

Darwin Plus: Overseas Territories Environment and Climate Fund Annual Report

To be completed with reference to the "Project Reporting Information Note"
(<https://darwinplus.org.uk/resources/information-notes>)

It is expected that this report will be a **maximum of 20 pages** in length, excluding annexes)

Submission Deadline: 30th April 2023

Submit to: BCF-Reports@niras.com including your project ref in the subject line

Darwin Plus Project Information

Project reference	DPLUS118
Project title	BVI Amphibian Recovery Programme
Territory(ies)	British Virgin Islands
Lead Partner	Jost Van Dykes BVI Preservation Society
Project partner(s)	University of New Hampshire, National Parks Trust of the Virgin Islands, Fort Worth Zoo, Royal Society for the Protection of Birds
Darwin Plus grant value	£84,148.00
Start/end dates of project	
Reporting period (e.g. Apr 2022-Mar 2023) and number (e.g. Annual Report 1, 2)	April 2022- March 2023
Project Leader name	Susan Zaluski
Project website/blog/social media	www.jvdps.org
Report author(s) and date	Susan Zaluski 29 April 2023

1. Project summary

71% Caribbean amphibians are considered Endangered or Critically Endangered, including the native endemics of the British Virgin Islands. Threats to BVI amphibians face include invasive alien species, but distribution data are needed to inform conservation planning. Bio-acoustic surveys improve detection probability of cryptic species whilst improving access to remote areas. Project-generated data will elucidate habitat associations, threats and recommendations for national action plans. The project is locally driven and globally supported, ensuring a conservation legacy in the long-term.

It has been nearly 20 years since there has been any effort to evaluate native frog populations in the BVI. Most reports and studies were sporadic and driven by external researchers. This project is a first of its kind in attempting to develop a comprehensive baseline on the status of endangered amphibian populations in the BVI and to implement long term monitoring.

2. Project stakeholders/partners

University of New Hampshire has been instrumental in supporting research and training for a young BVI conservation professional, Creightanya Brewley who is a previous National Parks Trust of the Virgin Islands and is completing her master's degree at University of New Hampshire

(UNH) in field work tied to this project. It is Ms. Brewley’s expressed intent to return to National Parks Trust of the Virgin Islands following the completion of her degree.

University of New Hampshire has played a crucial role in providing support for capacity building in acoustic monitoring and made a December 2022 visit to begin training sessions, in addition to continuous training on site at UNH with Ms. Brewley. Two UNH Faculty members also collaborated with JVDPS’ Susan Zaluski to carry out field work, especially within Protected Areas (e.g. Sage Mountain National Park). National Parks has worked to secure permissions for research and allow participation in training workshops.

The progress and timelines of this project were significantly skewed due to the project’s need to wait until UNH was able to re-hire an acoustician (Spring 2022) who could then visit the project site (December 2022). All partners still express a willingness to support fully in activities as outlined in original project.

In an attempt to overcome project shortcomings, a new partner was identified. Ms. Pearl Cales of the Staten Island Zoo has been conducting amphibian research in the neighboring USVI. Ms. Cales visited the project twice in 2022 (August and October) and assisted with training in capturing frogs, taking SVL data and supporting training for MCS (Manual Call Surveys).

3. Project progress

3.1 Progress in carrying out project Activities

Date	Project Notes/Accomplishments/Setbacks
January Fieldwork 2022	<p><i>Progress made towards the following activities:</i></p> <p>1.3 SNV measurements taken from specimens of <i>e. schwartzi</i> associations drafted (with little success). Need for support identified. 3.3 Report assessing fine-scale habitat 3.6 Draft paper on habitat enhancement measures</p> <ul style="list-style-type: none"> • Dr. Gregg Moore visits the BVI with newly admitted UNH graduate student (Ms. Creightanya Brewley during her winter break. [REDACTED]) • Brewley/Zaluski also identify difficulty in capturing specimens of <i>Fultherodactylus schwartzi</i>. Brewley trials use of Artificial Refugia Methods
Spring 2022	<p><i>Progress made towards the following activities:</i></p> <p>1.7 Report assessing fine-scale habitat 2.1 Training for Manual Call Surveys (Joseph Wells, Rondel H Smith) 3.5 Map of Key Areas identified for habitat conservation produced based on existing protecting areas and TIPAs (<i>Tropical Important Plant Areas</i>) layered with location knowledge of amphibian populations</p> <ul style="list-style-type: none"> • C. Brewley completes coursework at University of New Hampshire and refines her master’s thesis project, Habitat and Distribution of the Endangered Virgin Islands Coqui.”
July/ August Fieldwork 2022	<p><i>Progress towards following activities:</i></p> <p>1.1 Five (5) semi-permanent Acoustic (ARU)/weather stations deployed 1.11 Skin swabs of specimens of <i>e.schwartzi</i> collected for Chytrid tests 1.13 SNV measurements taken from (30) specimens of <i>e. schwartzi</i> 1.14 Lab reports from skin swabs produced</p> <ul style="list-style-type: none"> • Zaluski identifies a USVI amphibian researcher, Ms. Pearl Cales who has been working on the endangered Virgin Islands Mute Frog (<i>Eleutherodactylus lentus</i>) and who has similar research underway in the neighboring USVI. Cales visits the BVI in August and helps train Zaluski/Brewley in hand capture methods. The team finally begins to have specimens in hand! A protocol for collecting morphological data is developed. The team begins swabbing for Chytrid testing. Swabs are sent to a lab, and thus far all specimens have tested negative for Chytrid.

