

Darwin Initiative Main: Annual Report

To be completed with reference to the “Project Reporting Information Note”:
(<https://www.darwininitiative.org.uk/resources-for-projects/information-notes-learning-notes-briefing-papers-and-reviews/>).

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

Submission Deadline: 30th April 2023

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

11. Darwin Initiative Project Information

Project reference	28-013
Project title	African Wild Dogs and African People - Conservation through Coexistence
Country/ies	Kenya
Lead Partner	Mpala Research Centre
Project partner(s)	Laikipia County Government, Northern Rangeland Trust, Samburu County Government, Isiolo County Government, Kenya Wildlife Service, Community Conservancies, Ewaso Lions, Action For Cheetahs, Community Outreach Arts.
Darwin Initiative grant value	£393,674
Start/end dates of the project	April 2022- March 2025
Reporting period (e.g. Apr 2022 – Mar 2023) and number (e.g. Annual Report 1, 2, 3)	Apr 2022 – Mar 2023 Annual Report 1
Project Leader name	Dedan Ngatia
Project website/blog/social media	Website: www.mpala.org/ Facebook: https://www.facebook.com/MpalaResearchCentre Twitter: @MpalaWildDogs Instagram: Mpala_WildDogs
Report author(s) and date	Dedan Ngatia, April 2023

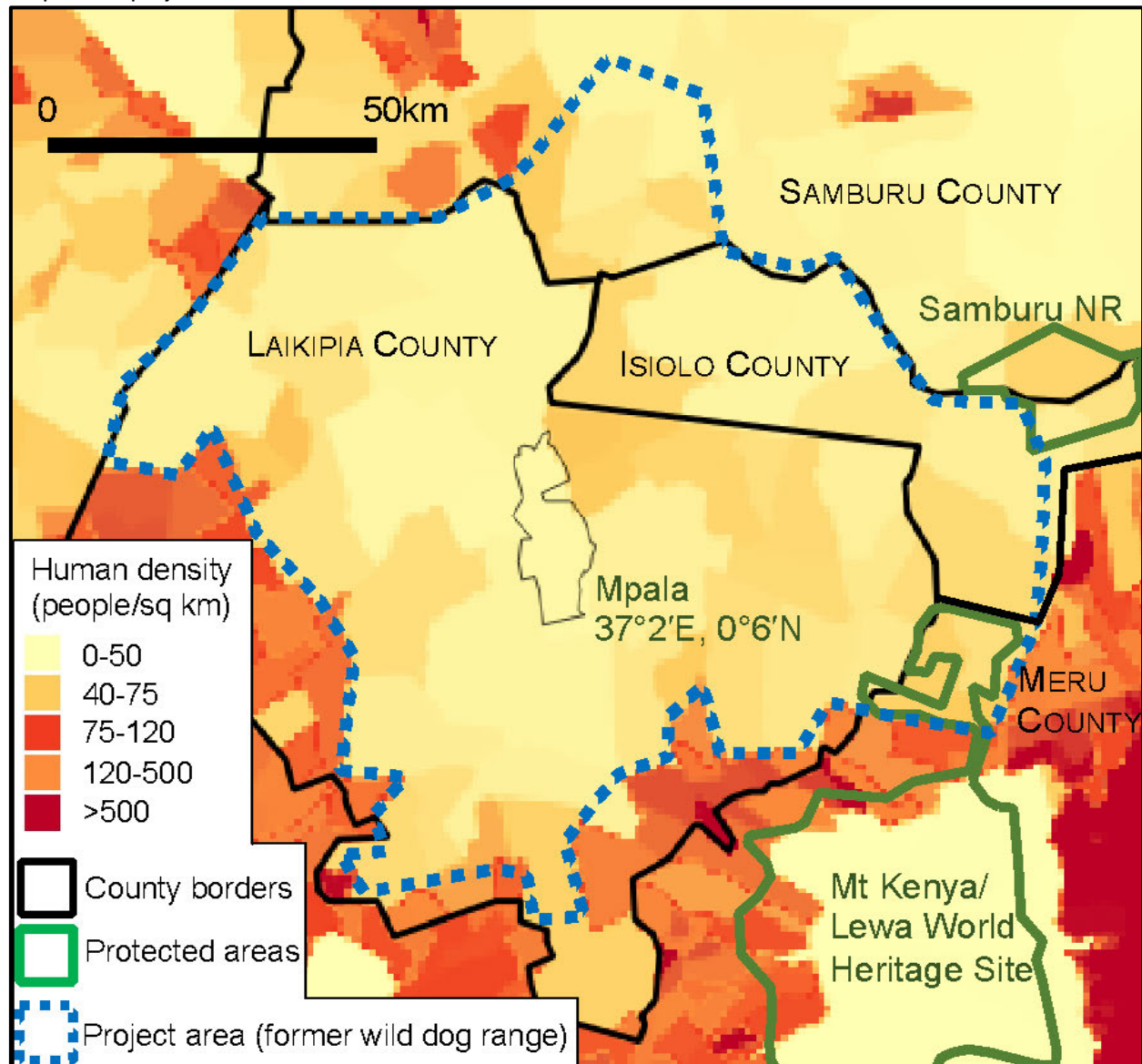
1. Project summary

Range-wide conservation planning for African wild dogs was inspired by a study showing how wild dogs and people could coexist in Kenya’s Ewaso ecosystem. Yet, in 2017, an epidemic of canine distemper devastated this iconic population. In the well-studied core of the ecosystem, two solitary animals remained where 20 packs had lived just a few months earlier.

As survivors and immigrants re-form tiny packs, we are working to recover this globally-important population, encouraging rapid population growth by tackling the two greatest causes of mortality: infectious diseases, and deliberate killing by people. The distemper epidemic has passed, and rabies is the most immediate risk to recovery. We are directly working to locally eliminate rabies through mass domestic dog vaccination, protecting human health as well as wild dogs. We also have plans in place to vaccinate wild dogs against rabies and distemper, if an expert-led workshop recommends this approach.

Our local outreach program is using participatory theatre to share evidence-based advice on livestock husbandry practices known to reduce wild dog depredation and encourage domestic dog vaccination. We are also building support for wild dog conservation nationally using in-country print, broadcast, and social media. Additionally, we are building national capacity by offering project staff opportunities to gain skills and qualifications while in their post.

Map of the project area:



2. Project stakeholders/ partners

The project implementation across year two has been largely establishing and strengthening partnerships with actors within and outside of the project area for different aspects of the project. The partners and their contributions are as follows;

1. Kenya Wildlife Service (KWS)

We proposed KWS provide technical guidance to our project, including ensuring that all our work contributes to Kenya's goals under national and international agreements. KWS veterinarians and ecologists were to participate in workshops on disease management and human-wildlife conflict, and their involvement will be essential to the implementation of many decisions. KWS was also to oversee any response to incidents of ill health or mortality detected in wild dogs or other focal wildlife, for example, through post-mortem examination.

Achievements: Within the first year, we have managed to successfully collar 7 individual wild dogs, belonging to three packs. This enhances our goals of monitoring which will inevitably help us to closely protect the few remaining wild dogs. Collaring of wild dogs was carried out by KWS-certified veterinarians which greatly boosts our partnership.



Figure 1. Project leader, Dedan Ngatia assisted in the collaring of African wild dogs in Laikipia, Kenya.

In addition, we have managed to successfully host a disease management workshop in collaboration with KWS and other partners. KWS was represented by a team of 6 workshop participants, including the Nation KWS head of Veterinary Services,

2. County Governments of Laikipia, Samburu, and Isiolo

The County Governments of Laikipia, Samburu, and Isiolo are supporting this project in two ways;

First, they have been involved in planning mass domestic dogs vaccinations (see attached planning minutes). This is followed by contributing their teams of county veterinary officers to work with the Mpala and partner teams to implement domestic dog vaccinations within the project area, in liaison with the Zoonotic Disease Unit which is coordinating national rabies eradication efforts.

Second, they are helping promote Mpala's outreach efforts among local communities, to encourage both coexistence with wildlife and participation in the rabies vaccination program.

3. Northern Rangelands Trust (NRT)

NRT is an umbrella organization for community conservancies. There are 17 NRT conservancies within the project area, and five of these conservancies are hosting Community Officers supported by the project, and NRT is also facilitating collaring and wild dog monitoring, community outreach, rabies vaccinations, and other activities throughout the 17 conservancies.

4. Smithsonian Global Health Programme

At Mpala, the Smithsonian Global Health Programme is supporting training and capacity building for Kenyan veterinarians and the development of systems for wildlife health surveillance for integration into SMART monitoring which is already widely used on ranches and community conservancies. As an in-kind support for the project, Smithsonian veterinarian Dr. Ann Haw has trained and is mentoring the project's Veterinary Officer, while Smithsonian Research Fellow Dr. Katherine Worsley-Tonks is helping to design a zoonotic diseases surveillance system and also mentoring the Monitoring and Surveillance Officer.

5. Community Outreach Arts

Community Outreach Arts worked with the Mpala Wild Dog project team to develop two local-language plays, each incorporating the key project message in a format that encourages audience members to participate and discuss the topic, creating a forum of change. The Community Outreach Arts team then performed the plays in selected locations throughout the project area, targeting markets, schools, and other gatherings. Administration of brief audience questionnaires before and after selected performances

has been done by the Monitoring and Surveillance Office to quantify the impact of the plays as a tool of communication.

6. Zoological Society of London (ZSL)

ZSL is contributing in-kind support for the project through technical advisor Prof Rosie Woodroffe, who is an authority on the ecology and conservation of African Wild Dogs. Prof Woodroffe established the Samburu-Laikipia Wild Dog project at Mpala in 2001 and has built a comprehensive body of evidence on sustainable ways for people and wild dogs to coexist. She continues to play her role in this project in providing technical guidance relating to wild dog ecology, epidemiology, and co-existence with people. She also leads the workshops on disease management and human-carnivore conflict (in partnership with the IUCN/SSC Canid Specialist Group, of which she is a core member)

3. Project progress

3.1 Progress in carrying out project Activities

In order of outputs, the progress of this project's activities in the second year has been as follows;

Output 1: Zero human deaths from rabies in the project area by 2024

1.1 Vaccinate domestic dogs annually across 10,000 sq km project area, achieving 70% vaccine coverage, including traveling with camels in areas not accessible by vehicle.

We vaccinated a total of 16,010 domestic dogs representing a vaccination estimated coverage of 67% of all dogs in the area. This spreads over 8300 sq km of land. Vaccinations are ongoing and further updates will be provided in future reports. This success has been achieved through a private-public partnership of stakeholders within the project area, with the local County Government taking a leading role in this. The mandate of disease eradication lies with the County Governments.

Figure 2. Activities happening at a vaccination center; domestic dog vaccinations, issuing of vaccination certificates, and filling data in the WVS app.

1.2 Collect data on rabies vaccination efforts and coverage using the Mission Rabies smartphone app (<http://www.missionrabies.com/app>).

All vaccination-related data including the number of dogs vaccinated, the type of vaccine administered, and other details of domestic dogs' characteristics are captured in a mobile app making it readily available and safely kept for future use.

1.3 Conduct mark-resight monitoring of domestic dogs after a sample of vaccination days to estimate vaccination coverage.

To estimate vaccination coverage, the project's Monitoring and Surveillance Officer has led in conducting a mark-resight activity. Information from this activity has been used to advise adjustments and modifications of vaccination approaches. This is indeed helpful in computing vaccination coverage estimates as described in 1.1.

1.4 Develop a participatory play about rabies, dog vaccination, how the correct dog bite management can save lives, and the parallels between human and wildlife health.

The Community Outreach Arts team together with the Mpala project team developed two plays on rabies eradication and human-wildlife coexistence in the 2nd year of this project. The plays are designed to be as interactive as possible with the audience, allowing our conversation messages to get easily disseminated to the people.

Perform the rabies play on ≥20 occasions in advance of rabies vaccination days, targeting locations likely to attract women as well as men.

A total of 20 plays, 10 on rabies control and 10 on human-wildlife conflict, were performed within the year. The plays were performed during market days, community meetings, and schools, to increase our coverage, in terms of the number of people. We hope to still keep performing the plays in new areas within the coming project year.

1.5 Monitor the effectiveness of participatory play by interviewing audience members before-and-after performances.

Before and after play performances, questionnaires were administered to the target audiences to determine the initial status of knowledge among locals. A total of 105 questionnaires have been administered in 5 communities on the 2 topics; 1) willingness of people to coexist with wild dogs and 2) perception and knowledge of people on rabies control.

1.7 Develop short videos, based on the rabies play, optimized for sharing over WhatsApp, and encourage sharing over local networks.

