Darwin Initiative: Final Report

To be completed with reference to the "Writing a Darwin/IWT Report" Information Note: (https://www.darwininitiative.org.uk/resources-for-projects/reporting-forms-change-request-forms-and-terms-and-conditions/).

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

Darwin Project Information

Project reference	24-018
Project title	Enhanced biodiversity, water security, and forest recovery in northern Guinea
Country(ies)	Guinea
Lead organisation	Wild Chimpanzee Foundation
Partner institution(s)	*Office Guineen des Parcs et Reserves* (OGPR)
Darwin grant value	£334,878
Start/end dates of project	1 April 2017 – 31 March 2021
Project leader's name	Professor Christophe Boesch
Project website/blog/social media	www.wildchimps.org, www.facebook.com/wildchimps
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1 Project Summary

The Fouta-Djallon Highlands of Guinea are known as the "water tower" of West Africa, providing the source of many of the major rivers in the region: the Senegal River, Gambia river, Niger River, and the Rio Corubal. The water security of eight countries (The Gambia, Guinea, Guinea-Bissau, Mali, Mauritania, Niger, Sierra Leone and Senegal) is, thus, directly and indirectly effected by the ecosystem services provided by this crucial region of Guinea. However, uncontrolled deforestation associated with illegal logging activities, wildfires, and slash-and-burn agriculture practices are accelerating the desertification process, likely affecting rainfall patterns and regional climatology, thereby threatening the continued provisioning of this critical ecosystem service. The effects of forest loss on water supply are not a mere question environmental theory, as paradoxically, the local communities living on the "Water Tower of West Africa" are currently experiencing localized water shortages of ever-increasing severity. Water shortages, compounded by the loss of soil fertility (i.e., desertification), is resulting in increasing food-security risks for communities living in a country that already ranks 178th out of 189 in terms of Human Development Index (2020).

In addition to the impairment of a regionally- and locally-critical ecosystem service, forest fragmentation and loss in the Fouta-Djallon region of Guinea presents significant threats to regional biodiversity. As the country with the single greatest population of the critically endangered West African chimpanzee, *Pan troglodytes verus*, the forests of Guinea represent one of last remaining strongholds in all of West Africa for Western chimpanzees and many other species of high conservation value.

To protect the forests, wildlife, and ecosystem services of this region, a multi-year project has been implemented to create a new national park, the Moyen-Bafing National Park (MBNP). Covering 6,767 km^2, the MBNP is designed to protect:

a) the largest remaining population of the West African chimpanzees, estimated to comprise approximately 5,000 individuals;
b) rare wildlife and endemic plant species; and
c) the ecosystem services found within the park's boundaries that are important to the 255 villages located within the park and beyond.

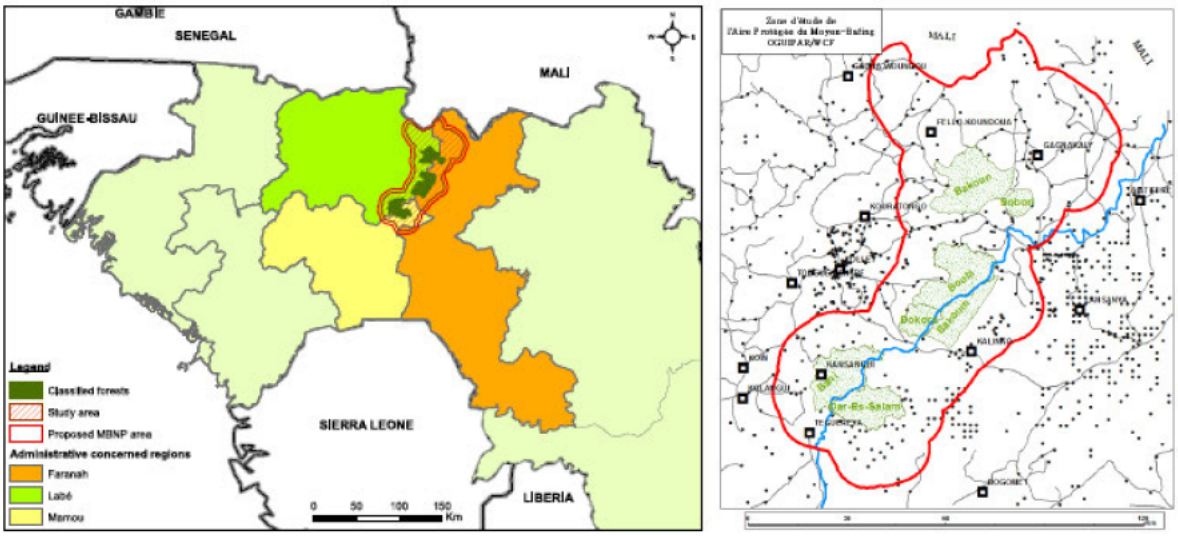

Figure 1. Regional / national borders and location of the MBNP (red, map left); boundary of MBNP (red), existing forest reserves (green), and the location of villages (black points; map right)

2 Project Partnerships

Ministry of Environment, Waters, and Forests - Guinean Office of Parks and Reserves

Given that the creation of a national park is the prerogative of the national government, from the outset, WCF has worked in close partnership with the Ministry of the Environment, and particularly, the Guinean Office of Parks and Reserves (OGPR). To characterise the relationship between WCF-OGPR as a "partnership" could be considered an understatement, as OGPR agents are fully integrated at all levels of WCF-Guinea. This close working-relationship between the two organisations has been invaluable, facilitating communications and progress in all activities – from daily field activities to the development of the legislative framework underpinning the creation of the MBNP.

Communities of the Moyen-Bafing National Park

The creation of a national park that includes within its borders 280 villages, such as the case of the MBNP, requires the collective effort of park managers and community stakeholders to work collaboratively towards achieving sustainability in the use of the local natural resources. Given limited human resources, clearly, WCF is unable to work with all of the 36,000+ inhabitants of the 280 villages of the MBNP, and thus, over the years has created a hierarchical, community organisational structure to ensure community participation in the on-going process of park creation. Community organisations begin at the village-level, with the formation of village committees, and expand in scope with the creation of commune-level committees, then finally, a park-wide committee.

Other partners involved in implementing project activities in year-2/3, include:

- Kew Royal Botanic Gardens and the Guinean National Herbarium, whom led the implementation of the botanical inventory study;
- GRET: WCF engaged in a partnership with the international NGO GRET with the aim to work on agro-ecological development and consultation on natural resource management in the MBNP region. The first mission of GRET took place in May 2018 with international experts;
- Biotope consultants conducted the ornithological inventory (bird study);
- INSUCO consultants conducted community consultations and the mapping village territories;
- Local NGO PRIDE implemented some early outreach campaigns to raise awareness with respect to the creation of the national park, forest protection, and wildfire.

3 Project Achievements

3.1 Outputs

The three outputs of the present Darwin Initiative project were framed following an over-arching structure, such that:

- Output-1 encompasses activities providing environmental / ecological benefits;
- Output-2 is intended to regroup activities providing social benefits; and
- Output-3 represents the scientific accomplishments, or advancement of knowledge, that may be attributed to project activities.

Output 1. Reforestation of 40 ha of gallery forests and headwaters, plus the equivalent of 10 ha of fruiting tree species

With 36,000+ people living within the borders of the Moyen-Bafing National Park (MBNP), it was clear from the outset that significant time and effort would be required to slow, and eventually reverse, forest degradation. The strategy employed by the present project were twofold: 1) afforestation of deforested areas and 2) to slow the rate of deforestation. Initially, the more traditional reforestation approach was used, reforestation through the transplantation of nursery-raised trees. During this initial period, 6 tree nurseries were established in which 101,244 trees (Annex 7.1) were raised from seed stocks by 60 trained, locally-recruited staff (Annexes 7.2 – 7.3). Transplantation of 8,204 nursery-raised trees contributed to the reforestation of **36.4 ha** of land (Annexe 7.4). However, it was observed that the survival rates of nursery-raised transplants were low, as compared to an experimental plot in which the Natural Ecological Regeneration (NER) technique was being tested (Annex 7.5). As a result, project management decided to discontinue the use of tree nurseries in favour of the NER approach for forest restoration.