	<ul style="list-style-type: none"> • August Fieldwork Report details, Brewley installs semi-permanent ARU stations in the field.
October Fieldwork 2022	<p><i>Progress towards following activities:</i></p> <p>1.3 Comprehensive MCS/Digital recording surveys carried out 1.11 Skin swabs of specimens of e.schwartzi collected for Chytrid tests 1.13 SNV measurements taken from (30) specimens of e schwartzi 1.14 Lab reports from skin swabs produced 2.1 Training for Manual Call Surveys 3.3 Manual for BVI specific acoustic monitoring protocol produced</p> <ul style="list-style-type: none"> • Cales returns to the BVI and provides training for Zaluski in Manual Call Survey methods based on her work in the USVI and helps Zaluski to refine MCS protocol and data collection. • Cales/Zaluski team identifies location of a small population of the endangered <i>Eleutherodactylus lentus</i> (Virgin Islands Mute Frog) on Jost Van Dyke. E lentus previously excluded from the project design; however, it has since been discovered that this species, previously thought to be silent, vocalizes, just much later (~11:00p.m. – 2:00a.m.). A rough plan for studying and monitoring E. lentus is developed: Virgin Islands Mute Frog (E. Lentus) Project Report. • During a visit to Sage Mountain, Cales comments on apparent morphological differences between specimens of <i>Leptodactylus. Albilabris</i> (Puerto Rican Ditch Frog/Antillean White-Lipped Frog) in BVI and USVI. At Zaluski's request, Cales drafts a short proposal "Morphological Diversity within one species, Leptodactylus albilabris (Antillean White-lipped frog)" to advance this work and the project's efforts to learn more about all native anurans of the Virgin Islands. • October Fieldwork Report
December Fieldwork 2022	<p><i>Progress towards the following activities:</i></p> <p>1.4 Recognisers built from call samples for target species (Fournet took call samples in field to begin building recognisers) 1.5 Recording analysed and species identified 1.8 Specimens of Invasive Cuban Tree Frog collected 1.9 Dietary analysis of Cuban Tree Frog conducted 1.11 Skin swabs of specimens of e.schwartzi collected for Chytrid 1.12 Skin swabs of specimens of e.schwartzi collected for genetic id 2.2 Acoustic Analysis workshop held with 3 local BVI conservation personnel</p> <ul style="list-style-type: none"> • University of New Hampshire team members (Moore/Fournet) visit the BVI. Team begins genetic work for the project, meets key project stakeholders and take baseline recordings to support acoustic monitoring development. Fournet leads first Acoustic Monitoring Workshop for the project. • December 2022 Fieldwork Report
January Fieldwork 2023	<p><i>Progress towards the following activities:</i></p> <p>1.5 Recording analysed and species identified 1.8 Specimens of Invasive Cuban Tree Frog collected 1.14 Lab reports from skin swabs produced</p> <ul style="list-style-type: none"> • Brewley returns to the BVI for winter fieldwork. Brewley/Zaluski put in a combined 16 field days to retrieve Wildlife Acoustics SM4s which had been deployed longterm for finescale data collection and to deploy and retrieve a network of Audiomoths. • UNH begins processing eDNA samples in their lab and provides a summary report. • January 2023 Fieldwork Report
March 2023	<p><i>Progress made towards the following activities:</i></p> <p>1.7 Report assessing fine-scale habitat 3.4 Results presented at regional conference & feedback from colleagues obtained (During Covid, we pivoted this to writing a paper for a peer-reviewed journal)</p> <ul style="list-style-type: none"> • Brewley continues work on her master's thesis, analyzing field data.

