Applicant: **Pendry, Colin** Organisation: **Royal Botanic Garden Edinburgh** Funding Sought: **£99,990.00**

DIR28CC\1123

Building capacity and community resilience for grassland conservation in Bhutan

The project will develop Bhutan's in-country capacity in the ecological assessment and conservation of grasslands, focussing on one high-altitude community which is particularly heavily dependent on rangeland resources. It will address existing weaknesses in grass identification and develop new print and digital identification materials for Bhutanese graminoids. It will work with local communities to promote resilience and enhance livelihoods through improved rangeland management capacity and by building awareness of sustainable NWFP collection and exploring other sustainable economic opportunities.

Section 1 - Contact Details

PRIMARY APPLICANT DETAILS

Title	Dr	
Name	Colin	
Surname	Pendry	
Organisation	Royal Botanic Garden Edinburgh	

GMS ORGANISATION

Туре	Organisation
Name	Royal Botanic Garden Edinburgh

Section 2 - Title & Summary

Q3. Title:

Building capacity and community resilience for grassland conservation in Bhutan

Q4. Summary

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

Please write this summary for a non-technical audience.

The project will develop Bhutan's in-country capacity in the ecological assessment and conservation of grasslands, focussing on one high-altitude community which is particularly heavily dependent on rangeland resources. It will address existing weaknesses in grass identification and develop new print and digital identification materials for Bhutanese graminoids. It will work with local communities to promote resilience and enhance livelihoods through improved rangeland management capacity and by building awareness of sustainable NWFP collection and exploring other sustainable economic opportunities.

Section 3 - Title, Dates & Budget Summary

Q5. Project Country(ies)

Which eligible host country(ies) will your project be working in? Where there are more than 4 countries that your project will be working in, please add more boxes using the selection option below.

Country 1	Bhutan	Country 2	No Response
Country 3	No Response	Country 4	No Response

Do you require more fields?

No

Q6. Project dates

Start date:	End date:	Duration (e.g. 2 years, 3 months):
01 April 2022	31 March 2024	2 years

Q7. Budget summary

Year:	2022/23	2023/24	Total request
Amount:	£64,890.00	£35,100.00	£ 99,990.00

Q8. Proportion of Darwin Initiative budget expected to be expended in eligible 90 countries: %

Q9a. Do you have matched funding arrangements?

• Yes

What matched funding arrangements are proposed?

In kind matched funding will be provided by the project partners for salaries of the named participants and other staff supporting the project, and for the use of facilities in their organisations. In kind matched funding by RBGE also includes reduced overhead costs to confirm with the funding scheme limit of Staff Costs (Staff Costs are low as this only includes a stipend to the Darwin Fellow for living expenses in the UK).

Q9b. Total confirmed & unconfirmed matched funding (£)

Q9c. If you have a significant amount of unconfirmed matched funding, please clarify how you will fund the project if you don't manage to secure this?

No Response

Section 4 - Project need

Q10. The need that the project is trying to address

Please describe evidence of the capability and capacity need your project is trying to address with reference to biodiversity conservation and poverty reduction. For example, how have you identified the need? Why should the need be addressed or what will be the value to the country?

Please cite the evidence you are using to support your assessment of the need (references can be listed in a separate attached PDF document).

Despite their economic and cultural importance, grasslands remain among the most poorly understood habitats in Bhutan. Bhutan's conservation efforts have largely focussed on birds, mammals and trees, and in its network of national parks and wildlife sanctuaries. The conservation of other important habitats outside the protected area system, which accounts for 49% of the total land cover in Bhutan, has received relatively little attention. The neglect of Bhutan's grasslands has largely been due to the lack of in-country technical expertise in grass taxonomy. The understanding of the ecology and distribution of grasses remains poor. Documentation of grass species, their use and conservation have received little attention and they have not yet been brought into the mainstream of Bhutan's conservation policies. Grasslands have been shown to be among the most vulnerable of Bhutan's habitats and they are inordinately affected by anthropogenic pressures. Grasslands continue to be lost as they are replaced by commercial plantations of bamboos and timber trees. Furthermore, many grasslands in Bhutan have been severely impacted by invasive alien species These have not only threatened the ecological integrity of the grasslands but also the livelihoods of the many communities depending on them.

With more than 80% of the Bhutanese population dependent on agriculture, secure grassland resources are key to the maintenance of livelihoods. While there are numerous examples of Bhutanese communities which depend on grasslands to support their livelihoods, the Jom Daga NWFP group in Thimphu is an extreme example as they are completely dependent on their grasslands in the absence of any other economic activities. These grasslands are threatened by overgrazing and decreases in productivity. A two-pronged solution is therefore required to sustain livelihoods in Dagala by consolidating rangeland resources while simultaneously developing alternative economic activities such as the sustainable havesting of medicinal plants.

Reliable taxonomy is critical to efficient resource management. For instance, local herders have suggested that a particular species of Kobresia is especially important for milk production. The species has been tentatively identified from a poor specimen as Kobresia stiebritziana, but this species is easily confused with other species, such as Kobresia esenbeckii, which have lesser impacts on milk production. Nationally threatened species such as Stipa bhutanica are thought to be present in this area, and identification of these populations will be important for conservation and monitoring. The project highlights the need for improved grassland management and strengthened biodiversity conservation in regions outside Bhutan's protected areas network. It seeks to address three critical issues. Firstly, it will develop in-country capacity in grass taxonomy and grassland management, and the identification resources created will be highly relevant of other high-altitude ecosystems. Secondly, it seeks to build community resilience through increased livelihoods, empowerment of women, strengthened biodiversity conservation and a reduction in overgrazing. The model developed here will be transferable to other communities in similar regions where livelihoods are often similarly marginal.

