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)
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Darwin Project Information

Project reference	428
Project title	Increasing Capacity for Anti-Poaching and Enhancing Human-Elephant Coexistence
Host country/ies	Tanzania
Lead organisation	Southern Tanzania Elephant Program
Partner institution(s)	TAWA, Itigi District Council
Darwin grant value	£123,700
Start/end dates of project	01/07/2018 – 31/03/2021
Reporting period (e.g., Apr 2018 – Mar 2019) and number (e.g., Annual Report 1, 2, 3)	July 2018-March 2019 Annual Report 1
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1. Project rationale

This three-year project will strengthen the capacity of wildlife authorities in Rungwa-Kizigo-Muhesi Game Reserves (GRs) to combat wildlife poaching and enhance human-elephant coexistence via community beehive-fences, community-led elephant monitoring networks and awareness days. STEP will work with protection departments to expand aerial surveillance and capacity for integrating patrol and surveillance data into intelligence-led ranger mobilizations. Coexistence interventions will increase food security, provide additional income, eliminate human and elephant deaths, and reduce tolerance for elephant poaching.

Elephants in Tanzania are [redacted]. The Rungwa-Kizigo-Muhesi Game Reserve complex, historically one of East Africa's elephant strongholds, experienced a minimum 60% decline (Thouless et al. 2016). Elephant mortality is primarily the outcome of illegal poaching, driven by demand for ivory in consumer countries and [redacted]. In the decade prior to 2015 (when STEP began aerial surveillance and funding of ground patrols), protection of these GRs was at a [redacted], and law enforcement capacity remains under-resourced.

Protection of elephants is also undermined by tolerance of poaching in communities affected by human-elephant conflict (HEC). A 2016 STEP survey found that negative interactions between elephants and local communities living along the western boundary of Rungwa, Kizigo and Muhesi GRs threaten both the conservation of elephants and the well-being of local communities (STEP, 2016). The project area is home to ~27,000 people living [redacted] who are largely subsistence farmers and pastoralists. Inhabitants of these villages share land

and compete for resources with [redacted] elephants residing in the adjacent Game Reserves. People in the remote, isolated villages surrounding the reserves are extremely vulnerable and have very limited access to resources that would enable them to prevent elephant crop-use. These communities regularly experience crop losses and destruction of food stores by elephants.

[redacted]

The Rungwa, Kizigo and Muhesi GRs (15,000 km^2) form part of the greater Ruaha-Rungwa ecosystem (45,000 km km^2) in southern Tanzania and were established in 1951, 1982, and 1994 respectively. The Game Reserves are characterized by miombo woodland, as well as open grassland plains, rocky outcrops, and riverine valleys. Rungwa, Kizigo and Muhesi GRs are managed by the Tanzania Wildlife Management Authority (TAWA). The main threats to these Reserves include encroachment, poaching, illegal timber harvesting, unregulated grazing, and human-wildlife conflict (Coppolillo 2004, Munuo 2016). The project area also includes villages in Itigi Council within Manyoni District which border the western boundary of the Game Reserves. The population is composed primarily of six different ethnic groups including Nyiramba, Nyanturu, Sukuma, Mang'ati, Barabaig and Hadzabe (URT 2012). Most communities practise mixed agriculture and livestock keeping, as well as honey collection. The main crops grown include maize, sunflower, tobacco, peanuts, potatoes, rice, groundnuts, and millet (Singida Region Socio-economic Profile 1997). The percentage of households living below poverty line in the larger Singida region is 49% (URT 2005).

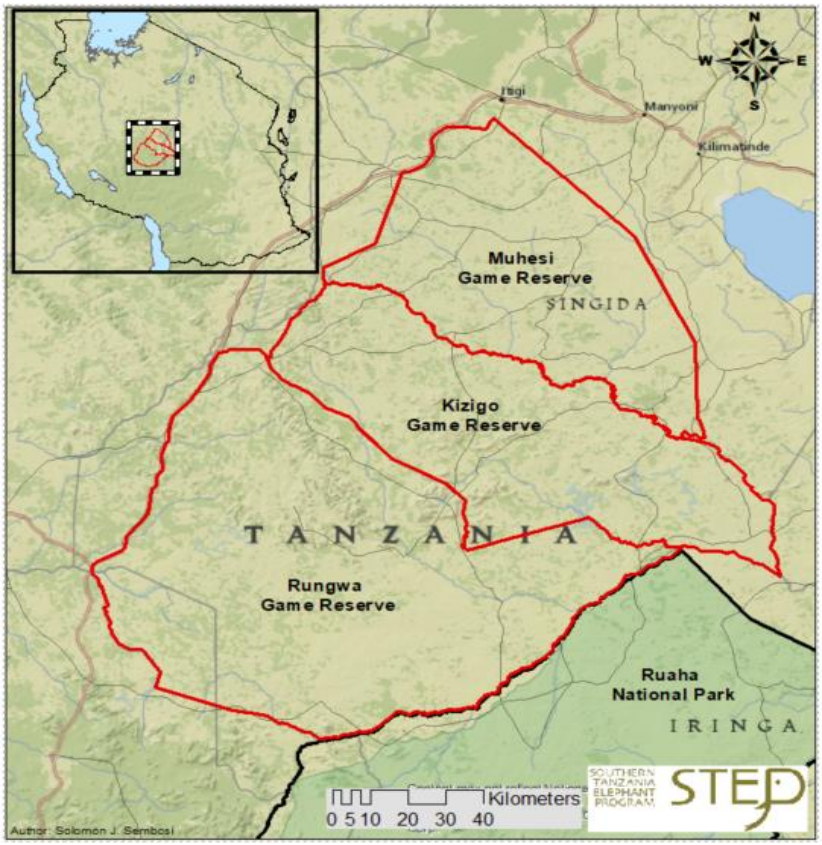


Figure 1: Rungwa, Kizigo and Muhesi Game Reserves with administrative areas.

2. Project partnerships

Tanzania Wildlife Management Authority (TAWA) is an important partner for protection and human-elephant coexistence activities in the project area. TAWA are responsible for management of all Game Reserves (GRs) in Tanzania and employ 80 personnel in the Rungwa-Kizigo-Muhesi GRs. STEP signed a five-year MOU with TAWA in January 2018, lasting until December 2022. STEP was invited by TAWA to support protection and HEC activities, specifically aerial monitoring, ground patrol support, conservation technologies, beehive fences,

educational materials and activities, fuel for crop protection by rangers, and research (especially surveys to develop action plan to address HEC). These activities were all specifically requested to STEP by TAWA in letters and in meetings. TAWA has been involved in project planning through MoU Steering Committee meetings and through quarterly reports and meetings where TAWA provide their views on progress and advise on project implementation. TAWA were consulted on STEPs educational/awareness outreach work, specifically to align on education priorities. They have been provided with materials for review and feedback.

[redacted] A further success of our partnership involves joint strategic planning and maximum coordination of flights with appropriate ranger response on the ground to illegal activity observed from the air. TAWA further provides personnel to work with STEP on planning and executing surveillance and to maintain airstrips within GRs as required for aerial operations. TAWA managers and rangers have been trained and are supported by STEP on all technical training including GPS, GIS, mapping, reporting and patrol strategizing. [redacted]

The **Itigi District Council**, together with Singida Region, invited STEP to survey, monitor and address human-elephant conflict. The District registers and supports Community-Based-Organizations (CBOs) through technical support, loans and training. In June 2018, the District Council gave a loan of TZS [redacted] to one of the current farmers' groups to support their beekeeping and Village Savings and Loan (VSLA) activities, and the group is on track with loan repayment. STEP has been in regular communication with the District Council, sharing quarterly reports and seeking their feedback through regular meetings and phone calls. In 2017 and in January 2019 the Itigi District Beekeeping Officer provided beekeeping training to farmers' groups as part of their initial establishment and subsequent monitoring. Additional training is planned for May/June of 2019 as hive occupancy increases and as preparation for new site/fence launch.

Several key stakeholders have been consulted in the initial stages of awareness raising and educational material development such as the Community Officer of the Rungwa Game Reserve, the District Game Officer who participated in October ground surveys (for the HEC Action Plan), Village Government leaders, and secondary school teachers. District Development and Agriculture Officials will be invited to participate in awareness raising events as they launch.

3. Project progress

3.1 Progress in carrying out project Activities

Output 1: Minimum of 4,000 km^2 of Rungwa-Kizigo-Muhesi GRs under regular aerial surveillance, including coordinated ground-air response patrols and analyses of poaching hotspots and trends from aerial data shared with protection departments.

1.1 Aerial surveillance missions coordinated with rapid ground response by rangers

Since project inception, 61 hours of aerial surveillance missions have been flown across Rungwa, Kizigo and Muhesi Game Reserves (RKM GRs) over four months, covering more than 5,000 km^2. All missions were coordinated with rapid ground response by the specialised Rapid Response Team (RRT) of rangers trained in 2016-17 by the US State Department. [redacted] The pilot and RRT have also reported increases in fleeing of suspects on the approach of the plane, and desertion of camps by the time the RRT arrive on the ground, indicating an increased deterrent effect of the aircraft due to understanding among poachers that it is followed up on the ground. The aircraft was frustratingly grounded for four months due to [redacted] which was eventually resolved by a letter of support from TAWA, and we are hopeful of more rapid turnaround of permitting in the future.

1.2 Rapid mapping and reporting of aerial missions and rapid response operations

Rapid mapping and reporting of aerial missions and rapid response operations was completed by STEP GIS Department in all cases, usually within 48 hours of the pilot team returning to STEP HQ in Iringa at the end of each mission, noting but regardless of the fact that it can take longer to receive final information on outcomes of response operations in remote places. [redacted]

1.3 Regular spatio-temporal analysis of mission outcomes and anti-poaching strategy shared and discussed with Game Reserve Managers

A review of findings and spatio-temporal patterns of illegal activity is regularly undertaken to target areas for surveillance in subsequent missions. In addition, an extensive review and analysis of all aerial surveillance data in RKM from 2016-18 was completed in collaboration with a statistical analysis consultant, and shared with TAWA Management.

