

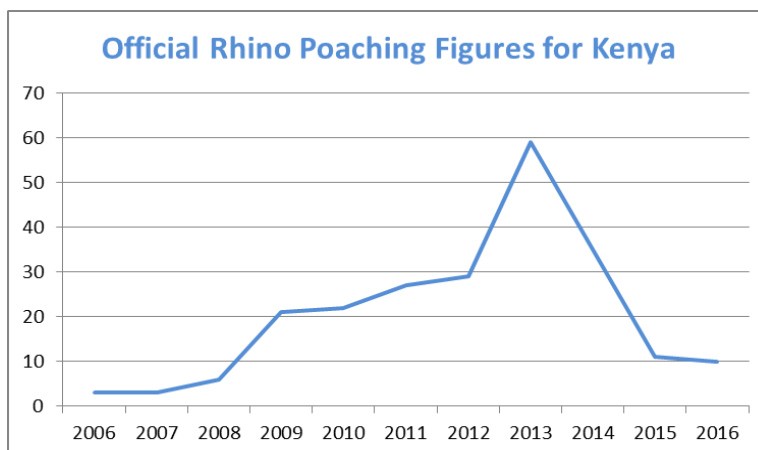


IWT Challenge Fund Project Information

Project reference	IWT010
Project title	Securing rhino populations with effective law enforcement and Impact Bonds
Country(ies)	Kenya
Contract holder institution	Zoological Society of London
Partner institution(s)	Kenya Wildlife Service (KWS); Equilibrium Research; Biglife Foundation (BLF); Seven Technologies Group (7Tech).
Total IWT grant value	£480,471
Start/end dates of project	April 2015 – March 2017
Project leader's name	Chris Gordon
Project Website/Blog/Social Media	n/a – see www.zsl.org ; www.kws.go.ke ; www.biglife.org
Report author(s) and date	Chris Gordon, Rebecca Sennett, Chris Ransom, Richard Moller, Sam Seccombe, Cedric Khayale, Linus Kariuki, Craig Miller – June 2017

1. Project Summary

Demand for rhino horn, resulting in poaching, continues to be the major threat to the Critically Endangered Eastern black rhino. During the 1970s and 80s, rhino and elephant numbers in Africa declined drastically. In Kenya alone, black rhino dropped from 20,000 to less than 300 individuals. Their numbers have been steadily rising over the past two decades but Kenya experienced an increase in rhino poaching from 2009 onwards (see graph on right). With approximately 650 black rhino remaining, these losses have impacted upon the Kenyan Government's ability to achieve its vision of holding 2,000 black rhino in the wild. This project was developed to help address the issues of rhino poaching in Kenya, with a major focus on the Tsavo Conservation Area, the historical bastion for black rhino conservation.



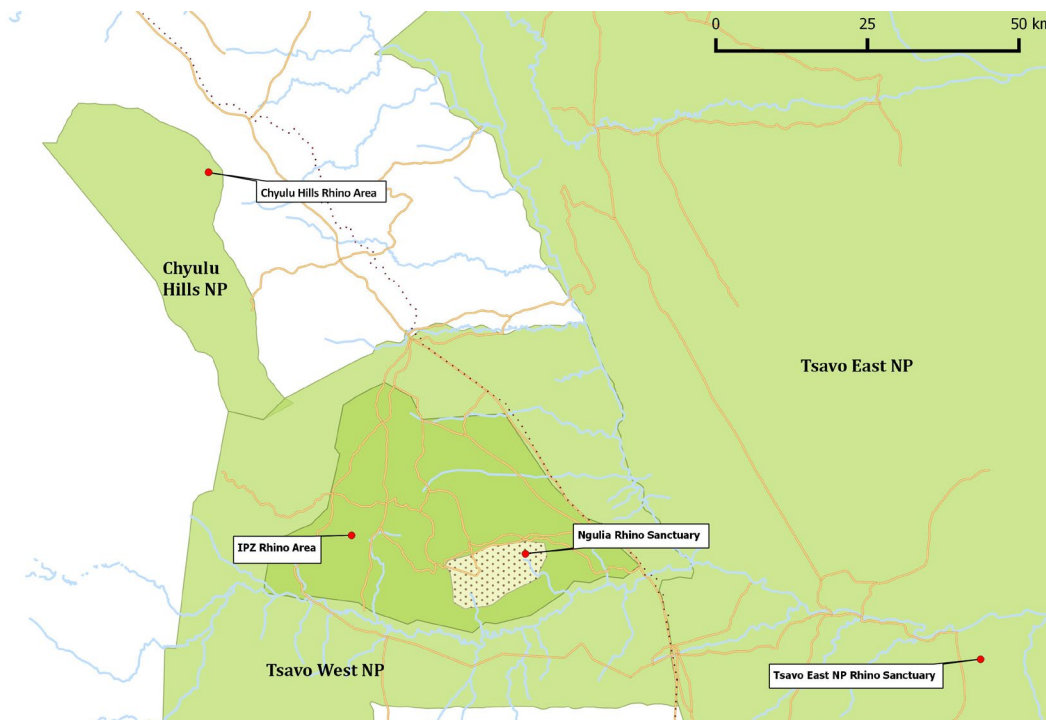
This project addresses two key problems facing Kenya in its efforts to tackle wildlife crime:

1. Inadequate financial resources: The Government of Kenya, through KWS, is committed to securing their wildlife, with significant resources put in place, including a 665-strong ranger force dedicated to rhino protection, but more is required. KWS is currently not financially self-sustaining, with much of its budgets consumed by staffing costs, which often impacts upon essential operations. KWS's protected area (PA) management budget is c. US\$ 0.5m/year per Protected Area (PA) on rhino-related activities.
2. Lack of capacity: There is a need to improve law enforcement and rhino monitoring capacity. This institute lacks up-to-date knowledge on some law enforcement technologies and methodologies, e.g. adaptive patrol monitoring and evaluation tools.

Successfully tackling the illegal wildlife trade (IWT) requires a holistic approach. This project addresses key elements including increasing financial resources, improving park operations and management,

improving law enforcement and monitoring capacity, enhancing intelligence-gathering on poacher movements, and enabling rapid response capabilities to react to poaching incursions.

This project is being implemented in the Tsavo Conservation Area (TCA), comprising three national parks: Tsavo West; Tsavo East; and Chyulu Hills. The TCA makes up 49% of Kenya's PAs and has massive growth potential for recovery of wildlife numbers. The TCA contains wide ranging elephant populations and four key rhino sub-populations which are found in: Ngulia Rhino Sanctuary (NRS) and the Intensive Protection Zone (IPZ) of Tsavo West; Mukururo rhino area in the Chyulu Hills; and a remnant population of free-ranging individuals in Tsavo East. The Tsavo landscape currently holds 18% of Kenya's black rhinos. Over the period of 2011-14, Tsavo lost 15 black rhino to poaching, resulting in growth rates falling from the targeted 5% per annum, down to approximately 2% per annum.



As of 2013, Kenya conserved 79% of the Critically Endangered Eastern black rhino population, with room for expansion. Due to its size and suitable habitat, KWS considers the TCA to be the most critical area to secure a large viable population of black rhinos in future, since most of Kenya's enclosed rhino sanctuaries have attained their estimated carrying capacities. The TCA has the potential to be a recipient site for surplus rhinos from overstocked populations, which would significantly contribute to Kenya's vision of at least 2,000 black rhinos in the wild. In order to achieve this, KWS has indicated that the quality of rhino monitoring and security must first reach a higher standard. This project will enhance protection of 18% of Kenya's black rhinos, and has additional benefits for elephants that utilise these protected areas.

In addition to wildlife within the TCA, the major beneficiaries from this project were the KWS and the local communities around the Chyulu Hills and the Tsavo PAs. KWS benefitted through having better trained and motivated rangers and officers through implementation of proven systems and incentive schemes, resulting in improved law enforcement and monitoring. All employees of KWS are Kenyans, thus this project has improved the capacity in country for effective protected area management, rhino monitoring and security. Training the trainers will have ultimately built capacity amongst hundreds of Kenyan individuals. Such training and the use of law enforcement tools to strengthen intelligence gathering will also have helped to improve ranger safety in the field. Training of Big Life rangers in the Chyulu Hills provided increased capacity and knowledge to the indigenous Maasai people of this area.

2. Project Partnerships

As the lead organisation, ZSL was responsible for delivering technical input on law enforcement and park management, training in rhino monitoring and security, project development and coordination of all partner organisations. In-country partners included KWS and BLF, both of which contributed to the planning of this project. As Kenya's national wildlife agency, KWS was responsible for identifying training needs and individuals to be trained, as well as integrating new law enforcement tools and systems into their current practices. BLF collaborated on monitoring and protecting black rhinos in the Chyulu Hills and providing rangers to partake in training alongside KWS rangers. KWS and BLF have a coordinated

mandate for co-management of the Chyulu Hills rhino population, which straddles both the Chyulu Hills National Parks, and the group ranches which BLF operate in.

The project partners communicated and collaborated on three levels: 1. Site-level collaborations within the TCA between KWS, ZSL and BLF; 2. National-level collaborations with KWS at a head-quarter level and ZSL; 3. International-level collaborations between ZSL and other technical partners including Equilibrium Research and 7Tech.

Site level meetings happen on a monthly basis for Tsavo West NP between KWS and ZSL (see supporting document sd01-06), and on a quarterly basis for the Chyulu Hills between KWS, BLF and ZSL (sd93-94). KWS made a decision during the project to temporarily abandon the development of the Tsavo East Rhino Sanctuary due to the ongoing drought in this region of Tsavo, and the impact this would have upon the likely success of translocating any rhino into this area. Consequently, meetings within Tsavo East have been limited. As delivery of intervention activities in focal areas have expanded, monthly planning meetings have evolved into planning, review and feedback meetings to the rhino ranger units on the ground. KWS and ZSL teams are working together very closely on the ground, with ZSL having a team of 6 persons based permanently in Tsavo. All three National Parks received a 3 day visit from Equilibrium Research to work through completion of the Management Effectiveness Tracking Toolkit (METT) assessments (sd11-13) at the project start to improve project planning and decision making. While the METT self-assessments were based predominantly on input from KWS Senior Park Management, other partners were invited to input into the process including ZSL, BLF and Tsavo Trust.

ZSL held an inception meeting at the start of the project with the Rhino Programme Coordinator for KWS, the Senior Scientist for Tsavo West and Chyulu Hills, and with a senior instructor at Manyani law enforcement academy at KWS headquarters to plan for upcoming activities. Follow-up meetings (both formal and informal) have occurred at least once every two months. These meetings have been important to allow for the adaptation of activity delivery because of decisions on the Tsavo East Rhino Sanctuary, and the issues that have arisen with regards to the external delivery of trainings at Manyani Training academy.

KWS completed a mid-term review of the Kenya black rhino national strategy (sd14-15), to review progress against each activity, to which ZSL and all national-level project partners were invited. Three members of KWS attended the IUCN African Rhino Specialist Group meeting in South Africa in February 2016 to discuss population and poaching results with colleagues from wildlife authorities and conservation actors from across the continent (sd16). ZSL coordinated a National Rhino Audit conducted by an independent consultant at the request of Kenya's Rhino Steering Committee (sd17), which informed KWS Board and Senior Management on the standard of monitoring and security in all 18 rhino sites, with all site managers engaged in the audit process. Recommendations from the National Audit were then fed into activities under this project, but additionally into the formulation of the next version of the National Rhino Strategy, which is currently under preparation. One of the key recommendations of this audit has been for all sites to detach monitoring and security functions, something that has already happened in the Tsavo sites during the course of this project.

ZSL has engaged with partner 7Tech to arrange the manufacture of Instant Detect (ID) systems (formerly called Instant Wild), and the training of the rangers on this system. The ZSL Conservation Technology (Cons Tech) team in London held regular meetings with 7Tech to agree and plan for equipment manufacture, deployment and ranger training. ZSL additionally employed a Cons Tech Field Specialist to lead these deployments and provide the follow-up support required thereafter. This has been critical as the success of these systems was shown to require a senior lead playing an active role particularly while the systems were bedding in.

All field partners (ZSL, KWS, BLF) have been involved in the preparation of this final report. The partners continue to work together, with these monitoring systems and the associated feedback sessions still occurring on a monthly basis. The IWT Challenge Fund finances helped to release co-financing from UNDP / GEF for the implementation of the Rhino Impact Investment (RII) project, with Tsavo West the major pilot site under this project, which runs until March 2018. The success of the RII pilot project hinges upon having successful, accurate and regular reporting of key metrics. Further, ZSL, BLF and KWS have recently partnered on a proposal to IUCN / SOS to support lion conservation in the Tsavo-Amboseli ecosystem, indicating our willingness to continue to work together.

ZSL has also developed a strong working relationship with Tsavo Trust, who are also trusted partners of KWS. Tsavo Trust have been responsible for providing increasing amounts of aerial support to the rhino areas in Tsavo West, and will be a critical partner in the monitoring of the IPZ rhinos once they are translocated. Tsavo Trust provide KWS with the majority of information on carcasses across the TCA, and with BLF, are actively involved in gathering intelligence for KWS through informer networks.

3. Project Achievements

3.1 Outputs

1. Management effectiveness gaps assessed to define the training needs for enforcement personnel in the TCA.

Output 1 was achieved following the completion of Management Effectiveness Tracking Toolkit (METT) self-assessments for all three National Parks in the TCA (Chyulu Hills, Tsavo West and Tsavo East) in April 2015. Reports were published and disseminated to all partners (sd11-13) which, amongst a number of recommendations, defined the training needs for enforcement personnel in the TCA. The documents highlighted the gaps in management effectiveness through a self-assessment of 30 defined columns of park management ranging from security, research and operations to finances, outreach and education. Most importantly, the METT process encouraged park management to discuss and complete a next steps strategy process. The following key training needs were identified for law enforcement personnel in the TCA: forensic evidence; management of crime scenes; human intelligence; upgrading skills of rangers to combat poaching; rhino monitoring skills; data management and analysis; and the use of camera traps and the SMART (Spatial Monitoring and Reporting Tool) approach. The Rhino Strategy mid-term review (sd14-15) and the National Rhino Audit (sd17) also highlighted similar gaps in the rhino programme for the TCA rhino areas. KWS Senior Management identified an additional need to train and deploy two Rapid Response Unit teams in strategic locations nationally.

Furthermore, as part of the RII project, an extensive gap assessment process was designed by a technical committee of rhino experts (sd95). The gap assessment structure was modified from a combination of the METT toolkit and the Tiger Standards (see Annex 2). This gap assessment was delivered in 20 priority rhino conservation areas globally, including Tsavo West National Park, to allow the RII project to understand and easily compare the current status in all sites, the theory of change for maximising rhino growth rates, the desired state, the funding shortfall, and thus the cost required to achieve growth. This gap assessment process was a more rigorous and independent methodology than the METT process and helped to demonstrate that the gaps in training of enforcement personnel were diminishing compared to the baseline METT assessment following extensive training courses in SMART, rhino monitoring including camera trapping and data management, rapid response skills to combat poaching, proactive law enforcement (managing crime scenes, human intelligence, forensic evidence) and use of anti-poaching technologies such as Instant Detect. This was corroborated by the National Rhino Audit (sd17), where the TCA rhino areas were ranked as the most reliable of the KWS rhino areas for rhino monitoring. The RII gap assessment report cannot be released due to sensitive data and the non-disclosure agreements signed with the IUCN African Rhino Specialist Group and each range state under the RII project.

2. Evaluations of rhino monitoring programmes and “trainer” knowledge to establish a revised rhino monitoring programme.

The first part of Output 2 was achieved through 1) a collaborative mid-term review of the Kenya Black Rhino National Strategy (2012-2016) by KWS and WWF in 2015 (sd14-15) and 2) a National Rhino Audit, conducted by an independent consultant Rob Olivier at the request of the KWS board and the National Rhino Steering Committee (sd17) that evaluated rhino monitoring tools and capacity at all KWS rhino sites. One of the major recommendations of the National Audit for rhino monitoring programmes was to separate out the rhino monitoring duties from the security personnel at each site, a recommendation that has been achieved in the Tsavo sites during the IWT Challenge Fund project. Furthermore, the National Audit recommended urgent refresher training for rhino monitoring trainers from all sites (sd32-34). Rhino monitoring protocols were evaluated by KWS and ZSL, with a Standard Operating Procedure (SOP) consequently developed for the Tsavo sites (sd18).

The second part of Output 2 - evaluating “trainer” knowledge - was achieved through Cedric Khayale, the Senior Rhino Scientist and Trainer at KWS, assessing the quality of rhino monitoring trainers in each site as part of the mid-term strategy review (sd14-15). This review included a site-by-site assessment of the standard and number of rhino monitoring trainers in each site. The aim was to ensure all sites had at least two rhino monitoring trainers attached to that area. The accuracy of rhino monitoring at all sites was further evaluated and ranked as part of the National Rhino Audit (sd17). Consequently, all rhino sites in the TCA have had dedicated rhino monitoring “trainers” deployed as part of a revised rhino monitoring programme, to lead monitoring efforts, train rangers, analyse the KPIs and write monthly reports that are assessed by ZSL technical staff and Cedric Khayale prior to dissemination to partners (sd49-92).

3. All Manyani Instructors and rhino monitoring “trainers” have received “train the trainer” courses on new law enforcement technologies and tools, and on rhino monitoring tools, respectively.

