Darwin Plus:
Overseas Territories Environment and Climate Fund

Final Report

Darwin Project Information

Project reference	DPLUS073
Project title	Improving small island resilience and self-sufficiency in habitat monitoring and management
Territory(ies)	British Virgin Islands
Lead organisation	University of Roehampton (UoR)
Partner institution (s)	Jost Van Dykes BVI Preservation Society (JVDPS), Royal Society for the Protection of Birds (RSPB)
Darwin Plus Grant value	£119,283
Start/end date of project	April 2018
Project leader name	Louise Soanes
Project website/Twitter/blog etc.	
Report author(s) and date	Louise Soanes & Susan Zaluski June 2020

1 Project Summary

Following the devastating 2017 hurricane season, improving island resilience to extreme weather events is at the forefront of the BVIs community's mind. This project aimed to promote the value of natural coastal and marine habitats in providing protection against future extreme weather events. Focusing on the small inhabited island of Jost Van Dyke (JVD), we assessed the resilience of key terrestrial and marine habitats, established environmental baselines, produced long-term management plans for coastal habitats, increased the awareness of the value of key coastal habitats and implemented community-led coastal resilience recovery measures.

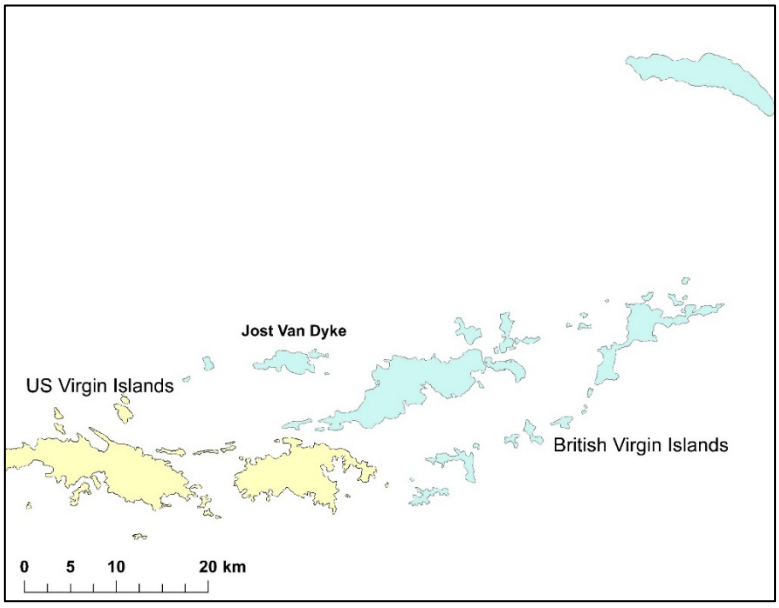

Figure 1. Location of Jost Van Dyke, British Virgin Islands

2 Project Stakeholders/Partners

2.1 Project partners

This Darwin project was developed at the request of the JVDPS and has been jointly led and coordinated by JVDPS and UoR with technical input from the RSPB. All three partners have worked together on successful projects in the BVI before. Each partner was actively involved in project planning and implementation. JVDPS led on all aspects of surveys, training and stakeholder consultations throughout the project, while UoR and RSPB chiefly contributed their expertise, provided additional training and mentoring and assisted with the development of project reports and outputs. Regular meetings were held either in person or via skype between the three project partners and more regularly through a WhatsApp chat group between JVDPS and UoR.

2.2 Engagement/involvement of Government stakeholders

Government and statutory body representatives have been offered various training opportunities throughout the project (*Annexe 6.1*), including training in aspects of biodiversity monitoring, mangrove nursery establishment and in the creation of artificial reefs and mangrove planters, these workshops were attended by both local community members and government stakeholders (represented by National Parks Trust of the BVI, Department of Disaster Management, the Governor's Office and elected District Representative Honourable Mitch Turnbull. In addition to training opportunities Government agencies have been fully consulted and involved in this project since its onset, and we have been involved in regular meetings with various Government agencies to discuss aspects of coastal restoration on JVD and across the wider Territory (*Annexe 6.2*). Stakeholder consultation has included meetings held between project leads and the BVI Government's Reconstruction and Development Agency (RDA) (*Annexe 6.2.1)* to introduce this project's aims and how these may relate to the coastal restoration across the wider territory. Four government-wide meeting held to discuss Territory-coordinated mangrove restoration work

(*Annexe 6.2.2-6.2.5*). Project leads Louise Soanes and Susan Zaluski also presented and attended a workshop hosted under DPLUS081 where we took the opportunity to introduce our project to BVI stakeholders, which included representatives from the National Parks Trust of the Virgin Islands, BVI Conservation & Fisheries Department, the Ministry of Natural Resources and the BVI Department of Disaster Management, and representatives from Environment Systems, JNCC and Turks and Caicos environmental agencies (*Annexe 6.2.6)*.

2.3 Engagement/involvement with Community stakeholders

Jost Van Dyke is a small island with less than 300 people most of whom reside and work in two small settlements on the island, the JVDPS office is centrally located and JVDPS staff are regularly seen within the community. Our local project lead engages on an almost daily basis with members of the community when conducting project activities. This informal almost one-one level of engagement and knowledge exchange works well in a small island community. In addition to face-to face discussions with people residing on JVD we have uploaded 11 social media posts detailing the project activities on the JVDPS and JVD community board facebook pages – with positive feedback and a high level of engagement by JVD residents (*Annexe 6.3.1*). We are also reached the wider BVI community through national newspaper articles (*Annexe 6.3.2*).

