



**Darwin Initiative/Darwin Plus Projects
Half Year Report
(due 31st October 2021)**

Project reference	Building knowledge on invasive non-native species in Diego Garcia
Project title	DPLUS151
Country(ies)/territory(ies)	British Indian Ocean Territory
Lead organisation	UKCEH
Partner(s)	BIOT Administration (BIOTA) SWCA consultants Natural History Museum
Project leader	<i>Jodey Peyton</i>
Report date and number (e.g. HYR1)	<i>HYR1, 31st October 2021</i>
Project website/blog/social media	NA

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).

Our project started 1st September with a revised start date from the 1st October, following a change request submitted on 2nd September. This request was made in order to enable us to purchase fieldwork and biosecurity inspection equipment for Milly Fellows in the BIOTA team prior to her leaving for Diego Garcia (DG). This project entails providing an updated terrestrial animal (invertebrates and amphibian and reptile) inventory for DG. See Annex 1 for proposed sampling sites.

The project will be delivered through 6 WPs (Fig1):

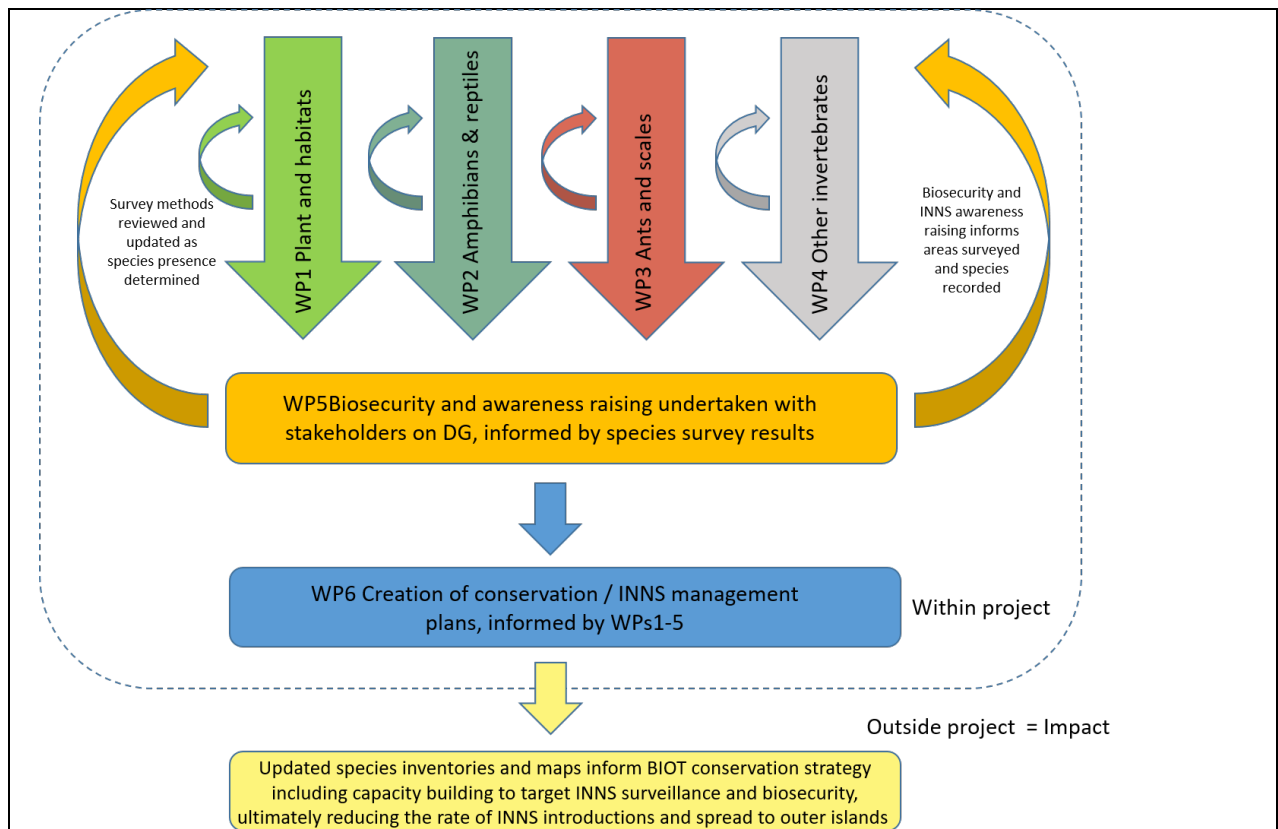


Figure 1 Overview of project plan

WP1: Plant and habitat surveys will be undertaken on sites around DG, with an increasing distance from urbanisation (see Annex 1 for proposed sampling sites). Alongside plant species data, we will collect habitat data, e.g. % plant cover, canopy height, number of seedlings. These sites are designated sampling sites for WP3&4.

WP2: We will compare distributional data and population sizes of the invasive Cane toad and Oriental garden lizard with a 2014 US-survey (Vogt and Guzman 2014) and produce up-to-date distribution maps for both species on DG.