Law enforcement and rhino monitoring systems were designed by KWS and ZSL for implementation in the TCA (sd18-19), building on knowledge of best practice from similar areas, and on recommendations from the mid-term review and METT assessments (sd11-15). These systems identified training needs for both law enforcement and rhino monitoring personnel including: 1. Training in the use of the SMART (Spatial Monitoring and Reporting Tool) approach to enable effective patrolling of rhino areas and improve chances of poacher detection, detection of evidence of illegal activity and carcass recovery; 2. Rapid Response training to combat poachers and react swiftly to actionable intelligence, delivered by the General Service Unit (GSU) trainers in collaboration with the Manyani Instructors (sd35); 3. Training in advanced rhino monitoring, developed by the IUCN African Rhino Specialist Group (sd32-34); 4. Proactive law enforcement training for Intelligence and Investigations Officers, delivered by Christian Plowman, ZSL’s Law Enforcement Adviser (an ex-Metropolitan Police officer with 16 years’ experience as an intelligence officer, and undercover operator) (sd36-37); 5. Training in anti-poaching technologies such as Instant Detect (see output 6) (sd38-39). The main aim of these trainings was to ensure that the conservation partners in the TCA can effectively: a) monitor rhinos; b) detect threats in the field and deter poachers through increased presence of overt law enforcement rangers and detection technologies; c) gather reactive and proactive intelligence on wildlife crime; and d) rapidly and effectively respond to all intelligence and incursions.

Law Enforcement

Output 3 was partially altered as reported at the end of Y1 due to KWS undergoing senior management changes throughout 2015. During this time, KWS were reluctant to allow any project activities associated to such a sensitive component of operations as at Manyani Law Enforcement Academy. Following the review, a new Director General and a new Head of Security were appointed to the organisation in late 2015. KWS informed the project that they would not be comfortable with any external influence of training curricula at a paramilitary training academy. Following these discussions with KWS, and as per our report in Y1 (sd07-08), it was decided that ZSL would instead focus the majority of training in new law enforcement methodologies and technologies at the field level, with a focus on the TCA. KWS did, however, conduct a 45-day training of 44 rangers at Manyani Law Enforcement Training Academy in advanced operations and rapid response skills, to allow the deployment of Rapid Response Units. 31 of the 44 rangers successfully graduated from the course (sd35). These courses were delivered by trainers from both the GSU (Kenya’s highly trained Police unit) and from Manyani Law Enforcement Training Academy, using a pre-agreed training curriculum. Two Rapid Response Units have been deployed by KWS in the Tsavo and Mountain regions; these units will be able to provide rapid law enforcement support to 70% of Kenya’s rhino population.

ZSL’s Law Enforcement Adviser conducted two 4-day training courses for a total of 28 Intelligence and Investigations Officers from the TCA, including four women (sd36-37). These proactive law enforcement courses were designed to upskill Intelligence and Investigations Officers through introducing skills across the law enforcement spectrum, from meeting and developing informers to counter-surveillance and analysis, from planning and implementing operations to ensuring strong crime scene management, evidential collection and presentation. Further, the courses developed a network of Intelligence Officers from across multiple organisations, encouraging collaboration and communication via secure encrypted communication forums.

Patrolling and Rhino Monitoring

ZSL ran three 5-day SMART training courses for a total of 32 personnel from the TCA, including five female operators (sd23; sd28; sd30). The participants included all dedicated TCA rhino trainers, the Senior Rhino Scientist, the Company security commanders and Platoon commanders from the TCA, and the Head of Ecological Monitoring from KWS HQ in Nairobi. All participants passed the course and were presented with certificates (sd24; sd29). Further training was provided to 160 TCA rangers on GPS tracking and data collection by the four rhino trainers, the KWS Senior Rhino Scientist, and by ZSL (sd25-27). All female rangers from these areas were included in the training.

Cedric Khayale, KWS’ Senior Rhino Scientist and Trainer, ran multiple trainings to rangers from the TCA in rhino monitoring and ID skills, following the IUCN developed rhino monitoring course. The aims were three-fold: 1) for security rangers to be knowledgeable on rhino monitoring in addition to their security role, 2) to help identify the best rangers at rhino monitoring, and 3) to supplement rhino monitoring efforts of the dedicated monitors. All six women from the Tsavo rhino platoons (sd25-27) received this training. Four rhino “trainers” were selected for the four rhino sites in the TCA, and these individuals received on-site training from both KWS and ZSL in rhino monitoring, camera trapping, GPS tracking, data collection and analysis, SMART, Kifaru, Critical Sightings Intervals, and reporting on project progress. Rhino

trainers have been familiarised with the new Standard Operating Procedures that were developed as part of Output 2 (sd18). Repeated on-the-job trainings on rhino monitoring were given by the dedicated rhino trainers to rangers within the target rhino areas, particularly during monthly feedback sessions to rangers as part of the dissemination of the monthly reports to all ranger blocks (sd93-94). These regular trainings ensured the quality of data collection was consistently high, and helped any new rangers get up to speed quickly. Laminated rhino ID books were prepared for each rhino area to assist rangers with rhino monitoring. The ID books contained training notes, ear notch patterns and photos of each individual rhino (sd20-22).

In addition, Cedric Khayale selected 38 rhino monitoring trainers from 16 rhino conservation areas across Kenya to attend a national-level “Training of Trainers” accredited course on rhino monitoring (sd32). The training was conducted by two IUCN African Rhino Specialist Group (AfRSG) accredited Rhino Monitoring Instructors from KWS. 71% of the trainees surpassed the minimum requirements for accreditation as rhino monitoring instructors, set at average performance of 80% (sd33-34).

4. An assessment plan is in place which ensures Manyani graduates and rhino monitors have the knowledge and skills to deliver new tools at site.

Due to changing circumstances at Manyani as detailed under Output 3, a formal assessment plan with questionnaires was not designed specifically to all levels of training courses. However, the Manyani Law Enforcement Training Academy did assess all participants during the Rapid Response Unit training, and only those passing the course criteria graduated from the course (sd35). These graduates were consequently selected for deployment within the newly formed Rapid Response Units.

All 32 participants in the ZSL SMART training course were evaluated and assessed by ZSL’s SMART trainer, and 100% of those were issued with certificates for completion of the course (sd23-24; sd28-30).

All 28 participants on the Proactive Law Enforcement training course were evaluated and assessed by ZSL’s Law Enforcement Adviser, and 100% of those were issued with certificates for completion of the course, with 8 individuals highlighted for exceptional performance (sd36-37). These eight officers will be chosen to attend a more advanced level training on informer handling. This next level of training identified by ZSL’s Law Enforcement Adviser is designed to evolve KWS’ intelligence capabilities towards delivering proactive intelligence operations aimed at disrupting high-level wildlife crime activities and arresting major players in IWT in Kenya and beyond.

All 38 participants on the rhino monitoring “Training of the Trainers” (ToT) course were issued with certificates of completion (sd34), with 71% of the trainees surpassing the minimum requirements for accreditation as Rhino Monitoring Instructors, set at an average performance of 80% (sd32-33).

A ranger effectiveness scoring system was designed by all project partners as part of a regular assessment plan of ranger skills and knowledge in the TCA. The scoring system is used on a monthly basis to score performance of every ranger in the target rhino area platoons (sd19), with top performing rangers receiving an equipment-based incentive and certificate of recognition to be placed on their file (sd46-48). The scoring is based on a range of criteria which measure ranger performance and demonstrate an understanding of GPS tracking and data collection. Using the rhino ID booklets (sd20-22), rangers are also spot-tested monthly on knowledge of the individual rhinos in their area. Average ranger scores per month have increased from a baseline of 15.85% to 42.35% over the project period (sd67; sd92). The progress made through this programme has laid effective foundations for the RII project for demonstrating change in performance metrics both for rhino monitoring and patrol coverage.

5. All new training tools have been taught and implemented in all platoons of the Tsavo Conservation Area, prioritising those four platoons with a rhino specific focus.

Output 5 has been achieved in three rhino areas in the TCA (NRS, IPZ and Chyulu Hills). The development of the Tsavo East rhino sanctuary (the fourth rhino area) was delayed by KWS as drought conditions have hit this area; any introduction of rhinos to this area would be irresponsible and likely end in potential losses of individuals. Therefore, the new tools and systems have not yet been implemented in this area.

Rhino Trainers

Rhino “trainers” were identified for all TCA rhino areas and were trained on the Standard Operating Procedures (sd18) and the new systems for rhino monitoring and reporting. Trainers were trained on SMART, QGIS and Kifaru software enabling them to analyse the status of the rhino population and patrol coverage on a monthly basis (sd23-24; sd28-31). They have also received training on the ranger performance scoring system, critical sightings interval database, camera trapping, mapping of patrol

coverage and reporting on basic rhino demographics. This knowledge is utilised and demonstrated monthly through detailed reports analysing law enforcement and rhino monitoring. Importantly, every rhino report has supporting evidence files so that an independent assessor could verify the monitoring of rhinos in these areas. The trainers also attended the IUCN AfRSG Rhino Monitoring ToT course (sd32-34). All rhino “trainers” have been equipped with GPS, rhino ID booklets, binoculars, camera traps and provision of two monitoring vehicles to enable effective monitoring of rhino populations in the three areas (see Annex 2 for more detail on equipment).

Rangers

With support from KWS’ Senior Rhino Scientist and ZSL, the TCA rhino “trainers” have trained the rangers at site to collect data on law enforcement patrols through both formal and ad-hoc training sessions (sd25-27). Extensive ranger training has been conducted with the TCA rhino platoons, with training efforts repeated following a large-scale ranger transfer in January 2017. A total of 110 rangers attended, including 6 female rangers (sd25-27). Approximately 200 rangers received on-the-job training during monthly feedback sessions to improve performance, and to ensure that new rangers had the necessary training to contribute accurate data towards the monthly report. All ranger outposts in each of the TCA rhino areas have been equipped with two GPSs, binoculars, rhino ID booklets, solar charging units and rechargeable batteries to allow for quality data collection. ZSL has also provided two Toyota Landcruisers to support security in the NRS. Project partners, Tsavo Trust, provided one Toyota Landcruiser to support security in the IPZ, while BLF have provided two Toyota Landcruisers for security in the Chyulu Hills (see Annex 2 for more detail on equipment). The Tsavo Trust also provides aerial support to rhino-related activities across the TCA with its Super Cub aircraft. Currently, an average 70 hours per month are flown in support to KWS, with at least 25 hours per month dedicated to rhino monitoring and security.

Intelligence and Investigations Officers from six partner organisations within the TCA were identified for training by the KWS TCA Head of Intelligence and by the ZSL Kenya Country Manager. A proactive law enforcement training course, designed by ZSL’s Law Enforcement Adviser, was delivered to 28 officers, including 4 women (sd36-37). These Intelligence and Investigations Officers are now implementing their new knowledge and skills from the trainings into their daily tasks, ensuring best practice operating procedures.

6. Seven ID (previously IW) systems functioning effectively in Tsavo East Rhino Sanctuary with high priority data being sent in real time to rangers so they can react accordingly. Rangers properly trained to use and maintain the equipment with access to operational support when required.

As reported previously in the Y1 annual report, Output 6 was moved to Y2 (with permission from DEFRA) due to delays in the construction of the new Tsavo East Rhino Sanctuary (sd07-09). When the KWS board temporarily halted the opening of the new Tsavo East Rhino Sanctuary due to severe drought conditions, the decision was made with the KWS Rhino Programme Coordinator to deliver and implement the Instant Detect (ID – previously known as Instant Wild IW) outputs of this project in the Tsavo West IPZ to protect the rhino population in this area and act as a security buffer to the NRS. Seven full ID systems were provided to the Tsavo West IPZ for deployment (sd40). In October 2016, 12 KWS rangers were hand-picked by the Company Commander of Tsavo West for a 10-day intensive training in the ID systems, delivered by 7Tech and ZSL’s Conservation Technology Field Specialist. A second ID training course was delivered for 10 rangers, where 50% of trainees were taking it as a refresher course and 50% were new operators of ID. This second training also included the company commander and two platoon commanders (sd39) to ensure that security managers understood the functionalities of these systems, advised the technical team on deployments, and deployed response teams appropriately following alerts. A core team of ID trained KWS rangers are instrumental for training newer rangers on the use and deployment of the system. Further, ZSL now employ a technology field specialist (an ex-British Army officer), to conduct field training, system maintenance and testing.

Due to the delays in deployment, the systems were only deployed for the final five months of the project. Six of the seven ID systems remain functional with one system returning broken after a 4-month deployment. The Passive Infra-Red (PIR) cameras have been removed from the field as they cause too many alerts and ranger fatigue of the system (see Annex 2 for more detail). Currently, nine magnetically-triggered cameras are deployed as a trial, with a view to formalising this solution into the ID systems as part of future developments. These cameras are triggered by a buried magnetometer, which senses the presence of metal as it passes the environment. Due to the nature of national parks, there should be minimal movement of metal in remote areas, except for rangers, poachers, and perhaps a radio-collared animal. This system modification significantly reduced image traffic over the RF network, simultaneously conserving system batteries (sd38-39).

The KWS have the ability to deploy the ID systems as and when needed. Rangers are well trained to use the system and have all the operational support to maintain the system, but the deployments to date show that ID systems place a high maintenance burden on already stretched rangers. Therefore only a few systems are deployed simultaneously so as not to swamp the rangers (see Annex 2 for more detail). The operational set-up of the ID monitoring requires further refinement and re-training to become more effective, despite efforts made to implement tactical deployment planning and unified actions.

7. Benefits to local communities around the TCA rhino areas are monitored to ensure that the impacts of activities are reaching the community, specifically through enhanced security, reduced corruption and a level of trust towards the local law enforcement agencies.

As reported in the Y1 Annual Report (sd08), this output was altered following ZSL's discussion with social science experts that advised it would be counter-productive for the baseline social surveys to be replicated in the target communities as there had been no targeted activities for these communities in this grant. Repetitive interviews would only serve to frustrate community members and potentially have further negative impacts on the relationships between these communities and the National Park. Therefore, the repeat surveys were not conducted during the project period.

Baseline surveys were carried out at the start of the project with the team collecting data from 224 households in about 100 villages across the three study sites (Kibwezi, Maktau and Rombo) bordering the TCA. Overall, the majority (96%) of respondents were Kamba (35%), Maasai (31%) and Taita (30%). These three communities are the most critical surrounding both NRS and IPZ, and cover major neighbouring communities for the Chyulu Hills. The baseline surveys showed that 70% of respondents had a negative perception of wildlife conservation, and that 46% had a negative perception of park management, but that these proportions decreased significantly in households with higher diversity of incomes. Negative perceptions increased in households that experienced more wildlife conflict, and reduced in households with higher education levels (sd45).

There is an increasing focus on working with local communities in the TCA through developed and managed informer networks to provide accurate information on IWT. ZSL's Law Enforcement Advisor has been working with KWS, BLF and Tsavo Trust in addition to other local partners to upskill Intelligence and Investigations Officers to better manage and secure relationships with informers. Increased volumes of intelligence and the successful operations created by these helps to build trust between the conservation actors and the informers, as well as demonstrating to local communities that KWS are a law enforcement agency that can act to arrest and disturb local crime networks.

3.2 Outcome

1. All Manyani Instructors have full working knowledge of new law enforcement tools, and are training with these tools by March 2016.

Owing to complications in delivery of Manyani components as reported in the Y1 Annual Report (sd07-09), this outcome has focused at the project site level. Systems were developed with KWS to improve law enforcement, rhino monitoring, and proactive intelligence gathering. Extensive training took place of both instructors and field implementers in the TCA, and across rhino sites in Kenya. Three SMART training courses were conducted during the life of the project, training 34 persons to be SMART operators (sd23-24; sd28-31). Regular field-level training of all rangers and rhino monitors within the TCA led to improved law enforcement coverage, reduced sightings intervals for rhinos, and more accurate monitoring records on all rhino populations (sd25-27). An accredited ToT workshop trained 38 individuals from 16 key rhino areas across Kenya to be able to train their staff effectively on rhino monitoring, with all rhino areas receiving training materials to allow them to replicate these trainings (sd32-34). Two proactive law enforcement courses were delivered by an ex-Metropolitan Intelligence Officer to 28 Intelligence Officers from 6 organisations across the TCA, encouraging a coordinated intelligence community, and enhancing skillsets to be able to safely extract, disseminate, and operationalise intelligence (sd36-37).

2. All rhino monitoring trainers have full working knowledge of rhino monitoring tools, and are training with these tools by March 2016.

Regular rhino monitoring training has been conducted at site level within the TCA, ensuring that both the dedicated rhino monitoring teams and the security rangers have the knowledge to improve rhino monitoring efforts. Repeated training sessions were necessary due to KWS' human resource decisions to transfer rangers to different sites across the organisation during the project period (sd25-27). ZSL ran

the original training of security rangers, but consequent trainings were administered by the rhino researcher for each area. The dedicated rhino monitoring teams have been further trained in SMART operations, calculating critical sightings intervals, using Kifaru, and camera trapping to enhance rhino monitoring accuracy. Regular monthly reports are being produced for all three rhino areas within the TCA (sd49-92). See Outcome Indicator 6 in Annex 2 for more details of results. An accredited ToT workshop trained 38 individuals from 16 rhino areas to be able to train their staff accordingly on rhino monitoring, with all rhino areas receiving training materials to allow them to replicate these trainings (sd32-34).

