Applicant: **Shultz, Susanne**
Organisation: **University of Manchester**
Funding Sought: **£0.00**

DIR30IN\1145

Improving wildlife health monitoring using community networks, screening and immunology

This project will create a regional wildlife health working group in East Africa, comprised of wildlife and livestock veterinarians and conservation stakeholders. This group will use innovative tools that bridge traditional epidemiological knowledge about wildlife health with conventional diagnostic methods, such as non-invasive sampling using ecoimmunology biomarkers. The working group will generate evidence for animal diseases affecting conservation and poverty, and recommendations for scalable and sustainable approaches to improving surveillance of wildlife health in East Africa.

DIR30IN\1145

Improving wildlife health monitoring using community networks, screening and immunology

Section 1 - Contact Details

PRIMARY APPLICANT DETAILS

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Section 2 - Project Summary, Ecosystems, Approaches and Threats

Q3. Title

Improving wildlife health monitoring using community networks, screening and immunology

Please attach a cover letter as a PDF document.

COVER letter Innovation
23/10/2023
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Q4a. Is this a resubmission of a previously unsuccessful application?

Yes

Year of unsuccessful application:	Stage of application:	Application number (if known):
2022	Capacity - Full	DIR29CC\1105

Q5. Key Ecosystems, Approaches and Threats

Please select up to 3 biomes that are of focus, up to 3 conservation actions that characterise your approach, and up to 3 threats to biodiversity you intend to address, from dropdown lists.

Biome 1

Savannas and grasslands

Biome 2

Shrublands & shrubby woodlands

Biome 3

Deserts and semi-deserts

Conservation Action 1

Species Management

Conservation Action 2

Livelihood, Economic & Moral Incentives

Conservation Action 3

Awareness Raising

Threat 1

Agriculture & aquaculture (incl. plantations)

Threat 2

Natural system modifications (fires, dams)

Threat 3

Human intrusions & disturbance (recreation, war)

Q6. 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. Please note that if you are successful, this wording may be used by Defra in communications e.g. as a short description of the project on the website.

This project will create a regional wildlife health working group in East Africa, comprised of wildlife and livestock veterinarians and conservation stakeholders. This group will use innovative tools that bridge traditional epidemiological knowledge about wildlife health with conventional diagnostic methods, such as non-invasive sampling using ecoimmunology biomarkers. The working group will generate evidence for animal diseases affecting conservation and poverty, and recommendations for scalable and sustainable approaches to improving surveillance of wildlife health in East Africa.

Section 3 - Dates & Budget Summary

Q7. Country(ies)

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

Country 1	Kenya	**Country 2**	Tanzania
Country 3	Rwanda	**Country 4**	*No Response*

Do you require more fields?

⦿ No

Q8. Project dates

Start date:	End date:	Duration (e.g. 1 year, 8 months):
01 April 2024	31 March 2026	2 years

Q9. Budget Summary

Darwin Funding Request	2024/25	2025/26	Total request
(Apr - Mar) £	£84,783.00	£115,090.00	199,873.00

Q10. Do you have proposed matched funding arrangements?

⦿ Yes

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

Q11. 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?

We very little unconfirmed match funding. This is limited to in kind contributions in staff time. We have an informal agreement that in kind time contributions will be supported. In the event that they are not, we will reallocate some funds from funded posts to cover the per diems for the main team members.

Q12. Have you received, applied for or plan to apply for any other UK Government funding for the proposed project or similar?

⦿ No

Section 4 - Darwin Objectives and Conventions

Q13. Problem the project is trying to address

Please describe the problem your project is trying to address in terms of biodiversity and its relationship with multi-dimensional poverty.

For example, what are the causes of biodiversity loss, preventing conservation, and/or keeping people in multi-dimensional poverty 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 (references can be listed in your additional attached PDF document).

Nearly half of East Africa's large herbivore species are either threatened or conservation dependent as a result of habitat loss, resource competition, hunting and infectious diseases (IUCN). Infectious disease is listed as threat in nearly one in five large herbivore species in East Africa. Because evaluating the effects of disease on wildlife populations is logistically and technically challenging, wildlife disease surveillance in East Africa is mainly reactive and focused on outbreaks of 'notifiable' diseases with epidemic or pandemic potential, like MERs, rabies, anthrax and Foot-and-Mouth[1]. By contrast, the impact of endemic, chronic pathogens and parasites on wildlife population health is virtually unknown (Table 1).

The close proximity of wildlife with livestock affects livestock health in poor and marginalised communities. Common endemic livestock diseases in East Africa include helminths, giardia, cryptosporidium, Q fever, brucellosis and haemoparasites including Theleria (e.g. East Coast Fever), anaplasma and babesia. These diseases impose significant health burdens on livestock in East Africa. East Coast Fever is a major cause of cattle mortality, brucellosis causes increased infertility, reduced milk production and calf survival [2], giardia and cryptosporidium cause elevated morbidity and mortality, particularly in young animals[3] . Economic costs associated with endemic diseases have been estimated around 18% annually [4], with an additional cost of treatment. As the majority of infectious diseases in livestock and humans emerges from wildlife, poor wildlife health has adverse implications for the health of domestic animals and humans.

Given the health burdens these diseases impose on livestock, it is probable that these diseases impact on wildlife health, especially where they are in close proximity to humans and livestock. There are three specific critical knowledge gaps. First, there are few data on pathogen transmission patterns between wildlife species

and between wildlife and livestock. There is some evidence that wildlife density increases the prevalence of contact borne diseases in livestock in Kenya[5] but little direct evidence for transmission dynamics in the other direction. Second, there is nearly no evidence for the health impacts of many infectious diseases in wildlife that compromise health in closely related livestock (Table 1). In the absence of such evidence, these diseases are assumed to be asymptomatic in wildlife, potentially underestimating their role in limiting wildlife populations. Third, we have little evidence for ecologically relevant disease health burdens. In complex environments, combinations of factors and infections that compromise immune system function may result in 'super-spreaders' that increase local disease prevalence. For example, co-infection from common endemic pathogens such as gastrointestinal parasites, haemoparasites or microbiome dysbiosis may magnify the harm from each. These dynamics impact on spill over events into livestock and human populations. Seasonality, extreme weather and resource limitations that compromise host condition can increase the severity and decrease immune responses to pathogen and parasite infections. Thus, the trend towards increasing livestock density coupled with environmental change is likely to increase transmission potential between livestock and wildlife species. Strategies to improve wildlife and livestock health, promote co-existence between pastoralists and wildlife and improve security in marginal communities benefits communities and wildlife.

Q14. Biodiversity Conventions, Treaties and Agreements

Q14a. Your project must support the commitments of one or more of the agreements listed below. Please indicate which agreement(s) will be supported.

- ☑ Convention on Biological Diversity (CBD)
- ☑ Nagoya Protocol on Access and Benefit Sharing (ABS)
- ☑ Global Goals for Sustainable Development (SDGs)

Q14b. National and International Policy Alignment

Using evidence where available, please detail how your project <u>will contribute</u> to national policy (including NBSAPs, NDCs, NAPs etc.) and in turn international biodiversity and development conventions, treaties and agreements that the country is a signatory of.

Kenya, Rwanda and Tanzania each have national One Health Strategic Plans ('2021-2025', '2021-2026' and '2022-2017', respectively). This project promotes interdisciplinary, intersectoral cooperation to improve surveillance of interlinked animal and human health challenges and enhances capacity for prevention of disease rather than more costly, reactive responses to disease outbreaks.

By aligning with One Health Strategic Plans, this project also aligns with international policy commitments, such as: Sustainable Development Goals (SDG) 2, 3 and 15; WHO International Health Regulations (2005); the Global Health Security Agenda (2024); and the Sendai Framework for Disaster Risk Reduction (2015-2030). Regionally, One Health Strategic Plans are also important to the achievement of African Union Agenda 2063, which commits to disease prevention and control strategies.

