Darwin Plus:
Overseas Territories Environment and Climate Fund
Annual Report

Darwin Plus Project Information

Project reference	DPLUS 180
Project title	Integrating climate change resilience into protected area design and management
Territory(ies)	British Virgin Islands
Lead Partner	National Parks Trust of the Virgin Islands (NPTVI)
Project partner(s)	Environment Systems Ltd., Wavehill
Darwin Plus grant value	£175,195
Start/end dates of project	1st May 2022 – 31st March 2024
Reporting period (e.g. Apr 2022-Mar 2023) and number (e.g. Annual Report 1, 2)	Annual report 1: April 2023
Project Leader name	Dr. Cassander Titley O'Neal, Director, NPTVI
Project website/blog/social media	https://www.bvinpt.org/blog
Report author(s) and date	Nancy K Pascoe, Deputy Director, NPTVI

1.   Project summary

The 2021 IPCC report confirmed that climate change globally is causing stronger storms, drought and warming sea temperatures. Climate change is impacting the BVI with more intensive storms and droughts, as seen by the 2017 hurricane season when the BVI was devastated by two category 5 hurricanes within the month of September.

Species and habitats in the BVI are also under threat from development pressure, invasive species, deforestation and natural disasters. NPTVI manages 21 designated terrestrial and marine parks, and conducts research throughout the BVI to identify potential new protected areas, based upon the distribution of threatened species and their habitats. However, NPTVI has had reduced funding for monitoring and fieldwork due to the impacts of natural disasters and the COVID pandemic that severely reduced visitor numbers and park entrance fees. As a result, there have been habitat changes and threats to biodiversity within parks and proposed protected areas that have occurred undetected.

The goal of this project is to create a web-based dashboard that has BVI specific climate change modelling data that identifies areas where ground truthing is required to assess the impacts to the environment, eg. drought stressed vegetation, sargassum impacted coral reefs. This will facilitate targeted NPTVI fieldwork, whilst informing decision making at protected area and national levels and raise public awareness as the web dashboard will be in the public domain and promoted by NPTVI.

The project will build resilience into the BVI protected area network by identifying sites that provide ecosystem services to the community so that the impacts from natural disasters are reduced and protect biodiversity that is at risk from a changing climate.

2. Project stakeholders/partners

NPTVI is the lead partner in this project and is a BVI based organisation, its role is to manage the project in coordination with all partners and lead on in-country meetings, workshops and fieldwork to help design and validate the models being built by our partners at Environment Systems Ltd (ESL).

A Memorandum of Understanding was set up at the project onset so all partners understood their roles and the timeline for payment of claims, and the expectation for reporting to support this.

Year 1 started strongly with a workshop being held very early in the project in August 2022 to get essential input from local stakeholders within the BVI Government and local community. This included input from members of the Virgin Islands Government National Geographic Information Systems (NGIS) committee, as well as key representatives from non-governmental organisations to ensure that local knowledge is incorporated into the design of the climate change analysis modelling.

This early workshop was possible because of an existing working relationship with ESL, who NPTVI partnered with on DPLUS 081 from 2018 to 2020. ESL's familiarity with the BVI and key Government stakeholders allowed a very interactive and productive dialogue at the August 2022 workshop and this has continued throughout the year.

The four-day workshop was held from 22nd - 25th August 2022 in Road Town, Tortola, British Virgin Islands (BVI) that was facilitated by Dr. Katie Medcalf and Samuel Pike of Environment Systems Ltd. The workshop gathered information from local experts to determine ecosystem services and conservation threats to protected areas. The Minister for Natural Resources and Labour, Honourable Melvin Turnbull also attended the opening session and publicly stated his support for the project and its goals.

The project monitoring and evaluation is being led by Wavehill, a UK based company who has also worked with ESL and NPTVI during DPLUS 081. NPTVI meets with ESL monthly via Teams or Zoom to discuss project activities and ensure that the project progresses as planned. Within the first six months NPTVI and ESL met with Wavehill via Teams or Zoom so that all partners would understand the monitoring and evaluation framework and could agree on the timeframe for meetings. The feedback from Wavehill has been very helpful in keeping the project on track and a mid-project review will be taking place on April 21st led by Wavehill.

As NPTVI is currently a partner in three Darwin Plus projects that are collecting BVI specific data which is useful to all projects, NPTVI coordinated and facilitated a Cross Darwin Plus partner meeting on 14TH December, 2022. This meeting included Samual Pike and Katie Medcalf (ESL for DPLUS 180 – climate change modelling), the project team of four from Royal Botanic Gardens Kew, led by Tom Heller (Kew for DPLUS 084 – forest resilience) and two from Portsmouth University led by Dr. Richard Teeuw (Portsmouth University for DPLUS 160 – soils mapping). This was an excellent opportunity to briefly present the goals and objectives of each project and share information on data being created that could assist each project. This will ultimately make all three projects stronger and more synergistic, especially during fieldwork.

3. Project progress

3.1 Progress in carrying out project Activities

Output 1. <u>**Biodiversity rich and resilient areas are identified by modelling the likely impacts of climate change. Scenarios showing what might happen to protected areas and the services they provide are created.**</u>

1.1a. **Obtain open-source climate change data, eg. RTP85 database, available for the BVI and process the data into meaningful sets, such as hurricane season, temperature, wind speeds etc. that will describe important criteria for BVI climate resilience.**

ESL obtained and processed WorldClim climate data for the years 1970-2000, 2021-2040, 2041-2060, 2061-2080, and 2081-2100. These include variables such as precipitation, solar radiation, temperature and wind. The future climate predictions differentiate between two shared socio-economic pathways; SSP245 which assumes that climate protection measures are being taken; and SSP370 which represents policies enacted that focus on national security rather than education and the environment. This is

different to the UKCP18 that was originally intended, as it has a much higher resolution, and is based on social and policy behaviour, rather than purely on greenhouse gas emissions.

1.1b. For all National Park locations, a set of 5 ecosystem service factors will be agreed. These will then form the basis of the individual ecosystem services and multi-criteria analysis.

As previously reported in question 2, the August 2022 workshop facilitated local participation during the design phase. The workshop examined the role the BVI's national parks contribute to the ecosystem services of the BVI and a shortlist of the priority services were drawn up through practical interactive exercises. ESL and NPTVI reviewed the shortlist over the next few months to determine what the project would focus on and on 6th October 2022 NPTVI met again with the NGIS committee to make a final selection together that was based on local environmental priorities.

The priority ecosystem services identified are coastal protection, slope stability, terrestrial and marine biodiversity protection, terrestrial and marine climate regulation.

1.1c. Collate existing key factor data held in the BVI National GIS and pre-process this for the climate and ecosystem service modelling, including land- and sea-form

Key data was received from the BVI Survey Department including: Lidar, ortho, contours and a Digital Terrain Model (DTM). (See Figure 1: DPLUS180_lidar.png in ANNEX 4)

Local weather data has been gathered from different sources, primarily the Department of Disaster Management who have 15 weather stations around the BVI, and also historical data from NPTVI's archives from private weather stations dating back to 2003.

ESL have downloaded and have processed all Sentinel-1 and Sentinel-2 satellite imagery from 2021 onwards. (See Figure 2: DPLUS180_S2_20220728.png in ANNEX 4)

1.2.a. Design scientific rule-base/run the model

Rule bases for selected habitat ecological networks and the opportunities to expand upon them, have been developed by ESL, for Dry Forest, Wetland, Mangroves, and Coral.

