

Applicant: **Woodroffe, Rosie**
Organisation: **Zoological Society of London**
Funding Sought: **£599,970.00**

DIR30S2\1010

Securing critically endangered wildlife and human livelihoods in south-eastern Sénégal

West Africa's last African wild dogs and giant eland, as well as critical populations of lions and chimpanzees, face extinction as Sénégal's Niokolo-Koba National Park is degraded by poaching and illegal grazing, and besieged by gold mining and rabies. We aim to recover Niokolo-Koba by de-snaring, diversifying local people's livelihoods, and building veterinary capacity to tackle rabies and respond to snares. We will also survey nearby unprotected lands to identify additional populations of key species requiring urgent conservation action.

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Securing critically endangered wildlife and human livelihoods in south-eastern Sénégal

Section 1 - Contact Details

PRIMARY APPLICANT DETAILS

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GMS ORGANISATION

Type	Organisation
Name	Zoological Society of London
Phone (Work)	[REDACTED]
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Section 2 - Title, Ecosystems, Approaches & Summary

Q3. Title:

Securing critically endangered wildlife and human livelihoods in south-eastern Sénégal

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What was your Stage 1 reference number? e.g. DIR29S1\1123

DIR30S1\1174

Q4. Key Ecosystems, Approaches and Threats

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

Biome 1

Savannas and grasslands

Biome 2

Tropical-subtropical forests

Biome 3

No Response

Conservation Action 1

Species Management

Conservation Action 2

Livelihood, Economic & Moral Incentives

Conservation Action 3

Law Enforcement & Prosecution

Threat 1

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

Threat 2

Energy production & mining (incl. renewables)

Threat 3

Invasive & other problematic species, genes & diseases

Q5. Summary of project

Please provide a brief non-technical summary of your project: the problem/need it is trying to address, its aims, and the key activities you plan on undertaking.

West Africa's last African wild dogs and giant eland, as well as critical populations of lions and chimpanzees, face extinction as Sénégal's Niokolo-Koba National Park is degraded by poaching and illegal grazing, and besieged by gold mining and rabies. We aim to recover Niokolo-Koba by de-snaring, diversifying local people's livelihoods, and building veterinary capacity to tackle rabies and respond to snares. We will also survey nearby unprotected lands to identify additional populations of key species requiring urgent conservation action.

Section 3 - Title, Dates & Budget Summary

Q6. Country(ies)

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

Country 1	Senegal	Country 2	No Response
Country 3	No Response	Country 4	No Response

Do you require more fields?

No

Q7. Project dates

Start date:	End date:	Duration (e.g. 2 years, 3 months):
01 April 2024	31 March 2027	3 years

Q8. Budget summary

Year:	2024/25	2025/26	2026/27	
Amount:	£264,146.00	£161,140.00	£174,684.00	£ 599,970.00

Q9. Do you have matched funding arrangements?

Yes

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

Q10. If you have a significant amount of unconfirmed matched funding, please clarify how you will deliver the project if you don't manage to secure this?

In years 2 and 3 of the project, £ [REDACTED] of matched funding is anticipated, but not confirmed, from the Painted Wolf Foundation, which has supported the project previously and indicated a desire to do so again. The remaining unconfirmed matched funding relates to a funding application being prepared for the National Geographic Society to cover surveys outside Niokolo-Koba in years 2 and 3 of the project. Other funding sources will be pursued if this application is unsuccessful. If necessary, the wider survey element of the project (Activity 4.1) could be abandoned without compromising the rest of the project.

Q11. Have you received, applied for or plan to apply for any other UK Government funding for the proposed project or similar?

No

Section 4 - Problem statement

Q12. Problem the project is trying to address

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

Sénégal is a lower middle income country (1), where lack of economic opportunity drives a growing migration crisis (2). Sénégal's poorest people live in its rural areas (3).

Despite the poverty of its people, Sénégal's rural south-east supports a globally unique ecosystem (Figure 1). At the heart of this biodiverse region is Niokolo-Koba National Park (9,130 sq km), a World Heritage Site, home to the world's last free-roaming western giant eland (*Taurotragus derbianus derbianus*) (4), and West Africa's last African wild dogs (*Lycaon pictus*), ecologically (and likely genetically) distinct from all other populations (5,6). Niokolo-Koba also supports the world's most northerly chimpanzees (*Pan troglodytes*) (7), uniquely adapted to inhabiting savannah rather than forest ecosystems (8,9), and its most westerly lions (*Panthera leo*) (10).

Sustainable management of Niokolo-Koba would not just conserve an irreplaceable ecosystem, it could also provide ecotourism opportunities to benefit rural people (11,12). Being relatively close to the main ecotourism market in Europe, Niokolo-Koba could offer international visitors an opportunity to experience African wildlife with carbon emissions substantially lower than those generated by flying to eastern or southern Africa.

Despite its immense ecological and development value, south-eastern Sénégal's globally unique ecosystem is on the brink of collapse. Niokolo-Koba's wildlife has already declined catastrophically (10) and UNESCO recognises the park as "World Heritage in Danger" (13). All four key species are critically endangered in West Africa (6,10,4,7): there are <200 eland (14), approximately 30 lions (15), four wild dog packs isolated >3,000 km from their nearest neighbours (6), and two communities of chimpanzees (16).

Outside the park, gold mining is rapidly denuding unprotected lands, devastating local wildlife, destroying crop land, and causing pollution which threatens both people and nature (17). As Niokolo-Koba becomes increasingly isolated, conservation action inside and outside the park becomes ever-more urgent if the region's unique biodiversity is to be saved.

Unfortunately, Niokolo-Koba has a troubled history. Neighbouring communities are among Sénégal's poorest (3), and relocating villages out of the park in the 1970s produced further inequality (18). The area experiences human-wildlife conflict (19), and some of the highest human rabies risks in Sénégal (20). Communities are hostile to the park (21) and often enter illegally to hunt, and to graze and water livestock (Figure 2). Priority species are confined to the park's core, with more peripheral areas dominated by poaching and illegal grazing (Figure 3). Hence, people inside and outside the park threaten wildlife, by (i) deliberately killing wildlife for wild meat and

traditional medicine; (ii) accidentally killing wildlife (including wild dogs) through by-catch in snares (22) (Figure 4); (iii) degrading habitat for wild ungulates through livestock grazing; and (iv) risking transmission of canine diseases from domestic dogs (Figure 2C), which can devastate wild dog (23) and lion (24) populations.

We aim to increase Niokolo-Koba's benefits for wildlife and people, combining law enforcement inside the park with livelihood improvements outside, and building local capacity to recover wildlife populations on the brink of extinction. We will also survey neighbouring land for priority wildlife needing urgent conservation.

Section 5 - Darwin Objectives and Conventions

Q13. Biodiversity Conventions, Treaties and Agreements

Q13a. Your project must support the commitments of one or more of the agreements listed below. Please indicate which agreement(s) will be supported.

- Convention on Biological Diversity (CBD)
- Convention on International Trade in Endangered Species (CITES)
- Convention on the Conservation of Migratory Species of Wild Animals (CMS)
- Global Goals for Sustainable Development (SDGs)

Q13b. National and International Policy Alignment

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

This project contributes to Sénégal's "Strategie Nationale et Plan National d'Actions pour la Biodiversité" (National Biodiversity Strategy and Action Plan) via actions A.1.1. "strengthening... scientific and technical capacities"; A.1.2. "biodiversity monitoring"; A.2.1. "research programmes on biodiversity"; B.1.1. "restoration of degraded ecosystems"; B.1.2. "strengthening the adaptation and resilience capacities of local populations"; D.3.1. "sustainable production and consumption"; and D.3.2. "promoting green jobs" (25).

At the same time, it contributes to Sénégal's "National Strategy for Economic and Social Development" (26) by "strengthening pastoral infrastructure" (141.i); "enhanced food security" (149.i); "promoting research & development" (166.i); "improving the supply and quality of health services" (179.i); "improving the socio-economic conditions of vulnerable groups" (187.ii); and "strengthening capacities in environmental and natural resources management" (195.ii).

This project will also help Sénégal to remove Niokolo-Koba from UNESCO's "World Heritage in Danger" list. Our proposed activities respond to "corrective measures" required by UNESCO, including "an emergency programme for the Lycaon" (27), "reliable inventories of.. key species... (lion, Derby eland... chimpanzee and wild dog)... integrated into the [park] management plan", "strengthening the anti-poaching mechanism", "improvement of grazing areas and water points... to minimise the encroachment of... cattle" and "capacity building of staff" (28).

This project also addresses a joint CMS/CITES programme, the African Carnivores Initiative, which targets African wild dogs and lions (29), through "habitat conservation/restoration" (Objective 2); "prey base conservation and restoration" (Objective 3); "species conservation and restoration" (Objective 4) and "conflict and coexistence" (Objective 5). African wild dogs are on Appendix II of CMS and have been designated for 'Concerted Action' (30). CMS decision UNEP/CMS/COP12/CRP36 requests that range states "develop and implement within communities

evidence-based strategies that reduce disease transmission to... and... livestock depredation by... African wild dogs” (31). Lions and chimpanzees are listed on Appendix I of CITES, and on Appendix II of CMS, with chimpanzees also listed on CMS Appendix I.

Our project also addresses Global Goals for Sustainable Development by helping to “end poverty in all its forms everywhere” (Goal 1), to “halt biodiversity loss” (Goal 15), and to “ensure healthy lives” (Goal 3). The work also contributes, on a local scale, to Sénégal’s national rabies elimination plan (32), which is part of the World Health Organisation’s “Zero by 30” plan for the global elimination of dog-mediated rabies (33).

At a lower policy level, this project helps to implement DPN’s Management Plan for Niokolo-Koba National Park (21), and Sénégal’s national action plan for chimpanzee conservation (34), as well as the conservation strategy for the western giant eland (35), and regional strategies for the conservation of African wild dogs (6), lions (36), and chimpanzees (7).

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

Q14. Methodology

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

- how you have reflected on and incorporated **evidence and lessons learnt** from past and present similar activities and projects in the design of this project.
- the specific approach you are using, supported by **evidence** that it will be effective, and **justifying why you expect it will be successful** in this context.
- how you will undertake the work (activities, materials and methods)
- what will be the **main activities** and where will these take place.
- how you will **manage the work** (governance, roles and responsibilities, project management tools, risks etc.).

Our methods are based on strong evidence where available (denoted “E” below). Where evidence is limited, we shall monitor the short-term outcomes of interventions and alter them as needed (denoted “A” below, see also Q23).

