

DPLR1\1083

Pollution and invasive species management, Spittal Pond Nature Reserve

Spittal Pond is Bermuda's largest national reserve, stretching over 64 acres. In one of the most densely populated and isolated islands in the world, this is significant to both Bermuda's environmental balance/ecology? and need for accessible open space. As such, it has a dual role in the community. The reserve features numerous habitats, notably saltwater marsh and coastal forest/woodland. The site also has important geological and cultural heritage features. More than 200 species of bird have been documented in the reserve with at least 20 species overwintering at the site.

Before it was designated a nature reserve, it had a long history of human use, including: celery farming, hunting, a firing range and more recently grazing of cattle. This has left a legacy and several concerns at the site, all of which have had their toll.

Effluent from grazing cattle has caused eutrophication and often results in algal blooms in the summer. These algal blooms reduce food availability for aquatic organisms and in some cases killing them off.

The pond is also subject to flooding when large storms and hurricanes hit Bermuda. As sea level rises in the future, it is likely that this pond will become part of the ocean.

To manage cattle grazing in the mud flats and the associated eutrophication of the pond we need to fence a 700-foot section of the pond. We propose building this in a combination of treated timber and local Allspice (*Pimenta dioica*), an invasive species we would remove from another nature reserve as part of a conservation management plan. Removing the invasive Allspice from the other nature reserve (Sherwin NR) will benefit that property and provide us with timber for the fencing at Spittal Pond. We would in effect "feed two birds with one seed".

The fence needs to be 700 feet in length to be effective and will consist of a top rail and tensile wire to keep cattle out. The project will include creation of a swale and berm on the northern side (inside the fence). This development will further prevent ruminant waste from polluting the pond.

In the interest of addressing the impact of sea-level rise and managing other severe weather issues associated with climate change – such as increased frequency and strength of hurricanes – we propose planting a belt of Black Mangroves around the northern, eastern and western banks of the pond. For many years mangroves have been removed from this site out of concern that they may overwhelm the pond and deplete it to a terrestrial environment. With sea-level rise already occurring and set to continue there is a new appreciation for the importance of mangroves in this environment.

Success will be measured by the quality of the water and the growth of the mangroves. At the onset of the process and seasonally for a minimum of three years following we will carry out water quality testing to document the impact of this project. We suspect changes in water quality will be bettered in a very short time. Results will be compared with historic testing carried out by the Bermuda Government.

This space also holds cultural significance for Bermuda as it is part of our African Diaspora Trail, a site of enslavement and a space where Africans and people from all around the world can grieve, find healing, and come together. This project is part of our ongoing efforts to reimagine sites of enslavement.

PRIMARY APPLICANT DETAILS

Name	Myles
Surname	Darrell
Organisation	Bermuda National Trust
Website (Work)	[REDACTED]
Tel (Work)	[REDACTED]
Email (Work)	[REDACTED]
Address	[REDACTED]
	[REDACTED]
	[REDACTED]
	[REDACTED]

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Pollution and invasive species management, Spittal Pond Nature Reserve

Section 1 - Project Title & Contact Details

Q1. Project Title

Pollution and invasive species management, Spittal Pond Nature Reserve

Q2. Please select whether you are applying as an organisation or as an individual (Guidance section 3 and Guidance Glossary)

Organisation

PRIMARY APPLICANT DETAILS

Name	Myles
Surname	Darrell
Organisation	Bermuda National Trust
Website (Work)	[REDACTED]
Tel (Work)	[REDACTED]
Email (Work)	[REDACTED]
Address	[REDACTED]

GMS ORGANISATION

Type	Organisation
Name	Bermuda National Trust
Phone (Work)	[REDACTED]
Email (Work)	[REDACTED]
Website (Work)	[REDACTED]
Address	[REDACTED]

Section 2 - Overseas Territory(ies)

Q3. Overseas Territory (Guidance section 1.3):

Which UK Overseas Territory(ies) will your project be working in? Please note that in case of a non-permanent resident population you need to demonstrate a clear, meaningful, long-term link to the territory.

Bermuda

*** if you have indicated a territory group with an asterisk, please give detail on which territories you are working on here:**

No Response

In addition to the UKOT(s) you have indicated, will your project directly benefit any other UK OT(s) or country(ies)?

No

Section 3 - Project Partners





Q4. Project partners (Guidance section 3.2)

In this section, please give details of all the partners involved (including the Lead Partner) and provide a summary of their roles.