Output 2: 20 regular ranger patrol days per month throughout remote and key elephant areas of Rungwa-Kizigo-Muhesi GRs, with patrol maps and reports submitted and analysed each month.

2.1 Ranger patrols throughout remote and key elephant areas

Regular vehicle and foot patrols are carried out each month by the RKM rangers, including remote and key elephant areas. The results of aerial surveillance missions are used by RKM Management to direct patrolling. Ongoing and usual constraints to coverage are the [redacted], as well as access especially in the wet season. Fuel support to TAWA from this project enabled 73 days of patrols between October 2018 and March 2019 (Appendix 1,2)

2.2 Patrol maps and reports submitted by rangers to Game Reserve Managers

Over the last 18 months, RKM Game Reserves have moved away from independent reporting and mapping of patrols in GIS to use of SMART software for their law enforcement monitoring. Thus data on patrol are collected by rangers and downloaded into SMART at HQ each month, from which monthly patrol maps are generated. Two independent patrol maps were produced by the RKM protection department in January 2019 to document patrols carried out using fuel provisioned by STEP [redacted]

2.3 On-going feedback and technical support to rangers from STEP GIS Department

The STEP GIS Department continues to provide feedback on any maps that are shared and technical support in GIS, however this is becoming less relevant with the adoption of SMART by the GRs (with which STEP is not involved, and we are not in a position to comment on the success of its adoption currently). We have continued with GPS training for rangers in the field with the pilot team, especially the aerial observers.

Output 3: 80 protection managers and rangers provided with and trained in use of GPS, GIS, and ground-to-air communications, resulting in intelligence-led patrol planning (40 already trained 2016-17)

3.1 Training of protection managers and rangers in GPS for patrols and GIS for mapping

Due to requests prior to the commencement of the grant period, substantial training of rangers on use of GPS was carried out prior to the grant beginning in July 2018, therefore no further training was implemented yet, except training by the pilot team. GIS capacity is also adequate currently though we continue to monitor.

3.2 Training of protection managers and rangers in ground-to-air communications

STEP's Protection Manager and pilot held a 2-day training on ground-to-air communications for four ranger aerial observers at Rungwa GR HQ in May 2018, involving classroom and practical ground exercises, and practice flights in the STEP aircraft. This training has continued via

practical experience throughout aerial missions, also involving an additional four rangers who did not attend the May training.

3.3 Intelligence-led patrol planning based on aerial and ground patrol maps implemented
The adoption of SMART by RKM is intended to generate recommended areas for patrolling based on previous patrol outcomes, though we are unclear on progress of this. Currently however, SMART does not have capacity to integrate aerial patrol data and maps, therefore use of these for guiding law enforcement strategy has to be separate. All aerial data and maps generated by STEP's aerial program are provided to Management rapidly so that they can be used complimentarily in patrol planning. This is in addition to the rapid (same day) ground responses to aerial sightings that are routinely undertaken.

3.4 GPS units, GIS software packages and ground-to-air radios provided to protection managers and rangers
No additional GPS units were provided in this period as a needs assessment indicated that previously supplied units (2017-18) were currently adequate for ranger patrols. One additional satellite phone was provided to enhance security in remote areas. In late 2018/early 2019, a new communications system was installed in RKM, and we are currently assessing this to understand the most effective and compatible equipment to purchase to practically enhance ground-air communications.

Output 4: 1km-long beehive fences established and managed by registered Community Based Organizations (CBOs) and community elephant monitoring networks established in four villages.

A note that STEP's Human-Elephant Coexistence (HEC) team for Rungwa comprises an HEC Coordinator, HEC Officer, Community Liaison (based in project villages) and Local Elephant Monitors (based in project villages), supported by the Project Leader and Programs Manager.

4.1 Support farmers' groups to register CBOs

The two farmers' groups that are currently operating beehive fences in Rungwa are registered as Community-Based Organizations (CBOs). For the two new farmers' groups that will be established under this project, the timeline for CBO registration has been revised due to delays in finding a suitable site for beehive fences (see Activity 4.3 for more details).

4.2 Train Farmers Groups in CBO Management and Financial Skills

The Rungwa HEC Coordinator conducted training for the two existing farmers' groups during a field visit in February-March 2019 (Appendix 4). Training included a review of CBO management, a review of each group's constitution and a review of leadership roles and expectations. The two farmers' groups were also trained on financial skills including the use of cash boxes, VSLA booklets for recording share purchases, loan request and repayment rules, and the format and procedures of VLSA meetings. The former and newly elected leaders of Maendeleo Farmers' Group were trained on the importance of separation of powers, best practices for communication between leaders, transparency, and loan issuing procedures. In preparation for the launch of two new fence projects in two new villages during the project period, STEP will review and formalize the CBO Management and Financial Skills curriculum. STEP is continuing to refine weekly performance indicators that are collected at the group level to support with early detection of any governance or group health issues (Appendix 8).

4.3 Construct beehive fences with farmer groups in two new villages

To aid selection of new beehive fence project locations, ground surveys and household surveys were completed in four northern villages in October 2018 (Mitundu, Dorotto, Kalangali, Itagata) and in two southern villages (Kintanula, Rungwa) in February 2019 with assistance from district and village government officials. For each area, we ground-truthed and mapped farmland areas most affected by elephant damage, mapped major elephant trails into farmland, sketched land use, and identified important water sources and potential elephant corridors.

The landscape configuration and environmental context for northern villages was substantially different to the southern part of the landscape, where STEP's two current farmer groups exist (see Appendix 12 for full survey report). Whilst some areas experienced crop losses to elephants, these areas were too open and with no clear elephant trails to consider the current mitigation model of beehive fences. They lacked the "hard edges" between forest and woodland (often at the edge of a protected area and farmland) which are ideal for beehive fences. Furthermore, most elephant movement was due to accessing water sources outside of the Game Reserve, which are seasonally important locations that should not be blocked. For these northern villages, STEP is investigating the viability of alternative methods of conflict mitigation, such as protection of food stores and farms using chilli briquettes, and better storage of harvested crops using Purdue Improved Crop Storage (PICS) bags (hermetically sealed crop storage bags) in order to better serve these areas.

For the southern villages surveyed, two potential sites for beehive fences were identified and next steps will include further village government and community meetings to gauge interest in allocating these sites for beehive fences. 40 beehives have been purchased in preparation for the next fence launch, a process planned to start in early June 2019. Chilli fencing and briquettes and elephant-proof food stores are also recommended, with interventions to be tailored by location and density of households as well as additional input from village leaders.
The upcoming survey report for southern villages will be shared with TAWA and Itigi District Council in early May (Appendix 5). Furthermore, STEP will analyse these survey results to see where there are knowledge gaps and will build out our understanding of the ecosystem as a first priority for a Human-Elephant Coexistence Action Plan which has been requested to us by TAWA. Development of this action plan will likely be a multi-year process but STEP will endeavour to map out the key ground work in the next 3-6 months.

4.4 Train farmer groups in fence maintenance and monitoring

STEP conducted two intensive practical trainings with the two existing farmers' groups managing Mkola beehive fence (Maendeleo Farmers Group) and Itaga beehive fence (Amani Beekeeping Group) in September 2018 and February 2019 (Appendix 6). The main focus was on proper cleaning of hives, filling of gaps in hives (the result of exposure to the elements) using locally available materials, application of wax and bee attractants, and water provisioning. The Community Liaison was trained to collect beehive occupancy and condition data on a weekly basis, the results of which are shared with the farmers' groups and STEP (Appendix 7). Currently, 23 hives are occupied, an average of 13.22% (as collected by weekly Key Performance Indicator monitoring, Appendix 8). This is off track from our end goal of 50% (Measurable Indicator 4.7). Similar activities are planned for the two new sites that will be established towards the end of Year 1 and Year 2.

4.5 Conduct regular monitoring and support visits to beehive fences and farmer groups

STEP's HEC team conducted monitoring and support visits to the Mkola and Itaga beehive fences in September 2018, December 2018, and February 2019. Also, HEC team visited Mkola and Itaga beehives fences 3 times from 18th February to 2nd March 2019. In which all 54 (Itaga) hives were inspected, 25 cleaned and top bars were confirmed to fit well. All Mkola hives (120) were also inspected with 18 cleaned, repainted and fitted. As part of new targeted follow up, the Rungwa Community Liaison is making regular weekly visits to the two farmer groups. He has made a total of 20 monitoring visit to each of the two beehives fences and collecting data on beehives condition and share updates with HEC team in Rungwa. We will exceed our goal of conducting three visits per quarter.

4.6 Train Local Elephant Monitors in Data Collection, GPS and Camera-Trapping

STEP has worked with three local elephant monitors (for Stesheni, Mkola and Itaga sub-villages) in Rungwa village to record elephant activity on village land since October 2016. Monitors record data on crop damage, damage to food stores, and use of water sources using standard datasheets and a GPS unit. Monitors were provided with a GPS unit, clipboard, folder, datasheets, logbook, backpack, raincoat, boots and bicycle.

In February 2019, STEP made improvements to the elephant monitoring protocol and datasheet. Important changes included 1) explicit recording of monitoring effort (distance and time) through track logging with GPS units, 2) a new section on elephant activity at beehive fences to explicitly record elephant crossings of the fence, and 3) an expanded section of food store damage to better capture information on crop types affected and the type of food store (e.g. mud-brick, thatch, cement) and storage bags (standard versus hermetically sealed) used. STEP provided 8.08 hours of practical training on the revised datasheet and protocol with monitors in February 2019.

