

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

Note: 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 2023

Project reference	<i>DARCC018</i>
Project title	Growing Indonesian Genomics
Country(ies)/territory(ies)	Indonesia
Lead partner	RBG Kew
Partner(s)	Badan Riset Inovasi Daerah
Project leader	<i>Liam Trethowan</i>
Report date and number (e.g. HYR1)	<i>18/10/23 HYR1</i>
Project website/blog/social media	https://liamtrethowan.com/2023/10/26/growing-indonesian-genomics/

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).

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.

We have carried out all objectives up to September – this solely involved planning for the first October workshop – which was carried out successfully.

Participants for the first workshop were selected by our in-country team. This resulted in five participants: 4 female all with doctorates and one male looking to begin a doctorate studying Indonesian diversity using genomic approaches.

Eight high-spec laptops were purchased and given to our Indonesian partners for future work.

Open access workshop materials were produced and published online <https://github.com/sidonieB/Workflows> or in a holding google drive doc available to participants – all these materials will be available freely post corrections following future M&E. We carried out M&E throughout the workshop and changes were made to teaching materials at the end of each days teaching.

We collected 33 breadfruit samples for DNA extraction split evenly between aseasonal wet west Java and seasonally dry east Java. In east Java we met potential participants for the second workshops from Purwodadi Botanic Garden. We extracted DNA from all breadfruit samples and began the sequencing experiments with the minION, running an extra experiment than planned due to efficiency of participants. This was part of the workshop that taught wet lab, theoretical and bioinformatic skills to the participants.

The theoretical topics covered basic DNA and genomics terminology, different sequencing approaches and their positives and negatives which is key for participants future project planning. Phylogenomic theory was taught covering the latest methods highlighting analytical drawbacks and solutions to commonly encountered problems. Short and long read DNA sequencing with Illumina and Oxford Nanopore technology was covered in more depth as this data was and will be provided to participants during and after the workshop.

Bioinformatics practical classes included basic ubuntu/linux setup and install. With a focus upon for loops and their widespread utility and application across multiple software for sequence trimming, alignment, annotation etc. this culminated with the sequencing of the plastid genome from the first breadfruit sample processed with minION we provided to the lab. Phylogenomics was also taught and full trees built for a dummy dataset using hyp-piper, BEAST, IQtree and other key software packages.

We have confirmed the schedule for the second workshop in March and had buy in regarding current participants helping teach/demonstrate during second workshop.

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.

We shifted a planned two days of workshop from population genomics analysis to phylogenomics as requested by participants. For the second workshop to better cover both these aspects we will teach latest phylogenomic approaches to population genomics that have been pioneered by the project team (OPE).

Most participants selected work in Bogor so have not required travel, childcare or accommodation expenses. It has however been made clear to us that this funding would be better spent on the hardware to support genomic data production – this is fundamentally key to future capacity and to ensure a successful legacy for the project.

We hope to fund extra lab equipment for future new project success and further sequencing experiments to allow for publication of high-quality breadfruit genomes – this has been explicitly asked for by our participant and project partners in country. This manuscript would be led by participants and help further cement Kew-Indonesia relations and give participants tangible output in terms of academic currency i.e. a paper(s).

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

Discussed with NIRAS:	Not yet
Formal Change Request submitted:	Not yet
Received confirmation of change acceptance	Not yet

Change request reference if known:

4a. Please confirm your actual spend in this financial year to date (i.e. from 1 April 2023 – 30 September 2023)

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 2024)?

Yes No Estimated underspend: £

4c. 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 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 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?

N/A

If you are a new project and you received feedback comments that requested a response, or if your Annual Report Review asked you to provide a response with your next half year report, please attach your response to this document.

All new projects (excluding Darwin Plus Fellowships and IWT Challenge Fund Evidence projects) should submit their Risk Register with this report if they have not already done so.

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

Please send your **completed report by email** to BCF-Reports@niras.com. The report should be between 2-3 pages maximum. **Please state your project reference number, followed by the specific fund in the header of your email message e.g. Subject: 29-001 Darwin Initiative Half Year Report**