Darwin Plus:

Overseas Territories Environment and Climate Fund

Annual Report

Important note: to be completed with reference to the Reporting Guidance Notes for Project Leaders: it is expected that this report will be about 10 pages in length, excluding annexes

Submission Deadline: 30 April

Darwin Plus Project Information

Project Ref Number	DPLUS030
Project Title	Building systems and capacity to monitor and conserve BVI's flora
Territory(ies)	British Virgin Islands
Contract Holder Institution	Royal Botanic Gardens, Kew (Kew)
Partner Institutions	National Parks Trust of the Virgin Islands (NPTVI)
Grant Value	£98,896
Start/end date of project	April 2015 – March 2017
Reporting period	April 2015 – March 2016 AR1
Project Leader Name	Dr Martin Hamilton
Project website/Twitter/Blog etc	**Kew UKOTs Twitter**: https://twitter.com/KewUKOTs (#KewBVI) **Storify**: https://storify.com/KewUKOTs/building-systems-and **NPTVI Facebook:** https://www.facebook.com/NPTVI
Report author(s) and date	Dr Martin Hamilton, 26 April 2016 [report and outputs discussed by the partners prior to submission during face-to-face meetings]

PLEASE NOTE: Supporting documents referred to in this report as Annexes have been uploaded to an FTP site as a single zip file that can be downloaded from here.

1. Project Overview

The British Virgin Islands (BVI) are part of the Caribbean (Figure 1) biodiversity hotspot. This project is developing the necessary capacity and systems to monitor and conserve BVI's flora. Before the start of this project, threatened plant species and their habitats were not adequately monitored in BVI and existing botanical collections were not representative of wild plant diversity. In order to effectively conserve the BVI's flora, especially in a changing climate, NPTVI staff responsible for maintaining *ex-situ* collections and *in-situ* populations of threatened species required training and access to botanical data systems and monitoring data that this project is providing.

As BVI is part of the Puerto Rican Bank (Figure 2) floristic area, the project is harnessing regional (University of Puerto Rico (UPR); Puerto Rico Departamento de Recursos Naturales y Ambientales (DRNA); US Fish and Wildlife Service (USFWS) Caribbean Ecological Services Office; and Parque Doña Inés arboretum of the Fundación Luis Muñoz Marín) and international (Kew) expertise to strengthen local capacity and develop the botanical collections, resources and data systems in BVI. Training is being provided for NPTVI staff at UPR Mayaguez Campus Herbarium (MAPR), DRNA herbarium (SJ) and USFWS refuges in Puerto Rico; Kew in the UK; and J.R. O'Neal Botanic Garden (JROBG) in BVI and various field sites in Puerto Rico and BVI. A botanical data system (BRAHMS database) is being deployed locally to provide off-line access to all existing botanical collections and monitoring data.

Figure 1: Map of the Caribbean and surrounding countries.