Section 5 - Darwin Objectives and Conventions

Q11. Biodiversity Conventions, Treaties and Agreements

Q11a. 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)
- Convention on International Trade in Endangered Species (CITES)
- ☑ United Nations Framework Convention on Climate Change (UNFCCC)
- ☑ Global Goals for Sustainable Development (SDGs)

Q11b. National and International Policy Alignment

Please detail how your project will contribute to national policy (including NBSAPs, NDCs, NAP etc.) and in turn international biodiversity and development conventions, treaties and agreements that the country is a signatory of.

Bhutan is guided by its government's development philosophy of Gross National Happiness. With the project's main aim at biodiversity conservation and a gender-inclusive poverty reduction plan, it has direct contributions to the two of the four pillars "environmental conservation" and "sustainable and equitable socio-economic development". The project also addresses a number of country's NBSAP (Target 1,2,5,9,10,12,14&19) and Aichi targets (Target 1,2,7,9,12,14&19). The project fulfills CBD's main goal of biodiversity conservation of biological diversity, sustainable use and fair and equitable sharing of the benefits arising out of utilization of genetic resources (Including provision under Nagoya Protocol). Additionally, it addresses the CBD by identifying species of concern and other harmful activities to improve conservation (Article 7),) proposing effective measures to rehabilitate and restore degraded grasslands against invasive alien species and other threats (Article 8f&h) and promote sustainable use of medicinal plants and other grassland resources (Article 10). The project seeks to enhance research activities for improved public awareness (Article 12&13). The project contributes to several Targets on the Global Post 2020 Framework. The enhanced knowl edge on the understudied grass population and its distribution in the country will provide key insights for national development and

policy making process and building awareness and strengthening conservation (Target 12,19 & 20). The focus of biodiversity conservation and management of grasslands against invasive alien species (Target 3 and 5). The sustainable management of flora and improving biodiversity resilience with equal access and equitable benefit sharing will contribute to Targets 4,8,9&12.

The project will fulfill the vision of CITES Strategic Vision 2030 that all international trade in wild fauna and flora is legal and sustainable, consistent with the longterm conservation of species, and thereby contributing to halting biodiversity loss, ensuring its sustainable use by promoting best practices, create awareness on NWFP NDFs, improve management plan writing.

Section 6 - Method, Change Expected, Gender & Exit Strategy

Q12. Methodology

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

- How have you reflected on and incorporated evidence and lessons learnt from past and present similar activities and projects in the design of this project?
- Justification of your proposed approach, and how you will undertake the work (materials and methods).
- What will be the main activities and where will these take place?
- How you will manage the work (governance, roles and responsibilities, project management tools, risks etc.).
- What practical elements will be included to embed new capabilities?

This project will pioneer a landscape-level grassland ecological study to investigate grassland management and build community resilience through improved carrying capacity and enhanced economic opportunities. The high-altitude communities of Dagala depend on their rangelands because they live above the elevation at which agriculture is economically viable. They are particularly economically vulnerable because this region does not host the Ophiocordyceps sinensis populations which are a valuable resource in other high-altitude Himalayan regions. Rangelands are over-exploited and poorly studied, so research is needed to understand how they can be restored and sustainably managed. Reliable taxonomy is critical to efficient resource management. For instance, local herders have suggested that a particular species of Kobresia is especially important for milk production. The species has been tentatively identified as Kobresia stiebritziana, but this species is easily confused with other species, such as Kobresia esenbeckii, which are thought to be less beneficial for milk production.

Methodology

Output 1: National capacity for plant biodiversity research enhanced

The Darwin Fellow will join the one-year MSc in the Biodiversity and Taxonomy of Plants taught at RBGE (degree awarded by the University of Edinburgh). The first 8 months of the course is taught, with modules covering Evolution of Plants, Biodiversity of Angiosperms, Genome Diversity, Biodiversity of Cryptogams and Fungi, Taxonomy and Plant Collections, Phylogenetics and Population Genetics, Plant Geography and Conservation and Sustainability. The final 4 months is a research project which will include 2 months of fieldwork in Bhutan studying rangeland ecology in Dagala. He will be trained by RBGE's Flora of Nepal team in digital photography and will begin the upload of images to Pl@ntNet's Bhutanese Rangelands project. A dataset of Bhutanese rangeland species will be created using RBGE's Padme database.

Output 2: Enhanced understanding of Bhutanese rangeland ecology and conservation

Y1 Q1 fieldwork to initiate reference collections of graminoids and economically important species including photographs of all collections and initial analysis of threats and opportunities.

Y2 Q2 fieldwork to complete reference collections and detailed characterisation of ecology of rangelands to be submitted as MSc research project.

Creation of bilingual identification guides for at least 20 species of graminoids using the protocols developed by the Flora of Nepal's Plants and You protocols (Darwin Project 23-031).

Pl@ntNet's Bhutanese Rangelands project populated with high quality digital images to increase confidence limits in on-line identification of rangeland species, following methods in an earlier project to improve the app's identification of Rhododendron species .

Output: 3 Increased community awareness of the importance of rangeland biodiversity

In Y1 Q2 baseline levels of community awareness of biodiversity, including threats and opportunities, will be assessed in a series of surveys run with the Department of Forests and Park Services and Jom Daga NWFP Group. An interim workshop at the end of the Y2 Q2 fieldwork will get community feedback on prototype bilingual identification resources. A workshop at the end of the project (Y2 Q4) will reassess biodiversity awareness, test the utility of the identification resources and the Pl@ntNet app, and develop management plans for the Dagala rangelands to promote sustainable use of the region's resources and identify economic opportunities from medicinal plant collection.

The workshops will include at least 50 households and will use a participatory and collaborative approach to promote local ownership and empower local people. Management plans will be gender-inclusive, promote equitable access and include benefit sharing mechanisms. Carrying capacity, resource use pattern and grazing intensity will be assessed. Rangelands will be zoned into appropriate management regimes (protection, grazing and recovery). Training will also be given on CITES and best practices of sustainable harvesting techniques of NWFP. Medicinal plants will be documented and the Social Forestry and Extension Division will be included in plans to maximise economic opportunities from their trade while maintaining sustainable levels of collection.