WP3&4: With a particular focus for associations between ants and scale insects (WP3), we will collect invertebrate data (WP4), to provide baselines that will inform the prioritisation of action against INNS (prevention, control, management – if feasible). We have selected eight paired invertebrate sampling stations (Annex 1). WP3&4 will use a variety of sampling methods to cover a wide range of life forms and microhabitats, e.g. sweep net sampling, bait traps, suction sampling, Malaise traps, Berlese funnels, light traps, and direct collecting after visual inspection of host plants or habitat structures.

Samples will be identified to the species level (ants-GBG and scales-FERA, other invertebrate groups depending on the availability of experts at NHM and beyond), and to the morphospecies level as a proxy for species diversity when species identification is not possible. We will correlate species occurrence/abundance data with habitat variables and distance from introduction hubs, such as the airport and harbour, to test for dependence on human activities.

The NHM will undertake DNA-barcoding analysis using standard gene regions (cytochrome c oxidase subunit 1) on 150 identified species and submit data to the open access DNA barcode database (BOLD). The 150 species will be selected by the project team and NHM and may include species with already existing barcodes in the BOLD database from other regions (for comparison) but may also include species without existing barcodes in the database.

WP5: We will provide communication, training and knowledge exchange with key stakeholders (BIOTA, US Naval Facility, military and civilians (see Figure 2)) by:

- hosting an awareness raising and identification training workshop for biosecurity staff on widespread and/or common invasive ant species and on surveillance techniques. The workshop will be recorded and made available to other UKOTs, Bahrain and Singapore.

- developing maps indicating “areas at risk” from INNS in DG, with the potential to prioritise biosecurity surveillance and rapid response activities.
- developing outreach material, e.g. mini guides (Annex 2) of INNS; lay articles, e.g. Ministry of Defence Sanctuary articles
- disseminating information through awareness-raising materials and meetings with military staff and community groups. Materials will be published in multiple languages.
- uploading datasets and outreach materials to the Chagos Information Portal, GBIF and BOLD.
- strengthening biosecurity on DG with military and civilian staff by building on previous GBNNSS projects (horizon scanning, pathway action plan).

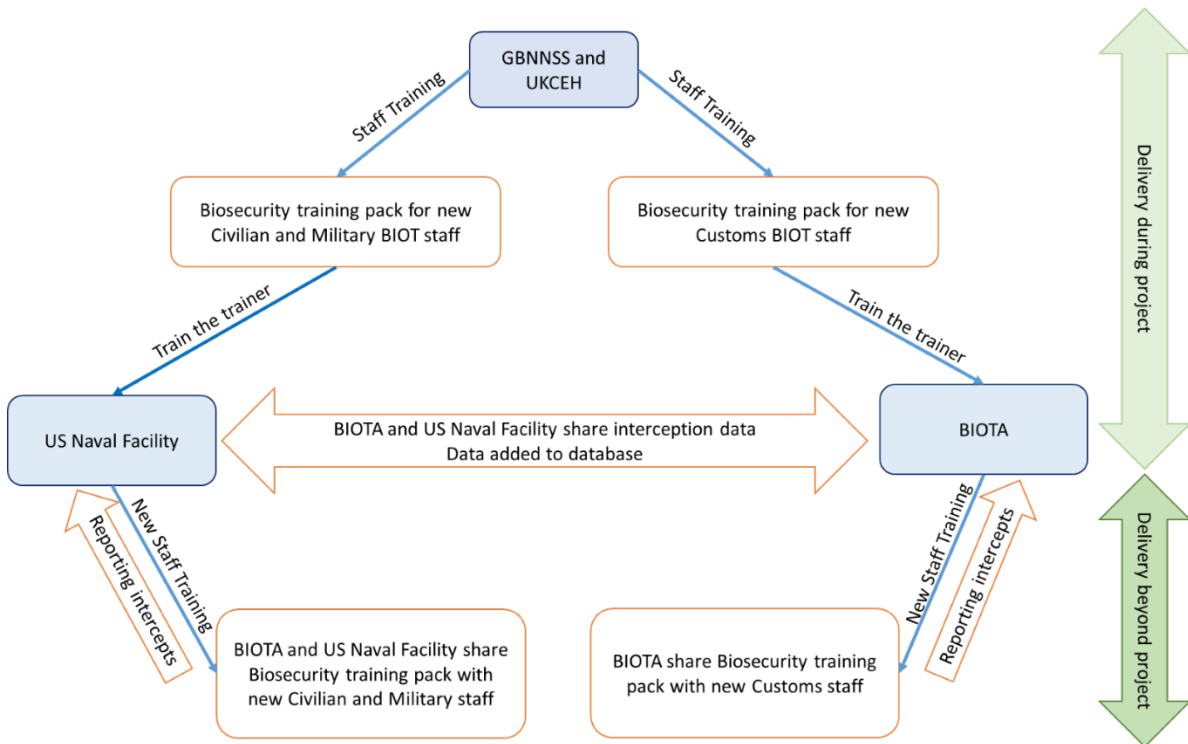


Figure 2 Proposed communication mechanisms for project Biosecurity training and INNS reporting

WP6: Using the data from WPs1-5, we will co-design and develop conservation and/or management plans with BIOTA and the US Naval Facility.