In 2021, the project has transitioned entirely away from the transplantation approach to employing solely NER, given its superior efficacy as a reforestation method. A multi-step process has been developed for the implementation of NER in the MBNP:

1. Identification of the potential sites (Annex 7.6a);
2. Discussions held with the local village committee, if the site is within a village territory
    a. Finalisation of discussions with the signing of a formal agreement stating that the community agrees to protect the designated site from exploitation (wood cutting, uncontrolled grazing, etc), with the support of the WCF forest regeneration program (Annex 7.6b);
3. Preparation of the site through the cutting and/or flattening of tall grasses and other vegetation that are competing with regenerating trees in early-stages of growth (Annexe 7.6c);

4. Installation of growth-monitoring plots in which a standardised area is delimited and the trees/saplings within the plot are marked, measured, and identified to species (Annex 7.6d);
5. Protection of the site from wildfire damage with the creation of 20m-wide firebreak (Annex 7.6f);
6. Removal of invasive species, particularly bamboo and raffia (*Raphia vinifera*), which is a new step recently introduced into the site development process (Annex 7.6g).

For established NER restoration sites, steps 3-6 must be repeated on an annual basis. Thus, as the number of restoration sites increases incrementally over time, the effort required to maintain the sites has increased exponentially, until the trees attain the height at which fire-related mortality approaches zero. Over the years of the project, thousands of community members have been employed to assist in these large-scale efforts of NER site creation (Annex 7.7), employing 780+ community members to assist in growth monitoring (Annexes 7.8 – 7.9) and species identification (Annex 7.10). With the assistance of thousands of members of the local communities over the years, a total of **263.5 ha** of deforested lands are in various stages of forest regeneration (Annexe 7.11).

To slow the rate of deforestation project activities have focused on 2 important causes of forest loss, namely wildfire and slash-and-burn agriculture. In order to limit the intense uncontrolled fires that occur late in the dry-season, an annual wildfire management program was developed. In the 2020/21 fire season, 429 prescribed burns were conducted early in the dry season to reduce fuel loads, thereby minimizing the destructive effects of late-season fires (Annex 7.12). With the participation of 8,502 members of the community, in 2020/21, 479 km of firebreaks were created around important forested sites to prevent the further loss of forest cover (Annexes 7.13 – 7.14). These efforts have in the past, and will continue to rely more-and-more heavily on the support and participation of the local communities (Annex 7.15).

Given that traditionally fire has been used to clear agricultural fields, following the slash-and-burn approach, a strong link exists between wildfire management and traditional agricultural activities. As a complement to NER, which occurs on uncultivated lands, the Farmer-Managed Natural Regeneration (FMNR) approach prescribes that a certain density of trees is maintained, and/or regenerated, in cultivated fields. By maintaining tree cover on agricultural lands, the burden of clearing the field is reduced, as is the associated fire risk. Furthermore, at relatively low densities, trees aid in controlling erosion, and through leaf litter decomposition, aid in maintaining soil fertility. If soil fertility is adequately maintained, or enhanced, the need for the farmer to move and clear a new field reduces in frequency, thereby reducing deforestation rates. The number of farmers fully implementing FMNR has increased incrementally each year of the project. Today, 136 farmers are practicing all of the agroecological techniques being promoted by the project on 100+ ha of farmed land. (Annexes 7.16 – 7.17)

While ecological benefits and sustainability are, ultimately, in the best interests for everyone, local farmers are certainly concerned with the how the adoption of new practices will impact their yields. Furthermore, significant tree growth and detectable improvements to soil conditions both take time. Over the past 2 years, agricultural productivity data have been collected in an effort to determine baseline values. However, the natural variability of soil conditions between fields combined with the varying mixes of crops planted within a single field have produced productivity data that are highly-variable (Annex 7.18). Nevertheless, the project is continuously striving to improve data collection efforts in order to refine baseline productivity values. In the meantime, a Revenue Maintenance policy is being implemented through the provision of additional revenue-generating activities (shea butter, apiculture, etc) to ensure local revenues / livelihoods are not negatively impacted.

Output 2. 3-5 ha of floodplain developed in an environmentally conscious and participative manner for community gardening cooperative projects

In the early years of the project, efforts were undertaken to quickly begin structuring the communities to facilitate interactions between project staff and the stakeholders, and also, to provide the communities a platform that will permit their involvement in natural resource management planning. Over the years of the project, the number of village committees that were created and formalised, through submission of official documents of association, incrementally increased. Currently, there are 29 village committees, with the numbers continuously growing as the process expands. Moreover, these 29 village committees benefitted from training in basic management and financial principles. In addition to village-based committees, committees were created at the next higher jurisdictional level, the commune. One committee has been created to represent the villages within the commune for the 15 communes of the MBNP. A final committee level was, then, created at the park-wide level that provides for representation at all geo-political levels. These various levels of organisation will provide local stakeholders a platform to actively participate in conservation and natural resource management discussions at the local, regional, and national levels.

As natural resource management (NRM) planning processes have focused on village territories as the target area, working with village-based committees on the development of NRM plans has been one of the key activities of the project. Initial steps in the development of a NRM plan involve a 'taking of stock' of the current state and location of the natural resources of the village through mapping exercises. Participatory mapping allows for the determination of the what/how/where/when of resource-use. For this information to be usable, a geo-referencing step is required. After final validation by local stakeholders, community resource-use maps are overlaid with park boundaries. Zones of community resource-use are then evaluated relative to the zoning plan of the park. In the case where there is exploitation of a resource in a restricted zone, solutions must be sought in either modifying the limits of the zone or proposing an alternative location, or activity. Currently, 26 participative, natural resource-use maps have been produced (e.g., Annexes 7.19 – 7.20), and in the months to come, these maps will form the basis of the evaluations and discussions that will be held once the MBNP Zoning Plan is finalised.

Spatial planning and community organisation efforts have provided the foundation required for the promotion of sustainable agriculture practices and reforestation efforts. As the agricultural training program developed, training modules and outreach materials were developed to promote Farmer-Managed Natural Regeneration (FMNR) and a host of other agro-ecological techniques (e.g., composting, mulching, erosion control, and companion cropping). Expansion of the program beyond the initial pilot villages resulted in the need to hire more technical staff. Late in the 3rd year of the project 37 new project staff were hired and trained, along with 12 national agricultural advisors, and 13 community farmers (Annex 7.16). With more trained staff in the field, the reach of the agricultural training programs increased greatly. In 2020, 2157 people attended at least 1 training session (Annexes 7.21 – 7.22), with 434 farmers (286 men / 148 women) practicing at least one of the techniques in their own fields, and 136 farmers practicing all of the promoted agro-ecological techniques.

While FMNR and agro-ecological techniques introduced to the farmed fields are intended to produce medium-term benefits, more rapid returns are possible through the Village Cooperatives program. Spatial analyses were initially conducted to identify areas suitable for gardening projects (Annex 7.23). Trainings in gardening-related topics (e.g., soil preparation, seed sowing, water management, and the preparation and application of bio-pesticides; Annex 7.24) have benefitted 267 women from the communities, while 137 of these participants are active members of the 22 gardening cooperatives. Continuous technical support and materials are being provided to the active cooperatives, including: 124 hoes, 135 watering cans, 6,850 kg of seed for each vegetable

type (tomato, onion, aubergine, okra) and 3,425 kg of hot pepper seed. In total**,** 51 cooperative associations have been created to diversify and increase the productivity and revenues of the participating groups: a) 17 for the cultivation of field crops, b) 4 vegetable gardening, c) 4 shea butter, d) 18 vegetable gardening and shea butter, and d) 8 apiculture cooperatives (Annex 7.25). Membership of the cooperatives includes 1045 people of which 778 are women, 78%. The **22 cooperatives participating in vegetable gardening activities manage 139 garden plots, covering 8+ ha**.

