



## Darwin Initiative Annual Report



Department  
for Environment  
Food & Rural Affairs

**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 Project Information

Project Reference	DPLUS012
Project Title	Conserving plant diversity and establishing ecosystem based approaches to the management of forest ecosystems in the British Virgin Islands
Host Country/ies	British Virgin Islands
Contract Holder Institution	National Parks Trust of the Virgin Islands (NPTVI)
Partner institutions	Royal Botanic Gardens, Kew (Kew)
Darwin Grant Value	£83,915.00
Start/end dates of project	1 <sup>st</sup> July 2013 – 31 <sup>st</sup> March 2015
Reporting period (eg Apr 2013 – Mar 2014) and number (eg Annual Report 1, 2, 3)	April 2013 – April 2014, Report 1
Project Leader name	Joseph Smith Abbott, Director
Project website	<a href="http://bvinpt.org">http://bvinpt.org</a>
Report author(s) and date	Nancy Pascoe, NPTVI Joseph Smith Abbott, NPTVI Dr. Colin Clubbe, Kew Martin Hamilton, Kew Tom Heller, Kew 17 <sup>th</sup> April 2014

### 1. Project Rationale

This project aims to map BVI's terrestrial ecosystems, specifically vegetation habitats, using Geographic information systems (GIS). There is no existing base map of this type that has been groundtruthed for the BVI, only a satellite based survey produced by the University of Colorado in 2008. The project was entitled 'Mapping land cover and estimating forest structure using satellite imagery and coarse resolution lidar in the Virgin Islands'. The United States Virgin Islands (USVI) were the main focus of this study but due to the close geographic proximity of the BVI to the USVI the University of Colorado team also interpreted the satellite imagery for the BVI, thereby creating a GIS map but the groundtruthing in the field only took place in the USVI. This Darwin Plus project will therefore fill this gap and conduct the field work to groundtruth the satellite interpreted map in order to create an accurate portrayal of the BVI's vegetation habitats.

This GIS map will then be used to inform gaps present within the protected area network that the National Parks Trust of the Virgin Islands (NPTVI) manages once important plant areas have been identified. The distribution of endangered and endemic plant species are also being

mapped in the GIS, which is building a picture of critical areas to include in an expanded proposed protected area network. This gap analysis is relevant to the entire BVI territory as development continues to increase at a steady pace with entire islands for sale and the subdivision of previously undeveloped lands. Many islands in the BVI have not been formally assessed for plant diversity in modern times, with only historical herbarium records stored at Kew from the period when W. C. Fishlock conducted botanical work in the BVI, in the early 1900s. The NPTVI and Kew have undertaken more focused botanical surveys on the islands of Anegada and Virgin Gorda under previous UK funded projects but a territory wide assessment was outstanding.

There is currently no management plan for forests within the BVI protected area network and this project will inform the creation of a draft management plan, based upon the IUCN ecosystem based approach. This will assist the NPTVI in managing these important habitats and also provide guidance to the Town and Country Planning Department of the BVI Government during the development planning process, as there will be guidelines created that can be applied to the management of these habitats within private lands also.

This project also aims to strengthen the *ex-situ* conservation role of the JR O'Neal Botanic Gardens (JRONBG) as more threatened native species from forest ecosystems are incorporated into the collections as part of the field work that is being undertaken. This includes the collection of seeds and cuttings that can be propagated at the JRONBG.

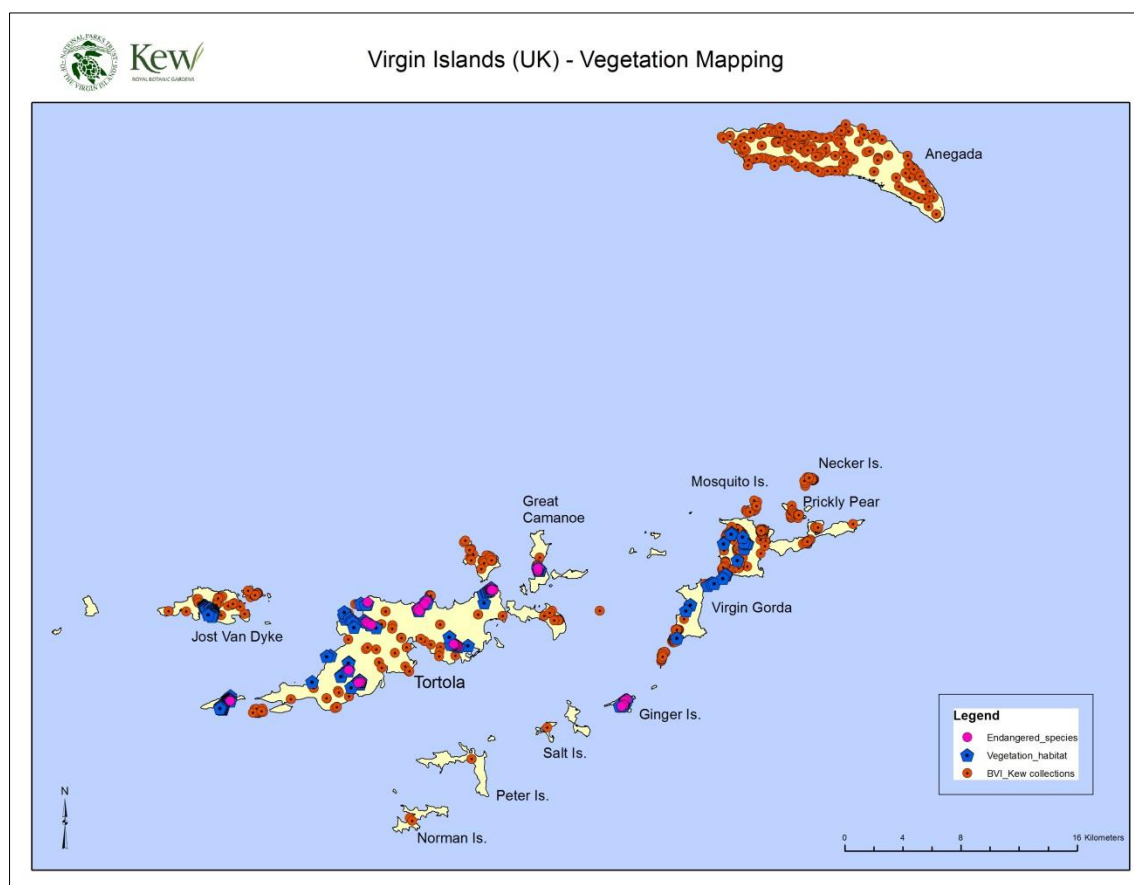


Figure 1. The BVI consists of over 60 islands and cays with limited plant research on many of the outlying cays, this project is addressing the gap

## 2. Project Partnerships

This is a highly collaborative project between the NPTVI and Kew, further strengthening a partnership that began in 1998 under a previous Darwin project. The collaboration under this project began during project inception when a thorough review of all previous research was discussed and the gaps identified for future research that would assist the NPTVI in achieving its goals of expanding its protected area network to include important plant areas and to better

understand the distribution and conservation status of endangered and endemic plant species across the Territory.

Once the project was successfully approved by Darwin Plus the project team at NPTVI and Kew met in December 2013 in the BVI to formalise the methodology of the field work and the standards to be used for the habitat classification. Kew was very keen to ensure that NPTVI selected the most suitable habitat classification for its conservation management goals and that its use beyond the project life would be the most relevant to local needs.

Kew has continued to provide valuable advice and guidance throughout the field work when in country and remotely from the UK, for instance assisting with the identification of plant species as the NPTVI team places photo images in a Dropbox account that has shared access by all partners.

Kew visited the BVI in March 2014 for a two week field visit that included all of the 6 NPTVI team members. During this visit training was conducted in recognising key indicator species of forest health, seed collecting techniques, herbarium sampling techniques and general plant identification training. These specific areas were focused on at the request of NPTVI as field visits are conducted weekly even when Kew are not in country and so the NPTVI team needed to ensure continuity in methodology and quality of work.

### **3. Project Progress**

Project activities began in July 2013 with a visit from Kew staff (Martin Hamilton, Marcella Corcoran and Sara Barrios (6<sup>th</sup> July – 28<sup>th</sup> July), which contributed to the project activities but was funded by a grant sourced by Kew as part of the OTEP project XOT802, 'Achieving GSPC Target 2: the UKOTs plant species Red List.'. Two weeks of field work were spent recording and collecting threatened species on Tortola, Great Camanoe and Fallen Jerusalem. During this time live collections of seeds, cuttings and plants were made for inclusion in the conservation nursery at the JRONBG and herbarium collections were made for use at Kew, with copies for the JRONBG.

Desktop exercises began in August 2013 with NPTVI reviewing the existing GIS data from previous vegetation mapping projects, resulting in the creation of a single Vegetation Mapping database with all datasets combined, including the University of Colorado satellite base maps that will be groundtruthed.

