
DPR12S2\1016

Harnessing AI to prevent biodiversity loss in Anguilla

Invasive alien species (IAS) are the leading cause of island biodiversity loss, and preventing invasions depends on aliens being detected quickly and reliably. This project will adopt and adapt artificial intelligence technology originally designed for detecting tigers to detect multiple harmful IAS. IAS-detecting cameras will be tested and deployed in biophysically diverse sites in Anguilla to alert conservation managers instantly via smartphones, enabling swift removal to safeguard globally threatened biodiversity. Methods will be shared with all UKOTs threatened by IAS.

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Section 1 - Contact Details

CONTACT DETAILS

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GMS ORGANISATION

Type	Organisation
Name	Re:wild
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Section 2 - Title & Summary


Q3. Title:


Harnessing AI to prevent biodiversity loss in Anguilla


What was your Stage 1 reference number? e.g. DPR12S1\1123

DPR12S1\1037

Please attach a cover letter as a PDF document.

 [Daltry Cover Letter 2023-09-29](#)

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Q4. Summary of project

Please provide a brief non-technical summary of your project: the problem/need it is trying to address, its aims, and the key activities you plan on undertaking.

Successful Darwin Plus Main projects must demonstrate substantial measurable outcomes in at least one of the themes of Darwin Plus either by the end of the project's implementation or via evidenced mechanisms for post-project delivery.

Preference will be given to discrete projects implementing existing identified environmental solutions on the ground.

The broad themes of Darwin Plus Main are:

- **Biodiversity:** improving and conserving biodiversity, and slowing or reversing biodiversity loss and degradation;
- **Climate change:** responding to, mitigating and adapting to climate change and its effects on the natural environment and local communities;
- **Environmental quality:** improving the condition and protection of the natural environment;
- **Capability and capacity building:** enhancing the capacity within UKOTs to support the environment in the short- and long-term.

Invasive alien species (IAS) are the leading cause of island biodiversity loss, and preventing invasions depends on aliens being detected quickly and reliably. This project will adopt and adapt artificial intelligence technology originally designed for detecting tigers to detect multiple harmful IAS. IAS-detecting cameras will be tested and deployed in biophysically diverse sites in Anguilla to alert conservation managers instantly via smartphones, enabling swift removal to safeguard globally threatened biodiversity. Methods will be shared with all UKOTs threatened by IAS.

Section 3 - UKOT(s), Dates & Budget Summary

Q5. UKOT(s)

Which UK Overseas Territory(ies) will your project be working in?

Anguilla

* 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 UKOTs you have indicated, will your project directly benefit any other Territories or country(ies)?

Yes

If so, list here.

Focus of work: UKOTs	Cayman Islands, British Virgin Islands, Turks & Caicos, Montserrat and/or Bermuda	Other Territories/ country(ies):	Other island states and territories in need of biosecurity solutions
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Q6. Project dates

Start date:	End date:	Duration (e.g. 2 years, 3 months):
01 April 2024	31 March 2026	2 years

Q7. Budget summary

Year:	2024/25	2025/26	2026/27	Total request
Amount:	██████████	██████████	£0.00	£ ██████████

Q8. Do you have matched funding arrangements?

Yes

Please ensure you clearly outline your matched funding arrangement in the budget.

Q9. If you have a significant amount of unconfirmed matched funding, please clarify how you will fund the project if you don't manage to secure this?

No Response

Q10. Have you received, applied for or plan to apply for any other UK Government funding for the proposed project or similar?

No

Section 4 - Problem statement

Q11. Problem the project is trying to address

Please describe the problem your project is trying to address in the UKOTs, relating to at least one of the themes of Darwin Plus:

For example, what are the specific threats to the environment that the project will attempt to address? Why are they relevant, for whom? How did you identify the need for your project? Please cite the evidence you are using to support your assessment of the problem.

Invasive alien species (IAS) are the leading cause of species extinctions on islands, including UKOTs [1-3]. In Anguilla, harmful IAS have been eradicated from six offshore islands to date through costly but successful operations, measurably benefitting native endangered and endemic species such as Lesser Antillean iguanas *Iguana delicatissima* and Sombrero ground lizards *Pholidoscelis corvinus* (DPLUS060, DPLUS086), along with globally important seabird populations and their ecosystems [4,5]. IAS are now being removed from another site, Fountain National Park (DPLUS158).

Keeping Anguilla's globally important sites safe from IAS requires ongoing biosecurity by Anguilla National Trust (ANT) and its partners. Like many other island nations, biosecurity surveillance entails frequent visual checks for scats and tracks, and tools such as conventional trail cameras [6]. If IAS are detected at the start of an incursion, before they multiply, they can be removed relatively easily. Manual checks are labour- and resource-intensive, however, demanding frequent site visits by skilled personnel (ideally every three weeks). Even then, IAS are easily missed at the start of an invasion when their numbers are low. The ability to detect IAS swiftly has major cost implications. Recent experience from Dog Island, for example, showed that removing the first rat at the early stage of an incursion cost less than ██████ (several visits by local partners to spread bait in the local area and monitor results), whereas if rats have begun to reproduce and disperse, it costs over ██████ to conduct an island-wide eradication operation.

A promising solution to this problem has emerged from rugged trail cameras with artificial intelligence (AI) to detect and identify rare animals with great accuracy, relaying images in seconds via mobile or satellite networks [7,8]. Though first designed to detect tigers and other endangered forest animals, AI software can already identify rodents, cats and goats, and can be expanded to other target animals. Cameras that can immediately alert managers to IAS presence will be a game-changer for island biosecurity.

Working with two leading software and hardware developers in this field, CVEDIA and the NGO RESOLVE, this project will establish, test and refine AI-trained camera networks to detect incursions by 10 or 11 of the most impactful IAS on islands (including rats, mice, mongooses, cats, green iguanas, pigs, goats and monkeys), allowing for immediate action to remove them. Based on the Intel® Movidius™ Myriad™ 2 vision processing unit, the cameras wake when they detect motion, uses an in-built AI algorithm to analyze images in real time and, if a target alien is detected, sends the compressed image via a phone app to natural resources managers in seconds.

This will not only help safeguard many priority conservation sites in Anguilla but the same biosecurity solutions could be applied to other UKOTS, the UK and other islands at risk. This project directly relates to three of Darwin's priority themes: improving and conserving biodiversity, improving the nature and quality of the natural environment, and providing national, regional and international opportunities for training and capacity building in novel biosecurity monitoring and adaptation techniques.

Section 5 - Environmental Conventions, Treaties and Agreements

Q12. Environmental Conventions, Treaties and Agreements

Please detail how your project will contribute to the aims of the national and/or international agreement(s) your project is targeting. What key UKOT Government priorities and themes will it address and how? You should also consider local, territory specific agreements and action plans here. Letters of support from UKOT Government partners/stakeholders should also make clear reference to the agreements/action plans your project is contributing towards.

This project supports the Convention on Biological Diversity's call to prevent, control or eradicate species that threaten ecosystems, habitats, or species (Article 8(h)), build capacity through education and training (Article 12(a)) and use scientific advances in biodiversity research in developing methods for conservation of biodiversity (Article 12(c), 16(1)). It also meets Target 6 of the new Kunming-Montreal Global Biodiversity Framework, particularly through "preventing the introduction and establishment of priority invasive alien species... especially in priority sites, such as islands".

This project further supports the Government of Anguilla's priorities of protecting biodiversity while controlling and eradicating invasive alien species (IAS) as outlined in the National Biodiversity Strategy and Action Plan (Strategy 39, 40), Anguilla Environmental Charter (Commitment 2) and Anguilla Invasive Species Strategy. The Department of Natural Resources is a partner on this project and has provided a letter of support.

Section 6 - Method, Project Stakeholders, Gender, Change Expected, Pathway to Change & Exit Strategy

Q13. Methodology

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

- how you reflected on and incorporated **evidence and lessons learnt** from past and present similar activities and projects in the design of this project.
- the specific approach you are using, supported by **evidence** that it will be effective, and **justifying why you expect it will be successful** in this context.
- how you will undertake the work (activities, materials and methods).
- how the **main activities** will be and where these will take place.
- how you will **manage the work** (governance, roles and responsibilities, project management tools, risks etc.).