Rule bases have also been developed to model the current vulnerability to coastal storms current vulnerability to heavy rain, current slope stability, current biodiversity, current climate regulation/drought-resistance (See Figure 3: DPLUS180_scoring.png in ANNEX 4).

The requirements and designs of the opportunity models to reduce the vulnerability to coastal storms and heavy rain, and increase slope stability, biodiversity, and climate regulation, have been documented (See Document 1 - Opportunity Mapping for BVI.docx in ANNEX 4). Further required data has been identified.

Output 2: A web-based platform to both inform, showcase and monitor critical areas is built. It is validated by fieldwork, and the results used to inform the conservation plans for Prickly Pear and Sandy Cay National Parks

2.2a. Identify key habitat condition factors visible within remote sensing data

An extensive literature review was conducted to identify relevant remote sensing techniques for the indicators, ideally focusing on those that have been developed within, and for, the Caribbean region, or at least other tropical climates. This identified an initial longlist of potential solutions, which were evaluated for practicality into a shortlist.

(See Table 1 - DPLUS180_ConservationThreats_Indicators_shortlist.xlsx in APPENDIX 4)

2.2b. Develop and test remote sensing indicators

Methodologies for each indicator has been developed, based on 2.2a above, but adapted with reference to the specific environment, data, and resources at hand. These are currently being created for testing in the field.

2.3a. Project team to agree four conservation threats and link these to the remote sensing indicators.

The August 2022 workshop included BVI participant feedback to examine what conservation threats exist across the BVI, within the terrestrial and marine parks through practical exercises. The participants produced a shortlist of the main conservation threats. This shortlist was then discussed again during a presentation made by NPTVI at the monthly National GIS meeting in October 2023, with the following top four threats identified: *extreme rainfall, drought, deforestation* and *storm surge.*

The role that remote sensing can play in helping to monitor conservation issues was also discussed in the workshop through practical exercises, identifying the time and spatial scales required for each.

2.3b. Project team with input from Steering Committee, to design a fieldwork protocol for use over the course of the project.
A draft fieldwork protocol was designed by ESL, incorporating potential conservation threats, ecosystem services, fieldwork techniques and remote sensing indicators. This was discussed and tested during the workshop fieldtrip. Amendments have been made to incorporate the final list of conservation threats, ecosystem services and remote sensing indicators had been finalised.

2.4a. Undertaken fieldwork in Prickly Pear and Sandy Cay National Parks, and feedback the results to ESL.
A field trip to Prickly Pear National Park took place during the August 2022 workshop so that ESL could better understand the BVI geography as well as to teach the workshop participants more about ground truthing satellite imagery, and the concept of the fieldwork protocol.

2.4b Field validate remote sensing indicators
Field validation routines have been identified through the field protocol and the requirements of the condition indictor. For example, with reference to drought, the NPTVI can visually assess sites for signs of water-stress and feed this back to ESL, whilst for deforestation ESL will direct NPTVI to suspected areas to confirm the presence of activity. However, actual fieldwork has not started as yet as this is pending the creation of maps as reported in 2.2b.

3.3a On-island project launch within six months of the project starting, with up to 9 key staff from the National GIS, Ministry of Natural Resources and Labour, relevant policy officials, and the media.
The project was officially launched in August 2022 with 20 people from eight Government departments, including the Minister and Permanent Secretary for the Ministry of Natural Resources and Labour (MNRL). A press conference was held with four media houses attending, with presentations made by the Director of the National Parks Trust of the Virgin Islands (NPTVI) Dr. Cassander Titley O'Neal, Dr. Katie Medcalf from Environment Systems and remarks from the Minister for Natural Resources and Labour the Honourable Melvin Turnbull.
The online media outlet JTV filmed the press conference, and this had 1,100 views as of 25th October 2022, which demonstrates successful awareness raising on the topic of climate change and how the public are interested in knowing more about how it will impact the BVI.
The JTV coverage can be seen at: https://www.facebook.com/jtv55/videos/804376484080082/

The publicity that the project launch created has raised NPTVI's profile in the BVI as an agency to be consulted regarding climate change.

3.4a A project website is created on the NPTVI website with reports, press releases, maps and messages.
A blog has been created on the existing NPTVI website which features project updates and messages to raise awareness about climate change and the role of protected areas.
https://www.bvinpt.org/blog . The NPTVI facebook page is also used to share online press releases and media coverage about the project. (https://www.facebook.com/NPTVI)

3.4b Create and disseminate press release introducing the project and explaining the importance of BVI specific climate data generation being used for conservation, development, disaster planning.

A press release was issued with media interviews at the August 2022 workshop. There was also a recorded video of the press conference filmed by media outlet JTV which has had 1.1k views.

https://www.facebook.com/watch/?v=804376484080082

3.4d NPTVI will maintain an active social media presence throughout the project to highlight and disseminate information about training and fieldwork events and project outputs.

The NPTVI Facebook page and website blog spread awareness throughout the year as project activities take place and as topical global events take place that demonstrate the impacts of climate change.

https://www.bvinpt.org/blog

3.2 Progress towards project Outputs

Output 1. Biodiversity rich and resilient areas are identified by modelling the likely impacts of climate change. Scenarios showing what might happen to protected areas and the services they provide are created.

The initial round of data gathering is complete. Through the workshops, and the design of the models, further data has been identified and is being collated. It is vital that the input data is as accurate as possible, as such, the digital habitat map is being manually updated within the protected areas as a desktop exercise by NPTVI, to ensure that all of the derived outputs are valid. The vulnerability and ecosystem service models have been developed and designed, and are ready for the initial run when the habitat map is completed in Year 2, Quarter 1.

Output 2: A web-based platform to both inform, showcase and monitor critical areas is built. It is validated by fieldwork, and the results used to inform the conservation plans for Prickly Pear and Sandy Cay National Parks
The condition indicators have been researched and identified and are ready for development and testing. These have been developed alongside an initial fieldwork protocol.

Output 3: Scientific knowledge, understanding, findings, and techniques, are effectively transferred from key experts to their target audience (project staff, government, conservation groups, and local residents)
The first on-island workshop brought together climate modelling experts and key personnel from eight government departments. (See Table 2 – DPLUS 180: August 2023 Workshop Participants in ANNEX 4) Participants exchanged their understanding and knowledge of climate, from a BVI perspective of local climate, to global model projections. The workshop also introduced the synergy between multi-spectral satellite imagery in a picture, the ecology the satellite image is looking at, and the ground surveys required to understand the processes of both.

3.3 Progress towards the project Outcome

Outcome: Evidence on climate change resilience to protect biodiversity and habitats, informs the 2025 Protected Areas System Plan; a monitoring system is created and residents better understand the Parks ecosystem services.

0.1 Indicator The area's most vulnerable to the effects of climate change are identified together with areas which offer the most mitigation, supplies the evidence for designation as a protected area, by Q4 202

Verification: Maps of most vulnerable areas, and areas which offer the most mitigation, to the effects of climate change

Key input data, included climate change prediction models, have been collected and processed. The models of current ecosystem services, vulnerability, and mitigation have been designed and developed. These are ready to be run as draft models as soon as all of the data has completed their quality assurance.

