Darwin Initiative/D+ Project
Half Year Report
(due 31st October 2019)

Project reference	26-016
Project title	Lion Carbon: creating biodiversity value and sustainable management through REDD+
Country(ies)/territory(ies)	Zambia
Lead organisation	University of Oxford
Partner(s)	BioCarbon Partners and Lion Landscapes
Project leader	Prof. David Macdonald
Report date and number (e.g. HYR3)	28th Oct 2019 HYR1
Project website/blog/social media etc.	There is not yet any specific project social media but all three project partners have websites and related social media: www.lionlandscapes.org, www.biocarbonpartners.com, www.wildcru.org

1. Outline progress over the last 6 months (April – Sept) against the agreed baseline timetable for the project (if your project has started less than 6 months ago, please report on the period since start up to end September).

Lion Carbon is a scalable and sustainable biodiversity conservation model, which links payment to local communities (generated through the REDD+ avoided deforestation mechanism) to 30-year habitat protection agreements. Lion Carbon addresses the proximate threats to biodiversity (poaching, habitat loss, and poor management) through strengthening local and regional capacity to manage natural resources, and the social threats (poverty and undervalued biodiversity) through job creation and the distribution of benefits from verified forest carbon offsets to local communities. One of the proposed project outcomes involves increasing the capacity of local Community Resource Boards (CRBs) to carry out their legal mandate to provide community-based management of natural resources. Most CRBs are unable to fulfil their conservation mandate due to low organizational, financial, and technical capacity. Lion Carbon builds local capacity to manage wildlife and forests by 1) developing adaptive CRB-led, Chiefdom Conservation Plans, 2) improving CRB capacity to implement these plans, and 3) linking conservation efforts more closely to payments to local communities. Our project start date was May 2019 and so the end of September brings us to the 5 month point. Below are the activities (numbered as in our logframe) that were due to start during the first 6 months of this project and the progress so far:

2.1. Design, agree with stakeholders and publish detailed biodiversity monitoring methods, protocols, and sampling framework for the phase 1 project area.

The impact of Lion-Carbon project activities on local biodiversity is going to be evaluated using regular biodiversity monitoring surveys. As this project involves taking on the management of highly depleted areas, monitoring methods need to capture wildlife recovery from very low densities of all species. Monitoring very rare, low density species over large areas is challenging from both a logistical and a statistical perspective. Biodiversity monitoring methods have to be scout-based, low cost and be able to handle low sample sizes. Scientifically robust, logistically feasible and cost-effective biodiversity monitoring plans have been developed by Lion Landscapes (LL) and University of Oxford. These plans include detailed methods, protocols and a sampling framework for the project area. Methods used are a combination of

distance sampling and occupancy modelling as described in the original proposal, with the addition of camera trapping surveys to capture very elusive, nocturnal or more cryptic wildlife species. These biodiversity monitoring plans are due to be reviewed by Biocarbon Partners (BCP) during November this year to finalised logistically feasible roll-out plans for biodiversity monitoring over the phase 1 project area. Once BCP have signed off on these plans, they will become embedded in Chiefdom Conservation Management Plans in the phase 1 project area. Biodiversity monitoring plans were completed in the first quarter of this project as planned but will not be signed off by other partners until the 3rd quarter. This is because key BCP management were focused on the carbon offset verification process, which is key to the overall success of this project. Verification has since ended and meetings to approve the biodiversity monitoring plans are scheduled for this next quarter. This delay in officially signing-off on the longer-term biodiversity monitoring plans has not delayed any of the project activities as the verbal 'go-ahead' was given for the surveys run in October and the next surveys are not due until April-June next year.

2.2. Purchase all biodiversity monitoring equipment required as outlined in the biodiversity monitoring methods and protocols in 2.1.

In order to carry out biodiversity monitoring surveys outlined in the plan (section2.1), the necessary monitoring equipment (range finders, GPS, electronic compasses and camera traps) had to be purchased in time for the first set of surveys scheduled for late dry season (August-October 2019). Due to the delays in receiving funding (please see section 2.a. below), biodiversity monitoring equipment could not be bought in time for the first set of surveys. Equipment for the distance sampling and occupancy modelling walked transects were borrowed from Lion Landscapes so these surveys could go ahead (see below). Camera traps, however, could not be purchased or borrowed. All survey equipment required will be purchased during November 2019 to be in place before the next surveys are due, which will be in the early dry season (April-June) next year.

2.3. Complete 2 years of biodiversity monitoring data collection in the phase 1 project area. Exact methods and protocols to be determined in 2.1. but will include distance sampling and occupancy modelling using camera traps.

