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Department
for Environment
Food & Rural Affairs

Submit by 2359 GMT on Monday 29 January 2018

Darwin Initiative Application for Grant for Round 24: Stage 2

Before completing this form, please read both the Fair Processing Notice on pages 17 and 18 of this form and the Guidance . Where no word limits are given, the size of the box is a guide to the amount of information required. Information to be extracted to the database is highlighted blue. Blank cells may render your application ineligible

Eligibility

1. Name and address of organisation

(NB: Notification of results will be by email to the Project Leader in Question 6)

Applicant Organisation Name:	University of Exeter
Address:	Centre for Ecology and Conservation, Penryn Campus
City and Postcode:	Penryn, TR10 9FE
Country:	UK
Email:	
Phone:	

2. Stage 1 reference and Project title

Stage 1 Ref:	Title (max 10 words):
4287	Preventing Borneo's peatland fires to protect health, livelihoods and biodiversity.

3. Summary of Project

Please provide a brief summary of your project, its aims, and the key activities you plan on undertaking. Please note that if you are successful, this wording may be used by Defra in communications e.g. as a short description of the project on GOV.UK. Please bear this in mind, and write this summary for a non-technical audience.

(max 80 words)

Borneo's biodiverse peat-swamp forests are being destroyed by annual fires resulting from poor management and land use decisions. These cause huge public health problems and destroy large swathes of rainforest. We will address the causes of these fires in the critical Sebangau region by restoring drained and deforested peatlands and encouraging behaviour change amongst local communities, while simultaneously tackling fire impacts by improving local fire-fighting capacity and developing fire-prevention networks.

4. Country(ies)
Which eligible host country(ies) will your project be working in? You may copy and paste this table if you need to provide details of more than four countries.

Country 1: Indonesia	Country 2:
Country 3:	Country 4:

5. Project dates, and budget summary

Start date: 1 July 2018		End date: 31 March 2021		Duration: 2 yrs 9 mo
Darwin funding request (Apr – Mar)	2018/19 £109,261	2019/20 £123,125	2020/21 £116,933	Total £349,329

Proposed (confirmed & unconfirmed) matched funding as % of total Project cost	49%

6. Partners in project. Please provide details of the partners in this project and provide a CV for the individuals listed. You may copy and paste this table if necessary.

Details	Project Leader	Project Partner 1	Project Partner 2
Surname	Van Veen	Ripoll Capilla	
Forename (s)	Frank	Bernat	
Post held	Associate Professor of Ecology and Conservation	Field Director	
Organisation (if different to above)		Borneo Nature Foundation	
Telephone			
Email			

7. Has your organisation been awarded a Darwin Initiative award before (for the purposes of this question, being a partner does not count)**?**
If so, please provide details of the most recent awards (up to 6 examples).

Reference No	Project Leader	Title
23011	Brendan Godley	Transforming marine resource management in the Republic of Congo
23012	Annette Broderick	Improving Marine Biodiversity and Livelihood of coastal communities in Principe

9. Please list all the partners involved (including the Lead Institution) and explain their roles and responsibilities in the project. Describe the extent of their involvement at all stages, including project development. This section should illustrate the capacity of partners to be involved in the project. Please provide written evidence of partnerships.
Please copy/delete boxes for more or fewer partnerships.

Lead institution and website:	Details (including roles and responsibilities and capacity to lead the project): (max 200 words)
University of Exeter (UoE) **www.exeter.ac.uk**	Dr van Veen's research group is based at the Centre for Ecology and Conservation (CEC), the fastest growing institute of its kind in the UK. Since its founding in 2003 the CEC has expanded to contain more than 50 principal investigators, forming a dynamic group of world-leading researchers in ecology and conservation. As a research intensive university, UoE has dedicated experienced staff to oversee effective grant management. Project leader Frank van Veen is Associate Professor of Ecology and Conservation and has been based at the CEC since 2009. Since then he has maintained a successful and diverse research portfolio, mostly funded by UK research councils and the European Commission, with field sites in the UK, South Africa, New Zealand and Indonesia. He will be responsible for the overall management of the project. Dr Helen Morrogh-Bernard was a founding director of Borneo Nature Foundation and has more than 15 years field work experience in Indonesian Borneo. She joined Dr van Veen's research group in 2015 on a Daphne Jackson Fellowship. She will be responsible for overseeing project activities in Indonesia and in particular for monitoring and evaluation (M&E), including data analysis and leading on publications.

Have you included a Letter of Support from this institution? If not, why not?	Yes

Partner Name and website where available:	Details (including roles and responsibilities and capacity to engage with the project): (max 200 words)
Borneo Nature Foundation **www.borneonature.org**	The Borneo Nature Foundation (BNF) is the primary implementing partner in Indonesia. BNF has worked in Kalimantan for 18 years and was integral in developing the knowledge-base and strategy that led to the Sebangau National Park's creation in 2004. BNF has experienced, dedicated teams in place, with a strong local staff base and women in leadership positions throughout. BNF was heavily involved in the local *in-situ* response to the major 2015 fires, has researched and piloted techniques for peatland re-wetting and reforestation, leads programmes of environmental education and has strong community links.
	BNF has formed long-term partnerships with local institutions to achieve these objectives, including the Sebangau National Park, University of Palangka Raya, the Department of the Environment (DLH) and the Department for Conservation of Natural Resources (BKSDA).
	BNF has collaborated with the University of Exeter since 2015, running joint research and training expeditions and hosting an international workshop at its Cornwall Campus in 2017 to develop partnerships with key Indonesian institutions, leading to the signing of a Letter of Intent to develop closer collaborations with/between these institutions.
	BNF is responsible for completing the canal-blocking, reforestation, fire fighting and education objectives, and will be fully involved with M&E components.

Have you included a Letter of Support from this institution? If not, why not?	Yes

Partner Name and website where available:	Details (including roles and responsibilities and capacity to engage with the project): (max 200 words)
Sebangau National Park	The Sebangau National Park (SNP) Authority (Balai Taman Nasional Sebangau) was established by the Ministry of Foresty to manage the newly-created SNP in 2004. Its responsibilities are to protect the Park from illegal activites, manage the boundaries, collect revenues and promote the Park as a tourism destination.
	Its headquarters are just outside the provincial capital of Palangka Raya and the current head is Mr Anggodo, who attended the 2017 peatland conservation worshop at the University of Exeter. Thir role in this project is two-fold, firstly to provide the necessary support and permissions to implement this project within the Park's boundaries, and secondly to engage with developing the fire-prevention strategy for the Park, enhancing the biodiversity monitoring capacity of SNP staff and working to create a long-term legacy for protection of SNP.

Have you included a Letter of Support from this institution? If not, why not?	Yes

Partner Name and website where available: **Badan Restorasi Gambut**	**Details (including roles and responsibilities and capacity to engage with the project): (max 200 words)** As a result of the devastating impacts of the 2015 peat fire crisis, the Indonesian President created the Peatland Restoration Agency (Badan Restorasi Gambut, BRG) to attempt to reverse 20 years of mis-management of the nation's peatland resources. Working primarily on the islands of Sumatra and Borneo, BRG's aims are to re-wet and reforest peatland, promote sustainable community economies within peatland areas, ensure effective management by landowners and leaseholders, and prevent future environmental disasters. BRG disburses funds raised from national and international sources and aims to collaborate and coordinate with like-minded institutions and NGO's working in these areas on similar projects. As the National Agency responsible for peatland management and restoration, we will coordinate our activities with BRG, reporting frequently, contributing to seminars and workshops organised by BRG and inviting them to our own. BRG has expressed enthusiasm to work with UoE and BNF in order to develop their own monitoring and evaluation procedures, to assess the effectiveness of each intervention. This project thus proposes to make a major contribution to the Indonesian national strategy

Have you included a Letter of Support from this institution? If not, why not?	Yes

Partner Name and website where available: **Central Kalimantan Department of the Environment**	**Details (including roles and responsibilities and capacity to engage with the project): (max 200 words)** The Indonesian Ministry of the Environment and Forestry operates in the provinces as two separate government agencies. In Central Kalimantan the Department of the Environment (Dinas Lingkungan Hidup, DLH) is the government partner of BNF and the relevant department for overseeing all activities concerning forest conservation and fire prevention. DLH will the main facilitator of workshops to develop fire-fighting networks and long-term fire prevention planning for the region.

Have you included a Letter of Support from this institution? If not, why not?	Yes

10. Key Project personnel

Please identify the key project personnel on this project, their role and what % of their time they will be working on the project. Please provide 1 page CVs for these staff, or a 1 page job description or Terms of Reference for roles yet to be filled. Please include more rows where necessary. These should match the names and roles in the budget spreadsheet.

