Applicant: **Demetriou, Jakovos** Organisation: **Enalia Physis Environmental Research Centre**

Funding Sought: £99,500.00

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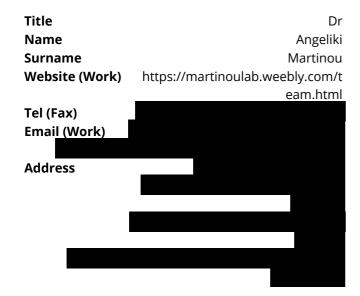
DNA barcoding and impact assessment of non-native insects on Cyprus

Cyprus currently hosts approximately 1,300 non-native species, one quarter of which are invertebrates. Their high biodiversity and lack of taxonomic experts hamper swift identification, while their impacts on the UK Sovereign Base Areas as well as Cyprus as a whole, are mostly unknown. This project aims to construct a DNA barcoding library of the non-native insects of Cyprus and assess their impacts on native biodiversity, human-health and socioeconomic parameters, assisting rapid identification, monitoring efforts and informing national policies.

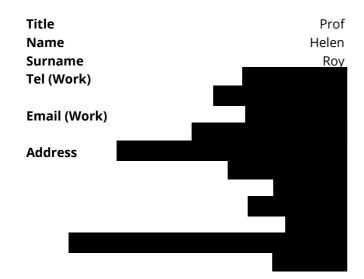
CONTACT DETAILS

Title Mr
Name Jakovos
Surname Demetriou
Organisation Enalia Physis Environmental
Research Centre
Tel (Fax)
Email (Personal)
Address

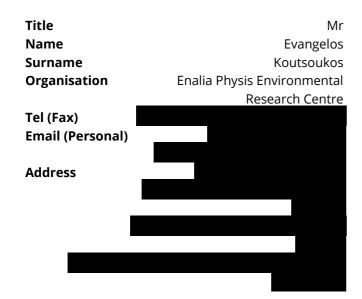
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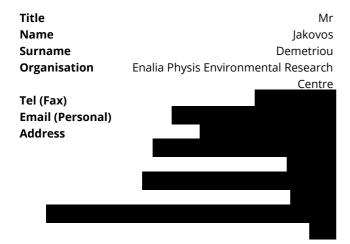


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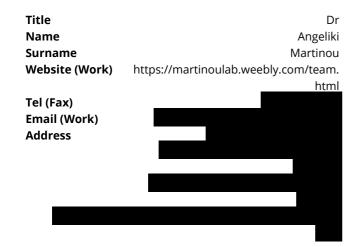
DNA barcoding and impact assessment of non-native insects on Cyprus

Section 1 - Contact Details

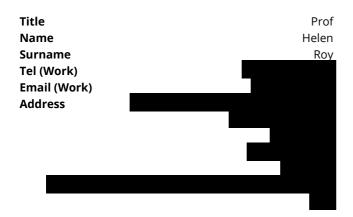
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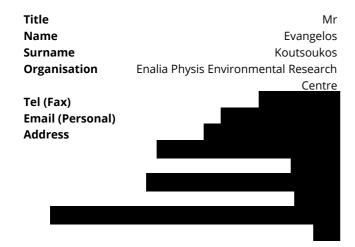
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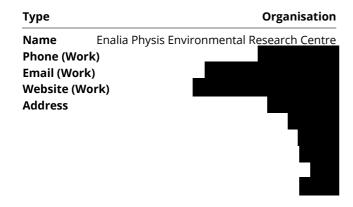
CONTACT DETAILS



CONTACT DETAILS



GMS ORGANISATION



Section 2 - Title, Dates & Budget Summary

Q3. Title

DNA barcoding and impact assessment of non-native insects on Cyprus

Please attach a cover letter as a PDF document.

- & Cover letter
- **ii** 23/09/2024
- © 11:29:17
- pdf 307.01 KB

Q4a. Is this a resubmission of a previously unsuccessful application to Darwin Plus Fellowships, as this scheme was previously called?

