Biodiversity Challenge Funds Projects
Darwin Initiative, Illegal Wildlife Trade Challenge Fund, and Darwin Plus

Half Year Report

It is expected that this report will be a **maximum of 2-3 pages** in length.

If there is any confidential information within the report that you do not wish to be shared on our website, please ensure you clearly highlight this.

Submission Deadline: 31st October 2024

Please note all projects that were active before 1 October 2024 are required to complete a Half Year Report.

Submit to: BCF-Reports@niras.com including your project ref in the subject line.

Project reference	DPLUS157
Project title	Managing the pathogens threatening St Helena's biodiversity and food security
Country(ies)/territory(ies)	St Helena
Lead Organisation	CABI
Partner(s)	St Helena Research Institute (SHRI), Environment, Natural Resources and Planning Directorate (ENRP)
Project leader	*Rob Reeder*
Report date and number (e.g. HYR1)	*25/10/24; HYR4*
Project website/blog/social media	*https://blog.cabi.org/2021/09/27/cabi-to-work-in-partnership-to-help-protect-st-helenas-biodiversity-and-enhance-its-agriculture/*

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

Although we are not looking for specific reporting against your indicators, please use this opportunity to consider the appropriateness of your M&E systems (are your indicators still relevant, can you report against any Standard Indicators, do your assumptions still hold true?). The guidance can be found on the resources page of the relevant fund website.

No visits from the UK to St Helena took place during the first quarter of the year. This period coincides with the winter season on St Helena, a time of the year with fewer opportunities to conduct field-based and other onsite activities. However, during this period regular meetings and e-mail exchanges were undertaken to plan the activities for the year ahead. The team based in St Helena prepared as early as possible for activities planned to start in September 2024. This included the propagation of plant seedlings for use in the inoculation experiments. In parallel, the team in the UK continued with the culturing and identification of tree pathogens collected in the last quarter of the previous project year. This data complements the results from the previous field surveys covered in the annual report earlier this year.

Due to the urgency to identify the causal agents behind the tree dieback on St Helena, Defra continues to supply additional funding complementary to DPLUS157. This additional funding is focused on providing more resources towards pathogenicity testing and allows a large scale survey of *Phytophthora kelmanii*, the causal agent behind the dieback of the endemic Whitewood (*Petrobium arboretum*). This survey involves soil sampling and mapping the distribution of Phytophthora using a LAMP genie system established in St Helena in January 2024.

The sixth field site visit by the CABI team (Lisa Offord, Norbert Maczey) was scheduled for the period between 29th of August to the 17th of September. However, due to adverse weather, the team could not land on St Helena until the 3rd of September. This visit focused on setting up another host range inoculation experiment and refining a reliable soil sampling regime for *P. kelmanii* using leaf baiting to allow the use of the LAMP system for sample assessment. The seventh field trip has started at the time of writing and overlapping teams will continue to undertake a large-scale soil survey of *P. kelmanii* from the Peaks between the 10th of October and the 25th of November.

Other activities between April and October covered were:

- Development of an updated draft management plan to implement suitable measures for the containment of *P. kelmanii* in propagation facilities and within the Peaks National Park.
- Processing of pathogen samples from the fifth field survey
- Continued implementation of methods on St Helena to produce diseases free tree seedlings for inoculation experiments
- Development of a pathogen survey plan and sampling protocol for *P. kelmanii* and other pathogens
- Collection of soil samples from *Phytophthora* contaminated sites on St Helena to be brought back to the CABI facilities in Egham to be tested for the presence of several putative tree pathogens using PCR
- The development of specific primers for pathogen detection from soil samples
- Preparation of the next field site surveys scheduled for October/November and also January to March 2025.

Progress on specific activities to be covered in Q1-Q3 of Year 4:

1.2 Cataloguing of pathogens and associated vectors including the ones recorded during the project. This activity will be based on excel and is an ongoing process. The catalogue will remain open for further additions beyond the termination of the project.

First drafts of the database including the results from the literature search and records collected during the first two visits have already been provided as annexes to the previous annual reports. Adding to this database is an ongoing process and more specimens will be added during the lifetime of the project. In early 2024, a major step forward was the development of an Access database by the project team based on St Helena to cover additional ecological details regarding all pathogen samples taken from endemic plant species. This has been used in September 2024 to produce a georeferenced list of trees and associated pathogens, along with distribution maps. This data now informs the next steps to be undertaken over the coming months by ENRP and RSPB regarding the management and conservation efforts in the Peaks National Park.

Activities 2.1 to 4.1.2

These activities have largely been completed. However, certain aspects of the following two activities are still open and subject to additional input:

2.1.3 & 2.2.3 Processing of samples and development of assessment report

Over the first three years of the project, a variety of plant pathogens collected during site surveys have been successfully isolated and identified. Sample collection and processing have now become ongoing activities, with the St. Helena team trained to independently gather samples and send them to the UK for identification. Verified identifications are continually added to the expanding database, and the latest version of this database will be appended to the final project report.

3.1 Action plan to mitigate identified threats in all assessed sectors developed jointly with and made available to all stakeholders

A management plan addressing the most pressing agricultural problems has been completed and successfully implemented (see previous annual report). The development of the action plan was intertwined with the training activities to prepare stakeholders for a more sustainable crop management and this activity has also been completed before the start of year 4. The highest urgency with regards to future actions plans remains undoubtedly with the rescue of the surviving endemic trees and future conservation efforts for these and any associated species. We therefore shifted in 2023 and 2024 the focus on developing action plans towards these aspects. To do this in an efficient way, we joint forces together with the cloud forest project and have outlined the development of two separate APs regarding the production of disease-free seedlings at the nurseries at Scotland and for future conservation work stabilising and restoring tree populations in situ within the peaks national park. Updated recommendations for the pathogen management within the Peaks National Park have been issued and discussed with project partners and also other stakeholders such as representatives for the Cloud Forest Project in September 2024.