Name (First name, surname)	Role	Organisation	% time on project	1 page CV or job description attached*?
Frank van Veen	Project Leader	University of Exeter		Yes
Helen Morrogh-Bernard	Partner coordination, Monitoring and Evaluation	UoE	100% (of 50% FTE)	Yes
Bernat Ripoll Capilla	Field Director: Project implementation	BNF	50%	Yes
Juliarta Bramansa Ottay	Deputy Field Director: Government liaison and strategy	BNF	50%	Yes
Yunsiska Ermiasi	Conservation Manager	BNF	100%	Yes
Riethma Yustininghtias	Education Officer	BNF	50%	Yes
Daniel Refly Katoppo	Habitat Restoration Officer	BNF	100%	Yes
*If you cannot provide a CV, please explain why not.				

11. 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. For example, what are the drivers of loss of biodiversity that the project will attempt to address? Why are they relevant, for whom? How did you identify these problems?
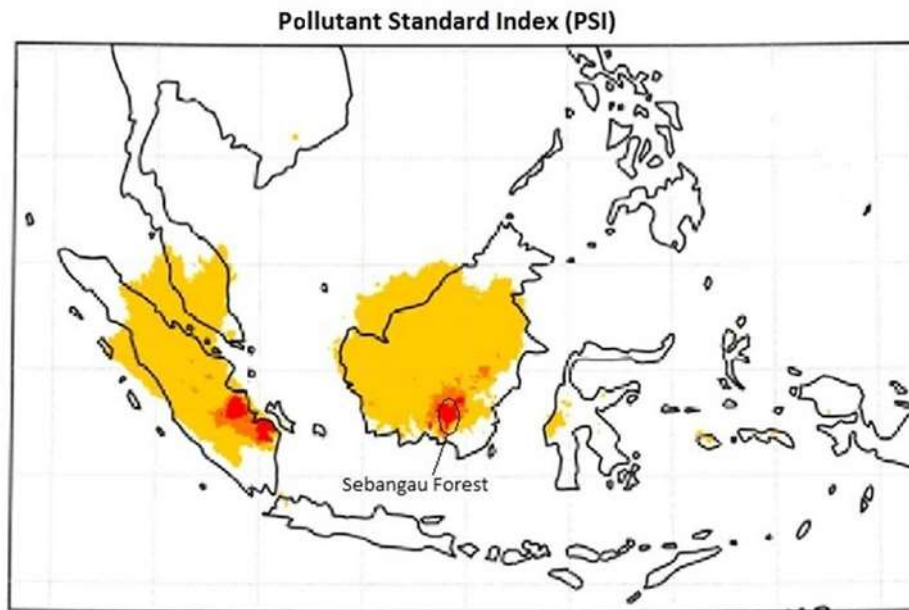
(Max 300 words)

The 600,000ha Sebangau National Park is the largest lowland rainforest remaining in Borneo, with globally important populations of many endangered species, and numerous important social and economic functions for local communities. The main threat to this forest is Indonesia's worsening annual peatland fire crisis. In their natural state, peat-swamp forests are permanently waterlogged and fire resistant. Drainage channels dug illegally in the past to remove timber and to develop plantations dry out the peat, leading to annual dry season forest fires, which increase during El Niño drought years.

In 2015 massive peatland fires raged for months, burning over 2.2Mha in Kalimantan and creating a toxic smoke haze to which 69 million people were exposed, causing the premature death of up to 17,000 people. The fires and haze resulted in a $16.1 billion loss to the Indonesian economy (1.9% of GDP) and a carbon emission rate that exceeded that from fossil fuels in the entire EU. Carbon leaching poisoned fish stocks, the major source of protein for local communities. In Sebangau the forested proportion of the Park declined from 80.4% to 68.5%, a loss of 833 km^2, an area equivalent to twice the size of the Danum Valley Conservation Area in North Borneo.
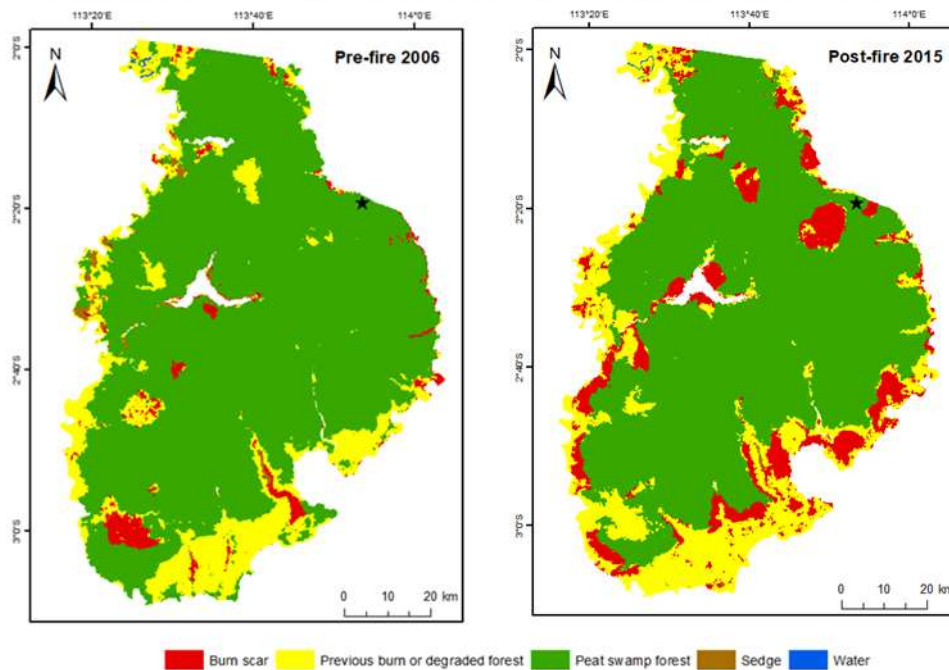
The peatland fire crisis requires major interventions at all levels, from national policy down to local *in situ* actions. This proposal is aimed at the latter, addressing the root causes of fires in Sebangau, including those that are driven by poverty (illegal logging, illegal burning) and those

that impact on poverty (local fire-prevention capacity, health impacts), with the long-term aim to develop an integrated, community-based fire-prevention model for this region.

The maps below show the location of Sebangau at the epicentre of the 2015 Kalimantan fire crisis and the reduction in forest cover due to fire from 2006-2015.

Pollutant Standard Index (PSI)

Yellow=PSI >100 -Unhealthy; Orange=PSI >200-very unhealthy; Red=PSI >300-hazardous

Burn scar   Previous burn or degraded forest   Peat swamp forest   Sedge   Water

12a. Biodiversity Conventions, Treaties and Agreements

Your project must support the objectives 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 and how. Note: projects supporting more than one will not achieve a higher score.

Convention On Biological Diversity (CBD)	Yes
Nagoya Protocol on Access and Benefit Sharing (ABS)	No
International Treaty on Plant Genetic Resources for Food and	No

Agriculture (ITPGRFA)	
Convention on International Trade in Endangered Species (CITES)	No

12b. Biodiversity Conventions

Please detail how your project will contribute to the objectives of the agreement(s) your project is targeting. You should refer to Articles or Programmes of Work here. Note: No additional significance will be ascribed for projects that report contributions to more than one agreement

(Max 500 words)

This project supports the CBD's objectives, regarding (1) conservation of biodiversity and (2) sustainable use of its components. Specifically, our work supports #1 through enhancing the protection and condition of the Sebangau forest, which is Borneo's largest remaining contiguous lowland rainforest block and is home to ≥215 tree and 347 vertebrate species (46 globally threatened, 60 protected in Indonesia). Long-term support of this objective is further delivered through our local capacity building, plus strategy and network development initiatives. Our work supports #2 through raising local awareness of the causes and impacts of peat fires and haze, particularly regarding peatland farming and fishing practices, plus initiating discussions with cooperative members to explore options and develop proposals for alternative peat-friendly farming and fishing practices.

Our project activities are most relevant to the CBD's Forest Biodiversity Programme, as detailed below:

Element 1: Conservation, sustainable use and benefit-sharing
- Goal 1: Applying ecosystem approach. Activities: extensive M&E, covering physical, biological and anthropological aspects of the ecosystem. Contribution: developing guidance for Ecosystem Approach (EA) application; selecting suitable management practices for peat-swamp forest ecosystem; holding workshops to familiarise policy makers with EA.
- G2: Reducing threatening process impacts. Activities: fire prevention and fighting; M&E. Contribution: understanding and mitigating pollution impacts (haze, river acidification) and climate change (maintaining/restoring biodiversity to increase resilience) on biodiversity; mitigating effects of forest fires.
- G3: Protect and restore forest biodiversity. Activities: peat rewetting; reforestation; M&E. Contribution: restoring biodiversity and ecosystem services in degraded secondary forests; promoting forest management practices furthering threatened species conservation; facilitating Sebangau NP's part in an effective PA network.
- G4: Promoting sustainable forest biodiversity use. Activities: education sessions; proposal development with fishing and farming cooperatives. Contribution: developing proposals and increasing capacity for sustainable peat use and fishing; promoting cooperative work; implementing education programmes on traditional uses of forest biodiversity.

