Darwin Initiative Capability & Capacity: Final Report

To be completed with reference to the "Project Reporting Information Note": (https://www.darwininitiative.org.uk/resources/information-notes/).

It is expected that this report will be a **maximum of 20 pages** in length, excluding annexes.

Submission Deadline: no later than 3 months after agreed end date.

Submit to: BCF-Reports@niras.com including your project ref in the subject line.

Darwin Initiative Project Information

Project reference	DARCC009
Project title	Strengthening conservation and management capacity in Tanzania through collaborative research
Country(ies)	Tanzania
Lead Organisation	Lion Landscapes
Project partner(s)	WildCRU (University of Oxford) Tanzania Wildlife Management Authority (TAWA) Frankfurt Zoological Society (FZS) Tanzania Southern Tanzania Elephant Program (STEP)
Darwin Initiative grant value	£199,941 [redacted]
Start/end dates of project	1 April 2022 – 31 March 2025
Project Leader's name	Dr Charlotte Searle
Project website/blog/social media	https://www.lionlandscapes.org/ https://twitter.com/lionlandscapes https://www.instagram.com/lionlandscapes/ https://www.facebook.com/lionlandscapes https://uk.linkedin.com/company/lion-landscapes
Report author(s) and date	Dr Charlotte Searle, 28 June 2025

1 Project Summary

Since 2017, Lion Landscapes (hereafter "LL") has been involved in carrying out large carnivore assessments in two of Tanzania's most important wilderness areas, the Ruaha-Rungwa and Selous-Nyerere landscapes. Both are carnivore strongholds, with the latter believed to host Africa's largest population of endangered African wild dogs (Woodroffe et al., 2020). During these efforts, we developed close collaborations with protected area (PA) management authorities the Tanzania Wildlife Management Authority (TAWA) and Tanzania National Parks (TANAPA), the Tanzania Wildlife Research Institute (TAWIRI), and the University of Dar es Salaam (UDSM). Through these partnerships, we noted that knowledge and capacity gaps were especially significant with regards to large carnivore population research, conservation, and management. There was little knowledge on methods that can be employed to assess large carnivore populations, and understand their threats and management needs. We also noted a lack of collaboration between the country's governmental research institutions and protected area management authorities, which further hindered effective conservation.

The identified capacity limitations were acknowledged by Tanzania's research and management institutions: TAWIRI identified problems arising from inadequate management as one of the most

important factors affecting lion, leopard, wild dog, and cheetah conservation, and set strategic targets to establish capacity building programs for large carnivore conservation, where possible in tandem with research and monitoring (TAWIRI, 2009, 2016). The Government of Tanzania had therefore identified the need addressed by this project as a key national biodiversity conservation priority. If protected area management authorities are equipped with the requisite skills and resources, they will be able to assess and monitor species, implement actions to mitigate identified threats, and establish regular monitoring to evaluate interventions and identify emerging threats. Such evidence-based management is critical for efforts to halt population declines and range reductions (Sutherland et al. 2004).

If left unaddressed, these capacity gaps also pose a substantial threat to wider poverty reduction efforts. Large carnivores play a central role in regulating ecosystem structure and function (Atkins et al., 2019), and their loss can therefore have profound consequences for wider biodiversity and the provision of ecosystem services (Ripple et al., 2014). Furthermore, wildlife tourism is an important generator of income and livelihoods in Tanzania (TanzaniaInvest.com), and large carnivores are an important factor attracting international tourists to Africa (Okello, 2008; Macdonald et al. 2017). Population declines resulting from ineffective management of these species would therefore imperil an important source of income and livelihoods for the country.

This project aimed to build conservation, research, and protected area management capacity in Tanzania, while improving the management of two globally-important large carnivore populations in the Ruaha-Rungwa and Selous-Nyerere landscapes (Fig. 1). Through this project, we delivered training in large carnivore monitoring, wildlife corridor assessments, and wildlife veterinary best practice, coupled with academic mentorship and supervision, to Tanzanian nationals from protected area management authorities, governmental research institutions, and universities. In the long term, the monitoring and conservation plans developed as part of this project will contribute to long-term poverty reduction by helping promote the tourism industry and preserving ecosystem function.

2 Project Partnerships

This Final Report has been led by the Project Leader, Dr Charlotte Searle (LL/WildCRU), with input from all other partners where relevant. All partners were involved in project planning and decision-making.

The Project Leader was employed through a postdoctoral research fellowship with WildCRU and LL. LL provided logistical support throughout the project, including by employing the Project Assistant, providing existing assets for use in project activities, and managing project administration and finances. WildCRU provided the academic context for the work, which was

critical for supervision of students and publication of papers through Oxford's Open Access Scheme (Output 3) [L01-06].

TAWA – which manages all wildlife areas in Tanzania outside National Parks and Ngorongoro Conservation Area – was a key partner, as they wanted to use the project's training opportunities to upskill their staff and employ the outputs of project activities to improve their conservation management plans. TANAPA, TAWA's counterpart within NPs, was similarly enthusiastic to be involved in the project, and was only not included as a formal partner due to delays in securing a letter of commitment at the time of application. TAWA and TANAPA ecologists and rangers were the main beneficiaries of the field and analytical training [A01-03], and both authorities have been heavily involved in developing conservation plans based on the project findings [I01-07].

Frankfurt Zoological Society (FZS) Tanzania provided logistical support for field training activities in Selous-Nyerere [A01], hosted an analytical training workshop at their office in in Dar es Salaam [B01-06], and facilitated meetings between the Project Leader and senior staff members from PA management authorities [I05-06]. Given their role in providing site protection support to TAWA and TANAPA in Selous-Nyerere, they have also been very involved in developing conservation plans for the landscape based on the project findings.

The Southern Tanzania Elephant Program (STEP) led both wildlife corridor connectivity assessments (Output 4) [G01-03], which built upon a previous Darwin Initiative grant held by the organisation (Round 25, project 26-007), and supported activities in MBOMIPA WMA [J02-04].

Although not formal project partners, we engaged closely with TAWIRI throughout the project, including by providing training to their staff at their request [D01-07], sharing research outputs with them to inform their national conservation planning [I03-04, J11-13], and partnering to deliver the wildlife capture & immobilisation course [H01-04].

Technical specialists from South Africa were engaged for the veterinary training component of the project due to their technical expertise and experience delivering training across sub-Saharan Africa [H01-04]. UDSM were partnered with for the university training as they have an existing partnership with LL, and are one of the most prominent institutions in Tanzania for conservation- and ecology-related degrees [E01-04].

Although most project activities took place within protected areas, local community members were engaged for activities in MBOMIPA Wildlife Management Area (WMA) and the two corridor assessments. For MBOMIPA, discussions were held with the WMA board to obtain approval for activities and explain how the insights the work would provide can be used to support revenue generation [I01-02]; for the corridors, meetings were held with the councils of villages the corridors pass through to explain the activities and highlight the value of the research for understanding animal movements and improving land use planning in the area [G01-03].

Training participants were identified by inviting participating organisations (particularly TAWA, TANAPA, TAWIRI) to nominate individuals they believed would benefit most from the training, based on their own individual selection processes and equal opportunities criteria. Nevertheless, we encouraged these organisations to nominate all eligible women. Most participants were individuals directly involved in wildlife monitoring and conservation in the focal landscapes.

Although most partners had existing relationships before the start of the Darwin project, the project has reinforced and deepened these relationships. In particular, the close engagement of TAWA and TANAPA in the project's data collection and analytical activities has strengthened these authorities' trust, ownership, and understanding of the research, and allowed local knowledge to be incorporated when interpreting findings. In doing so, this project demonstrates how this kind of engagement can build local capability and capacity while also helping researchers deliver more actionable and impactful conservation recommendations.

All project partners plan to maintain these relationships after project completion, and are actively fundraising to continue and build upon the activities achieved through the Darwin project.

3 Project Achievements

3.1 Outputs

<u>Output 1</u>: Improved skills and knowledge among Tanzanian PA management authorities, research institutions, and NGOs to assess and monitor large carnivore populations, including through the ability to carry out wildlife corridor assessments

This project has supported a range of field research activities designed to assess and monitor large carnivore populations [A01]. Over the three years, field teams in Tanzania's Ruaha-Rungwa and Selous-Nyerere landscapes completed 5 camera trap surveys, comprising 303 pairs of camera traps across a combined area of more than 5,500 km^2; deployed 50 autonomous recording units as part of the first ever large-scale paired camera trap and acoustic survey for African large carnivores [L04]; completed 990 km of spoor surveys over an area of 14,400 km^2; and deployed GPS collars on 18 lions and 7 wild dogs. In Y2, members of the project's carnivore monitoring teams visited the Zambian Carnivore Program in South Luangwa NP [K08] to receive additional training on collaring and focal monitoring of wild dogs and lions. Training was also delivered on corridor monitoring through camera trapping and focus group discussions [G01-03], and on wildlife capture and immobilisation via a course for all wildlife vets and animal health technicians operating in Tanzania [H01-04].

Through these activities, in-depth field-based training on large carnivore research and monitoring methods (activity 1.1 & 2.3) was delivered to 154 people, 34 of whom were women (22%) [A01]. Although lower than the ideal target of 30%, this female representation is nevertheless a noteworthy achievement considering the underrepresentation of women in the groups eligible for this training.

***Fig. 2**: The TAWIRI-led spoor survey team on a survey transect in 2022 (top left); an MSc student and LL research assistant setting up camera traps with TAWA in 2024 (top right); a PhD student teaching TANAPA ecologists about acoustic surveys in 2023 (bottom left); and a TAWIRI vet fitting a GPS collar to a male lion in 2023 (bottom right).*

The success of this training is demonstrated by the fact that participants went on to conduct research activities without the original trainers being present: 3 of the 5 camera trap surveys, 600 km of the spoor surveys, and 7 of the collar deployments in Tanzania were independently led by training participants. For the Y3 camera trap survey in Kenya, Darwin Project Assistant Joseph Francis – one of the main recipients of the training in Y1 and Y2 – himself delivered training to 9 people, supporting them to deploy 61 pairs of camera traps over an area of 800 km^2. In doing so, this project has helped build biodiversity conservation capacity beyond the main project country. Eleven of the training participants contributed to scientific publications resulting from project activities [L01-06], with these being the first ever publication for eight individuals. Among this group, two have gone on to carry out postgraduate degrees using the data collected [F02, F06].

Theoretical training was delivered to field training participants via workshops in Y1 and Y2, to a combined total of 15 participants [A02]. These workshop participants included only two women (13%), but this was because all male attendees were ecologists and researchers who had been assigned for the field skills training from 2020 to 2022 [A02, B01-06]. The Y1 workshop provided background and practical training in SECR analysis of camera trap data and spoor count analysis of spoor data – both important tools in wildlife monitoring [B01-06]. In the Y2 workshop, participants worked together to finalise lion & leopard population density estimates for Selous-Nyerere, discuss what they thought could explain the densities observed, and recommend conservation and management actions in light of the findings [C01-06]; two of the participants then jointly wrote a report with the Project Leader summarising the results and discussion to share with the government [J11], which was later adapted and published as a scientific paper [L05]. One participant has since used the analytical skills developed through this workshop to carry out a study of wild dog density in Selous [L06].