The first formal project in-country team visit took place with Martin Hamilton from Kew visiting from 2<sup>nd</sup> – 14<sup>th</sup> December 2013 to engage in technical planning discussions with NPTVI and other relevant Government Departments in order to prepare the baseline information that would be required for the GIS analysis. Permissions were granted by these departments which enabled NPTVI to share base maps in the GIS with Kew that would be essential for the project implementation. Martin Hamilton also assisted NPTVI in developing a list of renovations at the JRONBG to create a dedicated office for the plant conservation work, drying of herbarium specimens and seed drying. As a result the old Curator's office at the JRONBG was successfully renovated by NPTVI and was fully functional by the next visit of the Kew team in March 2014.

In mid-January 2014 the NPTVI began weekly field visits across the Territory to groundtruth the vegetation, collect seeds and herbarium specimens and search for endangered species. As per the map in Question #1, sites were visited on Tortola and also the sister islands of Virgin Gorda, Ginger Island, Jost Van Dyke and Great Thatch prior to Kew's March visit. In March 2014 a team of three from Kew visited the BVI from 12<sup>th</sup> to 29<sup>th</sup> March, including Dr. Colin Clubbe, Martin Hamilton and Tom Heller. The latter's participation was to ensure greater focus on the seed collection aspect of this project and also the parallel Darwin project NPTVI is involved in with Kew, DPLUS006 'Seed conservation in the Caribbean UK Overseas Territories', thereby maximising efficiency of project funding for both projects.

During the March 2014 visit the Kew and NPTVI team made great progress with achieving many of the project objectives for collecting live collections, herbarium specimens and seed collections.

Progress on mapping the distribution of threatened species has been extremely successful, with Kew and NPTVI recording these finds in the GIS. When a threatened species was encountered the Kew team would collect DNA samples and a herbarium specimen was also collected, in addition to live material whenever possible for the JRONBG. The NPTVI and Kew team were successful in discovering new populations of threatened species on Tortola during this visit, such as *Eugenia sessiliflora*, and *Bastardiopsis eggersii*. On Anegada the only known island endemic *Senna polyphylla* var. *neglecta* was targeted for monitoring by the Kew team on a visit to the island, with two new sub populations discovered.

Since the March Kew visit the NPTVI team has continued its weekly field trips, focusing on sites on Tortola and Virgin Gorda, in order to revisit threatened species for seed collections and to visit areas recommended by Kew as they are likely habitats for key threatened species. The NPTVI team have had three major finds including the discovery of *Croton fishlockii* and *Zanthoxylum thomasianum* on the north-eastern coast of Tortola (in April 2014), and the largest known global population of *Bastardiopsis eggersii* on Ginger Island (in March 2014). The phenology of these and other endangered species are being recorded as part of the GIS mapping process.

### **3.1 Progress in carrying out project activities**

#### Output 1: Ecosystem and vegetation maps produced for the BVI

Activity 1.1: Conduct desktop analysis of University of Colorado satellite data vegetation map in GIS, overlaying all existing GIS related plant data and existing aerial photos for the BVI

NPTVI was responsible for this action which entailed reviewing an existing satellite interpreted GIS map that was created by an external source, the University of Colorado, but had not been groundtruthed. NPTVI overlaid all of the plant data that has been gathered from previous Darwin funded projects to determine the areas that have been groundtruthed locally in order to determine the remaining areas that should be assessed through this Darwin Plus funded project. The majority of work had been done on Anegada and Virgin Gorda, with some other areas visited as part of ongoing field work with Kew to determine locations of endangered and endemic species. Figure 1 indicates how all existing GIS data is compiled into one map to show historic and current research. The island of Anegada has received the most research in the past and so the sister islands of the BVI will be the focus of this Darwin Plus project.

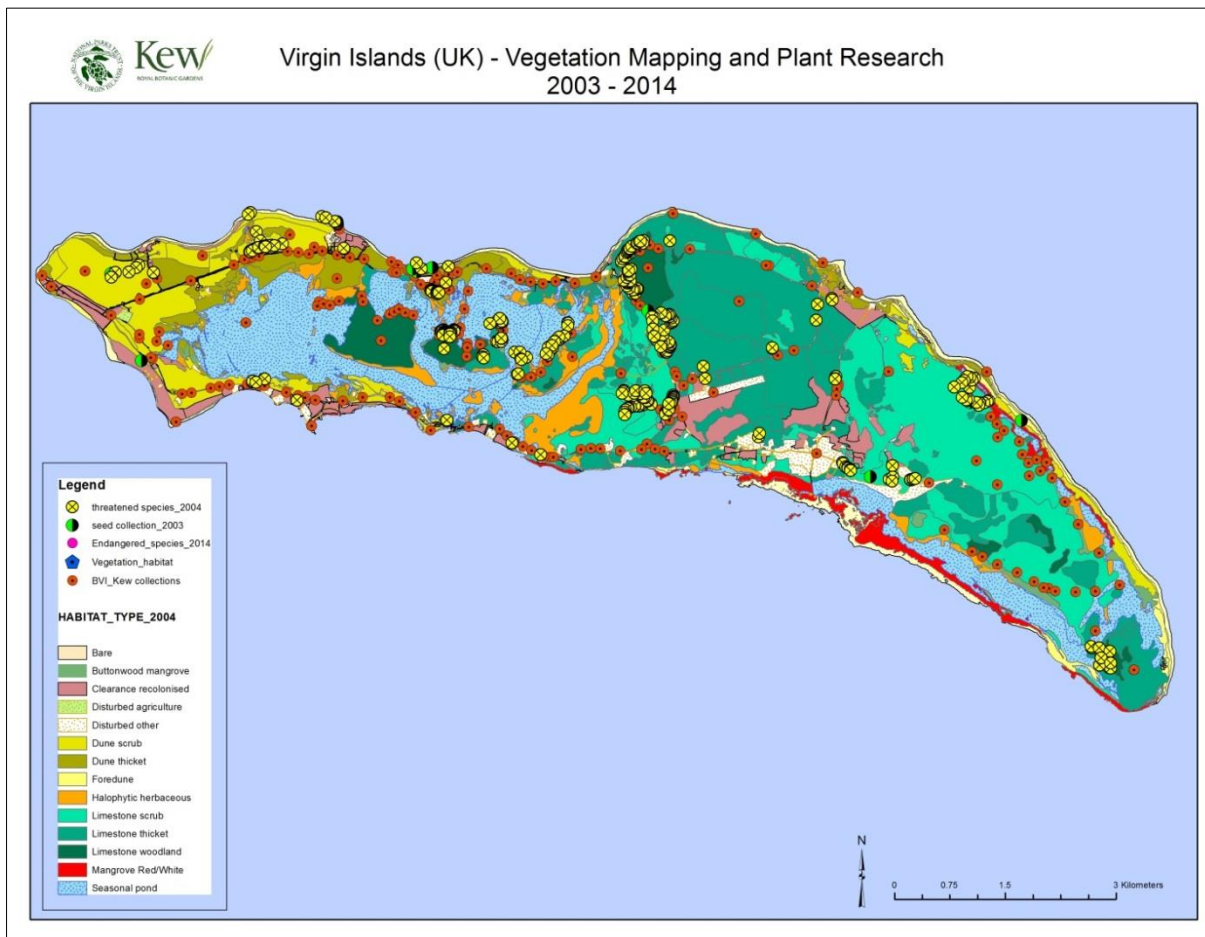


Figure 2. Map of Anegada showing all vegetation research from 2003 - present

**Activity 1.2: Conduct workshop to review available GIS maps, determine terminology to use in the mapping process and to create a protocol for the mapping process**

Martin Hamilton, Kew visited the BVI from 2<sup>nd</sup> – 14<sup>th</sup> December, 2013 to engage in technical planning discussions with NPTVI and other relevant Government Departments in order to prepare the baseline information that would be required for the GIS analysis. Letters seeking permission to share GIS data created by other Government Departments were sent out and permissions received in January 2014, permitting NPTVI to share GIS files for use in this project.

A protocol for the mapping process was discussed during this two week visit and GIS applications were created by both Kew and NPTVI for staff use in the field on handheld GPS devices.

**Activity 1.3: Groundtruth survey of University of Colorado vegetation map to confirm habitat type and identify species composition, through plant surveys (on every island in the BVI). A representative and statistically appropriate number of points will be ground truthed to ensure accuracy**

This is an ongoing activity informed by the field visits conducted weekly by NPTVI and during the in-country visits by Kew. The NPTVI team has been targeting the sister islands in the BVI that have not been visited before during previous projects to ensure that the diversity of habitats and ecosystems is included in the survey. This will continue, especially as access by sea will be easier as the winter swells subside as the summer months approach.