Project leader Dr Jenny Daltry (Caribbean Alliance Director for Re:wild and Flora & Fauna) has been collaborating with Anguilla National Trust (ANT) and other Caribbean partners for over 20 years to address biodiversity needs, including eradicating harmful IAS from over 30 Caribbean islands. Notable joint achievements include eradicating rats and goats from Redonda, Antigua (DI23-003), rats and raccoons from Sandy Cay, Bahamas, and rodents from Dog Island, Prickly Pear Cays and Sombrero, Anguilla (DPLUS060, DPLUS086). This has triggered the recovery of numerous endangered and endemic species, and established national capabilities to eradicate IAS and monitor biodiversity [4,5,9-11]. Currently, ANT, Fauna & Flora and Re:wild are working to eliminate IAS from Fountain National Park using pest-resistant fencing (DPLUS158).

IAS are proficient at reinvading, however, and biosecurity is essential. This project will trial IAS-detection cameras to expedite discovery of incursions, thereby facilitating faster responses that will save threatened biodiversity and avoid the need for costly full-scale eradication operations. While a first for the Caribbean and UK, AI cameras are being used successfully in India, Indonesia and elsewhere to detect poachers and rare animals [7,12-14]. This project represents a major step towards better biosecurity monitoring in Anguilla, the Caribbean region and potentially many other islands worldwide.

This project will:

1) DEVELOP AND IMPLEMENT BIOSECURITY SYSTEMS TO PREVENT IAS INCURSIONS IN FIVE PRIORITY CONSERVATION SITES. We will install and test cameras that recognise specific invasive animals and instantly relay images to ANT and other management personnel to elicit an immediate response. Waterproof, dustproof and heat-resistant 'IslandGuard' cameras have been designed for this project by RESOLVE (www.resolve.ngo)

using AI software from CVEDIA. Following extensive lab and field-trials, the cameras can already identify cats in diverse environments, and to these we will add 10 more IAS including rats, mice, iguanas (alien green iguanas being a major threat to native iguanas), dogs, goats, pigs, monkeys and mongooses. To develop the AI algorithms, CVEDIA creates 3D models of the target animals that computers can study from 360 degrees and recognize by shape, even if part of the animal is hidden. Over 40 IslandGuard cameras will be installed and tested on Dog Island, Prickly Pear Cays, Sombrero and Fountain National Park (see map) plus 'control' sites on Anguilla that harbour IAS. Depending on each site's topography and communications coverage, cameras will relay images and alerts via phone, radio and/or satellite networks [15]. These small, energy efficient cameras wake only when motion is detected and are powered sustainably using miniature solar panels or will run for years on batteries.

To verify their efficacy, project staff will also search for evidence of IAS using diverse methods (tracking tunnels, bait stations, etc) and monitor native biodiversity using existing standard methods (timed point counts, whole colony counts, etc.) [6,10,16]. Based on the results, biosecurity plans and rapid response protocols to address incursions for the target offshore islands and Fountain National Park will be reviewed and updated.

2) INCREASE NATIONAL CAPABILITY TO MANAGE INVASIVE SPECIE THREATS. Workshops and field practical exercises will train 10 ANT staff, volunteers and DNR staff how to set up and maintain IAS-detecting cameras, and practise rapid response protocols (instantly deploying bait, live traps or other tools) if an alert is received. For further development, and any troubleshooting, of AI camera systems after the grant ends, an MoU will be developed between RESOLVE and ANT to continue their collaboration.

3) SHARE METHODS AND LESSONS LEARNED WITH OTHER BIODIVERSITY-RICH ISLANDS, INCLUDING THE UK AND UKOTS. In Year 2 Q3, we will invite representatives from other Caribbean UKOTs (two per territory from environmental government agencies and NGOs) to visit Anguilla to learn about the AI camera systems and exchange expertise on biosecurity. For the benefit of practitioners in the UK and other UKOTs worldwide, we will also hold a recorded webinar to share and discuss these biosecurity solutions. Methods and results will also be presented to at least one international conference (e.g. BirdsCaribbean or Invasive Species Specialist Group). This will be supplemented with a best practice guide and support videos, plus a paper on methods and findings submitted to an open access journal.

The project will be co-managed by Re:wild and ANT, who will meet frequently with each other and with the technology experts at RESOLVE. A project steering and advisory committee will be formed, with the Government of Anguilla's Environment Unit, RSPB, Fauna & Flora and other partners, and will meet at least bi-annually to discuss, monitor, and evaluate project implementation and impact.

Q14. Project Stakeholders

Who are the stakeholders for this project and how have they been consulted (include local or host government support/engagement where relevant)? Briefly describe what support they will provide and how the project will engage with them

ANGUILLA NATIONAL TRUST (ANT) is the lead partner in Anguilla and has been closely involved in the development of this proposal from the start. Five ANT staff, plus regular volunteers, will be trained to operate the IslandGuard cameras and rehearse rapid response protocols. The DEPARTMENT OF NATURAL RESOURCES-ENVIRONMENT UNIT (DNAR-EU) has also been involved in project development and, recognising the efforts required for manual monitoring, are entirely supportive of this novel approach to IAS detection. They will assist the development of biosecurity plans and operational standards, and be invited to all training opportunities.

During a DPLUS175 workshop, CUSTOMS DEPARTMENT officials expressed interest in learning more about IAS and biosecurity. We will share the methods and results of this project, and invite staff to trainings and discuss whether IslandGuard cameras could aid biosecurity at Anguilla's ports. LANDOWNERS, TOUR OPERATORS and

other frequent visitors to the project sites will learn about the cameras and the testing taking place through presentations and site visits, partly to discourage tampering (although the cameras should normally be well hidden).

Through discussions with OTHER UKOT ENVIRONMENTAL MANAGERS we are aware of strong interest in this technology. In Year 2, once the cameras have been fully tested and lessons learned, we will invite representatives from all Caribbean UKOTs to Anguilla to experience the new technology and discuss how it could suit their needs. This will be followed by an online recorded webinar for natural resources managers from other UKOTs, the UK and other islands around the world.

Q15. Gender equality and social inclusion

All applicants must consider whether and how their project will contribute to promoting equality between persons of different gender and social characteristics. Explain your understanding of how individuals may be excluded from equal participation within the context of your project, and how you seek to address this. You should consider how your project will proactively contribute to ensuring individuals achieve equitable outcomes and how you will engage participants in a meaningful way.

As a collaborative project between Re:wild and ANT, this project will be co-led by Re:wild's Caribbean Alliance Director and ANT's Executive Director (2 cisgender females). A Steering Committee will oversee and monitor project implementation and will include the project leads and representatives from the Department of Natural Resources' Environment Unit, Fauna & Flora and Royal Society for the Protection of Birds (currently 2 females, 1 male), among others.

Because ANT will be the primary actor and beneficiary of this project, we propose to commission a Gender and Social Inclusion Assessment to understand the existing social dynamics, roles, and power structures within this organisation. Following a successful collaboration between ANT and Gender Affairs Anguilla during DPLUS131, the proposed assessment will further help ANT to effectively identify and address issues related to equitable gender participation and representation among its staff, volunteers and membership. This will include consideration of the most effective ways to implement gender-responsive and social inclusion indicators for guiding, monitoring and evaluating how ANT works, create platforms for meaningful engagement and consultation with all community groups, and ensure ANT engages with and offers opportunities suitable for a range of sectors/groups within the community.

Pending their consent, we will record the ages and genders of all persons directly engaged with the project, and seek at least 40% female representation among persons invited for training, including participants from other UKOTs who will visit this project in Year 2 (Activity 3.1). During bi-annual project steering group meetings, we will assess and address any disparities in project benefits among different groups and develop ways to address these.

Q16. 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 the environment and, where relevant, for people in the OTs, and how they are linked.

When talking about how people will benefit, please remember to give details of who will benefit, differences in benefits by gender or other layers of diversity within stakeholders, and the number of beneficiaries expected. The number of communities is insufficient detail - number of households should be the largest unit used.