The principal objective of the program is not only to provide the technical and material support to efficiently and sustainably harvest natural resources, but also to support the cooperatives along every step of the value chain, leading to the commercialisation of their products. In 2020, 150 litres of honey were produced and sold by the apiculture cooperative (Annex 7.26). Similarly, the project provided support to the vegetable gardening cooperatives with the production, transport and sale of 10 tons of onions. To ensure proper financial management, and the viability of the cooperatives, a training was provided in basic management and financial accounting to representatives from all the 29 participating villages (Annex 7.26).

Output 3. Biodiversity inventories, monitoring system, and habitat classification developed and integrated into a GIS database

The WCF Biomonitoring program likely ranks amongst the single largest camera-trapping survey efforts in existence today. The camera-trapping surveys follow 3 different sampling strategies: 1) distance sampling, where 217 - 257 camera traps are deployed according to habitat type, with position being shifted throughout all the regions of the park (Annex 7.27), 2) capture-recapture, where 103 camera-traps are deployed in 2 arrays that focus on specific areas of interest, 3) corridor-use, where 30 cameras are deployed in 3 arrays to focus on use of forest corridors (Annex 7.28). In total, the Biomonitoring program employs *ca*. 400 camera-traps to cover the 6,767 km2 area of the MBNP. From the distance-sampling array of camera-traps alone, on average 33,582 video clips are recorded per month, with each of the clips being visually processed for the presence of wildlife species, specifically mammal species. From the 103 camera-traps in the capture-recapture array, an average of 14,070 videos per month are downloaded, and from the 30 camera-traps monitoring corridor-use, 726 videos are collected on a monthly basis.

The 3 different sampling strategies described, above, are designed to address specific issues relating to the greater MBNP mammal survey effort. Distance sampling will provide park-wide density estimates of mammals, according to habitat type (Annex 7.29). The capture-recapture approach will allow for higher precision estimates, and the determination of correction factors that may be applied to the larger distance sampling effort. Lastly, the camera-trap arrays placed inside-outside the forest corridor are intended to provide estimates of corridor use, as an indicator of forest connectivity.

The 48,378 videos recorded by camera-traps per month are analysed on a continuous basis. Images collected have provided a comprehensive inventory of the 47 distinct mammal species present in the MBNP (Annex 7.30), and the first photographic evidence of the presence of these many rare and elusive species (Annexes 7.31 – 7.32). Analyses of the videos / images collected from the distance-sampling array have allowed for the calculation of density and abundance estimates of key mammal species that will be monitored over the long-term, with estimates being refined and mapped over time as more images are collected. Analyses of images collected from the forest-corridor array have allowed for the documenting of changes in the mammal species presence and frequency of use of the forest corridor. From 2017 – 2019, the **number of species documented within the corridor has indicated an increase of 36%** (Annex 7.33), while the **frequency of use increased 12.0%**, as determined by the average of images captured per day for all species.

In partnership with Kew - Royal Botanical Garden, a botanical survey was completed (Annex 7.34) during which new species endemic to the area were discovered and published (Annex 7.35). Similarly, surveys were conducted to inventory bird species present, with results providing visual confirmation of 64 species present within the MBNP (Annex 7.36).

All data collected during the course of the present Darwin Initiative project are integrated into a growing GIS database of species occurrence / abundance. These data, combined with habitat classification maps produced (Annex 7.37) will provide an invaluable resource for conservation, wildlife management, and planning.

3.2 Outcome

Outcome: Reforestation of 50 ha of forest to ensure connectivity and to improve water-retention capacity, thereby stabilising local water supplies to the benefit of local wildlife and human populations

0.1 *50 ha reforested achieving a 33% increase in forest cover*

- 36.4 ha reforested + 263.5 ha undergoing Natural Ecological Regeneration = **299.9 ha**
- As the focus of project shifted from a restricted area during the piloting phase to the entire park (6,767 km^2), the percent change indicator is no longer the same order of magnitude.

0.2 *80% reduction in activities associated with forest cover loss (illegal logging, slash-and-burn)*

- Since the inception of the Ecoguard program, Ecoguards have been conducting 21-day, monthly missions, in which observational data are collected. Data collected during Ecoguards patrols are reported as the number of observations per kilometre, or encounter rate. Baseline encounter rates were calculated for activities that contribute to deforestation (i.e. agriculture, logging, and traditional honey harvesting) for the initial values in the time series and compared to the most recent values. Results indicate an overall **decline of 54.3%** in activities associated with deforestation (Annex 7.38).

0.3 *Chimpanzee population is stabilized in the area and biodiversity is increasing in the reforested areas*

- Density estimates for Western chimpanzees (*Pan troglodytes verus*), and other mammalian species are being continuously refined by habitat type. Nevertheless, estimates are provided in Annex 7.29.

0.4 *200 people from the participating villages benefit from agro-ecological and vegetable gardening outreach*

- In year 3, **1,428** community farmers / gardeners have benefited from training sessions related to FMNR agriculture techniques and vegetable gardening
- In year 4, 2,157 community farmers / gardeners have benefited from training sessions related to FMNR agriculture techniques and vegetable gardening
- In total, **3,585 people** have benefitted from outreach activities

0.5 *11-18% of villages in the Moyen-Bafing National Park have a validated Natural Resource Management Plan for their territories*

- At present, 29 participatory maps have been created, which includes 49 villages, representing **17.5%** of the 280 villages of the MBNP. However, Natural Resource Management Plans for these territories have not yet been validated.

0.6 *30% of people attending workshops are woman, including the vegetable gardening cooperatives*

- Of 434 farmers that have attended project training sessions and are currently practicing, at least, one of agro-ecological techniques, 34% are women.
- Of the 1,075 people participating in the cooperatives, 74% are women.
- In total, **62%** of participants are women.

3.3 Monitoring of assumptions

Assumption 1: Government Departments continue to support and facilitate the implementation of the National Park
Assumption 2: Country remains politically stable
Assumption 3: The target local community is willing to partake in novel livelihood strategies
Assumption 4: The targeted local communities remain willing to actively engage in the alternative livelihood strategies and remain committed to the sustainable-use of their natural resources
Assumption 5: Soil perturbation of degraded land does not prevent assisted regeneration of natural occurring trees
Assumption 6: The target community is willing to partake in a reforestation project
Assumption 7: The target community is willing to adapt their current unsustainable practices by reducing slash and burn/tree cutting in order to facilitate long-term reforestation
Assumption 8 (new): Measures and restriction related to COVID-19 will not significantly impact activities planned in year-4.

All of these assumptions were highly-relevant and remained so throughout the life of the project. A new assumption was introduced last year, given that a global pandemic was not foreseen nor included in the original list. In May 2021, after the official end of the project, a major event occurred that obviates Assumption 1 – the presidential decree for the creation of the Moyen-Bafing National Park was signed.

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

Impact: Promote stabilisation of the hydrologic system and ensure long-term food and water security within the proposed Moyen-Bafing National Park, benefitting local biodiversity (particularly chimpanzee populations) and human communities.

Forest regeneration, forest protection, and wildlife protection efforts promoted by the present project have indirectly enhanced the stability of a critical ecosystem function, water supply, while the restoration of forest habitat and wildfire management are providing direct benefits to local biodiversity. Nevertheless, measuring these impacts, at the time-scale of the project, would certainly be difficult. Reforestation, soil improvement, and hydrological changes are likely better measured in 5-10 year intervals.

Long-term benefits of reforestation activities to human well-being include the enhanced resiliency of critical ecosystem services, water supply and the provision of other exploited natural resources, and enhanced livelihoods (food security and revenue increase/ diversification) through agricultural, gardening, and apiculture interventions.

4 Contribution to Darwin Initiative Programme Objectives

4.1 Contribution to Global Goals for Sustainable Development (SDGs)

Goal 1: No poverty – Alternative, revenue-generating activities are implemented within a

community cooperative structure, including vegetable gardening and apiculture

Goal 2: Zero hunger – Training in agro-ecological techniques to improve soil fertility and productivity, and vegetable gardening, enhance food security for local communities

Goal 5: Gender equality – The participation of women in all activities is highly encouraged, with certain programs and training sessions supporting / enhancing the activities proposed by the women of the communities themselves, such as vegetable gardening, cooking, and nutrition.