- Brewley works on final edits to draft manuscript **“Pre-andPost-HurricaneAcousticSurveysfor theEndangeredVirgin Islands Coqui (Eleutherodactylus schwartzi) on Jost Van Dyke, BVI.”**

3.2 Progress towards project Outputs

OUTPUT 1	
1.1 Seven (7 semi-permanent ARUS mounted in known locations)	Due to the large amounts of data created by this activity (underestimated in the original project design), we scaled the semi-permanent ARU (Automated Recording Units) stations (comprised of a Wildlife Acoustics SM4 with Lithium battery pack and a TinyTag weather station deployed for finescale weather data) back to 5 stations (Cape Wright, Jost Van Dyke, Gorda Peak National Park, Virgin Gorda, Sage Mountain National Park, Tortola, Mt. Alma, Beef Island and Dog Island where there are known locations of <i>Eleutherodactylus schwartzi</i> (NB: Maps for ARU locations can be found in C. Brewley’s Master’s Thesis prospectus under 1.3) We also decided to hold back two ARUS in the event that some devices failed and needed to be replaced. Unfortunately, the lithium battery packs all failed and all of the stations malfunctioned during long-term deployment (despite testing devices before deployment during summer 2022. This was a heartbreaking setback to the project’s data collection, and we are working to re-establish these units for another long-term period of data collection, which is dependent upon the rainy season (peak breeding October – December).
1.2 Comprehensive MCS surveys carried out	It took substantially longer to develop a plan for MCS (Manual Call Surveys). Some Initial surveys have been carried out on Jost Van Dyke , Tortola and Virgin Gorda; however, MCS surveys need to be carried out during peak calling season for this project activity to be effective. Project leaders have developed methods that would support persons with minimal training being able to support data collection for this activity. It is hoped that this will be rolled out in October 2023 (peak calling) with potential to involve community members and students in data collection. A hybrid MCS/acoustic recording protocol can be found here with corresponding datasheets . The plan is to use untrained assistants to collect recordings. Recordings will then be manually processed/listened to at one time with species identified. This will allow persons with minimal training to participate. This is not truly acoustic monitoring, but using acoustic monitoring to support traditional MCS surveys.
1.3 Habitat Assessments for VI Coqui	Habitat assessment work is contained within Creightanya Brewley’s master’s thesis project: “Habitat and Distribution of the Edangered Virgin Islands Coqui Frog.” Delays in field work mean that Ms. Brewley is unlikely to finish her thesis before December 2023, and possible not until Spring 2024. Ms. Brewley is an excellent, thorough researcher and delays in the project have been the cause of mishaps beyond her control (sudden absence of Bio-Acoustics Faculty at UNH, malfunctioning of equipment).
1.4 Habitat Assessment of PR Crested Toad	Pending, Travel restrictions from Covid19 Pandemic thwarted several attempts at visits. Partners willing to complete this activity in 2023.
1.5 CTF stomach content analysis	The small size of <i>Eleutherodactylus</i> species makes these frogs difficult to identify unless you have them in hand. This means that using traditional methods for stomach contents analysis are severely limited. Project team has worked to develop an eDNA method for analysis. Captured Cuban Tree Frogs (CTF) where humanely euthanized (swabbed with Benzocaine 20% and frozen) samples were then dissected and stomachs where removed. Stomachs were opened and placed in a beaker with distilled water which was then sampled. See below on 1.7. We believe that the refinement

	of eDNA methods following tissue sampling collection will allow us to use the aforementioned approach for stomach content analysis.
1.6 Chytrid Tests	A lab (RAL) that can process Chytrid samples was identified, and the project team has begun swabbing and testing samples. While the original project design called for testing of only the endangered <i>Eleutherodactylus schwartzi</i> , it should be noted that any species could be a carrier and it could be transmitted to other species. Further, since <i>e. schwartzi</i> are notoriously difficult to capture, the project team decided to capture and test (swab) all species of frogs across all islands. This work is underway with a protocol and testing system in place.
1.7 Genetic tests from <i>E. schwartzi</i> samples	<p>During a December 2022 field visit, project team members worked on a method for collecting eDNA samples using a novel approach with the water sampled/sipped from the small pools of water collected at the base of bromeliads where frogs are typically found. There is a progress report on eDNA work; however the lab at UNH found that there were only two partial sequences for <i>Eleutherodactylus schwartzi</i> found in GenBank. Initially, we used the eDNA approach as it is minimally invasive. It appears that this approach can work in the longrun; however, we will need to use traditional methods (toe clippings) first. A Tissue Sampling Method has been acquired and Zaluski is seeking permission from BVI's Ministry of Natural Resources Labour and Immigration. We will only need to collect a small number of tissue samples and then we can work on refining eDNA methods as a means of long-term monitoring of amphibian populations.</p> <p>At the writing of this project, it was also believed (based on work from Puerto Rico and the US Virgin Islands) that genetic identification/tissue sample collection was necessary for ensuring that our endangered Virgin Islands Coqui (<i>Eleutherodactylus schwartzi</i>) and not the potentially invasive Puerto Rican Coqui (<i>Eleutherodactylus coqui</i>). We since believe that there are acoustic differences in their call patterns. This subject is being investigated a part of C. Brewley's graduate training. A brief note can be found here, and we are seeking further assistance from our colleagues at the University of New Hampshire.</p>
OUTPUT 2	
2.1 At least 5 persons trained in MCS Methods	<p>During this project, Zaluski has conducted initial MCS training with four (4) persons in BVI. It took much longer than anticipated to develop an achievable MCS monitoring plan. At the writing of this report, the protocols have been developed and training can occur. It should be noted that monitoring should occur during peak calling season (August – December).</p> <p>Pearl Cales carried out a bespoke training with Susan Zaluski in October 2022 to improve her ability and methods, which has been incorporated into MCS survey plans for the project.</p>
2.2 At least 3 local conservation staff attend acoustic training	Brewley has received extensive training as a part of her graduate education at the University of New Hampshire. In January 2022, she trained two local conservation professionals (Jian Jeffers, Nia Jeffers) in the basic use and deployment of Audiomoths. In December 2022, University of New Hampshire's Dr. Michelle Fournet hosted the first in-person training workshop in BVI. A Workshop report can be found here .
2.3 PSA and public outreach materials	This output has not been achieved and needed further refinement of methods and research plans, can be launched in Fall (October) 2023.
2.4 participatory citizen science	This will occur during peak calling season in Fall (October 2023). Project needed input from bio-acoustician and is the team is working to refine citizen science monitoring approach to be most effective and useful.