E2: Institutional and socio-economic enabling environment
- G1: Enhancing institutional enabling environment. Activities: M&E; training; government liaison. Contribution: providing data relating to causes of biodiversity loss; developing peat-swamp forest indicators; enhancing capacities required to address forest biodiversity-related issues.
- G2: Addressing socio-economic failures. Activities: developing proposals for peat-friendly fishing and farming with local cooperative groups; supporting local economy through employment and supply opportunities. Contribution: incentivises forest conservation and sustainable use.
- G3: Increasing public education and awareness. Activities: local education sessions and outreach. Contribution: increased awareness of forest, biodiversity values, traditional knowledge and impacts of current land/forest uses.

E3: Knowledge, assessment and monitoring
- G1: Improving assessment of forest biodiversity. Activities: M&E research. Contribution: developing peat-swamp forest biodiversity indicators; surveying priority conservation areas .
- G2: Improving ability to monitor forest biodiversity. Activities: M&E research, training. Contribution: developing quantifiable peat-swamp forest biodiversity indicators.
- G3: Improving understanding of the role of forest biodiversity and ecosystem functioning. Activities: M&E research. Contribution: improved understanding of relationship between forest biological diversity and ecosystem functioning; applying ecosystem restoration techniques; conducting research on impacts of management practices.
- G4: Improving infrastructure for monitoring forest biodiversity. Activities: training. Contribution: training National Park staff, local researchers, patrol and fire-fighting teams in monitoring techniques and developing associated databases.

12c. Is any liaison proposed with the CBD / ABS / ITPGRFA / CITES focal point in the host country?

☒ **Yes** ☐ **No**   **if yes, please give details:**

The CBD focal point in Indonesia is Pak Wiratno, the Director General of Natural Resources and Ecosystem Conservation (KSDAE) in the Ministry of Forestry. Pak Wiratno is familiar with BNF and its activities, and they plan to meet in Palangka Raya on 7th February (for Sebangau National Park anniversary celebrations) to discuss this proposed project and collaboration with the University of Exeter.

12d. Global Goals for Sustainable Development (SDGs)

Please detail how your project will contribute to the Global Goals for Sustainable Development (SDGs).

(Max 250 words)

This project supports a number of Global Goals for Sustainable Development, as detailed below:

- Goal 3: Good health and well-being. Activities: peat rewetting and revegetation; fire fighting; training; education; outreach; stakeholder liaison. Contribution: reducing prevalence of peat forest fires and associated toxic haze, thus improving ability to manage this health risk and reducing incidence of illnesses and potentially deaths from air pollution.
- Goal 5: Gender equality. Activities: adopting and implementing Equal Opportunities policy; promoting the role of women in leadership positions; considering equally input from female community and cooperative members in work implementation and plan development. Contribution: promoting full and effective participation, equal opportunities, leadership and resource ownership for women.
- Goal 6: Clean water. Activities: peat rewetting and revegetation; fire prevention; local education and outreach. Contribution: protecting and restoring important water-related ecosystems (peat-swamp forest) to maintain and enhance local water quality.
- Goal 12: Responsible consumption. Activities: education sessions with local schools and cooperative groups; developing peat-friendly alternative fishing and farming plans with local cooperatives; outreach via media and public events. Contribution: development of more sustainable management of natural resources; promoting more widespread understanding of sustainable lifestyles and resource use.
- Goal 15: Life on land. Activities: peat rewetting and revegetation; fire fighting; training; education; outreach; stakeholder/SNP/government liaison. Contribution: enhanced protection and restoration of terrestrial ecosystems (peat-swamp forest) and capacity for

sustainably managing these forests; restoration of degraded land; protecting biodiversity and natural habitats; integrating biodiversity into government planning and enhancing SNP staff capacity for this, in particular regarding biodiversity monitoring techniques.

13. Methodology

Describe the methods and approach you will use to achieve your intended Outcome and Impact. Provide information on how you will undertake the work (materials and methods) and how you will manage the work (roles and responsibilities, project management tools etc.).

(Max 500 words – this may be a repeat from Stage 1, but you may update or refine as necessary. Tracked changes are **not** required.)

Our approach aims to reduce fire risk by **rehabilitating degraded peatlands** and **affecting behaviour change amongst local communities**, while simultaneously **tackling fire impacts** by improving local fire-fighting capacity and developing fire-prevention networks. Throughout, we implement a M&E programme, measuring the impact of our actions, to provide the evidence base for the application of effective peat-fire prevention measures throughout the wider region.

BNF will implement field activities in Indonesia, leading the restoration, protection, education and local coordination components. UoE will be responsible for grant management, monitoring and evaluation. The two organisations will jointly undertake the research and training activities. All the activities described here will be conducted together with four community patrol and fire-fighting teams (established and supported by BNF) to promote community buy-in and feedback. These teams comprise committed young people supported by village leaders, and work semi-autonomously to protect their natural heritage.

Education initiatives will be targeted at families, schools, village governance and special interest groups (fishing and farming cooperatives). Through these forums we will raise awareness of the causes and impacts of fire, discuss alternatives to burning and better management of fire, engage with local cooperatives to develop plans for more peat-friendly fishing and farming practices, provide information on how to prevent harmful impacts of fire, and thus seek to address the human causes and impacts of fire. This will be complimented by media awareness via local radio, TV and print, exhibitions, events and social media.

The many disused canals in the forest will be blocked, thus retaining water and forest litterfall in the ecosystem, slowing the rate of dry-season drawdown and allowing the canals to fill in naturally. Up to 300 dams made from sustainable materials will be built on canals in Sebangau. Regular ground-based and remote monitoring will assess damming effectiveness.

We will assist regeneration of burnt and degraded forest areas, where the majority of fires arise, and pilot the use of aerial dispersal of seeds to hard-to-reach areas, using drones or small fixed-wing airplanes. We will create a network of community nurseries to enlarge the scale of the programme, and develop income streams for community members, encouraging participation and leadership by women.

Full restoration of the peat swamp's natural hydrological conditions will take time, and in the meantime fires will continue to occur, with potential to burn large areas during periods of drought. Fire-fighting teams will patrol for and be rapidly mobilised to extinguish these fires, supported with provision of equipment, supplies, training and drone technology.

The long-term goal is to develop an effective and integrated fire-prevention plan. We will work together with government agencies (BRG, DLH) and land managers (SNP) to ensure training in peat-swamp forest restoration techniques and monitoring, research and data analysis; facilitate

knowledge-sharing between partners and with other local practitioners; enhance the SNP management, including developing a landscape-wide conservation forum; create a network of community fire-fighting teams for mutual support and access to resources; and integrate with the Indonesian national strategy for protecting peatland and preventing fires.

14. Change Expected

Detail the expected changes 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). Please describe the changes for biodiversity and for people in developing countries, and how they are linked. When talking about people, please remember to give details of who will benefit and the number of beneficiaries expected. The number of communities is insufficient detail – number of households should be the largest unit used. If possible, indicate the number of women who will be impacted.

(Max 500 words)

The aim of the proposed project is to prevent peat degradation and peatland fires in the region surrounding the Sebangau National Park and Palangka Raya city in Central Kalimantan, Indonesia. In the short term, we expect to see an improved emergency fire response; decreased peatland drainage and thus physical fire risk (reduced flammability); increases in local awareness of fire impacts and causes, resulting in the beginnings of behaviour change that reduces fire risk; development of enhanced reforestation techniques and community-driven reforestation/agro-forestry initiatives, with the potential for "peat-friendly" agro-forestry and fishing options beginning to be recognised and planned for locally; and increases in local capacity to effectively manage peatlands.

In the longer term, facilitated by this increased local management capacity, we expect these same changes to persist and gradually evolve over time, as our canal blocking, education, outreach and capacity building initiatives further reduce fire risk and the need for emergency fire-fighting reduces; and as improved reforestation techniques, strengthened community nurseries and development and implementation of peat-friendly agro-forestry options leads to increased ability to reforest degraded areas and sustainably manage peatlands. In the long-term, it is hoped that these essential actions on the ground connect with and feed into positive changes in government policy, thus consigning the fire crisis to history.

