Applicant: **Baylis, Alastair**
Organisation: **SOUTH ATLANTIC ENVIRONMENTAL RESEARCH INSTITUTE**
Funding Sought: **£57,500.00**

CV19RR\1061

Establishing wildlife health and disease monitoring in the Falkland Islands

Evidence indicates that zoonotic (animal origin) coronaviruses are responsible for three infectious disease outbreaks, including COVID-19. This project will address the absence of coordinated wildlife health and disease surveillance and management in UKOTs. This will be achieved by (i) review wildlife health and disease data for FI and bring together international experts and local stakeholders to identify priority data gaps, and establish an integrated approach to research, (ii) develop a webGIS database, (iii) provide the infrastructure for in-country pathogen testing.

Section 1 - Contact Details

PRIMARY APPLICANT DETAILS

Title	Dr
Name	Alastair
Surname	Baylis
Tel (Work)	[redacted]
Email (Work)	[redacted]
Address	[redacted]

GMS ORGANISATION

Type	**Local charity organisation**
Name	SOUTH ATLANTIC ENVIRONMENTAL RESEARCH INSTITUTE
Phone	[redacted]
Email	[redacted]
Website	[redacted]
Address	[redacted]

Section 2 - Project Title & Previous Applications

Q3. Project Title:

Establishing wildlife health and disease monitoring in the Falkland Islands

Q4. Existing project

Q4a. Does your organisation have an existing (or recently finished) project under either Darwin Initiative, Darwin Plus or Illegal Wildlife Trade Challenge Fund?

◉ Yes

If yes, please list the project reference and title of relevant projects (e.g. 25-001, DPLUS090, IWT099).

Reference of current/recent project:	**Title of current/recent project:**

DPLUS065 (complete); DPLUS083 (complete); DPLUS071 (ongoing); DPLUS094 (ongoing); DPLUS116 (ongoing)	Fine-scaling the design of Falkland Islands Marine Management Areas

Q4b. Is this proposal directly relevant to one of the projects listed above?

⦿ No

Section 3 - Countries, Dates & Budget Summary

Q5. Which Fund's objectives will your project most directly address? (please only select one)

⦿ Darwin Plus

Q6. Country(ies)

Which eligible country(ies) will your project be working in?

Country 1	Falkland Islands	**Country 2**	*No Response*
Country 3	*No Response*	**Country 4**	*No Response*

Do you require more fields?

⦿ No

Q7. Project dates

Start Date:	**End date:**
04 January 2021	31 March 2021

Q8. Budget summary

Darwin/IWT Funding Request	**Total request 2020/21:**
Please note all spending must fall between 1st January 2021 - 31st March 2021	57,500.00

Q8a. If any matched funding arrangements are proposed, please detail them here.

We have secured a total of £[redacted] in matched funding for our Falkland Islands (FI) Covid-19 Rapid Response project, or [redacted] % of the total budget (£[redacted] in support of sample collection and £[redacted] through time in-kind).

Section 4 - Project Outcome and Summary

Q9. Outcome

What is the expected Outcome of this project?

The project will establish a wildlife health and disease strategy for the FI and blueprint for other UKOTs. It will provide the infrastructure for future monitoring for wildlife pathogens.

Q10. Summary of project

Please provide a brief summary of your project, its aims, and the key activities you plan on undertaking. Please note that if you are successful, this wording may be used by Defra in communications e.g. as a short description of the project on GOV.UK.

Evidence indicates that zoonotic (animal origin) coronaviruses are responsible for three infectious disease outbreaks, including COVID-19. This project will address the absence of coordinated wildlife health and disease surveillance and management in UKOTs. This will be achieved by (i) review wildlife health and disease data for FI and bring together international experts and local stakeholders to identify priority data gaps, and establish an integrated approach to research, (ii) develop a webGIS database, (iii) provide the infrastructure for in-country pathogen testing.

