



Department  
for Environment  
Food & Rural Affairs

**Darwin Initiative Main Project**



**Annual Report**



To be completed with reference to the “Writing a Darwin Report” guidance: (<http://www.darwininitiative.org.uk/resources-for-projects/reporting-forms>). It is expected that this report will be a **maximum** of 20 pages in length, excluding annexes)

**Submission Deadline: 30<sup>th</sup> April 2019**

**Darwin Project Information**

Project reference	24-002
Project title	Cattle, water and wildlife: enhancing socio-ecological resilience in Laikipia
Host country/ies	Kenya
Contract holder institution	Fauna and Flora International
Partner institution(s)	OI Pejeta Conservancy Laikipia Wildlife Forum
Darwin grant value	£399,383
Start/end dates of project	01/04/2017-30/03/2021
Reporting period (e.g., Apr 2017 – Mar 2018) and number (e.g., Annual Report 1, 2, 3)	Apr 2018- Mar 2019, Annual report 2
Project Leader name	Rob Small
Project website/blog/Twitter	<a href="https://www.fauna-flora.org/projects/cattle-water-wildlife-enhancing-socio-ecological-resilience-laikipia">https://www.fauna-flora.org/projects/cattle-water-wildlife-enhancing-socio-ecological-resilience-laikipia</a>
Report author(s) and date	Rob Small, Ann Komen and Moses Muthoki 30 <sup>th</sup> April 2019

## 1. Project rationale

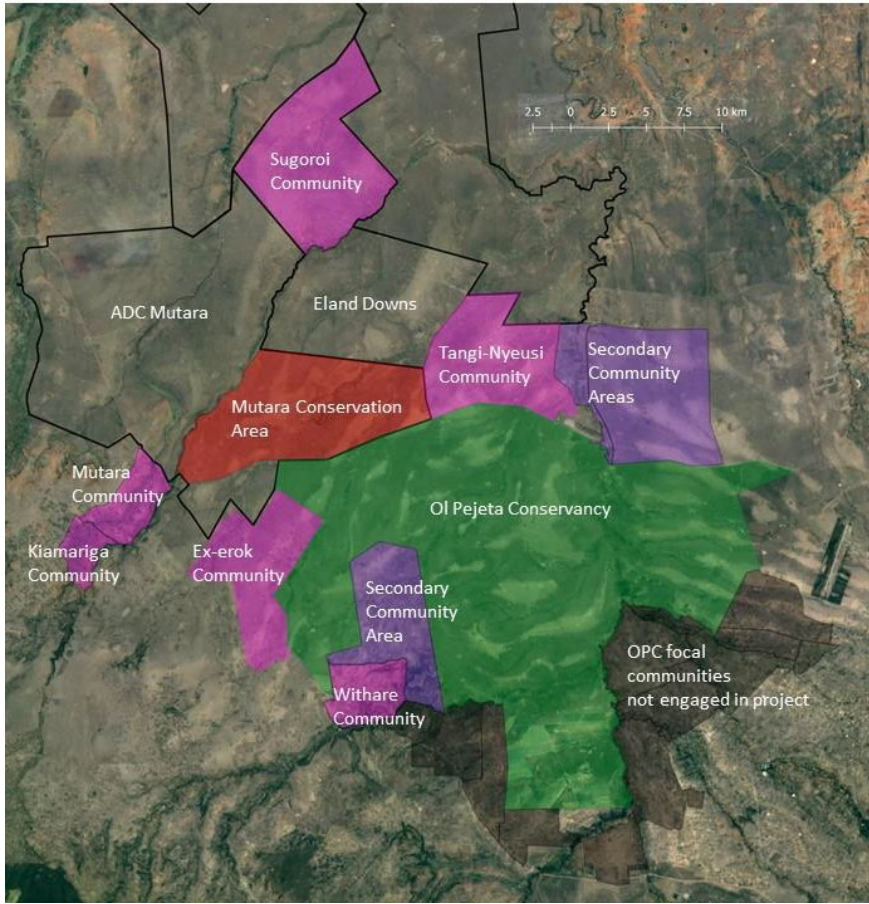
A number of conservation organisations in Laikipia County have transitioned from colonial-era cattle ranches to mixed-use cattle/game systems, encouraging increasing wildlife populations outside formal protected areas. Preeminent amongst these is OI Pejeta Conservancy (OPC), holding a Key 1 population of black rhinoceros, and species in general decline including African lion and wild dog. However, on OPC, these populations are nearing ecological carrying capacity, creating an urgent need for range expansion and connectivity to wider dispersal areas.

OPC's sustainability depends on safeguarding the wellbeing and livelihoods of neighbouring smallholder farmers and pastoralists. The greater OPC landscape, a meeting point of settled agriculture and mobile pastoralism with unclear user rights for grazing and water, is increasingly impacted by overgrazing, soil erosion, periods of drought and climate change which negatively affect the wellbeing of the poorest farmers and marginalised pastoralists. As resources become depleted or unavailable, conflicts occur between pastoralists and private cattle ranchers, as well as between people and wildlife.

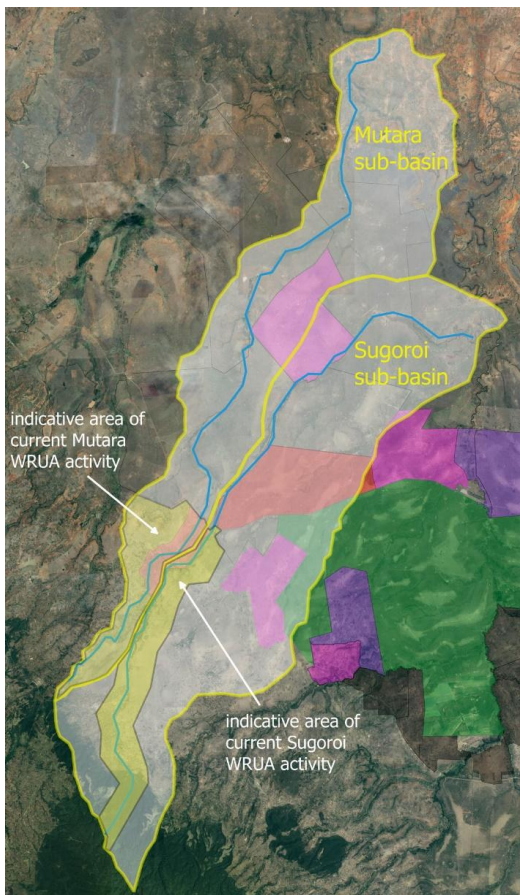
Recently a government cattle ranch, ADC Mutara, set aside 8000ha of its land bordering OPC for conservation, livestock and wildlife management – the Mutara Conservation Area (MCA). Balancing equitable access to the resources of MCA, whilst expanding habitat for continentally important wildlife populations, is a critical opportunity to address the challenges above. However, without transparent, inclusive and accountable processes, exclusionary practices and policies will act against the poorest livestock owners, threatening any conservation and livelihood gains across the landscape.

This project draws on the long term engagement of Fauna & Flora International (FFI) with these local partners, plus research including the Darwin-funded Social Assessment of Protected Areas (SAPA) project, to engage with five key population's dependant on MCA natural resources. The partners have identified a comprehensive programme of work with local stakeholders across multiple landholdings, to build peace and sustainability by balancing grazing, water and wildlife use.

The project is centred on the MCA, an 8000ha area of rangeland which is in the sub-basins of Mutara and Sugoroi River and that lies immediately north of the 37,000ha OPC. In addition the project is engaging with six key community's dependant on MCA and Mutara and Sugoroi sub-basin natural resources: Tangi-Nyeusi and Sugoroi communities who are purely pastoralists; Mutara, Kiamariga, Ex-erok and Withare communities who are agro pastoralists and farmers. It is anticipated that benefits and project engagement could expand during the project lifespan to potentially 3 more community areas to the east of the current project site. Please see Maps 1 and 2 (below).