To promote sharing information to a larger community within the project area and beyond, the project team has continuously made short clips from the plays and shared them on its socials.

1.6 Develop and distribute posters and leaflets about rabies prevention, as part of community sensitization ahead of rabies vaccination days.

300 Posters, 200 leaflets, and 50 stickers were developed before the mass vaccinations. They were used to educate and create awareness among residents within the project area and to whom vaccinations were targeted. This helped increase vaccination uptake amongst residents. Copies are attached.

1.7 Train outreach officers and scouts from partner projects in rabies prevention messages, so that they can help with community sensitization.

To optimize outreach regarding rabies eradication, the project has engaged 41 community youth from different communities as local assistants during mass vaccinations and rabies control education promoters.

1.8 Monthly project meetings to evaluate progress, continue staff training, and consider ways to improve effectiveness.

Throughout the project year, we have had regular monthly meetings with the project team including project advisors. The meetings provide great platforms for discussions on different aspects of the project to ensure smooth implementation and efficiency in project management. We use these meetings to evaluate project progress and to develop individual goals.

1.9 Adapt outreach efforts to specific local issues if monitoring indicates vaccination coverage is insufficient.

Monitoring of the vaccination effort indicated a few areas within the project area that were vaccinated insufficiently. This was mainly due to logistical challenges occasioned by long distances and vast areas

with low human populations. Supplementary vaccinations were done to ensure sufficient coverage was done in these areas. These additional vaccinations contributed to a further 1921 domestic dogs being vaccinated within 18 working days.

1.10 Establish systems for collecting age- and sex-specific data on dog bites and rabies deaths at 4 hospitals and 20 dispensaries.

The project team has engaged the Laikipia County Government in the development of the proposed system. Partly successful, data on dog bite distribution and human deaths have been availed as a segregated data collection tool awaits approval

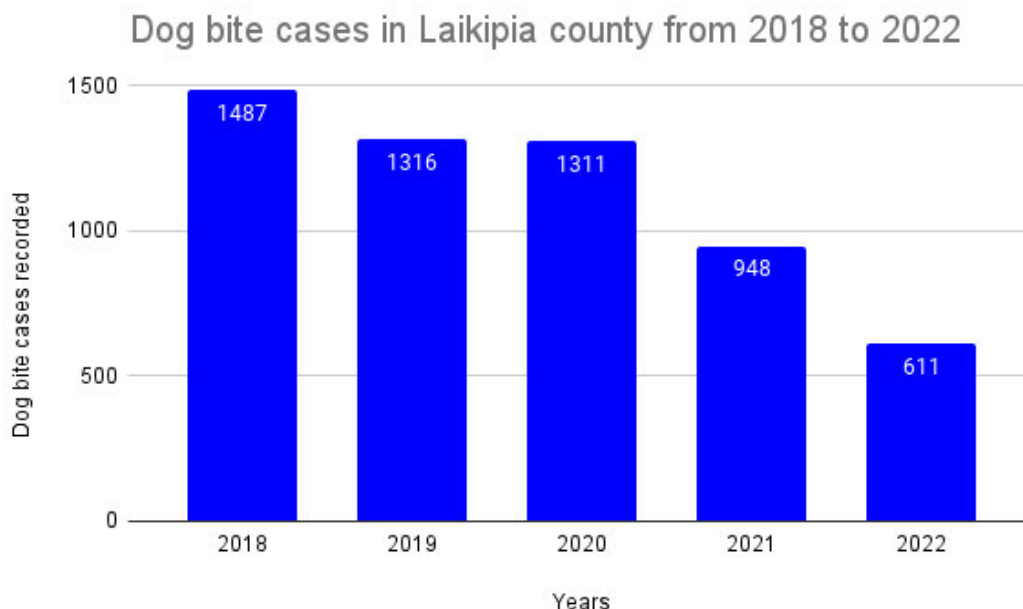


Figure 3. Graph showing declining dog bite cases in project area from 2018-2022

1.11 Liaise regularly with the national “Rabies-Free Kenya” campaign to ensure efforts are complementary and share experiences of best practices.

Our project's vaccination campaign progress and experiences have been shared with the “Rabies Free Kenya” to enhance knowledge and experience sharing among implementers of similar interventions.

1.12 Close-out meeting early in Year 3 to assess progress relative to national rabies eradication efforts, and to decide next steps.

To ensure these interventions are sustained beyond project life, the proposed close-out meeting will be done in the last year of the project.

Output 2: Two-thirds reduction in wild dog deaths caused directly or indirectly by people

2.1 Convene workshop on managing disease risks to wild dogs, involving local and international experts and drawing on existing data and epidemiological modeling.

A 6 days disease management workshop was held at Mpala Research Centre bringing together 22 experts from local and international partners and stakeholders including; the Zoological Society of London, Laikipia County Government, Kenya Wildlife Service, Mpala Research Centre, Ewaso Lions, Zoonotic Disease Unit, Rabies-Free Kenya, and the international Livestock Research Institute (ILRI).

2.2 Based on disease workshop outcomes, develop and publish a local disease management plan for wild dogs and other large carnivores.

As an output of the workshop, a disease management model was developed. The model continues to inform conservation interventions going now and into the future. This document is under review.

Figure 4. Workshop participants pictured at the Old House, Nanyuki in 2022.

2.3 If recommended by disease workshop participants, including Kenya Wildlife Service, initiate vaccination (rabies and/or CDV) within each collared wild dog pack.

The resolutions from the workshop were as follows:

- i) There is sufficient evidence that administering inactivated rabies vaccine to African wild dogs is safe and effective. Vaccination of African wild dogs against rabies would be appropriate following a rapid risk assessment, taking into account wild dog population size, risk of exposure (including domestic dog vaccine coverage and any ongoing outbreaks), as well as the consequences of not acting.
- ii) Neither inactivated nor recombinant distemper vaccines appear able to protect African wild dogs from the canine distemper virus. There is strong evidence that administering the modified-live vaccine to African wild dogs is safe and confers immunity in captivity. Given the currently low numbers of wild dogs in the Ewaso ecosystem and the frequent CDV outbreaks in domestic dogs, jackals, and wild dogs, there is an acute risk of losing wild dogs altogether. Vaccination of free-ranging African wild dogs against distemper is, therefore, necessary and urgent in the context of a carefully designed field trial and thereafter based upon rapid risk assessment (as for rabies) if trial outcomes are favorable.

The resolutions will be acted on once the workshop report is concluded.

2.4 With workshop participants, develop a SMART-integrated surveillance system for reporting sickness in wild and domestic carnivores, including response plans.

The workshop proposed the development of a disease-reporting system to be incorporated into the data collected by the project team. This has been actualized by developing a data collection tool on sick and dead carnivores and domestic dogs which is being used to collect data by Community officers in their respective areas of operation.

2.5 Train project Community Officers, and project partners' scouts, outreach officers, and other SMART users to use the surveillance system.

All community officers, and other project members, have been successfully trained on the use of the SMART data collection app. In addition, we have plans in place to extend this training to partners' scouts/rangers and other staff that the project would benefit from them acquiring the skills in the coming year/s. One of the project's technical advisors, Dr. Katherine Worsley-Tonks, is leading this.

2.6 Train and equip veterinarians from KWS, Mpala, and partners to implement the response plan.

Dr. Katherine Worsley-Tonks has already initiated this training.

2.7 Convene workshop on mitigating livestock depredation in the project area, involving local and international experts.

To be done in the next reporting period

2.8 Based on depredation workshop outcomes, develop and publish a local plan to mitigate livestock depredation by wild dogs and other large carnivores.

To be done after activity 2.7 has been completed

2.9 Monitor wild dog health, survival, and reproduction by deploying tracking collars on all known wild dog packs in the project area, with frequent visual checks.

In close collaboration with the Kenya Wildlife Service, and community/private conservancies, we deployed 7 collars in two packs, leading to a total of 3 packs being monitored. In addition, new packs continue to be sighted in our project area, and our team is working to get them collared. Our community officers are actively keeping track of the uncollared packs,

2.10 Retrieve and (with KWS) necropsy and wild dogs which die, collating data on mortality rates and causes.

There have been no reports of any dead wild dogs in this project year.

2.11 Collate data annually from KWS and partner projects on conflict-related mortality of other large carnivore species.

We intend to collect human-wildlife-related data from partner projects and organizations at the start of the next reporting period.

Output 3: Declining incidence of livestock predation by all large carnivores, despite the rising population of wild dogs

3.1 With participants in the depredation workshop, agree on appropriate methods to mitigate livestock predation by wild dogs and other large carnivores.

To be done in the next reporting period

3.2 Integrate chosen methods into new and existing training materials for Mpala and partner projects, and train key staff to use and share them.

To be done in the next reporting period

3.3 Solicit and follow up reports of large carnivore attacks on livestock, collecting case-control data on husbandry methods and offering advice on mitigation methods.

Data collection on large carnivore predation within the project area has been happening actualized by the Community Officers.

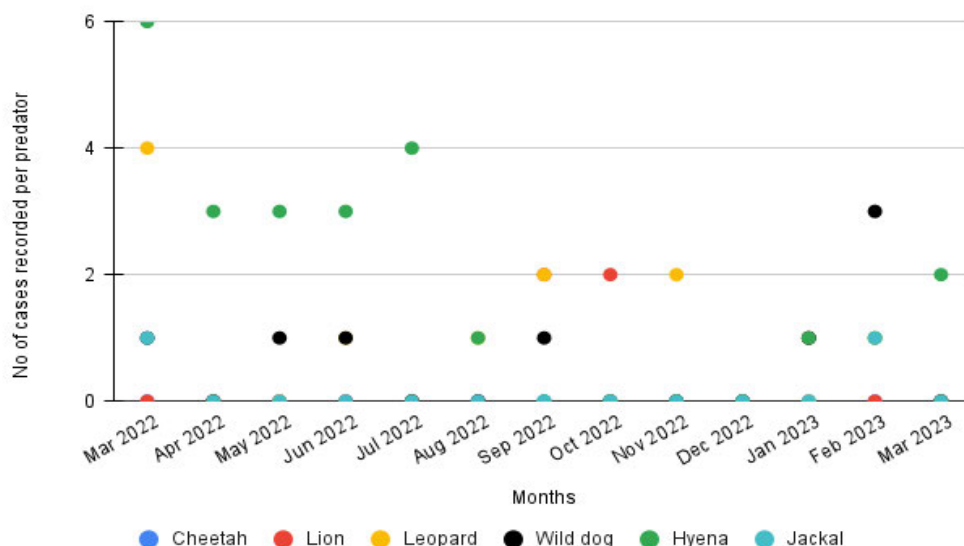


Figure 5. A chart showing Livestock depredation trends from March 2022- March 2023

3.4 Develop a participatory play about coexisting with large carnivores, especially wild dogs, sharing evidence on sustainable ways to prevent livestock attacks.

As with activity 1.4, a co-existence message play was developed consultatively.

3.5 Perform the coexistence play on ≥20 occasions, targeting locations experiencing livestock depredation problems, especially wild dog depredation.

10 plays on coexistence have been performed for similar audiences.

Figure 6.. Performance of participatory plays at Doldol Market, Laikipia.

3.6 Monitor the impact of the coexistence play by counting audiences, and by interviewing a sample of audience members before-and-after performances.

20 plays performed within the reporting period in 5 community conservancies: Oldonyiro, Naibung'a Upper, Naibung'a Lower, Kirimon, and Lekurruki, have reached out to 7,200 community members; 4300 youth, 1700 women, and 1200 men.

3.7 Develop short video clips, based on the coexistence play, optimized for sharing over WhatsApp, and encourage sharing over local networks.

Short video clips from coexistence plays have been developed and shared through WhatsApp to local networks including community groups, women groups, and other local contacts. See sample videos in the attached links;



3.8 Develop and distribute posters and leaflets about coexistence with wild dogs and other large carnivores, targeting places women are likely to visit, as well as men.

These have been developed (and attached) but will be distributed within the next project year.

3.9 Share knowledge about approaches to coexistence through regular formal and informal meetings with community members and groups.

The project team through different avenues including community formal and informal meetings, social media, and prints, has been able to reach out to over 40,000 residents in 12 community conservancies with coexistence and best practices messages.

Figure 7. Community meeting on coexistence with wild dogs at Kimanjo area led by our Community Liaison Officers.

3.10 Monitor key livestock husbandry measures (e.g., number/age/sex of herders) in a sample of herds at the start of the project and annually thereafter.