(See APPENDIX 4: Figures 1, 3, 4 and Document 1.)

0.2 Indicator A web-based system is being used to monitor protected areas for change in condition, using satellite imagery and ground based fieldwork, goes live by Q4 2023

Verification: Satellite imagery is regularly incorporated into a dashboard and web-based user statistics shows that they are being accessed

Satellite imagery from 2021 to the present day has been acquired and processed and will continue to be processed throughout the course of the project. These are being used to develop condition indicators, which have been designed after an extensive literature desk study. A fieldwork protocol has been developed in tandem, and together will be used to train and validate the models. The web-based system will aim to utilise the existing BVI data portal, which is already known and used, to increase the monitoring data exposure. (See APPENDIX 4: Figure 2 and Table 1)

Indicator 0.3: 50% of residents engaged in the project better understand the role that the national parks and highly ecologically resilient areas provide against climate change, against year 1 baseline.

Verification 0.3 Survey reports demonstrate an improved awareness of climate issues, and a better understanding on how individual actions can impact resilience.

Anonymous feedback from the August 2022 workshop identified that every participant either agreed, or strongly agreed, to questions that directly asked if they had a better understanding of:

- The issues of coastal erosion and storm events and the vulnerability of the coastal habitats climate change issues.
- How data and scientific knowledge were used to build variability models to show areas at risk of flooding and areas which would benefit most from restoration activities.
- The importance of dunes and the care needed for planting out.
- How some of the methods, data, results and lessons learned could be implemented to address issues in the BVI.

3.4   Monitoring of assumptions

The project outcome and output level assumptions are still valid.

Assumption 1: Increased understanding of climate change impacts leads to action to enhance the Protected Sites on BVI
This is true as the NPTVI staff plan on using the models and outputs to identify new areas that can be included into the next version of the System Plan of Protected Areas for the BVI.

Assumption 2: Covid-19 mitigating strategies remain robust and operating and residents and project members can engage with hands-on activities.
COVID-19 restrictions in the BVI have been removed completely and cases are not tracked anymore. Generally, the BVI appears to be functioning back to preCOVID-19 levels. However, the potential for new variants causing a rapidly spreading outbreak remains due to the return of tourism in the BVI. ESL partners in the UK are also still adjusting to COVID-19 related changes in their workplace.

Assumption 3: No major natural disasters
The Caribbean is annually exposed to the Atlantic hurricane season that is now monitored from May through November. The project continues to assume that the BVI will not be impacted by a major natural disaster, as this could impact NPTVI's ability to lead the project or implement activities.

Assumption 4: Staff turn-over remains low - trained staff remain in post

Project success is directly linked to key ESL and NPTVI staffing remaining the same.

Assumption 5: Staff have time to put learning into practice and integrate it into their day-to-day tasks.
This is very accurate as NPTVI is a small organisation and project staff have multiple duties due to staff vacancies that can overwhelm daily tasks. For instance, NPascoe is also acting as the Programme Coordinator supervising all Terrestrial Staff and the Iguana Headstart Facility at present.

Assumption 6: VI government continue to upkeep an ArcGIS system
The climate change data and dashboard being created through this project is all based upon the BVI Government's use of ArcGIS technology for analysis, development and monitoring. The BVI Government host a mapping portal on their server that will host the climate change web dashboard.

4. Project support to environmental and/or climate outcomes in the UKOTs

The progress made in Year 1 is outlined in Question 3.3 and the team are very confident that this project will be completed successfully by the end of Year 2 as specified. The strategic long-term outcomes that will result from this project, include the creation of BVI specific climate change data that will provide valuable information to technical officers and Government decision makers to facilitate strategic planning in order to safeguard human life, implement disaster risk reduction and conserve natural capital for the ecosystem services being provided.

This is a high priority for the BVI Government as detailed in the *Virgin Islands Climate Change Adaptation Policy* 2012, specifically Goal #1 – 'Enhance the resilience and natural adaptive capacity of our natural resources, including terrestrial, coastal and marine ecosystems as well as the fishery resource base.'
This project supports the *1st draft CBD Post 2020 Global Biodiversity Framework: 2030 Action Targets,* specifically Target 8: 'Minimize the impact of climate change on biodiversity, contribute to mitigation and adaptation through ecosystem-based approaches, contributing at least 10 GtCO2e per year to global mitigation efforts, and ensure that all mitigation and adaptation efforts avoid negative impacts on biodiversity' and also Target 11: 'Maintain and enhance nature's contributions to regulation of air quality, quality and quantity of water, and protection from hazards and extreme events for all people.'

5. Gender equality and social inclusion

Please quantify the proportion of women on the Project Board[1].	100% at NPTVI
Please quantify the proportion of project partners that are led by women, or which have a senior leadership team consisting of at least 50% women[2].	50% at ESL

A participatory and inclusive gender approach has been at the core of project engagement with local stakeholders. Interaction has taken place in various formats, including a workshop, group meetings at the National GIS committee monthly meetings and individual discussions when data is being requested from relevant Government Departments. These different approaches ensure that every stakeholder's voice is heard and their feedback is then documented through meeting minutes, whilst raising awareness of the project and its objectives.

The stakeholders engaged to date have been an equal mix of men and women of varying nationalities and ages. At the August 2022 workshop there were an equal number of men and women, with 12 males and 12 females attending, with an age range of 27 – 60 years. (See Table 2 in APPENDIX 4)

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[1] A Project Board has overall authority for the project, is accountable for its success or failure, and supports the senior project manager to successfully deliver the project.

[2] Partners that have formal governance role in the project, and a formal relationship with the project that may involve staff costs and/or budget management responsibilities.

The individuals are very familiar with each other as the NGIS holds monthly meetings that are a very open, inclusive and a respectful forum.

6. Monitoring and evaluation

The UK company Wavehill was engaged as a project partner with responsibility to conduct monitoring and evaluation (M&E). Within the first six months of Year 1 NPTVI and ESL met with Wavehill together so that all partners would understand the monitoring and evaluation framework and a schedule for subsequent meetings was developed. During Year 1 NPTVI and ESL have also met separately with Wavehill to discuss project progress.

In February 2023, at the end of Year 1 Wavehill produced a draft *Theory of Change* report with sections including: *What does success look like?; Key stages in the theory of change; Key performance indicators, Key assumptions, Barriers and key-enablers.* (See Document 2 – *Draft Theory of Change* in APPENDIX 4).

Wavehill is currently working on the Mid-Term Evaluation report following interviews with NPTVI and ESL. This M&E approach is working well and Wavehill have provided very helpful feedback to the project team.

7. Lessons learnt

The project was able to start on a strong footing as NPTVI and ESL had created the required data list during the project design phase, and institutional permissions were already secured from key Government Departments during Round 2 of the DPLUS application process. This resulted in key data (e.g. Lidar) being received without delay during ESL's visit to the BVI in August 2022.

NPTVI and ESL meet monthly to discuss project progress and communication is very strong between partners, however it was agreed that going forward we need to set date specific deadlines for key activities so that there is not a consequent delay, e.g. NPTVI has not completed the habitat map validation within protected areas as this is a time consuming task and was being done in phases when time permits, but this has delayed ESL from completing the activities reported on in Question 3.3.