Project Leader name (Guidance section 3.1):	Myles Darrell
Lead Partner name (if applying as an organisation; Guidance section 3.1):	Bermuda National Trust
Lead Partner Website (if applicable):	bnt.bm
Is the Lead Partner based in a UKOT where the project is working (Guidance section 3.1)?	<input checked="" type="radio"/> Yes
List other partners involved and where are they based (Guidance section 3.2):	Bermuda Government's Department of Environment and Natural Resources (DENR) All entities are based in Bermuda.
Summary of roles and responsibilities of each partner in the project:	DENR: Government owns the adjoining section of the nature reserve where the farmer is located and is supportive of the project, all of which is located on BNT property. Wildlife ecologist Dr Mark Outerbridge, at the Department of the Environment and Natural Resources has shared his considerably knowledge and expertise working closely with the BNT to research the problem and develop a solution.

I confirm that all listed partners are aware of this application and have indicated support: Checked

Attach a Cover Letter for your application (Guidance section 4.2).

 [Darwin Application 2023 cover letter](#)
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Section 4 - Project Summary & Description

Q5. Project Summary (Guidance section 3.8)

Please provide a brief summary of your project. This may be used in communication activities and/or published online, if your application is successful.

The Spittal Pond Project involves rehabilitation of a unique marine pond, polluted by run-off from the neighbouring cattle farm causing eutrophication and species destruction. Installation of fencing, a berm and swale will enable restoration of the pond and protection of species. Spittal Pond is the largest nature reserve on Bermuda, one of the most densely populated and isolated islands on earth. As such it is crucial to effective biodiversity, mitigation of climate change, and community open space.

Q6. Description (Guidance section 2.1)

Please provide a description of your project, including:

- the overall objective
- the current situation and the problem the project is trying to address
- what success will look like and how you will measure it

Please be as specific as possible when describing the project, using quantified data and evidence where available. You may wish to consider: what are the specific threats to the environment that the project will attempt to address, and what should we know about these threats? What does your successful project look like? And how will you demonstrate whether and how your project has been successful?

Spittal Pond is Bermuda's largest national reserve, stretching over 64 acres. In one of the most densely populated and isolated islands in the world, this is significant to both Bermuda's environmental balance/ecology? and need for accessible open space. As such, it has a dual role in the community. The reserve features numerous habitats, notably saltwater marsh and coastal forest/woodland. The site also has important geological and cultural heritage features. More than 200 species of bird have been documented in the reserve with at least 20 species over wintering at the site. Before it was designated a nature reserve, it had a long history of human use, including: celery farming, hunting, a firing range and more recently grazing of cattle. This has left a legacy and several concerns at the site, all of which have had their toll.

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To manage cattle grazing in the mud flats and the associated eutrophication of the pond we need to fence a 700-foot section of the pond. We propose building this in a combination of treated timber and local Allspice (*Pimenta dioica*), an invasive species we would remove from another nature reserve as part of a conservation management plan. Removing the invasive Allspice from the other nature reserve (Sherwin NR) will benefit that property and provide us with timber for the fencing at Spittal Pond. We would in effect “feed two birds with one seed”.


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(Optional) Please upload any additional and supporting materials or files (such as maps of project sites, etc) below. Maximum of 5 pages:

 [Maps - Pollution and invasive species management, Spittal Pond Nature Reserve](#)

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Section 5 - Project Outcome(s)

Q7. Project Outcome(s) (Guidance section 1.2)

Successful Darwin Plus Local projects must demonstrate measurable outcomes in at least one of the themes of Darwin Plus, either by the end of the project or soon after through a credible plan.

Please tick which theme(s) of Darwin Plus your project underpins:

Checked **Biodiversity: improving and conserving biodiversity, and slowing or reversing biodiversity loss and degradation;**

Checked **Climate change: responding to, mitigating and adapting to climate change and its effects on the natural environment and local communities;**

Checked **Environmental quality: improving the condition and protection of the natural environment**

Checked **Capability and capacity building: enhancing the capacity within OTs, including through community engagement and awareness, to support the environment in the short- and long-term.**

Please justify your selection.

This project is designed to improve the conservation of biodiversity in the pond and increase biodiversity in the terrestrial environment. Water quality of the pond will be improved and will assist in reversing biodiversity loss. Black Mangrove planting will strengthen capacity of the habitat to manage the anticipated impacts of climate change by acting as a natural barrier against storm surges and floods. The filtering process could prevent harmful sediments finding their way to coral reef in the future. As noted, increased community engagement, supporting diversity and inclusion is part of every project we undertake. For everyone, forever!


