



## Darwin Initiative: Final Report

### Darwin Project Information

Project reference	24-004
Project title	Conserving critical forest biodiversity in Guinea through sustainable agricultural livelihoods
Country(ies)	Guinea
Lead organisation	Fauna & Flora International
Partner institution(s)	Centre Forestier de N'Zérékoré (CFZ), L'Institut de Recherche Agronomique de Guinée (IRAG) (2017-2018), Association de Développement Communautaire et Agro-Pastorale (ADCAP) (2019-2021).
Darwin grant value	£396,869
Start/end dates of project	1 June 2017 / 31 March 2021
Project leader's name	Michelle Villeneuve
Project website/blog/social media	<a href="https://www.fauna-flora.org/projects/supporting-effective-management-ziama-man-biosphere-reserve">https://www.fauna-flora.org/projects/supporting-effective-management-ziama-man-biosphere-reserve</a>
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## 1 Project Summary

Ziama Man and Biosphere (MAB) Reserve was established to ensure the viability of Guinea's last remaining forest elephant population and other key species like the pangolin and the Western chimpanzee, whilst also valuing the ecosystem services it provides to local, regional and transboundary (Liberian) communities. In this area, rising food insecurity and the 2014 Ebola outbreak have led to stagnant or decreased wellbeing for the local population, which has contributed to issues such as poaching, illegal cultivation, deforestation and human-wildlife conflict.

Ziama forest contains areas of permanent wetland—*bas-fonds*—that have been used historically by local farmers to grow rice due to their soil quality and ideal conditions. Rice cultivation in these areas was historically permitted by CFZ at regulated, low levels, but increasing demand for land has led to overuse and illegal clearing of additional areas within the core zone of the MAB. Use of *bas-fonds* has exceeded legal limits for at least a decade, and the signing of the Ziama



coronavirus meant that they would have to pause; repayments are promised to begin again in late 2021 (**Annex 3**).

To replace this agriculture-specific capacity, FFI put out a public call for interested parties and met with representatives of two organisations in February 2019; the **Association de Développement Communautaire et Agro-Pastorale** (ADCAP; Association for Agro-Pastoral Community Development) joined the partnership and signed a new subgrant agreement in March 2019 (**Annex 4**).

CFZ and FFI are long-term partners working together in the Ziama landscape. FFI and the current Direction at CFZ have a good relationship, with FFI in-country leadership traveling bimonthly (at least) to N'Zerekore to plan, discuss or strategize on project implementation. CFZ has been involved in this project's planning, implementation, monitoring and reporting, and the two organisations worked together with other landscape stakeholders to finalise and legalise the Ziama Management Plan in 2019 (**Annex 5**). A new, multiyear MoU was signed between FFI and CFZ in December 2020 to further our collaboration in the landscape.

ADCAP has proven to be an excellent technical partner, providing a level of community engagement and technical deployment (of trainings, demonstrations, etc.) that has strengthened the project and helped all partners find cohesion within their own aspects and approaches to the project Outcome. ADCAP staff have been involved in project decision-making and made key contributions to support adaptive management. FFI anticipates continuing its partnership with ADCAP on agricultural development in Ziama moving forward.

FFI continues to maintain a cordial relationship with IRAG, despite the negative experience with their field agents in 2018. This is important as IRAG is a highly competent local scientific institution, and FFI has had positive and productive relationships and experiences with other staff members, notably certain species specialists.

Many lessons on good partner relations were learned throughout this project, and FFI Guinea will hold an Action Learning Review on partner relations in July 2021 to help collate and document these lessons and identify areas for improvement. Overall, we have learned that FFI Guinea needs to develop some internal systems to support partnership management (financial, monitoring, communications) etc., and the Guinea office is in the process of addressing this, with support from FFI's UK-based organisational partnership specialists.

### **3 Project Achievements**

#### **3.1 Outputs**

**Output 1: *Bas-fond farmers and current transition zone farmers in 4 villages are trained in improved agricultural practices and apply them to farmland in transition zones.***

In order to achieve output 1, beneficiary farmers in the four target villages have had their technical capacity built in appropriate and impactful agricultural methodologies that minimise harm to biodiversity whilst maximising yield.

Summary of cumulative results for Output 1:

- 1.1. 537 farmers (290 women) received agricultural trainings with regular extension service throughout this project.
- 1.2. At the end of the project, 89% of beneficiaries have applied at least one new intervention on transition zone land (**Annex 14**).

- 1.3. 55% of farmers in the wider Ziama area who were surveyed reported increased access to information on agricultural techniques and appropriate MAB use in year 3 (**Annex 18**).



*Figure 2: Irié market farmer group farmer field school and demonstration site*

#### **Farmer Field Schools (Indicator 1.1, 1.3; Activities 1.4, 1.5, 1.6)**

The farmer field school groups met regularly with ADCAP (Irié, Boo, Sibata 2 and Avilissou) and FFI (N'Zebela) extension agents in year 4, as documented in Table 1.

Village	Topics	Groups	M	F	Total
Irié	Oil palm, coffee, vegetables, cowpeas, peanuts, rice	5	57	56	113
Boo	Oil palm, cassava, vegetables, ginger	5	42	78	120
Sibata 2	Oil palm, rice, cassava, ginger	2	15	23	38
Avilissou	Ginger, hot pepper, oil palm, rice, cassava, cowpeas	6	73	68	141
N'Zebela (HWC)	Coffee, oil palm, ginger, hot pepper	5	60	65	125
<b>Total</b>		<b>23</b>	<b>247</b>	<b>290</b>	<b>537</b>

In addition to the group trainings, 392 people received additional individualised training and support in year 4 (more on this below). The 392 individuals who received support to leave the bas-fonds in year 4 were also part of the 537 people who received group trainings in years 1-4, and thus the total number of training beneficiaries for the life of the project remains 537 people.

Farmer groups were trained on aspects of several methodologies depending upon village and individual situation; for example residents of Avilissou received more trainings on ginger production due to land access issues (ginger can be grown on marginal lands), while residents of Sibata 2 were most interested in cassava and rice production, and so trainings were more focused on helping those farmers select the right variety and production methods for those crops. Additional training areas across the project included composting, quality seed selection, rice seed production, market vegetable production with irrigation, and use of post-harvest storage bags (**Annex 7**). Throughout the project, farmers progressively became more motivated as systems were defined and developed, according to ADCAP (**Annex 15**).

#### **Farmer Exchange Visits (Indicator 1.1, Activity 1.8)**

In order to harmonize the best farming practices uncovered by the project and to enable communities to feedback on a vision for safeguarding Ziama MAB's biodiversity, exchange visits were organised between the four target villages in March 2021. Four farmers from each village attended each exchange, for a total of 48 exchange participants (24 women, 50%; **Annex 9**).

The exchange visits were very popular, as they allowed project beneficiaries to exchange ideas, to understand relative strengths and weaknesses, and to discuss the governance and management of these groups moving forward.



*Figure 3: Farmer exchange between Sibata 2 and Boo*

### **Support for voluntary departure (Indicator 1.2; Activities 1.4, 1.5, 1.6)**

Coming into year 4, it was clear that while the project was delivering on its training goals, departures from the bas-fonds were still not happening at scale (**Annex 12**). The project team began to understand that despite having received trainings that they enjoyed and benefitted from, farmers still felt that it was too much of a wellbeing and livelihoods risk to leave their cultivated bas-fond, stating that 1) they may be worse off for it if yields are insufficient with a new farm in the transition zone, and 2) someone else may start cultivating in their former core zone bas-fond, denying them the option of returning (**Annex 47**). With this knowledge, FFI, CFZ and ADCAP visited communities to better understand their needs within the lens of these valid concerns; the agreed result was that that in the final year of the project, targeted individual support (training, equipment, assistance with land negotiations) would be provided to farmers/households who preferred to leave the bas-fonds (**Annex 19**).

It is important to note that each core zone bas-fond is not farmed by only one individual, but rather by a lead farmer who is assisted by several members of their household (**Annex 16**). Thus, for each bas-fond voluntarily vacated, there are 2-5 people who are departing from, and will no longer have a regular presence in, the Ziama MAB core and buffer zones. In other words, these household groups are receiving transition support together. Land use arrangements in the area are such that only the lead farmer from the core zone bas-fonds (75; 35 women) was asked to sign the voluntary departure agreements, though a total of 392 people left the core zone bas-fonds.



*Figure 4: CFZ and Irie community members during a consultation on departure from the bas-fonds*

Thus, references in the report to 75 volunteers indicate those who signed agreements to

voluntarily vacate the 75 core zone bas-fonds, and references to 392 volunteers represents the total number of people who are no longer cultivating in the core zone bas-fonds as a result of the project (**Annex 16**).

Volunteers were identified via survey (**Annex 47**) and community meetings in each target village; volunteers were then interviewed about their needs (e.g., what support would be needed in order to offset the risk of giving up illegal rice cultivation). When all parties have agreed (many initial volunteers decided not to go forward), a MoU was then signed between each lead bas-fond farmer, local authorities and CFZ; the MoU has a clause that states that family members must accompany the signatory and follow the same rules (**Annex 19**).

All 392 departing volunteers remain outside of the core zone bas-fonds at the time of writing (June 2021), and a monitoring strategy is in place to ensure that the 75 bas-fonds (82.5 hectares) that have been abandoned and are in the process of regeneration will not be re-occupied (**Annex 23, 24**).

**Output 2: *The incentives and wellbeing (food security, physical security, time, income, yield) from farming in the transition zone are equal to or greater than farming in the illegal bas-fonds in the core and buffer zones.***

In order to achieve output 2, beneficiary farmers in the four target villages were consulted regularly, and adaptive management strategies were employed. Farmer wellbeing was prioritised throughout the project via frequent surveys, focus groups and community consultation; a project focus was also placed on increasing production (yields), recognising that farmers' livelihoods are based on how much can be sustainably produced on a set amount of transition zone land.

*Summary of cumulative results for Output 2:*

- 2.1. 89% of beneficiary farmers have established or improved production on existing agricultural land in the transition zone at project end (**Annex 14**).
- 2.2. 392 people have voluntarily abandoned illegal cultivation in the bas fonds (**Annex 16**), and in a year 4 participatory impact assessment, the majority of participants reported that transitioning from illegal core zone cultivation to legal cultivation within the transition zone has been beneficial to them (**Annex 6**).
- 2.3. By project year 3, 100% of project beneficiaries (537 people) received access to improved seed varieties, and 78% of those surveyed in year 4 reported that they are actively trialling them in the transition zone at the end of the project (**Annex 14**).
- 2.4. Seed selection training and the provision of improved rice seed varieties has enabled greater and more sustainable production of rice in the transition zone, with 100 % of project beneficiaries receiving access to improved cassava, rice, aubergine, and/or oil palm seed by the end of the project.
- 2.5. Human-elephant conflict has been reduced by 20% in the HWC focus village of N'Zebela (**Annex 33**).