**Map 1:** Project area map including Mutara Conservation area and adjacent community areas



**Map 2:** Project area map showing Mutara and Sugoroi sub-basins, rivers and associated WRUAs

## 2. Project partnerships

The partnerships between FFI, as the lead institution, and its implementation partners LWF and OPC, as well as other stakeholders within the project focus area continued to grow in Y2 of the project through joint planning, co-implementation of activities and information sharing in the following areas:

1. Capacity building of Water Resource User Associations (WRUA) and restoration of riverine habitat was implemented with support of WRA and Seed Balls Kenya (Activity 1.4, Annex 5.1a);
2. Delivery of agricultural extension trainings was conducted with NYALA dairies, Elegance Dairy, Ministry of Agriculture and Livestock department (Activity 4.9 & 4.10; Annex 6.7).
3. The review of MCA management plan was conducted with the support of KWS, the Monarch Group Limited, OPC, ADC and the County Government of Laikipia (Annex 5.6a).

Close collaboration on multiple streams of the project's work plan has fostered effective working relationships between key staff and increased the reach of the project in Laikipia. The embedding of the FFI project coordinator in the OPC offices has been instrumental in conducting effective joint planning, implementation and monitoring of project activities between the three implementation partners (FFI, OPC and LWF). As well as day-to-day activities, there were monthly meetings to share updates and plan.

Regular bi-monthly calls to discuss implementation and prioritise activities were conducted between the project's Team Leader, FFI's project co-ordinator and OPC's Head of Community Development.

## 3. Project progress

### 3.1 Progress in carrying out project Activities

#### **Output 1: 8000ha of restored rangeland under active sustainable management that meets the grazing needs of community livestock and wildlife**

**Activities 1.1 & 1.2** - completed in Y1

#### ***Activity 1.3: Implementation of ecological restoration measures - mobile cattle corrals that create ecosystem 'hotspots' to significantly increase populations of browsing wildlife (Y1Q3-Q4)***

The acquisition of materials for 6 mobile cattle corrals sections conducted in Y2 Q4. The construction is underway and initial locations of the corrals informed by the ecological monitoring findings for the Mutara Conservation Area (Activity 5.5).

#### ***Activity 1.4: Implementation of ecological restoration measures - restoration of riverine habitat through tree nursery development and planting on Mutara and Sugoroi Rivers upstream of MCA (YQ1&2)***

Management of tree nurseries established in Y1 continued with recorded germination rate of above 60%. The survival rate for trees planted in Y1 exceeds 50 % despite the prolonged dry season in the last quarter of the reporting period. A total of 7343 trees were planted in Mutara and Sugoroi Rivers from April 2018 to March 2019. A total of 5900 tree seedlings potted and ready for transplanting in the next rainy seasons.

Links were established with Seed Balls Kenya to trial restoration of degraded areas using seed balls with 12,000 being dispersed across identified degraded areas within MCA and riverine areas. Emergence of tree saplings from the seed balls has been observed on the riverine area.

River pegging<sup>1</sup> was conducted for Mutara River with support from the WRA to mark areas along its banks where no farming or logging takes place as stipulated by the law and community awareness meetings on restoration and protection of these areas were initiated.

Organized groups and individuals have been encouraged to establish tree nurseries as an income generating activity to ensure sustainability of restoration interventions; a number of tree species<sup>2</sup> have multiple benefits - riverine habitat restoration and income generating i.e. bamboo and fruit trees. As a result of this individual/ group tree nurseries have established 3500 fruit tree seedlings which are sold to riparian farmers to plant along the riverine habitat (Annex 5.1a).

**Activities 1.5, 1.6 & 1.7** - completed in year 1

**Activity 1.8: Implementation of an ecological & bio monitoring system linked to existing monitoring across the landscape (Q1-Q4)**

Quarterly pasture assessments for MCA undertaken alongside daily monitoring of wildlife corridors to monitor habitat utilisation. A map showing species distribution and a detailed report was developed to inform on-going management. Most of the areas that were marked as degraded based on year one baselines regenerated due to good rains received in 2018, improved patrols to reduced illegal overgrazing and bare areas especially on the riverbanks and watering holes that were highly degraded is now covered with vegetation (Annex 6.3a). The findings are currently informing the development of a grazing plan for MCA and planning of a community livestock scheme within MCA.

**Activities 1.9, 1.10 & 1.11:** Completed in Y1

**Activity 1.12: Annual review and update of Mutara Conservation Area Management Plan (Q4)**

The MCA management plan developed in Y1 allowed for the on-going management of the MCA. In Y2 the plan was further reviewed through a comprehensive planning process that utilises recently published KWS management plan guidance (Annex 8.3 a). Accordingly, project partners were able to take into full account the Wildlife Act (2013), County-level devolution and identified community and stakeholder needs. Those engaged in the further review of the management plan included Kenya Wildlife service (KWS), The Monarch Group Limited (TMGL), OI Pejeta Conservancy (OPC), Agricultural Development Corporation (ADC), and the Laikipia county Government (Annex 5.6a).

**Activities 1.13, 1.14 & 1.15:** Y3-Y4 activities

**Output 2. Improved water availability for domestic use, livestock and wildlife in MCA and 75% of households in 6 focal community areas that is managed by representative local institutions.**

**Activities 2.1, 2.2, 2.3 & 2.4:** Completed in Y1

**Activity 2.5: Stakeholder dialogue and consultation meetings with WRUA members (with both women and men including leaders to promote positive attitudes towards women's participation in project activities) (Q1-Q4)**

16 stakeholder dialogue and consultation meetings were conducted by project partners and stakeholders in Y2 Q1-4. A total of 232 individuals (168 men and 64 women) from WRUAs, community water projects, WRA, pastoralist communities, farming communities, service providers and local leaders were engaged (Annex 9.9a). The output of the meetings included: establishment of current status of WRUA membership<sup>3</sup> (Annex 8.5) and composition of the committee members; engagement of WRUAs, pastoralists, farmers, institutions and private

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<sup>1</sup> River pegging is defining riparian areas: Every river is required by law to have a specified amount of land along its banks where no farming or logging takes place. These are referred to as riparian areas.

<sup>2</sup> Grafted fruit trees( avocados), Tomato tree and bamboo

<sup>3</sup> Mutara has 1495 members (820men, 675 women, 105 youths and 5 water projects. Sugoroi has 112 members (76 men, 22 women, 6 youths, 5 people living with disability, 3 corporates and 3 water projects)

firms in the review of WRUA Sub-catchment Management Plans (SCMPs); implementation of restoration of riverine habitat initiatives; planning and implementation of the Mutara river abstraction survey and developing water rationing plans during periods of water scarcity (Annex 5.2a).

The WRUAs functionality improved in year 2 as evidenced by various self-initiated meetings to address emerging issues: Mutara initiated re-election of new officials though this was postponed due to the water scarcity challenges; reduced conflicts in Sugoroi sub-catchment due to regular meeting to plan on use of water resources; development of Mutara rationing plan though it was not effectively implemented due to lack of support from Water Resource Authority.

**2.6, 2.7 & 2.8** - Completed in Y1

***Activity 2.9: Review and update existing sub-catchment management plans for Mutara and Sugoroi rivers (Q1):***

There is a government requirement that the review of SCMPs is conducted in accordance to the WRUA Development Cycle (WDC) framework which after engagement with WRA staff was found by the project team to be very cost ineffective (approximately 8000 USD per SCMP). To address this challenge, in agreement with the WRA, a preliminary study report on effective management of Mutara and Sugoroi sub-catchments (Annex 8.5) was developed to advise the future review of Mutara and Sugoroi sub-catchments. The report incorporates learning from relevant Y1 & Y2 activities (A2.1-2.8, 2.14) as well as from other stakeholder's initiatives within the two catchments and makes 7 key recommendations to address identified challenges in the two catchments: common intakes, water rationing, and empowerment of WRUA committees, WRA performance monitoring, water allocation plan development, donor diversification and incorporation of the WRUA agency model<sup>4</sup>.