To ensure elephant monitors are equipped to communicate with the farmers they interact with during their monitoring, STEP worked with the monitors to collect all frequently asked questions from affected farmers and to develop a standard set of responses to ensure clear communication about the purpose and scope of STEP's work and monitoring (Appendix 9). A WhatsApp group was also created to facilitate rapid information sharing between the elephant monitors, Community Liaison, and STEP team.
Recruitment and training of elephant monitors for the new beehive fence locations will be carried out in Year 2.

STEP has not yet begun to use camera traps in Rungwa with the elephant monitors due to logistical constraints at the project site in Year 1, including lack of electricity for charging batteries, lack of local office space and laptop for downloading camera trap images. This activity will be implemented in quarter one of Year 2 as STEP opens a branch office in the area.

4.7 Local elephant monitors collect elephant activity data

In Year 1, three elephant monitors collected data on elephant activity for three sub-villages in Rungwa village (all monitors are local residents). Minimum twice per week, elephant monitors walk the existing beehive fences and Game Reserve boundary to identify fresh elephant trails into village land and survey farms for crop damage. Monitors also record damage to food stores by elephants and elephant use of village wells. These data are sent to STEP monthly for entry into a database. Between July and February 2018, monitors conducted 180 days of monitoring and collected 32 reports of crop damage, 3 reports of tree damage, and 12 reports of food store damage. As detailed in the previous section, the quality of data collected by elephant monitors undergoes constant improvement and refinement due to targeted trainings and follow up (Measurable Indicator 4.3). Analysis of elephant monitor data from October 2016 to February 2019 is provided in a report to the Itigi District Council (Appendix 10).

4.8 Train locally-based Community Liaison in HEC mitigation strategies to provide support to farmer groups

A Rungwa-based Community Liaison was recruited in September 2018 in response to the need for more consistent and present follow up for farmer groups. He was trained for 12 days on the following activities:

- 5 days in Rungwa (September 2018 & February 2019) on beehive fence monitoring and maintenance and beehive care, conducting meetings with farmers' groups, chilli cultivation, and elephant monitoring protocol
- 4 days of practical training in Mang'ula (January 2019) – running of weekly VSLA meetings, recording of VSLSA shares and calculation of interest, beehive fence construction
- 6 days at STEP head office (January & April 2019) – data collection, preparation of weekly report, setting priorities, assessing elephant monitoring data and use of smart phone to enhance remote management.

With a targeted and focused work plan discussed weekly, the Community Liaison provides dedicated follow up and is able to observe issues first hand. He shares issues from the field through weekly reports and via photos and updates on WhatsApp (when in network).

4.9 Raise awareness about HEC Mitigation Strategies at Tembo Cup Football League Matches

STEP is still in the planning stages of the football league, which will be held in the upcoming dry season (June-September 2019) to optimize attendance (and keep participants dry) and to avoid

overlapping with election mobilisation activities. The Rungwa Community Liaison has prior experience of organizing a football leagues for the project area and has advised on best practices and lessons learned. STEP is working with Village Leaders, students and other key Rungwa stakeholders to structure and plan the league and associated awareness-raising events.

4.10 Raise awareness and disseminate education materials at schools, markets and offices

STEP is nearing the final stages of creating a booklet focused on improving human-elephant coexistence through providing education about elephant behaviour, human-elephant interactions, elephant conservation status and disseminating simple and proven techniques for protecting humans and crops against damage by elephants. The content of this booklet was informed by interviews conducted with the Rungwa Game Reserve Community Officer, school teachers, and farmers' groups to identify topics of interest and common questions. We also conducted baseline surveys of tolerance and views of elephants in four villages (Appendix 11), which revealed that most respondents were not aware of elephant population trends in the neighbouring Game Reserves or in the country as a whole or [redacted] Most respondents (>70%) voiced a preference for elephant numbers to fall on village land, 38% of respondents expressed desire for elephants to decline in the Game Reserves, and 20% expressed desire for elephant numbers to fall for the whole country.

To complement the dissemination of this booklet, STEP will conduct a workshop with local community leaders in May to get a sense of major challenges and perceptions of elephants in the region. This workshop will further inform the focus and thrust of community awareness events and educational materials for schools. STEP will endeavour to utilize existing materials from other wildlife organizations to inform strategy for awareness raising and educational material dissemination.

Output 5: Development of income-generating opportunities via beekeeping and access to financial services through Village Savings and Loans Associations

5.1 Train Farmers Groups in VSLA Development and Operations

Village Savings and Loans Associations (VSLAs) are small-scale, community-organised systems which enable people without access to formal financial services to save, invest and access loans. Members buy shares on a weekly basis, which provide the capital for loans. Loans are typically issued to members for three-month periods and are repaid with interest. Members also contribute an agreed amount in social fund that is available to members experiencing emergencies as a loan without interest. 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 year-long VSLA cycle, a share-out is held whereby members are repaid the value of their shares plus interest.

Both farmers' groups in Rungwa previously received training in the establishment, operation and management of VSLAs. Baseline training includes: roles and responsibility of leaders and VSLA members, use of VSLA booklets for recording share purchases, use of the loan application form, loan request, issuing and repayment procedures, running of VLSA meetings, procedures for the social fund, the use of cash books and boxes, and record-keeping. Refresher trainings are run routinely when groups are missing key targets, behind on key timelines and when group dynamics are no longer conducive to a functioning body. After each VSLA cycle is completed, STEP does an evaluation. Some high-level take-aways from a recent evaluation are summarised: In December 2018, STEP supported the VSLA share-out of Maendeleo Famers Group in Mkola sub-village. The aim was to evaluate the success of the VSLA, to help STEP understand what further technical support and training is needed, for the members themselves to understand the impacts of the VSLA (both benefits and challenges), and to plan for the next cycle. A follow-up visit was conducted in February 2019, after new leadership had been elected for Maendeleo group to support with refresher general VSLA and CBO leadership training. According to the group, the main benefits of the VSLA are access to loans that help with income-generating activities (such as farming and small businesses), paying for children's school fees and maintenance of household cash flow. The Social Fund provides insurance for those experiencing

emergencies. Further, the VSLA provides an opportunity to save and invest for retirement funds. The group members also viewed the loan scheme as a way to manage the negative impacts of the elephant crop damage on their livelihoods, and thus validates the VSLA scheme as an integral part of the human-elephant coexistence model that STEP implements.

Table 1 Status of VSLA at the end of cycle for Maendeleo Farmers group in December 2018 (evaluated by STEP)

Value of single share (TZS)	**Total shares accumulated per year**	**Value of shares accumulated per year (TZS)**	**No. of people who received loans**	**Total number of loans disbursed per year**	**Number of loans paid**	**Value of loans taken (TZS)**	**Interest accumulated per year (TZS)**
[redacted]	6700	[redacted]	21	64	59	[redacted]	[redacted]

Evaluation of the individual member's loans (13 men, 8 women) showed that only one group member did not take any loans. Loan values varied between TZS [redacted] and TZS [redacted] with the bigger loans (>TZS [redacted] used for building and land purchase. Loans were used for a variety of activities (Appendix 14). Out of TZS [redacted] issued in loans throughout the cycle, only TZS [redacted] ([redacted] was not repaid.

5.2 Support Farmer Cooperatives to establish VSLAs

VSLA establishment is complete for the two existing farmers' groups in Rungwa. Due to delays described in Activity 4.1-4.3, no new VSLAs were established in Year 1. VSLA establishment and training for the new farmers' groups will be informed by our experiences with the two existing groups.

5.3 Conduct regular monitoring and support visits to VSLAs

Three intensive visits by STEP's entire HEC Team were conducted over the last six months (September, December 2018 and February 2019). The HEC team conducted assessments of VLSA management, challenges, and benefits and conducted mentoring and refresher trainings on the key issues observed, including VSLA management, loan issuing procedures and the need for transparency and accountability of group leaders and members. The Rungwa Community Liaison has attended over 20 VSLA monitoring meetings with both farmers' groups in their respective sites. At each meeting, he collects data on attendance, the amount of social fund contributions, the number of shares bought, the number and amount of loans issued, and loan repayments and advises the group based on observed status. These Key Performance Indicators are collected on the Weekly Monitoring Sheet used by the Community Liaison (see Appendix 8).

5.4 Train farmers' groups in beekeeping

The two existing farmers' groups in Rungwa village were previously provided with beekeeping training. In November 2017, 324 person-hours of beekeeping training were provided to the farmers' groups (22 farmers from Maendeleo, 17 farmers from Itaga) by the District Beekeeping Officer, Mr. Joseph Mboya. In March 2018, STEP facilitated further practical training from a professional beekeeper from Tanga (Mr. Leonard Ngoda) on technical skills and methods for hive care and increasing hive occupancy. The two new farmers' groups to be established under this project will receive beekeeping training towards the end of Year 1 and within Year 2 of the project which will be informed by our experiences and lessons learnt from the two existing farmers groups.

5.5 Conduct bi-annual monitoring and refresher training for farmers' groups with a professional beekeeper.

Refresher training on beehive fence maintenance and hive care was conducted in each of the three visits to Rungwa made by STEP's HEC team in September 2018 (8 hours), December 2018 (6 hours) and February 2019 (16.75 hours) for Amani and Maendeleo farmers groups. Training topics included: how to clean hives, fill in gaps, arrange and apply wax to top bars, an increase capture of colonies through hanging hives in trees. In an effort to support existing groups and to kick start new groups, STEP will augment the training of the Itigi District Beekeeping Officer (conducted previously) with commercial and practical expertise provided by Leonard Ngoda, a

successful beekeeper from Tanga region who will provide a refresher training in the next three-six months for existing groups and occupancy-dependent for the groups yet to be established (likely a second visit towards the end of Q2/beginning of Q3 2019). Additional refresher training was conducted by the Tanzania Forestry Services (TFS) Zonal Office and Itigi District Beekeeping Officer in January 2019 for Maendeleo Farmers Group. The training focused on ways to increase hive occupancy, the importance of recording the date of occupancy for estimating the time for harvesting, harvesting procedures, and methods for testing honey quality.