**Participatory Impact Assessment (Indicator 2.1, 2.2; Activity 1.7)**

A participatory impact assessment (PIA; **Annex 6**) was conducted in March 2021 with Darwin project communities, under the guidance of FFI's UK-based Senior Technical Specialist for Gender, Livelihoods & Governance. Participants were selected by the communities themselves, with FFI giving the following guidelines:

- 12-15 people total per group;
- Each community to arrange for one male and one female group to represent the project beneficiaries;

- Each group should strive to have a balance of representation, including leaders, landless farmers, and youth.

A total of 117 people, including 60 women, participated in the PIA, which sought to understand directly from representative farmers how the project has impacted them.

Groups first brainstormed impacts, and then ranked them. **Improved social relations** was ranked as having had the greatest impact upon beneficiary lives and wellbeing. The establishment of the farming groups has created good social cohesion within their communities. According to one participant, "Today, one group member's business is everyone's business. Mutual aid has developed more within the groups." **Improved productivity** was chosen as the second most important change. In this regard, communities expressed that previously the amount of rice they obtained from the bas-fonds was insignificant compared to what they currently earn. **Improved farming techniques** was chosen as the third most impactful change, **access to seedlings** was ranked fourth, and **improved income** was the fifth change seen as a result of project activities, according to the analysis of the PIA results. For the latter point, the income generated by certain crops such as market gardening allows families, usually women, to earn more money. This support now enables many families to meet their health care needs and school fees for their children.

### **Rice Yield Improvements (Indicators 2.1, 2.2, 2.3, 2.4; Activities 2.9, 2.10, 2.11)**

Rice is the primary crop of Guinea Forestiere by a large margin; 86% of beneficiary farmers cultivate rice as their primary crop (**Annex 8**). However, the yield gap in this region is wide, with 0.7 T/ha the reported rice baseline for Macenta prefecture (**Annex 34**). As such, despite a heavy focus on and preference for rice, the region of Guinea Forestiere is not self-sufficient for this staple. The project's rice intervention focused on two areas of yield improvement: production technique and variety.

An intensive training in rice cultivation, including seed selection and multiplication, was provided to project beneficiaries in year 3, and follow-up trainings were provided to interested groups in year 4. ADCAP reports that, in year 4, the rice cultivation trainings provided were able to be more in-depth, as farmers had retained most of the technical information they had learned (**Annex 13**).

In year 3, rice yield was recorded in experimental plots in the transition zone only, as adoption on home fields generally occurs once farmers have seen one season of performance on experimental fields. In the year 3 annual report, we reported an incredible 433% yield increase for rice with the combination of technical trainings and an improved variety (La Robert) that was selected due to its adaptability to ferrous soils. In year 4, the results were just as good on average, with Sibata 2 recording a 511% yield increase in their experimental plots, as compared to the local baseline (**Annex 34**). Using a more updated baseline specific to the yields to the La Robert variety in Guinea, which can yield 2.5 T/ha in controlled settings according to IRAG, we still find that Sibata 2's experimental plots, as well as the ones of Avilissou and Irié, exceed the updated baseline (2.5 T/ha) by 71%, 26% and 8%, respectively.

In order to understand whether these experimental results are replicated on farm, in 2020 we also collected yield data from farmers' own rice farms in the transition zone, and found a high level of variation, with all adopters producing a greater yield than the project baseline of 0.7 T/ha, and some producing greater yields on their own farm than in experimental plots.

### Yield per individual (T/Ha)

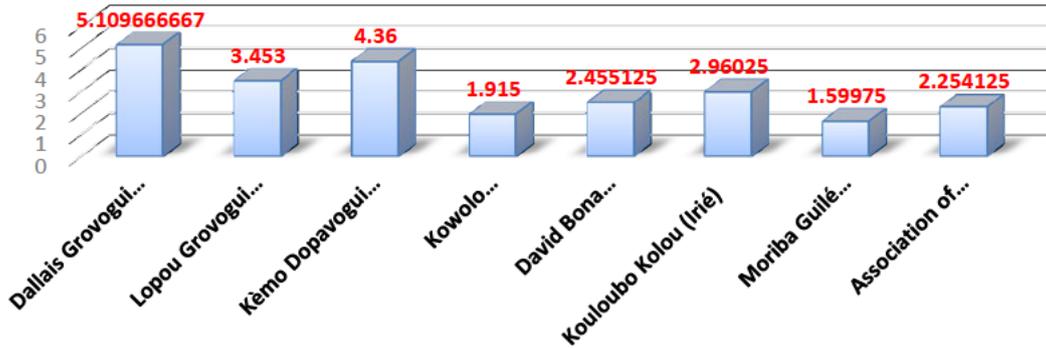


Figure 5: This table shows a remarkable difference between the rice yield results of different farmers cultivating the 'La Robert' rice variety on their own farms.

### Grain storage Improvements (Indicator 2.2; Activities 2.6, 2.7)

In 2020, the project provided 691 people in 21 Ziama communities, (including the four focal Darwin villages and the HWC area of N'Zebela), with PICS<sup>1</sup> hermetic crop storage bags, as well as associated awareness-raising and training activities, with the aim of helping farmers to limit agricultural crop losses (rice, maize, cowpea, etc.) caused by insect and/or fungal infestations of dry produce after harvest. As part of this PICS campaign, FFI also conducted a survey of farmers in the four communities of Avilissou, Boo, Irié and Sibata 2 on grain storage and preservation practices in year 4.



Figure 6: FFI staff member distributing PICS bags in Ziama communities after the delivery of a training on effective use.

<sup>1</sup> [https://en.wikipedia.org/wiki/Purdue\\_Improved\\_Crop\\_Storage\\_bags](https://en.wikipedia.org/wiki/Purdue_Improved_Crop_Storage_bags)

The survey gave an overview of the methods that farmers use to store their dried agricultural goods. The majority of respondents (52%) use Boro bags (woven bags sold for grain storage or transport) to store their dried grain, and no other response had more than 5%; the other responses included the use of lemon or chili to coat or cover grains, storage in an attic or on a rack (e.g. grains are stored where they are dried), and use of a rubber drum (silo) (**Annex 8**).

89.23% of farmers in the target Darwin villages who received PICS bags stated that they were useful and effective in reducing post-harvest loss, compared to 7.69% who say that they reduced loss and rot only a little (**Annex 8**). Pending ongoing monitoring of the bags' usage and effectiveness, FFI will look to incorporate PICS bags distribution and education more widely in the future, as they are still currently uncommon in the landscape.

### **Human Wildlife Conflict Mitigation (Indicator 2.5, Activities 2.12, 2.13)**

In 2016 the community of N'Zebela killed a mature forest elephant that had been raiding crops and destroying vehicles. Since then, N'Zebela has been a focal area for human-wildlife conflict (HWC) in the region, with the community. In Y2 FFI, with the support of CFZ and ADCAP, negotiated a proposed intervention with the community consisting of livelihoods support and the construction of an agricultural buffer zone of crops unpalatable and deterrent to forest elephants (**Annex 52**). The plan was agreed with the community of N'Zebela and signed in a ceremony between FFI, CFZ and N'Zebela community stakeholders in year 3.

In year 3, prior to the establishment of the HWC interventions, there were 70 reported incidences of HWC in N'Zebela, as compared to 56 reports in 2020, a 20% reduction (**Annex 21**). It is worth noting that the simple act of designing a (potential) solution with the community of N'Zebela was sufficient to change the tone of the engagement in year 3 (**Annex 29**). FFI will continue to support this work in N'Zebela with funding from the Species Fund (co-finance on this project), including the monitoring of HWC and crop-raiding incidences.

### **Output 3: *Illegal activity within Ziama is reduced through a shift from bas-fonds to farming in transition zones.***

In order to achieve output 3, beneficiary farmers in the four target villages were supported to leave the core zone bas-fonds (Outputs 1 & 2), and CFZ rangers, as part of their regular biomonitoring missions, were trained to collect data certifying the permanent abandonment of these areas, in addition to their existing patrol data requirements.

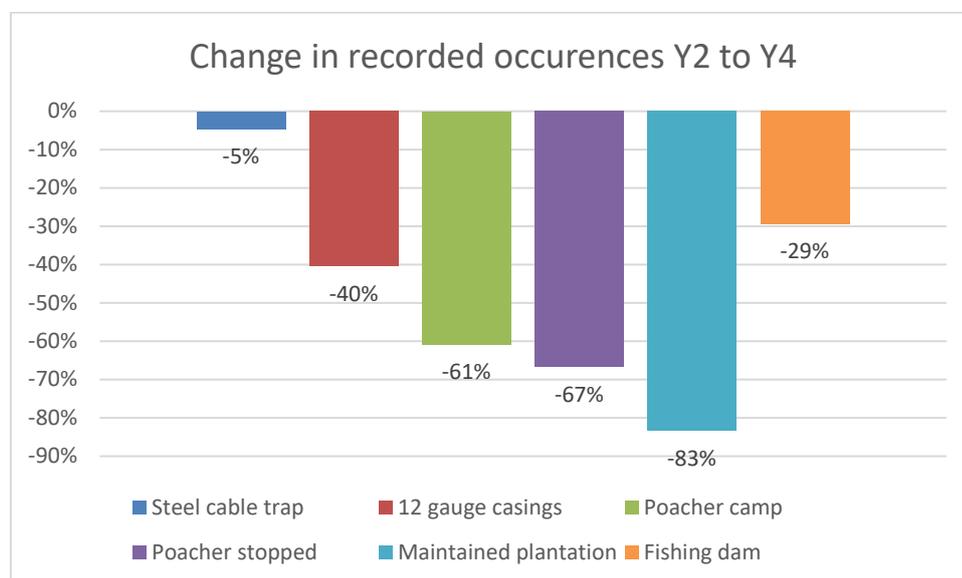
#### Summary of cumulative results for Output 3:

- 3.1. There have been no observations of new clearance of forest in the targeted areas of Ziama MAB in year 4 (**Annex 10**).
- 3.2. Overall illegal activity in Ziama MAB has declined since year 2 according to CFZ law enforcement patrol records (**Annex 10**).
- 3.3. 392 individuals who were cultivating rice in the core zone of the MAB reserve at the start of the project are no longer present in the forest, with rangers monitoring these marked abandoned bas-fonds for signs of recovery (or encroachment) (**Annex 19, 23, 24**).
- 3.4. 60% of beneficiary survey respondents reported that they were reducing their herbicide use in year 4 (**Annex 14**); CFZ rangers have reported observing herbicide detritus while on patrol, but in year 4 none of the observations have been in the target village bas-fonds (**Annex 24**).

