
DIR29S2\1032

Fungal Conservation in Sub-Saharan Africa: sustainability and livelihood implications

Sub-Saharan countries overlook fungal conservation, with serious implications for sustainability and livelihoods. This project supplies the information and policy advice needed for their Rio Convention strategies, raises awareness of fungi throughout Africa, strengthens Africa's unique centre of mycological excellence at Parakou, and encourages replicable pioneering community efforts to reduce fungal diversity loss, poverty and gender inequality in Benin through in-situ conservation of native forests where illegal logging and charcoal production threaten sustainable livelihoods of women harvesting edible and medicinal fungi.

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Fungal Conservation in Sub-Saharan Africa: sustainability and livelihood implications

Section 1 - Contact Details

CONTACT DETAILS

Title	Dr
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GMS ORGANISATION

Type	Organisation
Name	University of Parakou
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Section 2 - Title, Ecosystems, Approaches & Summary

Q3. Title:

Fungal Conservation in Sub-Saharan Africa: sustainability and livelihood implications

What was your Stage 1 reference number? e.g. DIR28S1\1123

DIR29S1\1164

Q4. Key Ecosystems, Approaches and Threats

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

Tropical-subtropical forests

Biome 2

Savannas and grasslands

Biome 3

Intensive land-use systems (agric., plantations and urban)

Conservation Action 1

Education & awareness (incl. training)

Conservation Action 2

Livelihood, economic & other incentives (incl. conservation payments)

Conservation Action 3

Species management (harvest, recovery, re-introduction, ex-situ)

Threat 1

Biological resource use (hunting, gathering, logging, fishing)

Threat 2

Agriculture & aquaculture (incl. plantations)

Threat 3

Human intrusions & disturbance (recreation, war)

Q5. Summary of project

Please provide a brief 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.

Please write this summary for a non-technical audience.

Sub-Saharan countries overlook fungal conservation, with serious implications for sustainability and livelihoods. This project supplies the information and policy advice needed for their Rio Convention strategies, raises awareness of fungi throughout Africa, strengthens Africa's unique centre of mycological excellence at Parakou, and encourages replicable pioneering community efforts to reduce fungal diversity loss, poverty and gender inequality in Benin through in-situ conservation of native forests where illegal logging and charcoal production threaten sustainable livelihoods of women harvesting edible and medicinal fungi.

Section 3 - Title, Dates & Budget Summary

Q6. 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	Benin	Country 2	Zimbabwe
Country 3	No Response	Country 4	No Response

Do you require more fields?

- Yes
 No

Q7. Project dates

Start date:	End date:	Duration (e.g. 2 years, 3 months):
01 June 2023	31 March 2026	2 years, 10 months

Q8. Budget summary

Year:	2023/24	2024/25	2025/26	2026/27	Total request
Amount:	£120,783.00	£136,280.00	£142,911.00	£0.00	£ 399,974.00

Q9. Proportion of Darwin Initiative budget expected to be expended in eligible countries: %



Q10a. Do you have matched funding arrangements?

- Yes

What matched funding arrangements are proposed?

Parakou University will provide costs of maintenance, tax and insurance of the project vehicle, and the cost of a designated driver. Use of land for plant nurseries, and overnight accommodation for visiting project staff will be provided by participating villages.

Dr Minter will match the [redacted] of his working time charged to this project by his employer CABI with the personal donation of an additional [redacted] costed at the same CABI rate. Donated time will be used to supervise the locating, capture, editing, curation, storage and addition of project-acquired data to open-access online databases, including uploading Darwin Core fields to GBIF.

Where acceptable and appropriate, he and Ms Soliman will offer home-hosting (in Edinburgh and Whitby) for project visitors to the UK. Dr Minter will also contribute costs of in-country travel, and of other food and accommodation for those visitors (estimate included in budget as 'in-kind').

Q10b. Total confirmed & unconfirmed matched funding (£)

£ [REDACTED]

Q10c. If you have a significant amount of unconfirmed matched funding, please clarify how will you fund the project if you don't manage to secure this?

No Response

Section 4 - Problem statement

Q11. 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 poverty. What is the need, challenge or opportunity?

For example, what are the drivers of biodiversity loss that the project will attempt to address? Why are they relevant, for whom? How did you identify these problems? Please cite any evidence you are using to support your assessment of the problem (references can be listed in a separate attached PDF document).

Problem. Fungal conservation is neglected in Sub-Saharan Africa.

The CBD promises protection of all forms of life, but fails for fungi. Reports and strategies of Sub-Saharan Africa's 43 continental countries illustrate this. Half don't mention fungi. In the rest, references to fungi are universally scarce and usually hostile, with half listing them as plants or, once, insects. Only three acknowledge an information deficit. None have plans protecting fungi [www.fungal-conservation.org/micheli.htm].

IPBES, biodiversity's equivalent of the Intergovernmental Panel on Climate Change, lacks representation from mycologists. Its 2018 Regional Assessment Report on Biodiversity and Ecosystem Services for Africa [<https://ipbes.net/assessment-reports/africa>] contains thousands of references to animals and plants and why they need protection, but just twenty for fungi, all but two as exploitable resources or dangerous organisms to be eliminated. Nothing about their enormous and vulnerable diversity, or their essential rôles in soil formation, carbon storage, decomposition, recycling, providing checks and balances, maintaining water quality, helping desert plants survive, or as lichens, termite mutualists, endobionts etc. Without mycorrhizal fungi, Miombo woodland, that vast home to so many of Africa's endangered vertebrates, simply couldn't exist. Without rumen fungi, many wouldn't be there anyway. Coverage of fungi in other IPBES reports is similar. A climate change report overlooking sustainables would be unthinkable.

At all levels from governments to individual citizens, fungi are overlooked. People don't know they don't know. Countries lack mycologists. Nobody else is telling them. "Fauna and flora" is unquestioningly accepted as the whole picture. Projects for animals and plants are presented as "biodiversity", and the omission of fungi is unchallenged. Fungi, essential for sustainable life, need conservation: raised awareness, earmarked fair-share resources, education, infrastructure, levelling-up, representation, and relevant plans and policies, not ill-fitting templates uncritically imported from botany and zoology. The challenge is global. Our proposal, starting in Sub-Saharan Africa is the opportunity to catalyse that change.

Relationship with poverty. In conservation, fungi are two generations behind animals and plants. Beyond the most general picture, drivers of fungal diversity loss, their synergism with gender inequality, and relation to poverty are mostly unidentified and, where known, almost invariably poorly understood.

A rare but well-documented exception, hidden in plain view among other problems, is destruction of Sub-Saharan Africa's mycorrhizal mushroom populations through illegal logging and charcoal production. It has devastating economic impacts on sustainable livelihoods of millions of rural women who, throughout the region, collect edible and medicinal mushrooms for sale and domestic consumption. To begin addressing the problem, we propose regeneration and reforestation through innovative pilot mycorrhizal nurseries in Benin. If successful, these could be extended across Sub-Saharan Africa.

Further links between poverty, gender inequality and fungal diversity loss undoubtedly exist worldwide. Many will be subtle, indirect and even denied. Absence of evidence is not evidence of absence. Without demonstrable links, biodiversity funds which prioritize those issues are deterred from supporting fungal conservation. Our project will help resolve their impasse by identifying, documenting and assessing overlooked evidence worldwide, published as a pioneering report to inform and guide future work.

Section 5 - Darwin Objectives and Conventions

Q12. Biodiversity Conventions, Treaties and Agreements

Q12a. Your project must support the commitments of one or more of the agreements listed below.

Please indicate which agreement(s) will be supported and describe which objectives your project will address.

- Convention on Biological Diversity (CBD)
- Global Goals for Sustainable Development (SDGs)

Q12b. National and International Policy Alignment

Using evidence where available, 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.

At governmental level, this project seeks to enhance Sub-Saharan capability and capacity by encouraging adoption and use of evidence and best practice for fungal conservation. It will raise awareness that fungi need protection, and provide resources facilitating coverage in CBD NBSAPs, reports and other documents. Sub-Saharan CBD national focus points approached about fungal conservation acknowledged the current gap, blaming lack of information as the principal impediment. All those consulted welcomed the present project as an opportunity for improvement, with formal letters of support from ten countries – explicit evidence of demand from end-user beneficiaries.

Starting with Benin and Zimbabwe, and extending to at least four other Sub-Saharan countries, this project will compile existing information about each nation's fungi, disseminating it on-line through structured searchable open-access databases, and producing peer-reviewed, published national accounts documenting current knowledge of each country's fungal diversity, digested and edited to a form convenient for use in official documents. Key points will include positive and negative economic impacts of

fungi, threats they face, recommended in-situ and ex-situ conservation actions, links between poverty, gender inequality and fungal diversity loss, knowledge gaps, proposals for national capacity building in mycology, and recommendations regarding Aichi and post-Aichi Targets [see attached supplementary information]. For Sub-Saharan Africa, much more fungal information exists than generally supposed, but it is currently dispersed, largely inaccessible and inconvenient for use by non-specialists.

The status of CBD reporting is also important. By late January 2022, the CBD had received the first NBSAP and fifth national report from all Sub-Saharan countries. Over 90% had submitted their version 2 NBSAP, but only 70% had submitted a sixth national report. This project will therefore focus on version 3 NBSAPs and sixth and subsequent national reports. The CBD's recommended format and manner of submission of these documents is undergoing change, so continued dialogue with national focus points will be necessary to ensure project contributions reflect individual country needs.

If, as suspected, subtle, indirect, unrecognized or denied links exist between poverty, gender inequality and fungal diversity loss, our work identifying and documenting them will strengthen and inform policy for CEDAW and other international gender equality and poverty eradication conventions. The project will also raise awareness that CITES and Ramsar both currently focus only on animals and plants, but fungi need their protection too. Nominations of mycologists to the IPBES Multidisciplinary Expert Panel and list of Experts will be encouraged, and draft national fungal conservation strategies may be suggested, as for Cuba through an earlier Darwin project.

Finally, this project could transform even CBD's flagship publication, the Global Biodiversity Outlook. Its fifth edition (2020) [www.cbd.int/gbo/gbo5/publication/gbo-5-en.pdf] exemplifies CBD neglect of fungi. In over 200 pages, they are mentioned only eight times (five as a problem to be eliminated, one as an exploitable resource, another as a mere statistic, and only once as something positive). Their protection is nowhere discussed. This project team wants a strong CBD. Our project's impact will help make future editions of the Global Biodiversity Outlook truly inclusive.

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

Q13. Methodology

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

- how you 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 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.).

Lessons learned (for our team's relevant activities and experience, see attached CVs). Fungal conservation needs its own infrastructure but lacks resources taken for granted by botanists and zoologists [www.fungal-conservation.org/blogs/message-to-botanists-and-zoologists.pdf]. Their solutions, developed in isolation from mycologists, are often inappropriate for fungi. The world's flagship biodiversity database GBIF, for example, cannot handle associations between different organisms or relationships between

organisms and their substrata. Both facilities are vital for fungal recording (and indeed for any ecological work). Links between diversity loss, poverty and gender inequality are obvious and well-established for animals and plants, but largely unexplored and subtle for fungi. They need identifying, but one is known: legal, sustainable Sub-Saharan mushroom-harvesting by rural women generates more income from natural woodland in 30 years than the one-off cash return from its illegal, irrevocable, unrepeatable clear-felling by charcoal-production men.

Specific approach. This project is distinctive in addressing conservation, gender-equality and poverty-eradication from a fungal perspective. The welcome from CBD national focus points suggests mainstreaming fungal conservation is achievable. Protecting mushroom harvesting livelihoods of women through raised economic awareness and ameliorative measures will help limit forest destruction and alleviate gender inequality. Identifying links between fungal diversity decline, poverty and gender inequality worldwide will establish future fungal conservation priorities.

Activities, and Materials & Methods.

Output 1. Conservation planning (Benin, Zimbabwe, other Sub-Saharan countries, UK). The project will locate, digitize and edit existing information about Sub-Saharan fungi including: what species occur, when and where they were observed, ecosystems and habitats occupied, associated organisms, types of associations, substrata, and source references and collections [see attached supplementary information]. Over 70,000 new records are anticipated.

Records will be made available through Cybertruffle [www.cybertruffle.org.uk/robigalia/eng] (open-access on-line databases specifically designed to handle associations and relationships, developed during earlier Darwin projects and running continuously since 2007). For Benin, Zimbabwe and at least four other project-selected countries, new individual websites will be made, with bibliographies, interactive distribution maps and lists of potential endemics. Darwin Core data for all new records will also be deposited with GBIF and CABI.

Records for those countries will be combined with information from further sources, mainly on-line, to produce national fungal assessments with conservation recommendations. They will, after CBD National Focus Point feedback and peer review, be published and passed to respective governments.