3. Increased detection of poachers in the TCA by 10% from April 2015 to March 2016, and by a further 30% to March 2017.

During the project period, poaching incidents have been extremely low with only two rhinos poached from the TCA in December 2016, and three known incursions during the project life. Law enforcement coverage and effectiveness has been tracked in all three rhino areas since January 2016 for NRS, April 2016 for Chyulu Hills, and October 2016 for the IPZ (sd49-92). As a result of training, provision of equipment and ranger performance incentives, average ranger scores per month have increased from 15.85% to 42.35% (sd67; sd92) over the project period. Law enforcement patrol coverage in NRS and Chyulu Hills has improved month on month. In Ngulia for example, total patrol distance per month rose from an initial total of 46km in January 2016 up to 1,945km in May 2017. In the Chyulu Hills, total patrol distance increased from 477km in April 2016 up to 1,534km in May 2017. This has largely been driven by motivated rangers, whose performance is now being tracked and rewarded, and support for these new law enforcement systems from the law enforcement officers and senior park management personnel.

During Y2 of the project, the Instant Detect systems were deployed in the IPZ to complement the systems in the NRS (sd38-39). The presence of ID surveillance in the park is known and it is thought to have had a deterrence effect resulting in reduced intruder numbers.

One unsuccessful poaching incursion was identified in January 2016 in NRS, but unfortunately, the poachers avoided arrest. A second individual was alerted by a camera trap image in December 2016, with a successful operation ensuing, resulting in the arrest of this person. A third event took place in December 2016 when two rhinos were poached in NRS. While the poachers were not detected at the time, follow up operations resulted in the successful apprehension of four out of six of the poaching gang.

4. Increased arrest of poachers in the TCA by 10% from April 2015 to March 2016, and by a further 30% to March 2017.

Following the second incident above, where one individual was detected by a camera trap in the IPZ, an operation was put in place by KWS and Tsavo Trust, with this individual ambushed and arrested. He was questioned at Tsavo West HQ, and was subsequently released due to mental health issues. Following the poaching incident in NRS in December 2016, ZSL supported a KWS operation to identify the poachers reactively. Six individuals were identified through intelligence networks, and they were subsequently ambushed in Tsavo East National Park while attempting to poach elephants, following an informer tip-off. A firefight ensued with four out of the six poachers shot and two automatic AK47 rifles recovered, during which KWS lost one Senior Officer and another was injured.

Training of Intelligence Officers has contributed to a number of successful intelligence-led operations by KWS, BLF and Tsavo Trust, with 22 people arrested and over 360kg of ivory recovered in the first 5 months of 2017 alone. There is an ongoing intelligence operation on a high-level dealer of rhino horn following the poaching of two rhinos in Ngulia in December 2016, as well as two separate investigations on groups intending to target rhino in TCA, and an ongoing independent investigation that involves one of the two suspects who escaped from the firefight described above. In 2016, over 500 arrests have been made in Tsavo in total (all offences) by KWS in partnership with Tsavo Trust and BLF.

5. Increase in successful convictions from TCA arrests by 10% from April 2015 to March 2016, and by a further 30% to March 2017.

Kenya still has a significant issue with successfully prosecuting wildlife crime cases despite the new Wildlife Act of 2013. Much of the issue stems from cases generally displaying a lack of evidence through poor crime scene management and an inability to submit certain evidence to courts including evidence from tracker dog units etc. This is compounded by the fact that all crime scenes have to be managed by Kenya Police, rather than KWS, leaving a disconnect between law enforcement agencies with differing perspectives on the severity of these crimes. As a result of the above, the average court case for wildlife crime offences takes over two years; this is according to recent gap assessment surveys of five Kenyan rhino sites under the RII project. One arrest was made in Tsavo West as a result of the second intrusion

but the man was released due to mental health issues, and evidence suggested he was merely trespassing rather than poaching.

Of the 22 arrests mentioned above in Outcome 4, the oldest of these cases is five months old, and is yet to reach a verdict in the local courts. With the new Wildlife Act 2013 in place, denial of bail for suspected poachers / dealers has increased substantially and this has created an increased potent deterrent to those involved in IWT, despite the inefficiencies that remain. It has not been possible to gather information from KWS' investigations team on the conviction rates for the 500+ arrests made in 2016.

6. Increase of 5% in rhino population in Tsavo Conservation Area from March 2016 to March 2017.

Understanding growth rates in rhino populations requires accurate population monitoring. As a result of training and provision of equipment, the rhino "trainers" produce monthly reports for park management staff using SMART and Kifaru software and a Critical Sightings Interval database (sd49-92). Camera trap photos have confirmed 94% of the NRS rhinos, 100% of the Chyulu Hills rhinos, and 45% of the IPZ rhinos during the project life. At the project start, monitoring efforts in the IPZ were non-existent, with monitoring in the Ngulia Rhino Sanctuary (NRS) largely limited to annual night census surveys. The average critical sightings interval (no. of days since rhino last seen) for rhino in NRS has decreased from 140 days in December 2015 to 40 days in March 2017, while in the IPZ, it has decreased from 1,306 days in August 2016 to 961 days in March 2017. The number of individual rhinos that are being identified each month in NRS has risen from a baseline of 13% of the population per month in December 2015, up to 86% per month in May 2017. Both the IPZ and Chyulu Hills have also seen upward trends in monitoring efforts over the project life. The impressive progress demonstrated in these areas helps to prove the concept that interventions can be linked to performance indicators for the purpose of attracting impact investors under the RII project.

Tsavo West had two rhinos poached (mother and calf) in December 2016, ending a 31-month zero poaching period. Prior to that, Tsavo West had lost 12 rhinos to poaching over a 3-year period. Nationally, Kenya lost 21 rhinos to poaching during the project period, a reduction from the 94 rhinos poached during the previous 2 years. National black rhino poaching rates over the two years of the project were 1.14%, down from 4.04% in the two years prior to that. This reduction in poaching can be attributed to a variety of factors including improved law enforcement effectiveness, improved rhino monitoring, enhanced conservation funding and increased stakeholder participation, new stricter legislations for wildlife crime, an emphasis on intelligence-led law enforcement, and globally coordinated efforts to tackle IWT.

Despite poaching, national rhino numbers have increased by 3.64% over the two years of this project, up from 1.35% in the previous two years. NRS has had an average population increase of 3.8% over the two years of the project (sd42-43), with an increase of 1.93% in the two previous years to that. The Chyulu population has seen no net gain during the two years of the project, partly due to the limited size of the population, making growth difficult if all females already have calves. Monitoring of the IPZ population prior to the start of this project was so poor that it is difficult to understand the growth rates here as the focus has been entirely on understanding the status quo, and getting monitoring in a poorly known population up to standard. While both the TCA and Kenyan populations have not achieved the targeted 5% growth across the project lifespan, there has been a significant increase on the preceding years. Several of Kenya's sanctuaries are overstocked driven by a lack of funding to effectively manage meta-population dynamics, with those populations struggling to grow at the desired rate. NRS' performance of 3.8% has been despite this population being 68% over the estimated ecological carrying capacity. Should Tsavo West be chosen as a site under the full phase of the RII project (once the pilot phase is completed by March 2018), there will be a major focus on destocking of NRS, to supplement the IPZ population, where space and excellent black rhino habitat exist.

7. Increased sense of security amongst local communities, with an increased level of trust towards local law enforcement agencies and perceptions that corruption has decreased.

Baseline social surveys were conducted in Y1 (sd44-45) as detailed under Output 7. As discussed in the Y1 Annual report (sd08), ZSL decided not to conduct project end surveys following discussions with several social science experts who all gave the same conclusions that it would be counter-productive for the baseline social surveys to be replicated in these target communities as there had been no specific targeted activities for these communities in this grant, and that repetitive interviews would only serve to frustrate community members and alienate them further.

ZSL, KWS and partners recognise the importance of having engaged and supportive communities to achieve effective conservation across large multi-stakeholder ecosystems, and to support efforts to tackle wildlife crime. These partners are in the process of raising further funding to develop significant

community outreach programmes in these areas, and these social surveys will provide the baseline data to be able to monitor and evaluate impact of those activities moving forward.

In the interim, ZSL is focusing on working with local communities to build and manage informer networks to provide accurate information on illegal wildlife trade. ZSL's Law Enforcement Advisor has been working with KWS, BLF and Tsavo Trust in addition to other local partners to upskill Intelligence and Investigations Officers to develop secure relationships with informers and ensure information is handled appropriately (sd36-37). Increased volumes of intelligence and the successful operations resulting from this, helps to build trust between conservation agencies and informers. It also demonstrates to communities that KWS is a law enforcement agency that is not only working to protect wildlife but also working to stop criminal activity that can undermine social and economic development.

3.3 Impact: achievement of positive impact on illegal wildlife trade and poverty alleviation

Rhino numbers increase, and illegal wildlife trade in rhino products in Kenya is restricted through effective enforcement, sustained financing and opportunities for local involvement in wildlife-related employment.

Despite poaching, national rhino numbers have increased by 3.64% over the two years of this project, up from 1.35% growth in the previous two years. NRS has had an average population increase of 3.8% over the two years of the project, compared to an increase of 1.93% in the two previous years to that. Effective rhino monitoring has been put in place to accurately understand the confirmed rhino population in the target area, which in turn will enable KWS to track the impact of IWT on this population more effectively. No rhinos were poached in Tsavo West during the project period up until December 2016 when two rhino were poached (mother and calf), ending a 31-month zero poaching period. Prior to that, Tsavo West had lost 12 rhino to poaching over a 3 year period. Nationally, Kenya lost 21 rhino to poaching during the project period, a reduction from the 94 rhino poached during the previous 2 years. National black rhino poaching rates over the two years of the project were 1.14%, down from 4.04% in the two years prior to that.

The reduction in poaching can be attributed to a variety of factors including improved law enforcement effectiveness, improved rhino monitoring, enhanced conservation funding with increased stakeholder participation, new stricter legislations for wildlife crime, an emphasis on intelligence-led law enforcement, and globally coordinated efforts to tackle IWT. As the latest National Rhino Strategy gets underway, Kenya's main focus is to maximise growth rates in all populations across the country and it will be important to capitalise on the gains achieved during the last two years in the TCA. Maintaining the concerted effort to tackle IWT through both effective law enforcement and monitoring will be vital to continue the upward trend realised through the activities of this project. This project has demonstrated that by investing in local personnel to successfully monitor and protect rhinos, rhino population growth can be achieved and the illegal trade in rhino products can be restricted.

Given the proven effectiveness of intelligence-led law enforcement in combatting the illegal wildlife trade, ZSL employed a dedicated Law Enforcement Adviser in October 2016, based in the UK, but supporting our country offices in Benin, Cameroon and Kenya. Targeted training was delivered to Intelligence Officers in the TCA during early 2017, with the aim of encouraging a shift from reactive law enforcement, to proactive intelligence-led operations. 22 people have been arrested and over 360kg of elephant ivory recovered in the first 5 months of 2017 alone. There is an ongoing intelligence operation on a high-level dealer of rhino horn following the poaching of the two rhinos in Ngulia in December 2016, as well as two other investigations on poaching groups targeting rhino in TCA. Enhanced intelligence gathering capabilities combined with the ability to analyse and respond to actionable intelligence, will further reduce poaching rates in Kenya for both rhino and elephants.

Improved intelligence knowledge and operational capabilities have additionally engaged community informants to provide information, resulting in targeted operations on nefarious individuals within those communities. Removing these elements can disrupt criminal activities and networks which undermine social and financial development within these communities. Training of community rangers from BLF has additionally helped to build capacity within a small subsection of the local Tsavo communities.

Sustained financing to support Tsavo West will be delivered through the Rhino Impact Investment (RII) project, which will initially deliver a further 12 months of funding to Tsavo West (up to March 2018), with the potential to provide up to 10 years of financing thereafter if selected for the full phase of the RII project. This funding will build on the foundations laid by the IWT010 project, enhancing rhino monitoring, security, intelligence, park management and operations (sd10). The RII project has provided support to KWS and Tsavo West for everything from infrastructure development and maintenance to cutting fire breaks, from water maintenance to ranger facilities. All of these interventions are designed to impact on the primary KPI of rhino population growth rates. Significant progress has been made during this two

year grant on monitoring and security. These strides have been important for reassuring KWS that the Tsavo West IPZ can operate effectively, and thus be a recipient for more rhinos from other overstocked populations in the future. The outcomes of this project have demonstrated to other funders including the Oak Foundation and the Rufford Foundation that Tsavo is an important site for rhino population growth and reliable for investing in. Increasing the levels of funding provided regularly to this conservation area is critical for securing this habitat and these populations for the long term.

4. Monitoring of assumptions

Project Assumptions:

1. Manyani Academy does not experience a complete overhaul of Instructors post-training on new curriculums.
2. The rhino monitoring trainers do not all leave KWS.
3. Ranger platoons in the TCA are not transferred out of the area post-training on new law enforcement tools.
4. IW systems are correctly deployed at key threat points within the TENP rhino sanctuary. Rangers maintain and manage the IW systems including changing batteries.
5. Rhino population in the TCA does not experience any disease outbreaks.

The original assumptions identified during the project proposal remain true, and these assumptions were considered throughout the project. During the project period, we experienced one transfer of rangers in the TCA, requiring rapid training of new personnel in the systems being implemented (sd27). Despite this disruption, the impact on the progression of improvements in patrol coverage effectiveness was negligible (sd67; sd92).

Further, the ZSL Conservation Technology Field Specialist identified the maintenance of ID systems by KWS rangers as a weakness in the success of the systems, driven largely by a lack of structured leadership to regularly schedule maintenance tasks into operational plans. This has resulted in the Field Specialist having to play more of a hands on role in ensuring these tasks were achieved, certainly at least during the initial deployment period (sd38-39), and until maintenance schedules are incorporated into KWS monthly activities.

However, there were a number of assumptions missed during the proposal writing, including the delays experienced for the launch of the new Tsavo East Rhino Sanctuary due to climate conditions, and the U-turn decision on this project collaborating closely with Manyani Law Enforcement Training Academy (see detail in Annex 2).

5. Project support to the IWT Challenge Fund Objectives and commitments under the London Declaration and Kasane Statement

This IWT010 project focused on addressing IWT Challenge Fund Objective 2: Strengthening law enforcement and the role of the criminal justice system in Kenya. At the site level, law enforcement has improved through implementation of systems and new technologies to better monitor and enhance patrol coverage within Tsavo's key rhino areas. Ranger platoons in the Tsavo Conservation Area have been trained in the use of the SMART approach to enable KWS and ZSL to track patrol coverage monthly and set targets to improve patrol effectiveness in key rhino areas. Rangers are scored monthly on their performance based on a set number of criteria, with equipment-based rewards given to the best performing rangers as an incentive for improvement month on month. Selected ranger teams have also been trained on a new anti-poaching technology known as Instant Detect, with systems deployed in Tsavo West to improve the detection of poachers.

At a national level, 34 rangers undertook training to become Rapid Response Units, with two units consequently established by KWS to cover the Mountain Region and the Tsavo Region. Intelligence and Investigations Officers within the TCA were handpicked to receive training in proactive law enforcement techniques to improve the way that intelligence teams operate and to ensure that the safety of individuals and sources is maintained at all times.

These main activities have allowed KWS to have improved security presence within the target areas, enhanced intelligence capabilities to gather information before and/or after wildlife crime events, and improved ability to rapidly and effectively respond to wildlife crime events.

This project has worked further to address the following commitments of the London Declaration on the Illegal Wildlife Trade:

Commitment X – Proactive law enforcement training helped Intelligence and Investigations Officers to develop sound evidence chains through intelligence gathering and informant networks, and to successfully arrest and prosecute poachers.

Commitment XIII – Training of KWS’ rhino monitoring trainers has helped to build capacity of the Rhino Management Group, thereby ensuring this knowledge and capacity becomes institutionalised at all levels. Equipment and training aids were provided to each rhino site nationally, so that internal trainings could be provided by these trainers. Sufficient rangers were trained on Instant Detect at site-level to ensure that there are an adequate number of appropriately trained rangers that can effectively manage and maintain ID systems. Training was delivered at multiple levels to ensure the appropriate knowledge was developed at ranger, and officer levels.

Commitment XIV – The mid-term review and the National Rhino Audit identified training needs across Kenya, with the training delivered as part of the IWT Challenge Fund activities.

Commitment XV – Proactive law enforcement training allows officers to manage wildlife crime scenes effectively, gather intelligence, build informer networks, and develop operations to tackle wildlife crime.

Commitment XVII. - This project carried out baseline surveys on communities bordering the Tsavo Conservation Area to establish the impact of wildlife conservation, park management, wildlife conflict and security on their livelihoods.

Commitment XIX – KWS and BLF collaborate to protect and monitor rhino populations within the Chyulu Hills National Park. This project delivered training, equipment and tools to the BLF community rangers.

Commitment XX – The above training to BLF community rangers helped to enhance intelligence networks around the TCA.

6. Impact on species in focus

Despite poaching, national rhino numbers have increased by 3.64% over the two years of this project, up from 1.35% growth in the previous two years. NRS has had an average population increase of 3.8% over the two years of the project, compared to an increase of 1.93% in the two years previous. The Chyulu population has seen no net gain during the two years of the project, partly due to the limited size of the population (7 individuals). Monitoring of the IPZ population prior to the start of this project was so poor that it is not possible to accurately determine growth rates here.