Output: 4 Enhanced professional network

The major international and regional herbaria with relevant collections (BM, CAL, K, KATH) will be visited to finalise identifications of specimens collected in Fieldwork 1&2 (Y2 Q3). This will create the opportunity to develop the Fellow's professional network with scientists working in grass taxonomy and rangeland ecology. Opportunities for future collaborations will be sought.

Institutional arrangement

RBGE will lead the overall management and coordination. A Project Committee will comprise all Project Partners. Field activities will be carried out with the Department of Forests and Park Services in Bhutan. The DoFPS will work closely with NWFP community groups, Local Government, and other relevant stakeholders for capacity building.

Q13. How will you identify participants?

How did/will you identify and select the participants (individuals and organisations) to benefit from the capability and capacity building activities? What makes these the most suitable participants? How will you ensure that the selection process is fair and transparent?

The primary focus of the project is to build the capacity of Tshering Dorji in grass taxonomy and grassland management. Mr Dorji has clearly demonstrated that not only does he have experience and expertise required for the project, but he also has the passion to commit to a career working for this vital, but unappreciated ecosystem. He has over 10 years of professional experience with the Royal Government of Bhutan in the field of grassland studies, pioneering this work in Bhutan. During the course of his previous work he has amassed a sizeable collection of images and data which will form the basis of the user-friendly field guides, and the initial dataset to train the Pl@ntNet app in Bhutanese grass identification. He initiated this project, has worked closely on its design and has been involved in all stages of the application process.

The Jom Daga NWFP group was selected for their dependency on the high-altitude rangelands that sustain their livelihoods in the absence of other economic opportunities. The group has recognised the threats their environment faces from overgrazing, lower productivity, invasive alien species, and the over-harvesting of other medicinal plants to compensate.

Furthermore, they have expressed concerns over equitable access to resources and benefits shared and the low participation of women in the decision-making process and the need to address these issues. The involvement of the Department of Forests and Park Services is critical to the delivery of the project goals. They are the national focal point for biodiversity conservation and tasked with the generation of sustainable livelihoods from natural resources. They have a track record of participatory approach to landscape management to deliver biodiversity conservation and improvement of economic livelihoods. RBGE's regional focus will build linkages and help enable future projects in Bhutan and neighbouring countries.

Q14. Gender equality

All applicants must consider whether and how their project will contribute to reducing inequality between persons of different gender. Explain your understanding of gender equality within the context of your project, and how is it reflected in your plans.

Although institutional gender inequality does not exist in Bhutan, studies have shown that women are affected disproportionately in workplace and labour force. While women share equal participation in sustainable forest management (eg. Community forests and NWFP groups), there is a huge disparity in leadership opportunities. Gender disparity is evident in the Jom Daga NWFP group with five of the six executive members being male. In this patriarchal society, women struggle to find their voices in important decision-making processes, as evidenced by the low support for women in elections.

Evidence-based approach

A preliminary rapid household survey will be conducted to gauge the extent of gender inequality in access, participation and benefits accrued from the NWFP group. A need-based framework will be implemented to capture the constraints facing women in access, governance, benefits and bargaining power. Gender-based focused group discussion will be carried out to assess the resource use patterns of rangeland resources to understand the dynamics of resource use across communities. This will be main-streamed in the final management plans to ensure equitable access to resources.

Engage more women participation

A primary focus of the project will be to promote active participation of women in governance and the management of the NWFP group. Research has shown that active gender inclusion is essential for effective conservation policy. A women-centric capacity building program will be organized to promote engagement in the market chain and value addition.

Promote women in taxonomy

In Bhutan taxonomy is a male-dominated field of science because of a perception that it is highly technical and requires arduous fieldwork. Moreover, resource use pattern and perceptions of ecosystem services also vary greatly between genders. The project will actively promote female participation in taxonomy through mentorship and the employment of women in field work.

Q15. Change expected

Detail the expected changes to in-country capability and capacity will deliver for both biodiversity and poverty reduction. You should identify what will change (the Outcome) and who will benefit a) in the short-term (i.e. during the life of the project) and b) in the long-term (after the project has ended).

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.

Short-term

The project will build the capacity of Tshering Dorji, training him to MSc level in a broad range of traditional and modern taxonomic disciplines, and associated subjects. The 4-month individual research project which follows the taught modules will focus on the rangeland study. This will hone his skills in survey design, analysis of biodiversity data and species distribution modelling. The project design will be developed with the assistance of Dr Caroline Lehmann, an RBGE staff member who is a world expert in grassland ecology. The visits to herbaria in the UK and S Asia will ensure that Mr Dorji has access to all the most relevant material to identify his collections and give him the opportunity to develop his professional

network with the world's leading experts in the taxonomy of grasses.

Long term

The results of the ecological survey of the area will be presented to the Jom Daga NWFP group in community workshops which will develop the management plan. The livelihoods of at least fifty households in Dagala will directly benefit from improvements in rangeland management, increased milk production and greater sustainability of resources. Threats to the grasslands such as overgrazing and invasive alien species infestation will be characterised, and vulnerable habitats and threatened species identified. Alternate economic activities will be explored and promoted, and communities better integrated with markets and supply chains. Female participation in rangeland management will increase to 50% and a forum for gender-based discussion will be created to increase participation by women. The bilingual identification guides will allow the community to better understand the biodiversity of their environment and will be used to improve identification skills in other high altitude communities, transferring the lessons learned in this project. The collection of high quality reference materials named at international herbaria will improve the resources of the National Herbarium Bhutan (THIM) for grass identification. Grasses are generally considered to be difficult to identify, and they are often poorly dealt with in ecological studies. Other ecological projects in Bhutan will benefit from improved grass identification, enabling them to better identify, understand, monitor and manage their own biodiversity. The development of the Pl@ntNet app will improve identification of Bhutanese grasses by non-specialists, disseminating still further the impact of the project.