Output 2. Livelihoods protection (Benin, Zimbabwe). The economic folly of destroying sustainable mushroom harvesting through illegal logging and charcoal production will be publicized. A pilot scheme will encourage regeneration of recently felled ectomycorrhizal woodland by planting native trees reared in existing and newly established community plant nurseries. Ten villages in Benin, near surviving natural sources of mycorrhizal inoculum, are already shortlisted, with village leaders and NGOs contacted. Where local religious leaders welcome involvement, sacred groves may be enhanced with saplings. Ten more villages will follow later in the project and, if progress is encouraging, the scheme will be extended to Zimbabwe. Other remedial actions (including agroforestry intercropping with multipurpose species for biofuel and food during regeneration, and other permaculture techniques) will also be explored with replicates and controls where appropriate. Project-supported visits will enable scientists and NGOs from adjacent countries to see this work and consider how they might achieve something similar.

Output 3. Poverty and gender equality issues (global). Using our team's unique combination of mycological and gender-equality expertise, an investigative study will look for unrecognized, hidden and denied links between fungal diversity decline, poverty and gender inequality, evaluating what is found, and publishing a pioneering review of findings.

Output 4. Infrastructure (Benin, Zimbabwe). Parakou's regional centre of mycological excellence will be strengthened, and mycology in Zimbabwe and beyond will be supported and reinforced, with graduates

trained to:

- assess natural forest destruction, and implement existing and develop new fungus-friendly remediation and restorative measures;
- digitize and edit fungal data;
- investigate links between fungal diversity decline, poverty and gender inequality;
- manage database software and website development;
- organize courses and handle publicity;
- prepare national fungal assessments.

Output 5. Public awareness (Sub-Saharan Africa). Project activities (particularly for Output 2), and mycology more generally will be widely disseminated via magazines, newspapers, publications, radio, social media, talks, teaching materials television, websites and exhibitions and new field guides.

Project management. Roles and responsibilities: Yorou (Project Leader, CBD liaison, centre of excellence development, M&E, reporting, site surveys); Minter (country assessments, data, databases, fungal decline and poverty report, websites); Sharp (exhibitions, field guides, project management in Zimbabwe); Soliman (courses, gender equality, remediation, sustainability); graduates (see attached job descriptions). Project management tools: see Question 22. Risks: see Question 20.

Q14. Capability and Capacity

How will you support the strengthening of capability and capacity in the project countries at organisational or individual levels, please provide details of what form this will take, who will benefit, and the post-project value to the country.

Organizational level. Each beneficiary country will get peer-reviewed assessments with high quality, up-to-date information about the status of its fungi, including identification of knowledge gaps. Wherever possible, livelihood impacts linked to fungal diversity decline will also be provided, with data disaggregated by gender and household income. All information will also be freely available on-line. For beneficiaries, this will be the first opportunity to incorporate fungi in conservation planning, resource management and similar activities. Cybertruffle websites, already on a new and future-proofed platform [not a project cost], will be updated and upgraded during the project and will continue to be freely available, with succession planning put in place. GBIF's coverage of fungi from Sub-Saharan Africa will be significantly enlarged, providing additional long-term security for records digitized through this project.

Parakou University will be strengthened as a regional centre of mycological excellence, with significantly enhanced capacity for leading research on and conservation of fungi in West Africa and beyond. The project will also produce detailed plans to establish an accredited fungal culture collection (the mycological equivalent of botanic gardens, seed banks and zoos) at the University. In Zimbabwe, the Matobo Conservation Society will become a focus for fungal conservation in southern Africa. In both countries, museums and other venues will benefit from new exhibitions, and relevant NGOs will be strengthened in their work to protect natural forest from illegal logging. Throughout these organizations gender equality will have been fostered.

Individual level. Course participants and the general public will be made aware of the value of native forest fungi, damage caused by logging, impacts on livelihoods, the need for gender equality, and previously unrecognized possibilities for more sustainable post-project use of woodlands. Graduates trained by the project will have new career skills of lifelong value, including expertise making fungal status assessments.

Q15. Gender equality

All applicants must consider whether and how their project will contribute to reducing inequality between persons of different gender. Explain how your understanding of gender equality within the context your project, and how is it reflected in your plans. Please summarise how your project will contribute to reducing gender inequality. Applicants should, at a minimum, ensure proposals will not increase inequality and are encouraged to design interventions that proactively contribute to increased gender equality.

Most Sub-Saharan countries (including those participating here) occupy the UN Gender Inequality Index's lowest quartile. Two of its three factors (empowerment and labour market participation) are relevant to project outputs: in Africa, logging and charcoal production, traditionally male work, destroy habitats of edible and medicinal fungi, traditionally harvested by women. This project will raise awareness among communities, policy makers and the general public about environmental and shockingly gender-unequal long-term economic costs of this destruction, encouraging them to protect sustainable livelihoods of women as well as men. Where destruction has already occurred, the project will promote sustainable gender-neutral remediation.

Half our core participants are women. One is a gender specialist, the other a mycologist. Gender equality (including use of Gender Equality Markers) will be central to and promoted throughout this project. That includes staff selection and, specifically, appointment and training of women mycologists and other graduate professionals.

Expanded opportunities for women and girls are known to reduce poverty and enhance ecosystems. Gender analysis will therefore be integral to our work, helping understand how gender relations impact on project objectives, and how project interventions could reduce gender inequality and help empower women. Using those insights, the project will develop strategies to address identified gender-based constraints and mitigate gender inequality as a known driver of biodiversity loss. In particular, gender analysis will be used to investigate how fungal diversity decline affects livelihoods of both men and women. The Gender Analysis Matrix framework will be employed to help communities select approaches which advance gender equality. Recommended conservation actions will take into account how interventions might affect assets, income, power relationships and time of women as well as men. In plain English, at all levels in this project men and women will be equally heard and have equal powers and responsibilities.

Q16. Awareness and understanding

How will you raise awareness and understanding of biodiversity-poverty issues in your stakeholders, including who your stakeholders are, what approaches/formats/products will you use, how you will ensure open and free access to all data, and how will you know that the messages are understood?

For this project, stakeholders (Darwin guidance definition) are: core staff, the partners they represent, graduates, collaborating NGOs, course participants, and local people involved in remediation. Core staff, already aware of biodiversity, gender equality and poverty issues, will pool skills and adopt appropriate markers and other tools to communicate them effectively. Other Darwin-defined stakeholders will be approached individually and collectively. Communications will use official national and, where possible, local languages (core staff skills already include fluency in Arabic, Dendi, English, French, Kotokoli, Lokpa and Spanish, with other indigenous languages coming when project-graduates are employed). Remote communications will use e-mail, meetings software (e.g. Zoom), and 'phones (messaging, social media, talking). Core staff have considerable experience dealing with and, better, avoiding complexities and confusions arising from cultural and language differences. They recognize the need to listen, and understand that ideas owned and internalized by stakeholders themselves are those most likely to

succeed.

Stakeholders (more loosely defined) include the general public, other conservationists, forest officers, funding agencies, policy makers (for example CBD National Focus Points), and politicians in-country and beyond. All, arguably, have an interest in this project's success. Many know about biodiversity-poverty issues in general, but very few take fungi into account. Alerting influencers among them is crucial: they steer public opinion.

This project will reach all these wider stakeholders through exhibitions, field guides, leaflets, magazines, newspapers, radio, regalia, social media, television and websites. Conservationists and scientists will have access to high quality searchable data freely available on-line. Additionally, they, policy makers and politicians will be targeted through peer-reviewed publications and, at the highest level, national assessments of fungi, and strategies for their conservation. The aspiration is to make conservation globally inclusive of fungi, thereby ensuring fungal diversity continues to contribute to human welfare.

Q17. Change expected

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

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 change. Sub-Saharan fungal conservation lifted off current zero baseline. Enormously increased coverage of African fungi by on-line databases. At least six CBD National Focus Points provided with a first detailed assessment of their fungi, including advice about sustainable use, and in-situ and ex-situ conservation. A pioneering study of links between fungal diversity decline, poverty and gender inequality published. Sustainable harvesting of edible and medicinal fungi promoted. Increased awareness of true costs of illegal felling and charcoal production. Within Benin, measures taken to remediate destroyed forest land (community gardens cultivating native ectomycorrhizal saplings for reforestation; agroforestry intercropping with multipurpose species during regeneration). Parakou's centre of excellence for mycology strengthened, including culture-collection plans. Greatly raised public awareness of fungi, including new educational materials, exhibitions and field guides. Four graduates and four NGOs trained. Learned societies for mycology, and fungal conservation NGOs established or strengthened.

Short term beneficiaries. Benin, Zimbabwe and at least four other countries, through provision of fungal assessments. Over 400 households of participating Benin villages through training, with thousands more indirectly through disseminated information. Over 200 women mushroom-harvesters employed in gathering seed and rearing young trees. Four participating NGOs strengthened. Improved resources for mycology at Parakou University. Four graduates with training-enhanced career prospects. Conservation generally, through enhanced on-line fungal databases and publications.

Long-term change. At least six countries provided with resources needed to include fungi in CBD and other international documents, national policies, conservation plans, management plans for reserves, lists of protected species etc. Increased and fairer funding for fungal conservation. Logging and charcoal production in natural forests discouraged and reduced. Preventative, remedial alternatives introduced. Sustainable livelihoods for women harvesting edible and medicinal fungi protected.

Long term beneficiaries. Other countries through availability of templates to adapt for CBD documents as examples of good practice; their mycologists provided with expertise to help achieve that goal. Women mushroom-harvesters through reduced damage from logging and charcoal production. Rural communities in areas with destroyed forest, through new options for amelioration. Conservation organizations, NGOs and learned societies for mycology in Africa through strengthened infrastructure. Nature reserves and other protected areas, through greater understanding of the importance of fungi. African mycology and particularly Parakou University through its centre of excellence. Project team members, through improved skills and experience using monitoring & evaluation and risk management tools. Ecosystem services globally are worth an annual estimated US\$125–140 trillion (OECD, 2019). By any measure, fungi must contribute many trillions. Ignoring them is expensive. Conserving them helps everyone. Sub-Saharan Africa's 1.1 billion population, growing 2.3% annually are all project beneficiaries.

Potential to scale. With information available on-line in searchable structured form, and project-produced assessments as templates, coverage of fungi in CBD and other documents can be extended to other countries. The true ecological and economic costs of illegal forest logging and charcoal production, and the damage done to sustainable livelihoods for women can be publicised beyond project countries, enabling stakeholders there to adopt practices developed through this project for stewardship of their natural assets.

Q18. 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, longer term, your expected Impact.

Output 1. Lack of accessible information hinders Sub-Saharan fungal conservation. That information gathered, digitized, edited and conveniently accessible, can be incorporated in CBD and other documents.

Output 2. In Sub-Saharan Africa, illegal logging and charcoal production destroy native forests, impacting women mushroom harvesters. Raising awareness of this economic folly and ecological irresponsibility, co-ordinated with wider campaigns against the exploitation will help reduce destruction and protect women's livelihoods. Young trees grown near surviving stands will be naturally inoculated with native mycorrhizal fungi. Felled areas can be repopulated with those saplings.

Output 3. Links between fungal diversity decline, poverty and gender inequality are very poorly understood. Detecting, investigating and publicizing them will clarify future priorities for fungal conservation.

Outputs 4 & 5. Sustainable success with outputs 1–3 depends on continuing supporting infrastructure and raised awareness. This means publicity, and strengthening Parakou University's centre of mycological excellence, and mycology in Zimbabwe and beyond.

Outcome. Newly accessible information, strengthened infrastructure and increased awareness enable Sub-Saharan countries to begin addressing fungal conservation, and poverty and gender inequality issues impacted by fungal diversity decline.

Expected impact. Fungi no longer neglected by CBD and other conservation conventions; poverty and gender inequality impacts of that neglect addressed.

Q19. Exit Strategy

How will the project reach a sustainable point and continue to deliver benefits post-funding?

How could post-project scaling of the approach (if proven) be delivered: through new finance or through uptake by stakeholders or other mechanisms? Are there any barriers to scaling and how will these be addressed?





How will the required knowledge and skills remain available to sustain the benefits?

Exit strategy for Output 1. If national assessments are incorporated in NBSAPs and reports, our project will start delivering its impact. Coverage of fungi in one generation of CBD documents does not, however, guarantee continued presence in subsequent versions. The exit strategy will therefore seek to continue and widen dialogue with National Focus Points, and to evaluate all new CBD national documents for fungal content. Mycologists and conservationists will be encouraged to welcome fungus-friendly documents, publicizing them as examples of good practice, and encouraging pride in that achievement. Constructive feedback will be offered for those failing to cover fungi adequately. Fungal conservation is rapidly becoming mainstream, and further countries are likely to start including fungi in their CBD documents. Additional funding would help, and project-trained assessors could provide consultancy expertise. The potential to scale is global. It's in everybody's interest.

Exit strategy for digitized information. Cybertruffle will provide indefinite open access to newly digitized records, with the website's succession plan implemented at project completion. Darwin Core fields of those records will be available on-line through GBIF, with CABI also receiving a copy, with the data also becoming available through its websites. National assessments and the pioneering review of poverty/gender links will also be freely available on-line.

Exit strategy for Output 2. Supporting sustainable mushroom harvesting is only part of the solution to a much bigger problem. With plans to continue local forest regeneration (Activity 2.9), better understood gender/poverty links (Output 3), stronger mycological infrastructure (Output 4), and effective publicity (Output 5), participating NGOs will continue to co-operate post-funding with other conservation groups to maintain a voice for fungi in wider concerted campaigns about Africa's food and energy needs, and against native forest destruction. Practices developed through this project will fortify resources for those campaigns.