2.5 Ex situ conservation training at FWZ.	FWZ is still on standby Covid19 Pandemic hampered travel for a long period, and then subsequently most project partners were met with increased work obligations that prevented this travel. This activity can still occur in summer/fall 2023.
OUTPUT 3	
3.1 Stakeholder and project meetings throughout.	This output was weak, due largely to the project leader's frustration at the slow start of the project and confusion over timelines not progressing as stated in the proposal. Partners were met and engaged individually.
3.2 Present plans and reports to stakeholders	We are ready to present an interim report; however, conservation plans and reports need significant refinement.
3.3. Development of a manual detailing BVI-specific bio acoustic monitoring plan	In progress. A protocol for MCS has been developed and corresponding data sheets and data management plans are in place. Dr. Michelle Fournet's December 2022 visit supports the output of a bio-acoustic monitoring plan.
3.4 Project presented at a regional biodiversity conservation meeting	To date there have been no suitable meetings. With Covid there was a pivot away from meetings. Brewley is drafting a paper for submission to a peer reviewed journal, which may be our substitute for this activity.
3.5 Key areas for e Schwartzi identified	In progress. No work has been done on the Virgin Islands Coqui (<i>Eleutherodactylus scwhartzi</i>) in 20 years. We believe that we have found two more areas where the species has been extirpated (Frenchman's Cay, Tortola and Dog Island). Brewley has layered location of known e. scwhartzi populations against historic species occurrence within protected areas and TIPAS (Tropical Important Plant Areas). We have also located new populations of the Endangered Virgin Islands Mute Frog/Yellow Mottled Frog on Jost Van Dyke (<i>Eleutherodactylus lentus</i>).
3.6 Draft paper on habitat enhancement measures and threat mitigation	Project Leader (Zaluski) found a few papers on Artificial refugia/habitat. Brewley built and trialed method (unsuccessfully) in a report that can be found in a report, " Trialing use of Artificial Refugia methods for collecting Virgin Islands Coqui. " Currently researching control methods for CTF with Florida examples. Improved habitat association/understanding from Brewley's work is also intended to support this output.
3.7 a Feasibility study and budget for critically endangered PR endangered PR toads	Although Covid19 Pandemic created challenging circumstances which prevented field visit, Forth Worth Zoo personnel is still willing to support this activity.

3.3 Progress towards the project Outcome

OUTCOME	PROGRESS TOWARDS OUTCOMES
0.1 By EOP, threatened amphibian distribution maps will have been produced, distributed and publicised on Jost van Dyke and across the BVI	At the writing of this, report, it is believed that the Endangered Virgin Islands Coqui (<i>Eleutherodactylus schwartzi</i>) may have been locally extirpated from two areas (Frenchman's Cay and Great Dog Island).
0.2 Two of BVI's most threatened amphibians benefit from community and government endorsed management plans by end of project;	TBD
0.3 Following project completion, the National Parks Trust of the Virgin Islands incorporate management recommendations into Park Management Plans	TBD by EOP; however, project has taken on a heavy emphasis on the study of amphibians with Protected Areas (National Parks) and Key Bio-Diversity Plans. A monitoring plan for these sites and new instruments will be developed, leaving

	NPTVI in a better position to monitor and manage existing frog populations.
0.4 At least 2 natural resources managers and 1 JVDPS staff demonstrate increased capacity for frog monitoring and conservation compared to pre-project, enabling long-term amphibian conservation delivery	To Date, two persons (CB Brewley, NPTVI) and Susan Zaluski (JVDPS) have significantly increased their capacity to monitor frog populations compared to
0.5 Both the Virgin Islands Coqui and Puerto Rican Toad are stable or recovering in line with agreed management plan by 2030.	TBD

3.4 Monitoring of assumptions

Our outcome and output levels no longer hold true. The project has not progressed as outlined on project timetables, due to a variety of factors. While we noted that finding project staff available to be trained and conduct surveys and analysis was a key assumption, we underestimated the risk of not having access to a bio-acoustician (due to turnover and rehiring of that position with one of partner agencies) to provide training to these individuals would have. The only way to be successful in the long run for this project is to seek another project extension of one year and to complete work in April 2024.

