to no protected status at pre-project baseline.

Good progress made through sensitisation and consultation towards joint land use planning for the corridor in Year 1 (two villages ready to proceed, third village close to agreement); on track towards this objective

0.5: By project end, there will be a 50% increase in the proportion of Village Council members and community members who support gazettement of the Udzungwa-Selous corridor relative to the pre-project baseline (65% of 132 village council members in Jan-March 2019).

N/A at the end of Year 1.

0.6 By project end, there will be a 50% increase in the proportion of community members who demonstrate tolerance for elephants relative to the pre-project baseline.

Establishment of baseline tolerance levels through questionnaire surveys was planned to begin in March 2020 in collaboration with MSc student Caitlin Melidonis from the University of Kent (funding secured). However, this work has now been postponed due to the risks posed by conducting in-person questionnaire surveys due to COVID-19. We hope to begin this work, if the situation permits, in 3-6 months.

3.4 Monitoring of assumptions

0.1 Beehive fencing continues to deter elephants from farmers (no habituation).

Comment: To monitor this assumption, local elephant monitors survey beehive fences twice per week to determine if and where elephants have crossed beehive fences, and if elephants crossed between hives which were occupied or unoccupied by bees. This monitoring shows that elephants generally do not cross beehive fences between occupied hives. Elephants do sometimes walk around beehive fences, so we are seeking to extend beehive fences or use other deterrent to reduce this. In Year 2, we will increase our use of camera traps at beehive fences to study elephant responses to beehive fences, and explore whether individual elephants vary in their potential for habituation.

0.2 Crop protection efforts, corridor conservation, beekeeping training and benefits and education are effective in fostering tolerance of elephants
Comment: To monitor this assumption, we planned a questionnaire survey to identify drivers of tolerance and the role of interventions in fostering tolerance to begin in March 2020 in collaboration with an MSc student from the University of Kent. However, this questionnaire survey was postponed due to COVID-19, and will be resumed at the earliest possible date.

0.3 Other motives for elephant killing (i.e. poaching for ivory) do not override increased tolerance of elephants
Comment: STEP records incidents of elephant mortality to monitor this assumption. In Year 1, there was zero elephant mortality on village land, suggesting this assumption holds true. Questionnaire surveys on tolerance (Assumption 2) will further shed light on this assumption.

0.4 Health of local bee populations: Seasonal variation in occupancy data
Comment: To monitor this assumption, STEP records beehive occupancy for all beehive fences every month. In Year 1 there was variation by village in beehive occupancy trends, but, overall, there was an increase in beehive occupancy in the early dry season (June to August), and drops in occupancy during the wet season (January and February), perhaps due to exceptionally heavy rainfall due to the Indian Ocean Dipole.

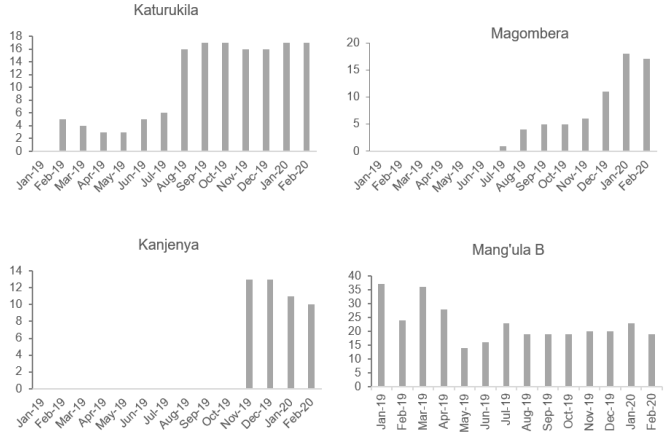

Figure 4. Beehive Occupancy Rates

0.5 Political interference does not negatively affect communities' support for corridor conservation.
Comment: Intra-village politics between the two main political parties raised some challenges in one of the corridor villages (Mang'ula A) in the lead-up to the nationwide Village Council (VC) elections in November 2019, with some VC members opting to halt project activities until after the elections. However, the elections resolved these issues when all villages in the area elected the Ruling Party CCM (albeit due to boycotting of the elections by the opposition parties). Since the new elected officials have taken office, these political issues have ended and project progress has resumed.

1.1 Following comprehensive beekeeping training and set up of a monitoring system, farmers' groups will conduct proper maintenance of beehives.
Comment: So far this assumption holds true. Weekly monitoring by the HEC Team shows an average 50% attendance at weekly fence maintenance during the project period across all groups. Given that this includes the rainy season during which occupancy drops consistently (Figure 4), we can expect attendance to increase as the rains taper off.

1.2 The project area continues to maintain a healthy bee population
Comment: See comment for Assumption 0.4.

2.1 There will be a continued market for elephant friendly honey.
Comment: The tourist interest and market for elephant-friendly honey was overestimated at the time of this proposal, based on a small sample size that was not representative of wider trends. Expanding market access will be a focus of Year 2, as outlined in 2.5 and 2.6.

2.2 There is continued interest and buy in from members from members for VSLAs
Comment: This assumption still holds true. Weekly attendance of 60% shows that a majority of members attend meetings. Group members are buying an average of 37.5 shares per week per group. Each individual is buying an average of 4 shares per week. We track the number of shares purchased per attendee as key performance indicator weekly in our HEC Dashboard to monitor participation (Appendix 18). For the new groups, 100% of members have taken loans. This is indicative of need, demonstrating that there is considerable interest in access to credit.

2.3 Tourist operators continue to show interest in coexistence projects as a tourist attraction
Comment: This assumption likely should have been phrased as "tourist operators **show interest**" in coexistence projects in our application materials. Research conducted during the reporting period shows that coexistence tourism is still an emerging concept in tourism in Tanzania.

2.4 Tanzania remains peaceful and a popular destination for international tourists.
Copmment: The impact of COVID-19 on Tanzania's tourism industry will likely be significant during Year 2 of the project.

3.1 No negative changes in Tanzanian law pertaining to corridor conservation
Comment: No negative changes have occurred. The Tanzanian government continues to view corridors as a conservation priority, and is engaged in a national corridor prioritization exercise.

3.2 Political interference does not negatively affect communities' support of corridor conservation
See comment for Assumption 0.5.

3.3 Wildlife accept the corridor as safe enough to use.
Comment: Once the corridor is designated, we will increase camera trapping along the full extent of the corridor to monitor this assumption. Experience from other corridor projects (e.g. Mount Kenya Elephant Corridor) suggest this assumption is likely to hold true.