As reported in question 2, the overlap between other DPLUS projects that NPTVI is a partner in has also positively contributed to the activities in this project, specifically the rapid botanic surveys conducted by NPTVI and Kew under DPLUS 084 as these will assist with the validation work required and the soil surveys being conducted under DPLUS 160 that can inform the model being developed as to how areas will respond to increased or decreased rainfall and drought. This cross-DPLUS approach is recommended to other UKOTs with limited resources and multiple projects.

8. Actions taken in response to previous reviews (if applicable)
N/A

9. Risk Management

There have been no new risks identified beyond what was submitted at project application, largely focused on fluctuations in the US Dollar and sterling exchange rate, COVID-19 implications, and natural disasters in the BVI impacting project activities.

NPTVI will utilise the Risk Framework Template that has been developed after DPLUS 180 was approved, but there was insufficient time to do this before the Year 1 report deadline.

10. Other comments on progress not covered elsewhere

It is essential that any and all input data is accurate and precise as it can be before modelling is performed. This will ensure that any time and resources consumed on workshops, meetings, and model iterations,

are spent evaluating the model parameters only, rather than any potential sources of external uncertainty or error. The habitat map is being manually updated by NPTVI, within the protected areas, using the skills and knowledge gained during DPLUS081. As such the following activities cannot begin until this input data is finalised.

- 1.2b Online project workshop/iterate the model

- 1.3a Build climate scenarios

- 1.3b Model climate impacts at two time periods

- 1.4a Run risk modelling

- 1.4b Undertake opportunity modelling for new protected areas

The reason for the delay is reported in Question 7, however ESL has made preparations to the modelling, such as the scoring of the rule bases, so that the finalised data can be inserted when complete, and iterated through almost immediately upon receipt of the updated habitat map in Year 2 Quarter 1.

11.   Sustainability and legacy

As reported in Question 3 on Project Progress there has been a lot of BVI wide publicity associated with this Darwin Plus project as climate change is a very topical issue here in the BVI, due to the impacts small islands face particularly intense hurricanes and drought. The evidence of increased capacity after the first workshop was reported in Question 3 and will continue to be monitored in Year 2 as the climate change web dashboard is developed and testing begins.

Training materials and operating guidelines will be produced, to facilitate ongoing activities after this project. ESL have a strong track record of delivering sustainability beyond the lifetime of projects, as NPTVI experienced following DPLUS081. A streamlined biodiversity monitoring schedule will be a practical output of this project that will inform NPTVI recurrent activities.

NPTVI will have resources created by this project to share information with the public using social media and educational materials on the ecosystem services that existing and proposed protected areas play in climate change mitigation.

12.   Darwin Plus identity

All publicity including press releases, Facebook posts, web blog posts and interviews utilise the Darwin Plus fund name or logo, as reported in Question 3.1. The Darwin funds are well known in the BVI due to a twenty-year history of NPTVI conducting projects made possible through this funding stream. The following news articles demonstrate the publicity generated:

https://www.284media.com/local/2022/08/27/national-parks-trust-leads-in-two-year-climate-change-project/

https://bvi.gov.vg/media-centre/national-parks-trust-leads-two-year-climate-change-project

https://www.bvibeacon.com/national-parks-trust-gets-200k-grant-to-model-climate-data/

13.   Safeguarding

Has your Safeguarding Policy been updated in the past 12 months?	**No**
Have any concerns been investigated in the past 12 months	**No**
Does your project have a Safeguarding focal point?	**Yes - Nancy Pascoe** ▮▮▮▮▮▮▮▮
Has the focal point attended any formal training in the last 12 months?	**No**
What proportion (and number) of project staff have received formal training on Safeguarding? **n/a**	Past: % [and number]

	Planned: % [and number]

Has there been any lessons learnt or challenges on Safeguarding in the past 12 months? Please ensure no sensitive data is included within responses.

There have not been any Safeguarding concerns in Year 1.

Does the project have any developments or activities planned around Safeguarding in the coming 12 months? If so please specify.

Yes - NPTVI is receiving assistance from the Safeguarding team at Royal Botanic Gardens Kew to develop its own Safeguarding policy, this began in February 2023 when the Kew Safeguarding team visited the BVI a spart of DPLUS 084 fieldwork activities, but this activity was funded separately by Kew. ESL's Safeguarding policy is being used for this DPLUS 180 project.

14.   Project expenditure

Table 1: Project expenditure during the reporting period (1 April 2022 – 31 March 2023)

Project spend (indicative in this financial year	2022/23 D+ Grant (£)	2022/23 Total actual D+ Costs (£)	Variance %	Comments (please explain significant variances)
Staff costs				
Consultancy costs				
Overhead Costs				
Travel and subsistence				
Operating Costs				
Capital items				
Others (Please specify)				
TOTAL	73,395	65,417	11	

Table 2: Project mobilising of matched funding during the reporting period (1 April 2022 – 31 March 2023)

	Matched funding secured to date	Total matched funding expected by end of project
Matched funding leveraged by the partners to deliver the project.		
Total additional finance mobilised by new activities building on evidence, best practices and project (£)		

15. OPTIONAL: Outstanding achievements or progress of your project so far (300-400 words maximum). This section may be used for publicity purposes

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

File Type (Image / Video / Graphic)	File Name or File Location	Caption, country and credit	Online accounts to be tagged (leave blank if none)	Consent of subjects received (delete as necessary)

Once the model has been completed and the web dashboard is operational in Year 2, this success will definitely be shared for publicity so that other UKOTs can get ideas and potentially use this as a model for their Territory.

Annex 1: Report of progress and achievements against logframe for Financial Year 2022-2023 – <u>if applicable</u>

Project summary	SMART Indicators	Progress and Achievements April 2022 - March 2023	Actions required/planned for next period
Impact Protected areas in the BVI are providing more resilience to climate change and are better supported by residents, and ongoing monitoring is supporting new areas being designated		The climate data acquired in Year 1 (as seen in Annex 4, Figure 4 clearly showed that the forested national park areas were also the areas (both historically and in future predictions) to be the cooler and wetter areas, due to the ecosystem services that these protected forests provide. This validated the importance of this project to identify future climatic impacts and the areas that can mitigate against these so that they can be advocated for protection.	
Outcome Evidence on climate change resilience to protect biodiversity and habitats, informs the 2025 Protected Areas System Plan; a monitoring system is created and residents better understand the Parks ecosystem services.	0.1 The area's most vulnerable to the effects of climate change are identified together with areas which offer the most mitigation, supplies the evidence for designation as a protected area, by Q4 2022 0.2 A web-based system is being used to monitor protected areas for change in condition, using satellite imagery and ground-based fieldwork, goes live by Q4 2023 0.3 50% of residents engaged in the project better understand the role that the national parks and highly ecologically resilient areas provide against climate change, against year 1 baseline.	(Report against the indicators on progress towards achieving the project Outcome) The models for 0.1 have been identified, defined, and designed. Some input data is being quality assured for accuracy/precision, but, as the majority of the prep work is complete, can be integrated into a draft output with relative ease. For 0.2, satellite data is being regularly acquired and processed. The web-based system has been confirmed, and efforts are underway to identify the technical requirements. Condition indicators have been researched and designed. For 0.3 initial anonymous results from the first workshop feedback, suggested all participants had a better understanding of the importance, issues, threats, and	(Highlight key actions planned for next period) • Model drafts • Models quality assured through expert panel • Model iterations • Draft condition indicator outputs • Validation of indicators through additional fieldwork • Development of data portal feed • 2nd on-island workshop • Y2 - Two animated cartoons to raise awareness of climate change impacts on biodiversity and habitats, and how protected areas can help