MORE EFFICIENT IAS DETECTION: Since 2012, ANT, the Government of Anguilla's Environment Unit, Fauna & Flora, Re:wild and RSPB and other partners have embarked on a concerted effort to reverse the decline of Anguillan biodiversity by successfully eradicating invasive alien rats (*Rattus rattus*, *R. norvegicus*) and mice (*Mus musculus*) from important offshore islands, with very positive results for nesting seabirds, endemic reptiles and other native wildlife that suffer from predation and competition from such rodents. Fountain National Park is also being cleared of a suite of harmful IAS under DPLUS158. It is imperative to protect these sites from incursions. This project will establish a network of robust, energy-efficient IslandGuard cameras with AI capabilities to accurately identify priority IAS and instantly send alerts to the local conservation managers. In both the short term and long term, this will significantly improve detection speed and reduce the labour and travel costs for biosecurity surveillance in at least five sites of high conservation and cultural value: Dog Island, Prickly Pear East, Prickly Pear West, Sombrero, and Fountain National Park. Over the long term, we envisage IslandGuard cameras being adapted and deployed in other strategic sites (such as ports) to further curb the spread of IAS, including rodents, monkeys and other species that endanger human health and food production.

FASTER IAS REMOVAL: By installing cameras, updating biosecurity plans and rapid response protocols, and increasing local capacity, this project will ensure that any incursions by IAS to these key sites are detected and dealt with quickly (with bait or live traps), thereby minimising their spread, negative impacts and the costs of control.

ONGOING BIODIVERSITY RECOVERY: Importantly, keeping Anguilla's offshore islands and Fountain National Park free from harmful IAS will directly ensure the ongoing recovery of native flora and fauna, including globally endangered and endemic reptiles and plants (e.g. Lesser Antillean iguana *Iguana delicatissima*, CR; Sombrero ground lizard *Pholidoscelis atratus*, CR; Anguilla Bank skink *Spondylurus powelli*, EN; lignum vitae tree *Guaiacum officinale*, EN), regionally threatened seabirds, and their island ecosystems. Indicator species will be monitored against pre-project baselines to measure the impact of controlling IAS, both short term and long term.

IMPROVED ENVIRONMENT FOR PEOPLE: While none of our target sites is inhabited, they are used for recreation and tourism purposes. For example, Prickly Pear East is visited by many thousands of local people and tourists annually. In the short term and long term, protecting these sites from rodents and other IAS has multiple benefits, including removing important disease vectors and conserving their natural beauty and appeal to local and foreign visitors alike.

EXCELLENT PROSPECTS FOR REPLICATION: Although this project focuses on Anguilla, this project is ripe for scaling up to many other biodiversity-rich islands because this project will develop software to detect IAS of wide concern. Methods and results will be shared through regional networks (e.g. Caribbean Conservation Network, BirdsCaribbean, WIDECAST) and internationally through relevant collaborators (e.g. RSPB, Fauna & Flora, CIEEM). The new technology has strong potential to help island conservationists around the world.

Q17. Pathway to change

Please outline your project's expected pathway to change. This should be an overview of the overall project logic and outline why and how you expect your Outputs to contribute towards your overall Outcome and, in the longer term, your expected Impact.

With over 300 hectares of valuable biodiversity-rich lands restored to date in Anguilla by removing destructive IAS, priority is now being placed on preventing invasions by rodents and other harmful IAS (e.g. feral cats, green iguanas, mongooses) because they would have catastrophic impacts on native biodiversity.

Restoring Anguilla's islands has taken a huge investment of time and an estimated [REDACTED] from both national and international partners, including Darwin Plus. By tailoring more effective, labour-saving biosecurity mechanisms to every priority site – Dog Island, Prickly Pear Cays, Sombrero and Fountain National Park (see map) – this project will significantly decrease the risk of IAS becoming re-established and thereby facilitate

sustained recovery of ecosystems and native species, such as the Critically Endangered Lesser Antillean iguanas and Sombrero ground lizards.

The adaptable yet rugged equipment that will be provided by this project, along with advanced training of local staff, volunteers, will enable Anguilla's conservation agencies to manage their biosecurity programmes more efficiently and effectively for the long term. Furthermore, by developing the IslandGuard cameras and sharing the lessons learned, this project will help many others to improve their biosecurity programmes to safeguard island biodiversity at risk from such animals.

Q18. Sustainable benefits

How will the project reach a sustainable point and continue to deliver benefits post-funding? Will the activities require funding and support from other sources, or will they be mainstreamed in to "business as usual"? How will the required knowledge and skills remain available to sustain the benefits? If relevant, how will your approach be scaled? How will you ensure your data and evidence will be accessible to others?


Sustainability is at the core of this project. Having invested substantial time, money and effort into restoring ecosystems and saving native wildlife by removing IAS, it is imperative to protect areas of high conservation value from invasion. Anguilla's existing biosecurity systems currently depend on frequent manual inspections (e.g. monitoring bait stations, searching for scat, tracks and other signs) and IAS are easily overlooked at the start of an incursion when numbers are low. This project will modernise and update biosecurity by integrating use of cost-effective automated IslandGuard cameras to monitor important sites 24/7 (Output 1). These smart cameras even monitor themselves, sending weekly reports on their status. Operating over 40 cameras is estimated to cost a modest £488 per year in data fees - a fraction of even one manual check - saving valuable time and resources for other conservation needs.


Anguilla's natural resource managers will be empowered with enhanced knowledge and capability (Output 2). By establishing a new partnership with leading conservation-minded technology experts to install the equipment and provide training and troubleshooting during and after the project, we will ensure that staff and volunteers become proficient in implementing the new biosecurity systems. ANT has been diligently conducting manual biosecurity monitoring on Anguilla's offshore islands for over a decade and is eager to adopt and maintain the new cameras post-project. Both ANT and DNAR-EU are firmly committed to incorporating biosecurity protocols developed through this project into their long-term operational plans.


Furthermore, the new technology and lessons learned will be shared with other UKOTs and other conservationists through workshops, webinars, open-source publications, presentations and social media (Output 3). As more sites in Anguilla (e.g. PLUS12S1\1040), other UKOTs and around the world become cleared of harmful IAS, the IslandGuard AI cameras will help sustain this important investment by preventing reinvasions.

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

 [Rewild Anguilla Map and References](#)

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Section 7 - Risk Management

Q19. Risk Management

Please outline the 6 key risks to achievement of your Project Outcome and how these risks will be managed and mitigated, referring to the Risk Guidance. This should include at least one Fiduciary, one Safeguarding, and one Delivery Chain Risk.

Risk Description	Impact	Prob.	Inherent Risk	Mitigation	Residual Risk
<p>Fiduciary (Financial)</p> <p>Project personnel fail to adhere closely to the budget and not sufficiently observe rules and limits on spending under each budget category. This would lead to the risk that funds are not used for the intended purpose or not correctly accounted for, compromising delivery of outputs within the agreed budget</p>	High	Rare	High	Project Leader and Re:wild's finance department are proficient in managing statutory funding and have rigorous protocols for financial planning, verification and reporting. Budget includes Financial Management Compliance Consultant. Re:wild also has Whistleblower Policy and Anti-Bribery & Corruption Policy (appended) and will ensure rules are clearly explained to staff and partners.	Low
<p>Safeguarding</p> <p>As the project entails interactions among project personnel, stakeholders and visitors, there is a potential risk of harm (intended or unintended) to the safety and welfare of beneficiaries, the public, implementing partners and staff</p>	High	Rare	High	Re:wild's Safeguarding Policy, Equal Employment Opportunity Statement, Non-Harassment Policy and Whistleblower Policy informs all project workers of their responsibility to protect peoples' health, wellbeing and human rights and enable them to live free from harm, exploitation, abuse, discrimination and neglect. All Re:wild employees undertake mandatory certified training on Harassment Prevention.	Low
<p>Delivery Chain</p> <p>Currency fluctuations may weaken the pound sterling (the project will operate mainly in US dollars and Eastern Caribbean dollars)</p>	Medium	Likely	Medium	Most equipment will be purchased during Year 1. The project budget has conservatively applied the current GBP value, which is relatively low. If the pound falls very significantly and puts critical activities in jeopardy, we will determine where we can make savings (e.g. fewer cameras) and submit a Change Request.	Low

Risk 4	As the project entails travel by boat and fieldwork in remote areas, there is a risk to the safety of implementing partners and staff.	High	Unlikely	Medium	All personnel and service providers involved in this project will have insurance. Field staff will be trained on safety procedures. Field activity risk assessment, safety and emergency response procedures will be in place. Only properly equipped vessels with qualified crew will be used.	Low
Risk 5	Technological failings in the biosecurity system, e.g. inability of AI cameras to recognise target invasive alien species with sufficient accuracy (false positives, false negatives) or relay alerts, or suffer damage from the elements.	High	Rare	Low	The cameras are rugged and waterproof, and have been tested successfully in extreme temperatures and flood conditions. They have shown high accuracy and reliability for detecting endangered animals. This project will fundamentally follow the same methods and principles to tailoring them to detect IAS in Anguilla/ UKOTs, and monitor closely.	Low
Risk 6	Weather and/or logistical difficulties prevent field work and offshore island access.	Medium	Possible	Medium	The project is spread over two years, giving the team flexibility to choose optimal times to access offshore islands. Weather forecasts and the NOAA website will be checked at least bi-weekly during the hurricane season to monitor any upcoming weather disturbances so these can be avoided.	Low

Q20. Project sensitivities

Please indicate whether there are sensitivities associated with this project that need to be considered if details are published (detailed species location data that would increase threats, political sensitivities, prosecutions for illegal activities, security of staff etc.). Please note your response to this question won't influence the outcome of your application.