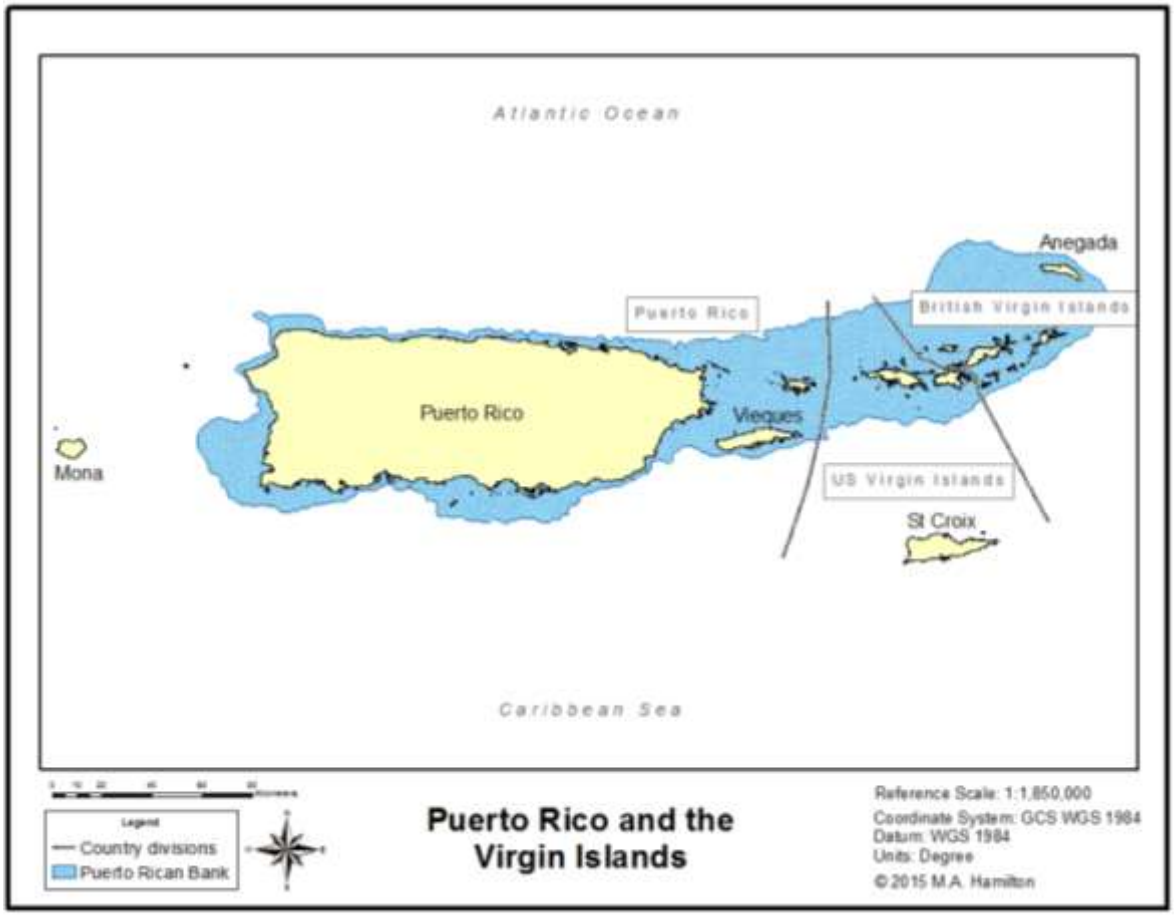

Figure 2: Map of the Puerto Rican Bank.

Kew, MAPR, DRNA and USFWS are providing specialist support to build botanical capacity (Figure 3 and Figure 4 – Left; Annexes 2-5), deploy a botanical database (Figure 4; Annexes 4 and 5) and increase BVI's botanical collections (Table 1; Annexes 2 and 9). The combination of expertise together with a long-standing programme of collaborative work between Kew, Puerto Rico partners and NPTVI has resulted in increased local botanical expertise and will ensure delivery of the project outputs leading to a secure future for BVI's threatened plant species. The training delivered in year one is providing NPTVI staff with the skill set to implement a 'Conservation Strategy' being developed by the project to enhance the ex-situ collections, monitor wild and ex-situ plant health and instigate a well-managed conservation monitoring programme as discussed in subsequent sections. We are consolidating regional collaboration and activity supported by the Puerto Rican Bank Plant Conservation Task force (http://herbaria.plants.ox.ac.uk/bol/prvi) and are establishing a formal steering group (workshop and meeting organised for 18 & 19 April 2016) to ensure sustainability into the future.

Figure 3: Training sessions for NPTVI staff: Dr M. Hamilton leads session at J.R. O'Neal Botanic Garden (L) and J. Velez leads session at MAPR (R).

The new BVI botanical database using Brahms software (http://tinyurl.com/ltsz9v2) is providing a vital new off-line resource at the J.R. O'Neal Botanic Garden (Figure 4 - Right). The system holds all botanical data previously digitised by Kew and NPTVI. The merging of the University of Puerto Rico online herbarium (MAPR) with Kew data and on-going digitisation of the SJ herbarium (see Annex 3) will provide new data to the partners in year two and establish a lasting network for data sharing. The system is already providing information (see Annex 6) necessary for implementing actions to enable long-term conservation of BVI's threatened plant species, the habitats they comprise and the ecosystem services they deliver. This system and the strategy will provide an insurance policy for potential staff turnover and the institutional continuity for sound conservation planning.

Figure 4: Natasha Harrigan (NPTVI) undertaking data collection training at Kew, September 2015 (L) and cleaning field data subsequently collected in BVI within the local database using Brahms software, January 2016 (R).

2. Project Progress

2.1 Progress in carrying out project activities

Please report on the progress in implementing the project's activities for this year. Have the activities been carried out in the manner and time planned? Please substantiate comments with evidence.