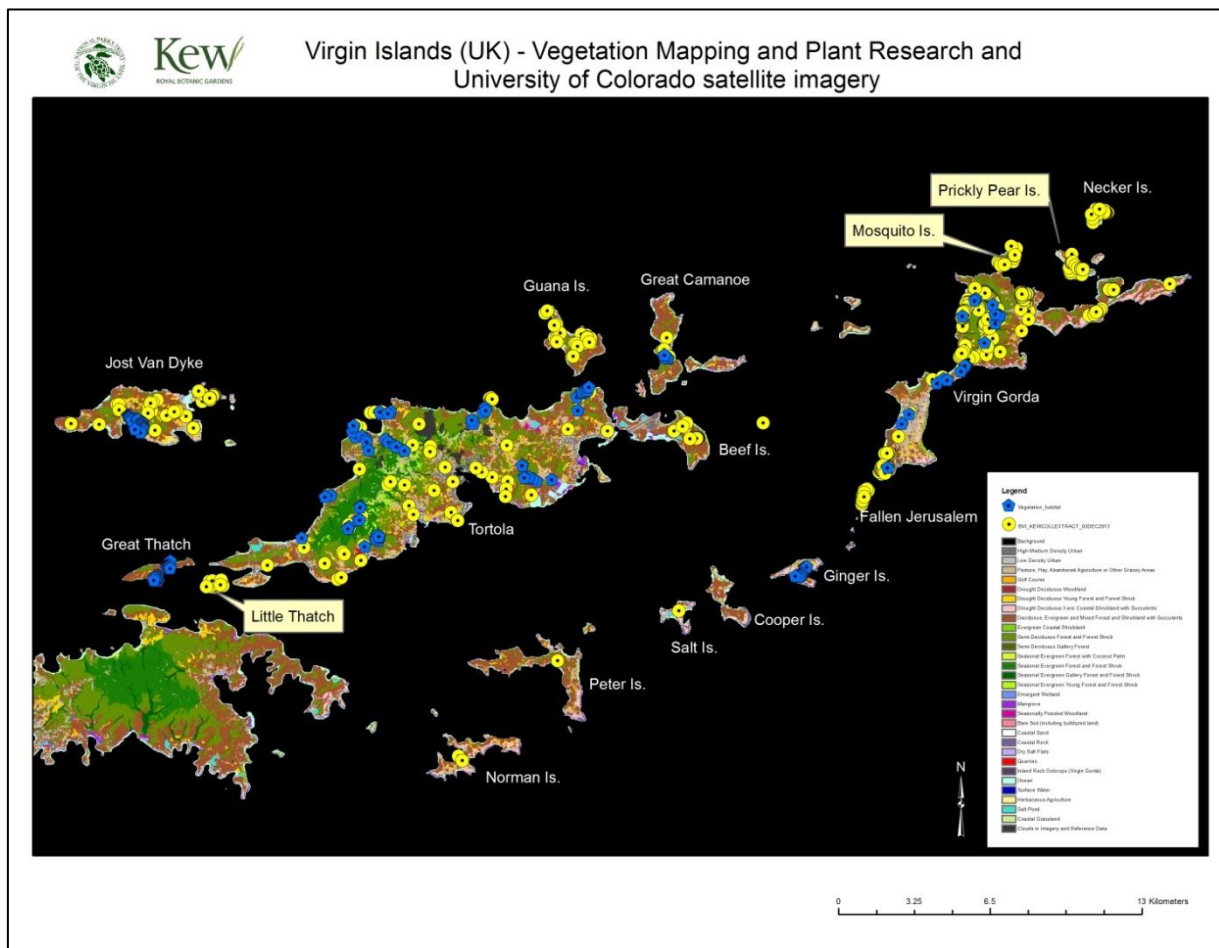


Figure 3. GIS map with University of Colorado study Landsat ETM+ imagery (2008) overlaid with NPTVI and Kew vegetation mapping points

Output 3. Gaps in existing *ex-situ* collections of JROBG threatened species identified and filled

**Activity 3.1: Conduct field work to collect 100 *ex-situ* collections for JRONBG**

Eighty-four (84) new *ex-situ* plant collections for the JRONBG have been made to date by the Kew and NPTVI team. As field work continues in 2014 the proposed output of 100 *ex-situ* collections will be met and surpassed in an effort to create as much diversity of native species in the JRONBG.

**Activity 3.2: Conduct survey of existing collections at the JRONBG and update existing GIS map and plant list**

NPTVI staff visually assessed the existing composition of plant collections, listing species within the beds throughout the JRONBG and updating an existing GIS map for the garden layout. This task is ongoing as signage has been lost for some of the plant species and confirmation of species type was unknown. The recently hired NPTVI staff member in charge of the plant nursery, Natasha Harrigan, will be responsible for completing this activity. Kew assisted with the survey of the existing collections at the JRONBG and updated the Kew's Brahm's plant database that the UKOTs Online Herbarium uses, which was started by Kew during 2011 fieldwork, by the Royal Horticultural Society.

Output 4: Herbarium specimen vouchers collected and accessioned

**Activity 4.1: Conduct field work to collect 200 herbarium specimen vouchers**

Two hundred and six (206) herbarium specimen vouchers have been collected in Year 1 by the Kew and NPTVI team, which has already exceeded the proposed output of 200 specimen

vouchers. Five NPTVI staff have received training in herbarium specimen collection as part of this project. Two of whom had received previous training under past Darwin funded projects and refresher training was provided, one new member of NPTVI staff who began employment in March 2014 and two existing NPTVI staff who are being trained under this project.

#### Output 5: Phenological studies of threatened species undertaken

##### **Activity 5.1: Conduct field work to study phenology of 15 threatened species**

This activity is ongoing as threatened species are discovered in the field; data is collected on the GPS units to record whether a plant is in flower, fruit or seed. The GPS location, date, landscape features are also recorded to build a picture of the time of year and environment in which the plant is found. This information then guides seed collection and the schedule of visits the NPTVI team will make. To date at least 18 threatened species have had their phenology recorded across the BVI by the NPTVI and Kew teams.

#### Output 6: Draft management plan for forest ecosystems produced

##### **Activity 6.1: Conduct literature review of existing recommendations for management of forest ecosystems in the BVI and other island systems based upon existing projects (eg. CFD's watershed management project)**

The preliminary literature review has been conducted with the compilation of all known publications pertaining to BVI forest ecosystems. These documents and reports have been stored in digital format on the NPTVI server and include island environment profiles compiled by other agencies, environmental impact statement reports submitted by private consultants as part of development projects and other species inventories compiled by researchers historically.

#### Output 7: Flora inventories for select parks and ecosystems outside the existing protected area network completed and entered into database

##### **Activity 7.1: Collate plant lists acquired in output 1 with existing inventories**

Draft species lists were compiled by the Kew team during the March 2014 visit for two national parks: Shark Bay and Cam Bay at Great Camanoe. Previous work by Kew and other researchers will be compiled to produce a plant inventory for Sage Mountain and Gorda Peak National Parks in the upcoming project year.

### **3.2 Progress towards project outputs**

Progress has been made on all of the seven project outputs and NPTVI is confident that all will be successfully achieved by the end of the project. NPTVI have set the project activities as a high priority in the staff's work plan and have set a schedule of weekly field visits that has been maintained, with field visits comprised of a team of six NPTVI staff. The team divides the tasks of habitat mapping and herbarium specimen collection, but all of the team assist with seed collection to ensure maximum numbers of seeds are retrieved from available sources. The weekly visits will continue for the entire year of 2014, with daily field visits scheduled during the periods when the Kew team are in country. This is a major commitment by the NPTVI as staff is still expected to perform their normal job duties outside of this project.

NPTVI is very pleased with the enthusiasm of its field team, with the newest team member who was hired in March 2014 to work in the JRONBG nursery displaying a very high level of commitment and success in learning hands on field techniques from the Kew team. This will ensure that all conservation related activities derived from this project will continue beyond the project's life.

Output indicators can be measured easily by the presence of new live collections at the JRONBG, the number of herbarium specimens at Kew and the JRONBG, the quantity of seeds

collected and sent to the Kew Millennium Seed Bank project. The GIS data can be quantified by the number of GPS points collected for groundtruthing the University of Colorado satellite map and the number of GPS points collected for endangered species distribution.

### **3.3 Progress towards the project Purpose/Outcome**

Progress in achieving the expected project outcome is very successful, as the Kew and NPTVI team have already been able to identify new important plant areas that should be included in an updated Protected Areas System Plan, based on the new discoveries made in the last five months. This information is already of use for development planning as one of the offshore islands, Ginger Island that was visited by the NPTVI team contains the largest known global population of *Bastardiopsis eggerrisii* but is privately owned and is for sale, with plans for development. The GIS mapping that NPTVI has done of the distribution of this and another threatened species *Malpighia woodburyana* will be used as part of discussions with the proposed owners to relocate the development away from these important plant areas. This directly supports the desired project outcome of improving decision support mechanisms reliant on GIS to facilitate decision making related to biodiversity conservation and development planning.

