Applicant: **Pelembe, Tara**
Organisation: **South Atlantic Environmental Research Institute**
Funding Sought: **£24,569.50**

DPLR2\1006

Increasing environmental monitoring capacity on FI: a Thermal Imaging UAV

This project's objective is to increase the ability of SAERI to undertake on-the-ground applied research and monitoring to feed into policy and decision-making in the Falkland Islands by purchasing a thermal imaging UAV, setting up all of the documentation required to fly the drone, undertaking test flights and a delivering a partner demonstration workshop. Post project, the drone will be used in partnership with FIG in the following areas: Agriculture; Energy Auditing; Wildlife Monitoring; Environmental Surveys; Coastal Oil Spill Detection.

DPLR2\1006

Increasing environmental monitoring capacity on FI: a Thermal Imaging UAV

Section 1 - Project Title & Contact Details

Q1. Project Title

Increasing environmental monitoring capacity on FI: a Thermal Imaging UAV

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

⦿ Organisation

CONTACT DETAILS

Title	Mrs
Name	Tara
Surname	Pelembe
Organisation	South Atlantic Environmental Research Institute
Website (Work)	[redacted]
Tel (Work)	[redacted]
Email (Work)	[redacted]
Address	[redacted]

CONTACT DETAILS

Title	Mr
Name	Jack
Surname	Ingledew-Gale
Organisation	South Atlantic Environmental Research Institute
Tel (Work)	[redacted]
Email (Work)	[redacted]
Address	[redacted]

GMS ORGANISATION

Type	Organisation
Name	South Atlantic Environmental Research Institute
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.

☑ Falkland Islands (FI)

*** 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):	Tara Pelembe
Lead Partner name (if applying as an organisation; Guidance section 3.1):	South Atlantic Research Institute

Lead Partner Website (if applicable):	www.South-Atlantic-Research.org
Is the Lead Partner based in a UKOT where the project is working (Guidance section 3.1)?	⊙ Yes
List other partners involved and where are they based (Guidance section 3.2):	Falkland Islands Government – Falkland Islands: • Department of Agriculture • Department of Planning • Department of Environment • Maritime Authority
Summary of roles and responsibilities of each partner in the project:	SAERI will lead the project, and have responsibility for project management and implementation. SAERI will purchase the drone, and work with the relevant Falkland Islands Government departments to undertake new research using the thermal imaging UAV. The following FIG government departments have confirmed that they support the project and will use the drone and thermal imaging UAV to contribute to creating a better understanding of their work areas post project: • Department of Agriculture • Department of Planning • Department of Environment • Falkland Islands Maritime Authority Monthly meetings will be held with project partners to keep them updated on the purchase and testing of the thermal imaging UAV, and to formulate a post-project action plan. All project partners will also join a project workshop where the capabilities of the UAV will be demonstrated
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).

SAERI cover letter DPLUS local UAV_Final
26/06/2023
19:05:18
pdf 138.5 KB

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.

This project's objective is to increase the ability of SAERI to undertake on-the-ground applied research and monitoring to feed into policy and decision-making in the Falkland Islands by purchasing a thermal imaging UAV, setting up all of the documentation required to fly the drone, undertaking test flights and a delivering a partner demonstration workshop. Post project, the drone will be used in partnership with FIG in the following areas: Agriculture; Energy Auditing; Wildlife Monitoring; Environmental Surveys; Coastal Oil Spill Detection.

Q6a. Description (Guidance section 2.1 and 6)

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?

The objective is to increase the ability of SAERI to undertake on-the-ground applied research and monitoring to feed into policy and decision-making in the Falkland Islands by purchasing a thermal imaging Unmanned Aerial Vehicle (UAV) i.e. a DJI Matrice 300 RTK UAV with an attachable Zenmuse H20T Thermal Camera.

Recently a thermal imaging UAV was present for a short time on the island, it had been brought to the Falkland Islands by an academic for specific seabird research, and SAERI was able to undertake some short flights. When the captured imagery was demonstrated to colleagues in the Falkland Islands Government (FIG), there was lots of enthusiasm and interest in the possibilities for capturing and using thermal imagery. And there was support for purchasing a thermal imaging UAV to build capacity on the Falkland Islands.

Some of the ideas generated are outlined below.