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

The intended impact of the project is enhanced human-elephant coexistence, growth of sustainable local livelihoods linked to biodiversity conservation and restoration of landscape ecological connectivity in the Kilombero Valley, Tanzania. The project contributes to biodiversity conservation by enhancing connectivity for the elephant meta-population of southern Tanzania, which comprises >50% of East Africa's elephants, by restoring a historical corridor that runs across the Kilombero Valley between Selous Game Reserve and the Udzungwa Mountains. At present, elephants continue to make dispersal attempts through this corridor, but an estimated 50% of attempts are unsuccessful in the absence of a well-managed corridor for them to follow. Research has shown a highly positive correlation between the presence of elephants and large mammal diversity within corridor areas, meaning that a protected

elephant corridor will also benefit greater biodiversity (Epps et al. 2011). We estimate that the corridor will benefit eleven mammal species for which recent/historical connectivity has been documented, including the endemic and endangered Udzungwa Red Colobus (Procolobus gordonorum), African lion (Panthera leo), leopard (Panthera pardus), and buffalo (Syncerus caffer). Following corridor designation, we will measure wildlife use of the corridor through camera traps.

The project will contribute to human development and wellbeing by building the capacity of farmers to reduce crop losses to elephants, to diversify income streams through agroforestry, beekeeping, and coexistence tourism, and to increase access to capital for income diversification and assistance with household cash flow through village savings and loans programs. We have baseline data on 305 crop loss incidents in Year 1 prior to corridor designation, and we will measure the change in crop loss incidents following corridor designation. To date, the project has capacitated 117 farmers in agroforestry and 101 farmers in beekeeping via training, and enabled membership in VSLAs for 65 farmers. Furthermore, through education programs, the project aims to increase community knowledge and skills for land use planning and managing human-elephant interactions, including how to manage potentially dangerous encounters with elephants. Furthermore, through a collaboration with the Agrisys project at the University of Newcastle, we will be able to evaluate the impact of corridor restoration on two additional measures: 1) well-being of farmers (baseline data on 467 households from 2019) and 2) crop productivity, health, and damage (baseline data on 72 plots from 2019).

4. Contribution to the Global Goals for Sustainable Development (SDGs)

SDG 1: End Poverty. This project will contribute to this goal by diversifying livelihoods and improving food security among the rural poor in southern Tanzania. We aim to reduce crop losses from elephants, as measured against data from Year 1, through beehive fences and corridor restoration. The project will increase access to additional income sources from beekeeping, agroforestry and coexistence tourism and enhance local capacity for decision making around land use planning. In Year 1, 117 farmers were trained in agroforestry, 80 farmers were trained in beekeeping, and 65 farmers gained access to VSLAs.

SDG 5: Gender Equality. This project is contributing to gender equality by promoting women's participation and leadership in economic and nature conservation activities through involvement in CBOs and VSLAs. VSLAs provide women and youth with much needed access to loans and savings mechanisms, capacity building and business training. The three new farmer groups include 56 women, and women comprise between 48% and 58% of members at the end of Year 1. Women hold 33% of leadership roles in the three new groups.

SDG 15: Life on Land. The project is making progress towards restoring a historical corridor between two forests and will therefore contribute to the maintenance of biodiversity and associated ecosystem services at the landscape scale. These forests serve as important water catchments which provide water for households, irrigation for agriculture and electricity generation for Tanzania's natural grid. Through STEP's collaboration with the Agrisys project, we will be able to measure the change in farmer well-being and crop productivity and health following corridor restoration.

5. Project support to the Conventions, Treaties or Agreements

The project is aligned with Tanzania's CBD strategy and contributes to three of the Aichi Targets outlined in Tanzania's National Biodiversity Strategy and Action Plan (2015-2020). By facilitating villages to conduct joint land use planning to restore a corridor, we intend to reduce degradation and fragmentation of ecosystems by connecting two important protected areas and restoring degraded habitat (Target 5). In Year 1, one village (Kanyenja) made significant progress in land use planning. The project provides positive incentives for biodiversity conservation via reduction of human-wildlife conflict and sustainable use of natural resources via beekeeping (a total of 121 farmers involved in beekeeping in Year 1) and agroforestry (117 farmers in Year 1) (Target 3). Furthermore, the project helps communities to restore and safeguard essential ecosystem services through protection of water catchment forests while taking into account the needs of women, youth and rural poor, which we consulted on through 16 Focus Group Discussions in Year 1 (Target 14). While no direct contact has been made with the Tanzanian focal point for the convention, STEP has worked closely on the corridor restoration project with a range of government partners including the Tanzania Wildlife Research Institute, Tanzania National Parks, the National Land Use Planning Commission, Tanzania Wildlife Management Authority, the Wildlife Division in the Ministry of Natural Resources and Tourism.

6. Project support to poverty alleviation

The project will contribute to human development and wellbeing by reducing crop losses to elephants, diversifying incomes, and increasing access to capital. Furthermore, through education programs, the

project aims to increase community knowledge and skills for land use planning and managing human-elephant interactions, including how to manage potentially dangerous encounters with elephants.
We will strengthen capacity for crop protection among four farmers cooperatives through the implementation of beehive fence projects to deter elephants from farmland. In Year 1, 71 farmers in three newly established farmers cooperatives began actively managing beehive fences, and a total of 121 farmers were engaged in beehive fence projects in the wider project area. In the short term, we expect that elephant visits to farmland and crop damage across the project area will decrease, contributing in the longer term to improvements in food security. We will measure change against a baseline of 305 crop loss incidents in Year 1.
The project also aims to diversify and increase incomes for four farmers' cooperatives via beekeeping, coexistence tourism, and agroforestry. In Year 1, the project capacitated 117 farmers in agroforestry and 80 farmers in beekeeping through training. During the reporting period, as expanded upon in Activity Update 2.7, 46 tourists visited the Njokomoni Beehive Fence. This generated 230,000Tsh (£80) in revenue for the eight individuals still involved in the operation of the fence. Through work with a newly hired Communications volunteer, we hope to expand visitation to the fence and to explore other opportunities as corridor establishment progresses. This will, however, be significantly impacted by COVID-19.
The project aims to increase resilience to the financial impact of HWC and contribute to economic empowerment of women and youth in the long-term through Village Savings and Loans Associations. In Year 1, the project enabled access to loans, savings mechanisms, and a social insurance fund for 58 new farmers through membership in VSLAs, and a total of 107 farmers participated in VSLAs in the wider project area. In Year 1, farmers in the three new VSLAs took out 57 loans with a value of 6,640,000 (£2370) to support activities including farming and small business management.
Corridor restoration and community-led management of the corridor are expected to reduce poverty by significantly reducing the current economic losses to households caused by crop losses to elephants in the landscape. Corridor restoration is also expected to increase ecosystem services, and through a collaboration with the Agrisys project at the University of Newcastle, we will be able to evaluate the impact of corridor restoration on farmer well-being and crop productivity, health, and damage. Employment of Village Game Scouts, corridor ecotourism and corridor-associated activities such as beekeeping and agroforestry are all likely to benefit local households economically. The corridor project is also beginning to attract enterprise support programs for small businesses such as the LIFT initiative by IUCN-NL.

