
DIR25S2\100028

Lion Carbon: creating biodiversity value and sustainable management through REDD+

Lion Carbon is a scalable and sustainable biodiversity conservation model, which links payment to local communities (generated through the REDD+ avoided deforestation mechanism) to 30-year habitat protection agreements. Lion Carbon addresses the proximate threats to biodiversity (poaching, habitat loss, and poor management) through strengthening local and regional capacity to manage natural resources, and the social threats (poverty and undervalued biodiversity) through job creation and the distribution of benefits from verified forest carbon offsets to local communities.

PRIMARY APPLICANT DETAILS

| | |
|---------------------|-----------|
| Title | Prof |
| Name | David |
| Surname | Macdonald |
| Tel (Work) | |
| Email (Work) | |
| Address | |

Section 1 - Contact Details

PRIMARY APPLICANT DETAILS

| | |
|--------------|-----------|
| Title | Prof |
| Name | David |
| Surname | Macdonald |
| Tel (Work) | |
| Email (Work) | |
| Address | |

GMS ORGANISATION

| Type | Organisation |
|----------------|--|
| Name | WildCRU, Zoology, University of Oxford |
| Phone (Work) | |
| Email (Work) | |
| Website (Work) | |
| Address | |

Section 2 - Title, Dates & Budget Summary

Q3. Project title:

Lion Carbon: creating biodiversity value and sustainable management through REDD+

What was your Stage 1 reference number? e.g. DIR25S1\100123

DIR25S1\100092

Q4. Country(ies)

Which eligible 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

Zambia

Country 2

No Response

Country 3

No Response

Country 4

No Response

Do you require more fields?

No

Q5. Project dates

Start date:

01 April 2019

End date:

30 September 2021

Duration (e.g. 2 years, 3 months):

2 years 6 months

Q6. Budget summary

| Year: | 2019/20 | 2020/21 | 2021/22 | Total request |
|---------|-------------|-------------|-----------|------------------------|
| Amount: | £204,551.00 | £128,449.00 | £8,170.00 | £ 341,170.00 |

Q6a. Do you have proposed matched funding arrangements?

Yes

What matched funding arrangements are proposed?

Funds needed for the activities outlined in this proposal will be increasingly matched and then exceeded by funds generated from the sale of REDD+ carbon offsets as part of this project, until operations are entirely self-sustaining (estimated to be in 2021/22). Funding (£X) has already been secured for year 1 of this project from The Lion Recovery Fund.

Q6b. Proposed (confirmed and unconfirmed) co-financing as % of total project cost 69%

Section 3 - Project Summary

Q7. 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 write this summary for a non-technical audience.

Lion Carbon is a scalable and sustainable biodiversity conservation model, which links payment to local communities (generated through the REDD+ avoided deforestation mechanism) to 30-year habitat

protection agreements. Lion Carbon addresses the proximate threats to biodiversity (poaching, habitat loss, and poor management) through strengthening local and regional capacity to manage natural resources, and the social threats (poverty and undervalued biodiversity) through job creation and the distribution of benefits from verified forest carbon offsets to local communities.

Section 4 - Lead Organisation Summary

Q8. Lead organisation summary

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

Yes

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

| Reference No | Project Leader | Title |
|--------------|----------------------|--|
| 20-012 | Prof. D.W. Macdonald | Improving anti-poaching patrol evaluation and design in African rainforests |
| EIDPO021 | Prof. D.W. Macdonald | Implementing an otter action plan for marine environments of Tierra |
| 14-028 | Dr C. Sillero-Zubiri | Conservation of Puna's Andean cats across national borders |
| EIDPO038 | Dr C. Sillero-Zubiri | High Andes Conservation without borders |
| 17-031 | Dr A. J. Loveridge | Ecological sustainability of leopard trophy hunting in Zimbabwe |
| 22-3270 | Dr A. J. Loveridge | Alleviating rural poverty through conflict mitigation and improved crop yields |

Have you provided the requested signed audited/independently examined accounts? If you select "yes" you will be able to upload these. Note that this is not required from Government Agencies.

Yes

Section 5 - Project Partners

Q9. Project partners

Please list all the partners involved (including the Lead Organisation) 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 Letters of Support for each partner or explain why this has not been included.

N.B. There is a file upload button at the bottom of this page for the upload of a cover letter (if applicable) and all letters of support.

| | |
|--|---|
| Lead Organisation name: | WildCRU, Zoology, Oxford University |
| Website address: | www.wildlcru.org |
| Details (including roles and responsibilities and capacity to engage with the project): | <p>Oxford University's Wildlife Conservation Research Unit was founded to tackle the emerging biodiversity crisis and wider environmental issues by bridging the gap between academic theory and practical problem solving. WildCRU has wide experience at delivering practical conservation outcomes underpinned by rigorous scientific methods, in a range of globally important conservation issues.</p> <p>Roles and responsibilities: Oxford University will be responsible for the oversight of proposed Darwin funded activities and the management of project funds. WildCRU staff will conceptualise and design the research and monitoring work, and contribute significant scientific and practical experience to the implementation of project activities. Specifically, staff will design biodiversity surveys, will monitor and evaluate project progress, contribute to reporting, analyse project data and in collaboration with project partners publish results in peer reviewed journals.</p> <p>Capacity: WildCRU has successfully completed 15 Darwin Initiative projects and project principals (Macdonald, Cotterill) have significant and long-standing global experience with this kind of work. WildCRU has already established relationships with partners on the ground over the last 2 years, when they joined to performed a similar role during the project pilot phase.</p> |
| Have you included a Letter of Support from this organisation? | <input checked="" type="radio"/> Yes |
| Have you provided a cover letter to address your Stage 1 feedback? | <input checked="" type="radio"/> Yes |

Do you have partners involved in the Project?

Yes

1. Partner Name: BioCarbon Partners

Website address: www.biocarbonpartners.com

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

BCP is a social enterprise addressing deforestation in important biodiversity areas of Zambia, whose mission is 'Making conservation of wildlife habitat valuable to people'.

Roles and responsibilities:

BCP's role is to form and maintain community and government partnerships and agreements, and to manage all REDD+ forest carbon operations. Specifically, this includes maintaining agreements from governments to operate in the project areas, implementing 30-year habitat protection agreements with local communities, verifying the carbon available for sale through the Verified Carbon Standard (VCS), the sale of Forest Carbon Offsets to businesses, and the process of investing income from the sale of these offsets back into the local communities and long-term forest and wildlife conservation activities.

Capacity:

BCP have performed this role in a successful pilot project (Lower Zambezi REDD+ Project – LZRP) in the same area; all carbon offsets are sold for LZRP and there are 5,031 local beneficiaries. In this project, BCP has already secured 30-year habitat protection agreements with 13 local chiefdoms covering 1 million hectares in the Luangwa valley (Fig 1. Project Area Map), is at an advanced stage of completing the VCS carbon verification process, and have secured buyers for all carbon offsets produced by the project area.

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

2. Partner Name: Lion Landscapes

Website address: www.lionlandscapes.org

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

Lion Landscapes is an independent lion conservation research organisation, operating in Africa, that works in partnership with local stakeholders to develop holistic programs that support lions, their prey, habitat and local people.

Roles and Responsibilities:

In this project Lion Landscapes will be responsible for the implementation of all the wildlife conservation field work aspects of this project and any related wildlife conservation interventions that are revealed as necessary during the life of this project. Specifically, this includes all biodiversity monitoring, the monitoring and evaluation of Darwin funded activities, anti-poaching and technical input into the development of the Community Resource Board led Chiefdom Conservation Plans.

Capacity:

Lion Landscapes have already been working with BCP in this capacity on the successful LZRP pilot project. Although the project proposed here represents a significant expansion of field work activities, most methods have already been tried and tested by the Lion Landscapes team. Additionally, Lion Landscapes has experience running another large holistic lion conservation and management project in Kenya.

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

3. Partner Name: *No Response*

Website address: *No Response*

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

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

4. Partner Name: *No Response*

Website address: *No Response*

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

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

5. Partner Name: *No Response*

Website address: *No Response*

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

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*

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.