Seventy-two local community members have taken part in training opportunities and/or been employed as part of this project, including a local single mother who has been employed on a part-time basis to maintain the mangrove nursery. Fourteen Local JVD and Tortola- based staff have been employed in biological monitoring training and have led biological data collection (*Annexe 6.1.1 & 6.1.2),* Six local persons were trained in the use of heavy machinery to clear hurricane debris from wetlands *(Annexe 6.1.3)*. Ten local persons were employed to create artificial reefs and mangrove planters *(Annexe 6.1.4).* As an introduction to any training/paid employment opportunity we would introduce the project's objectives and collect any feedback on project activities from all who participate, thus extending out outreach and stakeholder consultation to a wider section of the community. In support of our work a local JVD business owner with a popular bar and restaurant located adjacent to one of the key sites identified for mangrove restoration sponsored a youth training event in mangrove restoration *(Annexe 6.1.7).*

Eight information signs have been installed on JVD in locations where the majority of community members will be able to view them on their way to work or school (*Annexe 6.3.3*), thus allowing both community and tourist engagement with project activities. JVDPS also worked closely with the JVD primary school to offer community training credits to 8 x Grade 4 students for their role in after school activities related to the establishment of the mangrove nursery and mangrove re-planting (*Annexe 6.1.6*) We facilitated a training session for students in the creation of a floating nursery at the H Lavity Stoutt Community College for 13 college students and visiting secondary students from the nearby Ceder International School *(Annexe 6.1.8).*

As part of this project JVDPS was able to enter into an official partnership with the Centre for Applied Marine Studies (CAMS) at the H. Lavity Stoutt Community College to offer paid

internships to six students with the overall aim of aassisting CAMS in advancing the BVI's capacity for restoring mangroves and building coastal resilience to climate change (*Annexe 6.1.9).*

We also met with the President of BVIs Rotary Club (*Annexe 6.2.10*) and a private marina and resort at Nanny Cay, Tortola (*Annexe 6.2.11*) to discuss recommendations for nursery establishment.

A particular success noted was the rallying of the community to protest to Government on the rebuilding of the JVD primary school at the same site that is was situated before it was destroyed by Hurricane Irma. The community recognised that the school was at risk from flooding and used flood risk models created as part of this project (in collaboration with Department of Disaster Management) to present alternative sites for re-building *(Annexe 6.4).*

3 Project Achievements

3.1 Outputs

Output 1. **Baseline assessment and GIS mapping of the status and resilience of key habitats in JVD and its offshore cays to future climate change**

This output focused on baseline data collection and the assessment of the status and resilience of key habitats in JVD and its offshore cays to future climate change. Activities related to this output include:

1) In May 2018 a 'train the trainers' workshop was held on JVD which focused on methods for assessing the resilience of key habitats and collecting baseline, this workshop was facilitated by Dr Kathleen Wood (SWA Ltd.) with representatives from JVDPS, the JVD community, NPT, University of Roehampton and ActionQuest youth sailing programme in attendance (*Annexe 6.1.1*). Following this workshop Susan Zaluski provided training to an additional 8 members of the JVD community, who then assisted with baseline data collection of mangroves, seagrass, and coastal habitats (*Annexe 6.1.2*). In addition, this project supported a Stanford University MSc student Andrea Celeste in her work to develop a citizen science coral reef monitoring using photogrammetry to measure the rugosity, which can be used as an index of reef health and resilience. Ms. Celeste worked with two local field assistants in 2018 and 2019 to conduct initial assessments.
2) Long-term monitoring guidelines of coastal habitats have been established for mangroves, reef, seagrass and coastal vegetation (*Annexe 6.5.1*) Baseline data collection/resilience assessments of seven key seagrass sites, nine coral reef sites, four mangrove areas, and five coastlines/offshore cays. Three reports detailing the status and resilience of key coastal habitats have been produced (Annexe 6.5.2-6.5.4) and circulated to relevant stakeholders. In addition, we worked with Government agencies to obtain map layers representing watershed catchment areas, and to produce storm surge and ground

sea flood risk maps and opportunity and vulnerability maps for mangrove restoration on JVD (*Annexe 6.5.5).* A peer-reviewed publication based on the vulnerability and mangrove opportunity mapping is currently in draft *(Annexe 6.5.6).*

3) Through this project we were able to access Automated Information System (AIS) data from visiting yachts and plot the most heavily used boating areas *(Annexe 6.5.7).* We have presented to Government of BVI on the potential for this work to inform marine spatial planning across the territory.
4) In partnership with the Local Community College we have also received training and established a marine water quality monitoring programme (*Annexe 6.5.89*)

Output 2 Development of conservation management actions to increase the resilience of key ecosystems to severe weather events, incorporating stakeholder input.

This output focused on the development of conservation management actions to increase the resilience of key ecosystems to severe weather events. Activities related to this output include:

1) The development of a long-term management/restoration plan for the Sandy Spit National Monument site and JVD mangroves (*Annexe 6.5.3, 6.5.1*).
2) Over the course of this project Susan Zaluski (JVDPS) has met with various stakeholders including Jost Van Dyke landowners, and Government agencies, including Department of Disaster Management (DDM), Department of Conservation and Fisheries (DCF) and the Virgin Islands National Parks Trust (NPT) to discuss and plan project activities. Based on evidence provided by this project, recommendations have been made to DDM on how to improve flooding issues in the settlement of Great Harbour including the restoration of mangroves and clearance of water guts (*Annexe 6.2.9*), and the BVI Government is being lobbied to re-build the JVD primary school at a site not so prone to flooding (*Annexe 6.4)*
3) In January 2020 a consultant from Reefball visited Jost Van Dyke to conduct an assessment of the status of the islands reefs and to make recommendations on the suitability of creating artificial reefs and the use of mangrove planters based on the reefball mould design (*Annexe 6.5.8*).
4) In addition, this project has greatly expanded on the original three restoration activities that we committed to in our project application and has actually achieved 10 restoration/resilience building activities related to coastal habitat restoration, including: (1) re-vegetation of Sandy Spit National Monument site (*Annexe 6.6.1*), (2) establishment of a mangrove and coastal vegetation nursery on JVD (*Annexe 6.6.2*), (3) pilot planting of mangrove seedlings to JVD's East End mangrove stand with JVD and Tortola-based school children and Government agencies (*Annexe 6.6.3*), (4) Hurricane debris clearance from five key wetlands (*Annexe 6.6.4*), (6) A Reefball consultant visited JVD and advised on appropriate sites for artificial reef restoration, as a result we created 30 artificial reefs based on reefball design for deployment at the East End JVD (*Annexe 6.6.5*) and (7) the creation of mangrove planters to allow mangrove restoration to occur at greater depths, and to protect seedlings from goat grazing (*Annexe 6.6.5*).