• Agriculture: Farmers and agricultural assistants can use thermal imaging UAVs to monitor crop health, identify areas of irrigation issues, detect pest infestations, and assess overall plant stress. The thermal data can provide valuable insights for optimising irrigation, identifying diseased areas, or assessing the effectiveness of fertilisers.

• Energy Auditing: Thermal imaging UAVs can assist in energy auditing for buildings and industrial facilities. They can detect heat loss, identify insulation gaps, or locate energy inefficiencies in heating, ventilation, and air conditioning (HVAC) systems. This information can help improve energy efficiency and reduce operational costs.

• Wildlife Monitoring: Thermal imaging UAVs are useful for tracking and monitoring wildlife populations. They can help identify animal movements, track migration patterns, and locate animals in dense vegetation. This information aids in wildlife research, conservation efforts, and tourism activities.

• Environmental Surveys: Thermal imaging UAVs can assess environmental conditions, such as water temperatures, thermal anomalies in bodies of water, or the thermal impact of industrial activities on the environment. This data can aid in environmental monitoring and ecosystem management.

• Coastal Oil Spill Detection: Thermal cameras mounted on UAVs can detect temperature variations caused by coastal oil spills. Oil has a different thermal signature than water, and thermal imaging can help identify and delineate the extent of the spill, especially in low-visibility conditions or at night when the temperature contrast is more pronounced.

It is not envisaged that these activities will happen during the lifespan of the Darwin Plus local project, but the purchase of the thermal imaging UAV will make an important contribution to the long term ability of SAERI and FIG to address the areas identified above, and an action plan for post project implementation will be developed.

Once the equipment is on island, and test flights have been completed, SAERI will deliver a half-day training workshop with project partners to demonstrate the drone's capability and potential outputs.

Overall, success will be demonstrated in the longer term by the implementation of the ideas above such as improved agricultural practices, enhanced energy efficiency, better wildlife management, effective environmental monitoring, and timely response to coastal oil spill incidents.

Q6b. Long-term sustainability (Guidance section 2.1 and 6)

Please describe the long-term benefits of the project and the change it will bring about. How will the outcomes of the project be sustained after the funding is finished?

The project is focused on purchasing a thermal imaging UAV, with set up staff costs for testing and ensuring all of the required documentation is in place.

In the long term, the thermal imaging UAV will be hosted and maintained as part of SAERI's equipment programme, including regular testing and maintenance. SAERI's Geographical Information Systems (GIS) and Database manager will oversee this process, and keep the UAV manual and licenses up-to-date and renewed annually.

Post Project, the thermal imaging UAV will be used to undertake environmental work identified by FIG project partners through FIG funding provided by SAERI for the delivery of data services, and will enable the expansion of these data services into more innovative approaches.

For example,
• In agriculture, monitoring crop health and detecting irrigation issues, leading to improved agricultural practices and optimised resource usage.
• In energy auditing identifying energy inefficiencies in buildings and industrial facilities, enabling targeted improvements that enhance energy efficiency and reduce operational costs.
• In wildlife monitoring, tracking animal movements, assisting in research, and supporting conservation efforts, promoting effective wildlife management and biodiversity preservation.
• In environmental surveys, enabling the assessment of water temperatures, thermal anomalies, and the impact of industrial activities.

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

No Response

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 contributes to:

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;**
Unchecked	**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. Please use quantitative information where possible here.

The project will contribute to capability and capacity building by providing an additional resource (thermal imaging UAV) on the Falkland Islands for setting baselines and establishing long term monitoring programmes.

Post project, with the increased use of thermal imagery, contributions will be made to the following themes:

Biodiversity: helping identifying pests in invasive contexts can promote biodiversity by restoring native habitats, protecting rare species, re-balancing ecosystems, enhancing resilience, and promoting native plant regeneration.

Climate Change: Identifying inefficiencies in buildings and improving their energy performance can result in significant reductions in energy consumption and associated GHG emissions, helping combat climate change.

Section 6 - Workplan

Q8. Workplan (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 Workplan (available at: https://darwinplus.org.uk/apply**) 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 must be completed by 31 March 2024.

Start date:	End date:	Duration (e.g. 3 months):
01 October 2023	31 March 2024	6 months

Please upload the completed Darwin Plus Local Project Workplan with your proposed project activities here

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26/06/2023
21:45:35
pdf 107.06 KB

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:	[redacted]	
Consultancy costs:		
Overhead costs:		
Travel & subsistence costs:		
Operating costs:		
Capital equipment:		
Other Costs		
Total:		24,569.50

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)

Jack Ingledew-Gale – GIS Officer and Database Manager, (£[redacted] time for 12 days to undertake purchase, delivery and transfer to the Falkland Islands of the UAV. Logging of equipment and undertaking test flights.

