

Applicant: **Martinou, Kelly**
Organisation: **Enalia Physis Environmental Research Centre**
Funding Sought: **£34,313.00**

DPR1F\1044

Eleonora's falcon (*Falco eleonora*), an Annex I species, EU Directive 2009/147/EC, breeds in Cyprus and feeds on insects during its pre-breeding period. We aim to study the effects of anthropogenic and climatic pressures on insect prey of Eleonora's falcon, at feeding hotspots in SBAs and adjacent areas in Cyprus.

Section 1 - Contact Details

PRIMARY APPLICANT DETAILS

Title	Dr
Name	Kelly
Surname	Martinou
Website (Personal)	[REDACTED]
Tel (Mobile)	[REDACTED]
Email (Personal)	[REDACTED]
Address	[REDACTED]

GMS ORGANISATION

Type	Organisation
Name	Enalia Physis Environmental Research Centre
Phone (Mobile)	[REDACTED]
Email (Work)	[REDACTED]
Address	[REDACTED]

Section 2 - Title, Dates & Budget Summary

Q3. Name and official address of proposed Darwin Plus Fellow

Include email details where available.

Name	Ioanna Angelidou
Address	[REDACTED]
Email Address	[REDACTED]

Q4. Summary of proposed Fellowship i.e. Outcome

Eleonora's falcon (*Falco eleonorae*), an Annex I species, EU Directive 2009/147/EC, breeds in Cyprus and feeds on insects during its pre-breeding period. We aim to study the effects of anthropogenic and climatic pressures on insect prey of Eleonora's falcon, at feeding hotspots in SBAs and adjacent areas in Cyprus.

Q5. Project dates

Start date:

01 October 2022

End date:

30 September 2024

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

24

Q6. Budget summary




	2022/2023	2023/24	2024/2025	Total
Darwin funding request (Apr - Mar)	9,293.00	15,880	9,140.00	£ 34,313.00

Section 3 - Principals

Q7. UKOT Involved

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

Sovereign Base Areas of Cyprus (SBAs)

Q7b. Have you included a letter of support from the relevant OT Government(s)? Yes**Please provide a combined PDF of all letters of support** [Letters of Support \(IA\)](#) 07/01/2022 11:13:06 pdf 490.51 KB

Q8. Principals in the Fellowship

Please give the details of the individuals from the applicant and host organisations (and other institutions if relevant) who would be directly involved in supervising/working with the Darwin Plus Fellow.

Details	Project Leader	Other Expert	Other Expert	Other Expert
Surname	Martinou	Hadjikyriakou (Co-leader)	Roy	<i>No Response</i>
Forename(s)	Angeliki	Thomas	Helen	<i>No Response</i>
Post held	Head Entomologist	Manager, Akrotiri Environmental Education Centre	Individual Merit Scientist	<i>No Response</i>
Organisation	Enalia Physis Environmental Research Centre & Joint Services Health Unit	Akrotiri Environmental Education Centre	UKCEH – UK Centre for Ecology and Hydrology, Wallingford	<i>No Response</i>


Telephone/Skype	██████████	██████████	██████████ ██████████	No Response
Email	██████████	██████████	██████████	No Response


Do you require more fields?


No

Please provide a one page CV for each of these named individuals, including the Fellow named at Q3, uploaded as one PDF.

 [ALL CVs \(IA\)](#)

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Section 4 - Aims, Activities & Achievements

Q9. Describe briefly the aims, activities and achievements of the proposed Fellow's employing organisation.

Large institutions please note this should describe your unit or department.

Enalia Physis Environmental Research Centre (EPERC) is Cyprus's leading NGO in marine and terrestrial sciences, covering a wide range of research fields e.g. invasive species, and marine and coastal conservation.

Joint Services Health Unit (JSHU) is a military unit with entomological, environmental health, and pest control expertise, running integrated pest and vector management programmes in Cyprus and overseas. The unit has expertise in applied and medical entomology, vector ecology and pest management.

Akrotiri Environmental Education Centre (AEEC) main objectives are to offer environmental education, undertake and facilitate ecological research, and support environmental management of the Akrotiri Peninsula. Research focuses on critical environmental aspects within the SBAs (e.g. protected bird species and endangered plant species).

UK Centre for Ecology & Hydrology (UKCEH) is an independent, not-for-profit research institute that works towards creating a productive, resilient and healthy environment.

All partners will greatly benefit from the proposed fellowship and the consortium.

Q10. Describe briefly the proposed Fellow's current role within their organisation and what relevance this has to environmental management and/or climate change in the OTs.