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

Climate change is already negatively affecting amphibian populations in the Caribbean (Hedges & Diaz, 2011). Average precipitation is predicted to change in the Virgin Islands in the 21st century. While daily average rainfall is decreasing, isolated heavy rain events and flooding are already increasing (EPA 2016, Runkie, et al. 2018). Heavy rainfall events during breeding may wash away frogs' eggs and may even disrupt courtship routines by drawing out calls of advertising male frogs.

This project supports key BVI environmental priorities inclusion fulfillment of national planning instruments (e.g. National Integrated Development Strategy, The Protected Areas System Plan) and commitments of regional/international environmental agreements (e.g. especially the BVI Environmental Charter and the Convention on Biological Diversity). To date, this project has worked in support of the Articles of the Convention of Bio-Diversity, especially Article 7: identification and Monitoring; Article 8 In Situ conservation; and Article 12: Research and Training. If this project continues to completion, it will support Article 9: Ex Situ Conservation indirectly by developing backup plans for captive breeding as a part of Species Survival Plans should In Situ conservation efforts become exhausted and unsustainable in the future and will directly support Article 13 Public Awareness and Education through project outreach

5. Gender equality and social inclusion

The December 2022 Introductory Acoustic Workshop trainings involved 3 men and 5 women.

Please quantify the proportion of women on the Project Board ¹ .	Key personnel involved in this project include 5 women and 5 men; however, the project manager has not held an overall project board meeting.
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 .	The National Parks Trust of the Virgin Islands and Jost Van Dykes BVI Preservation Society are led by women. The project equally involves

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.

	organisations where women occupy senior positions.
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6. Monitoring and evaluation

M&E is the responsibility of the lead organisation. Information is shared with JVDPS who has responsibility for sharing with other agencies. JVDPS admits to having done a poor job leading collective steering committee meetings. This was initially due to project delays; however, JVDPS needs to get the project back on target and seek input and collaboration from partners.

7. Lessons learnt

This project was overly ambitious with added project delays first caused by Covid19 Pandemic related issues and then personnel/staffing of key technical experts at partner organisations. While the project is indeed building capacity for amphibian conservation and working towards delivering stated outcomes, the work has been much more challenging than anticipated. The development of management plans hinges on the success of data collection, and the result of malfunctioning devices has had a snowball effect on project outcomes.

The project did not take the total failure of equipment into account. For 1.1, ARUS were stationed in the field but failed to collect data based on equipment malfunction. While the field work was completed, we now have no corresponding data set to show our work, which has a cascading effect of negatively impacting analysis and development of monitoring plans.

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

NA

9. Risk Management

Some of the newly identified risks are related to automated equipment. This risk can be addressed by periodic checking of devices left in the field for long-term deployment. While this will help with risk, it requires the addition of a significant amount of added work to the project.

10. Other comments on progress not covered elsewhere

We were unable to have a bio-acoustician visit our field sites until December 2022, and the tail end of the breeding season. While we are finally in a position to complete the project, we can only complete with an approved extension for this project.

11. Sustainability and legacy

The original intention of the project was to utilise international masters' students from the University of New Hampshire to support field work. Early in the project we pivoted to supporting a local Virgin Islander who was an early career conservationist working at the National Parks Trust of the Virgin Islands to complete her master's degree at UNH with a thesis focuses on amphibian conservation. While this has made the project much more complicated, the end result is that DPLUS118, despite all of its many challenges and shortcomings will undoubtedly leave its mark on building local capacity for nature conservation in the British Virgin Islands.

We have also interested acoustic monitoring to HLSCC's Centre for Applied Marine Studies (CAMS), and some initial work has been done in taking recordings from mangrove restoration sites. CAMS has also purchased a hydrophone and has plans to build on the relationship with UNH's Dr. Michelle Fournet to implement marine acoustic monitoring as a part of its mangrove restoration work (linked to DPLUS085 and DPLUS 073). If we are given permission to extend DPLUS118 by a year, we believe we will be successful in developing a sustainable legacy for amphibian monitoring and management in the BVI.

12. Darwin Plus identity

Darwin is mentioned as a funder in the draft manuscript in development and will be mentioned in future social media posts. Due to the delays and project problems, we have don't little to no publicity for this project.