## Status of Illegal Activities in the Ziama MAB core zone (Indicators 3.1, 3.2, 3.3, 3.4; Activity 3.2)

In year 3, CFZ patrols of Ziama MAB Reserve were able to continue for 10 months, with 2 months missed due to Covid-19 movement restrictions (**Annex 10, 24**).

Observations of illegal activity declined quite dramatically in the MAB in year 4, keeping in mind that 2 months of observations were missed, and that the impacts of coronavirus likely had an impact on human forest presence.



In the context of a project that targets smallholder farming communities, it is especially heartening to see that both maintained plantations and land clearance have reduced significantly within the MAB during the course of the project (**Annex 10**).

## Ziama Management Plan (Indicators 3.1, 3.2; Activity 3.1)

The signing of the Ziama Management Plan occurred in year 3 (**Annex 5**), and its creation provided a framework through which to approach the monitoring, restoration, conservation and enforcement activities within Ziama MAB. It also clarified the prohibition on cultivation in the MAB bas-fonds, facilitating enforcement. However, it must be noted that neither FFI nor CFZ has interest in forcing people to abandon core zone cultivation; the objective has been to encourage farmers to explore and consider their options outside of the bas-fonds, and the support them during the transition if they choose it.

## Discouraging Herbicide use in the core zone bas-fonds (Indicator 3.4; Activity 3.3)

Awareness-raising as to the dangers of herbicide use on both human and environmental health was a notable component of the project work, with most action having been taken prior to year 4. Notable actions included:

- The installation of placards indicating that herbicide use in the Ziama MAB Reserve is dangerous, forbidden, and impactful upon both human and environmental health; two placards were installed per focal village at the main forest entrances, and one in the central town of Seredou.
- An awareness-raising parade focused on reducing herbicide use in the bas-fonds
- A play, performed by a youth group in front of an audience of approximately 1,500 on 'the consequences of herbicide use'.
- Herbicide and pesticide awareness during agricultural trainings, particularly for rice.

As a result of these activities, 60% of beneficiary survey respondents reported that they had reduced their herbicide use by year 4 (**Annex 14**).



Figure 7: Awareness-raising parade in Sereidou, year 3. Middle sign: Herbicide / Danger to health and the environment / Let's stop its use

#### **Output 4: Targeted bas-fonds in Ziama MAB are showing signs of forest recovery.**

As reported in the year 3 annual report (**Annex 29**), it is now advised by CFZ and the Ziama Management Plan that restoration should be left to occur naturally (natural regeneration) until a Ziama-wide restoration plan has been defined (**Annex 5**).

##### Summary of cumulative results for Output 4:

- 4.1. A plan has been developed to help CFZ rangers monitor the regeneration of the target bas-fonds (**Annex 23, 24**), and 82.5 hectares of core zone bas-fonds have been voluntarily abandoned and left to regenerate (41% of baseline, **Annex 33**).
- 4.2. Targeted bas-fonds are showing improvement (**Annex 51**).

Because natural regeneration is the near-term restoration strategy, the indicators used are binary indicators of bas-fond occupation and restoration, and these are what CFZ rangers report on: for each target (numbered) bas-fond, monitoring data questions ask: Is there cultivation occurring within the bas-fonds, and is there visible regeneration in the bas fonds (**Annex 23, 24, 51**).

Moving forward, FFI will work with CFZ in monitoring the natural regeneration of the target bas-fonds, ideally collaborating on an elaboration of the original restoration strategy (**Annex 53**) to fit within the guidelines on restoration in the Ziama Management Plan.



Figure 8: A farmer from Avilissou posing with the bas-fond she gave up illegal farming in; the bas-fond has been numbered, and pioneer species can be seen as the first signs of recovery.

### 3.2 Outcome

**Outcome: The relocation and improvement of agricultural practices reduces encroachment and degradation of forest habitats and ecosystems, benefiting elephants, forest resources and biodiversity, while improving the wellbeing of targeted farmers.**

Summary of cumulative results at the Outcome level:

- 0.1. Elephant indices are stable; there have been no elephants poached or harmed during the project. Human-elephant conflict is reduced in the village of N'Zebela (**Annex 21**).
- 0.2. Recovery of 75 target bas-fonds, or 82.5 hectares (41% of baseline area; **Annex 33**), is underway.
- 0.3. There are 392 fewer individuals using the core zone bas-fonds of target villages.
- 0.4. Project beneficiaries reported wellbeing benefits from project activities in year 2 (**Annex 43**), year 3 (**Annex 14**) and year 4 (**Annex 6**).

The project succeeded in reaching its outcome for the most part; 392 individuals voluntarily abandoned cultivation within the MAB, leaving 75 bas-fonds or 82.5 hectares free to regenerate to natural wetlands. While total bas-fonds abandoned during the project fell below the goal of 50% of baseline hectares (baseline hectares are 200.65, **Annex 33**), and/or 50% of target bas-fonds (200 target bas-fonds), what has been achieved by the project partnership (including communities) is an excellent first step.

Additionally, elephant numbers are stable in the landscape; while there has not been a formal census for some time, the regular CFZ missions into the forests of Guinea Forestiere allow the organisation to keep track of the elephant population, and when something unusual happens,

such as when two elephants from N’Zebela took a walk into Liberia, the situation is managed by a coalition of species conservation actors in the landscape, including CFZ, FFI and Liberian counterparts (**Annex 50**). Thus even without an exact census for the landscape, there is confidence that no deaths have occurred during the project.

### 3.3 Monitoring of assumptions

Assumption	Comment
That incentives offered in the agricultural transition plan do reflect ‘meeting their needs’ as reported, and that new law enforcement and education activities are sufficient to dissuade those wanting to continue bas-fond farming, or new farmers moving in.	The project realised near the end of year 3 that the incentives offered were likely insufficient to motivate farmers to take the final steps in leaving the core zone bas-fonds: securing land, deciding upon a new activity and implementing. Community consultation revealed that the most impactful type of support to secure actual departure would be tailored household-level support. ( <b>Annex 12</b> ). CFZ patrols have marked each of the 200 core zone bas-fonds in the target villages with tags, and are monitoring them by number as part of monthly patrolling ( <b>Annex 24</b> ).
That there is no significant increase in population beyond natural growth, e.g., due to in-migration from conflict, mining opportunities in the region, etc.	There has been no abnormal or significant in-migration to Macenta Prefecture during the course of the project.
Assume that the bas fond farmers were honest during project scoping of their desire to leave the bas-fonds.	Working with the communities intensively throughout the project, the project team believes that it is accurate to say that farmers value the protected status of Ziama, and that they do not wish to undertake illegal activity. However, political, social, economic and food security concerns can override these values.
That elephant poaching for ivory remains opportunistic and that increasing demand does not lead to professional ivory poaching.	There have been no incidences of forest elephant poaching or infliction of harm in the Ziama landscape during the project.
There is no extreme weather event (i.e., drought) during the lifetime of the project.	There was no extreme weather event during the life of the project.
Bas-fond farmers remain committed and open to learning new techniques and have confidence in results demonstrated to fully adopt practices.	Ziama farmers have been extremely committed and open to adapting their agricultural practices to be more sustainable, and notably, 392 people were committed enough to voluntarily vacate the core zone bas-fonds that they had been farming for years, sometimes decades ( <b>Annex 16</b> ).
Multiple benefits of niebe bean convince farmers to increase production and consumption, as practiced in other West African countries.	Cowpeas (niebe) are catching on slowly but surely in the Guinea Forestiere region. In a 2020 survey, 14% of project beneficiaries cultivated cowpeas ( <b>Annex 43</b> ). Several farmer field school groups elected to learn about cowpea cultivation.
Rainfall remains adequate to feed community irrigation systems for target villages.	Rainfall has been adequate to feed irrigation systems installed in target villages.
Re-introduction of improved seed varieties conducted by IRAG for upland rice and niebe are replicated by direct beneficiary farmers as anticipated.	Improved seed varieties have been heartily embraced by project communities, especially the improved rice variety La Robert, which has shown a significant yield increase for beneficiary farmers, on their own farms, as compared to the local variety baseline ( <b>Annex 13</b> ).

Initial community discussions on availability and access to land hold true and sufficient land can be harmoniously secured inside and outside Transition Zone.	75 negotiations between beneficiary households, traditional authorities, FFI, ADCAP and CFZ were undertaken, to determine an appropriate relocation alternative to bas-fond cultivation for 392 people ( <b>Annex 19, 46</b> ).
The use of ‘mucuna’ and other soil improvement and weed management techniques to restore degraded land can be scaled up based on previous successful soil restoration work done by IRAG.	Farmers remained sceptical of mucuna throughout the project, and we reduced focus on this crop in year 4 due to low levels of adoption and interest. The cited reason for the low adoption was primarily that mucuna is ‘prickly’ and therefore unpleasant to handle; this is why both humans and livestock tend to avoid it, despite its nutritional value and soil regenerative capacity.
Tree crops seedlings have high survival rates and farmer shows excellent knowledge in crop management.	Tree crop seedlings within this project had excellent survival rates, with ADCAP recording 84% survival of agroforestry seedlings in year 4 ( <b>Annex 15</b> ).
Reducing dependence on bas-fonds will decrease time spent in forest by farmers for poaching/illegal activity.	Human forest presence within the MAB decreased from year 2 to year 4 ( <b>Annex 10</b> ).
Participatory demarcation of MAB zones is completed successfully, with communities agreeing access and management.	This was completed successfully, culminating in the Ziama Management Plan of 2019 ( <b>Annex 5</b> ).
Seedlings and seeds, if needed, are readily available at the right times.	Seedling availability was not an issue, but timely procurement and delivery of agricultural inputs, including seeds, was an issue at times. The change in project partners in year 2 and Covid-19 related movement restrictions in year 4 were contributing factors.