7. Consideration of gender equality issues

Women face cultural and practical barriers to involvement in the formal economic sector, including primary responsibility for childcare and domestic tasks, as well as lack of access to capital, resources and training, that can pose a challenge to their participation in human-elephant coexistence projects. During project orientation meetings, STEP communicated to our partners and beneficiaries the importance of women and youth participation in human-elephant coexistence efforts. During interviews with prospective group members during formation of new CBOs, STEP asked women about their concerns with regards to beehive fence projects and VSLAs. The primary concern was that men would be favoured for group membership and for leadership positions. We addressed this concern by requiring minimum 50% representation of women and youth in group membership, and 33% of leadership roles to be women. Throughout training and group formation, STEP continued to emphasize the important role of women and youth in beehive fence projects and VSLAs and encouraged women and youth participation during training and discussions through moderation by STEP's team. We also asked farmers groups to choose meeting times that accommodate members' other responsibilities. STEP's Human-Elephant Coexistence Coordinator for Kilombero is a woman and has been told by farmer' groups members that she is a role model for women who hold leadership positions. We also conduct gender sensitive project monitoring to ensure women, youth and men benefit equally from project involvement. Of the three new groups, women and youth constitute 63% of members in Katurukila, 83% in Kanyenja, and 74% in Magombera. In Year 1, 32 women in the new groups took loans from VSLAs with a total value of TZS 2,773,000 (£950), primarily for renting farmland, purchasing agricultural inputs, and paying children's school fees.

The corridor restoration component of the project addressed gender by conducting Focus Group Discussions with 60 women, 60 youth, 60 men, and 60 elders to learn about their primary concerns and views on corridor restoration. The primary concerns raised by women was the safety of their families and livelihoods from wildlife, and they expressed interest in income-generating opportunities associated with the corridor. Youth expressed interest in employment opportunities associated with the corridor, including through tourism, and highlighted that a priority was access to income-generating opportunities in the Kilombero Valley beyond agriculture. Elders and men primarily had concerns about compensation and the fairness of the process for compensating land, due to experiences with eviction and lack of compensation for land as a result of the on-going construction of a tarmac road between Mikumi and

Ifakara (Tanzanian law prohibits settlement and agriculture within 30 meters from roads, any land that falls within the 30m buffer is not compensated).

This feedback informed sensitization and outreach efforts by the STEP corridor team, including several meetings to discuss compensation with farmers, and addressing concerns about safety by explaining that the corridor will be fenced. STEP is also working with partners to bring investment to the corridor area to help increase access to capital for income-generating activities. In August 2019, a preliminary pre-program workshop was held in Ifakara by the IUCN-NL LIFT (Landscape Investment and Finance) program, in collaboration with STEP, focused on the corridor area. The eventual goals of the program are to: to (i) identify sustainable and green local businesses and entrepreneurs in and around the corridor area, (ii) support these businesses and entrepreneurs to build their business cases, and (iii) present these business cases to potential investors for financing and expansion. We are awaiting the next phase of the program which is now held up by COVID-19. In addition, STEP has opened discussions with the USAID Mboga na Matunda program, which supports farmers on efficient agriculture methods and currently operates in the southern Kilombero Valley, for possible collaboration in the corridor area.

8. Monitoring and evaluation

We monitor elephant crop loss and assess the impact of beehive fences through the work of Local Elephant Monitors. They record crop losses using GPS units and standardized datasheets. LEMs record incidents of elephant damage to farms, incidents of elephant movement into village land and human and elephant injuries/deaths. STEP's long-term presence in the Kilombero Valley grants us access to local knowledge networks in which news of retaliatory killings might be shared.

In a shift from our submitted M&E plan, farmers' groups/CBOs no longer record data on fence conditions and beehive occupancy solely; this information is currently recorded by the HEC Team to improve consistency and quality. Together, the HEC Team and farmers' groups monitor trends in occupancy and honey yields, pinpoint priorities for fence maintenance and identify successful strategies for increasing hive occupancy and safeguarding bee colonies. As outlined above, this information is entered weekly into the HEC Dashboard and reviewed by the STEP HEC Team to direct follow up and support in the field.

To monitor the impact of VSLAs, the HEC Team attends VSLA meetings weekly (up from the previous plan of once per month) in an effort to again increase consistency and accountability. All key performance indicators (shares purchased, attendance, repayment) are entered into the HEC Dashboard and used to monitor trends requiring follow up (delayed repayment or lower than average share purchase). With a month left before a loan is due, the Team shifts to a more active repayment strategy, as elaborated above. We also continue to file copies of all financial records of VSLA accounts to help assess the number of shares purchased by members, the number of loans issued, interest earned, and the types of activities loans were requested for (disaggregated by age and gender). Accuracy in record keeping and accountability in meeting attendance, repayment, and other basic protocols are critical to establish a culture of transparency, trust and success. Without a functioning VSLA, farmers lack a critical opportunity for financial inclusion, mitigation for crop loss and a vital financial safety net. We need to increase our understanding of how group members are using loans and to perhaps deepen our understanding of the perceived value of VSLAs. The original theory of change posited that the value VSLA membership would be the interest earned on shares that is distributed at the share out. However, it may be that members' value the access to credit at credit-constrained periods of the year. We plan to conduct key informant interviews and focus groups to better understand how VSLAs contribute to increasing incomes, food security and tolerance.

The STEP HEC Team uses harvest records to monitor honey harvests and sales records to monitor income generated from honey. The Team supports all coexistence tourism efforts, thereby recording income generated and the number of visitors received. From the human-elephant coexistence perspective, operational indicators are well-established and are used weekly to orient follow up in the field. From the corridor side, operational indicators are also well established and used to drive actions in the field. Together with Associazione Mazingira, key indicators are reported, monitored and used to shift activities in the field.

For all aspects of this project, there are opportunities to deepen impact indicators and to further refine our approach to enhancing human-elephant coexistence. STEP hopes to use baseline surveys to build an understanding of the drivers that influence tolerance in the Kilombero Valley. This will be vital for the long-term sustainability and viability of corridor restoration: by articulating the benefits of the corridor in terms that resonate for local communities relative to their livelihoods and households, we can increase tolerance for elephants.

9. Lessons learnt

Several lessons were learnt by STEP's human-elephant coexistence team. We continue to learn about effective ways to increase beehive occupancy in beehive fences and to understand the differences by village and group in the main challenges they face. For one group, moving beehives from the fence to

another location to capture bee colonies increased occupancy rates significantly. Moving hives into trees for colony capture also increased occupancy rates. For another group, who faced a big challenge with insects, weekly application of grease to beehive wires has increased beehive occupancy rates. In the future, we will seek to understand more closely why beehive occupancy drops in the rainy season, and how we may be able to address this. We are also devising ways to address one of the main challenges in VSLAs, namely the timely repayment of loans by group members. Whereas in the past, members started repaying loans after three months, we have recently changed the repayment system so that loans must be reduced after one month, and this has improved repayment rates. We have also learned that farmers most need access to loans during January to March for agricultural inputs, and that repayment of loans is easiest for farmers after harvest, between June and August. Therefore, for new VSLA cycles, STEP will encourage groups to run a cycle from October to September.