In addition, Amani Beekeeping Group (10 members) in Itaga sub-village was trained (2.6 hours) on cultivation of chilli peppers, and the group established a chilli garden in February 2019. Chilli peppers were introduced to diversify group income and to enable production of chilli briquettes, an additional elephant deterrent strategy to be trialled in Rungwa. Itaga sub-village experiences frequent crop damage to elephants (Appendix 5), and the current beehive fence is not long enough to block all elephant trails into farms. STEP thus expects that a mixed approach of beehive fencing and chilli briquettes may afford greater protection to farms.

3.2 Progress towards project Outputs

Output 1: Minimum of 4,000 km^2 of Rungwa-Kizigo-Muhesi GRs under regular aerial surveillance, including coordinated ground-air response patrols and analyses of poaching hotspots and trends from aerial data shared with protection departments.

Progress towards this output has been good with successful aerial surveillance missions undertaken. More than 5,000 km^2 were covered by the aircraft, despite not meeting the target of flight hours as described above, and all aerial patrols were coordinated with rapid ranger response on the ground, resulting in effective impact on illegal activities in the Game Reserves. In addition to rapid sharing of the outcomes of each patrol (report and maps), a substantial longer-term (2016-18) trend analysis was shared with the GRs Protection Department. Measurement of all Indicators is straightforward based on data recorded by STEP and the ranger aerial observers.

Output 2: 20 regular ranger patrol days per month throughout remote and key elephant areas of Rungwa-Kizigo-Muhesi GRs, with patrol maps and reports submitted and analysed each month.

Based on substantial but incomplete feedback from rangers and GR Managers, progress towards this output is good as capacity for ranger patrols has increased significantly over the last 2-3 years, and patrol days has increased concurrently; moreover, patrols are including more remote and key elephant areas, based on ground and aerial intelligence. However, as explained above, the shift by the GRs to use of SMART as central system for law enforcement data has changed the dynamic and means of measurement of Indicators. This is an issue which requires further discussion with Management on the way forward.

Output 3: 80 protection managers and rangers provided with and trained in use of GPS, GIS, and ground-to-air communications, resulting in intelligence-led patrol planning (40 already trained 2016-17)

Progress is overall good, indeed work that was done previously and brought forward (before the commencement of the grant) meant that the rangers are currently well equipped with GPS units and (open access) GIS software packages. As explained above, the issue of ground-air communication equipment is under review again following the instalment of a new Reserves-wide communications system in early 2019. The measurement of Indicators for this Output is straightforward.

Output 4: 1km-long beehive fences established and managed by registered Community-Based Organizations (CBOs) and community elephant monitoring network established in four villages.

As evident from the reporting in Section 3.1, two 1km+ long fences have been established and managed by registered CBOs in Rungwa. While hive occupancy remains a challenge, targeted follow-up and technical training are key strategies being employed to drive success. With the strong foundation made from research conducted in late 2018 and early 2019, STEP feels confident that two new fences will be established in highly impactful areas in the next two

calendar years (establishing a fence towards the end of Year 1 in a new site and establishing a second new fence in a new site within Year 2).

Development of community elephant monitoring networks is underway despite recruitment and performance issues. Again, targeted follow up is being used as a key strategy to drive performance. Data will continue to be analysed and used to both inform future intervention locations and to evaluate the effectiveness of existing fences. The final piece of this Output comes with Increasing awareness among community members through awareness events. This is one of the main activities planned for the next 3-6 months of the project period. STEP will use baseline survey data to inform intervention content and to measure changes in perception regarding elephants.

Output 5. Development of income-generating opportunities via beekeeping and access to financial services through Village Savings and Loans Associations

As evident from reporting in section 3.1, two Village Savings and Loan Associations have been established in Rungwa to complement/augment the impacts of beehive fences. Through training and regular monitoring and follow up, performance of VSLAs is closely tracked. As outlined in Output 4, beekeeping training and follow-up is provided as closely as that of VSLA support, largely through the physical presence of a Community Liaison and through targeted remote support from STEP's HEC Coordinator Team. Careful record keeping shows that STEP is making process toward targets of 120 individuals with access to loans from VSLAs (currently 54 individuals).

STEP will want to explore adding several additional indicators focused on follow-up and accountability (number of meetings attended by the Community Liaison, number of weeks where all hives were checked and cleaned), number of loans repaid on time, and number of fines given for late attendance.

3.3 Progress towards the project Outcome

The expected outcome of this project is that enhanced law enforcement capacity in Rungwa-Kizigo-Muhesi will [redacted] and reduce elephant poaching, and that community beehive-fence projects will increase incomes, food security and tolerance for elephants. We report on baseline and Year 1 status for the project's outcome indicators below.

[redacted]

0.5. Baseline survey in Y1 found that [redacted] (Appendix 11). This outcome indicator will be re-measured in Y3 to assess the impact of crop and food store protection methods implemented by this project

0.6 Zero households with income from beekeeping in Y1, relative to baseline of zero in 2017. We are off-track on this indicator and increasing beehive occupancy, hive health and honey harvests are priorities for Y2 (see Section 9). We may revise this indicator to better capture the benefits generated from VSLAs and to encompass additional poverty measures (Appendix 11) to more holistically assess the project's impact on poverty.

0.7 Baseline survey found that 30% of respondents agree with the statement that "there is a good relationship between people and elephants in our village". Additional tolerance measures are listed in Appendix 11. This indicator will be re-measured in Y3 to assess the impact of education, awareness-raising, and crop protection activities implemented under this project.

[redacted]

0.9 In Y1, no elephants were killed by retaliatory killing or Problem Animal Control 1 in immediate project area; one elephant killed in wider area (Appendix 12).

3.4 Monitoring of assumptions

Assumption 0.1 STEP will be able to maintain its established and trusted relationships with Game Reserves senior management.
Comment: This assumption continues to be valid Year 1 (See Section 2 for detail).

Assumption 0.2: A dedicated team of protection managers and rangers will remain motivated to utilize and manage remote surveillance technology.
Comment: Enthusiasm and cooperation on using this technology remain good, [redacted]

Assumption 1.1: The plane will operate at full capacity throughout the project with only minor maintenance requirements of maximum three months down-time per year. We assume that the plane will be able to make up to 25 hours of flights per month.
Comment: Our assumption of 25 hours of flights per month for nine months was not valid for Year 1 due [redacted]. In the coming year, there may be unanticipated constraints on the availability of match funding for costs of aviation fuel and pilot time.

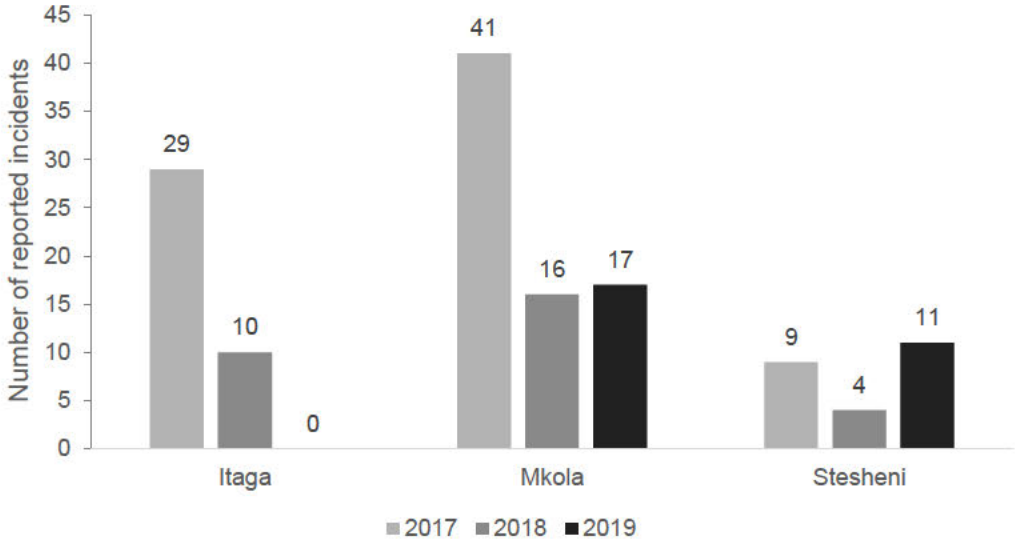
Assumption 2.1 Management authorities will continue with our agreement that they pay ranger allowances and STEP provides fuel for travel and vehicle support
Comment: This assumption remains valid and the terms for STEP's fuel support to TAWA have been formalized in a written agreement.

Assumption 3.1 Rangers and protection managers will remain motivated to use this technology following comprehensive training, and with continued troubleshooting assistance from STEP.
Comment: This assumption remains valid.

Assumption 0.3: Beehive fencing continues to deter elephants from farms, and crop loss mitigation and beekeeping training and benefits, and education are effective in fostering increased tolerance for elephants.
Comment: Baseline surveys revealed that current perceptions of elephants within the villages are mixed at best (Appendix 11, Section 3.3). Villagers voiced strong preferences for elephant numbers to fall in and around the villages, whilst some felt that elephant numbers falling more broadly would be a good thing. However, the majority of villagers acknowledged the role of elephants in attracting tourist income, and the importance of elephants being protected in general. These latter sentiments offer some encouragement for future improvements in human-elephant coexistence in the area if raiding events can be safely and effectively reduced. STEP will directly address these aspects in awareness raising activities planned for the next six months. Education materials and information shared at community awareness events have been specifically developed to transfer knowledge to a rural (largely non-literate) community. The assumption is that attendance and reading / looking at materials such as posters and leaflets, or watching videos, leads to increased knowledge on human-elephant conflict and mitigation strategies. The design process has highlighted the need for varied media to be used in awareness raising events. In conversations and testing with villagers and village leaders in and

around Rungwa, we have seen interest and comprehension of initial drafts of educational materials. However, there is a limit to how much written content can be included. Therefore, materials are largely visual. STEP will work to assess and evaluate comprehension of these materials throughout the dissemination process, a key step before measuring knowledge retention and/or behaviour change. The assumption is still valid. Any changes needed will be observed and addressed on the next quarters where community events are rescheduled to be conducted.