Biodiversity monitoring plans produced in section 2.1. above have two elements. Firstly, the distance sampling and occupancy modelling (using tracks and sign) from walked transects, and secondly, occupancy modelling using camera traps. The latter is to better capture the more elusive, nocturnal or cryptic species. Walked surveys went ahead as planned across the initial two sampling frames, of 180km^2 and 390km^2, in two GMAs. A third sampling frame is due to be added to the walked transect surveys during the next survey period in April-June 2020. The camera trap surveys have been delayed due to delays in receiving funding (see section 2.a.). We had planned to deploy cameras for the end of the current dry season (August-October) but we will now deploy cameras early next dry season (April 2020). Delays to starting the camera trap surveys should not significantly affect project results as this represents the start of long-term monitoring over the life of the 30-year habitat protection agreements with local communities, and we should still complete 2 years of survey data collection during the 2.5. year life of the project.

3.1. Provide basic training for 30 new CRB scouts in year 1 and 30 further new CRB scouts during year 2. Basic training is a 3-month approved curriculum course run with the Zambian Department of Parks and Wildlife.

Increasing the capacity of Community Resource Board to implement their biodiversity management plans and reduce the main threats to biodiversity (bushmeat poaching and deforestation) across the phase 1 project area depends on increasing the number of properly trained scouts. We exceeded our goal by training, equipping and deploying 32 new scouts during this reporting period. This doubled the number of trained scouts in the project. Training was a community scout course given by the Department of National Parks at an approved training school. The training included theory around the Zambian wildlife Act, filed training on carrying out investigations, firearms and tactical training, drill, as well as theory on wildlife identification and basic ecology. All 32 new scouts ended up with a certificate from the Zambian government.

3.2. Provide in-service training for 60 CRB scouts and 40 partner organisation scouts in year 1. In-service training is 2 weeks of intense refresher training run with external consultants and the Department of Parks and Wildlife, designed to be run annually to avoid skill fade, refresh knowledge on protocols to be followed, and identify and address problems.

In service training for CRB scouts was due to take place this month but has been delayed until the early dry season (April-Jun) next year because the provider has fallen through and a new training provider is being sought. This was unfortunate and has delayed this project activity from when it was scheduled during the second quarter. However, in-service training will still fall within the first project year. Additionally, aspects of training have still been provided during the second quarter as planned. For example, scout teams involved with biodiversity monitoring have received biodiversity monitoring training. Furthermore, scout teams are closely managed and have regular face-time with the BCP Conservation Officers and 2nd in command in each province (see section 3.4. below). A complete in-service training course is important for scouts and so will be provided but in the meantime, good management and some of the more technical modules (Biodiversity monitoring and SMART) being delivered separately will make sure scouts remain fully functional and fit for purpose.

3.3. Provide additional equipment revealed as necessary for all scouts (3.1.) during the recent Chiefdom Conservation Plan development process.

All new trained scouts have been fully equipped and deployed. Additionally, current scouts have had all equipment provided or replaced where necessary. Equipment includes, uniforms, boots, backpacks, comms, camping and cooking equipment and a digital data collection device (smartphone) for collecting patrol, wildlife and illegal activity data. Additionally, the project has decided to support all deployed CRB scout teams (averaging 6 teams deployed at any one time during year 1) with satellite telephones in addition to traditional VHF radios. Three satellite phones have been bought during this reporting period, The other 3 will be bought during the next reporting period so that every scout team is equipped with a satellite phone when on patrol. This means that all CRB scouts involved in this project are equipped for purpose and can maintain communications with management for safety and functional purposes.

3.4. Provide the required management support for anti-poaching activities in phase 1 project areas revealed in the recent Chiefdom Conservation Plan development process.

Taking into account leave schedules, there were on average 30 scouts (6 teams) deployed at any time during this reporting period. Anti-poaching teams and managers operate on provincial boundaries and there are two provinces in the project area. Three full scout teams plus management were based in each province. Anti-poaching management and support was provided in the following ways during this reporting period:

- **Aerial support** (average of 15 hours /mth) has been provided to search for signs of poacher's camps and guide scout teams to areas where deforesting or wildlife poaching is an issue. This makes scout deployment much more efficient.
- **Scout movements and deployment**: An ex British Army troop deployment vehicle has been purchased and refurbished to allow scouts to be picked up and re-deployed quickly and easily even in rough terrains. In general, scout teams are deployed in an area, carry out one long range patrol and are then picked up again 3-4 days later.
- **Direct management support:** A Conservation Manager and 2nd in command were based in each province and oversaw scout activities and data during the reporting period. These managers were in turn overseen by an overall operations manager who plans overall deployment, leave and training schedules. VHF radios and satellite telephones allowed teams to stay in contact with management so that they were able to have external support or be redeployed where necessary. Data collection devices allowed scout team patrols, as well as any incidences they deal with, to be recorded and reviewed by managers. Feedback was then given to improve scout effectiveness.
- **Additional logistics support:** BCP drivers and vehicles in each province provided resupplies for all anti-poaching scout teams.