No rhinos were poached in the TCA during the project period up until December 2016 when two rhinos were poached (mother and calf), ending a 31-month zero poaching period. Prior to that, Tsavo West had lost 12 rhinos to poaching over a 3-year period. Nationally, Kenya lost 21 rhinos to poaching during the project period, a reduction from the 94 rhinos poached during the previous 2 years. National black rhino poaching rates over the two years of the project were 1.14%, down from 4.04% in the two years prior to that. This reduction in poaching can be attributed to a variety of factors including improved law enforcement effectiveness, improved rhino monitoring, enhanced conservation funding with increased stakeholder participation, new stricter legislations for wildlife crime, an emphasis on intelligence-led law enforcement, and globally coordinated efforts to tackle IWT.

Elephant poaching figures have reduced throughout the project period across the TCA. This is corroborated by ZSL’s partners in Tsavo, the Tsavo Trust, who report that they discovered 106 carcasses (c. 80 poached) in 2014, 55 carcasses (40 poached) in 2015, and 83 carcasses (26 poached) in 2016. A recent press release by KWS analysing the Tsavo elephant population based on aerial surveys shows that the Tsavo population has increased by 14.7% over the past 3 years, with the elephant population now standing at 12,866 individuals.

7. Project support to poverty alleviation

Tackling wildlife crime effectively requires a holistic approach including gaining the support of target communities surrounding PAs. METT self-assessments of the TCA conducted in 2015 have highlighted community engagement and capacity building as two key gaps in PA effectiveness (sd11-13). The social surveys conducted under this project have provided a baseline to demonstrate that community attitudes towards conservation and the park are very poor, but that these attitudes improve with enhanced education, more income, and increased diversity of revenue streams (sd45). The TCA Management Plan 2008-2018 has a chapter dedicated to Community Partnership and Conservation Education, consisting of management objectives, which mimic the pathways needed to change community behaviours, as defined by Biggs et al. (2015).

There were no specific community development activities built into the IWT Challenge Fund outputs, although the Intelligence Officers in KWS and other partner organisations gather information through a number of trusted community informants. Gathering intelligence from local communities has been hugely important in being able to reactively catch and arrest wildlife crime suspects. The focus now is to become more proactive in how wildlife crime is tackled.

KWS, ZSL and their partners are working to fill these community gaps by raising funds to work with communities surrounding the TCA. The ultimate aim is to provide real benefits from conservation to local people and ensure natural resources are managed sustainably; whilst also promoting good relationships between park management and communities and encouraging communities to provide timely information on wildlife crime. The next phase of this project, with additional donor funds from other sources will ensure that community livelihoods and attitudes improve through better access to water and power, reduced wildlife conflict and development of multiple sources of alternative income generation.

8. Consideration of gender equality issues

The project took gender equality into account for all aspects of work where possible. All women (n=6, 4% of total ranger force trained) within the ranger platoons in the TCA were trained on rhino monitoring, rhino ID skills, GPS use and data collection (sd25-27). SMART training was provided to 10 women (31.25% of total participants) (sd23-24; sd28-30). The Intelligence and Investigations Officers chosen for training in proactive law enforcement were selected by law enforcement managers from KWS and other partner organisations with 3 women trained out of 28 participants (sd36-37).

Zero women were trained on the rapid response unit training at Manyani for two reasons: 1. due to the elite personnel required for these roles, KWS chose their top 44 rangers from across the Service for training, none of which included women; 2. KWS has a policy of not deploying women in high-conflict zones. KWS also selected male only rangers for training in the Instant Detect systems for the same reasons as above.

The socio-economic surveys within the communities surrounding Tsavo collected information on demographic and ethnicity of respondents (sd45). The interviews targeted 224 households from three main communities bordering the TCA, with most interviews conducted with women representing the households. As ZSL, KWS and partners seek funds to develop alternative livelihood projects to change attitudes and behaviours, the major activities will target women predominantly due to the key role they play in these communities.

9. Lessons learnt

Improving law enforcement effectiveness requires adaptive management. KWS has used the monthly reports created by the rhino trainers to advise on patrol planning and law enforcement effort for future months through the development of strategic target points for all rangers. Monthly reports have shown continuous improvement because of both the targets and a motivated ranger force (sd49-92). The ranger effectiveness scoring system and the incentive scheme has been a great success for this project, which we would highly recommend to other similar projects.

The training of Intelligence and Investigations Officers by an experienced law enforcement adviser has been a successful approach in tackling IWT. While having effective overt security presence within Protected Areas is important both from a detection and deterrence point of view, targeted intelligence-led operations have had significantly more impact on tackling low and mid-level perpetrators of wildlife crimes. As an example, in the first 5 months of 2017, targeted operations have resulted in the arrest of 22 people and the confiscation of over 360kg of ivory. While there have been intelligence activities prior to this training, the training focuses on ensuring officers operate in a safe and professional manner to protect themselves and their sources. The training also stresses the importance of managing crime scenes effectively and ensuring any evidence collected is done in a manner that makes it admissible in court. Furthermore, the plan for training in gathering intelligence is to teach officers to become proactive in decision making on how to respond to actionable intelligence. In some cases, not acting on that intelligence but using it to target individuals higher up the chain can have a far larger impact on IWT, despite there being no "result" to show for the original intelligence.

Our original proposal to equip all rangers with PDA units for data collection was scrapped when time was spent on the ground understanding the true logistics of successful delivery. The project team realised that the KWS rangers were operating at a low baseline for patrolling and data collection and therefore decided that using the simplest method of data collection (GPS and paper forms) would be the most appropriate methodology initially. Furthermore, this is a cheaper methodology for KWS to replicate and expand to other areas in the future.

We learnt some important lessons during the implementation of the Instant Detect systems, primarily around the volume of images collected and transmitted by the original system design when using Passive Infra-Red Sensors. These sensors were removed from the system, and magnetic sensors trialled successfully in their place. These lessons have been vital in improving the accuracy of the current systems, but also in informing further development and improvement of Instant Detect (sd38-39).

The most frustrating aspects of the project were the U-turn decision of KWS to no longer allow the training components at Manyani Law Enforcement Training Academy, and the delays on the launch of the Tsavo East Rhino Sanctuary. Having partnered with KWS for 25 years, ZSL understands that unexpected changes happen but these two were quite large. The project adapted to the organisational decision on Manyani by focusing on training target participants at a field level, including a national-level training of rhino monitoring trainers at Lewa. If we started the project again, we would have a more site-level focus from the start instead of trying to institutionalise these systems into the Manyani Academy. The launch of the Tsavo East Rhino Sanctuary was first delayed by construction delays, and latterly by the consistent failure of rains as this area has experienced drought conditions. Moving sensitive animals such as rhinos under such extreme condition would be a recipe for disaster, and KWS have sensibly taken the decision to delay this Sanctuary until conditions are right, allowing the rhinos that will move in the time to adapt to this environment.

9.1 Monitoring and evaluation

Throughout the course of the project, the agreed indicators of the logframe were tracked to ensure outputs and outcomes were being met. This was very useful for providing feedback to our partners on a regular basis over the two years, enabling adaptive project management. There were some major changes to the project design which were out of the control of ZSL as described in the Y1 Annual Report. First being the change to Output 3 (which is detailed under 3.1 Outputs and in Annex 2) when KWS informed the project that they would not be comfortable with any external influence of training curricula at Manyani Law Enforcement Academy. Following these discussions with KWS, and as per our report in Y1 (sd07-08), it was decided that ZSL would instead focus the majority of training in new law enforcement methodologies and technologies at the field level, with a focus on the TCA. The second major change was the significant delay in opening the Tsavo East Rhino Sanctuary by KWS due to drought conditions – this affected Output 5 & 6 (as detailed in Annex 2).

Despite these changes, the project was able to adapt planned activities, focusing training in the TCA and deploying Instant Detect in the Tsavo West IPZ. Robust systems were developed to monitor and evaluate the progress of the project, in particular rhino monitoring and law enforcement effectiveness. Rhino monitoring was evaluated through a critical sightings interval system that can be validated by independent assessment of each month's verification data (sd49). This resulted in Ngulia and Chyulu Hills outperforming all other KWS rhino sites in the independent National Rhino Audit (sd17).

The ranger scoring effectiveness system allowed for a structured method of monitoring and reviewing ranger performance based on a suite of scoring criteria, which includes a monthly evaluation of the rangers' uptake of rhino monitoring and ID knowledge (sd19). Outputs from SMART analyses enabled platoon commanders to monitor ranger patrol coverage on a monthly basis and regularly evaluate strategic targets and their effectiveness with regards to law enforcement and protection of rhinos. Data from KWS intelligence and investigations departments enabled ZSL to track wildlife crime investigations in the TCA, as well as information obtained by ZSL's Law Enforcement Advisor who is providing technical support to a number of intelligence operations linked to the TCA.

As part of the robust M&E systems in place, the RII project uses one primary Key Performance Indicator (KPI) and five sub-KPIs to test performance over time. These KPIs are measured using SMART, 'Kifaru', Critical Sightings Intervals, and by gathering data from the intelligence and investigations departments of KWS. The main aim of the RII pilot project is to demonstrate that certain interventions can result in clear improvements in performance metrics, and to do this requires strong monitoring and reporting. The monthly reports now produced for Ngulia and IPZ (sd49-77) clearly demonstrate the progress over the 18 months of the RII project (sd67).

The RII project has a primary KPI that will be the long-term gauge of project success:

1. Average net annual rhino population growth (%) over the past 5 years (rolling mean), corrected for translocations in/out.

Under this primary KPI, are a number of sub-KPIs (demographic, security, monitoring) to inform project success particularly in the early years of the project:

- 2.1 Net population growth rate (corrected for translocations)
- 2.2 Underlying biological growth rate (corrected for translocations and man-induced mortalities)
- 3.1 Illegal hunting KPI: The percentage of the total year-end population (including poached animals) that have been lost to illegal hunting.
- 4.1 Precision of the live rhino estimation.
- 4.2 The precision of carcass estimation: Average age of discovered carcasses. Number of rhinos outside the Critical Sightings interval period, for which a carcass has not been discovered.

The evaluation of trends of these KPIs has not been completed as yet, but will be an important output under the RII project, with an aim to complete the first KPI report in late 2017. As part of the RII pilot project in Tsavo West, there will be a further external evaluation of the project delivery and the KPIs that have been tested. Ensuring these KPIs are monitored and reported on effectively, and understanding how key interventions affect these KPIs will be critical as this project moves towards “payment for results.”

9.2 Actions taken in response to annual report reviews

Following the Year 1 Review, the report was disseminated to all project partners. Consequently, ZSL and KWS have been holding monthly meetings with all project stakeholders. For the rhino areas in Tsavo, there have been monthly feedback meetings with all ranger blocks to evaluate and disseminate the previous month’s reports, plan the strategic target points for the following month, and reward the best performing rangers each month. This has also been an opportunity to conduct refresher trainings. At a management level, KWS, ZSL and BLF have met regularly to discuss project progress, framed against the project log frame and objectives.

10. Other comments on achievements not covered elsewhere

The launch and implementation of the Rhino Impact Investment pilot project in Tsavo West has been a great achievement, with the IWT Challenge Fund project having played a significant role. Not only has the IWT funds helped leverage the funding from UNDP / GEF, but the activities achieved under the IWT Challenge Fund have laid strong foundations for success of this project. The main aim of this pilot is to demonstrate that interventions can result in clear improvements in performance metrics, and to do this requires strong monitoring and reporting. The reports now produced for Ngulia and IPZ (sd49-77) clearly demonstrate the progress over the 18 months (sd67). The pilot project interventions have provided much needed operational and logistical support to Tsavo West, from cutting fire breaks and resolving water issues, to ensuring vehicles are operational and rangers are motivated and working effectively. This track record of improvement should play a large role when sites are analysed for selection for the full phase Rhino Impact Investment project.

11. Sustainability and legacy

One of the major outcomes expected of this project was that the funds would act as co-financing for the RII project, which inevitably they did, with UNDP / GEF providing \$1.7M for testing the RII project as a novel conservation financing model. Tsavo West NP is a test site for trialling KPIs for this concept, demonstrating to investors that KPIs can be regularly tracked over time, and that investment returns can be linked to project success. This project has released approximately \$700k of funds for Tsavo West NP up to March 2018. The main purpose of this RII project is to develop and test financial mechanisms that can provide long-term funding to protected areas. Once proven in the pilot, Tsavo West would be a potential recipient of a further 10 years of additional funding to support park operations and management, law enforcement and monitoring. The selection workshop for shortlisting rhino sites for funding under the full phase RII project takes place in August 2017.

ZSL has been a partner of KWS for over 25 years, providing technical support and building capacity. Both KWS and ZSL understand that conservation is a long game. As the government wildlife authority, KWS have taken the responsibility to protect and finance its Protected Areas in perpetuity. ZSL views its support to the TCA as being long-term and therefore continues to seek further funding in addition to the RII project to tackle all aspects of PA support. This has included securing funds from the Rufford Foundation, the Oak Foundation, and a private individual.

The RII pilot project has continued to provide the funding required to operate the vehicles and employ all the staff to sustain the IWT Challenge Fund project activities for the foreseeable future. Furthermore, KWS remains committed to rhino conservation, with rhino areas receiving more personnel over the past three years. ZSL has been working hard to raise long term funding for Tsavo West, both through the development of the RII project, but also through the development of a sustainable financing mechanism with our partners at The Nature Conservancy and Solar Century. With support from the British High Commission in Kenya, we hope this project creates a funding mechanism that provides regular large scale funding to Tsavo West for 20 years. Creating long-term funding mechanisms is a major focus of ZSL in Kenya, to ensure sustainability of conservation projects moving forward.

The branding for the funding source of this project has been clear to KWS and the Kenyan Government (see section 12). The law enforcement and monitoring systems that have been developed during this project are being institutionalised within KWS through “training of trainers” and through establishing rigid

reporting structures in the TCA initially. The successes are clear to see (sd49-92). KWS Senior Management have been very impressed with this progress, and are now proposing to upscale this methodology to all rhino areas. Equipment has been provided to all ranger units in the rhino areas; with solar chargers ensuring power requirements are sustainable. Furthermore, the IWT Challenge Fund has contributed funds, along with other donors including ZSL, AWF and Google, to construct and power a new rhino field office (sd41) to enable efficient collation and analysis of data, and production of reports. This office will be an asset for KWS for at least the next 20 years.

The main recommendation of the National Rhino Audit is for all rhino areas in Kenya to split monitoring and security functions, something that the rhino areas in this project are already doing as a result of the IWT Challenge Fund activities. One of the planned interventions of the RII pilot project is to fit all rhino in the IPZ with transmitters, which will ensure this population is the best monitored KWS rhino population in Kenya. It is anticipated that all IPZ rhinos will be seen at least once a week following this intervention, sightings intervals on a par with the best private rhino areas in Kenya. This activity was due to take place in October 2016, but was delayed due to a lack of M99 immobilisation drugs in Kenya at the time, and so is now scheduled for October 2017.

ZSL is committed to supporting the sustainability of the Instant Detect systems in Tsavo. The employment of a Conservation Technology Field Officer has provided a dedicated person with the technical expertise to continue to drive this project forward, and the team in London have raised \$500,000 to date to further improve these systems and tackle the bugs that have been encountered.

12. IWT Challenge Fund Identity

The IWT Challenge Fund and UK Aid / DEFRA have been listed as sponsors / funders on all reports produced by this project to date (see annex 3). At all times, the implementation of this project has been clearly described to the Kenyan Government as being funded by the UK Government through the IWT Challenge Fund.

This project has not published any formal publications or media articles. The methodologies for the RII project site assessments (sd95) will be published in the future. There have been formally produced reports on the METT assessments that were undertaken at Tsavo West, Tsavo East and Chyulu Hills. These reports were disseminated to all stakeholders, and include recognition of the funding role by the IWT Challenge Fund (sd11-13). Furthermore, pocket rhino ID books have been produced for all the rangers in each of the rhino areas with UK Aid and Defra acknowledged as being the funding body for these materials (sd20-22). These ID books are hugely important for raising standards of rhino monitoring.

UKAid and the IWT Challenge Fund are also recognised and publicised as funders of the Rhino Impact Investment Project. The UKAid logo appears on all project documentation. Further, the following introductory paragraphs appear on all project documents:

“The Rhino Impact Investment Project is an initiative of United for Wildlife (UfW), an unprecedented partnership between seven of the world’s leading wildlife charities and The Royal Foundation of The Duke and Duchess of Cambridge and Prince Harry.

Implementation of the Rhino Impact Investment Project is led by the Zoological Society of London (ZSL) and the Project is funded by the Global Environment Facility, the UK Government through the IWT Challenge Fund, UfW and ZSL. The United Nations Development Programme is the GEF Agency acting as the operational arm of the GEF to implement and execute Project activities consistent with both the GEF mandate and national sustainable development plans.

The Rhino Impact Investment Project receives implementation support on technical conservation, conservation finance and legal from Implementation Partners including Credit Suisse, DLA Piper, Fauna & Flora International (FFI), the IUCN African and Asian Rhino Specialist Groups (AfRSG and AsRSG), Kenya Wildlife Services (KWS), The Nature Conservancy (TNC), UBS and WWF-UK.”