In Kenya, this project aligns with Vision 2030 and several national sectoral policies and strategies, such as: the Kenya Health Sector Strategic and Investment Plan (2019-2023), the National Wildlife Strategy (2030) and the Directorate of Veterinary Services Strategic Plan (2018-2022).

In Rwanda, this project aligns with the National Strategy for Transformation (NST-1) and several national sectoral policies and strategies, such as: the Rwanda National Biodiversity Strategy and Action Plan, 2016 and the Rwanda One Health Strategic Plan (2021-2026).

In Tanzania, this project aligns with the National Development Vision 2025, the Third Five Year Development Plan, the Health Sector Strategic Plan (2021 -2027), National Action Plan for Health Security 2017- 2021 and the Tanzania Wildlife Research Institute Act. CAP. 260.

Finally, Kenya, Rwanda and Tanzania are signatories to the CBD and the Nagoya Protocol. Each country has a NBSAPs to supports its commitment to the CBD. This project aligns with the CBD and NPSAPs by: (1) supporting the safeguarding of wild species and genetic diversity through research on wildlife health (Article 1); and (2) contributing to capacity-building for conservation of biological diversity (Article 12).

Section 5 - Method, Innovation, Capability & Capacity

Q15. Methodology

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

- **how you have 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).**
- **what 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.).**

This project will build capacity in East Africa for research and reporting on wildlife pathogen burden in mixed use landscapes. We will form a regional working group, comprised of wildlife and livestock veterinarians and conservation stakeholders. This working group will be provided with training and support in innovative tools for determining pathogen burdens in wildlife, including bridging traditional epidemiological knowledge about wildlife health with conventional diagnostic methods, and using non-invasive sampling for eco-immunology. The working group will generate recommendations and share best practices for scalable and sustainable approaches to improving surveillance of wildlife health in East Africa.

1. Scoping Workshop (Naivasha, Kenya)
We will hold an initial project meeting to assess best practice, identify opportunities and need for wildlife health monitoring. We will discuss priority pathogens and parasites for surveillance (see Table 1 for candidates based on preliminary work). We will then conduct a SWOT analysis of existing para-veterinary and community capacity to monitor health. Co-create a new workflow to increase information flow with input from academics, veterinary experts and community and local stakeholders.

2. Innovations in wildlife disease surveillance school (Arusha, Tanzania)
We will hold a one-week skills workshop for ECR veterinarians, conservation managers and academic researchers. There will be three main topics: population genetics and epidemiology, ecological immunology and capturing traditional knowledge and skills. Key topics will be using PCR panels, population genetic models and non-invasive sampling to infer transmission dynamics and using health biomarkers to assess health burden.

3. Trial community reporting for wildlife health
We have identified a priority wildlife area in Laikipia/Samburu in Kenya and west Arusha-Kilimanjaro in Tanzania where we will test a community based wildlife and livestock disease surveillance network comprised of CAHWs (Community Animal Health Worker para-vets), grazing managers and rangers. Project personnel will conduct

initial one week field visits with country leads to meet stakeholders, introduce the project to community representatives, and evaluate sample collection protocols and logistics. Network members will be asked to report symptoms of wildlife and livestock in poor condition via a WhatsApp group or a Earthranger app (ref) using symptoms and local nomenclature. These reports will be followed up with PCR screening, antibodies and immunology makers. Reports will be geolocated and incorporated into an outbreak map shared by all network members.

Country leads will encourage stakeholder engagement through follow-up visits to communities, private reserves and ranches to inform the community about the network, capture local knowledge about livestock and wildlife health and to summarise network reports. As an incentive to the project, we will provide funds for preventative veterinary medications (wormers and vaccines) for distribution by para-vets.

4. Project wrap up meeting and planning session (Naivasha, Kenya).
We will produce a technical report evaluating the feasibility of scaling a wildlife health reporting and health monitoring network. This will summarise outcomes from the trials, evaluate the accuracy and sensitivity of the reporting, publish a final surveillance map, and evaluate variation in infection rates and pathology reporting across species. Finally, it will evaluate scaling models and follow-on funding plans.

Q16. Innovation

Please specifically outline how your approach or project is innovative.

Is it the application of a proven approach in a distinctly different geography/issue/stakeholder (novel to the area), or in a different sector (novel to the sector), or an unproven approach in any sector (novel to the world)?

The first innovation we will implement is engaging existing animal health networks, and particularly para-vets, wildlife rangers and grazing managers to monitor wildlife health. This dispersed network of skilled animal health workers has, to date, not been engaged with wildlife health reporting despite having the experience and knowledge to identify potential health issues at an early stage in an outbreak. Moreover, they are at the forefront of the wildlife-livestock interface and applying their knowledge of livestock diseases to wildlife can open up a valuable reporting resource.

The second major innovation is using ecological immunology to evaluate wildlife responses to pathogens and parasites. “Ecoimmunology” is the new, innovative study of the immune system in a real-world context. Drivers of immune variation are important to understand as they dictate in part the ability of an individual (livestock and wildlife) to cope with parasitic infections and other pathogens, and thus will impact on transmissibility.

We have developed a suite of immune marker assays for non-model organisms, which can capture the inflammatory “state” of an individual. Largely based on non-invasive faecal samples, and measuring pro-inflammatory molecules, these data sets can be supplemented by blood cytokine and leukocyte profiling to provide an unprecedented opportunity to understand an individual’s immune “state”.

Embedding an ecoimmunological approach within the regional wildlife health working group in East Africa will innovate the approach to wildlife health surveillance going forward and help address the challenges of monitoring the effects of disease on wildlife populations.

Q17. Capability and Capacity

How will the project support the strengthening of capability and capacity of identified local and national partners, and stakeholders during its lifetime at organisational or individual levels? Please provide details of what form this will take, who will benefit (noting any Gender equality and social inclusion (GESI) considerations), and the post-project value to the country.

Livestock production in East Africa is a key component of the regional economy. In addition, East Africa harbours the world's most diverse community of large herbivores. These species are key to ecosystem functioning as they are landscape engineers. They are also a critical part of the tourist economy. Therefore, increasing the use of local expertise to monitor wildlife and livestock health is a new challenge for all three countries. We have designed the project specifically to build capacity and cpacbity in the region through three main approaches. First is creating a structure to share stakeholder expertise within the region. Kenya has the most established veterinary capacity in both the livestock and wildlife sectors. Moreover, international organisations such as the International Wildlife Institute and the FAO are based in Kenya and have excellent links with governmental, QANGO and NGOs. However, this expertise is less well established in Tanzania and particularly in Rwanda. Fostering dialogue and regional planning across these countries to increase capacity and share best practice is a key objective of the project. In Tanzania, the organisations to benefit from training and network building are TAWARI (Tanzania Wildlife Research Institute), academics from the Mandela Institute and community vets. In Rwanda the capacity increase from multilateral discussions will be in African Parks, and veterinary academics (University of Rwanda). Second, we will provide skills training for early career researchers from all three countries in a focused workshop on innovation in disease monitoring and evaluation. Third, we will work closely with local NGOs supporting community health such as IMPACT in Kenya. The team members trained during the workshop will take skills and approaches to existing community stakeholder networks including paravets, grazing managers and rangers.

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

Table 1. Diseases-1
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Section 6 - Gender, Awareness, Change Expected & Exit Strategy

Q18. 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.

This project will ensure gender and inclusivity of diverse groups in two key ways.

First, the project structure will build the leadership and research capabilities of women and other diverse groups, contributing to reducing social inequalities in conservation and health research. The PI and UoM Co-Is are all women. We will actively encourage applicants that identify as women from all three countries to apply for key project positions, such as the project and in-country manager roles. The PI and Co-Is have a proven track-record of training and mentoring early-career researchers from East Africa. The working group will also be comprised with gender equity and diversity in mind, ensuring strong representation by women and people of different ethnic groups.