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?	Not specified, Project leader by default
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?	Past: % 0
Has there been any lessons learnt or challenges on Safeguarding in the past 12 months? Please ensure no sensitive data is included within responses. NO	
Does the project have any developments or activities planned around Safeguarding in the coming 12 months? If so please specify. NO	

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				

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 (£)		

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

Project summary	SMART Indicators	Progress and Achievements April 2022 - March 2023	Actions required/planned for next period
<p>Impact</p> <p>Increased capacity to monitor, study and manage native amphibian species and advance climate change adaptive plans for bio-diversity conservation management in the BVI.</p>		<p>One young conservation professional is working towards their MSc at UNH focusing on thesis: “Habitat and Distribution of the Endangered Virgin Islands Coqui.” She has been trained in advanced acoustic method and the plan is for her to return to work at the National Parks Trust of the Virgin Islands following the completion of her degree in late Spring 2024 bringing increased capacity to study, monitor and analyse amphibian populations in the BVI.</p>	
<p>Outcome Globally threatened endemic amphibians are better understood enabling data-driven management plan implemented effectively by strengthened local BVI practitioners.</p>		<p><i>Please see section 3 of this report</i></p>	<p>Data collection and training to continue into end of 2023, which are the necessary imports to support management planning</p>
<p>Output 1. Greater understanding of native and invasive BVI amphibian populations and threats.</p>		<p><i>Please see section 3 of this report Overall, we are making progress towards this output. Our understanding of native amphibian species grows along with our capacity and Outputs 1 and 2 are mutually reinforcing.</i></p>	
<p>Activity 1.1 Please see section 3 of this report</p>			
<p>Output 2. Improved capacity in the BVI to monitor and report on amphibian populations</p>			<p><i>Please see section 3 of this report Overall, we are making progress towards this output and developing systems and monitoring plans and providing training that support significant improvements in BVI capacity to monitor and report on amphibian populations.</i></p>

Project summary	SMART Indicators	Progress and Achievements April 2022 - March 2023	Actions required/planned for next period
Activity 2.1. Please see section 3 of this report			
Activity 2.2 Please see section 3 of this report			
<p>Output 3. Development of a stakeholder-informed Amphibian conservation management and recovery plans.</p>			<p>Please see section 3 of this report. While sections 1 and 2 are mutually reinforcing, they also need to be advanced to be able to complete management plans.</p>

Annex 2: Project's full current logframe as presented in the application form (Amended Table February 2022)

Project summary	Measurable Indicators	Means of verification	Important Assumptions
Impact: Increased capacity to monitor, study and manage native amphibian species and advance climate change adaptive plans for bio-diversity conservation management in the BVI.			
<p>Outcome:</p> <p>Globally threatened endemic amphibians are better understood enabling data-driven management plan implemented effectively by strengthened local BVI practitioners.</p>	<p>0.1 By end EOP, threatened amphibian distribution maps will have been produced, distributed and publicised on Jost van Dyke and across the BVI</p> <p>0.2 Two of BVI's most threatened amphibians benefit from community and government endorsed management plans by EOP.</p> <p>0.3 Following project completion, the National Parks Trust of the Virgin Islands incorporate management recommendations into Park Management Plans</p> <p>0.4 At least 2 natural resources managers and 1 JVDPS staff demonstrate increased capacity for frog monitoring and conservation compared to pre-project, enabling long-term amphibian conservation delivery</p> <p>0.5 Both the Virgin Islands Coqui and Puerto Rican Toad are stable or recovering in line with agreed management plan by 2030.</p>	<p>0.1 Quantitative baseline data from surveys, maps produced.</p> <p>0.2 Management plans, workshop reports and attendance records.</p> <p>0.3 Minutes from government meetings; copies of government- backed conservation plans.</p> <p>0.4 Training reports; questionnaire with self-appraisal scores</p> <p>0.5 GIS-based ARU-informed species distribution maps and monitoring data.</p>	<p>Project progresses as outlined on project timetables</p> <p>Stakeholders are willing to play a part in the process.</p> <p>Correct actions are implemented and adaptively managed; able to demonstrate signs of recovery until 9 years post project; project partners commit to report changes in species and their threats within 5 years of project end.</p>
Output 1	1.1 Seven semi-permanent data stations (Automated Recording Units (ARUs) mounted with weather data logger deployed in known locations for	1.1 Sound analysis reports from ARU recordings processed with Raven Pro	We have access to all the key survey sites.