3.5. Review and improve SMART model for data collection by scouts.

Data collection during biodiversity monitoring surveys and anti-poaching patrols is key as poorly collected, managed or stored data could result in failing to properly evaluate the impact of project activities on local biodiversity. The capacity to monitor scout patrols also enables management to better plan anti-poaching efforts across the landscape. Developed by a consortium of NGOs, SMART (Spatial Monitoring and Reporting Tool) is a computer-based platform used to measure, evaluate, and improve the effectiveness of wildlife law enforcement patrols. It can also be used for monitoring surveys. At the start of this project, SMART was only used by monitoring teams. All anti-poaching teams were using a basic ODK data collection system. The data collection SMART model used by the monitoring teams was badly designed and too complex and time consuming for the anti-poaching teams to use. The badly designed SMART model being used also allowed too many errors in data collection. Additionally, data from different sources (ODK and SMART) had to be downloaded manually and was stored on different systems.

During this reporting period we were due to review the SMART model used by the monitoring teams and unify data collection across all scouts during monitoring or anti-poaching. The ideal situation being for all monitoring teams and anti-poaching scouts to be recording data in a way that was simple to use, limited mistakes and ultimately fed into one central database for ease of review and management. This was addressed during the first quarter of this year as planned by reviewing and simplifying the current SMART model being used. This review was done in-house but in September 2019, one of the project donors (Lion Recovery Fund) offered to provide external professional help with this, as in-house expertise were not felt to be good enough to truly optimise the data collection handling and management system. A SMART consultant started working with the project during October this year and will completely review and optimise the model used so that all monitoring teams and anti-poaching scouts can record data in a way that was simple to use, limits mistakes and feeds into one central database for ease of review and management. The latest developments in SMART technology will be used to make this possible. Monitoring and anti-poaching teams will all be trained how to collect data using the new interface, and project members involved in the management of SMART data will be trained on the new system so that data is managed correctly. These additional actions will take longer but will improve on the original planned project activity, and the quality of the data collected.

3.6. Review SMART patrol data and produce a quarterly report on scout activities to review during the quarterly meeting with CRBs.

SMART data recorded by biodiversity monitoring teams has been reviewed as planned. Once the SMART redesign and training is complete then data from all anti-poaching teams will also start to be collected and regularly reviewed. Data stored centrally will allow regularly monthly reports and feedback sessions with the anti-poaching teams, improving the management and effectiveness of these teams, and providing valuable data to contribute to biodiversity monitoring.

2a. Give details of any notable problems or unexpected developments/lessons learnt that the project has encountered over the last 6 months. Explain what impact these could have on the project and whether the changes will affect the budget and timetable of project activities.

Two main challenges have arisen during this first 6 months of the project.

Firstly, the project lead (University of Oxford finance department) did not return the grant acceptance paperwork until the second quarter of this project. The resultant delays in receiving the funding held up activities that were dependant on larger value capital items i.e. the purchase of a vehicle, camera traps and some scout equipment. We managed to mitigate delays by borrowing a vehicle for key activities, and borrowing most of the monitoring equipment needed for the first walked transect surveys but activities needing camera traps have had to be delayed. These activities are 1) Camera trap surveys for biodiversity monitoring, and 2) village camera trapping to strengthen the linkage between payments from the sale of REDD+ offsets and wildlife conservation performance with the village camera trapping pilot.

Since the deployment and management of camera traps is difficult during the rains, camera trap surveys planned for Aug-October will now be delayed until early dry season (April) next year. As explained in the sections above, this delay will not impact our ability to reach the related output due to the long-term nature of the biodiversity monitoring being set up. The village camera trap pilot has been delayed because the camera traps and the vehicle usage needed for these activities meant delays could not be mitigated. However, we were very conservative and left more than enough time to pilot this initiative. I feel confident, therefore, that we will have been able to properly pilot this initiative by the project end and reach our output, despite delays.

The second challenge has been securing an external provider for the scout in-service training. Providers who fit the culture of this project, and are familiar with the language and in-country regulations are in short supply. We did secure a provider but they had to pull out at very short notice due to personal reasons. A suitable provider will be found, and the training provided as soon as possible. The impact of this delay on project success is being mitigated through providing more technical elements of the training separately, and careful management of the anti-poaching units.

2b. Have any of these issues been discussed with LTS International and if so, have changes been made to the original agreement?

Discussed with LTS:	Yes/~~No~~
Formal change request submitted:	Yes/~~No~~
Received confirmation of change acceptance	Yes/~~No~~

3a. Do you currently expect to have any significant (e.g., more than £5,000) underspend in your budget for this year?

Yes ☐ **No** ☒ Estimated underspend: £

3b. If yes, then you need to consider your project budget needs carefully. Please remember that any funds agreed for this financial year are only available to the project in this financial year.

If you anticipate a significant underspend because of justifiable changes within the project, please submit a rebudget Change Request as soon as possible. There is no guarantee that Defra will agree a rebudget so please ensure you have enough time to make appropriate changes if necessary.

4. Are there any other issues you wish to raise relating to the project or to Darwin's management, monitoring, or financial procedures?

If you were asked to provide a response to this year's annual report review with your next half year report, please attach your response to this document. Additionally, if you were funded under R25 and asked to provide further information by your first half year report, please attach your response as a separate document.