No

Section 8 - Workplan

Q21. Workplan

Provide a project workplan that shows the key milestones in project activities. Complete the Word template as appropriate to describe the intended workplan for your project.

🔗 [Rewild Anguilla Workplan 2024-2026 FINAL](#)

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Section 9 - Monitoring and Evaluation (M&E)

Q21. Monitoring and evaluation (M&E) plan

Describe how the progress of the project will be monitored and evaluated, making reference to who is responsible for the project's M&E.

Darwin Plus projects will need to be adaptive and you should detail how the monitoring and evaluation will feed into the delivery of the project including its management. M&E is expected to be built into the project and not an 'add' on. It is as important to measure for negative impacts as it is for positive impact. Additionally, please indicate an approximate budget and level of effort (person days) to be spent on M&E (see Finance Guidance).

Dr Jenny Daltry (Re:wild) will serve as the Project Leader, with Farah Mukhida (ANT) as the local Co-project Leader, and both will ensure the project adheres to its schedule and is effectively monitored. The Project Leader usually spends several months a year based in Anguilla and is therefore well placed to conduct project monitoring site visits (>20 days per year) to assess and advise on project implementation. They are supported in their roles by Clarissa Lloyd, ANT's Programmes and Project Manager, and Justin Springer, Re:wild Caribbean Program Officer from Barbados. Project oversight will be supported by the Project Steering Committee, consisting of key representatives from Re:wild, ANT, Government of Anguilla's Environment Unit, RSPB and Fauna & Flora, expanding to additional organisations if we find their expertise is needed (e.g. Wildlife Management International Ltd, Island Conservation). The committee will convene at least five times, with remote members participating via Zoom.

Project monitoring and evaluation (M&E) will centre on testing the new technology (Output 1) and managing and supervising project activities to ensure they are on track and effective. The latter will involve comparing the actual implementation of activities against the planned schedule in the work plan and logframe. Any issues related to output delivery, as well as the identification of problems, constraints, lessons learned, and recommendations for improvement, will be addressed. Progress reports and implementation reviews will be compiled every six months, aligned with committee meetings and DPLUS reporting requirements.

To evaluate the reliability of AI cameras in reporting target invasive species, we will keep a record of false alerts and periodically inspect their memory cards for evidence of any target animals photographed but not recognised and reported so the software can be improved if necessary. Results will also be compared against the accuracy and cost of ANT's routine manual checks conducted using conventional search methods for tracks, scats, and chew marks (>80 days in the field, including experimental control sites). Long-term monitoring of changes and impacts on wildlife (e.g. seabirds, endemic reptiles) of keeping sites free from harmful IAS will follow the methods established during baseline biodiversity surveys developed under previous Darwin Plus projects, both during and after the current project (Output 1).

In addition, the effectiveness and success of training exercises and knowledge exchange will be gauged through questionnaires administered to national (Output 2) and regional (Output 3) participants.

Our M&E approach is designed to facilitate adaptive and iterative project management, recognizing that not everything always goes according to plan. Should M&E exercises indicate the need for reconsideration or reassessment of implementation methods or project components, we will consult DPLUS and explore solutions to ensure the project's success, both in the short term and long term.


Total project budget for M&E (£)	[REDACTED]
(this may include Staff and Travel and Subsistence Costs)	
Total project budget for M&E (%)	22
Number of days planned for M&E	120


Section 10 - Logical Framework


Q23. Logical Framework (logframe)

Darwin Plus projects will be required to monitor and report against their progress towards their Outputs and Outcome. This section sets out the expected Outputs and Outcome of your project, how you will measure progress against these and how we can verify this.

 [Rewild Anguilla Logical Framework - FINAL](#)

 29/09/2023

 19:59:07

 pdf 149.39 KB

Impact:

Lasting protection of globally important island biodiversity from harmful invasive animals through using effective, adaptable and affordable biosecurity systems tested and perfected in Anguilla.

Outcome:

Critically threatened terrestrial ecosystems and species in Anguilla are safeguarded from target invasive alien animals through more effective biosecurity systems that can be readily transferred to other islands.

Project Outputs

Output 1:

1. Biosecurity systems are established and proven to help prevent incursions by at least 10 priority invasive alien species (including rats, mice, cats, goats and iguanas) in five biodiversity conservation sites in Anguilla.

Output 2:

2. National capability to manage invasive species threats is raised, supported by the new AI technology, enhanced technical skills and stakeholder collaboration.

Output 3:

3. Methods and lessons learned from this project are shared and discussed with other biodiversity-rich islands, including the UK and UKOTs.

Output 4:

No Response

Output 5:

No Response

Do you require more Output fields?

It is advised to have fewer than 6 Outputs since this level of detail can be provided at the Activity level.

No

Activities





Each activity is numbered according to the Output that it will contribute towards, for example, 1.1, 1.2, 1.3 are contributing to Output 1.

- 1.1 Develop AI software to recognise ≥ 10 priority IAS including inter alia rats, mice, cats, dogs, green iguanas, mongooses and goats.
 - 1.2 Install AI cameras and peripherals in priority conservation sites (five) and experimental control sites, which communicate with ANT staff smart phones.
 - 1.3 Conduct monthly inspections of the same sites (1.2) for invasive species using manual methods, including bait stations, tracking tunnels and traps.
 - 1.4 Monitor changes in abundance of threatened native reptiles, plants and birds on project sites against baselines established under previous DPLUS and other projects.
 - 1.5 Review and update biosecurity plans and protocols for Prickly Pear Cays, Dog, Sombrero and Fountain National Park, incorporating the new AI camera network.
-
- 2.1 Conduct, and agree actions on findings of, Gender and Social Inclusion Assessment of Anguilla National Trust (ANT)
 - 2.2 Plan, undertake and evaluate training and mentoring of ANT staff and other practitioners on how to set up, operate and manage data from AI cameras.
 - 2.3 Meet landowners, tourism operators and other stakeholders to explain the cameras and solicit cooperation for biosecurity on Prickly Pears, Dog, Sombrero and Fountain National Park.
 - 2.4 Facilitate development and signing of an MoU between RESOLVE and Anguilla National Trust to provide ongoing technical support during and after the project.
-
- 3.1 Hold in-person workshop and field trip for ≥ 10 practitioners from other Caribbean UKOTs to demonstrate, teach and discuss the use of AI technology in biosecurity.
 - 3.2 Hold webinar for ≥ 30 practitioners from UK and UKOTs to share and discuss the AI technology and biosecurity solutions.
 - 3.3 Produce and disseminate a best practice guide and support videos on use of AI cameras for island biosecurity.
 - 3.4 Prepare and submit paper on project methods and findings to a peer reviewed, open access journal.

Section 11 - Budget and Funding

Q24. Budget

Please complete the appropriate Excel spreadsheet which provides the Budget for this application and ensure the Summary page is fully completed. Some of the questions earlier and below refer to the information in this spreadsheet.

 [Rewild Anguilla BCF-Budget-over-£100k-MASTER -Aug23-FINAL](#)
 29/09/2023
 19:44:15
 xlsx 85.62 KB

Q25. Alignment with other funding and activities

This question aims to help us understand how familiar you are with other work in the geographic/thematic area, and how this proposed project will build on or align with this to avoid any risks of duplicating or conflicting activities.

