Darwin Initiative
Final Report

*To be completed with reference to the Reporting Guidance Notes for Project Leaders (http://darwin.defra.gov.uk/resources/) it is expected that this report will be a **maximum** of 20 pages in length, excluding annexes)*

Darwin project information

Project reference	20-022
Project title	Enhancing habitat connectivity through sustainable development around the Gola Rainforest
Host country(ies)	Sierra Leone
Contract holder institution	Royal Society for the Protection of Birds (RSPB)
Partner institution(s)	Gola Rainforest National Park (GRNP), Welt Hunger Hilfe (WHH), Conservation Society of Sierra Leone (CSSL), Forestry Division, Cambridge University Department of Land Economy and Rainforest Alliance (RA).
Darwin grant value	£271,075
Start/end dates of project	Start 1st July 2013/End 30th June 2017
Project leader's name	Nicolas Tubbs, nicolas.tubbs@rspb.org.uk
Project website/blog/Twitter	http://www.rspb.org.uk/ourwork/projects/details.aspx?id=234389 http://www.golarainforest.org/ @golarainforest
Report author(s) and date	Nicolas Tubbs, Mark Hulme and Fiona Sanderson.

1 Project Rationale

The Gola Rainforest National Park (GRNP) is the largest remnant of Upper Guinea Forest in Sierra Leone, an internationally recognised biodiversity hotspot. The park is in three distinct blocks which are separated by a mosaic of villages, agricultural land and forests. As resource demands and population growth both increase, forest isolation worsens, threatening forest integrity and resulting in human0wildlife conflict increasing.

Efforts to revive the cocoa sector in post-conflict Sierra Leone have not fully succeeded due to the prevalence of unproductive varieties, aging plantations and the preoccupation of communities with subsistence agriculture. Efforts are underway to address this so that shade-grown cocoa restoration can be a key part of a carbon financing project being developed to secure sustained income for the GRNP. However, it is unclear whether rehabilitated cocoa is best used to promote forest connectivity for wildlife.

Shade-grown cocoa restoration on large scale is underway, aiming to secure sustained income for GRNP communities. The partners to this project aim at determining the multi-benefits for cocoa rehabilitation, promoting improved livelihoods in conjunction with the promotion for forest connectivity for wildlife. Directing cocoa restoration to increase yields while benefitting wildlife and minimising human-wildlife conflicts is therefore crucial for the crucial for the success of the GRNP, for habitat connectivity and for sustainable livelihood improvement.

All problems were identified based on our 25-year experience in country and after extensive consultation with stakeholders.

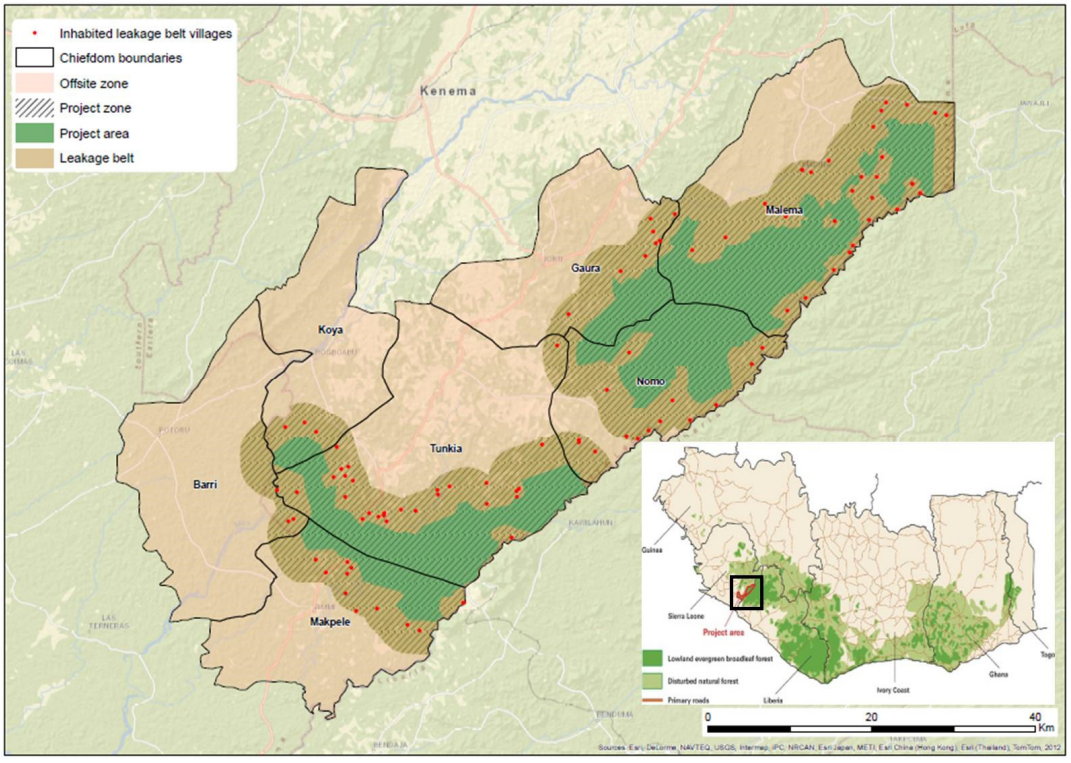


Fig1. Map of Project Zone of this project (respecting REDD Terminology, the project area is the National Park).

2 Project Partnerships

- The RSPB, CSSL and the Government of Sierra Leone jointly manage the GRNP. All three have been partnering to conserve GRNP and its landscape for over 25 years.
- WHH has been delivering agricultural improvement projects in Sierra Leone for over 7 years and is considered the lead international development agency in the agricultural (rice, cocoa, coffee) sector there.
- Cambridge University is working with Wageningen University as part of the Cambridge Conservation Initiative, conducting socioeconomic surveys around GRNP since 2009, building understanding of community development needs and measuring the success of the GRNP.
- RA is an internationally recognised certification body which provides technical advice to ensure communities are aware of certification processes and requirements, build capacity on sustainable landscape practice and ensure this project meets certification processes and requirements. There is an increasing interest in certification in country as well as from international buyers.
- In terms of decision making, RSPB, CSSL, the Government of Sierra Leone, GRNP and WHH all sit on this project's Steering Committee. Day to day decisions are made jointly by the RSPB and the GRNP. In terms of achievements of this project's partnership, a true achievement was to maintain strong ties amongst the partners throughout the Ebola epidemic which tailed off in September/October 2015 after it ravaged West Africa with over 4000 deaths in Sierra Leone alone. This partnership managed to be highly adaptive and proactive considering the unique and extraordinary context. This can be evidenced by how swiftly the project's field activities resumed in what is today still, a post-Ebola recovery setting.
- The partners forming the GRNP finalised the registration of a non-profit company limited by guarantee, the Gola Rainforest Conservation LG in 2015. It is the first of its kind in Sierra Leone, consisting of an international organisation (RSPB), a local civil society organisation (CSSL) and government. All the legal documentation was approved and finalised. As such, the first Assembly General Meeting was held as well as the first meeting of the Directors.
- The RSPB, in partnership with TWIN, the Gola Rainforest Conservation LG and the Rainforest Alliance were awarded a grant from Comic Relief to develop the value chain for a Gola Cocoa brand, from the farm gates to export, hence further building a rainforest-friendly cocoa value chain with forest edge communities. This project was launched in December 2015 and would not have been awarded had it not been for the outputs delivered by this specific project. This project truly served as a spring board, providing its scientific backbone.
- Likewise, this project's approach, thinking and results have been instrumental for our work in Liberia's share of the Gola rainforest through the ongoing EC-funded GolaMA project. We are also hoping to replicate this project in Liberia as of 2018, pending ongoing proposals are successful.
- Finally, this project has allowed us to be awarded a small grant from Conservation International (January-June 2017) to strengthen and in-bed a gender-sensitive/gender-inclusive approach with cocoa farmers and within the producer organisation(s).
- Moving Forward: all partners will keep working together beyond the lifetime of this project, pending the financial resources associated are secured. All partners recognise the unique value-added of our partnership and the innovative approach to the integrated landscape approach being delivered with the Gola Rainforest.

3 Project Achievements

3.1 Outputs

Output 1: Assessing impacts on wildlife of restoring agro forestry (cocoa) systems

Activity1.1: Mapping exercise to assess the extent of abandoned cocoa plantations

The data collected during extensive field work seasons was meticulously entered and analysed, which resulted in extensive mapping (including polygon maps) for 18 Forest Edge Communities (FECs) from which we determined cocoa patch sizes varying from 46.85Ha to 0.02Ha (Indicator 1 and 4). Furthermore, we then ascertained which of these were active or abandoned (See Annex 1, 2, 3). The fieldwork that followed allowed us to refine this mapping (Indicator 2). Additionally, we modelled cocoa plantations across the entire project area by investigating land cover satellite imagery and ground-truthing it with the mapping performed and data points collected in the field. This provided a crude measure of the extent of active and abandoned cocoa plantations around the entire National Park (Annex X). However, the statistical uncertainty is high for determining between active and abandoned cocoa, so results need to be considered with caution. Uncertainty is lower, on the other hand, for determining between plantation and forest and between plantation and farmbush and these data are used for the maps in Activity 4.

In total 180 cocoa patches were mapped consisting of 109 active patches and 71 abandoned patches.. In addition to mapping in Malema and Nomo chiefdoms 10 of the 109 active cocoa patches had been added and mapped in Gaura chiefdom in 2016 as cocoa development work had been recently very active in these communities so it was decided to add these points as data from likely higher-yielding cocoa compared to Nomo and Malema chiefdoms. The data analysis now completed using the mapping data (Indicator3) point to a clear conservation messages. For example, the analysis shows a greater proportion of the crop being raided in plantations closer to communities. Also, lower proportionate losses are recorded due to crop raiding where more pods were present on cocoa trees, indicating that increasing yield may offset losses to wildlife. Finally, the evidence so far suggests that non-forest monkeys are causing the majority of the damage.

Activity 1.2: Camera trapping/point counts of wildlife (mammals/birds) to survey resident and transient wildlife in habitats surrounding GRNP, including restored and abandoned plantations, and within GRNP to compare wildlife populations to the NP forest baseline. This would include measuring changes in wildlife following cocoa restoration. & Activity 1.3: Analysing the camera trapping/point counts of wildlife in order to compare wildlife populations between different habitats (spatial comparison), in particular to the NP forest baseline but also between the farmed habitats studied, and before and after cocoa restoration (temporal comparison).