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

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

This project worked to address the following needs in Tsavo: 1. Improved rhino monitoring; 2. Enhanced overt security presence; 3. Improved detection of illegal activities within the TCA; 4. Trained Intelligence and Investigations officers operating pro-actively; and 5. Rapid Response capabilities. All five of these were achieved by the project activities. The highlights included marked improvements as a result of the new law enforcement and monitoring systems that were developed and implemented in the TCA. ZSL

and KWS have been able to confirm 94% of the NRS rhinos, 100% of the Chyulu Hills rhinos, and 45% of the IPZ rhinos, with photos confirming all individuals. The average critical sightings interval (no. of days since rhino last seen) for rhino in NRS has decreased from 140 days in December 2015 to 40 days in March 2017, while in the IPZ, it has decreased from 1,306 days in August 2016 to 961 days in March 2017. These are real achievements because at the project start, monitoring efforts in the IPZ were non-existent and monitoring in Ngulia was largely limited to annual night census surveys.

Law enforcement patrol coverage in NRS and Chyulu Hills has improved month on month since this security monitoring system was implemented, with a total increase over the project lifespan of approximately 1000%. In Ngulia for example, patrol distance covered per month rose from an initial total of 46km in January 2016 up to a total of 1,945km in May 2017. Training of intelligence officers has resulted in a number of successful intelligence-led operations by KWS, BLF and Tsavo Trust, with 22 people arrested and over 360kg of ivory recovered in the first 5 months of 2017 alone. In 2016, over 500 arrests have been made in Tsavo by KWS in partnership with Tsavo Trust and BLF.

No rhinos were poached in the TCA during the project period up until December 2016 when two rhino were poached (mother and calf), ending a 31-month zero poaching period. Prior to that, Tsavo West had lost 12 rhino to poaching over a 3 year period. Nationally, Kenya lost 21 rhino to poaching during the project period, a reduction from the 94 rhino poached during the previous 2 years. The net result of this was a significant reduction in poaching rates and a large increase in growth rates of black rhino over the project lifespan.

14. Finance and administration

14.1 Project expenditure

Project spend (indicative)	2014/15 Grant (£)	2014/15 actual IWT Costs (£)	2015/16 Grant (£)	2015/16 actual IWT Costs (£)	2016/17 Grant (£)	2016/17 actual IWT Costs (£)	Total Original Grant (£)	Total actual Costs (£)	Comments (please explain significant variances)
Staff costs (see below)									
Consultancy costs									
Overhead Costs									
Travel and subsistence									
Operating Costs									
Capital items (see below)									
Others (see below)									
TOTAL									

A budget change was approved by DEFRA in November 2015 to move some of the Year 1 costs to Year 2.

Staff employed (Name and position)	Cost (£)
Chris Gordon, ZSL Kenya Country Manager	
Richard Moller, ZSL Tsavo Technical Adviser Horris Wanyama, KWS Ngulia Rhino Researcher Sylvester Mathaika, KWS IPZ Rhino Researcher	
Olivia Needham / Louise Hartley, ZSL Project Lead for ID Deployment	
Cedric Khayale, KWS Senior Scientist	
Benson Kibet, Big Life Chyulu Hills Rhino Researcher	
TOTAL	

Capital items – description <i>Please detail what items were purchased with fund money, and where these will remain once the project finishes</i>	Capital items – cost (£)
2x Suzuki Maruti Monitoring vehicles including modifications to ruggedize them for field operations. These vehicles will continue to be used within Tsavo West National Park to provide transport for the dedicated rhino monitoring teams in these areas. These vehicles continue to be used by ZSL to assist with effective rhino monitoring for the Rhino Impact Investment Project.	
1x TVS Motorbike. This motorbike will continue to be used by ZSL to assist with logistics and operations for the Rhino Impact Investment Project.	
TOTAL	

Other items – description <i>Please provide a detailed breakdown for any single item over £1000</i>	Other items – cost (£)
40x Equipment Gerber Bear Ultimate Multi tool	
Monitoring Office building materials	
Duracell Batteries	
40x Solargorilla Solar Charger	
40x Celestron Granite 8x42 binocular	
80x Garmin GPSMAP 64S	
Equipment Store-Container Modification	
Shipping Container for Equipment Store	
Other Costs (<£1,000 per item)	
TOTAL	

14.2 Additional funds or in-kind contributions secured

Source of funding for project lifetime	Total (£)
Rufford Foundation – for Intelligence training (additional funds)	
UNDP / GEF – for Rhino Impact Investment Project (£ of which is to directly support Tsavo West NP).	
ZSL Internal Funds – for purchase of camera traps, training support, and costs towards the National Rhino Audit	
TOTAL	

Source of funding for additional work after project lifetime	Total (£)
Oak Foundation – for support to aerial reconnaissance, intelligence, and infrastructure development in the IPZ	
TOTAL	

14.3 Value for Money

ZSL believes that this IWT Challenge Fund project has been exceptional value for money. Value for money comes in multiple guises for this project:

1. The funding provided by UK Aid for this project helped to leverage significantly more funding for Tsavo and tackling illegal wildlife trade. Primarily, the components of the IWT funds for rhino and law enforcement monitoring in Tsavo West acted as co-financing to secure the \$1.7M from UNDP / GEF for the Rhino Impact Investment Project, of which approximately \$650,000 has gone towards interventions in Tsavo West. Further, the demonstrated improvement in rhino monitoring and patrol coverage were factors in ZSL securing £ for Tsavo through Oak Foundation.
2. Since early 2016, ZSL has been adapting and improving its accounting and procurement processes for all of ZSL's conservation programmes, including the Kenya Country Office. This has allowed ZSL to ensure that we are compliant to administratively-heavy grants such as from the United Nations Development Programme (UNDP) / Global Environment Facility (GEF). These changes are an ongoing process to ensure ZSL operates at the highest standards.
3. ZSL prides itself in Kenya in the quality of jobs that we deliver for our partners. This quality rarely translates to the cheapest end product but ours is a support that stands the test of time. As an example (sd41), the office block that the IWT Challenge Fund assisted with funding to construct for rhino monitoring has been built with steel roofing structures, concrete floors, iron sheet roofing, and hard wood door and window frames all designed to withstand the aggressive termite colonies found in Tsavo. The roofing has been bat-proofed to prevent colonies from roosting under the roof, as the acidic guano produced by bat colonies can do long-term damage to infrastructure. The outer walls have been clad with local rocks to ensure the paintwork isn't rubbed away by passing traffic. Conversely, a recently completed (2015) accommodation block constructed in Tsavo by another partner NGO for KWS is already in need of urgent repair due to termite and bat infestations, and despite the budgets for such a project coming in much cheaper, the value for money is clear to see.
4. Extensive training in various methodologies has seen integration in government systems, with vast improvements as a result. KWS Senior Management has been particularly impressed to see the quality of reporting produced by the rhino areas in Tsavo.
5. The management effectiveness self-assessment in the TCA, and the evaluation of KWS' rhino programme, will identify key conservation needs. Methodical processes such as the one developed for the RII project will generate clear logical rationale and funding requirements to enable effective fundraising for these areas moving forward.

Annex 1 Project's original (or most recently approved) logframe, including indicators, means of verification and assumptions.

Note: Insert your full logframe. If your logframe was changed since your application and was approved by a Change Request the newest approved version should be inserted here, otherwise insert application logframe.

Project summary	Measurable Indicators	Means of verification	Important Assumptions
Impact: Rhino numbers increase, and illegal wildlife trade in rhino products in Kenya is restricted through effective enforcement, sustained financing and opportunities for local involvement in wildlife-related employment.			
Outcome: Enhanced, effective training of Kenya Wildlife Service law enforcement, and rhino monitoring personnel, combined with deployment of real-time surveillance and monitoring systems, will advance intelligence gathering, law enforcement effectiveness, and monitoring of rhino populations, leading to increased number of prosecutions, reduced poaching, and ultimately increased rhino numbers. Focused implementation of this training in key black rhino strongholds within the Tsavo Conservation Area (TCA) will provide necessary enabling conditions for long-term investment through Rhino Impact Bonds.			
Outputs: 1. Management effectiveness gaps assessed to define the training needs for enforcement personnel in the TCA.	1.1 MEC assessments demonstrate management effectiveness gaps after initial assessment by May 2015. 1.2 MEC assessments at project interim (March 2016) and project end (March 2017) demonstrate diminishing effectiveness gaps from baseline assessment.	MEC analysis reports	
2. Evaluations of rhino monitoring programmes and “trainer” knowledge to establish a revised rhino monitoring programme.	2.1 Collaborative evaluation of current rhino monitoring tools, and rhino monitoring capacity at all KWS rhino sites have been conducted by ZSL and KWS before June 2015, to identify training needs. 2.2 Assessments of knowledge of identified rhino monitoring “trainers” have been completed before June 2015, to identify training needs.	Rhino monitoring analysis reports	
3. All Manyani Instructors and rhino monitoring “trainers” have received “train the trainer” courses on new law enforcement technologies and tools, and on rhino monitoring tools, respectively.	3.1 KWS and ZSL have conducted a training needs assessment to identify the new law enforcement technologies that will be provided to Manyani Instructors by June 2015. 3.2 4-6 weeks training provided to all Manyani instructors, to include all female instructors where applicable, on the new technologies by October 2015 3.3 4 weeks training provided to all rhino monitoring trainers, to include all female	KWS and ZSL deployment and training reports	Manyani Academy does not experience a complete overhaul of Instructors post-training on new curriculums.

	trainers where applicable, on the existing and new rhino monitoring tools by October 2015.		
4. An assessment plan is in place which ensures Manyani graduates and rhino monitors have the knowledge and skills to deliver new tools at site.	4.1 100% of graduates (including a 75:25 male:female ratio) meet the required level of knowledge, skills and values to deliver these tools.	Analysis report of graduate evaluation forms.	
5. All new training tools have been taught and implemented in all platoons of the Tsavo Conservation Area, prioritising those four platoons with a rhino specific focus.	5.1 4 weeks training provided to all TCA platoons on the new law enforcement tools by March 2016 (baseline= zero), including female rangers if available. 5.2 New law enforcement tools are being implemented by platoons in the field by March 2016. 5.3 Monthly reports are being produced on law enforcement effort and results by June 2016.	KWS and ZSL deployment and training reports, Monitoring and Evaluation quarterly reports	Ranger platoons in Tsavo Conservation Area are not transferred out of the TCA post-training on new law enforcement tools.
6. Seven IW systems functioning effectively in Tsavo East Rhino Sanctuary with high priority data being sent in real time to rangers so they can react accordingly. Rangers properly trained to use and maintain the equipment with access to operational support when required.	6.1 Two weeks of training provided to Tsavo East Rhino Sanctuary rangers, to include all female rangers responsible for protection of the rhino sanctuary, in the setup and use of IW by August 2015 (baseline = zero). 6.2 100% of images taken of humans are sent as high priority to the responsible party (baseline = zero). 6.3 All IW systems are operational and deployed at Project End.	ZSL and 7TG deployment and training reports	IW systems are correctly deployed at key threat points within the Tsavo East Sanctuary. Rangers maintain and manage the IW systems including changing batteries.
7. Benefits to local communities around the TCA rhino areas are monitored to ensure that the impacts of activities are reaching the community, specifically through enhanced security, reduced corruption and a level of trust towards the local law enforcement agencies.	7.1 Social surveys at project close demonstrate a positive change in attitude to security, corruption and trust (baseline = first 6 months of project).	Questionnaire survey reports	
Activities 1.1 Management effectiveness criteria socialised with site managers 1.2 Site managers carry out self-assessment workshop facilitated by project team and with external expert support. Workshops will be conducted at project start, project interim and project end. 2.1 Site by site evaluation of standards of rhino monitoring capacity conducted by KWS and ZSL. 2.2 Current rhino monitoring protocols are assessed by KWS and ZSL to identify gaps and new tools to introduce.			

2.3 Assessments of the identified rhino monitoring “trainers” against knowledge of current rhino monitoring protocols.

3.1 Training needs assessment of new law enforcement technologies on offer. Training will complement course curriculums.

3.2 All Manyani Instructors attend a “Training of Trainers” on the new law enforcement technologies and tools.

3.3 All identified rhino monitoring “trainers” attend a “Training of Trainers” on existing rhino protocols, and on new rhino monitoring tools.

3.4 Rhino monitoring “trainers” run training courses to ensure this knowledge is passed to rhino monitors at all KWS rhino sites.

4.1 Assessment questionnaires have been designed.

4.2 Questionnaires are completed by all course graduates. Course graduates include all female rangers that are attending the basic ranger training at the law enforcement academy.

4.3 Questionnaires are analysed quarterly to analyse effectiveness of teaching.

5.1 Equipment for implementation in each platoon has been delivered.

5.2 Identified officers / rangers within the TCA have attended a training course run by Manyani Instructors on the use of all the new course materials. Gender equality policies will be strictly adhered to, to ensure that a minimum number of women in these platoons have received this training.

5.3 ZSL provides continued support in all areas of the TCA.

6.1 Deployment of seven IW systems and five unmanned ground sensor systems (UGS) in Tsavo East National Park Rhino Sanctuary.

6.2 An in-depth analysis of threat hotspots and key sites for IW deployments are identified.

6.3 Identified staff at the rhino sanctuary attend a ‘Training of Trainers’ on the use and deployment of IW systems. Training is given jointly by ZSL and 7TG. The project team will ensure that a minimum number of female staff are selected for training on the IW systems.

6.4 Maintenance checks of the systems takes place on a bi-monthly basis, carried out by KWS and ZSL when necessary, to ensure the long-term functionality of the system.

6.5 Quarterly review on effectiveness of IW systems to provide real-time alerts to rangers.

7.1 Questionnaire survey has been designed to test community perception of security, corruption and trust of local law enforcement agencies.

7.2 Questionnaires are delivered to the three major communities surrounding rhino areas at the start and close of project. Questionnaires are delivered to an average subset of the community demography, ensuring that gender equality is acknowledged.

7.3 Questionnaire surveys are compared to analyse the effectiveness of the intervention in supporting local people.

Annex 2 Report of progress and achievements against final project logframe for the life of the project

Project summary	Measurable Indicators	Progress and Achievements
<p>Impact</p> <p>Rhino numbers increase, and illegal wildlife trade in rhino products in Kenya is restricted through effective enforcement, sustained financing and opportunities for local involvement in wildlife-related employment.</p>		<p>Despite poaching, national rhino numbers have increased by 3.64% over the two years of this project, up from 1.35% growth in the previous two years. NRS has had an average population increase of 3.8% over the two years of the project, with an increase of 1.93% in the two previous years to that. The Chyulu population has seen no net gain during the two years of the project, partly due to the limited size of the population (7 individuals), making growth difficult if all females already have calves. Monitoring of the IPZ population prior to the start of this project was so poor that it is difficult to understand the growth rates here as the focus has been entirely on understanding the status quo, and getting monitoring in an exceptionally difficult area up to standard.</p> <p>Effective rhino monitoring has been put in place to accurately understand the confirmed rhino population in the target area. No rhinos were poached in Tsavo West during the project period up until December 2016 when two rhino were poached (mother and calf), ending a 31-month zero poaching period. Prior to that, Tsavo West had lost 12 rhino to poaching over a 3 year period. Nationally, Kenya lost 21 rhino to poaching during the project period, a reduction from the 94 rhino poached during the previous 2 years. National black rhino poaching rates over the two years of the project were 1.14%, down from 4.04% in the two years prior to that. This reduction in poaching can be attributed to a variety of factors including improved law enforcement effectiveness, improved rhino monitoring, enhanced conservation funding with increased stakeholder participation, new stricter legislations for wildlife crime, an emphasis on intelligence-led law enforcement, and globally coordinated efforts to tackle IWT.</p> <p>Given the proven effectiveness of intelligence-led law enforcement in combatting the illegal wildlife trade, ZSL employed a dedicated law enforcement adviser in October 2016, based in the UK, but supporting our country offices in Benin, Cameroon and Kenya. Following targeted training of intelligence officers in the TCA during early 2017, 22 people have been arrested and over 360kg of elephant ivory recovered in the first 5 months of 2017 alone. There is an ongoing intelligence operation on a high-level dealer of rhino horn following the poaching of the two rhino in Ngulia in December 2016, as well as two other investigations on poaching groups targeting rhino in TCA.</p> <p>Sustained financing to support Tsavo West will be delivered through the Rhino Impact Investment (RII) project, which will initially deliver a further 12 months of funding to Tsavo West (up to March 2018), with the potential to provide up to 10 years of financing thereafter if selected for the full phase of the RII project. This funding will build on the foundations laid by the IWT010 project, enhancing rhino monitoring, security, intelligence, park management and operations (sd10). The RII project has provided support to KWS and Tsavo West for everything from infrastructure development and maintenance to cutting fire breaks, from water maintenance to ranger facilities. All of these interventions are designed to impact on the primary KPI of rhino population growth rates. Significant</p>