A number of lessons have been learned through the unprecedented corridor restoration process so far. The nature of carrying out a Joint Land Use Plan across four villages means that all the villages must be fully cooperative before the exercise can proceed to completion. The concept of a wildlife corridor is very new to many people and hard to imagine, and it takes time to educate people on how it would look and work. Explanatory photos and videos help in this regard, as do carefully prepared leaflets that can be distributed widely at the village level. We prepared three leaflets: the first introducing the concept and benefits of the project, the second explaining different fencing options (a frequent early question), and a third Q&A leaflet in response to a range of FAQs and concerns.

There is a Catch-22 dilemma when it comes to first introducing a major project of this kind to Village Councils and Village Assemblies. STEP is committed to a process of sensitising and listening to the concerns of all community members, and we remain committed to the concept of communities taking ownership of the corridor. However, one view expressed is that we should have held sensitization and discussion meetings at the village level without the presence of District officials such as the DGO, or TFS, or local Selous GR officers, because this gave the perception that the corridor is a 'Government project' and led to the suspicion that it will therefore happen, regardless of the wishes of the community. This is contrary to the 'bottom-up' approach that we are striving for; we deliberately excluded authority figures such as DC, RC, TANAPA, etc, for this reason, however it is impossible to introduce the project without some District official involvement that lends the concept legitimacy. In Tanzania, an NGO can never implement a project like this without Government backing, and this is widely assumed. Thus it is challenging to both introduce the project with legitimacy and simultaneously convince the community that we do not want to go ahead without their backing and participation. However, the solution to this quandary likely lies in hard work and trust-building over time.

There may be mistrust due to previous local conflicts between villages and Government (e.g. wildlife authorities), which leads to the unfounded suspicion that the new project is an extension of old conflicts with the same actors driving the corridor initiative behind the scenes. It is therefore important that members of our team include local respected community members with deep understanding of local history.

Regular and inclusive consultations with our project partners and stakeholders on the ground, including District staff, PLUM Team, the RNRO, the DG of NLUPC, are important - to discuss successes and challenges arising, strengths and weaknesses of our joint approach, and to make adaptive decisions on methodology and approach according to experience.

Focus Group Discussions for key and usually under-heard community demographic groups were a very useful and democratic sensitisation method.

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

Not applicable.

11. Other comments on progress not covered elsewhere

One key refinement of the corridor restoration strategy was made during Year 1. Over the course of 2019, we were making little progress in Katurukila village in reaching consensus on adopting the corridor, due to intensive intra-village politics in this village, whereas two villages reached agreement rapidly and a third was moving towards agreement. Therefore, after lengthy consultations with all our key partners and following the advice of the NLUPC, it was decided to amend the route of the corridor to pass through the three villages only. Ground surveys and spatial data analysis were carried out to confirm the viability of the new route, and we have proceeded to work with Kanyenja, Sole and Mang'ula A villages. The door is however left open to Katurukila to re-join the project at a later date (for there are several farmers there who are keen), potentially with an extension through their village to join with the new planned corridor route.

12. Sustainability and legacy

There has been significant interest in the project from the Tanzanian Government, as demonstrated through 1) Regional, District and National support for corridor restoration; 2) STEP's involvement in a National Corridor Priority Action Plan; and 3) STEP's CEO being asked to lead the development of Tanzania's first National Strategy on Human-Wildlife Conflict, to be launched in mid-2020, which includes a chapter on land use planning and corridor restoration and highlights the Kilombero Elephant Corridor as a case study. Increased emphasis on land use planning and corridor conservation in Tanzania will be an important aspect of this project's legacy.

Sharing of results and lessons was done through quarterly and annual progress reports to project partners. Analysis of human-elephant interaction and corridor monitoring data was shared with project partners and Tanzania Wildlife Research Institute. In addition, a paper on lessons learned to date throughout the corridor restoration project is in preparation, led by STEP's CEO and in collaboration with partners from the National Corridor Priority Action Plan project.

A key component of our exit strategy remains to build the capacity of farmers groups to take charge of the maintenance of beehive fences by project end through training and on-going capacity-building. One crucial aspect of sustainability for farmers groups is their links to honey markets and income from honey sales and coexistence tourism, and progress on this front was not satisfactory in Year 1. In Year 2, STEP will employ a 'portfolio approach' to honey sales with groups whereby groups may opt to sell a percentage of harvest via a high end, opportunistic market and a percentage of harvest to a slightly lower-end but constant market. If conditions for beehive fence handover (as stipulated in MOUs with farmers groups) are not met by project end, STEP will honour these agreements beyond the lifetime of this grant if this were to occur, to ensure that handover is completed in a just and sustainable manner.

The exit strategy for the corridor restoration component of this project is as follows. Following completion of the joint land use planning and compensation process, and official and legal corridor designation, a long-term Corridor Management Committee will be formed, consisting of representatives of the communities, all key stakeholders, and STEP. The Committee will be in charge of corridor management and protection (employing the Village Game Scouts), and development of corridor ecotourism and other income-generating activities such as beekeeping and agroforestry. However, STEP and partners are all committed to providing long term technical guidance and assistance. For contingency purposes, and especially in light of COVID-19-related uncertainties, STEP is and will continue to be engaging with other potential donors for additional fundraising needs for the project and community support.

13. Darwin identity

The Darwin Initiative, DEFRA and UKAid logos have been included in STEP's Annual Report for 2019, the STEP website, a Swahili language booklet about human-elephant coexistence, and a brief about the Kilombero Elephant Corridor shared with partners (Appendix 19). Darwin Initiative funding was also recognised in quarterly reports to Kilombero District and other partners as funding towards STEP's larger human-elephant coexistence program. STEP hosted a visit by the British High Commissioner for Tanzania and shared a presentation on the work being done under the Darwin Initiative project. STEP has social media accounts on Facebook (16,689 followers), Instagram (678 followers) and Twitter (1,530 followers). We tagged the Darwin Initiative in five social media posts on Facebook and eight posts on Instagram.

14. Safeguarding

STEP revises its Human Resources Manual minimum once per year, and informs all staff of changes to the Manual in writing. The HR Manual includes policies on code of conduct for staff, while interns, volunteers and local monitors sign agreements which detail the code of conduct. The HR Manual includes a policy on sexual harassment and abuse, including details on how to report an allegation, how allegations will be managed, and what sanctions and disciplinary measures may be applied. The HR Manual also includes a protocol for medical emergencies, and protocols for COVID-19. STEP is a member of the Association of Tanzania Employers, which shares regular guidance on legal requirements for employers in Tanzania. No safeguarding issues were raised in Year 1 of the project. STEP has noted the need for policies on bullying, whistle-blowing, and the need to ensure safeguarding policies by downstream partners. Early in Year 2, STEP will engage in an institutional strengthening exercise (supported by matched funding), which will include a review of existing policies and development of policies required by DEFRA with support from a legal consultant. No safeguarding issues were raised in Year 1 of the project.