Goal 6: Clean Water and Sanitation – Improving year-round access to water and/or water security, as an ecosystem service, is being indirectly promoted through reforestation activities.

Goal 12: Responsible Consumption and Production – Promotion of agro-ecological, or sustainable, farming techniques

Goal 13: Climate Action – Wildfire control efforts and reforestation

Goal 15: Life on Land – Promotion of sustainable farming practices, reforestation and biodiversity conservation

4.2 Project support to the Conventions or Treaties (e.g. CBD, Nagoya Protocol, ITPGRFA, CITES, Ramsar, CMS, UNFCCC)

The present Darwin Initiative project provides support to the Republic of Guinea in its efforts to honour its commitments under the Convention on Biological Diversity, in particular Aichi Targets:

Strategic Goal A: Address the underlying causes of biodiversity loss by mainstreaming biodiversity across government and society

Target 1: Given that the project is in the process of creating a national park, the results of the biodiversity inventories have demonstrated the unique biodiversity and high conservation value that exists within the proposed park boundaries. Recognition of the value of this area is being mainstreamed and is the very driver of the political process towards the official creation of the park, which will then be communicated / mainstreamed to the wider public.

Strategic Goal B: Reduce the direct pressures on biodiversity and promote sustainable use

Target 5-7: Through the promotion of forest restoration activities (Target 5), the sustainable use of aquatic resources (Target 6) and sustainable agriculture practices (Target 7), the present project provides substantial support to Strategic Goal B.

Strategic Goal C: To improve the status of biodiversity by safeguarding ecosystems, species and genetic diversity

Target 11-12: The present project significantly expands coverage of protected areas in Guinea (Target 11), while protecting the endangered, and possibly endemic, species of the region, particularly the critically endangered West African chimpanzee (Target 12).

Strategic Goal D: Enhance the benefits to all from biodiversity and ecosystem services

Target 14: Reforestation activities promoted by the project in an area known as the “water tower of West Africa” promotes water security and safeguarding of a critical ecosystem service of regional importance.

Strategic Goal E: Enhance implementation through participatory planning, knowledge management and capacity building

Target 18-19: The present project enhances traditional knowledge and livelihood practices, while implementing mechanisms for the full participation of local communities (Target 18), while wildlife and natural resource monitoring research employs the latest science technologies, e.g., camera-trapping and satellite data image analyses (Target 19).

4.3 Project support to poverty alleviation

The present Darwin Initiative project is providing direct benefits to the 30 villages within the Moyen-Bafing National Park in the form of agricultural and gardening training programs, including the necessary equipment and supplies, all of which is designed to improve farm productivity, yield, and thus livelihoods and revenue. Moreover, members of the communities working in various roles within the project (i.e., guides, tree nursery attendants, etc.) have all been paid for their time and services.

In addition to these direct benefits, project activities strive to ensure sustainable natural resource use, thereby the perpetual provision of these crucial natural resources and ecosystem services for the current communities and future generations.

4.4 Gender equality

The WCF recruitment policy includes affirmative action for women and persons living in the MBNP area. WCF is well aware of gender-related issues and consistently involves women in all project activities, to the extent possible, and encourages women to express their points-of-view in community meetings and other fora. The formation of village cooperatives and training programs were attended by mostly women of the communities. These activities were specifically designed to provide women economic opportunities. It is clearly understood by project managers that the only way for impoverished societies to escape poverty-trap is through the inclusion of women in the economic development strategy. (Outcome indicator 0.6)

4.5 Programme indicators

- **Did the project lead to greater representation of local poor people in management structures of biodiversity?**

The project invested substantially in the creation of local committees and in providing platforms and opportunities for the involvement of local communities. At the village-level, 29 village and inter-village committees were created (10 people per committee x 29 committees = 290 people), representing 49 of the 280 villages of the MBNP. Unions were formed in which the villages of all 15 communes of the park were represented by a committee at the commune-level that included 500+ people in total. A final committee level has been designated to unite the 15 communes under a park-wide committee. Additionally, a formal communication process has been established between the communities and park managers and a public consultation process leading up to the creation of the national park has allowed for the possibility of open and transparent communication.

- **Were any management plans for biodiversity developed and were these formally accepted?**

A primary objective of the project still in-progress is the creation of individual natural resource management plans for the each of the villages, and a national park management plan. To date, efforts have focused on the framing and initiation of the only functioning Chimpanzee Offset Project and the creation of a national park.

- **Were they participatory in nature or were they 'top-down'? How well represented are the local poor including women, in any proposed management structures?**

Community-based committees described, above, were created for the express purpose of providing local stakeholders a platform from which they can participate in park management.

- **How did the project positively influence household (HH) income and how many HHs saw an increase?**

Presently, there are 1,075 community members participating in the cooperatives program, with each one representing a household. While, essentially, all of the participants have benefitted from training, materials, and improvements in the productivity of their respective activities, not

all the cooperatives have produced commercial quantities. However, some cooperatives are in the process of scaling-up production to commercial levels. For example, in the past year, 200 litres of honey and 10 tons of onions were produced and sold in the regional capital, Labe. The onions were produced in the villages of Ley Kimbeli, Sangan, and Idia, with sales totalling [redacted]

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

- Average annual income in Guinea: [redacted] USD per year = [redacted] USD per person/day
- Income for 10 people from sales of onions for a 3-month growing period = [redacted] USD per person/day

4.6 Transfer of knowledge

Given that the present Darwin Initiative project included scientists, practitioners and policy makers, much of the information generated was used internally to guide managers and policy-makers in the creation and management of the national park. Wildlife and botanical inventories conducted by the project may, generally, serve conservationists working in the region. These materials have been made available through website publications and through peer-reviewed sources.

4.7 Capacity building

The project has implemented an extensive capacity building program through its partnership with the national agency for park and reserves, *Office Guineen des Parcs et Reserves (OGPR)*. Every year WCF hosts national conservation agents in various capacity-building trainings. In the field, national agents benefit from training in wildlife monitoring activities, with office-based training in field coordination and management, data analysis and GIS. National agents trained by the project have received additional benefits and/or promotions from their employer.

With 200+ employees, WCF has prioritised employee development, particularly for female employees. Motivated employees benefit from career development opportunities and trainings that have led to a number of internal promotions over the years.

5 Sustainability and Legacy

The official signing of the presidential decree for creation of the Moyen-Bafing National Park, in May 2021, represents a significant advancement in West African conservation and will play an important role in a regional protected areas landscape strategy. There is no planned “exit strategy”, as the newly created park will be in-need of continued technical and financial support for the foreseeable future. Certain activities may be de-prioritised in the future, however, there will be a continued need for community engagement, wildlife monitoring activities, and the development of a financial strategy and/or business plan to ensure the sustainable financing and continued existence of the park.

6 Lessons learned

An important lesson learned during the course of year-3 activities relates to the transplanting of nursery-raised trees. While monitoring the growth of nursery transplants, it was observed that naturally regenerating trees at the same location surpassed the growth rates of nursery transplants, resulting in natural regenerants out-competing nursery trees for space and sunlight. This observation validates the efficacy of the Natural Ecological Regeneration (NER) approach promoted by the project, however, requires that the strategy for transplantation be revisited. In year-4, rather than dedicating entire reforestation sites to nursery transplants, nursery-raised trees will be used in more of a “shotgun” approach in an effort to enhance species diversity on NER and FMNR sites. Although initial impressions may be that the species diversity and richness of a naturally-regenerated forest would reflect that of the “original forest”, however, due to the

selective forces of deforestation (cutting and/or wildfire), differential growth rates and later competition amongst regenerating trees that may not necessarily be the case.

Lastly, it has become abundantly clear in recent years that the fate of all of the reforestation efforts and activities requires a robust wildfire management strategy. Considering the intensity and scale of wildfires in the region, a significant investment will be required, initially, to protect vulnerable saplings until they reach a height that allows them to escape fires of moderate intensity.

6.1 Monitoring and evaluation

No recent changes have been made to the log-frame of the project.