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

 [dir29s21032 fungal conservation in subsaharan africa supplementary information](#)
 11/12/2022
 17:27:43
 pdf 11.52 KB

Section 7 - Risk Management

Q20. 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.

Projects should also draft their initial risk register using the [Risk Assessment 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 Header	Residual Risk
Fiduciary					
Most project funding will go to Benin. Benin's legal framework against corruption is inadequate and, nationally, embezzlement risk is high [www.usaid.gov]. The Lead Partner, Parakou University, however, has an excellent record of probity in successful delivery of international projects involving fungi. Risk of Darwin funding misuse is correspondingly significantly lower.	40%	5%	45%	Project bank account separate, under direct control of Rectorate; dedicated project Finance Officer employed under joint control of Rectorate and Project Leader; annual audits; continuous scrutiny by project Core Staff (scientists, including a current Charity Trustee and a former Pension Fund Trustee, who all want this project to succeed).	5%
Safeguarding					
Of this project's safeguarding risks, the highest are expected during villager training and fieldwork (for staff and collaborators: assaults, covid infection, gender discrimination, harassment, road travel safety; for course participants: harm arising from reactions to perceived challenges to "male primacy"), particularly in Benin's far north [www.gov.uk/foreign-travel-advice/benin].	20%	10%	30%	Zero-tolerance of assaults, gender discrimination and harassment of and by staff and downstream collaborators; staff vaccinations encouraged, and PPE provided for all course participants; no solitary course or field work when higher risks anticipated; safest available transport, and suitable protective equipment (e.g. crash helmets) used; course gender issues handled diplomatically.	5%
Delivery Chain					
Covid. Official death rates and numbers of infections for both Benin and Zimbabwe are low [https://coronavirus.jhu.edu], but may not reflect reality. The pandemic remains a serious threat, not only for safeguarding staff (see above), but also to logistics of project delivery.	20%	30%	50%	Identify unvaccinated staff and encourage vaccination. Where strongly reluctant, explore alternatives to reduce and/or avoid risk. These include: reversing travel directions, particularly international travel, so that vaccinated go to unvaccinated; tests before face-to-face meetings; PPE and other protective measures; use of on-line conference software (Skype, Zoom etc.).	5%

Risk 4	Second fiduciary risk. Some funding will go to Zimbabwe where corruption is widespread [www.transparency.org]. There is a consequent risk of Darwin funding misuse.	20%	30%	50%	The Matobo Conservation Society has been selected as national partner. This NGO has an excellent record of correct handling of international project finances, having administered US\$60,000 from three separate donors since 2019. The NGO's Executive Members are all volunteers, and no payments are made to them for their services.	5%
Risk 5	Second delivery chain risk. This is an opportunity. At least six national fungal assessments are promised, but at the time of submission, other CBD National Focus Points have also already indicated they would welcome such assessments. More interest is anticipated. Demand may therefore be significantly higher than planned.	20%	40%	60%	Core Staff believe this project's budget could maybe stretch to eight national assessments. More would require opportunity risk responses. We would exploit the opportunity by seeking additional funding, and transfer risk by stimulating other mycologists to produce additional assessments, or (least attractive) share risk by abridging assessments.	5%
Risk 6	Operational. Core Staff welcome project risk management, but not all have adequate active risk management skills. Although Core Staff collectively have a long history of successful project delivery, past risk management has, for some, been intuitive rather than conscious. New project staff may be unaware of risk management.	20%	30%	50%	Prompt action at start of project to ensure all Core Staff fully understand risk management and its tools, and to upgrade and increase project M&E activities to reflect that better understanding. Training in risk management for all new project staff.	5%


Section 8 - Implementation Timetable


Q21. 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. Complete the Word template as appropriate to describe the intended workplan for your project.


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. The workplan can span multiple pages if necessary.

 [dir29s21032 fungal conservation in subsaharan africa implementation timetable](#)

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Section 9 - Monitoring and Evaluation

Q22. 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](#)).

Overall responsibility for M&E will lie with the Project Leader. M&E for Output 1 will be the responsibility of one graduate under training and supervision by Dr Minter. Another graduate under training and supervision by Ms Soliman will be responsible for M&E for Outputs 2 & 5 in Benin. Dr Sharp will be responsible for M&E for Outputs 2 & 5 in Zimbabwe. M&E for Output 3 will be the direct responsibility of Dr Minter. M&E for Output 4 will be the direct responsibility of the Project Leader. Collectively, these people will constitute the project's M&E team.

The first project activity will be to ensure the project staff representing all four project partners are fully familiar with M&E procedures (including use of the Gender Analysis Matrix Framework and Gender Equality Markers). Next, where not already established, baseline data for each output will be agreed, and checks made to ensure all activities have SMART indicators. Monitoring by those project staff members will then commence. Immediately after their appointment and initial training, the graduates will take over their portion of the monitoring work, with continued supervision throughout the project's lifetime.

Results of monitoring will be evaluated at six monthly or annual intervals as appropriate by the person responsible for each output. Results and evaluations will then be considered collectively by the whole M&E team, and minuted by the project Finance Officer acting as team secretary. If a sufficiently significant unplanned event occurs, an earlier unscheduled meeting of the M&E team will be held. M&E team meetings will review possible opportunities arising from positive impacts, and suitable corrective action arising from negative impacts, with decisions on necessary action minuted. Minutes will inform the periodic project reports made for the Darwin Initiative. Minuted actions will then be implemented, and plans for the next M&E period revised.

In the event of this project being funded (i.e. even before formal start of the project), all Core Staff will also meet, probably remotely, probably several times, to be familiarized with risk management. Following that

meeting, Core Staff will revise project plans to ensure that, like M&E, risk management is integral. Plans will include a programme for reviewing and redefining risks as the project develops.

Total project budget for M&E in GBP (this may include Staff, Travel and Subsistence costs)	£ [REDACTED]
Percentage of total project budget set aside for M&E (%)	[REDACTED]
Number of days planned for M&E	160

Section 10 - Logical Framework





Q23. 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.

- [Stage 2 Logframe Template](#)

The **logframe template** (N.B. there is a different template for Stage 1 and Stage 2) needs to be downloaded from Flexi-Grant, completed and uploaded as a PDF within your Flexi-Grant application – **please do not edit the logframe template structure (other than adding additional Outputs if needed) as this may make your application ineligible.**

Please upload your logframe as a PDF document.

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Impact:

Fungi no longer neglected by CBD; poverty and gender inequality impacts of fungal diversity loss recognized.

Outcome:

Sub-Saharan fungal conservation established through national conservation plans, protection of mycorrhizal forest and sustainable mushroom harvesting livelihoods, and better understanding of links between fungal diversity loss, poverty and gender inequality.

Project Outputs

Output 1:

1 (conservation planning). Information about sub-Saharan fungi and the threats they face, available on-line, analysed and presented to governments as national fungal conservation plans in a form convenient for non-specialists.

Output 2:

2 (livelihoods protection). Fungal habitats and sustainable mushroom-harvesting livelihoods they provide understood, valued, protected, and included in remediation plans, with (Benin only) pilot ameliorative measures introduced [UN Sustainable Development Goals SDG2, SDG3, SDG7, SDG15].

Output 3:

3 (poverty and gender equality issues). A global investigation of links between fungal diversity loss, poverty and gender inequality (currently almost completely unexplored), with a published pioneering report on the findings.

Output 4:

4 (infrastructure). Sub-Saharan mycology infrastructure strengthened.

Output 5:

5 (public awareness). Public awareness of importance of fungi raised.

Do you require more Output fields?

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

No

Activities

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

General

General (1). At the outset, ensure core project staff understand gender-equal character of project and procedures for M&E, training where necessary.

General (2). Throughout project, monitor and evaluate work, disaggregating measurables by gender and, where appropriate, by household income level.

General (3). Where not already done, seek to establish contact and a dialogue with CBD National Focus Points.

General (4). Recruit graduate project staff on a gender-neutral basis, and train them (this may involve travel to UK).

Output 1.1 [digitizing Sub-Saharan fungal records]

1.1 (1). M&E: from outset, keep numbers of records newly digitized / derived from on-line open access databases; assess editorial work.

1.1 (2). Train graduates based in Benin and Zimbabwe to extract, digitize and edit new data, and be able to train and supervise others.

1.1 (3). Identify reference collection sources of new Sub-Saharan fungal records and, where permissible, digitize them.

1.1 (4). Identify publications containing new Sub-Saharan fungal records, obtain copies of those

publications, and digitize the records.

1.1 (5). Edit the newly digitized records (scoping work indicates at least 70,000 new records will become available in this way).

1.1 (6). Add them to the existing 62,000 fungal records from Sub-Saharan Africa.

1.1 (7). Make the new records available on-line.

1.1 (8). Avoiding data duplication where possible, upload Darwin Core data to GBIF with copy to CABI.

1.1 (9). Extract records from other open access databases (particularly GBIF), avoiding duplicates, edit to compatible standard, and prepare for use in assessments.

Output 1.2 [preparing new Sub-Saharan country websites]

1.2 (1). M&E: test new country websites as they come on stream, to ensure they function correctly.

1.2 (2). Consulting National Focus Points and national mycologists where present, select at least six beneficiary Sub-Saharan countries (Benin, Zimbabwe and four others).

1.2 (3). Using existing country websites as examples, prepare web pages, and modify existing code to function correctly for beneficiary countries.

1.2 (4). Make new country websites available on-line.

Output 1.3 [preparing Sub-Saharan national fungal assessments]

1.3 (1). M&E: review results of published works searches to check significant sources not missed; submit resulting documents for peer review.

1.3 (2). Finalize specifications for the proposed national fungal conservation plans (currently in draft).

1.3 (3). For each beneficiary country, search published works, not only on fungi, but also on associated organisms and on ecosystems.

1.3 (4). Add output from all existing, new and acquired records to that information.

1.3 (5). List associated organisms nationally significant economically or because endemic or threatened, and allocate extra attention to their fungi.

1.3 (6). Accumulate information about national awareness of fungi among administrators and politicians, in education, and in the public.

1.3 (7). Accumulate information for each country about how fungal diversity promotes wealth and well-being, and how its loss impacts poverty and gender issues.

1.3 (8). For each beneficiary country, using accumulated information, produce a detailed national fungal conservation plan.

1.3 (9). Present plans to each CBD National Focus Point, subsequently also making them available on-line.

Output 2.1 [publicity]

2.1 (1). Publicity [see activities for Output 5 below].

Output 2.2 [first tranche of collaborating villages]

2.2 (1). M&E: record information about villages already contacted (including disaggregated gender statistics, local fungus-harvesting levels, plant nurseries and regeneration sites).

2.2 (2). Inform village administrations in 10 already contacted villages / NGOs that the project can start.

2.2 (3) Visit villages / NGOs; discuss project's Output 2 activities with local contacts (female and male), listening to responses, and modifying plans accordingly.

2.2 (4). Identify training course participants on a gender neutral basis and agree course dates.

2.2 (5). Visit each existing or proposed nursery site, recording features; discuss planting and sapling care practicalities with local contacts (female and male).

2.2 (6). Select mushroom-harvesting villagers (i.e. with the strongest interest in project success) for seed collection and plant nursery work; ensuring they understand the job; agree remuneration.

2.2 (7). Visit regeneration sites; evaluate their potential for receiving transplants from nurseries, and for agroforestry intercropping and other restoration treatments.

2.2 (8). Select villagers to transplant seedlings at regeneration sites and provide after-care; ensuring they understand the job; agree remuneration.

Output 2.3 [first tranche of courses]

2.3 (1). M&E: record course dates, lists of course participants (including disaggregated gender statistics), and information about pre- and post-course awareness.

2.3 (2). Prepare course materials (forest destruction impacts, mycorrhizal fungi importance, mushroom harvesting livelihoods, forest nursery practice, regeneration management, permaculture, intercropping, coppicing etc.).

2.3 (3). Hold rehearsal of course.

2.3 (4). Deliver courses.

Output 2.4 [first sowing and transplanting]

2.4 (1). M&E: maintain records of tree planting at each nursery (dates, numbers of saplings, locations within nursery, species, sources, pests, diseases and mortality etc.).

2.4 (2). Obtain seed; ensure availability of necessary tools and other equipment; ensure participating villagers are ready to sow seed.

2.4 (3). Supervise sowing and check subsequent seedling care by villagers at each nursery is satisfactory.

2.4 (4). Supervise transplanting and check subsequent plant care is satisfactory.

Output 2.5 [second tranche of collaborating villages]

2.5 (1). M&E: same as for activity 2.2 (1).

2.5 (2). Identify and shortlist potential additional villages and regeneration sites; establish contact, explaining project aims and negotiating collaboration.

2.5 (3) Visit additional villages; discuss project's Output 2 activities with local contacts (female and male), listening to responses, and modifying plans accordingly.

2.5 (4). Identify training course participants on a gender neutral basis and agree course dates.

2.5 (5). Visit each existing or proposed nursery site, recording features; discuss planting and sapling care practicalities with local contacts (female and male).