Q25a. Is this new work or does it build on existing/past activities (delivered by anyone and funded through any source)?

- Development of existing work

Please provide details:

The Project Leader and Co-project Leader have over 30 years combined experience of eradicating and controlling IAS, including rats, mice, goats and green iguanas. In Anguilla, seven offshore islands (e.g. DPLUS086) have been successfully cleared of rodents and work is underway to clear rats, mice, cats, dogs, livestock and green iguanas from Fountain National Park (DPLUS158). There is therefore some relevant local knowledge and technical capacity on Anguilla in IAS management and biodiversity monitoring that this project will draw on. Furthermore, by rolling out new technology to improve biosecurity, this project will help sustain the great efforts that have been made to restore these islands and protected areas (and, if funded, ANT's proposed project to restore Road Salt Pond, DPR12S1\1040).

While the proposed use of AI cameras for IAS detection is novel, this technology has been applied by RESOLVE, Re:wild and others to detecting poachers and a wide range of mammals in diverse environments around the world, including the Tropics [11-13]. Applying this technology to IAS in Anguilla, and sharing the methods and findings with other UKOTs, directly supports the objectives of DPLUS175 to assess gaps in baseline knowledge related to invasive species in the UKOTs.

Q25b. Are you aware of any current or future plans for work in the geographic/thematic area to the proposed project?

- Yes

If yes, please give details explaining similarities and differences, and explaining how your work will be additional, avoiding duplicating and conflicting activities and what attempts have been/will be made to co-operate with and share lessons learnt for mutual benefit.

DPR12S1\1040 "Restoring Salt Road Pond", proposed by ANT, will restore another important site for biodiversity and will include an assessment of IAS and their targeted control. The application of AI technology from the present project would aid long term biosecurity and provide an additional field site for testing and demonstration.

DPR12ST\1009 "Enabling effective biosecurity in the Caribbean UK Overseas Territories" aims to strengthen at-border biosecurity in all 5 of the Caribbean UKOTs by enhancing biosecurity legislation, increasing inter-agency working, improving border biosecurity infrastructure and facilities and increasing territory agency capacity resulting to prevent and respond to IAS incursions. Our project could assist this by developing a technology to

enhance biosecurity surveillance. We will collaborate with the project lead (RSPB) to share methods and results with their local project partners and collaborators.

There are furthermore dozens of island territories and countries working to eradicate IAS - many involving Darwin, Re:wild, RSPB and other partners - but preventing incursions remains a common problem. This project will help many others by developing the necessary software to cover 11 major animals of frequent concern and sharing our methods and findings, especially to other UKOTs.

Q26. Balance of budget spend

Defra are keen to see as much Darwin Plus funding as possible directly benefiting UKOT communities and economies. While it is appreciated that this is not always possible every effort should be made for funds to remain in-Territory.

Explain the thinking behind your budget in terms of where Darwin Plus funds will be spent. What benefits will the Territory/ies see from your budget? What level of the award do you expect will be spent locally? Please explain the decisions behind any Darwin Plus funding that will not be spent locally and how those costs are important for the project.

This budget was developed in consultation with our local partners and reflects their priorities and budgetary requirements.

Over 60% of requested funds will be spent in Anguilla, supporting local staff, fieldwork operating expenses, training, and outreach. Local staff, with the Project Leader and AI experts, will be responsible for establishing AI biosecurity systems at identified sites while ANT staff and volunteers will conduct ongoing monitoring and maintenance. Local staff and stakeholders will also work with the Project Leader and external experts to revise and update biosecurity plans and operational standards for restored offshore islands and Fountain National Park, and will benefit from training in implementing biosecurity systems and rapid response protocols. ANT will also lead on outreach and awareness activities.

Other expenses (40%), while not spent in-territory, directly support project implementation in Anguilla by providing essential technical project management and operational support. This includes the purchase of AI technology and software (10%) which will remain in Anguilla in the care of ANT for ongoing biosecurity purposes.

Our project has confirmed [REDACTED] in-kind support, with valuable contributions from all project partners.

Q27. 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.

This project represents outstanding value for money. It leverages the combined skills, equipment, staff time and other resources of multiple partners. The budget has been calculated accurately using the Project Leader's long experience working in the Lesser Antilles, including Anguilla, and knowledge of cost-effective suppliers. Software design and camera equipment are being provided at very substantial discounts (e.g. CVEDIA has more than halved its fee to develop AI software that will detect 11 types of IAS, the core camera units normally retail at [REDACTED] each but are being provided by RESOLVE at [REDACTED], and the satellite modems are reduced from over [REDACTED] to [REDACTED]).

This project supports data-driven decision-making and conservation action and has been designed to allow local agencies, especially ANT, to save time and resources by providing a remote, automated tool that can effectively detect IAS presence and incursions. We anticipate this will make biosecurity monitoring more sustainable and

effective in the long-term, reducing the need for frequent manual checks. This new approach to biosecurity is likely to be a game-changer for many other island conservationists and will significantly enhance their ability to safeguard native biodiversity while optimising use of their time and resources.

It is likely that thanks to development and testing by this DPLUS project, many islands will be able to adopt the same cameras and software without making any further changes because these will address many IAS of common concern, including rats, mice, cats, dogs, goats, mongooses (and other mustelids), pigs and monkeys.

Q28. Capital items

If you plan to purchase capital items with Darwin Plus 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.

Capital costs account for 10% of Darwin Plus funding, including items to assist with project management as well as data collection, storage and analysis (laptop, smart devices for field data collection, GPS units) as well as over 40 robust IslandGuard AI cameras and supporting infrastructure (satellite modems, towers, and other peripherals), which are essential components of this project. While purchasing and testing the new equipment represents a significant upfront cost, all capital investment will remain in Anguilla, in the care of Anguilla National Trust (ANT), and will continue to be used and maintained post-project. RESOLVE is committed to continuing to provide technical support and troubleshooting if needed by ANT after the project ends.

Section 12 - Safeguarding and Ethics

Q29. Safeguarding

All projects funded under the Biodiversity Challenge Funds must ensure proactive action is taken to promote the welfare and protect all individuals involved in the project (staff, implementing partners, the public and beneficiaries) involved in the project from harm. In order to provide assurance of this, projects are required to have specific procedures and policies in place.

Please upload the following required policies:

- **Safeguarding Policy:** including a statement of commitment to safeguarding and a zero tolerance statement on bullying, harassment and sexual exploitation and abuse.
- **Whistleblowing Policy:** which details a clear process for dealing with concerns raised and protects whistle blowers from reprisals.
- **Code of Conduct:** which sets out clear expectations of behaviours – inside and outside the workplace – for all involved in the project and makes clear what will happen in the event of non-compliance or breach of these standards.

If any of these policies are integrated into a broader policy document or handbook, please upload just the relevant or equivalent sub-sections to the above policies, with (unofficial) English translations where needed.

Please outline how (a) beneficiaries, the public, implementing partners, and staff are made aware of your safeguarding commitment and how to confidentially raise a concern, (b) safeguarding issues are investigated, recorded and what disciplinary procedures are in place when allegations and complaints are upheld, (c) you will ensure project partners uphold these policies.

If your approach is currently limited or in the early stages of development, please clearly set out your plans address this.

A project policy on safeguarding and ethics and Grievance Mechanism will be developed at the start of the project that is in line with the policies of Re:wild (appended) and Anguilla National Trust. A project induction event will be held for all main partners which will include specific orientation on safeguarding requirements and procedures. With respect to project and project-supported personnel working in the field, we will also apply the framework of standards and guidance (Conduct, Competence, Conditions) developed by the International Ranger Federation and the Universal Ranger Support Alliance (URSA: ursa4rangers.org). This will be built into all training for field personnel.

Within the Anguilla National Trust, an M&E focal point will be appointed as the first point of contact on safeguarding issues related to the project and the project team. They will coordinate with the Re:wild Project Leader to respond to any issues that arise. Formal project meetings will include a safeguarding review on their fixed agenda.

Q30. Ethics

Outline your approach to meeting the key principles of good ethical practice, as outlined in the guidance.

Re:wild, as the lead partner, will follow its Statement on Ethics and Principles, which agrees with the guidance. The project is designed to comply with all legal obligations of Anguilla. No utilisation of genetic resources or associated traditional knowledge other than by the Anguillan partners themselves is envisaged.