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

The increased presence of anti-poaching and monitoring patrols in the MAB reserve has acted as a deterrent to poaching, and has played a part in the improved prosecution rates for illegal hunting in and around Ziama MAB Reserve over the project period. As evidenced in section 3.1, rates of illegal activity are down across the board in Ziama MAB Reserve in at the end of the project (**Annex 10**). This includes an 83% reduction in plantation farming observed in the MAB Reserve from year 2 to year 4. Besides the physical conservation of endemic biomass resulting from reduced land clearing activities, the reduced forest presence of 392 individuals, the regeneration of 75 bas-fonds and a reduction in the use of herbicides in the MAB reserve will all reduce threats to faunal and floral diversity.

When working with smallholder farmers from an agricultural perspective, the goal is always poverty alleviation. Within the scope of this project we have worked on yield intensification, reducing post-harvest loss, and the development of agriculture-related income-generating activities in the transition zone; each of these on its own can make a significant impact in poverty alleviation for smallholders.

## 4 Contribution to Darwin Initiative Programme Objectives

### 4.1 Contribution to Global Goals for Sustainable Development (SDGs)

As intended, the project made its biggest contribution to SDG 15, Life on Land, by contributing to the improved management and protection of the Ziama MAB, and supporting sustainable use by local people, which led to reduced threats and degradation of forest and bas-fonds in the MAB’s core and buffer areas. Reducing bas-fonds degradation also supports sustainable water management for people and biodiversity (SDG 6). The inclusion of sustainable, alternative food production helped to improve household well-being both through nutrition and

stable incomes (SDGs 1,2). Targeting and securing the participation of women farmers enabled the project to direct resources to and generate benefits for women, and ensure their equitable access to and participation in project activities (SDG 5).

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

The project supported CBD Strategic Goals B and D by working to reduce direct pressure on biodiversity caused by the damaging practice of forest clearing and the use of bas-fonds within Ziama MAB for agriculture development activities, and specifically rice cultivation. In doing so, the project reduced threats to currently degraded wetland and forested areas, which will support renewed ecosystem and forest health and combat further degradation (Aichi Target 5). The project made significant advances in promoting sustainable use of land and water resources through improved and locally appropriate agricultural practices, technologies and inputs (Aichi Target 7). In halting cultivation of bas-fonds within the MAB's core and buffer zones, the project helped to address and reverse the fragmentation of the MAB's forest ecosystem and preserve its natural water sources, which provide essential services to both wildlife and humans (Aichi Target 14).

#### **4.3 Project support to poverty alleviation**

People living in Guinea Forestiere struggle to eke out sufficient livelihoods to support themselves and their families. For example, while 98% of Ziama's households practice subsistence or smallholder agriculture, 85% routinely do not produce sufficient yield to feed their households (**Annex 42**). The implicit goal of the project is poverty alleviation; farmers will not be incentivised to leave the bas-fonds when their poverty levels are such that they and their families suffer. The only sustainable way to convince farmers to leave the bas-fonds is via poverty alleviation; that is, their incomes farming outside of the bas-fonds are equal to or better than their incomes farming in the bas-fonds (a.k.a. Output 2).

To this end, the project provided technical support in yield maximization of staple crops via improved planting practice, use of compost, irrigation and improved seed stock. In addition, the project is providing support in the development of agriculture-related income-generating activities, including the option to receive support on work with cash crops such as oil palm and coffee. Finally, farmers are facilitated with regards to access to services via both agricultural education and the provision of beneficial inputs not locally available, such as PICS bags and improved oil palm and coffee seedlings from Cote D'Ivoire.

#### **4.4 Gender equality**

This project sought to address gender inequality by ensuring that interventions were inclusive of both men and women. In year 3, FFI put together a series of focus group discussions and group activities to better understand the social and gender dynamics of beneficiary farmers, as they relate to agriculture and livelihoods in our focal villages (**Annex 25**). We found for example, women undertake the majority of activities related to peanut cultivation and market gardening, whereas men generally take a larger role in land clearing. Through this improved understanding of the agricultural roles and responsibilities of men and women we were able to tailor our interventions towards equal opportunity, for example by encouraging women to get involved in the agroforestry groups.

#### **4.5 Programme indicators**

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

Local communities have been clearly identified and engaged as key stakeholders in the management of the Ziama MAB reserve, and community members and their representatives were consulted consistently throughout the conception of the Ziama Management Plan. Within the project, beneficiaries and community members were also consulted throughout, and played a key role in designing the adapted strategy (household support to leave the bas-fonds) that was implemented in year 4.

- **Were any management plans for biodiversity developed and were these formally accepted?**
- **Were they participatory in nature or were they ‘top-down’? How well represented are the local poor including women, in any proposed management structures?**

The Ziama Management Plan was signed at the national level in Guinea in November 2019. Women, youth and village representatives were included in the consultation process for the development of the Management Plan (**Annex 5**, p. 95).

- **How did the project positively influence household (HH) income and how many HHs saw an increase?**
- **How much did their HH income increase (e.g. x% above baseline, x% above national average)? How was this measured?**

Change in household income was not an indicator within the project M&E framework, and so it wasn't monitored directly. As a proxy for household income we can look at rice yields, as improved yields can or will lead to an increase in household income, either via sale of the product, or via prevented purchase. Rice yields for project beneficiaries in year 4 were an average of 443% above the baseline provided in year 1. This was measured on experimental plots and on farmer fields, harvesting with boxes of a standard size (5mx5m), drying the yield, and then weighing with a digital scale at the IRAG offices in Seredou (**Annex 13**).

#### **4.6 Transfer of knowledge**

No formal qualifications were sought or achieved as the result of this work, however significant technical agricultural knowledge was transferred locally as the result of a robust training programme (**Annex 7**) and frequent extension support visits by ADCAP and FFI.

#### **4.7 Capacity building**

ADCAP is a high-capacity local organisation that, prior to partnering with FFI, was already successful at securing valuable local corporate social responsibility contracts with corporate actors such as Rio Tinto. However, local contracts in Guinea Forestiere are few and far between, so in March 2020 FFI supported in an organisational self-assessment for ADCAP, to identify with them the areas that they may need to strengthen in order to be more sustainable as an organisation (**Annex 54**).

### **5 Sustainability and Legacy**

The most enduring aspects of this project are found in the exit of 392 farmers from the core zone bas-fonds, where most had been cultivating for over a decade (**Annex 47**), and the regeneration of the 75 bas-fonds. These bas-fonds, and 125 others, are now being monitored by CFZ during their monthly missions. This monitoring, in conjunction with the Ziama Management Plan and the signed agreements with volunteers, should ensure that regeneration of these sites continues. Additional enduring aspects are the social connections that have been made within communities (**Annex 6**), as well as between project partners and communities, and the agricultural buffer zone established in N'Zebela, which is expected to endure for at least the productive life of the perennial trees, or about 30 years.

In terms of continuation, some aspects of this project will be continued with funding from Species Fund (co-finance); FFI currently has several applications in with funders in the EU to fund the sustainable agriculture and training aspects of the work, and CFZ and FFI will be meeting to establish a plan to scale the individualised support work to other volunteers.

### **6 Lessons learned**

**Adaptive Management:** It was a difficult decision for all project partners to alter the approach to supporting farmers out of bas-fonds in the last year of the project, but this decision was integral to achieving the project outcome. Having project partners come together to discuss and renegotiate so frequently throughout the project (partner changes, staff changes, strategy changes) caused friction, but it also brought stakeholder groups together in a new way, and ultimately helped to design a locally-designed strategy for a complex problem that is proving beneficial to the management of Ziama MAB as a whole.

**Partnership communications:** Partnership communications were difficult at times; the change in partners in year 2 Q4 caused a delay to a project that was already delayed, and so community consultation and the rollout of the agricultural trainings were prioritised in the early partnership days over the development of mutually agreed communications systems; this caused tension later in the project. Ideally, communications systems and guidelines would have been established at the outset of the partnership; FFI is taking steps to resolve this issue by holding an Action Learning Review on partner communications during project 24-004 in July 2021.

**Indicators:** As we began working with farmers and supporting them to actually leave the bas-fonds, the logframe indicators referring to ‘number of people’ departing the bas-fonds raised some complexity, as there was an underlying assumption that there would be 1 person per bas-fond, but that is not the case. The issue is that it complicates communications (in reporting, and with communities to speak of 392 people, 75 signatories and agreements, 75 bas-fonds and 82.5 hectares. In the future we will use ‘number of target bas-fonds abandoned and undergoing recovery’ as the primary indicator.

## 6.1 Monitoring and evaluation

Change requests (all requests were approved by LTS/Darwin):

Date	24-004 year	Type	Description
January 2019	Y2	Other	Project Lead change request
January 2019	Y2	Other	Partner change request
April 2019, June 2019 (resubmission with edits)	Y3	Other	Logframe change request ( <b>Annex 26</b> )
September 2020	Y4	Financial	Reallocation between budget categories, no change to annual budget

Project M&E was primarily collected in the form of yield data, surveys, patrol data and qualitative feedback sessions (community consultation, focus groups etc.). On the agricultural side, FFI organises monitoring and evaluation visits to all the villages and to all the groups and volunteers supported, and ADCAP organises a monthly general supervision to assess the progress of activities and make corrections where necessary. On the biomonitoring side, CFZ arranges biomonitoring patrol missions, with support from FFI. FFI’s UK-based Monitoring, Evaluation and Learning (MEL) team evaluated Guinea staff experiences with the Ziama project landscape’s MEL systems in 2020 (**Annex 31**), and found that the Guinea team felt that support in the creation and maintenance of a framework to evaluate and monitor multiple projects within the landscape would be useful; the model currently being trialled is in **Annex 32**. Overall, the M&E systems used in the project were sufficient, but integrating them together, and with other projects in the landscape, would have eased communications and provided a repository of information that can be accessed in either Guinea or the UK.

## 6.2 Actions taken in response to annual report reviews

	Feedback received	Resolution	Partner involved in resolution?
AR 2	Clarify role of new partner in next half-year report, clarify monitoring methodology in next half year and annual reports.  Feedback is in <b>Annex 27</b> .	Partner role clarified in year 3 half-year report ( <b>Annex 28</b> ), monitoring clarified in year 3 annual report ( <b>Annex 29</b> ).	Yes; to understand the status of the monitoring plan, significant engagement with CFZ was required.
AR 3	(1) Report on outputs progress against output-level indicators; (2) Attach updated M&E framework; (3) Clarify CFZ strategies to help farmers without land outside the reserve; (4) Report on Covid-19 impact.  Feedback is in <b>Annex 30</b> .	All responses requested in next annual report (this report).  (1) Please see section 3.1; (2) Please see <b>Annex 32</b> ; (3) CFZ was involved in the design of the current strategy ( <b>Annex 48</b> ), and in 2022 FFI ADCAP and CFZ will work together with communities and other stakeholders to understand whether and how to scale the approach responsibly; (4) Please see section 8 below.	CFZ was consulted to better understand strategies to help farmers without land outside the reserve, and ADCAP was consulted to better understand the field impact of Covid-19.