No

Q5. Project beneficiary/group of beneficiaries

Group

Provide a description of the proposed Darwin Plus beneficiaries and their names (if known)

| Names of individuals in the group (if known) | Mr Jakovos Demetriou Mr Evangelos Koutsoukos |
|----------------------------------------------------|-------------------------------------------------|
| Have CVs been provided? | ⊙ Yes |

Q6. Summary of proposed project

Cyprus currently hosts approximately 1,300 non-native species, one quarter of which are invertebrates. Their high biodiversity and lack of taxonomic experts hamper swift identification, while their impacts on the UK Sovereign Base Areas as well as Cyprus as a whole, are mostly unknown. This project aims to construct a DNA barcoding library of the non-native insects of Cyprus and assess their impacts on native biodiversity, human-health and socioeconomic parameters, assisting rapid identification, monitoring efforts and informing national policies.

Q7. UKOT involved

Q7a. Please state which UKOT(s) will be involved with the project?

☑ Sovereign Base Areas of Akrotiri and Dhekelia (on Cyprus)

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

No Response

Q7b. Have you included a letter of support from the relevant OT Government(s) and/or OT-based civil society organisation?

Yes

Please provide a combined PDF of all letters of support

& <u>letters of support merged</u>

ii 23/09/2024

① 11:29:49

pdf 2.77 MB

Q8. Project dates

Start date: 01 July 2025

Duration (e.g. 1 year, 2 months): 30 June 2027

2 years

Q9. Budget summary

| | 2025/2026 | 2026/27 | 2027/2028 | Total |
|----------------------------------------------------|-----------|---------|-----------|--------------------|
| Darwin Plus funding request (1 Apr - 31 Mar) | 35,500.00 | 48,050 | 15,950.00 | £ 99,500.00 |

Please complete the template below which provides the Budget for this application.

End date:

<u>bcf-budget-under-100k-master-apr24</u>

① 14:04:20

xlsx 110.47 KB

Section 3 - Principals

Q10. Principals in the project

Please give the details of the individuals from the Lead Organisation (and other organisations if relevant) who would be directly involved in supervising/ working with the beneficiary/ies.

| Details | Project Leader | Other Expert | Other Expert | Other Expert |
|--------------|--------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------|
| Surname | Martinou | Roy | Angelidou | Avtzis |
| Forename(s) | Angeliki | Helen | loanna | Dimitrios |
| Post held | Head Entomologist | Independent researcher; Professor | Pest controller; Darwin Fellow | Research Director |
| Organisation | Joint Services Health Unit, BFC, RAF Akrotiri; Enalia Physis Environmental Research Centre | UK Centre of Ecology and Hydrology; Centre for Ecology and Conservation, University of Exeter, Penryn, United Kingdom | Joint Services Health Unit, BFC, RAF Akrotiri; Enalia Physis Environmental Research Centre | Forest Research Institute, Hellenic Agricultural Organisation "DEMETER", Greece |

Email

Do you require more fields?

Yes

| Details | Other Expert | Other Expert | Other Expert |
|--------------|--------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------|-----------------------------------------------------|
| Surname | Dedos | Georgiadis | Bowler |
| Forename(s) | Skarlatos | Christos | Diana |
| Post held | Assistant Professor | Instructor - Researcher | Research Associate – Interdisciplinary Ecologist |
| Organisation | Faculty of Zoology and Marine Biology, National and Kapodistrian University of Athens, Greece | Faculty of Zoology and Marine Biology, National and Kapodistrian University of Athens, Greece | UK Centre of Ecology and Hydrology |
| Email | | | |

Please provide a combined 1-page CV for each of these named individuals and remember to include the beneficiary/ies CVs as part of the PDF.

- ♣ project CVs combined
- **ii** 20/09/2024
- ① 14:08:25
- pdf 263.3 KB

Section 4 - Aims, Activities & Achivements

Q11. Describe briefly the aims, activities and achievements of the employing organisation(s) of the proposed beneficiary/ies.

Messrs. Demetriou and Koutsoukos will be employed through Enalia Physis, a non-profit organisation, conducting and promoting environmental research and education. Joint Services Health Unit is a military unit with environmental health, entomological and pest control expertise, running integrated pest and vector management programs. They have led and coled successfully numerous DPLUS projects in Cyprus and overseas. UKCEH is the UK's Centre for Excellence for integrated research in terrestrial and freshwater ecosystems, helping the UK meet strategic research needs underpinning their ability to undertake world-class environmental science. The Forest Research Institute of the Hellenic Agricultural Organisation "DEMETER" focuses amongst others on the field and laboratory examination and management of harmful insects and invasive non-native species impacting silviculture and horticulture. The Faculty of Zoology and Marine Biology of the National and Kapodistrian University of Athens conducts research on the taxonomy, ecology, evolution, molecular mechanisms and phylogeography of terrestrial and marine organisms.