Our prior work shows that priority wildlife species persist only in the least human-impacted areas of Niokolo-Koba (Figure 3). We therefore aim to make Niokolo-Koba a more effective protected area, by simultaneously making illegal use of its resources less appealing (through law enforcement) while providing more accessible and reliable resources for people outside the park.

Intensified law enforcement within part of Niokolo-Koba is already fostering local wildlife recovery (15)(E). However, snaring (Figure 4) is an emerging threat not currently addressed by DPN/Panthera anti-poaching teams. Drawing on experience from elsewhere in Africa, DPN/Panthera will establish two new mobile de-snaring units (37)(E). As key wildlife populations are critically low, we will also develop a snare response plan including, where appropriate, removing snares from affected animals, an approach shown to reverse population declines elsewhere (38)(E).

Outside Niokolo-Koba, activities will target the Communes of Tomboronkoto (near recent wildlife observations, where conservation may be most achievable), and Linkering and Dialacoto (where human-wildlife conflict (19) and illegal park access are most severe; Figure 5). Drawing on Am Bé Koun and ZSL experience (39,40), we will engage with local communities to identify preferred interventions, likely to include

(i) Constructing pilot water points for cattle (led by Am Bé Koun), to meet community demand (41) and to test

assumptions that this would discourage illegal grazing of livestock inside Niokolo-Koba (35,28)(A);

- (ii) Providing support (led by Am Bé Koun, with veterinary care from ZSL/DPN) to encourage chicken farming, which is recognised as a locally appropriate and reliable source of protein and income, which tends to empower women (42)(E), and may offer a sustainable alternative to poaching(A), but is constrained by vaccine-preventable Newcastle disease (43)(E);
- (iii) Initiating rabies vaccination of domestic dogs (delivered jointly by Am Bé Koun, DPN, and ZSL), reflecting evidence of benefits for both human and wild dog health (44,45)(E);
- (iv) Providing locally appropriate and evidence-based advice (from ZSL and Am Bé Koun) to minimise human-wildlife conflict, combining best practice from elsewhere in Africa (e.g., 46,47)(E) with case-control studies to identify the most effective local approaches (48)(A).

Lack of veterinary capacity currently impedes several elements of our planned work, including responses to snared wildlife (Figure 4), collaring wildlife for monitoring, and managing domestic and wild animal diseases. We will build veterinary capacity by recruiting a new DPN Veterinary Officer, training them via a wildlife capture course elsewhere in Africa, and providing ongoing mentoring including a placement in southern Africa. This veterinary officer will then support snare removal, wildlife collaring, rabies control, and livelihood work.

We will assess the impacts of these activities on Niokolo-Koba, through biennial park-wide camera trapping surveys to monitor the distribution of both wildlife and people, against the baseline shown in Figure 3. Field surveys will be conducted by Panthera, ZSL, and DPN, with analysis and interpretation by Panthera (lions), ZSL (African wild dogs), Antelope Conservation (giant eland), and SGA (chimpanzees). The identities of people using the park illegally will be protected by automatically anonymising camera trap images during preprocessing (49,50).

Beyond Niokolo-Koba, any populations of our four priority species inhabiting nearby unprotected land would have extreme conservation value. Habitat destruction by rampant gold mining means they may also face imminent extinction (17). ZSL will use interviews and camera traps to survey this land (Figure 6) using the analysis approach developed for Niokolo-Koba to assess priority species status in relation to threats, including mining.

Finally, we will raise awareness about Sénégal's wildlife, and its conservation. Team members will maintain continuous two-way communication with communities in the target areas around Niokolo-Koba, and with key actors (e.g., mining companies) outside the park. Awareness-raising will draw on experience and existing educational materials from all partner organisations (E). We will use meetings, leaflets, posters, and schools outreach to engage locally with girls, boys, women, and men. Additionally, we will use print, broadcast, and social media to communicate our project to national and international audiences.

All activities will be overseen by a project board, meeting quarterly (usually virtually) with all partner organisations invited. Inside Niokolo-Koba, DPN (supported by Panthera) will lead anti-snaring work and Panthera, ZSL, DPN, Antelope Conservation, and SGA will collaborate on wildlife monitoring. Outside Niokolo-Koba, Am Bé Koun (supported by ZSL and DPN) will lead community work, ZSL, Antelope Conservation, and SGA will lead education, and ZSL will lead wildlife surveys.

Q15. Capability and Capacity

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

This project will strengthen the capability and capacity of its Sénégalese partner organisations and stakeholders in four ways.

First, it will improve DPN's ability to combat snaring, a threat to wildlife which is novel in Sénégal but common in southern Africa. This will be achieved by supporting the staff, equipment, training, and infrastructure needed to address snaring, and by connecting DPN (via Panthera) with teams experienced with successfully combatting snaring elsewhere in Africa.

Additionally, the project will improve DPN's ability to manage wildlife health, by supporting, training, and coaching a new DPN veterinarian who can then intervene with snared animals (where appropriate), collar animals for wildlife monitoring, and work with local communities to combat conservation-relevant animal diseases such as rabies. We will supplement a formal wildlife capture course with peer-to-peer coaching by ZSL and Panthera veterinarians in Kenya, Botswana, Zambia, and UK.

The project will also build capacity and capability within Am Bé Koun, by supporting its staff with funding and resources, by connecting it to ZSL teams doing similar work in Cameroon, and by broadening its skill set to connect community development to biodiversity conservation.

Beyond these partner organisations, the project will build broader Sénégalaise capacity in wildlife ecology, conservation, and monitoring in several ways. First, we will coach and mentor ZSL's ecological monitoring officer, Assane Diouf, and his Panthera counterpart, Mouhamadou Ndiaye, who are Sénégal's first carnivore specialists. ZSL and Panthera will ensure that these two are supported to grow their expertise both through their in-country work and by connecting them to international professional networks. Additionally, we will offer training placements for Sénégalaise students (prioritising local students and women) to assist with wildlife monitoring, including data collection, analysis, and interpretation, with ZSL, Panthera, Antelope Conservation, and SGA all contributing to mentoring as appropriate.

Q16. Gender equality and social inclusion

All applicants must consider whether and how their project will contribute to promoting equality between persons of different gender and social characteristics. Explain your understanding of how individuals may be excluded from equal participation within the context of your project, and how you seek to address this. You should consider how your project will proactively contribute to ensuring individuals achieve equitable outcomes and how you will engage participants in a meaningful way.

ZSL uses a "fairer conservation" (51) framework to maximise gender equity and social inclusion (GESI) in its work. Additionally, community development partner Am Bé Koun has a strong track record of working to encourage GESI (52). As well as being inherently desirable, mainstreaming GESI will make this project more effective, for example:

- (1) Discouraging poaching (predominantly by men) while encouraging chicken rearing (tending to empower women (42)) should improve household food security but may also challenge traditional gender roles.
- (2) South-eastern Sénégal supports multiple ethnic groups, with different ways of life and hence different impacts on the environment. For example, illegal grazing by agropastoralist Fulani people to the west of the park (41) will not have the same solution as illegal snaring reported by DPN to be conducted by Guinean immigrants to the north of the park.
- (3) Human rabies risks are highest for children, and it is often children who bring domestic dogs for rabies vaccination, making them important actors in rabies control, as well as the primary beneficiaries.

We will mainstream GESI within this project, aligning all partners' commitment to the issue before the project starts and new staff are hired (i.e., before funding begins) and by making GESI a standing item on the agenda of quarterly Project Board meetings. We will aim to ensure that our own team reflects local ethnic diversity and gender balance. We recognise that conducting fieldwork in remote areas can risk gender-based violence (53), and we shall establish and maintain a working environment which safeguards women and other marginalized people involved in fieldwork. Within communities, we will seek to understand the different gender-based roles in

livelihood decisions (including both legal and illegal activities), and will use participatory approaches which safeguard opportunities for women and other marginalized identified actors to engage freely and safely.

Q17. Change expected

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

When talking about how people will benefit, please remember to give details of who will benefit, differences in benefits by gender or other layers of diversity within stakeholders, and the number of beneficiaries expected. The number of communities is insufficient detail – number of households should be the largest unit used.

By the end of the project, we expect to have identified a package of measures (likely combining improved law enforcement inside Niokolo-Koba National Park with livelihood improvements outside) which have (a) begun to demonstrably improve human wellbeing within the targeted areas; (b) initiated wildlife recovery within Niokolo-Koba; and (c) allowed us to identify where and how to conserve priority wildlife persisting outside Niokolo-Koba. In the longer term, this package of measures could then be scaled across south-eastern Sénégal, and if appropriate into neighbouring Guinea and Mali, to secure the region's unique biodiversity and open up new livelihood opportunities, such as developing nature-based tourism.

Within the lifetime of the project we anticipate (i) declining numbers of snares removed per unit effort, as snaring is brought under control; (ii) a response plan for snared animals, with the veterinary capacity to implement it; (iii) 300 households directly supported to substitute chicken rearing for hunting (disproportionately empowering women), with guidance available to a further 600 households; (iv) 20,000 people (including approximately 10,000 children (41)) benefiting from rabies control; (v) 1,700 people (including children, women, and men) exposed to messaging about resolving human-wildlife conflict, including 400 people participating in case-control studies to refine our guidance; (vi) declining numbers of human-wildlife conflict incidents reported; (vii) status assessments for our priority species on unprotected lands; and (viii) information on conserving Sénégal's unique biodiversity shared with 4,000 people locally and with many more globally. In addition, we expect (ix) evidence to determine whether UNESCO's request to provide water points for livestock (28) discourages or encourages grazing within Niokolo-Koba. As a consequence of this action, we anticipate (x) 40% fewer illegal incursions into the park; and (xi) 100% more African wild dogs, 50% more lions, 15% more giant eland and stable chimpanzee numbers. Moreover, we anticipate a substantial increase in Sénégalese capacity in conservation and development, including (xii) 12 additional DPN rangers (aiming for equal sex ratio) trained and equipped to combat snaring; (xiii) one DPN veterinarian trained and equipped to protect wildlife health; (xiv) three local community liaison officers (at least one female) trained and equipped to support local livelihoods; (xv) Sénégal's first two large carnivore ecologists mentored through collecting and analysing monitoring data, and writing and publishing their first lead-author publications; and (xvi) six Sénégalese students (prioritising students from the local area, aiming for equal sex ratio) who have completed internships with our wildlife monitoring team, learning about field data collection, analysis, and interpretation.