Project summary	SMART Indicators	Progress and Achievements April 2022 - March 2023	Actions required/planned for next period
		mitigations of climate change in the protected areas	• Y2 – BVI Government GIS Day event- students to have hands on GIS time using climate data • Y2 – Public symposium at BVI Community College to present the climate change data and dashboard
Output 1. Biodiversity rich and resilient areas are identified by modelling the likely impacts of climate change. Scenarios showing what might happen to protected areas and the services they provide are created.	1.1 Data specific to BVI on climate change variables and ecosystem key factors are acquired, from UKCP18 (or similar) and BVI National GIS, by the end of Q2, 2022 1.2 Ecosystem services and biodiversity resilience models are created for BVI, based on existing scientific data, as well as local and international expert knowledge, by the end of Q1 2023 1.3 Scenario models show the impact that climate change has on ecosystem service provision, and the natural resilience of the island is demonstrated, by the end of Q1 2023 1.4 Areas most vulnerable to the effects of climate change are identified together with areas which offer the most mitigation. These are shown on the monitoring	• 1.1: Key input data acquired, including climate models. The habitat map is being quality assured, to ensure it is up-to-date, and as accurate/precises as it can be. • 1.2: The ecosystem service models have been identified, designed and developed. Draft outputs can be modelled, and peer reviewed, when the habitat data is complete. • 1.3: climate projection models have been processed, and the ecosystem services models designed. The habitat scenarios will be design in collaboration between the project partners, with the up-to-date habitat data. • 1.4. Not yet started	
Activity 1.1a Obtain open-source climate change data, eg. RTP85 database, available for the BVI and process the data into meaningful sets, such as hurricane season, temperature, wind speeds etc. that will describe important criteria for BVI climate resilience.	WorldClim data acquired and processed (Annex 4, Fig. 4: DPLUS180_worldclim.png).	Complete
Activity 1.1b For all National Park locations a set of 5 ecosystem service factors, eg. coastal protection, soil erosion protection, biodiversity, rainfall capture and carbon will be agreed.	The priority ecosystem services identified are coastal protection, slope	Complete

Project summary	SMART Indicators	Progress and Achievements April 2022 - March 2023	Actions required/planned for next period
These will then form the basis of the individual ecosystem services and multi-criteria analysis.		stability, terrestrial and marine biodiversity protection, terrestrial and marine climate regulation.	
Activity 1.1c Collate existing key factor data held in the BVI National GIS and pre-process this for the climate and ecosystem service modelling, including land- and sea-form (e.g., slope aspect, concavity etc), habitats, hydrological data, soil, geology, management information (e.g., National Park boundaries)		Key factor data identified, collected and processed. This includes very high-resolution topographic data, which can be very difficult to acquire (see Annex 4, Fig.1 DPLUS180_lidar.png). The habitat map is being updated by NPTVI, using the skills learned during DPLUS081.	• Completion of habitat map quality assurance • Additional data needs have been identified during the model designs. These will be sourced and processed
Activity 1.2a Design scientific rule-base for ecosystem services and biodiversity resilience models, including habitat and key species' networks and information on patch dynamics; run the model.		Scientific rulebase's have been designed for all models (Annex 4, Fig. 3: DPLUS180_scoring.png)	• Draft model outputs
Activity 1.2b Assess the outputs of the model against the field validation (see 2.4a), through an online project workshop with the project team and key local partners, then iterate until the models reflects the situation on the ground.		Requires 1.2a	Online peer review workshop of draft 1.2a models
Activity 1.3a Build climate scenarios for "as is", "degraded", and "protected" environmental and climate scenarios, based on national physical development projects, and local knowledge.		Projected climate models acquired and processed. Ecosystem service models designed Opportunity models designed	Collaboration between project partners to define 'degraded' scenario
Activity 1.3b Model the impacts of realising the three scenarios, using two time periods of predicted climate data (e.g., 2040 and 2080), compared to the baseline.		Not yet started	Run all the ecosystem services models designed in 1.2a, using climate projection models from 1.1a, for each of the scenarios in 1.3a
Activity 1.4a Using the climate scenarios and ecosystem service maps run risk modelling to show areas most vulnerable to climate change.		Not yet started	Run all the risk models designed in 1.2a, using climate projection models from 1.1a, for each of the scenarios in 1.3a

Project summary	SMART Indicators	Progress and Achievements April 2022 - March 2023	Actions required/planned for next period
Activity 1.4b Undertake opportunity modelling to show potential new protected areas, as a mitigation measure against climate change		Opportunity models designed (See Annex 4, Doc.1: Opportunity Mapping for BVI.docx)	Develop and run models
Activity 1.4c Integrate risk and opportunity layers into the web-based monitoring platform, with mechanisms for post-project updates.		Not yet started	
Output 2. A web-based platform to both inform, showcase and monitor critical areas is built. It is validated by fieldwork, and the results used to inform the conservation plans for Prickly Pear and Sandy Cay National Parks	2.1 A user-researched, web-based platform is designed, with a beta version released by Q2 2023 2.2 Remote sensing indicators of habitat condition and change, are developed and tested, by Q4 2023 2.3 Fieldwork protocols to link to the remote sensing indicators, for at least 4 conservation threats are developed by Q2 2023 2.4 Fieldwork undertaken in Prickly Pear and Sandy Cay National Parks, to validate remote sensing indicators, and track changes over the life of the project 2.5 The web-based platform goes live, and the results inform the conservation plans for Prickly Pear and Sandy Cay National Parks, and used for its on-going monitoring, by Q4 2024.	• 2.1. NPTVI confirmed that the priority would be to feed data into the exiting BVI data portal. This is an open access portal, that is already known and in use. Efforts are underway to identify the technical requirements of feeding data into the portal. • 2.2. Condition threats were defined as extreme rainfall, drought, deforestation and storm surge. Methodologies for identifying indicators of these has been researched. The indicators have been designed and are currently in development • 2.3 A fieldwork protocol has been designed and tested. There will likely be iterations during the validation processes of the indicators. • 2.4 A field trip to Prickly Pear National Park took place during the August 2022 workshop so that ESL could better understand the BVI geography as well as to teach the workshop participants more about ground truthing satellite imagery, and the concept of the fieldwork protocol. • 2.5. Not yet started	
Activity 2.1a. The project team to create a mock-up of the web-based monitoring platform using PowerPoint slides with notes for the ESL developers.		Efforts are underway to identify the technical requirements of feeding data into an existing data portal.	If the existing data portal is not feasible, a web-based dashboard can be designed instead
Activity 2.1b. Conduct research with the BVI National GIS committee using the PowerPoint slides to agree on key user functionality of the proposed model for future policy and monitoring.		Not yet started, as this depends on the findings of 2.1a.	Mini-workshop with BVI National GIS