## 7 Darwin identity

The Darwin Initiative is recognised as a distinct project funded by the UK government, and FFI's project work with the target communities is often referred to locally as 'le Darwin'. Prior to commencing activities the team met with a number of senior officials and NGO staff in Conakry to introduce the new initiative. The UK Ambassador in Guinea changed during the project, and the project team has been in contact with him regarding this work, with a commitment to keep him updated.

The Darwin identity is visible throughout the project landscape: on the FFI vehicles, on field signs at the demonstration sites, on awareness-raising signs at 9 locations around Zياما, and on hats and t shirts worn by staff and partners.

Because of the language and access gap between the project's main office and FFI's global communications channels, FFI did not use social media to promote this work, instead focusing on website articles, which offered a greater ability to link, download, and share. These are listed under Standard Measures.

## 8 Impact of COVID-19 on project delivery

COVID-19 delayed and disrupted the project timeline and implementation of numerous activities, particularly those which involved convening people and to a lesser extent those that involved procurement of goods and inputs. The project responded by constantly evaluating conditions and adjusting workplans and schedules so as to prioritize employee, partner, and beneficiary health and safety, as well as compliance with prevailing restrictions on gathering and public health guidelines. The project pivoted to hold meetings (particularly among implementation partners) online, which enabled work and planning to move forward whilst also ensuring safety. The project also procured and distributed hygiene and personal protective supplies (e.g., masks, gels) to staff and partners.

The overall pursuit and attainment of sustainable livelihoods can assist in pandemic response and prevention as more resources mean more options for households, including, for example, so as to enable the purchase of meat from a market versus hunting for bushmeat and/or pursuing medical assistance early and as often as needed. Greater awareness of the risks involved in the human-wildlife interface, including when consuming bushmeat, may help to reduce risk. However, there is much more and dedicated work to be done on these issues before the project can confidently assert its impact on pandemic response or prevention.

FFI Guinea and its partners will likely continue to utilise virtual meetings, which in the case of external support, can save travel expense, time, and emissions. However, face-to-face meetings with beneficiary communities remain imperative, as internet technology is scarce and/or non-existent at the village level in the landscape.

## 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)				
Consultancy costs				
Overhead Costs				
Travel and subsistence				
Operating Costs				
Capital items (see below)				
Others (see below)				
<b>TOTAL</b>				

Staff employed (Name and position)	Cost (£)
Angelique Todd, Technical advisor - wildlife	
Jess Farish, Research, data and grant management	
Michelle Villeneuve, Project Leader	
Helen Anthem, Gender specialist	
Lavile Koivogui, Guinea project administration	
Jonas Siba Dopavogui, Technical Assistant, Agricultural Projects	
Gbolou Konan Toupou, Liaison Officer, ADCAP	
Sakapo Toure, Liaison Officer, ADCAP	
Zaou Guilavogui, Liaison Officer, ADCAP	
Mohamed Macka Sow, ADCAP Coordinator/Coordinateur	
<b>TOTAL</b>	

Capital items – description	Capital items – cost (£)
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2 external hard disks	
Sundry maintenance	
<b>TOTAL</b>	

## 9.2 Additional funds or in-kind contributions secured

Source of funding for project lifetime	Total (£)
FFI Species Fund	
<b>TOTAL</b>	
<b>Source of funding for additional work after project lifetime</b>	
FFI Species Fund- bas-fonds support	
FFI Species Fund- HWC in N'Zebela	
<b>TOTAL</b>	

## 9.3 Value for Money

The value for money was excellent for this project; 537 people were trained in sustainable agriculture and agroforestry, 392 people have left the bas-fonds, 75 individual bas-fonds in the MAB core zone are regenerating, 200 bas-fonds are being actively monitored by CFZ, 70 field sites for sustainable agriculture in the transition zone were negotiated and established, an agricultural buffer zone to help mitigate human-wildlife conflict was established, and project beneficiaries have reported wellbeing improvements as the result of the project in each project year (**Annex 43, 14, 6**).

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

Project summary	Measurable Indicators	Means of verification	Important Assumptions
<p><b>Impact:</b> (Max 30 words) Ziama is an intact and effective Man and Biosphere reserve that supports optimal populations of key species, co-managed and equitably benefitting local men and women</p>			
<p><b>Outcome:</b> (Max 30 words) The relocation and improvement of agricultural practices reduces encroachment and degradation of forest habitats and ecosystems, benefiting elephants, forest resources and biodiversity, while improving the wellbeing of targeted farmers.</p>	<p>0.1 Stable or increasing indices of elephant and other key species (compared to baselines collected before start of project and through Y1 for full year)</p> <p>0.2 50% of target bas-fonds in Ziama show improvements in line with expected patterns of restoration in years 3 and 4 against project baseline.</p> <p>0.3 60% reduction (228 individuals) in number of men and number of women (minimum 50% women) using bas-fonds in target villages by project end with a 30% reduction by end of year 3. We anticipate the final 40% to leave within 3 years of project end.</p> <p>0.4 70% (266 individuals) of both male and female farmers targeted (of which at least 50% are women) report an improved sense of</p>	<p>0.1 Species indices data collected through monthly biomonitoring patrols. Data collected includes tracks and signs from a range of species found in Ziama. Data will be collected throughout Ziama during different seasons. Elephants will be surveyed in Y4 Oct – Dec, repeating the 2016 census.</p> <p>0.2 Vegetation and forest regrowth (ground cover, density of woody vegetation, species richness) increases shown at end of project against baseline. Verified through Landsat satellite imagery.</p> <p>0.3 Law enforcement patrols conducted on a monthly basis, targeting bas-fonds. Y1 &amp; Y2 to reinforce project messaging and ensure no expansion / new users. Y3 &amp; Y4 to enforce agreements. Reports compiled and analysed on a monthly basis with 6 monthly and annual status reports</p>	<p>That incentives offered in the agricultural transition plan do reflect ‘meeting their needs’ as reported, and that new law enforcement and education activities are sufficient to dissuade those wanting to continue bas-fond farming, or new farmers moving in.</p> <p>That there is no significant increase in population beyond natural growth, e.g. due to in-migration from conflict, mining opportunities in the region, etc.</p> <p>Assume that the bas fond farmers were honest during project scoping of their desire to leave the bas-fonds.</p> <p>That elephant poaching for ivory remains opportunistic and that increasing demand does not lead to professional ivory poaching.</p>

	wellbeing (material, physical and subjective) by the end of the project	0.4 Participatory Impact Assessment (PIA) in Y4 to assess wellbeing of beneficiaries (including human-wildlife conflict). Repeat 2016 socio-economic survey in Y4.	There is no extreme weather event (ie drought) during the lifetime of the project
<b>Outputs:</b> <b>1. Bas-fond farmers and current transition zone farmers in 4 villages are trained in improved agricultural practices and apply them to farmland in transition zones</b>	<p>1.1 100% (380 individuals, gender disaggregated) of targeted bas-fond farmers from 4 villages had the opportunity to receive direct training and on-going support on a range of improved agricultural, irrigation and tree crop techniques in each year of the project.</p> <p>1.2 From Year 2, 100 direct beneficiary farmers (at least 50% women) are applying at least 1 new intervention on their farmland in transition zones with a minimum of 300 farmers (78%) reporting application of at least 1 new intervention by project end</p> <p>1.3 50% male and 50% female transition zone farmers surveyed from 4 targeted villages (20% population estimated at 337 households) who are not direct beneficiaries of the project report having access to information on improved agricultural techniques by year 4. 60% of participants report increased access to information in focus group feedback sessions on</p>	<p>1.1 Training reports, attendance sheets, photos in each year, minutes from monthly informal farmer feedback session with extension workers.</p> <p>1.2 Recorded farmer feedback (videos, quotes, minutes from extension feedback sessions), lessons learnt paper produced each year.</p> <p>1.3 Locally appropriate media communications including radio programmes produced and confirmed through household survey of 20% of population of each town conducted in year 4 and designed to target both male and female audiences. Quotes and minutes from 1 focus group feedback session in each village in year 3.</p>	<p>Bas-fond farmers remain committed and open to learning new techniques and have confidence in results demonstrated to fully adopt practices</p> <p>Multiple benefits of niebe bean convince farmers to increase production and consumption, as practiced in other West African countries</p> <p>Rainfall remains adequate to feed community irrigation systems for target villages</p>

	communications programme in year 3 and 4.		
<p><b>2. The incentives and wellbeing (food security, physical security, time, income, yield) from farming in the transition zone are equal to or greater than farming in the illegal bas-fonds in the core and buffer zones</b></p>	<p>2.1 300 (78%) of direct beneficiary male and female farmers (of which at least 50% are women) have established or improved existing annual or perennial plots in transition zones by project end, with 25% beginning the process by end Y3</p> <p>2.2 By Year 4 60% of direct beneficiary farmers (228 individuals, of which at least 50% are women), report that the benefits of farming in transition zone equals or exceeds those from bas-fonds crops and remaining 40% of beneficiary farmers are projecting this within 3 years project end.</p> <p>2.3 100% (380 individuals) of targeted farmers have access to improved seed varieties and 25% of both male and female farmers are actively trialling them in the transition zone by year 3 and 90% by year 4.</p> <p>2.4 Seed selection training provision enables more sustainable seed supply within the communities.</p>	<p>2.1 Agricultural transition plan developed and validated with beneficiaries and key stakeholders by end Y1. Ongoing monthly meetings with extension staff – minutes. Plan reviewed and assessed in Y2 – Y4 by Project Manager. Appropriate management actions to address any issues documented in 6 monthly and annual reports.</p> <p>2.2. Participatory Impact Assessment (PIA) in Y4 to assess wellbeing of beneficiaries (including human-wildlife conflict). Annual extension staff reviews of farmer uptake and beneficiary farmer feedback focus groups.</p> <p>2.3 Annual extension staff reports on up take and use of varieties</p> <p>2.4 Proof of provision of seed selection trainings in Y2 and Y3, feedback in socio-economic survey Y4.</p> <p>2.5 Regular community meetings with farmers to ascertain incidents</p>	<p>Re-introduction of improved seed varieties conducted by IRAG for upland rice and niebe are replicated by direct beneficiary farmers as anticipated.</p> <p>Initial community discussions on availability and access to land hold true and sufficient land can be harmoniously secured inside and outside Transition Zone.</p> <p>The use of ‘mucuna’ and other soil improvement and weed management techniques to restore degraded land can be scaled up based on previous successful soil restoration work done by IRAG</p> <p>Tree crops seedlings have high survival rates and farmer shows excellent knowledge in crop management.</p> <p>Rainfall remains adequate to feed community irrigation systems for target villages</p> <p>Existing good access to local and regional markets remains stable for project duration</p>

