

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 2022

Project reference	DPLUS102
Project title	Saving Tristan's only native tree and its associated unique buntings
Country(ies)/territory(ies)	Tristan da Cunha Island Group
Lead partner	Royal Society for the Protection of Birds (RSPB)
Partner(s)	Conservation Department, Tristan Government Centre for Agriculture and Bioscience International (CABI) The Food and Environment Research Agency (FERA)
Project leader	Andy Schofield
Report date and number (e.g. HYR1)	HYR3 (Oct 2022)
Project website/blog/social media	N/A

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).

Unfortunately, following good progress in the first half of the project things have now stalled. The biocontrol wasp culture on the island sadly died out at the beginning of the year and new wasps could only be taken out to Tristan at the end of August 2022. This has meant that there wasn't an opportunity to make further releases on Nightingale and the other northern islands and we are in the early stages of establishing a new culture. The focus over the next couple of months will be to build up numbers in order to make further releases this summer. In more positive news, the horticulturalists in the Agriculture Department are having great success with germinating *Phyllica* seeds which bodes well for the reforestation output of this project.

Activities are only listed below if there has been an update in the last six months:

Output 1 - Suitable biological control agents for *C. hesperidum* on Tristan selected, risk assessed and tested

1.3 Selection of suitable and readily available agents, including use of agents commercially available and agents currently used in other research institutes

The northern hemisphere summer season was again used to setup trap plants (*Citrus* sp.) infested with *Coccus hesperidum* to attract host specific parasitoids. This was particularly done to obtain an outdoor population of *Microterys nietneri*, in the belief that these would be climatically better suited for release on Tristan compared with our current culture of this species bred over many generations indoors. We failed however to obtain *M. nietneri* through this approach and could only collect an unidentified *Coccophagus* species, which was dismissed as a suitable BCA candidate for Tristan. We have, however, collected *M. nietneri* from another scale species (*Pulvinariella mesembryanthemi*)

collected in Cornwall in September 2022. However, numbers were very low and we don't know at this stage whether we have managed to establish a permanent culture from these specimens.

1.5 Culturing of *C. hesperidum* from Tristan at CABI for testing and mass rearing of agents

In the last six months the culturing of both *Microterys nietneri* and *M. seyon* has continued. As the culture of *M. nietneri* previously established on Tristan collapsed during the winter month, upscaling of production was conducted in June to July and another shipment of > 300 wasps (mostly females) were shipped to Tristan in late August. Even though mortality was high during the three-week journey to Tristan, > 20 individuals survived, which are currently being used to establish a new culture on the island.

1.6 Survey in SA for additional agents; the survey will focus on areas with significant citrus growing where *C. hesperidum* is widespread

Latest survey findings:

Surveys for *Coccus hesperidum* and associated scales were conducted by Prof. Martin Hill, Director of the Centre for Biological Control (CBC) at Rhodes University. A scale culture has been established and the team has managed to collect at least 5 parasitoid species. The specimens have been sent to Simon van Noort at the South African Museum in Cape Town to confirm ID.

1.8 Efficacy testing of agents in quarantine at Egham UK looking into infestation rates and rates of encapsulation by the target species

We conducted further experiments with *Microterys seyon*, which formed the bases of a master thesis conducted by a student from Imperial College at Silwood Park. Results indicate that this species may be potentially better climate matched to the conditions prevailing on Tristan compared to *M. nietneri* because reproductivity seems to indicate a species adapted to lower temperatures. Although reproductivity at 17°C is not significantly different to *M. nietneri*, the latter is performing better at 25°C. Results of this thesis, once formally accepted and processed, will be used to inform a more detailed RA for *M. seyon*.

Output 3 - Selected control agent reared under controlled conditions on Tristan

3.1 Rearing of agents for release at CABI quarantine facilities using several chambers to keep individual agents separated and supply population of scales uninfected

Maintenance of cultures of *C. hesperidum*, both from Tristan and the UK, continued during the last six months, along with keeping cultures of *Microterys nietneri* and *M. seyon*. In addition, we continued to grow Malabar spinach plants as the best suitable host to maintain scale cultures.

Output 4 - Control agents released and successfully established on Tristan da Cunha, Inaccessible & Nightingale Islands

(4.3 – 4.5) Further releases haven't been possible since those made in 2021 due to losing the culture and only establishing a new one a few months ago.

Establishment of *M. nietneri* has not yet been confirmed on Nightingale island, but Norbert Maczey (CABI) will hopefully be visiting Tristan in January 2023 to survey release sites and assist the Conservation team in anyway he can.

Output 5 - Invasive New Zealand flax closest to *Phyllica* habitat controlled on Inaccessible Island World Heritage Site

(5.2 – 5.4) The flax team is set to return to Inaccessible WHS in the next few months.

Output 6 - Community nursery of scale-free *Phyllica* trees established on Tristan for Nightingale reforestation

6.2 Successful mass-propagation of *Phyllica* seedlings in nursery by Tristanian team

The Agriculture Department have successfully germinated 113 healthy seedlings, with a further c.100 plants propagated from cuttings. These cuttings are proving less successful with low survival rates. Therefore, the team are concentrating their efforts on germinating more seedlings and have another 200 seeds in heated vitopods underway.

A meeting was held in August with the team on Amsterdam Island (French Southern Territories Nation Nature Reserve) who have a long-running and very successful *Phyllica* nursery on the island, with almost 1,000 young trees planted out every year. The team are also starting to notice scale insects and sooty mould on *Phyllica* on the island, so they are keen to hear the success of this project as it may have implications for future work on Amsterdam. This provides a real knowledge-exchange opportunity between the two Territories, and we hope to have a follow up meeting next year to update each other on progress.

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.

The main issue in the last six months has been losing the wasp culture on Tristan and it only being possible to ship out replacements in August. This means that our aspirations may have to be scaled back this summer as it might be difficult to obtain sufficient numbers for multiple and substantial releases. A target of 500 females is looking unlikely but things will become clearer over the next few months as we see how quickly numbers increase in the warmer weather. This will also have implications on establishment of a biocontrol agent on each of the three northern islands.

There will be a visit to the islands from CABI in January. However, a visit from Fera is now not possible in this financial year as the assigned berth has been reallocated for a medi-vac. We will therefore be submitting a change request in November to move funds to next year for Fera's travel as the expert guidance provided on island is integral to the success of the project.

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

Discussed with NIRAS-LTS: No

Formal Change Request submitted: No

Received confirmation of change acceptance No

Change request reference if known:

4a. 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: £

We are reviewing the budget and are currently unable to determine the estimated value of the underspend. A change request will be submitted in November.

4b. 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.**

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 (including the submission of your risk register), 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.

Please note: Any planned modifications to your project schedule/workplan can be discussed in this report but **should also be raised with NIRAS-LTS International 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**