



Darwin Initiative/Darwin Plus Projects

Half Year Report

(due 31st October 2021)

Project reference	26-018
Project title	Promoting public health in a biodiverse agroforest landscape in Guinea-Bissau
Country(ies)/territory(ies)	Guinea-Bissau
Lead organisation	University of Exeter (UoE)
Partner(s)	Institute for Biodiversity and Protected Areas (IBAP), National Association for Local and Urban Development (NADEL), Robert Koch Institute (RKI), Centre for Research in Anthropology (CRIA)
Project leader	Dr Kimberley Hockings
Report date and number (e.g. HYR1)	HYR3
Project website/blog/social media	@KJHockings @hellen_wildlife

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

Output 1 Surveillance for leprosy disease in Cantanhez is increased and partner villages demonstrate improvement in understanding the links between environmental, animal and human health.

The One Health trial campaign at selected villages and leprosy clinical training to local health workers are scheduled for Y3Q3-4. Progress has been made via a literature review on One Health strategies (**Activity 1.5**) and the publication of our project's results, including interview data, in a peer reviewed journal (Bersacola E, Parathian H, Frazão-Moreira A, Jaló M, Sanhá A, Regalla, A, Rachid Saíd A, Quecuta Q, Camará ST, Quade SMFF, Jaquite SM, Gomes Lopes A, Patrono LV, Ramon M, Bessa J, Godley BJ, Bonneaud C, Leendertz FH, Hockings KJ (2021) Developing an evidence-based coexistence strategy to promote human and wildlife health in a biodiverse agroforest landscape. *Frontiers in Conservation Science*, DOI: 10.3389/fcosc.2021.735367). The campaign strategy, including the messages, the pre- and post-campaign and training evaluation, are being developed and will be finalised at the end of October 2021 via in person meetings in Bissau between UoE, NADEL, CRIA, IBAP, Cumura Hospital and AIFO (**Activity 1.6**). Eight local community health agents, recruited for the project in June 2021, will be coordinated by NADEL DFO Sara Quade (who was also recruited in June 2021) to deliver campaign activities in Y3Q3.

Output 2 Improved wildlife management capacity through the establishment of the first health and abundance systematic monitoring programme for key terrestrial biodiversity in Guinea-Bissau.

In August 2021 the second season of biodiversity monitoring programme implemented by the IBAP DPOs, two local research consultants and eight DFOs was completed (**Activity 2.4**). In total, 400km of transect survey effort (64 transects) and 9900 camera trap days (43 camera traps) were achieved in the second season of biodiversity monitoring between January and August 2021. Approximately half of this survey effort was obtained in April-August. In the past six months, in addition to the biodiversity monitoring with 64 transects and 43 camera traps across the park (**Activity 2.4**), we established a new team for intensive leprosy monitoring (**Activity 2.5**). The intensive leprosy monitoring team includes the two IBAP DPOs and the two research consultants (who also coordinate and are involved in the biodiversity monitoring), and six new field assistants from their respective villages. UoE PhD student Marina Ramon trained the IBAP DPOs (Maimuna Jaló and Américo Sanhá) on collection, processing and storage of faecal samples, sampling design using faecal sampling (RNAlater and ethanol-silica methods), and target camera traps (N = 60 in video mode across three chimpanzee communities) (**Activity 2.5**). The IBAP DPOs trained the two research consultants and six local research consultants on faecal sampling and deployment and checking of camera traps. Faecal sampling began in May 2021 and was completed in August 2021. In total, for the intensive leprosy monitoring (**Activity 2.6**), 1244 chimpanzee faecal samples were collected, of which 629 stored in RNAlater for leprosy detection and 615 stored in ethanol, later transferred to silica gel, for chimpanzee individual identification. The 60 camera traps were established and were active until August 2021. Data analysis, including review of camera trap footage and faecal sampling laboratory analysis (**Activity 2.7**) is ongoing at RKI and UoE and is expected to be completed in Y3Q4.

Output 3 A One Health environmental management plan to promote healthy human-wildlife coexistence and strengthen multi-stakeholder decision-making capacity in Cantanhez NP.