***Activity 2.10: Publish revised sub-catchment management plans for Mutara & Sugoroi Rivers (Q1)***

Publication of the preliminary report to inform review of the Mutara and Sugoroi rivers SCMPs conducted in Y2 Q4 (Annex 8.5).

***Activity 2.11 Rehabilitate existing water infrastructure within and upstream of MCA (Q3-Q4):*** Tangi-Nyeusi borehole repairs were undertaken in Y2 Q3. Rehabilitation of water infrastructure within MCA was completed in Y2 Q4 with one borehole (Mbuthia) piping system rehabilitated to connect water to two rehabilitated water troughs and two repaired tanks distributed across MCA (Annex 6.3a).

***Activity 2.12:*** Y3-Y4 activity

***Activity 2.13: Quarterly web and media updates on water management activities to broader Laikipia audience through MKEWP (Q1-Q4)***

6 updates have been published in Y2 Q1-4:

<http://laikipia.org/wp-content/uploads/2018/10/MUTARA-STUDY-REPORT.pdf>;

<http://laikipia.org/lessons-farmers-field-day-laikipia-meru-counties/>;

<https://www.youtube.com/watch?v=QSVcj6nVqsk&t=268s>

<https://laikipia.org/ol-pejeta-fauna-flora-international-mkewp-concert/>

<https://laikipia.org/opc-fauna-and-flora-and-mkewp-joined-in-support-of-mutara-communities/>

<https://www.youtube.com/watch?v=E1ftmGDrFgw>

***Activity 2.14: Bi-annual upstream-downstream water user meeting for Mutara and Sugoroi rivers (Q2 & Q4)***

The Mutara WRUA cluster was established as a platform to advance water access discourse between upstream and downstream water users within the project area. The WRUA cluster brings together Sugoroi, Mutara and Pesi Rivers and WRUA leadership into an informal

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<sup>4</sup> The model aims to professionalize the WRUA services by making them agents in water resource management such that the WRUAs could be paid for rendering their services of ensuring water availability in the sub-catchment.



platform that promotes learning between the WRUAs, and joint monitoring and collaborative actions towards sustained downstream flows during the dry seasons.

This WRUA cluster is governed through a 15 member (9 men, 6 women) management committee drawn from 5 executive committee members of each of the three WRUAs. The following outputs were achieved during upstream downstream meetings within the reporting period: 58 WRUA officials and local administration officials made aware of the Water Act 2016; Mutara and Sugoroi WRUAs supported to develop water rationing plans for the period January-March 2019 dry season; Mount Kenya Ewaso Water Partnership (MKWEP) coordination with the WRA to support enforcement of water offtake regulations to ensure river flows downstream; Mutara WRUA Cluster field day conducted where 155 (112 men and 43 women) small holder farmers participated and gained knowledge on technologies for water conservation at household levels (Annex 9.7 a and Annex 5.3a).

**Activities 2.15, 2.16 & 2.17** - Year 3-4 activities

**Output 3: A community cattle to market system, that supports pastoralist livelihoods and reduces stocking densities in 4 focal community areas, is in place on MCA.**

**Activities 3.1-3.2** - Completed in Y1

**Activity 3.4 Baseline socio-economic survey conducted including wellbeing indicators (material, subjective and relational) and cattle price in 4 participating community areas (Q4)**

The Y2 household survey was conducted in five project focal communities in March 2019 (Ex erok, Tangi-Nyeusi, Kiamariga, Mutara and Withare) using Open Data Kit (ODK) software. The survey established change to baselines established in the project's 2017 baseline survey: Current water accessibility and demand by WRUA members on Mutara and Sugoroi rivers; WRUA governance; Wellbeing (material, subjective and relational) and agricultural production in participating community areas; Natural resource conflict status; Current Resource grazing access; Availability of extension services (livestock and crop farming). The data collected and data analysed was gender disaggregated to capture perspectives of men and women, as well as people from different social backgrounds (Annex 6.4a).

**Activity 3.5: Stakeholder dialogue and consultation meetings with focal pastoralist communities (with both women and men including leaders to promote positive attitudes towards women's participation in project activities) (Q1-Q4)**

Engagement with Tangi-Nyeusi, Mutara and Ex-erok pastoralist/ agro pastoralist communities on establishing the community livestock scheme at MCA is on-going with 5 stakeholder meetings held in Y2 Q1-4. Total of 169 (113 men and 56 women) community members were engaged. The views gathered are being used to inform the management planning process to ensure inclusivity and collaboration among the key stakeholders involved in the MCA (Annex 5.4a).

**Activity 3.6** - Completed in Y1

**Activity 3.7: Deliver awareness scheme for holistic management (wildlife-livestock integration and optimal stocking densities) (Q1-Q4)**

An exposure visit to Maasai Mara Community Conservancies was undertaken by 2 project representatives from 27<sup>th</sup> to 31<sup>st</sup> May 2018 to borrow lessons and experiences in establishing conservancies where communities are benefiting from controlled grazing and wildlife protection (Annex 5.9).

15 (10 men and 5 women) livestock committee members and 4 (2 men and 2 women) members of project staff from OI Pejeta Conservancy and FFI attended training to Pioneer feedlots located at Kiganjo in Central Kenya. A major challenge in the project focus communities is population increase and reduction in the size of the land previously used for nomadic pastoralism due to population increase and land resulting in overgrazing and poor

forage productivity during the dry season and even during the rainy season which has often caused livestock mortality during dry periods. During the training the members were encouraged to sell off their livestock while they are still healthy (before onset of drought) to feedlots<sup>5</sup> or conservancies within the area to avoid losses as a result of livestock mortalities due to drought (Annex 5.7a).

Drawing on this and work undertaken in A3.6 the awareness scheme will continue with participating community members to promote good husbandry practices and conservation of wildlife.

**Activity 3.8** - Completed in Y1

***Activity 3.9: Establish representative community grazing committees drawn from focal pastoralist communities (Q1-Q4)***

A 15 member (10 men and 5 women) representative livestock committee from three communities was established in February 2019. The selection was done through a secret ballot election and counting done in the presence of the participants and local leaders. The invitation to the community livestock committee election meetings was done through the community chiefs, the OPC SMS bulk messaging system and direct invitation using the available project data base from previous meetings. This was to ensure that most community members received the information to ensure a good spatial and ethnic representation. Deliberate measures were taken to ensure representation by age and gender; one election meeting for all groupings was done but in Tangi-Nyeusi separate meetings were done for elders (men), youth and women to ensure inclusivity. A follow up meeting was also conducted in Mutara to select a representative from the Somali community who had no representation in the first meeting. The team will drive the process of community engagement such as implementation of a community livestock scheme within MCA (Annex 5.4a).

***Activity 3.10: Agree assured purchase prices of cattle between OPC and community grazing committees (Q1)***

Engagement with the 15 livestock committee members was led by OPC in Y2 Q4 where the following were agreed on: The pricing was agreed to be based on the live weight of the animal as opposed to carcass weight; the price was set at Ksh 120-125 per kg for cattle below 250 kilograms and Ksh125-130 per kg for cattle above 250 kg; the accepted age of the animal was set at a maximum of 3 years (Annex 5.4a).

***Activity 3.11: Purchase of focal community cattle by OPC - fattening of cattle on OPC land (Q2-Q4)***

OI Pejeta in Q4 made livestock purchases of 175 cattle from two local communities in Y2 of the project but only 27 of these were from project focal communities. These purchases were limited in scope as they occurred prior to completion of the community engagement process and establishment of a representative grazing committee (A3.9) (for further information see Section 9: Lessons Learnt).

**Activities 3.12, 3.13 & 3.14** – Scheduled for Y3-Y4

***Activity 3.15: Develop extension and training services for livestock husbandry for participating livestock keepers (Q3-Q4)***

A total of 152 (85 men and 67 women) community members were engaged in the development the project livestock husbandry manual. The activity allowed participatory identification and prioritization of community issues and training needs which informed development of the manual (Annex 7.5).