Q12. Describe briefly the current role/s of the proposed beneficiary/ies within their organisation(s) and what relevance this has to one or more of the main themes of Darwin Plus.

Messrs. Demetriou and Koutsoukos are PhD students and Darwin Fellows researching ants (DPLUS200) and chalcid wasps (DPLUS202) on Akrotiri and Cyprus as a whole, supervised by Dr Martinou at the JSHU and employed at Enalia Physis. Both beneficiaries participate in workshops and events at the Akrotiri Environmental Education Centre and extensively publish scientific articles on the biodiversity of Cyprus.

Throughout their collaborative Fellowships (DPLUS124, 200, 202) they have substantially contributed to the biodiversity of native and non-native insects, up-to-date detecting and publishing on >40 new records of non-native species for the island and

14 new species to science, most of which are endemic. Thus, contributing to biodiversity and environmental quality, by identifying invasive species and supplementing species inventories for the island.

Regarding capacity and capability building, their participation in events such as the "2nd Akrotiri Spring Festival", "Akrotiri BioBlitz 2024", "Monitoring Biodiversity and Zoonoses", "Akrotiri Marsh Through Citizen Science" etc. have raised public awareness and promoted both environmental citizenship and scientific research on biodiversity related matters, on Akrotiri and beyond. They have also collaborated through DPLUS124 as well as with other Darwin projects i.e. DPLUS088, DPLUS175, DPL00014 enhancing capability and capacity building within UKOTs.

Section 5 - Outcomes & Objectives

Q13. Provide a concept note for the project. This should include:

Q13a. A clear outline of the aim and objectives of the project.

Insects are one of the most diverse organisms holding more than 1 million species. However, the number of taxonomists has been alarmingly decreasing worldwide, with species reportedly becoming extinct before their discovery. The proposed project aims to provide molecular resources and impact assessments for the non-native insects of Cyprus.

The project's main objectives include:

- 1) Constructing a DNA barcoding library of non-native insects on Cyprus, with an initial goal of 100 species. This will be achieved through material surveys in Akrotiri Peninsula and Cyprus as a whole, collecting and identifying non-native insects. Taxonomic and biodiversity experts have been also contacted agreeing to provide specimens. DNA barcoding and classical methods will be utilised to provide molecular resources for robustly identified species thus, assisting rapid identification efforts. As a large number of non-native insects are considered cryptogenic i.e. of unknown origin, not demonstratively shown to be native or introduced, such resources can help unravel their ancestral origin and clarify their native range.
- 2) Assessing the projected and observed impacts of non-native insects on native biodiversity, human-health and socioeconomic parameters through an extensive literature investigation, expert consultation and assessment tools. Specifically, we will apply the EICAT and SEICAT classification schemes (developed by the IUCN), workflows encompassing the One Health Approach and IPBES protocols, with hopes of informing national INNS policies.

Results will be communicated to relevant stakeholders within SBAs and also widely across the Republic of Cyprus, through dissemination events at the Akrotiri Environmental Education Centre and publications in scientific journals. This project is expected to help the applicants gain new valuable programming skills, skills in applying molecular techniques as well as give them the opportunity to interact and inform policies within the SBAs, Cyprus and beyond by applying universal classification schemes such as EICAT and SEICAT.

Q13b. The role of the Project Leader, Lead Organisation and the beneficiary/ies, and others where relevant.

Messrs. Demetriou and Koutsoukos will undertake research under the supervision of Dr Martinou and Prof Roy, who have strong experience in delivering Darwin Plus projects (DPLUS 056; 088; 101; 123; 124; 171; 172; 175; 200; 202) and will mentor the applicants to develop their scientific and management skills, apply assessment criteria and develop methodologies for impact assessments of non-native insects. The beneficiaries will be based at the UK SBAs in Akrotiri for most of the project for fieldwork, meeting with Dr Martinou at the JSHU but will also through regular online meetings with Prof Roy. Enalia Physis will handle the economic management of the project, employing the applicants and checking on their project workflow and deliverables via online and in person meetings.