 [DarwinR25 Stage2 PartnerLettersOfSupport LionCarbon](#)

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 [DarwinR25 Stage2 CoverLetter LionCarbon](#)

 03/12/2018

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Section 6 - Project Staff

Q10. Key project personnel

Please identify the core staff 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 | % time on project | CV attached below? |
|------------------------------|---|-------------------|--------------------|
| Professor David W. Macdonald | Project Leader | 10 | Checked |
| Dr. Alayne H. Cotterill | Research and conservation leader | 50 | Checked |
| Dr. Hassan Sachedina | REDD+ activities and development leader | 50 | Checked |
| Shadreck Ngoma | Community engagement manager | 100 | Checked |

Do you require more fields?

Yes

| Name (First name, Surname) | Role | % time on project | CV attached below? |
|----------------------------|--|-------------------|--------------------|
| Alastair Anton | Operations manager | 100 | Checked |
| Patrick Nyirenda | Law enforcement manager | 100 | Checked |
| Nicola Carruthers | Biodiversity monitoring manager | 50 | Checked |
| Dr. Lyman McDonald | Biodiversity monitoring survey design and analysis support | 5 | Checked |

Please provide 1 page CVs (or job description if yet to be recruited) for the Project staff listed above. Ensure the file is named clearly, consistent with the named individual and role above.

 [Darwin R25 Stage2 KeyProjectCVs LionCarb on2](#)

 03/12/2018

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Have you attached all Project staff CVs?

Yes

Section 7 - Problem Statement & Conventions

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. 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?

An estimated 428 million people depend on African dryland forests for subsistence. Destruction of these forests contributes to climate change, threatens biodiversity and exacerbates local poverty. Zambia has the highest deforestation rate in Africa, losing forest four times the size of New York City every year for charcoal and timber.

BCP has secured 30-year habitat protection agreements with local chiefdoms over 1 million hectares of the Luangwa-Zambezi ecosystem in Zambia - home to several endangered and vulnerable species (including lion, African wild dog and Southern ground-hornbill) and some of the country's poorest communities. In return for forest protection activity, communities receive income from the sale of REDD+ offsets, while alternative livelihood interventions direct communities away from destructive practices including unsustainable charcoal production and forest felling.

Baseline surveys carried out by BCP to understand perceptions, values and social norms with regards to the use of natural resources indicate that forest protection alone, however, is not enough to conserve biodiversity (Fig 3. Situation Analysis). Poverty, human population growth, and a lack of wildlife management capacity cause unsustainable bushmeat poaching, resulting in 'empty forests'. Wide ranging pinnacle carnivores such as the African Lion are often the first species to be extirpated, impacted by the loss of prey and habitat, and by unsustainable human offtakes (snaring and poorly managed trophy hunting).

The Lion Carbon model augments BCP's REDD+ activities by including the protection of wildlife and building local and regional capacity to manage the sustainable use of natural resources (Fig 4. Theory of Change). As a wide-ranging pinnacle carnivore with approximately 20,000 left on the planet and classed as vulnerable on the IUCN Red List, the African lion is an umbrella species for the Lion Carbon project; a growing population of lions being indicative of biodiversity conservation success.

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

 **Darwin25 Stage2 SupportingDocuments LionCarbon**

nCarbon

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Q12. Biodiversity Conventions, Treaties and Agreements

Q12a. 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)
- Convention on the Conservation of Migratory Species of Wild Animals (CMS)

Q12b. 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.

This project directly supports the CMS-CITES African Carnivore Initiative by protecting an important remaining stronghold for Lions, Leopards and Wild Dogs, and maintaining connectivity for these (and other species on the CMS list) between four Key Landscapes for Conservation. Project activities also support 5 of the CBD objectives. Specifically, this project aids Zambia in its commitment to the CBD objectives by identifying the components of biological diversity important for its conservation and wise use, and processes and categories of activities that impact on the conservation and sustainable use of biological diversity, in this case forests and wildlife (CBD Article 7). This project develops institutional capacities and helps to ensure conservation and sustainable use of biodiversity, and to maintain viable populations of species in natural surroundings through building the capacity of Community Resource Boards and the Department of National Parks and Wildlife to manage wildlife and forests (CBD Article 8). Lion Carbon also involves the private sector (REDD+ mechanism) in developing methods for sustainable use of biological resources, and involves local communities in conservation by applying indigenous knowledge systems, again through a partnership with legally mandated Community Resource Boards (CBD Article 9). Additionally, this project adopts economically and socially sound measures that act as incentives for the conservation and sustainable use of components of biological diversity through the generation and equitable distribution of income from the sale of REDD+ forest carbon offsets in return for habitat protection agreements (CBD Article 11). The biodiversity monitoring program developed in this project, and the training of Community Resource Board Scouts to carry out this monitoring, as well as training on how to protect local forests and wildlife, constitutes scientific and technical training that contributes to the conservation and sustainable use of biological diversity (CBD Article 12).

Q12c. Is any liaison proposed with the CBS/ABS/ITPGRFA/CITES/CMS/Ramsar focal point in the host country?

Yes

Please give details:

BCP has an MOU with the Department of National Parks and Wildlife (DNPW), to work together on the management of forests and wildlife in project areas. DNPW is the focal point for CITES in Zambia.

Q12d. Global Goals for Sustainable Development (SDGs)

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

This project also significantly contributes to the Global Goals for Sustainable Development (SDGs). The 30-year habitat protection agreements with local communities and improved capacity to protect and manage resources, work directly towards ending deforestation, protects biodiversity and natural habitats, and works towards eliminating poaching of threatened and endangered wildlife (SDG15). The protection of forests that border the Luangwa river system also acts to protect and restore a water-related ecosystem (SDG 6). By generating payments for ecosystem services through the REDD+ mechanism, project activities increase financial resources to conserve and sustainably use ecosystems and biodiversity, incentivises sustainable forest management and helps to eradicate extreme poverty (SDG 15,1). The gender, socially and culturally sensitive way in which payments for ecosystem services are made in this project help ensure that all men and women, in particular the poorest and the most vulnerable, have equal rights to economic resources, ownership and control over natural resources (SDG 1) and include women in the ownership and control of natural resources (SDG 5). Building the capacity of the Community Resource Boards helps to integrate ecosystem and biodiversity in government planning at the local level (SDG 15) and achieve the sustainable management and efficient use of natural resources (SDG 12). The training of community scouts in this project also increases the number of people who have relevant skills for employment in decent jobs (SDG 4). Finally, this project increases awareness and promotes mechanisms for raising capacity for effective climate change-related planning and management (SDG 13).

Section 8 - Method, Change Expected, Gender & Exit Strategy

Q13. 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.).

This may be a repeat from Stage 1, but you should update or refine as necessary.

Each of the 3 Chiefdoms (overlain by Game Management Areas) in the project area has a Community Resources Board (CRB), legally mandated with community-based management of natural resources. Most CRBs are unable to fulfill their conservation mandate due to low organizational, financial, and technical capacity. Lion Carbon builds local capacity to manage wildlife and forests by 1) developing adaptive CRB-led, Chiefdom Conservation Plans, 2) improving CRB capacity to implement these plans, and 3) linking conservation efforts more closely to payments to local communities.

The Chiefdom Conservation Plans will be developed through CRB-led stakeholder workshops facilitated by BCP, with conservation guidance from LL/wildCRU. Facilitating and guiding a community-led process is designed to foster confidence to pursue ideas with minimal dependence on outside agencies. Community engagement and culturally appropriate conservation planning will be crucial to success, as local practices (unsustainable use of wildlife and forests) are where the biggest threats to biodiversity lie. The workshops will follow a gap analysis approach so that CRBs can also identify where they need the most support to effectively implement their Conservation Plans. Preliminary discussions with CRBs, DNPWM and other organisations indicate that support needed will certainly include employing extra scouts, and providing comprehensive equipment, training and coordination support for new and current scouts, which we have budgeted for in this proposal.

Effective local management of wildlife and habitat will be further supported through the development and implementation of a community scout-based biodiversity monitoring system. This will be designed and overseen by LL/WildCRU to provide robust data on trends in density and distribution of wildlife and illegal activities. Distance sampling and occupancy modelling methodologies using a combinations of tracks and sign and camera trapping, designed to be simple to implement and cost effective over very large areas, will be combined to ensure that even rarer and more elusive species can be effectively monitored.