Section 5 - Project Partners

Q11. Project partners

Please list all the partners involved (including the Lead Organisation) and provide a summary of their roles. Please upload letters, emails or other confirmation of support from any new partners.

Lead Organisation name:	SOUTH ATLANTIC ENVIRONMENTAL RESEARCH INSTITUTE
Other partners involved:	Falkland Islands Government (FIG)

Summary of roles and responsibilities in project:	SAERI aspires to be a world renowned, environmental research institute. SAERI has the infrastructure and capacity to conduct environmental research throughout the South Atlantic. It has significant grant and project management and delivery experience, which includes several previous Darwin Initiative projects. SAERI has the data management infrastructure, the IMS-GIS centre, run by a full-time staff member, which will be responsible for the management of the entire life cycle of the data generated by the project. Dr Alastair Baylis has extensive expertise in wildlife research and will run the workshops and data collection aspects of the project. Dr Haseeb Randhawa has extensive experience in population genetics and will assist in the establishment of the portable laboratory. FIG Environmental Unit comprises the services of the strategic planning, development management, conservation management and building advisory services. FIG will advise on strategy for policy related to wildlife disease monitoring and management.
If you have not provided evidence of support from the Lead Organisation or partners above, please explain why:	We are currently collaborating with FIG on a number of Darwin projects. We have talked with FIG (Environment Unit, Veterinary Department) about the current Darwin proposal, who are fully aware of the application, and look forward to collaborate.

Please provide a combined PDF of letters of support from the lead organisation and partner(s) as relevant.

No Response

Section 6 - Project Staff

Q12. Project staff

Please identify the core staff on this project, their role and what % of their time they will be working on the project. Further information on who should be classified as core staff can be found in the guidance. Please provide a 1 page CV for the proposed Project Leader and any co-Project Leader if relevant.

Name (First name, surname)	Role	% time on project	1 page CV attached?
Alastair Baylis	**Project Leader**	50	Checked
Haseeb Randhawa	Molecular ecologist - set-up and testing DNA and PCR sequencer	15	Checked
No Response	*No Response*	0	

No Response	*No Response*	0

Do you require more fields?

⦿ No

Please provide 1 page CVs for the proposed Project Leader and any co-Project Leader listed above as a combined PDF.

Ensure the file is named clearly, consistent with the named individual and role above.

combined CVs Baylis, Randhawa
02/11/2020
20:08:07
pdf 242.38 KB

Section 7 - Problem, Method and Change Expected

Q13. Problem the project is trying to address

Please describe the problem your project is trying to address in terms of Covid-19 and its impact on biodiversity or IWT and sustainable livelihoods. For example, what are the drivers of loss of biodiversity that the project will attempt to address? Why are they relevant, for whom? How did you identify these problems? Please cite the evidence you are using to support your assessment of the problem (references can be listed in an additional attached PDF document).

The COVID-19 pandemic has exposed how vulnerable humanity is to emerging infectious diseases, and has highlighted the absence of coordinated wildlife health and disease surveillance and management – including in UKOTs, which are home to over 90% of UK biodiversity.

Covid-19, like all seven of the identified coronaviruses, is likely of zoonotic origin, being closely related to a virus found in bats [1]. Hence, information on wildlife health and disease is crucial in the Covid-19 context, because environmental changes attributed to human activity has profoundly increased the incidence and emergence of zoonosis - diseases that are maintained in wild animal populations and passed to humans directly (e.g., Lassa Fever) or have evolved from wildlife and spread between humans (e.g., measles, mumps and HIV and Severe Acute Respiratory Syndrome (SARS) viruses) [2]. Indeed, 60% of emerging infectious disease are zoonotic in origin [2] and Covid-19 is just one spill-over event - arguably the tip of the iceberg. To understand and prevent future catastrophic zoonotic (and indeed reverse zoonosis) events, it is critical that the FI have a coordinated framework to enable wildlife health and disease to be assessed and monitored. Ultimately this will improve our understanding of emerging infectious disease risks.