Bird point data and analysis (Activity 1.2 and 1.3)

Between November 2013 and March 2016, including a significant break during the Ebola crisis, bird point counts were conducted in Malema and Nomo chiefdoms. These included 100 points in forest inside Gola Central, GRNP, 61 points in active cocoa plantations around Forest Edge Communities, 45 points in abandoned cocoa plantations, 36 points in active cocoa plantations around non-Forest Edge Communities, 52 points in community forest, 48 points in farmbush and 32 points in active upland farms. Between November 2016 and March 2017 50 additional GRNP bird points were completed in Gola South and 39 GRNP points repeated in Gola Central. 57 active cocoa bird points and 40 abandoned cocoa bird points were repeated in 9 communities in Malema and Nomo chiefdoms. In Gaura chiefdom 66 additional active cocoa bird points were conducted as well as 4 additional farmbush points. Principle Components Analysis was performed on habitat data collected at each point, which plots sites based on differences between variables, in this case tree cover, shrub cover, leaf litter, bare ground and an openness index (see Annex 2, 3) and showed some distinct differences between forested habitats (GRNP forest

and community forest), forest-like habitats (Abandoned and active cocoa) and non-forest (farmbush and upland farm, together making up the slash and burn cycle, roughly 20% upland farm to 80% farmbush at any one time). Bird point counts were analysed in a number of ways. Buckland geometric means of occurrence (Annex 2, 3) were derived by habitat with bootstrapping performed to generate 95% confidence intervals around the estimates. Since, of GRNP and leakage belt habitats, abandoned cocoa had the lowest number of points, at 45, means of 100 random samples of each other habitat were used to account for species accumulation being incomplete at 45 points. The index measures difference to the GRNP forest bird community, with GRNP forest being 1, active cocoa in FECs 0.43 ± 0.08, active cocoa non FECs (adjusted for lower sample size) 0.08, abandoned cocoa 0.47 ± 0.12, community forest 0.32 ± 0.06 and slash and burn 0.24 ±. 0.05 Confidence intervals for community forest, active cocoa FEC and abandoned cocoa overlapped whereas those for slash and burn did not overlap with cocoa habitats. This indicates that cocoa plantations are superior in terms of forest-typical bird diversity than slash and burn and similar to community forest bird communities when baselined with GRNP bird communities so represent lower risk of biodiversity loss and higher suitability as connective habitats between forest blocks. In addition before-after tests were performed on those points repeated in rehabilitated cocoa i.e. those which switched from abandoned to active between visits, compared with nearby abandoned points which had remained abandoned and nearby active points which remained active (Annex 2,3). In total 13 abandoned cocoa bird points were rehabilitated, 13 points were paired with them which were still abandoned along with 13 active points which were still active. Scores for each point were calculated based on BirdLife measures of forest dependency by species, higher scores representing higher numbers of high forest dependent species. T Tests were performed which showed that there was no difference in the before-after changes between the different sets of points, so where abandoned changed ot active the change was not significantly different than the change measured where abandoned remained abandoned or active remained active. There did seem, however, to be an increase over time overall in forest dependent species score but this was consistent across points as confirmed with a mixed model showing year having a positive effect whilst habitat type and year * habitat type interaction being non-significant (Habitat $F=0.01$ $p=0.91$, year $F=30.81$ $p<0.01$, habitat*year $F=0.01$ $p=0.91$, point=random factor). This result indicates that forest bird diversity might be increasing in the leakage belt and that, presently, rehabilitation of abandoned cocoa plantations does not seem to be having a negative effect on forest bird presence in cocoa habitat. Analysis of bird-habitat associations, including of bird densities by habitat for more common species, is still ongoing.

Camera trap data and analysis (Activity 1.2 and 1.3)

A total of 55 Reconyx camera traps were deployed to census large ground-dwelling mammals in different habitats, for a minimum of 23 trap nights each. Of these, data were available for analysis from 42 camera traps, as 4 had their SD cards removed when the camera was *in situ*, 6 failed whilst in the field, 2 were damaged when they could not be removed from the field due to the Ebola outbreak, and one was moved during deployment.

Of the resulting 42 camera traps, 4 were deployed in GRNP, 8 at 5 abandoned cocoa sites (3 being 2014 deployments which were repeated in 2017), 15 at 12 active cocoa sites (3 repeat deployments; 2014 and 2017), 8 in community forest and 7 in farmbush. None of the abandoned cocoa sites where traps were originally deployed were rehabilitated into active cocoa, so no before-after rehabilitation of large mammal communities could be made. A total of 12 villages in 3 chiefdoms were censused. This resulted in a total of 1354 trap nights (121 in GRNP; 250 in abandoned cocoa; 486 in active cocoa; 288 in community forest; 209 in farmbush).

We mainly considered species weighing >1 kg, as species smaller than this do not reliably trigger the camera traps used. Of these, 16 mammals and 1 bird were identified to species (Annex 6), with Giant Pouched Rat and genets not identifiable to species using camera traps. With the exception of White-bellied Pangolin, the occupancy rate of all IUCN Red-listed species and all those associated with forest were highest in GRNP, which also supported the highest recorded species richness overall despite the lowest sampling effort. Whilst formal statistical comparisons are not possible due to limited data, examining capture rates and species

recorded in abandoned and active cocoa do not strongly indicate that rehabilitating cocoa is likely to impoverish the large mammal communities recorded (Annex 6). However, two declining species (Marsh Mongoose; Maxwell's Duiker) were recorded at a smaller proportion of sites in active than abandoned cocoa, with one declining species (Water Chevrotain) in active, but not abandoned, cocoa, and one Red-listed species (Sooty Mangabey) in abandoned, but not active, cocoa. Additional monitoring of the large mammal communities will be needed to assess whether there is any impact of rehabilitation on the mammal community. The results suggest that of the habitats sampled in the leakage belt, community forest is likely to support more species, more forest-dependent, more Red-list and more declining species than other habitats. These results are tentative as, due to the high rate of camera loss, sampling effort was probably insufficient to record the whole ground-dwelling large mammal community. However, we would recommend that any new cocoa plantations not replace community forest.

Although they were not sampled during the main protocol, incidental camera trap images recorded the Red-listed Western Chimpanzee and White-belled Pangolin in active cocoa plantations, suggesting that cocoa plantations may be of use as either a habitat or corridor for these species. Indicator 5 & 6

Output 2: Understanding of the costs of human–wildlife conflicts relating to cocoa farming is enhanced, together with knowledge of methods to mitigate these conflicts.

Activity 2.1: Monitor crop raiding throughout the project in restored and non restored sites. & Activity 2.2: Review existing practices of HWC prevention and mitigation. & Activity 2.3: Develop a list/framework of mitigation strategies/recommendations for dealing with HWC which may be applied in the immediate surroundings of the National Park. & Activity 2.5 Human Wildlife Conflict mitigation tools are demonstrated in selected GRNP forest edge communities (FECs) and surrounding land owners.

A review of published and unpublished literature of crop losses to wildlife in plantation crops was conducted to ascertain: (i) the range of taxa identified as responsible for causing damage, (ii) where it is quantified, the levels of that damage as a percentage of yield, (iii) the range of mitigation techniques used and (iv) where assessed, the efficacy of that mitigation. This review (Annex 4, 4bis, 5) has been submitted to *Oryx*. A wide variety of bird and mammal species were identified as crop raiders (Annex 4, 4bis, 5). Seven studies were found in which damage to plantation crops was assessed as a percentage of yield, with losses varying from 0.4-30%: therefore, the damage recorded in cocoa plantations around GRNP is at the upper end of the recorded range. There were no consistent co-variates of proportion of loss to wildlife recorded, making the field study (below) carried out under this project a potentially important contribution to the scientific literature. Three studies tested for the effectiveness of mitigation strategies to prevent wildlife incursion, with nets, chilli grease fences and manipulating shade tree type all potentially reducing wildlife incursion. A wide variety of crop raiding mitigation techniques were recorded in the literature (see Annex 4, 4bis, 5), but the evidence for or against effectiveness was limited.

A field study was carried out in autumn 2015 (the latter part of the cocoa growing season when it is most likely to be damaged by wildlife) to quantify damage to cocoa by wildlife and subsequent losses to farmers, to assess the species groups responsible and to identify covariates of proportion of crop lost in order to help inform mitigation strategies and location of cocoa plantations. This has resulted in a draft paper, which will be submitted to an academic journal in the next few weeks, and a MSc project carried out by a student at the University of East Anglia, for which he won the Michael Graham prize (MSc Thesis made available upon request). The study, in which 70 10mx10m quadrats of actively farmed cocoa between 0.8-4km from GRNP, were surveyed for damage three times by wildlife in 15 patches of cocoa, recorded damage by Western chimpanzees and monkey and squirrels (not identifiable to species), with >87% of recorded damage ascribed to monkeys. A subset of 39 quadrats in 11 cocoa patches, removing those with very low cocoa pod availability and those pre-selected for evidence of

chimpanzee damage, was analysed to assess cumulative proportion of pods lost to damage in relation to plantation size, distance to GRNP and village, number of trees, ground vegetation cover and amount of adjacent woody habitat that could act as a source of crop raiders. Proportion of crop lost reduced with increasing yield and distance to village. This suggests that although the overall percentage of crop lost is high in comparison to other studies (20%), impact could be mitigated by siting plantations at a distance from villages and by continuing work to increase yield. The lack of relationship of raiding to distance to GRNP and adjacent woody habitat, and the higher rate of raiding closer to villages, suggests that generalist species, not forest dependent ones, are responsible.

We piloted the most fitting mitigation technique identified from the review to the local context in one community (Indicator 4): the brushing of chilli paste on the cocoa pods. This was revealed to have very minor positive impact on preventing HWC. The limited benefits from this were largely outweighed by how labour intensive this mitigation strategy is. Hence, based on results from all work related to Output 2, we concluded that the best possible mitigation strategy is to be increasing yields.

Crop raiding camera trap data (Activity 2.1)

Nine Reconyx cameras were placed between 50-100cm above the ground in active or (one) recently abandoned cocoa plantations in autumn 2015, at locations where either farmers identified as active entry points for primates, or where Western Chimpanzee tracks were observed. The only species in addition to those recorded on the camera traps placed in cocoa plantations for monitoring purposes was Western Chimpanzee. Individuals were recorded carrying cocoa pods.

Activity 2.4 Analyse existing socioeconomic data and monitor selected communities throughout the project to understand attitudes.

Existing socioeconomic data from past surveys was analysed by Cambridge and Wageningen Universities who produced a report (Annex X) which served as a Baseline for the 30 year vision for Gola. Please note that the report was structured against the socio-economic indicators of the 30 year vision. However, these are directly linked to this project. Respondents were asked to report their income from the sale of 16 common crop types, and any other crops that were sold by the household. Total income from crop sales is calculated as the sum of net incomes from all crops in 2013, per household. In this survey, 48% of households (391 households) report no net income from the sale of crops. The average net income from all crops in 2013 is 220,000 Leones ($51) per household1, with a maximum reported income of 4653,000 Leones ($1082). The crop that produces the highest income per household is cocoa with a mean of 265,000 Leones ($62) per household, with a maximum income of 900,000 Leones ($209). The high average income applies only for those households that grow cocoa. Most households (80%) do not make an income from growing cocoa and the sale of cocoa is more common in households from non-FEC villages than from FEC villages, with the highest proportion of households selling cocoa are around Gola Central. This is also the geographic focus for targeting communities in this project. Indicator1, 3, 5, 6.