5) In addition to the JVD focused activities detailed above, JVDPS has provided expertise and training to establish a floating mangrove nursery at the H. Lavity Stoutt Community College (*Annexe 6.6.6*), a small-scale nursery at the Youth Empowerment Programme (YEP) premises which will provide mangrove seedlings for restoration work across the BVI, and has advised a Tortola-based resort and marina at Nanny Cay on best practice mangrove restoration methods *(Annexe 6.2.2)*

Output 3. **Increasing understanding of the important role that healthy terrestrial and marine ecosystems can play in improving small islands resilience to extreme weather events**

This output focused on increasing the understanding of the important role that healthy terrestrial and marine ecosystems can play in improving small islands resilience to extreme weather events. Throughout the project, we have actively promoted this project on facebook, which is the most commonly used form of social media on JVD. We post regularly on the JVDPS facebook page and the JVDPS community page and have received a lot of interest and engagement with the posts (*Annexe 6.3.1*). We have involved 72 JVD community members in biological monitoring and/or restoration activities and incorporated project activities into the JVDPS summer camp with 10 children being involved in the re-vegetation of Sandy Spit cay (*Annexe 6.6.1*). In addition, 65 youths on-board the ActionQuest Sailing Programme took part in seagrass surveys around JVD (*Annexe 6.1.10*). We established an annual scholarship with a U.S. (Florida Keys) based Marine Lab run by Marine Resources Development Foundation (MRDF) for a BVI educator to attend a week-long course in coastal ecosystem monitoring. In summer 2018, the environmental studies instructor (Orville Phillip) from H.L.S. Community College on Tortola attended. For summer 2019, the environmental education officer (Arjel Horton) for the BVI's Department of Conservation and Fisheries attended the workshop (*Annexe 6.1.2*).

As part of this project, JVDPS and UoR have also played a key role in advising on coastal restoration measures across the BVI, with Susan Zalsuki and Louise Soanes both assisting and advising on mangrove restoration projects managed by the Department of Disaster Management, the Ministry of Natural Resources (through Darwin plus081 and 085), and the RDA (see section 2.2 above for more details on our work with Government agencies). The mangrove and coastal vegetation nursery and floating bucket nursery system established on JVD as part of this project (with support from Dr Gregg Moore) have been highlighted as the first example of its kind on JVD and has been showcased as part of DDM's SMART Communities project (*Annexe 6.1.7)* and by the IUCN (under project DPLUS085). We have also provided advice and training to teachers and students at the Youth Empowerment Programme (YEP)to establish their own small-scale red mangrove nursery, based on Tortola and to students at the H. Lavity Stoutt Community College Marine Centre (*Annexe 6.1.8*), and have advised on mangrove restoration at the Nanny Cay Resort and Marina based on Tortola (*Annexe 6.2.11*). Being involved as a key advisor in these

wider Territory projects has allowed expertise gained during this project to to be shared and also will ensure long-term sustainability of the work developed on JVD.

Presentations reporting on this project were made at the Caribbea Initiative meeting in Dominican Republic, May 2019 where Louise Soanes co-facilitated a coastal resiliency symposium (*Annexe 6.3.4*). The project was also presented at a Caribbean Conservation Managers (CCN) meeting held in Miami 2018 (*Annexe 6.3.5*) and at a cross-territory meeting hosted by the RSPB to launch their DPLUS098) (*Annexe 6.3.6).* The RSPB and University of Roehampton also published the project on their own websites *(Annexe 6.3.1*).

Based on our experiences in establishing a mangrove nursery in Jost Van Dyke we have created guidelines for establishing mangrove nurseries in the BVI *(Annexe 6.5.10).*

3.2 Outcome

Prior to this project there was limited baseline data on the biodiversity of JVDs coastal habitats and no formal assessment of the resilience of coastal habitats to inform restoration activities. The local community had varying levels of understanding of the importance of healthy coastal ecosystems but have become more open to realising and supporting the protection and restoration or coastal ecosystems following the devastating 2017 hurricane season.

We believe the overarching project outcome stated as "***Key habitats mitigating the effects of extreme weather events identified, assessed and actions taken to conserve and build their resilience in Jost Van Dyke and its offshore cays, using stakeholder input for guidance***" has been fully achieved during the course of this project. The collection of baseline data and the collaborative relationships formed with other agencies conducting coastal assessments and restoration work (e.g. Environment Systems Ltd on DPLUS0081 and the Department of Disaster Management on their Caribbean Development Bank funded Smart Communities project) has allowed more detailed mapping of JVD's marine habitats and storm vulnerabilities to occur during the course of the project which has been of great use in prioritising sites for restoration both as part of this project and for the future. Using data collected as part of this and the abovementioned projects, local agencies and community members now have a good understanding of the status of JVDs coastal ecosystems, and in the measures that should be undertaken to increase their resilience. Based on this ecological data collection and mapping we were able to implement 11 coastal ecosystem resilience building measures. These restoration measures directly involved local stakeholders (either as volunteers or paid employees) ensuring long-term support and sustainability for project activities. The outreach of this project has reached both adults (including teachers, land & business owners) and youths in both the JVD and Tortola communities.

3.3 Monitoring of assumptions

One of the main assumptions of this project was that stakeholders are interested and willing to play a part in the project activities and aims. Since the 2017 hurricane season members of the community, civil societies and national agencies are all extremely supportive of initiatives that may reduce the future impact of storms and ground seas. As such, we have had very positive support for this project and its activities. This can be seen through the positive engagement with our facebook posts on the JVD community board's facebook page and the local community's general interest and engagement with our on-the ground activities. At a national level the BVI Government regularly sought engagement and advise with local project lead Susan Zaluski, as they had heard about this on-going work on JVD (in particular mangrove and reef restoration) and were interested in expanding such work across the territory. We have also formed strong links with the Road Town Rotary club who are interested in mangrove restoration work on Tortola and as part of this project we are planning to establish a mangrove nursery on JVD that should be able to supply seedlings to the wider territory.