To date, there is no evidence of elephant habituation to the existing beehive fences. For Rungwa village, [redacted] However, a challenge in Rungwa (when compared to other operating regions of STEP) is the spatial arrangement and size of individual farms; farms and households are scattered along the Game Reserve, buffer zones and corridors meaning the distances for potential elephant encounters are quite large, and beehive fences cannot block all elephant trails into farmland.



[redacted]

Assumption 4.1: Following comprehensive beekeeping training and set-up of a monitoring system, farmers' groups will conduct proper maintenance of beehive fences

Comment: [redacted] Accountability and group dynamics have proved challenging in the management of both beehive fences and VSLAs; without a strong leader, groups often fall behind on management, maintenance and some of the more difficult aspects of participation and follow up. After observing this, STEP has conducted refresher trainings and has increased supervision of beehive fences through the Community Liaison. By building a culture of accountability, follow up and directly connecting hive occupancy with careful management, the Community Liaison is helping to show the benefits of proper maintenance.

Assumption 5.1: The current tourist interest and market for elephant-friendly honey will continue to exist.

Comments: While initial market facilitation activities in other STEP program areas have been moderately successful, the primary challenge in Rungwa continues to be hive occupancy. Without adequate bee presence and the further production of honey due to that that presence, market demand is a secondary concern. STEP will work on a honey marketing strategy in the next 6-12 months that will dig into market demand and production capacity. STEP will continue to make improvements such as the bespoke labels for elephant-friendly honey that were developed by an advertising agency.

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

Sections 4 (Contribution to Global Goals for Sustainable Development) and 6 (Project Support to Poverty Alleviation) detail the contributions STEP has made towards biodiversity conservation and poverty alleviation.

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

The project expects to contribute to SDG 2 through economically and socially inclusive approaches to biodiversity conservation. Elephants are an umbrella species for biodiversity conservation. One of the ways in which protection can be achieved is through increasing local communities' tolerance of elephants through awareness raising, conflict mitigation and linking livelihoods to elephant protection. Baseline surveys reveal low levels of elephant tolerance in the project area (Appendix 11), demonstrating the need for coexistence interventions (crop protection, education and awareness-raising) to increase tolerance. The project's impact on tolerance for elephants will be assessed in Year 3.
The project also aims to address SDGs 1 ("End poverty") and 15 ("halt biodiversity loss"). This project addresses poverty alleviation in several ways: minimizing crop damage due to elephants (thereby increasing food security and safeguarding potential sources of income), providing an alternative source of income through honey production and sales and providing access to credit for investment, emergency response or other economic activities. As detailed in Output 5 (Activity 5.1), participants saw VSLA participation as helping them to participate in income-generating activities such as farming and small business. It helped to pay for school fees, to provide a safe opportunity to save and to help maintain household cash flow. By alleviating poverty, this helps to halt biodiversity loss; communities are less likely to turn to their environment for extractive practices when they have a viable and consistent source of income.

5. Project support to the Conventions, Treaties or Agreements

This project aims to address two key themes identified in the London Conference Declaration, Kasane Statement, and the Hanoi Conference: 1) strengthening law enforcement, and 2) developing sustainable livelihoods and economic development.

In particular, this project will support Commitment #7 of the Kasane Statement by strengthening a national wildlife enforcement authority in one of the largest conservation complexes (>45,000 km^2) and hotspots of elephant poaching in Tanzania. The focus is on building institutional capacity at the site level through technical support, training, increasing patrol coverage, and increasing the effectiveness of law enforcement efforts. This project will complement past and current efforts of the Tanzanian Government and NGO actors to increase personnel, infrastructure, and equipment for law enforcement. Section 3.1 outlines current activities taken to date that address these issues.

Our work will also support Commitment #11 of the Kasane Statement through participatory, community-based initiatives that will help rural communities to address the challenges of coexisting with elephants. Specifically, the project will capacitate rural populations to implement methods to protect their livelihoods and improve their welfare and personal safety. We will also promote sustainable development by enabling local communities to participate in income-generating activities that are explicitly linked to elephant conservation. Section 3.1 outlines this in great detail.

Finally, this project will support Commitment #12 of the Kasane Statement by involving local communities in developing and sharing knowledge and best practice in managing wildlife resources and taking actions to tackle illegal trade. In particular, we fill facilitate information-sharing through the establishment of a community elephant monitoring network, through which people can report elephant activity and conflict and poaching incidents. Furthermore, we will enable community members trained by STEP in elephant deterrent methods and conflict mitigation strategies to share knowledge, skills, and experience with their peers through community awareness events. This is an ongoing process and one which STEP hopes to start soon with the launch of Community Leader awareness sessions in May-June.

6. Project support to poverty alleviation

Healthy elephant populations and ecosystems are recognized as significant for the Tanzanian national economy and society as a whole, not only because they are an important national heritage but because tourism, the great majority of which is wildlife-based, contributes to a minimum 17% of GDP annually. At the local level, reductions in elephant poaching (and HEC) could increase tourism to the Rungwa-Kizigo-Muhesi Game Reserves, increasing revenue for the community outreach programs of the Reserves which are designed to fund local initiatives in health and education. Effective deterrence of and available income generating alternatives to poaching will likely lead longer term to increased harmony among communities along the boundaries and the wildlife authorities, with associated reductions in detention and arrests of community members.

At the local level, an estimated 1000 households will have their farms directly protected by beehive fences and thus incur lower crop loss (and thereby achieve greater food security). Local Elephant Monitors will measure crop loss. While it is too early to attribute any change to the presence of STEP, with two operational beekeeping groups (and two more planned) with approximately 30 members each, an estimated 120 households will benefit directly from the production of apiculture products. There is a demonstrated market for elephant-friendly honey (although continued engagement in and development of the market is needed). By project end, with a target of 50% occupancy and 7kg of honey expected per hive per year, farmers are expected to earn around £[redacted] per year from bee keeping (this is a fairly ambitious estimate and one that will likely be revised downwards). So far there has been no honey sales in Rungwa; hive occupancy continues to be a challenge and the primary focus area in the field.

Village Savings and Loan Associations will provide at least 120 members with access to loans, investment opportunities, and means to formally request assistance from the government, microfinance institutions and banks. Part of the longer term plan is to educate farmer groups on how to access these financial services, something we can track via financial records. As detailed in Activity 5.1, VSLA members have used loans to start or run small businesses, help pay for school fees, make home improvements and for farming. We expect that VSLA members will earn 10% interest each year on their shares. When Maendeleo Group finished their first VSLA cycle, members received an average of [redacted] pay out from interest.

HEC Awareness-Raising activities are expected to reach more than 4000 people over three years through events at schools, markets and through attendance at special football league games. Participants at these events will receive training and educational materials that provide information about safety around elephants, methods to reduce conflict and citizen's rights and responsibilities with regards to wildlife protection and environmental conservation. This will hopefully broaden dissemination of and benefits from increased human-elephant coexistence.

7. Project support to gender equality issues

As of the current project period, STEP has made preliminary progress in support for gender equality. Current farmer groups are ~30% women and ~20% youth but no specific training with a gender-quality component has been delivered. All data can be disaggregated by gender and age (including baseline survey data, although that has not been done to the present). The launch of two new beehive fence sites provides an opportunity to engage meaningfully with gender equality in selection, training and follow up. As much as possible, female participants should inform STEP's strategy for engagement.

In our support to law enforcement, STEP works with mixed gender teams of rangers. We will work with the Game Reserve Management to recruit female participants for all ranger trainings, and collect gender disaggregated data on trainees through attendance sheets.
Prior to establishing farmers' groups in new project villages, we will conduct separate focus groups with women, men and youth in villages to understand their respective barriers to involvement in beehive-fence projects, and account for these in project implementation. We will actively recruit women as beekeeping is a part-time and seasonal activity that can be combined with farming and childcare. As with other farmers' groups supported by STEP, women will

constitute minimum one-third of the membership and leadership roles in Community-Based Organizations (CBOs). Youth (15-35 years in Tanzania's Youth Policy) will constitute minimum one quarter of CBO members. Our training for farmers' groups in CBO management and leadership will include a gender equality component and emphasize the importance of female and youth participation in coexistence projects.

8. Monitoring and evaluation

STEP contracted a consultant who helped to develop a detailed M&E plan, data collection tools for the project, and who assisted in conducting baseline (where necessary) and project evaluation surveys (Appendix 11).

To monitor project impact on law enforcement capacity, STEP is recording surveillance flight hours and coverage, number of ranger mobilizations in response to aerial surveillance, aerial reports and maps produced, and training and equipment provided. In general, our impact on strengthening the effectiveness of law enforcement is monitored by recording and analysing trends [redacted] and these indicators will be measured against available baselines from 2016-2017 to evaluate project impact. The greatest challenge we have is receiving data in a timely manner for the indicators pertaining to regular ranger patrols and arrests.

To evaluate the impact of beehive fences, we have trained local elephant monitors in project villages to record crop losses to elephants using GPS units and standardized datasheets. [redacted] As mentioned in the review of Activity 4.6, Rungwa has been a challenging environment for the deployment of camera traps. However, plans are still in place as camera-trapping will provide an additional, independent dataset on the frequency of elephant visits to farms. If cameras can be deployed before and after beehive fence installation, they could help to measure an expected reduction in elephant visits to farmland.

Farmers' groups have been trained to record data on fence condition and beehive occupancy using standard monitoring tools on a weekly basis. In recent months, STEP has equipped the Community Liaison to collect this data instead in order to increase consistency and accountability. Together, the Community Liaison 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. Increasingly, the STEP HEC Team based in STEP's HQ are monitoring this data and directing follow up and support in the field. An active approach is needed to increase hive occupancy. Unsuccessful fences will not produce adequate honey, deter elephants nor address issues relating to food insecurity.
The Community Liaison also supports in collection of detailed financial records of honey sale and fence maintenance costs. STEP reviews these costs as an assessment for the profitability of a fence.