2.5 (6). Select mushroom-harvesting villagers to collect and plant tree seeds and carry out nursery after-care; ensuring they understand the job; agree remuneration.

2.5 (7). Visit regeneration sites; evaluate their potential for receiving transplants from nurseries, and for agroforestry intercropping and other restoration treatments.

2.5 (8). Select villagers to transplant seedlings at regeneration sites and provide after-care; ensuring they understand the job; agree remuneration.

Output 2.6 [second tranche of courses]

2.6 (1). M&E: same as for activity 2.3 (1).

2.6 (2). Deliver courses.

Output 2.7 [second tranche of sowing and transplanting]

2.7 (1). M&E: same as for activity 2.4 (1).

2.7 (2). Obtain seed; ensure availability of necessary tools and other equipment; ensure participating villagers are ready to sow seed.

2.7 (3). Supervise sowing and check subsequent seedling care by villagers at each nursery is satisfactory.

2.7 (4). Supervise transplanting and check subsequent plant care is satisfactory.

2.7 (5). If these activities are progressing well in Benin, begin similar work in Zimbabwe.

Output 2.8 [monitoring mycorrhizal populations]

2.8 (1). M&E: carry out periodic mycological surveys of active nurseries and regeneration sites, and of sites where future regeneration is anticipated.

Output 2.9 [livelihoods protection exit strategy]

2.9 (1). Encourage and support stakeholders to develop and commit to plans for continued care of existing

young trees, and post-project sowing, transplanting and after-care of new young trees.

Output 3.1 [pioneering global report on poverty and gender equality links]

- 3.1 (1). M&E: at end of years 1 and 2, invite appropriate external experts to review work; submit resulting documents for peer review.
- 3.1 (2). Seek general evidence of fungal diversity benefits for human wellbeing, and fungal diversity decline impacts on poverty and gender equality.
- 3.1 (3). Analyse that information then prepare and publish a peer reviewed report.

Output 4.1 [taking on project graduates and training them]

- 4.1 (1). M&E: make six-monthly appraisals of each graduate, evaluating progress, successes and problems, disaggregating measurables to ensure gender equality.
- 4.1 (2). Advertise for, interview, select (on gender equal basis), and appoint four graduates (see job descriptions).
- 4.1 (3). Provide training (which may involve travel to UK) and subsequent supervision for graduates, developing expertise in following areas:
 - assessing the status of fungi at national level;
 - database design and editorial standards for handling fungal data;
 - identifying and assessing areas of natural forest being damaged by logging, and determining restorative and ameliorative measures;
 - liaising with NGOs organizing local courses raising awareness of diversity loss, gender issues and poverty resulting from unsustainable activities like logging and charcoal production;
 - researching socio-economic aspects of fungal diversity and its links to human wellbeing, and of fungal diversity loss and links to poverty and gender inequality;
 - software and website development;
 - understanding and developing suitable national fungal conservation strategies.
- 4.1 (4). Allocate mycologist graduates the task of preparing fungal field guides mentioned in 5.2 below.

Output 4.2 [strengthening mycological infrastructure]

- 4.2 (1). M&E: check equipment has been purchased and improvements carried out; submit plans to peer review.
- 4.2 (2). Purchase budgeted new equipment, identify and carry out improvements to enhance centre for mycology in Parakou.
- 4.2 (3). Undertake south-south (Benin–Zimbabwe) transfer of competence in collection management, drafting of field guides, and staging of exhibitions.
- 4.2 (4). Prepare plans for, and where possible work towards enhancement of Parakou University as a regional centre of excellence for mycology.
- 4.2 (5). Prepare detailed plans for establishing a culture collection at the centre for mycology in Parakou.

Output 4.3 [increasing Sub-Saharan fungal conservation activities]

- 4.3 (1). M&E: record mycological activity associated with the centre (collected specimens, courses, field trips, numbers of visitors, publications etc.).
- 4.3 (2). Prepare plans and take measures to ensure, as far as possible, that graduates continue in relevant work after project completion.
- 4.3 (3). Working with current African Mycological Association, support and encourage a revived on-line presence, including newsletters, lectures and meetings.
- 4.3 (4). Prepare proposals for a new African fungal conservation NGO; circulate those proposals to mycologists and conservationists and, taking feedback into account, organize an inaugural on-line meeting.

Output 5.1 [raising awareness of project messages]

- 5.1 (1). M&E: annually record number of each publicity event type; record impacts, for example through

social media followers.

5.1 (2). Identify target audiences for publicity; plan and prepare the messages to be suitable for each different audience, including form of delivery.

5.1 (3). Identify organizations opposing illegal logging and charcoal production, and evaluate them for potential to add value to this project's work.

5.1 (4). Contact those shortlisted and explore collaboration possibilities.

5.1 (5). Both independently and in collaboration, publicize the destruction being done to habitats and sustainable livelihoods.

5.1 (6). At all levels, raise awareness of project messages, particularly Output 2, through radio, television, newspaper, magazine, social media blogs and campaigns.

Output 5.2 [project-generated field guides]

5.2 (1). M&E: annually review progress in production of texts and images with each lead author.

5.2 (2). Determine scope and content of each field guide, and identify suitable publisher.

5.2 (3). Accumulate relevant material (images, descriptions, information about individual species etc.).

5.2 (4). Prepare text, illustrations and diagrams, including introduction, acknowledgements, and indexes.

5.2 (5). Print and publish.

Output 5.3 [project-generated exhibitions]

5.3 (1). M&E: maintain list of completed panels; record public attendance at and response to exhibitions.

5.3 (2). Identify suitable locations willing to host temporary/permanent exhibitions, and negotiate dates for staging those exhibitions.

5.3 (3). Review existing digitized panels from prior UK fungal exhibition, and material from on-going fungal exhibition in Zimbabwe, selecting components suitable for audiences in Sub-Saharan Africa.

5.3 (4). Adapt copies of digital masters where necessary.

5.3 (5). Identify additional fungal topics suitable for audiences in tropical and south-temperate Africa, and prepare digitized masters for them.

5.3 (6). Design new mobile and static exhibitions around them, identifying additional materials needed.

5.3 (7). Prepare accompanying paper exhibition leaflets, and on-line resources accessible by QR codes.

5.3 (8). Stage exhibitions with accompanying publicity.

Section 11 - Budget and Funding

Q24. 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 all Darwin Main should be using the over £100,000 template. Please refer to the [Finance Guidance](#) for more information.

- [Budget form for projects over £100k](#)

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 the Lead Partner's accounts at the certification page at the end of the application form.

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Q25. Funding

Q25a. 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:

The databases and expertise making this project realistic and achievable stem from earlier Darwin awards: 3-054 (1993-1996); 6-056 (1997-2000); 8-011 (1999-2002); 10-001 (2001-2004); 11-026 (2002-2005), and particularly Darwin project 16-008, "Conservation of Microfungi, a voice for unprotected and vulnerable organisms" (2007-2010). It catalysed fungal conservation. In 2009, IUCN treated fungi as plants, with only two fungi red-listed. There are now 600, and IUCN recognizes that animals, fungi and plants merit equal protection. Fungal conservation NGOs have appeared, for example Fundación Fungi [<https://ffungi.org>], and institutions like RBG Kew are paying more attention to fungi.

Output 1 is the next step in that conservation journey. Starting in Sub-Saharan Africa, it aims to help CBD countries incorporate fungi, hitherto almost totally neglected, in their future strategies and plans. That is completely new and never previously funded.

Output 2 builds on many earlier surveys of sustainable mushroom harvesting by Sub-Saharan rural women. Natural woodland destruction in Africa for charcoal is widely documented, but its damage to fungal diversity and mushroom harvesting has only recently become evident through pioneering research by the Project Leader and co-workers, including several Rufford grants. They showed a clear link between observed fungal diversity decline and livelihood losses for women.

Q25b. Are you aware of any current or future plans for similar work to the proposed project?

Yes

Please give details explaining similarities and differences, and explaining how your work will be additional and what attempts have been/will be made to co-operate with and learn lessons from such work for mutual benefits.

We know no current work involving fungi and similar to Output 1.

Minter & Soliman submitted a proposal to Darwin round 29 involving work similar to Output 1 for Bolivia. It was not shortlisted, but has not been abandoned. Fundación Fungi [<https://ffungi.org>], a fungal conservation NGO based in Chile, also recognizes the need to include fungi in South American CBD documents. It has been offered full co-operation and a mutual exchange of lessons learned. If funded, we will continue that collaboration. The present project will also foster already growing interest in such work within the IUCN Species Survival Commission (Dr Minter chairs one of its five Fungal Specialist Groups).

Natural forest destruction through logging and charcoal production is already the focus of many

conservation NGOs. We already have preliminary contact with African Forest Forum [www.afforum.org] and My Trees Trust [<https://mytreestrust.org>], and plan to develop collaboration with others. But the only known work currently addressing links with women's livelihoods and fungal diversity loss [Output 2] is a 2022 Darwin project on sustainable livelihoods of rural women in Malawi, which contains a small fungal component. If funded, the present proposal will also seek full collaboration there.

Q26. 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.

Total capital costs are 6%. A vehicle is needed for the frequent and necessary access to participating villages and other sites, many remote and far from Parakou University. Post project, it will continue in use by the University's centre of excellence for mycology. Other capital items purchased with Darwin funding for this project are very modest and form a very small proportion of total project costs covered by Darwin [REDACTED]. Those allocated to the Lead Partner will remain with and continue to be used by Prof. Yorou (Project Leader) and staff taken on for this project. Those allocated to Zimbabwe will similarly stay with Dr Sharp (Partner for Zimbabwe) and project staff taken on in Zimbabwe.

Q27. 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). Please make sure you read the guidance documents, before answering this question.

This project seeks to be frugal, efficient and effective, with integral monitoring and evaluation. It aspires to have continuous improvement, scrupulous financial management and zero waste. It is distinct, with a realistic budget, timeframe, end date, specific measurable results and significant matched funding. It neither cuts across nor duplicates other work, is light on international travel, and operates in some of the world's poorest countries.

Its design reflects the Lead Applicant's experience, including six earlier Darwin projects all successfully completed on-time and within budget. It applies the Permaculture Association's sustainability precepts, benefitting synergistically from the Association's networks and particularly its long-established promotion of gender equality: there is no re-inventing the wheel. It seeks to deliver maximum impact through optimal use of resources, and delivers results which would not otherwise happen.

Output 1 addresses the CBD's complete failure in practice to protect fungi, a biological kingdom vital for sustainability (not least protection against desertification), and more speciose and diverse than plants. It supports and improves national conservation policy in at least six countries, with excellent scalability prospects. It aims to provide conservation with a global opportunity to reflect true biodiversity, not just fauna and flora. Output 2 addresses forest destruction threats to millions of impoverished Sub-Saharan women with livelihoods dependent on fungi. Output 3 explores hitherto unidentified, unknown or even hidden links between poverty, gender inequality and fungal diversity loss, thereby addressing an information gap impediment for fungal conservation. The cost is modest, and the expected legacy sustainable, permanent and global.

Section 12 - Safeguarding and Ethics

Q28. 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 all 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 behaviours - inside and outside the work place - and make clear what will happen in the event of non-compliance or breach of these standards	Checked

Please outline how you will implement and strengthen your safeguarding policies in practice and ensure that all partners apply the same standards as the Lead Partner. If any of the responses are "no", please indicate how it is being addressed.

Benin has a national decree against bullying, harassment and sexual abuses [attached]. The University complies, and has a committee to record, investigate and deal with reports of misdemeanours.

Within this project, Core Staff will establish and maintain a safeguarding culture, fostering it downstream. Project staff will be informed on appointment of project grievance and whistleblowing policies, and told to contact Ms Soliman or Dr Sharp. Human rights abuses are not anticipated within the project but, if impacting from outside, Core Staff will seek advice and help initially from partners they represent and eventually, if necessary, from Darwin.

Q29. Ethics

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

guidance.

The Project Leader will carry ultimate responsibility for ensuring key ethical principles are followed, and CABI has an Ethics Committee which can provide support. All named project staff have read and accept those principles as outlined in Darwin guidance. They are committed to meeting them, and strongly want the project's environment to foster such principles. Collectively, throughout their careers, their record in this respect is long and unblemished. A similar approach will be encouraged in downstream collaborators. Prior to appointment, new project staff will be required to read the principles, with acceptance a condition of appointment. Project monitoring and evaluation will routinely check that activities and results have adhered to and reflect those principles.

Additional to staff health and safety welfare, this project will particularly strive to deliver best practice for the following Darwin guidance principles:

- credibility of evidence, research and other findings, to be upheld in on-line databases, scientific publications, and websites;
- incorporation of interests, prior consent, privacy, respect for traditional knowledge, rights, safety and well-being of people impacted by project activities, especially during courses and site visits;
- access and benefit sharing, legal obligations, and use of genetic resources.

Section 13 - FCDO Notifications

Q30. 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.

Yes (no written advice)

Section 14 - Project Staff

Q31. Project staff

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

Please provide 1-page CVs or job description, further information on who is considered core staff can be found in the [Finance Guidance](#).