Through standardized household depredation monitoring, data on livestock husbandry measures are collected by community officers in their respective regions. Currently, 70% of herders are children with only 30% being adults. This compromises the ability to deter attacks when they occur. Data collection on this will continue till the end of the project when we shall be able to deduce changes in practice

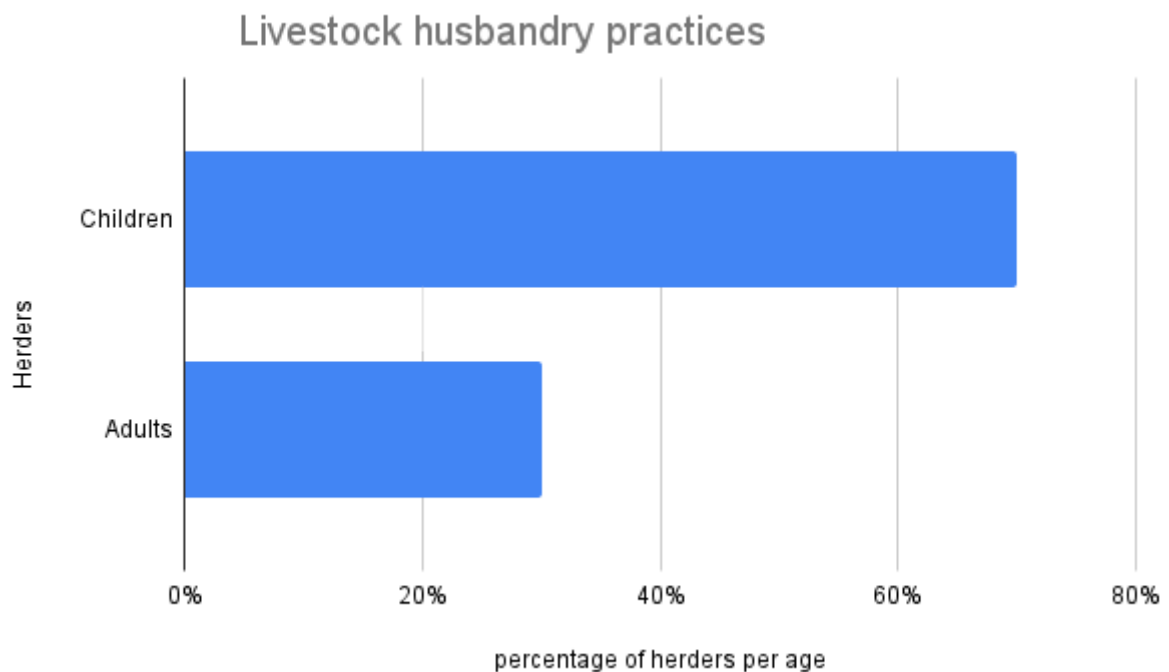


Figure 8.

3.11 Identify a sample of focal households for each community officer, to facilitate a standardized measure of predator impact with constant observer effort

This is being implemented. 100 sample household were selected, a standardized questionnaire was developed for data collection, and the Community Officers were trained on how to effectively collect the data. The activity was piloted and modifications were done to allow efficient implementation

3.12 Collect data on livestock depredation and economic losses per focal household; estimate trends in losses over time.

Depredation data collected monthly has shown 89 goats and 77 sheep have been attacked within the reporting period. This presents an economic loss in the communities caused by large carnivores within the project area.

Output 4: Improved public attitudes to coexisting with African wild dogs

4.1 Encourage discussion about the benefits of coexisting with wildlife, as well as the costs, during play performances and formal and informal community meetings.

Discussions based on the importance and benefits of conservation are promoted in the plays as well as in most of the avenues used by the project team to communicate to the residents.

4.2 Actively encourage journalists and filmmakers to visit the project, promoting positive media stories linking human health to wildlife conservation.

Within this project year, we have had an independent journalist interested in documenting the project's progress, the processing is in progress and we hope to have a positive media promotion in the next reporting period.

4.3 Promote positive stories about wild dog conservation and human health through our own, and partners', social media accounts and other digital platforms.

Positive conservation stories related to wild dogs and other large carnivores are consistently promoted through our own social media handle listed above. We endeavour to maintain this throughout the project and beyond.

4.4 Use a simplified version of the questionnaire developed for ref (87) to measure local attitudes to wild dogs at the start and end of the project.

Perceptions and attitudes towards wild dogs amongst residents are being documented through questionnaires administered to residents of areas frequented by wild dogs or opportunistically to residents neighbouring wild dog denning sites. We have administered 10 questionnaires for a den found in Oldonyiro Isiolo County.

4.5 Monitor and record reports about the project in print, broadcast, and social media.

The project team has over the period worked together to develop a newsletter with 100 pieces printed, distributed, and/or emailed to project partners and stakeholders.

4.6 Promote the use of wild dogs in marketing tourism to the project area through informal meetings with individual lodges and camps.

Several private and community conservancies are now using wild dogs as the focal species to attract tourists to their conservancies. Specifically, the Laikipia Wilderness Camp (<https://www.laikipia-wilderness.com/>), based in Oldonyo Lemboro ranch, mainly attracts tourists interested in tracking African wild dogs. Other conservancies that have centered wild dogs as focal species for tourism include; Loisaba Conservancy, Suyian Conservancy, Ol Jogi Conservancy, and Sosian Conservancy. In addition, we have also partnered with organizations operating tours and safaris in our study area, mainly focussing on wild dogs e.g. the FootPrint Safaris. To promote African wild dog tourism, we have shared tracking details of the collared packs with more than 10 conservancies.

Output 5: Improved national capacity for protecting wildlife populations and human health

5.1 Conduct initial training workshops for the project team at the start of the project

At the start of the project, all the project team members including Community Officers have had the initial training while joining the training.

Figure 9. Project team undergoing SMART training session at Mpala Research Centre.

5.2 Include training sessions in every monthly project meeting

The initial training has been supplemented by regular training on different topics. The monthly training has been facilitated by senior project team members and advisors.

5.3 Ensure that specific training provided to project staff is also offered to relevant staff from partner projects

Training to support implementation of this project has been done for internal project staff. Training to partner staff will be extended in the next reporting period.

5.4 Schedule vaccination days to involve County Veterinary Officers, providing transport to facilitate their involvement

The project has successfully involved 40 County Government Veterinary Officers putting in a total of 4032 man-hours in planning and implementation of vaccination activity with transportation during vaccination days being provided by the project.

5.5 Train dispensary nurses and hospital staff to collect and report age- and sex-specific data on rabies deaths and dog bites.

The designing of a system to train hospital staff to collect detailed rabies-related data on dog bite cases presented at hospitals has been initiated and awaits approval by Health Departments of County Governments which manages hospital operations. We expect to have it operationalized in the reporting period.

5.6 Engage Kenyan veterinarians and other conservationists with epidemiological modeling in the course of the disease management workshop

The disease management workshop brought together diverse expertise from veterinarians and conservationists drawn from different organizations from Kenya and beyond, as listed in 2.1 above.

3.2 Progress towards project Outputs

Output 1: Zero human deaths from rabies in the project area by 2024

Significant progress towards this output is being achieved by the project. In this project year, and from the hospital data in the project area, we have not reported any rabies-related human death. Activities planned for the reporting period contributing to this output have been carried out:

Awareness creation, and education towards the eradication of rabies, and domestic dog handling in the project area has been ongoing through mainstream media, social media, one-on-one approaches, community meetings, and plays. In total, we have reached out to 70,330 residents with 34,720 being youth, 21540 women, and 14070 men.

The area covered by domestic vaccinations in the reporting period is 8300 sq km with a total of 16010 domestic dogs being vaccinated. Vaccination data is gathered from the post-vaccination surveys and capture-recapture method carried out after every vaccination day.

Output 2: Two-thirds reduction in wild dog deaths caused directly or indirectly by people

This has successfully been achieved, so far, having no wild dog reported to have been killed by people in the project area. All the same, the zero deaths from people likely is because the wild dog population is still low in our area. Wild dog monitoring through collaring is still ongoing. We also continue to receive a lot of sighting information to date.

A disease management workshop was successfully held by the project during the reporting period. It developed a disease surveillance system that is partially implemented. We have trained community officers on disease surveillance which they continue to carry out in their respective areas.

Output 3: Declining incidence of livestock predation by all large carnivores, despite the rising population of wild dogs

In contribution to this output, the project has reached out to 44,065 persons (15239 youth, 13007 women, and 15839 men) on good husbandry practices in coexistence message within the project area using its different communication methods as in output 1.

Compared to the baseline of 2014 where >20 cases of depredation were experienced, the reporting period has reported 8 wild dog depredation cases representing a decline of more than 50%. The trend in livestock husbandry practices has and will continue throughout the project to be captured by monitoring surveys carried out within the project area.

Output 4: Improved public attitudes to coexisting with African wild dogs

The project through its different communication and outreach methods including prints and social media posts, see sample leaflet and social media post, has initiated and strengthened information sharing on the benefits of coexistence with large carnivores. This is all aimed at changing community perception towards wild dogs and other carnivores. Combining community benefits accrued by the achievement of outputs 1-3, communities can associate and accommodate coexistence as the better option. Baseline questionnaires to assess the status quo were administered before outreach activities and the project will assess change in attitude at the project end.

Output 5: Improved national capacity for protecting wildlife populations and human health

The disease management workshop exposed a significant number of local conservation practitioners >15 to epidemiological modeling informing wild dog disease management which is a self-sustaining impact of this project.

The project has directly engaged County government Veterinary Officers in domestic dog vaccinations within this project period. This year has seen 41 experts directly engaged in the vaccinations totalling 4032-man hours.

Progressively, the project's team (9 members) has had monthly training on different topics related to wild dog conservation; threat, opportunities, and approaches for effective project delivery which has significantly contributed to improved project staff capacity.

3.3 Progress towards the Project Outcome

Our project outcome is to create an ecosystem free of rabies where people can coexist sustainably with wild carnivores. In addition, we also aim at recovering the African wild dog population in our study area. The project has achieved the following in line with the project outputs:

- a) The project has documented an increase in the number of wild dog packs in the project area. So far, we have sighting information of 4 packs. As a result, the population of wild dogs in our study

area is rising, we estimate that we have approximately 59 wild dogs in our study area at the moment.

- b) To eradicate rabies in the project area, the project has achieved coverage of 8300 sq km area. This has significantly contributed to there being no reported human deaths or wild dog deaths from rabies.
- c) No recorded deaths of wild dogs from killing by residents in the reporting period. This is despite an increased number of reported wild dog sightings within the project area. We associate this with the increased community outreach efforts from the project team.

3.4 Monitoring of Assumptions

Outcome. ASS 1.: This outcome assumes that the main constraints on wild dog recovery in the project area are domestic dog diseases and deliberate killing by people. This assumption is based on intensive studies of wild dog ecology and population dynamics through population recovery in 2001-2016 a crash in 2017, and subsequent slow recovery.

Comment

The assumption still holds true.

Outcome. ASS 2: The effect of domestic dog vaccination on human rabies is well-documented. Effective and locally appropriate ways to reduce livestock predation have been identified, but other factors may constrain the extent to which people adopt them.

Comment

The assumption still holds true with mass vaccinations reducing human deaths. The project will continue to evaluate if there are more factors affecting livestock depredation beyond what is previously documented.

Outcome. ASS 3.: This outcome also assumes that civil unrest does not return to the project area at levels sufficient to impact our project. Recent investment in security within the region, and strong community links, should minimize any such impact.

Comment

Part of the project area has witnessed civil unrest despite security stabilization investment done in the previous years-see attached government curfew order. The project has slowed community engagements in some areas highly affected by this. Rescheduling activities and ensuring activities have been happening with project staff only going to safe communities.

Output 1, Ass1: This output is based on the assumptions that human rabies risks can be mitigated by domestic dog vaccination, and that dog bites are a good proxy for rabies incidence in domestic dogs. These assumptions are supported by a very strong well-replicated evidence base, with similar projects elsewhere reducing human rabies mortality to zero within 2-3 years of starting mass domestic dog vaccination, and a close correlation between dog bites and human rabies risk (76,77,31).

Comment

The assumption still holds true.

Output 1, Ass2: This output also assumes that women are at least as impacted by rabies as men, an assumption supported by evidence that African women can face slightly higher rabies risks than men (67).

Comment

The assumption still holds true.

Output 1, Ass 3: The output also assumes that local communities will consent to vaccination of their domestic dogs, and participate in outreach activities. Participation to date has been high, but our project includes explicit plans to improve it further, drawing on experience from other animal health and public health initiatives (47).

Comment

The assumption holds largely true with pockets of residents mildly rejecting the exercise. The project team targets these regions with awareness and education activities on the importance of vaccinations.

Output 2, Ass 1: This output assumes that rabies risks to wild dogs can be reduced by vaccinating domestic dogs. This assumption is supported by strong evidence that wild dogs acquire rabies from domestic dogs at the project site (49,74) and elsewhere (78), by very strong evidence from elsewhere

that vaccination reduces domestic dog rabies (31), and also by evidence from mathematical modeling (52).