Community and government agreements, and the mechanisms to manage all REDD+ forest carbon operations have already been developed by the BCP team through a US\$14 million USAID Community Forests Program grant given in 2014. This includes the verification and sale of REDD+ forest carbon offsets, and mechanisms for the distribution of income from these sales to local communities. Benefit sharing is in the form of investments into democratically chosen local livelihoods aiming to improve infrastructure, education, provide training and deliver other benefits that can be linked to forest protection. Key to this is a process that considers gender issues (36% of beneficiary households are headed by women) and transfers ownership and decision-making to the beneficiary communities. To further increase community engagement and ownership, we will pilot a 'community camera trapping' activity, so that community members are able to monitor their own wildlife. This pilot is designed to strengthen the link between benefits received from REDD+ and wildlife conservation. This combined approach of facilitating law enforcement, biodiversity management and monitoring, whilst providing communities with alternative sustainable incomes, ownership and decision-making power, drives a positive feedback loop that is the core of Lion Carbon strategy.

Q14. 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.

This project will develop the mechanisms by which local communities can better manage and directly benefit from the conservation of their biodiversity. During the life of the project, these mechanisms will be embedded into local resource management, then continue to run alongside 30-year renewable habitat protection agreements, ensuring that activities and related benefits are ongoing and lead to longer-term changes in biodiversity status.

During the life of the project there will be a meaningful increase in the capacity of 3 Community Resource Boards to protect their wildlife and habitat, including the creation of 60 wildlife scout jobs for local community members. This will be facilitated by the production of robust biodiversity and illegal activity monitoring data. This project will provide 2-year baseline data, but ongoing monitoring data will be used to inform the adaptive Chieftom Conservation Plan, other project partner activities, activities of other conservation organisations, and government policies for the management of wildlife and habitat, directly benefiting all conservation efforts for years to come.

Creation of biodiversity value through the sale of REDD+ offsets and mechanisms to ensure the fair distribution of these benefits, will create a direct link between the conservation of forests and wildlife, and benefits for local communities living inside Lion Carbon areas for a predicted 170,000+ people in Phase 1 (this project) alone, more than half of which will be women. Community camera trapping will further strengthen these links by allowing villages to monitor their own wildlife.

In the short-term, the above changes will improve engagement and reduce poverty in local communities which constitute the greatest threats to biodiversity e.g. poaching and habitat destruction. Improving biodiversity management whilst providing communities with alternative sustainable incomes, ownership and decision-making power is expected to reduce poaching and deforestation within Phase 1 Lion Carbon areas by 30% during the life of the project. Over the longer-term, the 500,000+ ha of primarily community managed lands included in this project should upgrade from their current status of “improved management” to “biodiverse areas showing improved biophysical conditions” (according to USAID standard indicators), benefiting both local communities that still rely on these natural resources, and the global community by impacting climate change.

If Phase 1 (this project) is successful, and a scalable and sustainable biodiversity conservation model that increases the value of biodiversity to local communities and provides the local and regional capacity for the sustainable management of natural resources is demonstrated, this complete Lion Carbon model will be expanded over the entire one million hectare REDD+ managed area (Phase 2). This will more than double the number of community beneficiaries and help protect one of the biggest biodiversity corridors in Africa, connecting four Key Landscapes for Conservation and securing one of the last 6 remaining lion strongholds on the planet (Fig 1&2: Project Area Map). The Lion Carbon model can also be expanded with BCP REDD+ operations beyond the current Luangwa Valley area; BCP’s current 10-year goal is ten million hectares of important biodiversity areas protected and one million community beneficiaries.

Q15. 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.

Zambian women are traditionally better at sharing benefits with other members of their family than are men. The REDD+ benefit sharing mechanisms have been designed to give women equal rights and access to economic resources. More than half of the recipients of benefits from REDD+ carbon offsets are currently women and 36% of our current beneficiary households are headed by women.

Additionally, efforts will be made to ensure women's full and effective participation and equal opportunities for leadership at all levels of decision-making related to the management of natural resources. Stakeholder meetings to develop and review project activities will include women from the communities, and mindful facilitation and/or incorporating women only break-out groups will help enable them to freely express their opinions. The Community Resource Board positions, through whom all project resource management and benefit distribution decisions are made, are determined through local democratic elections overseen by the local authorities. The Zambian constitution stipulates a minimum number of women to be included on any committee or board, ensuring that women will be included.

Much of the employment associated with this project – anti-poaching Community Scouts – is a traditionally male role due to the cultural norms surrounding law enforcement. However, attitudes are changing. A large part of the role of Community Scouts will be engaging their communities in biodiversity conservation issues. We believe woman scouts will have a better understanding of the needs of local woman and the factors governing their decision making, and be better at engaging the women in their communities in biodiversity conservation practices. Addressing the needs of women scouts during training and while working in the field will be carefully considered during the planning process, to ensure that more women are able to obtain and retain positions as Community Scouts.

Q16. 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?

During the life of this project, core wildlife conservation activities for which funding is requested (conservation planning, anti-poaching and monitoring) will be designed and embedded into the REDD+ operations (developed through USAID funding), creating a sustainable model that protects wildlife and forest biodiversity. Wildlife conservation activities are designed to run hand in hand with the long-term REDD+ operations based on 30-year renewable habitat protection agreements signed with the local communities. Sales of REDD+ carbon offsets from the project area already secured indicate that all Lion Carbon activities will be independent of donor funding by 2022. Despite the long-term nature of project activities, exit will be considered to be the moment when external funding is no longer necessary to fund the community development projects (currently USAID funded) or run the core conservation planning, anti-poaching and monitoring activities (Darwin funding requested). Donor funding may still be sought for future additional project activities not included in the current Lion Carbon model e.g. further scientific research into issues raised during the life of this project.

Please provide supporting documentation e.g. maps, diagrams etc., using the File Upload below:

No Response

Section 9 - Existing works, Ethics & Safeguarding

Q17a. Harmonisation

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

Development of existing work

Please give details:

This project represents an ambitious expansion of a 290 km. sq. pilot project started in 2012 in which all project partners were involved; The Lower Zambezi REDD+ pilot (LZRP) employs 28 anti-poaching scouts, has run biodiversity monitoring surveys for the last 3 years, and has 5,031 Community beneficiaries from REDD+ offset sales, more than half of which are women. The LZRP pilot is also the only project in Africa to achieve triple gold Climate, Community and Biodiversity standards. Lion have returned to the area after not being seen for over 10 years before project activities started. The return of lions is testament to a growing prey base and level of security in the area. All REDD+ aspects of the LZRP and the project proposed here have been funded through a 14 million dollar USAID grant. This allows proposed project activities to benefit from extensive baseline social research to understand perceptions, values and social norms with regards to the use of natural resources, and crucial prior work to build community and stakeholder relationships, secure habitat protection agreements with local communities, develop mechanisms to ensure the fair distribution of REDD+ income to local communities, and secure matching/ongoing funding through REDD+ offset sales.

Q17b. 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.

Two other projects are carrying out benefit linked community camera trapping in Tanzania and Mozambique. Both projects will be advising on that aspect of our work. Other local organisations are doing some anti-poaching and/or monitoring activities in and around Protected Areas in the ecosystem. These organisations have been contacted and are being consulted to ensure lessons learned are shared, and methods used are complimentary. This project compliments the work of others by securing the neglected General Management Areas that provide the connectivity between the Protected Area complexes in this important ecosystem (Fig 1 and 2: Project Area Maps).

Q18. Ethics

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

The project will take place in collaboration with people from rural villages, Community Resource Boards (CRBs - locally elected resource management bodies) and the government Department of National Parks and Wildlife (DNPW) in the Luangwa Valley, Zambia. Full local and government consensus for project activities has already been established through the development of habitat protection agreements with local communities and MOU's with the CRBs and DNPW in all Lion Carbon areas. Throughout this process we followed internationally recognised standards of obtaining "Free, Prior, and Informed Consent" to ensure that local communities are fully aware and in agreement with the work we anticipate doing. Additionally, all project work is carried out through CRBs, allowing local communities to continue to be involved in decision making and incorporating their own priorities, traditional values and knowledge into shaping the project activities.

Participation in research (eg surveys and monitoring) will be embedded in the Chiefdom Conservation Plans, and/or carried out by prior informed consent to ensure the safety, welfare and privacy of participants, and will conform to the standards set by Oxford's Central University Research Ethics Committee. We will ensure that both benefits and potential costs are explained and understood before implementation of any intervention. All activities have been assessed to ensure that they are necessary and likely to be of benefit based on findings during the LZRP pilot project, and the extensive work carried out with local communities in developing the REDD+ activities. Local people will be informed about the final outcomes of the research to ensure that they benefit from participation.