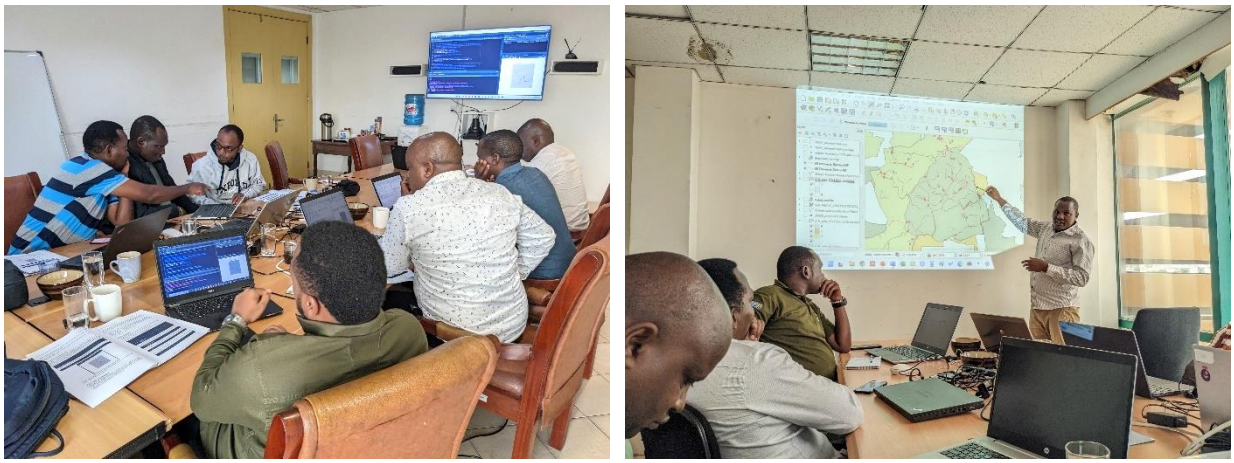

Fig. 3*: Participants in the lion density analysis & interpretation workshop in Y2 carrying out SECR analyses (left) and discussing how to interpret the lion density results based on their knowledge of the landscape (right).*

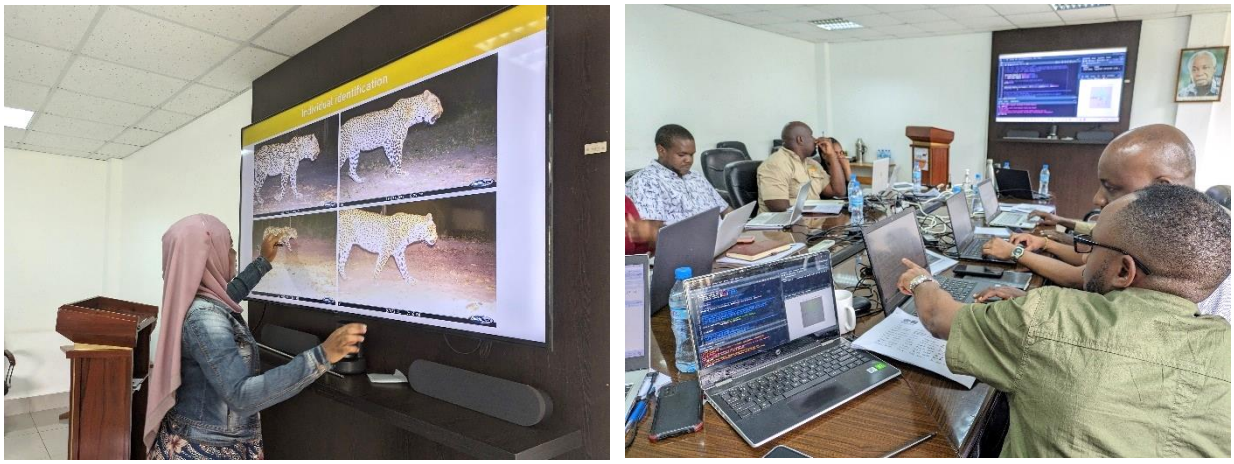

Fig. 4*: Participants in the TAWIRI large carnivore population density workshop identifying individual leopards from camera trap photos based on their unique spot patterns (left) and carrying out SECR analyses (right).*

A third workshop was organised at the request of the government wildlife research institute TAWIRI, and sought to teach early-career researchers from the institute how to monitor large carnivore populations with camera trap surveys [D01-07]. Out of 19 participants, 6 (32%) were women. One participant from TAWIRI is now applying this training to help design carnivore surveys elsewhere in Tanzania, while a participant from LL travelled to Laikipia to train Kenyan conservationists in how to conduct camera trap surveys to monitor carnivores (see 3.1 output 1 and 3.2). This application of the skills learnt demonstrates the capabilities training participants were able to build through the workshop.

Senior TAWA and TANAPA managers in the focal landscapes were made aware of how findings can be used to inform PA management strategies through reports [J01-13] and in-person meetings [I05-06]. While our original plan was to hold these meetings at the national headquarters of each institution, we chose to instead hold meetings with senior staff members at the site level as we felt that this would be more conducive to having a direct impact on management decisions.

In Y3, a meeting was held in at the Nyerere NP HQ in Matambwe to discuss conservation recommendations for carnivores, with a particular focus on lions. This meeting was attended by six representatives from TANAPA (including the Chief Park Warden, Head Ecologist, and Head of Protection), two representatives from TAWA (the Head Ecologist and Head of Protection), three representatives from FZS, three representatives from the Wildlife Conservation Network, and the Project Leader [I05]. During this meeting, the Project Leader presented the key findings of monitoring activities and shared conservation recommendations based on these findings [I06]. This was followed by a discussion of how to put these recommendations into practice. By meeting with both TAWA and TANAPA at the same time, this discussion benefitted from both institutions' experiences and perspectives, and allowed us to collaboratively develop a plan for the way forward at an ecosystem level, which is now being established and fundraised for [I07].

In Ruaha-Rungwa, we held three meetings with TANAPA in Ruaha NP to discuss and agree long-term carnivore monitoring plans based on project activities and prior research [J01], including annual camera trap surveys alternating between Ruaha and MBOMIPA WMA and continued collaring of lions in MBOMIPA and village lands to inform conflict mitigation activities. These discussions were held with the new Head Ecologist of the park – one of very few female PA ecologists in Tanzania – who will join the field team during the upcoming field activities.

<u>Output 2</u>: Improved skills and knowledge among young Tanzanian academic researchers on how to study, monitor, and secure large carnivore populations in Tanzania

Over the course of the project, we have supported four MSc students (1M, 3F), one Postgraduate Diploma student (F), and one PhD student (M) to begin, continue, or complete their degree research on carnivores (4 out of 6 = 67% women) [F01-06]:

- The first female MSc student carried out research on whether sightings data from tourism guides can be used to monitor lion populations, using data from Ruaha NP [F01]. She submitted and successfully defended her thesis in Y3, and has submitted one paper [L08] and is preparing a second for submission.
- The male MSc student was a participant in the training in Y1 and Y2, and secured a WCN scholarship to undertake his Master's at NM-AIST in Y2 with the support of the Project Leader. His research project focused on wild dog status and threats in Selous-Nyerere, using camera trap and direct sightings data collected through the project and attitudes data he collected in Y3 with project funding [F02]. He submitted his thesis in Y3, and has published one paper [L06] and submitted a second paper for publication [L09].
- The second female MSc student is assessing spotted hyaena population status using camera trap data and AI tools, and is aiming to submit her thesis in late 2025 [F03].
- The third female MSc student is investigating community attitudes towards wire bomas [F04].
- The female Postgraduate Diploma student completed her dissertation on caracal distribution and habitat use via occupancy modelling, and is now preparing a paper for publication [F05].

- The male PhD student was a training participant in Y1 and Y2, and secured a scholarship to undertake his PhD at Washington State University in Y3. His research will use data collected through this project to investigate carnivore habitat use, movement, and genetics [F06].

In Y3, an all-Tanzanian team from lead organisation LL (including two participants in the field and analytical training; see 3.1 output 1) delivered a training course at UDSM to 69 Bachelor's students (34M, 34F = 51% women), seven Master's students (5M, 2F = 29% women), and nine faculty staff (7M, 2F = 22% women) [E01-04]. This included all women eligible for the training.

The course featured a day of lectures covering the fundamentals of wildlife monitoring, camera trap surveys and data management, human-wildlife conflict, and data collection and processing, plus a session in which the trainers each gave an overview of their education and career path [E03]. This was followed by two days of practical sessions on how to set up Kobo forms to collect data digitally, how to deploy and check camera traps, and how to manage and process camera trap data, including using AI tools.

Fig. 5*: Darwin Project Assistant Joseph Francis delivering a presentation (top left), students looking at a camera trap (top right), Zainabu Mlaponi teaching a practical on data collection (bottom left), and a group of participants in the UDSM training course (bottom right).*

<u>Output 3</u>: Improved knowledge on the status of, and threats to, large carnivore populations in two globally-important conservation areas is available to the scientific and conservation community and is employed to improve their management

Throughout the project's lifespan, we have shared regular reports with government wildlife authorities and project partners to provide updates on our activities and progress [J01-13]. These include reports detailing conservation recommendations based on the project findings [J01, J05-08]. One of the most important outputs was a report summarising the lion & leopard population status findings for Selous-Nyerere, which was written collaboratively with training participants from the government research institute and protected area management authorities [J11]. This approach allowed us to build capacity in interpreting scientific research to produce management

recommendations while also ensuring the recommendations delivered were realistic and appropriate.

A number of meetings were held with government wildlife officials to collaboratively draft large carnivore conservation strategies based on the project findings. The project team presented the results of lion and leopard surveys in Ruaha-Rungwa and Selous-Nyerere and resulting conservation recommendations to the Director General of TAWIRI in Y2 [I03-04]. In Y3, meetings were held with senior TANAPA and TAWA staff from Nyerere NP and Selous GR – including the Park Warden and members of the Ecology, Protection, and Tourism departments – to agree conservation actions to improve the status of the landscape's lion population [I05-06]. Meetings were also held with TANAPA Ecologists from Ruaha NP to discuss planned long-term carnivore monitoring activities (see 3.1 output 1).

To disseminate project findings to the wider Tanzanian scientific community, the Project Leader and participants from TAWA (3), TANAPA (2), TAWIRI (1) and LL (1) attended the TAWIRI Scientific Conference in Y2 to present some key findings of the collaborative data collection and analysis. This included presentations on wild dog status [K11] and lion & leopard population density [K12] in Selous-Nyerere, and carnivore population trends in MBOMIPA WMA [K13].

To disseminate findings to the international scientific and conservation community, project participants and collaborators have published six open-access papers – on the status of spotted hyaena in Ruaha-Rungwa [L01]; the status of cheetah [L02], lion [L05], and wild dog [L06] in Selous-Nyerere; the first record of an African strawberry leopard outside South Africa [L03]; and how leopards can be individually identified by their roars [L04]. Papers on the status of leopard in Selous-Nyerere [L07], community attitudes towards wild dogs [L08], and the use of citizen science to monitor lions [L09] are under review. Findings have also been shared through presentations at the Global Leopard Conference [K04-05]; participation in a panel discussion about cheetah monitoring at the Global Cheetah Summit; and a presentation on monitoring wild dogs with camera traps for the African Wild Dog Working Group [K14].

The project has also contributed to efforts to improve the conservation outlook of large carnivores at a national, regional, and continental scale. In Y1 and Y2, the Project Leader participated in workshops to revise Tanzania's National Action Plan for Lion and Leopard, including by presenting data on lion and leopard abundance in Ruaha-Rungwa and Selous-Nyerere collected through this project for incorporation into national population estimates for both species [J12-13, K01-02]. The Project Leader also participated in a Workshop to Revise the Eastern Africa Regional Conservation Strategy for Cheetah and African Wild Dogs in Kenya in Y1, where she delivered a presentation on cheetah and African wild dog in southern Tanzania using data from this project [K03]. At both workshops, project outputs represented a significant contribution to the development of updated regional and national action plans for the target species. Findings from this project have also been incorporated into published IUCN Red List updates for lion (Nicholson et al., 2024) and African leopard (Stein et al., 2025), ongoing IUCN Red List updates for caracal and serval, and mapping exercises for spotted hyaena, striped hyaena, and aardwolf by the IUCN SSC Hyaena Specialist Group.