Activity 2.6 Dissemination through awareness building workshops FFS

The total number of Farmer Field Schools established as part of this project is 60 with a total of 1182 registered cocoa farmers and 492 participants. For example, a total of 96 Master Farmers were trained in 2015 alone, on two separate topics: (i) establishment of new cocoa plantation

[1] * For the reporting of incomes in this document the 2013 the exchange rate of Leones to US dollars was taken to be 4300 Leones = 1USD (exchange rates published by HMRC for March 2014).

including out-planting (July-Sept which involved 82 participants including 7 women) and (ii) cocoa processing and quality (Oct-Dec which involved 60 participants, including 8 women). A series of workshops through Farmer Field schools were also given focusing on the harvesting, fermentation and drying processes. Never the less many more activities were done to support the already established farmer groups. I.e. more sensitization on benefit of group formation, leadership skills training, good agronomic practices training, business skills, selection of buying officers and training on buying documents for master farmers and youth. A total of 110 master farmers (10 females 100 male) were selected and trained from the 60 cocoa farmer groups in 2016 alone. By virtue of women underrepresentation in the programme activities, an extensive gender inclusion training and sensitization exercise was undertaken to help increase the involvement of both youth and women in cocoa activities and for them also to have more control, benefit and decision making possibilities, both at household (family cocoa business) level as well as at the level of the Cocoa Farmers Association.

We have monitored the impact this has on the good quality cocoa being produced by forest edge communities during the 2016 cocoa harvest season. This has gone hand in hand with the Comic-Relief funded project which we previously mentioned (because this project leveraged the Comic Relief one). As a result, 12.5MT of rainforest-friendly and high quality cocoa was internationally exported. This has been sold to an American manufacturer for the craft market. Hence 2017 saw the very first container of Gola Cocoa beans exported.

Furthermore, results from the crop raiding data have been communicated to forest edge communities through a workshop on the 8th of September 2017.This roundtable had the aim of bringing together cocoa farmers from across the seven chiefdoms as well as government, NGO and producer organizations to hold a one day participatory conference to explain and discuss results achieved during the Darwin project and discuss possible ways forward. The roundtable had a focus on crop raiding in cocoa plantations within the GRNP forest edge communities. The objective of the workshop was to meet with participants from different organizations/sectors, including government, and discuss and outline mitigation and adaptation strategies as to how to remedy the problem of crop raiding and its effects on the livelihoods of cocoa farmers in the Gola chiefdoms and across other areas of Sierra Leone.

Output 3 Selected communities surrounding GRNP have improved capacity, access to advice and support to improve cocoa yields and enhance livelihoods

Activity 3.1: Support thirty FECs to link with farmer field schools which support farmers with tools, advice and support to improve yields. & Activity 3.2: Analyses existing socioeconomic data and monitor selected communities throughout the project to understand value of cocoa as source of income. & Activity 3.3 Advice to promote a win-win solution to livelihoods and wildlife is given to ongoing initiatives on cocoa rehabilitation and new plantations. & Activity 3.4 Multi-stakeholder workshops to enhance local capacity around cocoa cultivation and human wildlife conflict issues so best sustainable landscape practices can be created and evaluated.

25,000 seedlings were transplanted during the 2015-16 season alone and additional nurseries were established within forest edge communities. Out-planting was done mid-2017 to support rehabilitation efforts in particular. 96 fermentation boxes were supplied during the 2015-16 season and 40 drying facilities in communities were established. Refresher trainings were delivered in each of the training centres. Cut test was done by SLPMC-Sierra Leone Produce Marketing Company to know the quality of cocoa. The cocoa beans produced during 2016 harvest cycle was placed at grade 1 which is outstanding considering the very poor reputation of Sierra Leone cocoa internationally. Indicators 1 and 2 aiming at 140 members to enrol with Farmer Field Schools and trained in improved techniques is surpasses by almost 10 and 4 folds respectively. However Indicator 3 (*Meetings held with 3 new plantations during the project)* was not met since the plantation with which exchange visits would have been most fit for purpose went bankrupt (Tropical Farms ltd). Any alternative option was ruled out as not being truly fit and not cost-effective.

A significant a number of farmers did express that they received better price for their cocoa as a result of better quality as compared to a better price because of general better prices being paid. Before, farmers were selling 1kg of cocoa beans at Le. 7,000 at farm gate but now farmers received a minimum of Le.12, 000 per 1kg. This was due to good quality beans produced and also farmers were taught how to sort, use scales (before they were using eye measurement), and better storage to maintain the beans quality.

Output 4 A livelihood development and habitat connectivity strategy that integrates cocoa rehabilitation is developed and adopted by the GRNP and disseminated for selected Protected areas in Sierra Leone

Activity 4.1 Criteria and principles for selecting priority cocoa development areas to enhance connectivity are produced

Areas for cocoa rehabilitation, yield improvement and for new cocoa plantations must, first and foremost, be in the community's interests to develop and suitable for successful cocoa production. Cocoa tends to grow better in well irrigated land that is not too steep or high. The vast majority of cocoa mapped in the leakage belt was within 400m of a stream or river so land within the boundaries of the 400m drainage buffer habitat map in Annex 3 should be concentrated on. ASTER elevation data (see Annex 8) shows that the highest elevation within the leakage belt is 390m, with very little land over 340m and the highest mapped cocoa polygon was 330m so there seems to be little limitation based on elevation alone so this was not considered further. Local knowledge of conditions and land tenure should also determine the optimum sites to consider.

Results from biodiversity surveys suggest that GRNP forest is best for both forest bird and mammal communities and that rehabilitating abandoned cocoa and improving yields in existing cocoa may not significantly impact on forest wildlife communities. Whilst our data does not point to a significant difference in forest bird communities between cocoa habitats and community forest there do seem to be more forest mammals in community forest than cocoa and there does seem to be a significant difference in bird communities between GRNP forest, cocoa and slash-and-burn. Given the mammal data the precautionary principle ought to be in place regarding development of forest habitat in the leakage belt, particularly with regards to connectivity in corridor areas, as defined in the ARTP report, September 2013 (see Annex 3 for corridor communities and priority ranks). We recommend using the habitat maps in Annex 2 and 3 to locate areas within priority corridor communities, concentrating on areas 1 – 4, to focus on rehabilitation and yield improvement in brown areas ("plantation / degraded forest") on the maps and avoid green areas ("forest"). Where local conditions, land tenure and food-security allows new plantations should be considered on red ("bare") and yellow ("non-forest") land. This would have the potential to improve existing cocoa income without reducing connectivity and even enhance connectivity where plantations can be developed in the slash-and-burn mosaic.

Whilst not as crucial for connectivity between forest blocks consider using the same principles for developing land outside priority corridor areas for improved cocoa production, concentrating on new plantations where there is more bare and non-forest land (red and yellow) and on rehabilitation and yield improvement where there is more forest and plantation habitat (brown and green).

Considering the maps are not 100% accurate, do not currently cover the whole of the leakage belt and considering the high turnover of landuse in the tropical agricultural system ground-truthing and improvement of the habitat model as data is added to should be carried out on a regular basis to update the maps and which communities to focus development effort on from a biodiversity connectivity point-of-view.

GRNP biodiversity monitoring data conducted outside this project, for pygmy hippos, chimpanzees, monkeys and other mammals, white-necked picathartes, amphibians, birds, bats and trees, should also be taken into account when developing cocoa in areas where HCV species occur, particularly in priority corridor areas.

Activity 4.2 Develop a map to demonstrate where cocoa can be used in the possible mosaic linking Gola South, with Gola Centre, and Gola centre with the Transboundary corridor to enhance habitat connectivity in the agricultural landscape

Rapideye multispectral satellite imagery was obtained covering the majority of the leakage belt and cocoa plantation maps plus bird point habitat classification were used as ground-truthed data to model habitat classification maps as described in Annex 1. Since the accuracy of the map separating out abandoned and active cocoa was questionable (42.7%) the map that merged cocoa plantations (accuracy 81.6%) were used. In addition data on the drainage network of streams and rivers across the GRNP and leakage belt were available and ASTER satellite elevation data was obtained from the ESA website. In ArcGIS a 1500m buffer was produced around all Forest Edge Communities and the proportion by area of leakage belt habitat classes within the leakage belt within this buffer was calculated for each village where all leakage belt data was available (79 of 122 FECs). Of the mapped active cocoa plantations only 3.12% of the mapped area was outside of 400m from a stream or river and only 1.16% of the area of mapped abandoned cocoa plantations was beyond 400m of a stream or river. With the highest mapped plantation being at 319m elevation the elevation range across the leakage belt did not suggest that elevation would be a major limitation to cocoa development, but since distance to stream or river seemed a limiting factor the proportion by area of leakage belt habitat classes within 1500m and also within 400m of a stream or river was also calculated to give a better idea of useable land available for cocoa production. Given the results of the habitat biodiversity comparisons showing better biodiversity outcomes in cocoa than slash and burn farmland, and comparable with community forest, we suggest that FECs with a higher proportion of bare + non-forest habitat should concentrate on planting cocoa in that habitat, as described in the habitat map, and areas with higher proportions of cocoa + forest habitat should concentrate on increasing yield in current cocoa plantation in order to best synergise income and biodiversity conservation whilst maintaining connectivity. The maps and tables in Annex X, showing these proportions by village, suggest that in priority corridor areas between Gola Central and Liberia and between Gola Central and Gola South most FEC have higher proportions of cocoa and forest habitats so yields in existing plantations should be focussed on with limited connectivity impact, with any new plantations focused on the non-forest areas, whilst in many non-corridor areas there is already greater proportion of non-forest habitat which could be developed into cocoa plantations so this should be the focus there alongside efforts to increase yields in existing plantations.

Activity 4.3 Exercise to review and update GRNP management plan to include habitat connectivity

Habitat connectivity has been at the very core of GRNP management for the last year or so, much relying on the Darwin project to inform and support a proposal to USAID-WABICC, which focuses on materialising the connectivity potential identified by the Darwin project. As such, we relied on the conservation science produced here to secure this transboundary grant (Sierra Leone and Liberia) which will see to connect the matrix of protected areas, community forests and agricultural land between GRNP's Southern and Central blocks, with the Gola Forest National Park in Liberia. This USD 1.9M grant was awarded in September 2017, and though the GRNP management plan does not yet include habitat connectivity as such, GRNP management with its partners will be focusing on this very topic for the next 2.5 years of this USAID grant.

Activity 4.4 National conference (end of Project) targeting selected Protected Areas focusing on replication potential focusing on habitat connectivity and human wildlife mitigation issues

The meeting had the aim of bringing together cocoa farmers from across the seven chiefdoms as well as government, NGO and producer organizations to hold a one day participatory conference to explain and discuss results achieved during the Darwin project and discuss

possible ways forward. The roundtable had a focus on crop raiding in cocoa plantations within the GRNP forest edge communities. The objective of the workshop was to meet with participants from different organizations/sectors, including government, and discuss and outline mitigation and adaptation strategies as to how to remedy the problem of crop raiding and its effects on the livelihoods of cocoa farmers in the Gola chiefdoms and across other areas of Sierra Leone.
The workshop was well attended by twenty master farmer representatives from across the seven chiefdoms (Malema, Tunkia, Gaura, Nomo, Makpele, Koya and Barri chiefdoms respectively). The roundtable was also attended by representatives from Welthungerhilfe, Jula Consultancy Limited, District Forestry and Agriculture Officers from the Ministry of Agriculture, SLARI, the Gaura Cocoa Farmers Association (GaCFA), the Paramount Chief of Koya chiefdom, Albert Tucker from TWIN Holdings and GRNP staff.