Second, this project will contribute to building a more gender-sensitive understanding of wildlife health. Due to distinct gender roles in land and resource use and management in East Africa, men and women hold different knowledge about animal health. A recent study in the region have found than men and women prioritise animal diseases differently[6]. However, due to the systematic exclusion of women in many settings, what women know about wildlife health is poorly understood. Through this project, we will deepen understanding of the different types of knowledge that men and women hold about wildlife health, as well as how wildlife surveillance can be done in ways that are inclusive and benefits traditionally excluded groups, such as women. During visits to communities, private reserves and ranches where we solicit feedback about reporting, sample livestock and wildlife and conduct semi-structured interviews, we will aim to balance conversations between men and women and collect gender disaggregated data. These data will be used to assess women's knowledge about wildlife health, as well as to inform gender-sensitive approaches to improving surveillance of wildlife health in East Africa.

Q19. Change expected

Detail the expected changes to both biodiversity and multi-dimensional poverty reduction, and links between them, that this work will deliver. You should identify what will change and who exactly will benefit a) in the short-term (i.e. during the lifetime of the project) and b) in the long-term (after the project has ended).

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.

The project changes will be improved early reporting of poor health in wildlife and livestock in communities in three wildlife rich areas as detailed below. In all three places, pastoralists and livestock herders are economically and geographically marginalised.

1. Laikipia, Kenya
The Laikipia region has one of the highest mammal diversities in Africa. Laikipia has no national parks and instead is a matrix of nature conservancies, community pastoral group ranches and commercial livestock properties with extensive mixed grazing of livestock and wildlife. Livestock numbers, particularly of small bovids and donkeys, are increasing. Pastoralist communities have low income and limited access to veterinary intervention.

2. Kilimanjaro, Tanzania
The Kilimanjaro landscape in Tanzania is occupied and utilised by people, livestock and wildlife. It is part of a trans-boundary conservation area with traditional communities sharing the landscape with wildlife. The local pastoral community is poor and in most cases under-represented in local government agencies. There are a range of challenges for the landscape including surface water scarcity, human-wildlife conflict and tensions between pastoralists and commercial farming.

3. Akagera National Park, Rwanda
Akagera National Park in north-eastern Rwanda is a highly biodiverse savannah ecosystem. Following the civil war, wildlife numbers in the park have increased due to protection and reintroductions. The Rwandan Development Board and the African Parks Network (partners in this project) jointly manage Akagera National Park. Local communities graze their livestock right up to the park boundary, with no buffer zone, potentially exacerbating disease spread between wildlife and livestock. Work with these communities will involve scoping.

The key legacy that this project will deliver is a regional working group of 30 members (10 from each country) that will significantly improve the capability for developing trans-boundary wildlife and livestock disease

surveillance. The working group will be comprised of wildlife and livestock veterinarians, regional conservation leaders and academics. Regular interactions will focus on highlighting evolving areas of need, current livestock and wildlife disease prevalence concerns, and planning future activities.

We will provide intensive skills training in innovative molecular techniques, ecological immunology and community engagement training for 20 regional stakeholders. This training will prioritise early career researchers and practitioners from each country. The sessions will be provided by leading academics, researchers and current PhD students from East Africa and the UK.

The three country leads will gain project management experience, surveillance and lab skills will be trained in surveillance and interviewing and will develop a wider professional network nationally, regionally and internationally. Where possible, we will encourage these individuals to engage with further training or studies and have allowed additional budget to support concurrent study at the post-graduate level.

In each of the three 'test' communities, we will improve skills and capacity for disease reporting and will provide additional training for surveillance and endemic diseases for a minimum of fifteen local par-vets, grazing managers and rangers (a total of 45 persons). Critically, a key output of this project should be an increased capacity in each 'trial' community to monitor endemic diseases and engage with reporting.

Q20. 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.

This project will provide a springboard to scale our existing, but separate projects in the region. Bringing together future leaders from three regional countries will provide a trans-boundary network to collaborate and dovetail efforts to manage existing and emerging zoonoses. At the conclusion of the project, a key outcome will be the development of a regional research program to address how to mitigate the risks of poverty, zoonoses and wildlife interactions to improve the resilience of human communities and wildlife. This project will provide a team with the appropriate training and expertise and evidence for a larger scale program.

In the longer term the methodology developed here can be applied to other wildlife protected areas in East Africa and beyond to develop policies for disease control at the wildlife-livestock interface, so reducing poverty and securing wildlife protection simultaneously.
A priority of the team will be to apply for follow on funding to strengthen the network and scale the work.
In terms of individual longevity, we are acutely aware that employment opportunities in the science community in East Africa are limited. Thus, we have identified a range of partners that can facilitate driving opportunities for the team members.

Q21. Sustainable benefits and scaling potential

Q21a. How will the project reach a point where benefits can be sustained post-funding? How will the required knowledge and skills remain available to sustain the benefits? How will you ensure your data and evidence will be accessible to others?

The project design ensures sustainability post-funding. Once the regional working group has been established, it can function primarily virtually with no costs associated with virtual meetings. Although an initial intensive training school will be held in Tanzania with associated costs, we will focus on training ECRs in state-of-art-tools working group members will be able to replicate elements of this training after returning to their home with other relevant stakeholders. Finally, there are no costs associated with setting up a reporting system that uses

WhatsApp to passively monitor wildlife health. This ensures this reporting system can continue to be used post-funding and that data is widely accessible to relevant stakeholders. The project team is aware of WhatsApp groups being used to support monitoring of other wildlife-related challenges in resource-constrained contexts, such as animal bites and desert locust hotline. This provides further evidence to support the sustainability of our approach.

Q21b. If your approach works, what potential is there for scaling the approach further? Refer to Scalable Approaches (Landscape, Replication, System Change, Capacitation) in the guidance. What might prevent scaling, and how could this be addressed?

Potential for scaling our approach include:

1. Landscape: The regional working group membership could be extended beyond our case study countries to scale the approach across the wider region;

2. Capacitation scaling: The training school will build the capacity of the regional working group members, leaving a legacy of higher capacity to monitor wildlife health. Using a 'train the trainers' approach, our team could also prepare researchers and academics to deliver our intensive training school curriculum on a regular basis for a larger group of participants;

3. Systems change scaling: This project also support system changes by trialling a new system for reporting wildlife health incidences. If this system is proven effective, the system could be formalised and adopted by relevant authorities in each case study country and/or across the wider region.
A lack of finance could prevent scaling; however, as noted above, the project design helps mitigate this risk.

Section 7 - Risk Management

Q22. 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.	Gross Risk	Mitigation	Residual Risk
Fiduciary (financial) There is a significant risk of financial mismanagement in a project involving multiple partners and countries. Specifically, there is a risk of fraud, misappropriation or embezzlement of funds. This may include claiming for work or travel not completed, over charging for services or use of funds for personal items.	Major	Possible	Major	Most field work costs will come through the University of Manchester. We will disburse funds quarterly to partners where they can evidence milestones achieved. The project lead will liaise directly, oversee item expenditures and accompany teams at the outset of the sampling trip to monitor activities and pay team staff.	Minor

Safeguarding The teams will be working with local communities in rural areas, which increases the risk of miscommunication or cultural misunderstanding. Tensions about land use and access may lead to individuals being wary of research teams, which could result in conflict. Young women, in particular, may experience unwanted sexual advances.	Possible	Possible	Moderate	Team leads will have extensive experience working with local communities and liaising with relevant ethnic groups. All teams will be instructed to be aware of tensions and discontinue work if anyone feels at risk. Elders in each community will be the primary point of contact for each visit.	Moderate
Delivery Chain There are a range of logistical issues that could severely impact on the delivery of the project. These include travel issues (vehicles/roads/political upheaval), unstable teams or partner participation, permitting issues and delays and natural hazards (including wildlife encounters, rain/flooding).	Major	Possible	Major	The team and project leads have extensive field work experience in the region and with the risks and challenges this work poses. They have good working relationships with the administrative structure and permitting processes. Communication between teams and partners will be essentially to adaptively manage risks.	Moderate
Risk 4 Training failures. This project is ambitious in terms of the range and level of training we plan to deliver to both team leads and ECRs. There is a risk that the background and competency of the team members and ECRs may not allow them to fully access the training,	Major	Possible	Major	Choosing the master's students with care will be essential for the project and for legacy. We will work closely with partners and academic institutions to ensure a well-qualified candidate pool and the selection process will be rigorous to ensure that the chosen students will benefit from the position.	Moderate