Dr Bowler has worked on a number of Darwin funded projects on INNS of the UKOTs and will help develop ecological programming skills of the applicants.

Ms Angelidou, former Darwin Fellow and PhD student currently employed at the JSHU will aid efforts of detecting and collecting non-native species.

Dr Avtzis and Ass. Prof Dedos will be mentoring and training the beneficiaries on DNA extraction protocols and data analyses with genomic data, kindly offering laboratory equipment, consumables and their expertise to the project. Dr Dedos will host the beneficiaries at his laboratory in Athens for DNA extractions. Additionally, both beneficiaries will also visit Dr Avtzis in Thessaloniki for hands-on training on DNA extractions and the possible applications of DNA barcoding on biological invasions and other injurious insect pests.

Drs Avtzis and Georgiadis have extensively worked on non-native insects of Greece, assisting the beneficiaries during their current Darwin Plus projects offering their skills in detecting and identifying target species.

Q13c. Where appropriate, how the project will contribute towards one or more of the four themes of Darwin Plus in the OTs i.e. what the expected outcome of the project will be

This project contributes to three main themes of Darwin Plus:

Biodiversity: INNS are a main driver of global biodiversity loss. Impact assessments can help inform prioritisation of INNS

management, thus slowing or reversing biodiversity loss caused by IAS. The availability of DNA barcodes can become a valuable tool aiding rapid identification of INNS and better monitoring their distribution in natural habitats (e.g. protected areas) through non-invasive techniques such as eDNA or meta-barcoding.

Environmental quality: genetic resources on a global scale can help us trace the origin of species thus, clarifying the native or non-native status of cryptogenic and species of questionable status. Thus, no resources have to be allocated for the management and/or eradication of potentially native species. In addition, as global and EU biodiversity strategies aim to "reduce the introduction of invasive alien species by 50% and minimise their impact" by 2030, data on the invasiveness of species is pivotal to achieve global biodiversity targets.

Capability and capacity building: this project will be supplementing and continuing the legacy of previous Darwin Plus projects investigating and communicating the dangers posed by INNS (DPLUS 056; 088; 101; 123; 124; 175; 200; 202). Through this project, impact assessments can be utilised towards prioritising management actions for INNS of insects and informing INNS regulations. Thus, enhancing the capacity within OTs to support the environment in the short- and long-term. Simultaneously, the proposed project addresses the major ecological problem of biological invasions by researching the biodiversity, spread and impacts of INNS, with the prospect of detecting new records of non-native species. Furthermore, the project can help build capacity and capability through new collaborations and application of molecular techniques, assisting identification and monitoring efforts.

Section 6 - Legacy & Collaboration

Q14. Legacy

Provide information on how the beneficiary/ies will utilise, promote and disseminate the benefits of the project. Will a strategy be developed during the project to ensure this is achieved?

We will strive to publish the constructed DNA barcoding library and impact assessments in prestigious scientific journals. Data will be also integrated into the Cyprus Database of Alien Species (CyDAS), developed under numerous Darwin Plus projects, and made available to the competent environmental authorities (i.e. SBA Environmental Department, Republic of Cyprus Ministry of Agriculture, Rural Development and Environment). The results of the project will be also widely disseminated to the public including children in primary and secondary Education through in the Darwin Newsletter and events at the Akrotiri Environmental Education Centre in collaboration with the teachers based there, national and international conferences. Enalia Physis Environmental Research centre will also promote the project's outcomes in their newsletter, social media posts and webpage. Through the proposed project Mr Demetriou and Mr Koutsoukos will consider opportunities for knowledge exchange to other UKOTs through collaborations with other Darwin Plus projects and guided by their co-supervisors will deliver high quality outputs including peer-reviewed publications and press releases.

Q15. Priorities

How will the project assist the OT's environmental priorities? Please refer to international or national environmental conventions, treaties, agreements, strategies and/or action plans relevant to the OT as appropriate.