Social benefits associated with these short- and long-term changes include reduced fire, smoke pollution and haze. This will bring major benefits for:
- Local and regional human population health owing to reduced toxic haze exposure, with the 5,550 residents of the nearest communities to the Park (Kereng Bangkirai and Sabaru villages) receiving the largest benefits, plus significant benefits also received by the total 259,865 residents of Palangka Raya City and ultimately (through contribution to the National strategy to reduce the regional haze problem) the 69 million people in South-east Asia that are exposed to haze from Indonesia's peat fires.
- Local and regional economies, including through maintaining fish stocks by avoiding river acidification and excess fire-related mortality (fresh water fish are the main source of protein in the diet of rural communities; the 2015 fires led to a five-fold increase in the Sebangau River's acidity and an immediate post-fire 64% drop in fish catches from BNF's monitoring data collection).
- Reduced carbon emissions from peat degradation and fire, representing savings of 36 and 455 t CO_2e for each hectare that can be effectively rewetted and saved from burning, respectively.
- Empowerment of local communities through support and training of community-led fire-fighting teams (est. ~100 people), community nurseries (est. ~40 families), fishing and farming cooperatives (est. ~500 people), and land managers (chiefly Sebangau National Park).
- Biodiversity, including protection of the Sebangau National Park, the largest region of lowland rainforest remaining on Borneo, which is home to the largest remaining protected population of orangutans in the world (~5,700 individuals), and a rich faunal and floral biodiversity (inc. 46 globally threatened and 60 nationally legally protected species).

15. Gender

All applicants must consider whether and how their project will contribute to reducing inequality between persons of different gender. Explain how your project will collect gender disaggregated data and what impact your project will have in promoting gender equality.

(Max 300 words)

Although there are many encouraging signs of progress, Indonesia remains a largely male-dominated society. Both UoE and BNF have developed and implemented Equal Opportunities policies, which will be fully implemented with this proposed work in Indonesia. UoE and BNF collect gender disaggregated data regarding all team members employed, and we will collect similar data throughout the project period regarding the composition of fishing and farming cooperative, community nursery and fire-fighting scheme members and beneficiaries. Of BNF's current 67 team members, 32 are women (48%); and of BNF's 30 more senior (Coordinator/Officer/Manager/Director) positions, 17 are women (57%), demonstrating commitment to reducing gender equality and furthering the role of women in senior management positions. While working with local farming and fishing cooperatives, establishing community nurseries and recruiting fire-fighting team members, we will similarly endeavour to ensure fair representation of, participation by and delivery of benefits to women.

The Centre for Ecology and Conservation has a strong commitment to promoting gender equality and it was the first unit at the University of Exeter to receive a Silver Athena SWAN award from the Equality Challenge Unit. Project leader Frank van Veen is leading the Centre's Athena SWAN panel and is thus well-placed to ensure best practice for inclusive working practices is implemented in this project.

16. Exit strategy

State whether or not the project will reach a stable and sustainable end point. If the project is not discrete, but is part of a progressive approach, give details of the exit strategy and show how relevant activities will be continued to secure the benefits from the project. Where individuals receive advanced training, for example, what will happen should that individual leave?

(Max 200 words)

This project is part of a long-term commitment by BNF in the region, and several of the project activities will continue after the cessation of this project. The aim is to reverse 20 years of peatland degradation in the region and affect behaviour change amongst local communities, and this will necessarily take time. The input of UoE to develop rigorous M&E and allow activities to run more efficiently is intended to be achieved after three years, and the firefighting networks and community nurseries will be designed to run sustainably with minimum external input. Training of new recruits will be conducted by existing members, ensuring continuous knowledge-share, and the proposed network of fire-fighting teams will enable cross-team training and improvements.

The community engagement activities are intended to lead to long-term programmes. Progress towards this objective will be measurable by the end of this project, nevertheless behaviour change will take time. Likewise establishing foundations for a long-term fire prevention strategy are discrete activities, but also form part of a longer term strategy that will need to continue to secure the benefits of this project. Therefore attention will be placed on the capacity-building objectives and coordination with the Indonesian National Strategy.

17a. Harmonisation

Is this a new initiative or a development of existing work (funded through any source)? Please give details

(Max 200 words)

This is the development of existing work to restore and protect peatland habitat in the Sebangau Forest. This has included trial canal blocking and trial reforestation carried out by BNF, as well the decade-long support of fire-fighting and anti-logging patrol teams and introduction of environmental education programs in the local villages. Following the devastating 2015 fires the Indonesian government announced an ambitious strategy to rehabilitate degraded peatland and enhance fire prevention capacity, and BNF responded by strengthening the fire-fighting capacity and expanding canal blocking under a UKCCU-funded Indonesian Climate Change Trust Fund project during 2017. This has seen two new fire-fighting teams created, trial replanting in the newly burnt areas and 150 new dams built.

The government partnerships described in this proposal were developed during a 2017 workshop at the University of Exeter, where objectives for capacity-building and inter-agency cooperation were formalised. The proposals for community nurseries, a network of community fire-fighting teams and developing a National Park-wide fire prevention strategy are new initiatives.

In addition, this project will take advantage of 18 years of continuous data collection by BNF in Sebangau as a baseline for monitoring and evaluation of the impacts of this project for biodiversity conservation.

17b. Are you aware of any other individuals/organisations/projects carrying out or applying for funding for similar work?   Yes

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

Similar peatland conservation activities are being carried out in Central Kalimantan and we are coordinating with these projects. WWF are also conducting canal-blocking within SNP and we are sharing results and developing 'one map' to follow the progress of this critical activity. Reforestation trials in degraded peatland have been carried out extensively by the BOS Foundation in the Mawas Reserve and we are using their results to inform our project. There are several independent fire-fighting teams in the region with which we will engage through the networking objective.

All of these activities are being integrated into the National Strategy by the Peatland Restoration Agency, with whom we are already coordinating.

18. Ethics

Outline your approach to meeting the Darwin Initiative's key principles for research ethics as outlined in the Guidance.

(Max 300 words)

Both UoE and BNF are legally registered in UK and BNF is registered as a not-for-profit NGO in Indonesia. Both organisations are fully committed to following all applicable laws and legal obligations in both UK and Indonesia. BNF's administration staff continually liaises and consults with the local police, immigration, tax and other local authorities in Palangka Raya. All of our

forest and village work is conducted under appropriate permissions from local government and village authorities, as required by Indonesian law. Implementation of field activities is managed and led by Indonesian team members, and these Indonesian team members and local partners will be continually updated and consulted regarding project progress.

Free Prior Informed Consent will be sought for project activities and data gathering from all fire-fighting, community nursery, and fishing and farming cooperative members, with all agreed participants required to sign an Informed Consent Form. Information sheets will be prepared in the Indonesian language to facilitate this. Information will be read out and verbal approval sought in instances of limited literacy among participants. The anonymity of participants will be preserved during all data collection among fishing and farming cooperative members, who will be provided with the option to withhold the information from open access databases via a Data Disclosure Agreement. All benefit sharing regarding community nurseries and fire-fighting teams will be based on mutually agreed terms, as will any benefits arising from development of plans for alternative fishing and farming practices among cooperative groups. Care will be taken to safeguard the health and safety of all project participants, including completing risk assessments prior to activities and taking all relevant safety precautions. Prior to any research activities taking place, detailed plans will be submitted to the University of Exeter's Ethics Committee and no work will commence until approval has been received.

19. Raising awareness of the potential worth of biodiversity

If your project contains an element of communications, knowledge sharing and/or dissemination please provide a description of your intended audience, how you intend to engage them, what the expected products/materials will be and what you expect to achieve as a result. For example, are you expecting to directly influence policy in your host country or is your project a community advocacy project to support better management of biodiversity?

(Max 300 words)

Our work to raise awareness of the potential worth of biodiversity covers audiences from local schoolchildren, to land managers and the general public. We aim to elicit behaviour and policy change regarding peat management and fire use, through raising awareness of Sebangau's biodiversity and peat forest ecology, its linkages with valued ecosystem services (e.g. supporting fish populations), the threats this faces, and how behaviour change may mitigate these threats while also benefiting people. In particular, we will target the following audiences:

- Local fishing and farming cooperatives. Engagement: workshops and discussion sessions, with the dangers of fire highlighted through presentations/brochures/videos, alongside exploring alternative fishing and farming method options. Expectation: increased understanding of the need for, and thus willingness to engage in, developing fishing and farming methods that are less reliant on fire and include better fire management practices.
- Children in adjacent villages. Engagement: running clubs (e.g. BNF's *Children of Sabangau* club currently reaches ~70 children/week) and school visits by BNF's Education team, using games, child-friendly talks, props and videos. Expectation: a more conservation aware generation, who apply pressure to parents and increase their awareness (supported by BNF's education M&E to date).
- Fire-fighting team and community nursery members. Engagement: preparatory socialisation meetings, start-up introduction events, follow-up training sessions, and annual training workshops. Expectation: increased understanding of the relevance and importance of their work, and thus their engagement with it and fulfilment of responsibilities.
- National Park staff. Engagement: multi-stakeholder forums and workshops, covering the importance of biodiversity and biodiversity monitoring, alongside the main coordination and training activities of these gatherings. Expectations as above.