Comment

The assumption still holds true.

Output 2, Ass 2: A second assumption, that vaccinating domestic dogs against canine distemper is unlikely to reduce risks to wild dogs (and will therefore be considered at the disease workshop rather than recommended here), is based on evidence that this pathogen does not persist in domestic dogs in the project area (27), and on evidence that mass distemper vaccination of domestic dogs around the Serengeti ecosystem did not reduce CDV exposure in wild carnivores (50).

Comment

Decision on this by the workshop is as listed in Section 3 (2.1).

Output 2, Ass 3: Any plan to vaccinate wild dogs themselves would be based on careful evaluation, in a workshop setting, of existing and emerging data on the consequences of such vaccination for captive wild dogs (79,80,42), and for free-ranging wild dogs in our project area (for rabies (41)) and in South Africa (for distemper).

Comment

The assumption still holds true. See also results from the workshop (Section 3 (2.1))

Output 2, Ass 4: This output also assumes that we will be able to detect sick or dead wild dogs across a large area. While rare, wild dogs are conspicuous animals where present, and we will achieve high coverage of the landscape by leveraging an existing ranger-based monitoring system (SMART), which is already in use across the project area.

comment

The assumption still holds true.

Output 2, Ass 5: This output also assumes that reducing wild dog predation on livestock can reduce deliberate killing by people, which is supported by scientific evidence from within the project area (36).

Comment

The assumption still holds true.

Output 3, ass 1: This output assumes that predation on livestock can be reduced by modifications of traditional livestock husbandry methods, which is supported by case-control studies conducted within the project area (37) as well as evidence from elsewhere (58-60).

Comment

The assumption still holds true.

Output 3, ass 2: This output also assumes that participatory theatre is an effective way of communicating conservation messages and effecting behavior change, a view which is supported by multiple studies (81-83) including evidence of behavior change in both public health (55) and human-elephant conflict (61).

Comment

The assumption still holds true.

Output 4, ass 1: This output assumes that a package of measures, including linking practical action on human health to the health of endangered wildlife, and wild dog recovery to the recovery of the beleaguered ecotourism industry, can help to improve local attitudes to wild dogs.

Comment

The assumption still holds true.

Output 4, ass 2: This output also assumes that increased use of wild dogs to advertise local tourism venues will encourage visits, especially by African tourists.

Comment

The assumption still holds true.

Output 5, ass 1: This output assumes that improving national capacity for practical conservation and disease management will help to improve outcomes for wildlife conservation and sustainable development, an assumption supported by a large volume of evidence from the conservation (85) and public health (86) fields.

Comment

The assumption still holds true.

3.5 Impact: achievement of positive impact on biodiversity and poverty reduction

The project was designed to contribute to the increase of the population of African wild dogs in the Ewaso ecosystem as well as contribute to human welfare through reduced livestock depredation and losses occasioned by human and livestock diseases.

This reporting period has seen an increase in the number of wild dogs from ~34 at the start of the project to 59 at the end of year one. This is a great achievement brought about by the project's effort in neutralizing threats that hindered the growth and stabilization of this population; zero killing of wild dogs in the communities and zero deaths of wild dogs from diseases (Refer to figure 2).

The contribution of this project to human well-being is strongly anchored in reducing losses; from livestock deaths caused by rabies, human treatment costs when rabid and livestock depredation. Having recorded zero human rabies cases and deaths from rabies saves communities on financial cost and psychological stress improving their general well-being.

4. Project support to the Conventions, Treaties, or Agreements

The outcome of this project contributes to the main objective of the Kenya National Biodiversity and Action Plan to “ensure biodiversity loss is reversed and the present levels of biodiversity resources are maintained for at sustainable levels for posterity”. A specific objective of the NBSAP in Kenya is to have “a community that is empowered, informed, and fully involved in biodiversity utilization and conservation” amongst others. This project promotes this objective by ensuring that communities are well aware and capable of making informed decisions that benefit wild dogs and other carnivores and keeps their livestock secure; securing their livelihoods. Therefore, our project addresses Kenya's commitment to the Convention on Biological Diversity through KNBSAP.

5. Project support to poverty reduction

The project has contributed to poverty reduction for communities living in the project area in three ways;

First, through the promotion of proper livestock husbandry, our work has led to reduced livestock losses from depredation by large carnivores. Since the local communities solely depend on livestock for subsistence, this goes a long way in improving community livelihoods and well-being. Local communities will continue to benefit from this intervention. Previous results from our work provide evidence that livestock losses from depredation cost communities over 11% of their annual income, but we are keen on reducing these losses.

Second, our project has created employment for 6 local youth as Community Officers, directly contributing financial support to their families. In addition, we have embarked on training our project staff, which has helped develop their intellectual capacity.

Third, our work has led to reduced human deaths from rabies. The mass domestic dog vaccination has prevented human deaths caused by rabies; having 0 deaths in the 2nd year of the project against 25 deaths in 2017. This has avoided unquantifiable distress to victims' families and friends in addition to saving financial costs associated with treatment and management. Children and women are the most beneficiaries of this intervention

6. Gender Equality and social inclusion

Our project has in all its aspects considered the promotion of gender equality:

First, the awareness and education aspect that aims at building community capacity to make informed decisions has targeted marketplaces and schools. The two avenues have largely women and children present with markets having ~70% women and schools with ~95% children.

Second, the planning and implementation of mass vaccinations of domestic dogs have been implemented by a wide variety of stakeholders, partners, and volunteers. Specifically, among others, it enjoyed support from volunteers of Karatina University, Kenya, and the County Government of Laikipia. The project consistently and intentionally requested for volunteers to be men and women who were mostly youth. This has been a great opportunity for the project to determine all gender involvement in the project which was successfully grabbed.

Third, we have also showcased women in leading roles in our project. We have hired a female outreach officer and a female monitoring and evaluation officer. Half of our technical advisors are women.

Lastly, and more broadly, Mpala is committed to gender equality and works to achieve this in multiple ways. For example, Mpala recently hosted a National Geographic Society conference on women in science and conservation.

Please quantify the proportion of women on the Project Board ¹ .	Two women. Three men.
Please quantify the proportion of project partners that are led by women, or which have a senior leadership team consisting of at least 50% women ² .	40%

7. Monitoring and evaluation

Generally, we plan to continue using monitoring to direct our project activities, as well as to evaluate our overall impact. For example, if our mark-resight monitoring shows evidence of low domestic dog vaccine coverage in particular areas, we have increased our outreach efforts and vaccination efforts in these areas. Likewise, if surveillance returns reports of dead or sick hyenas at a carcass, the project veterinarian responds by investigating poison and disease as potential causes of death, and, if the poisoning was confirmed or suspected, community teams (from either Mpala or partners) would intervene with advice on addressing conflict between people and hyenas.

Monitoring and evaluation, for reporting months, have been managed by our monitoring and evaluation officer, technical advisors, and project partners. We continue to guide the monitoring officer on sampling design, data analysis, and interpretations.

The specific monitoring events that happened within the reporting period included:

1. Human rabies and dog bite injuries were monitored across the project area.
2. Monitoring of existing wild dog packs and other large carnivores, and identification of mortality causes has been ongoing. We have movement data on wild dog packs acquired through GPS collars fitted on wild dogs by the monitoring and evaluation officer, working closely with the technical advisors.
3. We have records and estimates of the numbers of people, and sexes engaged with outreach efforts, estimated by counting audiences, and meeting participants as shown in table 1 .

	Community Meetings	Community Plays	Prints(Leaflets,posters,stickers)	Social Media	TOTAL
Coexistence with Wildlife	11136	3600	275	29329	44065
Rabies Control	32057	3600	275	34673	70330
TOTAL	43193	7200	550	64002	114395

Table 1. Table showing outreach activities and reach conducted over the project period.

4. Livestock husbandry practiced in focal areas, measured on annual surveys of a predetermined number of herds.
5. Community attitudes to wild dogs (based on a simplified version of the questionnaires used before for consistency) assessed on a stratified sample of respondents, in surveys conducted at the beginning and end of the project.
6. We administered a multi-choice questionnaire before and after the participatory plays. We will use this to estimate perception shifts by audiences and the effectiveness of our outreach efforts.

¹ A Project Board has overall authority for the project, and are accountable for its success or failure, and supports the senior project manager to successfully deliver the project.

² Partners that have formal governance roles, and a formal relationship with the project that may involve staff costs and/or budget management responsibilities.

7. Data on news articles, TV reports, and social media reach is collated at the end of each year. We have had 5 news articles published on the projects activities and 3 TV reports published over the reporting period as in attached links;

<https://www.capitalfm.co.ke/news/2022/11/laikipia-targets-20000-dogs-cats-in-countywide-anti-rabies-campaign/>

<https://laikipia.go.ke/1542/laikipia-rabies-vaccination-campaign-2022/>

- 8. Lessons learned based on priority intervention/s - The design of this project was largely based on recommendations of scientific research. This widely captured the specific threats and opportunities available for interventions. Through this, two major threats and two major interventions were identified; wild dog persecution by people and deaths from diseases- coexistence promotion and vaccination respectively. Designing this project intervention(s) with a wide knowledge of the species, habitat, and threats and opportunities enabled the prioritization of conservation interventions widely accepted by residents and stakeholders. To achieve an impactful project design, it is therefore critical that any intervention falls in the species protection priority list and is widely accepted which can be clearly articulated by research.**

Strengthening piloted action- Designing interventions based on successfully piloted interventions or successfully implemented actions (although small scale) proved to create a springboard for a smooth design in terms of project time planning and resource allocation, including stakeholder analysis and participation. Although on a small scale, the Laikipia Rabies Vaccination Campaign annually vaccinated domestic dogs in the project area. This gave the designing process a practical feel of what challenges and opportunities were expected through the designing and implementation of the interventions. Learning from this, the vaccination aspect of this project smoothly exceeded the target.

Directly engaging residents- The project largely benefited from directly engaging local youth as employees. This was a major force leading to more youth within the project area easily adopting the project's promoted agenda. Common language and having shared the same environment with the target audience, it was easy for the locals' employees to successfully engage and convince their relatives and tribesmen of the importance of protecting species and wildlife.

Sustained partnership- To sustain existing and newly established partnerships throughout the cause of the project, partners in all interventions existing or established by the project were kept updated and in regular communication of project progress. This was a great tool to guarantee their contribution and participation throughout the year.

9. Action taken in response to previous reviews (if applicable)

Not applicable

12. 10. Risk Management

The reporting period has been occasioned by drought prompting movements of residents (most of whom are nomadic pastoralists) to search for pastures for their livestock. The movement has caused conflicts in parts of the project area as a result of resource competition. On the other hand, criminals amongst the herders have taken advantage of the situation to do cattle rustling which has caused a situation of insecurity. The project had activities planned in these areas and adjustment of timings and days has been the approach of mitigation by the project team to ensure safety and delivery are guaranteed.

13. Other comments on progress not covered elsewhere

Not applicable

14. Sustainability and legacy

Our project continues to interest a lot of like-minded and goal-aligned stakeholders. For example, the National Geographic Society kids tv series reached out to us for filming and conversations about our project. This will be vital in further getting into the limelight, while also helping us achieve and broaden our outreach goals.

The County Government of Laikipia and the National Government of Kenya amongst others are also keenly working with us on our rabies eradication efforts.

We continue to engage all partners in our work, and we have managed to successfully monitor the existing packs while also working to maximize efforts with the surveillance program. This would not have been possible without these partnerships!

To ensure a sustained legacy for our project, we have committed ourselves to include all stakeholders and partners in all decisions made, and this is adequately helping in steering buy-ins and confidence by all. In the end, all participants own this work and feel integral to all our plans. This means that all our social, economic, and ecological goals are shared across the board.

15. Darwin Initiative identity

The project has always made recognition to the Darwin Initiative for all its activities. During our main in-house activity, the disease workshop, the project team explained to participants that the activity was supported by the DI. This recognition creates a good platform for recognition amongst experts across the country and beyond. During plays in communities, it's always mentioned that the DI is supporting the activities.

We have included the DI's logo on all the print materials that the project produced in the reporting period including; leaflets and posters.

16. Safeguarding

Has your Safeguarding Policy been updated in the past 12 months?	Yes/No
Have any concerns been investigated in the past 12 months	Yes/No
Does your project have a Safeguarding focal point?	Yes/No [If yes, please provide their name and email]
Has the focal point attended any formal training in the last 12 months?	Yes/No [If yes, please provide date and details of training]
What proportion (and number) of project staff have received formal training on Safeguarding?	Past: 0% [and number] Planned: 0% [and number]
Have there been any lessons learned or challenges in Safeguarding in the past 12 months? Please ensure no sensitive data is included within responses. NA	
Does the project have any developments or activities planned around Safeguarding in the coming 12 months? If so please specify. NA	

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17. Project Expenditure

Please expand and complete Table 1. If all receipts have not yet been received, please provide indicative figures and mark them as Draft. The Actual claim form will be taken as the final accounting for funds.