	2.5 Reduction in human-elephant conflict (compared to baseline collected 2016)	of wildlife conflict and impact (i.e. crop damage, projected income loss etc.) Reports collated monthly and annually. Information analysed by Project Manager to inform ongoing activities. Recorded in annual reports	
3. Illegal activity within Ziama is reduced through a shift from bas-fonds to farming in transition zones	<p>3.1 No new clearing of forest in bas-fonds areas against current figures from July 2016 survey</p> <p>3.2 Law enforcement patrols report decline in illegal activity in core and buffer zones of Ziama MAB (compared to baseline from 2016 patrol data)</p> <p>3.3 60% reduction (228 individuals) in number of men and number of women (minimum 50% women) using bas-fonds in target villages by project end with a 20% reduction by end of year 3. We anticipate the final 40% to leave within 3 years of project end.</p> <p>3.4 Reduction in herbicide use in the bas-fonds beginning in Y2.</p>	<p>3.1 Vegetation mapping, photos, MAB Management plan</p> <p>3.2 Monthly law enforcement patrol data and reports</p> <p>3.3 Law enforcement and targeted bas-fond patrol data and reports, management plan for Ziama MAB including management plan by CFZ. Law enforcement patrols conducted on a monthly basis, targeting bas-fonds. Y1 &amp; Y2 to reinforce project messaging and ensure no expansion / new users. Y3 &amp; Y4 to enforce agreements. Reports compiled and analysed on a monthly basis with 6 monthly and annual status reports</p> <p>3.4 Visual assessment of herbicide use pulled from ranger bas-fonds monitoring reports. Information</p>	<p>Participatory demarcation of MAB zones is completed successfully, with communities agreeing access and management.</p> <p>Reducing dependence on bas-fonds will decrease time spent in forest by farmers for poaching/illegal activity</p> <p>Training on safe use of agrichemicals including application of herbicides is effective.</p>

		collected in Y4 socioeconomic survey.	
4. Targeted bas-fonds in Ziama MAB are showing signs of forest recovery	<p>4.1 Management plan developed in year 1 and implemented across 50% of all targeted bas-fonds by year 4</p> <p>4.2 Targeted bas fonds show annual improvements in ground cover / density of woody vegetation/ species richness in line with expected patterns of restoration by 25% year on year in years 2, 3, and 4 against project baseline</p>	<p>4.1 Management plan produced by end year 1</p> <p>4.2 Vegetation mapping, biomass analysis in year 4, photos in year 2, 3 and year 4</p>	Seedlings and seeds, if needed, are readily available at the right times.

**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. Inception workshops and participatory design of agricultural extension package with beneficiary farmers

1.2 Coordinate and implement composting training

1.3 Targeted training sessions and ongoing mentoring for agricultural extension package on topics such as soil management, planting techniques, seed management, green manure, integrated pest management, tree crop improvement, conservation agriculture, weed management, herbicide and pesticide management, alley cropping, agroforestry and improved irrigation techniques for direct beneficiary farmers. Sessions offered as both single-sex and mixed-sex groups to encourage participation by all.

1.4 Update agriculture extension and training methods and topics according to regular participant feedback, with a focus on ensuring sessions are run in a format, time and place to enable women to participate, learn and support each other, without isolating male participants

1.5 Develop and deliver communication plan including training materials and radio programmes using appropriate media to ensure outreach of training and information to village residents and wider area (indirect beneficiaries)

1.6 Conduct Participatory Impact Assessment in 4 target villages to ascertain effectiveness of training sessions, to monitor and update communications plan and to assess impact on wellbeing

1.7 Arrange and facilitate learning exchange visits with other Ziama communities, to demonstrate agricultural practices and crop choices

- 2.1 Review condition of land provided, identify appropriate annual and perennial crops, select appropriate farming methods with beneficiary farmers and prepare the land including managing weeds and increasing fertility through planting of 'mucuna'
- 2.2 Establish project baselines, gender disaggregated from bas-fonds crops and monitor annually for direct beneficiary farmers
- 2.3 Ground truth, update design and implement agricultural transition plan, incorporating agricultural extension plan, in participation with direct beneficiary target farmers including mapping shifting labour roles and responsibilities for women and men, support to enhance and shift to self-selected annual and tree crops etc. to ensure feasibility and ownership of the plan
- 2.4 Adaptively manage the process of change through on-going monitoring of farmers' perceptions of how incentives and activities are progressing, and provide continuous support, follow up and respond to any issues as they arise
- 2.5 Implement irrigation training in areas focused on market vegetables, and deliver farmer exchanges and demonstrations related to different types of irrigation systems.
  
- 2.6 Distribute PICS storage bags and provide training on prevention of post-harvest loss.
- 2.7 Identify cost effective storage improvements to address post-harvest loss for other crops as identified by farmers; review cost effective solutions in Y3 and implement locally-appropriate intervention(s) in Y4.
- 2.8 Review potential processing opportunities for existing crops grown outside the bas-fonds in order to identify opportunities to increase income from simple feasible processing
- 2.09 Distribute improved rice and other annual crop seed varieties at a reduced cost to direct beneficiary farmers, providing training of planting techniques for seed and ensure collection of seed at harvest for following year use.
- 2.10 Establish and train farmers in seed selection and seed conservation techniques, in order to maintain access to improved varieties year on year
- 2.11 Annually monitor yields for rice varieties being achieved by beneficiary farms in transition zone and incomes of any surplus sold and adapt activities and support accordingly
- 2.12 Establish trials for protecting crops and repelling elephants with direct beneficiary farmer groups in transition zone based on lessons learnt in FFI Elephant Survey report and use these as demonstration plots for wider community training on the topic according to demand for this village by village
- 2.13 Monitor crop loss and human wildlife conflict in transition zone during monthly community meetings
  
- 3.1 Bas-fond user groups and CFZ develop and implement bas fond control and exit plan including monitoring existing use and halting further clearance in bas-fonds
- 3.2 CFZ ranger staff conduct regular patrols of bas-fonds and attend bas-fond users association meetings on a regular basis to update users and ensure a strong and harmonious dialogue with communities
- 3.3 Provide training on environmental impacts of herbicide and pesticide use in water systems and safe application to bas fond associations in 4 villages and beyond

- 4.1 Develop restoration plan incorporating identification of suitable cost effective methods for enhancing the restoration of bas-fonds based on successful work by CFZ to date including assisted and natural restoration and identification of suitable species to be planted as feasible, based on various suitability criteria including potential to increase forest cover and attract wildlife species to the sites
- 4.2 Develop baselines for a selection of indicators including ground cover / density of woody vegetation/ species richness depending on conditions found in bas-fonds areas to be restored
- 4.3 Implement and update restoration plan in years 2, 3 and 4 and scale up appropriate techniques at CFZ identified sites and sites volunteered by bas fond associations

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

Project summary	Measurable Indicators	Progress and Achievements
<p><b>Impact:</b></p> <p>Ziama is an intact and effective Man and Biosphere reserve that supports optimal populations of key species, co-managed and equitably benefitting local men and women</p>		<p>This project helped to voluntarily relocate 392 farmers who were cultivating rice in protected core zone wetlands (bas-fonds) of Ziama MAB, and contributed to the consultation, design and ratification of the Ziama Management Plan.</p>
<p><b>Outcome</b> The relocation and improvement of agricultural practices reduces encroachment and degradation of forest habitats and ecosystems, benefiting elephants, forest resources and biodiversity, while improving the wellbeing of targeted farmers.</p>	<p>0.1 Stable or increasing indices of elephant and other key species (compared to baselines collected before start of project and through Y1 for full year).</p> <p>0.2 50% of target bas-fonds in Ziama show improvements in line with expected patterns of restoration in years 3 and 4 against project baseline.</p> <p>0.3 60% reduction (228 individuals) in number of men and number of women (minimum 50% women) using bas-fonds in target villages by project end with a 30% reduction by end of year 3. We anticipate the final 40% to leave within 3 years of project end.</p> <p>0.4 70% (266 individuals) of both male and female farmers targeted (of which at least 50% are women) report an improved sense of</p>	<p>0.1. Elephant indices in the Ziama area are stable; there have been no elephants poached or harmed during the project. Human-elephant conflict is reduced in the village of N'Zebela (<b>Annex 21</b>).</p> <p>0.2. 75 target bas-fonds, or 82.5 hectares (41% of baseline; <b>Annex 33</b>) have been abandoned, with natural regeneration underway.</p> <p>0.3. There are 392 fewer individuals regularly present in and using the core zone bas-fonds of target villages, as a result of the voluntary departures. The project started with 380 beneficiaries, but this number grew to 537 by year 3. Thus the departure of the 392 individuals from the bas-fonds represents a 73% reduction in the number of beneficiaries cultivating in the core zone. Please see <i>Lessons Learned</i> for more information on this 'number of people' indicator.</p> <p>0.4. Project beneficiaries reported wellbeing benefits from project activities in year 2 (<b>Annex 43</b>), year 3 (<b>Annex 14</b>) and year 4 (<b>Annex 6</b>).</p>

Project summary	Measurable Indicators	Progress and Achievements
	wellbeing (material, physical and subjective) by the end of the project.	
<p><b>Output 1.</b> Bas-fond farmers and current transition zone farmers in 4 villages are trained in improved agricultural practices and apply them to farmland in transition zones</p>	<p>1.1 100% (380 individuals, gender disaggregated) of targeted bas-fond farmers from 4 villages had the opportunity to receive direct training and on-going support on a range of improved agricultural, irrigation and tree crop techniques in each year of the project.</p> <p>1.2 From Year 2, 100 direct beneficiary farmers (at least 50% women) are applying at least 1 new intervention on their farmland in transition zones with a minimum of 300 farmers (78%) reporting application of at least 1 new intervention by project end</p> <p>1.3 50% male and 50% female transition zone farmers surveyed from 4 targeted villages (20% population estimated at 337 households) who are not direct beneficiaries of the project report having access to information on improved agricultural techniques by year 4. 60% of participants report increased access to information in focus group feedback sessions on communications programme in year 3 and 4.</p>	<p>1.1 A total of 537 individuals received regular farmer field school training in the four target villages throughout the project, and 48 representative farmers from each community (24 women) participated in a farmer knowledge exchange visit in year 4 to see the progress, lessons and successes of the other groups, and to share learnings (<b>Annex 9</b>).</p> <p>1.2 This goal has been achieved in two ways; first, 392 farmers voluntarily left the core zone bas-fonds and are currently undertaking an alternative agri livelihood option in the transition zone. Additionally, 89% of all beneficiary farmers surveyed in year 4 report applying at least 1 new intervention on their own lands (<b>Annex 14</b>).</p> <p>1.3 55% of farmers in the wider Ziama area who were surveyed reported increased access to information on agricultural techniques and appropriate MAB use in year 3 (<b>Annex 18</b>). In the year 4 participatory impact assessment, farmer representatives ranked “improvement of agricultural techniques” as a major benefit of the project, and also ranked trainings as a contributing factor to the overall impact of the project (<b>Annex 6</b>).</p>