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<sup>5</sup> A **feedlot** is a type of animal feeding operation which is used in intensive animal farming for finishing livestock, notably beef cattle prior to slaughter.



**Activity 3.16 Publish training manual for livestock husbandry, in appropriate format(s) to ensure accessibility for all target users (men, women, elderly & youth) (Q4)**

The training manual for livestock husbandry was published in Y2 Q4 and will inform community extension support from Y3 Q1. The manual outlines the following areas for training which was informed by activity 3.15: calf management, feeding management, herd health management, genetic improvement and livestock marketing. The manual will be continually adapted to address emerging community needs (Annex 7.5).

**Activities 3.17, 3.18, 3.19 & 3.20** – Scheduled for Y3-Y4

**Output 4: Women and men in 2 target communities adopt a community-based fodder production system that supports the diversification of small-scale farmer livelihoods in at least 200 households.**

**Activities 4.1-4.3** - completed in Y1

**Activity 4.4 Baseline socio-economic survey conducted included wellbeing (material, subjective and relational) and agricultural production in participating community areas (Ex-erok and Withare)**

See activity 3.4.

**Activities 4.5 & 4.6** - completed in Y1

**Activity 4.7: Develop extension and training services for conservation agriculture (including on-farm water management) in appropriate format(s) to ensure accessibility for all target users (men, women, elderly & youth) (Q1-Q4)**

A simple manual for farmers in line with the current agricultural policy and identified farmer trainings needs has been developed and currently being used by the water and extension officer to train farmers (Annex 7.4).

**Activity 4.8: Publish training manual for conservation agriculture (including on-farm water management) in appropriate format(s) to ensure accessibility for all target users (men, women, elderly & youth) (Q1-Q4)**

The manual was published in Y2 Q4 (Annex 7.4)

**Activity 4.9: Conduct conservation agriculture (including on-farm water management) trainings with participating smallholder households, ensuring that 50% are female participants (Q1-Q4)**

Conservation agriculture trainings were initiated at village level in collaboration with the Ministry of Agriculture and Elegance dairy trainers, Nyala dairy and livestock department. 11 village level farmers trainings were held with a total 1197 farmers trained (613 women and 584 men).

An informal assessment based on 50 household visits as indicated a 30% adoption rate of conservation agriculture. The short rains 2018 which normally fall between October and December were not favourable. Conventional farming practices farmers harvested in very rare cases less than 1 bag of beans per acre while the trained farmers harvested an average of 3 bags per acre.

Smart fodder crops and hay adoption rate is increasing with the purchase of 180kgs of hay grass seeds at a fair price from OPC through linkages established by the project which translates to 60 acres under fodder crop (Annex 6.7).

**Activity 4.10: Facilitate market linkages between local fodder producers and local consumers (including MCA community cattle) (Q1-Q4)**

Four community meetings organized in collaboration with local service providers where a total of 174 hay farmers (64 men and 110 women) attended. The outputs of the activity include: Market links established with Nyala dairies; a group established by some of the men at

Kimariga who are beneficiaries of the project to jointly produce and sell hay; a women's group in Ex-erok planning to buy a hand baler & chaff cutter to hire to other hay farmers (Annex 6.7).

#### **Output 5: Vulnerable and endangered species are under effective protection on MCA**

##### ***Activity 5.1: Co-ordination meetings between OPC, AWF, Eland Downs and KWS to improve the quality and extent of wildlife corridors in the greater OPC landscape (Q4)***

Four co-ordination meetings to review the MCA Management Plan, whose main objective is to secure wildlife corridor in the greater OPC landscape. Those involved included: OPC, KWS, ADC Mutara and Monarch group (Annex 5.6a). AWF were not engaged as initially planned as they no longer actively work within the project focal area and have no office or representation of the staff on the ground.

**Activity 5.2** - Completed in Y1

##### ***Activity 5.3: Biodiversity conservation exposure visits by participating households to OPC (Q4)***

A total of 196 (122 men and 74 women) community members (Annex 9.5a) participating in the project visited OPC in Y2 Q2 and Q4. The focus on the visits was building knowledge on OPC's holistic conservation model and endangered species conservation (Annex 5.7a).

##### ***Activity 5.4: Monthly camera trapping of wildlife corridors to monitor wildlife movement between OPC and MCA (Q1-Q4)***

In the reporting period the sorting of 2018 corridor images was completed, analysed and results documented in the annual ecological report. The 2018 wildlife movement at the corridors indicates high fence gap utilization by specific animal species including zebras, elephants, buffaloes, and hyenas (Annex 6.3a). It is evident that the fence gaps are meeting their intended purpose of connecting OI Pejeta with the larger Laikipia ecosystem. It is critical to ensure that this connectivity remains safe and secure for all species to avoid human-wildlife conflicts within its expanse

##### ***Activity 5.5: Data from ecological monitoring (Activity 1.9) used to actively manage populations of grazing and browsing herbivores and predators species (Q1-Q4)***

In the reporting period data on the following were collected and analysed: Quarterly assessments on pasture availability and composition; connectivity of OPC and MCA through camera trapping and spoor; daily rainfall and daily livestock densities. The analysed report has been documented and shared to support the population management population of grazing and browsing herbivores and predator species (Annex 6.3a).

**Activity 5.6** - Completed in Y1

##### ***Activity 5.7: Conduct regular wildlife ranger patrols on Mutara Conservation Area (Q1-Q4)***

Daily patrols have been on-going throughout Y2 and data on wildlife sightings livestock sightings, and rainfall is collated and sent through on a daily basis. MCA rainfall data are recorded daily from four stations (Zulu 3, Zulu 4, Zulu 7, Golf whiskey) which are placed strategically at the different patrol camps.

MCA is surrounded by different pastoralist communities (Tangi-Nyeusi and Sugoroi) who are being engaged by the project to address the challenge of illegal grazing of large herds of cattle and sheep and goats in the conservation area. Good progress has been made towards establishing a sustainable and agreed community livestock scheme on MCA. However, the greatest challenges facing the management of MCA is incursion of livestock from other areas in Laikipia County and neighbouring counties during extremely dry periods. The monitoring team has been recording data which includes total number of herds reported on a daily basis, grazing location and the actions taken. From the data collected, reported illegal grazing incidents were lower in 2018 compared to 2017, this could be associated to increased enforcement efforts by patrol rangers in Mutara and heavy rainfall in March which increased the vegetation production

to sustain community livestock in their areas of settlement. However, the impacts of illegal grazing in early 2019, which was a very dry period, has threatened the quality and quantity of wildlife habitat. This can be shown by occurrence of increaser II species in some parts of MCA that indicate overgrazing leading to a reduction of overall grass biomass.

Data collected and analysed is currently being used to inform management of the conservation area on infrastructural development; grazing plans; habitat management; monitoring and surveillance (Annex 6.3 a).

### **3.2 Progress towards project Outputs**

#### **Output 1: 8000ha of restored rangeland under active sustainable management that meets the grazing needs of community livestock and wildlife**

The Y2 household survey that was conducted in five project communities in March 2019 indicates a 13% reduction in conflicts in relation to pasture access compared to 2017 baselines. This is a good indication of improved pasture access (Annex 6.4a).

The MCA management plan developed in Y1 informed the management of MCA through the reporting period. The plan has been further reviewed (Annex 8.3a) through a comprehensive planning process that utilised recently published KWS management plan guidance (Annex 8.4). It took into account the Wildlife Act (2013), county-level devolution and integrated community and stakeholder needs based on the project's socio-economic survey findings and bio-monitoring assessments.

Quarterly pasture assessments undertaken in Y1 and Y2 on MCA have established seasonal variation of pasture resource utilisation and MCA productivity during the dry and wet seasons which is currently informing development of a grazing plans and determination of allowable stocking densities for Mutara conservation area to facilitate effective integration of wildlife and livestock.

In Y3 onwards the indicator for this output will be measured through the success of the implementation and adaption of the MCA management plan alongside on-going ecological surveys for rangeland quality and household satisfaction on grazing access. Livestock-wildlife integration on MCA requires close and continuous monitoring for the purposes of maintaining a healthy and diverse vegetation structure and composition.