Output 4: Improved knowledge by all relevant stakeholders of the status, threats to, and functional connectivity of corridors linking these landscapes

The Selous-Nyerere – Udzungwa corridor was formally gazetted in early 2025, and is the first corridor to be given legal protection under Tanzania's wildlife corridor regulations. In Y2 and Y3, partner organisation STEP led a collaborative assessment of this corridor to understand the extent to which the corridor is being used by elephants, carnivores, and other mammals. Large parts of this corridor had been converted to agriculture by the time it was gazetted, so it is now recovering to a wild state.

As part of this effort, STEP worked with the Udzungwa Ecological Monitoring Centre, village game scouts and local village council members to deploy camera traps at 37 locations along the corridor, which were checked every 2-4 weeks [G01]. Between November 2023 and September

2024, these camera traps detected 26 different species, including side-striped jackal, serval, otters, a leopard (at one of the corridor endpoints), and many elephants [G02]. The cameras were redeployed in Y3, and are forming the basis of a longer-term connectivity monitoring programme which is being expanded to include other taxa.

The Selous-Nyerere – Udzungwa camera trap survey findings have been shared with village leaders, the corridor management committee, Regional and District government, and the Tanzanian Ministry of Natural Resources & Tourism (MNRT). Project partners have committed to continuing camera trapping in this corridor as part of long-term monitoring, as it serves as a key case study in which to study corridor restoration in a tropical agricultural landscape.

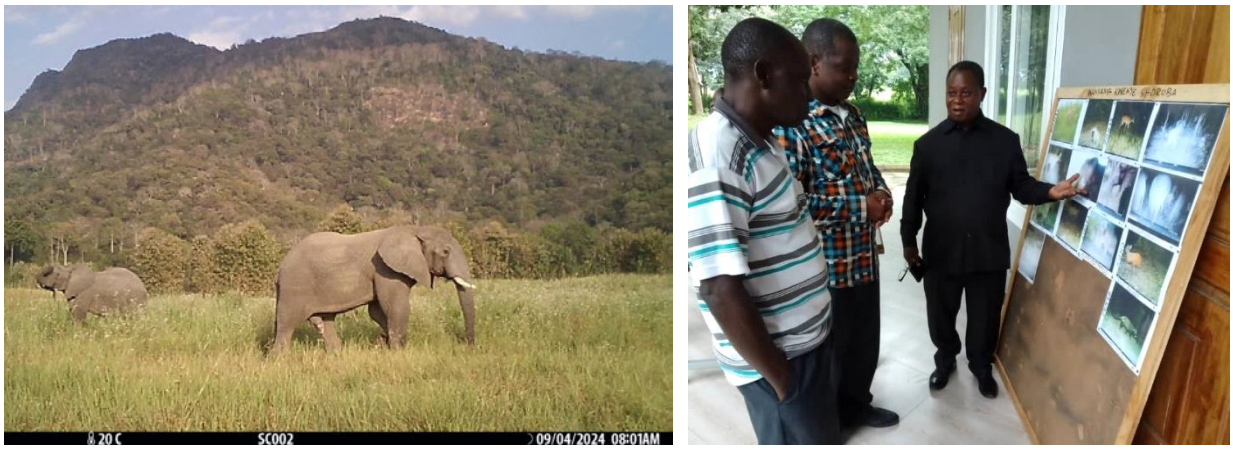

Fig. 6*: Elephants in the Selous-Nyerere – Udzungwa corridor (left); a community information board showing wildlife photographed by the camera traps in the corridor (right).*

In Y3, STEP conducted a survey of the Ruaha-Rungwa – Udzungwa wildlife corridor – which has been ranked Tanzania's highest-priority wildlife corridor in terms of its conservation value (MNRT, 2022) – in collaboration with the Kilolo District Game Officer, Iringa Rural District Game Officer, and a representative from the Iringa Region Natural Resources Office [G03]. The survey covered 29 villages in Kilolo and Iringa Rural districts and aimed to assess current elephant and large carnivore presence and movement routes in the corridor, and identify threats to the corridor. Focus group discussions were held with 196 village residents to learn about elephant and carnivore presence and movements from local knowledge.

Elephants were reported to be present within the last two years (2023-2024) in 28 of the 29 villages surveyed, and recent lion and hyaena presence was reported in several villages along the corridor [G03]. Several threats to the corridor were identified, including rapid conversion of natural habitat to agriculture and development of buildings at key wildlife crossing points over highways and rivers. Through this effort, we have proposed a number of suggested next steps to identify viable connectivity routes, including a detailed land use land cover study, elephant collaring, and camera trapping surveys.

***Fig. 7**: A meeting being held with community members (left) and a team member documenting signs of elephant presence (right) during the Ruaha-Rungwa – Udzungwa corridor assessment.*

<u>Output 5</u>: Improved skills and knowledge among Tanzanian wildlife veterinarians on wildlife capture and immobilisation

In Y3, two vets from South Africa-based Lowveld Wildlife Consulting travelled to Tanzania to deliver a week-long training course on wildlife capture and immobilisation in Tarangire NP, in partnership with LL and TAWIRI [H01-04]. All government wildlife vets and animal health technicians operating in Tanzania were invited to attend this course, and invitations were also extended to wildlife vets working with NGOs and private practices. As a result, the course was attended by 21 government veterinary practitioners from TANAPA (7 vets, 1 technician), TAWA (2 vets, 2 technicians), Ngorongoro Conservation Area Authority (1 vet, 2 technicians), and TAWIRI (4 vets, 2 vet interns), alongside one vet from the Jane Goodall Institute, two private vets operating in MBOMIPA WMA & Dar es Salaam zoo, and one LL research assistant (3 out of 25 = 12% women) [A02, H01].

***Fig. 8**: Participants having a classroom discussion (top left), monitoring a zebra (top right), fitting a GPS collar to a male lion (bottom left), and posing for a group photo with a wildebeest (bottom right).*

The course began with two days of classroom-based theory sessions, during which participants received training on capture methods, basic principles of immobilisation, applied physiology, pharmacology, patient monitoring, and safety & first aid. As one of the trainers is involved in the manufacture of a number of widely-used veterinary drugs, participants were also invited to raise any questions or uncertainties they had about working with these drugs for wildlife immobilisation. The subsequent four days featured sessions on how to immobilise specific species or species groups, followed by practical sessions wherein participants successfully immobilised a zebra, buffalo, lion, wildebeest, elephant, and giraffe.

After the training, participants were able to register their attendance on the course with the Veterinary Council of Tanzania and receive continuing professional development points, in recognition of their efforts to maintain and improve their veterinary knowledge and skills. TAWIRI

and Lowveld Wildlife Consulting are now in talks to organise another training course, highlighting the positive impact of the training felt by participants.

3.2 Outcome

Outcome: Strengthened capacity amongst Tanzanian research institutions and PA management to conserve and manage large carnivore populations in southern Tanzania, alongside improved conservation outlook for two of Africa's most important large carnivore populations through evidence-based management

The project has provided practical and theoretical training to a combined total of 259 Tanzanian participants – 81 of whom were women (31%) – from research institutions (TAWIRI, Dar es Salaam University College of Education, UDSM), PA management authorities (TAWA, TANAPA, NCAA, MBOMIPA WMA), local governments, and conservation organisations (LL, STEP, FZS, Udzungwa Ecological Monitoring Centre, Jane Goodall Institute; see 3.1) [A03].

The analytical training workshops held in Y1 and Y2 for field training participants were rated highly by all participants (mean = 4.5 out of 5 in Y1, 5 out of 5 in Y2; see 3.1 output 1) [B05-06, C05-06]. All participants reported increased confidence in all skills covered by the training, and expressed an interest in furthering this knowledge [B05-06, C05-06]. The TAWIRI workshop was also rated highly by all participants (mean = 4.9 out of 5); on average, participants reported increased confidence in all skills covered by the training, with a mean improvement for each individual in 87% of the skills. Ten participants (53%) reported increased confidence in all of the skills covered (see 3.1 output 1) [D05-07].

For the UDSM course, all participants who completed the post-training questionnaire (n = 72) rated the course highly (mean = 4.8 out of 5); on average, participants reported increased confidence in all skills covered by the training, with a mean improvement for each individual in 87% of the skills. 43 participants (60% of respondents) reported increased confidence in all of the skills covered (see 3.1 output 2) [E04].

Nine scientific papers have been published and another three submitted through this project [L01-09], which is nearly double the original target of five submitted (see 3.1 output 3). Of these nine, three were led by Tanzanian students supported through the project, and five feature a group of co-authors that is more than 50% Tanzanian. A total of 20 Tanzanian ecologists, researchers, and conservationists participated as authors on these papers, nine of whom have contributed to their first ever published or submitted scientific paper thanks to this project.

Using data collected and analysed during training activities, we have identified key threats and priority conservation actions for the Selous-Nyerere and Ruaha-Rungwa landscapes, two large carnivore strongholds in Tanzania. We have shared these insights and recommendations with PA management authorities TAWA & TANAPA and wildlife research institution TAWIRI via reports [J01-13], meetings [I05], and presentations [I03-04, I06] throughout the project's lifetime (see 3.1). In Y3, we worked closely with these authorities to establish long-term carnivore monitoring and conservation programmes in the focal landscapes based on our findings.

We were planning to support the incorporation of our findings into the Selous-Nyerere Ecosystem Monitoring Framework – a formal management planning process being facilitated by partner FZS – in Y3. However, this process was delayed for reasons beyond our control, and is now scheduled to take place in late 2025. As a result, we chose to proceed with supporting TAWA and TANAPA to implement the follow-up carnivore conservation actions recommended based on the project research, and will contribute to the framework development process when it takes place.

For MBOMIPA WMA, the project findings were used by STEP to help secure funding for continued protection activities in the WMA at the end of Y3. We have also contributed to efforts to secure connectivity between these two landscapes by providing much-needed information that will inform corridor management strategies and land-use planning (see 3.1 output 4).

In addition to strengthening carnivore conservation and management capacity in southern Tanzania, this training has brought benefits for wildlife areas across the country. The TAWIRI early-career researchers and UDSM students who received technical training through workshops (see 3.1 outputs 1 & 2) [A02, D01-07, E01-05] are Tanzania's next generation of conservationists, who will go on to work throughout the country. Benefits of the veterinary training (see 3.1 output 5), which was attended by all Tanzanian government wildlife vets, will similarly be felt across the country, with particular benefits for wildlife in the protected areas where participating vets are stationed – which include Gombe, Mkomazi, Nyerere, Ruaha, Serengeti, and Tarangire NPs; Selous and Ikorongo GRs; Ngorongoro Conservation Area; and MBOMIPA WMA [A02, H01-04]. In Y3, we were able to extend the project's impact beyond Tanzania, when one of the early beneficiaries of the training was able to pass on his knowledge by training a team of Kenyan conservationists in carnivore monitoring techniques [A01]. The project has also contributed to efforts to improve the conservation outlook of large carnivores at a national, regional, and continental scale by contributing to action plans and red list updates (see 3.1 output 3).