Section 6 - Project Timeline


Q8. Project timeline (Guidance section 2.2)


Please provide anticipated dates for the start and end of your planned project here. Please use the Darwin Plus Local Project Implementation Timetable Template (which can be downloaded below) to provide a list of the individual activities you have planned for this project, a brief description of what each activity entails, and the months in which the activities will be carried out. If the project involves only one activity (e.g. a purchase), please still provide project start and end dates (noting estimated times for procurement). Please note that your project will need to be completed by 31 March 2024.


Start date:	End date:	Duration (e.g. 3 months):
03 April 2023	31 January 2024	10 months

Please upload the completed Darwin Plus Local Project Implementation Timetable template with your proposed project activities below.

 [R1 DPlus Local Implementation Timetable Template FINAL](#)

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Section 7 - Costs

Q9. Costs (Guidance section 2.2 and please read the Finance Guidance)

Please provide a breakdown of costs to be funded through Darwin Plus Local (in GBP).

Are you seeking any matched funding for this project? (Please note that this is optional and there is no requirement to seek matched funding for Darwin Plus Local projects).

No

Budget line	Explanation	Cost in GBP
Staff costs:	Management and Administration Myles Darrell, Head of Natural Heritage, will lead this project which and will work directly with contractors to ensure quality control while carrying out administration duties as needed with the help of the BNT accounts department until the completion of the project.	████████
Overhead costs:	N/A	██████
Travel & subsistence costs:	N/A	██████
Operating costs:	The operating costs are attributed to the subcontractor activities required to complete this project and the associated materials.	██████████
Capital equipment:	N/A	██████
Consultancy costs:	Other - Marketing video	████████
Total:		██████████

This section provides more information on the budget to help evaluators understand how you will use the funds you are requesting. You do not need to list all costs, but please list and detail costs of more than £1,000 per item below, under the appropriate budget line.

Details of staff costs over £1,000 (if relevant)

Myles Darrell, Head of Natural Heritage, will work directly with contractors to ensure quality control while carrying out administration duties as needed with the help of the BNT accounts department until the completion of the project. He will also facilitate our Community day and it is anticipated that he will need to do 65 hours to make this possible over the 10 months the project will take to complete.

Details of overhead costs over £1,000 (if relevant):

There are no anticipated overhead costs to manage as they have been factored into the management and administration costs associated with staff costs.

Details of travel and subsistence costs over £1,000 (if relevant):

There will be no travel associated with this project.

Details of operating costs over £1,000 (if relevant):

Invasive removal to create access for construction [REDACTED]
Berm and Swale development to catch effluent and ensure it doesn't enter the pond [REDACTED]
Fence post harvesting reserve invasive species to be harvested from another nature reserve [REDACTED]
Fence construction including materials (tensile wire, hardware, pressure treated posts) [REDACTED]
Native and endemic plants including biodegradable weed mat and mulch associated with planting of Berm. [REDACTED]
Water quality testing will be carried out by a local laboratory [REDACTED]

Details of capital equipment costs over £1,000 (if relevant):

N/A

Details of consultancy costs over £1,000 (if relevant):

N/A

Details of other costs over £1,000 (if relevant)

Marketing video to share with the community the goals of the project, insight about tree planting, biodiversity and connectivity between cultural and natural heritage. [REDACTED]

If your project budget was prepared in another currency and converted to GBP, please provide the exchange rate, its source, and the date it was accessed:

Other currency:	Exchange rate:	Source of this exchange rate:	Date exchange rate accessed:
60362.07 USD	GBP 1.00 - USD 1.22	https://www.msn.com - MSN money	14 February 2023

Darwin Plus Local has been created to build capacity and contribute to local economies in-territory.

What % of the total will be spent in the OTs? [REDACTED]

If less than 80% of the total project spend is to be spent within the OT(s), please explain why.

All money will be spent locally.

Section 8 - Local and National Priorities

Q10. Local and national priorities

Please explain how this project aligns with local and national priorities? You may wish to consider the project in the context of national environmental laws, objectives, strategies, territory specific agreements, action plans or policies.