Name (First name, Surname)	Role	% time on project	1 page CV or job description attached?
Nourou Yorou	Project Leader	40	Checked

David Minter	CABI partner; Cybertruffle volunteer	40	Checked
Cathy Sharp	Matobo Conservation Society Zimbabwe partner	10	Checked
Gihan Soliman	Permaculture Association Britain partner	10	Checked





Do you require more fields?





Yes





Name (First name, Surname)	Role	% time on project	1 page CV or job description attached?
<i>No Response</i>	Finance Officer, Benin	40	Checked
<i>No Response</i>	Graduate 1 (output 1: fungal data management & national fungal assessments)	100	Checked
<i>No Response</i>	Graduate 2 (outputs 2 & 5: destroyed forest amelioration, liaison with villagers, outreach & publicity)	100	Checked
<i>No Response</i>	Graduate 3 (outputs 3 & 5: fungal diversity loss impacts on livelihoods and gender inequality, outreach & publicity)	100	Checked
<i>No Response</i>	Graduate 4 (output 1: fungal data management & national fungal assessments)	100	Checked
<i>No Response</i>	<i>No Response</i>	0	Unchecked
<i>No Response</i>	<i>No Response</i>	0	Unchecked
<i>No Response</i>	<i>No Response</i>	0	Unchecked





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.





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

 [dir29s21032 job description graduate 1](#)
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 [dir29s21032 cv yorou](#)
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 [dir29s21032 cv sharp](#)
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 [dir29s21032 cv soliman](#)
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 [dir29s21032 cv minter](#)
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Have you attached all project staff CVs?

Yes

Section 15 - Project Partners

Q32. Project Partners

Please list all the Project Partners (including the Lead Partner - i.e. the partner who will administer the grant and coordinate the delivery of the project), 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: University of Parakou

Website address: <http://mytips.leb-up.org>

Full engagement so far and future full engagement planned.

Roles. Project leadership (Yorou).

Responsibilities. Management of project; financial control; monitoring & evaluation; management of risk; delivering value for money; ethics; reporting to Darwin; appointing Benin-based staff; pastoral care of Benin-based staff; supervising fieldwork, trials and NGO course organization; jointly supervising research on fungal diversity decline impacts on poverty and its synergy with gender inequality (with CABI); digitizing and editing of data (with Cybertruffle); jointly supervising preparing national fungal status assessments (with CABI); jointly preparing culture collection plans (with CABI).

Details (including roles and responsibilities and capacity to engage with the project):

Capabilities and capacity. The Tropical Mycology and Plants-Soils-fungi Interactions [MyTIPS] research unit is affiliated to the Laboratory of Ecology, Botany and Plant Biology (LEB) of the University of Parakou. In 2022, MyTIPS scientific staff comprised 2 lecturers, 5 post-doctoral fellows and 7 PhD students, all organized around 5 different but complementary research themes which seek to optimize use of fungi and mitigating their harmful effects. Each year, MyTIPS also receives and trains around 4 undergraduates (BSc) and 3 graduate (MSc) students.

Allocated budget (proportion or value):

£ [REDACTED]

Represented on the Project Board

Yes

Have you included a Letter of Support from this organisation?

Yes

Have you provided a cover letter to address your Stage 1 feedback?

Yes

Do you have partners involved in the Project?

Yes

1. Partner Name:

CABI

Website address:

www.cabi.org

Full engagement so far and future full engagement planned.

Roles. Scientific aspects of sustainable development (Minter).

Responsibilities. Preparing plans for a culture collection in Parakou (jointly with Yorou); supervision of report on links between fungal diversity decline and poverty and gender inequality; supervision of status of fungi assessments.

Details (including roles and responsibilities and capacity to engage with the project):

Capabilities and capacity. An very long-established international organization widely recognized for its extensive informational resources, scientific expertise and impartiality. CABI is dedicated to sharing knowledge and science. It tackles global issues like poverty, hunger, education, equality, sustainability, climate change and biodiversity, by helping farmers grow more and lose less of their produce, by combating threats to agriculture and the environment from pests and diseases, by protecting natural habitats from invasive species, and by improving access to scientific knowledge.

Allocated budget:

£ [REDACTED]

Represented on the Project Board

Yes

Have you included a Letter of Support from this organisation?

Yes

2. Partner Name: Matobo Conservation Society

Website address: <https://matobo.org>

Full engagement so far and future full engagement planned.

Roles. Partner for Zimbabwe (Sharp).

Responsibilities. digitizing and editing of data (with Cybertruffle); fungal education & exhibitions in Zimbabwe; jointly supervising preparing national fungal status assessments (with CABI); monitoring & evaluation (output 2 for Zimbabwe); production of a fungus field guide; project blogs, publicity & social media in Zimbabwe (with Permaculture Association).

Details (including roles and responsibilities and capacity to engage with the project):

Capabilities and capacity. The Matobo Conservation Society a membership-based organisation run by a small and dynamic committee which meets every month. The Society is committed to the conservation, appreciation and sustainable use of the natural and cultural resources within the historic Matobo Hills region. It seeks the co-operation of the Government of Zimbabwe, including relevant Government Ministries and Departments, local authorities and other societies, organizations, associations, groups and other bodies or individuals in any matter concerned directly or indirectly in the Hills in any way to conserve the natural and historical resources of the Hills. It has a track record of safe handling of overseas funds to deliver successful projects.

Allocated budget: £ [REDACTED]

Represented on the Project Board Yes

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

3. Partner Name: Permaculture Association

Website address: www.permaculture.org.uk

Full engagement so far and future full engagement planned.

Roles. Specialist partner for grassroots sustainable development; lead in promoting gender equality (Soliman).

Responsibilities. Co-ordinating blogs, publicity & social media for NGO work (Benin, UK & Zimbabwe); input from Permaculture Association to NGO courses (Benin); input from Permaculture Association to site surveys (Benin); supervision of monitoring & evaluation (output 2 for Benin).

Details (including roles and responsibilities and capacity to engage with the project):

Capabilities and capacity. The Permaculture Association works to change the way we live, radically and positively. It actively supports a worldwide movement, helping to educate, network, support and redesign all aspects of daily life to transform people, communities and landscapes. The Association promotes design of intelligent systems which meet human needs while enhancing biodiversity, reducing human impact on the planet, and creating a fairer world.

Allocated budget: £ [REDACTED]

Represented on the Project Board Yes

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

4. Partner Name: Cybertruffle

Website address: www.cybertruffle.org.uk/eng

Full engagement so far and future full engagement planned.

Roles. Volunteer contributor (Minter); provision of in-kind matched funding.

Details (including roles and responsibilities and capacity to engage with the project):

Responsibilities. training and supervising digitizing and editing of data (with Benin and Zimbabwe); supervising monitoring & evaluation (output 1); supervising software development and updates for country websites and horizon scanning; uploading new data to GBIF, CABI and Cybertruffle; provision of exhibition material.

Capabilities and capacity. Almost 40 years experience developing and maintaining computerized databases for fungal information. Almost 30 years experience leading biodiversity conservation projects.

Allocated budget: £0.00

Represented on the Project Board Yes

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

If no, please provide details

A support letter is doubtfully appropriate from a volunteer. With six successfully completed Darwin projects, and as current Lead Applicant, I am strongly indebted to the Initiative. Now rather senior, I want my experience and expertise used to the full while still available. I certainly support this proposal.

5. Partner Name: *No Response*

Website address: *No Response*

Details (including roles and responsibilities and capacity to engage with the project): *No Response*

Allocated budget: £0.00

Represented on the Project Board Yes No

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

6. Partner Name: *No Response*

Website address: *No Response*

Details (including roles and responsibilities and capacity to engage with the project): *No Response*

Allocated budget: £0.00


Represented on the Project Board Yes No


Have you included a Letter of Support from this organisation? Yes 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 responding to feedback received at Stage 1 if applicable and a combined PDF of all letters of support.


 [dir29s21032 support letters](#)


 12/12/2022


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 [dir29s21032 cover letter signed by project leader](#)

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Section 16 - Lead Partner Capability and Capacity

Q33. Lead Partner Capability and Capacity

Has your organisation been awarded 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

If no, please provide the below information on the lead partner.

What year was your organisation established/ incorporated/ registered? 01 January 2001

What is the legal status of your organisation? University

How is your organisation currently funded?

The University of Parakou is a public scientific, technical and cultural body legally affiliated to the Ministry of Higher Education and Scientific Research of the Benin Republic. It receives support from the government of Benin through a public fund. Tuition fees and training costs of students (BSc, MSc & PhD levels) cover a large part of the administrative costs. Overheads of research grants obtained by the scientists from different laboratories brings in additional income. Donations and legacies from individual benefactors represent another contribution to the University's annual budget. Finally, further support comes in from the University's different production units.

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

Aims

Aims. To educate people, thereby generating a highly qualified human resource capable of orienting, influencing and contributing to the development of the country. The goal is to support economical, intellectual, cultural and technical development of the nation.

Activities

Activities. Teaching, and pure and applied scientific research focused on resolving practical problems. The University of Parakou provides tertiary education to graduate (BSc) and postgraduate (MSc, PhD) levels, carries out innovative fundamental and applied scientific and technical research, and plays a significant outreach rôle in the nations social life.

Achievements

Achievements. Over 100 peer-reviewed scientific papers, including "Guide des Champignons Comestibles du Benin"; 5 PhD and 90 other young scientists trained in tropical mycology; a fungal dried reference collection with over 4500 specimens from nine African countries; 28 threatened fungi (mycorrhizal basidiomycetes) red-listed for Benin.

Provide details 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 Darwin application.

Contract/Project 1 Title

Fungal Diversity of Tropical Africa: edible mushrooms of Benin [grant 01DG20015, German Federal Ministry of Education and Research BMBF].

Contract Value/Project budget (include currency)

[REDACTED]

Duration (e.g. 2 years 3 months)

3 years (i.e. 36 months), 1 October 2020 to 30 September 2023.

Role of organisation in project	Co-applicant. Project leader in Benin in charge of implementing the project in Benin, co-ordinating field and laboratory works in Benin, planning and running capacity building activities, workshops, and scientific visits, defining research topics, recruiting students (MSc and PhD) and postdocs, securing and managing the local molecular laboratory.
--	---

Brief summary of the aims, objectives and outcomes of the project	The goal of this project is to build a strong and efficient mycological research group at the University of Parakou through recruitment and reinforcement of scientific staff, securing modern laboratory facilities locally, capacity building via north-south exchange of students and scientists. The project addresses numerous aspects of mycology with results to be published in peer-reviewed international mycological journals, including inter alia the taxonomic diversity of fungi, use of fungi by local populations, techniques of mushroom cultivation, and patterns of ethno-ecology among local people. It will document edibility and bioactivity of wild fungi based on interviews with local peoples.
--	--

Client/independent reference contact details (Name, e-mail)	Prof. Dr Meike Piepenbring, Department of Mycology, University of Frankfurt am Main, Germany, [REDACTED] [REDACTED]
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Contract/Project 2 Title	Diversity and Production of Locally Harvested Fungi in the Light of Climate Variability in Benin [grant 226-2014-1109, Swedish Research Council for Environment, Agricultural Sciences and Spatial Planning].
---------------------------------	---

Contract Value/Project budget (include currency)	[REDACTED]
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Duration (e.g. 2 years, 3 months)	3 years (i.e. 36 months), 1 January 2015 to 31 December 2017.
--	---

Role of organisation in project	Co-applicant. Project leader in Benin in charge of implementing the project in Benin, co-ordinating field and laboratory work in Benin, planning and running capacity-building activities, workshops, and scientific stays, defining research topics, planning research activities, follow-up and publications, recruiting MSc and PhD students.
--	--

Brief summary of the aims, objectives and outcomes of the project	This project investigated the environmental factors controlling production of wild edible fungi as a source of food and monetary income for local people. It evaluated the fungal production levels and timing of sporophore appearance in three different forest types as influenced by rainfall, air and soil temperature, and humidity, with the aim of predicting effects of climate change on supply of fungi to local communities. Seven papers were published in international peer-reviewed mycological journals; 9 MSc and 3 PhD students were trained in Benin, and 1 PhD student was trained in Sweden.
--	--

Client/independent reference contact details (Name, e-mail) Dr Martin Ryberg, Department of Systematic Biology, University of Uppsala, Sweden. [REDACTED]

Contract/Project 3 Title Enhancing Mycological Capacities to Face Food Insecurity and Climate Change in West Africa: a package of three summer schools for a rapid and effective capacity building on mycological know-how for West African and German junior scientists + First International Symposium in Tropical African Mycology [grants 90-127 and 96-338, Volkswagen Foundation, Germany].

Contract Value/Project budget (include currency)

[REDACTED]

Duration (e.g. 2 years, 3 months) 3 years (i.e. 36 months), 1 July 2015 to 30 November 2017 and 1 May 2019 to 30 November 2019 [two projects with complementary goals].

Role of organisation in project Co-ordinator of the training programme, selecting the participant students, designing the training content, co-ordinating activities, leading the symposium organising committee.