Key Discussion Points:
Cocoa Crop Raiding - The results that have come out of the Darwin project show irrefutable evidence that crop raiding in cocoa farms is causing substantial losses and GRNP acknowledges this as being an issue. The Darwin study did not come across any traditional mitigation activities that are effective and in some cases these may even be harmful to the farmers in question (crepuscular guarding can for example increase contact with malaria carrying mosquitoes). Farmers were happy that the concerns they had raised had been listened to but they requested that now GRNP should do something to mitigate crop raiding by wildlife.

Farmers were interested to hear that improved management not only increased yields but also reduced the number of raided pods. Those farmers that have been less involved in current cocoa project activities conducted by GRNP pleaded that they be assisted to improved farming techniques and management in their farms. Better management of farms was later acknowledged by most farmers as being one of the best practices that they can commit to try and reduce crop raiding and one that GRNP can provide support with through the ongoing Comic Relief Cocoa Project.

There were however some contentious issues linked to the Darwin project results explained to the farmers. For example, many of the farmers could not believe that the number of raided cocoa pods increases in farms that are closer to the communities. However, they did agree that animals close to the villages might be more habituated to their presence and less scared compared to animals coming from within the park, thus causing more damage. They also agreed to explore the possibility of piloting new mitigation strategies in farms that are close to the communities.

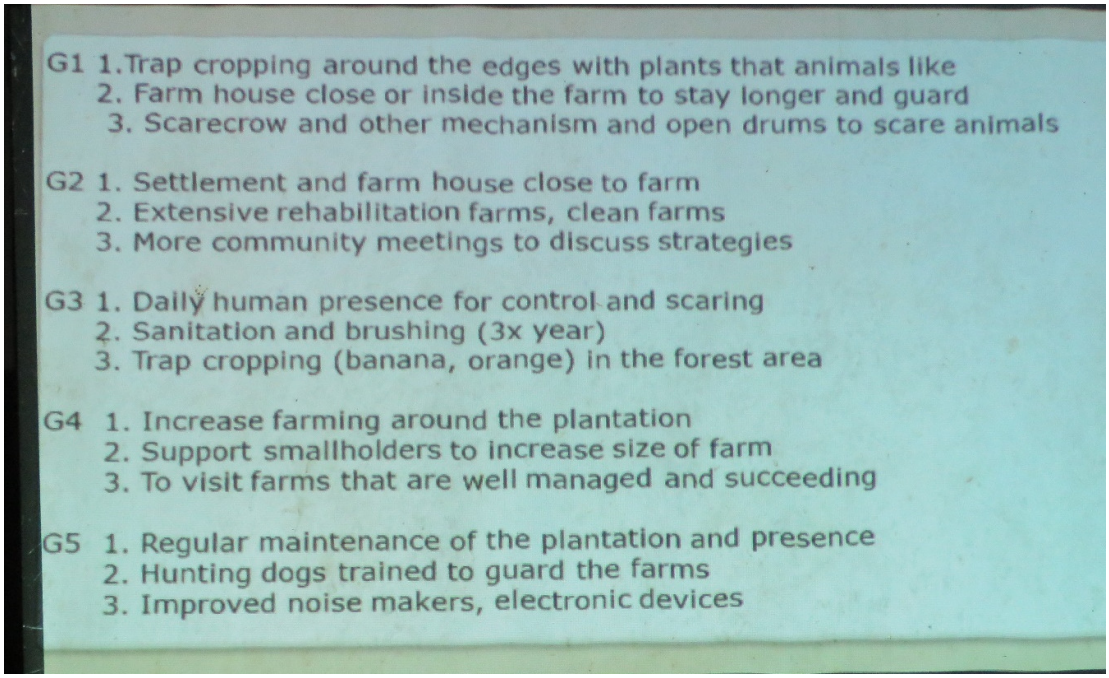
Most of the cocoa farmers could also not believe that chimps caused less than 5% of the total damage with more than one farmer getting up to voice their concern over the fact that chimps were causing the most damage in their farms. This will be an issue GRNP might need to explore further with the collaboration of farmers to avoid escalation of the conflict with this critically endangered species.

Rainforest Friendly Marketing – Many farmers were interested to understand that consumers in the West value not only the quality and the provenance of the product but also the wildlife and forests that are associated with that product. They agreed that the value of their cocoa could increase thanks to the presence of Gola Rainforest and the wildlife associated with the park, however they did not think it should be them bearing the costs associated with sustaining that wildlife. Further training on the business side of the project might help the farmers understand that the losses linked with cocoa crop raiding can be made up by the increase in market value of their product and that this is ultimately a business strategy on their part.

Replication – There was a lot of information sharing between cocoa farmers from different chiefdoms regarding crop raiding but also best practices and farming strategies, GaCFA representatives were vocal in voicing their approval of the Gola Cocoa activities and gave suggestions to other chiefdoms towards replicating their success in all chiefdoms with GRNP's support. Government representatives involved in the conference were also very interested in how this project has been working successfully with farmers within the GRNP leakage belt. They believe that if the government put more resources to use then sustainable cocoa practices could be extended beyond the Gola landscape and around other protected area. However they are not

sure if there is currently enough commitment and resources by part of government and asked GRNP to help them bring this message forward.

Mitigation strategies- The cocoa farmers took the opportunity to bring forward their complaints regarding crop raiding by wildlife in their farms, they were also invited to share some of the solutions/mitigation strategies they had been using with success. To achieve this, participants were divided into groups of eight (8) and asked to discuss among themselves and offer workable solutions that in their experience would be effective to prevent or reduce crop raiding. Each group was to recommend three mitigation strategies that were cost effective and could implemented at a community level. Solutions offered by participants from each of the five groups were:



Output 5 Project managed efficiently and effectively and local staff trained so that they can continue to contribute to ensuring the project legacy.

Activity 5.1: Establish project steering committee from RSPB, GRNP, CSSL and FD and WHH to meet every 6 months. & Activity 5.2: Hold project level workshop to develop monitoring and evaluation plan to establish, roles and responsibilities of partners and associated methods, tools and timetable. & Activity 5.3: Conduct training programme for National Staff from GFP, CSSL, FD and other partners where appropriate

Three Steering Committee meetings were held instead of the four anticipated with representatives from RSPB, GRNP, CSSL, Government of Sierra Leone and WHH (Indicator 3). This was because no international participants were allowed to travel for the second Steering Committee Meeting due to the Ebola outbreak. The very limited network in country (phone and internet) prevented this from happening via teleconference. Worth noting that during the outbreak no group gatherings were permitted, with the exception though of Ebola and Ebola prevention meetings which were provided to all staff with support from the aid organisation GOAL. Minutes to these Steering Committee meetings can be found in Annex X as well as the Terms of Reference for the Steering Committee. All representatives knew each other already, all relying on past as well as ongoing collaborative work. All members were therefore most familiar with the context, the issues and the tasks this project was focusing on, offering sound advice, recommendations and inputs to the project staff.

A project level workshop in itself was not held as regular meetings with a smaller number of parties and stakeholders were proving more efficient, cost-effective and manageable (Indicator 2). Hence GRNP, RSPB and WHH met to develop and clarify roles and responsibilities through

weekly meetings held in Kenema. Additionally, RSPB, GRNP, CSSL and the Government of Sierra Leone maintain regular contact for the management of GRNP and have been making use of those opportunities to include this project, while the RA and the RSPB have maintained contact via internet/teleconference only due to the distance and timezones as the expertise provided by RA comes from their office in the USA. Finally, Cambridge/Wageningen University and the RSPB have had regular opportunities to meet through the Cambridge Conservation Initiative and have several collaborative projects. Socioeconomists are regularly in Sierra Leone where they are hosted by GRNP.

The Steering Committee has recognised the significant progress made especially considering the unique national crisis we have had to face. It also recognised the robust and rigorous monitoring and evaluation plan in place (See Annex X) which is integrated to the Gola REDD 30 year plan (Indicator 1). Despite this crisis, the project has been delivered within budget and kept strong financial control and management (Indicator 4).

The project manager visited the team in country over 13 times since the project's start to ensure efficiency and robust monitoring. However, it is worth noting that the Project Manager could not travel to Sierra Leone during the Ebola outbreak due to travelling restrictions. Considering time and financial constraints, the very last Steering Committee meeting was adjoined to other meetings gathering RSPB, GRNP, CSSL, the Government of Sierra Leone and the Paramount Chief Representative. However WHH was unable to join. All recognised the progress made and see great value in the crop raiding analysis which will help answer long-pending community grievances relying on science.

3.2 Outcome

The Project's outcome statement is:

"**Gola Rainforest National Park (GRNP) stakeholders are enabled to restore local cocoa plantations for the benefits of livelihoods, carbon, biodiversity and habitat connectivity**".

The project has contributed to reducing poverty through supporting the re-emerging cocoa sector cocoa in 30 forest edge communities. More than 70 households have increased incomes by 10% as a result of improved cocoa farming since the first export of 12.5MT of rainforest-friendly, climate smart cocoa produced by these communities reached double the market price. This premium was awarded as a recognition of the high quality of the cocoa produced.

Human wildlife conflict research has informed a land management strategy to direct cocoa restoration to areas that minimises loss of wildlife and loss of cocoa due to conflicts.

The National Cocoa Working Group has recognised the strategy and interest shown by other protected areas in country."

This project operated for 48 months after a no-cost extension was approved, since the start date was the 1st of July 2013 and in 2014 at least 6months worth of field activities had to be almost fully suspended due to the Ebola crisis. The risk of an epidemiological outbreak such as Ebola had not been considered as a critical condition and risk when we designed the project. The 2014-2015 Ebola outbreak was the first in West Africa and took the entire international and regional community by surprise. However, considering (i) the very high success in the enrolment of farmers into farmer field schools, (ii) the completion of all bird counts, (iii) the biodiversity and plantation monitoring completed and (iv) the field work focusing on assessing crop raiding being completed, we can confidently conclude that we met our objectives and targets by the end of the project; the project has therefore achieved its purpose/outcome by the (revised) end date of the project. Finally, we found that the purpose level assumptions held true and that the indicators were adequate for measuring outcomes.