Risk 5 Community Engagement. There is a risk that communities and para-vets will not engage fully with a short-term scoping project if they perceive little incentive for contributing.	Moderate	Major	Moderate	We will work with local NGOs that have well developed relationships with the communities. We will canvass the communities to understand what diseases are welfare issues they are concerned with. Moreover, we will provide limited resources to the para-vets to help treat endemic disease identified during screening.	Minor
Risk 6 Exchange rate/economic instability. This project has been costed during a time of economic turmoil in the UK. Although the outlook is improving in terms of stability, there is a risk of exchange rates making the project considerably more expensive than budgeted.	Moderate	Likely	Moderate	Monitor exchange rates, adaptively manage sampling and spending if exchange rates are unfavourable. Moderate Activities may be curtailed to ensure that there are no overspends.	Moderate

Q23. 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.

⦿ Yes

Please provide brief details.

We have designed the project to ensure that the project team has local knowledge and cultural familiarity with the communities. The country leads will all be nationals of each respective country. The para-vets are embedded within the communities and therefore familiar with local issues and culture. At the initial project meeting the need to work sensitively with local communities will be discussed, along with safeguarding issues, and a set of mutually agreed project guidelines developed on interactions with local communities. We already have an agree MOU and PIC with the Kenyan authorities that outlines benefit sharing, IP ownership and reporting.

Section 8 - Workplan

Q24. Workplan

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

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Section 9 - Monitoring and Evaluation

Q25. Monitoring and evaluation (M&E)

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 Initiative projects are expected 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).

This project is designed around monitoring and adaptive feedback as a key objective is to evaluate the utility of a new framework. Therefore, evaluating uptake and engagement with the concept is critical to assessing success. A critical indicator of success will be for communities to engage with reporting on animal diseases. Taking an adaptive approach to evaluate the level of engagement by the network and what individual level characteristics are associated with actively engaging will be a central part of the project. In this end, we will evaluate reporting frequency from communities montly and monitor engagement levels by para-vets with the app/WhatsApp group. We will also use a stratified trial to encourage engagement through supporting veterinary treatments in response to reports (as possible).

Ultimate responsibility for monitoring and evaluation lies with the project lead but will be monitored and evaluated throughout by the project manager. The most frequent point of contact will be between the project lead and the country leads. The project lead and project manager will either meet or exchange a summary of activities and challenges fortnightly. Monthly zoom meetings between the project manager and project staff will highlight issues or delays. These will be followed by 3-monthly longer zoom meetings to progress against the logframe These longer zoom meetings will be open to all project partners with a part 1 summary of progress and an invitation to attend the longer meeting. The project manager will generate minutes and agendas of all meetings which will be shared, along with other project documents, in a Dropbox folder shared with the leadership team (comprised of the UoM senior researchers, the project manager and the project lead from each country). Where there are issues with progress against the logframe, we will adaptively respond by redressing workload to prioritise time spent on delayed milestones. Budgets will be evaluated on a three- monthly basis to ensure that all costings are in line with the expected budget. Additional meetings will be open to all staff and partners at major milestones (e.g. completion of Manchester training, completion of field work, reporting results at the end of analyses).

Scaling a para-vet network will depend on maintaining community engagement in a feasible way. The end of project meeting with collate feedback from each country lead about community engagement. A key part of this process will be evaluating how well communities were engaged, how sensitive the reporting network was compared to active sampling and engagement with the team in the community.

We will allocate 5% of staff project time to specific monitoring and evaluation (or 1 combined day per month) for the duration of the project lead appointment.

Total project budget for M&E (£) **(this may include Staff and Travel and Subsistence Costs)**	£[redacted]
Total project budget for M&E (%) **(this may include Staff and Travel and Subsistence Costs)**	[redacted]
Number of days planned for M&E	15

Section 10 - Logical Framework

Q26. Logical Framework (logframe)

Darwin Initiative 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 expect to measure progress against these and how we can verify this.

BCF-St2-and-Single-Stage-Logical-Framework-Template-SHULTZ
23/10/2023
15:43:40
pdf 307.53 KB

Impact:

A regional working group established to mitigate health risks for animals and people using innovative approaches to research and wildlife health and inform regional animal health policy

Outcome:

Outcome:
Regional network of wildlife and livestock veterinarians and conservation stakeholders established, with improved capacity for research and surveillance on wildlife health and capable of providing evidence-based guidance on wildlife

Project Outputs
Output 1: Regional working group established and stakeholders of group trained in innovative disease monitoring techniques
Output 2: System for monitoring wildlife health tested in two areas in each case study country (Kenya, Tanzania and Rwanda) involving members of regional working group and para-vets
Output 3: Health burden of co-morbidity on wildlife and livestock evaluated in two areas in each case study country (Kenya, Tanzania and Rwanda using innovative tools to validate reports made using wildlife health surveillance system

Output 4:

Lessons learned and best practices disseminated to policy makers, stakeholders and researchers.

Output 5:

A multilateral framework for improved animal health monitoring in East Africa

Do you require more Output fields?

It is advised to have less 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 and 1.3 are contributing to Output 1.

Activities (numbering to match above)
1.1 Invite key stakeholders to join working group. Hold initial workshop at WRTI Naivasha, Kenya to share paravet capacity across the region and required evidence to develop functional regional wildlife-livestock health agenda.
1.1 Hold training workshop in Arusha, Tanzania for early career researchers and team members associated with the working group.
2.1 Establish network of para-vets in each of two focal areas through visits by team leaders
2.2 Implement and test system for monitoring wildlife health with regional working group members and paravets
3.1 Validate reports made using wildlife health surveillance system by:
3.1.1 Conducting interviews with community members to establish traditional understanding of diseases, transmission routes and frequency of outbreaks
3.1.2 Measuring disease burden in livestock and wildlife.
3.1.3 Analysing evidence of wildlife disease impacts from non-invasive profiling
4.1 Collate and feedback data and results from each pilot study.
4.2 Published case studies from each landscape.
4.3 Share results and good practice guides with key stakeholders, including participating communities
5.1 Hold wrap up meeting with team members to share results and write technical report.

Section 11 - Budget and Funding

Q27. Budget

Please complete the appropriate Excel spreadsheet, which provides the Budget for this application. Some of the questions earlier and below refer to the information in this spreadsheet.

Copy of BCF-Budget-over-£100k-MASTER-Aug23-SHULTZ - edited SL
23/10/2023
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xlsx 101.81 KB

Q28. 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.

Q28a. Is this new work or does it build on existing/past activities (delivered by anyone and funded through any source)?

⦿ Development of existing/past activities

Please give details.

While the role of CAHWs in maintaining livestock health has been extensively explored, our approach to extend their scope to wildlife health and involve local communities, is entirely novel. Our approach stems from research conducted by UoM team member CE working with local commmunities and IMPACT (NGO) to recognise specific symptoms of disease in wildlife. This is combined with UoM team member SS who supervises 5 PhD students working on wildlife diseases in Laikipia and Tanzania. KE and SS are at the forefront of using new non-invasive eco-immunology markers to assess disease burden. SS, KE and CW are also using molecular markers and sequence analysis to detect and characterise pathogen transmission at the wildlife-livestock interface in Kenya, as well as to detect mosquito-borne viruses in wildlife in Akagera, Rwanda. We have a current project undertaking identifying stakeholders and initial screening of wildlife and livestock disease prevalence. We will be working along several international projects (REDINET, PREDICT) undertaking disease surveillance and trialling reporting methods (https://hasselljm.editorx.io/earthranger-health). We are working collaboratively with this group and co-supervising students.