- General public. Engagement: media (BNF has good links with major local and environmental news agencies, e.g. Mongabay, regional newspapers and Kalaweit Radio), BNF and UoE social media, and public exhibitions and events. Expectation: increased support and political pressure for conservation.

20. Capacity building

If your project will support capacity building at institutional or individual levels, please provide details of what form this will take and how this capacity will be secured for the future.

(Max 300 words)

Local capacity building at the individual and institutional level is a key component of this project. It is vital for achieving the project Outcome and for continuing benefits beyond this project period. This will include:

- Training fire-fighting teams in patrolling, equipment use, fire-fighting and M&E data collection techniques, plus team/financial management through multi-team workshops and individual team training sessions led by experienced fire fighters (including assessing training progress), plus providing SOPs and an on-call expert advisor plus creating a fire-fighting team network for mutual support and access to resources.
- Training community nursery members in seedling care, growth, M&E data collection and financial management techniques through multi-family workshops and individual family training sessions led by experienced BNF Nursery staff (including assessing training progress), providing SOPs and an on-call advisor.
- Training SNP staff in peat rewetting, revegetation and biodiversity monitoring techniques through workshops including theoretical and practical field components, plus assessment of training progress, providing SOPs and an on-call advisor.
- Ongoing training and evaluation of BNF staff in research, conservation, management and communication techniques through its established Staff Development Programme.
- Investigating options for alternative peat-friendly fishing and farming practices among local cooperative members. This will be a two-way learning process, eventually leading to development and implementation of plans for more peat-friendly fishing and farming practices.

The production, distribution to trainees and their institutions, and open-access publication of these SOPs on BNF's website will be important in securing this capacity for the future. The creation of fire-fighting and community nursery networks, plus employment of BNF Fire Management and Habitat Restoration Officers with specific responsibility for coordinating these networks and liaising with SNP and other local government agencies, will help identify the need for any future refresher training if individuals move on and/or new training if new groups/teams are created.

21. Access to project information

Please describe the project's open access plan and detail any specific funds you are seeking from Darwin to fund this.

(Max 250 words)

Publications in scientific journals will be made accessible through UoE's 'green' open access portal Open Research Exeter (ore.exeter.ac.uk), which is in compliance with the RCUK open access policy.

Detailed progress and final grant progress reports will be submitted to DI for open-access website publication. In addition to providing copies of reports directly to SNP, government and community stakeholders associated with the project, all reports will also be published in open-access pdf format on the BNF website, with any sensitive information redacted. Report publication will be promoted within our networks, on the BNF website, via BNF and UoE social

media (BNF Facebook currently has ~20,000 followers), and through society newsletters (e.g., International Peat Society). Regular project activity updates and summaries will also be published on the BNF website's News page, promoted as above, and submitted to relevant local and international news outlets (e.g., Mongabay, which has featured BNF previously and has ~2 million monthly readers, and Kalteng Pos, which is the largest local newspaper and has also featured BNF previously). BNF also has an agreement with Kalaweit Radio station, which broadcasts across Central Kalimantan, issues daily BNF promotion adverts and would serve as a suitable platform for an in-depth feature promoting project activities to a diverse local audience.

All these services are provided by UoE and BNF and no funds are required from Darwin Initiative.

Project Monitoring and Evaluation

Measuring Impact

22. Logical Framework

Darwin projects will be required to report against their progress towards their expected Outputs and Outcome if funded. 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.

Project summary	Measurable Indicators	Means of verification	Important Assumptions
Impact:			
Effective local conservation leadership and management of peat-swamp forests, for the benefit of biodiversity, human health and local economies.			
Outcome: The occurrence and intensity of fires in and around Sebangau National Park in Central Kalimantan is significantly reduced, thus benefiting biodiversity conservation and human health.	0.1 Number of fires in target area reduced to 25% of baseline value by yr 3, compared to climatologically comparable pre-project years. 0.2 Area of peatland burned and resultant carbon emissions in target area reduced to 10% of baseline value compared to climatologically comparable pre-project years. 0.3 Improving (or at minimum stable) forest condition and populations of key forest fauna (inc. economically important fish), compared to pre-project baselines (from climatically comparable years where relevant) established from BNF's long-term ecological monitoring data from Sebangau . 0.4 Reduction in negative health impacts	0.1 Spatio-temporal analysis of MODIS hotspot distribution; drone flights; TSA patrol and local community reports. Data compared to previous years with similar El Niño index. 0.2 Analysis of annual pre/post-fire season LandSat imagery, on-the-ground monitoring of burned areas and carbon emission estimation using the above information and published formulae. Data compared to previous years with similar El Niño index. 0.3 Regular monitoring of trends in (i) peat water levels at 40 locations; (ii) tree size, biomass, mortality and consequently carbon sequestration in 2.4 ha of long-term forest plots and replanting monitoring plots; (iii) economically important fish and water quality (inc. temperature, pH, dissolved oxygen and turbidity) through 10 fixed-position traps in the Sabangau River; (iv) orangutan population density through line transects of nests; (v) forest fauna species presence and abundance through 24 camera traps. Data collected during project compared to pre-project 2017 baseline. 0.4 Local air quality monitoring (data	Fire incidence is directly linked to peat drainage (i.e. peat water levels – known to be true), the effect of which can be distinguished from that of rainfall alone (more difficult to achieve). Fire hotspots and burn scars can be effectively detected/distinguished by remote imagery and on-the-ground observations. Hydrological, forest structure, biomass and biodiversity variables show detectable responses within the project period to proposed changes in conservation management interventions. Trends in number of reported cases of medical submissions/treatments for potential haze-related ailments can be reliably attributed to haze (considered likely true on a short-term exposure/acute illness basis, but more difficult/impossible to ascertain on a longer-term/chronic condition basis), number of cases are accurately reported by authorities/media and data remain available.

Project summary	Measurable Indicators	Means of verification	Important Assumptions
	(air pollution levels and chest/breathing complaints used as a proxy) amongst local community members, compared to comparable pre-project years; i.e., with values for years classified as higher risk by the Indonesian Meteorology Agency during the project period comparable to those of years classified at lower fire risk preceding the project period.	available from the nearby Palangka Raya airport via https://www.wunderground.com/ and from Palangka Raya monitoring stations through the Indonesian Meteorology Agency; medical authority reports from the Provincial Health Service, local hospitals and doctors; local media reports; reports received by TSA teams from local community members. Data compared to previous years with similar El Niño index.	
Outputs: 1. Ex-illegal logging canals blocked and areas burned in the 2015 fires replanted in the Sebangau National Park to re-wet the swamp thus reducing fire risk, prevent further forest losses and reverse fire damage.	1.1 Number of canals closed increased to 29 (baseline closed at start project = 15) and up to 300 new dams built by end yr 3 1.2 Reduction in water flow-rates and discharge rates within canals, and slowing of dry season water-table drawdown, by up to 500% in each dammed canal in comparison to pre-dammed state and data from undammed control canals.	1.1 Patrol team reports, including photographic and GPS evidence; field inspections by project leaders. 1.2 Monthly measurements of peat water table using dip-wells at 40 locations, plus canal water depth and flow rates at 36 locations on 10 canals (including in dammed and undammed canals, and pre and post dam construction) using manual methods and automated data loggers. Daily forest rainfall monitoring using an automated weather station. Comparison of data collected during project period to pre-project years with similar rainfall levels.	River/canal water levels reach appropriate levels for dam construction (expected, given length of project period covering three annual wet-dry season cycles). Suitable dam construction materials remain available (or suitable alternatives can be found). Local communities and government remain supportive of dam building (expected, based on planned socialisation and education activities). Hydrological monitoring locations remain accessible (expected in the absence of stations being burned by fire) and this plus weather monitoring equipment remains functional (some equipment repair and replacement costs expected).
	1.3 Number of seedlings planted (target 50,000 over 350 ha with 70% survival by end yr 3) / seeds aerially-dispersed (target min. 100,000 over 200 ha with 20% germination by end yr 3) in previously burnt forest.	1.3 Monitoring of number of seedlings of different species planted under different conditions through community nurseries; subsequent monitoring of survival for tagged sub-set of seedlings at 1, 6 and 12 months post planting. Monitoring of number of seeds dispersed by drones through plots in a sub-set of the drone dispersal area, and subsequent post-planting monitoring of seed germination.	Replanted seedlings are not killed or damaged by fire (expected, with planned fire-prevention and fighting activities) or extreme flooding (expected to be