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

Impact statement from logframe: The habitat connectivity across the Upper Guinea Forest is improved in a way that is favourable to livelihoods and forest dependent wildlife

This project has provided an important contribution to this higher goal as it provided critical information on the biodiversity that exists outside the Gola Rainforest National Park, all within one of the largest remnants of the Upper Guinea Forest biodiversity hotspot and in areas that are important for habitat connectivity (Outcome Indicator 3 and 4). Attention was for long on the biodiversity within the National Park's boundaries whilst not considering the immediate surroundings whether it be in community forests or plantations. This project has taken a direct part in poverty alleviation as it targeted the poorest of the poor in one of the nations at the bottom of the human development index and supported the sustainable improvement of their livelihoods (see Outcome Indicator 1 and 2). Also, it addressed a long standing grievance from local communities; that forest related wildlife reduces crop production. This project is a robust illustration of conservation and development being complementary and jointly addressed.

4 Contribution to Darwin Initiative Programme Objectives

4.1 Contribution to Global Goals for Sustainable Development (SDGs)

SDG	Target (add target number)	Contribution of the project
1. **Poverty** - End poverty in all its forms everywhere	1.1, 1.2, 1.4, 1.5, 1a,	The project contributes to poverty alleviation efforts by improving the livelihoods of cocoa growing communities in key forest habitat connectivity areas and showing how improved cocoa farming can work alongside wildlife conservation. This is rolled out across the landscape so that mosaic of habitats favourable to livelihoods and wildlife link all GRNP forest blocks together and to the newly gazetted Gola National Park in Liberia. At least 40% of the 180 households (450 people) from the 30 project communities that enrolled with farmer field schools and farmer field schools are still actively engaged in them by the EOP. 10% increase in incomes from rehabilitated cocoa for 70 households by EOP. The GRNP's approach to restore local cocoa plantations for the dual benefit of livelihoods and biodiversity is recognised by the National Cocoa working group
2. **Food** - End hunger, achieve food security and improved nutrition and promote sustainable agriculture	2.2, 2.3, 2.4, 2a, 2b, 2c	Gola Rainforest National Park (GRNP) stakeholders are enabled to restore local cocoa plantations for the benefits of livelihoods, carbon, biodiversity and habitat connectivity. The project contributes to reducing poverty through supporting the re-emerging cocoa sector cocoa in 30 forest edge communities. 70 households will increase incomes by 10% as a result of improved cocoa farming. Human wildlife conflict research informs a land management strategy to direct cocoa restoration to areas that

		minimises loss of wildlife and loss of cocoa due to conflicts. The National Cocoa Working Group will recognise the strategy and interest shown by other protected areas in country by EOP.
3. **Health** - Ensure healthy lives and promote well-being for all at all ages	3d	The habitat connectivity across the Upper Guinea Forest is improved in a way that is favourable to livelihoods and forest dependent wildlife, hence contributing to resilient livelihoods in post-conflict and post-Ebola contexts.
4. **Education** - Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all	4.3, 4.4, 4.7	Through the Farmer Field School Model, selected communities surrounding GRNP have improved capacity, access to advice and support to improve cocoa yields and enhance livelihoods
5. **Women** - Achieve gender equality and empower all women and girls		
6. **Water** - Ensure availability and sustainable management of water and sanitation for all		
7. **Energy** - Ensure access to affordable, reliable, sustainable and modern energy for all		
8. **Economy** - Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all	8.2, 8.4, 8a	Project analyses existing socioeconomic data and monitor selected communities throughout the project to understand value of cocoa as source of income. Project promotes win-win solutions to livelihoods and wildlife to ongoing initiatives on cocoa rehabilitation and new plantations. Project develops a framework of mitigation strategies/recommendations for dealing with Human Wildlife Conflict which may be applied in the immediate surroundings of the National Park.
9. **Infrastructure** - Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation		
10. **Inequality** - Reduce inequality within and among countries	10.1, 10.2,	The project targets forest edge communities which are part of the poorest and most isolated in the country.
11. **Habitation** - Make cities and human settlements inclusive, safe, resilient and sustainable		
12. **Consumption** - Ensure sustainable		

consumption and production patterns		
13. **Climate** - Take urgent action to combat climate change and its impacts	13.1, 13.2, 13.3, 13b	Project promotes win-win solutions to livelihoods and tropical rainforest conservation to ongoing initiatives on cocoa rehabilitation and new plantations, hence supporting climate change adaptation and mitigation efforts.
14. **Marine-ecosystems** - Conserve and sustainably use the oceans, seas and marine resources for sustainable development		
15. **Ecosystems** - Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss	15.1, 15.2, 15.3, 15.5, 15.9, 15a, 15b,	The habitat connectivity across the Upper Guinea Forest is improved in a way that is favourable to livelihoods and forest dependent wildlife. The project contributes to poverty alleviation efforts by improving the livelihoods of cocoa growing communities in key forest habitat connectivity areas and showing how improved cocoa farming can work alongside wildlife conservation. This is rolled out across the landscape so that mosaic of habitats favourable to livelihoods and wildlife link all GRNP forest blocks together and to the newly gazetted Gola Forest National Park in Liberia.
16. **Institutions** - Promote peaceful and inclusive societies for sustainable development, provide access to justice for all and build effective, accountable and inclusive institutions at all levels		
17. **Sustainability** - Strengthen the means of implementation and revitalize the global partnership for sustainable development		

4.2 Project support to the Conventions or Treaties (CBD, CMS, CITES, Nagoya Protocol, ITPGRFA))

The project supported Conventions by contributing to the following objectives and targets:
Convention on Biological Diversity
Article 5. Cooperation between Sierra Leone and UK for the benefit of an internationally recognised biodiversity hotspot and to improve local livelihoods.

Articles 7c/7d. Identifying and Monitoring HWC and bushmeat hunting dynamics in the project area.
Articles 8e/8j. In-situ Conservation by promoting environmentally sound and sustainable development in communities around GRNP and ensuring their traditional knowledge and lifestyles are a core part of development.

Article 10c. Sustainable Use of Components of Biological Diversity, in particular customary uses will be incorporated into the plans for enhancing habitat connectivity developed by the project.
Article 12 b/c. Research and Training in field work and analytical approaches for assessing ways of integrating agricultural productivity with conservation at local/landscape scales and quantifying real/perceived extents of HWC as part of balancing wildlife conservation and sustainable use.
Article 13a. Public Education and Awareness through education programmes in the 30 target communities to raise awareness of the importance of the conservation of biological diversity.
Article 18. Technical and Scientific Cooperation between the UK (though RSPB) and Sierra Leone results in the development of policy briefings and improved capacities to implement.

Aichi Biodiversity Targets 1, 7 and 14

When travelling to Sierra Leone, the project manager regularly meets Mrs Kate Garnett (Acting Director to the National Protected Areas Authority, and the CBD Focal point). Likewise, the project manager meets the Minister for Agriculture, Forestry and Food Security (MAFFS). This project is therefore well understood and recognised in Sierra Leone and directly contributes to Sierra Leone's commitments to the Paris Agreement, which it became a signatory to in April 2016.

4.3 Project support to poverty alleviation

There is evidence that the project worked to alleviate poverty alleviation as we specifically targeted local communities' livelihoods and income at household level. The project contributed to reducing poverty by catalysing and supporting the re-emergence of cocoa as an effective way of reducing poverty in forest-edge communities. 70 households from project communities were targeted to enrol with farmer field schools in year 1 though this was surpassed by over seven folds. These farmers are being actively engaged in modern cocoa-farming and have seen their household incomes increase by 10% considering the premium price awarded to their cocoa.

Please see the project's outcome and the indicators to *Outcome 2,3 and 4*, but specifically 3, for more detail.

4.4 Gender equality

This project was not directly working to address gender equality, nor are there any direct gender equality impacts here. However, this project tackled areas of development which indirectly impact gender equality. We worked directly with cocoa producers with who we integrated a gender-sensitive approach, to simultaneously be working directly with producers to increase sustainable productivity and improve quality to raise incomes through higher yields and a higher sale price. This was further supported by a grant awarded by Conservation International (January-August 2017) specifically focusing on gender issues. This is anticipated to impact household incomes and could indirectly benefit gender equality by allowing women to access and make use of cash owned from cocoa farming. Also, supporting the development of democratic, gender-just governance systems provides a strong foundation for inclusive business. The evidence which can be used here is the employment policy of the GRNP which favours members of forest edge communities and women (see GRNP Staff Handbook, available upon request). Also, within the Conservation International grant mentioned above, a series of trainings following the internationally recognised GALS (Gender Action Learning System) methodology were delivered to staff and to cocoa farmers.

4.5 Programme indicators

- **Did the project lead to greater representation of local poor people in management structures of biodiversity?** Yes, considering the establishment of farmer associations and a local producer organisation.

- **Were any management plans for biodiversity developed?** No.

- **Were these formally accepted?** N/a

- **Were they participatory in nature or were they 'top-down'? How well represented are the local poor including women, in any proposed management structures?** These were highly participatory and resulted in women being represented on the board of the producer organisation and farmer associations.

- **Were there any positive gains in household (HH) income as a result of this project?** The cocoa produced by the forest edge communities was sold at premium price, hence there was a net positive gains in household income for those involved.

- **How many HHs saw an increase in their HH income?** All the communities taking part in the cocoa work saw an increase in their household income.

- **How much did their HH income increase (e.g. x% above baseline, x% above national average)? How was this measured?** n/a

4.6 Transfer of knowledge

The project has actively sought to transfer knowledge to practitioners and policy makers throughout the lifetime of the project by ensuring local awareness and ownership, ensuring local stakeholders appreciated the practical conservation challenges the Gola programme is tackling together with Forest Edge Communities to ensure direct benefits to wildlife and livelihoods. This was done through series of meetings, on the job trainings, workshops and roundtables. This knowledge transfer was therefore primarily through local and national platforms, less so on international ones.

Did the project result in any formal qualifications?

N/A

4.7 Capacity building

Gola staff are recognised to hold the highest level of expertise in Sierra Leone and as such, are regularly requested to provide trainings, on the job trainings to the National Protected Areas Authority, local organisations, as well as carry out HCV assessments. The most recent example is to have one of our cocoa officers, a woman, invited to talk about her work at an event in the UK, jointly organised by WWF-UK, Wildlife Conservation Society and BirdLife International.

5 Sustainability and Legacy

The project aimed to reach a sustainable end point. The project built upon, and linked closely to, components of the GRNP/Gola Rainforest Conservation LG, an ongoing programme that is close to securing its future sustainability (through an established trust fund and upcoming carbon revenues, see www.golarainforest.org). The project targeted issues that are important to the success of the wider GRNP. Project actions are in the interest of GRNP, specifically the improvement of the delivery of its commitments to support livelihoods and the reduction of tension and hostility towards the aims of GRNP resulting from human wildlife conflict.

The sustainability of project actions was ensured by engaging communities with established agricultural support structures, building their capacity and linking them with reputable traders.

The RSPB, in partnership with TWIN, the Gola Rainforest Conservation LG and the Rainforest Alliance were awarded a grant from Comic Relief to develop the value chain for a Gola Cocoa brand, from the farm gates to export, hence further building a rainforest-friendly cocoa value chain with forest edge communities. This project was launched in December 2015 and would not have been awarded had it not been for the outputs delivered by this specific project. This project truly served as a spring board, providing its scientific backbone.