Brief summary of the aims, objectives and outcomes of the project These projects aimed to train young African scientists in modern mycology. Senior mycologists from Europe and West Africa merged efforts and know-how to secure and promote north-south and south-south transfer of mycological knowledge. Three different summer schools (each of three weeks) and the first International Symposium in Tropical Mycology trained 90 young scientists from 36 countries in taxonomy, distribution, ecology and economical significance of tropical fungi. The symposium assembled 85 participants from 25 countries and addressed 11 core topics related to tropical mycology. The symposium identified an urgent need for strong conservation strategies for African fungi.

Client/independent reference contact details (Name, e-mail) Dr André De Kesel, Meise Botanic Garden, Meise, Belgium, [REDACTED]

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

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

Yes

Section 17 - Certification

Certification

On behalf of the

Trustees

of

University of Parakou

I apply for a grant of





£399,974.00

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, cover letter, letters of support, a budget, logframe, 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 are also enclosed.


Checked


Name	Bertrand Sogbossi-Bocco
Position in the organisation	Rector
Signature (please upload e-signature)	 dir29s21032 certification signed by parakou university rector  12/12/2022  16:27:02  pdf 321.56 KB
Date	09 December 2022


Please attach the requested signed audited/independently examined accounts.


 dir29s21032 university of parakou audited accounts 2018 truncated  12/12/2022  16:27:37  pdf 764.44 KB	 dir29s21032 university of parakou audited accounts 2017 truncated  12/12/2022  16:27:37  pdf 896.75 KB
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Please upload the Lead Partner's Safeguarding Policy as a PDF

 [dir29s21032 university of parakou manual f or handling harassment](#)

 12/12/2022

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Section 18 - Submission Checklist

Checklist for submission

	Check
I have read the Guidance, including the "Darwin Initiative Guidance", "Monitoring Evaluation and Learning Guidance", "Risk 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
I have provided my budget based on UK government financial years i.e. 1 April – 31 March and in GBP.	Checked
I have checked that our budget is complete, correctly adds up and I have included the correct final total at the start of the application.	Checked
The application been signed by a suitably authorised individual (clear electronic or scanned signatures are acceptable).	Checked
I have attached the below documents to my application <ul style="list-style-type: none">• my completed logframe as a PDF using the template provided	Checked
<ul style="list-style-type: none">• my budget (which meets the requirements above)	Checked
<ul style="list-style-type: none">• my completed implementation timetable as a PDF using the template provided	Checked
I have included a 1 page CV or job description for all the Project Staff identified at Question 31, including the Project Leader, or provided an explanation of why not.	Checked
I have included a letter of support from the Lead Partner and partner(s) identified at Question 32, or an explanation of why not.	Checked
I 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 28.	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 Partner, or provided an explanation if not.	Checked

I have checked the Darwin Initiative 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.

Unchecked

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: Fungal Conservation in Sub-Saharan Africa: sustainability and livelihood implications

	Activity	No. of months	Year 1 (23/24)				Year 2 (24/25)				Year 3 (25/26)			
			Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
General (1)	At outset, ensure core project staff understand gender-equal character of project and procedures for M&E, training where necessary [Soliman].	3												
General (2)	Throughout project, monitor and evaluate work, disaggregating measurables by gender and, where appropriate, by household income level [Core Staff, Finance Officer, supervised trained graduates].	33												
General (3)	Where not already done, seek to establish contact and a dialogue with CBD National Focus Points [Yorou].	6												
General (4)	Recruit graduate project staff on a gender-neutral basis, and train them (this may involve travel to UK) [Core Staff].	6												
Output 1	Conservation planning													
1.1 (1)	M&E: from outset, keep numbers of records newly digitized / derived from on-line open access databases; assess editorial work [Minter, supervised trained graduate].	33												
1.1 (2)	Train graduates based in Benin and Zimbabwe to extract, digitize and edit new data, and be able to train and supervise others [Minter].	9												
1.1 (3)	Identify reference collection sources of new Sub-Saharan fungal records and, where permissible, digitize them [Minter, trained graduates].	27												
1.1 (4)	Identify publications containing new Sub-Saharan fungal records, obtain copies of those publications, and digitize the records [Minter,	27												

Project Title: Fungal Conservation in Sub-Saharan Africa: sustainability and livelihood implications

	Activity	No. of months	Year 1 (23/24)				Year 2 (24/25)				Year 3 (25/26)			
			Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
	trained graduates].													
1.1 (5)	Edit the newly digitized records (scoping work indicates at least 70,000 new records will become available in this way) [Minter, trained graduates].	27												
1.1 (6)	Add them to the existing 62,000 fungal records from Sub-Saharan Africa [Minter].	6												
1.1 (7)	Make the new records available on-line [Minter].	3												
1.1 (8)	Avoiding data duplication where possible, upload Darwin Core data to GBIF with copy to CABI [Minter].	3												
1.1 (9)	Extract records from other open access databases (particularly GBIF), avoiding duplicates, edit to compatible standard, and prepare for use in assessments [Minter, trained graduates].	18												
1.2 (1)	M&E: test new country websites as they come on stream, to ensure they function correctly [Minter].	12												
1.2 (2)	Consulting National Focus Points and national mycologists where present, select at least six beneficiary Sub-Saharan countries (Benin, Zimbabwe and four others) [Yorou, Minter, Sharp].	3												
1.2 (3)	Using existing country websites as examples, prepare web pages, and modify existing code to function correctly for beneficiary countries [Minter, trained graduates].	12												
1.2 (4)	Make new country websites available on-line [Minter].	3												
1.3 (1)	M&E: review results of published works searches	33												

Project Title: Fungal Conservation in Sub-Saharan Africa: sustainability and livelihood implications

	Activity	No. of months	Year 1 (23/24)				Year 2 (24/25)				Year 3 (25/26)			
			Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
	to check significant sources not missed; submit resulting documents for peer review [Minter, supervised trained graduate].													
1.3 (2)	Finalize specifications for the proposed national fungal conservation plans (currently in draft) [Yorou, Minter].	3												
1.3 (3)	For each beneficiary country, search published works, not only on fungi, but also on associated organisms and on ecosystems [Yorou, Minter, trained graduates].	24												
1.3 (4)	Add output from all existing, new and acquired records to that information [Minter, trained graduates].	3												
1.3 (5)	List associated organisms nationally significant economically or because endemic or threatened, and allocate extra attention to their fungi [Yorou, Minter, Sharp, trained graduates].	9												
1.3 (6)	Accumulate information about national awareness of fungi among administrators and politicians, in education, and in the public [Yorou, Minter, Sharp, trained graduates].	24												
1.3 (7)	Accumulate information for each country about how fungal diversity promotes wealth and well-being, and how its loss impacts poverty and gender issues [Core Staff, trained graduates].	24												
1.3 (8)	For each beneficiary country, using accumulated information, produce a detailed national fungal conservation plan [Core Staff, trained graduates].	15												

Project Title: Fungal Conservation in Sub-Saharan Africa: sustainability and livelihood implications

	Activity	No. of months	Year 1 (23/24)				Year 2 (24/25)				Year 3 (25/26)			
			Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
1.3 (9)	Present plans to each CBD National Focus Point, subsequently also making them available on-line [Yorou, Sharp, Soliman, Minter].	9												
Output 2	Livelihoods protection													
2.1 (1)	Publicity [see activities for Output 5 below].	36												
2.2 (1)	M&E: record information about villages already contacted (including disaggregated gender statistics, local fungus-harvesting levels, plant nurseries and regeneration sites) [Soliman, supervised trained graduate].	18												
2.2 (2)	Inform village administrations in 10 already contacted villages / NGOs that the project can start [Yorou].	3												
2.2 (3)	Visit villages / NGOs; discuss project's Output 2 activities with local contacts (female and male), listening to responses, and modifying plans accordingly [Yorou, trained graduate].	6												
2.2 (4)	Identify training course participants on a gender neutral basis and agree course dates [Yorou, supervised trained graduate].	6												
2.2 (5)	Visit each existing or proposed nursery site, recording features; discuss planting and sapling care practicalities with local contacts (female and male) [Yorou, trained graduate].	6												
2.2 (6)	Select mushroom-harvesting villagers (i.e. with the strongest interest in project success) for seed collection and plant nursery work; ensuring they understand the job; agree remuneration [Yorou,	6												

Project Title: Fungal Conservation in Sub-Saharan Africa: sustainability and livelihood implications

	Activity	No. of months	Year 1 (23/24)				Year 2 (24/25)				Year 3 (25/26)			
			Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
	Soliman, trained graduate].													
2.2 (7)	Visit regeneration sites; evaluate their potential for receiving transplants from nurseries, and for agroforestry intercropping and other restoration treatments [Yorou, trained graduate].	6												
2.2 (8)	Select villagers to transplant seedlings at regeneration sites and provide after-care; ensuring they understand the job; agree remuneration [Yorou, trained graduate].	6												
2.3 (1)	M&E: record course dates, lists of course participants (including disaggregated gender statistics), and information about pre- and post-course awareness [Soliman, supervised trained graduate].	12												
2.3 (2)	Prepare course materials (forest destruction impacts, mycorrhizal fungi importance, mushroom harvesting livelihoods, forest nursery practice, regeneration management, permaculture, intercropping, coppicing etc.) [Yorou, Soliman, trained graduate].	6												
2.3 (3)	Hold rehearsal of course [Yorou, trained graduate].	3												
2.3 (4)	Deliver courses [initially Yorou and trained graduate; subsequently trained graduate alone].	6												
2.4 (1)	M&E: maintain records of tree planting at each nursery (dates, numbers of saplings, locations within nursery, species, sources, pests, diseases and mortality etc.) [supervised trained graduate].	30												

Project Title: Fungal Conservation in Sub-Saharan Africa: sustainability and livelihood implications

	Activity	No. of months	Year 1 (23/24)				Year 2 (24/25)				Year 3 (25/26)			
			Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
2.4 (2)	Obtain seed; ensure availability of necessary tools and other equipment; ensure participating villagers are ready to sow seed [trained graduate].	12												
2.4 (3)	Supervise sowing and check subsequent seedling care by villagers at each nursery is satisfactory [Yorou, trained graduate].	15												
2.4 (4)	Supervise transplanting and check subsequent plant care is satisfactory [Yorou, trained graduate].	24												
2.5 (1)	M&E: same as for activity 2.2 (1).	18												
2.5 (2)	Identify and shortlist potential additional villages and regeneration sites; establish contact, explaining project aims and negotiating collaboration [Yorou, trained graduate].	3												
2.5 (3)	Visit additional villages; discuss project's Output 2 activities with local contacts (female and male), listening to responses, and modifying plans accordingly [trained graduate].	6												
2.5 (4)	Identify training course participants on a gender neutral basis and agree course dates [trained graduate].	6												
2.5 (5)	Visit each existing or proposed nursery site, recording features; discuss planting and sapling care practicalities with local contacts (female and male) [trained graduate].	6												
2.5 (6)	Select mushroom-harvesting villagers to collect and plant tree seeds and carry out nursery after-care; ensuring they understand the job; agree remuneration [trained graduate].	6												

Project Title: Fungal Conservation in Sub-Saharan Africa: sustainability and livelihood implications

	Activity	No. of months	Year 1 (23/24)				Year 2 (24/25)				Year 3 (25/26)			
			Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
2.5 (7)	Visit regeneration sites; evaluate their potential for receiving transplants from nurseries, and for agroforestry intercropping and other restoration treatments [trained graduate].	6												
2.5 (8)	Select villagers to transplant seedlings at regeneration sites and provide after-care; ensuring they understand the job; agree remuneration [trained graduate].	6												
2.6 (1)	M&E: same as for activity 2.3 (1).	9												
2.6 (2)	Deliver courses [trained graduate].	6												
2.7 (1)	M&E: same as for activity 2.4 (1).	18												
2.7 (2)	Obtain seed; ensure availability of necessary tools and other equipment; ensure participating villagers are ready to sow seed [trained graduate].	9												
2.7 (3)	Supervise sowing and check subsequent seedling care by villagers at each nursery is satisfactory [trained graduate].	9												
2.7 (4)	Supervise transplanting and check subsequent plant care is satisfactory [trained graduate].	12												
2.7 (5)	If these activities are progressing well in Benin, begin similar work in Zimbabwe [Sharp, supervised trained graduate].	9												
2.8 (1)	M&E: carry out periodic mycological surveys of active nurseries and regeneration sites, and of sites where future regeneration is anticipated [Yorou, Sharp, supervised trained graduates].	33												
2.9 (1)	Encourage and support stakeholders to develop	12												

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	Activity	No. of months	Year 1 (23/24)				Year 2 (24/25)				Year 3 (25/26)			
			Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
	and commit to plans for continued care of existing young trees, and post-project sowing, transplanting and after-care of new young trees [Yorou, Sharp].													
Output 3	Poverty and gender equality issues													
3.1 (1)	M&E: at end of years 1 and 2, invite appropriate external experts to review work; submit resulting documents for peer review [Yorou, Soliman].	9												
3.1 (2)	Seek general evidence of fungal diversity benefits for human wellbeing, and fungal diversity decline impacts on poverty and gender equality [Minter, supervised trained graduate].	24												
3.1 (3)	Analyse that information then prepare and publish a peer reviewed report [Core Staff, trained graduate].	15												
Output 4	Infrastructure													
4.1 (1)	M&E: make six-monthly appraisals of each graduate, evaluating progress, successes and problems, disaggregating measurables to ensure gender equality [Core Staff, supervised trained graduate].	33												
4.1 (2)	Advertise for, interview, select (on gender equal basis), and appoint four graduates (see job descriptions) [Core Staff].	9												
4.1 (3)	Provide training (which may involve travel to UK) and subsequent supervision for graduates, developing expertise in following areas [Core Staff]:	33												