Beyond the three years of this project, we hope to continue to scale up our work and secure the anticipated outcomes for the long term. Within 10 years we would anticipate that (I) all ongoing activities are Sénégalese-led; (II) all of Niokolo-Koba is recovered as wildlife habitat, while (III) the livelihoods of neighbouring communities are improved, and (IV) UNESCO no longer considers Niokolo-Koba "World Heritage in Danger". As a result, (V) the African wild dog, lion, and eland populations are large enough to provide a source for restoration to other West African parks.

Q18. Pathway to change

Please outline your project's expected pathway to change. This should be an overview of the overall project logic and outline why and how you expect your Outputs to contribute towards your overall Outcome and, in the longer term, your expected Impact.

Our ultimate aim is to recover south-eastern Sénégal's irreplaceable wildlife, while also improving the wellbeing of its local people. If wildlife were restored, people could benefit from further development, because the region offers globally unique opportunities for nature-based tourism.

Achieving this aim demands rehabilitating Niokolo-Koba National Park, which in turn requires reducing pressure from poaching and illegal grazing, and avoiding disease outbreaks which can devastate small wildlife populations. Law enforcement has an important role to play, but to be most effective (as well as to be equitable) it must be combined with positive incentives to encourage people to remain outside the park, as well as education and capacity building.

People enter the park to access resources in short supply outside, notably protein, pasture, and water for livestock. Chickens offer a locally appropriate protein source which provides better food security than wild meat, but chicken rearing is limited by Newcastle's disease (42). Providing guidance and veterinary care should therefore simultaneously improve food security and reduce incentives to poaching. Likewise, providing water points for livestock may discourage illegal grazing (28) with similar twin benefits, but might alternatively attract nomadic pastoralists, leading us to pilot this approach on a very small scale initially.

Q19. Sustainable benefits and scaling potential

Q19a. How will the project reach a point where benefits can be sustained post-funding? How will the required knowledge and skills remain available to sustain the benefits? How will you ensure your data and evidence will be accessible to others?

This project is designed to be sustainable post-funding. Our approach is modelled on a sister project in Kenya, which was initiated by the same leader but transitioned to Kenyan leadership in 2021 (54).

The current project aims to combine local knowledge with international best practice. Almost all core team members will be Sénégalaise, and international sharing of knowledge and skills will entail south-south collaboration wherever possible, for example drawing on expertise in animal health and wildlife monitoring from Kenya (54), in alternative livelihoods from Cameroon (40), and in law enforcement from Zambia (37).

Knowledge sharing is explicitly built-in, including specialist professional development training for a DPN veterinarian, de-snaring and SMART training for rangers, and field placements in ecological monitoring for Sénégalaise students. A three-way MOU between ZSL, DPN, and Panthera ensures that all project data will remain available within Sénégal, and key project findings will be published with open access.

Q19b. If your approach works, what potential is there for scaling the approach further? Refer to Scalable Approaches (Landscape, Replication, System Change, Capacitation) in the guidance. What might prevent scaling, and how could this be addressed?

This project is designed with scalability in mind.

Our community and livelihoods work targets three pilot areas, chosen to provide some replication while also capturing variation in local conditions (e.g., land use practices, ethnicities) around Niokolo-Koba. Each activity is linked to monitoring designed to evaluate success. By the end of the three-year project, we expect to have identified a package of effective interventions which can be extended to other communities neighbouring Niokolo-Koba, and also to communities in which our wider surveys may identify further populations of our priority species ("landscape scaling").


Additionally, our building of capacity and capability within S n galese partner organisations and staff should allow some elements of the project to be scaled to other areas (capacitation scaling).


The project itself also represents scaling, as experience and guidelines developed with other Darwin funding (e.g., wildlife health management developed under DI28-013) have informed the design of this project (replication scaling).


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

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Section 7 - Risk Management

Q20. Risk Management

Please outline the 6 key risks to achievement of your Project Outcome and how these risks will be managed and mitigated, referring to the Risk Guidance. This should include at least one Fiduciary, one Safeguarding, and one Delivery Chain Risk.

Risk Description	Impact	Prob.	Gross Risk	Mitigation Header	Residual Risk
Fiduciary Funds not properly used or accounted for by one or more partners.	major	unlikely	major	Financial processes are established and agreed at the start of the project. Regular meetings between finance officers of the partner organisations to ensure continued financial management of the highest standard.	minor
Safeguarding Team members could take the opportunity of working in remote areas to abuse or harass others (e.g., de-snaring units could use their authority to abuse or harass women illegally collecting grass in Niokolo-Koba, or wildlife monitoring staff could harass female field interns), causing direct harm as well as reputational risk.	major	rare	moderate	Ensure safeguarding plans are agreed and aligned across all partners from the outset. Consider safeguarding risks when hiring staff. Provide safeguarding training and ongoing coaching to all team members. Maintain a working environment which champions dignity and respect, including whistleblowing. Make safeguarding a standing item for quarterly project board meetings.	minor

Delivery Chain	Partner organisations might misunderstand their role within the broader interdisciplinary project, leading to lack of action or conflicting actions for some activities.	minor	rare	minor	Ensure all partners are fully aware of their roles and responsibilities from the start, through a formal collaboration agreement. Establish a Project Board with representation from all partners, meeting quarterly to oversee and monitor project implementation and outcomes.	minor
Risk 4	The February 2024 presidential election destabilises Sénégal and makes project work more dangerous than it is at present.	minor	possible	moderate	Carefully monitor Sénégal political and security situation and follow FCDO advice. Avoid any impression of political alignment. Focus activities away from urban areas. Prioritise hiring of staff from local communities.	minor
Risk 5	Key project staff (e.g., the Veterinary Officer) leave the project after substantial effort has been invested in their training.	major	unlikely	major	Carefully evaluate commitment to the project, and enthusiasm for fieldwork in remote areas, at the time of appointment. Ensure each role is professionally, intellectually, and financially rewarding to maximise staff retention.	minor
Risk 6	Proposed livelihood interventions are not acceptable to local communities and hence fail to have the intended impacts	major	unlikely	major	Appoint a community liaison officer within each of the three target communities. Hold consultations within each community before any interventions are implemented, to assess support and seek community input. If necessary, review and amend interventions after consideration by the project board.	minor

Q21. Project sensitivities

Please indicate whether there are sensitivities associated with this project that need to be considered if details are published (detailed species location data that would increase threats, political sensitivities, prosecutions for illegal activities, security of staff etc.).

Yes

Please provide brief details.


This project entails an element of law enforcement, so there is a possibility that people found accessing Niokolo-Koba illegally could be arrested (although this is relatively unlikely as de-snaring will primarily target snares


rather than people). The project may generate images of people accessing the park illegally, although these will be automatically identified and anonymised before they are viewed.


Section 8 - Workplan


Q22. Workplan

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

 [DIR30S2_1010 workplan 25Nov23](#)

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Section 9 - Monitoring and Evaluation

Q23. Monitoring and evaluation (M&E)

Describe how the progress of the project will be monitored and evaluated, making reference to who is responsible for the project's M&E.

Darwin Initiative projects are expected to be adaptive and you should detail how the monitoring and evaluation will feed into the delivery of the project including its management. M&E is expected to be built into the project and not an 'add' on. It is as important to measure for negative impacts as it is for positive impact. Additionally, please indicate an approximate budget and level of effort (person days) to be spent on M&E.

Monitoring and evaluation is integral to this project. We will use data collection to refine activities which are already well-evidenced, to identify suitable methods where evidence is limited, and to evaluate overall performance to inform scaling-up. Study design for monitoring and evaluation will be overseen by ZSL natural and social scientists.

Refining activities

Some proposed activities (those marked "E" in Q14 above) have been used successfully in the past, within our project area or elsewhere; nevertheless, we will assess their immediate outcomes and refine them if necessary. For example:

- If Am Bé Koun's post-vaccination surveys (Activity 2.8) show that vaccination (Activity 2.7) has reached too few domestic dogs to control rabies (55), we can modify our vaccination methodology (56) or outreach to improve coverage;
- If, despite DPN de-snaring efforts (Activity 1.2), Panthera/ZSL camera-trapping continues to detect snared wildlife (Activity 1.8), we can draw on international experience (e.g., 37) to intensify or re-focus anti-poaching;
- If people supported to adopt chicken farming (Activity 2.5) report to Am Bé Koun (Activity 2.6) that they have abandoned the approach, we can use interviews to explore the reasons and then refine (or replace) methods.

Identifying suitable methods

For some activities (those marked "A" in Q14 above), evidence may be insufficient to be confident of success. In these cases, data collection will help to identify suitable approaches. For example:

- Existing guidance on reducing livestock predation comes from ecological and cultural settings different from those in West Africa. In case this guidance proves unsuitable, Community Liaison Officers will use case-control approaches (48) to identify which locally appropriate livestock husbandry practices are most effective (Activity 2.10);

- Despite conservation recommendations (35,28), it is unclear whether constructing waterpoints outside Niokolo-Koba will reduce illegal livestock grazing as intended, or increase it (as some local conservation professionals suspect). We will therefore pilot this approach on a small scale (Activity 2.3), and monitor the outcome (Activity 2.4) to decide next steps.

Evaluating project performance

If Niokolo-Koba and its surrounding lands can be recovered for the benefit of people and wildlife, it would provide an inspiring model for recovering West Africa’s neglected protected area network. However, scaling up (summarised in Q19 above) is only worthwhile if this project proves effective.

Our ultimate intended outcome for biodiversity is “improved conservation status of wildlife in and around Niokolo-Koba National Park, especially African wild dogs, lions, giant eland, and chimpanzees”. We will evaluate progress towards this outcome by using biennial park-wide camera trap surveys inside Niokolo-Koba (implemented by Panthera/ZSL/DPN), supplemented by observations of GPS-collared animals (by ZSL/Panthera), to estimate trends in occupancy and population size for the four priority species. Outside Niokolo-Koba, interviews with local people, combined with targeted camera trapping (by ZSL), will be used to assess occupancy and threats.

Correspondingly, our ultimate intended outcome for poverty reduction is that “local people experience improved wellbeing”. Am Bé Koun will measure wellbeing using established household survey methods (e.g., 57,58,59) in the three targeted communities, at the start and end of the project.

Total project budget for M&E (£) (this may include Staff and Travel and Subsistence Costs)	£ [REDACTED]
Total project budget for M&E (%) (this may include Staff and Travel and Subsistence Costs)	[REDACTED]
Number of days planned for M&E	454

Section 10 - Logical Framework

Q24. Logical Framework (logframe)

Darwin Initiative projects will be required to monitor and report against their progress towards their Outputs and Outcome. This section sets out the expected Outputs and Outcome of your project, how you will measure progress against these and how we can verify this.