The second main assumption of this project is that the three restoration actions stated in the application will be achieved in the time frame of the project. This objective has been fully achieved with additional activities added, the ability for local agencies to go above and beyond what was proposed in the original application is a testament to the support we received from the local community and Governmental agency in conducting restoration work across the BVI.

One assumption not considered at the project onset was the emergence of a global pandemic. While Covid-19 lockdown restrictions have delayed some of our intended activities (for example, the installation of coastal trail signs, the installation of an artificial reef and mangrove planters and a clean-up activity) these activities have since taken place of are due to take place now that the BVI Government has lifted lockdown measures.

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

This project was designed to deliver against the following strategic outcomes for the natural environment: (1) developing approaches to deal with the effects of climate change and (2) Improving marine and coastal conservation, protection, and management, including developing integrated management plans. These outcomes are directly relevant to National legislation and policy, including:

The Virgin Islands Climate Change Adaptation Policy (2012). Policy directives are aimed at enhancing the resilience of beaches, coastal/ marine and terrestrial ecosystems and fisheries to Climate Change impacts by reducing the stress on these systems from controllable local impacts, such as poor development practices, sedimentation, overfishing and anchor damage.

The National Physical Development Plan for the Virgin Islands (2014). Under this plan, development is expected to be retrofit for natural hazards, including improving coastal defences against storm surges, through a combination of natural and engineered measures.

In addition, this work is directly related to regional and international Agreements ratified by the BVI including:

The Convention on Biological Diversity (extended to BVI in 1994), which calls for improving our "knowledge, science base, and technologies relating to biodiversity its values, functioning, status and trends, and the consequences of its loss and calls for increasing public awareness "of the values of biodiversity and the steps they can take to conserve and use it sustainably."

Cartagena Convention (extended to BVI in 1987) The Convention for the Protection and Development of the Marine Environment in the Wider Caribbean Region (WCR) is the only legally binding regional environmental treaty for the Region. The Convention and its Protocols constitute a legal commitment by these countries to protect, and manage their common coastal and marine resources individually, jointly, and in a sustainable manner.

Optional (Gender Equality)

Day to day management of this project was handled by an all-female team (Susan Zaluski and Louise Soanes). Training opportunities were open to both genders and of those trained in aspects of this project 34 out of 72 local persons trained were female. In addition, paid employment opportunities offered as part of this project included two females working on a long-term part time basis to conduct biological data collection (year one of the project) and maintain the mangrove nursery (Year two of the project).

5 Sustainability and Legacy

This project's activities have all involved local field staff, with training if required, this and the involvement of stakeholders to design and implement long-term management plans and conservation management activities will ensure local buy-in to the overall outcome of the project. In addition, we are working closely with the IUCN on their Darwin plus085 funded project "*Post-disaster Restoration of Mangroves (PROM)"*, based in the BVI, to ensure that they can continue to support and implement priority mangrove restoration work across the BVI utilising local community members whenever possible.

Additional funding has been sought to complement the work developed as part of this project, for example JVDPS secured $10,000 in additional funds to support mangrove restoration across the Territory (BirdsCaribbean and UNITE BVI). These additional funds will help transition some project activities into long-term programmes for JVDPS, for example the maintenance of the mangrove seedling nursery and floating bucket array. In addition, the BVIs Governor's Office provided $5000 to support the creation of an artificial reef site on JVD.

6 Lessons learned

While the focus of this project was to help build resilience to climate change one of the main challenges facing us at the project onset was trying to mobilise resources. The negative effects of the 2017 storm season lasted a lot longer than expected (for example intermittent electricity and internet has meant for at least the first part of the project communication was more difficult between project partners). We had also budgeted for a small survey vessel, which took longer than anticipated to find and purchase since 90% of the boats within the Virgin Islands had been destroyed in 2017 so demand for both new and used boats was high. These minor setbacks led us to take a more flexible approach to data collection, and to try to work and collaborate with other national and international organisations to help us complete our project activities in a timely fashion, which has worked well.

We have also realised the important of collaborating with existing or on-going projects to achieve the best results and to avoid duplicating work. In our case there were two other BVI-focused Darwin projects running concurrently alongside this project (DPLUS081 and DPLUS085). The three BVI focused Darwin Plus funded projects all focused on aspects of habitat resilience assessments and recovery of key habitats post-Irma. Forming collaborative relationships across projects and agencies has greatly added value and made the best use of limited resources.

7 Monitoring and evaluation

A signed and agreed MOU between the partner organisations at the start of the project set out the obligations and roles of all parties in delivering the project objectives. In addition, a monitoring and evaluation plan was developed at the start of the project and adhered to throughout the project (Annexe 7.1). Project Leader Dr Louise Soanes, has led on all administrative aspects, and was responsible for managing the project timeline, overseeing project outputs and coordinating the development of monitoring report, with the support of project partners. Louise Soanes is based on the nearby island of Anguilla, so had flexibility in when she makes trips to JVD and has arranged her visits whenever her assistance will be of most value. During the first year of this project Louise visited JVD in May, August and December 2018-2019 and in 2019-2020 visited in January and February to assist with project activities and meet face to face with local stakeholders and the project manager. Project Manager, Susan Zaluski, who is based in JVD, has been responsible for the operational implementation of the project and in engaging stakeholders in project activities, Susan reported back on her activities on a monthly basis via a WhatsApp chat group or direct conversation with Louise Soanes. An additional project WhatsApp group has been established between the project lead, project manager and Lyndon John (RPSB), this group is used to share ideas and work plans, and is the format used to have direct conversations – Two project partner meetings have been held. Project partner Charlie Butt (RSPB Caribbean Overseas Manager), also visited Susan Zaluski for a site visits to discuss project activities and future plans in March 2019.