1. Project expenditure

Table 1: Project expenditure during the reporting period (1 April 2019 – 31 March 2020)

Project spend (indicative) since last annual report	2019/20 Grant (£)	2019/20 Total Darwin Costs (£)	Variance %	Comments (please explain significant variances)
Staff costs (see below)				
Consultancy costs				
Overhead Costs				
Travel and subsistence				
Operating Costs				
Capital items (see below)				
Monitoring & Evaluation (M&E)				
Others (see below)				
TOTAL				

References:

Epps, C. W., Mutayoba, B. M., Gwin, L., & Brashares, J. S. (2011). An empirical evaluation of the African elephant as a focal species for connectivity planning in East Africa. Diversity and Distributions, 17(4), 603-612.

King, L.E., Douglas-Hamilton, I. & F. Vollrath. 2011. Beehive fences as effective deterrents for crop-raiding elephants: field trials in northern Kenya. African Journal of Ecology 49: 431-439.

Annex 1: Report of progress and achievements against Logical Framework for Financial Year 2019-2020

Project summary	Measurable Indicators	Progress and Achievements April 2019 - March 2020	Actions required/planned for next period
Impact Impact: Enhanced human-elephant coexistence, growth of sustainable local livelihoods linked to biodiversity conservation, and restoration of landscape ecological connectivity in the Kilombero Valley, Tanzania		The project contributes to biodiversity conservation by enhancing connectivity for the elephant meta-population of southern Tanzania, which comprises >50% of East Africa's elephants, by restoring a historical corridor that runs across the Kilombero Valley between Selous Game Reserve and the Udzungwa Mountains. Research has shown a highly positive correlation between the presence of elephants and large mammal diversity within corridor areas, meaning that a protected elephant corridor will also benefit greater biodiversity. We estimate that the corridor will benefit eleven mammal species for which recent/historical connectivity has been documented, including the endemic and endangered Udzungwa Red Colobus (Procolobus gordonorum), African lion (Panthera leo), leopard (Panthera pardus), and buffalo (Syncerus caffer).	[redacted]
Outcome Elephant crop-losses are significantly reduced and retaliatory killing of elephants is eliminated. Environmentally-friendly and sustainable enterprise increases incomes for 220 people. A crucial ecological corridor is restored with community support.	0.1: 50% reduction in number of elephant visits to farms per year protected by beehive fencing by project end relative to pre-project baseline of 34 visits in 2018-2019. 0.2: Zero elephant mortality from retaliatory killing or Problem Animal Control in project area by project end relative to 2009-2017 baseline (0.6 elephants killed/year)	0.1 155 days with crop losses recorded in 9 villages in Y1, a total of 305 incidents (increase likely due to improved data coverage and effort) 0.2 Zero elephant mortality in Y1 0.3 121 people are involved in beekeeping activities and Village Savings and Loan Associations. Eight individuals are involved in initial coexistence tourism efforts at one of	0.1 Continue monitoring crop loss incidents 0.2 Continue monitoring elephant mortality incidents 0.3 Continue involving existing groups and expand to include one additional group in Year 2. Continue to expand agro-forestry activities and coexistence tourism opportunities.

	0.3: By project end, 220 project beneficiaries report an increase in income from beekeeping, agroforestry and coexistence tourism relative to project baseline of zero 0.4 Gazettement of Udzungwa-Selous corridor completed by project end, relative to no protected status at pre-project baseline. 0.5: By project end, there will be a 50% increase in the proportion of Village Council members and community members who support gazettement of the Udzungwa-Selous corridor relative to the pre-project baseline (65% of 132 village council members in Jan-March 2019). 0.6 By project end, there will be a 50% increase in the proportion of community members who demonstrate tolerance for elephants relative to the pre-project baseline.	the beehive fences. 117 individuals are involved in agroforestry 0.4 Good progress made towards gazettement in Y1 0.5 To be measured in Y3. 0.6 Baseline questionnaires planned to begin in Q4 of Y1 but postponed due to COVID-19, will be conducted in Y2 if the situation permits, and repeated in Y3	0.4 Continue with planned gazettement 0.5 and 0.6 Continue with education and awareness-raising.
Output 1. Beehive fences established and operational and managed independently by registered farmers' cooperatives in four new villages	1.1 Number of farmers trained (target: 120 farmers in 4 villages by Year 2, 50% women) trained in beehive fence construction, maintenance and beekeeping 1.2 Number of farmers participating in management and maintenance of beehive fences (target 120 farmers in 4 villages by Year Two, 50% women). 1.3 50% of beehive fences are occupied by bee colonies by end of Year 3 (33% in Y2, relative to pre-project baseline of 0%).	1.1 101 new farmers were trained in Year 2 in 3 villages (Katurukila, Magombera and Kanyenja). Kanyenja training attendance by female group members: 10/27 = 37.3% Magombera training attendance by female group members 12/30 = 40% Katurukila training attendance by female group members 14/23 = 60.8% **Total = 36%** 1.2 Currently 71 farmers participating in management and maintenance of beehive fences. Katurukila Beekeeping Group (Katurukila) – 24 members, Women - 14 (58.3%) Ujasiri Beekeeping Group (Magombera) – 23 members, Women - 11 (47.9%) Kanyenja Beekeeping Group (FENCE) – 24 members, Women – 10 (41.7%) **Total = 49.2%** 1.3 As of week 23 of March 2020, average occupancy is 24%	

Activity 1.1 Conducting community meetings and gender focus groups at 4 new project sites		Completed community meetings with 3 new villages in Katurukila, Magombera and Kanyenja	Community meeting and gender focus group will be conducted for new project site.
1.2 Training local elephant monitors to record elephant activity in each village		Completed meetings with village leaders to discuss recruitment of local elephant monitor in village Successfully conducted interviews for potential candidates of local elephant monitor position Successfully provided training to candidate	Continue training and performance management
1.3 Establishing four farmers groups and registering CBOs		Successful formation of 3 new CBO's and registration at district level	Form 1 additional CBO (in Sole village)
1.4 Determining optimal beehive fence configuration through ground surveys		Successfully completed ground surveys to choose best site location for each beehive fence	Conduct ground survey for new fence
1.5 Constructing beehive fences		Successfully completed the construction of beehive fences in 3 new villages	Begin construction on new fence
1.6 Monitoring and maintenance of beehive fences by farmers' groups		Successfully completed weekly monitoring and maintenance of beehive fences	Continue monitoring
1.7 Monitoring of elephant crop damage by local elephant monitors"		Successfully completed monitoring by local elephant monitors of crop damage	Continue monitoring
Output 2. Establishment and development of sustainable and gender equitable income-generating opportunities for local people increase incomes for 220 people through beekeeping, VSLAs and coexistence tourism.	2.1 Annual honey yields of 175L per group by the end of Y3 with £2745 in annual sales revenue per group by end of Y3 (115L and £1810 in Y2) 2.2 Number of farmers (target 40 farmers from 10 groups, 50% women) trained in honey processing and packaging at HCC by Year 3.	2.1 Honey yields Katurukila – 0 Magombera – 13liters Kanyenja - 0 1,042,500 Tsh (£364) revenue earned 2.2 - 0 farmers trained in honey processing and packaging this year. 42 farmers trained before project launch and plans are in place to train new members. 49.2% of women expected to be trained in honey processing and packaging.	