<p>Greater understanding of native and invasive BVI amphibian populations and threats.</p>	<p>occurrence of endangered, endemic <i>E. schwartzi</i> and other target species (EOP) Reports on occupancy and co-occurrence by other native frog species and the invasive Cuban Tree Frog will also be collected.</p> <p>1.2 Comprehensive MCS (Manual Call Surveys) carried out following standard anuran monitoring procedures on 7 islands for at least one field season (By EOP) where native frog populations are found, digital recordings also taken with AudioMoths (for deployment of up to 1 week) to be processed using Raven Pro Software and evaluate effectiveness of manual detection against ARUs.</p> <p>1.3 Complete assessment of fine-scale habitat associations for endangered <i>e. schwartzi</i>, measuring habitat covariates (precipitation, temperature, vegetation type and height, et. By end of Q3, Year 2.</p> <p>1.4 Assessment of potential suitable habitat for the critically</p> <p>Fifty (50) specimens of geographically distributed Cuban Tree Frog collected and dietary analysis conducted Year 1 Fieldwork (EOP), Vector data from BVI Department of Environmental Health analyzed by End of Year 1 against 2005 baseline distribution maps and current data from project bio-acoustic surveys.</p>	<p>1.5 and GIS layers/maps on species distribution.</p> <p>1.2 Data collection sheets, report on sound analysis through Raven Pro and GIS layers/maps on species distribution.</p> <p>1.3 A report synthesizing findings from habitat associations study.</p> <p>1.4 Field report from Puerto Rican Crested Toad Recovery Project partner (Ft Worth Zoo).</p> <p>1.5 Draft paper of Status of Cuban Tree frog in the BVI replicating methodologies used in a 2005 baseline study of the target species.</p> <p>1.6 Lab results of tests and survey notes from collected specimens.</p> <p>1.7 Lab results of tests and survey notes from collected specimens</p>	<p>We are able to find project staff available to be trained to conduct surveys and analysis.</p>
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	<p>1.6 Skin swabs from (30) geographically diverse specimens of e. schwartzi collected and tested for Chytrid by EOP.</p> <p>1.7 Genetic testing of skin swabs and SNL measurements taking to confirm target species is e.schwartzi and not IAS e.coqui.</p>		
<p>Output 2</p> <p>Improved capacity in the BVI to monitor and report on amphibian populations</p>	<p>2.1 At least five (5) persons trained in manual call survey methods by EOP</p> <p>2.2 At least three (3) local conservation staff attend week-long training course with University of New Hampshire's Center for Acoustic Research and Education (CARE) on spectrographic analysis, visualization, and measurement of animal sounds EOP</p> <p>2.3 PSA and public outreach materials drafted and disseminated to improve public's ability to I.D. native vs. invasive species by EOP.</p> <p>2.4 Participatory "Citizen Science" Bio-acoustic surveys launched EOP (month of October) to provide added information and reporting on potential schwartzi and Osteopilus septentrionalis presence and to engage public.</p> <p>2.5 Project leader develops knowledge/understanding of ex situ</p>	<p>2.1 Attendance sheets from training activity. Participants successfully carry out surveys in year 2 (data sheets with surveyors names).</p> <p>2.2 Attendance records from workshop and passing exam scores.</p> <p>2.3. Copies of print materials, social media ads and audio file from PSA.</p> <p>2.4 List of emails of public participants, attendance at public event about amphibians and citizen science component.</p> <p>2.5 Photos and verification of training from Ft. Worth Zoo, PDF/Word Document self report by project leader.</p>	<p>adequate interest in conservation community to apply for training and adequate interest in public to volunteer.</p> <p>We believe this holds true as partners have expressed interest and need. Participating and other agencies have expressed interest in training and residents from all (4) populated islands have expressed interest in citizen science components.</p>

	conservation methods and captive breeding via a one week intensive study trip to Ft. Worth Zoo's animal husbandry facility by EOP.		
<p>Output 3</p> <p>Development of a stakeholder-informed Amphibian conservation management and recovery plans</p>	<p>3.1 Stakeholder and project steering committee meetings held throughout.</p> <p>3.2 Pre-project information and present project data collated into a series of reports to be presented at a management and recovery plan workshop in Q3Y2 and given to government within 3 months.</p> <p>3.3 Development of a Manual detailing a BVI-specific bio-acoustic monitoring protocol for Amphibians End of Project.</p> <p>3.4 Project presented at a regional biodiversity conservation meeting. 3.5 Key areas for habitat priority protection sites for e. schwartzi identified by Q3Y2.</p> <p>3.6 Draft paper on habitat enhancement measures, threat mitigation (e.g. control of invasive Cuban Tree Frog) or other suggested conservation actions to support amphibian species survival by EOP.</p> <p>3.7 A feasibility study and budget for critically endangered Rican Crested</p>	<p>3.1. Minutes of meetings.</p> <p>3.2 Workshop attendance sign in, final project report and presentations.</p> <p>3.3 PDF of final report, list of reviewers.</p> <p>3.4 PPT of presentation, notes on feedback from colleagues.</p> <p>3.5 Map of key areas. GIS layers provided to government.</p> <p>3.6 PDF of report. 3.7 PDF of report.</p>	<p>Project proceeds on time, report produced within project timeline.</p> <p>Participants can agree priorities and approve plan.</p>