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	Activity	No. of months	Year 1 (23/24)				Year 2 (24/25)				Year 3 (25/26)			
			Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
	<ul style="list-style-type: none"> • assessing the status of fungi at national level [graduates 1 & 4]; • database design and editorial standards for handling fungal data [graduates 1 & 4]; • identifying and assessing areas of natural forest being damaged by logging, and determining restorative and ameliorative measures [graduate 2]; • liaising with NGOs organizing local courses raising awareness of diversity loss, gender issues and poverty resulting from unsustainable activities like logging and charcoal production [graduate 2]; • researching socio-economic aspects of fungal diversity and its links to human wellbeing, and of fungal diversity loss and links to poverty and gender inequality [graduate 3]; • software and website development [graduates 1 & 4]; • understanding and developing suitable national fungal conservation strategies [graduates 1 & 4]. 													
4.1 (4)	Allocate mycologists graduate the task of preparing fungal field guides mentioned in 5.2 below [Yorou, Sharp].	6												
4.2 (1)	M&E: check equipment has been purchased and improvements carried out; submit plans to peer review [Core Staff].	30												
4.2 (2)	Purchase budgeted new equipment, identify and carry out improvements to enhance centre for	9												

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	Activity	No. of months	Year 1 (23/24)				Year 2 (24/25)				Year 3 (25/26)			
			Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
	mycology in Parakou [Yorou].													
4.2 (3)	Undertake south-south (Benin–Zimbabwe) transfer of competence in collection management, drafting of field guides, and staging of exhibitions [Yorou, Sharp].	30												
4.2 (4)	Prepare plans for, and where possible work towards enhancement of Parakou University as a regional centre of excellence for mycology [Yorou, Minter].	24												
4.2 (5)	Prepare detailed plans for establishing a culture collection at the centre for mycology in Parakou [Yorou, Minter].	24												
4.3 (1)	M&E: record mycological activity associated with the centre (collected specimens, courses, field trips, numbers of visitors, publications etc.) [Yorou, supervised trained graduate].	33												
4.3 (2)	Prepare plans and take measures to ensure, as far as possible, that graduates continue in relevant work after project completion [Core Staff].	12												
4.3 (3)	Working with current African Mycological Association, support and encourage a revived on-line presence, including newsletters, lectures and meetings [Yorou, Sharp, supervised trained graduates].	33												
4.3 (3)	Prepare proposals for a new African fungal conservation NGO; circulate those proposals to mycologists and conservationists and, taking feedback into account, organize an inaugural on-	21												

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	Activity	No. of months	Year 1 (23/24)				Year 2 (24/25)				Year 3 (25/26)			
			Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
	line meeting [Yorou, Sharp, Minter].													
4.3 (4)	Prepare proposals for a new African fungal conservation NGO; circulate those proposals to mycologists and conservationists and, taking feedback into account, organize an inaugural on-line meeting [Yorou, Sharp, Minter].													
Output 5	Public awareness													
5.1 (1)	M&E: annually record number of each publicity event type; record impacts, for example through social media followers [Yorou, Sharp, Soliman, supervised trained graduate].	33												
5.1 (2)	Identify target audiences for publicity; plan and prepare the messages for each different audience, including form of delivery [Core Staff, trained graduates].	9												
5.1 (3)	Identify organizations opposing illegal logging and charcoal production, and evaluate them for potential to add value to this project's work [Yorou, Sharp, Soliman].	9												
5.1 (4)	Contact those shortlisted and explore collaboration possibilities [Yorou, Sharp, Soliman].	6												
5.1 (5)	Both independently and in collaboration, publicize the destruction being done to habitats and sustainable livelihoods [Yorou, Sharp, Soliman, trained graduates].	33												
5.1 (6)	At all levels, raise awareness of project messages, particularly Output 2, through radio, television, newspaper, magazine, social media	33												

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	Activity	No. of months	Year 1 (23/24)				Year 2 (24/25)				Year 3 (25/26)			
			Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
	blogs and campaigns [Yorou, Sharp, Soliman, trained graduates].													
5.2 (1)	M&E: annually review progress in production of texts and images with each lead author [Yorou, Sharp].	27												
5.2 (2)	Determine scope and content of each field guide, and identify suitable publisher [Yorou, Minter, Sharp].	6												
5.2 (3)	Accumulate relevant material (images, descriptions, information about individual species etc.) [Yorou, Sharp, trained graduates].	27												
5.2 (4)	Prepare text, illustrations and diagrams, including introduction, acknowledgements, and indexes [Yorou, Minter, Sharp, trained graduates].	27												
5.2 (5)	Print and publish [Yorou, Sharp].	3												
5.3 (1)	M&E: maintain list of completed panels; record public attendance at and response to exhibitions [Minter, Sharp, trained graduate].	33												
5.3 (2)	Identify suitable locations willing to host temporary/permanent exhibitions, and negotiate dates for staging those exhibitions [Yorou, Sharp, trained graduate].	9												
5.3 (3)	Review existing digitized panels from prior UK fungal exhibition, and material from on-going fungal exhibition in Zimbabwe, selecting components suitable for audiences in Sub-Saharan Africa [Core Staff].	3												

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	Activity	No. of months	Year 1 (23/24)				Year 2 (24/25)				Year 3 (25/26)			
			Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
5.3 (4)	Adapt copies of digital masters where necessary [Minter, trained graduate].	6												
5.3 (5)	Identify additional fungal topics suitable for audiences in tropical and south-temperate Africa, and prepare digitized masters for them [Core Staff].	9												
5.3 (6)	Design new mobile and static exhibitions around them, identifying additional materials needed [Yorou, Minter, Sharp].	6												
5.3 (7)	Prepare accompanying paper exhibition leaflets, and on-line resources accessible by QR codes [Core Staff].	6												
5.3 (8)	Stage exhibitions with accompanying publicity [Yorou, Sharp, trained graduate].	24												

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Project Summary	SMART Indicators	Means of Verification	Important Assumptions
Impact: 16/30}Fungi no longer neglected by CBD; poverty and gender inequality impacts of fungal diversity loss recognized.			
Outcome: 30/30}Sub-Saharan fungal conservation established through national conservation plans, protection of mycorrhizal forest and sustainable mushroom harvesting livelihoods, and better understanding of links between fungal diversity loss, poverty and gender inequality.	0.1. Country level assessments and conservation plans for fungi presented to at least six CBD National Focus Points (Benin, Zimbabwe and four other countries) [by end of March 2026]. 0.2. In Benin only, 20 villages (400 households) countrywide participating in a programme rearing native ectomycorrhizal saplings to regenerate felled woodland [by end of March 2026]. 0.3. Publicity through a wide range of media, evidencing raised awareness. 0.4. Pioneering global report on gender and poverty impacts of fungal diversity loss published [by end of March 2026].	0.1. Examine copies of assessments. 0.2. Visit participating villages; inspect their community gardens, see planted saplings; see evidence of 'buy-in' from NGOs. 0.3. Examine articles in magazines & newspapers, press releases, radio & television appearances, social media, leaflets, exhibitions etc. 0.4. Read report.	No major global or national events, political or otherwise, adversely impact on work [CBD National Focus Points have already indicated that assessments would be welcome].
Outputs: 1 (conservation planning). Information about sub-Saharan fungi and the threats they face, available on-line, analysed and presented to governments as national fungal conservation plans in a form convenient for non-specialists.	1.1. More than 70,000 sub-Saharan fungal records from reference collections and published sources previously unavailable on-line, digitized, edited, and made available along with new project-generated records, through GBIF [Darwin Core fields] and open-access on-line mycological databases [by end of December 2025]. 1.2. Websites based on these	1.1, 1.2. View databases and websites on-line; demonstrate their use through Google Analytics. 1.3. View publications.	1.1, 1.2. Procedures used over many years make this work low risk [through previous Darwin Initiative and other projects, fungal records from Cuba, Georgia, Trinidad and Tobago, Ukraine, Venezuela and other countries have been digitized, now fungi of Sub-Saharan Africa need to be done]. 1.3. Suitable in-country mycologists or potential

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	<p>records set up for at least six Sub-Saharan countries (Benin, Zimbabwe and four other countries) [by end of March 2026].</p> <p>1.3. Detailed peer-reviewed assessments of the status of fungi published, with advice and policy recommendations for at least six Sub-Saharan countries (Benin, Zimbabwe and four other countries) [by end of December 2025].</p>		<p>mycologists can be found to collaborate in preparing fungal assessments for the four as-yet unidentified beneficiary countries or, failing that, the work can be done from Benin and Zimbabwe, largely based on paper-published and on-line information.</p>
<p>2 (livelihoods protection). Fungal habitats and sustainable mushroom-harvesting livelihoods they provide understood, valued, protected, and included in remediation plans, with (Benin only) pilot ameliorative measures introduced [UN Sustainable Development Goals SDG2, SDG3, SDG7, SDG15].</p>	<p>2.1. Publicity [see Output 5 below].</p> <p>2.2 (Benin only). 10 collaborating villages (200 households) with 10 existing or new plant nurseries near surviving or recently felled natural forest (village administrations, landowners and NGOs already contacted and willing to collaborate) [by end of March 2024].</p> <p>2.3 (Benin only). 20 training days, two for each collaborating village, with 50 participants per village, raising awareness of mycorrhizal fungi restoration and options for agroforestry during regeneration [by end of March 2024].</p> <p>2.4 (Benin only). 10 plant nurseries each annually producing at least 300 actively growing young trees of known</p>	<p>2.1. See Output 5 below.</p> <p>2.2 & 2.5. Lists of participating villages; photographs and videos of nurseries; georeferenced lists of forest sites.</p> <p>2.3 & 2.6. Correspondence, photographs, lists of participants, copies of course teaching materials.</p> <p>2.4 & 2.7. Nursery records, photographs.</p> <p>2.8. Read report.</p> <p>2.9. Examine written agreed exit strategy; verify implementation by parties to that strategy.</p>	<p>2.5 & 2.6. Additional suitable villages can be found where administrations and land-owners are willing to collaborate.</p> <p>2.8. Mycologists can visit sites often enough to generate meaningful data.</p>

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	<p>native ectomycorrhizal species (plans in place to employ mushroom-harvesting women for sourcing seed, planting and seedling care), with each year's saplings transplanted to regeneration sites (plans in place for transplanting work and after-care) [by end of March 2026].</p> <p>2.5 (Benin only). Collaboration extended to 10 more villages (200 more households) with suitable nurseries and regeneration sites [by end of March 2024].</p> <p>2.6 (Benin only). 20 more training days, two for each additional village, as for activity 2.3 [by end of March 2025].</p> <p>2.7 (Benin only). Plant nurseries of additional villages operating as for activity 2.4 [by end of March 2026].</p> <p>2.8 (Benin only). A countrywide report of monitoring mycorrhizal fungi, with special focus on project sites [by end of March 2026].</p> <p>2.9 (Benin only). Provision for continued livelihood protection through exit strategy [by end of March 2026].</p>		
<p>3 (poverty and gender equality issues). A global investigation of links between fungal diversity loss, poverty and gender</p>	<p>3.1. A published peer reviewed pioneering global report on links between fungal diversity loss, poverty and gender inequality [by</p>	<p>3.1. View publication.</p>	<p>3.1. Anticipated informational gaps can be bridged through an investigative approach (fungal diversity loss is poorly</p>

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<p>inequality (currently almost completely unexplored), with a published pioneering report on the findings.</p>	<p>end of March 2026].</p>		<p>understood, and links with poverty and gender inequality may be subtle, hidden or even denied). Additional expertise can be imported in through collaboration.</p>
<p>4 (infrastructure). Sub-Saharan mycology infrastructure strengthened.</p>	<p>4.1. Three graduates trained as mycologists at Parakou University's regional centre of excellence for mycology, and one graduate similarly trained in Zimbabwe, with additional expertise in fungal conservation and data handling [by end of March 2026]. 4.2. Enhanced facilities at the centre, including plans for culture collection [by end of March 2026]. 4.3. Increased numbers of visiting mycologists, students trained, field trips, reference collections accessed, and papers published at the centre [by end of March 2026]. 4.4. The African Mycological Association revitalized, and new African fungal conservation NGO(s) established. Gender-equal policies encouraged in these bodies.</p>	<p>4.1. At least one manuscript including their names as authors and dealing with fungal conservation prepared and submitted for peer-reviewed publication; digitized records attributable to their work (evidence in 'keyboarder/editor' field); evidence of participation in outreach activities (names on leaflets, records of interviews etc.). 4.2. Lists of equipment acquired; before & after photographs; detailed culture collection plans. 4.3. Annual statistics of scientific visits to the centre; numbers of students trained; numbers of publications in which the Darwin Initiative is acknowledged. 4.4. Evidence of learned society and new NGO activities on-line, including evidence of actively promoted gender-equal policies.</p>	<p>No major global or national events, political or otherwise, adversely impact on work.</p>
<p>5 (public awareness). Public awareness of importance of fungi raised.</p>	<p>5.1. Publicity (including involvement of local communities, women and non-scientists) through radio, television, newspaper, magazine and social media including blogs and</p>	<p>5.1. Lists of radio/television appearances; copies of newspapers and magazines; social media pages and tags. 5.2. Publications (hardcopies). 5.3. Photographs, websites, press</p>	<p>5.3. Venues [indoor and outdoor] willing to stage exhibitions can be found.</p>