We are aware of the sensitivities involved in using cameras and collecting and managing images that may contain people, and will manage them in full accordance with the law. Consent will be sought for all relevant interventions. The project will safeguard against any risks for the safety of staff.

Re:wild states scientific rigour and a commitment to upholding evidence as central principles, to which the project will adhere.

Section 13 - Project Staff

Q31. Project staff

Please identify the core staff (identified in the budget), their role and what % of their time they will be working on the project.


Name (First name, Surname)	Role	% time on project	1 page CV or job description attached?
Dr Jennifer Daltry	Project Leader	20	Checked
Farah Mukhida	Project Co-Leader (ANT)	25	Checked
Sunni Fass	Senior Financial Manager (Re:wild)	5	Checked
Clarissa Lloyd	Programmes and Projects Coordinator (ANT)	50	Checked


Do you require more fields?


Yes


Name (First name, Surname)	Role	% time on project	1 page CV or job description attached?
Justin Springer	Program Officer and Invasive Species Specialist (Re:wild)	10	Checked
Devon Carter	Research Officer (ANT)	50	Checked
Jonah Hochart	Boat Captain-Programmes & Projects Officer (ANT)	50	Checked
Dr Louise Soanes	Research Associate (RSPB)	3	Checked
<i>No Response</i>	<i>No Response</i>	0	Unchecked
<i>No Response</i>	<i>No Response</i>	0	Unchecked
<i>No Response</i>	<i>No Response</i>	0	Unchecked
<i>No Response</i>	<i>No Response</i>	0	Unchecked

Please provide 1 page CVs (or job description if yet to be recruited) for the project staff listed above as a combined PDF.

 [Rewild Anguilla Staff CVs](#)

 29/09/2023

 20:22:22

 pdf 743.71 KB

Have you attached all project staff CVs and job descriptions?

Yes

Section 14 - Project Partners

Q32. Project partners

Please list all the Project Partners (including the Lead Partner who will administer the grant and coordinate delivery of the project), clearly setting out their roles and responsibilities in the project including the extent of their engagement so far.

This section should demonstrate the capability and capacity of the Project Partners to successfully deliver the project. Please provide Letters of Support for all project partners or explain why this has not been included.

Lead partner name: Re:wild

Is the Lead Partner based in a UKOT where the project is working? No

Please explain why this project is led from outside the UKOT

Though chiefly based in the UK, the Project Leader spends several months per year based in Anguilla.

Re:wild was asked to lead this project at the request of local partners because Re:wild has strong capacity and prior experience in applying AI technology to conservation projects. ANT (below) will co-lead.

Why is this organisation the Lead Partner, and what value to they bring to the project? (including roles, responsibilities and capabilities and capacity):

Re:wild has worked for 10 years in the Caribbean and will be responsible for overall delivery and coordination of the project. Re:wild will also supply technical expertise in biosecurity, capacity development, conservation biology and project management.

Re:wild has assigned its Caribbean Alliance Director to be Project Leader, an ecologist and invasive species specialist who brings 28 years' experience working on biodiversity conservation and capacity building in the Caribbean, and who has led previous successful Darwin Initiative and Darwin Plus projects (see CV). Our team will be in weekly contact with Anguillan partners and will conduct multiple missions each year to provide technical support and to guide, monitor and evaluate project delivery.

With our extensive international connections Re:wild is well positioned to promote the achievements of the project and help scale its activities to other islands and more widely. Re:wild is currently supporting local partners with a number of island restoration projects, including Floreana (Galapagos), Redonda (Antigua), Pigeon Island (St Vincent & the Grenadines) and Fountain National Park (Anguilla).

The allocate budget includes most capital equipment purchases and consultancies, including AI software and hardware development, installation and training.

Allocated budget (proportion or value): ██████████

Representation on the Project Board (or other management structure) Yes

Have you included a Letter of Support from the Lead Partner? Yes

Do you have partners involved in the Project?

Yes

1. Partner Name: Anguilla National Trust (ANT)


Website address: <https://axanationaltrust.com/>

As Anguilla's leading environmental NGO, ANT has >30 years' experience in conserving and protecting species and their habitats, species reintroductions, restoring offshore cays, raising public environmental awareness, and creating opportunities for direct stakeholder engagement in conservation intervention implementation.

What value does this Partner bring to the project? (including roles, responsibilities and capabilities and capacity):

ANT has co-led on the eradication of rodents from seven offshore cays and islets (including DPLUS060, DPLUS086) and is currently leading on the eradication of IAS from Fountain National Park (DPLUS158). Following all IAS removals, ANT staff, supported by a team of volunteers, has been responsible for ongoing biosecurity to prevent IAS incursions on all restored sites.

As the local leading agency, ANT will share overall responsibility for project management, implementation, monitoring, and evaluation, and will work with project partners to offer training and strengthen local capacity. ANT will sit on the Project Steering Committee and the Technical Committee.


UKOT-based/other Partner	<input checked="" type="radio"/> UKOT-based
Allocated budget (proportion or value):	
Representation on the Project Board (or other management structure)	<input checked="" type="radio"/> Yes
Have you included a Letter of Support from this organisation?	<input checked="" type="radio"/> Yes

2. Partner Name:	Department of Natural Resources-Environment Unit
Website address:	http://www.gov.ai/department.php?id=3&dept=14

What value does this Partner bring to the project? (including roles, responsibilities and capabilities and capacity):

The Department of Natural Resources-Environment Unit (DNaR-EU) has been involved in project development and is entirely supportive of this novel approach to IAS detection. They will assist in biosecurity planning and operational standards, and be invited to all training opportunities.

Like many UKOT environmental agencies, DNaR-EU has too limited staff capacity to be heavily involved in fieldwork. The development of automated AI cameras is welcomed because these will save labour and costs, and could readily be applied to other areas on Anguilla where DNaR is involved in feral animal control.

UKOT-based/other Partner	<input checked="" type="radio"/> UKOT-based
Allocated budget (proportion or value):	
Representation on the Project Board (or other management structure)	<input checked="" type="radio"/> Yes

Have you included a Letter of Support from this organisation? Yes

3. Partner Name: Royal Society for the Protection of Birds

Website address: www.rspb.org.uk

What value does this Partner bring to the project? (including roles, responsibilities and capabilities and capacity):

RSPB supports biodiversity conservation across the UKOTs and is very interested in how the tools developed by this pilot project could help other UKOTs. For example, the RSPB is currently engaged in invasive species control and removal in the British Virgin Islands, Cayman Islands, and Turks and Caicos. Once the AI technology has been successfully piloted and adapted for use in Anguilla, RSPB hopes to apply it to biosecurity needs under these ongoing or planned projects.

RSPB is therefore keen to participate in the development and monitoring of this project, and will contribute the time of Dr Louise Soanes - a scientist who previously worked for ANT - to participate in committee meetings and reviews. Dr Soanes is experienced in the use of novel technology to track and monitor wildlife, including use of automated acoustic devices for monitoring birds. She is also keen to participate in writing an article about the new technology for a peer-reviewed journal (Activity 3.4).

UKOT-based/other Partner ██████████

Allocated budget (proportion or value): Other

Representation on the Project Board (or other management structure) Yes

Have you included a Letter of Support from this organisation? Yes

4. Partner Name: Fauna & Flora

Website address: www.fauna-flora.org

What value does this Partner bring to the project? (including roles, responsibilities and capabilities and capacity):

Fauna & Flora has worked on over 30 island restoration projects in the Caribbean since the mid 1990s and established many of the biosecurity approaches and methods currently being used by Anguilla National Trust and other island NGOs and governments in the Caribbean. Fauna & Flora is also currently working with ANT and Re:wild to eradicate a wide range of invasive alien animals from Fountain National Park (DPLUS158), one of the sites where the new AI technology will be tested and installed.

Fauna & Flora has a small office in Antigua - a short distance from Anguilla - and its Caribbean-based technical staff will provide additional support where needed. Fauna & Flora will also help disseminate the project methods and results to its wide network of island partners across the Caribbean and worldwide, including other UKOTs such as Bermuda, and poor Small Island Developing States such as Sao Tome & Principe and St Vincent & the Grenadines.

UKOT-based/other Partner Other

Allocated budget (proportion or value):



Representation on the Project Board (or other management structure)

Yes

Have you included a Letter of Support from this organisation?