Project summary	Measurable Indicators	Means of verification	Important Assumptions
		Bi-annual monitoring of visible regeneration over whole target replanting areas by drone.	avoidable with careful planning of replanting windows).
	1.4 2 community nurseries operational by end yr 2 and an additional 4 by end yr 3, providing income opportunities to 42 local families (average 7 per nursery), with first seedlings purchased and transplanted in yr 3.	1.4 Number of local men and women actively engaged in community nursery programme in nearby villages, established through regular submission of reports by nursery coordinators and field inspections.	Community members agree to participate and fulfil their obligations in community nursery scheme (expected, based on discussions with community members to date and the plan for initial recruits to come from trusted families already committing to BNF through fire-fighting initiatives).
			Seedling tags in community nursery replanting monitoring plots are not lost (some loss expected).
			Seeds distributed by drones become established and (untagged) seedlings in monitoring plots can be identified (expected, but uncertain and not trialled previously). Drone remains operational (some repair and replacement costs expected).
2. Improved local fire-fighting capacity for rapid response to peatland fires in Sebangau NP and Palangka Raya district.	2.1 Four community fire-fighting teams operational (current baseline = two) by end yr 1; up to 20 local people recruited and two training sessions / yr held in peat-fire extinguishing methods and use of equipment. 2.2 Fire-response teams effectively mobilised during each dry season, with 100% of identified fires attended and extinguished in target areas	2.1 Records of number of teams created, plus members recruited and retained for each team (contacts signed). Training levels assessed against set criteria at minimum annual intervals. 2.2 Records (established through direct reports to TSA teams, TSA data collection, river patrols and GPS travel routes, drone and MODIS hotspot monitoring, field inspections by project leaders) of number and percentage of known fires responded to and extinguished; length of time between report receipt, response launch and fire	Willing new team members can be found (expected, based on previous recruitment experience in the area). New TSA team members are willing and able to follow proposed management and reporting guidelines and follow teaching guidance provided during training sessions (expected, based on previous experience and planned training activities). Community members promptly and accurately report fires to TSA teams (expected, testable by comparison to

Project summary	Measurable Indicators	Means of verification	Important Assumptions
	2.3 Network of community fire-fighting teams established and coordinating with government agencies in Palangka Raya district and with each other, with one multi-stakeholder workshops held in each of yr 2 and 3.	extinguishing; area of peat / forest burned. . 2.3 Establishment and composition of network at annual intervals; continuous assessment of network member contributions based on peer reports and project leader inspections; number of coordination meetings with relevant government agencies and government responses to these.	MODIS records); fires can be effectively detected through a combination of river patrols, drones and MODIS hotspot images (known to be true). TSA teams keep accurate records of fires reported and extinguished (expected, given planning training activities and checks by BNF management staff). The different community fire fighting teams agree to form a network, collaborate effectively within this network and show initiative to coordinate with local government (expected, based on experience to date). Local government are receptive to coordination with the community fire-fighting network (expected, based on experience to date).
3. Local community willing to develop plans to adopt more "peat-friendly" farming and fishing practices that avoid peat drainage and use of fire; and people better understand the harmful effects of fire and how to mitigate these.	3.1 Regular education sessions and workshops held with community forums, fishing and farming cooperatives, schools and clubs, with aim to reach 90% of people in these target groups and total 1,200 people reached by end yr 3, plus up to 100,000 people outside the primary target area through social media and radio. 3.2 Number and percentage (target 90%) of people within immediate target group demonstrating positive response to these activities by end yr 3; i.e., that show desirable changes in attitude and (potential for) behaviour change.	3.1 Education and Outreach team records of number of sessions held, plus participant numbers and composition. Field inspections by project leaders. 3.2 Pre- and post- education session assessments (games, tasks) of fishing and farming cooperative members', and education session participants' understanding of and position in relation to issues addressed during sessions; informal feedback from session	Education and Outreach teams keep accurate records of session participant numbers, plus participant and teacher feedback (expected, given planning training activities and checks by BNF management staff). Education and Outreach session participants are willing to participate in pre-/post-session assessments and respond truthfully to these (expected, based on experience to date). Trends/responses revealed through analysis of website/social media data accurately reflect those of the wider local community (some bias expected, owing

Project summary	Measurable Indicators	Means of verification	Important Assumptions
		participants and school teachers; and growth in website/social media follower numbers and responses to posts (shares, likes, nature of comments) related to project activities from people in Indonesia.	to different profile of social media users compared to overall population). Website/social analytic tools continue to allow identification of traffic by country (expected).
	3.3 Number and percentage (target of farming and fishing cooperative members willing to develop plans with project proponents for alternative farming and fishing practices involving non-burning/draining methods (target 50% by end yr 2) and actually engaging to actively develop such plans (target 25% by end yr 3).	3.3 Cooperative members' responses during formal workshops/forums, informal discussions, and to questionnaires in relation to current and intended farming, fishing and land management strategies.	Cooperative members are receptive to considering changing farming and fishing practices (expected that some will be willing, based on previous research and discussions by BNF indicating that people are willing to change practices if suitable and economically comparable alternatives exist).
4. Foundations established to create a long-term legacy for fire prevention and mitigation and biodiversity conservation in and around the Sebangau National Park.	4.1 Effective fire-prevention system adopted by National Park managers and stakeholders resulting from 1 multi-stakeholder workshop in yr 2 and follow-up in yr 3. 4.2 Number of National Park staff that receive training and are judged to achieve competence in restoration and biodiversity monitoring techniques, and are involved in field activities during three training workshops in yr 2 and 3, including field sessions. 4.3 Effective coordination with provincial and national strategies for peatland conservation and fire prevention achieved by end yr 3.	4.1 Above recommendations adopted by NP management, stakeholder forum established and regularly meeting to ensure coordination and knowledge-share between organisations 4.2 Number of training sessions held with National Park staff, number of people involved, pre- and post-training delivery assessment of participant skill levels against pre-set criteria. 4.3 Number and composition of coordination meetings; responses during these meetings and less formal correspondence; requests for input by government into strategy development; representation of project findings / recommendations within government strategies; review of activities together (BRG)	National Park staff and management attend and are receptive to training, are willing to implement lessons learned and endorse strategies/SOPs relating to fire-prevention (expected, based on discussions and agreements with SNP to date). Provincial and national government remain committed to peat and biodiversity protection, and are willing to engage with and receive input from project proponents (expected, given public statements and commitments made to this effect, and the mission statements of relevant government departments). Stakeholder forum members remain committed to objectives and willing to engage with government/each other (expected, provided above assumptions

Project summary	Measurable Indicators	Means of verification	Important Assumptions
			met).

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)

1.1 Canals surveyed beforehand to identify priority locations for blocking using dams and develop dam building schedule in each target canal. Dams built on canals in target area by local workforce using sustainable natural materials and a pre-trialled design. Pre-construction socialisation of damming plans with local community to create awareness, allow opportunity for discussion and help ensure community support for damming. Post-construction, dam condition monitored and repaired throughout the year as necessary.

1.2 Seedlings grown in the *in-situ* Sebangau nursery transplanted into burnt peatland areas of the Sebangau National Park. Species that have previously shown ability to survive and grow in these conditions, through BNF own research and studies elsewhere, will be selected for this purpose. Seedling growth and survival monitored post planting. Additionally the use of drones to disperse seeds in burned and degraded areas will be trialled. Drones will distribute seedlings aerially over larger areas that are difficult to reach on the ground. Sample plots will be established to assess the success of this method.

1.3 Establishment of community nurseries in villages adjacent to the National Park, initially established through connections with fire-fighting teams and their families. Community nursery scheme members will be provided with start-up resources and seedlings, trained in seedling growth techniques and will then grow seedlings for replanting burned and degraded areas of the park. Once suitable size is reached (confirmed through spot-checks), BNF will buy seedlings from nursery owners for planting. This is more staff and cost effective, requires no land purchase and offers more economic opportunities to local community members compared to establishing a large, project-owned nursery. Socialisations and training sessions will be conducted, and contracts detailing management and monitoring processes signed before set-up resources are provided. In addition to growing seedlings, families will be encouraged to diversify into additional crops to provide additional benefits

2.1 New community fire-fighting teams will be created through recruiting team members during socialisation events in the local villages, which will also be used to promote the importance of peat rewetting and revegetation in preventing fire to the community. Training sessions, led by experienced local fire-fighters, will be held to familiarise new team members and refresh existing team members with equipment, teach fire patrolling and fire-fighting techniques, plus establish management structures, accounting and reporting systems.