[DIR30S2_1010 Logical Framework 25Nov23](#)

26/11/2023

21:58:52

pdf 121.33 KB

Impact:

Recovery of South-East Sénégal’s critically endangered and ecologically unique fauna, coexisting with prosperous and healthy local people

Outcome:

Improved conservation status of wildlife in and around Niokolo-Koba National Park, especially African wild dogs, lions, giant eland, and chimpanzees, while local people experience improved wellbeing

Project Outputs

Output 1:

Niokolo-Koba National Park provides more effective protection for priority wildlife species

Output 2:

The wellbeing of people living outside Niokolo-Koba National Park improves as their impacts on the park are declining

Output 3:

Sénégal has increased capacity to manage, monitor, and conserve priority wildlife species

Output 4:

Evidence of the status and distribution of African wild dogs, lions, giant eland, and chimpanzees across south-eastern Sénégal

Output 5:

Improved public knowledge of, and attitudes to, wildlife conservation in Sénégal, locally, nationally, and internationally

Do you require more Output fields?

- Yes
- No

Activities

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

- 1.1 Establish Project Board with quarterly meetings including GESI, safeguarding, and risk register as standing items
- 1.2 De-snaring teams operate across Niokolo-Koba, patrolling approximately 10 days per month throughout the project period
- 1.3 Provide training (or refresher training) to ensure rangers document encounters, including those with people, livestock, and domestic dogs inside Niokolo-Koba National Park
- 1.4 Develop, agree, and implement response plan to detection of snares and snared wildlife
- 1.5 Develop, agree, and implement response plan to detection of domestic dogs inside Niokolo-Koba National Park
- 1.6 Implement biennial park-wide camera traps surveys across Niokolo-Koba National Park
- 1.7 Process camera trap data to automatically identify (50) and anonymise (49) images of people
- 1.8 Analyse anonymised park-wide camera trap data to estimate occupancy of key wildlife, poachers, illegal graziers, and domestic dogs, and incidence of snare-related injuries

- 2.1 Household surveys to quantify multiple dimensions of wellbeing, attitudes to wildlife, and (anonymously) illegal use of resources inside Niokolo-Koba National Park
- 2.2 Review, update, and expand existing agreements between local communities and DPN in Linkering, Dialacoto, and Tomboronkoto

- 2.3 Establish three pilot livestock waterpoints outside Niokolo-Koba National Park
- 2.4 Monitor waterpoints inside and outside Niokolo-Koba National Park to evaluate impact of artificial waterpoints on park use
- 2.5 Provide agricultural and veterinary support and advice to encourage chicken farming among households in the three target areas
- 2.6 Conduct annual surveys to assess whether participants have adopted livelihood approaches for which they received support
- 2.7 Deliver annual rabies vaccination to domestic dogs in the three target areas, tracking progress with the Mission Rabies app
- 2.8 Estimate rabies vaccine coverage in targeted areas using mark-resight
- 2.9 Establish monitoring system for human dog bites (anonymised but segregated by age and sex), working through local clinics and dispensaries
- 2.10 Investigate reports of human-wildlife conflict, using case-control approaches (48) to identify locally appropriate and effective mitigation measures
- 2.11 Use community meetings, posters, and other media to share knowledge on reducing human-wildlife conflict, drawing on new and existing evidence of effective mitigation measures
- 2.12 Establish monitoring system for human-wildlife conflict based on a selected sample of “sentinel” livestock keepers to be contacted monthly

- 3.1 Train and equip DPN rangers to conduct de-snaring operations
- 3.2 Provide training for DPN veterinarian by sending them on a wildlife capture course
- 3.3 Further training for DPN veterinarian through wildlife health placement elsewhere in Africa
- 3.4 Field training for Senegalese students through internships as components of wildlife survey and monitoring activities

- 4.1 Conduct occupancy surveys (with camera traps and interviews) on lands outside Niokolo-Koba, to establish species status and evaluate threats
- 4.2 Analyse and publish results of occupancy surveys


- 5.1 Conduct environmental education in schools around Niokolo-Koba, including new and existing materials about the priority species
- 5.2 Use community meetings to share knowledge about local wildlife and its value
- 5.3 Engage with mining companies to share survey findings and encourage sustainable practices
- 5.4 Use local radio to provide general information on environment and conservation as well as updates on project progress
- 5.5 Establish new @TeamWildDog and @ProjetLycaon social media profiles in English and French
- 5.6 Encourage visits to the project from local, national, and international journalists to encourage media coverage


Section 11 - Budget and Funding


Q25. Budget

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

 [DIR30S2 1010 STAGE 2 budget 27Nov23](#)

 27/11/2023

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 xlsx 104.66 KB

Q26. Alignment with other funding and activities

This question aims to help us understand how familiar you are with other work in the geographic/thematic area, and how this proposed project will build on or align with this to avoid any risks of duplicating or conflicting activities.

Q26a. Is this new work or does it build on existing/past activities (delivered by anyone and funded through any source)?

- Development of existing/past activities

Please provide details:

This project extends and integrates ongoing work by the participating organisations.

Ecological monitoring within Niokolo-Koba, initiated by DPN's research office, was expanded in 2020 by Panthera (with primary interest in lions and leopards), and then joined in 2022 by ZSL (with primary interest in African wild dogs). ZSL initiated surveys outside Niokolo-Koba in 2023.

Panthera has an existing partnership with DPN to augment law enforcement within Niokolo-Koba, but this focuses on illegal grazing and poaching with guns; snaring is a novel threat with which DPN has little prior experience. In this project, Panthera will use its extensive experience of combatting snaring in southern Africa (37) to build DPN capacity to combat this novel threat.

Am Bé Koun has several community development projects in south-eastern Sénégal, but these do not currently target communities neighbouring Niokolo-Koba. This project therefore provides an ideal opportunity to apply Am Bé Koun's local expertise to a combined conservation and poverty-reduction project.

This project will complement, rather than replicate, existing work on chimpanzees; ongoing chimpanzee monitoring focuses primarily on biological anthropology (e.g., 60) rather than conservation, but prior surveys have highlighted the rapid destruction of habitat outside Niokolo-Koba and hence the need for up-to-date information (61).

Q26b. Are you aware of any current or future plans for work in the geographic/thematic area to the proposed project that may duplicate or cut across this proposed project?

- No

Q27. Value for Money

Please demonstrate why your project is good value for money in terms of impact and cost-effectiveness of each pound spend (economy, efficiency, effectiveness and equity). Why is it the best feasible project for the amount of money to be spent?

Our project offers value for money according to five BCF criteria:

Economy

The major cost for this project is staff time. Salaries have been aligned with partners to ensure fair pay, with financial rewards sufficient to retain trained staff, while minimising costs. Overheads (10%) have been minimised, to maximise spending in the field. Capital purchases will follow ZSL's procurement policy, to maximise value for money.

Efficiency

Our budget maximises efficiency by seeking matched funding for costs which can be covered by the partners themselves (e.g., staff time), or are expected to attract external funding (e.g., wild dog ecological monitoring, camera trap surveys). Our most costly activity (anti-poaching), reflects action to tackle the most immediate threat to Niokolo-Koba.

Effectiveness

Although not all partners have collaborated previously, all have demonstrated success in their respective fields. Our proposal is carefully designed to address a small number of clearly-identified threats (Q12) using interventions which are well-evidenced and/or amenable to refinement in the light of new evidence (Q23). As such, we expect our project to represent an effective use of funds.

Additionality

The threats we seek to address have arisen due to historical and continued lack of investment in West Africa's biodiversity. Far from competing with other projects, this proposal involves all the key players working in this landscape, and is the first to bring together conservation and poverty-reduction initiatives.

Equity

Our project aims to benefit vulnerable and marginalised people, including women and girls, through providing employment, education, and empowerment, and by improving food security.

Q28. Capital items

If you plan to purchase capital items with Darwin Initiative funding, please indicate what you anticipate will happen to the items following project end. If you are requesting more than 10% capital costs, please provide your justification here.

We intend to spend $\leq 10\%$ of the requested budget on capital costs. We hope that this project will continue beyond the three years requested here and, if this is the case, capital items will remain in use for the same purposes. Trail bikes purchased for the DPN de-snaring team, and a dart gun and vaccine fridges purchased for the DPN veterinarian, will remain with DPN for continued conservation activities, and motorcycles for community liaison officers will remain with Am Bé Koun for continued community development work. In the event of ZSL ceasing to be involved in future, 4x4 vehicles purchased for ecological monitoring and environmental education will be donated to DPN for continued use in wildlife conservation activities.

Section 12 - Safeguarding and Ethics

Q29. Safeguarding

All projects funded under the Biodiversity Challenge Funds must ensure proactive action is taken to promote the welfare and protect all individuals involved in the project (staff, implementing partners, the public and beneficiaries) from harm. In order to provide assurance of this, projects are required to have specific procedures and policies in place.

Please upload the following required policies:

- **Safeguarding Policy:** including a statement of commitment to safeguarding and a zero tolerance statement on bullying, harassment and sexual exploitation and abuse.
- **Whistleblowing Policy:** which details a clear process for dealing with concerns raised and protects whistle blowers from reprisals.

- **Code of Conduct:** which sets out clear expectations of behaviours – inside and outside the workplace – for all involved in the project and makes clear what will happen in the event of non-compliance or breach of these standards, including compliance with IASC 6 Principles.

If any of these policies are integrated into a broader policy document or handbook, please upload just the relevant or equivalent sub-sections to the above policies, with (unofficial) English translations where needed.

Please outline how (a) beneficiaries, the public, implementing partners, and staff are made aware of your safeguarding commitment and how to confidentially raise a concern, (b) safeguarding issues are investigated, recorded and what disciplinary procedures are in place when allegations and complaints are upheld, (c) you will ensure project partners uphold these policies.

If your approach is currently limited or in the early stages of development, please clearly set out your plans address this.

Safeguarding is an essential element of this project. We recognise that conducting fieldwork in remote areas can risk gender-based violence (53), and that law enforcement in particular creates a power imbalance with the potential for harassment or abuse. We shall therefore mainstream safeguarding, striving to establish and maintain a working environment which safeguards all participants.