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	<p>campaigns. 5.2. Three popular (accessible to lay-people) guides to common fungi (2 for Benin, 1 for Zimbabwe where three already exist) [by end of March 2026]. 5.3. Mobile exhibitions staged in Benin, Zimbabwe and, if possible, other countries [by end of March 2026].</p>	<p>coverage.</p>	
<p>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. Each activity should start on a new line and be no more than approximately 25 words.</p> <p>General</p> <p>General (1). At the outset, ensure core project staff understand gender-equal character of project and procedures for M&E, training where necessary.</p> <p>General (2). Throughout project, monitor and evaluate work, disaggregating measurables by gender and, where appropriate, by household income level.</p> <p>General (3). Where not already done, seek to establish contact and a dialogue with CBD National Focus Points.</p> <p>General (4). Recruit graduate project staff on a gender-neutral basis, and train them (this may involve travel to UK).</p> <p>Output 1.1 [digitizing Sub-Saharan fungal records]</p> <p>1.1 (1). M&E: from outset, keep numbers of records newly digitized / derived from on-line open access databases; assess editorial work.</p> <p>1.1 (2). Train graduates based in Benin and Zimbabwe to extract, digitize and edit new data, and be able to train and supervise others.</p> <p>1.1 (3). Identify reference collection sources of new Sub-Saharan fungal records and, where permissible, digitize them.</p> <p>1.1 (4). Identify publications containing new Sub-Saharan fungal records, obtain copies of those publications, and digitize the records.</p> <p>1.1 (5). Edit the newly digitized records (scoping work indicates at least 70,000 new records will become available in this way).</p> <p>1.1 (6). Add them to the existing 62,000 fungal records from Sub-Saharan Africa.</p> <p>1.1 (7). Make the new records available on-line.</p> <p>1.1 (8). Avoiding data duplication where possible, upload Darwin Core data to GBIF with copy to CABI.</p> <p>1.1 (9). Extract records from other open access databases (particularly GBIF), avoiding duplicates, edit to compatible standard, and prepare for use in assessments.</p> <p>Output 1.2 [preparing new Sub-Saharan country websites]</p> <p>1.2 (1). M&E: test new country websites as they come on stream, to ensure they function correctly.</p>			

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- 1.2 (2). Consulting National Focus Points and national mycologists where present, select at least six beneficiary Sub-Saharan countries (Benin, Zimbabwe and four others).
- 1.2 (3). Using existing country websites as examples, prepare web pages, and modify existing code to function correctly for beneficiary countries.
- 1.2 (4). Make new country websites available on-line.

Output 1.3 [preparing Sub-Saharan national fungal assessments]

- 1.3 (1). M&E: review results of published works searches to check significant sources not missed; submit resulting documents for peer review.
- 1.3 (2). Finalize specifications for the proposed national fungal conservation plans (currently in draft).
- 1.3 (3). For each beneficiary country, search published works, not only on fungi, but also on associated organisms and on ecosystems.
- 1.3 (4). Add output from all existing, new and acquired records to that information.
- 1.3 (5). List associated organisms nationally significant economically or because endemic or threatened, and allocate extra attention to their fungi.
- 1.3 (6). Accumulate information about national awareness of fungi among administrators and politicians, in education, and in the public.
- 1.3 (7). Accumulate information for each country about how fungal diversity promotes wealth and well-being, and how its loss impacts poverty and gender issues.
- 1.3 (8). For each beneficiary country, using accumulated information, produce a detailed national fungal conservation plan.
- 1.3 (9). Present plans to each CBD National Focus Point, subsequently also making them available on-line.

Output 2.1 [publicity]

- 2.1 (1). Publicity [see activities for Output 5 below].

Output 2.2 [first tranche of collaborating villages]

- 2.2 (1). M&E: record information about villages already contacted (including disaggregated gender statistics, local fungus-harvesting levels, plant nurseries and regeneration sites).
- 2.2 (2). Inform village administrations in 10 already contacted villages / NGOs that the project can start.
- 2.2 (3). Visit villages / NGOs; discuss project's Output 2 activities with local contacts (female and male), listening to responses, and modifying plans accordingly.
- 2.2 (4). Identify training course participants on a gender neutral basis and agree course dates.
- 2.2 (5). Visit each existing or proposed nursery site, recording features; discuss planting and sapling care practicalities with local contacts (female and male).
- 2.2 (6). Select mushroom-harvesting villagers (i.e. with the strongest interest in project success) for seed collection and plant nursery work; ensuring they understand the job; agree remuneration.
- 2.2 (7). Visit regeneration sites; evaluate their potential for receiving transplants from nurseries, and for agroforestry intercropping and

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- 2.2 (8). other restoration treatments.
Select villagers to transplant seedlings at regeneration sites and provide after-care; ensuring they understand the job; agree remuneration.

Output 2.3 [first tranche of courses]

- 2.3 (1). M&E: record course dates, lists of course participants (including disaggregated gender statistics), and information about pre- and post-course awareness.
2.3 (2). Prepare course materials (forest destruction impacts, mycorrhizal fungi importance, mushroom harvesting livelihoods, forest nursery practice, regeneration management, permaculture, intercropping, coppicing etc.).
2.3 (3). Hold rehearsal of course.
2.3 (4). Deliver courses.

Output 2.4 [first sowing and transplanting]

- 2.4 (1). M&E: maintain records of tree planting at each nursery (dates, numbers of saplings, locations within nursery, species, sources, pests, diseases and mortality etc.).
2.4 (2). Obtain seed; ensure availability of necessary tools and other equipment; ensure participating villagers are ready to sow seed.
2.4 (3). Supervise sowing and check subsequent seedling care by villagers at each nursery is satisfactory.
2.4 (4). Supervise transplanting and check subsequent plant care is satisfactory.

Output 2.5 [second tranche of collaborating villages]

- 2.5 (1). M&E: same as for activity 2.2 (1).
2.5 (2). Identify and shortlist potential additional villages and regeneration sites; establish contact, explaining project aims and negotiating collaboration.
2.5 (3). Visit additional villages; discuss project's Output 2 activities with local contacts (female and male), listening to responses, and modifying plans accordingly.
2.5 (4). Identify training course participants on a gender neutral basis and agree course dates.
2.5 (5). Visit each existing or proposed nursery site, recording features; discuss planting and sapling care practicalities with local contacts (female and male).
2.5 (6). Select mushroom-harvesting villagers to collect and plant tree seeds and carry out nursery after-care; ensuring they understand the job; agree remuneration.
2.5 (7). Visit regeneration sites; evaluate their potential for receiving transplants from nurseries, and for agroforestry intercropping and other restoration treatments.
2.5 (8). Select villagers to transplant seedlings at regeneration sites and provide after-care; ensuring they understand the job; agree remuneration.

Output 2.6 [second tranche of courses]

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2.6 (1). M&E: same as for activity 2.3 (1).

2.6 (2). Deliver courses.

Output 2.7 [second tranche of sowing and transplanting]

2.7 (1). M&E: same as for activity 2.4 (1).

2.7 (2). Obtain seed; ensure availability of necessary tools and other equipment; ensure participating villagers are ready to sow seed.

2.7 (3). Supervise sowing and check subsequent seedling care by villagers at each nursery is satisfactory.

2.7 (4). Supervise transplanting and check subsequent plant care is satisfactory.

2.7 (5). If these activities are progressing well in Benin, begin similar work in Zimbabwe.

Output 2.8 [monitoring mycorrhizal populations]

2.8 (1). M&E: carry out periodic mycological surveys of active nurseries and regeneration sites, and of sites where future regeneration is anticipated.

Output 2.9 [livelihoods protection exit strategy]

2.9 (1). Encourage and support stakeholders to develop and commit to plans for continued care of existing young trees, and post-project sowing, transplanting and after-care of new young trees.

Output 3.1 [pioneering global report on poverty and gender equality links]

3.1 (1). M&E: at end of years 1 and 2, invite appropriate external experts to review work; submit resulting documents for peer review.

3.1 (2). Seek general evidence of fungal diversity benefits for human wellbeing, and fungal diversity decline impacts on poverty and gender equality.

3.1 (3). Analyse that information then prepare and publish a peer reviewed report.

Output 4.1 [taking on project graduates and training them]

4.1 (1). M&E: make six-monthly appraisals of each graduate, evaluating progress, successes and problems, disaggregating measurables to ensure gender equality.

4.1 (2). Advertise for, interview, select (on gender equal basis), and appoint four graduates (see job descriptions).

4.1 (3). Provide training (which may involve travel to UK) and subsequent supervision for graduates, developing expertise in following areas:

- assessing the status of fungi at national level;
- database design and editorial standards for handling fungal data;
- identifying and assessing areas of natural forest being damaged by logging, and determining restorative and ameliorative measures;
- liaising with NGOs organizing local courses raising awareness of diversity loss, gender issues and poverty resulting from unsustainable activities like logging and charcoal production;

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- researching socio-economic aspects of fungal diversity and its links to human wellbeing, and of fungal diversity loss and links to poverty and gender inequality;
 - software and website development;
 - understanding and developing suitable national fungal conservation strategies.
- 4.1 (4). Allocate mycologist graduates the task of preparing fungal field guides mentioned in 5.2 below.

Output 4.2 [strengthening mycological infrastructure]

- 4.2 (1). M&E: check equipment has been purchased and improvements carried out; submit plans to peer review.
- 4.2 (2). Purchase budgeted new equipment, identify and carry out improvements to enhance centre for mycology in Parakou.
- 4.2 (3). Undertake south-south (Benin–Zimbabwe) transfer of competence in collection management, drafting of field guides, and staging of exhibitions.
- 4.2 (4). Prepare plans for, and where possible work towards enhancement of Parakou University as a regional centre of excellence for mycology.
- 4.2 (5). Prepare detailed plans for establishing a culture collection at the centre for mycology in Parakou.

Output 4.3 [increasing Sub-Saharan fungal conservation activities]

- 4.3 (1). M&E: record mycological activity associated with the centre (collected specimens, courses, field trips, numbers of visitors, publications etc.).
- 4.3 (2). Prepare plans and take measures to ensure, as far as possible, that graduates continue in relevant work after project completion.
- 4.3 (3). Working with current African Mycological Association, support and encourage a revived on-line presence, including newsletters, lectures and meetings.
- 4.3 (4). Prepare proposals for a new African fungal conservation NGO; circulate those proposals to mycologists and conservationists and, taking feedback into account, organize an inaugural on-line meeting.

Output 5.1 [raising awareness of project messages]

- 5.1 (1). M&E: annually record number of each publicity event type; record impacts, for example through social media followers.
- 5.1 (2). Identify target audiences for publicity; plan and prepare the messages to be suitable for each different audience, including form of delivery.
- 5.1 (3). Identify organizations opposing illegal logging and charcoal production, and evaluate them for potential to add value to this project's work.
- 5.1 (4). Contact those shortlisted and explore collaboration possibilities.
- 5.1 (5). Both independently and in collaboration, publicize the destruction being done to habitats and sustainable livelihoods.
- 5.1 (6). At all levels, raise awareness of project messages, particularly Output 2, through radio, television, newspaper, magazine, social media blogs and campaigns.

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Output 5.2 [project-generated field guides]

- 5.2 (1). M&E: annually review progress in production of texts and images with each lead author.
- 5.2 (2). Determine scope and content of each field guide, and identify suitable publisher.
- 5.2 (3). Accumulate relevant material (images, descriptions, information about individual species etc.).
- 5.2 (4). Prepare text, illustrations and diagrams, including introduction, acknowledgements, and indexes.
- 5.2 (5). Print and publish.

Output 5.3 [project-generated exhibitions]

- 5.3 (1). M&E: maintain list of completed panels; record public attendance at and response to exhibitions.
- 5.3 (2). Identify suitable locations willing to host temporary/permanent exhibitions, and negotiate dates for staging those exhibitions.
- 5.3 (3). Review existing digitized panels from prior UK fungal exhibition, and material from on-going fungal exhibition in Zimbabwe, selecting components suitable for audiences in Sub-Saharan Africa.
- 5.3 (4). Adapt copies of digital masters where necessary.
- 5.3 (5). Identify additional fungal topics suitable for audiences in tropical and south-temperate Africa, and prepare digitized masters for them.
- 5.3 (6). Design new mobile and static exhibitions around them, identifying additional materials needed.
- 5.3 (7). Prepare accompanying paper exhibition leaflets, and on-line resources accessible by QR codes.
- 5.3 (8). Stage exhibitions with accompanying publicity.