Table 1: Project expenditure during the reporting period (1 April 2022 – 31 March 2023)

Project spend (indicative) since last Annual Report	2022/23 Grant (£)	2022/23 Total Darwin Costs (£)	Variance %	Comments (please explain significant variances)
Staff costs (see below)				
Consultancy costs				
Overhead Costs				
Travel and subsistence				
Operating Costs				
Capital items (see below)				
Monitoring & Evaluation (M&E)				
Others (see below)				
TOTAL			-7,839.30	

Highlight any agreed changes to the budget and **fully** explain any variation in expenditure where this is +/- 10% of the budget. Have these changes been discussed with and approved by Darwin Initiative?

Table 2: Project mobilizing of matched funding during the reporting period (1 April 2022 – 31 March 2023)

	Matched funding secured to date	Total matched funding expected by end of project
Matched funding leveraged by the partners to deliver the project.		
Total additional finance mobilized by new activities building on evidence, best practices, and project (£)		

18. OPTIONAL: Outstanding achievements or progress of your project so far (300-400 words maximum). This section may be used for publicity purposes

I agree for the Biodiversity Challenge Funds Secretariat to publish the content of this section (please leave this line in to indicate your agreement to use any material you provide here).

The project would want to note the following achievements;

There has been a notable increase in the number of wild dogs in our project area where an additional 25 dogs have been recorded.

Additionally, so far, we have not recorded any wild dog deaths from human persecution or diseases in the one-year project period

We have achieved 79% area coverage within the project area with vaccinations. This is an area of 8300 sq km. We aim to eradicate rabies in our study area by consistently vaccinating against rabies.

Our community outreach and awareness efforts have been very successful within the year, reaching out to over 105,000 residents (women and children taking the largest share) on different topics including coexistence and zoonotic disease control

Photos attached separately.

File Type (Image / Video / Graphic)	File Name or File Location	Caption, country, and credit	Online accounts to be tagged (leave blank if none)	Consent of subjects received (delete as necessary)
Image	WD001	Collaring exercise, Kenya, Celine Wandia	@MpalaWildDogs Mpala_WildDogs	Yes / No
Image	WD002	Community plays on rabies, Kenya, Celine Wandia	@MpalaWildDogs Mpala_WildDogs	Yes / No
Image	WD003	School outreach, Kenya, Celine Wandia	@MpalaWildDogs Mpala_WildDogs	Yes / No
Image	WD004	Domestic dogs vaccination by an LRVC branded vet, Celine Wandia	@MpalaWildDogs Mpala_WildDogs	Yes / No
Image	WD005	Domestic dogs brought in to a vaccination center, Kenya, Celine Wandia	@MpalaWildDogs Mpala_WildDogs	Yes / No

19. Annex 1: Report of progress and achievements against log frame for Financial Year 2022-2023

Project summary	SMART Indicators	Progress and Achievements April 2022 - March 2023	Actions required/planned for next period
<p>Impact</p> <p>Insert agreed-on project Impact statement</p> <p>Sustainable long-term coexistence of an intact and ecologically functioning large carnivore guild with healthy and prosperous local people in Kenya's Ewaso ecosystem</p>		<p>The project continues to cultivate the strengthening of pillars to support the outlined project impact. Community capacity building towards sustained coexistence with a stable population of wild dogs and other carnivores has successfully been carried out within the reporting period. Efforts to ensure a thriving wild dog population by reducing kills and diseases are ongoing. Similarly, community welfare will cumulatively improve with the progress of the project. All these together contribute to a sustainable long-term functioning ecosystem with optimal benefits to people and wildlife.</p>	
<p>Outcome (Insert agreed project Outcome statement)</p> <p>An ecosystem free of rabies where people coexist sustainably with wild carnivores, including a recovering African wild dog population</p>	<p>(Insert agreed Outcome level indicators)</p> <p>0.1 African wild dog numbers at least doubled by the end of the project, from 2 packs in Jan 2022 to at least 4 breeding packs by 2024.</p> <p>0.2 Annual human rabies deaths reach zero by the end of the project, from an estimated 25 deaths p.a. in 2017</p> <p>0.3 Wildlife (including the wild dog) rabies cases reach zero by the end of the project, from a (known non-zero) baseline established at the start of the project</p>	<p>(Report against the indicators on progress towards achieving the project Outcome)</p> <p>The project has documented an increase in number and packs of wild dogs in the project area. An additional 17 wild dogs have been reported and confirmed by the project team. This is in addition to continued breeding by the known packs which produced 8 new pups in November 2022.</p> <p>To eradicate rabies in the project area, the project has achieved 79% area coverage in over 8300 sq km area. This has significantly contributed to</p>	<p>(Highlight key actions planned for next period)</p> <p>-The project intends to strengthen community outreach and training on coexistence through informal and formal community meetings and community art performances</p> <p>-Vaccinations of domestic dogs will continue in the next reporting period where the area covered will be increased.</p>

	<p>0.4 Livestock predation by wild dogs remains at zero throughout the project despite increased wild dog numbers</p> <p>0.5 Livestock predation by other large carnivores reduced by one-third in the course of the project, relative to a starting baseline</p>	<p>there being no reported human deaths and wild dog deaths from rabies.</p> <p>No recorded deaths of wild dogs from killing by residents in the reporting period. This is despite an increased number of reported wild dog sightings within the project area. We associate this with increased community outreach efforts from the project team.</p>	
<p>Output 1. (Insert agreed Outputs with activities relevant to that Outputs in lines below. Activities relevant to more than one Output should be cross-referenced rather than repeated)</p> <p>Zero human deaths from rabies in the project area by 2024</p>	<p>(Insert original Output level indicators)</p> <p>1.1 Annual human rabies deaths in the project areas reduced from 25 p.a. in 2017 to zero in 2023-4</p> <p>1.2 Bites by suspected rabid dogs decline from 130/100,000 people/year in 2017 to <20/100,000 people/year in 2023-4, with no female bias in dog bite victims.</p> <p>1.3 Area covered by domestic dog rabies vaccination expanded from 1,500 sq km in 2017 to 10,000 sq km in 2022</p> <p>1.4 Proportion of domestic dogs vaccinated against rabies in targeted areas increased from 24% in 2017 to ≥70% in 2022-4</p> <p>1.5 Local people engaged by community outreach efforts related to domestic dog ownership increased from 0 in 2017 to 30,000 in 2022-4, with equal gender participation.</p>	<p>(Report general progress against indicators, comment on their appropriateness, and reference where evidence is provided e.g. <i>Evidence provided in section 3.2 of the report and Annex X</i>)</p> <p>Significant progress towards this output is being achieved by the project. In the first year of this project, as reported from the hospital data in the project area, we have not reported any rabies-related human death. This is against a baseline of 17 deaths p.a. in 2017.</p> <p>Activities planned for the reporting period contributing to this output have been carried out:</p> <p>Awareness creation and education towards the eradication of rabies and domestic dog handling in the project area have been continuously in progress through mainstream media, social media, one-on-one approaches, community meetings and plays reaching out to 70,330 residents as shown in appendix 3 without out gender biases; reaching to school going children, women, youth and men.</p> <p>The area covered by domestic vaccinations has significantly increased from 1500sq km in 2017 to 8600sq km in 2022 which is also the case with the percentage coverage of vaccinated dogs against the total number of dogs which has increased from 24% to 67%, 2017 and 2022 respectively; information gathered from the post-vaccination surveys and capture-recapture method carried out after every vaccination day.</p>	

Activity 1.1 Insert activities relevant to this Output	(Report completed or progress on activities that contribute toward achieving this Output)	(Outline what will be carried out in the next period)
Vaccinate domestic dogs annually across a 10,000 sq km project area, achieving 70% vaccine coverage, including traveling with camels in areas not accessible by vehicle.	The first year has seen the achievement of this activity having covered 79% of 10000sq km of the project area. This has been achieved through a private-public partnership of stakeholders within the project area. The project team intends to extend the mass vaccination to more areas for its second-year vaccinations.	we plan to have mass domestic dog vaccinations in the next reporting period while supplementary vaccinations constantly continue in areas identified with insufficient coverage.
Collect data on rabies vaccination efforts and coverage using the Mission Rabies smartphone app (http://www.missionrabies.com/app).	All vaccination-related data including numbers vaccinated, type of vaccine administered, and other details of vaccinated domestic dogs' characteristics are captured in a mobile app making it readily available and safely kept for future use.	This continues till the project end
Conduct mark-resight monitoring of domestic dogs conducted after a sample of vaccination days to estimate vaccine coverage.	To estimate vaccination coverage, the project's Monitoring and Surveillance Officer has led in conducting a mark-resight activity. Information from this activity has been used to advise adjustments and modifications of vaccination approaches.	This continues till the project end
Develop a participatory play about rabies, dog vaccination, how correct dog bite management can save lives, and the parallels between human and wildlife health.	The Community Outreach Arts team together with the Mpala project team developed two plays on rabies eradication and another on human-wildlife coexistence. The plays are designed to be as interactive as possible with the audience giving the	Performances to different community audience segments are planned within the project phase

	approach an edge to reach more and educate communities.	
Perform the rabies play on ≥20 occasions in advance of rabies vaccination days, targeting locations likely to attract women as well as men	The plays were later performed for different audiences in communities within the project area. A total of 10 plays on rabies control have been performed within the year. These included market days, community meetings, and in schools.	Another ten plays are to be done in the next reporting year.
Monitor the effectiveness of participatory play by interviewing audience members before-and-after performances.	Before and after play performances, questionnaires were administered to the target audiences to determine the initial status of knowledge amongst locals and the knowledge and perception change after the plays were performed.	To happen for all plays performed.
Develop short video clips, based on the rabies play, optimized for sharing over WhatsApp, and encourage sharing over local networks.	To promote sharing of information to a larger community within the project area and beyond, the project team has continuously made short clips from the plays and shared them on its socials.	To continue till the project end.
Develop and distribute posters and leaflets about rabies prevention, as part of community sensitization ahead of rabies vaccination days.	Posters, leaflets, and stickers were developed before the mass vaccinations. They were used to educate and create awareness among residents within the project area and to whom vaccinations are to benefit. This helped increase vaccination uptake amongst residents.	Distribution to select audiences continues especially in areas targeted by vaccinations.
Train outreach officers and scouts from partner projects in rabies prevention messages, so that they can help with community sensitization.	To optimize outreach regarding rabies eradication, the project has engaged over 41 community youth from different community conservancies as local assistants during mass vaccinations and as rabies control education promoters.	Community engagement continues with any available opportunity.