4.1.3 Student and community engagement through trial plot at Prince Andrews School; ongoing supervision onsite by SHRI and ENRD

This has already been partially covered in 2022 and 2023. However, as detailed in the last annual report, it was deemed not feasible by all project partners to continue with the plans for a permanent trial plot at the school itself.

4.3 First onsite training of at least 6 staff in using improved diagnostic facilities & online tools; established Plantwise test applied before and after training to measure the increase in knowledge by an increase in the score on the two tests in Q4 Y1; further onsite supervision of trained staff during follow on CABI team visits Q2 Y2, Q4 Y2 and Q1 Y4

Setting up of the lab at ENRD has been completed some time ago and isolation and culturing of pathogens is an ongoing activity in the lab. Several online sessions to supervise isolating and culturing have been conducted since. This has enabled the team on St Helena to culture a high number of isolates and to send high quality samples to the UK for further identification. This has been supplemented by further intensive training of staff from ENRP and SHRI during 2024 and has included training in the use of cutting-edge technology such as DNA extraction procedures and using a LAMP system to record specific pathogens from plant and soil samples. Training in these areas will continue throughout the remainder of the project.

5.1 Implementation of treatment measures starting during Y4 Q1 to Q2

The main problem of commercial crop production on St Helena has been tomato cultivation in polytunnels, where a lack of phytosanitary measures allowed plant pathogens such as *Pythium* to proliferate. A suite of recommendation has been issued to the growers and these measures have since been implemented.

5.3 Efficacy of treatment surveyed in crops and with nursery stocks in Y4 Q1 to Q3

An assessment of the first crop cycle after implementation of the mitigating measures has led to a significant increase in yields as already detailed in the last annual report. We therefore regard this activity as completed.

2. 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.

An essential part of the project is confirming whether any pathogens isolated from endemic trees are the causal agents for the observed dieback rather than opportunistic saprophytes. This is achieved by re-infecting seedlings with these pathogens according to Koch's postulate. To achieve this a considerable number of seedlings have first to be produced. This remains an ongoing problem due to the rarity of the plants, their slow germination and growth rates and the lengthy restructuring of nursery procedures to ensure the production of disease-free seedlings. Although this challenge was identified early in the project and upscaling of production set in motion at the earliest possible point, seedling production is still lower than anticipated.

A more recent delay was caused by the breakdown of a soil steriliser, an essential piece of equipment required to produce disease free plants. This has now been resolved, but due to the timing of the repair (end of winter) the production of new seedlings still needs to gather momentum. Despite additional funding supporting this work and the construction of a shade house, to safely conduct inoculation experiments, we are experiencing longer than expected delays in conducting these trials.

Initially, we planned to conduct inoculation experiments in October/November 2023; however, these were rescheduled to January-March 2024, with follow-up experiments completed in March-May 2024. The most recent experiment was set up in December. We are currently working to catch up on these activities, with additional experiments planned for November 2024 and early 2025.We believe the project is still on track to achieve its objectives and no other significant problems have been encountered.

3. Have any of these issues been discussed with NIRAS and if so, have changes been made to the original agreement?

Discussed with NIRAS:	~~Yes~~/ No
Formal Change Request submitted:	~~Yes~~/ No
Received confirmation of change acceptance:	~~Yes~~/ No

Change Request reference if known: *If you submitted a financial Change Request, you can find the reference in the email from NIRAS confirming the outcome*

4a. Please confirm your actual spend in this financial year to date (i.e. from 1 April 2024 – 30 September 2024)

Actual spend:

4b. Do you currently expect to have any significant (e.g. more than £5,000) underspend in your budget for this financial year (ending 31 March 2025)?

Yes ☐ **No** ☒

4c. If you expect and underspend, then you should 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 re-budget Change Request as soon as possible. There is no guarantee that Defra will agree a re-budget so please ensure you have enough time to make appropriate changes to your project if necessary. Please DO NOT send these in the same email as your report.

NB: if you expect an underspend, do not claim anything more than you expect to spend this financial year.

5. Are there any other issues you wish to raise relating to the project or to BCF management, monitoring, or financial procedures?

None at this stage

6. Please use this section to respond to any feedback provided when your project was confirmed, or from your most recent annual report. If your project was subject to an Overseas Security and Justice Assistance assessment please use this space to comment on any changes to international human rights risks, and to address any additional mitigations outlined in your offer letters. Please provide the comment and then your response. If you have already provided a response, please confirm when.
There had been no reviewer comments in response to the latest annual report to be addressed in the HYR.

Checklist for submission

For New Projects (i.e. starting after 1st April 2024)	
Have you **responded to any additional feedback** (other than caveats) received in the letter you received to say your application was successful which requested response at HYR (including safeguarding points)? You should respond in section 6, annexes other requested materials as appropriate.	
If not already submitted, have you attached your **risk register**?	
For Existing Projects (i.e. started before 1st April 2024)	
Have you responded to **feedback from your latest Annual Report Review?** You should respond in section 6, annexes other requested materials as appropriate.	
For All Projects	
Include your **project reference** in the subject line of submission email.	
Submit to **BCFs-Report@niras.com**.	
Have you **clearly highlighted any confidential information** within the report that you do not wish to be shared on our website?	
Have you reported against the most **up to date information for your project?**	
Please ensure claim forms and other communications for your project are not included with this report.	