7 Actions taken in response to annual report reviews

During the initial planning stages of this project after consultation with Dr Kathleen Woods (consultant hired to conduct initial training in biological survey methods), we realised that the monthly monitoring of marine and terrestrial coastal habitats stated in the original application was not required and would unlikely yield any noticeable changes in such a short time span. Instead, with approval from Darwin Plus we altered out activities to focus on the collection of baseline data that could be collected on one monitoring occasion from each priority site. In light of the reduced work load from less frequent biological monitoring and through our collaboration with project leads of DPUS081 we added an additional focus to our monitoring work that included the assessment of the recovery of mangroves post-Irma using satellite imagery and NDVI analysis. In our Year one annual review, the reviewer questioned whether this change in methodology would affect the overall accuracy of the data collected. In response to this the answer is no, the methods are the same for the collection of data it was the frequency of data collection that changed, and as we never set out to monitor change in habitat quality over the course of the project this did not affect project activities or outcomes.

8 Darwin Identity

We report the Darwin funding source on every press release and social media posting that we issue (*Annexe 6)* and make the funding source known in any meeting we hold with any national or international organisation. (*e.g. Appendix 6.2.6*). In addition we have presented the project at three international meetings. The Darwin logo is also displayed on the eight information signs now installed at the East End of JVD *(Annexe 6.3.3),* and the Darwin logo is displayed on reports resulting from project activities *(Annexe 6.5).*

This project was a distinct project with its own clear identity, although our work also complemented other projects running concurrently in the BVI. However, Darwin was always recognised as a funder for the JVD-focused work. All government agencies in the BVI are very familiar with the Darwin fund (having had three Darwin plus projects running during early 2020).

9 Finance and administration

9.1 Project expenditure

Project spend (indicative) since last annual report	2019/20 Grant (£)	2019/20 Total actual Darwin Costs (£)	Variance %	Comments (please explain significant variances)
Staff costs				
Consultancy costs				
Overhead Costs				
Travel and subsistence				
Operating Costs				
Capital items				

Project spend (indicative) since last annual report	2019/20 Grant (£)	2019/20 Total actual Darwin Costs (£)	Variance %	Comments (please explain significant variances)
Others				
TOTAL				

Staff employed (Name and position)	Cost (£)
TOTAL	

Consultancy – description and breakdown of costs	Other items – cost (£)
TOTAL	

Capital items – description	Capital items – cost (£)
TOTAL	

Other items – description	Other items – cost (£)
TOTAL	

9.2 Additional funds or in-kind contributions secured

Source of funding for project lifetime	Total (£)
Unite BVI	
BirdsCaribbean	

TOTAL	

Source of funding for additional work after project lifetime	Total (£)
BVI Governor's Office Fund	
TOTAL	

9.3 Value for Money

We believe this project was excellent value for money, for the relatively small project cost over two years this project was able to achieve its objectives and make real impact in the local Territory. We believe this project represents good value for money as was able to employ local and/or regionally based staff rather than international consultants to conduct all of the project activities. The excellent working relationship that local project partner JVDPS has with BVI based Government agencies and statutory bodies also helped us to maximise the impact of this project trough collaborations with colleagues working on concurrent Darwin projects and other internationally funded projects (such as Department of Disaster Management SMART Communities project). Through the purchase of a research vessel from the project budget JVDPS will be better enabled to continue long-term monitoring and environmental work into the future, and this represented a more cost efficient use of funds compared to the cost of hiring a boat and a captain.

Annex 1 Project's full current logframe as presented in the application form (unless changes have been agreed)

Please insert your project's logframe (if your project has a logframe), including indicators, means of verification and assumptions. N.B. if your application's logframe is presented in a different format in your application, please transpose into the below template. Please feel free to contact Darwin-Projects@ltsi.co.uk if you have any questions regarding this.

Project summary	Measurable Indicators	Means of verification	Important Assumptions
Impact: Increased understanding of local communities and national authorities of the importance of preserving and protecting natural ecosystems to increase small island resilience to extreme weather events.			
Outcome: Key habitats mitigating the effects of extreme weather events identified, assessed and actions taken to conserve and build their resilience in Jost Van Dyke and its offshore cays, using stakeholder input for guidance. (Max 30 words)	0.1 At least 3 habitat restoration activities implemented by the end of project 0.2 JVD community awareness raised on the importance of coastal habitats in building resiliency	0.1 Reports, press releases, social media postings detailing restoration measures 0.2 Facebook and other social media postings related to the project monitored for community response/feedback	Project progresses as outlined on project timetables Stakeholders are willing to play a part in the process
1. **Baseline assessment and GIS mapping of the status and resilience of key habitats in JVD and its offshore cays to future climate change**	1.2 Training workshops in methods for quantitative assessment of ecological baselines and GIS mapping of resilience of key habitats, attended by at least 10 local community members stakeholders by Y2Q4 1.2 Update and/or establish survey methodology for key coastal and marine habitats (mangroves, coral reef, seagrass, coastal vegetation) mangroves and coastal vegetation by Y2Q4 1.3 Base-line data collection and coastal resiliency assessments undertaken focusing on the five most	1.1 Workshop attendance list and copies of training materials 1.2 Copies of four training manuals 1.3 Copies of GIS map layers and a copy of a draft manuscript prepared for publication in peer-reviewed journal and circulated to local stakeholders 1.4 Copies of GIS map layers and a copy of a draft manuscript prepared for publication in peer-reviewed journal and circulated to local stakeholders	We have access to all the key survey sites We are able to find project staff available to be trained to conduct surveys