The number of live collections, cuttings and seeds of native plant species that have already been made in the first project year and that will continue to be collected throughout the project has already resulted in the creation of a new conservation and threatened plant display within the JRONBG. This has been showcased at two press events for this Darwin Plus project and is an important education tool for the BVI community in order for the public to learn to identify what these species look like and to understand how rare they are and why there is a need to protect them *in situ* on private lands and in new national parks and *ex situ* at the JRONBG. This directly addresses the expected outcome of strengthening the role of the JRONBG from an aesthetically appealing garden for visitors, into a replica of the natural habitats around the BVI with greater emphasis on native species and fewer exotics.

The creation of a new office and botanical centre within the JRONBG for NPTVI and Kew to process seed collections and herbarium specimens will ensure a dedicated area for these activities in an environment that is conducive to their success, ensuring the correct humidity and temperature. This has been achieved by the renovation of the old Curator's office that was completed by March 2014 and has been in active use since its completion.

Whilst the management planning aspect of the project has not yet begun, NPTVI has experience in producing management plans, having completed at least four management plans for two proposed and two existing national parks in the BVI. The NPTVI is well versed in the ecosystem based approach to developing management plans, having previously hosted a workshop with the Royal Society for the Protection of Birds (RSPB) in 2012 on this topic. NPTVI has a long history of stakeholder consultation, and has established relationships with public and Government stakeholders that will ensure a successful consultation period in order to present the proposed expansion of the protected area network to include important plant areas identified through this project.

### **3.4 Goal/ Impact: achievement of positive impact on biodiversity and poverty alleviation**

The project's original goal to deliver against the priority issues in the assessment criteria is as follows:

Clear and measurable outcomes delivered in this project include: an improved GIS framework to support development planning and biodiversity conservation; enhanced *ex-situ* collections and herbarium specimen vouchers collected and its data widely available through the UKOTs Online Herbarium; improved management planning framework for forests based on ecosystem-based approaches. These will all assist in the achievement of long term strategic objectives as it is a legal requirement under the NPT Act 2006 for the System Plan of Protected Areas (approved by Cabinet in 2008) to be updated periodically to ensure representativeness and



inclusion of areas to maintain ecological processes. As mentioned in #21 (above) the NPTVI undertook an assessment of the marine environment to inform the System Plan but this has not been done for the terrestrial environment since the plan's first version in 1981.

The project is contributing to this higher goal by the successful creation of plant checklists from national parks, GIS mapping of the distribution of threatened species across the BVI on private and public lands, and the identification of important plant areas as described in Outputs 1 and 2. The NPTVI is a member of the BVI Government National GIS and shares all GIS data with the other member departments. The completed GIS vegetation map will be shared with the NGIS members for use in national planning and conservation activities, such as watershed management by the Conservation and Fisheries Department, development planning by the Town and Country Planning Department.

Output 3 addresses the previous situation that the JRONBG faced with too many exotic species and not enough representation of native species within the botanical collections and for sale or free distribution to the public during the annual Arbour Day activities. The increasing number of live collections, cuttings and seeds collected during this project's field work for the JRONBG nursery is altering this status to achieve this higher biodiversity conservation role.

Outputs 4 and 5 are contributing to a better understanding of the BVI's threatened plants, the variety of habitats that they live in and the phenological studies will help to guide future NPTVI field work so that Park Wardens can incorporate seed collection and phenological survey work into their daily activities based on the correct time of year to target certain species. Whilst project activities for Outputs 6 and 7 are still in the early phases, once completed they will directly contribute to the higher goal as the creation of a management plan for forest ecosystems will ensure that best management practices are followed within the network of protected areas and are incorporated into staff's daily, weekly and annual activities.

#### **4. Project support to the Conventions (CBD, CMS and/or CITES)**

This project assists the BVI in meeting its obligations under the Convention on Biological Diversity (CBD) by addressing two of the Aichi biodiversity targets.

The goal of mainstreaming biodiversity across government and society identified in Aichi Target #2, 'biodiversity values have been integrated into national and local development and planning processes..' as this assessment of terrestrial ecosystems is quantifying in measureable terms ecosystem coverage and will contribute to the valuation process being undertaken through the JNCC project 'developing an ecosystem based decision support tool'.

Aichi Target #19 'knowledge, the science base and technologies relating to biodiversity, its values...status and trends, and the consequences of its loss' will also be met as this project focuses at the ecosystem level and the use of GIS promotes better understanding of the remaining distribution and condition of threatened habitats and species using an interactive and visual technological platform.

The NPTVI has not had any direct contact with CBD focal points within the last 12 months.

#### **5. Project support to poverty alleviation**

Whilst this project did not state any activities or outputs directly linked to poverty alleviation, through the course of field work it has become apparent that the biodiversity information being generated about the BVI's natural environment on private and public lands will be very beneficial to local tour operators, small hotels and tourism based businesses who can use this information to better promote their natural habitat, especially if threatened species are found on their properties. For example, the Kew and NPTVI team visited the property of a hotel on Virgin Gorda in December 2013 in order to map the location of a number of threatened species along a trail the hotel had cut as a recreation activity for guests, but without any knowledge of the significance of the plant species. With signage and interpretation this can become a feature of the trail and a unique attribute to the hotel with the potential to increase their business.

Whilst the BVI does not suffer from true poverty related issues there is a disparity in the distribution of wealth and small local tourism businesses are at a disadvantage compared to

larger, wealthier tourism facilities. There is an increasing trend in showcasing the BVI's biodiversity and the BVI Tourist Board strives hard to reflect the unique nature of the BVI's natural environment.

## **6. Monitoring, evaluation and lessons**

As mentioned previously the project is easy to monitor as outputs and activities are measurable and can be directly linked to the project's outcome statement. The project has progressed as planned to date, with some technical difficulties with the NPTVI's existing GPS equipment, but this will be resolved when the three new GPS units that have been ordered through project funding arrive in May 2014.

There have been no changes to the monitoring and evaluation aspect of the project.

## **7. Actions taken in response to previous reviews (if applicable)**

This question is not applicable.

## **8. Other comments on progress not covered elsewhere**

The project design has not been altered in any way. The only risk to field work is the onset of the hurricane season that may prevent some of the weekly visits, but any time lost can be made up in additional field days.

## **9. Sustainability**

The project has a public profile by the very nature of the field work, as the NPTVI team goes out weekly and always strives to engage the local community whilst in the field, explaining what the team is doing, requesting permission to cross private lands, teaching land owners about threatened species they may have on their property and what they look like. The Governor of the BVI, His Excellency Boyd McCleary is particularly interested in this project and came out into the field with the Kew and NPTVI team during the March 2014 Kew visit. He also invited the team to Government House to seek advice on the garden there as it was thought that some trees had been planted during the period when Kew botanist W.C. Fishlock resided in the Territory in the early 1900s. This high level of personal interest in the project attracts media attention and ensures the project profile is high.

The exit strategy for the project is in place as the GIS ecosystem map will continue to be updated and groundtruthed by incorporating this activity into the annual work plan of NPTVI, ensuring increased accuracy of this valuable base map, and updates to critical areas. The cost of this activity will be included in the annual budget of the organisation.

As previously mentioned NPTVI is a member of the National GIS committee of the BVI Government and this group meets monthly to discuss all GIS related activities members are engaged in. There are 15 different Government Departments represented on the NGIS committee and all have been regularly updated at monthly meetings on the project progress. There is great interest in this project as the vegetation map can be used by many Departments for a variety of projects, such as the Department of Disaster Management for flood hazard risk, and the Town and Country Planning Department for sustainable development of the BVI.

The areas identified for inclusion in a revised terrestrial protected area system plan and the draft forest ecosystem management plan will be pursued for declaration by NPTVI following the legal process specified in the NPT Act.

Members of NPTVI staff trained in ecosystem mapping, plant surveys, live plant material and herbarium collections will share their skills with other members of staff, thereby increasing institutional capacity locally.

The long standing working relationship between NPTVI and project partners at Kew will continue, therefore phenological studies and the herbarium and *ex-situ* collections will be

maintained. The UKOTs Online Herbarium is maintained as part of Kew's core commitment to the UK Overseas Territories.

## 10. Darwin Identity

The name of the Darwin Initiative Fund is very familiar to the BVI public as NPTVI has been involved in two previous Darwin funded projects, with the local media very enthusiastic to promote the findings of research activities, using the Darwin Initiative Fund name in all publications.

Two press events have been held in this first project year, in December 2013 and March 2014, both events were held at the JRONBG and featured the Darwin logo with Kew and NPTVI's on all project presentations and the name Darwin Initiative is always mentioned alongside the project name in any communication verbally and in printed media, such as the NPTVI Facebook page and website.