Our project will (i) review available data on wildlife health and disease in the FI (ii) bring together international experts and local stakeholders to identify gaps, and establish a collaborative, integrated approach to wildlife health and disease studies, and (iii) provide the infrastructure for in-country wildlife pathogen testing. We will also collect samples from seals and seabirds, with a particular interest in colonies within close proximity to livestock, and migratory species, where pathogen exposure could be higher owing to the number of sites and habitats used during cross-hemisphere migrations.

Q14. Methodology

Describe the methods and approach you will use to achieve your intended Outcome. **Provide information on:**

- **How you have analysed historical and existing initiatives and are building on or taking work already done into account in project design. Please cite evidence where appropriate.**
- **The rationale for carrying out this work and a justification of your proposed methodology.**
- **If relevant, how this project links to an ongoing Darwin/IWT project.**
- **How you will undertake the work (materials and methods).**
- **How you will manage the work (roles and responsibilities, project management tools etc.).**

Projects should also consider how best they can address inequality, especially gender inequality, as per the existing guidance for each fund.

Please make sure you read the Guidance Notes, particularly Section 3, before answering this question.

Despite numerous independent wildlife health studies, there is no coordinated South Atlantic wildlife disease framework, whereby information on wildlife disease and health is stored and shared. In addition, there are no mechanism by which wildlife pathogens are monitored. This is of concern, because a number of UKOTs, including the FI, are characterized by direct human-wildlife contact, and the mixing of livestock with endemic wildlife species, which fulfil criteria for a zoonotic hotspot. Given the increased frequency of zoonotic diseases, there is an urgent need to establish a more coherent wildlife health and disease strategy in UKOTs.

WP 1: Collate existing data and bring together relevant experts and stakeholders within a virtual workshop
We will review all existing published and grey literature and compile a review of wildlife health and disease studies in the FI. The outcome of this review will be an understanding of existing research, pathogens and data gaps. We will hold a virtual workshop, inviting key seabird and marine mammal researchers, to bring together expertise, data and work programs to identify priority gaps, identify collaborative opportunities, and potential avenues for funding. The main workshop outcome will be (i) guidelines for a wildlife disease monitoring and management in FI, and (ii) a review paper.

WP 2: Develop a webGIS database for Falklands wildlife health and disease
We will leverage our expertise in data storage and database management and develop a bespoke webGIS database for FI wildlife health and disease. This will provide a blueprint for other UKOTs and ensure project legacy well beyond the project end date.

WP 3: Sample collection
Pathogen bio-surveillance is at the crux of emerging infectious disease risk management and response. The FI have been Covid-19 free since April and there are no national restrictions. Hence, our usual fieldwork planned for January 2020 offers an opportunity to collect samples from seabird and seal colonies at very little cost to the project (informed by WK1 and WK 2). We will sample using swabs (cloacal and faecal) and take blood for serological analysis. Sampling will focus on (i) colonies within close proximity to livestock, (ii) migratory species, where pathogen exposure could be higher owing to the number of sites and habitats used during cross-hemisphere migrations.

WP 4: Establish portable pathogen testing laboratory
Sending samples overseas will impede wildlife pathogen monitoring because of costs and logistics.

Technology exists today to enable decentralized DNA sequencing in remote areas. We will purchase the laboratory equipment required for DNA and RNA sequencing, which will enable in-situ sample processing, metagenomics and metabarcoding of pathogens [3,4].

SAERI will be responsible for all project deliverables. The current staff cohort at SAERI is 60% female and 40% male. SAERI has an equal opportunities policy as part of its internal policy framework. SAERI has been successfully managing and delivering large multidisciplinary projects since its inception for a number of agencies including DPLUS and has a core team of administrators and managers that enable robust oversight of project delivery.