Mr Dorji will be able to apply for his own research grants building on the experiences learned during this project, and drawing on the support of the professional network he will have built up during his visits to international herbaria.

Q16. Exit Strategy

How will the built capability and capacity be maintained in-country? How will the new capability and capacity be replicated to strengthen additional future environmental leaders beyond the project? How will be the benefits be scaled? Are there any barriers to scaling and if so, how will these be addressed? How will the materials developed during the project be made more widely accessible during and after the project?

The project will build the capacity of Tshering Dorji in grass taxonomy, and within his permanent position within the Department of Forests and Park Services he will go on to lead research on Bhutanese grasses and grasslands. Using the methods developed in this project he will scale up his activities to the national level to classify the composition of grasslands throughout the country. Mr. Dorji will train other forest officials from the Department of Forests and Park Services and grassland assessment.

The project will enhance the exisiting relationships between the Department of Forests and Park Services, the National Herbarium and the Royal University of Bhutan. Training in grass identification will be formalized within the Botany classes at the College of Natural Resources and the Royal Thimphu College. Students will take part in field trips and learn about grass specimen collection, identification and management.

Community capacity will be enhanced in plan writing, managing rangeland resources and market chain. The community group will continue to function through the management plans developed through this project. The Department of Forests and Park Services has an ongoing commitment to provide technical assistance to community members in conservation and value chain.

The Ministry of Agriculture and Forests is planning to update the national checklist of plants to serve as a baseline for the revision of the Flora of Bhutan. Mr. Dorji's expertise and experience will be central to the validation of records and improvements to Volume 3 of the Flora of Bhutan. The collections and images will also contribute towards the Flora of Nepal project. The RBGE's involvement in both countries will enable future collaborations and sharing of knowledge and resources on grasses and other monocots.

One of the main outcomes of this project will be the publication of the bilingual identification guides. Print copies will be distributed to government institutions and universities. Electronic copies will be submitted to the Center of Bhutan Studies as part of historical archives and also uploaded to the Bhutan Biodiversity Portal to further increase accessibility. The Pl@ntNet app is freely available to all users, and its Bhutanese grass identification facility will promote the engagement of Bhutanese citizen scientists in biodiversity studies. As a founding member of the Bhutan Biodiversity Portal, Mr. Dorji can customize outputs from the current project as requested by users.

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

No Response

Section 7 - Risk Management

Q17. 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 <u>Risk Guidance</u>. This should include at least one Fiduciary, one Safeguarding, and one Delivery Chain Risk.

Projects should also draft their initial <u>risk register</u>, using the template provided, and be prepared to submit this when requested if they are recommended for funding. Do not attach this to your application.

Risk Description	Impact	Prob.	Gross Risk	Mitigation	Residual Risk
Fiduciary There are potential risks for funds being mis-appropriated for activities other than those originally intended.	Minor	Unlikely	Minor	RBGE is responsible for overall management of funds. A detailed budget plan has been prepared alongside with the project implementation timetable. RBGE procurement policies and procedure ensures that the process is transparent and follow the good practices.	Minor
Safeguarding There could be potential risk of pre-existing exploitation abuse and harassment, staff safety and welfare, or unintended harm between communities	Minor	Rare	Minor	All partners will comply with UK Government's human rights obligations and values and fully meet key principles of ethical implementation of project as suggested by DI guidance document. Project partners will always respect social norms and traditional knowledge and culture of local communities and people.	Minor
Delivery Chain A reduction of the fund due to the fluctuation in the exchange rate of Pound Sterling to Bhutanese Ngultrum for the field activities in Bhutan.	Minor	Rare	Minor	Most of the funds will be spent in the UK on well-defined expenses, e.g., MSc course fee. For field activities, the impact of the exchange rate is likely to be low and will be monitored closely. If needed a slight adjustment will be made without having a major impact.	Minor
Risk 4 Potential risk of political unrest, and natural disaster that could affect the field work and travel within Bhutan	Minor	Rare	Minor	Bhutan is politically stable and the research site is remote, so it is unlikely that civil unrest would affect project activities. The Darwin Fellow and in-country partners already have good connections with these communities, and are well experienced in high-altitude fieldwork.	Minor
Risk 5 A risk of Darwin fellow not successfully completing the MSc	Minor	Rare	Minor	The Darwin Fellow has already proven himself to be a competent candidate for the MSc course. Regular supervision and training will be provided for his course work as well as field work.	Minor
Risk 6 Project members behave inappropriately in foreign country	minor	rare	Minor	Appropriate cultural norms discussed	minor

Q18. Provide a project implementation timetable that shows the key milestones in project activities

Provide a project implementation timetable that shows the key milestones in project activities, linking them to your Outputs. Complete the Word template as appropriate to describe the intended workplan for your project ready for upload on Flexi-Grant.

Implementation Timetable Template

Please add/remove columns to reflect the length of your project. For each activity (add/remove rows as appropriate) indicate the number of months it will last, and fill/shade only the quarters in which an activity will be carried out.



Section 9 - Monitoring and Evaluation

Q19. 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 <u>Financial Guidance</u>).

RBGE will lead the M&E and a web-based M&E framework will be developed in consultation with all the relevant partners to address key issues related to the project and facilitate the achievement of project targets. Clear Terms of Reference will be agreed with each implementing partner, each with its own set of Annual Work-plans. These will be created in a participatory mode to ensure transparency. Progress will be monitored in weekly meetings held in person or via online meetings when Mr Dorji is in the field (internet coverage is known to be sufficient for regular meetings). Output 1

Mr Dorji's progress through the MSc course will be monitored within the course's tutor-student programme (Colin Pendry will be his academic tutor). The effectiveness of the training programmes in photography and database management will be assessed by at the end of each course.