Fig. 9*: Kenya field team members during the set-up (left) and check (right) of the eastern Laikipia camera trap survey.*

3.3 Monitoring of assumptions

Project assumptions (see Annex 2) were monitored and updated throughout the course of the project. Our efforts to maintain a strong existing relationship with TAWIRI (who are responsible for granting research clearance) and participating organisations through regular meetings, reporting, and provision of training opportunities (see 3.1 and 3.2) allowed us to ensure their support and meet the assumption of receiving necessary permissions for the project activities. We managed the assumption that exchange rates would not undergo extreme fluctuations by closely monitoring exchange rates and spending, and securing matched funding that could be used to accommodate any unexpected price increases (see 12.2).

4 Contribution to Darwin Initiative Programme Objectives

4.1 Project support to the Conventions, Treaties or Agreements

By contributing to evidence-based large carnivore management and embedding monitoring capacity in protected area management authorities, this work is helping to achieve the **NDC** (2021) of promoting sustainable tourism, including by providing robust data on population densities required to inform sustainable trophy hunting quotas [J11, L03]. The project has also contributed significantly to the Strategic Goals outlined in Tanzania's **NBSAP** (2015), which are drawn directly from the CBD's **Aichi Biodiversity Targets** (2010). We have empowered management authorities to manage species requiring special attention for long-term sustainability (Target 12) – which will help improve the status of biodiversity (SG-C) – by continuing to deliver in-depth training in field and analytical methods to monitor and conserve large carnivores to the two main protected area management authorities and the government wildlife research institute (see 3.1 and 3.2) [A01-02]. We have enhanced the implementation of scientific knowledge (SG-E) by working closely with training recipients to discuss and interpret

the findings of our research using the data collected as part of the project [C01-06]. We built upon this in Y3 by continuing to collaboratively write scientific papers and produce actionable management recommendations based on our research findings [L01-09].

The project has also helped to support the delivery of multiple adaptation activities identified in the country's **National Adaptation Plan** (NAP; 2007) by providing valuable information to inform wildlife management policy to ensure conservation of wildlife resources; enhancing capacity building on wildlife management for sustainable development by delivering training to management authorities; supporting the implementation of Community Based Management programmes of wildlife management areas through activities in MBOMIPA WMA [I01-02, J02-04]; and contributing to the development of migratory corridors and buffer zones for wildlife species [G01-03].

The project has contributed much-needed information for **TAWIRI's Priority Areas for Research** (2012) and **COSTECH's Research Priorities** (2016). It has also directly addressed research and capacity gaps identified in TAWIRI's Lion & Leopard (2006) and Cheetah & African Wild Dog (2006) **Conservation Action Plans** – in doing so, the project has contributed to the joint **CITES-CMS African Carnivores Initiative** and the **CITES, CMS & IUCN CSG's African lion programme**. In Y1 and Y2, the Project Leader participated in workshops to review the Tanzania National Action Plan for Lion and Leopard, a workshop to Revise the Eastern Africa Regional Conservation Strategy for Cheetah and African Wild Dogs, and the Global Cheetah Summit in Ethiopia (see 3.1 output 3, and 3.2).

While we have not had any direct contact with the Tanzanian convention focal point – the Vice President's Office Division of Environment – we have had direct contact with the Tanzania Ministry of Natural Resources & Tourism, TAWIRI, and the Commission for Science and Technology (COSTECH), which all feed information into the focal point, by presenting our findings at meetings and providing regular reports [J10].

4.2 Project support to biodiversity conservation & multidimensional poverty reduction

The project has delivered improved capacity for biodiversity conservation by collecting previously lacking information on threatened large carnivore species in southern Tanzania, and supporting wildlife authorities to incorporate this information into evidence-based conservation plans for the target species (see 3.2).

This project has supported human development and wellbeing in the short term by providing training participants with improved skills and knowledge and professional development opportunities that will help them succeed in their careers, pursue further education opportunities, and publish research. We have supported nine people to publish their first scientific paper, three people (1M, 2F) to complete postgraduate degrees and diplomas, and three people (1M, 2F) to continue their postgraduate studies (see 3.1 and 3.2) [L01-06, F01-06]. We have provided training to Tanzanian wildlife vets that has been recognised as accredited continuing professional development by the Tanzanian Veterinary Council (see 3.1 output 5) [H01-04]. Some training participants have already benefitted from promotions and other professional milestones in part due to their involvement in this project (see 4.5).

The project will also support poverty reduction in the longer term: with the tourist industry accounting for over 10% of Tanzania's GDP, delayed or misinformed wildlife management interventions have the potential to significantly impact the country's poverty reduction goals. The results of our research in the community-managed MBOMIPA WMA also have the potential to help attract investors, which should help contribute to long-term poverty reduction for participating communities [I01-02]. The corridor activities will also help support improved land-use planning in these areas, which will bring benefits for both wildlife (through improved connectivity) and communities (through the promotion of alternative livelihoods and reduced human-wildlife conflict) [G01-03].

4.3 Gender Equality and Social Inclusion (GESI)

GESI Scale	Description	
Not yet sensitive	The GESI context may have been considered but the project isn't quite meeting the requirements of a 'sensitive' approach	
Sensitive	The GESI context has been considered and project activities take this into account in their design and implementation. The project addresses basic needs and vulnerabilities of women and marginalised groups and the project will not contribute to or create further inequalities.	
Empowering	The project has all the characteristics of a 'sensitive' approach whilst also increasing equal access to assets, resources and capabilities for women and marginalised groups	X
Transformative	The project has all the characteristics of an 'empowering' approach whilst also addressing unequal power relationships and seeking institutional and societal change	

This project is committed to fostering a more **gender-equal conservation landscape** in Tanzania's future, and half of the research assistants employed in lead organisation LL's Tanzania programme are women. Throughout this project, we have carried this ethos forward and sought to support female candidates whenever possible. The widespread gender inequality within academic and conservation communities in Tanzania resulted in the project having a low representation of women among its training participants in Y1, particularly as the main training participants were ecologists working in the focal protected areas, among which there were no women. We resolved to address this issue in subsequent years by actively seeking out opportunities to deliver training to women.

In Y1, we provided training in camera trapping to two female interns from LL, one female intern from STEP, and one female village game scout from MBOMIPA WMA [A01]. In Y2, the Project Leader participated as a mentor and trainer in the Women in Conservation Technology course organised by WILDLABS, Fauna & Flora, and the Grumeti Fund, through which she taught ten female conservationists how to use camera traps [A01, K09-10] and provided mentorship on broader issues relating to being a woman in conservation. In Y3, project member Ana Grau participated in the Grumeti Fund's Women in the Field course to deliver training in practical field skills to six female conservationists [A01]. Through these efforts, we brought the representation of women in the field training to 22% (34 out of 154) by the end of the project [A01], which we feel represents a major success considering the gender imbalances in the field.

Fig. 10*: Project Leader Charlotte delivering training on camera traps (left) and participants setting up a camera trap (right) as part of the Grumeti Women in Conservation Technology course.*

In terms of analytical training, we specifically encouraged TAWIRI to identify as many female researchers as possible to participate in the analytical workshop in Y2, resulting in 6 out of 19 participants (32%) being women [A02]. We have also continued to support female students via both supervision – 67% of students supported by this project are women (4 out of 6) – and the

UDSM training course in Y3, for which 46% of all participants (39 out of 85) and 51% of participating undergraduates (35 out of 69) were women [A02] (see 3.1 output 2).

This project is also committed to **social inclusion**. All project partners employ staff from a range of backgrounds, and are committed to supporting people from disadvantaged backgrounds to thrive and seek further opportunities. The project was able to support two training participants to secure scholarships for further study who otherwise would not have been able to afford to complete postgraduate degrees [F02, F06]. All field activities, workshops, and training courses were free for participants, with travel, food, and accommodation costs covered by the project, ensuring people could participate regardless of their financial means. By delivering training activities in-country – particularly the veterinary training in Y3, which has previously only been available overseas – we also made it easier for people with caring obligations to participate. We have also offered both field-based and desk-based projects for students, to ensure those with care obligations can still be supported to carry out research and complete their degrees.

Local community groups have historically been marginalised during the gazettement of protected areas and excluded from conservation decision-making, so their close engagement was a key requirement for success for activities in MBOMIPA WMA and both corridor assessments, which took place in village lands. For MBOMIPA, we held meetings with the WMA board to ensure they were comfortable with the planned research and understood its purpose. For the corridor assessments, STEP worked closely and sensitively with communities whose land the corridors pass through by holding village meetings prior to fieldwork to explain the work and address any questions or concerns the community members had. Going forward, we will continue to work closely with these communities to ensure they are not negatively impacted by the conservation recommendations arising from these activities.

4.4 Transfer of knowledge

Transferring knowledge to practitioners and policymakers was a key output of this project (Output 3). Knowledge generated through the project activities and recommended conservation actions based on this knowledge were disseminated to the government research institute – who inform national wildlife policy – and PA management authorities via reports, presentations, and in-person meetings (see 3.1 output 3). Knowledge was also disseminated more widely via participation in national, regional, and continental conservation strategy planning (see 3.1 output 3), and through the publication of open-access scientific papers (see 3.1 output 3, and 3.2).

Tourism operators are also key stakeholders in the study landscapes, and play an important role in generating income that feeds back into biodiversity conservation and poverty reduction. We engaged with these stakeholders by producing educational booklets for tourists and tourism operators in Nyerere NP and Ruaha NP, which present key information on how and why we do research and conservation in a way that is accessible to a non-expert audience [M12-13]. The outputs of project activities have also been shared with a non-scientific audience through social media posts, newsletters, and blogs [M01-11].

4.5 Capacity building

In addition to the various capacity improvements among training participants, a number of staff from in-country partners saw an increase in their professional status thanks to this project:

- Joseph Francis (M) – one of the main project staff members employed by lead organisation LL – was promoted from a Project Assistant role at the start of the project to a leadership position (Research & Data Manager) within LL by the project's end, and has been supported to secure funding to enrol in a Master's programme in 2025. While Joseph started the project as a participant in the training activities, he went on to become a trainer himself, including by leading the UDSM wildlife monitoring course and Kenya camera trap survey training in Y3.
- Nyasatu Mkaka (F) – who completed her International Diploma at the University of Oxford under the supervision of the Project Leader in Y2 [F05] – went on to secure a position with

the Grumeti Research and Innovation for the Serengeti Ecosystem (RISE) programme in 2024.

- Germanus Hape (M) – an Ecologist in Nyerere NP with TANAPA who participated in the field- and desk-based training in Y1, including independently leading a camera trap survey – was promoted in Y3 to become Head Ecologist of Katavi NP in western Tanzania.
- Singira Ngoishiye Parsais (M) – the Head Ecologist of Selous GR with TAWA – participated in the training activities in Y1 and Y2, and was supported by the Project Leader to secure a scholarship to complete his Master's in Y3. In Y3, Singira submitted his thesis [F02], published his first paper as a lead author [L06], and was invited to join the African Wild Dog Working Group.
- Leonard Haule (M) – a TAWIRI researcher who participated in training activities in Y1 and Y2 – was promoted from Research Assistant to Research Officer in Y2, and secured a scholarship to enrol on his PhD studies at Washington State University in Y3 [F06].

5 Monitoring and evaluation

M&E was led by the lead organisation for all activities relating to Outputs 1-3 & 5, and by STEP for all activities relating to Output 4 (corridor assessments), with input from other partners involved in the activities as relevant. M&E information was shared with other partners and stakeholders on an ad hoc basis (i.e. during and after completion of specific activities), and as part of the Darwin annual and half year reporting framework. This system has worked well, particularly with the additional guidance of the Darwin annual report reviews.

While the overarching design of the project remained the same throughout its lifetime, we made a handful of changes during this period. These included replacing the originally planned training for TAWA with a SECR training workshop requested by TAWIRI (Output 1, Activity 1.4), adding the veterinary training (Output 5), and extending the project into a third year to accommodate delays beyond our control to some activities and allow for new activities to be completed.