Health and safety of field staff will always be considered. Staff employed by Oxford University and Lion landscapes will follow the university's established risk assessment procedures and BCP also have well developed protocols in place to protect all project staff.

Q19. Safeguarding

(see Guidance Note 3.8)

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, we would like projects to ensure they have the appropriate safeguarding policies in place. Please tick the box to confirm you have relevant policies in place and that these can be available on request.

Checked

Section 10 - Biodiversity & Project Information

Q20. 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?

At the local level, this project acts to give forest and wildlife biodiversity an actual and tangible value to local communities. Payments for ecosystems services generated (through REDD+) are further linked to the protection of forests and wildlife in the minds of local communities by including a performance-based element to the payments. The parameters of this performance, and related benefits sharing are clearly laid down in the 30-year habitat protection and benefit sharing agreements, developed and signed by the communities in exchange for the REDD+ payments. Additionally, the importance and measurable impacts of biodiversity conservation will form part of every training course run for scouts and be clearly stated during every meeting held with community members, local Chiefs, Community Resource Boards, and government departments. Additionally, these same opportunities will be used to talk more about the less-tangible benefits of conserving forests and wildlife e.g. reducing climate change and land erosion, improving access to clean water and protecting industries that provide jobs e.g. sustainable tourism.

We will also raise awareness about the value of biodiversity at the policy level. Our project outcome – a scalable and sustainable biodiversity conservation model that increases the value of biodiversity to local communities and provides the local and regional capacity for the sustainable management of natural resources – is directly in line with several National and Regional conservation and development strategy goals. A working example will help policy makers to support to Lion Carbon activities and conceive new

ways to integrate ecosystem and biodiversity values into national and local planning, development processes and poverty reduction strategies in Zambia and beyond. Regular meeting with local and national ministers, and progress reports given, ensure that information about project activities and progress is available to all decision makers at every level.

Q21. 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.

All Darwin funded project activities proposed here build local capacity to sustainably manage natural resources. Activities are designed to be simple, cost effective, and culturally appropriate, maximising the likelihood that they will be adopted long-term. At the local level, Community Scouts will receive extensive training, equipment and logistical and management support, increasing their capacity to perform their anti-poaching duties, and their capacity to direct their local communities away from harmful practices and towards practices that support livelihoods and biodiversity conservation. The initial training carried out during this project period will be the most comprehensive but regular (biannual) refresher training will ensure that skills, protocols and capacity is maintained.

The production of Chiefdom Conservation Plans will also increase the capacity to manage resources at the Community Resource Board (CRB) level, providing guidance on everything from the utilisation of natural resources by local communities to anti-poaching and monitoring protocols. Ensuring that the CRBs take a lead role in the development of their adaptive management plan will again help ensure that the contents are appropriate and followed long-term.

Scout training also provides the skills and protocols required to run biannual biodiversity monitoring surveys. Data from these surveys inform the Chiefdom Conservation Plans, allowing them to be adapted on the basis of robust data during regular (5 yearly) assessments. Robust biodiversity monitoring data will also contribute substantially to the National understanding of wildlife densities and distribution, increasing the capacity of the Department of National Parks and Wildlife to make data-based policy decisions and set sustainable utilisation quotas based on actual wildlife population densities, distribution and trends. All activities are long-term (in line with the 30 years renewable habitat protection agreements) i.e. will be ongoing after the life of the project. Capacity will be secured for the future by the sale of REDD+ carbon-offsets.

Q22. Access to project information

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

This project will produce three main types of information. 1) protocols and management plans produced during the project, 2) biodiversity and illegal activity monitoring survey data produced throughout the project, and 3) the monitoring and evaluation data that measure the progress of the project against defined outputs.

Access to all project information to local project stakeholders (Community Resource Boards, Department of National Parks and Wildlife, traditional leaders and community representatives) will be given during quarterly meetings. Bringing local stakeholders together in this way also allows the project to benefit from and incorporate valuable stakeholder feedback on project activities. In year 3 we will hold a larger workshop to showcase the project to local stakeholders and regional wildlife managers, government representatives and potential funding agencies that might be interested in uptake of our findings at a much wider scale. Matching funds will cover the quarterly meetings with local stakeholders but Darwin funds

(£3,000) are currently requested to cover the costs of this final workshop.

Results of the biodiversity monitoring surveys, and the progress of project activities, including any challenges faced, will be shared with all shareholders in the form of an annual report. Additionally, raw cleaned data, protocols, management plans and annual reports will be available on project partner websites, and where appropriate on social media sites. Websites are currently maintained by the respective institutions and will not require any Darwin funding. Peer reviewed publications will fall outside the project life and open access will be covered by matching funds.

Section 11 - Logical Framework

Q23. 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.

Impact:

A landscape where local communities sufficiently benefit from viable populations of wildlife and healthy habitat to ensure the long-term recovery and survival of wildlife and standing forests.

| Project summary | Measurable Indicators | Means of verification | Important Assumptions |
|-----------------|-----------------------|-----------------------|-----------------------|
|-----------------|-----------------------|-----------------------|-----------------------|

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| <p>Outcome:</p> <p>A scalable and sustainable biodiversity conservation model that increases the value of biodiversity to local communities and develops local and regional capacity for the sustainable management of natural resources.</p> | <p>0.1. The costs of maintaining all Lion Carbon outputs, listed in the budget accompanying this proposal, are covered by the sale of REDD+ carbon offsets by 2022.</p> <p>0.2. There are agreed plans to expand the outputs listed below across Phase 2 (all remaining) REDD+ managed area (Fig.1).</p> <p>0.3. At project end, a 60% increase in the number of people reporting that standing forests and living wildlife provide greater benefits than gained from previous use of wildlife and forest products use. Baseline established in surveys at the project start.</p> | <p>0.1, BCP accounts and project budget</p> <p>0.2. Minutes of the BCP AGM and agreed plans for Phase 2.</p> <p>0.3. Pre-project and post project interviews conducted with community members living inside Lion Carbon areas.</p> | <p>Wildlife conservation will remain an important goal for BioCarbon Partners after this project period.</p> <p>Current Ministry of Justice Approved Memorandum of Understanding with the Department of National Parks and Wildlife (DNPW) and the Forestry Department to implement REDD+ in project areas, and work with Community Resource Boards on enforcement is not revoked.</p> |
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| <p>Output 1:</p> <p>1. Appropriate and adaptive wildlife and forest management planning at the Community Resource Board level in all project areas.</p> | <p>1.1. An agreed and published Chieftom Conservation Plan from each of the 3 CRBs included in the project area by the end of year 1 of the project.</p> <p>1.2. Chieftom Conservation Management Plans used as a basis for decision making in all Community Resource Board meetings in all 3 project areas between the production of the plans and the project end date.</p> | <p>1.1 Final Chieftom Conservation Plan documents.</p> <p>1.2. Minutes of the quarterly Community Resource Board Meetings.</p> | <p>Current Ministry of Justice Approved Memorandum of Understanding with the Department of National Parks and Wildlife (DNPW) and the Forestry Department to implement REDD+ in project areas, and work with Community Resource Boards on enforcement is not revoked.</p> <p>Community Resource Board led conservation planning will result in a high level of uptake of practices outlined in those plans by the CRB.</p> |
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Output 2:

2. Robust and consistent long-term monitoring of wildlife numbers across project areas for use as a basis for adaptive management.

2.1. Detailed biodiversity methods and protocols agreed and produced, and sampling frameworks agreed and produced for each project area in the second quarter of year one of the project.
2.2. All biodiversity monitoring equipment purchased and deployed on site in all three project areas by the end of the second quarter of year one of the project.
2.3. Initial biodiversity monitoring training carried out for 10 rangers and one manager in each project area (total of 30 rangers) in year 1, and refresher training for the same rangers given biannually before each survey after that point.
2.4. Four distance sampling/occupancy modelling surveys completed in each project area by the project end date.
2.5. Four months of camera trapping survey data from a 60-camera array from each of the project areas by the end of project date.
2.6. All project annual reports during the project include results from biodiversity monitoring surveys and camera trapping survey for each project area.
2.7. Results from 2 years of biodiversity monitoring surveys and camera trapping surveys produced for the final

2.1. Biodiversity monitoring methodology and protocol documents.
2.2. Lion Landscapes and BCP equipment purchase and allocation records.
2.3. Lion Landscapes and BCP scout training records.
2.4. Survey records and distance sampling/occupancy modelling survey data sets.
2.5. Survey records and photos from camera trap surveys.
2.6. Project annual reports.
2.7. Minutes and final report from the end of project stakeholder workshop.