The Akrotiri Peninsula includes a designated SBA and RAMSAR site of high ecological significance for the island. Nevertheless, it is currently threatened by land use change, climate change and INNS. This project will investigate the impacts of INNS, a main driver of global biodiversity loss. The proposed work is in line with the Akrotiri Peninsula Environmental Management Plan (https://sbaadministation.org/home/docs/eco/20121002_AKI_PEN_MGT_PLAN.pdf) which identifies INNS as one of the major threats to the Peninsula. According to international legislation, the Global Biodiversity Framework Target 6 aims to "Reduce the Introduction of Invasive Alien Species by 50% and Minimize Their Impact" by 2023. In parallel, the EU Biodiversity Strategy and EU Nature Restoration Plan aim to "manage established invasive alien species and decrease the number of Red List species they threaten by 50%", by 2030. This project will assist these endeavors providing impact assessments for non-native insects as well as genetic resources for their rapid identification and monitoring of spread. The findings of this project and the methodological approaches could also be applied to other UKOTs.

Q16. Collaboration

What collaboration has there been with the proposed beneficiary/ies to date in developing the proposal, and what collaboration is planned for the duration of the project? Where relevant, describe any consultation or collaboration by the proposed beneficiary/ies within their own territory.

This proposal has been drafted by Messrs. Demetriou and Koutsoukos, who jointlywork on non-native insects of Cyprus for the past four years, detecting >40 new non-native species for Cyprus. The project's co-leaders and Dr Bowler have collaborated on numerous projects related to INNS (DPLUS 056; 088; 101; 123; 124; 171; 172; 175).

Dr Martinou supervised Mr Demetriou's MSc Thesis and co-supervised with Prof Roy his DPLUS124 and ongoing DPLUS200 projects, while Dr Martinou also leads Mr Koutsoukos' DPLUS202 project.

The applicants have extensively worked with Dr Georgiadis, specialising on the taxonomy and ecology of ants and non-native species, during DPLUS200 and DPLUS202 as well as projects on non-native insects of Greece. The beneficiaries and project leaders have also worked with Dr Avtzis on the non-native insects of Greece, horizon scanning exercises, detecting new non-native species and extracting DNA barcodes.

The collaboration between the beneficiaries, Dr Avtzis and Dr Dedos is pivotal for the project as both beneficiaries will have the opportunity to visit these experts' facilities for training on DNA extraction and data analyses.

Mr Demetriou, Prof Roy, Dr Martinou and Dr Bowler have jointly worked on analysing data and species' trends on the Cyprus Database of Alien Species.

Q17. Where will the beneficiary/ies be based?

Please be specific with organisational details and dates (where more than one location).

Mr Demetriou and Mr Koutsoukos will be based at Enalia Physis NGO and the office of the JSHU headquarters in Akrotiri under the supervision of Dr Martinou for material samplings of non-native insects in the UK SBAs and Cyprus as a whole. When not out in the field the beneficiaries will be working office-based checking scientific literature for species-targets, their host-plants, ecological preferences and phenology in order to maximise the number of detected species. They will visit Dr Georgiadis and Ass. Prof Dedos at the University of Athens (NKUA) and Dr Avtzis at the Hellenic Agricultural Organisation "DEMETER" in Thessaloniki for DNA extraction and data analysis training. The visits to Thessaloniki will be scheduled for approximately 10 days per visit on Q4 Jan-Mar 2026 and Q4 Jan-Mar 2027. As both applicants are also PhD students at the same institution they will be visiting the University of Athens for opportunities to gain teaching and research experience. The fellowship involves collaboration among experts based at the UK (UKCEH), Cyprus (JSHU, Enalia Physis Environmental Research Centre), and Greece ("DEMETER", NKUA) with the beneficiaries, project leaders and Enalia Physis coordinating the project's workflow.

Section 7 - Workplan

Q18. 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) from harm. In order to provide assurance of this, projects are required to have specific procedures and policies in operation.

Please upload the following mandatory policies:

- <u>Safeguarding and/or PSEAH Policy</u>: including a statement of commitment to safeguarding and a zero tolerance to inaction statement on bullying, harassment and sexual exploitation and abuse. Policy should include a commitment to either Core Humanitarian Standard (CHS), IASC minimum operating standards for PSEA MOS-PSEA) or CAPSEAH minimum standards.
- Whistleblowing Policy: which details a clear process for dealing with concerns raised and protects whistle blowers from reprisals.
- <u>Code of Conduct</u>: which sets out clear expectations of behaviours inside and outside the workplace for staff and volunteers involved in the project and makes clear what will happen in the event of non-compliance or breach of these standards, up to and including dismissal.
- <u>Safety and Security Policy or Security Plan</u>: that outlines a plan on how to mitigate and respond to potential health, safety and security threats.