Project summary	SMART Indicators	Progress and Achievements April 2022 - March 2023	Actions required/planned for next period
Activity 2.1c. Build the beta version, test it and make any necessary iterations.		Not yet started	Test the data feed process with a small dataset.
Activity 2.2a. Project team to decide key factors of terrestrial and marine environment for habitat condition, visible within the remote sensing data to create remote sensing indicators.		Key factors researched and identified	Complete
Activity 2.2b. Develop and test the remote sensing indicators, through fieldwork from 2.4.		Indicators designed and in development (Annex 4, Fi. 5: DPLUS180_ConservationThreats_Indicators_shortlist.xlsx)	Produce draft indicator outputs for validation and testing
Activity 2.3a. Project team to agree four conservation threats and link these to the remote sensing indicators.		Conservation threats defined and confirmed	Complete
Activity 2.3b. Project team with input from Steering Committee, to design a fieldwork protocol for use over the course of the project.		Fieldwork protocol designed	This is an iterative process, that will be continually developed in line with the remote sensing indicators
Activity 2.4a. Undertaken fieldwork in Prickly Pear and Sandy Cay National Parks, and feedback the results to ESL.		**Not yet started**	**Conduct fieldwork and report back to ESL using the fieldwork protocols that will validate the draft maps**
Activity 2.4b. Validate the remote sensing indicators, through the latest field surveys, and modify if required.		Not yet started	Once complete, the draft indicator outputs will be shared with NPTVI for validation
Activity 2.5a. Upload the condition indicators and threat indicators to the web-based monitoring platform.		Not yet started	Test the data platform Complete condition indicators Upload the data
Activity 2.5b. The web-based platform goes live and is used, in conjunction with the fieldwork, to agree working protocols for the future, for other National Park sites.		Not yet started	Project partners to agree on method of 'Live' event. E.g., During the final workshop, an on-line webinar/event etc

Project summary	SMART Indicators	Progress and Achievements April 2022 - March 2023	Actions required/planned for next period
Activity 2.5c. Seek long-term funding of the platform from the BVI Climate Change Trust Fund, to ensure continued use of web-based monitoring platform.		Not yet started	Contact the BVI Climate Change Trust Fund Board once its new membership has been appointed by the BVI Government
Output 3. Scientific knowledge, understanding, findings, and techniques, are effectively transferred from key experts to their target audience (project staff, government, conservation groups, and local residents) .	3.1 At least 5 staff, from MNLRI, NPTVI, DDM, and other NGIS department, feel confident to use advanced GIS and modelling techniques following the online/in-person workshops run throughout the project. These staff demonstrate the use of, or planned use of, the techniques and data in their day to day, work by Q4 2024. 3.2 By Q1 2024, the data, models, and methods pass a peer-reviewed process by an expert steering committee and a technical symposium. 3.3 Through project workshops, by Q3 2024, at least 9 leaders from NPTVI and BVI Government departments, understand the longer-term effects of climate change on the national parks and wider environment of BVI. They are confident logging-in to the web-based platform, and understand how it can be used for policy creation and evaluation. 3.4 By Q4 2024,70% of engaged public are aware of the impacts of climate change and the actions to mitigate it, and are aware of the work of NPTVI to help protect biodiversity in the longer term. 3.5 At least half the schools on BVI use project-created communication material,	• 3.1. Not yet started, however all agencies named participated in the August 2022 workshop and meet monthly at the National GIS meetings. NPTVI updates on this climate change modelling project and ideas for how this data can be used are debated amongst this technical user group. • 3.2. The rules for the models have been designed and developed. Once draft outputs are complete, an on-line peer review symposium will review the methods and outputs, before iterations. • 3.3 Not yet started • 3.4 There was extensive media coverage generated at the project launch and workshop in August 2022 workshop. This was also endorsed by the Minister of Natural Resources and Labour as seen by his participation and public statements about the event and the importance of modelling climate change for the BVI. https://www.facebook.com/watch/?v=804376484080082 The NPTVI Facebook page and website blog spread awareness throughout the year as project activities take place and as topical global events take place that demonstrate the impacts of climate change. https://www.bvinpt.org/blog • 3.5. Not yet started	

Project summary	SMART Indicators	Progress and Achievements April 2022 - March 2023	Actions required/planned for next period
	such as animations, to educate students on the impact of climate change, and what can be done to mitigate it, By Q3 24.		
Activity 3.1a Online training surgeries for key staff are delivered every month for 2 hours to build capacity in modelling climate change, biodiversity resilience, ecosystem services, and using radar data. This will strengthen skills for planning in National Parks as well as broader planning and disaster management mitigation planning.		Not yet started due to time constraints by BVI key staff.	This activity will begin in Y2/Q2 as this is an important skillset that NPTVI want to maintain and actively use to assess data gathered under another project - DPLUS 084 as this will feed into this DPLUS 180 project as forest resilience to disaster events will be identified.
Activity 3.1b On-island technical training workshop, with at least 5 key personnel from MNLRI, NPTVI, DDM, and other NGIS members, in remote sensing for climate indicators, integrating GIS and field monitoring protocols, within six months of the project starting.		The on-island workshop gathered climate modelling experts and government personnel to exchange their knowledge of climate from local to global perspectives, while introducing the synergy between satellite imagery, ecology, and ground surveys

DPLUS081_Workshop1_Feedback.xlsx | Complete |
| Activity 3.1c Following the workshop participants use the knowledge gained to conduct individual case studies that relate to their department's day-to-day working life. | | Not yet started due to time constraints by BVI key staff. | Same as reported above in Activity 3.1a |
| Activity 3.1d On-island/online technical training workshop, for at least 8 key staff from the National GIS on using and maintaining the dashboard, uploading new data, and keeping the data current. | | Not yet started | The climate change data portal needs to be developed.
The climate change models need to be finalised
The workshop needs to be organised |
| Activity 3.2 Online technical symposium where key user groups (international scientists eg. RSPB, Kew, Fort Worth Zoo, Cefas, NOC), at least two local NGOs, and BVI Government Climate Change Committee, provide feedback on the models to ensure they are creditable. This will consider the environmental, habitat, and species factors in light of climate change scenarios. | | Not yet started | ESL to create draft outputs
NPTVI to identify and contact the user groups |

Project summary	SMART Indicators	Progress and Achievements April 2022 - March 2023	Actions required/planned for next period
Activity 3.3a On-island project launch within six months of the project starting, with up to 9 key staff from the National GIS, MNRLI, relevant policy officials, and the media.		Project was officially launched in August 2022 with 20 people from eight Government departments, including the Minister and Permanent Secretary for the Ministry of Natural Resources and Labour (MNRL). A press conference was held with four media houses attending.	Complete
Activity 3.3b On-island/online end-of-project workshop to relevant policy officials, and the media, which demonstrates the web-based platform, and ensures user competency and confidence.		Not yet started	The climate change data portal needs to be developed. The climate change models need to be finalised The workshop needs to be organised
Activity 3.4a A project website is created on the NPTVI website with reports, press releases, maps and messages.		Blog created on the existing NPTVI website which features project updates and messages to raise awareness about climate change and the role of protected areas. https://www.bvinpt.org/blog	Will continue to update this blog in Y2.
Activity 3.4b Create and disseminate press release introducing the project and explaining the importance of BVI specific climate data generation being used for conservation, development, disaster planning.		Press release issued with media interviews at the August 2022 workshop. There was also a recorded video of the press conference filmed by media outlet JTV which has had 1.1k views. https://www.facebook.com/watch/?v=804376484080082	Complete
Activity 3.4c NPTVI will showcase the project dashboard at the annual BVI GIS day event, which is targeted at school children and residents, to promote public interaction with the dashboard.		Not yet started	The climate change data portal needs to be developed.