<p>Monthly project meetings to evaluate progress, continue staff training, and consider ways to improve effectiveness.</p>	<p>Throughout the year, we have had regular bi-weekly meetings with the whole project team including the project advisors. Every meeting offers a platform to discuss different aspects of the project to ensure smooth implementation and efficiency in project management</p>	<p>To be continued till the project end.</p>
<p>Adapt outreach efforts to specific local issues if monitoring indicates vaccination coverage is insufficient.</p>	<p>Monitoring of the vaccination effort indicated a few areas within the project area that were vaccinated insufficiently. This was mainly due to logistical challenges occasioned by long distances and vast areas with low human populations. Supplementary follow-up vaccinations were done to ensure sufficient coverage was done in these areas.</p>	<p>Continuing now and to be continued following mass vaccinations in the next phase</p>
<p>Establish systems for collecting age- and sex-specific data on dog bites and rabies deaths at 4 hospitals and 20 dispensaries.</p>	<p>The project team has engaged the Laikipia County Government in the development of the proposed system. Partly successful, data on dog bite distribution and human deaths have been availed as a detailed data collection tool awaits approval.</p>	<p>If approved, the training of nurses happens in the next reporting period</p>
<p>Liaise regularly with the national “Rabies-Free Kenya” campaign to ensure efforts are complementary and, share experience of best practices.</p>	<p>As with other partners and stakeholders within and outside of the project area, the project's vaccination campaign progress and experience have been shared with “Rabies Free Kenya” to enhance knowledge and experience sharing among implementers of similar interventions.</p>	<p>Keep sharing lessons with the national rabies control team throughout the project</p>
<p>Close-out meeting early in Year 3 to assess progress relative to national rabies eradication efforts, and to decide the next steps.</p>	<p>To ensure these interventions are sustained beyond project life, the proposed close-out meeting will be done in the last year of the project</p>	<p>Await the last project year to happen</p>

<p>Output 2. (Insert agreed Output)</p> <p>Two-thirds reduction in wild dog deaths caused directly or indirectly by people</p>	<p>(Insert agreed Output level indicators)</p> <p>2.1 Wild dog mortality caused by domestic dog diseases reduced from 10% of all adult wild dogs <i>p.a.</i> in 2001-2015 to 3% in 2022-4</p> <p>2.2 Wild dog mortality caused deliberately by people reduced from 5% of all adult wild dogs <i>p.a.</i> in 2001-2015 to 2% in 2022-4</p> <p>2.3 Local action plan for disease management in wild and domestic carnivores agreed by Jun 2022 and implemented by Jun 2023.</p> <p>2.4 Surveillance system for reporting sickness in wild and domestic carnivores developed & implemented by Oct 2022.</p> <p>2.5 Local action plan for mitigating livestock depredation by other large carnivores agreed by Jun 2022 and fully implemented by Jun 2023.</p>	<p>(Report against the indicators on progress towards achieving the Output)</p> <p>This has successfully been achieved having no wild dogs reported to have died from diseases and or been killed by people in the project area against a benchmark of 5% of all adult wild dogs <i>p.a.</i> in 2001-2015. Wild dog monitoring through collaring and documentation of sightings by communities continues</p> <p>A disease management workshop was successfully held by the project during the reporting period. It developed a disease surveillance system that is partially implemented. During the reporting period, Community Officers have been trained in disease surveillance and are reporting on any disease cases in their respective areas via SMART App.</p>	
<p>Output 2; Activities</p>			
<p>Convene workshop on managing disease risks to wild dogs, involving local and international experts and drawing on existing data and epidemiological modeling.</p>		<p>A 6 days disease management workshop was held at Mpala Research Centre bringing together 22 experts from local and international partners and stakeholders including; the Zoological Society of London, Laikipia County Government,...</p>	<p>This was carried out.</p>
<p>Develop and publish a local disease management plan for wild dogs and other large carnivores based on the disease workshop outcomes,</p>		<p>As an output of the workshop, a disease management model was developed. The model continues to</p>	<p>Work to operationalize remaining sections of the plan</p>

	inform conservation interventions going now and into the future.	
If recommended by disease workshop participants, including Kenya Wildlife Service, initiate vaccination (rabies and/or CDV) within each collared wild dog pack.	The recommendations from the workshop were positive on vaccinating wild dogs against rabies and CDV in known parks. However, this activity has not been actualized, pending approvals/permitting from the Kenya Wildlife Services, KWS.	If permits are given; vaccinate known individuals in known packs for monitoring
With workshop participants, develop a SMART-integrated surveillance system for reporting sickness in wild and domestic carnivores, including response plans.	The workshop proposed developing a disease-reporting system to be incorporated into the data collected by the project team. This has been actualized by developing a data collection tool on sick and dead carnivores and domestic dogs which is being used to collect data by Community officers in their respective areas of operation.	Done
Train project Community Officers, project partners' scouts, outreach officers, and other SMART users to use the surveillance system.	The year has seen Community Officers and all other project team members trained on the use of SMART in data collection and surveillance. We plan to extend this training to partners' scouts/rangers and other staff that the project would benefit from them acquiring the skills in the coming year/s.	-Community Officers continue collecting data -Our project trains scouts from partner organizations to collect data using the system
Train and equip veterinarians from KWS, Mpala, and partners to implement the response plan.	Bringing veterinarians to partner in the actualization of the disease response plan will be done in the next reporting period.	Bring on board vets in implementing the disease response plan
Convene a workshop on mitigating livestock depredation in the project area, involving local and international experts.	To be done in the next reporting period	
Based on depredation workshop outcomes, develop and publish a local plan to mitigate livestock depredation by wild dogs and other large carnivores.	To be done after activity 2.7 has been completed	

<p>Monitor wild dog health, survival, and reproduction by deploying tracking collars on all known wild dog packs in the project area, with frequent visual checks.</p>	<p>The project team, in close partnership with KWS and NRT, and individual conservancies has within the second year of our project period deployed 7 collars to individuals from 2 parks. Frequently, the collared parks are checked to document their status. This has helped the project document survival and health status. However, there are more collaring attempts of wild dog packs newly sighted in the project area but the team has not been successful owing to challenges in rough terrain and long distances; hampering the productivity of collaring attempts.</p>	<p>Collaring will continue for any new park or dispersing pack till the project ends to complement population monitoring.</p>
<p>Retrieve and (with KWS) necropsy and wild dogs which die, collating data on mortality rates and causes.</p>	<p>Within the 2nd year of this project, the area has not had any deaths of wild dogs.</p>	<p>Collar retrieval will happen for any deaths</p>
<p>Collate data annually from KWS and partner projects on conflict-related mortality of other large carnivore species.</p>	<p>We intend to collect human-wildlife-related data from partner projects and organizations at the start of the next reporting period.</p>	<p>Data to be collected</p>
<p>Output 3. Declining incidence of livestock predation by all large carnivores, despite the rising population of wild dogs</p>	<p>3.1 No wild dog attacks on livestock in 2022-4 (compared with >20 attacks in 2014 when rates were last enumerated) 3.2 Livestock killed by other large carnivores reduced by one-third in 2023-4 compared with the 2022 baseline. 3.3 Majority of livestock keepers (both male and female) practicing carnivore-friendly husbandry by 2024 3.4 Local people engaged in community outreach efforts related to wild dog conflict increased from 0 in</p>	<p>In contribution to this output, our project has reached out to 44,065 persons (gender inclusive) on good husbandry practices in coexistence messages within the project area using its different communication methods as in output 1, as shown in appendix 3. Compared to the baseline of 2014 where >20 cases of depredation were experienced, the reporting period has reported 8 wild dog depredation cases representing a decline of more than 50%. The trend in livestock husbandry practices has and will continue throughout the project to be captured by monitoring surveys carried out within the project area</p>

	2018 to 30,000 in 2022-4, with equal representation of men and women	
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Activities			
3.1 With participants in the depredation workshop, agree on appropriate methods to mitigate livestock predation by wild dogs and other large carnivores.		To be done in the next reporting period	
3.2 Integrate chosen methods into new and existing training materials for Mpala and partner projects, and train key staff to use and share them.		To be done in the next reporting period	
3.3 Solicit and follow up reports of large carnivore attacks on livestock, collecting case-control data on husbandry methods and offering advice on mitigation methods.		Data collection on large carnivore depredation within the project area has been happening and was actualized by the Community Officers.	To be continued till our project end
3.4 Develop a participatory play about coexisting with large carnivores, especially wild dogs, sharing evidence on sustainable ways to prevent livestock attacks.		As with activity 1.4, a co-existence messaged play was developed consultative-ly	Done
3.5 Perform the coexistence play on ≥ 20 occasions, targeting locations experiencing livestock depredation problems, especially wild dog depredation.		10 plays on coexistence have been performed for similar audiences as in 1.5.	10 performances to happen in the next reporting period
3.6 Monitor the impact of the coexistence play by counting audiences, and by interviewing a sample of audience members before-and-after performances.		As with 1.6 monitoring has been happening before and after plays	To be continued
3.7 Develop short video clips, based on the coexistence play, optimized for sharing over WhatsApp, and encourage sharing over local networks.		Similar to 1.7 short clips and picture has been made and used for awareness and education	To be continued
3.8 Develop and distribute posters and leaflets about coexistence with wild dogs and other large carnivores, targeting places women are likely to visit, as well as men.		This is to be done in the next reporting period	
3.9 Share knowledge about approaches to coexistence through regular formal and informal meetings with community members and groups.		Through different avenues including; formal and informal community meetings, social media, and prints, the project team has reached over 44,065 residents in the project area with	To be continued until the end of the project

		coexistence and best practices messages.	
3.10 Monitor key livestock husbandry measures (e.g., number/age/sex of herders) in a sample of herds at the start of the project and annually thereafter.		Through standardized household depredation monitoring, data on livestock husbandry measures are collected by community officers in their respective regions. This will continue till the end of the project and we shall be able to deduce changes in practice	To be continued
3.11 Identify a sample of focal households for each community officer, to facilitate a standardized measure of predator impact with constant observer effort		This is being implemented. 100 sample household were selected, a standardized questionnaire was developed for data collection, and the Community Officers were trained on how to effectively collect the data. The activity was piloted and modifications were done to allow efficient implementation	Done
3.12 Collect data on livestock depredation and economic losses per focal household; estimate trends in losses over time.		In focal households, depredation data is collected monthly. This will allow the project to determine trends in losses caused by large carnivores within and after the project period.	Happening and continues
Output 4 Improved public attitudes to coexisting with African wild dogs	(Insert agreed Output level indicators) 4.1 Percentage of community members wanting wild dogs on their land increased from 38% in 2007 to 70% in 2023-4. 4.2 Ten-fold increase in Kenyan print and broadcast media items presenting positive new stories about wild dogs (from 1 newspaper article and 1 TV report in 2018). 4.3 Ten-fold increase in social media reach of project accounts, primarily within Kenya (e.g. @MpalaWildDogs to increase from 590 followers to >5,000).	The project through its different communication and outreach methods including prints and social media posts, see sample leaflet and social posts attached, has initiated and strengthened information sharing on the benefits of coexistence with large carnivores. This is all aimed at increasing the positive perception towards wild dogs and other carnivores. Combining community benefits accrued by the achievement of outputs 1-3, communities can associate and accommodate coexistence as the better option. Baseline questionnaires to assess the status quo were administered before outreach activities and the project will assess change in attitude at the project end.	

	4.4 Increase in the proportion of tourism operators using wild dogs' presence in their advertising.	
Activities		
4.1 Encourage discussion about the benefits of coexisting with wildlife, as well as the costs, during play performances and formal and informal community meetings.	Discussions based on the importance and benefits of conservation are promoted in the plays as well as in most of the avenues used by our project team to communicate with the residents.	To be continued.
4.2 Actively encourage journalists and filmmakers to visit the project, promoting positive media stories linking human health to wildlife conservation.	Within the 1 st year, we have had an independent journalist interested in documenting the project's progress, the processing is in progress and we hope to have a positive media promotion in the next reporting period.	The project team continues to scan for opportunities and encourage prospective media persons and houses to consider covering project interventions
4.3 Promote positive stories about wild dog conservation and human health through our own, and partners', social media accounts and other digital platforms.	Positive conservation stories related to wild dog and other large carnivore is consistently promoted through our own social media handle listed above. We endeavor to maintain this throughout the project and beyond.	To be continued.
4.4 Use a simplified version of the questionnaire developed for ref (87) to measure local attitudes to wild dogs at the start and end of the project.	Perceptions and attitudes towards wild dogs amongst residents are being documented through questionnaires administered to residents of areas frequented by wild dogs or opportunistically to residents neighboring wild dog denning sites	To be continued.
4.5 Monitor and record the number of reports about the project in print, broadcast, and social media.	The project team has over the period worked together to share amongst themselves and document progress achieved with communications via the project socials. We have annexed the posts from our socials in this report.	To be continued.