	Toad re-introduction with potential re-introduction sites is created by EOP		
<p>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)</p> <ul style="list-style-type: none"> 1.1 Five (5) semi-permanent Acoustic (ARU)/weather stations deployed 1.2 Report on occupancy and species co-occurrence produced from ARUs 1.3 MCS/Digital recording surveys carried out 5 islands 1.4 Recognisers built from call samples for target species 1.5 Recording analysed and species identified 1.6 GIS maps of species presence and distribution produced 1.7 Report assessing fine-scale habitat associations drafted 1.8 (50) specimens of Invasive Cuban Tree Frog collected 1.9 Dietary analysis of Cuban Tree Frog conducted 1.10 Paper on Cuban Tree Frog information drafted 1.11 Skin swabs of (30) specimens of e.schwartzii collected for Chytrid testing 1.12 Skin swabs of (30) specimens of e.schwartzii collected for genetic identification 1.13 SNV measurements taken from (30) specimens of e schwartzii 1.14 Lab reports from skin swabs produced 1.15 Habitat assessments for PR Crested Toad conducted 1.16 Final report on habitat suitability for PR Crested Toad drafted 2.1 Training for Manual Call Surveys hosted with at least 5 persons with digital verification 2.2 Acoustic Analysis workshop (week long) held with 3 local BVI conservation personnel 2.3 PSA drafted and aired to inform public about the importance of native vs. invasive frogs 2.4 Participatory Citizen Science "Great Frog Count"based on USVI model hosted with at least 30 participants from public participating 2.5 Project leader visits Ft Worth Zoo for on-site training in Amphibian husbandry 3.1 Stakeholder & steering committee meetings held throughout project 3.2 Recovery Planning workshop held with conservation stakeholders 3.3 Manual for BVI specific acoustic monitoring protocol produced 3.4 Results presented at regional conference & feedback from colleagues obtained 3.5Map of Key Areas identified for habitat conservation produced 3.6 Draft paper on habitat enhancement measures, threat mitigation for invasive Cuban Tree Frog and other conservation actions drafted 3.7 A feasibility study and budget for Critically Endangered PR Crested Toad re-introduction drafted 			

Annex 3: Standard Indicators

The Biodiversity Challenge Funds (BCFs) use high quality and accessible Monitoring, Evaluation and Learning (MEL) to enable scaling, replication and increase the impact of the funds and the projects we support.

By asking project teams to align indicators with the Darwin Plus Standard Indicators, we aim to increase our contribution to the global evidence base for activities that support biodiversity conservation, benefits to local communities, and capability & capacity.

The tables below are provided to assist project teams in reporting against Standard Indicators. Please report against the Standard Indicators that you have selected specifically for your project in Table 1 below. Refer to the Standard Indicator Guidance & Menu available on the [Darwin Plus website](#) for guidance on how to select indicators, as well as how to disaggregate reporting within your chosen indicators.

New projects should complete the Y1 column and also indicate the number planned during the project lifetime. Continuing projects should copy and paste the information from previous years and add in data for the most recent reporting period.

We recognise that our menu cannot cover all the potential monitoring needs for all projects – where necessary you can select indicators from other sources or develop your own. See our BCF MEL guidance on best practices for selecting and developing indicators.

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
2.1	At least 5 persons trained in MCS methods.		People	Men/Women: 3 men, 2 women	4	1		5	5
2.2	At least three (3) local conservation staff attend week-long training course with University of New Hampshire's Center for Acoustic Research and Education (CARE) on spectrographic analysis, visualization, and measurement of animal sounds		People	Men/Women: 3 Men, 5 women (in progress)	1	7		8	8

In addition to reporting any information on publications under relevant standard indicators, in Table 2, provide full details of all publications and material produced over the last year that can be publicly accessed, e.g. title, name of publisher, contact details, cost. Mark with an asterisk (*) all publications and other material that you have included with this report.

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)

Checklist for submission

	Check
Different reporting templates have different questions, and it is important you use the correct one. Have you checked you have used the correct template (checking fund, type of report (i.e. Annual or Final), and year) and deleted the blue guidance text before submission?	YES
Is the report less than 10MB? If so, please email to BCF-Reports@niras.com putting the project number in the Subject line.	YES
Is your report more than 10MB? If so, please discuss with BCF-Reports@niras.com about the best way to deliver the report, putting the project number in the Subject line.	NA
Have you included means of verification? You should not submit every project document, but the main outputs and a selection of the others would strengthen the report.	YES
Do you have hard copies of material you need 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.	NO
If you are submitting photos for publicity purposes, do these meet the outlined requirements (see section 15)?	NA
Have you involved your partners in preparation of the report and named the main contributors	NO
Have you completed the Project Expenditure table fully?	
Do not include claim forms or other communications with this report.	