The BVI's primary tourism magazine 'The Welcome' has also drafted an article for the upcoming winter season featuring this Darwin Plus project and the field visits by Kew and NPTVI.

## 11. Project Expenditure

**Table 1 project expenditure during the reporting period (1 April 2013 – 31 March 2014)**

Project spend since last annual report	2013/14 Grant (£)	2013/14 Total actual Darwin Costs (£)	Variance %	Comments (please explain significant variances)
Staff costs (see below)				NPTVI added additional human resources and time to achieve project goals. The additional costs are the Trusts' in kind contribution to the project.
Consultancy costs				
Overhead Costs				
Travel and subsistence				
Operating Costs				
Capital items (see below)				GPS equipment and software for NPTVI team to make GIS maps
				NPTVI match fund for boat costs to sister islands
<b>TOTAL</b>	<b>41, 259.00</b>	<b>42, 714.32</b>		

**12. OPTIONAL: Outstanding achievements of your project during the reporting period (300-400 words maximum). This section may be used for publicity purposes**

I agree for the Darwin Secretariat to publish the content of this section (please leave this line in to indicate your agreement to use any material you provide here)

As previously mentioned in question 3.3 the field work associated with this project has revealed exciting botanical discoveries for the BVI, the expertise of the Kew team has been invaluable in progressing the project's outputs and in training the NPTVI team to be able to continue the field work year round. Through Kew's guidance on suitable habitat to visit for potential threatened species, the NPTVI team successfully identified the largest known global population of *Bastardiopsis eggerrsi* on Ginger Island, in addition to the largest known population of *Malpighia woodburyana* in the BVI. Additionally in April 2014 the team discovered the first modern day record of the BVI endemic *Croton fishlockii* on Tortola and in the same location discovered the Puerto Rico Bank endangered species *Zanthoxylum thomasianum* for the first time on Tortola, thereby increasing its known range.

Meanwhile Kew's field work on Anegada has continued to yield critical information on the distribution of the Puerto Rico Bank endemic *Leptocereus quadricostatus* and the distribution of the only known Anegada endemic *Senna polyphylla var neglecta*.

These botanical finds will guide the expansion of the protected area network and help to raise the project profile in the media and throughout the community and schools.

## Annex 1: Report of progress and achievements against Logical Framework for Financial Year 2013-2014

Project summary	Measurable Indicators	Progress and Achievements April 2013 - March 2014	Actions required/planned for next period
<p><b>Goal/Impact</b></p> <p>Not applicable – not part of original proposal</p>		T	
<p><b>Purpose/Outcome</b></p> <p>This project will map BVI's terrestrial ecosystems to inform gaps present within the proposed protected area network and inform the creation of a draft management plan for forests, based upon the IUCN ecosystem based approach. This will lead to the identification of new areas for inclusion in the BVI Protected Areas System Plan and provide baseline data that will inform the creation of a dynamic decision support tool for conservation management. The <i>ex-situ</i> conservation role of the JR O'Neal Botanic Gardens (JRONBG) will be strengthened as more threatened native species from forest ecosystems are incorporated into the Collections.</p>	<p>1.1 Extent of area mapped in the GIS increased</p> <p>2.1 Presence of ecosystem and vegetation map for the BVI produced in the GIS</p> <p>2.2 Presence of GIS map that identifies existing parks and protected areas vs. important plant areas across the BVI</p> <p>2.3 Presence of GIS map that indicates new proposed protected areas across the BVI</p> <p>2.4 Stakeholder meeting held to present proposed boundaries</p> <p>3.1 Presence of gap analysis report of <i>ex-situ</i> collections at JRONBG</p> <p>3.2 List of plant species collected generated and posted on NPT website</p> <p>3.3 100 <i>ex-situ</i> plant collections made</p>	<p>Progress is steadily being made on the creation of a vegetation based GIS database that will store all information on known locations of endangered and endemic species, in addition to the overall classification of vegetation habitat types across the BVI. Within year 2</p> <p>Collections made during the weekly field visits are contributing to the project goal of strengthening the conservation role of the JRONBG, as live specimens are collected for display in the JRONBG and seeds are collected for propagation in the nursery..</p>	<ul style="list-style-type: none"> <li>• Continued groundtruthing of habitat types across the BVI</li> <li>• Continued collection of <i>ex-situ</i> collections for the JRONBG to meet the target of 100</li> <li>• Continued collection of herbarium vouchers to meet the 200 goal</li> <li>• Continued phenological research of 15 threatened species, using the existing information that has been gathered to guide seed collection.</li> <li>• Identification of important plant areas, using the GIS maps to highlight distribution of endangered species and key areas for protection</li> </ul>

	<p>4.1 200 specimens collected, accessioned and incorporated into the Online Herbarium</p> <p>5.1 Programme of phenological studies implemented for 15 threatened species</p> <p>6.1 Complete draft management plan produced</p> <p>6.2 Stakeholder meeting conducted and comments received</p> <p>7.1 Number of flora inventories increased</p> <p>7.2 Number of known threatened species extant in the BVI identified</p> <p>7.3 Number of species entered into database and linked to GIS map increased</p>		
<p><b>Output 1.</b></p> <p>Ecosystem and vegetation maps produced for the BVI</p>	<p>1.1 Extent of area mapped in the GIS increased</p>	<p>Since 22<sup>nd</sup> January 2014 the NPTVI team has conducted weekly field visits to groundtruth vegetation habitats across the BVI, using GPS units to capture this information and downloading it into a custom made GIS database for this project. Daily field visits took place from 18<sup>th</sup> – 26<sup>th</sup> March 2014, when the Kew team were in the BVI. Following Kew's departure the weekly visits were resumed by the NPTVI team. To date the NPTVI team has recorded 96 records of endangered or native species of interest and documented 162 vegetation habitat points in the GIS, visiting six islands in the BVI.</p>	
<p><b>Activity 1.1</b></p> <p>Conduct desktop analysis of University of Colorado satellite data vegetation map in GIS, overlaying all existing GIS related plant data and</p>		<p>A GIS map was created with all existing plant related in a geodatabase created for this project, this incorporated all previous plant monitoring</p>	

existing aerial photos for the BVI	undertaken in the BVI by Kew and NPTVI. The University of Colorado satellite map is being used as a base map to update as groundtruthing takes place. All of the GPS points that are recorded during field visits are added to this master file, which will then update the base map and be used to create a new and updated vegetation base map for the BVI.			
<p><b>Activity 1.2</b></p> <p>Conduct workshop to review available GIS maps, determine terminology to use in the mapping process and to create a protocol for the mapping process</p>	<p>Martin Hamilton, Kew visited the BVI from 2<sup>nd</sup> – 14<sup>th</sup> December, 2013 to engage in technical planning discussions with NPT and other relevant Government Departments in order to prepare the baseline information that would be required for the GIS analysis. Letters seeking permission to share GIS data created by other Government Departments were sent out and permissions received in January 2014, permitting NPTVI to share GIS files for use in this project.</p> <p>A protocol for the mapping process was discussed during this two week visit and GIS applications were created by both Kew and NPTVI for staff use in the field on handheld GPS devices.</p>			
<p><b>Activity 1.3</b></p> <p>Groundtruth survey of University of Colorado vegetation map to confirm habitat type and identify species composition, through plant surveys (on every island in the BVI). A representative and statistically appropriate number of points will be ground truthed to ensure accuracy</p>	<p>This is an ongoing activity informed by the field visits conducted weekly by NPTVI and during the in-country visits by Kew. The NPTVI team has been targeting the sister islands in the BVI that have not been visited before during previous projects to ensure that the diversity of habitats and ecosystems is included in the survey. This will continue, especially as access by sea will be easier as the winter swells subside as the summer months approach.</p>			
<p><b>Activity 1.4</b></p> <p>Produce GIS ecosystem and land cover maps for the BVI</p>	<p>This will be the final product once the assessment phase has been completed.</p>			
<p><b>Output 2.</b></p> <p>Gaps in terrestrial protected area network identified</p>	<table border="1" data-bbox="600 1129 1088 1445"> <tr> <td data-bbox="600 1129 1088 1310"> <p>2.1 Presence of ecosystem and vegetation map for the BVI produced in the GIS</p> </td> <td data-bbox="1088 1129 2080 1445" rowspan="2"> <p>This output is not scheduled to be addressed until Qtr 3, Year 2.</p> </td> </tr> <tr> <td data-bbox="600 1310 1088 1445"> <p>2.2 Presence of GIS map that identifies existing parks and protected areas vs. important plant areas across the BVI</p> </td> </tr> </table>	<p>2.1 Presence of ecosystem and vegetation map for the BVI produced in the GIS</p>	<p>This output is not scheduled to be addressed until Qtr 3, Year 2.</p>	<p>2.2 Presence of GIS map that identifies existing parks and protected areas vs. important plant areas across the BVI</p>
<p>2.1 Presence of ecosystem and vegetation map for the BVI produced in the GIS</p>	<p>This output is not scheduled to be addressed until Qtr 3, Year 2.</p>			
<p>2.2 Presence of GIS map that identifies existing parks and protected areas vs. important plant areas across the BVI</p>				