		<p>progress has been made in this two year window on monitoring and security. These strides have been important for reassuring KWS that the Tsavo West IPZ can operate effectively, and thus be a recipient for more rhinos from other overstocked populations.</p>
<p>Outcome Enhanced, effective training of Kenya Wildlife Service law enforcement, and rhino monitoring personnel, combined with deployment of real-time surveillance and monitoring systems, will advance intelligence gathering, law enforcement effectiveness, and monitoring of rhino populations, leading to increased number of prosecutions, reduced poaching, and ultimately increased rhino numbers. Focused implementation of this training in key black rhino strongholds within the Tsavo Conservation Area (TCA) will provide necessary enabling conditions for long-term investment through Rhino Impact Bonds.</p>	<ol style="list-style-type: none"> 1. All Manyani Instructors have full working knowledge of new law enforcement tools, and are training with these tools by March 2016. 2. All rhino monitoring trainers have full working knowledge of rhino monitoring tools, and are training with these tools by March 2016. 3. Increased detection of poachers in the TCA by 10% from April 2015 to March 2016, and by a further 30% to March 2017. 	<ol style="list-style-type: none"> 1. Owing to complications in delivery of Manyani components as reported in the Annual Report for Year 1 (sd07-09), this outcome has been focused at the project site level. Systems were developed with KWS to improve law enforcement, rhino monitoring, and proactive intelligence gathering effectiveness. Extensive training took place of both instructors and field implementers in both the TCA, and across rhino sites in Kenya. Three SMART training courses were conducted during the life of the project, training 34 persons to be SMART operators (sd23-24; sd28-31). Regular field-level training of all rangers and rhino monitors within the TCA led to improved law enforcement coverage, reduced sightings intervals for rhinos, and more accurate monitoring records on all rhino populations (sd25-27). An accredited ToT workshop trained 38 individuals from 16 rhino areas to be able to train their staff effectively on rhino monitoring, with all rhino areas receiving training materials to allow them to replicate these trainings (sd32-34). Two proactive law enforcement courses were delivered by an ex-Metropolitan intelligence officer to 28 intelligence officers from 6 organisations across the TCA, encouraging a coordinated intelligence community, and enhancing skillsets to be able to safely extract, disseminate, and operationalise intelligence into action (sd36-37). 2. Regular rhino monitoring training has happened at site level within the TCA, ensuring that both the dedicated rhino monitoring teams and the security rangers have the knowledge to continually improve rhino monitoring efforts. Repeated training sessions were necessary due to KWS' human resource decisions to transfer rangers to different sites across the organisation (sd25-27). ZSL ran the original training of security rangers, but this task was then administered by the rhino researcher for each area. The dedicated rhino monitoring teams have been further trained in SMART operations, calculating critical sightings intervals, using Kifaru, and camera trapping to enhance rhino monitoring accuracy. Regular monthly reports are being produced for all three rhino areas within the TCA (sd49-92). See Outcome Indicator 6 for more details of results. An accredited ToT workshop trained 38 individuals from 16 rhino areas to be able to train their staff accordingly on rhino monitoring, with all rhino areas receiving training materials to allow them to replicate these trainings (sd32-34). 3. Law enforcement coverage and effectiveness has been tracked in all three rhino areas since January 2016 for NRS, April 2016 for Chyulu Hills, and October 2016 for the IPZ (sd49-92). Prior to that, while there were no systems in place to regularly monitor and report on this, KWS' previous reporting systems stated that no poachers had been detected in the year prior to the IWT project period. During Y2 of the project, the Instant Detect systems were deployed in the IPZ to complement the systems in the NRS (sd38-39). One unsuccessful poaching incursion was identified in January 2016 in NRS, but unfortunately, the poachers avoided arrest. A second individual was alerted by a camera trap image in December 2016, with a successful operation ensuing. A third event took place in December 2016 when two rhinos were poached in NRS. While the poachers were not detected at the time, follow up operations resulted in the successful apprehension of four out of six of the poaching gang.

	<p>4. Increased arrest of poachers in the TCA by 10% from April 2015 to March 2016, and by a further 30% to March 2017.</p> <p>5. Increase in successful convictions from TCA arrests by 10% from April 2015 to March 2016, and by a further 30% to March 2017.</p> <p>6. Increase of 5% in rhino population in Tsavo Conservation Area from March 2016 to March 2017.</p>	<p>4. Following the second incident above, where one individual was detected by a camera trap in the IPZ, an operation was put in place by KWS and Tsavo Trust, with this individual ambushed and arrested. He was questioned at Tsavo West HQ, and was subsequently released due to mental health issues. Following the poaching incident in NRS in December 2016, ZSL supported a KWS operation to identify the poachers reactively. Six individuals were identified, and they were subsequently ambushed in Tsavo East National Park while attempting to poach elephants. A firefight ensued with four out of the six poachers shot and 2 automatic AK47 rifles recovered, during which KWS lost one Senior Officer and another was injured. Following targeted training of intelligence officers during early 2017, 22 people have been arrested and over 360kg of elephant ivory recovered in the first 5 months of 2017 alone. There is an ongoing intelligence operation on a high-level dealer of rhino horn following the poaching of two rhino in Ngulia in December 2016, as well as two separate investigations on groups intending to target rhino in TCA, and an ongoing independent investigation that involves one of the two suspects who escaped from the firefight described above.</p> <p>5. Kenya still has a significant issue with successfully prosecuting wildlife crime cases despite the new Wildlife Act of 2013. Much of the issue stems from cases generally displaying a lack of evidence through poor crime scene management, an inability to submit certain evidence to courts including evidence from tracker dog units etc. This is compounded by the fact that all crime scenes have to be managed by Kenya Police, rather than KWS, leaving a disconnect between law enforcement agencies with differing perspectives on the severity of these crimes. As a result of the above, the average court case for wildlife crime offences takes over two years, according to recent gap assessment surveys of five Kenyan rhino sites under the RII project. Despite all this, zero arrests were made for rhino poaching during the project period. Of the 22 arrests mentioned above, the oldest of these cases is 5 months old, and is yet to reach a verdict in the local courts. With the new Wildlife Act 2013 in place, denial of bail for suspected poachers / dealers has increased substantially and this has created an increased potent deterrent to those involved in IWT.</p> <p>6. The Chyulu Hills lost one rhino which occurred before the project interventions had started in that area. Tsavo West had two rhino poached (mother and calf) in December 2016, ending a 31-month zero poaching period. Prior to that, Tsavo West had lost 12 rhino to poaching over a 3 year period. Nationally, Kenya lost 21 rhino to poaching during the project period, a reduction from the 94 rhino poached during the previous 2 years. National black rhino poaching rates over the two years of the project were 1.14%, down from 4.04% in the two years prior to that. This reduction in poaching can be attributed to a variety of factors including improved law enforcement effectiveness, improved rhino monitoring, enhanced conservation funding and increased stakeholder participation, new stricter legislations for wildlife crime, an emphasis on intelligence-led law enforcement, and globally coordinated efforts to tackle IWT. Despite poaching, national rhino numbers have increased by 3.64% over the two years of this project, up from 1.35% in the previous two years. NRS has had an average population increase of 3.8% over the two years of the project (sd42-43), with an increase of 1.93% in the two previous years to that. The Chyulu population has seen no net gain during the two years of the project, partly due to the limited size of the population, making growth difficult if all females already have</p>
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	<p>7. Increased sense of security amongst local communities, with an increased level of trust towards local law enforcement agencies and perceptions that corruption has decreased.</p>	<p>calves. Monitoring of the IPZ population prior to the start of this project was so poor that it is difficult to understand the growth rates here as the focus has been entirely on understanding the status quo, and getting monitoring in an poorly known population up to standard. While both the TCA and Kenyan populations have not achieved the targeted 5% growth across the project lifespan, there has been a significant increase on the preceding years. Several of Kenya's sanctuaries are overstocked driven by a lack of funding to effectively manage meta-population dynamics, with those populations struggling to grow at the desired rate. NRS' performance of 3.8% has been in spite of this population being 68% over the estimated ecological carrying capacity. Should Tsavo West be chosen as a site under the full phase of the RII project (once the pilot phase is completed by March 2018), there will be a major focus on destocking of NRS, to supplement the IPZ population, where space and excellent black rhino habitat exist.</p> <p>7. The baseline social surveys were conducted in Y1 (sd44-45). As discussed in the Y1 Annual report (sd08), ZSL discussed this output with several social science experts who all gave the same conclusions that it would be counter-productive for the baseline social surveys to be replicated in these target communities as there had been no specific targeted activities for these communities in this grant, and that repetitive interviews would only serve to frustrate community members and alienate them further. The team collected data from 224 households in about 100 villages across the three general study sites (Kibwezi, Maktau and Rombo) bordering the TCA. Overall, the majority (96%) of the 224 respondents were Kamba (35%), Maasai (31%) and Taita (30%). These three communities are the most critical surrounding both NRS and IPZ, and cover major neighbouring communities for the Chyulu Hills. The baseline surveys showed that 70% of respondents had a negative perception of wildlife conservation, and that 46% had a negative perception of park management, but that these proportions decreased significantly in households with higher diversity of incomes. Negative perceptions increased in households that experienced more wildlife conflict, and reduced in households with higher education levels (sd44-45). These baseline surveys also gauged average household income and numbers of revenue sources. ZSL, KWS and partners recognise the importance of having engaged and supportive communities to achieve effective conservation across large multi-stakeholder ecosystems, and to support efforts to tackle wildlife crime.</p> <p>These partners are in the process of raising further funding to develop significant community outreach programmes in these areas, and these social surveys will provide the baseline data to be able to monitor and evaluate impact of those activities moving forward. In the meantime, there is an increasing focus on working with local communities through developed and managed informer networks to provide accurate information on illegal wildlife trade. ZSL's law enforcement advisor has been working with KWS, BLF and Tsavo Trust in addition to other local partners to upskill intelligence and investigations officers to better manage and secure relationships with informers (sd36-37). Increased volumes of intelligence and the successful operations created by these help to build trust between the conservation actors and the informers, as well as demonstrating to local communities that KWS are a law enforcement agency that can act to arrest and disturb local crime networks.</p>
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<p>Output 1. Management effectiveness gaps assessed to define the training needs for enforcement personnel in the TCA.</p>	<p>1.1 MEC assessments demonstrate management effectiveness gaps after initial assessment by May 2015.</p> <p>1.2 MEC assessments at project interim (March 2016) and project end (March 2017) demonstrate diminishing effectiveness gaps from baseline assessment.</p>	<p>1.1 Project start Management Effectiveness Tracking Toolkit (METT) reports have been published and disseminated to all partners (sd11-13). The documents highlight the gaps in management effectiveness through a self-assessment of 30 defined columns of park management ranging from security, research and operations to finances, outreach and education. Most importantly, the METT process encourages park management to discuss and complete a next steps strategy process.</p> <p>1.2 As part of the RII project, an extensive gap assessment process was designed by a technical committee of rhino experts (sd95). The gap assessment structure was modified from a combination of the METT toolkit and the Tiger Standards, and further tweaked by a technical committee of rhino experts to capture all elements required for successful rhino conservation, based on eight pillars: park management; finances; rhino monitoring; rhino management; overt security; covert security; investigations; and stakeholder engagement. This gap assessment has been delivered in 20 priority rhino conservation areas globally, including Tsavo West National Park, to allow the RII project to understand and easily compare the current status in all sites, the theory of change for maximising rhino growth rates, the desired state, the funding shortfall, and thus the cost required to achieve growth. This gap assessment process was a more rigorous and independent methodology than the METT process, and thus it was felt that KWS and the park management would be wearied by having to conduct another management assessment. The report of the RII gap assessment is unavailable for dissemination due to the sensitive information held within, as agreed with the IUCN African Rhino Specialist Group and KWS.</p>
<p>Activity 1.1 Management effectiveness criteria socialised with site managers</p>		<p>Before the METT assessments were conducted, two presentations were given by Nigel Dudley from Equilibrium Research to socialise the idea with all the senior park staff, and to explain the process and what it would achieve.</p>
<p>Activity 1.2. Site managers carry out self-assessment workshop facilitated by project team and with external expert support. Workshops will be conducted at project start, project interim and project end.</p>		<p>Management Effectiveness Tracking Toolkit (METT) self-assessments were conducted for all three National Parks in the TCA (Chyulu Hills, Tsavo West and Tsavo East) by Senior Park Staff and partner organisations, including ZSL, Tsavo Trust and BLF to assess Management Effectiveness of 30 columns of Protected Area management. METT assessments highlight the gaps in management and encourage managers to think about and plan activities to address gaps. While the METT scoring can be used to compare management of different parks, the author of the METT, Nigel Dudley, prefers that the METT scores only be used to compare trends in management effectiveness in one site, assuming the same individuals are part of the self-assessment process each time.</p>
<p>Output 2. Evaluations of rhino monitoring programmes and “trainer” knowledge to establish a revised rhino monitoring programme.</p>	<p>2.1 Collaborative evaluation of current rhino monitoring tools, and rhino monitoring capacity at all KWS rhino sites have been conducted by ZSL and KWS before June 2015, to identify training needs.</p> <p>2.2 Assessments of knowledge of identified</p>	<p>2.1 A mid-term review of the Kenya Black Rhino National Strategy (2012-2016) was completed and published by KWS and WWF in 2015 (sd14-15). This was supplemented by a National Rhino Audit, conducted by an independent consultant, Rob Olivier, at the request of the KWS board, and the National Rhino Steering Committee (sd17). One of the major recommendations of the National Audit was to separate out the rhino monitoring duties from the security personnel at each site. Further, the National Audit recommended urgent refresher training for rhino monitoring trainers from all sites. Rhino monitoring protocols were evaluated by KWS and ZSL and a Standard Operating Procedure was developed for the Tsavo sites (sd18).</p> <p>2.2 Cedric Khayale, the Senior Rhino trainer within KWS assessed the quality of rhino</p>

	rhino monitoring “trainers” have been completed before June 2015, to identify training needs.	monitoring trainers in each site as part of the mid-term strategy review (sd14-15). This review included a site-by-site assessment of the state of each rhino area, and the standard and number of rhino monitoring trainers in each site. The accuracy of rhino monitoring at all sites was further evaluated and ranked as part of the National Rhino Audit (sd17). All rhino sites in the TCA have had rhino monitoring “trainers” deployed to lead monitoring efforts, train rangers, analyse the KPIs, and write monthly reports that are assessed by ZSL technical staff and Cedric Khayale prior to dissemination to partners (sd49-92).
Activity 2.1 Site by site evaluation of standards of rhino monitoring capacity conducted by KWS and ZSL.		KWS and WWF conducted a mid-term review of the Kenya Black Rhino National Strategy (2012-2016) to understand monitoring status and capacity at all rhino sites nationally (sd14-15) – a stakeholder workshop in April 2015 allowed all stakeholders including all national-level project partners to feed into this process. The review involved a site-by-site assessment of rhino monitoring standards and capacity. This was supplemented by a National Rhino Audit, conducted by an independent consultant, Rob Olivier, at the request of the KWS board, and the National Rhino Steering Committee (sd17). One of the major recommendations of the National Audit was to separate out the rhino monitoring duties from the security personnel at each site. Further, the National Audit recommended urgent refresher training for rhino monitoring trainers from all sites (sd32-34). For the TCA assessments of the National Audit, the independent consultant was accompanied by the former KWS Rhino Programme Coordinator (Ben Okita), who is well placed to understand the intricacies of effective rhino monitoring.
Activity 2.2 Current rhino monitoring protocols are assessed by KWS and ZSL to identify gaps and new tools to introduce.		Rhino monitoring protocols were evaluated by KWS and ZSL and a Standard Operating Procedure was developed for the Tsavo sites by KWS and ZSL, led by Cedric Khayale, KWS’ Chief Rhino Scientist (sd18).
Activity 2.3 Assessments of the identified rhino monitoring “trainers” against knowledge of current rhino monitoring protocols.		Cedric Khayale, the Senior Rhino trainer within KWS assessed the standard and number of rhino monitoring trainers in each site as part of the mid-term strategy review (sd14-15). Following this, Cedric selected 38 rhino monitoring trainers from 16 rhino conservation areas to attend a five-day accredited ToT rhino monitoring workshop. All rhino sites within the TCA have had dedicated rhino monitoring “trainers” deployed at site to lead monitoring efforts, train rangers, analyse the KPIs, and write reports. This followed recommendations of both the mid-term strategy review and the National Rhino Audit.
Output 3. All Manyani Instructors and rhino monitoring “trainers” have received “train the trainer” courses on new law enforcement technologies and tools, and on rhino monitoring tools, respectively.	3.1 KWS and ZSL have conducted a training needs assessment to identify the new law enforcement technologies that will be provided to Manyani Instructors by June 2015.	3.1 Law enforcement and rhino monitoring systems were designed by KWS and ZSL for implementation in the TCA (sd18-19), building on best practice knowledge from similar areas, and on lessons learned from the mid-term review and METT assessments (sd11-15). This consisted of a combination of approaches: 1. Enhanced law enforcement patrol coverage through using the SMART (Spatial Monitoring and Reporting Tool) approach to effectively cover rhino areas more widely and regularly, and to improve chances of poacher detection, detection of evidence of illegal activity and carcass recovery; 2. Rapid Response training, delivered by the General Service Unit (GSU) trainers in collaboration with the Manyani Instructors (sd35); 3. Advanced rhino monitoring course developed by the IUCN African Rhino Specialist Group (sd32-34); 4. Proactive law enforcement training for intelligence and investigations officers, delivered by Christian Plowman, ZSL’s Law Enforcement Adviser (an ex-Metropolitan Police officer with 16 years’ experience as an intelligence officer, and undercover operator) (sd36-37); 5. Training in anti-poaching