6 Lessons learned

One of the key lessons for us initially was the overwhelmingly high interest from farmers to take part in cocoa rehabilitation and restoration as it largely surpassed our expectations. We needed to pay particular attention to the effective implementation to meet this high demand/interest. The project manager was (and still is) managing the RSPB's tropical forest work in Sierra Leone for which he travelled five times a year to Sierra Leone, therefore directly benefiting and strengthening the monitoring of this project. The first year therefore required a fair level of flexibility considering the illness members of staff have experienced and more importantly when we were faced with an Ebola Outbreak for which we had to rapidly react and instate protocols and restrictions. Likewise, we had to make sure we kept systems in place to detect early signs of epidemiological outbreak and to have mitigation strategies and contingency plans in place as well as procedures for closing operations down and repatriating expatriate staff at very short notice. The full impact that the Ebola epidemic has had on the project's communities, infrastructure, and local economies is still uncertain adn would need to be thoroughly assessed but we tried our upmost to take this into account in planning the implementation of the rest of the project to ensure we met this project's objectives.

Finally, a key lesson learnt for us in the last year especially has been the high variability in the cocoa harvest season. Within the lifespan of this project, we have recorded harvesting peaks varying from September to January. Hence, the project team had to make sure we maintained a highly resilient approach which closely tallied the agricultural calendar.

6.1 Monitoring and evaluation

There were no major changes in the project design. The M&E system is thought to have been practical and helpful to provide useful feedback to partners and stakeholders. There have been no internal/external evaluation as such, instead the Project Manager carried out numerous and frequent visits to ensure robust mechanisms and processes were in place and more importantly followed.

6.2 Actions taken in response to annual report reviews

All action hase been acted upon and reviews were discussed with partners. Darwin identity

-The Darwin Initiative logo was used on the Gola Rainforest National Park website (www.golarainforest.org).

-The project featured in the February 2014 and January 2017 Darwin Newsletter.

-The Darwin Initiative's support was repeatedly communicated by the Project Manager at all stakeholder Meetings. For example, the Darwin Initiative's support was repeatedly communicated by the Project Manager at Ebola Working Groups Meetings. The Project Manager was invited to sit on a number of Ebola Task Forces coordinated by BOND to help and assist DFID with the international response to the Ebola Outbreak in Sierra Leone. The project manager has used those bi-monthly meetings to engage with development aid organisations and DFID to profile the project and demonstrate that our project is at the nexus between development and conservation.

-The larger programme, the Greater Gola Landscape was profiled at the UNFCCC Paris Conference (December 2015) during a side event organised by BirdLife International.

-A poster presented about the project at ICCB-ECCB conference, Montpellier, France, August 2-6th 2015 on bird density and diversity by habitat based on first set of bird point counts. This generated good interest during the poster sessions.
-The Darwin Initiative's support was clearly recognised in an article at the World Forestry Congress (September 2015) which is now part of the congress' proceedings.
-A talk presented about the project at PAOC conference, Dakar, Senegal, October 2016 on Biodiversity and REDD+ presenting interim GRNP bird data by habitat. This generated good interest and many post-talk discussions.
-A talk presented at the Cambridge Conference on Global Food Security presented interim bird and habitat data from the project,
-A series of tweets (from @golarainforest) were issued as well as a blog on the RSPB website.

7 Finance and administration

7.1 Project expenditure

Since we reported on the 16/17 financial year already in our Annual Report 4, we have reported here the 17/18 costs only, which relate to the audit.

Project spend (indicative) since last annual report	2017/18 Grant (£)	2017/18 Total actual Darwin Costs (£)	Variance %	Comments (please explain significant variances)
Overhead Costs			0%	Audit costs only.
TOTAL				

Staff employed (Name and position)	Cost (£)
TOTAL	N/A

Capital items – description	Capital items – cost (£)
TOTAL	N/A

Other items – description	Other items – cost (£)
TOTAL	N/A

7.2 Additional funds or in-kind contributions secured

Source of funding for project lifetime	Total (£)
RSPB	
GRNP	
WHH (A4D Project)	
TOTAL	

Source of funding for additional work after project lifetime	Total (£)

Comic Relief	
TOTAL	

7.3 Value for Money

This project has demonstrated unique value for money as it was highly integrated with other projects, whether it be work delivered by the Gola Rainforest Team directly or close partners such as WeltHungerHilfe (WHH) when project staff shadowed the well experienced WHH staff for example. Furthermore, this project and its outputs were pivotal in leveraging and securing funds from Comic Relief.

Annex 1 Project's original (or most recently approved) logframe, including indicators, means of verification and assumptions.

Note: Insert your full logframe. If your logframe was changed since your Stage 2 application and was approved by a Change Request the newest approved version should be inserted here, otherwise insert the Stage 2 logframe.

Project summary	Measurable Indicators	Means of verification	Important Assumptions
Impact: Effective contribution in support of the implementation of the objectives of the Convention on Biological Diversity (CBD), the Convention on Trade in Endangered Species (CITES), and the Convention on the Conservation of Migratory Species (CMS), as well as related targets set by countries rich in biodiversity but constrained in resources			
Outcome: **Gola Rainforest National Park (GRNP) stakeholders are enabled to restore local cocoa plantations for the benefits of livelihoods, carbon, biodiversity and habitat connectivity.**			
Output 1 **1**. The impacts on wildlife of restoring agro forestry systems, in particular abandoned cocoa plantations, to different levels of production is assessed	1a. Target research sites identified by EOY1 1b. Fieldwork completed by EOY3 1c. Data Analysis done by EOY3 1d. Mapping exercise of cocoa plantations completed year 1 1e. Similarity index for wildlife in rehabilitated plantations verses pristine habitats is measured by end of project 1f. Peer reviewed paper submitted by EOP	Indicator 1. Research site selection report. Indicator2. Field work summary reports Indicator3. Peer reviewed articles submitted. Indicator4. Presentations & Posters at international arena (e.g. World Parks Congress 2014) Indicator5. HWC mitigation best practice review report Indicator6. Community attitude survey baseline, monitoring and end line reports Indicator7. 10 forest edge community road shows including HWC awareness Indicator8. 20 radio talk shows including HWC awareness Indicator9. Forest edge community Workshop reports and feedback.	1. Local communities and staff are receptive to the training and capacity-building we offer. 2. The global market for cocoa does not collapse unexpectedly. 3. WHH are successful in their A4D funding bid

		Indicator10. Cocoa plantation	
Output 2 Understanding of the costs of human–wildlife conflicts relating to cocoa farming is enhanced, together with knowledge of methods to mitigate these conflicts.	2a. HWC attitude survey completed by EOY1 2b. Review of existing best practice done by EOY2 2c. Fieldwork and analysis on impact of crop raiding on cocoa completed by EOY2 2d. HWC mitigation strategy demonstrated in at least 1community by EOP 2e. 40% of the 30 focal communities have evidence based, agreed understanding of cause and impact of HWC by EOP as compared with baseline. 2f. 10 dissemination workshops held in FECs by EOP.	2.1 2.2	
Output 3 Selected communities surrounding GRNP have improved capacity, access to advice and support to improve cocoa yields and enhance livelihoods	3.a 140 community members enrol with Farmer field schools by earlyY2 3b. 140 community members trained in improved techniques by EOY2 3c. Meetings held with 3 new plantations during project	3.1	
Output 4 A livelihood development and habitat connectivity strategy that integrates cocoa rehabilitation is developed and adopted by the GRNP and disseminated for selected Protected areas in Sierra Leone	4a. Zoning map developed by year 2 4b. Plans for cocoa rehabilitation incorporated into a revised GRNP management plan by the EOP 4c. National Workshop held and key community, government, private sector and NGO stakeholders attend year 3		

Output 5 Project managed efficiently and effectively and local staff trained so that they can continue to contribute to ensuring the project legacy.	5a. M&E plan in place by mid yr1 5b. Staff training plan in place by EOY1 and carried out where appropriate throughout project 5c. Steering committee established by mid yr 1 and meets regularly 5d. Financial reporting system in place by end of first month and financial expenditure remains with contractual limits		

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. Mapping exercise to assess the extent of abandoned cocoa plantations.

1.2. Camera trapping/point counts of wildlife (mammals/birds) to survey resident and transient wildlife in habitats surrounding GRNP, including restored and abandoned plantations, and within GRNP to compare wildlife populations to the NP forest baseline. This would include measuring changes in wildlife following cocoa restoration.

1.3. Analysing the camera trapping/point counts of wildlife in order to compare wildlife populations between different habitats (spatial comparison), in particular to the NP forest baseline but also between the farmed habitats studied, and before and after cocoa restoration (temporal comparison).

2.1 Monitor crop raiding throughout the project in restored and non restored sites

2.2 Review existing practices of HWC prevention and mitigation

2.3 Develop a list/framework of mitigation strategies/recommendations for dealing with HWC which may be applied in the immediate surroundings of the National Park.

2.4 Analyse existing socioeconomic data and monitor selected communities throughout the project to understand attitudes.

2.5 Human Wildlife Conflict mitigation tools are demonstrated in selected GRNP forest edge communities (FECs) and surrounding land owners.

2.6 Dissemination through awareness building workshops FFS

3.1 Support thirty FECs to link with farmer field schools which support farmers with tools, advice and support to improve yields.

3.2 Analyse existing socioeconomic data and monitor selected communities throughout the project to understand value of cocoa as source of income.

3.3 Advice to promote a win-win solutions to livelihoods and wildlife is given to ongoing initiatives on cocoa rehabilitation and new plantations

3.4 Multi-stakeholder workshops to enhance local capacity around cocoa cultivation and human wildlife conflict issues so best sustainable landscape practices can be created and evaluated.

4.1 Criteria and principles for selecting priority cocoa development areas to enhance connectivity are produced

4.2 Develop a map to demonstrate where cocoa can be used in the possible mosaic linking Gola South, with Gola Centre, and Gola centre with the Transboundary corridor to enhance habitat connectivity in the agricultural landscape

4.3 Exercise to review and update GRNP management plan to include habitat connectivity

4.4 National conference (end of Project) targeting selected Protected Areas focusing on replication potential focusing on habitat connectivity and human wildlife mitigation issues

5.1 Establish project steering committee from RSPB, GRNP, CSSL and FD and WHH to meet every 6 months. 5.2 Hold project level workshop to develop monitoring and evaluation plan to establish, roles and responsibilities of partners and associated methods, tools and timetable. 5.3 Conduct training programme for National Staff from GFP, CSSL, FD and other partners where appropriate.