	<p>2.3 Presence of GIS map that indicates new proposed protected areas across the BVI</p> <p>2.4 Stakeholder meeting held to present proposed boundaries</p>	
<p><b>Output 3.</b> Gaps in existing <i>ex-situ</i> collections of JROBG threatened species identified and filled</p>	<p>3.1 Presence of gap analysis report of <i>ex-situ</i> collections at JRONBG</p> <p>3.2 List of plant species collected generated and posted on NPT website</p> <p>3.3 100 <i>ex-situ</i> plant collections made</p>	<p>An overall assessment of the collections and inventory of plants in the nursery at the JRONBG has been conducted to identify the quantity of non-native and exotic species, compared to the amount of native and species of conservation interest. The project goal is to slowly replace the plant species in the nursery with native species and eventually be able to sell plants of conservation value to the general public, replacing the current practice of propagating non-native species.</p>
<p><b>Activity 3.1</b> Conduct field work to collect 100 <i>ex-situ</i> collections for JROBG</p>		<p>Eighty-four (84) new <i>ex-situ</i> plant collections for the JRONBG have been made to date by the Kew and NPTVI teams.</p>
<p><b>Activity 3.2</b> Conduct survey of existing collections at the JRONBG and update existing GIS map and plant list</p>		<p>NPTVI staff visually assessed the existing composition of plant collections, listing species within the beds throughout the JRONBG and updating an existing GIS map for the garden layout. This task is ongoing as signage has been lost for some of the plant species and confirmation of species type was unknown. The recently hired NPTVI staff member in charge of the plant nursery will be responsible for completing this activity.</p> <p>Kew assisted with the survey of the existing collections at the JRONBG and updated the Brahms' plant database.</p>
<p><b>Output 4:</b> Herbarium specimen vouchers collected and accessioned</p>	<p>4.1 200 specimens collected, accessioned and incorporated into the Online Herbarium</p>	<p>Five NPTVI staff have received training in herbarium specimen collection as part of this project. Two of whom had received previous training under past Darwin funded projects and refresher training was provided, one new member of NPTVI staff who began employment in March 2014 and two existing NPTVI staff who are being trained under this project.</p>
<p><b>Activity 4.1</b> Conduct field work to collect 200 herbarium specimen vouchers</p>		<p>Two hundred and six (206) herbarium specimen vouchers have been collected in Year 1 by the Kew and NPTVI team.</p>
<p><b>Activity 4.2</b> Update Kew's UKOTs Online Herbarium database with herbarium</p>		<p>This activity is not slated to occur until Year 2, Quarter 4.</p>



vouchers		
<b>Output 5:</b> Phenological studies of threatened species undertaken	5.1 Programme of phenological studies implemented for 15 threatened species	
<b>Activity 5.1</b> Conduct field work to study phenology of 15 threatened species		To date at least 18 threatened species have had their phenology recorded across the BVI by the NPTVI and Kew teams. These are also all priority species for seed collection under the parallel Darwin project with Kew.
<b>Output 6:</b> Draft management plan for forest ecosystems produced	6.1 Complete draft management plan produced  6.2 Stakeholder meeting conducted and comments received	The development of the management plan is not scheduled to be addressed until Year 2.
<b>Activity 6.1:</b> Conduct literature review of existing recommendations for management of forest ecosystems in the BVI and other island systems based upon existing projects (eg. CFD's watershed management project)		The preliminary literature review has been conducted with the compilation of all known publications pertaining to BVI forest ecosystems. These documents and reports have been stored in digital format on the NPTVI server and includes island environment profiles compiled by other agencies, environmental impact statement reports submitted by private consultants as part of development projects and other species inventories compiled by researchers historically.
<b>Output 7:</b> Flora inventories for select parks and ecosystems outside the existing protected area network completed and entered into database	7.1 Number of flora inventories increased  7.2 Number of known threatened species extant in the BVI identified  7.3 Number of species entered into database and linked to GIS map increased	In Year 1 draft checklists of flora have been conducted by the Kew team at Cam Bay National Park, Sage Mountain National Park, Shark Bay National Park.
<b>Activity 7.1</b> Collate plant lists acquired in output 1 with existing inventories		Draft species lists were compiled by the Kew team for three national parks: Shark Bay and Cam Bay at Great Camanoe. Previous work by Kew and other researchers will be compiled to produce a plant inventory for Sage Mountain and Gorda Peak National Parks in the upcoming project

	year.
<b>Activity 7.2</b> Update Kew's UKOTs Online Herbarium with new plant species locations and herbarium vouchers	This project activity is not scheduled to occur until Year 2, Quarter 4 however updates have been made to the Kew Online Herbarium to reflect project findings to date.

## Annex 2 Project's full current logframe

### Project Details

#### 12.1

**19. Project Outcome Statement:** Describe what the project aims to achieve and what will change as a result. (100 words max)

This project will map BVI's terrestrial ecosystems to inform gaps present within the proposed protected area network and inform the creation of a draft management plan for forests, based upon the IUCN ecosystem based approach. This will lead to the identification of new areas for inclusion in the BVI Protected Areas System Plan and provide baseline data that will inform the creation of a dynamic decision support tool for conservation management. The *ex-situ* conservation role of the JR O'Neal Botanic Gardens (JRONBG) will be strengthened as more threatened native species from forest ecosystems are incorporated into the Collections.

**20. Background:** (What is the current situation and the problem that the project will address? How will it address this problem? What key themes will it address? (200 words max)

There are significant gaps in information on terrestrial ecosystems across the BVI and their constituent plant diversity. The primary vegetation cover in the BVI is Caribbean/seasonally dry forest and this is one of the most threatened ecosystems in the world, due to the rapid conversion of these areas for anthropogenic use.

Two previous Darwin Initiative funded projects identified 4 BVI endemic and 16 threatened species between the two project focal areas. A broader survey of habitats is required to identify the distribution of these and other threatened species to allow better conservation management within and outside of protected areas. This project will also provide data that will feed into the creation of a decision support tool for on-going management of these areas, it will inform the BVI Government development planning process and formalise recommended management activities through the creation of a draft management plan for forest ecosystems that will be used by the NPT and the Town and Country Planning Department (TCP).

This project will address the theme 'Habitat or species conservation, management and sustainable use for terrestrial and marine environments', in addition to 'Projects that help to take forward work in priority areas identified through environmental mainstreaming'.

**21. Methodology:** Describe the methods and approach you will use to achieve your intended outcomes and impact. Provide information on how you will undertake the work (materials and methods) and how you will manage the work (roles and responsibilities, project management tools etc). Give details of any innovative techniques or methods. (500 words max)

A vegetation map for the BVI will be created in the NPT's existing GIS (geographic information system) by NPT and Kew through photo interpretation, using a combination of LANDSAT images and aerial photography. Kew also has a well-established GIS department that will assist in the desktop mapping exercise to ensure this part of the project proceeds within the stated timeframe. NPT has previous experience of a territory wide mapping project when creating marine habitat maps in an OTEP funded project that led to the selection of marine protected areas. NPT also produced a vegetation map for the island of Anegada in the previous Darwin funded project. Lessons learned during these projects will ensure a more efficient and accurate process for the terrestrial mapping.

Targets will be established for the proportion of areas that will be directly surveyed during this project. An existing satellite based vegetation survey completed by the University of Colorado in 2000 for the US and British VI will be used as a base map. The long term goal is to survey all of the identified ecosystems in the GIS and create detailed species lists by integrating this activity into the annual work plan of the NPT with support from Kew.

A workshop will be hosted by NPT at the project outset to review the available GIS maps in the BVI National GIS (NPT is a member) to determine the terminology to employ within the mapping process and to create a protocol for mapping exercises.

This project will fulfil the environmental mainstreaming goal of informing strategic decision making within the BVI Government, by improving the development planning process of the BVI Government, and communicating the value of the environment as maps are visual educational tools.

Plant material for *ex-situ* conservation, in addition to herbarium specimen vouchers will be collected from threatened species during fieldwork by. Phenological studies of threatened species will be conducted by the NPT and Kew field team throughout the project in order to build a profile for each species and inform best practices for *in-situ* conservation and *ex-situ* at the JRONBG & Kew and to better inform management options. All data gathered for threatened species, together with high resolution images from the herbarium vouchers, will be widely available through the UKOTs Online Herbarium (<http://herbaria.plants.ox.ac.uk/bol/UKOT>).

Two stakeholder meetings will be held following the completion of the mapping exercise by NPT to present the initial findings and to gather feedback on the anthropogenic uses within these areas, in collaboration with other Government Departments and stakeholders.