Yes

5. Partner Name: RESOLVE

Website address: www.resolve.ngo

What value does this Partner bring to the project? (including roles, responsibilities and capabilities and capacity):

RESOLVE is a non-profit organization with the mission to forge sustainable solutions to critical social, health, and environmental challenges. Among its innovations is TrailGuard AI, an exceptionally robust AI-embedded camera-alert system that protects endangered wildlife and their habitats. The technology detects humans, logging trucks, and key wildlife species (e.g. tigers, bears, rhinos), and sends image and text alerts to designated parties within 30 seconds where there is cellular connection, slightly longer if sent by long-range radio and satellite modems. RESOLVE has now introduced and tested TrailGuard AI to more than 25 protected areas across Africa, Asia, and Latin America, with great success.

RESOLVE's WildTech team, led by renowned conservationist Dr Eric Dinerstein (WWF's Chief Scientist for over 20 years), will apply the methods and experiences gained from TrailGuard AI to produce IslandGuard, an AI-embedded camera designed to detect invasive alien species of the highest concern. RESOLVE is keen to pilot this new technology in Anguilla so it can then be made available to conservationists on other UKOTs and other islands around the world.

As RESOLVE will be contracted by Re:wild, its costs (£32,541) are included in the Lead Partner budget. Please note RESOLVE has also committed substantial in-kind contributions.

UKOT-based/other Partner Other

Allocated budget (proportion or value): 

Representation on the Project Board (or other management structure) No

Have you included a Letter of Support from this organisation? Yes

6. Partner Name: *No Response*

Website address: *No Response*

What value does this Partner bring to the project? (including roles, responsibilities and capabilities and capacity): *No Response*


UKOT-based/other Partner UKOT-based


Allocated budget (proportion or value): £0.00


Representation on the Project Board (or other management structure) Yes No


Have you included a Letter of Support from this organisation? Yes No

Please provide a combined PDF of all letters of support.

 [Rewild Anguilla Letters of Support](#)

 30/09/2023

 11:05:32

 pdf 1.27 MB

Section 15 - Lead Partner Capability and Capacity

Q33. Lead Partner Capability and Capacity

Has your organisation been awarded Biodiversity Challenge Funds (Darwin Plus, Darwin Initiative or Illegal Wildlife Trade Challenge Fund) funding before?

Yes

If yes, please provide details of the most recent awards (up to 6 examples).

Reference No	Project Leader	Title
27-003	Mike Appleton	Creating a sustainable landscape for the Taobuid and the Tamaraw
IWT105	James Slade	Enabling collaborative crime prevention targeting IWT of Vietnam's unique biodiversity
<i>No Response</i>	<i>No Response</i>	<i>No Response</i>
<i>No Response</i>	<i>No Response</i>	<i>No Response</i>
<i>No Response</i>	<i>No Response</i>	<i>No Response</i>
<i>No Response</i>	<i>No Response</i>	<i>No Response</i>

Have you provided the requested signed audited/independently examined accounts?

Yes

Section 16 - Certification

Certification

On behalf of the

Trustees

of

Re:wild

I apply for a grant of



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 enclose CVs for key project personnel, a cover letter, letters of support, a budget, logframe, Safeguarding and associated policies, and project workplan.
- Our last two sets of signed audited/independently verified accounts and annual report (covering three years) are also enclosed.

Checked

Name	Alex Quintero
Position in the organisation	Chief Operating Officer
Signature (please upload e-signature)	AQ Signature 29/09/2023 20:05:05 pdf 45.86 KB
Date	29 September 2023

Please attach the requested signed audited/independently examined accounts.

[Rewild Financials](#)
 29/09/2023
 16:41:02
 pdf 767.75 KB

Please upload the Lead Partner's Safeguarding Policy as a PDF

[Rewild Policies](#)
 29/09/2023
 16:43:25
 pdf 433.65 KB

Section 17 - Submission Checklist

Checklist for submission

Check

I have read the Guidance, including the “Guidance Notes for Applicants”, “Monitoring Evaluation and Learning Guidance”, “Standard Indicator Guidance”, “Risk Guidance”, and “Finance Guidance”.	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 budget based on UK government financial years i.e. 1 April – 31 March and in GBP.	Checked
I have checked that our budget is complete, correctly adds up and I have included the correct final total at the start of the application.	Checked
The application been signed by a suitably authorised individual (clear electronic or scanned signatures are acceptable).	Checked
I have attached the below documents to my application:	
<ul style="list-style-type: none"> • a cover letter from the Lead Partner, outlining how any feedback received at Stage 1 has been addressed where relevant and referencing any potential conflicts of interest, as a single PDF. 	Checked
<ul style="list-style-type: none"> • my completed logframe as a PDF using the template provided and using “Monitoring Evaluation and Learning Guidance” and “Standard Indicator Guidance”. 	Checked
<ul style="list-style-type: none"> • my budget (which meets the requirements above) using the template provided. 	Checked
<ul style="list-style-type: none"> • a signed copy of the last 2 annual report and accounts for the Lead Partner, or provided an explanation if not. 	Checked
<ul style="list-style-type: none"> • my completed workplan as a PDF using the template provided 	Checked
<ul style="list-style-type: none"> • a copy of the Lead Partner’s Safeguarding Policy, Whistleblowing Policy and Code of Conduct (Question 28). 	Checked
<ul style="list-style-type: none"> • 1 page CV or job description for each of the Project Staff identified at Question 30, including the Project Leader, or provided an explanation of why not, combined into a single PDF. 	Checked
<ul style="list-style-type: none"> • a letter of support from the Lead Partner and partner(s) identified at Question 31 and relevant OT Governments, or an explanation of why not, combined into a single PDF. 	Checked
My additional supporting evidence is in line with the requested evidence, amounts to a maximum of 5 sides of A4, and is combined as a single PDF.	Checked
(If copying and pasting into Flexi-Grant) I have checked that all my responses have been successfully copied into the online application form.	Unchecked
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 the Darwin Initiative and our sister grant scheme, the IWT Challenge

Fund. We also provide occasional updates on other UK Government activities related to biodiversity conservation and share our quarterly project newsletter. 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 the Darwin Initiative including project details (usually title, lead partner, project leader, location, and total grant value).

Project Title: Harnessing AI to prevent biodiversity loss in Anguilla

	Activity	No. of months	Year 1 (24/25)				Year 2 (25/26)			
			Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Output 1	Biosecurity systems are established and proven to help prevent incursions by at least 10 priority invasive alien species in five biodiversity conservation sites in Anguilla									
1.1	Develop AI software to recognise ≥10 priority IAS including <i>inter alia</i> rats, mice, cats, dogs, green iguanas, mongooses and goats.	3								
1.2	Install and operate AI cameras and peripherals in priority conservation sites (five) and experimental control sites, which communicate with ANT staff smartphones.	20								
1.3	Conduct monthly inspections of the same sites (1.2) for invasive species using manual methods, including bait stations, tracking tunnels and traps.	24								
1.4	Monitor changes in abundance of threatened native reptiles, plants and birds on project sites against baselines established under previous DPLUS and other projects.	2								
1.5	Review and update biosecurity plans and protocols for Prickly Pear Cays, Dog, Sombrero and Fountain National Park, incorporating the new AI camera network.	3								
Output 2	National capability to manage invasive species threats is raised, supported by the new AI technology, enhanced technical skills and stakeholder collaboration.									
2.1	Conduct, and agree actions on findings of, Gender and Social Inclusion Assessment of Anguilla National Trust (ANT)	1								
2.2	Plan, undertake and evaluate training and mentoring of ANT staff and other practitioners on how to set up, operate and manage data from AI cameras	2								
2.3	Meet landowners, tourism operators and other stakeholders to explain the cameras and solicit cooperation for biosecurity on Prickly Pears, Dog, Sombrero and Fountain National Park	1								
2.4	Facilitate development and signing of an MoU between RESOLVE and Anguilla National Trust to provide ongoing technical support during and after the project.	1								
Output 3	Methods and lessons learned from this project are shared and discussed with other biodiversity-rich islands, including the UK and UKOTs.									
3.1	Hold in-person workshop and field trip for ≥10 practitioners from other Caribbean UKOTs to demonstrate, teach and discuss the use of AI technology in biosecurity.	0.5								