Annex 2 Report of progress and achievements against final project logframe for the life of the project

Project summary	Measurable Indicators	Progress and Achievements April 2016 - March 2017
Impact The habitat connectivity across the Upper Guinea Forest is improved in a way that is favourable to livelihoods and forest dependent wildlife.		[redacted]
Outcome Gola Rainforest National Park (GRNP) stakeholders are enabled to restore local cocoa plantations for the benefits of livelihoods, carbon, biodiversity and habitat connectivity. The project will contribute to reducing poverty through supporting the re-emerging cocoa sector cocoa in 30 forest edge communities. 70 households will increase incomes by 10% as a result of improved cocoa farming. Human wildlife conflict research will inform a land management strategy to direct cocoa restoration to areas that minimises loss of wildlife and loss of cocoa due to conflicts. The National Cocoa Working Group will recognised the strategy and	1. At least 40% of the 180 households (450 people) from the 30 project communities that enrolled with farmer field schools and farmer field schools are still actively engaged in them by the EOP 2. 10% increase in incomes from rehabilitated cocoa for 70 households by EOP. 3. The strategy to secure GRNP's habitat connectivity is implemented as part of the GRNP's Annual Operations Plan by EOP. 4. The GRNP's approach to restore local cocoa plantations	1. 60 established and operational farmer groups, reaching out to an estimated 2000 households. 2. Cut test was done by SLPMC-Sierra Leone Produce Marketing Company to know the quality of cocoa. The cocoa beans produced during 2016 harvest cycle was placed at grade 1 (higher quality➔higher price) 3. Integral part to the Gola REDD Project's AOP, integrity will be evaluated by external auditors at the next verification event n/a

interest shown by other protected areas in country.	for the dual benefit of livelihoods and biodiversity is recognised by the National Cocoa working group	
Output 1. Output 1. (insert original outputs with activities relevant to that outputs in lines below. Activities relevant to more than one output should be cross-referenced rather than repeated) The impacts on wildlife of restoring agro forestry systems, in particular abandoned cocoa plantations, to different levels of production is assessed	1. Target research sites identified by EOY1 2. Fieldwork completed by EOY3 3. Data Analysis done by EOY3 4. Mapping exercise of cocoa plantations completed year 1 5. Similarity index for wildlife in rehabilitated plantations verses pristine habitats is measured by end of project 6. Peer reviewed paper submitted by EOP	1. Completed (AR2). 2. Crop raiding fieldwork completed 3. Data analysis close to completion 4. Mapping of cocoa for point counts in study sites completed 5. Initial data analysis completed re species densities and bird community composition 6. Planned for EOP
Activity 1.1 Mapping exercise to assess the extent of abandoned cocoa plantations		Completed. Additional mapping carried out to refine as habitat management changes
Activity 1.2 Camera trapping/point counts of wildlife (mammals/birds) to survey resident and transient wildlife in habitats surrounding GRNP, including restored and abandoned plantations, and within GRNP to compare wildlife populations to the NP forest baseline. This would include measuring changes in wildlife following cocoa restoration.		Completed. 493 Bird points in GRNP and leakage belt habitats conducted with 91 in cocoa and 39 in GRNP repeated in 2017, of these 13 were rehabilitated cocoa. Camera trapping conducted in GRNP, community forest, farmbush, active and abandoned cocoa with
Activity 1.3 Analysing the camera trapping/point counts of wildlife in order to compare wildlife populations between different habitats (spatial comparison), in particular to the NP forest baseline but also between the farmed habitats studied, and before and after cocoa restoration (temporal comparison).		Analysis performed on point count data showing distinct habitats and distinct bird communities with cocoa being closer to forest bird communities than slash and burn. Cocoa bird communities have become closer to forest over time but this was not related to management or rehabilitation. For camera traps observations of forest and declining species were more numerous in GRNP followed by community forest then other leakage belt habitats. Partly due to technical issues surrounding cameras left out during Ebola the sample size does not permit us to draw conclusions between leakage belt habitats.

Output 2. Understanding of the costs of human–wildlife conflicts relating to cocoa farming is enhanced, together with knowledge of methods to mitigate these conflicts.	1. HWC attitude survey completed by EOY1 2. Review of existing best practice done by EOY2 3. Fieldwork and analysis on impact of crop raiding on cocoa completed by EOY2 4. HWC mitigation strategy demonstrated in at least 1community by EOP 5. 40% of the 30 focal communities have evidence based, agreed understanding of cause and impact of HWC by EOP as compared with baseline. 6. 10 dissemination workshops held in FECs by EOP.	1. Survey underway (since January 2016), data being processed and to be completed asap. 2. Literature review of crop raiding activities combined with expert advice is completed 3. Crop raiding monitoring and analysis completed 4. Pilot with brushing chilli paste completed in 2016 in Njala, Gaura Chiefdom. Chimps did not touch the treated pods but the paste did not withstand the rain and had to be applied multiple times resulting in a very labour-intensive process. 5. Completed. 6. Completed. 2015 alone, 10 dissemination workshops were held, 19 this year, focused on two topics with Farmer Field Schools (i) establishment of new cocoa plantation and including out-planting and (ii) cocoa processing and quality.
Activity 2.1. Monitor crop raiding throughout the project in restored and non restored sites		All cocoa crop raiding data was analysed during this reporting period. Results were written up in a draft paper which will be submitted to a scientific journal shortly. Results show a greater proportion of the crop being raided in plantations closer to communities and lower proportionate losses due to crop raiding where more pods were present on cocoa trees. A key result here is the indication that increasing yield may offset losses to wildlife. Furthermore, the evidence so far suggests that non-forest monkeys are causing the majority of the damage.

Activity 2.2. Review existing practices of HWC prevention and mitigation.		Literature review of crop raiding activities combined with expert advice completed. The crop raiding review is in final draft format, with an expected submission for publication in May 2017.
Activity 2.3. Develop a list/framework of mitigation strategies/recommendations for dealing with HWC which may be applied in the immediate surroundings of the National Park.		Despite an extensive review of existing practices of HWC prevention and mitigation, disappointingly few mitigation strategies/recommendations for dealing with HWC were found in the literature. This was very surprising, yet we piloted the brushing of chilli paste on the cocoa pods. This revealed to have very minor positive impact on preventing HWC. The limited benefits from this were largely outweighed by how labour intensive this mitigation strategy is. Hence, based on results from Activity 2.1, it seems the best possible mitigation strategy is to be increasing yields.
Activity 2.4. Analyse existing socioeconomic data and monitor selected communities throughout the project to understand attitudes		Completed
Activity 2.5.Human Wildlife Conflict mitigation tools are demonstrated in selected GRNP forest edge communities (FECs) and surrounding land owners		Completed. See Activity 2.3
Activity 2.6. Dissemination through awareness building workshops FFS		Completed. See AR3. A series of workshops through Farmer Field schools were also given focusing on the harvesting, fermentation and drying processes. We are have monitored the impact this has on the good quality cocoa being produced by forest edge communities during the 2016 cocoa harvest season. This has gone hand in hand with the Comic-Relief funded project which we previously mentioned (because this project leveraged the Comic Relief one). As a result, we now hold 13MT of rainforest-friendly and high quality cocoa in a warehouse which we anticipate to export within the next month. We are currently in advanced discussions with several potential buyers. Hence 2017 will see the very first container of Gola Cocoa beans exported. Furthermore, results from the crop raiding data will be communicated to forest edge communities before the end of the project.
Output 3. Selected communities surrounding GRNP have improved capacity, access to advice and support to	1. 140 community members enrol with Farmer field schools by earlyY2 2. 140 community members trained in improved techniques by EOY2	1. Completed & surpassed 2. Completed & surpassed 3. No exchange visits took place

improve cocoa yields and enhance livelihoods	3. Meetings held with 3 new plantations during project	
Activity 3.1. Support thirty FECs to link with farmer field schools which support farmers with tools, advice and support to improve yields.		Completed. 25,000 seedlings were transplanted during this reporting season and additional nurseries have been established within forest edge communities. Out-planting will be done mid-2017 to support rehabilitation efforts in particular. 96 fermentation boxes were supplied during this reporting period and 40 drying facilities in communities were established. 2 refresher trainings were delivered in each of the training centres. Cut test was done by SLPMC-Sierra Leone Produce Marketing Company to know the quality of cocoa. The cocoa beans produced during 2016 harvest cycle was placed at grade 1.
Activity 3.2. Analyse existing socioeconomic data and monitor selected communities throughout the project to understand value of cocoa as source of income		A significant number of farmers reported receiving better price for the cocoa they have grown. Considering the cocoa market and specifically the Sierra Leonean cocoa market, we can assert this results from better quality (and not from higher market prices). Final sets of survey data are currently being processed and will be collated and analysed for the final project report.
Activity 3.3. Advice to promote a win-win solutions to livelihoods and wildlife is given to ongoing initiatives on cocoa rehabilitation and new plantations		See Activity 2.6. Further effort will be invested here once the results of the crop raiding are finalised. This will ensure that communities reap the results of their involvement in the project.
Activity 3.4. Multi-stakeholder workshops to enhance local capacity around cocoa cultivation and human wildlife conflict issues so best sustainable landscape practices can be created and evaluated		See Activity 2.3. Completed
Output 4 A livelihood development and habitat connectivity strategy that integrates cocoa rehabilitation is developed and adopted by the GRNP and disseminated for selected Protected areas in Sierra Leone.	1. Zoning map developed by year 2 2. Plans for cocoa rehabilitation incorporated into a revised GRNP management plan by the EOP 3. National Workshop held and key community, government, private sector and NGO stakeholders attend year 3	1. Completed 2. Close to completion, finalised by EOP 3. Completed by EOP
Activity 4.1. Criteria and principles for selecting priority cocoa development areas to enhance connectivity are produced		Completed

Activity 4.2. Develop a map to demonstrate where cocoa can be used in the possible mosaic linking Gola South, with Gola Centre, and Gola centre with the Transboundary corridor to enhance habitat connectivity in the agricultural landscape		Completed
Activity 4.3. Exercise to review and update GRNP management plan to include habitat connectivity		Not applicable for this reporting period. We will complete this activity within the remaining months of the project, building upon the crop raiding results and before the end of the project.
Activity 4.4. National conference (end of Project) targeting selected Protected Areas focusing on replication potential focusing on habitat connectivity and human wildlife mitigation issues		Not applicable for this reporting period.
Output 5. Project managed efficiently and effectively and local staff trained so that they can continue to contribute to ensuring the project legacy.	1. M&E plan in place by mid yr1 2. Staff training plan in place by EOY1 and carried out where appropriate throughout project 3. Steering committee established by mid yr 1 and meets regularly 4. Financial reporting system in place by end of first month and financial expenditure remains with contractual limits	1. Not applicable this reporting period 2. Not applicable this reporting period 3. Not applicable this reporting period 4. Not applicable this reporting period
Activity 5.1. Establish project steering committee from RSPB, GRNP, CSSL and FD and WHH to meet every 6 months.		The project manager visited the team in country three times since the last Annual Report was submitted, which makes a total of 12 times since the project's start to ensure efficiency and robust monitoring. Considering time and financial constraints, the Steering Committee meeting was adjoined to other meetings gathering RSPB, GRNP, CSSL, the government of Sierra Leone and the Paramount Chief Representative. However WHH was unable to join. All recognised the progress made and see great value in the crop raiding analysis which will help answer long-pending community grievances relying on science.
Activity 5.2. Hold project level workshop to develop monitoring and evaluation plan to establish, roles and responsibilities of partners and associated methods, tools and timetable.		Not applicable for this reporting period. See AR1 and AR2.
Activity 5.3. Conduct training programme for National Staff from GRNP, CSSL, FD and other partners where appropriate		Not applicable for this reporting period. See AR1 and AR2.