Ioanna Angelidou holds an MSc degree in Ecology & Conservation of Biodiversity from the National & Kapodistrian University of Athens, and a BSc in Agricultural Sciences from the Cyprus University of Technology. She has been working as a Research Assistant at JSHU & EPERC since October 2018. She has worked on Darwin Plus (DPLUS088) project: Addressing drivers of ecological change in Lake Akrotiri SBA, Cyprus. She has developed and promoted the pollinator monitoring scheme of Cyprus (Poms-ký <https://ris-ky.info/poms-ky>), including a series of dissemination events at AEEC. Through Poms-ký, she has gained entomological identification skills and networked with numerous stakeholders within the SBAs and the Republic of Cyprus, including the co-leader of the current fellowship proposal Dr Hadjikyriakou. Her previous activities have been incorporated within the AEECs curriculum and environmental education programmes (Poms-ký, mini Poms-ký).

In 2020, she was awarded a DPlus fellowship (DPR8F1009) expected to finish in July 2022. Her fellowship looks at impacts drivers of change e.g. land use, climate change and biological invasions on ecosystem services provided by wetland systems, in Akrotiri, Cyprus. Her fellowship provides important information towards the management of Akrotiri Peninsula by the AEEC, SBAs and JSHU, BFC. Through this she will write scientific publications.

Section 5 - Outcomes & Objectives

Q11. Provide a concept note on the Fellowship. This should include:

Q11a. A clear outline of the aim and objectives of the Fellowship

Eleonora's falcon a trans-equatorial migrant bird species, is listed in Annex I, EU Directive 2009/147/EC, requiring conservation measures to ensure its survival and reproduction. This aerial predator feeds on large flying insects (e.g. beetles, locusts, dragonflies, moths, cicadas, flying ants), while it switches its diet to primarily migratory bird prey during nestling rearing. According to Hadjikyriakou et al. (2020), Cyprus hosts 138 breeding pairs, all colonies within Natura 2000 sites. Colonies in Cyprus need continuous monitoring, especially as extensive development projects have been proposed at major insect feeding grounds of Eleonora's falcon, e.g. citrus plantations.

The Akrotiri Peninsula which includes a Ramsar Site, is a breeding/feeding site for Eleonora's falcon. It is currently subject to intensive anthropogenic pressures (e.g. land use change, biological invasions and climate change). These pressures could affect the diversity and abundance of the insect populations essential for the survival of Eleonora's falcon, as the feeding of falcons during the pre-breeding seasons could affect clutch size.

Main aims of this Fellowship are to:

- 1) Study the insect prey populations essential for the diet of Eleonora's falcon. Surveys will be undertaken at Eleonora's falcon feeding hotspots identified during previous studies by Dr Hadjikyriakou using bird transmitters.
- 2) Structured entomological field survey to assess insect abundance by using malaise traps and line transects, in combination with new technologies such as citizen science platforms (e.g. encouraging submission of insect records by volunteers), in order to identify the insect species that are important prey for the falcon.
- 3) For each feeding hotspot (including designated SPA's and farmed landscapes), understand how anthropogenic pressures affect the insect communities and consequently Eleonora's falcon; using statistical modelling approaches.
- 4) Raise public awareness regarding Eleonora's falcon and the importance of insect conservation (online resources, publications, seminars)
- 5) Developing new skills in field ecology and statistical modelling.

Q11b. The role of the applicant and/or host organisation, and others where relevant

Ms Angelidou based at both JSHU and AEEC (departments of BFC and SBAA), will be responsible for undertaking the research under the leadership of Dr Martinou (Head Entomologist, JSHU) and Professor Roy (Ecologist, Scientist and Group Leader, UKCEH) on the entomological aspect of the study and environmental citizen science activities. Dr Hadjikyriakou (Head of AEEC) will guide her on ornithological aspects of the study. Dr Hadjikyriakou will provide baseline data on Eleonora's falcon insect feeding hotspots and lead a training course for Ms Angelidou and volunteers on recording Eleonora's falcon presence and activity. Volunteers will be invited to contribute photo records and join the fellow during fieldwork.

Dr Martinou is expert in entomology, biological invasions and citizen science. Professor Roy is a community ecologist experienced in citizen science and entomology and biological invasions.

Dr Hadjikyriakou is expert in ornithology, conservation and ecology. He has worked for many years on Eleonora's falcon ecology including breeding success assessment in Cyprus, migratory ecology through the African continent, and wintering phenology in Madagascar.