2.2 Fire-fighting team members will be provided with cameras, GPS units, logbook and laptop to facilitate accurate patrolling and fire-fighting records, with the potential for implementing SMART monitoring systems investigated. Training progress of new team members and team readiness will be monitored during the bi-annual training sessions, and through monthly meetings and reports submitted to BNF. These reports will include records on where fires were detected/recorded and tackled, fire size, number of fire-fighters deployed, length of time to fire extinguished and area burned. During risk periods, fire incidence will also be monitored through drone surveys across target areas and remotely through daily checks of MODIS satellite fire hotspot data.

2.3 A network of fire-fighting teams created at an initial multi-stakeholder workshop, to which all community fire-fighting teams, including those affiliated to this project will be invited to join the network and introduced to each other, recognising these teams as the front-line of the fire-fighting response. Guidelines for methods and training, coordination between groups and with government agencies, access to resources and other issues arising will be developed at this, and follow-up annual workshops. Communication channels, such as a newly created WhatsApp group, and summary email reports will serve to keep teams connected and serve as a platform for sharing alerts, ideas, advances and problems encountered, plus to facilitate coordinated government liaisons and access to financial support.

2.4 Fire-fighting teams will conduct regular patrols (min. 15 days/month) in the forest and along waterways to check for fire hotspots and prevent illegal activities, meet with forest users in their homes and coordinate with local authorities as necessary. Upon detecting or receiving reports of a fire, a rapid-response team will be quickly mobilized to extinguish the fire, using water bores to obtain water from beneath the peat if necessary and creating fire breaks to protect forest and property.

3.1 Fact-finding research with local fishing and farming groups to identify current practices, including use of fire and peat drainage, and holding workshops and discussion sessions to identify impacts of current activities and potentially suitable alternatives, evaluate willingness for changing practices to more peat-friendly alternatives and

Project summary	Measurable Indicators	Means of verification	Important Assumptions
identifying resources needed for this and applying for additional funding to secure these resources.			
3.2 Bespoke education sessions conducted in schools, clubs, community forums, and fishing and farmers cooperatives to raise awareness of the impacts of peat drainage and fire use, of potential alternatives and the impacts of behaviour change. This will include speakers, use of video and other props, provision of written materials and games for children.			
4.1 Multi-stakeholder workshops in years 2 and 3 to discuss and agree on effective and realisable long-term strategies for peatland restoration and fire prevention in the Sebangau National Park, which will be formalised in summary document/s endorsed by the project proponents and park management. This will include strategies and SOPs for identifying at-risk areas, early fire warning systems, peat rewetting and revegetation, plus fire preparedness (addressing underlying causes of fire, such as fire starting, through awareness, education and community development) and fire-fighting team readiness (equipment, training, management structures, procedures, etc.).			
4.2 Training of National Park staff through 3 workshops conducted during years 2 and 3. These workshops will include theoretical and technical class-room components, plus field training on peat rewetting (damming strategies, dam construction, hydrological monitoring), revegetation (suitable tree species, replanting and monitoring techniques), plus biodiversity monitoring (including habitat condition and ape populations).			
4.3 Coordination with the Sebangau National Park, Environment Agency (DLH), the Disaster Management Agency (BNPB) and Peat Restoration Agency (BRG) to ensure alignment of restoration and fire-fighting activities in the National Park with these agencies' strategies, effective coordination of efforts and data/information sharing. This will include employing Indonesian Fire Management and Habitat Restoration Officers within BNF with specific responsibility for coordinating our activities and network management, plus sharing data and information, across local government agencies through regular one-to-one and multi-stakeholder meetings and workshops; distributing and socialising reports, proposals, images and data; and creating a cloud platform to facilitate information sharing.			

23. Provide a project implementation timetable that shows the key milestones in project activities. Complete the following table as appropriate to describe the intended workplan for your project (starting from Q2 July 2018)

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 shade only the quarters in which an activity will be carried out. The workplan can span multiple pages if necessary.

	Activity	No. of months	Year 1 Q2	Q3	Q4	Year 2 Q1	Q2	Q3	Q4	Year 3 Q1	Q2	Q3	Q4
Output 1	Ex-illegal logging canals blocked and areas burned in the 2015 fires replanted in the Sebangau National Park												
1.1	Canals surveyed, dams built to block canals and hydrology monitored	33	▓	▓	▓	▓	▓	▓	▓	▓	▓	▓	▓
1.2	Seedlings grown, transplanted / aerially distributed and monitored	33	▓	▓	▓	▓	▓	▓	▓	▓	▓	▓	▓
1.3	Community nurseries piloted and implemented	27			▓	▓	▓	▓	▓	▓	▓	▓	▓
Output 2	Improved local fire-fighting capacity for rapid response to peatland fires												
2.1	New community fire-fighting teams created and trained	12	▓	▓	▓	▓							
2.2	Fire-fighting teams equipped and operational	33	▓	▓	▓	▓	▓	▓	▓	▓	▓	▓	▓
2.3	Network of community fire-fighting teams created	18				▓	▓	▓	▓	▓	▓		
Output 3	Local community willing to develop plans to adopt more "peat-friendly" farming and fishing practices; and people better understand the harmful effects of fire and how to mitigate these.												
3.1	Engagement with fishing and farming cooperatives	27			▓	▓	▓	▓	▓	▓	▓	▓	▓
3.2	Education sessions	33	▓	▓	▓	▓	▓	▓	▓	▓	▓	▓	▓
Output 4	Foundations established to create a long-term legacy for fire prevention and mitigation and biodiversity conservation in and around the Sebangau National Park.												
4.1	National Park fire prevention strategy workshops	15					▓	▓	▓	▓	▓		
4.2	National Park training and capacity building	21					▓	▓	▓	▓	▓	▓	▓
4.3	Coordination with government agencies	33	▓	▓	▓	▓	▓	▓	▓	▓	▓	▓	▓

24. Project based monitoring and evaluation (M&E)

Describe, referring to the Indicators above, 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.

(Max 500 words)

M&E is an integral to this project and is built into each project component, to enable adaptive management and where necessary revision of targets/activities to maximise success. Indeed, the results of BNF's previous M&E has been important in designing the current project; e.g., five separate dam designs were previously trialled and assessed before selecting those to be used during this project. M&E will be led by UoE and carried out jointly by UoE and BNF, using data collected by BNF staff and fire-fighting team members. Many of these staff are already well trained in the planned field monitoring techniques and training will be provided by the project leaders/highly experienced field team members where that is not the case. M&E will be structured around the SMART concept and assessing progress towards targets regarding:

- Activity implementation. E.g., under Activity 1.1, this includes: number of dams built, canals dammed, local people employed in dam construction, socialisation events conducted and people reached, plus number of older/broken dams repaired.
- Proximate changes in the system, expected to arise from successful project activity implementation. E.g., under Activity 1.1 this includes: monthly (in a sub-set of damming locations) and pre- vs. post-dam construction (in remaining damming locations) water flow and canal depth monitoring, using flow metres and fixed-location water depth measurement rods to estimate water discharge rates; plus monthly peat water table depth monitoring using manual dip-wells and automated data loggers, to calculate dry season water-table draw-down. This will demonstrate impacts on peat hydrology from canal damming.
- Ultimate changes in project Outcome, expected to arise from successfully achieving proximate impacts. E.g., regarding reducing fire prevalence, monitoring will focus on monthly identification of the number of fire hotspots in the target area through MODIS satellite data available through Global Forest Watch, plus on-the-ground records from drone flights, fire team patrols and reports submitted to fire-fighting teams from local community members. This will demonstrate impacts of changes in hydrology (and thus canal damming) on fire prevalence.

Combined with regular evaluation of Important Assumptions, this will enable ongoing assessment of project success and identification of the reasons for any failures in achieving expected results; i.e., which part of the activity-proximate-ultimate change chain has failed and thus requires remedial action/revision. For example, if the target number of dams have been built and canals blocked (implementation), but no impact on peat water levels (proximate impact) is seen and fire prevalence (ultimate impact) does not decrease, then providing no red-flags are raised from other aspects of our M&E work, it is most likely that the reason for failure lays in the dam building strategy design. Conversely, if damming and peat water level targets are achieved, but fire prevalence does not decrease, it is more likely that the reason for failure lies in the water level targets themselves and that these therefore require revision.

Number of days planned for M&E	330
Total project budget for M&E	£64,286
Percentage of total project budget set aside for M&E	9.4%

Funding and Budget

Please complete the separate Excel spreadsheet which provides the Budget for this application. Some of the questions earlier and below refer to the information in this spreadsheet. You should also ensure you have read the 'Finance for Darwin and Illegal Wildlife Trade Challenge Fund' document and considered the implications of payment points for cashflow purposes.