Output 2

The pilot study will be assessed when it is submitted for the MSc thesis. Progress with the bilingual identification guides will be monitored by Bhaskar Adhikari who developed these products in Nepal. Progress with Pl@ntNet will be monitored by Pierre Bonnet of CIRAD.

Output 3

The baseline for the community awareness activities will be established by surveys in Y1 Q2, and the end results will be evaluated against the project baseline to evaluate the change in management interventions, improvements in livelihood opportunities, the number of people trained, and decreases in social and gender inequity.

Total project budget for M&E in GBP (this may include Staff, Travel and Subsistence costs)



Percentage of total project budget set aside for M&E (%)

Number of days planned for M&E

60

Section 10 - Indicators of Success

Q20. Indicators of success

Please outline the Outcome and Outputs of the project and how will you show that they have been achieved by using SMART indicators and milestones.

See the Monitoring, Evaluation and Learning Guidance, and internet resources, for advice on SMART indicators and milestones.

Please note that the number of participants in training is not an output, please consider how to measure the success of the training rather than participation in training.

In the table below please outline your Outcome and between 1-4 Outputs. Each statement should have between 2-3 SMART indicators and end target (figure/state/quality) including how you would evidence achievement – i.e. "Means of Verification".

	SMART Indicator	Means of Verification
Outcome Enhanced capacity for plant biodiversity research in Bhutan, focussed on the management of high-altitude grasslands, leading to improved livelihoods of pastoralists and the conservation and sustainable use of natural resources	 Bhutan has increased in-country capacity for post-graduate research in plant biodiversity of rangeland species led by one new MSc graduate, by Y2 Q2 Knowledge of rangeland species biodiversity and links with livelihoods enhanced, and species identification tools developed for at least 20 key graminoid species by end of project Awareness of the value of rangeland biodiversity and its sustainable use enhanced by 75% of at least 50HH (Households) by end of project 	 MSc certificate, project reports Project reports, herbarium occurrence vouchers, identification tools (print and electronic) Project reports, survey reports

Output 1 Improved national capacity in Bhutan for plant biodiversity research and documentation, enabling the characterisation, identification and effective management of temperate rangeland plant species (grasses, sedges and medicinal plants).	 Darwin Fellow (Tshering Dorji) successfully completes MSc in Biodiversity and Taxonomy of Plants at RBGE, including a summer research project on Bhutanese high altitude graminoids, by Y2 Q2 Darwin Fellow trained in digital plant photography, and high quality digital macro photographs captured for identification manuals of at least 30 graminoid and medicinal plant species by Y2 Q2 Darwin Fellow trained in RBGE's in-house specimen management database (Padme) and generating spatial data on plant distribution for at least 20 graminoid species by Y1 Q2 	 MSc certificate Photographs, project reports Photographs, project reports Project report
Output 2 Enhanced understanding of the ecology and conservation of temperate rangelands, the biology and identity of key graminoid species, and the threats and opportunities for high-altitude pastoralist communities.	 Pilot study in grassland composition and ecology in the Dagala region of Bhutan conducted to assess conservation and threats to livelihoods and economic opportunities, by Y2 Q1 Reference research collections of at least 30 graminoids and economically important medicinal plant species created and preserved at national and international herbaria by Y2 Q3 Bilingual identification guides for at least 20 species of graminoids developed using high quality images and the Plants and You style by end of project. 	 MSc Thesis report Reference collections at national and international herbaria, project report Plants and You guides and report Pl@ntNet app test report
Output 3 Increased community awareness of the importance of rangeland biodiversity, key economically important plant species, and the sustainable management of rangeland resources in the face of invasion by non-native species	 The awareness of the importance of rangeland biodiversity and links with livelihoods increased by 75% for at least 50 HH by end of project (Baseline established Y1 Q2). More than 50 HH participate in workshops providing training in sustainable management of rangeland resources by end of project Bilingual prototype identification guides to 5 sample graminoid species user-tested with community groups by Y2 Q1 	 Project report: baseline and end of project surveys. Workshop reports. Workshop report. Plants and You user testing report.

Output 4

International collaboration network established by Darwin Fellow with national herbaria, grassland specialists, and experienced Darwin Initiative project partners in India, Nepal and UK (x3) to improve capacity for future research. 4. Expertise of Darwin Fellow in graminoid taxonomy and identification enhanced through study visits to 5 institutions with significant Himalayan graminoid collections and liaising with graminoid specialists in India (CAL), Nepal (KATH) and UK (Natural History Museum, RBG Kew, RBG Edinburgh), by end of project 5. Enhanced capacity in Bhutan for leading on Darwin Initiative projects, by end of project. 6. Improved understanding of grassland ecology, sampling methods, and sustainable management by end of project

 Report by Darwin Fellow with qualitative assessment.
 Report by Darwin Fellow with qualitative assessment.
 Report by Darwin Fellow with qualitative assessment

Activities

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

Output 1

1.1 Enrol Darwin Fellow (Tshering Dorjii) to MSc in Biodiversity and Taxonomy of Plants at RBGE/The university of Edinburgh, and provide support throughout the course. Course option taken through the year included into the student project will be based on those which best support the project outcome.

1.2 Organize training programme for Darwin Fellow in digital plant photography, with particular focus on macro photography with periodic reviews and supervision.

1.3 Organize training programme for Darwin Fellow on database management of graminoid species.

Output 2

2.1 Conduct one month field study in Dagala region of Bhutan to study the grassland communities to assess the conservation status of graminoid species, and threats and opportunities to livelihoods.

2.2 Collect ecological and population data, and voucher herbarium specimens of at least 30 key graminoids and economically important grassland species of medicinal importance.

2.3 Prepare bilingual identification guides for at least 20 species of graminoids using high quality images using Plants and You format developed at RBGE.