To monitor the impact of VSLAs, the Community Liaison attends VSLA meetings weekly (up from the previous plan of once per month) in an effort to again increase consistency and accountability. We will 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. For our education and awareness-raising work, M&E will focus on tracking attendance. STEP plans to evaluate the uptake and impact of HEC mitigation strategies on farmers through pre- (Year 1) and post-project household surveys (Year 3). These surveys will identify the proportion of households adopting HEC mitigation strategies, identify what factors were influential in them adopting these strategies, and assess the impact of mitigation strategies on incomes, food security, and attitudes to elephants. Results from the Baseline Report have shifted some focus areas for awareness work. As much as possible, materials and trainings will be prototyped and tested with similar audiences before dissemination. As mentioned previously, it is critical to confirm comprehension before training materials are delivered.

9. Lessons learnt

Remote Management and Communication

- Illiteracy is very high in the project area and baseline surveys revealed that >90% of respondents have had no formal education or only primary school education. This has significant implications for the management of VSLAs, CBOs, beehive fences and awareness-raising materials. We have learned that working with communities in Rungwa requires high levels of communication, flexibility and regular follow-up through our locally-based Community Liaison. We are also making efforts to use visual communication as much as possible.
- Farmers in Rungwa are very informed by their foundational/baseline experiences. It has been challenging to introduce beehives fences while most communities had only local experience of keeping bees in traditional log hives hung high on trees (which typically require minimal input into hive care). To address this, we have been doing frequent assessment and refresher training with our partner farmers groups and Community Liaison to make progress towards beehive occupancy targets.
- Rungwa is extremely remote and lacks mobile network and electricity. It is often challenging to communicate directly with monitors and members of Amani group based in Itaga sub village. The team uses SMS and is clear in weekly meetings about goals and strategies for the coming week's work.

Maintaining Expectations and Accountability for Group Activities and Transparency about Challenges

- Poor attendance in VSLA meeting and weekly beehives fence management has been a challenge. In both Maendeleo and Amani farmer groups, our weekly monitoring has revealed a low level of participation (with Amani Group currently reaching less than 20% attendance for beehive fence management over the last two months). Participation fell following member disillusionment with the inability of group leadership to keep leaders and members to account on late loan repayments. After discussion with the group, it was agreed to revisit the Constitution and to restrict VSLA benefits for members with poor attendance in both beehive fence management and VSLA meetings.
- Transparency in VSLAs has been a challenge among members of both farmers' groups, group leadership and even at times with our Community Liaison. There is hesitancy to be open about loan repayment status, especially of outstanding loans that are overdue. Our team is working to retrain leaders, members and our Community Liaison on the importance of openness. In addition, rules about loan issuing and repayment have been revised and each group has been provided with two metal cash boxes (one for VSLA funds and one for CBO funds) with three locks per box, with each key held by a different member of the group to safeguard group monies and rebuild member confidence.

Hive Occupancy and Environmental Suitability for Bees

- The current level of hive occupancy in both fences in Rungwa is still low, with a current total occupancy rate of 13%. We have identified several potential causes of low occupancy causes and are working to address them. To address the challenge of insufficient time spent on fence follow-up, we have advised the group to change their working measurement indicator from time count to number of hives visited, cleaned and checked for other health indicator condition. To address the challenge of poor accountability and follow-up, we have developed a weekly reporting template and are working to establish a culture of making frequent phone calls with the Community Liaison to improve his interaction with the two farmer groups. We have also reviewed the beehive fence monitoring sheet to collect more specific information on the condition of hives, top bars, and wax application to enable targeted feedback to farmers' groups.
- Water availability during the dry season is also a challenge for the successful occupancy of beehives fences. To address this, we plan to organize members of the two farmer groups to build small cement water collection centres for bees before the next dry season.

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

We received several points of feedback at the funding stage, which we have addressed in this report and in project implementation:

- We have included further information on the purpose, operation and benefits of VSLAs as well as the type of support provided by STEP to VSLAs.
- To date we have retained all Outcome indicators, however, in future discussions with IWT Challenge Fund we may revise which indicators are most necessary to measure progress.
- The reason for not including local people in patrolling is that the Protected Areas in this area all comprise Game Reserves which are managed by TAWA, patrolled by Government rangers, and prohibit patrols by community members. This is unfortunate but out of our control. STEP also work in MBOMIPA Wildlife Management Area and Nature Reserves where we support patrols involving Village Game Scouts from local communities.
- We have included data on the number of elephant crop damage incidents pre- and post-beehive fence installation and referenced findings from one of STEP's other project areas on the reliability of beehive fencing as a deterrent.
- To better measure project impact on poverty and put into context anticipated increased incomes from beekeeping and VSLAs under the project, we conducted a baseline survey of households in four villages using the Simple Poverty Scorecard method. The baseline SPS score of 44 corresponds to a roughly one in three chance of a household being below the US$1.90 per day poverty line (2011 PPP).
- STEP has established fieldwork and emergency protocols for our protection collaborations in remote areas. Further work is needed to address the ethics and risks of the ground surveillance component, but initial discussions on this topic were begun in STEP's internal annual review in January 2019.

11. Other comments on progress not covered elsewhere

None.

12. Sustainability and legacy

Section 13 details efforts made to promote the project's work in Year One. Increasing interest in the project is evidenced by: 1) requests to STEP from TAWA to develop a human-elephant coexistence action plan for the wider project area and to facilitate a workshop for village leaders, TAWA, regional and district staff; 2) interviews with secondary school teachers, detailing their priorities for educational topics and activities ; 3) requests for training of regional branch staff of TAWA in establishment and operation of beehive fence projects; 4) village and district level participation in ground surveys to identify suitable beehive fence sites.

We have developed educational materials in a collaborative manner to facilitate the exchange of knowledge and experience relating to the implementation of mitigation methods to reduce human-elephant conflict, including through interviews and piloting of draft materials. These materials, once completed, will be open access and distributed widely in the project area.
The project has produced two technical reports to date, including (1) analysis of aerial patrols and (2) results of the baseline household survey and ground surveys, which were shared with project partners, in addition to annual and quarterly progress reports. Analysis of human-elephant interaction monitoring data was shared with project partners and Tanzania Wildlife Research Institute. Our exit strategy plan remains broadly similar, with a focus on strong involvement of project partners and local communities in project implementation and monitoring, capacity building of project partners, and technical outputs to record lessons learned. However, delays in the setup of new beehive fence projects may mean that the conditions for beehive fence handover to farmers' groups (as specified in two-year MOUs) are not met during the project period. STEP is committed to and will honour these agreements beyond the lifetime of this grant if this were to occur, to ensure that beehive fence handover is completed in a just and sustainable manner.

13. Darwin identity

The IWT Challenge Fund and UK Government funding were recognized in STEP's progress and technical reports to project partners, national partners (TAWA, District and Regional Governments, Tanzania Wildlife Research Institute (TAWIRI)) and donors, as well as on STEP's website and in STEP's upcoming Annual Report for 2018. STEP's grant from the IWT Challenge Fund was communicated as being part of a larger program in Ruaha-Rungwa, as STEP receives financial support from other funders towards protection and human-elephant coexistence in Rungwa-Kizigo-Muhesi.

As a result of receiving the DEFRA IWT funding, Project Director Trevor Jones was invited in September 2018 to attend the British High Commission in Dar es Salaam and discuss the work with HRH Prince William on his visit to Tanzania. This went very well and subsequently, the British High Commission supported Dr. Jones to attend the International Conference on Illegal Wildlife Trade in London in October, 2019, again hosted by HRH Prince William.

STEP has three social media accounts: Facebook (16,400 followers), Twitter (1,368 followers), and Instagram (434 followers). The IWT Challenge Fund was publicized in two social media posts on Facebook, two on Instagram and one on Twitter. These posts were linked to the DEFRA UK and Tanzania UK High Commission social media accounts.

14. Project expenditure

Project spend (indicative) since last annual report	**2018/19 Grant (£)**	**2018/19 Total Darwin Costs (£)**	**Variance %**	**Comments (please explain significant variances)**
Staff costs (see below)	[redacted]			
Consultancy costs				
Overhead Costs				
Travel and subsistence				
Operating Costs (Partner)				
Capital items (see below)				
Monitoring & Evaluation (M&E)				
Others (see below)				
TOTAL				

Annex 1: Report of progress and achievements against Logical Framework for Financial Year 2018-2019

Project summary	Measurable Indicators	Progress and Achievements April 2018 - March 2019	Actions required/planned for next period
Impact Significant reduction in illegal killing of elephants and improved welfare and increased income for communities coexisting with elephants in our project area.		Steps made towards reduction in illegal killing of elephants, improved community welfare though reduction in elephant visits to farmland, and access to financial services through VSLAs.	[redacted]
Outcome Enhanced law enforcement capacity in Rungwa-Kizigo-Muhesi will increase detection and arrest of poachers and reduce elephant poaching. Community beehive-fence projects will increase incomes, food security, and tolerance for elephants.	0.1 The number of illegal activities detected via aerial and ground patrols doubles by project end (relative to 2017 baseline). 0.2 Number of ranger mobilizations based on aerial intelligence increases by 100% (relative to 2017 baseline). [redacted] 0.4 Poaching declines measured in a 50% reduction in the number of illegally killed elephant carcasses detected on aerial and foot patrols 0.5 33% of households in project area report improved food security as a result of crop protection from beehive fences 0.6 20% increase in household income levels from beekeeping among project beneficiaries 0.7 50% increase in the number of farmers and village leaders showing tolerance of elephants.	[redacted] 05. Baseline established. Indicator to be re-measured in Y3. 0.6 Y1 status = 0 0.7 Baseline established. Outcome to be re-measured in Y3. 0.8 Y1 status = 2 in immediate project area, 3 in wider area 0.9 Y1 status = 0 in immediate project area, 1 in wider area.	• Continue fuel support to TAWA to enable ground patrols • Increase hours of aerial patrols • Conduct awareness and educational activities to increase knowledge about mitigation methods, safety around elephants, and elephant conservation • Increase hive occupancy, hive health and honey harvests for beehive fences through close monitoring • Implement beehive fencing and VSLA with new farmers group