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

No Response

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

No Response

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

No Response

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

DJI Matrice 300 RTK Drone (£[redacted] and Zenmuse H20T Thermal Camera (£10,200), main equipment for the project.

Overall cost of equipment £[redacted]

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

No Response

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

No Response

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:
No Response	*No Response*	*No Response*	*No Response*

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.

This project is primarily related to buying scientific equipment to bring to the Falkland Islands to undertake future monitoring and applied research, this equipment is not available in the Falkland Islands. Staff based in the OT will be carrying out the work after the UAV has arrived.

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.

The project itself is the purchase and testing of a thermal imaging UAV, therefore the alignment to local and national priorities relates to the application and use of the UAV post project.

By addressing the equipment gap, the project enables future effective environmental monitoring, aligning with the government's commitment to environmental protection and sustainable development. The tangible future benefits, such as improved agriculture, energy efficiency, wildlife management, and environmental monitoring, directly support the government's strategies. For example:

• The Falkland Islands Environment Strategy (2021-2040)
o Section 8.1 (Biodiversity and Ecosystem Integrity) plans to undertake actions that identifies and prioritises data types and key geographic areas for data collection to increase our knowledge of marine, terrestrial and aquatic environments.

The project's applications correspond to these priorities. The thermal imaging UAV can monitor crop health, optimise irrigation, and improve energy efficiency in buildings, supporting sustainable land and water management. It also aids in wildlife monitoring, environmental surveys, and coastal oil spill detection, crucial for preserving biodiversity, managing ecosystems, and protecting marine environments.

Will the project take place on Government owned land or water or involve biocontrol, invasive alien species control or eradication?

⊙ 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. Please note the importance of health and safety and environmental risk assessment in the design of your project. If there is any possibility that your project may have negative impacts on the environment or human health, it is important that you provide a comprehensive analysis of potential environmental and human health risks, and the prevention measures you will take to ensure the work does not cause harm.

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

Loss of the UAV during testing flights and logging of equipment.	Specific flight paths planned for test flights, including designated return to home sites and secondary landing locations. Test locations will be planned over land only.
Biosecurity risks introducing non-native species into the Falkland Islands from equipment.	The UAV and thermal camera will be brand new at the time of purchase. No test flights will be carried out at the location of purchase, and only undertaken once in the Falkland Islands.
Delay in sourcing and shipping equipment.	A 6 month window has been given for the project to provide a long enough time to mitigate against potential delays in equipment arrival.

Do you require more fields?

⦿ No

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

Supporting documents list (please have these ready to attach with application)

- **Cover Letter of no more than two A4 pages. (Guidance section: 4.2 has information on what this cover letter should include).**
- **If the project takes place on public land or water or is addressing invasive alien species, a Letter of support from OT Government.**
- **Project Workplan in the template provided for Darwin Plus Local (available at:** https://darwinplus.org.uk/apply**).**
- **Map and additional information (optional) maximum five additional pages.**

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:	Tara Pelembe
Position in the organisation: (if applicable)	Director - International
Signature (please upload e-signature)	TP electronic signature 2 26/06/2023 19:15:16 pdf 6.97 KB
Date:	26 June 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 or is addressing alien invasive species, I have uploaded a Letter of Support from Government.	Checked
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 my project that fit this Round.**	Checked

Darwin Plus Local

Provide a **Project Workplan** that shows the key milestones in project activities. Complete the following table as appropriate to describe the intended workplan for your project. Round 2 is for a **maximum of six months** with activities starting from 1 October 2023 and all projects must be completed by 31 March 2024.

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	UK Financial Years 2023/24					
			Calendar Year 2023			Calendar Year 2024		
			Oct	Nov	Dec	Jan	Feb	Mar
1	Purchasing the UAV and thermal camera.	1						
2	Updates to current SAERI UAV Operations Manual / insurance / permits.	1						
3.	Field Testing of the UAV and thermal camera	2						
4	Maintenance, logging, updates.	1						
5.	Project Partners meeting	6						
6.	Post Project plan for using the thermal imagery UAV	2						
7.	Half day Project Partners demonstration workshop	1						