Q28b. Are you aware of any current or future plans for work in the geographic/thematic area to the proposed project?

⦿ 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.

The One Health concept has been adopted by all countries in the region and there is considerable research activity in this broad area though the effort is small relative to the need. Typically the focus is on pathogen surveillance for zoonotic disease emergence in humans, e.g. PREDICT, REDINET, or on detecting pathogens of specific concern to livestock e.g. Rift Valley Fever and East Coast Fever. Our project differs as it specifically aims to identify diseases in wildlife and to understand the burden it causes in wildlife so has direct conservation relevance. Pathogen surveillance is not the aim of our project per se but the pathogen information we gather will be an important contribution to building up much needed information on disease prevalence and distribution at the wildlife/livestock interface across East Africa. Through our extensive network of in-country contacts, including stakeholders such as the International Livestock Research Institute and the Rwanda Development Board we will reach out to other researchers, NGOs, etc in the same arena to share information. All data generated will be made available through publications and deposited at relevant online databases. We will work alongside the EarthRanger project to share information (https://hasselljm.editorx.io/earthranger-health).

Q29. Value for Money

Please demonstrate why your project is good value for money in terms of impact and cost-effectiveness of each pound spend (economy, efficiency, effectiveness and equity). Why is it the best feasible project for the amount of money to be spent? Please make sure you read the guidance documents, before answering this question.

This project represents outstanding value for money in terms of impact and cost-effectiveness, as: (1) the main applicants and project partners have received significant in kind contributions for their time; (2) in kind and matched funds have been secured to help meet the total cost of the project; (3) the project will build capacity in three countries simultaneously; and (4) the project's legacy includes a regional network that will support mentoring and networking long after the project ends.

To ensure equity, project staff will be paid competitive rates (i.e. rates benchmarked with similar skilled work). Another core cost is the project leader, which is a critical position for ensuring the project is managed by someone with the necessary authority, capability and capacity to meet project goals and deliver value for money.

Given these essential costs, we will ensure the economy and efficiency of the project in several other ways. A minimum number of field trips will be made (a single trip to each country that is staggered between them) to minimise travel costs. Teams will stay in economical accommodation and economise their subsistence costs. Field teams are small so they can travel in a single vehicle. We will also use synergies in lab budgets between the field teams and UoM projects to minimise lab costs.

This project builds on existing links and projects by the PIs and partners. Thus, infrastructure, staff time, protocols and some permitting will already be in place at the outset of the project.

Q30. Capital items

If you plan to purchase capital items with Darwin 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.

N/A

Section 12 - Outputs, Open Access, Ethics & Safeguarding

Q31. 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 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, including compliance with IASC 6 Principles.**

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.

The University of Manchester and partner organisations have robust safeguarding policies and have well-developed and tested risk assessment and mitigation procedures. All team members and partners will be required to review safeguarding procedures, risk assessments and emergency plans. There will be a clear reporting chain for any issues or concerns that arise during the project and regular monitoring and feedback will ensure that policies are being followed. Any team member that is not adhering to safety guidelines will be interviewed and removed from the project if their conduct is considered unsafe.

Q32. Ethics

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

We have ensured that the project design meets the key principles of good ethical practice in the following ways. First, in Kenya we have a ten-year MOU and PIC agreed with the WRTI, the counties, DVS and Mpala Research Centre. We will use this structure to seek similar long-term agreements in Tanzania and Rwanda. These documents set out that we will meet all legal and ethical obligations, that we have agreed up front a benefit sharing arrangement, that the terms of our work will follow good practice. We will ensure that there is a capacity building component to all work and that all input into the project will be fully recognised in resulting dissemination. EM ,LW, CE and IMPACT all have extensive experience working with the communities involved with this project. All work with communities and with animals will be approved through the University of Manchester ethics process, will only be undertaken with all permitting in place and will be approved locally by university and research centre affiliates. The professional experience of the team will enable long term organisational compliance. The University of Manchester has clear guidance on good research practice that will be adhered to at all times.

Section 13 - British Embassy or High Commission Engagement

Q33. British embassy or high commission engagement

It is important for UK Government representatives to understand if UK funding might be spent in the project country/ies. Please indicate if you have contacted the relevant British embassy or high commission to discuss the project and attach details of any advice you have received from them.

⦿ Yes

Please attach evidence of request or advice if received.

No Response

Section 14 - Project Staff

Q34. 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?
Susanne, SHULTZ	**Project Leader**	3	Unchecked
Charis, ENNS	Co-Lead, CE will lead on Community Interactions: She has extensive expertise with engaging and liaising with local communities to understand impacts of environmental change and has more recently started focusing on factors impacting health and livelihoods of rural and pastoral communities. Enns current work involves designing and testing the community based approach. She will work with each of the teams to modify the questions and language as best aligns with the local communities and will oversee the workplan and help identify the communities that will be targeted.	2	Checked
Drew, BATLIN	African National Parks liaison- Rwanda Wildlife Lead. Drew will advise on stakeholders in Rwanda and surrounding countries. He will also advise on applications of community animal health workers in Rwanda.	1	Checked
Bernard BETT	Kenya Livestock Veterinarian Lead. Dr Bett will act as a liaison with ILRI and will advise on complementary projects in ILRI.	1	Checked

Do you require more fields?

⦿ Yes

Name (First name, surname)	Role	% time on project	1 Page CV or job description attached?

Manase, ELISA	TRI, As a team lead in Tanzania, by working closely with TRI, Elisa will coordinate all aspects of the project in the country including liaising with local communities, para-vets and academics and also assist with research permits and MOU/PIC. He will contribute his scientific expertise in wildlife conservation.	4	Checked
Kathryn, ELSE	UoM, Immunologist Lead. Prof Else is at the forefront of using immunological tools in wild populations. She will provide training and	2	Checked
Folorunso, FASINA	FAO, DVS and University of Pretoria liaison. Dr Fasina has an extensive international and experience advising on high level regional policy. His role in the project will be to facilitate and mediate transboundary agreements and discussions.	1	Checked
Francis, GAKUYA	WRTI senior Vet- Wildlife Health Lead. Dr Gakuya is an very experienced wildlife vet who will represent WRTI on the project board and will provide oversight and integration with other activities.	2	Checked
Richard, Gasharuru	Rwanda Project Lead. He will contribute his scientific expertise in wildlife health, vectors of disease, collection and morphological identification of tsetse flies, veterinary skills of diagnosis and sampling of livestock.	2	Checked
Idde, Lipende	TAWIRI, Tanzania Wildlife Vet Lead. Dr Lipende will act as the wildlife health lead in Tanzania to advise on opportunity and need and how this project can best feed into existing strategy	2	Checked
Catherine, WALTON	UoM, C Walton will coordinate the pilot work in Rwanda and will train students (and troubleshoot) molecular approaches. She will also provide training on genomic analyses, vector sampling and identification (primarily in Rwanda).	1	Checked

Lucy, WAMAYU	UoM. Lucy will act as a central point of contact the Kenyan team. She will mentor the Kenyan lead and oversee training and logistics for the field team. She will assist with permitting processes and liaising with partners. This work will dovetail with her PhD thesis work and provide her the opportunity to lead a small research team.	5	Checked

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

TEAM c.v.s
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pdf 1.37 MB

Have you attached all project staff CVs?

◉ Yes

Section 15 - Project Partners

Q35. 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.