The co-supervisors have extensive experience in delivering collaborative projects and will mentor Ms Angelidou to develop leadership and project management skills building on the success of her previous fellowship. Baseline data will be provided by both supervisors for insects, ornithology and habitats.

Ms Angelidou will use the applied entomology laboratory at JSHU. She will also use premises of AEEC, including the biology lab and the conference room for meetings and dissemination events. She will use the facilities of EPERC for a dissemination event.

The team will meet on a weekly basis for guidance, to assess progress and discuss next steps.

Finally, Ms Angelidou will report on the outputs delivered throughout the project through scientific publications and presentations in conferences.

Q11c. Where appropriate, how the Fellowship will contribute towards environment and/or climate change management in the OTs i.e. what the expected outcome of the Fellowship will be, with regard to the aim of Darwin Plus.

Eleonora's falcon requires special conservation measures to ensure its survival and reproduction. All breeding colonies in Cyprus are in Special Protection Areas (with Eleonora's falcon being one of the designation species) of the Republic of Cyprus and the SBAs and protected under respective legislation (N.152(1)2003 and Ordinance 21/2008).

Identification of feeding hotspots and prey of Eleonora's falcons are critical in understanding species ecology but also in ensuring its protection through conservation measures. Habitat composition and prey availability are subject to

anthropogenic pressures and climate change, while to date no studies have examined the diet of Eleonora's falcon in Cyprus. The aim of this study is to identify the insect species essential for Eleonora's falcon diet in pre-identified feeding hotspots (Hadjikyriakou 2021 unpublished ms).

Transmitters were attached on 14 falcons breeding at SBAs, Cyprus, and feeding hotspots important for the pre-breeding (and breeding) periods have been identified. Fifty sites with concentration of telemetry locations have been identified, and habitats have been mapped in detail. For the proposed fellowship, sites will be selected and targeted in order to understand the falcon and insect prey communities and how these are influenced by environmental pressures; statistical modelling approaches will be used. Data will be collected from each site every two weeks.

The study contributes to priority issues for Darwin Plus Round 10: 1) the restoration and wise use of wetlands, 2) tackling the threat of invasive non-native species, 3) the implementation of National Biodiversity or Environment Action Plans. It focuses on improving the terrestrial environment, has strong buy-in and collaboration with OT governments, and aims to test an approach that has the potential to be developed into a larger project in future.

Fellow will communicate her work to SBAs and Cypriot authorities (e.g. Game and Fauna Service) and other stakeholders through the AEEC.

Section 6 - Legacy & Collaboration

Q12. Legacy

Provide information on how the Fellow will utilise, promote and disseminate the benefits of the Fellowship on return to their UKOT. Will a strategy be developed during the Fellowship to ensure this is achieved?

The results produced by the Fellow, will be widely disseminated through the RIS-Ký website and Darwin Newsletters. The Fellow will lead three main dissemination events at the AEEC and EPERC to report on her findings, and provide the opportunity for feedback from the stakeholders and the wider Community (e.g. local authorities, farmers, managing authorities etc.) and other stakeholders. The Fellow will work together with stakeholders such as the SBAA Environment Department, Game and Fauna Service of the Republic of Cyprus, Departments of Environment, Agriculture and Forest and NGOs e.g. EPERC, to propose targeted conservation actions. All relevant departments have been informed regarding this fellowship and strongly support it. Results will also be used to enhance AEEC educational programmes on insects, birds and habitats.

The Fellow will create online information sources to raise public awareness regarding insects, birds, their habitats and the services they provide, but also emphasise on the problems caused by anthropogenic pressures (e.g. change of land use, urban development) and climate change. Additionally, she will be guided by her co-supervisors to deliver high quality publications in peer-reviewed and other journals (such as Landscape Ecology Journal and Sanctuary magazine) and a diversity of material to ensure wide accessibility.

Q13. Priorities

How will the Fellowship assist the OT's environmental priorities? Please refer to strategy papers, white papers or other materials as appropriate.

Akrotiri Peninsula is hosting one of the largest and ecologically complex ecosystems in Cyprus, supporting rare, vulnerable or endangered species of plants and animals, including the Eleonora's falcon, a migrant breeder in the area. However, this area is currently under tremendous pressures from urbanization, land use change, etc., affecting different species https://sbaadministration.org/home/docs/eco/20121002_AKI_PEN_MGT_PLAN.pdf.

Biological invasions can also affect a variety of habitats across the Peninsula, creating direct damage to the ecosystem, and consequently, indirectly on Eleonora's falcon.