These indicators are still the most suited to assess progress towards this output. Given Y2 assessment in comparison with the baseline assessments the feasibility of attaining this output is high (Annex 6.3a).

#### **O-2: Improved water availability for domestic use, livestock and wildlife in MCA and 75% of households in 6 focal community areas that is managed by representative local institutions.**

The WRUAs functionality observed in year 2 as evidenced by various self-initiated meetings to address emerging issues (Annex 5.2 a).

A preliminary study report on effective management of Mutara and Sugoroi Sub-Catchments was developed and published in Y2 (Annex 8.5) to advise the future review of Mutara and Sugoroi sub-catchments and is currently informing implementation of interventions to address prioritized catchment challenges.

Tangi-Nyeusi borehole and water infrastructure repairs were undertaken within MCA to improve access to water both for the Tangi-Nyeusi pastoralist community and wildlife within MCA.

Data on WRUA awareness and dialogue meetings are on-going and continuing to encourage inclusivity and a representation of cross-sector of the society (at least 33% women).

The Y2 socio-economic survey results show that there have been declines in water availability for domestic, livestock and agricultural uses in the past year among those who were

interviewed. 50% (n=110) of people reported to have experienced reduced domestic water availability in the past year (55% men; 45% women); 54% (n=98) of livestock owners reported to have experienced reduced water availability for livestock in the past year (58% men; 42% women); 70% (n=105) of farmers reported to have experienced reduced water availability for agriculture in the past year (57% men; 43% women). This change was attributed to the unreliable rains / inconsistent rains from August 2018 to March 2019 (Annex 6.4 a).

The pressure on two rivers within the two areas was high mainly for irrigation on the upstream leading to serious water shortages downstream where pastoralists and wildlife is located. The project has noted this challenges and have prioritized intervention measures which will be conducted in collaboration with other partners (Annex 8.5).

In Y2 the indicator for this output was measured against the baselines that were established on WRUA functionality, governance and representativeness; implementation of WRUA sub-catchment management plans; household reports on availability of water.

These indicators are still the most suited to assess progress towards this output. Given progress achieved in Y2 the feasibility of attaining this output is good.

### O-3: Community cattle to market system, supporting pastoralist livelihoods and reducing stocking densities

Engagement with Tangi-Nyeusi, Mutara and Ex Erok pastoralist/agro-pastoralist communities on establishing the community livestock scheme at MCA is on-going with 5 stakeholder meetings held in Y2 Q1-4. Eligibility criteria for livestock to access MCA has been agreed on (Annex 5.5) and a community livestock committee has been established to facilitate engagement with focal communities (Annex 5.4a).

Agreed assured purchase prices of cattle between OPC and community grazing committees with the 15 livestock committee members was achieved by OPC in Y2 Q4 (Annex 5.4a).

Development and publication of livestock husbandry extension services manual (Annex 7.5) was done in a participatory manner (Annex 9.13) to inform community extension support from Y3 Q1 with the aim of improving livestock production to safeguard pastoralist livelihoods.

Progress toward this output, against the project timeline and work plan, has been satisfactory during the course of Y2. This output is expected to be the most challenging to achieve during the course of the full term of the project as it directly engages with the sensitivities of community access to grazing land and water. In line with the work plan, some components of this output may take an extended period of time because community engagement is often challenging and especially during dry seasons with water and pasture scarcity. It takes time to develop a shared understanding of what a community cattle scheme could constitute – both from the viewpoint of project implementers and focal communities.

Pastoralist and agro-pastoralist communities that bound the MCA are the focus for this output (Sugoroi, Tangi-Nyeusi, Mutara and Ex-erok). Stakeholder and dialogue meetings have been held regularly in each of these communities during the course of Y2 (see Annex 5.4a) to ensure participation and inclusivity.

The indicators for this output remain the best to measure progress towards this input.

#### O-4: Community-based fodder production system supporting the diversification of small-scale farmer livelihoods

Conservation agriculture trainings initiated at village level in collaboration with the Ministry of Agriculture and Elegance dairy trainers, Nyala dairy and livestock department - 11 village level farmers trainings with a total 1197 farmers trained (613 women and 584 men) (Annex 9.14 & Annex 6.7).

An assessment based on 50 household visits indicated a 30% adoption rate of conservation agriculture by trained farmers. The production of conservation agriculture farmers tripled in comparison to farmers applying conventional practices. Conventional farmers harvested less than 1 bag of beans per acre while the CA farmers harvested an average of 3 bags per acre. Cost of one bag of beans is Kenya shillings 9,000, CA farmers earned Ksh 27,000 while conventional farmers earned 9000.

According to the household survey 39% (n=87) of all respondents had received agricultural extension services in the past year (63% men; 27% women). This is an increase of 29% against the 2017 baseline. Of those receiving extension support 45% (n=39) reported that OI Pejeta Conservancy was the primary provider (59% men; 41% women) (Annex 6.4a).

Smart fodder crops and hay adoption rate is increasing with the purchase of 180 kg of hay grass by community members which translate to 60 acres under fodder crop. Average production per acreage is between 200-300 bales, the average price per bale is Ksh 200 (Annex 6.70).

In reference to the Y2 household survey, average self-reported farming income per declined in the past year from KSHs 26,650 to KSHs 20,595. However, there was a significant difference in level of average income for those who had received extension services support (KSHs 27,388) and those who hadn't (KSHs 11,359).

Four demonstration water pans have been established in the community and five community members have purchased liners on their own. (Annex 6.7)

Progress towards achieving this output has been good in Y2 with broad interest in related activities by members of farming communities (see Annex 6.7). Engagement of households has focused on two community areas upstream of MCA and one agro-pastoralist community.

These output indicators are still the most suited to assess progress towards this output. Given the progress made in Y2, the feasibility of attaining this output is likely to be exceed the set targets.

#### O-5 Vulnerable and endangered species under effective protection

In the reporting period the sorting and analysis of 2018 corridor images was completed with results documented in the annual ecological report. The 2018 wildlife movement at the corridors indicates high fence gap (corridor) utilization by specific animal species including zebras, elephants, buffaloes, and hyenas (Annex 6.3a). Four pasture assessments were conducted on MCA to determine seasonal variation of pasture resource utilisation and MCA productivity during the dry and wet seasons. 3 rapid pasture assessments were conducted in March, June, September 2018 and an intensive pasture assessment in December 2019. The MCA showed potential to recover overgrazed areas as it quickly regenerates during the rainy season. A map showing distribution and detailed report developed informed development of a grazing plan for MCA including allowable livestock densities (Annex 6.3a).

Daily patrols on-going and data on wildlife sightings livestock sightings, and rainfall is collated and sent through on a daily basis. MCA rainfall data are recorded daily from four stations which are placed strategically at the different patrol camps. No poaching incidences were recorded during the reporting period. However illegal grazing remains a big challenge for the sustainable

management of MCA. The monitoring team has been recording data which includes total number of herds reported on a daily basis, grazing location and the actions taken. From the data collected, proper management actions are enforced in areas where illegal grazing is reported. Data collected and analysed is currently being used to inform management of the conservation area on infrastructural development; grazing plans; habitat management; monitoring and surveillance (Annex 6.3a).

Overall progress toward achieving this output has been good and has been enhanced further with the review of the MCA Management Plan (see Annex 8.2a) to integrate the project findings and community needs in the long term planning of MCA.

With methodologies and tools developed, the project is in a position to track its effectiveness on a regular basis in supporting the effective protection of vulnerable and endangered species.

The indicators used to track this output are the most suitable and the likelihood of achieving this output within the lifespan of the project is currently high.

### **3.3 Progress towards the project Outcome**

Regular monitoring on populations of key species of predators<sup>6</sup> and large herbivores<sup>7</sup> have been attained using mixed methodologies (see Annex 6.3a). This will enable the monitoring of population trends through the project cycle using daily bio-monitoring patrol patrols and a repeat aerial survey in Y4.