- If there have been any changes to your project plan, please provide an updated workplan/timeline as part of Annex I.

The conservation strategy is under development for local implementation through dedicated guidelines detailing the data collection protocol (Annex 10), propagation material collection protocol (Annex 11), nursery production protocol (see Annex 12) and monitoring protocol for health of wild plants and *ex-situ* collections (see Annex 12). The protocols are being developed jointly between Kew and NPT staff to ensure successful implementation. The e*x-situ* collections (seed/nursery) are being strengthened (Table 1) to support conservation, community engagement and future restoration efforts (Figure 5). The J.R. O'Neal collections have been expanded to include several threatened species that were previously not represented (Annex 14). The target list of threatened plant species (see table 1) was developed to provide the basis for collecting the necessary material to meet project Output 2 (see Table 1).

Table 1:BVI target list of threatened plant species showing numbers of populations/islands where the species is recorded and number of ex-situ collections from the populations/islands held in March 2016.

Threatened species name	**Populations/Islands**	**Populations in *ex-situ* March 2016**
Acacia anegadensis	2	1
Argythamnia stahlii	1	1
Bastardiopsis eggersii	4	2
Calyptranthes kiaerskovii	2	0
Calyptranthes thomasiana	2	0
Consolea rubescens	5	0
Croton fishlockii	5	2
Leptocereus quadricostatus	2	2
Machaonia woodburyana	1	1
Malpighia woodburyana	7	1
Mammillaria nivosa	4	2
Maytenus cymosa	1	0
Metastelma anegadense	1	0
Miconia thomasiana	1	1
Neea buxifolia	4	1
Senna polyphylla var. *neglecta*	1	1
Stenocereus fimbriatus	5	2
Varronia rupicola	2	1
Zanthoxylum thomasianum	2	0

Figure 5: Developing the ex-situ collection of the J.R. O'Neal Botanic Garden: (Left) collecting wild material, (Middle) propagating material and (Right) establishing nursery propagated material in the garden.

2.2 Project support to environmental and/or climate outcomes in the UKOT's

The project has provided support to the NPTVI for long-term outcomes for the natural environment through the previously described deployment of the botanical database, training to enable species and habitat monitoring and securing threatened plants in *ex-situ* collections for conservation and future restoration activities. Capacity has been increased within NPTVI to manage environmental assets through bespoke training and site visits with regional and international experts (see Annexes 2-5 & 8).

2.3 Progress towards project outputs

Output 1:	**NPT staff capacity to manage rare and threatened species enhanced**		
Indicator	Baseline	Change recorded by 2016	Source of evidence
1.1 Training programme designed	No programme existed	Training programme designed and agreed	Annexes 2 and 5
1.2 NPT staff attend training courses	Training required	Training delivered and assessed	Annex 5
1.3 Regional workshop organised and knowledge shared	No regional workshop since 2012 and current NPTVI staff did not attend previous	Symposium and Workshop organised and presentations agreed for April 2016.	Biodiversity Without Boundaries 2016 agenda
Output 2:	***Ex-situ* collections strengthened to support conservation**		
Indicator	Baseline	Change recorded by 2016	Source of evidence
2.1 target species list of threatened plants developed	No list available	List developed and species locations available in database.	Table 1
2.2 Seed and live material collections from threatened plants held in *ex-situ*	Few species/populations held in *ex-situ*	13 of the 19 species held in *ex-situ*; 5 of 19 from more than one location.	Table 1
Output 3:	**Conservation Strategy for local implementation**		

Indicator	Baseline	Change recorded by 2016	Source of evidence
3.1 Conservation Strategy locally implemented	No strategy or standards exist	Conservation strategy draft produced for final consultation	Annex 12
3.2			
Output 4:	**BVI Botanical database deployed and populated**		
Indicator	Baseline	Change recorded by 2016	Source of evidence
4.1 Brahms installed on NPT computer Two NPT staff fully trained in database use 3500 BVI records extracted from UKOTs Online Herbarium database imported into BVI Botanical database	No botanical database in BVI; no offline access to existing botanical data; no NPT staff with Brahms experience	Brahms installed on dedicated NPTVI computer at JROBG One staff member fully trained in database management and a further two other staff trained in database use	Annexes 4 and 5 Annex 3 and 7 Annexes 4, 5 and 7