From the project being awarded, we have taken the following steps towards project implementation plan:

Output 1: Native and non-native species inventory and distribution maps produced for amphibians, reptiles, invertebrates and plants WP1-4

Action 1.1a: Survey planning and consultation throughout with BIOTA and BIOT Environmental Teams in selecting location of at least 10 sampling sites. We have had meetings with project staff, BIOT teams (Brit Rep) and external stakeholders (ZSL, CCT, Species Recovery Trust) running other DPLUS projects and US Naval Facility projects to standardise methods (see table 1 below).

With respect to survey planning for DG, we have compiled a list of eight paired sites, increasing in distance from urban areas and points of entry (Annex 1). These sites are paired reflecting high and low density canopy cover. Using the precious sampling locations in Vogt and Guzman (2014), we will undertake repeat sampling for amphibians and reptiles. We are in dialogue with

BIOTA as to whether eradication needs to take place for target species e.g. cane toad as part of the survey work.

Date	Attendees	Outcome
21/7/21	Brit Rep, BIOTA, UKCEH	Introductions made, project overview shared. Plans made for handover with new Brit Rep
22/7/21	GBNNSS, UKCEH, BIOTA	Reviewed existing biosecurity on island and plans for WP5
22/7/21	ZSL, CCT, UKCEH	Introductions made, project synergies identified, agreed collecting invertebrates from outer islands where possible
22/7/21	Species recovery Trust, UKCEH	Introductions to Ascension and St Helena projects. Review of biosecurity and sampling methods and equipment. Agreed to share sampling strategies
22/7/21	Customs team (email)	Reviewed plans for sampling from containers and interception database
26/7/21	Incoming Brit Rep, UKCEH	Introductions made, project overview shared. Plans made for meeting in 2022 to review field work schedule
27/7/21	US Naval facility, University of Northern Arizona, EEA, SWCA, UKCEH	Introductions made, discuss both project plans, agreed shared site selection. Offer from Uni. of Northern Arizona for imaging our samples. WG contacted FERA who will share samples with collected from DG for imaging by Uni. of Northern Arizona.
6/9/21	Kew, SWCA, UKCEH	Introductions, project overview shared, Kew agreed to share plant records for DG, reviewed use of iNaturalist and promoting iNaturalist through project capacity building, reviewed other possible projects, Kew suggested location for Bioblitz, Kew suggested a presentation on how to take records for iNaturalist as part of project.
9/9/21	FERA, UKCEH, ZSL (email)	FERA contacted ZSL to arrange collection of scale insects during their field trips to outer islands.

Action 1.3: At least two supplementary invertebrate sampling undertake by BIOTA in between main fieldwork trips (see Output 2). Maintain regular (bi-monthly updates with BIOT staff to review surveys) as well as at quarterly updates. Please see meetings above; FERA and UKCEH arranged for ad-hoc sampling from outer islands. We have attached the sampling protocol supplied by FERA as a separate attachment to this report.

Output 2: Species survey training delivered to at least two BIOTA staff and research outputs shared with at least ten multidiscipline staff on DG. WP3, 4 and 5.

Action 2.2: Develop (Field Studies Council) beginner ID guide for key species of interest for military and civilian personnel on DG in several languages drafted (see Annex 2). The species were selected using the 2018 Horizon scanning list for BIOT (Roy et al. 2019). The text for the miniguide was developed with project partners and the finalised materials will be shared as part of the biosecurity and outreach work. This guide will be translated into Tagalog by the US Naval Facility stationed on island. We have also been liaising with CCT regarding translating the guide into Creole and French for Chagossian stakeholders.

Output 3: At least 50 military and civilian staff on DG have improved knowledge of Biosecurity protocols and surveillance WP5.

Action 3.1: Draft communication plan and updated Pathway Action Plan including analysis of existing biosecurity measures on DG with US Naval Facility (and Bahrain and Singapore if possible) with military and civilian personnel. The Communication Plan is being drafted and will be shared with the project team for review. UKCEH and GBNNSS have reviewed and suggested updates for the BIOTA introduction powerpoint slide deck for DG. UKCEH and GBNNSS have reviewed and made suggestions for an interception database for DG and the outer islands, for recording species found in e.g. vessels, containers (Annex 3). The interception database for Tristan da Cunha was used a template for this database.

Output 4: Species action plans created for at least two species, based upon stakeholder consultation. WP6

No updates

Output 5: Research outputs shared with wider scientific and INNS practitioner audience

Action 5.1: Project brief created and added to BIOTA website. A project brief is being drafted and will be shared with the project team for review.

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.

We are in the process of trying to purchasing equipment that we cannot take by plane in Singapore which is slightly challenging but we have a lot of support from contacts there and hope that this will be able to be undertaken without any issues.

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.

Not applicable as yet.

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	Two CR have been submitted
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. **Please DO NOT send these in the same email as your report.**

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

No, this project has started extremely positively and we are very much looking forward to planning the fieldwork element.

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**