Significant progress has been made towards this output over the last six months. Season 1 biomonitoring Bayesian spatial modelling of camera trap data for four primate species (chimpanzees, baboons, Campbell's monkey and green monkeys) was completed in Y3Q1 (**Activity 3.1**). Additionally, density estimates of chimpanzees, red colobus, king colobus and Campbell's monkey were obtained in Y3Q2. In June 2021 we selected and employed eight Health DFOs, consisting of community health agents from partner villages. The Health DFOs and Health DPO (Sara Quade) were fully trained by the DRF in participatory mapping data collection using Cybertracker on Blackview rugged smartphones (**Activity 3.2**). The DRF also trained Health DPO in entering, managing and analysing Cybertracker data using SMART Conservation software. Health DFOs began collecting participatory mapping data across ten villages in July 2021 (**Activity 3.3**). Data collection is performed by Health DFOs with the participation of women and men from the ten villages. The Health DFOs accompany or visit the local participants in their daily jobs, including in cultivated fields, when collecting wild resources, collecting water, etc. In addition, Health DFOs visit participants at their home. Data collected include mapping of and information on (i) cultivated and wild food resources used by people and wildlife; (ii) water points used by people only and those shared with wildlife, (iii) signs of animal feeding on cultivated and wild resources shared with humans, (vi) direct

encounters with wildlife reported by local people, (v) encounters with sick and dead animals reported by local people (vi) processing carcasses and cooking meat, (vii) keeping wild animals as pets, (viii) hunting of wild animals, including via snares and guns. These data are processed using SMART and GIS to generate maps that will inform discussions with local stakeholders (farmers, hunters, women's associations) in partner villages (**Activity 3.4**) scheduled for October-Novembre 2021. These multi-stakeholder discussions, participatory mapping data and biomonitoring spatial models form part of the information that will be incorporated into the One Health environmental management plan in Y3Q4 (**Activity 3.6**).

Output 4 Increased long-term readiness for potential public zoonotic threats and disease-related conflicts through the development of a multi-stakeholder leprosy response plan for Cantanhez NP.

We made progress towards this output in the last six months via meetings with project partners and stakeholders (Cumura Hospital and AIFO, **Activity 4.4**) in May and June 2021 to discuss information sharing and the development of the plan, which is scheduled to be completed in Y4. A significant component of this output is to gather up-to-date information on leprosy in humans and wildlife in Guinea-Bissau. Information on leprosy in chimpanzees is now published in the journal Nature ([Hockings KJ, Mubemba B, Avanzi C, Pleh K, Dux A, Bersacola E, et al. \(2021\) Leprosy in wild chimpanzees. Nature, DOI: 10.1038/s41586-021-03968-4](#)). In addition, leprosy in baboons was confirmed via laboratory analysis of faecal samples at RKI, and additional leprosy cases were detected via biomonitoring programme's camera trap surveys in Y2Q4-Y3Q1-2. These data, alongside the recently collected data from the intensive leprosy monitoring will be incorporated into the leprosy response plan in Y3Q4 (**Activity 4.10**). GIS mapping of leprosy cases in humans (**Activity 4.5**), a review on leprosy strategies including past awareness campaigns and institutional engagement (**Activity 4.6**), and review of the existing communication chain for leprosy case detection and management (**Activity 4.7**) are scheduled for Y3Q3-4.

2a. Give details of any notable problems or unexpected developments/lessons learnt that the project has encountered over the last 6 months (for COVID-19 specific delays/problems, please use 2b). Explain what impact these could have on the project and whether the changes will affect the budget and timetable of project activities.

No problems or unexpected developments to report. The project went through an external evaluation in March 2021. All lesson learnt and changes were outlined in the Y2 Annual reports and project changes were fully approved.

2b. Please outline any specific issues which your project has encountered as a result of COVID-19. Where you have adapted your project activities in response to the pandemic, please briefly outline how you have done so here. Explain what residual impact there may be on your project and whether the changes will affect the budget and timetable of project activities.

Many restrictions, including travel bans/severe restrictions that have been in place since March 2020 due to the COVID-19 pandemic, were lifted in the last six months. This meant that our UoE team (DRF and PhD student Marina Ramon) was finally able to travel to Guinea-Bissau in June 2021. During the past six months some COVID-19 regulations/restrictions were still in place in the UK, Portugal and Guinea-Bissau, including travel regulations (proof of vaccination, PCR test, antigen test, etc), hygiene (mask wearing, etc) and social distancing measures (restrictions on large social gathering). We were able to follow all these regulations (both in the UK, travelling between UK-Portugal-Guinea-Bissau and in Guinea-Bissau) without causing any project delay or problems.

2c. 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

<p>3a. Do you currently expect to have any significant (e.g. more than £5,000) underspend in your budget for this year?</p> <p>Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Estimated underspend:£</p>
<p>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.</p> <p>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. Please DO NOT send these in the same email as your report.</p>
<p>4. Are there any other issues you wish to raise relating to the project or to Darwin's management, monitoring, or financial procedures?</p> <p>No issue to report.</p>

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.

Please note: Any planned modifications to your project schedule/workplan can be discussed in this report but **should also** be raised with LTS International through a Change Request. **Please DO NOT send these in the same email.**

Please send your **completed report by email** to Darwin-Projects@ltsi.co.uk. The report should be between 2-3 pages maximum. **Please state your project reference number in the header of your email message e.g. Subject: 25-001 Darwin Half Year Report**