6.2 Actions taken in response to annual report reviews

No actions required

7 Darwin identity

Darwin Initiative funding has formed part of a larger multi-year project, the Moyen-Bafing National Park project that has been supported by Biodiversity Offset Program. Nonetheless, the Darwin Initiative contribution has been crucial in advancing community engagement and biodiversity inventory activities over the last several years. For activities in which multi-donor funding is used, the Darwin Initiative logo is displayed amongst other donor organizations. For the botanical surveys conducted by Kew Royal Botanical Garden, the Darwin Initiative was the principal funding source, and thus the logo is displayed in associated reports and acknowledged in the scientific publication. (Annex 7.39)

8 Impact of COVID-19 on project delivery

As COVID-19 infection rates began to rise in Guinea, project managers implemented immediate action in practicing social distancing, requiring protective face masks in the office, and taking body temperatures of all those entering the office. During the peak weeks of infection, staff were placed on mandatory telework until infection rates declined. During this period, all but essential and/or critical activities were discontinued. Throughout the crisis, the project has followed all national and international guidelines in order to protect project staff and communities. Restrictions on group sizes, unfortunately, impeded much of the work that was planned for this past year, particularly the many meetings required to discuss and finalize the village-based natural resource management plans.

9 Finance and administration

9.1 Project expenditure

Project spend (indicative) since last annual report	2020/21 Grant (£)	2020/21 Total actual Darwin Costs (£)	Variance %	Comments (please explain significant variances)
Staff costs (see below)	[redacted]			
Consultancy costs				
Overhead Costs				
Travel and subsistence				
Operating Costs				
Capital items (see below)				
Others (see below)				
TOTAL				

	Staff employed (Name and position)	Cost (£)
1.1	WCF Project Director / Shane Abeare (Country Director)	[redacted]
1.2	WCF Assistant Director/ Pacifique Kizila (Park Manager)	
1.3	WCF Program Officer/ Patrick Kansangij (Assistant Park Manager)	
1.4	WCF Program Officer/Armand Zabouo	
1.5	WCF Communication Officer and OGUIPAR Liaison Officer/Silvain DAAVO	
1.6	WCF Senior Coordinator and OGUIPAR Liaison Officer/Traoré Salian	
1.7	WCF Coordinator /GUILAVOGUI Dolo Stephane	
1.8	WCF Coordinator/ DIALLO Thierno Mamadou Alimou; MARA Lansana	
1.9	WCF Drivers (*4 or 3)/ CISSE Bangaly; BAH Amadou Sadio; BALDE Mamadou Sadio	
1.10	WCF Plant Nursery (and reforestation) Supervisor	
1.11	2 Plant nursery managers	
	TOTAL	

	Overhead Costs - organisation costs
2.1	Overheads
2.2	Organisation office rental, heating etc.
2.3	Audit costs (max £[redacted] in final FY only)
	TOTAL

	Travel and subsistence
3.3	Fieldwork travel and subsistence
	TOTAL

	Operating Costs - project specific
4.2	Fieldwork operating costs (not travel)
	TOTAL

9.2 Additional funds or in-kind contributions secured

Source of funding for project lifetime	Total (£)
Chimpanzee Offset (2018-2021)	[redacted]
Rainforest Rescue	
Great Ape Conservation Fund, US Fish and Wildlife Service	
SOS-IUCN	
Arcus Foundation	
Zurcher Tierschutz	
Leipzig Zoo	
Columbus Zoo	
TOTAL	

Source of funding for additional work after project lifetime
Chimpanzee Offset
SOS-IUCN
Arcus Foundation
TOTAL

9.3 Value for Money

Today, WCF-Guinea employs 200 national employees whom work for the sustainable development and protection of the new Moyen-Bafing National Park, covering an area of 6,767 km^2. In addition to the challenges presented by the sheer scale of the project area, an estimated population of 40,000+ people live within the limits of the Park. If the Park is to succeed, the social challenges faced by the Park must be met with sufficient financial means and *real* investments made in local livelihoods. Project managers have ensured that this is, indeed, the case. To date, the project has provided training, materials, and seasonal employment for 10,000+ people. The "value for money" of the project is clearly related to the scale at which positive ecological and social impact is being made.

10 OPTIONAL: Outstanding achievements of your project during the (300-400 words maximum). This section may be used for publicity purposes

I agree for the Darwin Secretariat to publish the content of this section (please leave this line in to indicate your agreement to use any material you provide here)

Over the past 4 years, the present project has steadily grown, increasing in its reach and impact. Through trainings, technical and material support to farmers, the project has reached tens of thousands of members of the local communities, with 1000+ of them adopting the sustainable agricultural techniques being promoted. Currently, there are 1000+ active members of the cooperatives being trained and supported throughout the growing cycle and all the way to the market. In the past year, the vegetable gardening and bee-keeping cooperatives benefitted from their first commercial sales. These successes will, surely, encourage others to get involved. In

addition to vegetable and honey production, there is much interest and potential in improving the livelihoods of communities involved in shea butter production, which will be an area of focus in the months to come.

Parallel to the progress being made by the social programs, significant accomplishments have been made for the environment and biodiversity conservation. Early ornithological and botanical surveys documented the presence of rare, endangered, and even, endemic species. The expansive camera-trapping program documented the presence of 47 mammalian species, including lions, leopards, chimpanzees, hippopotamus, and a hyena. Reforestation and regeneration activities have made great strides in restoring nearly 300 ha of degraded forest, and in protecting year-after-year 70,000+ ha of existing forest form the destructive effects of wildfire. With the signing of the presidential decree that officially created the Moyen-Bafing National Park, 4th May 2021, the legacy of the present project is guaranteed, as is the continuation of the project activities.

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: Promote the long-term stability of the local water supply (rivers and tributaries), ensuring improved food and water security within the area of the proposed Moyen-Bafing National Park, to the benefit of local biodiversity (West African chimpanzee populations) and human communities.			
Outcome: (*changes expected from the project and who is expected to benefit*): Reforestation of 50 ha of forest to ensure connectivity and to improve water-retention capacity, thereby stabilising local water supplies to the benefit of local wildlife and human populations	**0.1** 50 ha reforested achieving a 33% increase in forest cover **0.2** 80% reduction in activities associated with forest cover loss (illegal logging, slash-and-burn) **0.3** Chimpanzee population is stabilized in the area and biodiversity is increasing in the reforested areas **0.4** 200 people from the participating villages benefit from agroecological and vegetable gardening outreach **0.5** 11-18% of villages in the Moyen-Bafing NP have a validated land management plans for their territory **0.6** 30% of people attending workshops are woman, including the vegetable gardening cooperatives	**0.1** Data collection from space- air-borne image analysis for assessing baseline forest cover and change **0.2** Data collected from 2017 socioeconomic survey to assess baseline land clearance rates and evaluate improvements throughout the projects duration **0.3** Biomonitoring, camera-trap surveys, to assess the density and distribution of mammals **0.4** Participant lists for training events, training documentation **0.5** Data from 2017 socioeconomic survey assessing current yield levels (yield per hectare) will monitor increase against baseline data **0.6** Workshop reports, and presence list	National government continues to support and facilitate the creation of the national park Country remains politically stable Local communities are willing to partake in novel livelihood strategies Local communities remain willing to actively engage in the proposed alternative livelihood strategies and remain committed to sustainable use of natural resources
Outputs: **1**. Reforestation of 40 ha of gallery forests and headwaters, plus the equivalent of 10 ha of fruiting tree species	**1.1** A tree nursery established and 16,000 successful saplings (wild fruit trees used by human and chimpanzee) available for transplanting by year 1 **1.2** An area of 40ha is protected and reforested after site identification and consultation with community landowners by year 4. **1.3** 2 members of the local community (1x manager and 1x assistant successfully	**1.1** Tree nursery inventory, productivity data, and photos **1.2** Field reports, photos, aerial / satellite imagery	Soil perturbation of degraded land does not prevent assisted regeneration of natural occurring trees The target community is willing to partake in a reforestation project