2.4 Progress towards the project outcome

Outcome	Threatened species and their habitats are well maintained and monitored, BVI's botanical capacity is strengthened and a new plant conservation strategy is implemented		
Indicator	Baseline	Change by 2016	Source of evidence
0.1 Threatened species and their habitats are well maintained and monitored.	No monitoring being undertaken and no active management of areas of threatened species habitat.	Monitoring undertaken to enable collection of available material and discussions held about habitat management following site visits in Puerto Rico and BVI.	Annexes 2, 3 and 7.
0.2 BVI's botanical capacity is strengthened and a new plant conservation strategy is implemented.	Botanical capacity lacking and no protocols to establish plant conservation strategy.	Botanical capacity increased through overseas training for one staff member and in-country training for four staff; Draft protocols produced.	Annexes 2, 3, 4, 5 and 7. Annexes 10, 11 and 12.
0.3 Secure access to botanical resources through enhanced data systems developed and skills acquired.	Lacking access to botanical resources in BVI.	Copies of all Kew data/images and important botanical literature provided to NPTVI electronically and in hard copy (where available).	Annexes 3 and 4.
0.4 Consolidated	Lacking regional	Four Puerto Rican	Annexes 1, 2, 3

regional and international partnerships empower BVI partners to secure biodiversity into the future.	partnerships.	partners fully engaged with project to provide training and support for NPTVI. Regional workshop planned for April 2016.	and 8. Project partners attend the "Biodiversity Without Boundaries Conference" from 18-22 April 2016.

The project has developed the critical regional partnerships (see 0.4 above and section 3) to provide the necessary training (see Annexes 3 and 5) and on-going support for NPTVI to implement the drafted protocols and develop a conservation strategy that will ensure BVI's threatened species and their habitats are well maintained and monitored.

2.5 Monitoring of risks

The project application identified three risks: (1) Hurricane impacts local infrastructure and delays project implementation; (2) No wild plant material available for collection; and (3) Trained staff leave NPT. Fortunately, no hurricanes or major storm events were experienced in year one; however, a severe drought in the Caribbean during late 2014 and throughout 2015 significantly impacted the projects ability to collect material for *ex-situ* collections. To ensure that training was reinforced and to embed workflows, the project team decided that collections of native species with available seed not on the target list should be collected. This allowed the implementation of the protocols (Annex 12) and brought in new collections of plants. Threatened species from the target list were collected whenever possible using asexual methods with project staff monitoring threatened plants during the drought. Although not ideal, the project was able to secure new material and implement workflows designed through the protocols (see Annex 12). A member of staff left NPTVI prior to the start of the project (see section 7 below), but the project team were able to turn this into opportunities for other staff to undergo training in BVI (see Annex 2, pg 10-19).

3. Project Stakeholders/Partners

Kew were able to fully engage new partners at DRNA, USFWS and FLMM in the project through ongoing work in Puerto Rico, bringing a wealth of new botanical expertise on-board. The named project partners and the newly engaged partners worked closely together from the start of the project to organise training and field activities (see Annexes 2-4 and 8). Formal project steering group meetings were held twice in the first year (see Annex 2 pg 35 - Appendix 3: DPLUS 030 planning meetings and Annex 7) as well as regular informal communications via email and Skype.

Figure 6: Project partners from Kew, DNER, NPTVI, MAPR and USFWS at Sage Mountain National Park, BVI

The project partners were able to undertake highly collaborative fieldwork (Figure 6, see also Kew Twitter #KewBVI and #Kew PR) and training sessions (see Annex 4) that led to new discoveries (see Annexes 2 and 6) and strengthened capacity for NPTVI staff (see Annex 7).

The BVI public was engaged through local (see Annex 6) and social (see NPTVI Facebook and Kew Twitter) media. NPTVI also gave presentations and set-up displays about the project and threatened species at annual events (Arbor Day, Flower Show) at the JROBG. The BVI government were engaged through formal channels (Annex 1) and informal channels (see NPTVI Facebook and Kew Twitter) using targeted communications.

4. Monitoring and evaluation

As discussed in section 3, the partners are all involved in M&E through formal (Figure 7) and informal communications. Tracking achievements is done through direct communication with NPTVI staff and reviewed during steering group meetings (see Annex 7). Project reports, minutes of meetings and relevant correspondence is circulated to all partners. The steering committee have agreed that the current M&E is working well and no changes are planned.