	populated coastal areas around JVD (Great Harbour, Little Harbour, Sandy Ground, East End and White Bay) by December 2019 1.4 Base-line data and coastal resiliency assessments undertaken focusing on JVDs five marine parks and six offshore cays (Green Cay, Diamond Cay, Little Jost Van Dyke, Sandy Cay, Sandy Spit, and Great Tobago) by December 2019		
2. Development of conservation management actions to increase the resilience of key ecosystems to severe weather events, incorporating stakeholder input.	2.1 Stakeholder-informed prioritisation and restoration plan developed for JVD marine and coastal habitats (based on data collected during 1.4-1.5 above) 2.2. At least three coastal resiliency building activities undertaken on JVD by Y2Q4 2.3 At least one resiliency building activity implemented/undertaken in the wider British Virgin Islands by Y2Q4 2.4 A long-term management plan developed for at least one coastal ecosystem/offshore cay by the end of the project by Y2Q4	2.1 Stakeholder meeting/ attendance records, PowerPoint presentations 2.2 Report detailing agreed coastal resilience building activities circulated to stakeholders and made publicly available 2.3 Coastal resilience building activities reported in at least three social media posts, and two local newspaper/radio shows 2.4 Long-term management plan produced and circulated to local stakeholders	Stakeholders are interested in being involved in the project Stakeholder informed conservation actions are with the budget of this project Stakeholder informed conservation actions are able to be performed within the time-frame of this project
3. Increasing understanding of the important role that healthy terrestrial and marine ecosystems can play in	3.1 At least 50% of JVD public (c. 100 people) know about the project and can articulate the meaning of coastal	3.1 Press releases, social media posts, billboards, powerpoint presentations, end of project surveys	Stakeholders are interested in being involved in the project

improving small islands resilience to extreme weather events	resilience and importance of conserving coastal habitats. by Y2Q4 3.2 At least 20 JVD residents volunteer their time and resources towards collecting baseline data and implementing resiliency building activities by the end of the project. by Y2Q4 3.3 At least 30 BVI nationals gain technical skills and experience in ecological monitoring and coastal restoration activities by the end of the project by Y2Q4 3.4 Project methods and lessons learned disseminated to relevant natural resource managers within all Caribbean UKOTs and other sub-regional islands by end of project. by Y2Q4 3.5 At least GBP 10,000 generated in cash and/or in-kind to continue implementing action plans after the grant period.	3.2 Minutes of meetings; names and details of participating residents. 3.3 Training attendance lists, training materials and testimonials from participants 3.4 PowerPoints, meeting reports, 3.5 Memoranda of Understanding; grant proposals and funding agreements; merchandise sales; habitat and species adoption schemes	

Annex 2 Report of progress and achievements against final project logframe for the life of the project (<u>if your project has a logframe)</u>

Project summary	Measurable Indicators	Progress and Achievements for the life of the project
Impact: Impact: Increased understanding of local communities and national authorities of the importance of preserving and protecting natural ecosystems to increase small island resilience to extreme weather events (Max 30 words)		The restoration of priority coastal habitats on the island of Jost Van Dyke has been achieved and the work undertaken as part of this project has been expanded to the wider Territory. Through the involvement of the local community in biological monitoring and restoration activities, regular social media posts and government engagement the level of understanding of the importance of coastal ecosystems in protecting against extreme weather has been increased.
Outcome Key habitats mitigating the effects of extreme weather events identified, assessed and actions taken to conserve and build their resilience in Jost Van Dyke and its offshore cays, using stakeholder input for guidance.	0.3 At least 3 habitat restoration activities implemented by the end of project 0.4 JVD community awareness raised on the importance of coastal habitats in building resiliency	Eleven habitat restoration activities were undertaken during the project, including 1) re-vegetation of Sandy Spit National Monument site (*Annexe 6.6.1*), (2) establishment of a mangrove and coastal vegetation nursery on JVD (*Annexe 6.6.2*), (3) pilot planting of mangrove saplings to JVD's East End mangrove stand with JVD and Tortola-based school children and Government agencies (*Annexe 6.6.3*), (4) Hurricane debris clearance from five key wetlands (*Annexe 6.6.4*), (6) A Reefball consultant visited JVD and advised on appropriate sites for artificial reef restoration, as a result we created 30 artificial reefs based on reefball design for deployment at the East End JVD (*Annexe 6.6.5*) and (7) the creation of 30 mangrove planters to allow mangrove restoration to occur at greater depths, and to protect seedlings from goat grazing (*Annexe 6.6.5*) Through active participation in biological surveys, habitat restoration activities and nursery establishment (*Annexe 6.1)* the local JVD community now has an increased awareness of the roles of coastal habitats in building resiliency. An active social media campaign was also initiated to further increase local understanding (*Annexe 6.3*). While this project primarily focused on the island of Jost Van Dyke, the outreach actually extended further across the BVI with project staff sharing ideas and techniques and training organisations/persons on Tortola; activities included (1) involvement in the Department of Disaster

Project summary	Measurable Indicators	Progress and Achievements for the life of the project
		Management SMART communities project, which involved the establishment of a Tortola-based mangrove nursery (2) close collaboration with the H Lavity Stoutt Community College in the development of student internships focusing on mangrove restoration and the establishment of a floating mangrove nursery (*Annexe 6.1.9. 6.2.8*), (3) Advice and training on mangrove restoration given to resort owners at the Nanny Cay resort (*Annexe 6.2.11*), and outreach activities conducted at the Youth Empowerment Programme (YEP) (*Annexe 6.1.7*)
Output 1. **Baseline assessment and GIS mapping of the status and resilience of key habitats in JVD and its offshore cays to future climate change**	1.1 Training workshops in methods for quantitative assessment of ecological baselines and GIS mapping of resilience of key habitats, attended by at least 10 local community members stakeholders by Y2Q4 1.2 Update and/or establish survey methodology for key coastal and marine habitats (mangroves, coral reef, seagrass, coastal vegetation) mangroves and coastal vegetation by Y2Q4 1.3 Base-line data collection and coastal resiliency assessments undertaken focusing on the five most populated coastal areas around JVD (Great Harbour, Little Harbour, Sandy Ground, East End and White Bay) by December 2019 1.4 Baseline data and coastal resiliency assessments undertaken	1.1 An initial training workshop was held in May 2018, attended by five participants and facilitated by Dr Kathleen Woods from the Turks and Caicos – this cross-territory 'train the trainers' approach educated local project partners and staff in coastal and marine baseline surveys and coastal habitat resiliency assessments (*Annexe 6.1.1*). Following initial training local project lead Susan Zaulski provided further training to 14 JVD residents in baseline data collection (*Annexe 6.1.2*). In addition, through a partnership with the youth sailing programme ActionQuest the project trained 65 youths aboard the vessel in sea grass monitoring techniques, and these students actively were involved in data collection for this project (*Annexe 6.1.10*). 1.2 Survey methodology for coral reefs, seagrass, mangroves and coastal vegetations was established in Q1Y1, and monitoring manuals produced (*Annexe 6.5.1)* 1.3 Baseline data was collected from key coastal sites around JVD (including the most populated coastal communities) and the offshore cays. This data has been complied into an ecological report (*Annexe 6.5.2*). More detailed mangrove recovery on assessments on JVD post-Irma were made in 2018 (*Annexe 6.5.4)* and again in 2020 to assess recovery. NDVI analysis and remote imagery was also utilised to examine recovery (*Annexe 6.5.6*) In addition, a mangrove-focused report was produced for JVD focusing on storm surge vulnerability and identifying opportunity areas for mangrove restoration (*Annexe 6.5.5*)