6 Lessons learnt

Overall, we feel that the project worked well throughout its lifetime: in combination, our capacity-building training reached an cohort of 259 researchers and conservation practitioners, 81 of whom were women (31%; see 3.1 and 3.2) [A03]. We have seen the rewards from this training in the form of participants embarking on and completing their postgraduate studies, achieving professional milestones, and applying their skills to deliver training themselves (see 4.5).

One thing that we think worked particularly well was the combination of both a broader and more targeted approach to training and mentorship. The training we provided to larger cohorts (particularly in field skills) allowed us to maximise the project's reach and build capacity for as many people as possible, while also allowing us to identify participants with particular interest and potential for growth. We were then able to provide closer mentorship to those individuals, including by providing more technical training, supporting them to secure scholarships for postgraduate study, and supervising them through those studies (see 3.1 output 2). This sort of longer-term training and mentorship can be much more impactful than one-off trainings, and we are confident that it will help embed the capacity enhancements achieved through this project within the wildlife authorities these participants will return to after completing their studies.

Similarly, the pathway of training participants going on to deliver training themselves was particularly effective. This was showcased by Project Assistant Joseph Francis, who received training in Y1, went on to independently lead field activities in Y2, and by Y3 was delivering training to colleagues in Kenya. Similarly, LL Research Assistant Isaya Kachira – who received training in Y1 and Y2 – partnered with Joseph and two more LL colleagues to deliver the training course for UDSM students in Y3. Providing opportunities for these team members to lead activities and deliver training served to reinforce what they had learnt, and helped them develop new skills that will serve them well as they progress in their careers.

One aspect that worked less well was the fact we were unable to achieve our plan of feeding into the Selous-Nyerere Ecosystem Monitoring Framework in Y3 due to delays to this process. While these delays were beyond our control, on reflection we were perhaps overambitious in planning to have formal, written strategies in place within government institutions by the end of the project, as these can take a long time to come to fruition and are frequently subject to delays. Nevertheless, our experiences show us that it is possible to achieve change through less formalised but still recognised and agreed plans like those we are now putting into action.

Finally, our experiences throughout this project have highlighted the wider challenge of engaging women in biodiversity conservation in Tanzania, particularly within PA management authorities (see 4.3). If we were to do this project again, we would try to find out from TAWA and TANAPA how many female ecologists they have across the country so we could specifically invite those individuals to training. However, we recognise that this may have been difficult to achieve due to travel distances and work obligations preventing these women from being able to participate in training outside their duty station, so for any future projects of this kind we will strive to think of multiple different approaches that could help us engage more women in training.

7 Actions taken in response to Annual Report reviews

The reviewer of our Y1 Annual Report acknowledged that conservation is a male-dominated field in Tanzania, but recommended that we should strive to recruit more female trainees. We sought to address this issue in Y2 and Y3 by actively seeking out opportunities to deliver training to women, and made particularly positive progress through project team members' participation the Women in Conservation Technology and Women in the Field courses, the analytical workshop at TAWIRI HQ, and the UDSM training course. At the reviewer's suggestion, we also added additional assumptions to the logframe relating to staff leaving and fluctuating exchange rates, which both impacted the project in Y1.

The reviewer also noted that any conservation strategies developed through the project should link in clearly to wider management plans for the protected areas, rather than being standalone documents that can be side-lined or ignored in favour of any formal management plans. We agreed with this, and planned for the outputs of our research to feed into the Ecosystem Management Framework in Selous-Nyerere, which was due to be developed in Y3. Unfortunately, this did not end up being possible during the project's lifetime as the framework's development was delayed for reasons beyond our control, and project members will participate in this process when it takes place in late 2025. The fact that this process will be led by TANAPA and TAWA and facilitated by FZS, all organisations that were closely involved in the Darwin project, should help ensure our results and recommendations are incorporated into the framework. Our activities in Ruaha-Rungwa focused primarily in MBOMIPA WMA, which lacks such a formal planning structure. Nevertheless, STEP have a long-standing role in supporting the MBOMIPA board with management and protection activities, so the research findings are being fed into decision-making through this relationship.

The reviewer of our Y2 Annual Report did not raise any points requiring action, but noted that efforts beyond the project to secure the Selous-Nyerere – Udzungwa and Ruaha-Rungwa – Udzungwa corridors will require very different conservation approaches to those in the protected areas we work in, with more engagement of civil society and a focus on livelihood interventions. This is an important point that we wholly agree with – ongoing efforts to help secure and support these two corridors are being led by partner organisation STEP, who already have extensive experience supporting sustainable livelihoods and working closely and sensitively with communities through their human-elephant conflict mitigation efforts in Ruaha-Rungwa and the Kilombero valley, and their support of MBOMIPA WMA.

8 Risk Management

The suspension of USAID funding at the end of Y3 highlighted the previously unaccounted for risk of existing funding being withdrawn. While none of the matched funding for project activities was affected, these cuts affected a number of core operational activities for the project partners,

and meant that team members' time and attention had to be diverted to finding alternative funding. This had an impact on our ability to deliver the project outputs, as it meant we were unable to finalise the final report on the Ruaha-Rungwa – Udzungwa corridor (see 3.1 output 4).

9 Scalability and Durability

Through this project, we have demonstrated how training can be integrated within research and monitoring activities to build long-term conservation capacity, while also strengthening the outputs of that research by incorporating local knowledge and perspectives. This fundamental concept is readily scalable, as existing research projects do not need to add substantial additional funding to incorporate a training component if they already have funding for research activities. Other components of this project – the analytical workshops, university training course, and veterinary training – could readily be conducted as one-off activities where a need has been identified. The veterinary training in particular is something that could be organised as a standalone activity in different countries or covering different topics, such as disease monitoring & response or wildlife capture & transportation.

The carnivore monitoring and conservation plans developed through this project are currently being put into place as part of a long-term programme that should continue well beyond the project's end, and will involve continued collaboration between partner organisations. Alongside partners from government institutions, the Project Leader, Project Assistant, and other project staff will continue to be involved in these activities. The programme will incorporate lessons learnt about how best to engage local practitioners in the work, and will continue to feature a capacity-building component through field-based and analytical training and supervision of students. All existing and future data will be shared with project partners, and the Project Leader will continue to support ecologists and students to use these data to carry out studies and publish papers.

The capacity built through this project will be maintained within the Tanzanian wildlife and conservation sector as the majority of participants are employed within governmental institutions, and are therefore unlikely to undergo employment or career changes. The fact that these institutions operate at a national level also means that the benefits will be naturally scaled across the country via the lateral transfer of skills within these organisations. As a result, we are confident this project's efforts will continue to lead to wider organisational benefits beyond the individual participants. The project's support of participants from these organisations to pursue further education has also helped solidify the knowledge and skills they have gained, and equipped them to become leaders in Tanzanian biodiversity conservation in the years to come.

The project's impacts are likely to be highly durable thanks to its focus on strengthening future environmental leaders, by delivering training not only to those already working in conservation, wildlife research, and PA management, but also to students (see 3.1 output 2). The success of supporting participants in the training to go on to deliver training themselves – which was part of the exit strategy laid out in our original application – will also help ensure these positive impacts continue to be passed along to the next generation of Tanzanian conservationists.

We have taken additional steps to promote the durability of the project's impact by producing presentations and other training materials that will continue be used after the end of the project. This includes a manual on how to carry out camera trap surveys and SECR analysis to monitor large carnivore populations prepared for the TAWIRI workshop, which has already been shared with conservation practitioners elsewhere in Tanzania and other countries who are hoping to carry out similar research.

10 Darwin Initiative identity

The Darwin Initiative logo is captured on the lead partner's website. We have acknowledged the Darwin Initiative Capability & Capacity fund on all reports [J01-13], presentations [K01-15], and publications [L01-09] relating to the project. LL has also specifically mentioned the Darwin Initiative in multiple online communications, including newsletters to the organisation's supporters [M01-07], blogs [M08-09], and posts on our social media channels [F10].

This Darwin grant forms part of a wider programme of ecological research, monitoring, and capacity-building training led by LL in Tanzania. However, the Darwin Initiative has been one of only three core funders for this work (alongside the Lion Recovery Fund and WWF Germany), and as such has been a core part of the programme's identity.

There is some understanding of the Darwin Initiative within the host country, as there have been 49 projects supported by the Darwin Initiative in Tanzania, including five Capability & Capacity projects (including this project). By mentioning the Darwin Initiative by name and including the logo on our reports and presentations to in-country partners and government stakeholders – including the Tanzania Commission for Science and Technology (COSTECH), TAWIRI, TAWA and TANAPA – we hope to have helped promote the initiative as a meaningful supporter of capacity-building, biodiversity conservation, and poverty reduction in the country.

11 Safeguarding

[redacted]

12 Finance and administration

12.1 Project expenditure

Project spend (indicative) since last Annual Report	2024/25 Grant (£)	2024/25 Total actual Darwin Initiative Costs (£)	Variance %	Comments (please explain significant variances)
Staff costs (see below)	[redacted]			
Consultancy costs				
Overhead Costs				
Travel and subsistence				
Operating Costs				
Capital items (see below)				
Others (see below)				
TOTAL	58,788.00	58,788.66		

Staff, capital items, and other items since our last annual report (01/04/2024 – 31/03/2025):

Staff employed (Name and position)	Cost (£)
Joseph Francis – Darwin Project Assistant (50%)	[redacted]
TOTAL	

Capital items – description	Capital items - cost (£)
None in Y3	-
TOTAL	**-**

Other items – description	Other items - cost (£)
Wildlife collars & subscriptions	[redacted]
Batteries for camera traps	
Wildlife capture and immobilisation training course	
Audit costs	
TOTAL	

12.2 Additional funds or in-kind contributions secured

Project mobilised or matched funding since our last annual report (i.e. during Y3, 1 April 2024 – 31 March 2025):

Matched funding leveraged by the partners to deliver the project in Y3	Total (£)
Lion Landscapes (86%)	[redacted]
WildCRU (11%)	
STEP (2%)	
FZS (1%)	
TOTAL	

Total additional finance mobilised for new activities occurring outside of the project, building on evidence, best practices and the project	Total (£)
Lion Landscapes (collaring, surveys, genetics)	[redacted]
FZS (collaring, focal monitoring, surveys)	
STEP (protection and monitoring in MBOMIPA WMA)	
TOTAL	

12.3 Value for Money

The total budget for this project was [redacted] over three years, [redacted] (30%) of which was from the Darwin Initiative. The remaining [redacted] was secured via matched funding from the lead organisation and project partners. The project has also mobilised an additional [redacted] for activities after its end date that build upon evidence and best practices from the project. This project has therefore represented good value for money for the Darwin Initiative: thanks to these partnerships, the Darwin funding allowed us to achieve a significantly greater range of activities and outputs than would normally be possible through an investment of this size. We also adapted the project's design during its lifetime through the addition of the veterinary training activity (see 3.1), which allowed us to achieve a substantially greater impact for the same amount of money.

Ultimately, support for this work has significantly improved African conservation management and research capacity in one of the continent's most biodiversity-rich countries, while substantially advancing knowledge of critically-important large carnivore populations to better inform their conservation. In doing so, the project will contribute to long-term poverty reduction, by promoting tourism income and livelihoods and helping to maintain ecosystem function.

13 Other comments on progress not covered elsewhere

The design of the project was enhanced over its lifetime by incorporating new activities based on both demand and need. Specifically, we responded to a request from TAWIRI for training on how to monitor carnivores with camera trap surveys in Y2, and organised veterinary training in Y3 in response to a training gap we identified in Y2. By adapting the project design in this way, we were able to ensure that participants had access to capability & capacity development that they actively wanted, which meant they were meaningfully engaged in the training.