Project summary	Measurable Indicators	Progress and Achievements
Activity 1.1: Inception workshops and participatory design of agricultural extension package with beneficiary farmers		Completed in year 1; <b>Annex 36</b>
Activity 1.2: Coordinate and implement composting training		Completed in year 3; <b>Annex 7, Annex 37</b>
Activity 1.3: Targeted training sessions and ongoing mentoring for agricultural extension package on topics such as soil management, planting techniques, seed management, green manure, integrated pest management, tree crop improvement, conservation agriculture, weed management, herbicide and pesticide management, alley cropping, agroforestry and improved irrigation techniques for direct beneficiary farmers. Sessions offered as both single-sex and mixed-sex groups to encourage participation by all.		A full complement of agricultural trainings were provided; please see <b>Annex 7</b> for a list of trainings, and <b>Annex 37, 38</b> for training modules.  Gender ratio for training sessions at the end of the project is 290 women (54%) and 247 men (46%) trained.
Activity 1.4: Update agriculture extension and training methods and topics according to regular participant feedback, with a focus on ensuring sessions are run in a format, time and place to enable women to participate, learn and support each other, without isolating male participants.		
Activity 1.5: Develop and deliver communication plan including training materials and radio programmes using appropriate media to ensure outreach of training and information to village residents and wider area (indirect beneficiaries).		In year 1-2, we focused our communications on local outreach, partnering with a local youth group called Club d'Ecoute to produce and record a play demonstrating the value of Ziama forest, and the threats posed by deforestation, herbicide use and species loss. The play was translated and performed in the local Toma and Malinke languages, with the video recordings shown at public spaces within the target communities.  In years 3-4 the project focused on public outreach via: <ul style="list-style-type: none"> <li>- Public address (environmental messages disseminated via loudspeaker and car)</li> <li>- 9 signs warning against herbicide use in Ziama MAB installed in strategic locations (<b>Annex 40</b>)</li> <li>- A televised public event celebrating 10 years of conservation in Ziama, with specific reference to the significant contribution of the Darwin Initiative project; attendance was approximately 3,000 people from Ziama communities (<b>Annex 41</b>).</li> </ul>

Project summary	Measurable Indicators	Progress and Achievements
Activity 1.6: Conduct Participatory Impact Assessment in 4 target villages to ascertain effectiveness of training sessions, to monitor and update communications plan and to assess impact on wellbeing.		<p>This activity was originally planned for the end of year 2 but was delayed as a result of the partnership change; we did not feel that doing a PIA at that particular time would have given us feedback that we could use constructively (we did however do a field survey at the time of partnership change to better understand farmer sentiment; <b>Annex 43</b>).</p> <p>Instead, we arranged the PIA for the end of the project, in order to gather lessons learned; <b>Annex 6</b>.</p>
Activity 1.7: Arrange and facilitate learning exchange visits with other Ziama communities, to demonstrate agricultural practices and crop choices.		Farmer learning exchanges were conducted in March 2021; <b>Annex 9</b> .
<p><b>Output 2.</b> The incentives and wellbeing (food security, physical security, time, income, yield) from farming in the transition zone are equal to or greater than farming in the illegal bas-fonds in the core and buffer zones.</p>	<p>2.1 300 (78%) of direct beneficiary male and female farmers (of which at least 50% are women) have established or improved existing annual or perennial plots in transition zones by project end, with 25% beginning the process by end Y3.</p> <p>2.2 By Year 4 60% of direct beneficiary farmers (228 individuals, of which at least 50% are women), report that the benefits of farming in transition zone equals or exceeds those from bas-fonds crops and remaining 40% of beneficiary farmers are projecting this within 3 years project end.</p> <p>2.3 100% (380 individuals) of targeted farmers have access to improved seed varieties and 25% of both male and female farmers are actively trialling them in the</p>	<p>2.1. In year 4, 89% of direct beneficiary farmers surveyed reported that they have applied at least one of the techniques learned in the farmer field school trainings on their own farm plots; of these respondents, 60% of those who stated that they had adopted these practices were women (<b>Annex 14</b>). Additionally, 70 transition zone agricultural field sites have been established by farmers who have left the bas-fonds (<b>Annex 46</b>).</p> <p>2.2 392 farmers (217 F) have voluntarily left the protected area bas-fonds (<b>Annex 16</b>); permanence is a reasonable goal as contracts have been signed between CFZ and farmer representatives (<b>Annex 11, 19</b>), and a monitoring plan is in place (<b>Annex 23</b>).</p> <p>82.5 hectares of illegal cultivation has been abandoned, and 70 field plots for sustainable cultivation were set up in the transition zone (<b>Annex 46</b>).</p> <p>2.3; 2.4 All beneficiary farmers have received access to improved seed varieties, most notably rice and cassava varieties. 100% of beneficiary farmers surveyed report uptake of either improved upland rice, improved 'Toussaint' cassava and/or Kalenda aubergine (<b>Annex 14</b>), and each of these varieties, as well as many others, are being maintained and multiplied in the farmer demonstration plots post-project.</p> <p>2.5 The outreach work in the nearby village of N'Zebela, a historical hotbed of human-elephant conflict for the region, has been well-received; at project</p>

Project summary	Measurable Indicators	Progress and Achievements
	<p>transition zone by year 3 and 90% by year 4.</p> <p>2.4 Seed selection training provision enables more sustainable seed supply within the communities.</p> <p>2.5 Reduction in human-elephant conflict (compared to baseline collected 2016).</p>	<p>end, an agricultural buffer zone has been established around the village to redirect elephants, incident reports have dropped 20% and the community is satisfied with progress to date (<b>Annex 17, 21</b>).</p>
<p>2.1 Review condition of land provided, identify appropriate annual and perennial crops, select appropriate farming methods with beneficiary farmers and prepare the land including managing weeds and increasing fertility through planting of 'mucuna'</p>		<p>A preliminary study of agricultural needs was collected prior to the project (<b>Annex 49</b>). A review of the condition of the land was undertaken by IRAG in year 1 (<b>Annex 22</b>), and a review of agricultural needs was conducted at the end of year 2 (<b>Annex 43</b>).</p>
<p>Activity 2.2: Establish project baselines, gender disaggregated from bas-fonds crops and monitor annually for direct beneficiary farmers.</p>		<p>A study conducted prior to project launch provided some agricultural baselines (<b>Annex 49</b>), and a rice baseline was established in year 1 by partner IRAG (<b>Annex 34</b>). Seasonal monitoring of progress and yields was undertaken by both ADCAP and FFI (<b>Annex 13, 15</b>).</p>
<p>Activity 2.3: Ground truth, update design and implement agricultural transition plan, incorporating agricultural extension plan, in participation with direct beneficiary target farmers including mapping shifting labour roles and responsibilities for women and men, support to enhance and shift to self-selected annual and tree crops etc. to ensure feasibility and ownership of the plan.</p>		<p>In years 1 and 3 the project followed the agricultural transition plan as set out in the proposal. In year 2 Q4 the project established a new partnership with ADCAP, and the first step there was a community consultation to understand farmer sentiment in light of the partnership change (<b>Annex 43</b>). Some minor adjustments were made as a result (for example, an interest in ginger cultivation was uncovered, and then added to the project work). In 2020 yet another adjustment was made based upon community consultation, and this is the adjustment (individualised household support to volunteer leavers) that most directly contributed to us reaching our project goal (<b>Annex 12, 16</b>).</p>
<p>2.4 Adaptively manage the process of change through on-going monitoring of farmers' perceptions of how incentives and activities are progressing, and provide continuous support, follow up and respond to any issues as they arise.</p>		
<p>Activity 2.5: Implement irrigation training in areas focused on market vegetables, and deliver farmer exchanges and demonstrations related to different types of irrigation systems.</p>		<p>Irrigation trainings were launched in year 2 and continued through to the end of the project (<b>Annex 7</b>).</p>

Project summary	Measurable Indicators	Progress and Achievements
Activity 2.6: Distribute PICS storage bags and provide training on prevention of post-harvest loss.		3000 PICS bags were distributed to beneficiary farmers (approx. 5 each), and an additional 5000 bags were given to CFZ to distribute more widely throughout the Ziama landscape. A follow-up survey was done with beneficiary farmers to understand if the PICS bags were useful/used/valued, and we found that 89% of those who received PICS bags from this project felt that they were a key tool in the prevention of post-harvest cereal loss ( <b>Annex 8</b> ).
Activity 2.7: Identify cost effective storage improvements to address post-harvest loss for other crops as identified by farmers; review cost effective solutions in Y3 and implement locally-appropriate intervention(s) in Y4.		A survey conducted with beneficiary farmers indicated that PICS bags and Boro sacs (large woven harvest bags) are the storage solutions that are favoured by Ziama farmers ( <b>Annex 8</b> ). The most efficient and cost-effective solution for prevention of post-harvest loss remains the PICS bag (or other hermetic storage bags), and FFI and CFZ will continue to promote their use in the landscape.
Activity 2.8: Review potential processing opportunities for existing crops grown outside the bas-fonds in order to identify opportunities to increase income from simple feasible processing		As part of a participatory market system development (PMSD) approach, a value chain analysis for key local commodities was undertaken by FFI in 2020, and it identified ginger, oil palm and coffee as key commodities for development in this landscape ( <b>Annex 44</b> ). Development of the work on PMSD is integrated into future funding.
Activity 2.9: Distribute improved rice and other annual crop seed varieties at a reduced cost to direct beneficiary farmers, providing training of planting techniques for seed and ensure collection of seed at harvest for following year use.		Please see the comment above related to measurable indicators 2.2, 2.3. <b>Annex 13</b> outlines successes with improved varieties and rice yields, while <b>Annex 38</b> provides an example of a rice cultivation and seed selection training.
Activity 2.10: Establish and train farmers in seed selection and seed conservation techniques, in order to maintain access to improved varieties year on year		
Activity 2.11: Annually monitor yields for rice varieties being achieved by beneficiary farms in transition zone and incomes of any surplus sold and adapt activities and support accordingly		Rice yields were monitored with support from ADCAP in years 3 and 4, and compared to baseline, beneficiary farmers reported an average of 443% more production than local baseline in year 4 ( <b>Annex 13</b> ).
Activity 2.12: Establish trials for protecting crops and repelling elephants with direct beneficiary farmer groups in transition zone based on lessons learnt in FFI Elephant Survey report and use these as demonstration plots for wider community training on the topic according to demand for this village by village		Please see comment above related to measurable indicator 2.5.