2.4 Upload image profiles and occurrence data in Pl@ntNet system for at least 20 species of graminoids to improve the identification confidence scores of the Pl@ntNet identification app.

Output 3

1.1 Conduct awareness raising programme on the importance of rangeland biodiversity and carry out initial baseline and end of year surveys in amongst 50 HH in Dagala region in Bhutan to measure the change at the end of the project.1.2 Conduct awareness raising programme including 3 days community workshop for least 50 HH in importance of biodiversity and sustainable management of rangeland resources.

1.3 Test and revise prototype bilingual identification guides with the community groups and use the feedback to improve the identification guides developed in Output 2.

Output 4

4.1 Identify herbarium specimens using the resources in India (CAL), Nepal (KATH) and UK (Natural History Museum, RBG Kew, RBG Edinburgh), and liaising with the grass specialists at these institutions

4.2 Gain experience and receive mentorship in biodiversity/poverty alleviation projects from experienced Darwin Initiative project leaders/partners at RBG Kew and RBG Edinburgh

4.3 Work with specialists at RBG Kew (Maria Vorontsova) and RBG Edinburgh (Caroline Lehmann) to improve understanding of grassland ecology, sampling methods, and sustainable management

Important Assumptions:

Please describe up to 6 key assumptions that, if held true, will enable you to deliver your Outputs and Outcome.

1. Darwin Fellow is awarded a UK visa to study at RBGE and work there beyond the end of the MSc.

- 2. Darwin Fellow is competent to successfully complete MSc course.
- 3. Darwin Fellow receives full support from local partners and government authorities.
- 4. Travel situation in Bhutan remains stable; Covid 19 and other natural disasters present only short-term disruption.

5. Local communities in Dagala region in Bhutan actively engage with the training and awareness-raising programme.

6. International herbaria in India (CAL), Nepal (KATH) and UK remain open to visitors with only minor disruption due to Covid 19.

Section 11 - Budget and Funding

Q21. 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. Note that there are different templates for projects requesting over and under £100,000 from the Darwin budget. Please refer to the <u>Finance Guidance</u> for more information.

Budget form for projects under £100,000

• Budget form for projects over £100,000

Please ensure you include any co-financing figures in the Budget spreadsheet to clarify the full budget required to deliver this project.

N.B.: Please state all costs by financial year (1 April to 31 March) and in GBP. The Darwin Initiative cannot agree any increase in grants once awarded.

Please upload your completed Darwin Budget Form Excel spreadsheet using the field below.



Q22. Funding

Q22a. Is this a new initiative or does it build on existing work (delivered by anyone and funded through any source)?

• New Initiative

Please provide details:

This project is a new initiative for Bhutan, and will be the first quantitative assessment of grasslands in the country and the first assessment of threats and opportunities for this ecosystem. It builds on the lessons from previous research carried out by Mr. Dorji, who piloted a grassland classification study in Bhutan. By the project end, Bhutan will have its first trained

grass specialist in Mr. Tshering Dorji, who will work further to build local capacity in grass identification and assessment. This will contribute to enhanced conservation efforts in grassland management for biodiversity conservation and the sustainability of rural livelihoods. With much of Bhutan's conservation efforts centered in the protect areas against trees and wildlife, the project will reinforce the need to put equal emphasis on vulnerable habitats in other areas. Through this initiative, gender-based roles in grassland management will be established and will attempt to increase rangeland productivity. The bilingual identification guides were developed by the Flora of Nepal project (primarily by Bhaskar Adhikari) and the use of Pl@ntNet to identify problematic groups follows on a previous MSc project at RBGE which worked on Rhododendron.

Q22b. Are you aware of any current or future plans for similar work to the proposed project?

No

Q23. 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.

A mid-range laptop and Adobe Creative Suite software will be needed for coursework and online learning on the MSc, for data and image gathering in the field and laboratory, and for desk-top designing of field guides. A general purpose digital camera with macro lens is needed for image capture in the field, and a macro digital photography desk system for capturing digital images of dissected plant parts. This is the system that has proved successful in project work in Nepal. This is particularly important for graminoid plants as identifications depend on accurate interpretation of minute floral parts. All capital items will be given to project partners in Bhutan.

Q24. Value for Money

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

The project will invest in human capital and institutional linkages to ensure the legacy of the capacity building programmes beyond the end of the project period. Investment in Tshering Dorji at this early stage of his career is likely to be repaid by many years of productive research in activities building on this experience gained in this project. The printed bilingual identification products will establish a national resource for understanding and managing rangeland plants. The knowledge base can be reused and enhanced and is not a one-off output

The project will draw on the long experience within the Department of Forests and Park Services in managing Bhutan's natural resources and the Department's commitment to this project will ensure that its legacy is secure. The Jom Daga NWFP group is already well aligned to the projects objectives and well regulated by their own set of by-laws, so it will not be necessary to go to the effort and expense of creating a new community group to deliver the project's outputs.

Section 12 - Safeguarding and Ethics

Q25. Safeguarding

Projects funded through the Darwin Initiative must fully protect vulnerable people all of the time, wherever they work. In order to provide assurance of this, projects are required to have appropriate safeguarding policies in place.

Please confirm the Lead Partner has the following policies in place and that these can be available on request:

Please upload the Lead Partner's Safeguarding Policy as a PDF on the certification page.

We have a safeguarding policy, which includes a statement of our commitment to safeguarding and a zero tolerance statement on bullying, harassment and sexual exploitation and abuse	Checked
We have attached a copy of our safeguarding policy to this application (file upload on certification page)	Checked
We keep a detailed register of safeguarding issues raised and how they were dealt with	Checked
We have clear investigation and disciplinary procedures to use when allegations and complaints are made, and have clear processes in place for when a disclosure is made	Checked
We share our safeguarding policy with downstream partners	Checked
We have a whistle-blowing policy which protects whistle blowers from reprisals and includes clear processes for dealing with concerns raised	Checked
We have a Code of Conduct for staff and volunteers that sets out clear expectations of	Checked

behaviours - inside and outside the work place - and make clear what will happen in the event of non-compliance or breach of these standards

Please outline how you will implement your safeguarding policies in practice and ensure that downstream partners apply the same standards as the Lead Partner.