ZSL has extensive experience of working with local communities, partners, and schools, and has developed appropriate safeguarding methods which are inclusive of vulnerable people. Safeguarding, GDPR, and code of conduct training are required for ZSL staff, and will be made available for partners. ZSL will require partner organisations to show that they meet environmental and social safeguarding requirements, and will ensure partners are aware of ZSL policies, before initiating collaboration agreements.

Internal and external stakeholders can report concerns anonymously via several routes. All reported concerns will be investigated, with progress reported to complainants where possible. Appropriate disciplinary measures will be applied to staff or partners found to have breached ZSL policy, potentially including termination of employment, review of partnership agreements, and/or notifying police.

Safeguarding training will be provided to all staff, and safeguarding will be a standing agenda item for Project Board meetings.

Q30. Ethics

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

Our project complies with all elements of the Darwin Initiative's key principles for ethics. Work is conducted in the context of ZSL's Environmental & Social Management System, permitted by appropriate Sénégalaise authorities, and overseen by ZSL's Ethics Committee on Animal Research and its Human Ethics Committee.

Our project does not involve use of genetic resources.

Most project staff are Sénégalaise nationals, and Sénégalaise partner organisations Am Bé Koun and DPN will ensure that the people directly affected by our work are fully engaged with it.

Surveys and monitoring, as well as environmental education, draw upon traditional knowledge. Our approach to minimising human-wildlife conflict by optimising livestock husbandry explicitly combines traditional knowledge with modern statistics (37).

All work will be conducted with Free Prior Informed Consent. Participation in all aspects of the project will be voluntary (e.g., domestic dogs will be vaccinated only with the owners' permission). Data collected on people will be anonymised, and camera trap images of people will be anonymised before analysis. If any personal data are collected (e.g., in recording owner names on dog vaccination certificates) these will be held in a secure database on encrypted computers. Any publications will present aggregated data to avoid compromising confidentiality.

Section 13 - British embassy or high commission engagement





Q31. British embassy or high commission engagement

It is important for UK Government representatives to understand if UK funding might be spent in the project country/ies.

Please indicate if you have contacted the relevant British embassy or high commission to discuss the project.

Yes

Please attach evidence of request or advice if received.

 [DIR30S2 1010 British High Commission exchange](#)
 26/11/2023
 21:59:43
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Section 14 - Project Staff

Q32. Project staff

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

Name (First name, Surname)	Role	% time on project	1 page CV or job description attached?
Rosie Woodroffe	Project Leader	14	Checked
Angelo Poupard	Project coordinator	100	Checked
Assane Diouf	Ecological Monitoring Officer	100	Checked
Cheryl Buffonge	Finance officer	4	Checked


Do you require more fields?


Yes


Name (First name, Surname)	Role	% time on project	1 page CV or job description attached?
Chele Martinez Marti	coordinating anti-snaring team	5	Checked
Assane Kandji	operations and surveillance coordinator	10	Checked


Mouhamadou Mody Ndiaye	lion monitoring lead	10	Checked
Paolo Strampelli	camera trap analysis	3	Checked
Boubacar Sangaré	Technical Advisor - livelihoods	5	Checked
Mouhamad Sow	Technical Advisor - livelihoods	10	Checked
TBA	Veterinary Officer - DPN	100	Checked
TBA	Education, Livelihoods, and Community Liaison Officers	100	Checked

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

 [DIR30S2_1010_CVs](#)

 27/11/2023

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 pdf 2.06 MB

Have you attached all project staff CVs?

Yes

Section 15 - Project Partners

Q33. Project Partners

Please list all the Project Partners (including the Lead Partner who will administer the grant and coordinate delivery of the project), clearly setting out their roles and responsibilities in the project including the extent of their engagement so far.

This section should demonstrate the capability and capacity of the Project Partners to successfully deliver the project. Please provide Letters of Support for all project partners or explain why this has not been included. The order of the letters must be the same as the order they are presented in below.

Lead partner name: Zoological Society of London

Website address: www.zsl.org

ZSL is a science-based conservation NGO. Two years ago, ZSL established Projet Lycaon, a Sénégal-based project aimed at recovering the last African wild dog population in West Africa. This project addresses threats to wild dogs identified by Projet Lycaon.

The ZSL team will comprise the project leader (who will chair the Project Board), project coordinator (who has managed Projet Lycaon since its inception and will coordinate project activities in Sénégal), ecological monitoring officer, education officer, and finance officer.

Why is this organisation the Lead Partner, and what value to they bring to the project? (including roles, responsibilities and capabilities and capacity):

ZSL brings to the team extensive in-depth technical expertise in elements of the project related to the biology and conservation of African wild dogs, wildlife health, human-wildlife conflict, working with communities, and using both natural and social sciences in monitoring and evaluation. ZSL is also pioneering the “fairer conservation” framework to ensure a fair and equitable approach to conserving wildlife. ZSL will use its global network of staff and collaborators to build Sénégalese capacity in all elements of the project, and to provide professional development opportunities for project staff.

In Sénégal, ZSL also has infrastructure including vehicles, camera traps, and a research camp inside Niokolo-Koba.

International/In-country Partner: International

Allocated budget (proportion or value): £ [REDACTED]

Representation on the Project Board (or other management structure): Yes

Have you included a Letter of Support from the Lead Partner? Yes

Do you have partners involved in the Project?

Yes

1. Partner Name: Direction des Parcs Nationaux

Website address: <https://environnement.gouv.sn/direction-des-parcs-nationaux-dpn>

What value does this Partner bring to the project? (including roles, responsibilities and capabilities and capacity):

Direction des Parcs Nationaux (DPN) is the government authority responsible for managing Niokolo-Koba National Park. Anti-snaring work inside Niokolo-Koba will be implemented by DPN rangers. DPN's Bureau de Suivi Ecologique (office of ecological research) will also collaborate on wildlife monitoring, and DPN rangers will do much of the camera trap deployment. Additionally, DPN's Bureau des Peripheries (office of park borders) will collaborate with education and outreach efforts on adjoining land, to encourage good relationships with local communities. DPN will also second a carefully selected veterinarian to act as veterinary officer for this project. DPN has already seconded an officer to Panthera to act as a liaison and to manage anti-poaching activities inside Niokolo-Koba. DPN will provide access to Niokolo-Koba for other partners, and also infrastructure including vehicles, security network, and office space.

International/In-country Partner: In-country

Allocated budget: £ [REDACTED]

Representation on the Project Board (or other management structure): Yes

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

If no, please provide details

Per correspondence with NIRAS on 24th November 2023, although DPN has drafted a letter of collaboration, the Director General was suddenly called away on compassionate leave due to a family bereavement. The letter awaits his signature on his return (expected 28th November).

2. Partner Name: Panthera-Senegal

Website address: www.panthera.org

Panthera conducts scientific research, strategic species recovery, habitat restoration and collaboration with communities and partners, to protect the world's wild cats. Panthera initiated a partnership with DPN in 2017, after recognising that the lion was critically endangered in West Africa (10), and that Niokolo-Koba's 10-15 remaining lions represented the second largest lion population in the region. Since then, Panthera has partnered with DPN to build capacity, restore Niokolo-Koba, and recover lions and leopards, with promising signs of early success (15).

What value does this Partner bring to the project? (including roles, responsibilities and capabilities and capacity):

Panthera-Senegal will guide and coordinate the de-snaring effort implemented by DPN, building on its successful partnership with DPN in other elements of law enforcement in Niokolo-Koba (15), and its experience of combatting snaring elsewhere in Africa (e.g., 37). Panthera will also lead biannual park-wide camera trap surveys, as well as targeted camera trapping and several other forms of ecological monitoring between park-wide surveys.

Panthera will contribute expertise in ecological monitoring, large carnivore (especially lion) biology and conservation, and anti-poaching. Panthera will also contribute infrastructure including vehicles and camera traps.

International/In-country Partner: In-country

Allocated budget: £ [REDACTED]

Representation on the Project Board (or other management structure): Yes

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

3. Partner Name: Am Bé Koun - Solidarité

Website address: <https://pfongue.org/Am-Be-Koun-Solidarite.html>

Am Bé Koun Solidarité is a grassroots community organization which aims to support sustainable development in the rural and peri-urban areas in Senegal in general, and the Tambacounda region (where Niokolo-Koba is located) in particular. Am Bé Koun implements projects that generate economic activities and jobs, and is also involved in programs to develop services to local communities.

What value does this Partner bring to the project? (including roles, responsibilities and capabilities and capacity):

Am Bé Koun has well-established relationships with local communities around Niokolo-Koba, and with DPN (39). Am Bé Koun will have a livelihoods officer, based at its office in Tambacounda, who will lead on the livelihoods aspects of the project, and will manage a community liaison officer in each of the three targeted communities. Although managed by Am Bé Koun, these community liaison officers will coordinate with the education officer (ZSL), veterinary officer (DPN), and monitoring officers (ZSL and Panthera) to deliver education, vaccination, and associated monitoring outside Niokolo-Koba.

International/In-country Partner: In-country

Allocated budget: £ [REDACTED]

Representation on the Project Board (or other management structure): Yes

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

4. Partner Name: Antelope Conservation

Website address: <https://www.derbianus.cz/en/>

Antelope Conservation (formerly Derbianus) builds capacities to save the giant eland, as well as other antelope species of West and Central African savanna ecosystems.

What value does this Partner bring to the project? (including roles, responsibilities and capabilities and capacity):

Antelope Conservation brings expertise in the ecology and conservation of the giant eland, and will contribute to the project by helping to analyse and interpret monitoring data. Antelope Conservation also has considerable expertise in environmental education, and will collaborate with ZSL to design education programmes.

International/In-country Partner: International

Allocated budget: £ [REDACTED]

Representation on the Project Board (or other management structure): Yes

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

5. Partner Name: IUCN/SSC Primate Specialist Group Section on Great Apes

Website address: <https://www.iucngreatapes.org>

What value does this Partner bring to the project? (including roles, responsibilities and capabilities and capacity):

The IUCN/SSC Primate Specialist Group Section on Great Apes (SGA) is a group of experts active in research on and conservation of great apes. Its role is to promote conservation action on behalf of the great apes, based on the best-available technical information. It serves as a forum for discussion and information exchange; it establishes guidelines for best practices in research and conservation; its members formulate action plans, and advise on effective protection of great ape populations. SGA developed the Regional Action Plan for the Conservation of Western Chimpanzees (7), to which this project contributes.

SGA will provide expertise in chimpanzee conservation, ecology, behaviour, and survey methods. It will guide wildlife surveys inside and outside Niokolo-Koba, helping to oversee the analysis and interpretation of survey data. SGA will also contribute to education and outreach activities by providing materials and guidance.