As a low-lying and isolated archipelago in the northern Atlantic, Bermuda is particularly vulnerable to

climate change. Increasingly battered by stronger hurricanes, with coastal erosion intensifying, public and private sector entities are becoming more engaged in initiatives to protect the environment. The Risk Prediction Initiative is a joint venture of the Bermuda-based global insurance industry and the Bermuda Institute of Ocean Sciences, which has hosted scientists researching climate change for decades. It has become clear that biodiversity and ecological balance are not just “nice to have” but essential to Bermuda’s survival, including community livelihoods. Efforts to promote and protect biodiversity to create resilient ecosystems include considerable corporate and community volunteer activity – and young people are especially eager to remediate their island, with schools focusing on the need. We don’t always get it right, but it would be true to say that the community at all levels is aware that we need to collaborate on this.

Will the project take place on Government owned land or water?

No

Section 9 - Project Risks

Q11. Project Risks

Please demonstrate your consideration of any risks involved in this project and how you intend to manage them. Depending on your project, you may wish to consider:

- Biosecurity risks – particularly for projects involving external equipment.
- Safeguarding risks – particularly for projects involving vulnerable groups such as children, older people or people with disabilities.

Risk	Mitigation
Someone getting hurt by construction equipment or falling branches while invasive management is underway.	The trail adjacent to the intended work site will be closed while restoration efforts are being carried out. Signage will be erected to ensure the public is aware of the work and associated safety concerns.
Supply chain issues could delay the project – fence posts, tensile wire and some hardware will need to be imported for the work as it is not manufactured in Bermuda	We have spoken in advance to on-island suppliers and are confident that the items selected for the project will be available. If the position changes, it could delay the project as we don’t have control over manufacture. But we believe that informing suppliers of what we need in advance will mitigate the risk.
The work will not constitute a “one and done” project. Things could reverse. Rainfall has been increasing – and excessive rainfall could cause nutrients to flood into the pond. Excessive rainfall could cause nutrients to flood into the pond.	Adjustment may be needed. Monitoring and measuring will be carried out starting with a benchmark metric of water quality. If things deteriorate in the future, we will catch it early and address in the most appropriate way. We know we cannot take our eye off the ball on a project like this.

Do you require more fields?

Yes

Risk	Mitigation
Heavy rain could cause excavation spoil to enter the pond if a heavy rain occurred while in the excavation of the ditch and development of the berm.	We will be watching the weather closely to ensure we can carry out this work while conditions are dry. We will also use a biodegradable weed mat that will be installed as the berm is being created limiting the capacity for erosion through run off to occur. A 4-inch layer of local woodchip(mulch) will be used to also reduce the potential for run off associated with heavy rains.
Summer is a difficult time of year to establish juvenile plants in Bermuda. Between hurricanes and drought, it can be a difficult time for small plants.	Development and construction will occur at the end of the hurricane season providing the greatest opportunity for the plants to find success. Development post hurricane season will also reduce the likelihood of concerns associated with heavy rain events as discussed above.
No Response	No Response
No Response	No Response
No Response	No Response

Section 10 - Terms & Conditions

Q12. Terms and conditions (Guidance section 3.10)

By applying for Darwin Plus Local you are adhering in full to the grant Terms and Conditions in full (available at: <https://dplus.darwininitiative.org.uk/apply> and as referenced in the Guidance at section 3.10). For information, the Terms and Conditions include requirements for all applicants to (amongst other requirements as per the full Terms and Conditions):

- Uphold a zero tolerance for inaction approach to tackling sexual exploitation, abuse, and harassment.
- Where appropriate, make all reasonable and adequate efforts to address gender inequality and other power imbalances.
- Notify all cases of fraud and theft (whether proven or suspected) relating to the project to the Grant Administrator as soon as they identified.

Please indicate you have read, and understood, and will adhere to the Terms and Conditions.

Checked

If your application is successful: If your project application is successful, the Fund Administrator (NIRAS) will ask you to provide some financial evidence for due diligence checks before you receive your project grant. (Please see section 3.3 of the Darwin Plus Local Finance Guidance). Please be ready to provide this evidence promptly.

Financial evidence for organisations: Year-end financial statements, the latest management accounts or audited accounts (if you have these).

Financial evidence for individuals: Proof of identity such as a passport, ID card or driving licence and solvency (such as bank statements) and a police check.

Section 11 - Certification

Certification

I certify that, to the best of my knowledge and belief, the statements made in this application are true and the information provided is correct.