	2.3 Number of farmers (target 120 in four villages, 50% women) participating in VSLAs by Year 2. 2.4 Each VSLA disburses minimum of £in loans over project timeframe (£Y1, £Y2, £Y3) 2.5 Number of farmers (target: 100 farmers (50% women)) have increased capacity for agro-forestry and are involved in agroforestry in Y3 2.6 150 tourists visit coexistence projects (corridor, fences) in Y3, generating £1176 in revenue (785 and 100 tourists in Y2).	2.3 65 new participants in VSLAs. 42 existing participants. Katurukila Beekeeping Group (Katurukila) – 24 members, Women - 14 (58.3%) Ujasiri Beekeeping Group (Magombera) – 23 members, Women - 11 (47.9%) Kanyenja Beekeeping Group (Kanyenja) – 18 members, Women -10 (55.5%) **Total = 54%** 2.4 During the reporting period, four Village Savings and Loan Associations (two of which were newly formed) distributed an average of £of loans, exceeding the Year 1 target of £. Katurukila Beekeeping Group distributed £via 26 loans, Usajiri Beekeeping Group distributed £via 31 loans and Uadilifu Group distributed £via 53 loans. Only Udzungwa Beekeeping Group did not meet the target, distributing only £via 7 loans. 2.5 117 farmers 2.6 46 tourists visited the Njokomoni Beehive Fence, generating 230,000Tsh or £80 in revenue for the eight individuals still involved in the operation of the fence.	
2.1 Beekeeping and financial skills training for farmers' groups		STEP provided beekeeping training to 80 farmers.	Continue to build skills and run training in new project site.
2.2 Establishment of VSLAs with farmers' groups and monthly monitoring of progress		STEP was successful in establishing three VSLA's with the three new farmers groups in three new villages.	Continue monitoring of all existing groups and establish new VSLA in new project site.
2.3 Monitoring beehive occupancy, hive condition and honey yields		STEP HEC local staff conducted 48 visits to each beehive fence within the project period. 48 visits x 6 groups = 228 visits in total	Continue weekly monitoring visits by local HEC Team and monthly visits by Iringa-based HEC Coordinator.
2.4 Harvesting, processing and selling of honey		83 litres harvested during project period. 64 x 500 gram jars sold.	Plan to diversify sales approach through both high end and mid range markets.
2.5 Developing elephant-friendly honey markets by increasing links with tourism industry an honey retailers		STEP designed a leaflet which will be available at Udzungwa Mountains National Park (UMNP). STEP will pursue a portfolio approach	STEP will continue work with a Communications Volunteer to further develop markets in Year 2.

		to diversify buyers of its honey, relying on both 'high end' tourist-focused markets and mid-range local markets.	
2.6 Training 100 farmers in agroforestry by partner Associazione Mazingera		117 farmers trained (45% women) in Year 1	Continue with planned activities
2.7 Developing and marketing coexistence tourism package in collaboration with tour operators		STEP rehabilitated the Njokomoni Fence and has hosted 46 visitors.	STEP will continue to explore coexistence tourism opportunities.
2.8 Monitoring tourist visitation to coexistence projects		46 guests visited beehive fences and farmers made an income of TZS 230,000 in project duration.	
Output 3. Output 3: Restoration and community-managed protection of Udzungwa-Selous Wildlife corridor	3.1 Number of Village Land Use Plans approved (target 4, one per village) by Year 2. 3.2 Number of Corridor Management Plans approved by end of Year 2 (target: one). 3.3 50% of corridor area has undergone habitat restoration by end of Y3 (2018 baseline 0%) 3.4 Number of community patrols of the corridor by Village Game Scouts (target: 52) by end of Year 3. 3.5 Elephants and minimum four other species are documented to use the corridor by end of Y3.	3.1 During the first quarter of 2020, very encouraging progress was being made towards the joint Village Land Use Plan ahead of time. However spread of pandemic disease of COVID19 has delayed completion; still on track by end of Year 2 3.2 Not applicable for Year 1 3.3 Not applicable for Year 1 3.4 16 patrols in Year 1 3.5 Elephant crossings (4 completed and 4 attempted) along corridor route recorded in 2018-2020, prior to corridor designation	
3.1 Ongoing sensitization and discussion meetings in corridor villages		Conducted Weekly meetings with small groups of farm owners and key influencers across all corridor villages throughout this period. Small Focus Group Discussions in Sole and Kanyenja villages. Meetings with the Kanyenja (31/01/2020) and Sole (20/03/2020) Village Governments yielded meeting minutes confirming support of these two villages. Similarly, in Mang'ula A, separate meetings with the Chairman, other Council members and key influencers, were positive and leading up to the Village Government (VG) meeting. However, in mid-March, meetings of more than 10 people were prohibited by the central Government, preventing the scheduled meeting of the Mang'ula A VG. The current worldwide pandemic of virus COVID-	

		19 has therefore delayed progress of the joint Village Land Use
3.2 Formation of Corridor Management Committee involving all stakeholders		Good progress in inviting key members to the Committee including stakeholders from the Ministry of Natural Resources and Tourism Wildlife Division, Tanzania Wildlife Authority (TAWA), Regional Office, District Office, and Village Government (VG) representatives, but setback faced on the involvement of one key stakeholder from Mang'ula A village VG due to outbreak of COVID19 leading to failure to reach Joint Land Use Plan Agreements, which is key to formalizing the Corridor Management Committee
3.3 Preparation, finalization and approval by all stakeholders of technical corridor implementation plan		Planned for Year 2 after compensation and approval of the Village Land Use Plan change by Village Assemblies as required by Village Land
3.4 Physical demarcation and legal gazettement of corridor		Work on progress towards the demarcation of the corridor wait for a government official release to allow meetings (depending with situation of reducOVID19) so that STEP can carry out the sensitisation of compensation and the Approval of the Village Land Use Plan change by Village Assemblies as required by Village Land Act No.5 of 1999
3.5 Initiate agroforestry along corridor boundary		This activity is planned for later in the project
3.6 Habitat restoration led by Reforest Africa (planting of indigenous saplings from local school tree nurseries within corridor		This activity is planned for later in the project
3.7 Ongoing fundraising for road and rail underpasses		Fundraising for road underpass confirmed, STEP and contractor agreed location and structure of the underpass. STEP is in initial talks with the TAZARA railways about a railway underpass.
3.8 Surveillance and patrolling of corridor for habitat and wildlife protection		14 patrols of Magombera forest at eastern end of corridor completed by Village Game Scouts during this period (full corridor patrols will commence after designation)
3.9 Monitoring corridor use by elephants and other wildlife		18 camera traps installed at corridor endpoints Ground-truthing of elephant corridor crossing attempts
3.10 Monitoring of elephant use of corridor endpoints via dung surveys		Elephant dung surveys were conducted every month in Mwanihana forest (four transects) and Magombera forest (one transect) by STEP field researcher with Udzungwa or Selous ranger. 18 camera traps installed along elephant trails at corridor end points. Consistent presence of elephants
Output 4: Increased knowledge and research on human-wildlife coexistence (HWC) and ecological connectivity at	4.1 Number of Community members in four project villages showing increased understanding of ecological connectivity and HWC in Y3 (Target:	4.1 Baseline still needed 4.2 In Y1, 99% of pupils passed environmental education exam, 41% scored an A or B