Q15. Change expected

Detail the expected changes this work will deliver. You should identify what will change and who will benefit a) in the short-term (i.e. during the life of the project) and b) in the long-term (after the project has ended). Please describe the changes for biodiversity/environment and for people in developing countries, and how they are linked. If you are proposing building on a current or past project, be clear how additional benefits will be delivered through this project.

When talking about people, please remember to give details of who will benefit and the number of beneficiaries expected. The number of communities is insufficient detail – number of households should be the largest unit used. If possible, indicate the number of women who will be impacted.

Predicting and preventing the emergence of zoonotic diseases, like coronaviruses, requires dedicated action at international and national levels. Our project will lay the foundation for monitoring and management of wildlife health and disease in the Falkland Islands and provide infrastructure in the form of laboratory equipment, to monitor for wildlife pathogens. This is important for the Falkland Islands, because they are characterized by direct human-wildlife contact, and the mixing of livestock with endemic wildlife species, which fulfil criteria for a zoonotic hotspot [2].

Change expected
Short-term: Provide comprehensive and rigorous review of available data wildlife health and disease. Change will be a more integrated, collaborative approach to wildlife health and disease studies. Community and decision-makers have the data to make informed management and monitoring decisions associated with biosecurity. This will be achieved through a dedicated online webGIS project page, and a workshop.

Long-term: Support decision and policy-making related to wildlife health and disease, including risks of zoonosis, and understand climate change impacts by providing baseline data for future research. Our project will also provide the infrastructure (laboratory equipment) for in-country wildlife pathogen testing. It is expected that this will act as a functional management tool for wildlife disease and health monitoring, in combination with data storage, data management and a public facing webGIS wildlife health and disease page, managed through the SAERI IMS-GIS data centre. Specifically, the dedicated DNA and RNA sequencing facility will be used for sustained monitoring of wildlife pathogens after project completion, which will provide the foundation for surveillance and mitigation. Procedures to manage and monitor wildlife pathogens will be a model for other small isolated island territories and nations. All metadata generated will be available online via the Falkland Islands data portal and data will be accessible online to everyone through the project-based webGIS service.

If necessary, please provide supporting documentation e.g. maps, diagrams, references etc., as a PDF using the File Upload below:

Literature cited
02/11/2020
20:20:15
pdf 135.13 KB

Section 8 - Aims, Objectives and Exit Strategy

Q16. Aims and objectives

Clearly outline the aim and objectives of the project and how the achievement will be measured. Use SMART objectives if possible.

WP1 Y1Q4
Aim: Collate existing published data on wildlife health and disease. Identify gaps, and establish a collaborative, integrated approach to wildlife health and disease studies at the Falkland Islands
Achievement:
- Measured by the successful completion of a report to be submitted to Falkland Islands Government and publicly available on-line.
- Measured by the successful completion of a virtual workshop, attended by relevant experts and key seabird and marine mammal researchers in UKOTs. Further evidence will be a report detailing guidelines for a wildlife disease monitoring and management, and (ii) a draft review paper on key data gaps for the South Atlantic.

WP2 Y1Q4
Aim: Develop a webGIS database for Falklands wildlife health and disease
Achievement: Measured by the successful publication of a webGIS project page for Falklands wildlife health and disease.

WP3 Y1Q4
Aim: Collect samples from seal and seabird breeding colonies
Achievement: Measured by the successful completion of a report that details field work, which will be made publicly available on-line. Infrastructure achievement will be measured through the successful purchase of equipment.
WP4 Y1Q4
Aim: Infrastructure for pathogen testing in-place.
Achievement: Measured by the successful procurement of laboratory equipment.

Q17. Exit strategy

State how the project will reach a stable and sustainable end point, and explain how the outcomes will be sustained, either through a continuation of activities, funding and support from other sources or because the activities will be mainstreamed in to “business as usual”.