Checked

I have the authority to submit an application on behalf of my organisation.

Checked

Name: Myles Darrell

Position in the organisation: (if applicable) Head of Natural Heritage

Signature (please upload e-signature)  [signature](#)
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Date: 14 February 2023

Section 12 - Submission Checklist

Checklist for submission

	Check
I have read the Guidance documents, including the “Darwin Plus Local Guidance” and the “Darwin Plus Local Finance Guidance”.	Checked
If my proposed project takes place on public lands or water, I have uploaded a Letter of Support from Government.	Unchecked

I have uploaded a cover letter that details the information requested in the guidance (Guidance section 4.2 has information on what this cover letter should include).	Checked
I have read, and can meet, the current Terms and Conditions for this fund.	Checked
I have provided actual start and end dates for the project.	Checked
I have provided my summary budget based on UK government financial years i.e. 1 April - 31 March and in GBP in the application form.	Checked
I have uploaded my project implementation timetable using the specific template provided.	Checked
(If copying and pasting into Flexi-Grant) I have checked that all my responses have been successfully copied into the online application form.	Checked
The application has been signed by a suitably authorised individual (clear electronic or scanned signatures are acceptable).	Checked
I have checked the Darwin Plus website immediately prior to submission to ensure there are no late updates.	Checked
I have read and understood the Privacy Notice on the Darwin Plus website.	Checked

We would like to keep in touch!

Please check this box if you would be happy for the lead applicant (Flexi-Grant Account Holder) and project leader (if different) to be added to our mailing list. Through our mailing list we share updates on upcoming and current application rounds under Darwin Plus. We also provide occasional updates on other UK Government activities related to biodiversity conservation and share project news. You are free to unsubscribe at any time.

Checked

Data protection and use of personal data

Information supplied in the application form, including personal data, will be used by Defra as set out in the **Privacy Notice**, available from the [Forms and Guidance Portal](#).

This **Privacy Notice must be provided to all individuals** whose personal data is supplied in the application form. Some information may be used when publicising Darwin Plus including project details (usually title, lead partner, project leader, location, and total grant value).

Project Title: Pollution and invasive species management, Spittal Pond Nature Reserve

Darwin Plus Local

Provide a **Project Implementation Timetable** that shows the key milestones in project activities. Complete the following table as appropriate to describe the intended workplan for your project. Projects are based on UK Financial Years (1 April – 31 March - therefore starts April 2023).

Please add/remove columns to reflect the length of your project. For each activity (add/remove rows as appropriate) indicate the number of months it will last, and shade only the months in which an activity will be carried out. The workplan can span multiple pages if necessary.

Activity #	Description (max 25 words)	No. of months	Calendar Year 2023									
			Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan
			Water quality testing	Collect water sample and have it tested as base reference, ongoing monitoring will help assess the success of the project.								
Select contractor	Carry out contractor selection as per BNT policy of having a minimum of 3 quotes from local contractors											
Allspice Harvesting	Remove invasive Allspice (Pimenta dioica) from Sherwin N.R. for use as at least 50% of fencing material											
Selective culling of invasive species at site	Prepare site for fence restoration and transition to native and endemic flora											
Excavate ditch and create berm	Create ditch and berm to catch nitrate run off to ensure it can't find its way to the pond											
Fence repair	Replace posts and reconstruct fence to keep cattle out											
Seed collection	With the help of student volunteers, collect and store black mangrove seed for dispersal. Seeds can be stored for dispersal at our nursery space at Government House.											

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Activity #	Description (max 25 words)	No. of months	Calendar Year 2023									
			Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan
			Film tree planting educational video	Produce short video about how to plant a tree and the value of trees in our community								
Community/Stakeholder Tree Planting Day	Plant native and endemic trees and shrubs on established berm increasing biodiversity and assisting with limiting erosion and effluent entering the pond. Market the day including an apology statement associated with the misrepresentation of insight associated with Portuguese Rock – as per Interpreting Slavery 11-12-19.pdf (montpelier-documents.s3.amazonaws.com)											
Mangrove seed dispersal	Eco-source and disperse Black Mangrove (<i>Avicennia germinans</i>) Seeds at periphery of the pond											
Reinterpretation of Portuguese Rock	Reinterpret and develop new signage associated with Portuguese rock											
Install new signage	Install new signage ready for unveiling at our Community Day											
Press release	Share the story of our journey, moving this forward coupled with insight about what it means to the community											