	trained to manage and maintain tree nursery by year 1) and recruited locally **1.4** 24 farmers apply FMNR techniques in their fields, Model Farmers, and 125 people from the community are trained in FMNR techniques by the Model Farmers **1.5** Productivity of FMNR fields is improved 20% by the end of year 4.	**1.3** FMNR field monitoring report; included number of person initiated/trained **1.4** Field reports on the number of fields under improved techniques/regeneration, photos (on WCF annual). **1.5** WCF socio-economic study analysis and results of data collection on harvested biomass / productivity	The target community is willing to adapt their current unsustainable practices by reducing slash and burn/tree cutting in order to facilitate long-term reforestation.
2. 3-5 ha of floodplain developed in an environmentally conscious and participative manner for community gardening cooperative projects	**2.1** 14 floodplain areas are identified and 7 are selected for the development of garden projects **2.2** 1 Natural Resource Management Plans and collaborative management committee created at the village-level for 1 village year 2 **2.3** 30 Natural Resource Management Plans completed by the end of year 4 **2.4** Development of a 15-day agroecology outreach training program **2.5** 30 community members from 30 villages participating in 10-15 days of agroecological training by end of year 4 **2.6** Organization of 3+ vegetable gardening cooperatives in which 21+ people are trained by year 3 **2.7** Capacity-building / training of 3 gardening cooperatives on subjects including: seed preparation, transplanting, bio-pesticide / fungicide preparation, cooking and nutrition, including the provision of equipment: wheelbarrow, shovel, seeds, etc., during year 3	**2.1** Floodplain GIS analysis, map, photos **2.2** Land management plan, meeting minutes **2.3** Minutes from community consultation meetings **2.4** Results from training workshop (number of people attended, training agenda, training material **2.5** Participation list, photos **2.6** Meeting minutes, documentation, photos **2.7** Training reports, training material, photos	The target local community is willing to participate in this novel approach and are receptive to adapting their current non-sustainable practices. The showcase converted wetland will be accepted by the local community and will successfully increase crop yields and ultimately yearly income The target local community remain willing to actively engage in the alternative livelihood strategies. Trained individuals from the local community will continue to participate and remain with the project. The target local community groups are first willing, and second, retain willingness to explore alternative livelihood diversification strategies. The success of the pilot project will be encouraging the wider local community to adopt these approaches.

	2.8 10 days of training provided to gardening cooperatives in marketing and financial management by the end of year 3 **2.9** 8 meetings held in participating villages at the end of year 4 to disseminate results and encourage replication of the combined agroecological and garden cooperative strategy **2.10** A 30% increase in vegetable gardening productivity	**2.8** Training materials, participation list, photos **2.9** List of attendees, agenda, and photos **2.10** Results garden harvest surveys and associated economic benefits	
3. Biodiversity inventories, monitoring system, and habitat classification developed and integrated into a GIS database	**3.1** 20% increase in the frequency of use of the reforested corridor by wildlife in year 4 **3.2** 20% increase in the number of different species using the corridor by year 4 **3.3** First exhaustive list of bird presence in year 2 **3.4** First list of botanic species with focus on threatened species in year 2 **3.5** MBNP habitat classification for principle vegetation classes	**3.1** Camera-trap surveys in reforested corridors **3.2** Camera-trap surveys throughout MBNP **3.3** Species list, report of surveys **3.4** Species list, report of surveys, publication **3.5** Analysis results, map	The biomonitoring method used allows to monitor the wildlife in the Moyen-Bafing area The target local community is willing to participate in this novel approach and are receptive to adapting their current non-sustainable practices.

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

Project summary	Measurable Indicators	Progress and Achievements
Impact: Promote the long-term stability of the local water supply (rivers and tributaries), ensuring improved food and water security within the area of the proposed Moyen-Bafing National Park, to the benefit of local biodiversity (West African chimpanzee populations) and human communities		Reforestation, wildfire protection, and the official creation of the Moyen-Bafing National Park have substantially contributed to safeguarding biodiversity and improving watershed health, thereby promoting water security. Large-scale agricultural training and support programs have significantly contributed to the enhancement of food security among local communities.
Outcome Reforestation of 50 ha of forest to ensure connectivity and to improve water-retention capacity, thereby stabilising local water supplies to the benefit of local wildlife and human populations	**0.1**. 50 ha reforested achieving a 33% increase in forest cover **0.2**. 80% reduction in activities associated with forest cover loss (illegal logging, slash-and-burn) **0.3**. Chimpanzee population is stabilized in the area and biodiversity is increasing in the reforested areas **0.4**. 200 people from the participating villages benefit from agroecological and vegetable gardening outreach **0.5**. 11-18% of villages in the Moyen-Bafing NP have a validated land management plans for their territory **0.6**. 30% of people attending workshops are woman, including the vegetable gardening cooperatives	**0.1**. Reforestation of 36.4 ha (nursery transplants) and 263.5 ha (NER) of land, totalling **299.9 ha** **0.2**. Encounter rates indicate an overall **decline of 54.3%** in activities associated with deforestation (Annex 7.38) **0.3**. Density estimates for Western chimpanzees (*Pan troglodytes verus*), and other mammalian species are being continuously refined by habitat type. Nevertheless, estimates are provided in Annex 7.29 **0.4**. In total, **3,585 people** have benefitted from outreach activities **0.5**. 29 participatory maps have been created that include 49 villages, representing **17.5%** of the 280 villages of the MBNP. However, Natural Resource Management Plans for these territories have not yet been validated. **0.6**. In total, **62%** of participants in farming and membership in the various cooperatives are women
Output 1. Reforestation of 40 ha of gallery forests and headwaters, plus the equivalent of 10 ha of fruiting tree species	**1.1** A tree nursery established and 16,000 successful saplings (wild fruit trees used by human and chimpanzee) available for transplanting by year 1 **1.2** An area of 40 ha is protected and reforested after site identification	**1.1**. Six (6) tree nurseries established containing 101,244 saplings (tree nursery inventory, excerpt of growth data, and photos provided in Annex 7.1) **1.2**. A total of 299.9 ha have been reforested 1. Reforestation / regeneration a. Nursery transplants – 8,204 nursery-raised trees were transplanted, covering 36.4 ha (Annexes 7.4 – 7.5)

Project summary	Measurable Indicators	Progress and Achievements
	and consultation with community landowners by year 4. **1.3** 2 members of the local community (1x manager and 1x assistant successfully trained to manage and maintain tree nursery by year 1) and recruited locally **1.4** 24 farmers apply FMNR techniques in their fields, Model Farmers, and 125 people from the community are trained in FMNR techniques by the Model Farmers **1.5** Productivity of FMNR fields is improved 20% by the end of year 4.	b. Natural Ecological Regeneration – a total of 263.5 ha of forest at various stages of regeneration during the present project, with an additional 145 ha in their initial stages of development (Annexes 7.6 – 7.11) 2. Protection of sites from wildfire (Annexes 7.12 – 7.15) **1.3**. Sixty (60) representatives from the communities (10 people per nursery) trained in nursery upkeep that work on a rotating basis (Annexes 7.2 – 7.3) **1.4**. Six different trainings topics have been presented during multiple training sessions that were attended by a total of 5,076 participants. 434 farmers (286 men / 148 women) have benefitted from periodic technical and material support, while 136 farmers from 24 villages are benefitting from continuous technical and material support throughout the production cycle (site selection, clearing, planting, and harvesting). (Annexes 7.16, 7.21 – 7.22) **1.5.** Changes in agricultural productivity not measurable in a 1-2 year timespan; baseline data being collected for reference (Annex 7.18)
Activity 1.1. Tree Nurseries 1. Village meetings to identify sites for nurseries 2. Site environmental evaluation, i.e., soil conditions, proximity to water 3. Preparation of site and of soil / manure (500 Kg / site) mixture and filling of nursery bags (approx. 20,000 bags per site) 4. Construction of fence and shading structures to protect seedlings		- 6 nurseries with a total of 106,500 saplings of 18 different species - 8,204 saplings transplanted for the reforestation of 36.4 ha - Nursery activities discontinued; remaining saplings are being used for creating live-fencing for FMNR agricultural sites; for example, 5,948 saplings used for the agricultural project in the village of Lallabara
Activity 1.2. Natural Ecological Regeneration (NER) Steps in the development of NER activities: 1. Identification of the potential sites; 2. Discussions held with the local village committee and the signing of a formal agreement stating that the community agrees to protect the designated site from unsustainable exploitation, with the support of the WCF forest regeneration program; 3. Preparation of the site through the cutting and/or flattening of tall grasses and other vegetation that are competing with regenerating trees in early-stages of growth;		- NER activities have been implemented on 263.5 ha, with 780+ members of the community are involved in the annual NER site creation and maintenance processes, particularly step #3. (Annex 7.8) - A total of 8,177 individual samplings have been inventoried, measured, and are being monitored (Annexes 7.8 – 7.9) - To protect existing and regenerating forests from the destructive effects of wildfire, during the 2020-2021 fire season, 429 prescribed burns were conducted, and a total of 479 km of fire breaks were created (Annex 7.12) - Given the labour-intensive nature of wildfire management activities, 8,502 members of the community from 58 villages were recruited to assist with the creation of fire breaks (Annexes 7.12 – 7.15)