Additionally, SGA is currently developing guidance on the interface between conservation and mineral extraction (such as the extensive gold mining in south-eastern Sénégal), which will guide our interactions with mining companies outside Niokolo-Koba.

International/In-country Partner: International

Allocated budget: £0.00

Representation on the Project Board (or other management structure): Yes

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

6. Partner Name: *No Response*

Website address: *No Response*

What value does this Partner bring to the project? (including roles, responsibilities and capabilities and capacity): *No Response*

International/In-country Partner: International
 In-country

Allocated budget: *No Response*

Representation on the Project Board (or other management structure): Yes
 No


Have you included a Letter of Support from this partner? 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 combined PDF of all letters of support.

 [DIR30S2_1010_partner_letters_28Nov23](#)

 29/11/2023

 13:52:24

 pdf 4.64 MB

Section 16 - Lead Partner Capability and Capacity

Q34. Lead Partner Capability and Capacity

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

Yes

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

Reference No	Project Leader	Title
30-003	Susie Offord-Woolley	Developing a sustainable model for human-elephant coexistence in Thailand
30-005	Bhagawan Raj Dahal	Protection to community engagement: Managing Nepal's youngest transborder National Park
DAREX008	Katherine Secoy	Championing change: Living in harmony with wildlife in lowland Nepal
29-011	Bishnu Prasad	Terai Arc: Community stewardship to secure wildlife corridors and livelihoods
DARCC001	Paul Barnes	Mainstreaming livelihoods, health, poverty, and wellbeing into EDGE species conservation
DARCC010	Fridah Mutili	Building effective and equitable multi-stakeholder mitigation for HWC in Tsavo

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

Yes

Section 17 - Certification

Q.35 Certification

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

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

On behalf of the

Trustees

of

Zoological Society of London

I apply for a grant of

£599,971.00

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

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





- I have enclosed CVs for key project personnel, cover letter, letters of support, a budget, logframe, Safeguarding and associated policies, and project workplan.
- Our last two sets of signed audited/independently verified accounts and annual report (covering three years) are also enclosed.

Checked

Name Johan Du Toit





Position in the organisation Director of Science





Signature (please upload e-signature)

 [DIR30S2_1010_certification](#)
 27/11/2023
 10:12:47
 pdf 28 KB

Date 27 November 2023


Please attach the requested signed audited/independently examined accounts.


 [ZSL Audited Accounts 2022-23](#)
 26/11/2023
 11:41:53
 pdf 1.27 MB


 [ZSL Audited Accounts 2021-22](#)
 26/11/2023
 11:41:45
 pdf 1.19 MB

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

 [ZSL Combined policies 25Nov23](#)

 25/11/2023

 22:13:41

 pdf 493 KB

Section 18 - Submission Checklist

Checklist for submission

	Check
I have read the Guidance, including the “Darwin Initiative Guidance”, “Monitoring Evaluation and Learning Guidance”, “Standard Indicator Guidance”, “Risk Guidance”, and “Finance Guidance”.	Checked
I have read, and can meet, the current Terms and Conditions for this fund.	Checked
I have provided actual start and end dates for the project.	Checked
I have provided my budget based on UK government financial years i.e. 1 April – 31 March and in GBP.	Checked
I have checked that our budget is complete, correctly adds up and I have included the correct final total at the start of the application.	Checked
The application been signed by a suitably authorised individual (clear electronic or scanned signatures are acceptable).	Checked
I have attached the below documents to my application:	
<ul style="list-style-type: none">• a cover letter from the Lead Partner, outlining how any feedback received at Stage 1 has been addressed where relevant, as a single PDF.	Checked
<ul style="list-style-type: none">• my completed logframe as a PDF using the template provided and using “Monitoring Evaluation and Learning Guidance” and “Standard Indicator Guidance”.	Checked
<ul style="list-style-type: none">• my budget (which meets the requirements above) using the template provided.	Checked
<ul style="list-style-type: none">• a signed copy of the last 2 annual report and accounts (covering three years) for the Lead Partner, or provided an explanation if not.	Checked
<ul style="list-style-type: none">• my completed workplan as a PDF using the template provided.	Checked
<ul style="list-style-type: none">• a copy of the Lead Partner’s Safeguarding Policy, Whistleblowing Policy and Code of Conduct (Question 29).	Checked
<ul style="list-style-type: none">• 1 page CV or job description for all the Project Staff identified at Question 32, including the Project Leader, or provided an explanation of why not, combined into a single PDF.	Checked
<ul style="list-style-type: none">• a letter of support from the Lead Partner and partner(s) identified at Question 33, or an explanation of why not, as a single PDF.	Checked
I have been in contact with the FCDO in the project country/ies and have included any evidence of this. If not, I have provided an explanation of why not.	Checked
My additional supporting evidence is in line with the requested evidence, amounts to a maximum of 5 sides of A4, and is combined as a single PDF.	Checked

(If copying and pasting into Flexi-Grant) I have checked that all my responses have been successfully copied into the online application form.	Checked
I have checked the Darwin Initiative website immediately prior to submission to ensure there are no late updates.	Checked
I have read and understood the Privacy Notice on the Darwin Initiative website.	Checked

We would like to keep in touch!

Please check this box if you would be happy for the lead applicant (Flexi-Grant Account Holder) and project leader (if different) to be added to our mailing list. Through our mailing list we share updates on upcoming and current application rounds under the Darwin Initiative and our sister grant scheme, the IWT Challenge Fund. We also provide occasional updates on other UK Government activities related to biodiversity conservation and share our quarterly project newsletter. You are free to unsubscribe at any time.

Checked

Data protection and use of personal data

Information supplied in the application form, including personal data, will be used by Defra as set out in the **Privacy Notice**, available from the [Forms and Guidance Portal](#).

This **Privacy Notice must be provided to all individuals** whose personal data is supplied in the application form. Some information may be used when publicising the Darwin Initiative including project details (usually title, lead partner, project leader, location, and total grant value).

Project Title: *Securing critically endangered wildlife and human livelihoods in south-eastern Sénégal*

Project Summary	SMART Indicators	Means of Verification	Important Assumptions
<p>Impact: Recovery of South-East Sénégal’s critically endangered and ecologically unique fauna, coexisting with prosperous and healthy local people</p>			
<p>Outcome: Improved conservation status of wildlife in and around Niokolo-Koba National Park, especially African wild dogs, lions, giant eland, and chimpanzees, while local people experience improved wellbeing</p>	<p>0.1 <i>Stabilised/ improved species population (relative abundance/ distribution) within the project area</i> (occupancy of priority species in the 2026 biennial camera trap survey of Niokolo-Koba relative to the 2022 survey, targets 50% increase for African wild dogs, 30% increase for lions, 30% increase for giant eland, and stable for chimpanzees, including 0 animals detected with snare injuries (62); estimated population size changes 2022-6 in entire project area (inside and outside the park): African wild dogs 3 packs to 6 packs, lions 30 to 45, giant eland 120 to 140, chimpanzees stable at approximately 500) [DI-D04]</p> <p>0.2 <i>Frequency of patrols by law enforcement rangers supported through the project</i> (establishment of de-snaring unit, baseline=0, target = 10 days per month in Y1, Y2, and Y3) [IWTCF-B09]¹</p>	<p>0.1 Occupancy of priority wildlife species, and incidence of snare injuries (62), calculated from biennial park-wide camera trap surveys, supplemented by more localised surveys as appropriate inside and outside the park, as well as estimates based on individual recognition and GPS-collar data for African wild dogs and lions.</p> <p>0.2 De-snaring teams’ reports with data on effort (days on patrol) per area and month, disaggregated by region of park</p> <p>0.3 Household survey measuring multiple dimensions of</p>	<p>Achieving this outcome assumes that the reasons for low wildlife numbers in Niokolo-Koba have been identified correctly. Evidence that this is the case comes from systematic camera trapping, which shows that priority wildlife persist only in the least human-impacted areas of the park (Figure 3), and from data showing that intensified law enforcement within part of the park is already fostering wildlife recovery in that area (but not elsewhere) (15).</p>

¹ <https://www.darwininitiative.org.uk/assets/uploads/sites/3/2023/05/IWTCF-Standard-Indicator-Guidance-Menu-Apr23-FINAL.pdf>

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	<p>0.3 Number of households reporting improved wellbeing (50% of targeted households, disaggregated by household type, indicate improved food security, human-wildlife conflict, and rabies risk), relative to a baseline to be measured in Y1) [DI-D16]</p> <p>0.4 <i>Number of individuals / households reporting a decrease in unsustainable practices as a result of project activities</i> (number of households reporting illegally accessing resources within Niokolo-Koba National Park (disaggregated by household type, proximity to the park boundary, location, type of resource (hunting/grazing/ water/thatching/honey/other), and whether accompanied by a dog, relative to a baseline to be measured in Y1) [DI-B09]</p> <p>0.5 <i>Number of local/national organisations with improved capability and capacity as a result of project</i> (target=2, DPN and Am Bé Koun; with the number of Sénégalaise wildlife veterinarians increasing from one (male) to two (aiming for equal sex ratio), the number of de-snaring rangers increasing from zero to 12 (aiming for equal sex ratio), and the number of Sénégalaise carnivore biologists increasing from one to two) [DI-A03]² – capability & capacity</p>	<p>wellbeing conducted at start and end of the project.</p> <p>0.4 Household surveys will use modern methods in social science (63) to anonymously estimate the frequency of household members illegally accessing resources within the park. Data from camera trap surveys (anonymised using automated methods before analysis) and ranger patrols will provide independent assessments of illegal park entry.</p> <p>0.5 Improved capacity will be measured by the number of Sénégalaise nationals (disaggregated by gender) trained, and the number actively implementing their training within the subsequent six months.</p> <p>0.6 Improved evidence on the status of priority wildlife will be verified by publication of a peer-reviewed scientific paper on this topic.</p>	<p>This outcome also assumes that local people’s reasons for illegally entering the park have been identified correctly. Evidence that this is the case comes from extensive engagement with local communities by DPN and Am Bé Koun (21,39).</p> <p>Achieving the outcome further assumes that a combination of strengthened law enforcement and efforts to improve wellbeing can effectively discourage people from accessing the park illegally. Evidence that this is the case comes from local community development plans which emphasise the value of the park to development, as well as the challenges (42,41), and from international evidence (e.g., 64,65).</p>
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² Darwin Initiative core indicators are highlighted in **green**, and linked to the element of the fund to which they refer