14 OPTIONAL: Outstanding achievements of your project (300-400 words maximum). This section may be used for publicity purposes

I agree for the Biodiversity Challenge Funds to edit and use the following for various promotional purposes.

In 2024, Lion Landscapes partnered with Lowveld Wildlife Consulting and the Tanzania Wildlife Research Institute (TAWIRI) to organise a week-long refresher training course for Tanzanian wildlife vets and animal health technicians in Tarangire National Park. The course was attended by 24 veterinary professionals from across Tanzania, including six from TAWIRI; eight from TANAPA, who manage the country's National Parks; three from the NCAA, who manage Ngorongoro Conservation Area; four from TAWA, who manage all other wildlife areas in the country; two private vets; and one vet from the Jane Goodall Institute. The cohort included the three female wildlife vets who operate in the country, who are paving the way for women in this historically male-dominated field. The week featured a combination of theoretical training and practical exercises in the field, providing participants with the opportunity to try out new equipment and drug combinations and exchange ideas about best practices in wildlife immobilisation. As a result of the course's success, it has been accredited by the Tanzanian Veterinary Council as continuing professional development, in recognition of the participants' efforts to deepen their veterinary knowledge and skills.

One of the key staff members of the Darwin project was Joseph Francis Kaduma, who works for lead organisation Lion Landscapes in Tanzania. As Darwin Project Assistant, Joseph progressed from participating in training activities in the first year of the project to leading them by the project's end. From 2024 to 2025, Joseph was instrumental in helping organise a refresher course for the country's wildlife vets, led a training course for 85 students and staff at the University of Dar es Salaam alongside colleagues Wiston, Zainabu, and Isaya, and travelled to Laikipia to deliver training to Kenyan colleagues on how to conduct camera trap surveys. We are confident that Joseph will continue to use the skills he has gained through this project to train and inspire other conservationists in Tanzania and beyond in the years to come.

File Type	File Name	Caption, country and credit	Online accounts to be tagged	Consent of subjects received
Image	1_Vet course_Discussion	Veterinary course participants having a classroom discussion Tanzania Joseph Francis	Lion Landscapes, Lowveld Wildlife Consulting (wildlifevets.com), TAWIRI, TANAPA, TAWA, NCAA	Yes
Image	2_Vet course_Practical	Veterinary course participants monitoring an immobilised zebra Tanzania Joseph Francis	Lion Landscapes, Lowveld Wildlife Consulting (wildlifevets.com), TAWIRI, TANAPA, TAWA, NCAA	Yes

Image	3_Vet course_Female vets	(L-R) Ines, Neema, and Jane, the three female wildlife vets working in Tanzania, at the veterinary refresher course Tanzania Joseph Francis	Lion Landscapes, Lowveld Wildlife Consulting (wildlifevets.com), TAWIRI, TANAPA, TAWA, NCAA	Yes
Image	4_Lioness in Ruaha_Charlotte Searle	Lioness in Ruaha National Park Tanzania Charlotte Searle	Lion Landscapes	N/A
Image	5_Lions in Ruaha_Charlotte Searle	Lions in Ruaha National Park Tanzania Charlotte Searle	Lion Landscapes	N/A
Image	6_Lions in Ruaha_Charlotte Searle	Lions in Ruaha National Park Tanzania Charlotte Searle	Lion Landscapes	N/A
Image	7_Joseph_Camera trap setup	Joseph teaching village game scouts in MBOMIPA Wildlife Management Area how to set up camera traps Tanzania Charlotte Searle	Lion Landscapes, Southern Tanzania Elephant Program	Yes
Image	8_Joseph_Vet course	Joseph with participants in the Tanzanian veterinary refresher course Tanzania No credit	Lion Landscapes, Lowveld Wildlife Consulting (wildlifevets.com), TAWIRI	Yes
Image	9_Joseph_Students at UDSM training	University students learning how to use a camera trap Tanzania Joseph Francis	Lion Landscapes	Yes

Annex 1 Report of progress and achievements against final project indicators of success for the life of the project

Project summary	Progress and achievements
Outcome Strengthened capacity amongst Tanzanian research institutions and PA management to conserve and manage large carnivore populations in southern Tanzania, alongside improved conservation outlook for two of Africa's most important large carnivore populations through evidence-based management	
Indicator 0.1 Five scientific papers on large carnivore assessment and monitoring with Tanzanian authors submitted for publication through this project by the end of Year 3	Six papers were published [L01-06] and three submitted [L07-09] during the project lifespan: – Three of the nine submitted papers have a Tanzanian first author – Five out of nine were written by a group of co-authors that is more than 50% Tanzanian – 20 Tanzanians have participated as authors on these papers (see sections 3.1 and 3.2 and Annex 3, Table 2)
Indicator 0.2 Training participants (two TAWIRI researchers, ten TAWA/TANAPA Ecologists & Game Scouts/Rangers, and five LL/STEP research assistants) show increased confidence on average within each skills category in which they have received training (survey design, field skills, analytical skills, IT software & tools), compared to their confidence before the training	Y1 Analytical training workshop [A02]: 100% of participants (n = 6) rated the workshop highly (mean = 4.5 out of 5), and all participants reported increased confidence in the skills covered by the training [B05-06]. Y2 Lion & leopard density analysis & interpretation workshop [A02]: 100% of participants (n = 9) rated the workshop highly (mean = 5 out of 5), and all participants reported increased confidence in each of the skills covered by the training [C05-06]. Y2 TAWIRI large carnivore density estimation workshop [A02]: 100% of participants (n = 19) rated the workshop highly (mean = 4.9 out of 5). On average, participants reported increased confidence in all skills covered by the training, with a mean improvement for each individual in 87% of the skills. Ten participants (53%) reported increased confidence in all of the skills covered [D05-07]. (see sections 3.1 and 3.2)
Indicator 0.3 All UDSM Zoology students (BSc and MSc) and staff attending the UDSM training course show increased confidence on average within each skills category compared to their confidence before the course	Y3 UDSM wildlife monitoring training [A02]: 100% of participants who completed the post-training questionnaire (n = 72) rated the training highly (mean = 4.8 out of 5). On average, these respondents reported increased confidence in all skills covered by the training, with a mean improvement for each individual in 87% of the skills. 43 participants (60% of respondents) reported increased confidence in all of the skills covered [E04]. (see sections 3.1 and 3.2)
Indicator 0.4 Research findings incorporated into PA management strategies by TAWA and TANAPA in relevant PAs in Selous-Nyerere and Ruaha-Rungwa by the end of Year 3	In Y3, project team members have worked with TAWA and TANAPA to establish long-term carnivore monitoring and conservation programmes in the focal landscapes based on the project findings [I05-06], and are currently fundraising to continue these activities [I07]. Although had been planning to support the incorporation of our findings into the Selous-Nyerere Ecosystem Monitoring Framework, this process was delayed for reasons beyond our control. As a result, we chose to proceed with supporting TAWA and TANAPA to implement the follow-up carnivore conservation actions recommended based on the project research, and will contribute to the framework development process when it takes place in late 2025.

	(see sections 3.1 and 3.2)
Output 1 Improved skills and knowledge among Tanzanian PA management authorities, research institutions, and NGOs to assess and monitor large carnivore populations, including through the ability to carry out wildlife corridor assessments	
Indicator 1.1 Two TAWIRI researchers, ten TAWA/TANAPA Ecologists & Game Scouts/Rangers, and five LL/STEP research assistants (at least 30% women, or all women eligible for training if they make up less than 30% of the cohort) receive in-depth training in field methods for large carnivore population assessment & monitoring and wildlife corridor assessments	Training in field methods (camera trapping, GPS collaring, acoustic surveys, corridor assessments) [A01] was delivered across Y1, Y2, and Y3 to a total of 154 participants. This included 145 Tanzanian conservationists and researchers: – 10 TAWIRI researchers, field assistants, and vets – 47 TANAPA ecologists, rangers, vets, and animal health technicians – 15 TAWA ecologists, rangers, vets, and animal health technicians – 18 LL/STEP research assistants – 6 research assistants from other NGOs and research organisations (FZS, UEMC, Jane Goodall Institute) – 1 DUCE MSc student – 3 NCAA vets and animal health technicians – 21 village game scouts – 6 local government representatives – 2 private vets – 10 participants in the Women in Conservation Technology course – 6 participants in the Women in the Field course Training was also delivered to 9 Kenyan conservationists in Y3. Due to the underrepresentation of women in the groups eligible for training, overall female representation was 22% (34 out of 154). This included all women eligible for training, and was boosted by intentional efforts to train additional women via the WiCT and WiF courses. (see sections 3.1 and 3.2)
Indicator 1.2 Two TAWIRI researchers, ten TAWA/TANAPA Ecologists, and five LL/STEP research assistants (at least 30% women, or all women eligible for training if they make up less than 30% of the cohort) attend a week-long training workshop on how to analyse the data collected and use findings to identify threats and inform population management (one workshop each year, in both Year 1 and 2)	Analytical training workshops in Y1 and Y2 [A02] were attended by: – 2 TAWIRI researchers – 10 TAWA/TANAPA ecologists – 2 FZS staff – 1 LL research assistant The training participants included only 2 women (out of 15, 13%), but this was because all male attendees were ecologists and researchers who had been assigned for the field skills training from 2020 to 2022 [A01, B01, C01]. (see sections 3.1 and 3.2)

Indicator 1.3 Senior TAWA & TANAPA PA Managers in Ruaha-Rungwa and Selous-Nyerere are made aware of how findings can be used to inform PA management strategies, by attending a day-long meeting at TAWA & TANAPA HQs in Year 3	In Y3, a day-long meeting was held with Selous GR (TAWA) and Nyerere NP (TANAPA) managers and a series of three meetings were held with Ruaha NP ecological team (TANAPA) to discuss and agree long-term carnivore monitoring strategies in the two focal landscapes [I05-06]. Meetings were held at the site level rather than at the national headquarters of each PA authority as we anticipated that this should be more impactful for management decisions and, in the case of Selous-Nyerere, would foster a more collaborative approach between the two organisations. (see section 3.1)
Indicator 1.4 At least six TAWIRI researchers (at least 30% women, or all women eligible for training if they make up less than 30% of the cohort) attend a week-long workshop on survey design, data processing, and analysis for carnivore population density monitoring through spatially explicit capture-recapture (SECR) analysis	The TAWIRI training workshop in Y2 was attended by 18 TAWIRI researchers and 1 LL research assistant (F = 6 out of 19, 32%) [A02, D01-07]. (see sections 3.1 and 3.2)
Output 2 Improved skills and knowledge among young Tanzanian academic researchers on how to study, monitor, and secure large carnivore populations in Tanzania	
Indicator 2.1 Four Tanzanian Master's students and one PhD student (at least 50% women) begin research projects with a focus on large carnivore research, monitoring, and conservation (two Master's students register in Year 1; two Master's students and one PhD student register in Year 2)	1 Postgraduate Diploma student, 4 MSc students, and 1 PhD student began, continued, or completed their research projects with a focus on carnivores during the project lifespan (F = 4 out of 6, 67%) [F01-06]. - (1F) Postgraduate Diploma in International Wildlife Conservation Practice – WildCRU, University of Oxford, UK - (1F) MSc in Wildlife Ecology – University of Dar es Salaam (UDSM), Tanzania - (1M) MSc in Biodiversity and Ecosystem Management – Nelson Mandela African Institution of Science and Technology (NM-AIST), Tanzania - (2F) MSc in Environmental Biology – Dar es Salaam University College of Education (DUCE), Tanzania - (1M) PhD - Mammal Spatial Ecology and Conservation Lab, Washington State University, USA (see section 3.1)
Indicator 2.2 50+ BSc and Masters students (at least 50% women), and 5+ faculty staff (at least 50% women) receive training in wildlife monitoring techniques by attending a week-long training course at UDSM in Year 3	A wildlife monitoring training course was delivered in Y3 to 76 BSc and Master's students (F = 37, 49%) and 9 faculty staff (F = 2, 22%) at UDSM [A02. E01-05]. (see sections 3.1 and 3.2)
Output 3 Improved knowledge on the status of, and threats to, large carnivore populations in two globally-important conservation areas is available to the scientific/conservation community and is employed to improve their management	
Indicator 3.1 Summary report on findings of field project in Ruaha-Rungwa and Selous-Nyerere drafted and shared with relevant PA management authorities by the end of Year 3	Reports of findings and conservation recommendations from previous research and project activities were shared with TANAPA in Ruaha-Rungwa in Y1 [J01], and with TANAPA and TAWA in Selous-Nyerere in Y1-Y3 [J05-08].
Indicator 3.2 Meetings held with senior management of Nyerere NP, Selous GR, Ruaha NP, and MBOMIPA WMA to collaboratively draft large carnivore conservation strategies based on the above findings by the end of Year 3	In Y3, meetings were held with senior Selous GR (TAWA) and Nyerere NP (TANAPA) staff and the Ruaha NP ecological team (TANAPA) to discuss and agree long-term carnivore monitoring strategies in the two focal landscapes, based on the recommendations for evidence-based conservation from previous research and project activities [I05-06].