The biological survey work, production of GIS maps which are fully integrated within the National GIS, and review of stakeholder feedback will be collated and fed into the production of a draft management plan created by NPT for forest ecosystems. NPT has extensive experience of the management planning process and in 2012 conducted an ecosystem based management planning workshop facilitated by the RSPB, so this approach is already familiar to the BVI stakeholders who will be part of this process.

## **22. How does this project:**

- a) Deliver against the priority issues identified in the assessment criteria
  - b) Demonstrate technical excellence in its delivery
  - c) Demonstrate a clear pathway to impact in the OT(s)
- (500 words max)

Clear and measurable outcomes delivered in this project include: an improved GIS framework to support development planning and biodiversity conservation; enhanced *ex-situ* collections and herbarium specimen vouchers collected and its data widely available through the UKOTs Online Herbarium; improved management planning framework for forests based on ecosystem-based approaches. These will all assist in the achievement of long term strategic objectives as it is a legal requirement under the NPT Act 2006 for the System Plan of Protected Areas (approved by Cabinet in 2008) to be updated periodically to ensure representativeness and inclusion of areas to maintain ecological processes. As mentioned in #21 (above) the NPT undertook an assessment of the marine environment to inform the System Plan but this has not been done for the terrestrial environment since the plan's

first version in 1981.

This project addresses international agreements and the national development agenda, eg.:

- the Global Strategy for Plant Conservation targets: 1 (online flora of all known plants), 2 (assessment of conservation status of all known plants), 4 (at least 15% of each ecological region effectively managed)
- the BVI Environment Charter commitments of the BVI: #2 (protection and restoration of key habitats....through appropriate management structures and mechanisms') and #7 ('Review range, quality ...of baseline data for natural resources and biodiversity.')
- the CBD Aichi biodiversity target of mainstreaming biodiversity across government and society will be addressed in target #2, 'biodiversity values have been integrated into national and local development..and planning processes..' as this assessment of terrestrial ecosystems will quantify in measureable terms ecosystem coverage and contribute to the valuation process being undertaken through the JNCC project 'developing an ecosystem based decision support tool'. Target #19 'knowledge, the science base and technologies relating to biodiversity, its values...status and trends, and the consequences of its loss' will also be met as this project focuses at the ecosystem level and the use of GIS promotes better understanding of the remaining distribution and condition of threatened habitats and species using an interactive and visual technological platform.
- best management practices within the network of protected areas, in combination with the existing annual work planning process and also to provide guidelines and recommendations for best practices within these ecosystems outside of protected areas. The latter point was specifically requested by TCP at the ecosystem based approach to management planning workshop discussed in #21.

The use of GIS technology for adaptive conservation management within NPT directly demonstrates the level of technical excellence that will be achieved, as NPT is a member of the National GIS committee which shares all GIS data in order to inform the BVI Government's development planning process. The NPT planning process and project outcomes will be sustained by continued updates to the GIS ecosystem map layers.

The clear pathway that will be demonstrated through this project will be the baseline data that this project will create and how widespread its application will be within the NPT, across many different Government Departments for multi-level planning use and the wider public as an education tool.

**23.** Who are the **stakeholders** for this project and how have they been consulted (include local or host government support/engagement where relevant)? Briefly describe what support they will provide and how the project will engage with them. (250 words max)

The project is being undertaken by the NPT, which is a statutory body under the Ministry of Natural Resources and Labour. Local partners participating in the project are mainly government departments with responsibility for the environment including the Conservation and Fisheries Department (CFD), the TCP, the BVI Tourist Board (BVITB). Consultation with these departments took place during a recent ecosystem based approach to management planning workshop and in preparation of this proposal. The support provided by these departments will include participation in workshops. This project will engage CFD and TCP as it provides GIS information required for their watershed management project that aims to reduce erosion through better planning for development in upland forests which then impacts coastal areas. BVITB will be engaged as the variety of plants and collections at the JRONBG will be enhanced for a more unique visitor experience.

The BVI Government National Geographical Information System (NGIS) committee has been engaged through updates by NPT at monthly meetings. They will provide GIS technical support during the mapping phase.

Kew itself is a stakeholder as this project supports their on-going UKOTs Programme of work such as the OTEP supported UKOTs Online Herbarium. NPT

and Kew have collaborated since 1999 and have a strong on-going partnership. To prepare this application NPT and Kew have had many Skype conversations with all members of the proposed project team at both organisations present.

**24. Institutional Capacity:** Describe the implementing organisation's capacity (and that of partner organisations where relevant) to deliver the project. (500 words max)

The NPT has been managing national parks and protected areas since 1961. During this period the park system expanded from one terrestrial park to 20 and these areas are currently managed by a staff of 14 terrestrial wardens. The biodiversity conservation and terrestrial parks programmes of the NPT are managed by a Programme Coordinator, and a Planning Coordinator with 15 years' experience of managing GIS, management planning and stakeholder engagement activities.

The NPT has worked in collaboration with local and international agencies to complete several Darwin and OTEP funded projects successfully, in addition to its annual programme of work. It has the institutional and technical capacity to plan and implement a GIS mapping survey due to the successful implementation of an identical ecosystem survey of the marine environment across the BVI and a vegetation map of Anegada using GIS. JRONBG staff has worked with the Kew team on flora inventories and field collections in previous projects and as part of their daily activities they manage *ex-situ* collections of threatened flora at the JRONBG and propagate new plant material of conservation value.

The Director of NPT has 16 years' experience of administering internationally funded projects at NPT and has well established relationships with all of the stakeholder groups that will be engaged in this project.

Kew contributes a highly skilled team of experts with widespread experience of flora inventory and mapping across the UKOTs. The team's familiarity with the BVI landscape is a reflection of the 12 year relationship with NPT.

**25. Expected Outputs**

Output ( <i>what will be achieved e.g. capacity building, action plan produced, alien species controlled</i> )	Indicators of success ( <i>how we will know if its been achieved e.g. number of people trained/ trees planted</i> )	Status before project/baseline data ( <i>what is the situation before the project starts?</i> )	Source of information ( <i>where will you obtain the information to demonstrate if the indicator has been achieved?</i> )
1. Ecosystem and vegetation maps produced for the BVI	1.1 Extent of area mapped in the GIS increased	1.1.1 One island, Anegada, has a complete GIS-based & ground truthed vegetation map	Completed protocol for the mapping process

		1.1.2 There is an existing satellite based GIS vegetation survey of the BVI completed by the University of Colorado in 2000 that will be used as a base map to be ground truthed	Plant lists generated from fieldwork  GIS maps created through aerial photograph interpretation and existing GIS plant data  Analysis reports and cross referenced GIS maps based upon the University of Colorado vegetation map
2. Gaps in terrestrial protected area network identified	2.1 Presence of ecosystem and vegetation map for the BVI produced in the GIS  2.2 Presence of GIS map that identifies existing parks and protected areas vs. important plant areas across the BVI  2.3 Presence of GIS map that indicates new proposed protected areas across the BVI  2.4 Stakeholder meeting held to present proposed boundaries	2.1.2 There is an existing system of protected areas for the BVI mapped in the GIS, based upon the 2007-2017 approved plan, but this did not incorporate recent ecosystem or flora research for the terrestrial environment, it was based upon the original 1981 system plan for the BVI prior to extensive development across the BVI	GIS ecosystem and vegetation maps that indicates existing PA boundaries and overlays this with critical ecosystem and plant areas identified in this project  Minutes from stakeholder meeting
3. Gaps in existing <i>ex-situ</i> collections of JROBG threatened species identified and filled	3.1 Presence of gap analysis report of <i>ex-situ</i> collections at JRONBG  3.2 List of plant species collected generated and posted on NPT website  3.3 100 <i>ex-situ</i> plant collections made	163, 891 seeds from 21 species collected by NPT and Kew from previous studies  7 threatened species collected and accessioned at the JROBG	Field work reports of plant collection trips  Gap analysis report that identifies existing collections at the JROBG and plants contained within the nursery, vs. plants that should be included in collections
4. Herbarium specimen vouchers collected and accessioned	4.1 200 specimens collected, accessioned and incorporated into the Online Herbarium	1,126 herbarium specimens currently available via the UKOTs Online Herbarium	Field work reports of plant collection trips  Number of staff trained in herbarium

			specimen collection
5. Phenological studies of threatened species undertaken	5.1 Programme of phenological studies implemented for 15 threatened species	No phenological studies have been conducted to date  5 staff trained in ecological sampling techniques	Field work reports of select threatened species phenology  NPT annual report to confirm periods of time and activities conducted to acquire phenological information  Number of staff trained in phenological survey techniques
6. Draft management plan for forest ecosystems produced	6.1 Complete draft management plan produced  6.2 Stakeholder meeting conducted and comments received	2 draft management plans produced by NPT for site specific parks  1 ecosystem based approach workshop facilitated by RSPB and completed by NPT in 2012  Recommendations for the conservation role of the JROBG produced in previous Darwin funded projects	Literature review of previous recommendations made in site specific projects pertaining to forest ecosystems, including CFD's watershed management project reports  Minutes from stakeholder meeting
7. Flora inventories for select parks and ecosystems outside the existing protected area network completed and entered into database	7.1 Number of flora inventories increased  7.2 Number of known threatened species extant in the BVI identified  7.3 Number of species entered into database and linked to GIS map increased	9 national parks have had flora inventories conducted  5 islands have had rapid assessments of flora completed by Kew but more in-depth survey is required  The Island Resources Foundation (IRF) have conducted rapid assessments of flora on Jost Van Dyke, Virgin Gorda and Anegada but these results are not integrated into a national database or in a format that can be easily incorporated into the National GIS	Flora inventory lists of representative ecosystems studied in the project  Collated data reports of current and historical records from NPT and Kew  Summary report of IRF species lists and other EIA species lists  Number of staff trained in flora survey techniques