NB: The Darwin Initiative cannot agree any increase in grants once awarded.

25. Value for Money

Please explain how you worked out your budget and how you will provide value for money through managing a cost effective and efficient project. You should also discuss any significant assumptions you have made when working out your budget.

> (max 300 words)
>
> Value for money is prioritized throughout this application. Costs have been calculated based on previous in-country experiences by BNF and are thus accurate projections. BNF has effective financial management systems managed by experienced local finance staff to prevent overspending and ensure accurate reporting.
>
> Activities are cost effective for a number of reasons. Field team management and activity implementation is primarily conducted by Indonesian staff with the dual benefits of lower salary components compared to UK employees plus benefits for Indonesian capacity building and empowerment.
>
> Amongst the specific projects the community nurseries are cost saving because do not necessitate purchase of land nor building substantial infrastructure, require fewer project staff (while delivering more benefits across the community) with an overall cost substantially lower than other reforestation projects in Indonesia.
>
> Where possible this project will make use of existing camps/trails/monitoring station infrastructure and trained field researchers, thus reducing costs associated with setting up new M&E systems and training new staff. The project will make use of freely available data where possible, inc. MODIS fires, Global Forest Watch imagery, Wunderground weather, Indonesian Meteorology Agency pollution, Provincial Health Service and other free medical data sources.
>
> Group training workshops for fire teams and community nurseries will incur reduced costs compared to multiple small workshops
>
> Use of drones and MODIS to help detect fires are cheaper than physical patrols.
>
> The project will make use of the BNF office, car, drone, computers and other equipment at no cost to the project. All materials and services will be sourced locally wherever possible.

26. 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.

> (max 150 words)
>
> Capital items include vehicle transport, GPS and camera and fire-fighting equipment for the community fire-fighting units. These will be permanently given to the teams.
>
> Hydrology monitoring dataloggers will be left with BNF to continue to collect data beyond the project period

27. Match funding (co-finance)

a) Secured

Provide details of all funding successfully levered (and identified in the Budget) towards the costs of the project, including any income from other public bodies, private sponsorship, donations, trusts, fees or trading activity.

Confirmed:

Long-term committed funding from The Orangutan Project (TOP), the Arcus Foundation and BNF's own financial supporters will contribute matched funding to this project. University of Exeter will contribute £51,481 worth of overheads and BNF will make available support staff, vehicles and other equipment (including drones) as in-kind contributions.

27b) Unsecured

Provide details of any matched funding where an application has been submitted, or that you intend applying for during the course of the project. This could include matched funding from the private sector, charitable organisations or other public sector schemes.

Date applied for	Donor organisation	Amount	Comments

27c) None

If you are not intending to seek matched funding for this project, please explain why.

(max 100 words)

28) Financial Management Risks

Explain how you have considered the risks and threats that may be relevant to the success of this project, including the risks of fraud or bribery.

(max 200 words)

The main risk concerns local community and government project support and participation. While potentially serious, this is considered unlikely. BNF has been working in Sebangau with local community and government support since 1999, developing good local relations. Planned activities have already been socialised and agreed with key local stakeholders, including SNP, BRG, DLH, the Village Head and existing fire-fighting teams, which are entirely comprised of local community members and have strong connections within the community.

Fire is a risk, especially if a strong El Niño occurs, drought takes hold and nursery/replanting locations or the Sebangau forest basecamp are threatened. This has been avoided through intensive fire-fighting during previous El Niños, including the very strong 2015 event, and it is unlikely that another event comparable to 2015 will occur during the project period (the last previous comparable event was in 1997-98). Our activities are specifically targeted towards reducing fire and we therefore expect to be able to successfully mitigate this risk.

Fraud and bribery is a risk, given Indonesia's relatively low Corruption Perception Index score. BNF's long local work history and exposure to this risk, plus trusted local connections and anti-bribery reputation means we are well placed to mitigate this.

FCO Notifications

Please check the box if you think that there are sensitivities that the Foreign and Commonwealth Office will need to be aware of should they want to publicise the project's success in the Darwin competition in the host country. ☐

Please indicate whether you have contacted your Foreign Ministry or the local embassy or High Commission (or equivalent) directly to discuss security issues (see Guidance) and attach details of any advice you have received from them.

Yes (no written advice) ☐   **Yes, advice attached** ☐   **No** ☒

Certification

On behalf of the University of Exeter

(*delete as appropriate)

I apply for a grant of £349,329.00 in respect of **all expenditure** to be incurred during the lifetime of this project based on the activities and dates specified in the above application.

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

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

- I enclose CVs for key project personnel and letters of support.
- I enclose our last two sets of signed audited/independently verified accounts and annual reports

Name (block capitals)	PROF DAVID HODGSON
Position in the organisation	DIRECTOR, CENTRE FOR ECOLOGY AND CONSERVATION

Signed**		Date:	29/01/2018

If this section is incomplete or not completed correctly the entire application will be rejected. You must provide a real (not typed) signature. You may include a pdf of the signature page for security reasons if you wish. Please write PDF in the signature section above if you do so.

Stage 2 Application – Checklist for submission

	Check
Have you **read the [Guidance](#)**?	YES
Have you read and can you meet the current [Terms and Conditions](#) for this fund?	YES
Have you provided **actual start and end dates** for your project?	YES
Have you provided your **budget based on UK government financial years** i.e. 1 April – 31 March and in GBP?	YES
Have you checked that your **budget is complete**, correctly adds up and that you have included the correct final total on the top page of the application?	YES
Has your application been **signed by a suitably authorised individual**? (clear electronic or scanned signatures are acceptable)	YES
Have you included a **1 page CV for all the key project personnel** identified at Question 6 and Question 10?	YES
Have you included a **letter of support from your <u>key</u> partner organisations** identified at Question 9?	YES
Have you **been in contact with the FCO** in the project country/ies and have you included any evidence of this?	NA
Have you included a **signed copy of the last 2 years annual report and accounts** for the lead organisation?	YES
Have you **checked the Darwin website** immediately prior to submission to ensure there are no late updates?	**YES**

Once you have answered the questions above, please submit the application, not later than 2359 GMT on Monday 29 January 2018 to Darwin-Applications@ltsi.co.uk using the application number (from your Stage 1 feedback letter) and the first few words of the project title **as the subject of your email**. If you are e-mailing supporting documentation separately please include in the subject line an indication of the number of e-mails you are sending (eg whether the e-mail is 1 of 2, 2 of 3 etc). You are not required to send a hard copy.

Data Protection Act 1998 - Fair Processing Notice

The purpose of this Fair Processing Notice is to inform you of the use that will be made of your personal data, as required by the Data Protection Act 1998.

The Department for Environment, Food and Rural Affairs (Defra) is the data controller in respect of any personal data that you provide when you complete your application, the grant acceptance and the supplier forms.

Defra will use your personal data primarily for the purpose of processing your application for Darwin Initiative funding. By submitting an application, applicants have agreed to any disclosure of the information supplied (including the content of a declaration or undertaking) which Defra considers necessary for the administration, evaluation, monitoring and publicising of the Funds (as detailed in the paragraphs below).

A completed application form signifies agreement to place certain details of successful applications (i.e. name, title, total grant value, project summary, lead organisation and location of project work) on the Darwin Initiative websites listed below. A completed application form also signifies agreement to send data on the project proposals during the application process to British Embassies and High Commissions outside the UK, including those outside the European Economic Area.

http://www.darwininitiative.org.uk;

https://www.gov.uk/government/groups/the-darwin-initiative;

Application form data will also be processed by Defra contractors dealing with Darwin Initiative administration, monitoring and evaluation (working within relevant data protection rules).

Defra may be required to release information, including personal data and commercial information, on request under the Environmental Information Regulations 2004 or the Freedom of Information Act 2000. However, Defra will not permit any unwarranted breach of confidentiality nor will we act in contravention of our obligations under the Data Protection Act 1998. The Grantee shall assist and co-operate with the Department (at the Grantee's expense) to enable the Department to comply with its disclosure obligations under these enactments.

We may use information, including personal data, to test computer systems to ensure that they work effectively and efficiently and to develop new systems in order to improve efficiency and the service that we provide to you and other persons. Any use of information for testing or developing computerised systems will be conducted in a secure manner in accordance with the Data Protection Act 1998 to safeguard the privacy of the information that you have supplied.

Defra's Personal Information Charter, which gives details of your rights in respect of the handling of your personal data, is on the Defra section of Gov.uk. If you don't have access to the internet, please telephone the Defra helpline 08459 33 55 77 and ask to speak to the Data Protection Officer for a copy of the Information Charter.