Annex 3 Standard Measures

Code	Description	Total	Nationality	Gender	Title or Focus	Language	Comments
Training Measures							
1a	**Number of people to submit PhD thesis**						
1b	**Number of PhD qualifications obtained**						
2	**Number of Masters qualifications obtained**						
3	**Number of other qualifications obtained**						
4a	**Number of undergraduate students receiving training**						
4b	**Number of training weeks provided to undergraduate students**						
4c	**Number of postgraduate students receiving training (not 1-3 above)**						
4d	**Number of training weeks for postgraduate students**						
5	**Number of people receiving other forms of long-term (>1yr) training not leading to formal qualification (e.g., not categories 1-4 above)**						
5	Farmer Field Schools	60	Sierra Leone	M&F	n/a	English, Krio & Mende	Total Planned during the project: 30
5	Community members enrolled to Farmer Field Schools	1075	Sierra Leone	M&F	n/a		Total Planned during the project: 140
5	Cocoa Extension Officers (Sierra Leoneans)	4	Sierra Leone	M&F	n/a	English	

5	Research Technicians monitoring cocoa plantations and crop raiding (Sierra Leoneans)	1-2	Sierra Leone				
6a	**Number of people receiving other forms of short-term education/training (e.g., not categories 1-5 above)**						
6b	Number of training weeks not leading to formal qualification	103	Sierra Leone			English	Mark Hulme spent 50% of his time in Sierra Leone (other 50% in the UK), on the job training for local research team. Total Planned during the project: 84
7	**Number of types of training materials produced for use by host country(s) (describe training materials)**	1	Sierra Leone				Species Identification Illustrations for crop raiding study

Research Measures		**Total**	**Nationality**	**Gender**	**Title**	**Language**	**Comments/ Weblink if available**
9	**Number of species/habitat management plans (or action plans) produced for Governments, public authorities or other implementing agencies in the host country (ies)**						Participatory process?
10	**Number of formal documents produced to assist work related to species identification, classification and recording.**						
	Community attitude survey baseline, monitoring and end line reports	3	n/a	n/a		English	

11a	**Number of papers published or accepted for publication in peer reviewed journals**	1				English	
11b	**Number of papers published or accepted for publication elsewhere**						
12a	**Number of computer-based databases established (containing species/generic information) and handed over to host country**						
12b	**Number of computer-based databases enhanced (containing species/genetic information) and handed over to host country**						
13a	**Number of species reference collections established and handed over to host country(s)**						
13b	**Number of species reference collections enhanced and handed over to host country(s)**						

Dissemination Measures		**Total**	**Nationality**	**Gender**	**Theme**	**Language**	**Comments**
14a	Number of conferences/seminars/workshops organised to present/disseminate findings from Darwin project work	>12					This includes workshops with local communities
14b	Number of conferences/seminars/ workshops attended at which findings from Darwin project work will be presented/ disseminated.	4					Title: Sierra Leone's Gola Rainforest National Park REDD project improving livelihoods of 122 Forest Edge Communities. XIV WORLD

Dissemination Measures		Total	Nationality	Gender	Theme	Language	Comments
							FORESTRY CONGRESS, Durban, South Africa, 7-11 September 2015 Poster title: Can cocoa improve conservation outcomes? Assessing the avian diversity of a tropical forest / agriculture landscape in West Africa, Internationa l Congress on Conservation Biology, Montpellier, France 2015 Talk title: Biodiversity and REDD+: Birds and land use around Gola Rainforest National

Dissemination Measures		Total	Nationality	Gender	Theme	Language	Comments
							Park, Pan-African Ornithological Congress, Dakar, Senegall 2016 Talk at Cambridge Global Food Security conference 2016

Physical Measures		Total	Comments
20	Estimated value (£s) of physical assets handed over to host country(s)	20,000	This includes a 4 year old vehicle.
21	**Number of permanent educational, training, research facilities or organisation established**		
22	**Number of permanent field plots established**		Please describe

Financial Measures		Total	Nationality	Gender	Theme	Language	Comments
23	Value of additional resources raised from other sources (e.g., in addition to Darwin funding) for project work	£700,000	UK	n/a	Rainforest Friendly Cocoa	English	3 year grant to develop a rainforest friendly cocoa value chain from Gola's Forest

							Edge Communities

Annex 4 Aichi Targets

	Aichi Target	Tick if applicable to your project
1	People are aware of the values of biodiversity and the steps they can take to conserve and use it sustainably.	X
2	Biodiversity values have been integrated into national and local development and poverty reduction strategies and planning processes and are being incorporated into national accounting, as appropriate, and reporting systems.	
3	Incentives, including subsidies, harmful to biodiversity are eliminated, phased out or reformed in order to minimize or avoid negative impacts, and positive incentives for the conservation and sustainable use of biodiversity are developed and applied, consistent and in harmony with the Convention and other relevant international obligations, taking into account national socio economic conditions.	
4	Governments, business and stakeholders at all levels have taken steps to achieve or have implemented plans for sustainable production and consumption and have kept the impacts of use of natural resources well within safe ecological limits.	
5	The rate of loss of all natural habitats, including forests, is at least halved and where feasible brought close to zero, and degradation and fragmentation is significantly reduced.	
6	All fish and invertebrate stocks and aquatic plants are managed and harvested sustainably, legally and applying ecosystem based approaches, so that overfishing is avoided, recovery plans and measures are in place for all depleted species, fisheries have no significant adverse impacts on threatened species and vulnerable ecosystems and the impacts of fisheries on stocks, species and ecosystems are within safe ecological limits.	
7	Areas under agriculture, aquaculture and forestry are managed sustainably, ensuring conservation of biodiversity.	X
8	Pollution, including from excess nutrients, has been brought to levels that are not detrimental to ecosystem function and biodiversity.	
9	Invasive alien species and pathways are identified and prioritized, priority species are controlled or eradicated, and measures are in place to manage pathways to prevent their introduction and establishment.	
10	The multiple anthropogenic pressures on coral reefs, and other vulnerable ecosystems impacted by climate change or ocean acidification are minimized, so as to maintain their integrity and functioning.	
11	At least 17 per cent of terrestrial and inland water, and 10 per cent of coastal and marine areas, especially areas of particular importance for biodiversity and ecosystem services, are conserved through effectively and equitably managed, ecologically representative and well connected systems of protected areas and other effective area-based conservation measures, and integrated into the wider landscapes and seascapes.	
12	The extinction of known threatened species has been prevented and their conservation status, particularly of those most in decline, has been improved and sustained.	
13	The genetic diversity of cultivated plants and farmed and domesticated animals and of wild relatives, including other socio-economically as well as culturally valuable species, is maintained, and strategies have been developed and implemented for minimizing genetic erosion and safeguarding their genetic diversity.	

14	Ecosystems that provide essential services, including services related to water, and contribute to health, livelihoods and well-being, are restored and safeguarded, taking into account the needs of women, indigenous and local communities, and the poor and vulnerable.	X
15	Ecosystem resilience and the contribution of biodiversity to carbon stocks has been enhanced, through conservation and restoration, including restoration of at least 15 per cent of degraded ecosystems, thereby contributing to climate change mitigation and adaptation and to combating desertification.	
16	The Nagoya Protocol on Access to Genetic Resources and the Fair and Equitable Sharing of Benefits Arising from their Utilization is in force and operational, consistent with national legislation.	
17	Each Party has developed, adopted as a policy instrument, and has commenced implementing an effective, participatory and updated national biodiversity strategy and action plan.	
18	The traditional knowledge, innovations and practices of indigenous and local communities relevant for the conservation and sustainable use of biodiversity, and their customary use of biological resources, are respected, subject to national legislation and relevant international obligations, and fully integrated and reflected in the implementation of the Convention with the full and effective participation of indigenous and local communities, at all relevant levels.	
19	Knowledge, the science base and technologies relating to biodiversity, its values, functioning, status and trends, and the consequences of its loss, are improved, widely shared and transferred, and applied.	
20	The mobilization of financial resources for effectively implementing the Strategic Plan for Biodiversity 2011-2020 from all sources, and in accordance with the consolidated and agreed process in the Strategy for Resource Mobilization should increase substantially from the current levels. This target will be subject to changes contingent to resource needs assessments to be developed and reported by Parties.	

Annex 5 Publications

Type * (e.g. journals, manual, CDs)	Detail (title, author, year)	Nationality of lead author	Nationality of institution of lead author	Gender of lead author	Publishers (name, city)	Available from (e.g. web link, contact address etc)
Technical Paper, Congress Proceedings	Sierra Leone's Gola Rainforest National Park REDD project improving livelihoods of 122 Forest Edge Communities. Nicolas Tubbs, Jonathan Barnard, Sheku Kamara, William Bangura, Michael Garbo. 2015	France	UK	M	XIV WORLD FORESTRY CONGRESS, Durban, South Africa, 7-11 September 2015	http://www.fao.org/about/meetings/world-forestry-congress/programme/technical-papers-and-posters/en/
Poster Title, congress program	Can cocoa improve conservation outcomes? Assessing the avian	UK	UK	M	Internationa l Congress on Conservation Biology, Montpellier, France 2015	http://conbio.org/images/content_conferences/WebView-ICCB-ECCB2015Program.pdf

	diversity of a tropical forest / agriculture landscape in West Africa. Mark Hulme, Fiona Sanderson and Juliet Vickery					
Article	Enhancing habitat connectivity through sustainable development around the Gola Rainforest	France	UK	M	Darwin Initiative	http://www.darwininitiative.org.uk/assets/uploads/2014/05/Darwin-Newsletter-Isssue-26-Feb-2014.pdf
Article	Cocoa crop raiding around Gola Rainforest National Park	France	UK	M	Darwin Initiative	http://www.darwininitiative.org.uk/assets/uploads/2017/01/Darwin-Newsletter-January-2017-Conservation-Conflict-Final.pdf
Award-winning Masters Thesis mentioned in article	Investigating Cocoa Crop-raiding Around Gola Rainforest National Park, Sierra Leone	UK	UK	M	Concrete, University of East Anglia, Norwich, UK	http://www.concrete-online.co.uk/ueas-class-2017-celebrates-graduation/

Annex 6 Darwin Contacts

Ref No	20-022
Project Title	Enhancing habitat connectivity through sustainable development around the Gola Rainforest
Project Leader Details	
Name	Nicolas Tubbs
Role within Darwin Project	Project Manager
Address	
Phone	
Fax/Skype	
Email	
Partner 1	
Name	Francis Massaquoi
Organisation	The Gola Rainforest Conservation LG
Role within Darwin Project	Head of Gola Rainforest National Park
Address	
Fax/Skype	
Email	
Partner 2	
Name	Jeff Milder
Organisation	Rainforest Alliance
Role within Darwin Project	Technical Expertise
Address	
Fax/Skype	
Email	