Project summary	Measurable Indicators	Progress and Achievements
4. Installation of growth-monitoring plots (25m x 25m) in which a standardised area is delimited and the trees/saplings within the plot are marked, measured, and identified to species; 5. Protection of the site from wildfire damage with the creation of 20m-wide firebreak; 6. Removal of invasive species, particularly bamboo and raffia (*Raphia vinifera*), which is a new step recently introduced into the site development process.		
Activity 1.3. Tree Nursery Management: Community Participation 1. Representatives of the 6 nursery-project villages were selected by village committees 2. Selected individuals trained in nursery upkeep and maintenance 3. 10 individuals trained per nursery, with maintenance of nurseries ensured by trained community members that rotated on a monthly basis		- 10 representatives of the 6 nursery-project villages were selected by village committees and trained (Annexes 7.2 – 7.3) In total, 60 trained representatives from the communities assisting, on a rotational basis, the WCF Nursery Manager with nursery maintenance
Activity 1.4. Farmer-Managed Natural Regeneration (FMNR) Training 1. Recruitment of WCF Agricultural Outreach Agents (AOAs) 2. Training of AOAs 3. Community farmers selected on a voluntary basis 4. Selected farmers trained in FMNR techniques: selection / spacing of trees to be left on the farm plot, erosion control, mulching, composting, and "living" fence construction – Model Farmers Model Farmers, accompanied by WCF-AOAs, conduct outreach and field trainings		- Recruitment of 30 WCF-AOAs - 783 community members participated in FMNR training in 2020 alone - 136 farmers are practicing all of the agroecological techniques being promoted by the project on 100+ ha of farmed land. (Annexes 7.16 – 7.17)
Activity 1.5. FMNR Implementation 1. Required equipment provided: gloves, boots, machetes, hoe, etc. 2. Technical support, monitoring, and evaluation of the implementation of FMNR techniques by Model Farmers conducted by WCF Agricultural Outreach Agents		- Equipment provided to Model Farmers - An initial evaluation conducted of the implementation of FMNR techniques on the fields of participating farmers
Output 2. 3-5 ha of floodplain developed in an environmentally conscious and participative manner for community gardening cooperative projects	**2.1** 14 floodplain areas are identified and 7 are selected for the development of garden projects **2.2** 1 Natural Resource Management Plans and collaborative management committee created at the village-level for 1 village year 2	**2.1**. Spatial analyses conducted to identify areas suitable for gardening projects (Annex 7.23) **2.2**. Natural Resource Management Plan (see **2.3**, below) - Management Committees: 29 village-based natural resource management committees established and functional **2.3**. 29 participative, natural resource maps have been produced (e.g., Annexes 7.19 – 7.20) that form the foundation of the Natural Resource Management Plans **2.4.** A 14-day training program completed, 3-16 February 2020, in which:

Project summary	Measurable Indicators	Progress and Achievements
	2.3 30 Natural Resource Management Plans completed by the end of year 4 **2.4** Development of a 15-day agroecology outreach training program **2.5** 30 community members from 30 villages participating in 10-15 days of agroecological training by end of year 4 **2.6** Organization of 3+ vegetable gardening cooperatives in which 21+ people are trained by year 3 **2.7** Capacity-building / training of 3 gardening cooperatives on subjects including: seed preparation, transplanting, bio-pesticide / fungicide preparation, cooking and nutrition, including the provision of equipment: wheelbarrow, shovel, seeds, etc., during year 3 **2.8** 10 days of training provided to gardening cooperatives in marketing and financial management by the end of year 3 **2.9** 8 meetings held in participating villages at the end of year 4 to disseminate results and encourage replication of the combined agroecological and garden cooperative strategy	- 37 WCF staff - 12 National Agriculture Advisors, and - 13 Community members Participated in theory and practical training sessions (Annex 7.16; attachment "Strengthening Capacity for Implementation of RNA and RNE. Mission Report.pdf"). **2.5.** The 62 participants of the training described in **2.4** have assisted with the training sessions of communities throughout the MBNP **2.6**. After training sessions conducted, with the participation of 267 women, 51 village-based associations have been created to diversify and increase the productivity and revenues of the participating groups: a) 17 associations for the cultivation of field crops b) **4 vegetable gardening** associations c) 4 shea butter associations d) **18 vegetable gardening** and shea butter associations d) 8 apiculture associations 139 garden plots, **covering 8 ha**, are cultivated by the **22 vegetable gardening associations** **2.7**. In total, 267 women have participated in the vegetable garden training sessions. Of the 267 women, the 137 women that are members of the 22 gardening associations have received training, been provided materials, and are receiving continuous technical support. (Annexes 7.25 – 7.26) - Training topics included: soil preparation, seed sowing, water management, and the preparation and application of biopesticides - Equipment & materials provided: Materials provided include: 124 hoes, 135 watering cans, 6,850 kg of seed for each vegetable type (tomato, onion, aubergine, okra) and 3,425 kg of hot pepper seed. **2.8**. Trainings in organisational management and basic financial principles were provided to all 29 village-based committees, with training sessions conducted in 2 waves: - the first 15 village committees trained in 2020, and - second group of 14 villages trained in 2021 (Annex 7.26).

Project summary	Measurable Indicators	Progress and Achievements
	2.10 A 30% increase in vegetable gardening productivity	**2.9**. In early 2021, an evaluation procedure was developed and implemented to evaluate village committees and associations, and to provide feedback **2.10**. Baseline productivity values were obtained for vegetable garden common crops (Annex 7.18); 1+ plus years will be required to conduct a meaningful comparison
Activity 2.1. Gardening cooperative project: site selection 1. Lowland, alluvial floodplain sites identified through satellite image / GIS analyses, with a 10 m buffer placed along waterways to exclude gallery forests from consideration for gardening project development		Map available (Annex 7.23)
Activity 2.2. Village-based Natural Resource Management Planning (development of approach in 1 village) 1. Organization of natural resource management committees 2. Community resources and resource-use mapping a. Initial consultation b. Participative mapping workshop c. Georeferencing of community map d. Ground-truthing to verify accuracy e. Presentation of final product to community		Completed for an initial pilot village
Activity 2.3. Village-based Natural Resource Management Planning (implementation of approach in 30 villages) 1. Organization of natural resource management committees 3. Community resources and resource-use mapping a. Initial consultation b. Participative mapping workshop c. Georeferencing of community map d. Ground-truthing to verify accuracy 2. Presentation of final product to community		- 29 participative, natural resource maps have been produced (examples provided in Annexes 7.19 – 7.20) - The 29 participative maps include 49 villages in varying stages of development of the village-specific Natural Resource Management Plan
Activity 2.4. FMNR 15-day training program developed 1. Preparation and planning of training program 2. Development of training materials		Program curriculum developed and tested, including: presentations, group discussions, field observations, videos and hands-on exercises (Annex 7.16; attachment "Strengthening Capacity for Implementation of RNA and RNE. Mission Report.pdf").
Activity 2.5. FMNR and NRE 15-day training program implemented 1. Organization of transport, meals and lodging for training participants at the WCF field base, Laafa Boubhe		Training occurred in February 2020 and included 62 participants: - 37 WCF AOAs - 12 National Agricultural Advisors - 13 Local farmers from the village of Laffa Boubhe