Project Title: Harnessing AI to prevent biodiversity loss in Anguilla

	Activity	No. of months	Year 1 (24/25)				Year 2 (25/26)			
			Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
3.2	Hold webinar for ≥30 practitioners from UK and UKOTs to share and discuss the AI technology and biosecurity solutions	0.2								
3.3	Produce and disseminate a best practice guide and support videos on use of AI cameras for island biosecurity.	1								
3.4	Prepare and submit paper on project methods and findings to a peer reviewed, open access journal.	1								
Output X	Ensure the project is managed to a high standard									
X.1	Project Steering Committee meetings	0.5								
X.2	Project biannual reports/ donor technical and financial reports	2								
X.3	Monthly financial accounts	24								
X.4	Audit (end of grant period)	1								→

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Project Summary	SMART Indicators	Means of Verification	Important Assumptions
<p>Impact: Lasting protection of globally important island biodiversity from harmful invasive animals through using effective, adaptable and affordable biosecurity systems tested and perfected in Anguilla.</p>			
<p>Outcome: (Max 30 words) Critically threatened terrestrial ecosystems and species in Anguilla are safeguarded from target invasive alien animals through more effective biosecurity systems that can be readily transferred to other islands.</p>	<p>0.1 Five priority conservation sites (at least 310 ha) are free from invasive alien iguanas, rodents and cats, by the end of this project [DPLUS-D01].</p> <p>0.2 Populations of vulnerable native reptiles, plants and birds in the project sites are stable or growing compared to pre-project baselines (by Q4Y2) [DPLUS-D04].</p> <p>0.3 Anguilla National Trust and Department of Natural Resources (Government of Anguilla) embrace new technology and demonstrate capacity and intent to continue operating biosecurity systems, during and beyond the life of this project.</p> <p>0.4 At least three UKOTs confirm interest in adopting and adapting the AI-supported biosecurity system for their own use (by Q4Y2).</p>	<p>0.1 Biosecurity monitoring reports and databases for offshore islands (Sombrero, Prickly Pear East, Prickly Pear West, Dog) and Fountain National Park.</p> <p>0.2 Biodiversity monitoring data and reports on species on the national protected species list).</p> <p>0.3 Training reports; equipment inventory; biosecurity plans and operational standards; management agency work plans; MoU with tech development companies.</p> <p>0.4 Written proposals and letters from UKOT natural resources management leaders.</p>	<p>Invasive alien species are the primary drivers of biodiversity loss on islands.</p> <p>Tools and approaches that work across diverse parts of Anguilla are transferable to other UKOTs.</p>
<p>1. Biosecurity systems are established and proven to help prevent incursions by at least 10</p>	<p>1.1 Software tailored to enable Artificial Intelligence (AI) cameras to identify <i>inter alia</i> rats, mice, cats,</p>	<p>1.1 Software specifications; Sim cards recognise at least 10 priority invasive species.</p>	<p>AI algorithms can accurately distinguish iguanas from other lizards.</p>

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Project Summary	SMART Indicators	Means of Verification	Important Assumptions
<p>priority invasive alien species in five biodiversity conservation sites in Anguilla.</p>	<p>dogs, goats, pigs, monkeys and iguanas by Q2Y1.</p> <p>1.2 AI camera network, comprising at least 40 cameras and peripherals, server and phone apps, deployed in five priority conservation sites plus experimental control sites by Q4Y1.</p> <p>1.3 Reliability of AI cameras to detect target invasive species is evaluated against monthly manual checks using conventional survey methods (by Q4Y2).</p> <p>1.4 Status of threatened native reptiles, plants and birds on project sites is monitored against baselines established under previous DPLUS projects.</p> <p>1.5 Biosecurity plans and protocols, including emergency incursion responses, and associated operational standards for the project pilot sites reviewed and updated by Q2Y2 [DPLUS-B02].</p>	<p>1.2 AI camera network map; photographs; camera health check database.</p> <p>1.3 Monitoring databases; images from bait stations, tracking tunnels, traps and other tools.</p> <p>1.4 Biodiversity monitoring databases</p> <p>1.5 Revised and updated biosecurity plans and operational standards for offshore islands (Sombrero, Prickly Pear East, Prickly Pear West, Dog) and Fountain National Park. Supplies inventory.</p>	<p>Island landowners and other stakeholders continue to be willing to cooperate on biosecurity initiatives.</p>
<p>2. National capability to manage invasive species threats is raised, supported by the new AI technology, enhanced technical</p>	<p>2.1 At least 20 Anguilla nationals are proficient in implementing the biosecurity system, including use and maintenance of AI cameras and</p>	<p>2.1 Training sign-in sheets; Individual competences assessment (project start and end).</p>	<p>Trained expertise remains in-territory.</p> <p>Landowners and tour operators continue to be willing to</p>

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<p>skills and stakeholder collaboration.</p>	<p>rapid response protocols, by Q2Y2 [DPLUS-A01].</p> <p>2.2 At least 10 landowners and tourism operators actively engaged in biosecurity monitoring by Q2Y2.</p> <p>2.3 Anguillan natural resource managers formalize partnership with tech companies for ongoing use and development of AI solutions, by Q2Y2.</p>	<p>2.2 Biosecurity database; iNaturalist biosecurity page</p> <p>2.3 MoU between tech company(ies) and Anguillan organisations</p>	<p>cooperate on biosecurity initiatives for restored islands.</p> <p>Biosecurity strategy accurately predicts the future human and other resources available to implement it.</p>
<p>3. Methods and lessons learned from this project are shared and discussed with other biodiversity-rich islands, including the UK and UKOTs.</p>	<p>3.1 Representatives (at least 40% female) from at least 10 natural resources management organizations participate in one site visit (at least 10 persons) and one recorded project webinar (at least 20 persons) by Q4Y2 [DPLUS-C13].</p> <p>3.2 Best practice guide and support videos published online and disseminated on use of AI cameras for island biosecurity by Q4Y2 [DPLUS-C01].</p> <p>3.3 Peer review paper accepted for publication by Q4Y2 [DPLUS-C17].</p>	<p>3.1 List of individuals attending in-person workshop and field trip; Webinar participant lists; Written feedback from participants.</p> <p>3.2 Guide and videos; Viewing/ download statistics.</p> <p>3.3 Manuscript and editor's acceptance.</p>	<p>Natural resource managers on other islands recognise need for biosecurity solutions.</p>
<p>Activities</p> <p>1.1 Develop AI software to recognise ≥10 priority IAS including inter alia rats, mice, cats, dogs, green iguanas, mongooses and goats.</p> <p>1.2 Install AI cameras and peripherals in priority conservation sites (five) and experimental control sites, which communicate with ANT staff smart phones.</p>			

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Project Summary	SMART Indicators	Means of Verification	Important Assumptions
<p>1.3 Conduct monthly inspections of the same sites (1.2) for invasive species using manual methods, including bait stations, tracking tunnels and traps.</p> <p>1.4 Monitor changes in abundance of threatened native reptiles, plants and birds on project sites against baselines established under previous DPLUS and other projects.</p> <p>1.5 Review and update biosecurity plans and protocols for Prickly Pear Cays, Dog, Sombrero and Fountain National Park, incorporating the new AI camera network.</p>			
<p>2.1 Conduct, and agree actions on findings of, Gender and Social Inclusion Assessment of Anguilla National Trust (ANT)</p> <p>2.2 Plan, undertake and evaluate training and mentoring of ANT staff and other practitioners on how to set up, operate and manage data from AI cameras.</p> <p>2.3 Meet landowners, tourism operators and other stakeholders to explain the cameras and solicit cooperation for biosecurity on Prickly Pears, Dog, Sombrero and Fountain National Park.</p> <p>2.4 Facilitate development and signing of an MoU between RESOLVE and Anguilla National Trust to provide ongoing technical support during and after the project.</p>			
<p>3.1 Hold in-person workshop and field trip for ≥10 practitioners from other Caribbean UKOTs to demonstrate, teach and discuss the use of AI technology in biosecurity.</p> <p>3.2 Hold webinar for ≥30 practitioners from UK and UKOTs to share and discuss the AI technology and biosecurity solutions.</p> <p>3.3 Produce and disseminate a best practice guide and support videos on use of AI cameras for island biosecurity.</p> <p>3.4 Prepare and submit paper on project methods and findings to a peer reviewed, open access journal.</p>			