The theft/destruction of cameras can be kept within workable limits – only important for the camera trap surveys.

Road penetration of the project areas makes a defensible sampling of project areas logistically feasible.

Results from biodiversity monitoring surveys are used to inform Chiefdom Conservation Plans, and Department of National Parks and Wildlife activities.

stakeholder workshop and review of the Chiefdom Conservation Plan.

Output 3:

3. The capacity of Community Resource Board Scouts to effectively reduce the main threats to biodiversity (bushmeat poaching and deforestation) is increased in all project areas.

3.1. Number of anti-poaching scouts in project areas increased by 60% by the end of project date. Baseline taken as scout numbers recorded during the Chiefdom conservation planning process.
 3.2. Initial scout training carried out for 20 rangers in each project area (total of 60 rangers) in year 1, and refresher training for the same rangers given biannually.
 3.3. Number of patrol days/mth increased by 60% in project areas by the end of project date, from a baseline revealed during the Chiefdom conservation planning process.
 3.4. A 30% decline in the number of bushmeat poaching incidents recorded per patrol day in all project areas by the project end. Baseline to be established at the end of year 1.
 3.5. A 30% decrease in the rate of deforestation in project areas at the project end date. Baseline will be the deforestation rate accepted during the carbon verification process, now underway.

3.1. BCP and CRB employment records and gap analysis results from the CRB Chiefdom conservation planning process.
 3.2. Project scout training records.
 3.3. Gap analysis results from CRB Chiefdom Conservation Planning process, and SMART data collected on patrols by scouts.
 3.4. Biannual biodiversity monitoring data generated during the life of the project and Scout patrol data recorded on SMART.
 3.5. GIS data and analyses done as part of the auditing required for the carbon verification process.

Current Ministry of Justice Approved Memorandum of Understanding with the Department of National Parks and Wildlife (DNPW) and the Forestry Department to implement REDD+ in project areas, and work with Community Resource Boards on enforcement is not revoked.

A greater number of scouts, and better training, equipment and management for those scouts, will result in reduced poaching and deforestation.

Trends in bushmeat poaching and deforestation are detectable during the life of the project.

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| <p>Output 4:</p> <p>4. Stronger linkage between payments from the sale of REDD+ offsets and wildlife conservation performance is strengthened for local communities.</p> | <p>4.1. At project end, a 60% increase in the number of people reporting that standing forests and living wildlife provide greater benefits than gained from previous use of wildlife and forest products use. Baseline established in surveys at the project start.</p> | <p>4.1. Pre and post project survey data from interviews conducted with community members living inside Lion Carbon areas.</p> | <p>The theft/destruction of cameras used for community camera trapping can be kept within workable limits.</p> <p>Allowing villages to monitor their own wildlife in their village area, and have some of the benefits received from the sale of REDD+ offsets linked to the results of that monitoring, leads to a stronger connection between wildlife conservation and benefits, and ultimately reduces poaching of wildlife.</p> |
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| <p>Output 5:</p> <p>No Response</p> | <p>No Response</p> | <p>No Response</p> | <p>No Response</p> |
|--|--------------------|--------------------|--------------------|

Do you require more Output fields?

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

No

Activities (each Activity is numbered according to the Output that it will contribute towards, for example 1.1, 1.2 and 1.3 are contributing to Output 1)

The word count for each individual activity should be no more than 25 words.

Activity details

Activity Number

1.1. Initial workshops for Community Resource Boards in each project area to perform a gap analysis on the current wildlife and forest management plans.

Activity Details

The project area consists of 3 General Management Areas (overlying 3 Chiefdoms). Each GMA (Chiefdom) has a Community Resource Board (CRB) which is recognised in the Zambian Wildlife Act as the community institution representing each Chiefdom. CRBs are comprised of representatives from 5 to 12 Village Action Groups (VAGS) through free, fair and open elections overseen by the government. VAGs are the sub-units that make up a Chiefdom. VAGs have their own democratically elected committees. Community Resource Boards are the local institution with the legal mandate to manage natural resources in the project areas and also represent a fair and democratically elected representation of the local communities living in the project area. All project activities are therefore directed through the CRBs or in close partnership with them.

The activities of the CRBs are limited by a lack of funding, training, equipment and management planning. The initial workshops described in this activity will be CRB led but facilitated by BioCarbon Partners so that they result in a Gap analysis i.e. a process by which the difference in performance between current conservation activities and conservation activities required to reduce the threats to local biodiversity, is agreed. Also the steps that should be taken to ensure the sustainable management of natural resources are identified. Gap refers to the space between "where we are" (the present state) and "where we want to be" (the target state).

Other key local stakeholders, for example the local Department of National Parks and Wildlife wardens and other operators (e.g. trophy hunting or safari operators), will also be invited to attend these workshops, to ensure all biodiversity conservation activities in the area are included in the Gap analysis and built into the Chiefdom Conservation Planning.

Multiple workshops per project GMA will be carried out before the end of the first quarter of this project. Minutes will be kept from each workshop, shared with all stakeholders and made available on all project partner websites.

Activity details

Activity Number

1.2. Produce a draft Chiefdom Conservation Plan for approval

Activity Details

All the information gathered during the initial workshops and gap analyses will be compiled and drafted into a Chiefdom Conservation Plan document written to guide Community Resource Board (CRB) natural resource management activities. Chiefdom Conservation Plans will be based on a template created by the government of Zambia but tailored to individual site requirements. This document will include details on the main threats to wildlife and forests, the current state of natural resource management, and all the actions required to reach the desired state of natural resource management and successfully address the main threats to biodiversity. Chiefdom Conservation Plans will be designed to facilitate adaptive management i.e. allow CRBs to 1) deal with uncertainty in the management system, 2) learn from the results of management actions.

The draft document will then go back to the CRBs and the Department of National Parks and Wildlife for approval and editing. We anticipate that this approval process will entail at least one more workshop in each project area.

Activity details

Activity Number

1.3. Produce final Chiefdom Conservation Plan for each project area

Activity Details

Once the draft Chiefdom Conservation Plan has been approved, the final version will be produced, sent to all stakeholders and listed on all partner websites.

Activity details

Activity Number

1.4. Hold quarterly meetings with each CRB in project areas.

Activity Details

Relationships between project partners and Community Resource Boards will be maintained through regular meetings. These will start as quarterly meetings but may be increased to monthly meetings if thought necessary. As with the initial workshops, these meetings will be CRB-led but facilitated by BCP, and will endeavour to include other key stakeholders e.g. the Department of National Parks and Wildlife, and other conservation organisations or operators if possible and/or necessary. These meetings will be designed in order to review progress of project activities, adherence to the Chiefdom Conservation Plans and Community Habitat Conservation Agreements in each project area, and incorporate feedback from stakeholders into project activities.

Meetings will be carefully minuted and the minutes will be shared with all stakeholders and made available on all partner websites.

Activity details

Activity Number

1.5. Hold an end of project stakeholder workshop to review progress of project activities and adapt the Chiefdom Conservation plans

Activity Details

Local stakeholders will be kept informed, and engaged in project activities through regular quarterly meetings held throughout the life of the project (1.4.) but we believe the outcome of this project - a scalable and sustainable biodiversity conservation model that increases the value of biodiversity to local communities and develops local and regional capacity for the sustainable management of natural resources - has much wider applications. With this in mind we will hold a larger workshop during the last quarter of the project to show case the project outputs and outcome. This workshop will include local stakeholders but will also invite higher level government and development people who could have the capacity to use the results to influence policy, provide support to expand Lion Carbon work and/or incorporate successful project activities into their own work. The Darwin Secretariat and the British High Commission in Zambia will both be consulted on who to invite.

The goal of this workshop will be to facilitate government level support for project activities and the expansion of these activities, and also to maximise the wider uptake of the Lion Carbon model or individual methods and principles found to be effective in the conservation of biodiversity. During this process the Chiefdom Management Plans will also be reviewed and adapted (where necessary) based on feedback from participants and monitoring data collected during the project.