Project summary	Measurable Indicators	Progress and Achievements
		(Annex 7.1; attachment "Strengthening Capacity for Implementation of RNA and RNE. Mission Report.pdf").
Activity 2.6. Organization of Vegetable Garden Cooperatives 1. Formation of village committee 2. Presentation of activities and training schedule		- 22 vegetable garden + vegetable garden / shea butter cooperatives - 137 active members (total area = 8 ha)
Activity 2.7. Training of Vegetable Garden Cooperatives in gardening techniques 1. A Garden-to-Table training program designed by WCF-Agricultural Agents with topics including: a. Composting b. Preparation of soil, sowing seed, and transplanting c. Bio-pesticide d. Bio-fungicide e. Conservation of vegetables, canning f. Cooking and nutrition 2. Training sessions conducted in the targeted, and surrounding, villages 3. Equipment and materials provided to training participants		- In 2020, 2,157 attended training sessions, topics provided in Annex 7.22 - Equipment / materials provided: 124 hoes, 135 watering cans, 6,850 kg of seed for each vegetable type (tomato, onion, aubergine, okra) and 3,425 kg of hot pepper seed
Activity 2.8. Training of Vegetable Garden Cooperatives in accounting and financial management 1. A training session organized by WCF and led by an accounting consultant to provide basic financial management skills to the Treasurers of the community cooperatives. a. Identification / evaluation of potential consultants to lead the training 2. Organization of training logistics: transport of community participants, meals, lodging, and meeting room/location.		A 5-day training session was organized by WCF in Labe, led by an accounting consultant, which provided basic financial management skills to the Treasurers of the community cooperatives (Annex 7.26 e-f)
Activity 2.9. Communicate / promote results of FMNR and Gardening Cooperatives to encourage adoption of techniques 1. A tour of the targeted villages will be organized to communicate the agriculture and gardening results and benefits, particularly: a. Field production b. Nutritional and economic benefits		Data on productivity are currently being collected, as April – May are harvest seasons for the vegetable gardens. These data will be summarised and presented.
Activity 2.10. Increase agricultural yields for farmers / gardeners following techniques learned from trainings events: FMNR and Vegetable Gardening 1. A data collection system is in-place to establish the productivity of the agriculture and gardening projects a. WCF-Agriculture agents are present in the villages collecting data on weights of agricultural products at the time of harvest		Data from 2 years of agricultural productivity used to determine baseline values (Annex 7.18)

Project summary	Measurable Indicators	Progress and Achievements
b. Harvest cycles vary depending on project and product c. Analyses of data to be conducted once sufficient data are available		
Output 3. Biodiversity inventories, monitoring system, and habitat classification developed and integrated into a GIS database	**3.1** 20% increase in the frequency of use of the reforested corridor by wildlife in year 4 **3.2** 20% increase in the number of different species using the corridor by year 4 **3.3** First exhaustive list of bird presence in year 2 **3.4** First list of plant species with focus on threatened species in year 2 **3.5** MBNP habitat classification for principal vegetation classes	**3.1**. Camera-trap image capture rates, as a measure of frequency-of-use, for all species combined were compared for 2017/18 (capture rate = 110.2) versus 2019/20 (capture rate = 123.4), with results indicating a 12% increase in frequency (Annex 7.33) **3.2**. 36% increase in the number of mammal species using the forest corridor between 2017 (25 species) to 2019 (34 species) **3.3**. Completed (Annex 7.34) **3.4**. Completed (Annexes 7.34 – 7.35) **3.5**. Completed (Annex 7.37)
Activity 3.1. 20% increase in the frequency of use of the reforested corridor 1. Sampling design established – 3 grids with 10 cameras in each grid 2. Field teams locate GPS coordinates corresponding to grid cells and install camera traps at GPS locations 3. Camera maintenance and image downloads conducted monthly		Camera-trap image capture rates, as a measure of frequency-of-use, for all species combined were compared for 2017/18 (capture rate = 110.2) versus 2019/20 (capture rate = 123.4), with results indicating a **12% increase** in frequency. (Annex 7.33)
Activity 3.2. 20% increase in the number of different species using the corridor 1. Same activities, as above (Activity 3.1)		Results of image analysis indicate a **36% increase** in the number of different species identified within the camera-trap array of the corridor between the years 2017 and 2019/20, with 25 and 34 species, respectively. (Annex 7.33)
Activity 3.3. Inventory of bird species 1. A study of bird species was conducted by WCF partner, Biotope, whose objectives were to: a. Conduct 2 missions (June 2018 and February 2019, totalling 30 days) to inventory bird species occurring in MBNP b. Classify species according to IUCN classification system		- 203 species of bird observed, 28% of bird species known to occur in Guinea - 6 nationally protected species - 5 internationally protected species (Annex 7.36)
Activity 3.4. Plant species inventory 1. An inventory of plant species was conducted by WCF partner, Kew Royal Botanic Gardens, which occurred in 3 phases: a. Dry season reconnaissance mission in January 2018		Reports and publication available (Annex 7.34 – 7.35)

Project summary	Measurable Indicators	Progress and Achievements
b. Beginning of rainy season in May 2018 c. End of rainy season in November 2018		
Activity 3.5 MBNP habitat classification for principal vegetation classes Sentinel-2 satellite image analysis		Analyses completed and map available (Annex 7.37)

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)						
6a	Number of people receiving other forms of short-term education/training (e.g., not categories 1-5 above)	5,000	Guinean		Agriculture	French / Poular / Malinke	
6b	Number of training weeks not leading to formal qualification	48	Guinean		Agriculture	French / Poular / Malinke	
7	Number of types of training materials produced for use by host country(s) (describe training materials)						

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.						
11a	Number of papers published or accepted for publication in peer reviewed journals	1	English		*Inversodicraea koukoutamba* and *I. tassing* (Podostemaceeae), new waterfall species from Guinea, West africar	English	
11b	Number of papers published or accepted for publication elsewhere						Location?
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						
14b	Number of conferences/seminars/ workshops attended at which findings from Darwin project work will be presented/ disseminated.						

Physical Measures		Total	Comments
20	Estimated value (£s) of physical assets handed over to host country(s)	0	Continuation of project
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 *(please note that the figure provided here should align with financial information provided in section 9.2)*	[redacted]					

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.	X
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.	X
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.	X
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.	**X**
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.	**X**

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)
Journal	*Inversodicraea koukoutamba* and *I. tassing* (Podostemaceeae), new waterfall species from Guinea, West Africa, Cheek, M., D. Molmou, L. Jennings, S.Magassouba, and X. van der Burgt, 2019.				Blumea	

Annex 6 Darwin Contacts

Ref No	24-018
Project Title	Enhanced biodiversity, water security, and forest recovery in northern Guinea
Project Leader Details	
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Organisation	
Role within Darwin Project	
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Annex 7 Supplementary material (optional but encouraged as evidence of project achievement)

Checklist for submission

	Check
Is the report less than 10MB? If so, please email to Darwin-Projects@ltsi.co.uk putting the project number in the Subject line.	
Is your report more than 10MB? If so, please discuss with Darwin-Projects@ltsi.co.uk about the best way to deliver the report, putting the project number in the Subject line.	X
If you are submitting photos for publicity purposes, **do these meet the outlined requirements (see section 10)?**	
Have you included means of verification? You should not submit every project document, but the main outputs and a selection of the others would strengthen the report.	X
Do you have hard copies of material you need to submit with the report? If so, please make this clear in the covering email and ensure all material is marked with the project number. However, we would expect that most material will now be electronic.	
Have you involved your partners in preparation of the report and named the main contributors	X
Have you completed the Project Expenditure table fully?	X
Do not include claim forms or other communications with this report.	