The proposed fellowship will address these drivers and their impacts on the ecology and phenology of Eleonora's falcon, studying insect diversity and abundance in areas/habitats that have already identified as Eleonoras' falcon feeding hotspots.

This project will communicate the outcomes widely to relevant stakeholders (SBAA, RoC Departments, local authorities etc.) and members of the community. The current fellowship will strengthen the engagement and interaction between the UK and the SBAs in Cyprus, to address the challenges comprehensively.

The project can also help towards co-ordinated conservation of Eleonora's falcon in Akrotiri and across all colonies in Cyprus, with applicability in other regions across its breeding range in the Mediterranean, as well on other ecologically similar species in other UK OT's.

Q14. Collaboration

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

This proposal has been prepared by the Fellow in collaboration with the supervisory team. The concept was suggested/evolved collectively by the AEEC, the JSHU, the SBA Environment department and Game and Fauna Service (letter of support), who see this study as a necessity and will support it in kind. Dr Martinou and Prof. Roy have co-led previous Darwin Plus projects "Addressing drivers of ecological change in Lake Akrotiri SBA, Cyprus" and "Invasive Non-Native Species leading to biodiversity loss across the SBA, Cyprus". Dr Hadjikyriakou has co-led previous Darwin Plus project "Restoring Akrotiri Marsh: A flagship wetland in the Cyprus SBAs". He has worked extensively on Eleonora's falcon ecology and phenology. Field surveys during this fellowship will be based on his previous work.

Ms Angelidou will engage with many stakeholders from the SBAs and the Republic of Cyprus, and collate information regarding Eleonora's falcon foraging areas (including prey species) at the SBAs of Akrotiri, Episkopi and Troodos. Ms Angelidou has already established links with stakeholders and organisations through her previous DPlus fellowship, and she will expand these collaborations. SBAA supports this fellowship and permits to undertake fieldwork will be issued in due time.

Q15. Where will the Fellow be based?

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

The fellowship involves collaboration among experts based at the JSHU (British Force Cyprus, Akrotiri Headquarters), EPERC, the AEEC and UKCEH.

Ms Angelidou will focus her studies on the Akrotiri Peninsula (almost all of it lies within the SBA's). During the preparatory stage of the proposed fellowship and during the field work periods of the study, she will be based at the JSHU and AEEC, as both organisations are based in Akrotiri Peninsula. She will use the entomological and env. centre laboratory facilities. Field work expenses (e.g. car and petrol) are kindly covered by the AEEC. Fieldwork will be conducted during the Eleonora's falcon pre-breeding/early breeding period from March to August for the years 2023 and 2024. Prof. Roy will visit Cyprus during the fellowship to guide the Fellow. Ms Angelidou will then move at EPERC, to undertake detailed analysis of her collated datasets. Finally, Ms Angelidou will be guided by her co-supervisors to deliver high quality peer reviewed and other publications (e.g. in journals such as Landscape Ecology and Sanctuary) and press releases to ensure wide accessibility. OT stakeholders will be regularly updated through AEEC.

Section 7 - Programme of Work & Funding





Q16. Provide a programme of work, including key milestones, through the duration of the Fellowship

Please complete the Word template linked below to describe the intended workplan for your project.

[Darwin Plus Fellowship Implementation Timetable Template](#)

For each activity (add/remove rows as appropriate) indicate the number of months it will last, and shade only the quarters in which an activity will be carried out.

Once you have completed your implementation timetable please upload it as a PDF using the file upload tool below.





 [R10-DPlus-Fellowship-Implementation-Timetable-Template-FINAL \(IA\)](#)
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Q17. Costs

Using UK Government Financial Years (i.e. April 2021 – March 2022 etc.), please provide details of the costs associated with this Fellowship in the appropriate Darwin Plus spreadsheet.

[Darwin Plus Budget Template](#)

Please note, this should not be presented as academic years.

 [DPR1F_1044 Budget Rev1](#)
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Section 8 - Certification

Certification

On behalf of the

Company

of

Enalia Physis Environmental Research Centre

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 fellowship schedule should this application be successful.

(This form should be signed by an individual authorised by the applicant institution to submit applications and sign contracts on their behalf.)

- I have uploaded CVs for fellowship principals and letters of support.

Checked





Name

ANGELIKI MARTINO

Position in Organisation

Head Entomologist

Signed

 [image](#)
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Dated

07 January 2022

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

I have provided actual start and end dates for my project. Checked

I 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

I have checked the Darwin Plus website immediately prior to submission to ensure there are no late updates. Checked

I have provided the relevant letters of support and CVs with this application. 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, 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).