This project directly contributes to FIG’s long-term vision for biodiversity conservation and management targets. It will enable FIG to plan for, manage and monitor wildlife health and disease and potential climate change impacts on habitats and species in the context of emerging infectious diseases. The project will provide the infrastructure (laboratory equipment) for in-country wildlife pathogen testing. It is expected

that this will act as a functional management tool for wildlife disease and health monitoring, in combination with data storage, data management and a public facing webGIS wildlife health and disease page, managed through the SAERI IMS-GIS data centre. Data storage will be on a dedicated server backed up daily and off-site. Finally, we anticipate that our project will be sustained through established links with partner organizations in other OTs, given our project will facilitate wildlife disease monitoring and management in other UKOTs either by providing a blueprint for in-situ DNA and RNA sequencing or through collaborative projects.

Section 9 - Budget

Q18. Budget

Provide a detailed breakdown of costs to be funded by the Darwin Initiative/Darwin Plus/IWT Challenge Fund in GBP.

See Finance for Darwin/IWT **for which costs sit under which budget line.**

Budget Line	Cost in £ (GBP)
Staff costs	[redacted]
Consultancy costs	[redacted]
Overhead costs	[redacted]
Travel and subsistence	0
Operating costs	[redacted]
Capital equipment*	[redacted]
Other costs	[redacted]
Total (Must be less than or equal to £60,000)	57,500.00
***If you are proposing to purchase any capital items over £1,000 please detail these here and provide justification below**	We will establish a portable wildlife pathogen testing lab. Specifically, a portable real-time Next Generation Sequencing MinION sequencer. Key items associated with the sequencer over £1,000 are: - MinION x2 (£[redacted] - Sequencing kits (£[redacted] - Flow cells (£[redacted] - Dedicated laptop for MinION (£[redacted] - UVP Ultraviolet Sterilizing workstation (£[redacted] - Thermal cycler (£[redacted]

Q19. Financial Risk Management

This question considers the financial risks to the project. Explain how you have considered the risks and threats that may be relevant to the successful financial delivery of this project. This includes risks such as fraud or bribery, but may also include the risk of fluctuating foreign exchange and internal financial processes such as storage of financial data.

SAERI has standardized financial policies and procedures which have clear checks and balances for managing all of the organizations finances. It manages multiple projects from multiple funding sources and strict financial reporting procedures are adhered to. SAERI's accounts are audited annually. The accountancy system and management controls were proven through previous funding awards of similar magnitude. These financial controls form an integral part of the systems in place to mitigate against any threats or risks of fraud or bribery. Furthermore, the organization is developing its anti-corruption and bribery policy to further mitigate the potential of any risk in this area.

Q20. Capital items

If you plan to purchase capital items with Darwin/IWT funding, please indicate what you anticipate will happen to the items following project end. If you are requesting more than 10% capital costs, please provide your justification here.

Justification for more than 10% capital costs, is the laboratory equipment to establish in-country pathogen testing. This is a significant component of the budget requested and will be a significant part of the project legacy. At the conclusion of the project, all capital equipment will remain in the Falkland Islands, where it will be maintained by SAERI, a local FI charitable research organization, and be available to be used by all stakeholders.

Q21. Value for Money

Please describe why you consider your application to be good value for money including justification of why the measures you will adopt will secure value for money.

Our project has galvanised 15 % matched funding, which represents exceptional value for money. SAERI is a territory-based organization and therefore a project manager based on island for will significantly build capacity, as opposed to short-term visits by offshore contractors. The budget was calculated from actual costs incurred by SAERI in managing similar projects. Emphasis has been given to provide the project with the necessary equipment and expertise for success.

Section 10 - Ethics and Safeguarding

Q22. Ethics

Outline your approach to meeting Darwin/IWT's key principles for ethics as outlined in the guidance note. Additionally, are there any human rights and/or international humanitarian law risks in relation to your project? If there are, have you carried out an assessment of the impact of those risks, and of measures that may be taken in order to mitigate them?