Project summary	Measurable Indicators	Progress and Achievements for the life of the project
	focusing on JVDs five marine parks and six offshore cays (Green Cay, Diamond Cay, Little Jost Van Dyke, Sandy Cay, Sandy Spit, and Great Tobago) by December 2019	1.4 Baseline data was collected from 16 key marine sites and four offshore cays around JVD (including the most populated coastal communities) and the offshore cays. This data has been complied into an ecological report (*Annexe 6.4.2. 6.5.4)*
Activity 1.1 Training workshop in methods for assessing resilience of key habitats and collecting baseline data attended by at least 10 local stakeholders		A total of 14 persons residing on JVD were trained in biological survey methods (Annexe 6.1.2)
Activity 1.2. BVI specific training manual produced		Key habitat (seagrass, coral, mangrove and coastal vegetation) monitoring manual and has been produced and shared with a larger stakeholder group from the wider BVI.(*Annexe 6.5.1)* Mangrove nursery establishment guidelines for the BVI were produced (*Annexe 6.5.10)*
Activity 1.3 Resilience assessment of coastal and marine habitats on JVD and surrounding offshore cays		Completed (*Annexe 6.5.2*)
Activity 1.4 Identification of key habitats that would benefit from resilience building activities		Completed (*Annexe 6.5.2*)
Activity 1.5 Produce report on resilience assessments		Completed (*Annexe 6.5.2*)
Activity 1.6 Baseline data collection from coastal and marine habitats on JVD, offshore cays and marine parks		Completed (*Annexe 6.5.2*)
Activity 1.7 Analysis of data and production of report detailing base-line data		Completed (*Annexe 6.5.2*)
Output 2. **Development of conservation management actions to increase the resilience of key ecosystems to severe**	2.1 Stakeholder-informed prioritisation and restoration plan developed for JVD marine and	2.1 A range of stakeholders have been involved in the prioritisation of restoration activities, including local landowners, educators, youths and government agencies (*Annexe 6.2*). Following stakeholder consultation, a prioritisation and restoration plan of JVD coastal and marine habitats was

Project summary	Measurable Indicators	Progress and Achievements for the life of the project
weather events, incorporating stakeholder input.	coastal habitats (based on data collected during 1.3-1.7 above) 2.2. At least three coastal resiliency building activities undertaken on JVD by Y2Q4 2.3 At least one resiliency building activity implemented/undertaken in the wider British Virgin Islands by Y2Q4 2.4 A long-term management plan developed for at least one coastal ecosystem/offshore cay by the end of the project by Y2Q4	produced and has already been acted upon by the local community. A specific mangrove restoration plan for JVD was also incorporated into a collaborative project with the Department of Disaster Management. JVD was one of three communities in the BVI identified as being most vulnerable to climate change, as such we joined forces with DDM to prioritise JVD mangrove sites for restoration as part of their wider sustainable mangrove management plan. 2.2. The plan (2.1) detailed various activities that would improve the coastal resilience of JVD and its surrounding marine environment and offshore cays. To date 11 habitat restoration activities were undertaken during the project (*Annexe 6.6*), including 1) re-vegetation of Sandy Spit National Monument site, (2) establishment of a mangrove and coastal vegetation nursery on JVD(3) pilot planting of mangrove saplings to JVD's East End mangrove stand with JVD and Tortola-based school children and Government agencies, (4) Hurricane debris clearance from key wetlands, (6) A Reefball consultant visited JVD and advised on appropriate sites for artificial reef restoration, as a result we created 30 artificial reefs based on reefball design for deployment at the East End JVD and (7) the creation of 15 mangrove planters to allow mangrove restoration to occur at greater depths, and to protect seedlings from goat grazing. 2.3 As part of this project we were committed to sharing lessons learnt and offering training opportunities across the wider BVI. As such, we formed a relationship with the local community college, based in Tortola and assisted with the establishment of a floating red mangrove nursery at their marine centre. (*Annexe 6.1.8-6.1.9*). This project also funded a conservation officer from the Government's Department of Conservation and Fisheries Department to attend a training course in marine and coastal studies (*Annexe 6.1.2*). 2.4 A -long-term management plan for JVD's mangroves and for the Sandy Spit National Monument site had been produced *(Annexe 6.5.3)*