Lead Partner name:	University of Manchester
Website address:	www.manchester.ac.uk

Why is this organisation the Lead Partner, and what value to they bring to the project? **(including roles, responsibilities and capabilities and capacity):**	We have chosen to have a UK partner as the Lead because this project crosses three countries and heavily relies on UoM staff and facilities for training and coordination. Four main applicants for this project (Shultz, Walton, Enns, Else) are all based at the Uo M. Manchester is a world leading research university with a specific investment in social responsibility. The expertise of the four applicants is highly complementary. Shultz is a population ecologist (and anthropologist) with skills in field sampling, data analyses modelling, Walton is a population geneticist with a focus on disease vectors, Enns is a researcher in political ecology and development with a strong emphasis on social inequalities, rural economies and natural resource use. Else is an immunologist specialising on host-parasite interactions in both experimental and field settings. Together, this team provides the strength to design and execute inter-disciplinary projects. The project will be led from Manchester, where the financial accounting and management will be based. The project lead will be employed through Manchester and UoM PhD students will be engaged in training and mentoring. Budget allocated includes flights.
International/In-country Partner	⦿ International
Allocated budget (proportion or value):	[redacted]
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:	Manase ELISA, Tanzanian Relief Institute
Website address:	https://tritanzania.org/

What value does this Partner bring to the project? **(including roles, responsibilities and capabilities and capacity):**	Tanzania Relief Initiatives (TRI) is registered under the Non- Governmental Organizations Act, 2002 with Registration No. 00NGO/R/0680 in the United Republic of Tanzania. The organization aims to advance the development agenda in the area of good governance and rule of law, environmental conservation, biodiversity and ecosystem management, women, gender and child rights, juvenile justice and youth empowerment, and wildlife rights, which ultimately ensure sustainable development and improved quality of life. They promote sustainable development goals including biodiversity and integrated ecosystem management, by taking roles in protecting, restoring and sustaining biodiversity and ecosystems. They advocate for appropriate and effective legal and policy frameworks as well as strong institutions to among others to contribute to a healthy environment and healthy community. TRI will manage the Tanzanian work program, manage the salary support for E. Manase and the stipend for the Tanzanian Lead. TRI will act the primary liaison with necessary government bodies for permitting and reporting. TRI will also identify and communicate with relevant stakeholders and help identify project participants (master's student, field team and stakeholder for the final workshop). Dr Elisa will liaise with the Nelson Mandela African Institute of Science and Technology as the project lead is a joint appointment.
International/In-country Partner	⦿ In-country
Allocated budget:	[redacted]
Representation on the Project Board (or other management structure)	⦿ Yes
Have you included a Letter of Support from this partner?	⦿ Yes

2. Partner Name:	Mpala Research Centre
Website address:	www.mpala.org

What value does this Partner bring to the project? **(including roles, responsibilities and capabilities and capacity):**	Mpala Research Centre was established in November 1994 at the core of the Ewaso ecosystem, a large, geographically diverse region of central Kenya, defined by the Ewaso Ng'iro River and it's tributaries. Mpala's institutional mission is to support research that improves ecosystem functions, conserves biodiversity, and enhances the livelihood of employees and their families who are predominantly traditional pastoralists. In conjunction with this mission, Mpala works to advance the understanding and conservation of natural human- occupied ecosystems through basic research, education, outreach, and by creating new scientific knowledge and developing science-based solutions to guide conservation actions for the benefit of nature and human welfare. Mpala will provide project logistic support (taxis, vehicle maintenance, storage, freezers), accommodation for the Laikipia team and access to genomic and endocrine labs. They will handle the Kenya Lead salary and employment logistics. We will use the Mpala network of researchers, students and stakeholders to organise seminars and on-site training. Mpala acts as a liaison with government bodies for permitting and reporting. They will also host the workshop at the conclusion of the project and support identifying appropriate stakeholders. Mpala is an established supplier for the UoM making the movement of funds from the UK seamless.
International/In-country Partner	⊙ In-country
Allocated budget:	[redacted]
Representation on the Project Board (or other management structure)	⊙ No
Have you included a Letter of Support from this partner?	⊙ Yes

3. Partner Name:	Dr. Richard GASHURURU College of Agriculture, Animal Science and Veterinary Medicine (CAVM), University of Rwanda
Website address:	https://cavm.ur.ac.rw/

What value does this Partner bring to the project? **(including roles, responsibilities and capabilities and capacity):**	The mission of CAVM is to advance knowledge, promote teaching and research, and help society discover innovative solutions to overcome its most pressing problems. The college will provide support to organise training sessions to be held within university venues, provide access to molecular biology laboratories, identify staff or students to participate in training provided by the project and assist with logistics for visiting researchers. They will also provide admin support to help with accounting for project expenditure. The college has committed to ensuring that Dr. Richard Gashururu will have time to fulfil his commitment to his project role and to undertake all aspects of the training provided including taking time out to travel to other countries as needed. In his role as project lead in Rwanda, Dr Gashururu brings to the project expertise in veterinary science, livestock and wildlife disease particularly on animal trypanosomiasis and sampling and morphological identification of the vectors of this disease, tsetse flies.
International/In-country Partner	⦿ In-country
Allocated budget:	[redacted]
Representation on the Project Board (or other management structure)	⦿ Yes
Have you included a Letter of Support from this partner?	⦿ Yes

4. Partner Name:	Francis GAKUYA, WRTI
Website address:	https://wrti.go.ke

What value does this Partner bring to the project? **(including roles, responsibilities and capabilities and capacity):**	The WRTI was created to provide the opportunity to prioritize wildlife research and training and further enable allocation of adequate financial and human resources by government and other partners to these functions. t has a central role to develop a national independent repository of wildlife data and information, that informs policy decisions. As the responsible body for issuing permits, they have a role in easing permitting process of wildlife research related activities. Their facilities and staff provides training opportunities for relevant courses that develop conservancies growth. The initial and final project workshops will be hosted by WRTI with funds dispersed to WRTI via UoM to support the complex international meeting logistics [redacted] allocated for WRTI meetings). As a project partner, the key role of the WRTI will be to guide the team through permitting regulations, identify relevant stakeholders within and outwith government institutions to liaise with and to guide training needs, research priorities and future strategy. We envisage that the WRTI will play a central role in ensuring the legacy of the project as a lead in regional policy, training and research. Dr Gakuya, who will represent the organisation on the project board, leads health, welfare activities for WRTI.
International/In-country Partner	⦿ In-country
Allocated budget:	[redacted]
Representation on the Project Board (or other management structure)	⦿ Yes
Have you included a Letter of Support from this partner?	⦿ Yes

5. Partner Name:	Bernard BETT, ILRI
Website address:	https://www.ilri.org/people/bernard-bett
What value does this Partner bring to the project? **(including roles, responsibilities and capabilities and capacity):**	Dr Bett works with the International Livestock Institute (ILRI). ILRI have state of the art labs, international networks and strong liaisons with policy makers at the regional level. Dr Bett will oversee the surveillance part of the work and act as a liaison with the institute's broad network of experts.
International/In-country Partner	⦿ In-country
Allocated budget:	[redacted]
Representation on the Project Board (or other management structure)	⦿ Yes
Have you included a Letter of Support from this partner?	⦿ Yes

6. Partner Name:	Folorunso, FASINA. University of Pretoria and FAO
Website address:	https://www.up.ac.za/veterinary-tropical-diseases/article/2806888/dr-fo-fasina
What value does this Partner bring to the project? **(including roles, responsibilities and capabilities and capacity):**	Dr Fasina is an expert in zoonotic diseases in sub-Saharan Africa. He has extensive experience with building multilateral working groups and policy documents. He also has experience working with partners across East Africa as well as with major international organisations. For this project, he will primarily bring his epxertise in upscaling and implementing large animal health projects. We have allocated funds in the UoM budget for his travel to meetings.
International/In-country Partner	⦿ In-country
Allocated budget:	[redacted]
Representation on the Project Board (or other management structure)	⦿ Yes
Have you included a Letter of Support from this partner?	⦿ Yes

If you require more space to enter details regarding Partners involved in the project, please use the text field below.

We have uploaded additional letters of support from:
1. Iddi Lipende, TAWIRI. Dr Lipende is a wildlife vet with extensive experience with wildlife health monitoring in Tanzania.
2. Linus K. Munishi, Nelson Mandela Institute. NM-AIST will host the project workshops and Project Lead.
3. Drew Batlin, African National Parks. He will identify network partners in Rwanda and lead on Rwandan wildlife health.
4. A letter of support from IMPACT, community conservation NGO who works with CAHWs.
5. A letter of support from The Ministry of Livestock and Fisheries in Tanzania.
6. A letter of support from William Zephania, a para-vet who will act as primary contact with the paravet network in the Kilimanjaro Landscape.