	0.8 Zero human deaths resulting from elephants due to increased safety awareness and availability of elephant deterrents 0.9 Zero elephant mortality from retaliatory killing or Problem Animal Control		
Output 1. Minimum of 4,000 km^2 of Rungwa-Kizigo-Muhesi GRs under regular aerial surveillance, including coordinated ground-air response patrols and analyses of poaching hotspots and trends from aerial data shared with protection departments.	1.1 Hours and spatial coverage of aerial surveillance (target: 175 hours per year, 4,000 km^2) 1.2 Number of coordinated ground-air patrols per quarter (target: 15) 1.3 Number of illegal activities detected on aerial patrols 1.4 Number of protection department maps generated with aerial data (target: one per month)		
Activity 1.1 Aerial surveillance missions coordinated with rapid ground response by rangers		Several successful surveillance missions completed with overall good cooperation and rapid response by rangers	More surveillance missions with rapid response to illegal activity at all times
Activity 1.2 Rapid mapping and reporting of aerial missions and rapid response operations		Mapping and reporting of aerial missions and rapid response operations completed by STEP GIS Department in all cases	Continuation to current high standard
Activity 1.3 Regular spatio-temporal analysis of mission outcomes and anti-poaching strategy shared and discussed with Game Reserve Managers		Extensive review and analysis of all aerial surveillance data in RKM from 2016-18 completed and shared with TAWA Management	Continuing analysis, and seeking more regular strategy meetings with Managers
Output 2. 20 regular ranger patrol days per month throughout remote and key elephant areas of Rungwa-Kizigo-Muhesi GRs, with patrol maps and reports submitted and analysed each month.	2.1 Person-days of patrols per month (target: 2 teams of 6 rangers each x 10 days = 120 person-days) 2.2 Patrol maps and reports submitted per month (target: 2)	2.1 Incomplete data currently (these data are difficult to obtain in entirety from Game Reserve Management, though we are working on it) 2.2 Geo-referenced patrol data submitted monthly for SMART (this indicator should be amended)	

	2.3 Number of illegal activities detected and poachers arrested on regular patrols	2.3 Incomplete data currently (these data are difficult to obtain in entirety from Game Reserve Management, though we are working on it)	
Activity 2.1 Ranger patrols throughout remote and key elephant areas		Regular patrols carried out each month	Ongoing
Activity 2.2. Patrol maps and reports submitted by rangers to Game Reserve Managers		Completed each month	Ongoing
Activity 2.3 Ongoing feedback and technical support to rangers from STEP GIS Department	STEP GIS Department provided feedback on map shared, as well as continuing GPS training for ranger aerial observers	Ongoing	
Output 3. 80 protection managers and rangers provided with and trained in use of GPS, GIS, and ground-to-air communications, resulting in intelligence-led patrol planning (40 already trained 2016-17)	1 Number of GPS units, GIS software packages and ground-to-air radios provided (targets: 10, 4 and 4) 3.2 Number of ranger patrols tracked using GPS units (target: 100% by year 1) 3.3 Number of monthly patrol maps produced by protection departments (target: one per month)	3.1 No additional GPS units were provided in this period as a needs assessment indicated that previously supplied units were currently adequate; one additional sat phone provided 3.2 To our knowledge, 100% of ranger patrols are track logged 3.3 RKM Game Reserves have opted to move to SMART software for law enforcement monitoring from which monthly patrol maps are generated (making this indicator less appropriate). Two independent patrol maps were produced by the protection department to document patrols carried out using fuel provisioned by STEP	
Activity 3.1 Training of protection managers and rangers in GPS for patrols and GIS for mapping	5 additional rangers trained in this period (total 45), technical support on GIS for mapping was ongoing for one Manager	Needs assessment to guide additional training	
Activity 3.2 Training of protection managers and rangers in ground-to-air communications	Ground-to-air communications training was provided for four ranger aerial observers at Rungwa GR HQ in May 2018, and continued via practical experience throughout aerial missions (involving additional four rangers)	Ongoing refresher training and practical experience	
Activity 3.3 Intelligence-led patrol planning based on aerial and ground patrol maps implemented	Several ground patrols and rapid responses implemented based on rapid reports and maps from aerial surveillance	To be ongoing	

Activity 3.4 GPS units, GIS software packages and ground-to-air radios phones provided to protection managers and rangers	No additional GPS units were provided in this period as a needs assessment indicated that previously supplied units were currently adequate; one additional sat phone provided	Needs assessment will be ongoing
Output 4 1km-long beehive fences established and managed by registered Community-Based Organizations (CBOs) and community elephant monitoring network established in four villages.	4.1 Number of CBOs self-organised and registered (target four) 4.2 Number of registered members of CBOs (target: 30 members each, 33% women). 4.3 Number of local elephant monitors showing full knowledge of data collection and camera-trapping protocols (target: six) 4.4 Number of community elephant monitoring networks established in project villages (target: four) 4.5 Number of community members attending annual awareness events (target: 4800) 4.6 Number and length of beehive fences constructed (target: 4 fences of 1 km each) 4.7 Number of occupied beehives (target: 50% by project end) 4.8 Number of elephant visits to farms (target: 70% reduction by project end)	4.1: 2 registered in 2017 4.2: Total 54: 22 with Maendeleo farmer group and 32 Amani Beekeeping group 4.3: 2 (33%) show full knowledge of data collection. Camera trapping protocol training is off track. 4.4: 3 (75%) operate at Mkola, Stesheni and Itaga sub villages in Rungwa village project area 4.5: Off track, will be recorded in next reporting period 4.6: 2 beehive fences supported; Mkola beehive fence (1.12km) under Maendeleo Farmer Group & Itaga beehive fence (0.85km) managed by Amani Beekeeping Group 4.7: 23 (13.22%) occupancy, off track by 27%, more effort is planned for the next quarter to improve beehives condition 4.8: 26 elephant visits to farms recorded in 2018 for Mkola and Itaga sub-villages and 17 elephant visits to farms recorded in Jan-Feb 2019, compared to 70 elephant visits recorded in 2017. On track for >50% reduction by project end.
Activity 4.1: Support farmers' groups to register CBOs	Completed for current sites, still pending for new sites.	New Village registration to continue in Year 1 and Year 2.
Activity 4.2 Train farmer's groups in CBO management and financial skills	Completed for current sites, still pending for new sites.	New Village training to continue in Year 1 and Year 2.

Activity 4.3 Construct beehive fences with farmer's groups in two new villages	Planned for Q2-Q3 2019.	New Village 1 fence construction will begin in Q3 2019.
Activity 4.4 Train farmer's groups in fence maintenance and monitoring	Ongoing in current sites, planned for new fence launches.	Trainings to follow construction.
Activity 4.5 Conduct regular monitoring and support visits to beehive fences and farmer's groups	Ongoing in current sites, planned for new fence launches.	Monitoring to follow construction, informed by lessons learned from current observations.
Activity 4.6 Train local elephant monitors in data collection, GPS, and camera-trapping	5 individuals trained, 2 are currently working, 3 cancelled due to underperformance throughout the period between September 2018-present	Continue to monitor performance through weekly meetings and spot checks. Will continue recruitment to replace monitor in Itaga in Q2 2019. Camera trapping will proceed once power/infrastructure issues are resolved in Rungwa.
Activity 4.7 Local elephant monitors collect elephant activity data	2 elephant monitors are actively collecting data as of March 2019	See above.
Activity 4.8 Train locally-based Community Liaison in HEC mitigation strategies to provide support to farmer's groups	Recruited and trained on beehives fence monitoring, VSLA management and collection of elephant data	Will continue to train Liaison on mitigation strategies and will involve heavily in community-awareness raising events.
Activity 4.9 Raise awareness about HEC mitigation strategies at Tembo Cup football league matches	Off Track, planning and development of materials	Planned for the next 3-6 months of the project period
Activity 4.10 Raise awareness and disseminate education materials at schools, markets, and offices	Off Track. Baseline surveys of tolerance and perceptions of elephants conducted and development of materials.	Planned for the next 3-6 months of the project period

Output 5: Development of income-generating opportunities via beekeeping and access to financial services through Village Savings and Loans Associations.	5.1 Number of CBO members who demonstrate full working knowledge of beekeeping (target: 90, 33% women) 5.2 Number of Village Savings and Loans Associations (VSLAs) registered (target: four) 5.3 Number of people with access to loans from VSLAs (minimum target: 120) 5.4 Growth in capital and loan issuing and repayment rate of VSLAs 5.5 Honey yield and sales income generated from beehive fences	5.1: Currently 54 (32 members of Amani Beekeeping Group and 22 from Maendeleo (40% women) 5.2: 2 registered CBOs operating VSLA schemes. 5.3: Currently 54 (32 members of Amani Beekeeping Group and 22 members of Maendeleo Farmer Group) 5.4: Mandeleo Farmers' Group raised TZS 6,700,000 in share purchases in its 2018 cycle. Loan repayment for this cycle was 92% (59/64 loans repaid 5.5: Off track, with 13.22% level of occupancy yield and sales data is expected to be recorded in June 2019
Activity 5.1 Train farmer's groups in VSLA development and operations	Complete for existing villages	Planned for New Village in Year 1 and second new village in Year 2. Will be improved and refined with lessons from the field.
Activity 5.2 Support farmer's cooperatives to register VSLAs	Complete for existing villages/farmers' groups	Planned for New Village in Year 1 and second new village in Year 2.
Activity 5.3 Conduct regular monitoring and support visits to VSLAs	3 intensive monitoring visit by HEC Team and 20 by Community Liaison to both active groups.	Continue to monitor existing farmers' groups and extend monitoring to new Village in Year 1.
Activity 5.4 Train farmers' groups in beekeeping	Initial training complete for existing farmers' groups in end 2018 and early 2019.	Ongoing: will augment initial training with follow up visit from master beekeeper in Q2 2019.
Activity 5.5 Conduct bi-annual monitoring and refresher training for farmers' groups with professional beekeeper	1 training conducted by TFS in collaboration with Itigi DC to Maendeleo Farmer Group	Similar training to be conducted for Amani Beekeeping Group