Figure 7: Project partners meeting in June 2015, J.R. O'Neal Botanic Garden, Tortola, BVI.

5. Lessons learnt

Our formal steering group meetings have worked very well to ensure all partners understand the project, the outputs and the expected outcome. Informal communications have also been very effective, especially planning for our successful field visits and training sessions; however, some of our remote meetings (via Skype) have often been difficult to organise due to time differences. Good organisation and advanced planning is crucial for all partners to be engaged. The steering committee have agreed further meetings and travel for year two well in advance to help overcome some of the planning issues.

BGCI's developing publication *'From Idea to Realisation – BGCI's Manual on Planning, Developing and Managing Botanic Gardens'* is expected by mid-2016. The project steering group is awaiting this publication before finalising the protocols and overall strategy as the new publication is expected to include updated and relevant information that will contribute significantly to the project outputs. This has meant a delay in our final document, but it hasn't hampered progress as a draft document has been circulated to the partners and workflows are being implemented.

6. Actions taken in response to previous reviews (if applicable)

N/A

7. Other comments on progress not covered elsewhere

After securing project funding, two significant changes occurred. First, one of the NPTVI staff members identified for overseas training left the organisation. Second, Kew were able to fully engage other Puerto Rican partners in the project as described in section 3 above. The steering committee agreed to expand the training opportunities for NPTVI staff locally by bringing Puerto Rican partners to BVI. This was accomplished by only sending one NPTVI staff member overseas for training (Annexes 4 and 5). The result has been training and networking for many more NPTVI staff than originally planned in year one (see Figure 3 and Figure 6).

Major software upgrades for Brahms undertaken by Oxford University had significant impacts on the project, specifically for the living collections module. The upgrades required the existing living collections data to be manually migrated to the new platform with direct input from Oxford. Following migration, manual data editing and checking was required by Kew staff. This unforeseen upgrade and unavoidable manual work required the project to delay training of NPTVI staff on the module and delay the migration of the nursery data management fully to Brahms. To ensure records where captured electronically and available for migration to Brahms in year two, an interim workflow using an Excel workbook (Annex 11) was implemented to capture data previously recorded on paper or not at all.

8. Sustainability

The project is seen as a fundamental source of information and capacity building for the NPTVI by local government. This has been highlighted several times during discussions and planning meetings with the Acting Director of the NPTVI. The time dedicated to the project by NPTVI staff for training and fieldwork demonstrates the local commitment to the project. The on-going regional communication (see Annexes 2, 3, 4 and social media) and capacity building (also see Annex 5) demonstrate the increased interest and capacity. The project has been well received locally and publicised in the local press (see Annex 6).

The originally proposed exit strategy is still valid and no changes are planned. The systems developed will be managed and maintained locally following delivery of the agreed training. This will ensure a sustained legacy for the project and will deliver the project outcome to ensure that the BVI's threatened species and their habitats are well maintained and monitored.

9. Darwin Identity

The Darwin Initiative was acknowledged and the logo was used on BVI Government (see Annex 1) and press briefing documents, all project reports (see Annexes 2 & 3) and presentations (see Annex 4) about the project. Tweets about the project included the @DarwinDefra (where character limits allowed) and/or the hashtag #KewBVI &/or #KewPR.

The Darwin Initiative funding was recognised as a distinct project with a clear identity through all reports, press releases and presentations delivered. The Darwin Initiative is well understood

in BVI due to the previous projects funded in the territory and the efforts of the NPTVI and Kew to promote this important funding source for the UKOTs.

10. Project Expenditure

Table 1 Project expenditure <u>during the reporting period</u> (1 April 2015 – 31 March 2016)

Project spend (indicative) in this financial year	2015/16 D+ Grant (£)	2015/16 Total actual D+ Costs (£)	Variance %	Comments (please explain significant variances)
Staff costs			3% (377)	Lower costs as one member of Kew team funded from other source.
Consultancy costs	0	0		
Overhead Costs			7% (337)	Lower costs as one member of Kew team funded from other source.
Travel and subsistence			1% (-441)	Higher cost due to weaker pound.
Operating Costs	0	0		
Capital items	0	0		
Others (Please specify)	0	0		
TOTAL			0.5% (273)	£273 will not be claimed for year 1 due to above variances.