There are no human rights and/or international humanitarian law risks in relation to this project. Any animal handling will be undertaken under research permit, which involves the ethical approval of the Falkland Islands Government Environmental Committee.

Q23. Safeguarding

Projects funded through the Darwin Initiative/IWT Challenge Fund must fully protect vulnerable people all of the time, wherever they work. In order to provide assurance of this, projects are required to have appropriate safeguarding policies in place. The award Terms and Conditions set out clear requirements on safeguarding. Please confirm you have read and understand these and that you comply with them all.

Checked

Section 11 - Key Milestones

Q24. Provide an overview of your proposed project, outlining key milestones.

N.B. This should cover the period of your requested project only and the start/end dates should match with those provided in Question 7.

Date	Key Milestone
04 January 2021	START
20 January 2021	Collection of samples from seals and seabirds at the Falkland Islands
30 January 2021	Review existing literature, compile report
18 February 2021	Workshop
01 March 2021	Laboratory equipment purchased and set-up, with initial testing complete
15 March 2021	Workshop report
26 March 2021	End project report

No Response	*No Response*
No Response	*No Response*
No Response	*No Response*
No Response	*No Response*
No Response	*No Response*
31 March 2021	**FINISH**

Section 12 - Certification

Q25. FCDO notifications

Please check the box if you think that there are sensitivities that the Foreign, Commonwealth and Development Office will need to be aware of should they want to publicise the project's success in the Darwin/IWT competition in the host country.

Unchecked

Please indicate whether you have contacted your Foreign Ministry or the local embassy or High Commission (or equivalent) directly to discuss security issues (see Guidance Notes) and attach details of any advice you have received from them.

⦿ No

Q26. Certification

On behalf of the

Company

of

SOUTH ATLANTIC ENVIRONMENTAL RESEARCH INSTITUTE

I apply for a grant of

£57,500.00

I certify that, to the best of our knowledge and belief, the statements made by us in this application are true and the information provided is correct. I am aware that this application form will form the basis of the project schedule should this application be successful.
(This form should be signed by an individual authorised by the applicant institution to submit applications and sign contracts on their behalf.)

- **I have enclosed a CV for the Project Leader/co-PL and letters or confirmation of support (uploaded at appropriate points in application)**

  Checked

Name	Alastair Baylis
Position in the organisation	Deputy-director Science
Signature (please upload e-signature)	Baylis signature 02/11/2020 20:40:42 pdf 264.94 KB
Date	02 November 2020

Section 13 - Submission Checklist

Checklist for submission

	Check
I have read the Guidance, including the "Guidance Notes for Applicants**" and "**Finance for Darwin and IWT Challenge Fund**".**	Checked
I have read, and can meet, the current Terms and Conditions for the relevant fund.	Checked
I have provided actual start and end dates for my project.	Checked
I have provided my budget in GBP.	Checked
The application has been signed by a suitably authorised individual (clear electronic or scanned signatures are acceptable).	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
I have included a 1 page CV for the Project Leader (and co-Project Leader if relevant).	Checked
I have included a letter or electronic confirmation of support from the lead organisation and main partner organisation(s) identified at Question 11, or an explanation of why not.	Checked

I have checked the website on GOV.UK **immediately prior to submission to ensure there are no late updates.**	Checked
I have read and understood the Privacy Notice on GOV.UK**.**	Checked

Data protection and use of personal data

Information supplied in this application form, including personal data, will be used by Defra as set out in the latest copy of the Privacy Notice for Darwin, Darwin Plus and the Illegal Wildlife Trade Challenge Fund available here. 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 the Darwin Initiative including project details (usually title, lead organisation, location, and total grant value) on the GOV.UK and other websites.

Information relating to the project or its results may also be released on request, including under the 2004 Environmental Information Regulations and the Freedom of Information Act 2000. However, Defra will not permit any unwarranted breach of confidentiality nor will we act in contravention of our obligations under the General Data Protection Regulation (Regulation (EU) 2016/679).