local and national level.	relative to pre-project baseline) 4.2 3000 school children show increased understanding of ecological connectivity and HWC in Y3 relative to pre-project baseline 4.3 Number of research articles (target: 1) and popular articles (target: 3) published at end of Y3. 4.4 Number of visitors to TZ Wildlife Corridors website	4.3 Zero in Y1 4.4 5,642 visitors in Y1
4.1 Conducting community meetings and awareness days about HWC and ecological connectivity		11 film nights for Kanyenja and Sole villages by STEP corridor team, attendance 750 4 school-led community awareness events, attendance estimated at 1,575 Corridor Focus Group Discussions with 240 participants
4.2 Environmental education and raising awareness about biodiversity conservation in 10 schools in the corridor area by A.M.		Environmental education for 2,991 pupils in 14 primary schools and 4 secondary schools by Association Mazingira in Y1. STEP human-elephant coexistence model reached approx. 2000 students.
4.3 Monitoring and evaluation of environmental knowledge in schools involved in environmental education program		Annual environmental education exam by Associazione Mazingira Pre and post training tests by STEP for HEC education module
4.4 Establishment of tree nurseries in 10 local schools for corridor habitat restoration (AM, RA)		12 tree nurseries supported in Year 1, 5 in schools
4.5 Recruit researchers for studies in beehive fence and corridor project, writing of popular articles with Dr. Nowak		Three research collaborations established in Y1 No popular articles published in Y1
4.6 Updating TZ Wildlife Corridors website an creation of interactive website for U-S Corridor"		Good progress made in updating of TZ Wildlife Corridors website; awaiting content from National Corridor Priority Action Plan for launch

Annex 2: Project's full current logframe as presented in the application form (unless changes have been agreed)

Project summary	Measurable Indicators	Means of verification	Important Assumptions
Impact: Enhanced human-elephant coexistence, growth of sustainable local livelihoods linked to biodiversity conservation, and restoration of landscape ecological connectivity in the Kilombero Valley, Tanzania			
Outcome: Elephant crop-losses are significantly reduced and retaliatory killing of elephants is eliminated. Environmentally-friendly and sustainable enterprise increases incomes for 220 people. A crucial ecological corridor is restored with community support.	0.1: 50% reduction in number of elephant visits to farms per year protected by beehive fencing by project end relative to pre-project baseline of 34 visits in 2018-2019. 0.2: Zero elephant mortality from retaliatory killing or Problem Animal Control in project area by project end relative to 2009-2017 baseline (0.6 elephants killed/year) 0.3: By project end, 220 project beneficiaries report an increase in income from beekeeping, agroforestry and coexistence tourism relative to project baseline of zero 0.4 Gazettement of Udzungwa-Selous corridor completed by project end, relative to no protected status at pre-project baseline. 0.5: By project end, there will be a 50% increase in the proportion of Village Council members and community members who support gazettement of the Udzungwa-Selous corridor relative to the pre-project baseline (65% of 132 village council members in Jan-March 2019). 0.6 By project end, there will be a 50% increase in the proportion of community members who demonstrate tolerance for elephants relative to the pre-project baseline.	0.1 Monitoring of elephant crop damage on farms via trained enumerators 0.2 District Government, STEP and wildlife authority records 0.3 Pre- and post-project survey 0.4 Legal documentation 0.5 Pre- and post-project surveys 0.6 Pre- and post-project surveys	0.1 Beehive fencing continues to deter elephants from farmers (no habituation). 0.2 Crop protection efforts, corridor conservation, beekeeping training and benefits and education are effective in fostering tolerance of elephants. 0.3 Other motives for elephant killing (ie poaching for ivory) do not override increased tolerance of elephants 0.4 Health of local bee populations 0.5 Political interference does not negatively affect communities' support for corridor conservation.
Output 1 Beehive fences established and operational and managed independently by registered farmers' cooperatives in four new villages	1.1 Number of farmers trained (target: 120 farmers in 4 villages by Year 2, 50% women) trained in beehive fence construction, maintenance and beekeeping 1.2 Number of farmers participating in management and maintenance of beehive fences (target 120 farmers in 4 villages by Year Two, 50% women). 1.3 etc. 1.3 50% of beehive fences are occupied by	1.1 Training attendance records, post training evaluation 1.2 Weekly Attendance Records 1.3 Beehive occupancy monitoring by farmers' groups, verified by STEP.	1.1 Following comprehensive beekeeping training and set up of a monitoring system, farmers' groups will conduct proper maintenance of beehives. 1.2 The project area continues to maintain a healthy bee population

	bee colonies by end of Year 3 (33% in Y2, relatve to pre-project baseline of 0%).		
Output 2: Establishment and development of sustainable and gender equitable income-generating opportunites for local people increase incomes for 220 people through beekeeping, VSLAs and coexistence tourism.	2.1 Annual honey yields of 175L per group by the end of Y3 with £in annual sales revenue per group by end of Y3 (115L and £in Y2) 2.2 Number of farmers (target 40 farmers from 10 groups, 50% women) trained in honey processing and packaging at HCC by Year 3. 2.3 Number of farmers (target 120 in four villages, 50% women) participating in VSLAs by Year 2. 2.4 Each VSLA disburses minimum of £in loans over project timeframe (£Y1, £Y2, £Y3) 2.5 Number of farmers (target: 100 farmers (50% women)) have increased capacity for agro-forestry and are involved in agroforestry in Y3 2.6 150 tourists visit coexistence projects (corridor, fences) in Y3, generating £in revenue (785 and 100 tourists in Y2).	2.1 Production and financial records by farmers' groups, verified by STEP 2.2 Training Attendance Record 2.3 VSLA Attendance Records 2.4 VSLA records, verified by STEP 2.5 Post-training survey, post-project 2.6 Monitoring of visitor numbers, financial records of farmers' groups and Corridor Management committee	2.1 There will be a continued market for elephant friendly honey 2.2 There is continued interest and buy in from members from members for VSLAs 2.3 Tourist operators continue to show interest in coexistence projects as a tourist attraction 2.4 Tanzania remains peaceful and a popular destination for international tourists.
Output 3: Restoration and community-managed protection of Udzungwa-Selous widlife corridor	3.1 Number of Village Land Use Plans approved (target 4, one per village) by Year 2. 3.2 Number of corridor Corridor Management Plans approved by end of Year 2 (target: one). 3.3 50% of corridor area has undergone habitat restoration by end of Y3 (2018 baseline 0%) 3.4 Number of community patrols of the corridor by Village Game Scouts (target: 52) by end of Year 3. 3.5 Elephants and minimum four other species are documented to use the corridor by end of Y3.	3.1 Signed approval of VLUP and CMP by Village and District Government Officials 3.2 Signed approval of Corridor Management Plan 3.3 Ground-truthing and mapping of corridor vegetation 3.4 Corridor Management Committee patrol records 3.5 Camera trapping and spoor surveys	3.1 No negative changes in TZ law pertaining to corridor conservation 3.2 Political interference does not negatively affect communities' support of corridor conservation 3.3 Wildlife accept the corridor as safe enough to use.
Output 4: Increased knowledge and research on human-wildlife coexistence (HWC) and ecological connectivity at local and national	4.1 Number of Community members in four project villages showing increased understanding of ecological connectivity and	4.1 Pre- and post-project Focus Group Discussions	Outputs 1-4 lead to greater understanding of ecological connectivity and increased