	<p>3.2 4-6 weeks training provided to all Manyani instructors, to include all female instructors where applicable, on the new technologies by October 2015</p> <p>3.3 4 weeks training provided to all rhino monitoring trainers, to include all female trainers where applicable, on the existing</p>	<p>technologies such as Instant Detect (see output 6) (sd38-39).</p> <p>3.2 KWS conducted a 45-day training of 44 rangers at KWS Law Enforcement Training Academy, Manyani in advanced operations and rapid response skills, to allow the deployment of rapid response ranger units. 31 of the 44 rangers successfully graduated from the course (sd35). These courses were delivered by trainers from both the General Service Unit (Kenya's highly trained Police unit) and from Manyani Law Enforcement Training Academy, using a pre-agreed training curriculum. Two rapid response units have been deployed by KWS in Tsavo and Central Kenya; these units will be able to provide rapid support to 70% of Kenya's rhino population.</p> <p>KWS underwent senior management changes throughout 2015, as the board reviewed KWS management structures. During this time, KWS were reluctant to allow any project activities associated to such a sensitive component of operations as at Manyani Law Enforcement Academy. Following the review, a new Director General and a new Head of Security were appointed to the organisation in late 2015. Discussions on this output were held with relevant personnel, and KWS informed the project that they would not be comfortable with any external influence of training curricula at a paramilitary training academy. Following these discussions with KWS, and as per our report in Y1 (sd07-08), it was decided that ZSL would instead focus all training of new methodologies and technologies at a field level, with a particular focus on the TCA. ZSL ran three 5-day SMART training courses for a total of 32 personnel from the TCA, including five female operators (sd23; sd28; sd30). The participants included all dedicated TCA rhino trainers, the senior rhino scientist, the Company security commanders and Platoon commanders from the TCA, and the head of ecological monitoring from KWS HQ in Nairobi. All participants passed the course and were presented with certificates (sd24; sd29). Further training was provided to 160 rangers on GPS tracking and data collection by the four rhino trainers, the KWS Senior rhino scientist, and by ZSL (sd25-27). All female rangers from these areas were included in the training. In addition to formalised trainings, repeated ad-hoc on-the-job trainings were given by the dedicated rhino trainers to all security rangers within the target rhino areas, particularly during monthly feedback sessions to rangers as part of the dissemination of the monthly reports to all ranger blocks (sd93-94).</p> <p>Effective intelligence gathering has had considerable impact on successful law enforcement, particularly over vast ecosystems where it is difficult to have sufficient security presence. Intelligence networks have driven targeted operations to tackle illegal wildlife trade. ZSL's law enforcement adviser conducted two 4-day training courses for a total of 28 intelligence and investigations officers from the TCA, including four women (sd36-37). These proactive law enforcement courses were designed to upskill intelligence and investigations officers through introducing skills across the law enforcement spectrum, from meeting and developing informers to counter-surveillance and analysis, from planning and implementing operations to ensuring strong evidential collection and presentation. Further, the courses developed a network of intelligence officers from across multiple organisations, encouraging collaboration and communication.</p> <p>3.3 Cedric Khayale, KWS' head rhino trainer, ran multiple trainings to 110 rangers from the TCA over three days in rhino monitoring and ID skills, following the IUCN developed rhino monitoring course. This number included all six women from the Tsavo rhino</p>
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	<p>and new rhino monitoring tools by October 2015.</p>	<p>platoons (sd25-27). Four rhino trainers were selected for the four rhino sites in the TCA, and these individuals received on-site training from both KWS and ZSL in rhino monitoring, GPS tracking, data collection, SMART, Kifaru, Critical Sightings Intervals, and reporting on project progress. Rhino trainers have been familiarised with the new Standard Operating Procedures that were developed (sd18). These dedicated rhino trainers additionally received SMART training as detailed above. Further training was provided to all rangers on rhino monitoring, GPS tracking and data collection by the four rhino trainers, the KWS Senior rhino scientist, and by ZSL (sd26). Repeated ad-hoc on-the-job trainings on rhino monitoring were given by the dedicated rhino trainers to rangers within the target rhino areas, particularly during monthly feedback sessions to rangers.</p> <p>Following the mid-term review and National Rhino audit (sd14-15; sd17), Cedric Khayale identified two rhino trainers from each site. These individuals were brought to Lewa for a National-level ToT accredited course on rhino monitoring (sd32). A total of 38 participants selected from 16 rhino conservation areas across the country were trained; 3 participants were female. The training was conducted by two IUCN African Rhino Specialist Group (AfRSG) accredited Rhino Monitoring Instructors from Kenya Wildlife Service. 71% of the trainees surpassed the minimum requirements for accreditation as rhino monitoring instructors, set at average performance of 80% (sd33-34).</p>
<p>Activity 3.1 Training needs assessment of new law enforcement technologies on offer. Training will complement course curriculums.</p>		<p>Law enforcement and rhino monitoring systems have been designed for implementation in the TCA, building on best practice knowledge from similar areas, and on lessons learned from the mid-term review, the METT assessments and the National Rhino audit. KWS and ZSL refined the Standard Operating Procedures for rhino monitoring to ensure that they were relevant and specific to each rhino site (sd18). The above process identified four key areas to focus on: 1. Law enforcement monitoring using the SMART (Spatial Monitoring and Reporting Tool) approach; 2. Rapid Response training; 3. Advanced rhino monitoring; 4. Proactive law enforcement training for intelligence and investigations officers; 5. Training in anti-poaching technologies.</p>
<p>Activity 3.2 All Manyani Instructors attend a “Training of Trainers” on the new law enforcement technologies and tools.</p>		<p>Due to unforeseen circumstances at Manyani, the project had to adapt its thinking on this output to be predominantly site-focused. Tackling IWT effectively requires a broad range of actions including improving park operations, management effectiveness, law enforcement monitoring, target species monitoring, intelligence gathering, community support, and rapid response capabilities. ZSL and KWS held the majority of trainings at site. KWS conducted a 45-day training at Manyani Law Enforcement Training Academy in advanced operations and rapid response skills, to allow for the deployment of two rapid response ranger units in case of poaching incursions or intelligence operations. 31 of the 44 rangers successfully graduated from the course (sd35). These courses were delivered by trainers from both the General Service Unit (Kenya’s highly trained Police unit) and from Manyani Law Enforcement Academy, using a pre-agreed training curriculum.</p>
<p>Activity 3.3 All identified rhino monitoring “trainers” attend a “Training of Trainers” on existing rhino protocols, and on new rhino monitoring tools.</p>		<p>One dedicated rhino trainer was selected to be stationed at each of the rhino sites in the TCA, and these individuals received on-site training from both KWS and ZSL in rhino monitoring, GPS tracking, data collection, SMART, Kifaru, Critical Sightings Intervals, and reporting on project progress. Rhino trainers have been familiarised with the new Standard Operating Procedures that were developed (sd18). ZSL ran three 5-day training courses for key project personnel from the TCA and from KWS HQ in the use of SMART</p>

	<p>software for monitoring law enforcement effectiveness (sd23; sd28; sd30).</p> <p>Following the mid-term review and National Rhino audit, Cedric Khayale identified two rhino trainers from all 16 of Kenya's rhino areas. These individuals were brought to Lewa for a National-level ToT accredited course on rhino monitoring. A total of 38 participants selected from 16 rhino conservation areas across the country were trained; 3 of the participants were female (sd32). The training was conducted by two IUCN African Rhino Specialist Group (AfRSG) accredited Rhino Monitoring Instructors from Kenya Wildlife Service. 71% of the trainees surpassed the minimum requirements for accreditation as Rhino Monitoring Instructors, set at an average performance of 80% (sd33-34).</p>
<p>Activity 3.4 Rhino monitoring "trainers" run training courses to ensure this knowledge is passed to rhino monitors at all KWS rhino sites.</p>	<p>Multiple trainings were provided to all KWS rangers from the TCA rhino areas in rhino monitoring and ID skills, GPS tracking and data collection following the IUCN developed rhino monitoring course. This number included all six women from the Tsavo rhino platoons (sd25-27). These activities were delivered to improve target species monitoring. Repeated ad-hoc on-the-job trainings on rhino monitoring were given by the dedicated rhino trainers to rangers within the target rhino areas, particularly during monthly feedback sessions to rangers (sd93-94). Laminated rhino ID books were prepared for each rhino area to assist rangers with rhino monitoring. The ID books contained training notes, ear notch patterns and photos of each individual rhino (20-22).</p>
<p>Output 4. An assessment plan is in place which ensures Manyani graduates and rhino monitors have the knowledge and skills to deliver new tools at site.</p>	<p>4.1 100% of graduates (including a 75:25 male:female ratio) meet the required level of knowledge, skills and values to deliver these tools.</p> <p>31 of 44 rangers on the Manyani Training Academy Rapid Response Unit training graduated from the course (sd35). All 32 participants in the ZSL SMART training course were evaluated and assessed by ZSL's SMART trainer, and 100% of those were issued with certificates for completion of the course (sd23-24; sd28-30). All 28 participants on the Proactive Law Enforcement Course were evaluated by ZSL's Law Enforcement adviser, and 100% of those were issued with certificates for completion of the course, with 8 individuals highlighted for exceptional performance (sd36-37). These eight officers will be chosen to attend a more advanced level training on informer handling. All 38 participants on the rhino monitoring ToT course were issued with certificates of completion (sd34), with 71% of the trainees surpassing the minimum requirements for accreditation as Rhino Monitoring Instructors, set at an average performance of 80% (sd32-33).</p> <p>A ranger effectiveness scoring system (sd19) has been used to rank ranger performance each month, with top performing rangers receiving an equipment-based incentive and certificate of recognition to be placed on their file (sd46-48). Average ranger scores per month have increased from a baseline of 15.85% to 42.35% over the project period (sd67; sd92). The progress made through this programme has laid effective foundations for the RII project for demonstrating change in performance metrics both for rhino monitoring and patrol coverage. Further, ensuring standards of monitoring and security are met, are vital for assuring KWS that the TCA is prepared to receive more rhinos in the future.</p>
<p>Activity 4.1 Assessment questionnaires have been designed.</p>	<p>Due to changing circumstances at Manyani, assessment questionnaires were not designed specific to all levels of training courses. However, the Manyani Law Enforcement Training Academy assessed all participants during the Rapid Response Unit training, and only those passing the course criteria graduated from the course (sd35). Participants in the ZSL SMART training course were evaluated and assessed by ZSL's SMART trainer, and those passing the course were issued with certificates (sd23-24;</p>

	<p>sd28-30). Participants in the Proactive Law Enforcement training course were evaluated and assessed by ZSL's Law Enforcement Adviser, and those passing the course were issued with certificates (sd36-37). Trainees on the rhino monitoring ToT course were scored according to the IUCN AfRSG training modules (sd32).</p> <p>A ranger effectiveness scoring system was designed by all project partners to be used on a monthly basis to score performance of every ranger in the target platoons (sd19). The scoring is based on a range of criteria which measure ranger performance and demonstrate an understanding of GPS tracking and data collection. Using the rhino ID booklets (sd20-22), rangers are also spot-tested monthly on knowledge of the individual rhinos in their area.</p>
<p>Activity 4.2 Questionnaires are completed by all course graduates. Course graduates include all female rangers that are attending the basic ranger training at the law enforcement academy.</p>	<p>Due to the Manyani components of this project not being delivered, assessment of graduates was not able to be completed.</p>
<p>Activity 4.3 Questionnaires are analysed quarterly to analyse effectiveness of teaching.</p>	<p>Due to the Manyani components of this project not being delivered, assessment of graduates was not able to be completed.</p> <p>A ranger effectiveness scoring system (sd19) has been used to rank ranger performance each month, with top performing rangers receiving an equipment-based incentive and certificate of recognition to be placed on their file (sd46-48). Average ranger scores per month have increased from a baseline of 15.85% to 42.35% over the project period (sd67; sd92), with scores continuing to trend upwards.</p>
<p>Output 5. All new training tools have been taught and implemented in all platoons of the Tsavo Conservation Area, prioritising those four platoons with a rhino specific focus.</p>	<p>5.1 4 weeks training provided to all TCA platoons on the new law enforcement tools by March 2016 (baseline= zero), including female rangers if available.</p> <p>5.1 Rhino "trainers" were identified for all TCA rhino areas, and were trained on the Standard Operating Procedures (sd18), and the new systems for rhino monitoring and reporting. Trainers were trained on both SMART and Kifaru software so that they could write the monthly report template, gaining knowledge on ranger performance scoring, critical sightings intervals, patrol coverage mapping, and basic rhino demographic reporting. The trainers attended formal training sessions on SMART, QGIS, and the IUCN AfRSG rhino monitoring ToT course (sd23-24; sd28-34).</p> <p>The TCA rhino trainers, with support from KWS' Senior Rhino Scientist, have trained the rangers at site through both formal and ad-hoc training sessions, with support from ZSL (sd25-27). Extensive ranger training has been conducted with the TCA rhino platoons, with training efforts repeated following a large-scale ranger transfer in January 2017. A total of 110 rangers attended formal training sessions including 6 female rangers (sd25-27). Approximately 200 rangers received on-the-job training during monthly feedback sessions in order to improve performance, and to ensure that new rangers had the necessary training to contribute accurate data towards the monthly report.</p> <p>Intelligence and Investigations Officers from six partner organisations within the TCA were identified for training by the KWS TCA Head of Intelligence and by the ZSL Kenya Country Manager. A proactive law enforcement training course, designed by ZSL's Law Enforcement Adviser, was delivered to 28 officers, including 5 women (sd36-37).</p> <p>5.2 KWS rangers have been equipped and trained to collect data on law enforcement</p>

	<p>5.2 New law enforcement tools are being implemented by platoons in the field by March 2016.</p> <p>5.3 Monthly reports are being produced on law enforcement effort and results by June 2016.</p>	<p>patrols. The rhino “trainers” collate the data and produce monthly reports for park management staff using tools such as SMART, Kifaru and a Critical Sightings Interval database. NRS started producing monthly reports from January 2016, the Chyulu Hills from April 2016, and the IPZ from August 2016 (sd49-92). The progress made through this programme has laid effective foundations for the RII project for demonstrating change in performance metrics both for rhino monitoring and patrol coverage. Further, ensuring standards of monitoring and security are met, are vital for assuring KWS that the TCA is prepared to receive more rhinos in the future.</p> <p>Intelligence and Investigations Officers continue their daily roles, with learnings from the trainings incorporated into their best practice operating procedures. Communication groups were created post-training to foster better collaboration and communication on intelligence activities by TCA organisations. ZSL’s Law Enforcement Adviser provides regular technical advice to officers during intelligence operations.</p> <p>5.3 Monthly reports are produced in the TCA rhino areas, on both rhino monitoring and law enforcement effectiveness (sd49-92). As a result of the training, and ranger scoring systems, average ranger scores per month have increased 15.85% to 42.35% (sd67; sd92). Camera trap photos have confirmed 94% of the NRS rhinos, 100% of the Chyulu Hills rhinos, and 45% of the IPZ rhinos during the project life. At the project start, monitoring efforts in the IPZ were non-existent, with monitoring in Ngulia largely limited to annual night census surveys. The average critical sightings interval (no. of days since rhino last seen) for rhino in NRS has decreased from 140 days in December 2015 to 40 days in March 2017, while in the IPZ, it has decreased from 1,306 days in August 2016 to 961 days in March 2017. The number of individual rhinos that are being identified each month in Ngulia has risen from a baseline of 13% of the population per month in December 2015, up to 86% per month in May 2017. Both the IPZ and Chyulu Hills have also seen upward trends in monitoring efforts over the project life. The impressive progress demonstrated in these areas helps to prove the concept that interventions can be linked to performance indicators for the purpose of attracting impact investors under the RII project.</p> <p>Law enforcement patrol coverage in NRS and Chyulu Hills has improved month on month since this security monitoring system was implemented. In Ngulia for example, total patrol distance covered by month rose from an initial total of 46km in January 2016 up to 1,945km in May 2017. In the Chyulu Hills, total patrol distance increased from 477km in April 2016 up to 1,534km in May 2017. This has largely been driven by motivated rangers, whose performance is now being track and rewarded, and support for these new systems from the law enforcement officers and senior park management personnel.</p> <p>Training of intelligence officers resulted in a number of successful intelligence-led operations by KWS, BLF and Tsavo Trust, with 22 people arrested and over 360kg of ivory recovered in the first 5 months of 2017 alone. In 2016, over 500 arrests have been made in Tsavo in total (all offences) by KWS in partnership with Tsavo Trust and BLF.</p>
<p>Activity 5.1 Equipment for implementation in each platoon has been delivered.</p>		<p>NRS required some infrastructure upgrades at the request of KWS to ensure that the reporting and monitoring systems could be effectively delivered. A new office, equipment store and solar power system (sd41) was built with funding from the IWT Challenge Fund,</p>

the Google Impact Award, AWF, ZSL and the Rhino Impact Investment project. This infrastructure will make both the NRS and IPZ rhino areas self-sufficient in their ability to report on rhino monitoring and law enforcement effectiveness, to communicate 24/7 with its ranger platoons using the newly installed digital radio networks, and to be able to monitor and manage Instant Detect systems 24/7 due to a suitable power system.