Activity details

Activity Number

2.1. Perform a gap analysis on current anti-poaching capacity with stakeholders at the initial workshop in each project area (see 1.1. above)

Activity Details

see activity details for 1.1. above

Activity details

Activity Number

2.2. Design and provide any training for anti-poaching scouts in project areas revealed by the gap analysis

Activity Details

Training for community scouts will be designed to fulfill two purposes. Firstly, to increase the scouts capacity to engage their local communities in sustainable biodiversity management i.e. help steer community members away from harmful practices and towards sustainable practices. Secondly, how to safely and effectively enforce the national and locally agreed laws on natural resource use. Development of culturally appropriate and community embedded law enforcement capacity for Community Resource Boards is an important part of the effective management of natural resources.

Gaps in Ranger capacity and capabilities will be established during the initial workshops (activity 1.1.) and the training tailored to address those gaps. Training will be designed to ensure community engagement and ownership, improve efficacy and safety, and integrate recent developments in tools and techniques, technologies, and approaches. The approach used will also work to prevent the exclusion of women from the role of Community Scouts.

Producing a capacity development action plan and relevant training materials will be undertaken by the CRBs and BCP, with support from a law enforcement and resilience expert. This external expert will use a train-the-trainer approach to build the capacity of BCP and CRB staff to deliver the necessary training to community scouts in the mid to long term, with little reliance on external support.

Activity details

Activity Number

2.3. Employ additional anti-poaching personnel required in project areas revealed in the gap analysis

Activity Details

Initial discussions with Community Resource Boards and local Department of National Parks and Wildlife personnel indicate that the addition of more community scouts will be an essential part of increasing Community Resource Board capacity to achieve the sustainable management of wildlife and forests. Given the vast areas covered by this project. There will likely be further increases in community scout numbers as and when resources allow but this project should

see employment of 60 new scouts in project areas.

Activity details

Activity Number

2.4. Provide additional equipment for anti-poaching scouts in project areas revealed as necessary in the gap analysis

Activity Details

Equipment that helps scouts to patrol comfortably, safely and effectively, facilitates them to collect good consistent data, and helps managers to monitor measure of effectiveness such as patrol coverage, distances walked and incidences recorded will be purchased from reliable and cost effective suppliers. Equipment will include smart phone devises for the use of CyberTracker and SMART, handheld GPS units, backpacks, tents and proper uniforms and boots. Most scout teams will also carry a VHF radio to allow them to communicate with each other and aerial patrols.

Activity details

Activity Number

2.5. Provide anti-poaching patrolling, community liaison work and any required management support for anti-poaching activities in project areas revealed in the gap analysis.

Activity Details

Community scouts will be organised into teams of two or three and will undertake daily patrols from established scout camps. Priority areas will be selected to target and strengthening the weakest areas in the system to better buffer and secure the areas of highest wildlife densities. Therefore, within each project area, smaller priority areas targeted will be where poaching and deforestation pressures are known to be greatest, e.g. wildlife-dense riverine areas, and boundaries with areas of human habitation or easy human access. We believe that this model of deploying limited resources will be optimal because securing boundaries with human habitation will reduce pressure on areas beyond by providing a buffer.

Although efforts will focus on priority areas, patrols will be supported by monthly BCP aerial monitoring flights, designed to put teams onto target more effectively e.g. locate poaching activity and deforestation, and then coordinate responses from available scout teams. In this way, any new poaching or deforestation areas can be identified early. BCP's staff and vehicles will assist with deployments, and scout coordination.

An important part of the community scout role will be community engagement. The communities these scouts serve, constitute the location of the greatest threats to biodiversity e.g. poaching and deforestation. Scout training will include directing their communities away from unsustainable practices and towards more sustainable practices, while constantly reinforcing the message that benefits from REDD+ carbon offset sales are linked to biodiversity conservation. This combined approach of facilitating law enforcement and monitoring, whilst guiding communities towards more sustainable practices will be core to community scout operations.

Activity details

Activity Number

2.6. Review SMART patrol data and produce a quarterly report on scout activities to review during the quarterly meeting with CRBs.

Activity Details

All community scout teams will carry a smart phone with CyberTracker and SMART that records all details of their patrols, and the incidences they encounter along the way. This data is extremely valuable in assessing the effectiveness of scout activity e.g. the distances walked and the area covered by scout patrols, as well as data collected such as incidences of illegal activities or wildlife seen. This data can be analysed and mapped regularly to feed back to the community scouts so that they can see the results of their efforts. Ways of incentivising best practices among scouts through friendly competitions and sharing information will also be explored.

Activity details

Activity Number

3.1. Design and produce wildlife monitoring survey methods and protocols in the form of a manual.

Activity Details

The requirements for this project are that techniques used should produce robust publishable data and yet be ground based, cost effective, easily repeatable and suitable to be rolled out over very large areas. Because of the specific challenges this represents, and the large number of species included in the monitoring, we proposed a layered monitoring approach that combines grid-based line-transect distance sampling (Buckland et al. 1993) with patch occupancy theory (MacKenzie et al. 2006). The grid-based line-transect distance sampling will be useful for estimation of distribution and density of large herbivores, and distribution and density of indices of population sizes for large herbivores, and large carnivores, for example, tracks, faeces, kill sites etc. Trends and changes in poaching and charcoal making can be monitored by recording line-transect distance sampling data and estimation of density of, for example, snares and fresh tree stumps. Actual sighting of rare species may be too few to allow estimation of population density by the line-transect distance sampling methods. In those cases we propose that the basic monitoring of populations be based on estimation of the proportion of "patches" occupied and occupancy modelling (to estimate the probability that a patch is occupied) where a patch is a well defined grid cell. The method can be implemented immediately with trends and changes estimated as soon as the surveys are repeated in a given season. In the longer term, data will be pooled over the years so that low initial precision from line transect data of rare species will be improved upon as sighting numbers are accumulated from each year's surveys.

The combination of distance-based sampling along transects within a patch occupancy design anticipates changes in distribution over time as habitat changes, from either natural events or targeted projects to enhance and increase habitat. The 2 components of the design provide different but complimentary tools for assessing changes in the chosen species populations. The grid based, distance sampling component yields estimates of population density for: large herbivores, population indices to abundance for all target species, density of key habitat items, and density of treats to the populations, providing a statistically valid spatially balanced design, and repeatable approach for examining population trend for a time frame of 20–30 years. In contrast, the patch occupancy component is a tool to track spatial occurrence. It provides an estimate of the proportion of cells occupied as evidence by, for example, presence of sightings, fresh tracks or other fresh sign collected during grid-based line-transect distance sampling and the trend in this proportion over time. It also provides the ability to model the probability of unsampled cells being occupied based on covariates, therefore allowing sampling over large areas.

Together these tools will allow partners and CRBs to assess the status of key species relative to population recovery goals. Additionally, data collection is carried out on foot by community scouts, so the methodology is cost effective and repeatable over large areas.

Activity details

Activity Number

3.2. Provide initial 4-day monitoring training for 10 anti-poaching scouts and LL and BCP management staff in each project area (a total of 30 scouts).

Activity Details

Training includes the following: The importance of biodiversity, why we monitor biodiversity, survey methodology and protocols and the use and care of equipment. Training involves repeated practice with the equipment and multiple practice transect surveys so that all participants are all very confident in the methods and protocols that need to be followed before starting surveys. Data collected on practice transects is downloaded and shared with trainees so mistakes can be spotted, discussed and prevented in future transects.

Activity details

Activity Number

3.3. Run 2 biodiversity monitoring surveys and 2 day refresher course for all survey personnel per project area per year.

Activity Details

The sampling frame is intended to form the baseline for monitoring through the life of the long-term monitoring plan. This portion of the grid is fixed in space and will not change. The proposed sampling frame (for walked transects and camera traps, see 3.4) will consist of 3km by 3km grid cells with $\geq 40\%$ overlap with the project areas. Each grid cell selected for surveys will receive equal, systematic survey effort. During the initial visit to the site we will assess the habitat and adjust cells chosen for sampling where needed. Prior to the field season we will use ArcMap (or QGIS) to generate 2 parallel, north-to-south, 2km transect lines positioned 1km apart and 500m from the edges of the cell. To keep line-transect sampling aligned with the overarching patch occupancy framework, we will make ≥ 2 independent visits to each cell (MacKenzie et al. 2006).