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: Significant reduction in illegal killing of elephants and improved welfare and increased income for communities coexisting with elephants in our project area. (Max 30 words)			
Outcome: (Max 30 words) Enhanced law enforcement capacity in Rungwa-Kizigo-Muhesi will increase detection and arrest of poachers and reduce elephant poaching. Community beehive-fence projects will increase incomes, food security, and tolerance for elephants.	0.1 The number of illegal activities detected via aerial and ground patrols doubles by project end (relative to 2017 baseline). 0.2 Number of ranger mobilizations based on aerial intelligence increases by 100% (relative to 2017 baseline). [redacted] 0.4 Poaching declines measured in a 50% reduction in the number of illegally killed elephant carcasses detected on aerial and foot patrols 0.5 33% of households in project area report improved food security as a result of crop protection from beehive fences 0.6 20% increase in household income levels from beekeeping among project beneficiaries 0.7 50% increase in the number of farmers and village leaders showing tolerance of elephants. 0.8 Zero human deaths resulting from elephants due to increased safety awareness and availability of elephant deterrents 0.9 Zero elephant mortality from retaliatory killing or Problem Animal Control	0.1 Aerial patrol and ground patrol data collection sheets 0.2 Protection department records and interviews with protection staff 0.3 Protection department records 0.4 Aerial and ground patrol data collection sheets 0.5 Project household baseline and focus group discussions; final project evaluation survey 0.6 Project household baseline and focus group discussions; final project evaluation survey 0.7 Pre and post project surveys of tolerance 0.8 Project monitoring, District Government and GR records (against existing baseline data from 2017). 0.9 Project monitoring, District Government and GR records (against existing baseline data from 2017).	0.1 STEP will be able to maintain its established and trusted relationships with Game Reserves senior management. 0.2 A dedicated team of protection managers and rangers will remain motivated to utilize and manage remote surveillance technology. 0.3 Beehive fencing continues to deter elephants from farms, and crop loss mitigation and beekeeping training and benefits, and education are effective in fostering increased tolerance for elephants.

Outputs: **1.** Minimum of 4,000 km^2 of Rungwa-Kizigo-Muhesi GRs under regular aerial surveillance, including coordinated ground-air response patrols and analyses of poaching hotspots and trends from aerial data shared with protection departments.	1.1 Hours and spatial coverage of aerial surveillance (target: 175 hours per year, 4,000 km^2) 1.2 Number of coordinated ground-air patrols per quarter (target: 15) 1.3 Number of illegal activities detected on aerial patrols 1.4 Number of protection department maps generated with aerial data (target: one per month)	1.1 Flight logs 1.2 Protection department records; flight logs 1.3 Aerial patrol data collection sheets 1.4 Protection and mapping department records	1.1 The plane will operate at full capacity throughout the project with only minor maintenance requirements of maximum three months down-time per year. We assume that the plane will be able to make up to 25 hours of flights per month.
2. 20 regular ranger patrol days per month throughout remote and key elephant areas of Rungwa-Kizigo-Muhesi GRs, with patrol maps and reports submitted and analysed each month.	2.1 Person-days of patrols per month (target: 2 teams of 6 rangers each x 10 days = 120 person-days) 2.2 Patrol maps and reports submitted per month (target: 2) 2.3 Number of illegal activities detected and poachers arrested on regular patrols	2.1 Protection and mapping department records 2.2 Monthly outcomes maps and reports 2.3 Monthly outcomes maps and reports	2.1 Management authorities will continue with our agreement that they pay ranger allowances and STEP provides fuel for travel and vehicle support
3. 80 protection managers and rangers provided with and trained in use of GPS, GIS, and ground-to-air communications, resulting in intelligence-led patrol planning (40 already trained 2016-17)	3.1 Number of GPS units, GIS software packages and ground-to-air radios provided (targets: 10, 4 and 4) 3.2 Number of ranger patrols tracked using GPS units (target: 100% by year 1) 3.3 Number of monthly patrol maps produced by protection departments (target: one per month)	3.1 Equipment donation agreements/certificates 3.2 Protection department records; GPs data 3.3 Protection and mapping department records	3.1 Rangers and protection managers will remain motivated to use this technology following comprehensive training, and with continued troubleshooting assistance from STEP.
4. 1km-long beehive fences established and managed by registered Community-Based Organizations (CBOs) and community elephant monitoring network established in four villages.	4.1 Number of CBOs self-organised and registered (target four) 4.2 Number of registered members of CBOs (target: 30 members each, 33% women). 4.3 Number of local elephant monitors showing full knowledge of data collection and camera-trapping protocols (target: six)	4.1 District Government registration certificates 4.2 District Government registration certificates 4.3 Pre and post training surveys 4.4 Elephant reporting/monitoring network data 4.5 Attendance sheets 4.6 Beehive fence survey and mapping	4.1 Following comprehensive beekeeping training and set-up of a monitoring system, farmers' groups will conduct proper maintenance of beehive fences 4.2 Beehive fencing will continue to deter elephants from farms (no habituation by elephants to beehive fences)

	4.4 Number of community elephant monitoring networks established in project villages (target: four) 4.5 Number of community members attending annual awareness events (target: 4800) 4.6 Number and length of beehive fences constructed (target: 4 fences of 1 km each) 4.7 Number of occupied beehives (target: 50% by project end) 4.8 Number of elephant visits to farms (target: 70% reduction by project end)	4.7 Beehive occupancy monitoring by local monitors, verified by STEP 4.8 Baseline survey, continuous monitoring of elephant visits by local elephant monitors	
5. Development of income-generating opportunities via beekeeping and access to financial services through Village Savings and Loans Associations.	5.1 Number of CBO members who demonstrate full working knowledge of beekeeping (target: 90, 33% women) 5.2 Number of Village Savings and Loans Associations (VSLAs) registered (target: four) 5.3 Number of people with access to loans from VSLAs (minimum target: 120) 5.4 Growth in capital and loan issuing and repayment rate of VSLAs 5.5 Honey yield and sales income generated from beehive fences	5.1 Post training surveys and feedback 5.2 Registration certificates 5.3 Financial record-keeping by VSLAs 5.4 Financial record-keeping by VSLAs 5.5 Financial record-keeping by CBOs	5.1 The current tourist interest and market for elephant-friendly honey will continue to exist.
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 Aerial surveillance missions coordinated with rapid ground response by rangers 1.2 Rapid mapping and reporting of aerial missions and rapid response operations 1.3 Regular spatio-temporal analysis of mission outcomes and anti-poaching strategy shared and discussed with Game Reserve Managers 2.1 Ranger patrols throughout remote and key elephant areas			

2.2 Patrol maps and reports submitted by rangers to Game Reserve Managers
2.3 Ongoing feedback and technical support to rangers from STEP GIS Department

3.1 Training of protection managers and rangers in GPS for patrols and GIS for mapping
3.2 Training of protection managers and rangers in ground-to-air communications
3.3 Intelligence-led patrol planning based on aerial and ground patrol maps implemented
3.4 GPS units, GIS software packages and ground-to-air radios phones provided to protection managers and rangers

4.1 Support farmers' groups to register CBOs
4.2 Train farmers' groups in CBO management and financial skills
4.3 Construct beehive fences with farmers' groups in two new villages
4.4 Train farmers' groups in fence maintenance and monitoring
4.5 Conduct regular monitoring and support visits to beehive fences and farmers' groups
4.6 Train local elephant monitors in data collection, GPS, and camera-trapping
4.7 Local elephant monitors collect elephant activity data
4.8 Train locally-based Community Liaison in HEC mitigation strategies to provide support to farmers' groups
4.9 Raise awareness about HEC mitigation strategies at Tembo Cup football league matches
4.10 Raise awareness and disseminate education materials at schools, markets, and offices

5.1 Train farmers' groups in VSLA development and operations
5.2 Support farmers' cooperatives to register VSLAs
5.3 Conduct regular monitoring and support visits to VSLAs
5.4 Train farmers' groups in beekeeping
5.5 Conduct bi-annual monitoring and refresher training for farmers' groups with professional beekeeper

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
1A	Will contribute to PhD research	Female	Dutch	1			1	1
2	MSc student will have the opportunity to do research that works towards goals	TBD	Tanzanian					1
6A	Number of People to Receive Training		Tanzanian	34			34	160
6B	Number of Training Weeks Provided		Tanzanian	6			6	25
7	Number of publications			3			3	7
9	Rungwa Management Plan							1
11A	Number of papers to be published in peer reviewed journals							2
11B	Number of papers to be submitted to peer reviewed journals							2

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

[redacted]	[redacted]
[redacted]	[redacted]
[redacted]	[redacted]
Appendix 4	VSLA/CBO Training Attendance
Appendix 5	Rungwa Human-Elephant Interaction Report, Draft
Appendix 6	Fence Training Attendance Sheets
Appendix 7	Beehive Fence Monitoring Tool
Appendix 8	Weekly Report Template
Appendix 9	Local Elephant Monitor Question and Answer
[redacted]	[redacted]
Appendix 11	Baseline Survey Report
Appendix 12	Ground Survey Report, October 2018
[redacted]	[redacted]
Appendix 14	Use of Loans

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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.	No
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.	