		TCP requires environmental impact assessments (EIAs) for certain types of development projects. This has resulted in the creation of many flora species lists for small, site specific areas.	
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**26. Expected Outcomes:** How will each of the outputs contribute to the overall outcome of the project? (100 words max)

An enhanced and updated Protected Areas System Plan derived from a systematic approach to gap analysis, improved baseline data for the future creation of a decision support tool and ecosystem-based management planning for forest ecosystems are principal outcomes. Field work for ecosystem mapping will inform the gap analysis of the existing PA system. Phenological studies, herbarium collections and flora inventory documentation will address the goal to strengthen the role of the JRONBG. Improved decision support mechanisms reliant on GIS will facilitate decision making related to biodiversity conservation and development planning to meet the Territory's strategic priorities.

<b>27. Main Activities</b>	
Output 1	Activities or tasks to be done to deliver the outputs. Include activities on information sharing and collaboration with other OTs
1.1	Conduct desktop analysis of University of Colorado satellite data vegetation map in GIS, overlaying all existing GIS related plant data and existing aerial photos for the BVI
1.2	Conduct workshop to review available GIS maps, determine terminology to use in the mapping process and to create a protocol for the mapping process
1.3	Groundtruth survey of University of Colorado vegetation map to confirm habitat type and identify species composition, through plant surveys (on every island in the BVI). A representative and statistically appropriate number of points will be ground truthed to ensure accuracy
1.4	Produce GIS ecosystem and land cover maps for the BVI
Output 2	
2.1	Perform desktop GIS analysis of existing PA network, overlaid with the new ecosystem and land cover maps to identify gaps of forest types not included in the network
2.2	Conduct desktop GIS exercise to select new areas for inclusion in the PA network, producing a map indicating proposed boundaries

2.3	Conduct stakeholder meeting to present proposed additions to the PA network
2.4	Compile feedback from stakeholder meeting and adjust GIS maps as needed
Output 3	
3.1	Conduct field work to collect 100 <i>ex-situ</i> collections for JROBG
3.2	Conduct survey of existing collections at the JRONBG and update existing GIS map and plant list
Output 4	
4.1	Conduct field work to collect 200 herbarium specimen vouchers
4.2	Update Kew's UKOTs Online Herbarium database with herbarium vouchers
Output 5	
5.1	Conduct field work to study phenology of 15 threatened species
Output 6	
6.1	Conduct literature review of existing recommendations for management of forest ecosystems in the BVI and other island systems based upon existing projects (eg. CFD's watershed management project)
6.2	Prepare draft management plan for forest ecosystems
6.3	Conduct stakeholder meetings to present the draft plan
6.4	Compile stakeholder input, review and incorporate into plan as relevant
6.5	Submit draft management plan to NPT Board and follow legal requirements within the NPT Act to get the plan approved
Output 7	
7.1	Collate plant lists acquired in output 1 with existing inventories
7.2	Update Kew's UKOTs Online Herbarium with new plant species locations and herbarium vouchers

<b>28. Risks</b>			
Description of the risk	Likelihood the event will happen (H/M/L)	Impact of the event on the project (H/M/L)	Steps the project will take to reduce or manage the risk
Technical difficulties with the existing GIS map layers	M	M	<ol style="list-style-type: none"> <li>1. Contact the project leaders who conducted the initial work</li> <li>2. Consult with the BVI National GIS committee and Kew GIS unit to seek assistance</li> <li>3. Recreate the maps in the GIS</li> </ol>
Extreme weather events disrupt research activities	M	H	<ol style="list-style-type: none"> <li>1. Schedule field activities outside of hurricane/rainy season</li> <li>2. Schedule indoor training or planning activities pertaining to the JRONBG</li> </ol>
Resolution of satellite imagery is too coarse for the study area	H	M	<ol style="list-style-type: none"> <li>1. Use Google Earth and import into the GIS</li> <li>2. Support the BVI Government Survey Department's proposal for new aerial photographs to be flown for the BVI</li> </ol>

**29. Sustainability:** How will the project ensure benefits are sustained after the project has come to a close? If the project requires ongoing maintenance or monitoring, who will do this? (200 words max)

The long standing working relationship between NPT and project partners at Kew will continue, therefore phenological studies and the herbarium and ex-situ collections will be maintained. The UKOTs Online Herbarium is maintained as part of Kew's core commitment to the UK Overseas Territories.

**30. Monitoring & Evaluation:** How will the project be monitored and who will be responsible? Will there be any independent assessment of progress and impact? When will this take place, and by whom? (250 words max)

The Director and Planning Coordinator of the NPT will conduct quarterly reviews to ensure that targets are being met in the allotted timeframe and within budget. Monitoring of project progress will be measured against the indicators of success by the NPT, using the stated sources of information for the expected outputs. Independent assessment of progress is not anticipated as NPT are the lead organisation, with legal mandated responsibility for identification of new PAs and production of management plans, and outputs are linked so their successful completion is essential for the overall project outcome to be achieved.

Project impact can also be assessed during the stakeholder meetings to discuss the proposed terrestrial PAs and the draft forest ecosystem management plan, as these will incorporate a broad spectrum of public and Government individuals and groups who will directly be impacted by this project or be end

users of the GIS data to better facilitate their own roles and responsibilities, eg. staff members of TCP and CFD.

The project completion report is **due up to 3 months** after the project is over and is linked to the final payment.

## Annex 3 Standard Measures

**Table 1 Project Standard Output Measures**

Code No.	Description	Year 1 Total	Year 2 Total	Year 3 Total	Year 4 Total	Total to date	Number planned for reporting period	Total planned during the project
Established codes								
6A	Number of people to receive other forms of education/training (which does not fall into categories 1-5 above) *	5					5	5
6B	Number of training weeks to be provided	2					2	6
15B	Number of local press releases in host country(ies)	2					Not stated, as needed	Not stated, as needed
20	Estimated value (£'s) of physical assets to be handed over to host country(ies)	£4,102.00					£4,102.00	£4,102.00
23								
New - Project specific measures	Value of resources raised from other sources (ie. in addition to Darwin funding) for project work							

**Table 2 Publications**

Type (eg journals, manual, CDs)	Detail (title, author, year)	Publishers (name, city)	Available from (eg contact address, website)	Cost £
N/A				

## Annex 4 Onwards – supplementary material (optional but encouraged as evidence of project achievement)

This may include outputs of the project, but need not necessarily include all project documentation. For example, the abstract of a conference would be adequate, as would be a summary of a thesis rather than the full document. If we feel that reviewing the full document would be useful, we will contact you again to ask for it to be submitted.

It is important, however, that you include enough evidence of project achievement to allow reassurance that the project is continuing to work towards its objectives. Evidence can be provided in many formats (photos, copies of presentations/press releases/press cuttings, publications, minutes of meetings, reports, questionnaires, reports etc) and you should ensure you include some of these materials to support the annual report text.



Figure 4. Press release, page 1 following the March 2014 Kew visit

## Checklist for submission

	Check
<b>Is the report less than 10MB?</b> If so, please email to <a href="mailto:Darwin-Projects@ltsi.co.uk">Darwin-Projects@ltsi.co.uk</a> putting the project number in the Subject line.	√
<b>Is your report more than 10MB?</b> If so, please discuss with <a href="mailto:Darwin-Projects@ltsi.co.uk">Darwin-Projects@ltsi.co.uk</a> about the best way to deliver the report, putting the project number in the Subject line.	No
<b>Have you included means of verification?</b> You need not submit every project document, but the main outputs and a selection of the others would strengthen the report.	√
<b>Do you have hard copies of material you want to submit with the report?</b> If so, please make this clear in the covering email and ensure all material is marked with the project number.	No
Have you involved your partners in preparation of the report and named the main contributors	√
Have you completed the Project Expenditure table fully?	√
Do not include claim forms or other communications with this report.	