Transects will be walked by monitoring teams consisting of two or three trained community scouts. For each visual detection, surveyors will record perpendicular distance from the line, group size, and mark the location on the line using the GPS function. Tracks and scats and other signs of species of interest e.g. of large carnivores, will also be recorded when encountered. Independence of surveys will be maintained by a lack of discussion between observers regarding wildlife sighting. Survey independence with regards to weather conditions and time of day will be maintained by splitting surveys between early dry, and late dry seasons. Surveys will be walked at the same time of day and at the same speed.

To avoid sampling bias during the selection of cells to be sampled, cells in the sampling frame will be ranked by an equal probability sampling procedure known as Balanced Acceptance Sampling (BAS, Robertson et al. 2013). This procedure will be run within the R environment using code written by Dr. Trent L. McDonald [WEST, Inc., 200 South 2nd St., Laramie, Wyoming, USA 82070] and available to the Senior Biometrician, Dr. Lyman L. McDonald. This procedure assigns a rank (1,

2, etc.) for each cell in the sampling frame. BAS samples maintain the spatial dispersion of a sample for area resources such that any contiguous subset, if taken in order, is a representative sample of the target population with units selected by equal probability. Thus, adjacent cells from the grid do not receive sequential numbers in the ranking. Cells can be dynamically removed from the ranked list and replaced by an unbiased procedure in which the next cells on the list are selected and added to the sample (e.g., when we discover problems in the field, including lack of access to cells due to limited road networks). Inferences from the resulting sample remain valid under the assumption that average

Activity details

Activity Number

3.4. Run a 2 month camera trapping survey with a minimum 60 camera array in each project area each year.

Activity Details

The patch occupancy component of the biodiversity monitoring methodology described in activity 3.3. can be greatly improved for the detection of rare, elusive nocturnal or cryptic species by the deployment of camera traps. Camera traps will be deployed on the same sampling grid as used for the walked surveys, and data collected for a minimum of 2 months in each project area.

Just as for the walked transects (see activity 3.3) each grid cell selected for surveys will receive equal, systematic survey effort. To keep camera trapping aligned with the overarching patch occupancy framework, we will deploy two cameras per grid cell sampled (MacKenzie et al. 2006).

Activity details

Activity Number

3.5. Analyse survey data and report results back to all stakeholders in project areas once annually in annual reports (and final stakeholder workshop 1.5. above).

Activity Details

Analysis of line-transect survey data will be carried out seasonally with program DISTANCE v6.0 (<http://www.ruwpa.stand.ac.uk/distance/>). The area of interference will correspond to the final agreed sampling frame. The pair of transects within a cell will be the basic unit of replication in distance sampling theory. The data corresponding to the last 5% of the observations, ordered from smallest to greatest distance from the line may be ignored to reduce outlier effects on model estimates (Buckland et al. 1993). Models to estimate density will be defined using a global detection probability and encounter rate, and global density based on clustered observations. Half normal, hazard rate, and uniform estimators, will all be examined using the cosine series expansion. Model selection will be based on Akaike's Information Criterion (AIC). Measures of precision and confidence intervals will be obtained by bootstrapping the original sample of units (Manly 1997) using the bootstrap procedure within program DISTANCE and specifying 500 replicates.

Separate analysis will be run for each key species using stratum as a layer (for water dependent or influenced species) and estimating encounter rate and density by stratum, detection probability and cluster size for all data combined, and a pooled estimate of density from area-weighted stratum estimates. All other model specifications will be the same as described above for the entire data set.

To understand how an estimate of density of an index on abundance from distance sampling might relate to the actual number of a species, we will investigate the comparison of distance sampling results to estimated probability of occupancy (from walked transects and from camera trapping data. Ideally, estimates of occupancy probability will corroborate the indices of abundance from line transect distance sampling.

Activity details

Activity Number

4.1. Design and carry out social surveys to provide a project start baseline on the value biodiversity has for local communities.

Activity Details

An extensive socio-economic survey was carried out by a USAID contracted firm in 2015 across all project areas. This survey will be repeated at 5 yearly intervals to track changes in the economic status, attitudes towards biodiversity and declared biodiversity utilisation practices of people living in project areas. The next project wide survey is therefore due to be carried out in 2020. To specifically measure changes in the value standing forests and living wildlife has for local communities due to the project activities outlined here, however, smaller surveys will be carried out before the community camera trapping start. Survey data will be collected in the villages to be included in the community camera trapping pilot, comparative villages also inside the project area that are not taking part in the community camera trapping pilot, and villages outside of the project area.

Activity details

Activity Number

4.2. Secure agreements with two villages, inside a project area, for a community camera trapping pilot.

Activity Details

Recognised standards of obtaining "Free, Prior, and Informed Consent" will be used to ensure that local communities are fully aware and in agreement with the work we anticipate doing. Specifically, meetings will be held with the Village Action Groups in two villages in the project area to draw up an agreement on the methods to be used for the community camera trapping pilot. Village Action Groups are the sub-units that make up a Chiefdom and have their own democratically elected committees. The community camera trapping agreement will outline everything that will be expected of the villages involved in the pilot, and everything that will be expected from the project partners in return. Specifics will only be agreed during the meetings with the Village Action Groups but will include a performance based benefits sharing component, where Village Action Groups receive additional funding for democratically chosen projects if they are able to reach certain agreed targets on wildlife captured on their cameras.

Activity details

Activity Number

4.3. Select village representatives to manage cameras and deploy cameras for community camera trapping pilot.

Activity Details

Village representatives to manage the camera placement and care will be decided by the Village Action Groups during the meetings to develop the community camera trapping agreements (4.2.).

Activity details

Activity Number

4.4. Process and review camera trap data with participant village representatives monthly.

Activity Details

Camera trapping can generate huge quantities of data. Data from village cameras will be reviewed and reported back to the villages monthly to ensure continued engagement and quality data collection. Communities will be allowed to site their cameras in the locations of their choosing within the village area boundaries, and given the opportunity to re-site their cameras based on the data collected.

Activity details

Activity Number

4.5. Carry out repeat social surveys to provide a measure of the change in value biodiversity has for local communities at the project end.

Activity Details

Surveys carried out at the project start (see activity 4.1.) will be repeated to try and capture any changes in attitudes towards biodiversity (particularly wildlife) conservation due to the community camera trapping pilot and other project activities.

Activity details

Activity Number

4.6. Review camera trapping pilot at the end of year two with a view to expanding the activity if successful.

Activity Details

All the data collected during the community camera trapping pilot and the results from the social surveys, will be discussed with project partners and the villages taking part in the community camera trapping pilot. A decision as to whether to expand the activity across the wider project area will be reached.

Section 12 - Implementation Timetable

Q24. Provide a project implementation timetable that shows the key milestones in project activities

Please complete the Excel spreadsheet linked below to describe the intended workplan for your project.

[Implementation Timetable Template](#)

Please add 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.

📄 [Darwin_R25_Stage2_ImplementationTimetable](#)

[le LioCarbon](#)

📅 03/12/2018

🕒 20:47:18

📄 xlsx 13.09 KB

Section 13 - Monitoring and Evaluation

Q25. Monitoring and evaluation (M&E) plan

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. Additionally, please indicate an approximate budget and level of effort (person days) to be spent on M&E (see "[Finance for Darwin and IWT Guidance](#)").

Monitoring and evaluation are key to project activities. The biodiversity monitoring output is designed specifically to evaluate the effectiveness of project activities in achieving increasing densities of lions and other wildlife species, and decreasing rates of poaching and deforestation in Lion Carbon areas. Monitoring

and evaluation of project outcomes will hinge on demonstrating improved local capacity to manage wildlife and forests and demonstrate an improved link between benefits received from REDD+ carbon offsets and wildlife conservation at the village level. Monitoring and evaluation of these key project components will be undertaken as outlined below.

1) Long-term monitoring of biodiversity:

- Distance sampling and occupancy modelling surveys already piloted in the LZRP pilot will be run biannually using trained scouts. Sampling will include areas outside of Lion Carbon management for comparison.
- Current methods will be augmented by the addition of camera trap survey data overlain on the same grid used for the distance sampling surveys. All biodiversity monitoring survey data will be analysed and reported on annually. The first year's data will provide the baseline to which all other surveys are compared.