	Collaborative large carnivore monitoring and conservation programmes are now being established in both landscapes, and include regular population monitoring via camera trap surveys and GPS collaring of lions and wild dogs to monitor movements and reduce the risk of human-wildlife conflict [I07]. (see sections 3.1 and 3.2)
Indicator 3.3 Findings shared with the wider public through the submission of at least five scientific papers, to be led or co-led by Tanzanian training participants from TAWIRI, TANAPA, TAWA, Universities, LL and STEP, in open access journals by the end of Year 3	Six papers were published [L01-06] and three papers are under review [L07-09] with open access journals, led or co-led by Tanzanian training participants. (see sections 3.1 and 3.2 and Annex 3, Table 2)
Output 4 Improved knowledge by all relevant stakeholders of the status, threats to, and functional connectivity of corridors linking these landscapes (Ruaha-Rungwa – Udzungwa & Nyerere-Selous – Udzungwa)	
Indicator 4.1 Collaborative corridor assessments and preliminary data analyses are carried out in both corridors of interest	An assessment was completed and long-term monitoring established in the Nyerere-Selous – Udzungwa corridor in Y2 and Y3, via deployment of camera traps at 37 sites [G01-02]. An assessment of the Ruaha – Udzungwa corridor was completed in Y3 via focus group discussions and opportunistic wildlife data collection in 29 villages [G03]. (see section 3.1)
Indicator 4.2 Findings are shared with relevant stakeholders by the end of the project, through the production of a final report by the end of Year 3	The production of a final report was delayed due to the impact of USAID cuts on operations, but is currently being prepared. However, key findings and recommendations have already been shared with stakeholders via a preliminary report, presentations and meetings [G01-03]. (see section 3.1)
Output 5 Improved skills and knowledge among Tanzanian wildlife veterinarians on wildlife capture and immobilisation	
Indicator 5.1 Wildlife capture and immobilisation training course organised for at least ten participants, including TAWIRI, TANAPA and TAWA vets and LL research assistants	The wildlife capture and immobilisation training course in Tarangire NP was attended by 25 participants [A02, H01-04]: – LL: 1 research assistant – TANAPA: 7 vets, 1 animal health technician – TAWA: 2 vets, 2 animal health technicians – NCAA: 1 vet, 2 animal health technicians – TAWIRI: 4 vets, 2 vet interns – Jane Goodall Institute: 1 vet – Private vets: 1 operating in MBOMIPA WMA, 1 operating at Dar Animal Clinic (see section 3.1)
Indicator 5.2 Training participants successfully complete the training course and pass the end of course assessment	All participants in the veterinary training successfully completed the course [H04]. Shortly after the course's completion, a meeting was held between the trainers and TAWIRI and a commitment was made to conduct the course on an annual basis. (see section 3.1)

Annex 2 Project's full current indicators of success as presented in the application form (unless changes have been agreed)

Project summary	SMART Indicators	Means of verification
Outcome Strengthened capacity amongst Tanzanian research institutions and PA management to conserve and manage large carnivore populations in southern Tanzania, alongside improved conservation outlook for two of Africa's most important large carnivore populations through evidence-based management	**0.1** Five scientific papers on large carnivore assessment and monitoring with Tanzanian authors submitted for publication through this project by the end of Year 3	Journal confirmation emails
	0.2 Training participants (two TAWIRI researchers, ten TAWA/TANAPA Ecologists & Game Scouts/Rangers, and five LL/STEP research assistants) show increased confidence on average within each skills category in which they have received training (survey design, field skills, analytical skills, IT software & tools), compared to their confidence before the training	Self-evaluation surveys completed by participants before and after training activities
	0.3 All UDSM Zoology students (BSc and MSc) and staff attending the UDSM training course show increased confidence on average within each skills category compared to their confidence before the course	Self-evaluation surveys completed by UDSM students and staff before and after week-long training course
	0.4 Research findings incorporated into PA management strategies by TAWA and TANAPA in relevant PAs in Selous-Nyerere and Ruaha-Rungwa by the end of Year 3	Large carnivore population management strategies to be shared
Output 1 Improved skills and knowledge among Tanzanian PA management authorities, research institutions, and NGOs to assess and monitor large carnivore populations, including through the ability to carry out wildlife corridor assessments	**1.1** Two TAWIRI researchers, ten TAWA/TANAPA Ecologists & Game Scouts/Rangers, and five LL/STEP research assistants (at least 30% women, or all women eligible for training if they make up less than 30% of the cohort) receive in-depth training in field methods for large carnivore population assessment & monitoring and wildlife corridor assessments	Fieldwork activity logs; co-authorship of field team participants on subsequent reports and scientific publications
	1.2 Two TAWIRI researchers, ten TAWA/TANAPA Ecologists, and five LL/STEP research assistants (at least 30% women, or all women eligible for training if they make up less than 30% of the cohort) attend a week-long training workshop on how to analyse the data collected and use findings to identify threats and inform population management (one workshop each year, in both Year 1 and 2)	Training course attendance certificates
	1.3 Senior TAWA & TANAPA PA Managers in Ruaha-Rungwa and Selous-Nyerere are made aware of how findings can be used to inform PA management strategies, by attending a day-long meeting at TAWA & TANAPA HQs in Year 3	Meeting minutes, signed by all participants
	1.4 At least six TAWIRI researchers (at least 30% women, or all women eligible for training if they make up less than 30% of the cohort) attend a week-long workshop on survey design, data processing, and analysis for carnivore population density monitoring through spatially explicit capture-recapture (SECR) analysis	Signed list of attendees and training course attendance certificates

Output 2 Improved skills and knowledge among young Tanzanian academic researchers on how to study, monitor, and secure large carnivore populations in Tanzania	**2.1** Four Tanzanian Master's students and one PhD student (at least 50% women) begin research projects with a focus on large carnivore research, monitoring, and conservation (two Master's students register in Year 1; two Master's students and one PhD student register in Year 2)	University registration certificate & research project plan co-signed by student, Project Leader, and University supervisor
	2.2 50+ BSc and Masters students (at least 50% women), and 5+ faculty staff (at least 50% women) receive training in wildlife monitoring techniques by attending a week-long training course at UDSM in Year 3	Signed list of attendees
Output 3 Improved knowledge on the status of, and threats to, large carnivore populations in two globally-important conservation areas is available to the scientific/conservation community and is employed to improve their management	**3.1** Summary report on findings of field project in Ruaha-Rungwa and Selous-Nyerere drafted and shared with relevant PA management authorities by the end of Year 3	Findings report
	3.2 Meetings held with senior management of Nyerere NP, Selous GR, Ruaha NP, and MBOMIPA WMA to collaboratively draft large carnivore conservation strategies based on the above findings by the end of Year 3	Meeting minutes, signed by all participants
	3.3 Findings shared with the wider public through the submission of at least five scientific papers, to be led or co-led by Tanzanian training participants from TAWIRI, TANAPA, TAWA, Universities, LL and STEP, in open access journals by the end of Year 3	Journal confirmation emails
Output 4 Improved knowledge by all relevant stakeholders of the status, threats to, and functional connectivity of corridors linking these landscapes (Ruaha-Rungwa – Udzungwa & Nyerere-Selous – Udzungwa)	**4.1** Collaborative corridor assessments and preliminary data analyses are carried out in both corridors of interest	Preliminary field report, signed by all participants, for both corridor surveys
	4.2 Findings are shared with relevant stakeholders by the end of the project, through the production of a final report by the end of Year 3	Final report
Output 5 Improved skills and knowledge among Tanzanian wildlife veterinarians on wildlife capture and immobilisation	**4.3** Wildlife capture and immobilisation training course organised for at least ten participants, including TAWIRI, TANAPA and TAWA vets and LL research assistants	Training course attendance certificates
	4.4 Training participants successfully complete the training course and pass the end of course assessment	Report from training providers confirming participants' assessment results
Activities (each activity is numbered according to the output that it will contribute towards, for example 1.1, 1.2 and 1.3 are contributing to Output 1) **1.1** Establishment of one large carnivore research & monitoring team in MBOMIPA WMA and Ruaha NP in Ruaha-Rungwa, and one in Selous GR and Nyerere NP in Selous-Nyerere, to carry out large carnivore research and monitoring for the duration of the project. Tanzanian TAWIRI, TAWA, TANAPA, and LL staff will lead the data collection for both, under the supervision of the Project Leader. Data will be collected, and training will be provided, in survey & monitoring programme design, camera trapping, sign-based surveys, demographic surveys, threats identification, and prey population assessments **1.2** Analytical training workshops held to train participants in 1.1 on how to employ the data collected to monitor populations, identify threats, and strengthen management		

1.3 A series of meetings are held by the Project Leader, TAWIRI researchers, TAWA & TANAPA Ecologists with TAWA/TANAPA PA Managers at each PA in the study sites, and large carnivore monitoring strategies for each are collaboratively developed

1.4 Week-long intensive training course in survey design, data processing, and analysis for carnivore population density monitoring through spatially explicit capture-recapture (SECR) analysis is led by the Project Leader for TAWIRI researchers

1.5 Write-up of key findings in the form of findings reports & up to five scientific publications, to be collaboratively led by the Project Leader and TAWIRI, TANAPA, and TAWA staff

2.1 Data collected by the field teams is made available to four Master students and one PhD student from the UDSM over the course of the project's lifetime, under the co-supervision of the Project Leader. Students will also be invited to join the field research & monitoring teams to collect their own supplemental data

2.2 Week-long course on the fundamentals of wildlife monitoring is held by the Project Leader at the UDSM for BSc and MSc Masters and faculty staff

2.3 same as 1.1

3.1 same as 1.5

3.2 same as 1.3

4.1 Collaborative functional connectivity assessment survey and training in the Ruaha-Rungwa – Udzungwa wildlife corridor, to be carried out by LL, STEP, TANAPA, and TAWIRI, using a combination of sign-based, questionnaire, and camera trapping methods, followed by analysis of data and collaborative write-up of preliminary & final findings report