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	<p>0.6 <i>Area identified as important for biodiversity</i> (baseline=c. 3,500 sq km occupied by priority species in 2022, based on DPN/Panthera camera trapping (Figure 3), target $\geq 6,000$ sq km by Y3 through improving habitat within Niokolo-Koba and identifying new occupied habitat outside the park) [DI-B11]</p> <p>0.7 <i>Proportion of people with positive attitudes to wildlife.</i> By Y3, the proportion of people in south-eastern Sénégal with positive attitudes to wildlife has increases from a baseline measured in Y1, disaggregated by age and sex as well as by role (e.g., herder, hunter, miner, farmer) and distance from Niokolo-Koba National Park [PL-0-1]³</p>	<p>0.7 Attitudes to wildlife conservation will be verified by surveys at the start and end of the project, and in the course of camera trapping on unprotected lands. Exposure of people to educational material will be assessed by counting audiences (disaggregated by age, sex, and location), and by quantifying the number and reach of outputs through print, broadcast, and social media.</p>	<p>Finally, achieving this outcome assumes that corruption will not undermine key project activities (e.g., anti-poaching, community engagement). All partners have procedures in place to avoid this eventuality.</p>
<p>Outputs:</p> <p>1. Niokolo-Koba National Park provides more effective protection for priority wildlife species</p>	<p>1.1 <i>The number of active snares found per unit effort during de-snaring operations by end of Y3</i> (baseline to be established in Y1; target is zero snares by Y3, as this is a new poaching practice in Niokolo-Koba, and we hope to stamp it out) [PL-1-1]</p> <p>1.2 <i>The proportion of wild animals observed with snare injuries</i> (species-specific baselines to be established in Y1; target is zero by Y3, as</p>	<p>1.1 De-snaring teams' reports on active snares found and removed per unit area, disaggregated by month and region of park</p> <p>1.2 Number of animals of all species, including the four priority species, observed on camera traps and visual observations,</p>	<p>This output assumes that a combination of law enforcement inside the park, with outreach outside the park, can discourage illegal use of Niokolo-Koba National Park. There is evidence of this occurring elsewhere in Africa (e.g., 64,65). There is also</p>

³ Indicators with no other source are numbered PL for "Projet Lycaon"

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	<p>this is a new poaching practice in Niokolo-Koba, and we hope to stamp it out) [PL-1-2]</p> <p>1.3 <i>Number of new/improved species management plans available and endorsed (response plan to injured/snared wildlife, baseline=0 plans, target=1 plan) [DI-B02] - biodiversity</i></p> <p>1.4 Frequency of illegal entry to the park by poachers (occupancy by poachers within the targeted area declines; baseline from 2022 biennial park-wide camera trap survey, target 40% reduction by 2026 survey (end of Y2) [PL-1-3])</p> <p>1.5 Frequency of illegal entry to the park by livestock (occupancy by livestock within the targeted area declines; baseline from 2022 biennial park-wide camera trap survey, target 40% reduction by 2026 survey (end of Y2) [PL-1-4])</p> <p>1.6 Frequency of illegal entry to the park by domestic dogs (occupancy by domestic dogs within the targeted area declines; baseline from 2022 biennial park-wide camera trap survey, target 40% reduction by 2026 survey (end of Y2) [PL-1-5])</p>	<p>disaggregated by species, year, and location</p> <p>1.3 Snare response plan developed, agreed, and endorsed by DPN</p> <p>1.4 Occupancy by poachers calculated from biennial park-wide camera trap survey (with camera trap images anonymised by an automated system before analysis), supplemented by more localised surveys in targeted areas.</p> <p>1.5 Occupancy by livestock calculated from biennial park-wide camera trap survey (with camera trap images anonymised by an automated system before analysis), supplemented by more localised surveys in targeted areas.</p> <p>1.6 Occupancy by domestic dogs calculated from biennial park-wide camera trap survey, supplemented by more localised surveys in targeted areas.</p>	<p>evidence that observations of snare injuries in wildlife provide an indication of snare-related mortality (62).</p> <p>This output also assumes that the people illegally entering Niokolo-Koba National Park come from nearby villages rather than from origins remote from the park. Local DPN intelligence (including data from arrests) suggests that this is the case.</p> <p>This output further assumes that decreased illegal use of Niokolo-Koba National Park will allow wildlife to recover, something which is evident from recent experience in part of the park (15).</p> <p>Finally, this output assumes that a sufficiently high proportion of domestic dogs in the area will be accessible for vaccination (as dogs are sometimes unaccustomed to being</p>
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	<p>1.7 Percentage of domestic dogs accompanying people apprehended in the park which are unvaccinated (baseline in targeted area =100%, target ≤80% by Y1, ≤50% by Y2, ≤30% by Y3) [PL-1-6]</p> <p>1.8 <i>Drivers of biodiversity loss assessed to have been reduced or removed</i> (baseline=0, target=3 (poaching, illegal grazing, domestic dog disease all under control in the targeted area) [DI-D018]</p>	<p>1.7 Vaccination status of domestic dogs found in the park verified using certificates issued by the project at the time of vaccination.</p> <p>1.8 Evidence that poaching, illegal grazing, and canid diseases are under control will come from indicators 1.1-1.6, but also from (i) causes of mortality within groups of wild dogs and lions monitored with GPS-collars; (ii) observations of snared wildlife (of any species) on camera traps (62); (iii) abundance estimates and occupancy of African wild dog and lion prey species (e.g. bushbuck, roan, warthog, buffalo); (iv) reports from park rangers and others of wildlife or domestic dogs confirmed or suspected to be infected with canid diseases.</p>	<p>touched in majority Muslim communities); this has been possible elsewhere in the region (66).</p>
<p>2. The wellbeing of people living outside Niokolo-Koba National Park improves as their</p>	<p>2.1 <i>New assessments of community use of biodiversity resources published</i> (Baseline survey to quantify illegal use of resources inside Niokolo-Koba National Park, disaggregated by gender, household type, proximity to the park boundary, location, type of resource</p>	<p>2.1 Publication of the assessment.</p> <p>2.2 Three updated/expanded local plans are agreed between</p>	<p>This output assumes that local communities will be willing to engage with the project despite historical grievances against DPN. This assumption is</p>

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<p>impacts on the park are declining</p>	<p>(hunting/grazing/water/thatching/ honey/other) completed during Y1) [DI-C04] - biodiversity</p> <p>2.2 <i>Number of new/improved sustainable livelihoods/ poverty reduction management plans available and endorsed</i> (Existing agreements between local communities and park authorities about successful ways to develop sustainable livelihoods outside the park (39) are updated and expanded) [DI-B04] – poverty reduction</p> <p>2.3 <i>Number of people with improved access to services or infrastructure for improved well-being</i> (Establishment of two pilot livestock waterpoints outside the park, as requested by UNESCO (28), to assess whether they reduce or increase livestock entry to the park; baseline=0, target=3, accessible to 600 people) [DI-A06]</p> <p>2.4 <i>Number of people benefitting from improved sustainable agriculture practices and are more resilient to weather shocks and climate trends</i> (Number of households (disaggregated by household type and location) actively supported by agricultural and veterinary advice to improve or adopt chicken farming as a locally appropriate reliable source of protein and income (as an alternative to hunting wild meat), which disproportionately benefits women (42), but is currently constrained by vaccine-preventable</p>	<p>communities and DPN, endorsed by both sides, and published.</p> <p>2.3 Construction of waterpoints, as well as report using camera trapping to monitor livestock numbers using new waterpoints, and nearby waterpoints inside the park.</p> <p>2.4 Number of households engaged with livelihoods officer and veterinary officer (disaggregated by household type, location, and level of engagement).</p> <p>2.5 Annual survey of participants in livelihoods efforts.</p> <p>2.6 Number of domestic dogs vaccinated by field teams, recorded in real time using the Mission Rabies app (68).</p> <p>2.7 Vaccine coverage estimated from re-sighting of domestic dogs marked temporarily at the time of vaccination, using the Mission Rabies app (68).</p>	<p>supported by successful three-way engagement between local communities, DPN, and project partner Am Bé Koun in recent years (39).</p> <p>This output will test the assumption, made by UNESCO, that provision of waterpoints for livestock outside the park will discourage livestock keepers from entering the park (28). Although this action is listed as one of the actions required to remove Niokolo-Koba from the list of World Heritage in Danger, there is no empirical evidence that water provision will discourage use of the park rather than attracting more livestock from further afield to the margins of the park. We will therefore conduct a small-scale pilot to explore the consequences of improving livestock access to water.</p>
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	<p>Newcastle disease (43); baseline=0 households, target=300 households actively supported, with guidance to a further 600 households) [DI-D11]</p> <p>2.5 <i>Proportion sustainable livelihood enterprises established that are functioning at project end (at least a year after establishment).</i> (Proportion of people, disaggregated by sex, age, and location, who are still keeping chickens at least a year after being introduced to the practice, target=60%) [DI-A10]</p> <p>2.6 <i>Number of domestic dogs vaccinated against rabies</i> (baseline=0, target=1,000 in Y1, 5,000 by Y2, 10,000 by Y3); targets based on local human population and regional estimates of human-to-dog ratios (66) [PL-2-1]</p> <p>2.7 <i>Percentage of unvaccinated domestic dogs within 5km of the park boundary</i> (baseline=100% in targeted area, target ≤80% by Y1, ≤50% by Y2, ≤30% by Y3); this is a standard indicator recognised by the World Health Organisation as indicating that rabies is likely to be eradicated locally (55) [PL-2-2]</p> <p>2.8 <i>Number of people inhabiting areas receiving free rabies vaccination of domestic dogs</i> (baseline=0, target=2,000 in Y1, 10,000 by Y2, 20,000 by Y3) [PL-2-3]</p>	<p>2.8 Number of people benefitting from rabies control estimated by mapping areas with adequate rabies vaccination coverage (from Mission Rabies app (68) and using existing GIS coverages to count the number of affected households.</p> <p>2.9 Monthly data on dogs biting people (anonymised but disaggregated by age, gender, and geographic location) reported to clinics inside and outside the targeted area.</p> <p>2.10 Number of human-wildlife conflict reports investigated (broken down by age, sex, and location of the victim), taken from records kept by community liaison officer.</p> <p>2.11 Number of people engaging with human-wildlife conflict outreach counted by project team and disaggregated by age, sex, and location.</p>	<p>This output also assumes that raising chickens would provide a locally appropriate and reliable source of protein and income, as an alternative to poaching in the park. This assumption is supported by local assessments (42) as well as by ZSL's experience from developing alternative livelihoods to address poaching in Cameroon.</p> <p>This output further assumes that experience from delivering domestic dog vaccination in Kenya (under project DI 28-013) can be rapidly adapted to suit conditions in Sénégal.</p> <p>Additionally, this output assumes that experience of mitigating livestock predation in other countries (e.g., Kenya (69,48)) can be rapidly adapted as a first approximation (to be</p>
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	<p>2.9 <i>Number of dog bites reported to local hospitals and clinics</i> (baseline to be established in Y1, target=decline by 20% per year based on experience from Kenya (Darwin project DI 28-013); this has been shown to be a reliable indicator of human rabies risk (67) [PL-2-4]</p> <p>2.10 <i>Number of incidents of human-wildlife conflict investigated by project team</i> (number of livestock attacks investigated in a case-control framework to identify effective and locally appropriate husbandry methods increases from 0 in 2023 to 100 by 2025 (each case with 3 matched controls to maximise statistical power), target set based on refs (19) and (48)) [PL-2-5]</p> <p>2.11 <i>Number of people engaged with outreach to share guidance on minimising human-wildlife conflict</i> (number of people (disaggregated by age and sex) increases from 0 in 2023 to 200 in Y1 (with equal sex ratio and including both adults and youth), to 500 by Y2 and 1,000 by Y3 [PL-2-6]</p> <p>2.12 <i>Net change in incidences of human wildlife conflict</i> (a 40% decline in the number of attacks on livestock reported to project team by a standardised cohort of livestock-keepers, disaggregated by predator species, livestock type, location (e.g., inside/outside the park), and</p>	<p>2.12 Trends in the incidence of human-wildlife conflict measured by establishing a set of “sentinel” livestock keepers (aiming for locally appropriate gender balance) at the start of the project, who are contacted monthly to report predator attacks. This approach helps to distinguish trends in human-wildlife conflict from trends in monitoring effort.</p>	<p>updated with local knowledge) in Sénégal.</p> <p>Finally, this output assumes that improved management of domestic animals (provision of water for cattle, support to improve chicken rearing as a reliable source of protein and income, vaccination of domestic dogs, and protection from predators) will together improve the livelihoods of local people.</p>
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	<p>the age and gender of the livestock owner, as well as the number of wild animals reported killed due to human-wildlife conflict, disaggregated by species and location). Baseline rates taken from ref (19), achievable decline estimated from (48) [DI-D15]</p>		
<p>3. Sénégal has increased capacity to manage, monitor, and conserve priority wildlife species</p>	<p>3.1 <i>Number of people from key national and local stakeholders completing structured and relevant training</i> (DPN veterinarians who have completed wildlife capture training, baseline=0, target=1 (female if possible) by the end of Y1; DPN rangers trained to conduct de-snaring operations, baseline=0, target=12 (aiming for equal sex ratio) during Y1) [DI-A01] – capability & capacity</p> <p>3.2 <i>Number of secondments or placements completed by individuals of key local and national stakeholders</i> (DPN veterinarians who have completed a wildlife health placement elsewhere in Africa; baseline=0, target=1 (female if possible) by the end of Y2; Sénégalese students who have completed a fieldwork placement with the project’s survey or ecological monitoring efforts; baseline=0, target=6 (aiming for equal sex ratio) by the end of Y3) [DI-A02] – capability & capacity</p>	<p>3.1 DPN veterinarian’s certificate of successfully passing the wildlife capture course, records of ranger training.</p> <p>3.2 Trip reports by Sénégalese staff, and from placement hosts.</p> <p>3.3 Records of team members’ activities</p>	<p>Achieving this output assumes that Sénégalese staff will have the language skills (or can receive interpretation support) needed to participate in training and placements in anglophone Africa.</p> <p>This output also assumes that Sénégalese staff will remain working in Sénégal after receiving intensive training.</p>