2) Local capacity to manage wildlife and forests:

- Training records for all Community scouts in each Lion Carbon Chiefdom will demonstrate capacity building for project scouts. Baseline scout capacity will be established during the gap analyses as part of the Chiefdom Conservation Planning process.
- Biodiversity monitoring data generated biannually during the life of the project will also provide data on illegal activities encountered during the surveys. The first year will provide a baseline to which all future survey data will be compared.
- Scout patrol data recorded on Cyber Tracker/SMART will measure the distances scouts walk, the areas they cover, and illegal activities and wildlife encountered during their daily patrols. This data will be checked quarterly, reported back to scouts and Community Resource Boards and will track activities against agreed Chiefdom Conservation Plans. Past records kept by Community Resource Boards will provide a baseline for demonstrating change.
- Changes in forest cover will be accurately measured throughout the life of the project from satellite and GIS data. Baseline data for this is currently being established as part of the REDD+ verification process and will be reviewed annually as part of the REDD+ auditing process.

3) Creation of strong links between benefits received and wildlife conservation at the village level:

- Extensive survey data on livelihoods, resource use practices and attitudes towards conservation in Lion Carbon areas were collected during REDD+ planning operations funded by USAID. Data from repeat surveys collected every 5 years will track changes in these measures. Survey data from villages taking part in the community camera trapping project will be compared to other villages in and outside Lion carbon areas, pre and post project, to measure the impact of all project activities.

Provision of training and capacity building for project staff will be ongoing and will be reported in annual reports and on the project website.

Total project budget for M&E (this may include Staff and Travel and Subsistence Costs)

| | |
|---|-------|
| Number of days planned for M&E | 1,080 |
| Percentage of total project budget set aside for M&E | 14 |

Section 14 - Funding and Budget

Q26. Budget

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

Darwin and IWT Budget Template

Please refer to the [Finance for Darwin/IWT Guidance](#) for more information.

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

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

↓ [Darwin R25 Stage2 Budget LionCarbon](#)
📅 03/12/2018
🕒 14:04:07
📎 xlsx 68.16 KB

Q27. 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.

All activities in this project are designed to be carried out by local community institutions with minimum dependence on outside agencies. This, and the fact that all the activities will be carried out over very large areas and continue for 30+ years, means that cost effectiveness is absolutely core to the project design.

Every effort has been made to ensure that the requested budget is realistic and cost effective. Project partner costs were provided by BioCarbon Partners and Lion Landscapes. These costings are based on historical cost factors from experience running the LZRP pilot project in the same landscape. As this project largely represents a scaling-up of pilot activities, costs should be accurate. Project staff are already employed by project partners and wages are known to be in line with relevant wages in the country. The only new wage will be time from a law enforcement expert and research has been done to estimate a reasonable costing for this. No overheads are being charged by partner projects as much of the administration cost within the host country will be provided by existing institutional resources and personnel within BCP, which gives good value for money. Most of the large item capital equipment (e.g, all but one of the vehicles) is also already in place and therefore not charged in this budget. The Equipment that is charged in this budget was costed against pro-forma invoices from the manufacturers of that equipment.

The lead organisation budget only includes costs for two project staff as in country costs are put through partner organisations already established in the project area. Full Economic Costing of 40% was calculated only on UK project staff salaries in the budget that are directly incurred by the DI grant (Macdonald and Cotterill). No other overheads were incurred by the project.

Q28. 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.

The only capital item purchased with Darwin funding, and that will not be fully depreciated by the end of this project, is the vehicle used by the biodiversity monitoring manager. We seek permission from the DI secretariat for continued use of this vehicle in the same capacity as the biodiversity monitoring will be ongoing after the life of this project. All other items of equipment (GPS, smart phones, binoculars, camera traps, range finders, compasses and a computer) are relatively small and likely to be depreciated to a value close to zero by the end of the project. Again, because all the activities will be ongoing beyond the life of this project, we seek permission for the DI secretariat for the continued use of any of this equipment that is still serviceable in the same capacity as it was used during the project.

Q29. Match funding (co-financing)

Are you proposing co-financing?

Yes

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, as well as any your own organisation(s) will be committing.

| Donor Organisation | Amount | Currency code | Comments |
|--|--------------------|--------------------|---|
| Lion recovery Fund | | GBP | This funding was given in 2018 but has been transferred to 2019 because of delays in starting these project activities. |
| BioCarbon Partners | | GBP | This funding represents part of the predicted profits from the sale of REDD+ carbon offsets starting in 3rd quarter 2019. |
| Lady Margaret Hall, University of Oxford | | GBP | This funding is for the project lead's salary (10%). |
| <i>No Response</i> | <i>No Response</i> | <i>No Response</i> | <i>No Response</i> |

Unsecured

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

| Date applied for | Donor Organisation | Amount | Currency code | Comments |
|------------------|--------------------|-------------|---------------|-------------|
| No Response | No Response | No Response | No Response | No Response |
| No Response | No Response | No Response | No Response | No Response |
| No Response | No Response | No Response | No Response | No Response |
| No Response | No Response | No Response | No Response | No Response |

Do you require more fields?

No

Q30. Financial Risk Management

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.

Annual carbon audits and audits by Deloitte mitigate bribery and corruption within the project. Issues of elite capture of community income were revealed during the running of the LZRP pilot project and have been mitigated through community mechanisms, including a grievance process.

BCP have secured a buyer at current market price for all carbon offsets produced by the project area for the next 10 years, mitigating a shortfall in matching funding. There is a risk regarding the timing of availability of matching funds, however. Verification is estimated to be completed by June 2019 and asking for more of the Darwin funds in the first year allows project activities to continue even if money from the sale of carbon offsets is delayed.

Exchange rates pose another financial risk. All budget costs were calculated in USD and converted to GBP. As the pound is at its weakest in relation to the dollar in the last 5 years, we assume GBPs will not lose more value. However, there is a chance that the GBP will lose more value in relation to the USD during Brexit. All project activities can be scaled down to allow for worse than expected exchange rates.

Section 15 - FCO Notifications

Q31. FCO Notifications

Please put an X in 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.

Unchecked

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 Notes) and attach details of any advice you have received from them.

Yes (no written advice)

Section 16 - Certification

Q32. Certification

On behalf of the

Trustees

of

University Of Oxford

I apply for a grant of

£341,170.00

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 uploaded CVs for project principals and letters of support.**
- **I have uploaded our most recent signed audited/independently verified accounts and annual report.**

Checked

| | |
|--|---|
| Name | Jennifer Lockie |
| Position in the organisation | Research Funding Manager, Research Services |
| Signature (please upload e-signature) |  <u>Darwin R25 Stage2 Certification LionCarbon</u>  03/12/2018  15:16:45  pdf 144.35 KB |
| Date | 03 December 2018 |

Section 17 - Submission Checklist

Stage 2 Application - Checklist for submission

| | Check |
|--|--------------|
| Have you read the Guidance (including Guidance for Applicants and Finance for Darwin and IWT Guidance) | Checked |
| Have you read, and can you meet, the current Terms and Conditions for this fund? | Checked |
| Have you provided actual start and end dates for your project? | Checked |
| Have you provided your budget based on UK government financial years i.e. 1 April – 31 March and in GBP? | Checked |
| Have you checked that your budget is complete and correctly adds up? | Checked |
| Has your application been signed by a suitably authorised individual? | Checked |
| Have you uploaded a 1 page CV for all the Project Staff on this project, including the Project Leader? | Checked |
| Have you uploaded a letter of support from the main partner(s) organisations? | Checked |
| Have you included a cover letter from the lead organisation, outlining how any feedback received at Stage 1 has been addressed? | Checked |
| Have you been in contact with the FCO in the project country/ies and have you included any evidence of this? | Checked |
| Have you uploaded a signed copy of the last 2 years annual report and accounts for the lead organisation? | Checked |
| Have you checked the Darwin website to ensure there are no late updates? | Checked |
| Have you read and understood the Privacy Notice on GOV.UK? | 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 this application form, including personal data, will be used by Defra as set out in the latest copy of the Privacy Notice for Darwin, Darwin Plus and the Illegal Wildlife Trade Challenge Fund available **here**. This Privacy Notice must be provided to all individuals whose personal data is supplied in the application form. Some information, but not personal data, may be used when publicising the Darwin Initiative including project details (usually title, lead organization, location, and total grant value) on the GOV.UK and other websites.

Information relating to the project or its results may also be released on request, including under the 2004 Environmental Information Regulations and 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 General Data Protection Regulation (Regulation (EU) 2016/679).