Please provide a combined PDF of all Letters of Support for all project partners or explain why this has not been included.

Collated Letters
23/10/2023
14:01:50
pdf 3.16 MB

Section 16 - Lead Partner Track Record

Q36. Lead Partner Capability and Capacity

Has your organisation been awarded Biodiversity Challenge Funds (Darwin Initiative, Darwin Plus or Illegal Wildlife Trade Challenge Fund) funding before (for the purposes of this question, being a partner does not count)?

⦿ No

Please provide the below information on the Lead Partner.

What year was your organisation established/ incorporated/ registered?	01 January 2004
What is the legal status of your organisation?	⦿ University
Other explained	The University of Manchester is one of the largest university in the UK formed by the merger of UMIST and Victoria University of Manchester.
How is your organisation currently funded?	[redacted]

Describe briefly the aims, activities and achievements of your organisation. Large organisations please note that this should describe your unit or department.

Aims	The Department of Earth and Environmental Science (DEES) focuses on three themes: earth and planetary science, environment and society and life on earth. By examining the origins, evolution and complexities of Earth and life on Earth, we address key challenges facing humanity, with research aligned with UN's Sustainable Development Goals.
Activities	Our three core goals are research and discovery, teaching and learning, and social responsibility. DEES has extensive research infrastructure for all aspects of environmental science and world leaders in researchers. The ecology and evolution research group (SS and CW) are particularly focused on environmental sustainability and onehealth initiatives.
Achievements	UoM is among the world's top 50 universities and one of the world's leading universities for impact towards the UN Sustainable Development. In the 2021 Research Excellence Framework (REF) 91% of DeES research was rated 'world-leading' (4*) or 'internationally excellent' (3*), confirming DEES as research leading department.

Provide detail of 3 contracts/projects held by the Lead Partner that demonstrate your credibility as an organisation and provide track record relevant to the project proposed. These contracts/awards should have been held in the last 5 years and be of a similar size to the grant requested in your application.

Contract/Project 1 Title	Wildlife Trade Futures: Identifying and mitigating the impacts of COVID-19 on legal and sustainable wildlife trade
Contract value/Project budget (include currency)	£[redacted]
Duration (e.g. 2 years, 3 months)	2 years

Role of organisation in project	The University of Manchester hosted Co-I, Charis Enns, who was responsible for coordinating research activities in Cameroon and DRC. With support and expertise from Policy@Manchester, the University of Manchester also led on policy engagement activities, making research evidence accessible to governments, such as by contributing to UK Parliamentary POSTNotes.
Brief summary of the aims, objectives and outcomes of the project	The aim of this project was to track the impacts of COVID-19 on wildlife trade-based livelihoods in low income countries. The project provided policymakers with evidence on how to mitigate the public health risks of wildlife trade in the COVID-19 era without adversely impacting livelihoods. Research took place in Cameroon, Zambia and DRC, and involved: (1) identifying social and political-economic factors that expose those engaged in wildlife trade to zoonotic diseases; and (2) assessing the impacts of COVID-19 on wildlife trade livelihoods. This project was implemented in collaboration with Centre for International Forestry Research (CIFOR).
Client/independent reference contact details (Name, e-mail)	GCRF Agile Response Team [redacted]
Contract/Project 2 Title	Understanding species sensitivity and resilience to environmental change
Contract value/Project budget (include currency)	£[redacted]
Duration (e.g. 2 years, 3 months)	3 years
Role of organisation in project	This award was made to the Project Lead, S Shultz to evaluate factors associated with biodiversity loss. The project involved work in three countries (South Africa, Tanzania and Kenya). This work included collaborators and partners from each of these countries.
Brief summary of the aims, objectives and outcomes of the project	This project focused on developing a macro-ecological approach to measure how flexibility and resilience varies across species: 1. How does the rate of environmental change impact on population structure and long- term population trends in abundance and distribution? 2.Are more flexible species more resilient? 3.Do changes in population structure and physiology provide an indication of flexibility in responses to environmental gradients? The outcomes of this project were the development of a collaborations and partnerships with conservation organisations, peer reviewed papers to outline the framework for conservation practitioners and this approach being incorporated into species planning.
Client/independent reference contact details (Name, e-mail)	The Royal Society [redacted]

Contract/Project 3 Title	Grevy's Zebra (Equus grevyi): Unravelling causes of population decline and improving population performance
Contract value/Project budget (include currency)	£[redacted]
Duration (e.g. 2 years, 3 months)	2 years
Role of organisation in project	This project was awarded to the University of Manchester to build links between the North of England Zoological Society, Kenyan stakeholders (Mpala, Grevy's Trust and Lewa). S Shultz was the PI and line managed a PDRA who undertook lab and field work on Grevy's zebra.
Brief summary of the aims, objectives and outcomes of the project	Grevy's zebra populations have declined by more that 80% over the past forty years. However, the evidence for the factors impacting on individual and population health is somewhat circumstantial. Moreover, legislators and conservation managers require evidence in order to adaptively manage and ensure the resilience of the meta- population. This research project uses an integrated macro-ecological tool kit to identify links between environmental challenges and variation in individual health and population growth rates across populations. We identified diet changes associated with compromised health and reproduction and social stress in unstable populations.
Client/independent reference contact details (Name, e-mail)	Chester Zoo [redacted]

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

⊙ Yes

Section 17 - Certification

Q36. Certification

If this section is incomplete the entire application will be rejected.

Please note if you do not upload the relevant materials below your application may be ineligible.

On behalf of the

Company

of

University of Manchester

I apply for a grant of

£199,457.00

I certify that, to the best of our knowledge and belief, the statements made by us in this application are true and the information provided is correct. I am aware that this application form will form the basis of the project schedule should this application be successful.

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

- I have enclosed CVs for key project personnel, a cover letter, letters of support, a budget, logframe, theory of change, Safeguarding and associated policies, and project workplan.
- Our last two sets of signed audited/independently verified accounts and annual report (or other financial evidence – see Finance Guidance) are also enclosed.

Checked

Name	Professor Ann Webb
Position in the organisation	Head of Department, Earth and Environmental Sciences
Signature (please upload e-signature)	AW 23/10/2023 15:51:01 pdf 27.87 KB
Date	23 October 2023

Please attach the requested signed audited/independently examined accounts.

0776 Financial Statements 2021
20/10/2023
18:32:51
pdf 3.99 MB

1535 Financial Statements 2022
20/10/2023
18:30:57
pdf 3.76 MB

Please upload the Lead Partner's Safeguarding Policy, Whistleblowing Policy and Code of Conduct as a PDF

safe guarding, whistleblowing, code of conduct
23/10/2023
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pdf 1.41 MB

Section 18 - Submission Checklist

Checklist for submission

I have read the Guidance, **including the "Darwin Initiative Guidance", "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 my 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 the budget is complete, **correctly adds up and I have included the correct final total at the start of the application.**	Checked
The application has been signed by a suitably authorised individual **(clear electronic or scanned signatures are acceptable).**	Checked
I have attached the below documents to my application: • **a** cover letter from the Lead Partner, **outlining how any feedback received at has been addressed where relevant, as a single PDF.**	Checked
my completed logframe **as a PDF using the template provided**	Checked
• **my 1 page** Theory of Change **as a PDF which includes the key elements listed in the guidance**	Checked
• **my** budget **(which meets the requirements above) using the template provided.**	Checked
• **a signed** copy of the last 2 annual report and accounts **for the Lead Partner (or other financial evidence – see Finance Guidance, or provided an explanation if not**	Checked
• **my completed** workplan **as a PDF using the template provided.**	Checked
• **a copy of the** Lead Partner's Safeguarding Policy, Whistleblowing Policy and Code of Conduct **(Question 31).**	Checked
• **1 page CV or job description for all the Project Staff identified at Question 34, including the Project Leader, or provided an explanation of why not, combined into a single PDF.**	Checked
• **a** letter of support from the Lead Partner and partner(s) identified at Question 35, or an explanation of why not, as a single PDF.	Checked
I have been in contact with the FCDO **in the project country(ies) and have included any evidence of this. If not, I have provided an explanation of why not.**	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.	Checked
I have checked the Darwin website **immediately prior to submission to ensure there are no late updates.**	Checked
I have read and understood the Privacy Notice on the Darwin Initiative 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: ***Improving wildlife health monitoring using community networks, screening and immunology***