On-going quarterly pasture assessments have been instrumental in measuring rangeland vegetation productivity in dry and wet seasons (see Annex 6.3a).

The 2017 survey conducted by the project ascertained baseline levels of wellbeing of households in the project area. The 2019 survey included questions on household perceived change to wellbeing and attribution to that change; 50% (n=110) of households reported an improvement in wellbeing (49% men; 51% women). Of those reporting change 11% (n=12) reported the primary reason for the change was extension support from the extension services provided by the project (42% men; 58% women).

Overall progress toward achieving the project outcome has been good and given the project progress made at the end of year 2 of a 45 month implementation period we feel confident that it will still be able to achieve the intended outcome over this timeframe. However, as previously discussed this will be dependant, in particular, on the project's ability to achieve Output 3 targets in Y3-4.

### **3.4 Monitoring of assumptions**

#### Assumption 1: Continued support from local government

Comments: Still hold true

#### Assumption 2: Continued support and cooperation from neighbouring communities

Comments: Still hold true

#### Assumption 3: Political situation around 2017 elections does not unduly affect project implementation

Comments: N/A

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<sup>6</sup> Lion, cheetahs, lions, wild dogs, leopard, hyenas, jackals

<sup>7</sup> Rhinos, elephant, hartebeest, Oryx



Assumption 4: MOU between Monarch Group Ltd and OPC for management of MCA remains in place

Comments: Still hold true

Assumption 5: Human in-migration into MCA that puts pressure on natural resources beyond the scope of this project and number of beneficiaries, does not happen

Comments: Still hold true

Assumption 6: Increasing predator numbers do not impact viability of herbivore populations

Comments: Still hold true

Assumption 7: Sustained drought conditions do not occur during the course of project implementation

Comments: Still hold true

Assumption 8: Drought conditions do not result in additional pastoralists and their livestock using the area before conditions exist that can support increased

Comments: Still hold true

Assumption 9: Upstream water use levels remain constant or if changes occur, there is consultation with downstream users

Comments: Still hold true

Assumption 10: Pastoralist households in focal community groups are willing to participate in cattle scheme after FPIC process

Comments: Still hold true

Assumption 11: Domestic markets for beef in Kenya remain vibrant and expanding

Comments: Still hold true

Assumption 12: Livestock owners engaged by the project have influence or control on movements and make decisions on sales

Comments: Still hold true

### **3.5 Impact: achievement of positive impact on biodiversity and poverty alleviation**

Regular monitoring on populations of key species of predators<sup>8</sup>, large herbivores<sup>9</sup> is ongoing and knowledge on population trends achieved which is informing management to restore Mutara Conservation Area. The MCA has been identified as a feasible dispersal area for populations of the endangered black rhinoceros (*Diceros bicornis michaeli*) from the neighbouring OPC where it has already reached its Ecological capacity. In Y2 restoration of degraded areas identified in Y1 was initiated and a bio-monitoring system for MCA is in place (see Annex 6.3a). The restoration of this key ecological area will increase mobility and dispersal of threatened species, and improve land management for people and wildlife.

The project in engaging WRUAs, focal pastoral communities, farmers and service providers in the water management sector to ensure efficient use and equitable access of water resources which will contribute to improved access of water for agriculture, livestock and wildlife hence reduced natural resource conflicts in the landscape and subsequently improved wellbeing. In the reporting area the NR related conflicts were reported to have decreased (Annex 6.4a)

The project has trained and created awareness to farmers and pastoralists communities adjacent to MCA on sustainable agriculture, holistic management (integration of livestock and wildlife) and biodiversity conservation. Thus provision of agriculture extension services to promote agricultural practices that address the challenge of water scarcity in the project area

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<sup>8</sup> Lion, cheetahs, lions, wild dogs, leopard, hyenas, jackals

<sup>9</sup> Rhinos, elephant, hartebeest, Oryx

which falls under a semi-arid region. The initial project findings has indicated improved yields and incomes especially among those receiving extension support (Annex 6.4a).

Engagement of communities in grazing and water management will address multiple dimensions of poverty beyond material wellbeing. These include increased social cohesion and personal security as a result of decreased conflict over resource access and increased self-esteem and confidence in the future through an active and recognised role in natural resource management. The targeted inclusion of traditionally marginalised groups, particularly women, in project interventions will ensure their effective and equitable participation.

#### **4. Contribution to the Global Goals for Sustainable Development (SDGs)**

The project contributed to the **Global Goals for Sustainable Development** as outlined below:

**SDG 2 (Zero hunger):** By initiating the development of a community cattle scheme (assuring purchase prices for well managed cattle and developing hay-fodder markets), the project has begun to contribute toward SDG 2.

**SDG 5 (Gender equality):** A good understanding of gender relations has been developed by disaggregation of all data collection and analysis in the reporting period. Separate meetings for women were held while using the participatory approaches to capture the unique preferences of different genders. The women groups already established in these localities have been identified and engagements initiated in developing approaches to guarantee women participation in project interventions including community livestock scheme, fodder production and participation in water resource management.

**SDG6 (Clean water and sanitation):** In Y2 the project supported dialogues between WRUAs, water projects, service providers, local leaders, farmers and pastoralists in the project area to plan and implement sustainable use of river water to promote equitable access among all stakeholders. Degraded areas on the Mutara and Sugoroi water sub catchments have been identified and restoration is on-going through tree planting initiatives, seed balls dispersal and awareness creation on sustainable water use.

**SDG15 (Life on land):** The capacity of local communities to pursue sustainable livelihood opportunities has been built through trainings on sustainable agriculture, good livestock husbandry and biodiversity conservation exposure visits.

#### **5. Project support to the Conventions, Treaties or Agreements**

The project supports the core **CBD** objective of conservation and sustainable use of biodiversity by safeguarding key populations of endangered species (including a Key 1 population of black rhinoceros (*Diceros bicornis michaeli*). In Y2 restoration of degraded areas identified is on-going and a bio-monitoring system has being implemented for MCA (see Annex 6.3a). The restoration of this key ecological area will also increase mobility and dispersal of threatened species, and improve land management for people and wildlife.

WRUAs on two sub-catchments up stream of MCA being supported by the project is leading in implementation restoration initiatives of degraded areas on riparian habitat through tree nursery development and reforestation of riparian areas. The project has trained and created awareness to farmers and pastoralists communities adjacent to MCA on sustainable agriculture, holistic management (integration of livestock and wildlife) and awareness creation on biodiversity conservation.

Thus the project contributes to CBD strategic Goal C through rangeland restoration and species protection across the wider OPC landscape; by promoting the effective and equitable

management of a system of land-based conservation measures (Aichi Target 11); and improving the conservation status of threatened species, helping to prevent extinction (Aichi Target 12). It also supports CBD Strategic Goal D by safeguarding the OPC landscape - a critical ecosystem that provides essential services for local livelihoods - in consideration of the needs of women, local communities and the poor and vulnerable (Aichi Target 14).

## **6. Project support to poverty alleviation**

The project is targeting community areas that reported the most negative impacts of conservation activities on their wellbeing during the 2014 SAPA pilot project (Darwin ref 20-010). Most households in these communities are predominantly pastoralist and smallholders, and have limited market access. It was noted during the household survey undertaken by the project that most of the livelihoods in these communities heavily rely on availability of rain water and grazing. Among the set outputs of the project is improved water availability and access to grazing through the project components of community livestock schemes, fodder production and water management which is expected to improve market access (including prices), as well as food and water security for 600 rural poor households in 6 focal community areas. Improved access to cattle markets and increased value through fattening on either MCA or OPC is expected to lead to a 20% increase in value per head of cattle against project baselines of 400 participating cattle-owning pastoralist households.

In the four focal communities which include farmers to the south of MCA, 200 households will have improved livelihood opportunities through sustainable farming practices, water management and access to fodder markets. We expect a 15% increase in the value of crop sales for participating households and a net income of 1,200 Ksh per acre of hay. Both agriculture and livestock initiatives will have the potential to be scaled up. Within ten years up to 2000 cattle per annum passing through the community livestock system could provide returns of Ksh 80m (USD 800k) to community groups (c. 1000 households) per annum.