Project summary	Measurable Indicators	Progress and Achievements for the life of the project
Activity 2.1. Stakeholder workshop to discuss and inform conservation actions and long-term monitoring plans		2.1 Jost Van Dyke stakeholders were consulted on a less-formal basis, often one-one meetings, In addition to ad hoc discussions with landowners, and local community members as an when we were approached when in the field. Government agencies were engaged regularly throughout the project (*Annexe 6.2*)
Activity 2.2 Implementation of at least 3 stake-holder informed conservation actions by the end of the project		2.2 Completed (11 activities implemented, see above)
Activity 2.3 Production of long-term monitoring and management plans		2.3 Completed (see above)
Output 3. Increasing understanding of the important role that healthy terrestrial and marine ecosystems can play in improving small islands resilience to extreme weather events	3.1 At least 50% of JVD public (c. 100 people) know about the project and can articulate the meaning of coastal resilience and importance of conserving coastal habitats. by Y2Q4 3.2 At least 20 JVD residents volunteer their time and resources towards collecting baseline data and implementing resiliency building activities by the end of the project. by Y2Q4 3.3 At least 30 BVI nationals gain technical skills and experience in ecological monitoring and coastal restoration activities by the end of the project by Y2Q4 3.4 Project methods and lessons learned disseminated to relevant natural resource managers within all Caribbean UKOTs and other sub-regional	3.1 An active social media campaign was initiated throughout the project with 12 postings on the JVDPS facebook page and the JVD community facebook page (*Annexe 6.3*). Eight educational billboards have also been installed at the East end of JVD (*Annexe 6.3.3*), 72 local JVD persons have actively been involved in project activities through training and habitat restoration activities (*Annexe 6.1*) 3.2 65 local JVD persons volunteered their time throughout the project (*Annexe 6.1*) 3.3 72 BVI Nationals gained skills and experiences in ecological monitoring (*Annexe 6.1*) 3.4 Project presented at the regional Carribbea Initiative meeting (*Annexe 6.3.4*) and the UKOTs Carribbean Conservation network meeting in Miami (*Annexe 6.3.5*), and at a cross-territory meeting hosted by the RSPB (*Annexe 6.3.6*) 3.5 JVDPS was successfully awarded finds from BirdsCaribbean ($5000) and BVI UNITE ($5000) to support mangrove assessments and on-going restoration activities. In addition, the BVIs Governor's Office Fund provided $5000 to support ongoing artificial reed development.

Project summary	Measurable Indicators	Progress and Achievements for the life of the project
	islands by end of project. by Y2Q4 3.5 At least GBP 10,000 generated in cash and/or in-kind to continue implementing action plans after the grant period.	
Activity 3.1 Stakeholder meeting to introduce the project		Completed (see above)
Activity 3.2 Engage at least 30 members of the local community in training opportunities throughout the project		Completed (see above)
Activity 3.3 At least ten press and social media posts throughout the project		Completed (see above)
Activity 3.4 Project manager gives lecture at Community College by the end of the project		Completed (see above)
Activity 3.5 Project activities incorporated into JVD kids summer camp		Completed (see above)
Activity 3.6 End of project stakeholder meeting		Completed (see above)

Annex 3 Standard Measures

Code	Description	Totals (plus additional detail as required)
Training Measures		
1	Number of (i) students from the UKOTs; and (ii) other students to receive training (including PhD, masters and other training and receiving a qualification or certificate)	0
2	Number of (i) people in UKOTs; and (ii) other people receiving other forms of long-term (>1yr) training not leading to formal qualification	0
3a	Number of (i) people in UKOTs; and (ii) other people receiving other forms of short-term education/training (i.e. not categories 1-5 above)	72
3b	Number of training weeks (i) in UKOTs; (ii) outside UKOTs not leading to formal qualification	21
4	Number of types of training materials produced. Were these materials made available for use by UKOTs?	5
5	Number of UKOT citizens who have increased capacity to manage natural resources as a result of the project	72
Research Measures		
9	Number of species/habitat management plans/ strategies (or action plans) produced for/by Governments, public authorities or other implementing agencies in the UKOTs	2
10	Number of formal documents produced to assist work in UKOTs related to species identification, classification and recording.	11
11a	Number of papers published or accepted for publication in peer reviewed journals written by (i) UKOT authors; and (ii) other authors	1 (in progress)
11b	Number of papers published or accepted for publication elsewhere written by (i) UKOT authors; and (ii) other authors	0
12b	Number of computer-based databases enhanced (containing species/genetic information). Were these databases made available for use by UKOTs?	0
13a	Number of species reference collections established. Were these collections handed over to UKOTs?	0

Code	Description	Totals (plus additional detail as required)
13b	Number of species reference collections enhanced. Were these collections handed over to UKOTs?	0
Dissemination Measures		
14a	Number of conferences/seminars/workshops/stakeholder meetings organised to present/disseminate findings from UKOT's Darwin project work	11
14b	Number of conferences/seminars/ workshops/stakeholder meetings attended at which findings from the Darwin Plus project work will be presented/ disseminated	3
Physical Measures		
20	Estimated value (£s) of physical assets handed over to UKOT(s)	
21	Number of permanent educational/training/research facilities or organisation established in UKOTs	
22	Number of permanent field plots established in UKOTs	
23	Value of resources raised from other sources (e.g., in addition to Darwin funding) for project work	

Annex 4 Publications

Type * (e.g. journals, manual, CDs)	Detail (title, author, year)	Nationality of lead author	Nationality of institution of lead author	Gender of lead author	Publishers (name, city)	Available from (e.g. weblink, contact address, annex etc)

Annex 5 Darwin Contacts

Ref No	DPLUS073
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Annex 6 Supplementary material (optional but encouraged as evidence of project achievement)

Checklist for submission

	Check
Is the report less than 10MB? If so, please email to Darwin-Projects@ltsi.co.uk putting the project number in the Subject line.	Y
Is your report more than 10MB? If so, please discuss with Darwin-Projects@ltsi.co.uk about the best way to deliver the report, putting the project number in the Subject line.	N
Have you included means of verification? You need not submit every project document, but the main outputs and a selection of the others would strengthen the report.	Y
Do you have hard copies of material you want to submit with the report? If so, please make this clear in the covering email and ensure all material is marked with the project number. However, we would expect that most material will now be electronic.	N
Have you involved your partners in preparation of the report and named the main contributors	Y
Have you completed the Project Expenditure table fully?	N
Do not include claim forms or other communications with this report.	