	Activity	No. of months	Year 1 (24/25)				Year 2 (25/26)			
			Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Output 1	**Regional stakeholders trained in innovative disease monitoring techniques**									
1.1	Invite key stakeholders to join working group and hold inception workshop at WRTI Naivasha, Kenya to share paravet capacity across the region and required evidence to develop functional regional wildlife-livestock health agenda.	2								
1.2	Develop curriculum and hold 2-week training workshop in Arusha, Tanzania for early career researchers and working group stakeholders	3								
1.3	Conduct surveys with stakeholders to assess capacity change as a result of project	1								
Output 2	**System for monitoring wildlife health tested in two areas in each case study country (Kenya, Tanzania and Rwanda) involving members of regional working group and para-vets**									
2.1.1	Establish network of para-vets in each of two focal areas through visits by team leaders	1								
2.1.2	Implement and test system for monitoring wildlife health with regional working group members and paravets	12								
Output 3	**Health burden of co-morbidity on wildlife and livestock evaluated in two areas in each case study country (Kenya, Tanzania and Rwanda using innovative tools to validate reports made using wildlife health surveillance system**									
3.1	Validate reports made using wildlife health surveillance system by:	12								

Project Title: ***Improving wildlife health monitoring using community networks, screening and immunology***

	Activity	No. of months	Year 1 (24/25)				Year 2 (25/26)			
			Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
3.1.1	Conducting interviews with community members to establish traditional understanding of diseases, transmission routes and frequency of outbreaks	12								
3.1.2	Measuring disease burden in livestock and wildlife.	12								
3.1.3	Analysing evidence of wildlife disease impacts from non-invasive profiling	12								
Output 4	**Lessons learned and best practices disseminated to policy makers, stakeholders and researchers.**									
4.1	Collate and feedback data and results from each pilot study.	6								
4.2	Share results and good practice guides with key stakeholders, including participating communities	6								
4.3	Published case studies from each landscape.	6								
Output 5	**A multilateral framework for improved animal health monitoring in East Africa**									
5.1	Hold wrap up meeting with team members to share results and draft outline of technical report	1								

Project Summary	SMART Indicators	Means of Verification	Important Assumptions
Impact: A regional working group established to mitigate health risks for animals and people using innovative approaches to research and wildlife health and inform regional animal health policy.			
Outcome: Regional network of wildlife and livestock veterinarians and conservation stakeholders established, with improved capacity for research and surveillance on wildlife health and capable of providing evidence-based guidance on wildlife health	0.1 One regional working group involving 20 stakeholders from Kenya, Tanzania and Rwanda is active by end of Y2 and meeting on a regular basis to research, monitor and provide and guidance on wildlife health surveillance	0.1 Correspondence files; meeting minutes; resources produced for policymakers	Stakeholders selected to participate in regional working group remain in position
Outputs: 1. Regional working group established and stakeholders of group trained in innovative disease monitoring techniques	1.1 1 regional working group established 1.2 Minimum of 20 stakeholders from Kenya, Tanzania and Rwanda (including at least 8 women) involved in 2 weeks of training in eco-immunology, population genetics and using traditional ethnoveterinary knowledge by end of Y2 **[D1-A01]** 1.3 Minimum of 10 organisations responsible for animal health in Kenya, Tanzania and Rwanda with improved staff capability	1.1 Meeting minutes from regional working group meetings; attendance records 1.2 Attendance records and workshop documentation 1.3 Virtual surveys completed by working group stakeholders at end of project	ECR Individuals selected to join training sessions will be in the position to apply training. Both trainers and trainees are able to adaptively assess baseline understanding and modify the course (up or down) to be most informative.

	and capacity as a result of project by end of Y2 **[D1-A03]**		
2. System for monitoring wildlife health tested in two areas in each case study country (Kenya, Tanzania and Rwanda) involving members of regional working group and para-vets	2.1 1 wildlife health surveillance system developed and tested in two areas in each case study country by end of Y2 with at least 50 users (including stakeholders involved in regional working group, and 25 local para-vets) **[DI- A04]**	2.1 Records from wildlife health surveillance system	Samples from livestock and wildlife can be obtained. Communities will be willing to have livestock sampled.
3. Health burden of co-morbidity on wildlife and livestock evaluated in two areas in each case study country (Kenya, Tanzania and Rwanda using innovative tools to validate reports made using wildlife health surveillance system	3.1 Documentation of endemic disease burden in livestock and wildlife from two areas in each case study country **[DI-D18]** including: 3.1.1 Co-infection and disease burden evidence for 500 livestock from 100 households **[DI-B04]** 3.1.2 Co-infection and disease burden evidence for 300 wildlife individuals **[DI-D18]** 3.1.3 Evidence of wildlife disease impacts from non-invasive profiling **[DI-E03]**	3.1 1 dataset 3.1 2 peer review journal articles submitted 3.1.3 Statistical analyses of ELISA results coupled with PCR screening that evaluate potential relatioships	Team members will be able to accurately and sensitively identify infectious. This screening must be done in a timely manner and results fed back to owners.
4. Lessons learned and best practices disseminated to policy makers, stakeholders and researchers.	4.1 Two case studies (Kenya and Tanzania) contributing data and insights into a multi-lateral Environmental Agreements and one scoping exercise for scaling and capacity building (Akagera) **[DI- C05]**	4.1 Published case studies	Enough samples are collected and analysed to provide sufficient evidence to underpin case studies.

	4.2 Two best practice guides on innovative approaches to animal health monitoring (involving community reporting and immunology screening) endorsed by the regional working group. **[DI- C01]** ***Note:*** One guide will be a minimally technical document in Swahili for para-vets. One guide will be aimed at community members and will be written in an easily accessible style and translated into Swahili, Maa and Kinyarwanda. 4.3 One published case study from each case study country (Kenya, Tanzania, Rwanda). **[DI-C10]**	4.2 Published best practice guides 4.3 Publications in peer reviewed or grey literature	
5. A multilateral framework for improved animal health monitoring in East Africa	5.1 One technical report for government and non-government stakeholders involved in regional animal health surveillance in East Africa **[DI-C05]**	5.1 Published report	That all team members remain engaged with the project through to the point of producing a final report and engaging with policy teams at a multilateral level.
Activities (numbering to match above) 1.1 Invite key stakeholders to join working group and hold inception workshop at WRTI Naivasha, Kenya to share paravet capacity across the region and required evidence to develop functional regional wildlife-livestock health agenda. 1.2 Hold 2-week training workshop in Arusha, Tanzania for early career researchers and team members associated with the working group. 1.3 Conduct surveys to assess capacity change as a result of project 2.1.1 Establish network of para-vets in each of two focal areas through visits by team leaders 2.1.2 Implement and test system for monitoring wildlife health with regional working group members and paravets 3.1 Validate reports made using wildlife health surveillance system by: Conducting interviews with community members to establish traditional understanding of diseases, transmission routes and frequency of outbreaks Measuring disease burden in livestock and wildlife. Analysing evidence of wildlife disease impacts from non-invasive profiling			

4.1 Collate and feedback data and results from each pilot study. 4.2 Share results and good practice guides with key stakeholders, including participating communities 4.3 Published case studies from each landscape. 5.1 Hold wrap up meeting with team members to share results and draft outline of technical report