Engagement of communities in grazing and water management will address multiple dimensions of poverty beyond material wellbeing. These include increased social cohesion and personal security as a result of decreased conflict over resource access and increased self-esteem and confidence in the future through an active and recognised role in natural resource management. The targeted inclusion of traditionally marginalised groups, particularly women, in project interventions will ensure their effective and equitable participation.

Although an interim measure, the reported increase of perceived well-being by 50% (n=110) of surveyed households (49% men; 51% women) is a notable change that the project has contributed to.

## **7. Project support to gender equality issues**

All the data collected, through household surveys and focus groups, has been gender disaggregated to ensure the voice of women are captured in project decision making (see Annex 6.4a: Y2 household survey report). In all project interventions the project team continue to use approaches and methodologies that encourage women's participation and engagement.

## **8. Monitoring and evaluation**

The project has planned and implemented regular monitoring using identified tools which has facilitated measuring and demonstration of project interventions (see Annexes 6.3a and 6.7).

The project co-ordinator based at OPC has been instrumental co-ordinating monitoring and evaluation process for the project (including baseline development and repeat assessments). The project's measurable indicators, means of verification and means of baseline provision as per the set activities, outputs and associated indicators has started demonstrating links to the project outcome.

We believe that the approaches used for M&E are robust and will continue as currently implemented by the project staff.

## 9. Lessons learnt

**Partnerships:** The mapping of other stakeholders within the project area and identifying areas of common interest facilitated joint implementation of activities. This has promoted project ownership among beneficiaries and service providers and will contribute to sustainability of project initiatives beyond the project cycle by working with legislated Government institutions and community based organizations within the area. The project will continue to employ a collaborative approach in project implementation by engaging relevant stakeholders in project planning and sharing project findings to inform other developmental initiatives in the focal project area.

**Project planning:** It is important to understand what Government plans or policies are in place in regard to the project planned activities to avoid duplication of activities and ensure efficient use of available resources. A good example is in the development of the SCMP for Sugoroi and Mutara rivers and Management plan for Mutara Conservation Area; the project used the existing Government guidelines in the development of the two which has promoted buy in of project initiatives among government institutions.

**Reflection on implementation:** The reflection meeting at the end of Y1 held among implementing partner's facilitated integration of lessons learned prior to Y2 project implementation. This contributed to achievement of Y2 targets and helped develop increasingly strong partnerships. This annual process will be repeated at the start of Y3 and Y4 of the project.

**Livestock:** As detailed in the report for A3.11 purchases of livestock in Y2 by OPC were limited as there was however insufficient lead time to undertake inclusive purchase scheme following the formation of the community grazing committee (A3.9). One focal community was involved in the purchase arrangement but overall the plan was not enticing to livestock sellers as it required a 90-day credit period. OPC relies 70% on tourism income which is seasonal and low season occurs between January and June leading to reduced cash flows and general ability to transact business. A consideration made by the management is a target to set aside a revolving fund that will be dedicated for use with community livestock purchase to cushion against low business periods.

Except for wealthy cattle traders, ordinary pastoralists have limited credit periods that they can naturally afford. They require immediate payment upon sale of livestock as is dictated by the immediate needs they have. The period January-April also coincides with prolonged dry conditions which leads to livestock movements from the project area reducing opportunity for purchases to be made during this period. The project implementers recognise the need to take on learning form this experience by appropriately factoring in weather conditions, OPC cash-flow and livelihood strategies of participating households. Though delayed, the project seeks to undertake an inclusive and participatory approach to the purchase scheme in Y3.

## **10. Actions taken in response to previous reviews (if applicable)**

The response to the two issues raised in the review of last year's report is as outlined below:

**Issue 1:** Provide a direct link to the project – project webpage

**Response:** <https://www.fauna-flora.org/projects/cattle-water-wildlife-enhancing-socio-ecological-resilience-laikipia>

**Issue 2.** Ensure consistency in numbers presented e.g. number of farmers trained on climate smart fodder production under output 4 is presented as 99 in text instead of 96, while in the log frame the number presented is 91.

**Response:** The confirmed correct number of farmers engaged is 91

## **11. Other comments on progress not covered elsewhere**

In Y2 (Q2-3) the project developed and established a Grievance Redress Mechanism that follows international best practice (see Annex 7.6).

## **12. Sustainability and legacy**

The project's implementation partners who continue to deliver its outputs, OPC and LWF, have long term commitments in supporting conservation activities in Laikipia. In the reporting period, key collaborations were established with CETRAD (a Laikipia-based research institution), the Laikipian (a Laikipia based community advocacy group), and the Kenya Wildlife Service (during review of MCA management plan).

Farmers involved in the project are purchasing their own inputs and seeds whilst following practices they have been trained on by project extension staff. In a difficult growing season (due to limited rainfall) the comparatively high yields attained by trained farmers is likely to increase the impact of this component beyond the lifespan of the project itself.

The water components of the project continue to be coordinated by MKEWP and associated partnership which is anticipated to ensure ongoing support and sustainability of the WRUAs.

Findings and lessons from Y2 project activities will be shared through county-level networks in Y3 Q1 and Q2 to further enhance its sustainability and legacy

The project's planned exit strategy is still valid as originally proposed.

## **13. Darwin identity**

The project team made it a standard practice to give an overview of Darwin initiative as the funder of the project through support from the UK Government in all the meetings, trainings and surveys conducted in Y2.

The DI logo has been used in all the documents published and reports developed by the project. Darwin initiative has been mentioned as the donor in all the web updates on the project (see Activity 2.13 in section 3.1).

It is recognized as a distinct project. For our partner OPC, primary responsibility for delivery lies with the staff of their Community Development programme. The Darwin Initiative is broadly understood by the project partners and the stakeholders that have been engaged by the project within Laikipia County.

#### 14. Project expenditure

**Table 1: Project expenditure during the reporting period (1 April 2018 – 31 March 2019)**

Project spend (indicative) since last annual report	2017/18 Grant (£)	2017/18 Total Darwin Costs (£)	Variance %	Comments (please explain significant variances)
Staff costs (see below)				
Consultancy costs				
Overhead Costs				
Travel and subsistence				
Operating Costs				
Capital items (see below)				
Monitoring & Evaluation (M&E)				
Others (see below)				
<b>TOTAL</b>				



Annex 1: Report of progress and achievements against Logical Framework for Financial Year 2018-2019

Project summary	Measurable Indicators	Progress and Achievements April 2018 - March 2019	Actions required/planned for next period
<p><b>Impact</b></p> <p>Natural resources across the Laikipia Plateau are conserved and used sustainably, maintaining environmental integrity for its people and wildlife, and providing a model for other areas.</p>			
<p><b>Outcome</b></p> <p><b>Outcome: 8,000ha</b> of dispersal area secured for rhino, elephant and predators; grazing and water resources managed for local community and pastoralist wellbeing; and resource conflict reduced across the wider OPC landscape.</p>	<p>0.1 By 2021 populations of elephant, wild dog and lion are increasing or stable against Y1 baselines on MCA</p> <p>0.2 By 2021 rangeland vegetation productivity increased on MCA by 50% from Y1 baseline</p> <p>0.3 By 2021 KWS authorization given for expansion of rhino range to MCA.</p> <p>0.4 By 2021 both male and female (minimum 33%) respondents representing 600 households report increased well-being</p>	<p>Regular monitoring on populations of key species of predators<sup>10</sup>, large herbivores<sup>11</sup> have been attained using mixed methodologies (see Annex 6.3a: Year 1 ecological-bio monitoring report).</p> <p>On-going quarterly pasture assessments have been instrumental in measuring rangeland vegetation productivity in dry and wet seasons (see Annex 6.3a: Year 2 ecological-bio monitoring report).</p> <p>KWS engaged through annual update and review of MCA management plan (A1.12)</p> <p>In Y2 50% (n=110) of households reported an improvement in wellbeing (49% men; 51% women). Of</p>	