Safeguarding principle is central to any RBGE-led projects to ensure the safety and prevent exploitation of its employees and partners. The RBGE sets itself to high standard in all its projects and actively promotes to adhere to its safeguarding policy. The safeguarding policy and the Code of Conduct will be shared and the project partners will be duly oriented to these during the project inception meeting.

Section 13 - FCDO Notifications

Q26. FCDO Notifications

Please state whether there are sensitivities that the Foreign Commonwealth and Development Office will need to be aware of should they want to publicise the project's success in the Darwin Initiative in any country.

No

Please indicate whether you have contacted FCDO Embassy or High Commission to discuss the project and attach details of any advice you have received from them.

No

If no, why not?

Britain is represented in Bhutan by Honorary Consul Michael Rutland, with consular support from the British Deputy High Commissioner Nick Low, Kolkata. As this project is backed by the Government of Bhutan, and there are no sensitivities that would concern FCDO, we have not contacted them at this stage.

Section 14 - Project Staff

Q27. 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.

Please provide 1-page CVs or job description, further information on who is considered core staff can be found in the <u>Finance Guidance</u>.

Name (First name, Surname)	Role	% time on project	1 page CV or job description attached?
Colin Pendry	Project Leader	10	Checked
Tshering Dorji	DoFPS: Darwin Fellow	100	Checked
Dr Mark Watson	RBGE: Resource Person	5	Checked
Dr Bhaskar Adhikari	RBGE: Resource Person	5	Checked

Do you require more fields?

⊙ Yes

Name (First name, Surname)	Role	% time on project	1 page CV or job description attached?
Jamyang Choden	NBC: Resource Person	15	Checked
Melam Zangmo	DoFPS: Resource Person Implementing Partner	15	Checked
No Response	No Response	0	Unchecked
No Response	No Response	0	Unchecked
No Response	No Response	0	Unchecked
No Response	No Response	0	Unchecked
No Response	No Response	0	Unchecked
No Response	No Response	0	Unchecked
No Response	No Response	0	Unchecked

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

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



Have you attached all project staff CVs?

⊙ Yes

Q28. Project partners

Please list all the Project Partners (including the Lead Partner), clearly setting out their roles and responsibilities in the project including the extent of their engagement so far and planned.

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

The partners listed here should correspond to the Delivery Chain Risk Map (within the Risk Register template) which you will be asked to submit if your project is recommended for funding.

Lead partner name:	The Royal Botanic Garden, Edinburgh	
Website address:	www.rbge.org.uk	
Why is this organisation the Lead Partner, and what value to they bring to the project? (including roles, responsibilities and capabilities and capacity):	RBGE is a global leader in biodiversity science and conservation, and has an excellent track record as the lead or partner on many Darwin Initiative projects. RBGE has a strong education programme, including the long-established MSc in Biodiversity and Taxonomy of Plants, run jointly with the University of Edinburgh. This builds capacity of future leaders by combining modern and traditional forms of taxonomic research and biodiversity assessment. Formal collaboration between RBGE and the Bhutanese government began in the 1970s through the Flora of Bhutan Project. The 9-volume Flora of Bhutan was completed in 2002, documenting the flora for the first time. RBGE is internationally recognized for its expertise in the Himalaya region, including projects in Nepal, India and China. RBGE hosts sizeable plant reference collections from the Sino-Himalayan region which support biodiversity research and conservation and sustainable use of Himalayan plants, and the ecology and sustainable management of grasslands. RBGE has extensive professional networks with taxonomists, ecologists and conservationists working in the region (notably Nepal, India and China). RGBE will provide the overall leadership, training, mentoring, technical support, financial management and administration for the project	
International/In-country Partner	● International	
Allocated budget (proportion or value):		
Represented on the Project Board	⊙ Yes	
Have you included a Letter of Support from this partner?	⊙ Yes	
Have you provided a cover letter?	⊙ Yes	

Do you have partners involved in the Project?

⊙ Yes

1. Partner Name:	Department of Forest and Park Services	
Website address:	www.dofps.gov.bt	
What value does this Partner bring to the project? (including roles, responsibilities and capabilities and capacity):	The Thimphu Forest Division is an important institution within the Ministry of Agriculture and Forests mandated to conserve Bhutan's natural resources. Guided by the Forest and Nature Conservation Act (1995) and National Forest Policy (2011), its vision is to "Sustaining Bhutan's forest resources & biodiversity for the happiness of present and future generations" Over the past decades, it has worked to conserve and manage Bhutan's forest resources & biodiversity to ensure social, economic and environmental well-being, and to maintain a minimum of 60% of the land under forest cover in perpetuity. In this pursuit, it facilitates participatory approach to the management of forest resources to empower rural communities to manage forests sustainably for socio-economic benefits, poverty reduction and to contribute to overall sustainable forest management. It focuses on research to generate knowledge, information and technology to support policy implementation and development. The office has much experience with the documentation and inventory of the country's biodiversity and habitats. Additionally, through the support of the Social Forestry and Extension Division, it promotes participatory community-based natural resources management through its wide network of community forests and NWFP groups.	
International/In-country Partner	● In-country	
Allocated budget:		
Represented on the Project Board	●Yes	
Have you included a Letter of Support from this partner?	€Yes	
2 Dauto au Manaa	National Riadiversity Conter (NRC)	