Project summary	Measurable Indicators	Progress and Achievements
Activity 2.13: Monitor crop loss and human wildlife conflict in transition zone during monthly community meetings		As reported in previous annual reports, monthly meetings have proven unpopular and near-impossible to maintain between FFI, CFZ and the village of N'Zebela, but meetings have occurred roughly quarterly, with additional meetings being organised if and as the need arises. HWC and crop-raiding losses have been recorded, with a 20% reduction in incident from 2019 to 2020 ( <b>Annex 21</b> ).
<b>Output 3.</b> Illegal activity within Ziama is reduced through a shift from bas-fonds to farming in transition zones.	<p>3.1 No new clearing of forest in bas-fonds areas against current figures from July 2016 survey.</p> <p>3.2 Law enforcement patrols report decline in illegal activity in core and buffer zones of Ziama MAB (compared to baseline from 2016 patrol data).</p> <p>3.3 60% reduction (228 individuals) in number of men and number of women (minimum 50% women) using bas-fonds in target villages by project end with a 20% reduction by end of year 3. We anticipate the final 40% to leave within 3 years of project end.</p> <p>3.4 Reduction in herbicide use in the bas-fonds beginning in Y2.</p>	<p>3.1. There has been no observed clearance of forest in the relevant core zone areas of Ziama MAB in year 4 (<b>Annex 10</b>).</p> <p>3.2. Illegal activity in the core and buffer zones has declined, with an 83% decline in observations of maintained plantations within the core zone since year 2, as well as a 67% decline in poacher arrests (<b>Annex 10</b>).</p> <p>3.3. 392 individuals who were cultivating rice in the core zone of the MAB reserve at the start of the project are no longer regularly present in the forest, with rangers monitoring these marked abandoned bas-fonds for signs of recovery (or encroachment) (<b>Annex 19, 23, 24</b>).</p> <p>3.4. 60% of beneficiary survey respondents reported that they were reducing their herbicide use (<b>Annex 14</b>); CFZ rangers have reported observing herbicide detritus while on patrol, but in year 4 none of the observations have been in the target village bas-fonds (<b>Annex 24</b>).</p>
Activity 3.1: Bas-fond user groups and CFZ develop and implement bas fond control and exit plan including monitoring existing use and halting further clearance in bas-fonds		A monitoring plan for the 200 target bas-fonds was developed over the course of years 3 and 4, as the target bas-fonds were first identified, tagged and numbered, and then a monitoring plan that could be implemented within the normal mission activities of the rangers was developed ( <b>Annex 23</b> ).

Project summary	Measurable Indicators	Progress and Achievements
Activity 3.2: CFZ ranger staff conduct regular patrols of bas-fonds and attend bas-fond users association meetings on a regular basis to update users and ensure a strong and harmonious dialogue with communities		This has been undertaken regularly throughout the project, with small interruptions based on circumstance (e.g. 4 months missed in 2020 due to Covid-19 related movement restrictions); <b>Annex 10</b> .
Activity 3.3: Provide training on environmental impacts of herbicide and pesticide use in water systems and safe application to bas fond associations in 4 villages and beyond		This training was provided by ADCAP in year 3; <b>Annex 7</b> .
<b>Output 4.</b> Targeted bas-fonds in Ziama MAB are showing signs of forest recovery.	<p>4.1 Management plan developed in year 1 and implemented across 50% of all targeted bas-fonds by year 4.</p> <p>4.2 Targeted bas fonds show annual improvements in ground cover / density of woody vegetation/ species richness in line with expected patterns of restoration by 25% year on year in years 2, 3, and 4 against project baseline.</p>	<p>4.1. The Ziama management plan was signed in 2019 (<b>Annex 5</b>), and implementation of the plan components is ongoing. 82.5 hectares of bas-fond are now cleared and regenerating, which is 41% of all targeted bas-fonds by area (<b>Annex 33</b>).</p> <p>4.2. Because farmer departure from the core zone bas-fonds occurred late in the project (mostly in year 4), bas-fonds recovery is still in the pioneer species phase, but recovery is ongoing, and is being monitored by CFZ (<b>Annex 23, 24</b>).</p>
Activity 4.1: Develop restoration plan incorporating identification of suitable cost effective methods for enhancing the restoration of bas-fonds based on successful work by CFZ to date including assisted and natural restoration and identification of suitable species to be planted as feasible, based on various suitability criteria including potential to increase forest cover and attract wildlife species to the sites.		As reported in the year 3 annual report ( <b>Annex 29</b> ), it is now advised by CFZ and the Ziama Management Plan that restoration should be left to occur naturally (natural regeneration) until a Ziama-wide restoration plan has been defined ( <b>Annex 5</b> ).
Activity 4.2: Develop baselines for a selection of indicators including ground cover / density of woody vegetation/ species richness depending on conditions found in bas-fonds areas to be restored.		Because natural regeneration is the near-term restoration strategy, the most useful and reasonable indicators are binary, and these are what CFZ rangers report on: for each target (numbered) bas-fond, monitoring data questions are: Is there cultivation occurring within the bas-fonds, and is there visible regeneration in the bas fond ( <b>Annex 23, 24</b> ).
Activity 4.3: Implement and update restoration plan in years 2, 3 and 4 and scale up appropriate techniques at CFZ identified sites and sites volunteered by bas fond associations.		

## Annex 3 Standard Measures

Code	Description	Total	Nationality	Gender	Title or Focus	Language	Comments
<b>Training Measures</b>							
5	Number of people receiving other forms of long-term (>1yr) training not leading to formal qualification (e.g., not categories 1-4 above)	537	Guinean	F 290 M 247	Training in sustainable agriculture: agroforestry, composting, etc.	French, local languages (Toma etc.)	Annex 7
6a	Number of people receiving other forms of short-term education/training (e.g., not categories 1-5 above)	392	Guinean	F 217 M 175	Training in livelihoods development: irrigation methods, soapmaking etc.	French, local languages (Toma etc.)	Annex 7
6b	Number of training weeks not leading to formal qualification	100	-	-	Agricultural extension, focus on sustainable intensification	-	Biweekly trainings from June 2017 to March 2021
7	Number of types of training materials produced for use by host country(s) (describe training materials)	Pdf and docx training modules and manuals	-	-	13	French	Annex 7, 37, 38

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)	1	Guinean	-	Ziama Management Plan	French	Participatory process involving communities, government, NGOs. Annex 5
10	Number of formal documents produced to assist work related to species identification, classification and recording.	1	Guinean	-	Training of eight Ziama rangers in the evaluation of bas-fonds	French, English translation	Annex 22

Physical Measures		Total	Comments
20	Estimated value (£s) of physical assets handed over to host country(s)	£ [REDACTED]	
22	Number of permanent field plots established	70	70 field plots in the transition zone have been established (Annex 46).

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 <i>(please note that the figure provided here should align with financial information provided in section 9.2)</i>	£ [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.	
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.	x
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)
FFI website article	Ten years and counting – Celebrating FFI's work in Guinea	Guinean	Guinean	M	FFI, Cambridge	<a href="https://www.fauna-flora.org/news/ten-years-counting-celebrating-ffis-work-guinea">https://www.fauna-flora.org/news/ten-years-counting-celebrating-ffis-work-guinea</a>
FFI website article	Elephants without borders – Transboundary collaboration brings hope to West Africa's wildlife	British	British	M	FFI, Cambridge	<a href="https://www.fauna-flora.org/news/elephants-without-borders-transboundary-collaboration-brings-hope-west-africas-wildlife">https://www.fauna-flora.org/news/elephants-without-borders-transboundary-collaboration-brings-hope-west-africas-wildlife</a>
Darwin newsletter article	Conserving critical forest biodiversity in Guinea through sustainable agricultural livelihoods	Guinean	Guinean	M	Darwin Initiative, Penicuik	<a href="https://www.darwininitiative.org.uk/assets/uploads/Darwin-Newsletter-December-2020-Hungry-for-Biodiversity-FINAL.pdf">https://www.darwininitiative.org.uk/assets/uploads/Darwin-Newsletter-December-2020-Hungry-for-Biodiversity-FINAL.pdf</a>
FFI website article	West Africa walkabout – The further adventures of	British	British	M	FFI, Cambridge	<a href="https://www.fauna-flora.org/news/west-africa-walkabout-adventures-elephant-brothers">https://www.fauna-flora.org/news/west-africa-walkabout-adventures-elephant-brothers</a>

	the elephant brothers					
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## Annex 6 Darwin Contacts

<b>Ref No</b>	24-004
<b>Project Title</b>	Conserving critical forest biodiversity in Guinea through sustainable agricultural livelihoods
<b>Project Leader Details</b>	
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## Checklist for submission

	Check
<b>Is the report less than 10MB?</b> If so, please email to <a href="mailto:Darwin-Projects@itsi.co.uk">Darwin-Projects@itsi.co.uk</a> putting the project number in the Subject line.	Y
<b>Is your report more than 10MB?</b> If so, please discuss with <a href="mailto:Darwin-Projects@itsi.co.uk">Darwin-Projects@itsi.co.uk</a> about the best way to deliver the report, putting the project number in the Subject line.	
If you are submitting photos for publicity purposes, <b>do these meet the outlined requirements (see section 10)?</b>	Y
<b>Have you included means of verification?</b> You should not submit every project document, but the main outputs and a selection of the others would strengthen the report.	Y
<b>Do you have hard copies of material you need to submit with the report?</b> 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.	N
Have you involved your partners in preparation of the report and named the main contributors	Y
Have you completed the Project Expenditure table fully?	Y
Do not include claim forms or other communications with this report.	