All ranger outposts in each of the TCA rhino areas have been furnished with two GPSs, binoculars, solar charging units and rechargeable batteries to allow for quality data collection. Having multiple GPSs allows for ready management of data collection in remote ranger outposts so there is no lapse in data collection – the rangers hand in the GPS they have been using for the past 10 days, and receive a clean GPS to use for the next 10 days. The rangers have all received pocket-sized rhino ID booklets complete with rhino monitoring guidance notes (e.g. sexing/ageing/identifying rhinos) as well as individual ID sheets for each rhino within their rhino area (sd20-22). The monitoring team is using a combination of foot patrols and camera trapping to most effectively monitor these rhino populations, with camera trap images clearly able to demonstrate individual rhinos (sd49). Aerial reconnaissance also assists in rhino locations, through partner support from Tsavo Trust (sd01-03) and the Biglife Foundation. An incentive scheme tied to the monthly reports and the ranger scoring system (sd19) will see rangers rewarded with additional equipment (e.g. camping bed / canvas bed roll / multi-tool / torches) for being the best performing ranger in that section over the month, in addition to a certificate of recognition (sd46-48).

With funding support from multiple sources including ZSL, BLF, and the RII project, 165 camera traps have been purchased for the TCA rhino areas. With high attrition rates on camera traps particularly in NRS, due to elephant and hyaena damage, ZSL have supported KWS through the construction of permanent natural rock camera trap houses to protect cameras from damage with funding from the RII project (sd04-06). Further activities have fixed water pipelines to ensure permanent provision of water for rhino, graded fire breaks to mitigate the risk of loss of habitat and even rhinos to large wildfires, fixed ranger accommodation to motivate rangers, and provided storage tanks for holding potable water for ranger consumption (sd10).

Two monitoring vehicles have been purchased – one has been deployed in Ngulia, and the other in the IPZ area. Having a dedicated vehicle for rhino monitoring allows the rhino monitors to operate and maintain camera traps, monitor the rhino population, and collect information from and feedback to ranger units regularly. ZSL has provided two Toyota Landcruisers to support the security functions in the NRS. Tsavo Trust has provided one Toyota Landcruiser to support security operations in the IPZ, while BLF have provided two Toyota Landcruisers for security in the Chyulu Hills. Having sufficient vehicles to mobilise security and monitoring teams is vital for achieving delivery of security, operations support, and regular rhino monitoring (sd10).

The Tsavo Trust provides aerial support to rhino related activities across the TCA with its Super Cub aircraft. Currently, an average 70 hours per month are flown in support to KWS. At least 25 hours per month are rhino dedicated. BLF supports Chyulu with Aerial back up as requested, with an average of 3 hours a month provided for rhino specific aerial support, however the terrain in Chyulu means aerial support has a limited function

		unless in response to specific threats or as a deterrent.
Activity 5.2 Identified officers / rangers within the TCA have attended a training course run by Manyani Instructors on the use of all the new course materials. Gender equality policies will be strictly adhered to, to ensure that a minimum number of women in these platoons have received this training.		Rhino “trainers” have been identified for all TCA rhino areas, and have been trained on the Standard Operating Procedures, and the new systems for rhino monitoring and reporting. These individuals have then trained the rangers at site, with support from the KWS senior rhino scientist and from ZSL. These trainers were chosen from within KWS’ research officer ranks within the National Parks, of which there were zero women to choose from. Of the training provided to rangers, all women attached to those platoons received training on rhino monitoring, data collection, and GPS use (sd25-27).
Activity 5.3 ZSL provides continued support in all areas of the TCA.		<p>ZSL will continue to support rhino conservation in the TCA through the Rhino Impact Investment (RII) project. Having worked to support KWS and Tsavo since 1989, ZSL has a long history of conservation in Kenya. The success and progress achieved (sd10) during the IWT Challenge Fund project and additionally funded projects has helped to unlock significant funds to support NRS and IPZ in particular through the RII project, but has also laid the foundations for demonstrating that effective interventions can help achieve a theory of change for rhino conservation. Using performance metrics to track project success throughout a 2 year window will allow future impact investors to gain confidence that outcome payments can be linked to Key Performance Indicators. In the case of the RII project, this will likely be linked to rhino growth rates. NRS has had an average population increase of 3.8% over the two years of the project, an increase compared to the 1.93% growth rate in the two previous years to that.</p> <p>As the RII project pilot phase finishes in March 2018, the technical team are working to evaluate 20 priority rhino sites globally to understand the theory of change, the achievable impact, the risks, the current standards and the financing required to achieve that impact. All of this is evaluated through a standard gap assessment (sd95), with these sites then compared to select 5 sites for the full phase of the RII project, potentially releasing up to 10 years of funding for rhino conservation in chosen sites. With the progress demonstrated throughout the IWT Challenge Fund, combined with the growth potential for rhinos in the IPZ, Tsavo West has a good chance of getting selected as a site for the full phase.</p>
Output 6. Seven ID (previously IW) systems functioning effectively in Tsavo East Rhino Sanctuary with high priority data being sent in real time to rangers so they can react accordingly. Rangers properly trained to use and maintain the equipment with access to operational support when required.	6.1 Two weeks of training provided to Tsavo East Rhino Sanctuary rangers, to include all female rangers responsible for protection of the rhino sanctuary, in the setup and use of ID (previously IW) by August 2015 (baseline = zero).	6.1 As reported previously in the Y1 annual report, this component of the project was moved to Y2 (with permission from DEFRA) due to delays in the construction of the new Tsavo East Rhino Sanctuary (sd07-09). When the KWS board temporarily halted the opening of the new Tsavo East Rhino Sanctuary due to severe drought conditions, the decision was made to deliver and implement the Instant Detect (ID – Previously known as Instant Wild IW) outputs of this project in the Tsavo West IPZ instead to protect the rhino population in this area, but also to act as a security buffer to the NRS. Seven full ID systems were provided to the Tsavo West IPZ for deployment in this area (sd40). In October 2016, 12 KWS rangers were hand-picked by the Company Commander of Tsavo West for training in the ID systems. These 12 individuals underwent an intensive 10 day training course delivered by 7Tech with support from Sam Seccombe (ZSL’s Conservation Technology Field Specialist), with all rangers passing the course, being presented with certificates (sd38). Due to factors beyond the control of this project, zero female rangers were selected for this team (with limited numbers of female rangers present in rhino platoons due to the high security threats faced by these teams). A second

	<p>6.2 100% of images taken of humans are sent as high priority to the responsible party (baseline = zero).</p> <p>6.3 All ID (previously IW) systems are operational and deployed at Project End.</p>	<p>ID training course was delivered for 10 rangers, presented by Sam Seccombe. 50% of trainees on this course were taking as a refresher with 50% new operators of ID. This second training included training for the company commander and two platoon commanders so that they were able to understand the systems' capabilities and direct operations (sd39).</p> <p>6.2 Fortunately, poaching incidents have been extremely low with only two rhino poached during the project life in December 2016, and three known incursions during the project life. The presence of ID surveillance in the park is known and it is thought to have had a deterrence effect resulting in reduced intruder numbers. An individual was detected by a camera trap image in December 2016, with a successful operation ensuing, resulting in the arrest of this person.</p> <p>Extensive deployment of Instant Detect systems allowed analysis of system functionality. The Passive Infra Red (PIR) cameras within the original system configuration were deemed ineffective to be used as anti-poaching cameras with too much data being sent caused by false alerts (e.g. vegetation movement in front of camera). Consequently, prototype magnetically triggered cameras have shown themselves to be extremely effective and have achieved the 100% human capture ability in trials. These cameras are triggered by a buried magnetometer, which senses the presence of metal as it passes the environment. This system modification significantly reduced image traffic over the RF network, simultaneously conserving system batteries (sd38-39).</p> <p>6.3 Due to the delays in deployment of these systems as indicated earlier, the systems were only deployed for the final five months of the project. Six of the seven ID systems remain functional with one system returning broken after a 4 month deployment. The PIR cameras have been removed from the field as they cause too many alerts and ranger fatigue of the system. Currently, nine magnetically-triggered cameras are deployed as a trial, with a view to formalising this solution into the ID systems as part of future developments. ID systems suffered from losses and damage from animals (particularly elephants and hyaenas) and from poor handling.</p> <p>The KWS have the ability to deploy these systems as and when needed. Rangers are very well trained on the system and have all the operational support to maintain systems but the deployments to date show that ID systems place a high maintenance burden on already stretched rangers who have to do their other work in addition (there are not specific ID rangers). System maintenance visits are currently required once every two weeks, which can take up to half a day while using valuable and limited vehicle resources. Therefore only a few systems are deployed at any one time as this is all the rangers can cope with.</p> <p>The operational set-up of the ID monitoring requires further refinement and re-training to become more effective, despite efforts made to implement tactical deployment planning and unified actions. The employment by ZSL of a Conservation Technology Field Specialist has been invaluable for maximising the systems, providing constant on-the-job training to rangers, and for trouble shooting issues as Instant Detect builds towards an effective solution for detecting and reporting on poachers in real time (sd38-39).</p>
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<p>Activity 6.1 Deployment of seven ID (previously IW) systems and five unmanned ground sensor systems (UGS) in Tsavo East National Park Rhino Sanctuary.</p>	<p>Seven ID systems were provided to Tsavo West IPZ under the IWT Challenge Fund project (sd40). Over the course of the project almost all ID systems have been deployed with a few systems kept in reserve or used for spares. Six of the seven ID systems remain functional with one system returning broken after a 4 month deployment. ID systems suffered from losses and damage from animals (particularly elephants and hyaenas) and from poor handling.</p>
<p>Activity 6.2 An in-depth analysis of threat hotspots and key sites for ID (previously IW) deployments are identified.</p>	<p>Key poacher routes (based on intelligence of past poaching events) have been identified in the IPZ and NRS, as well as seasonal watering holes and animal movement routes. Systems have been tactically deployed to monitor them.</p> <p>Part of the training focused on tactical deployment of ID to support ambush scenarios, so that rangers sitting in an ambush are forewarned of imminent poacher encounters. Rangers used natural materials to create concealments for rapid deployment in an ambush scenario, allowing teams to swiftly set up ID systems where required for a specific operation (sd38).</p>
<p>Activity 6.3 Identified staff at the rhino sanctuary attend a 'Training of Trainers' on the use and deployment of ID (previously IW) systems. Training is given jointly by ZSL and 7TG. The project team will ensure that a minimum number of female staff are selected for training on the ID systems.</p>	<p>12 KWS rangers were hand-picked by the Company Commander of Tsavo West for training in the Instant Detect system. These 12 individuals underwent an intensive 10 day training course delivered by 7Tech with support from Sam Seccombe (ZSL's Conservation Technology Field Specialist), with all rangers passing the course, being presented with certificates (sd38). A second ID training course was delivered for 10 rangers, presented by Sam Seccombe. 50% of trainees on this course were taking as a refresher with 50% new operators of ID (sd39). This second training included training for the company commander and two platoon commanders so that they were able to understand the systems' capabilities and direct operations. A core team of ID trained KWS rangers are instrumental on training newer rangers on the use and deployment of the system. Further, ZSL now employ a field specialist, an ex-British Army officer, to conduct field training, system maintenance and testing.</p> <p>No female staff currently operate Instant Detect. This is a KWS senior-level decision based on the inherent dangers of operating in the rhino platoons.</p>
<p>Activity 6.4 Maintenance checks of the systems takes place on a bi-monthly basis, carried out by KWS and ZSL when necessary, to ensure the long-term functionality of the system.</p>	<p>Maintenance by the KWS has been lacking due to their availability of time, the limited number of trained ID rangers for security reasons and the KWS's logistical ability to visit systems regularly. Rangers are very well trained on the system and have all the operational support to maintain systems but the deployments to date show that ID systems place a high maintenance burden on already stretched rangers who have to do their other work in addition (there are not specific ID rangers). System maintenance visits are currently required once every two weeks, which can take up to half a day while using valuable and limited vehicle resources. Therefore only a few systems are deployed at any one time as this is all the rangers can cope with.</p> <p>In addition to these barriers, the ID systems are often deployed with limited patrol schedules incorporating their maintenance despite repeated remedial training efforts and ZSL follow up. To date, maintenance of small issues has been conducted by ZSL's Field Specialist, while battery maintenance schedules have been conducted at the direction of the Field Specialist.</p>

<p>Activity 6.5 Quarterly review on effectiveness of ID (previously IW) systems to provide real-time alerts to rangers.</p>	<p>Due to the delays in deployment of these systems as indicated earlier, the systems were only deployed for the final five months of the project (sd07-09). The ID systems have been closely monitored in Tsavo West with extensive testing and analysis of results. This has resulted in the reduction of the deployments at any one time due to the high maintenance burden from lower than expected battery lives (2 weeks – 1 month).</p>
<p>Output 7. Benefits to local communities around the TCA rhino areas are monitored to ensure that the impacts of activities are reaching the community, specifically through enhanced security, reduced corruption and a level of trust towards the local law enforcement agencies.</p>	<p>7.1 Social surveys at project close demonstrate a positive change in attitude to security, corruption and trust (baseline = first 6 months of project).</p> <p>As discussed in the Y1 Annual report (sd08), ZSL discussed this output with several social science experts who all gave the same conclusions that it would be counter-productive for the baseline social surveys to be replicated in these target communities as there had been no specific targeted activities for these communities in this grant, and that repetitive interviews would only serve to frustrate community members and alienate them further. The team collected data from 224 households in about 100 villages across the three general study sites (Kibwezi, Maktau and Rombo) bordering the TCA. Overall, the majority (96%) of the 224 respondents were Kamba (35%), Maasai (31%) and Taita (30%). These three communities are the most critical surrounding both NRS and IPZ, and cover major neighbouring communities for the Chyulu Hills. The baseline surveys showed that 70% of respondents had a negative perception of wildlife conservation, and that 46% had a negative perception of park management, but that these proportions decreased significantly in households with higher diversity of incomes. Negative perceptions increased in households that experienced more wildlife conflict, and reduced in households with higher education levels (sd45).</p> <p>There is an increasing focus on working with local communities through developed and managed informer networks to provide accurate information on illegal wildlife trade. ZSL's law enforcement advisor has been working with KWS, BLF and Tsavo Trust in addition to other local partners to upskill intelligence and investigations officers to better manage and secure relationships with informers. Increased volumes of intelligence and the successful operations created by these help to build trust between the conservation actors and the informers, as well as demonstrating to local communities that KWS are a law enforcement agency that can act to arrest and disturb local crime networks. Following targeted training of intelligence officers during early 2017, 22 people have been arrested and over 360kg of elephant ivory recovered in the first 5 months of 2017 alone.</p>
<p>Activity 7.1 Questionnaire survey has been designed to test community perception of security, corruption and trust of local law enforcement agencies.</p>	<p>Social surveys were designed by Dr. Mwangi Githiru of Wildlife Works, with input from Sarah Thomas and Nisha Owen of ZSL. These social surveys will test perceptions of the National Park, Conservation, Security, Corruption, Trust and Conflict (sd44).</p>
<p>Activity 7.2 Questionnaires are delivered to the three major communities surrounding rhino areas at the start and close of project. Questionnaires are delivered to an average subset of the community demography, ensuring that gender equality is acknowledged.</p>	<p>Baseline social surveys have been conducted in three local communities surrounding the TCA. These surveys were conducted by Wildlife Works, a Tsavo-based livelihood development company. The team collected data from 224 households in about 100 villages across the three general study sites (Kibwezi, Maktau and Rombo) bordering the TCA. Overall, the majority (96%) of the 224 respondents were Kamba (35%), Maasai (31%) and Taita (30%). These three communities are the most critical surrounding both NRS and IPZ, and cover major neighbouring communities for the Chyulu Hills. The baseline surveys showed that 70% of respondents had a negative perception of wildlife conservation, and that 46% had a negative perception of park management, but that</p>

	<p>these proportions decreased significantly in households with higher diversity of incomes. Negative perceptions increased in households that experienced more wildlife conflict, and reduced in households with higher education levels (sd45). These baseline surveys also gauged average household income and numbers of revenue sources.</p>
<p>Activity 7.3 Questionnaire surveys are compared to analyse the effectiveness of the intervention in supporting local people.</p>	<p>As discussed in the Y1 Annual report, ZSL discussed this output with several social science experts who all gave the same conclusions that it would be counter-productive for the baseline social surveys to be replicated in these target communities as there had been no specific targeted activities for these communities in this grant, and that repetitive interviews would only serve to frustrate community members and alienate them further. ZSL, KWS and partners recognise the importance of having engaged and supportive communities to achieve effective conservation across large multi-stakeholder ecosystems, and to support efforts to tackle wildlife crime.</p>

Annex 3 Onwards – supplementary material (optional but encouraged as evidence of project achievement)

Checklist for submission

	Check
Is the report less than 10MB? If so, please email to IWT-Fund@ltsi.co.uk putting the project number in the subject line.	YES
Is your report more than 10MB? If so, please discuss with IWT-Fund@ltsi.co.uk about the best way to deliver the report, putting the project number in the subject line.	NO
Have you included means of verification? You need not submit every project document, but the main outputs and a selection of the others would strengthen the report.	YES
Do you have hard copies of material you want to submit with the report? If so, please make this clear in the covering email and ensure all material is marked with the project number.	NO
Have you involved your partners in preparation of the report and named the main contributors	YES
Have you completed the Project Expenditure table fully?	YES
Do not include claim forms or other communications with this report.	