Project summary	SMART Indicators	Progress and Achievements April 2022 - March 2023	Actions required/planned for next period
			The climate change models need to be finalised The event will be defined
Activity 3.4d NPTVI will maintain an active social media presence throughout the project to highlight and disseminate information about training and fieldwork events and project outputs.		The NPTVI Facebook page and website blog spread awareness throughout the year as project activities take place and as topical global events take place that demonstrate the impacts of climate change. https://www.bvinpt.org/blog	Updates will continue in Y2
Activity 3.5a NPTVI will create and disseminate two animated cartoons on climate change, and the ecology of the British Virgin Islands to assist communicating the project to with wider public.		Not yet started	A storyline will be generated through project group discussions to identify key messages and cartoons will be created in Y2.

Annex 2: Project's full current logframe as presented in the application form (unless changes have been agreed)

Project Summary	SMART Indicators	Means of Verification	Important Assumptions
Impact: (Max 30 words) Protected areas in the BVI are providing more resilience to climate change and are better supported by residents, and ongoing monitoring is supporting new areas being designated.			
Outcome: (Max 30 words) Evidence on climate change resilience to protect biodiversity and habitats, informs the 2025 Protected Areas System Plan; a monitoring system is created and residents better understand the Parks ecosystem services.	0.1 The area's most vulnerable to the effects of climate change are identified together with areas which offer the most mitigation, supplies the evidence for designation as a protected area, by Q4 2022 0.2 A web-based system is being used to monitor protected areas for change in condition, using satellite imagery and ground based fieldwork, goes live by Q4 2023 0.3 50% of residents engaged in the project better understand the role that the national parks and highly ecologically resilient areas provide against climate change, against year 1 baseline.	0.1 Maps of most vulnerable areas, and areas which offer the most mitigation, to the effects of climate change 0.2 Satellite imagery is regularly incorporated into a dashboard and web-based user statistics shows that they are being accessed 0.3 Survey reports demonstrate an improved awareness of climate issues, and a better understanding on how individual actions can impact resilience.	Increased understanding of climate change impacts leads to action to enhance the Protected Sites on BVI Covid-19 mitigating strategies remain robust and operating and residents and project members can engage with hands-on activities. No major natural disasters. Staff turn-over remains low - trained staff remain in post. Staff have time to put learning into practice and integrate it into their day-to-day tasks. VI government continue to upkeep an ArcGIS ecosystem
Outputs: **1**. Biodiversity rich and resilient areas are identified by modelling the likely impacts of climate change. Scenarios showing what might happen to protected areas and the services they provide are created.	1.1 Data specific to BVI on climate change variables and ecosystem key factors are acquired, from UKCP18 (or similar) and BVI National GIS, by the end of Q2, 2022 1.2 Ecosystem services and biodiversity resilience models are created for BVI, based on existing	1.1 Inventory of data, and their sources, is acquired. A copy is held on-island by NPTVI 1.2 Description of models, maps of Ecosystem resilience, Habitat & species networks, and Ecosystem	Increased understanding of climate change impacts leads to action to enhance the Protected Sites on BVI Covid-19 mitigating strategies remain robust and operating and residents and project members can engage with hands-on activities.

	scientific data, as well as local and international expert knowledge, by the end of Q1 2023 1.3 Scenario models show the impact that climate change has on ecosystem service provision, and the natural resilience of the island is demonstrated, by the end of Q1 2023 1.4 Areas most vulnerable to the effects of climate change are identified together with areas which offer the most mitigation. These are shown on the monitoring website by the end of Q3 2023.	Services models are produced and shared with all project partners 1.3 Maps of scenario models are created showing "as is", "degraded", and "protected" environmental and climate scenarios 1.4 Maps of protected sites, and where the boundaries could be enhanced to offer climate resilience are produced	No major natural disasters. Staff turn-over remains low - trained staff remain in post. Staff have time to put learning into practice and integrate it into their day-to-day tasks. VI government continue to upkeep an ArcGIS ecosystem Data is available for use from BVI National GIS
2. A web-based platform to both inform, showcase and monitor critical areas is built. It is validated by fieldwork, and the results used to inform the conservation plans for Prickly Pear and Sandy Cay National Parks	2.1 A user-researched, web-based platform is designed, with a beta version released by Q2 2023 2.2 Remote sensing indicators of habitat condition and change, are developed and tested, by Q4 2023 2.3 Fieldwork protocols to link to the remote sensing indicators, for at least 4 conservation threats are developed by Q2 2023 2.4 Fieldwork undertaken in Prickly Pear and Sandy Cay National Parks, to validate remote sensing indicators,	2.1 User-research notes and development framework 2.2 Matrix of remote sensing indicators and habitat conditions/resilience/vulnerability 2.3 Fieldwork protocol document and schedule 2.4 Fieldwork maps and data 2.5 Monitoring system launch date, maintenance log and usage log.	Sentinel satellites remain operational for their expected lifetime Staff are able to access ground sites for collecting field data The hurricane seasons do not nullify the ground data for the training and validity models Field-based staff are available when required for ground work Project-trained staff are available to undertake, and maintain the monitoring system

			VI government continue to upkeep an ArcGIS ecosystem
	2.5 The web-based platform goes live, and the results inform the conservation plans for Prickly Pear and Sandy Cay National Parks, and used for its on-going monitoring, by Q4 2024.		Appropriate staff and experts are available to contribute to the user-research
3. Scientific knowledge, understanding, findings, and techniques, are effectively transferred from key experts to their target audience (project staff, government, conservation groups, and local residents)	3.1 At least 5 staff, from MNLRI, NPTVI, DDM, and other NGIS department, feel confident to use advanced GIS and modelling techniques following the online/in-person workshops run throughout the project. These staff demonstrate the use of, or planned use of, the techniques and data in their day to day, work by Q4 2024. 3.2 By Q1 2024, the data, models, and methods pass a peer-reviewed process by an expert steering committee and a technical symposium. 3.3 Through project workshops, by Q3 2024, at least 9 leaders from NPTVI and BVI Government departments, understand the longer-term effects of climate change on the national parks and wider environment of BVI. They are	3.1a, 3.3 Agendas, materials and attendance lists (disaggregated by gender). 3.1b, 3.3 Attendee feedback surveys where participants report increased knowledge and skills. Further feedback on these activities from stakeholder interviews. 3.1c Each staff member presents a case-study of advanced GIS/modelling techniques 3.2 minutes are kept of the steering committee and any comets are address and resubmitted 3.2b questionnaires issued at the end of the symposium to check robustness of models 3.3 questionnaires issued at the end of the workshop related to the use of the web-based platform. A second	Travel costs remain stable throughout the project to allow off site trainers to deliver onsite training. Key users of biodiversity data on-island are able to join the workshops and agree to the mapping schemes. Staff time made available to participate in training. The right staff are able to attend the workshops. Relevant activities can take place remotely via video conference. Relevant activities can take place in person, with COVID mitigating strategies in place. Key stakeholders including government and residents, can understand the maps and

	confident logging-in to the web-based platform, and understand how it can be used for policy creation and evaluation.