4.2 Collaborative functional connectivity assessment survey and training in the Selous-Nyerere – Udzungwa wildlife corridor, to be carried out by LL, STEP, TANAPA, and TAWIRI, using a combination of sign-based, questionnaire, and camera trapping methods, followed by analysis of data and collaborative write-up of preliminary & final findings report

5.1 Wildlife capture and immobilisation training course is organised for TAWIRI, TANAPA and TAWA vets and LL research assistants

Important Assumptions

- ***Whole project****: Necessary research clearance will be granted for the project activities*
- ***Whole project****: None of the participating organisations withdraw their support*
- ***Whole project****: None of the key project team members leave their positions*
- ***Whole project****: Exchange rates (GBP-USD and GBP-TZS) do not undergo extreme fluctuations*
- ***Output 4****: Partner organisations will have sufficient staff available to carry out Ruaha-Udzungwa corridor assessment. If this is not possible, we will design the assessment and seek Tanzanian partners to lead the data collection after receiving training.*
- ***Output 5****: Necessary permissions are granted for South African trainers to deliver wildlife capture and immobilisation training course in Tanzania*

Annex 3 Standard Indicators

Table 1 Project Standard Indicators

DI Indicator number (*core)	Name of indicator	Units	Disaggregation	Year 1 Total	Year 2 Total	Year 3 Total	Total achieved	Total planned
DI-A01*	Number of people from key national and local stakeholders completing structured and relevant training	People	Men	39 field skills 6 analytical	32 field skills 19 analytical	57 field skills 68 analytical /technical	128 field skills 93 analytical /technical	17 field skills 23 analytical (at least 30% F or all women eligible for training)
DI-A01*	Number of people from key national and local stakeholders completing structured and relevant training	People	Women	4 field skills	11 field skills 8 analytical	14 field skills 42 analytical /technical	29 field skills 50 analytical /technical	
DI-A02*	Number of students undertaking research in collaboration with project	People	Men	1 M MSc 1 M PhD			1 M MSc 1 M PhD	5 MSc/Diploma 1 PhD (at least 50% F)
DI-A02*	Number of students undertaking research in collaboration with project	People	Women	1 F MSc	1 F MSc 1 F Diploma	1 F MSc	3 F MSc 1 F Diploma	
DI-A03*	Number of local/national organisations with improved capability and capacity as a result of project	Number	Organisation type	6 MBOMIPA TAWIRI TAWA TANAPA LL STEP	3 new FZS UEMC Village committee	2 new NCAA Jane Goodall Institute	11	3
DI-A01* DI-A03*	Proportion of training participants reporting improved capacity after training	People	Men	100% (6 of 6)	100% (20 of 20)	93% (38 of 41)	96% (64 of 67)	100%
DI-A01* DI-A03*	Proportion of training participants reporting improved capacity after training	People	Women	NA	100% (6 of 6)	97% (30 of 31)	97% (36 of 37)	
DI-A07	Number of government institutions/departments with enhanced awareness and understanding of biodiversity and associated poverty issues	Govt. institutions	Organisation type	3 TAWIRI TANAPA TAWA	(Continued)	(Continued)	3	3
DI-B01*	Number of corridor assessments completed	Number	-	NA	1	1	2	2

DI Indicator number (*core)	Name of indicator	Units	Disaggregation	Year 1 Total	Year 2 Total	Year 3 Total	Total achieved	Total planned
					Nyerere-Udzungwa	Ruaha-Udzungwa		
DI-C06	Number of downloads of new peer reviewed publications.	Number	-	0	1,654	8,394	8,394 (see Table 2 below)	NA
DI-C17	Number of unique papers submitted to peer reviewed journals	Number	-	1	2	6	9 (see Table 2 below)	5
DI-C18	Number of papers published in peer reviewed journals	Number	-	0	2	4	6 (see Table 2 below)	NA

Table 2 Publications

Title	Type (e.g. journals, manual, CDs)	Detail (authors, year)	Gender of Lead Author	Nationality of Lead Author	Publishers (name, city)	Available from (e.g. weblink or publisher if not available online)
Catching up with Lion Landscapes – January 2023	Newsletter	Lion Landscapes (2023)	NA	NA	Lion Landscapes	https://mailchi.mp/lionlandscapes/catching-up-with-lions-landscapes
Catching up with Lion Landscapes – July 2023	Newsletter	Lion Landscapes (2023)	NA	NA	Lion Landscapes	https://mailchi.mp/lionlandscapes/newsletter-july-2023
Catching up with Lion Landscapes – January 2024	Newsletter	Lion Landscapes (2024)	NA	NA	Lion Landscapes	https://mailchi.mp/lionlandscapes.org/catching-up-with-lion-landscapes-12674571
Catching up with Lion Landscapes – April 2024	Newsletter	Lion Landscapes (2024)	NA	NA	Lion Landscapes	https://www.lionlandscapes.org/so/abOxDQoVT?languageTag=en

Title	Type (e.g. journals, manual, CDs)	Detail (authors, year)	Gender of Lead Author	Nationality of Lead Author	Publishers (name, city)	Available from (e.g. weblink or publisher if not available online)
Catching up with Lion Landscapes – July 2024	Newsletter	Lion Landscapes (2024)	NA	NA	Lion Landscapes	https://www.lionlandscapes.org/so/79P2XvRru?languageTag=en
Catching up with Lion Landscapes – October 2024	Newsletter	Lion Landscapes (2024)	NA	NA	Lion Landscapes	https://www.lionlandscapes.org/so/03PAFR09V?languageTag=en
The first large-scale acoustic survey for lions	Blog	Jonathan Growcott (2023)	M	British	Lion Landscapes	https://www.lionlandscapes.org/post/the-first-large-scale-acoustic-survey-for-lions
Studying and conserving one of Africa's largest remaining populations of wild dogs	Blog	Lion Landscapes (2025)	NA	NA	Lion Landscapes	https://www.lionlandscapes.org/post/studying-wild-dogs
Spotted hyaena population density across habitat and land use types in southern Tanzania	Peer-reviewed paper	Charlotte E. Searle, Paolo Strampelli, Josephine B. Smit, Lameck Mkuburo, Fiona Mathews, Halima Kiwango, David W. Macdonald, Andrew J. Loveridge, Amy J. Dickman (2023)	F (5 of 9 authors F; 56%)	British (2 of 9 authors Tanzanian; 22%)	Journal of Zoology	https://doi.org/10.1111/jzo.13119 Full-text views: 2,258
Cheetahs in Tanzania's Selous-Nyerere ecosystem: Lack of evidence for current persistence, and reflections on historical status	Peer-reviewed paper	Charlotte E. Searle, Paolo Strampelli, Leonard Haule, Singira N. Parsais, Kandey Olesyapa, Nasri Dadi Salum, Dennis Ikanda, Samuel Mtoka, Germanus Hape, Daniel Mathayo, Manase Elisa, Alex L. Lobora, Amy J. Dickman (2023)	F (2 of 13 authors F; 15%)	British (10 of 13 authors Tanzanian; 77%)	Oryx	https://doi.org/10.1017/S0030605323001424 Full-text views: 1,145

Title	Type (e.g. journals, manual, CDs)	Detail (authors, year)	Gender of Lead Author	Nationality of Lead Author	Publishers (name, city)	Available from (e.g. weblink or publisher if not available online)
New record of strawberry leopard (*Panthera pardus*) in Selous Game Reserve, Tanzania	Peer-reviewed paper	Charlotte E. Searle, Paolo Strampelli, Singira N. Parsais, Leonard J. Haule, Kandey K. Olesyapa, Nasri D. Salum, Germanus Hape, Manase Elisa, Daniel Mathayo, Joseph Kaduma, Neema Malulu, Nyasatu Mkaka, Justine Robert, Dennis Ikanda, Samuel Mtoka, Kathryn Doody, Alex L. Lobora, Amy J. Dickman (2024)	F (5 of 18 authors F; 28%)	British (14 of 18 authors Tanzanian; 78%)	Ecology and Evolution	https://doi.org/10.1002/ece3.11542 Full-text views: 1,448
The secret acoustic world of leopards: A paired camera trap and bioacoustics survey facilitates the individual identification of leopards via their roars	Peer-reviewed paper	Jonathan Growcott, Alex Lobora, Andrew Markham, Charlotte E. Searle, Johan Wahlström, Matthew Wijers, Benno I. Simmons (2024)	M (1 of 6 authors F; 17%)	British (1 of 6 authors Tanzanian; 17%)	Remote Sensing in Ecology and Conservation	https://doi.org/10.1002/rse2.429 Full-text views: 2,850
Spatially explicit camera trap-based lion monitoring in Tanzania's Selous-Nyerere landscape	Peer-reviewed paper	Charlotte E. Searle, Paolo Strampelli, Singira N. Parsais, Leonard Haule, Kandey Olesyapa, Nasri. D. Salum, Germanus Hape, Manase Elisa, Daniel Mathayo, Dennis Ikanda, Samuel Mtoka, Alex L. Lobora, Alayne Oriol-Cotterill, Amy J. Dickman (2025)	F (3 of 14 authors F; 21%)	British (10 of 14 authors Tanzanian; 71%)	Journal of Zoology	https://doi.org/10.1111/jzo.70019 Full-text views: 693
African wild dog population status in the Selous-	Peer-reviewed paper	Singira N. Parsais, Charlotte E. Searle, Paolo Strampelli, Francis Moyo, Richard A.	M	Tanzanian (9 of 14 authors	Global Ecology and Conservation	https://doi.org/10.1016/j.gecco.2025.e03621 Full-text views: Unknown

Title	Type (e.g. journals, manual, CDs)	Detail (authors, year)	Gender of Lead Author	Nationality of Lead Author	Publishers (name, city)	Available from (e.g. weblink or publisher if not available online)
Nyerere landscape, southern Tanzania: Insights from camera trap surveys		Giliba, Leonard Haule, Kandey K. Olesyapa, Nasri D. Salum, Germanus Hape, Manase Elisa, Alex L. Lobora, Alayne Cotterill, Kathryn Doody, Amy J. Dickman (2025)	(4 of 14 authors F; 29%)	Tanzanian; 64%)		
Population status of leopard in one of Africa's largest wilderness areas and the challenge of monitoring at scale	Peer-reviewed paper	Charlotte E. Searle, Paolo Strampelli, Singira N. Parsais, Leonard Haule, Kandey Olesyapa, Nasri D. Salum, Samuel Mtoka, Germanus Hape, Daniel Mathayo, Manase Elisa, Alex L. Lobora, Amy J. Dickman (Submitted 2025)	F (2 of 12 authors F; 17%)	British (9 of 12 authors Tanzanian; 75%)	Ecological Solutions and Evidence	*MINOR REVISION*
Local communities' attitude, knowledge, and perceptions toward African wild dogs in Selous Game Reserve, Tanzania	Peer-reviewed paper	Singira N. Parsais, Francis Moyo, Richard A. Giliba, Charlotte E. Searle, Ana Grau, BenJee Cascio, Amy J. Dickman (Submitted 2025)	M (3 of 7 authors F; 43%)	Tanzanian (3 of 7 authors Tanzanian; 43%)	Human Dimensions of Wildlife	*UNDER REVIEW*
Evaluating the use of citizen science to assess the population density of the African lion (*Panthera leo*) in Ruaha National Park, Tanzania	Peer-reviewed paper	Janeth Baraka Mngulwi, Jestina Katandukila, Ana Grau, Paolo Strampelli, Josephine B. Smit, Alex L. Lobora, Alayne Oriol-Cotterill, Amy J. Dickman, Charlotte E. Searle (Submitted 2025)	F (7 of 9 authors F; 78%)	Tanzanian (3 of 9 authors Tanzanian; 33%)	Tropical Zoology	*UNDER REVIEW*