<p>4.6 Promote the use of wild dogs in marketing tourism to the project area through informal meetings with individual lodges and camps.</p>	<p>Through informal, formal, and social meetings and gatherings with partners, lodges, and conservancies, the project team has been able to promote tourism with wild dogs being the main character.</p>	<p>To be continued.</p>
<p>Output 5. Improved national capacity for protecting wildlife populations and human health</p>	<p>(Insert agreed Output level indicators)</p> <p>5.1 Number of trained full-time Kenyan professional wild dog conservationists in the project area increased from 2 (male) in 2019 to 10 (including ≥3 women) by April 2022.</p> <p>5.2 Number of Kenyan wildlife veterinarians with practical expertise in wild dog health increased from 2 (both male) in 2019 to 4 (2 male, 2 female) in 2022.</p> <p>5.3 Days each year that County Veterinary Officers have transport to contribute to mass dog vaccination increased from 0 in 2019 to 24 in 2022.</p> <p>5.4 Number of nurses trained to collect sex- and age-disaggregated anonymized data on rabies deaths and dog bites increased from 0 in 2019 to 24 in 2022.</p> <p>5.5 Number of Kenya conservation professionals engaged in using epidemiological models to inform wild</p>	<p>The project has significantly and consistently contributed to this output for its 2nd year. The disease management workshop exposed a significant number of local conservation practitioners >15 to epidemiological modeling informing wild dog disease management which is a self-sustaining impact of this project.</p> <p>The project has directly engaged County government Veterinary Officers in domestic dog vaccinations within the project period. The 2nd year has seen 35 experts directly engaged in the vaccinations totaling 4032 man hours.</p> <p>Progressively, the project's 9 team members have had monthly training on different topics related to wild dog conservation; threats, opportunities, and approaches for effective project delivery which has significantly contributed to improved project staff capacity.</p>

	dog disease management increased from 0 in 2017 to ≥20 in 2022.	
Activities		
5.1 Conduct initial training workshops for the project team at the start of the project	At the start of the project, all the project team members including Community Officers have had the initial training while joining the training	Done
5.2 Include training session in every monthly project meeting	The initial training has been supplemented by regular training on different topics. The monthly training has been facilitated by senior project team members and advisors	Training topics are to be constantly identified and training held during monthly project meetings
5.3 Ensure that specific training provided to project staff is also offered to relevant staff from partner projects	Training to support the implementation of this project has been done for internal project staff. Training to partner staff will be extended in the next reporting period	The project will extend select training successfully scouts in the next reporting period
5.4 Schedule vaccination days to involve the County veterinary officers, providing transport to facilitate their involvement	The project has successfully involved the County Government Veterinary Officers in planning and implementation of vaccination activity with transportation during vaccination days being provided by the project.	To be continued
5.5 Train dispensary nurses and hospital staff to collect and report age- and sex-specific data on rabies deaths and dog bites.	The designing of a system to train hospital staff to collect detailed rabies-related data on dog bite cases presented at hospitals has been initiated and awaits approval by Health Departments of County Governments which manages hospital operations. We expect to have it operationalized in the reporting period	If approved, training for nurses will be done in the next reporting period

5.6 Engage Kenyan veterinarians and other conservationists with epidemiological modeling in the course of the disease management workshop.	The disease management workshop brought together diverse expertise from veterinarians and conservationists drawn from different organizations from Kenya and beyond.	Done
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Annex 2: Project's full current log frame as presented in the application form (unless changes have been agreed)

Project Summary	Measurable Indicators	Means of Verification	Important Assumptions
Impact: Sustainable long-term coexistence of an intact and ecologically functioning large carnivore guild with healthy and prosperous local people in Kenya's Ewaso ecosystem			
Outcome: An ecosystem free of rabies where people coexist sustainably with wild carnivores, including a recovering African wild dog population	0.1 African wild dog numbers at least doubled by the end of the project, from 2 packs in Jan 2022 to at least 4 breeding packs by 2024. 0.2 Annual human rabies deaths reach zero by the end of the project, from an estimated 25 deaths p.a. in 2017 0.3 Wildlife (including the wild dog) rabies cases reach zero by the end of the project, from a (known non-zero) baseline established at the start of the project 0.4 Livestock predation by wild dogs remains at zero throughout the project despite increased wild dog numbers 0.5 Livestock predation by other large carnivores reduced by one-third in the	0.1 Wild dog numbers will be assessed through population monitoring 0.2 Human rabies deaths will be monitored using data from hospitals and dispensaries 0.3 Cases of wildlife (including the wild dog) rabies will be counted using ongoing monitoring of collared individuals (by Mpala and project partners) and through a wildlife health surveillance system integrated into ongoing SMART monitoring. 0.4 Livestock predation will be systematically monitored by community officers and by partner projects.	This outcome assumes that the main constraints on wild dog recovery in the project area are domestic dog diseases and deliberate killing by people. This assumption is based on intensive studies of wild dog ecology and population dynamics through population recovery in 2001-2016 a crash in 2017, and subsequent slow recovery. The effect of domestic dog vaccination on human rabies is well-documented. Effective and locally appropriate ways to reduce livestock predation have been identified, but other factors may constrain the extent to which people adopt them. This outcome also assumes that civil unrest does not return to the project

	course of the project, relative to a starting baseline		area at levels sufficient to impact our project. Recent investment in security within the region, and strong community links, should minimize any such impact.
Outputs: 1. Zero human deaths from rabies in the project area by 2024	<p>1.1 Annual human rabies deaths in the project areas reduced from 25 p.a. in 2017 to zero in 2023-4</p> <p>1.2 Bites by suspected rabid dogs decline from 130/100,000 people/year in 2017 to <20/100,000 people/year in 2023-4, with no female bias in dog bite victims.</p> <p>1.3 Area covered by domestic dog rabies vaccination expanded from 1,500 sq km in 2017 to 10,000 sq km in 2022</p> <p>1.4 Proportion of domestic dogs vaccinated against rabies in targeted areas increased from 24% in 2017 to ≥70% in 2022-4</p> <p>1.5 Local people engaged by community outreach efforts related to domestic dog ownership increased from 0 in 2017 to 30,000 in 2022-4, with equal gender participation.</p>	<p>1.1 Data (disaggregated by sex and age) on causes of death collected from 4 hospitals and 20 dispensaries serving the project area.</p> <p>1.2 Data (disaggregated by sex and age) on dog bites by suspected rabid dogs recorded by nurses at 20 dispensaries and four hospitals serving the project area.</p> <p>1.3 Information on area coverage will be collected in the course of delivering vaccination, using a dedicated smartphone app (http://www.missionrabies.com/app).</p> <p>1.4 Estimates of vaccine coverage from re-sighting of domestic dogs marked temporarily at the time of vaccination</p> <p>1.5 Engagement will be estimated by counting audiences (separately enumerating men, women, boys, and girls where possible) for participatory theatre, community meetings, etc.</p>	<p>This output is based on the assumptions that human rabies risks can be mitigated by domestic dog vaccination, and that dog bites are a good proxy for rabies incidence in domestic dogs. These assumptions are supported by a very strong well-replicated evidence base, with similar projects elsewhere reducing human rabies mortality to zero within 2-3 years of starting mass domestic dog vaccination, and a close correlation between dog bites and human rabies risk (76,77,31). This output also assumes that women are at least as impacted by rabies as men, an assumption supported by evidence that African women can face slightly higher rabies risks than men (67).</p> <p>The output also assumes that local communities will consent to vaccination of their domestic dogs, and participate in outreach activities. Participation to date has been high, but our project includes explicit plans to improve it further, drawing on experience from other animal health and public health initiatives (47).</p>
2. Two-thirds reduction in wild dog deaths caused directly or indirectly by people	<p>2.1 Wild dog mortality caused by domestic dog diseases reduced from 10% of all adult wild dogs p.a. in 2001-2015 to 3% in 2022-4</p> <p>2.2 Wild dog mortality caused deliberately by people reduced from 5%</p>	<p>2.1 Rates and causes of wild dog mortality will be measured by monitoring radio-collared packs, including a <i>post-mortem</i> exam of any wild dogs which die, by reports of wild dog deaths from</p>	<p>This output assumes that rabies risks to wild dogs can be reduced by vaccinating domestic dogs. This assumption is supported by strong evidence that wild dogs acquire rabies from domestic dogs at the project site</p>

	<p>of all adult wild dogs <i>p.a.</i> in 2001-2015 to 2% in 2022-4</p> <p>2.3 Local action plan for disease management in wild and domestic carnivores agreed by Jun 2022 and implemented by Jun 2023.</p> <p>2.4 Surveillance system for reporting sickness in wild and domestic carnivores developed & implemented by Oct 2022.</p> <p>2.5 Local action plan for mitigating livestock depredation by wild dogs and other large carnivores agreed by Jun 2022 and fully implemented by Jun 2023.</p>	<p>the SMART surveillance system, and by community reporting.</p> <p>2.2 Disease management workshop process completed, and the plan agreed upon by Kenya Wildlife Service and other stakeholders.</p> <p>2.3 The proportion of wild dogs vaccinated (if recommended in the disease management plan) will be estimated in the course of wild dog monitoring.</p> <p>2.4 Wildlife health surveillance system developed and integrated into SMART platform, with staff and partners across the project area trained in its use.</p> <p>2.5 Livestock depredation workshop process was completed, and the plan was agreed on by project partners, Kenya Wildlife Service, and other stakeholders.</p> <p>2.6 Agreed messages from the livestock depredation workshop integrated into training and outreach materials by all relevant partner projects, and in use by community officers throughout the project area.</p>	<p>(49,74) and elsewhere (78), by very strong evidence from elsewhere that vaccination reduces domestic dog rabies (31), and also by evidence from mathematical modeling and (52).</p> <p>A second assumption, that vaccinating domestic dogs against canine distemper is unlikely to reduce risks to wild dogs (and will therefore be considered at the disease workshop rather than recommended here), is based on evidence that this pathogen does not persist in domestic dogs in the project area (27), and on evidence that mass distemper vaccination of domestic dogs around the Serengeti ecosystem did not reduce CDV exposure in wild carnivores (50).</p> <p>Any plan to vaccinate wild dogs themselves would be based on careful evaluation, in a workshop setting, of existing and emerging data on the consequences of such vaccination for captive wild dogs (79,80,42), and for free-ranging wild dogs in our project area (for rabies (41)) and in South Africa (for distemper).</p> <p>This output also assumes that we will be able to detect sick or dead wild dogs across a large area. While rare, wild dogs are conspicuous animals where present, and we will achieve high coverage of the landscape by leveraging an existing ranger-based monitoring system (SMART), which is already in use across the project area.</p> <p>This output also assumes that reducing wild dog predation on livestock can reduce deliberate killing by people,</p>
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			which is supported by scientific evidence from within the project area (36).
<p>3. Declining incidence of livestock predation by all large carnivores, despite the rising population of wild dogs</p>	<p>3.1 No wild dog attacks on livestock in 2022-4 (compared with >20 attacks in 2014 when rates were last enumerated)</p> <p>3.2 Livestock killed by other large carnivores reduced by one-third in 2023-4 compared with 2022 baseline.</p> <p>3.3 Majority of livestock keepers (both male and female) practicing carnivore-friendly husbandry by 2024</p> <p>3.4 Local people engaged in community outreach efforts related to wild dog conflict increased from 0 in 2018 to 30,000 in 2022-4, with equal representation of men and women.</p>	<p>3.1 Declining incidence of livestock predation reported to community officers stationed throughout the project area (total, and subset reported from a predetermined sample of focal households to avoid observation bias), as well as to project partners.</p> <p>3.2 Improved livestock husbandry (by both male and female farmers) observed in annual monitoring surveys.</p> <p>3.3 Engagement with outreach will be estimated by counting audiences (separately enumerating men, women, boys, and girls where possible) for participatory theatre, community meetings, etc.</p>	<p>This output assumes that predation on ock can be reduced by modifications of traditional livestock husbandry methods, which is supported by case-control studies conducted within the project area (37) as well as evidence from elsewhere (58-60).</p> <p>This output also assumes that participatory theatre is an effective way of communicating conservation messages and effecting behavior change, a view which is supported by multiple studies (81-83) including evidence of behavior change in both public health (55) and human-elephant conflict (61).</p>
<p>4. Improved public attitudes to coexisting with African wild dogs</p>	<p>4.1 Percentage of community members wanting wild dogs on their land increased from 38% in 2007 to 70% in 2023-4.</p> <p>4.2 Ten-fold increase in Kenyan print and broadcast media items presenting positive new stories about wild dogs (from 1 newspaper article and 1 TV report in 2018).</p> <p>4.3 Ten-fold increase in social media reach of project accounts, primarily within Kenya (e.g. @MpalaWildDogs to increase from 590 followers to >5,000).</p> <p>4.4 Increase in the proportion of tourism operators using wild dogs' presence in their advertising.</p>	<p>4.1 Community attitudes to wild dogs will be assessed through surveys conducted at the start and end of the project</p> <p>4.2 Changes in media coverage (print, broadcast, and social media) will be measured in the course of conducting media outreach</p> <p>4.3 Changes in tourism advertising will be monitored by regular evaluation of tourism advertising materials.</p>	<p>This output assumes that a package of measures, including linking practical action on human health to the health of endangered wildlife, and wild dog recovery to the recovery of the beleaguered ecotourism industry, can help to improve local attitudes to wild dogs.</p> <p>This assumption is supported by our preliminary evidence, although the translation of attitudes into behavior change is less certain.</p> <p>This output also assumes that increased use of wild dogs to advertise local tourism venues will encourage visits, especially by African tourists. This assumption is supported by our surveys from the project area (84), as well as from South Africa (62).</p>