3.4 By Q4 2024,70% of engaged public are aware of the impacts of climate change and the actions to mitigate it, and are aware of the work of NPTVI to help protect biodiversity in the longer term.

3.5 At least half the schools on BVI use project-created communication material, such as animations, to educate students on the impact of climate change, and what can be done to mitigate it, By Q3 24. | questionnaire issued two months after the workshop to assess how the learning is being used.

3.4, 3.5 attendee feedback from engagement events

3.4, 3.5 Social media analytics, including number of times watched and shared | documents sufficiently to engage and change practises in light of the evidence.

Covid allows wider engagement of the public, and within schools |

Activities (each activity is numbered according to the output that it will contribute towards, for example 1.1, 1.2 and 1.3 are contributing to Output 1)

Output 1:

1.0 Data and Environmental model creation *Biodiversity rich and resilient areas are identified by modelling the likely impacts of climate change. Scenarios showing what might happen to protected areas and the services they provide are created.*

1.1a. Obtain open-source climate change data, eg. RTP85 database, available for the BVI and process the data into meaningful sets, such as hurricane season, temperature, wind speeds etc. that will describe important criteria for BVI climate resilience.

1.1b. For all National Park locations a set of 5 ecosystem service factors, eg. coastal protection, soil erosion protection, biodiversity, rainfall capture and carbon will be agreed. These will then form the basis of the individual ecosystem services and multi-criteria analysis.

1.1c. Collate existing key factor data held in the BVI National GIS and pre-process this for the climate and ecosystem service modelling, including land- and sea-form (e.g., slope aspect, concavity etc), habitats, hydrological data, soil, geology, management information (e.g., National Park boundaries)

1.2.a. Design scientific rule-base for ecosystem services and biodiversity resilience models, including habitat and key species' networks and information on patch dynamics; run the model.

1.2b Assess the outputs of the model against the field validation (see 2.4a), through an online project workshop with the project team and key local partners, then iterate until the models reflects the situation on the ground.

1.3a Build climate scenarios for "as is", "degraded", and "protected" environmental and climate scenarios, based on national physical development projects, and local knowledge.

1.3b Model the impacts of realising the three scenarios, using two time periods of predicted climate data (e.g., 2040 and 2080), compared to the baseline.

1.4a Using the climate scenarios and ecosystem service maps run risk modelling to show areas most vulnerable to climate change.

1.4b Undertake opportunity modelling to show potential new protected areas, as a mitigation measure against climate change.

1.4c Integrate risk and opportunity layers into the web-based monitoring platform, with mechanisms for post-project updates.

Output 2:

2.0 Creation of the web-based monitoring portal. *A web-based platform to both inform, showcase and monitor critical areas is built. It is validated by fieldwork, and the results used to inform the conservation plans for Prickly Pear and Sandy Cay National Parks*

2.1a. The project team to create a mock-up of the web-based monitoring platform using PowerPoint slides with notes for the ESL developers.

2.1b. Conduct research with the BVI National GIS committee using the PowerPoint slides to agree on key user functionality of the proposed model for future policy and monitoring.

2.1c. Build the beta version, test it and make any necessary iterations.

2.2a. Project team to decide key factors of terrestrial and marine environment for habitat condition, visible within the remote sensing data to create remote sensing indicators.

2.2b. Develop and test the remote sensing indicators, through fieldwork from 2.4.

2.3a. Project team to agree four conservation threats and link these to the remote sensing indicators.

2.3b. Project team with input from Steering Committee, to design a fieldwork protocol for use over the course of the project.

2.4a. Undertaken fieldwork in Prickly Pear and Sandy Cay National Parks, and feedback the results to ESL.

2.4b. Validate the remote sensing indicators, through the latest field surveys, and modify if required.

2.5a. Upload the condition indicators and threat indicators to the web-based monitoring platform.

2.5b. The web-based platform goes live and is used, in conjunction with the fieldwork, to agree working protocols for the future, for other National Park sites.

2.5c. Seek long-term funding of the platform from the BVI Climate Change Trust Fund, to ensure continued use of web-based monitoring platform.

Output 3: *Scientific knowledge, understanding, findings, and techniques, are effectively transferred from key experts to their target audience (project staff, government, conservation groups, and local residents)*

3.1a Online training surgeries for key staff are delivered every month for 2 hours to build capacity in modelling climate change, biodiversity resilience, ecosystem services, and using radar data. This will strengthen skills for planning in National Parks as well as broader planning and disaster management mitigation planning.

3.1b On-island technical training workshop, with at least 5 key personnel from MNLRI, NPTVI, DDM, and other NGIS members, in remote sensing for climate indicators, integrating GIS and field monitoring protocols, within six months of the project starting.

3.1c Following the workshop participants use the knowledge gained to conduct individual case studies that relate to their department's day-to-day working life.

3.1d On-island/online technical training workshop, for at least 8 key staff from the National GIS on using and maintaining the dashboard, uploading new data, and keeping the data current.

3.2 Online technical symposium where key user groups (international scientists eg. RSPB, Kew, Fort Worth Zoo, Cefas, NOC), at least two local NGOs, and BVI Government Climate Change Committee, provide feedback on the models to ensure they are creditable. This will consider the environmental, habitat, and species factors in light of climate change scenarios.

3.3a On-island project launch within six months of the project starting, with up to 9 key staff from the National GIS, MNRLI, relevant policy officials, and the media.

3.3b On-island/online end-of-project workshop to relevant policy officials, and the media, which demonstrates the web-based platform, and ensures user competency and confidence.

3.4a A project website is created on the NPTVI website with reports, press releases, maps and messages.

3.4b Create and disseminate press release introducing the project and explaining the importance of BVI specific climate data generation being used for conservation, development, disaster planning.

3.4c NPTVI will showcase the project dashboard at the annual BVI GIS day event, which is targeted at school children and residents, to promote public interaction with the dashboard.

3.4d NPTVI will maintain an active social media presence throughout the project to highlight and disseminate information about training and fieldwork events and project outputs.

3.5a NPTVI will create and disseminate two animated cartoons on climate change, and the ecology of the British Virgin Islands to assist communicating the project to with wider public.

Annex 3: Standard Indicators

NPTVI and ESL understand the rationale for creating standard indicators for use by the Biodiversity Challenge Funds and both partner organisations have attended or watched the recorded webinar on how these should be created. However, there was insufficient time for the NPTVI Project Leader to undertake this lengthy task in time to meet the annual report deadline. The final report for DPLUS 180 will meet this request.

Table 1   Project Standard Indicators

DPLUS Indicator number	Name of indicator using original wording	Name of Indicator after adjusting wording to align with DPLUS Standard Indicators	Units	Disaggregation	Year 1 Total	Year 2 Total	Year 3 Total	Total to date	Total planned during the project
E.g. DPLUS-A01	E.g. People who attended training on CBD Reporting Standards	E.g. Number of officials from national Department of Environment who attended training on CBD Reporting Standards	People	Men	20			20	60
E.g. DPLUS-C17	E.g. Articles published by members of the project team	E.g. Number of unique papers published in peer reviewed journals	Number	None	1			1	4

Table 2   Publications

Title	Type (e.g. journals, manual, CDs)	Detail (authors, year)	Gender of Lead Author	Nationality of Lead Author	Publishers (name, city)	Available from (e.g. weblink or publisher if not available online)