2. Partner Name:	National Biodiversity Center (NBC)
Website address:	www.nbc.gov.bt

What value does this Partner bring to the project? (including roles, responsibilities and capabilities and capacity):	The NBC was established in 1996 to implement Bhutan's commitments to the CBD and is the National Focal Point for Nagoya Protocol on Access and Benefit Sharing. NBC serves to bring about environmentally sustainable development, biodiversity conservation, and to enable meaningful ABS collaborations that will benefit the country and the people at large through regulated access to Bhutan's biological resources. Given their national mandate and vast experience, the NBC's role will be the planning and implementation of activities related to the capacity building of community members on biodiversity conservation and poverty alleviation. This will include awareness on sustainable harvesting, CBD, CITES, Global Frameworks and Nagoya Protocol on Access and Benefit Sharing Policy. Traditional knowledge of the Jom Daga NWFP management Group members will be collected to explore bioprospecting potentials. The NBC will also provide technical assistance through National Herbarium in the identification, storing of herbarium specimens, and hosting of biodiversity information related to the project. The NBC has the deep experience, technical capacity and infrastructure for biodiversity research, combined with expertise in enhancing community capacity and exploring innovations for conservation and sustainable use, needed to successfully deliver the project objectives.
International/In-country Partner	● In-country
Allocated budget:	
Represented on the Project Board	⊙Yes
Have you included a Letter of Support from this partner?	●Yes
3. Partner Name:	No Response
Website address:	No Response
What value does this Partner bring to the project? (including roles, responsibilities and capabilities and capacity):	No Response
International/In-country Partner	O International O In-country
Allocated budget:	£0.00
Represented on the Project Board	O Yes O No
Have you included a Letter of Support from this partner?	O Yes O No

4. Partner Name:	No Response
Website address:	No Response
What value does this Partner bring to the project?	No Response

(including roles, responsibilities and capabilities and capacity):

International/In-country	O International
Partner	O In-country
Allocated budget:	£0.00
Represented on the Project	O Yes
Board	O No
Have you included a Letter of	O Yes
Support from this partner?	O No

5. Partner Name:	No Response
Website address:	No Response
What value does this Partner bring to the project?	No Response
(including roles, responsibilities and capabilities and capacity):	
International/In-country Partner	
Partner	O In-country
Allocated budget:	£0.00

6. Partner Name:	No Response
Website address:	No Response

What value does this Partner No Response bring to the project?

(including roles, responsibilities and capabilities and capacity):

International/In-country	O International
Partner	O In-country
Allocated budget:	£0.00
Represented on the Project	O Yes
Board	O No
Have you included a Letter of	O Yes
Support from this partner?	O No

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

No Response

Please provide a cover letter and a combined PDF of all letters of support.

Section 16 - Lead Partner Capability and Capacity

Q29. Lead Partner Capability and Capacity

Has your organisation been awarded a Darwin Initiative funding before (for the purposes of this question, being a partner does not count)?

⊙ Yes

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

Reference No	Project Leader	Title
10-017	Dr. Martin Gardner	Preservation, rehabilitation and utilization of Vietnamese montane forests
12-024	Dr David Rae	Institutional capacity building and training, Royal Botanic Garden, Serbithang
13-007	Dr Mark Newman	Taxonomic training for a neglected biodiversity hotspot within Lao PDR
23-031	Dr Mark Watson	Science-based interventions reversing negative impacts of invasive plants in Nepal

25-019	Dr Antje Ahrends	Enabling sustainable, profitable and equitable community-based forest management in Tanzania
26-010	Dr Sophie Neale	Know your onions: sustainable plant use in Tajikstan

Have you provided the requested signed audited/independently examined accounts (or other financial evidence - see Financial Guidance)?

If yes, please upload these on the certification page. Note that this is not required from Government Agencies.

⊙ Yes

Section 17 - Certification

Q30. Certification

On behalf of the

Trustees

of

Royal Botanic Garden Edinbrugh

I apply for a grant of

£99,990.00

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 project key project personnel, letters of support, budget, safeguarding policy and project implementation timetable (uploaded at appropriate points in application)
- Our last two sets of signed audited/independently verified accounts and annual report (or other financial evidence see Financial Guidance) are also enclosed.

Checked

Name	Colin Pendry
Position in the organisation	Editor, Flora of Nepal
Signature (please upload e-signature)	
Date	06 December 2021

Please attach the requested signed audited/independently examined accounts.



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



Section 18 - Submission Checklist

Checklist for submission

	Check
I have read the Guidance, including the " Darwin Initiative Guidance ", " Monitoring Evaluation and Learning Guidance ", " Supplementary Guidance for Capability & Capacity Projects ", " Risk Management Guidance ", and " Financial Guidance ".	Checked
I have read, and can meet, the current Terms and Conditions for this fund.	Checked
I have provided actual start and end dates for the project.	Checked
l have provided my budget based on UK government financial years i.e. 1 April – 31 March and in GBP.	Checked
I have checked that our budget is complete, correctly adds up and I have included the correct final total at the start of the application.	Checked
The application been signed by a suitably authorised individual (clear electronic or scanned signatures are acceptable).	Checked
(If copying and pasting into Flexi-Grant) I have checked that all my responses have been successfully copied into the online application form.	Checked
I have included a 1 page CV or job description for all the Project Staff identified at Question 27, including the Project Leader, or provided an explanation of why not.	Checked
l have included a letter of support from the Lead Partner and partner(s) identified at Question 28, or an explanation of why not.	Checked
l have included a cover letter from the Lead Partner, outlining how any feedback received at Stage 1 has been addressed where relevant.	Checked
I have included a copy of the Lead Partner's safeguarding policy, which covers the criteria listed in Question 25 .	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

I have included a signed copy of the last 2 annual report and accounts for the Lead	Checked
Partner (or other financial evidence – see Financial Guidance), or provided an	
explanation if not.	

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

I have read and understood the Privacy Notice on the Darwin Initiative website.	Checked
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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 <u>Forms and</u> <u>Guidance Portal</u>.

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).