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	<p>3.3 <i>Number of people reporting that they are applying new capabilities (skills and knowledge) 6 (or more) months after training (target=15, 1 veterinarian (ideally female), 2 ecologists, 12 de-snaring rangers (aiming for equal sex ratio), by the end of Y2) [DI-A04] – capability & capacity</i></p>		
<p>4. Evidence of the status and distribution of African wild dogs, lions, giant eland, and chimpanzees across south-eastern Sénégal</p>	<p>4.1 <i>Number of new conservation or species stock assessments published (baseline=0 as there is no published evidence from outside Niokolo-Koba, target=1 report for all 4 species) [DI-C02] – biodiversity</i></p> <p>4.2 <i>Number of unique papers submitted to peer reviewed journals (target=1 published paper) [DI-C17]</i></p>	<p>4.1 Reports of occupancy surveys of Niokolo-Koba, Falémé, and adjoining land, incorporating factors (including threats) correlating with species presence/absence.</p> <p>4.2 Published scientific paper on the status of four priority species across south-eastern Sénégal, combining all survey results.</p>	<p>This output assumes that local communities will cooperate with surveys (e.g., by not stealing the camera traps). The camera trapping method has been found to be effective inside Niokolo-Koba, and a combined interview and camera trap methodology was found to be effective in southern Falémé (Figure 6).</p>
<p>5. Improved public knowledge of, and attitudes to, wildlife conservation in Sénégal, locally, nationally, and internationally</p>	<p>5.1 <i>Number of people engaged with public education about wildlife and conservation (baseline=0 around Niokolo-Koba, increasing to 1,000 in Y1 (with equal sex ratio and including both adults and youth), disaggregated by role (e.g., farmer, herder, hunter, school pupil, artisanal miner, mining company staff), to 5,000 by Y2 and 10,000 by Y3 [PL-5-1]</i></p>	<p>5.1 Engagement with education efforts will be estimated by counting audiences (separately enumerating men, women, boys, and girls where possible, as well as location (e.g., school, market, mining company)</p>	<p>This output assumes that outreach conducted in-person, online, and in print and broadcast media, can reach its target audience – for example social media posts about wildlife in Africa tend to attract far more attention outside Africa than</p>

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	<p>5.2 Social media presence (number and reach of social media posts about wildlife in south-eastern Sénégal from ZSL and project partners increases 10-fold, including https://www.facebook.com/PantheraAuSenegal, establishment of new @TeamWildDog account on twitter, as well as @ProjetLycaon posting en français) [DI-C12]</p> <p>5.3 Number of Media related activities (Six-fold increase in print and broadcast media items presenting positive new stories about wildlife in SE Sénégal, from 1.5 newspaper articles per year in 2018-2023 to 9 per year in 2024-2026) (DI-C15]</p>	<p>5.2 Changes in social media presence will be measured in terms of number and reach of posts by project partners' social media accounts</p> <p>5.3 Changes in media coverage (print and broadcast media) will be measured in the course of conducting media outreach</p>	<p>in it. Efforts will therefore need to be carefully tailored to reach the intended audience for each message.</p> <p>This output also assumes that education, combined with a package of measures, including linking practical action on human health and wellbeing to the health and conservation of endangered wildlife, can help to improve local attitudes. This assumption is supported evidence from a parallel project in Kenya, although translation to a different environment and culture is uncertain.</p>
<p>Activities</p> <p>1.1 Establish Project Board with quarterly meetings including GESI, safeguarding, and risk register as standing items</p> <p>1.2 De-snaring teams operate across Niokolo-Koba, patrolling approximately 10 days per month throughout the project period</p> <p>1.3 Provide training (or refresher training) to ensure rangers document encounters, including those with people, livestock, and domestic dogs inside Niokolo-Koba National Park</p> <p>1.4 Develop, agree, and implement response plan to detection of snares and snared wildlife</p>			

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- 1.5 Develop, agree, and implement response plan to detection of domestic dogs inside Niokolo-Koba National Park
- 1.6 Implement biennial park-wide camera traps surveys across Niokolo-Koba National Park
- 1.7 Process camera trap data to automatically identify (50) and anonymise (49) images of people
- 1.8 Analyse anonymised park-wide camera trap data to estimate occupancy of key wildlife, poachers, illegal graziers, and domestic dogs, and incidence of snare-related injuries

- 2.1 Household surveys to quantify multiple dimensions of wellbeing, attitudes to wildlife, and (anonymously) illegal use of resources inside Niokolo-Koba National Park
- 2.2 Review, update, and expand existing agreements between local communities and DPN in Linkering, Dialacoto, and Tomboronkoto
- 2.3 Establish three pilot livestock waterpoints outside Niokolo-Koba National Park
- 2.4 Monitor waterpoints inside and outside Niokolo-Koba National Park to evaluate impact of artificial waterpoints on park use
- 2.5 Provide agricultural and veterinary support and advice to encourage chicken farming among households in the three target areas
- 2.6 Conduct annual surveys to assess whether participants have adopted livelihood approaches for which they received support
- 2.7 Deliver annual rabies vaccination to domestic dogs in the three target areas, tracking progress with the Mission Rabies app
- 2.8 Estimate rabies vaccine coverage in targeted areas using mark-resight
- 2.9 Establish monitoring system for human dog bites (anonymised but segregated by age and sex), working through local clinics and dispensaries

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- 2.10 Investigate reports of human-wildlife conflict, using case-control approaches (48) to identify locally appropriate and effective mitigation measures
- 2.11 Use community meetings, posters, and other media to share knowledge on reducing human-wildlife conflict, drawing on new and existing evidence of effective mitigation measures
- 2.12 Establish monitoring system for human-wildlife conflict based on a selected sample of “sentinel” livestock keepers to be contacted monthly

- 3.1 Train and equip DPN rangers to conduct de-snaring operations
- 3.2 Provide training for DPN veterinarian by sending them on a wildlife capture course
- 3.3 Further training for DPN veterinarian through wildlife health placement elsewhere in Africa
- 3.4 Field training for Senegalese students through internships as components of wildlife survey and monitoring activities

- 4.1 Conduct occupancy surveys (with camera traps and interviews) on lands outside Niokolo-Koba, to establish species status and evaluate threats
- 4.2 Analyse and publish results of occupancy surveys

- 5.1 Conduct environmental education in schools around Niokolo-Koba, including new and existing materials about the priority species
- 5.2 Use community meetings to share knowledge about local wildlife and its value

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5.3 Engage with mining companies to share survey findings and encourage sustainable practices

5.4 Use local radio to provide general information on environment and conservation as well as updates on project progress

5.5 Establish new @TeamWildDog and @ProjetLycaon social media profiles in English and French

5.6 Encourage visits to the project from local, national, and international journalists to encourage media coverage