level.	HWC in Y3 (Target: relative to pre-project baseline) 4.2 3000 school children show increased understanding of ecological connectivity and HWC in Y3 relative to pre-project baseline 4.3 Number of research articles (target: 1) and popular articles (target: 3) published at end of Y3. 4.4 Number of visitors to TZ Wildlife Corridors website	4.2 School Test Results 4.3 Academic journals, magazines, websites 4.4 website traffic analytics	tolerance of wildlife 4.2 Self-funded academic partners will conduct relevant and timely corridor research

Activities (each activity is numbered according to the output that it will contribute towards, for example 1.1, 1.2 and 1.3 are contributing to Output 1)

1.1 Conducting community meetings and gender focus groups at 4 new project sites
1.2 Training local elephant monitors to record elephant activity in each village
1.3 Establishing four farmers groups and registering CBOs
1.4 Determining optimal beehive fence configuartion through ground surveys
1.5 Constructing beehive fences
1.6 Monitoring and maintenance of beehive fences by farmers' groups
1.7 Monitoring of elephant crop damage by local elephant monitors

2.1 Beekeeping and financial skills training for farmers' groups
2.2 Establishment of VSLAs with farmers' groups and monthly monitoring of progress
2.3 Monitoring beehive occupancy, hive condition and honey yields
2.4 Harvesting, processing and selling of honey
2.5 Developing elephant-friendly honey markets by increasing links with tourism industry an honey retailers
4.6 Training 100 farmers in agroforestry by partner Associazione Mazingera
2.7 Developing and marketing coexistence tourism package in collaboration with tour operators
2.8 Monitoring tourist visitation to coexisetence projects

3.1 Ongoing sensitization and discussion meetings in corridor villages
3.2 Formation of Cooridor Management Committee involving all stakeholders
3.3 Preparation, finalization and approval by all stakeholders of technical corridor implementation plan
3.4 Physical demaraction and legal gazettement of corridor
3.5 Initiate agroforestry along corridor boundary
3.6 Habitat restoration led by Reforest Africa (planting of indigenous saplings from local school tree nurseries within corridor
3.7 Ongoing fundraising for road and rail underpasses
3.8 Surveillance and patrolling of corridor for habitat and wildlife protection
3.9 Monitoring corridor use by elephants and other wildlife
3.10 Monitoring of elephant use of corridor endpoints via dung surveys

4.1 Conducting community meetings and awareness days about HWC and ecological connectivity
4.2 Environmental education and raising awareness about biodiversity conservation in 10 schools in the corridor area by A.M.
4.3 Monitoring and evaluation of environmental knowledge in schools involved in environmental eduation program
4.4 Establishment of tree nurseries in 10 local schools for corridor habitat restoration (AM, RA)
4.5 Recruit researchers for studies in beehive fence and corridor project, writing of popular articles with Dr. Nowak

4.6 Updating TZ Wildlife Corridors website an creation of interactive website for U-S Corridor

Annex 3: Standard Measures

Table 1 Project Standard Output Measures

Code No.	Description	Gender of people (if relevant)	Nationality of people (if relevant)	Year 1 Total	Year 2 Total	Year 3 Total	Total to date	Total planned during the project
Established codes								
5	Training for Local Elephant Monitors	Male	Tanzanian	6			6	
6A	Training for Primary and Secondary School Students	Male and Female	Tanzanian	2,991			2,991	
6A	Training for Community Members	Male and Female	Tanzanian	197				
9	Species Habitat Management Plans/ (HWC Strategy)			1		1		
	Papers published							
	Papers submitted							
14B	Conferences Attended	Male, female	British, Dutch	1				

In Table 2, provide full details of all publications and material produced over the last year that can be publicly accessed, e.g. title, name of publisher, contact details, cost. Mark (*) all publications and other material that you have included with this report.

Table 2 Publications

Title	Type (e.g. journals, manual, CDs)	Detail (authos, year)	Gender of Lead Author	Nationality of Lead Author	Publishers (name, city)	Available from (e.g. weblink or publisher if not available online)

Annex 4 Onwards – supplementary material (optional but encouraged as evidence of project achievement)

0. Kilombero Elephant Corridor Map
0.1. Permission Letter, Kanyenja Fence
0.2 Permission Letter, Katurukila Fence
1. Overview of CBO Formation 2020
2. Kanyenja CBO Certificate
3. Katurukila CBO Certificate
4. Usajiri CBO Registration
5. Katurukila MOU
6. Magombera MOU
7. LEM Monitoring Report Year 1
8. Kanyenja Ground Survey Report
9. Darwin Photos HEC
10. STEP Darwin Beekeeping Training
11. Kitini Cha Mafunzo ya Ufugaji Nyuki
12. Kanyenja Training Attendance
13. Magombera Training Attendance
14. STEP Honey Marketing
15. Associazione Mazingira Report
16. Final TANAPA Flyer
17. Kanyenja Farm Plots Corridor
18. HEC Dashboard
19. Kilombero Elephant Corridor Update

Checklist for submission

	Check
Is the report less than 10MB? If so, please email to Darwin-Projects@ltsi.co.uk putting the project number in the Subject line.	Yes
Is your report more than 10MB? If so, please discuss with Darwin-Projects@ltsi.co.uk about the best way to deliver the report, putting the project number in the Subject line.	
Have you included means of verification? You need not submit every project document, but the main outputs and a selection of the others would strengthen the report.	Yes
Do you have hard copies of material you want to submit with the report? If so, please make this clear in the covering email and ensure all material is marked with the project number. However, we would expect that most material will now be electronic.	No
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.	