<p>5. Improved national capacity for protecting wildlife populations and human health</p>	<p>5.1 Number of trained full-time Kenyan professional wild dog conservationists in the project area increased from 2 (male) in 2019 to 10 (including ≥3 women) by Apr 2022.</p> <p>5.2 Number of Kenyan wildlife veterinarians with practical expertise in wild dog health increased from 2 (both male) in 2019 to 4 (2 male, 2 female) in 2022.</p> <p>5.3 Days each year that County Veterinary Officers have transport to contribute to mass dog vaccination increased from 0 in 2019 to 72 in 2022-2024.</p> <p>5.4 Number of nurses trained to collect sex- and age-disaggregated anonymized data on rabies deaths and dog bites increased from 0 in 2019 to 24 in 2022.</p> <p>5.5 Number of Kenya conservation professionals engaged in using epidemiological models to inform wild dog disease management increased from 0 in 2017 to ≥20 in 2022.</p>	<p>5.1 Numbers and gender balance of wild dog conservationists will be apparent in the process of assembling the final project team.</p> <p>5.2 Training of all team members (both core staff and those from partner projects) will be documented in records of monthly meetings.</p> <p>5.3 Mobilisation of County Veterinary Officers will be documented in project records.</p> <p>5.4 Training of nurses will be documented in project records and apparent from data collected in the course of monitoring human rabies risks.</p> <p>5.5 Engagement with epidemiological modeling measured in the course of the disease management workshop process.</p>	<p>This output assumes that improving national capacity for practical conservation and disease management will help to improve outcomes for wildlife conservation and sustainable development, an assumption supported by a large volume of evidence from the conservation (85) and public health (86) fields.</p>
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Activities

- 1.13 Vaccinate domestic dogs annually across a 10,000 sq km project area, achieving 70% vaccine coverage, including traveling with camels in areas not accessible by vehicle.
 - 1.14 Collect data on rabies vaccination efforts and coverage using the Mission Rabies smartphone app (<http://www.missionrabies.com/app>).
 - 1.3 Conduct mark-resight monitoring of domestic dogs conducted after a sample of vaccination days to estimate vaccine coverage.
 - 1.4 Develop a participatory play about rabies, dog vaccination, how proper dog bite management can save lives, and the parallels between human and wildlife health.
 - 1.5 Perform the rabies play on ≥ 20 occasions in advance of rabies vaccination days, targeting locations likely to attract women as well as men.
 - 1.6 Monitor the effectiveness of participatory play by interviewing audience members before-and-after performances.
 - 1.7 Develop short video clips based on the rabies play, optimized for sharing over WhatsApp, and encourage sharing over local networks.
 - 1.8 Develop and distribute posters and leaflets about rabies prevention, as part of community sensitization ahead of rabies vaccination days.
 - 1.9 Train outreach officers and scouts from partner projects in rabies prevention messages, so that they can help with community sensitization.
 - 1.10 Monthly project meetings to evaluate progress, continue staff training, and consider ways to improve effectiveness.
 - 1.11 Adapt outreach efforts to specific local issues if monitoring indicates vaccination coverage is insufficient.
 - 1.12 Establish systems for collecting age- and sex-specific data on dog bites and rabies deaths at 4 hospitals and 20 dispensaries.
 - 1.13 Liaise regularly with the national “Rabies-Free Kenya” campaign to ensure efforts are complementary and share experiences of best practices.
 - 1.14 Close-out meeting early in Year 3 to assess progress relative to national rabies eradication efforts, and to decide next steps.
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- 2.1 Convene workshop on managing disease risks to wild dogs, involving local and international experts and drawing on existing data and epidemiological modeling.
 - 2.2 Based on disease workshop outcomes, develop and publish a local disease management plan for wild dogs and other large carnivores.
 - 2.3 If recommended by disease workshop participants, including Kenya Wildlife Service, initiate vaccination (rabies and/or CDV) within each collared wild dog pack.
 - 2.4 With workshop participants, develop a SMART-integrated surveillance system for reporting sickness in wild and domestic carnivores, including response plans.
 - 2.5 Train project Community Officers, and project partners’ scouts, outreach officers, and other SMART users to use the surveillance system.
 - 2.6 Train and equip veterinarians from KWS, Mpala, and partners to implement the response plan.
 - 2.7 Convene workshop on mitigating livestock depredation in the project area, involving local and international experts.
 - 2.8 Based on depredation workshop outcomes, develop and publish a local plan to mitigate livestock depredation by wild dogs and other large carnivores.
 - 2.9 Monitor wild dog health, survival, and reproduction by deploying tracking collars on all known wild dog packs in the project area, with frequent visual checks.
 - 2.10 Retrieve and (with KWS) necropsy and wild dogs which die, collating data on mortality rates and causes.
 - 2.11 Collate data annually from KWS and partner projects on conflict-related mortality of other large carnivore species.
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- 3.1 With participants in the depredation workshop, agree on appropriate methods to mitigate livestock predation by wild dogs and other large carnivores.
 - 3.2 Integrate chosen methods into new and existing training materials for Mpala and partner projects, and train key staff to use and share them.

- 3.3 Solicit and follow up reports of large carnivore attacks on livestock, collecting case-control data on husbandry methods and offering advice on mitigation methods.
 - 3.4 Develop a participatory play about coexisting with large carnivores, especially wild dogs, sharing evidence on sustainable ways to prevent livestock attacks.
 - 3.5 Perform the coexistence play on ≥ 20 occasions, targeting locations experiencing livestock depredation problems, especially wild dog depredation.
 - 3.6 Monitor the impact of the coexistence play by counting audiences, and by interviewing a sample of audience members before-and-after performances.
 - 3.7 Develop short video clips, based on the coexistence play, optimized for sharing over WhatsApp, and encourage sharing over local networks.
 - 3.8 Develop and distribute posters and leaflets about coexistence with wild dogs and other large carnivores, targeting places women are likely to visit, as well as men.
 - 3.9 Share knowledge about approaches to coexistence through regular formal and informal meetings with community members and groups.
 - 3.10 Monitor key livestock husbandry measures (e.g., number/age/sex of herders) in a sample of herds at the start of the project and annually thereafter.
 - 3.11 Identify a sample of focal households for each community officer, to facilitate a standardized measure of predator impact with constant observer effort
 - 3.12 Collect data on livestock depredation and economic losses per focal household; estimate trends in losses over time.
- 4.1 Encourage discussion about the benefits of coexisting with wildlife, as well as the costs, during play performances and formal and informal community meetings.
 - 4.2 Actively encourage journalists and filmmakers to visit the project, promoting positive media stories linking human health to wildlife conservation.
 - 4.3 Promote positive stories about wild dog conservation and human health through our own, and partners', social media accounts and other digital platforms.
 - 4.4 Use a simplified version of the questionnaire developed for ref (87) to measure local attitudes to wild dogs at the start and end of the project.
 - 4.5 Monitor and record reports about the project in print, broadcast, and social media.
 - 4.6 Promote the use of wild dogs in marketing tourism to the project area through informal meetings with individual lodges and camps.
- 5.1 Conduct initial training workshops for the project team at the start of the project
 - 5.2 Include training sessions in every monthly project meeting
 - 5.3 Ensure that specific training provided to project staff is also offered to relevant staff from partner projects
 - 5.4 Schedule vaccination days to involve County Veterinary Officers, providing transport to facilitate their involvement
 - 5.5 Train dispensary nurses and hospital staff to collect and report age- and sex-specific data on rabies deaths and dog bites.
 - 5.6 Engage Kenyan veterinarians and other conservationists with epidemiological modeling in the course of the disease management workshop.

20. Annex 3: Standard Indicators

The Biodiversity Challenge Funds (BCFs) use high-quality and accessible Monitoring, Evaluation, and Learning (MEL) to enable scaling, replication, and increase the impact of the funds and the projects we support.

By asking project teams to align indicators with the Darwin Initiative Standard Indicators, we aim to increase our contribution to the global evidence base for activities that support biodiversity conservation, poverty reduction, and capability & capacity.

The tables below are provided to assist project teams in reporting against Standard Indicators. Please report against the Standard Indicators that you have selected specifically for your project in Table 1 below. Refer to the Standard Indicator Guidance & Menu available on the [Darwin Initiative](#) website for guidance on how to select indicators, as well as how to disaggregate reporting within your chosen indicators.

New projects should complete the Y1 column and also indicate the number planned during the project lifetime. Continuing projects should copy and paste the information from previous years and add data for the most recent reporting period.

We recognize that our menu cannot cover all the potential monitoring needs for all projects – where necessary you can select indicators from other sources or develop your own. See our BCF MEL guidance on best practices for selecting and developing indicators.

Table 1 Project Standard Indicators

DI Indicator number	Name of indicator using original wording	Name of Indicator after adjusting wording to align with DI Standard Indicators	Units	Disaggregation	Year 1 Total	Year 2 Total	Year 3 Total	Total to date	Total planned during the project
E.g. DI-A01	E.g. People who attended training on CBD Reporting Standards	E.g. Number of officials from national Department of Environment who attended training on CBD Reporting Standards	People	Men	20			20	60
E.g. DI-C17	E.g. Articles published by members of the project team	E.g. Number of unique papers published in peer reviewed journals	Number	None	1			1	4
DI A01	Number of Kenya conservation professionals engaged with using epidemiological models to inform wild dog disease management increased from 0 in 2017 to ≥ 20 in 2022	Number of people from key national and local stakeholders engaged with using epidemiological models to inform wild dog disease management	Number	Men Women Group: public sector, civil society, private sector	10 11			21	21
DI A01	Local people engaged by community outreach efforts related to domestic dog ownership increased from 0 in 2017 to 30,000 in 2022-4, with equal gender participation	Number of people from local stakeholders with relevant training on domestic dog handling and rabies control	Number	Women Men Youth Stakeholder group: Local Community	31005 16000 23325			70330	90000
DI A01	Local people engaged by community outreach efforts related to wild dog conflict increased from 0 in 2018 to 30,000 in 2022-4, with equal representation of men and women	Number of people from local stakeholders with relevant training on human wildlife conflict reduction practises	Number	Women Men Youth Stakeholder group: Local Community	12178 14007 17880			44065	90000

DI Indicator number	Name of indicator using original wording	Name of Indicator after adjusting wording to align with DI Standard Indicators	Units	Disaggregation	Year 1 Total	Year 2 Total	Year 3 Total	Total to date	Total planned during the project
DI-A07	Days each year that County Veterinary Officers have transport to contribute to mass dog vaccination increased from 0 in 2019 to 72 in 2022-2024	Number of governments institutions/departments with enhanced awareness and understanding of biodiversity and associated poverty issues.	Number of days Government departments Veterinarians used for the project	Number of days	22			22	72
DI B02	Local action plan for disease management in wild and domestic carnivores agreed by Jun 2022 and implemented by Jun 2023.	Number of new/improved wild and domestic carnivores disease management plans available and endorsed	Number	Type: Disease management plan	1			1	2
DI-C15	Ten-fold increase in Kenyan print and broadcast media items presenting positive new stories about wild dogs (from 1 newspaper article and 1 TV report in 2018)	Number of Media related activities.	Number of local media coverage	Radio adverts	18			18	
DI-C12	Ten-fold increase in social media reach of project accounts, primarily within Kenya (e.g. @MpalaWildDogs to increase from 590 followers to >5,000)	Increase social media presence	Numbers of followers	Twitter-Instagram	1500			1500	5000
DI D01	Area covered by domestic dog rabies vaccination expanded from 1,500 sq km in 2017 to 10,000 sq km in 2022	Hectares of habitat under sustainable management practices	Area in sq km	Extent of pre-project and post-project rabies controlled area	8600			8600	10000
DI-D04	African wild dog numbers at least doubled by the end of the project, from 2 packs in Jan	Improved species population within the project area	Number of wild dogs packs	Type: Fauna	1			1	2

DI Indicator number	Name of indicator using original wording	Name of Indicator after adjusting wording to align with DI Standard Indicators	Units	Disaggregation	Year 1 Total	Year 2 Total	Year 3 Total	Total to date	Total planned during the project
	2022 to at least 4 breeding packs by 2024		increase in project area						
DI-D15	Livestock predation by wild dogs remains at zero throughout the project despite increased wild dog numbers	Net change in incidences of human wildlife conflict.	The number of livestock depredation cases		6			6	0
DI-D11	Majority of livestock keepers (both male and female) practicing carnivore-friendly husbandry by 2024	Number of people benefitting from improved sustainable agriculture practices and are more resilient to weather shocks and climate trends.	Number	As with indicator DI A01	44065				
DI-E03	Wild dog mortality caused by domestic dog diseases reduced from 10% of all adult wild dogs <i>p.a.</i> in 2001-2015 to 3% in 2022-4	Status of Threatened Species improved	Number Wild dog deaths	Disease caused= 0 Killed by people=0	0			0	<3%

In addition to reporting any information on publications under relevant standard indicators, in Table 2, provide full details of all publications and material produced over the last year that can be publicly accessed, e.g. title, name of publisher, contact details, cost. Mark with an asterisk (*) all publications and other material that you have included with this report.

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)
Not Applicable						

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Have you involved your partners in the preparation of the report and named the main contributors	X
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