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 your project will ensure:

- 1. beneficiaries, the public, implementing partners, and staff are made aware of your safeguarding commitment and how they can confidentially raise a concern,
- 2. safeguarding issues are investigated, recorded and what disciplinary procedures are in place when allegations and complaints are upheld,
- 3. you will ensure project partners also meet these standards and policies.

Indicate which minimum standard protocol your project follows and how you meet those minimum standards, i.e. CAPSEAH, CHS, IASC MOS-PSEA. If your approach is currently limited or in the early stages of development, please clearly set out your plans address this.

Safeguarding policy follows the staff manual of Enalia Physis Environmental Research Centre, including a Health and Safety Policy and a Code of conduct, ethics and disciplinary policies. Based on the manual, sexual harassment policies are in accordance with the Equal Rights Law (No. 205(I) 2002 and 40(I) 2006) of the Republic of Cyprus. This manual will be circulated to the project members ensuring these standards and policies are met as well as supplemented where necessary. A zero-tolerance stance will be followed tackling bullying, harassment and sexual exploitation and abuse. Any allegations or strong suspicions of sexual exploitation, abuse or harassment, will be immediately reported to Defra. As the applicants will be based at the JSHU headquarters, the UK Ministry of Defence policies to tackle unacceptable behaviour, which apply to the Akrotiri British Forces, is also followed. These policies include a zero tolerance stance to unacceptable sexual behaviour, sexual offences and relationships between instructors and trainees, sexual exploitation and abuse. In addition, a bullying, harassment, and discrimination helpline and a confidential hotline for whistleblowing and raising a concern (https://www.gov.uk/guidance/ministry-of-defence-policies-to-tackle-unacceptable-behaviour). Although the Lead organisation's manual does not include a whistle blowing Policy and more can be done to supplement existing safeguarding policies, the provided guidance and recommendations from Defra can help us better ensure that where possible misconduct is prevented, and all people are protected.

Q19. Workplan

Provide a project workplan that shows the key milestones in project activities.

- & Implementation Timetable
- **ii** 20/09/2024
- © 14:21:07
- docx 37.63 KB

Section 8 - Certification

Certification

On behalf of the

Company

of

Enalia Physis Environmental Research Centre

I apply for a grant of

£99,500.00

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 enclose one page CVs for the beneficiary/ies, project principals, cover letter, budget, workplan, letter(s) of support |
|---|--------------------------------------------------------------------------------------------------------------------------|
| | financial evidence (see guidance), and Safeguarding and associated policies as requested in the Guidance Notes. |

Checked

Name Marios Papageorgiou

| Position in Organisation | Executive Director |
|--------------------------|----------------------------------------------------------------------------------------|
| Signed | 型 r13-dplus-people-and-skills-form-final sign MP 20/09/2024 ① 14:27:10 D pdf 126.23 KB |
| Dated | 13 September 2024 |

Please attach the requested signed Financial Evidence.

- **ii** 20/09/2024
- ① 14:48:58
- pdf 100.81 KB

Please upload the Lead Organisation's Safeguarding and associated policies as a PDF

- & <u>safeguarding-policies-merged</u>
- ① 14:28:47
- pdf 592.97 KB

Section 9 - Submission Checklist

| I have read the Guidance documents, including the "Guidance Notes for Applicants" and "Finance Guidance". | Checked |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------|
| I have read, and can meet, the current Terms and Conditions for this fund. | Checked |
| l have provided actual start and end dates for the project. | Checked |
| l have provided a budget based on UK government financial years i.e. 1 April - 31 March and in GBP. | Checked |
| The application has been signed by a suitably authorised individual (clear electronic or scanned signatures are acceptable). | Checked |
| have provided the relevant letters of support, cover letter, workplan, and CVs with this application. | Checked |
| I have attached a copy of the Lead Organisation's Safeguarding Policy, Whistleblowing Policy, Code of Conduct and Safety and Security Policy or Security Plan (Question 18). | Checked |
| The 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 | Checked |
| I have checked the Darwin Plus website immediately prior to submission to ensure there are no late updates. | Checked |
| 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, Darwin Plus 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 Darwin Plus including project details (usually title, lead partner, project leader, location, and total grant value).