<sup>10</sup> Lion, cheetahs, lions, wild dogs, leopard, hyenas, jackals

<sup>11</sup> Rhinos, elephant, hartebeest, Oryx

	<p>against Y1 baselines through project interventions</p> <p>0.5 By 2021 reports of natural resource conflict decline by 50% against Y1 baselines in MCA, OPC and focal community areas</p>	<p>those reporting change 11% (n=12) reported the primary reason for the change was extension support from the project (42% men; 58% women) (Annex 6.4a).</p> <p>HWC - reduction of 28% against 2017 baseline in Y2. Farmer-Pastoralist conflict - reduction of 3% against baseline in Y2 Pasture Access conflict - reduction of 13% against baseline in Y2. Water Access conflict – increase of 7% against baseline in Y2. (see Annex 6.4a)</p>	
<p><b>Output 1.</b> 8000ha of restored rangeland under active sustainable management that meets the grazing needs of community livestock and wildlife</p>	<p>1.1 By 2017 MCA Management Plan developed with and validated by stakeholders (with at least 30% women, using inclusive gender inclusive practices)</p> <p>1.2 Each year the MCA Management Plan is adapted and implemented based on annual ecological monitoring and social surveys.</p> <p>1.3 By 2021 50% of male and female respondents report</p>	<p>Y1 activity</p> <p>In Y2 the MCA plan was further reviewed through a comprehensive planning process that utilises recently published KWS management plan guidance (Section 3.1 and Annex 8.3a).</p> <p>Baselines established in Y1; Grazing access to be enabled on MCA for Community Cattle in Y3 and Y4 (A3.14)</p>	

	increased satisfaction regarding access to grazing for their cattle compared with project baselines	
1.1 Establish baseline population estimates of key indicator game species using 2015 HD aerial survey imagery		Y1 activity
1.2 Assessment and identification of key locations for restoration activities through field surveys and GIS analysis		Y1 activity
1.3 Implementation of ecological restoration measures - mobile cattle corrals that create ecosystem 'hotspots' to significantly increase populations of browsing wildlife		The acquisition of materials for 6 mobile cattle corrals sections was completed in Y2 Q4. The construction is underway and initial locations of the corrals established through development of Mutara Conservation Area grazing plan as informed by the ecological monitoring findings (Activity 5.5) within Mutara Conservation (see section 3.1 and Annex 6.3a)
1.4 Implementation of ecological restoration measures - restoration of riverine habitat through tree nursery development and planting on Mutara and Sugoroi Rivers upstream of MCA		<p>Management of tree nurseries established in Y1 continued with recorded germination rate of above 60% and the survival rate for trees planted in Y1 exceeds 50 %.</p> <p>A total of 7343 trees were planted in Mutara and Sugoroi Rivers from April 2018 to March 2019. A total of 5900 tree seedlings potted and ready for transplanting in the next rainy seasons.</p> <p>12,000 seed balls dispersed across identified degraded areas within MCA and riverine areas.</p> <p>River pegging<sup>12</sup> was conducted for Mutara River with support from the WRA</p> <p>Project supported individual/ group tree nurseries have established 3500 fruit tree seedlings which are sold to riparian farmers to plant along the riverine habitat.</p> <p>(Section 3.1 and Annex 5.1 a)</p>

<sup>12</sup> River pegging is defining riparian areas: Every river is required by law to have a specified amount of land along its banks where no farming or logging takes place. These are referred to as riparian areas.

1.5 Development of an ecological & bio monitoring system linked to existing monitoring across the landscape (including indicator species plan)	Y1 activity
1.6 Publication of ecological & bio monitoring training manual	Y1 activity
1.7 Training of field staff in ecological & bio monitoring methodology using training manual	Y1 activity
1.8 Implementation of an ecological & bio monitoring system linked to existing monitoring across the landscape	4 quarterly pasture assessments for Mutara conservation undertaken alongside daily monitoring of wildlife corridors to monitor habitat utilisation; map showing distribution and detailed report developed and currently informing management of MCA (Section 3.1 and Annex 6.3a)
1.9 Publication of annual MCA ecological report	Year 2 annual ecological report published ( Section 3.1 and Annex 6.3 a)
1.10 Development of Mutara Conservation Area Management Plan	Y1 activity
1.11 Publication of Mutara Conservation Area Management Plan	Y1 activity
1.12 Annual review and update of Mutara Conservation Area Management Plan	The MCA management plan developed in Y1 further reviewed( Annex 8.3a) through a comprehensive planning process that utilised recently published KWS management plan guidance (Annex 8.4),took into account the Wildlife Act (2013), County-level devolution and integrated community and stakeholder needs. Those engaged in the further review of the management plan included KWS, Monarch Group, OPC, ADC, FFI and OPC (Section 3.1 and Annex 5.6a)
1.13 Drafting of lessons learned & guidance document on sustainable land management and ecological restoration	Scheduled for year 4
1.14 Publication of lessons learned & guidance document on sustainable land management and ecological restoration	Scheduled for year4
1.15 Dissemination of lessons learned & guidance document on sustainable land management and ecological restoration	Scheduled for year 4
<b>1.13, 1.14 &amp; 1.15:</b> Y3-Y4 activities	
<b>Output 2.</b> Improved water availability for domestic use, livestock and wildlife	2.1 By 2019 Sugoroi and Mutara River Water Resource Use Associations (WRUA) functional with quarterly meetings being held
	The WRUAs functionality observed in year 2 as evidenced by various self-initiated meetings to address emerging issues (Section 3.1 and Annex 5.2a).

<p>In MCA and 75% of households in 6 focal community areas that is managed by representative local institutions.</p>	<p>and planned activities being implemented.</p> <p>2.2 By 2020 Sugoroi and Mutara WRUAs represent a cross-sector of society (at least 33% women) with 75% of WRUA members aware of committee structure and responsibilities</p> <p>2.3 By 2021 Sugoroi and Mutara WRUA sub-catchment management plans (including livestock and agriculture need/use components) being implemented effectively</p> <p>2.4 By 2021 75% of both men and women (at least 33%) representing an estimated 1200 households in 6 focal communities report improved water availability for domestic, livestock and agricultural use</p> <p>2.5 By 2021 water available on MCA that meets the demands of wildlife</p>	<p>In Y2 71% of WRUA members surveyed were aware of the committee structure and function (Annex 6.4a)</p> <p>Mutara WRUA cluster established as a platform to advance water access dialogue between upstream and downstream water users (Section 3.1 and Annex 5.3a).</p> <p>Development and publication of a preliminary study report on effective management of Mutara and Sugoroi Sub-Catchments report to advise the future review of Mutara and Sugoroi sub catchments and implementation of interventions to address prioritized catchment challenges (Section 3.1 and Annex 8.5).</p> <p>Tangi-Nyeusi borehole repairs undertaken. One borehole piping system rehabilitated to connect water to two water troughs and two tanks distributed across Mutara conservation area; The two tanks and two troughs listed above were also rehabilitated which has improved water access Tangi-Nyeusi community and wildlife within MCA (Section 3.1 and Annex 6.3a)</p> <p>The socio-economic survey results show that there have been declines in water availability for domestic, livestock and agricultural uses in the past year among those who were interviewed. This change was attributed to the unreliable rains / inconsistent rains from August 2018 to March 2019 (Section 3.1 and Annex 6.4a).The pressure on two rivers within the two areas was high mainly for irrigation on the upstream leading to serious water shortages downstream where pastoralists and wildlife is located. The project has noted this challenges and have prioritized intervention measures which will be done in collaboration with other partners (study report on effective management of Mutara and Sugoroi rivers (Section 3.1 and Annex 8.5)</p>
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2.1 Development of socio-economic monitoring guidance (approach, ethics & methods)	Y1 activity
2.2 Publication of socio-economic monitoring guidance (approach, ethics & methods)	Y1 activity
2.3 Training on socio-economic survey methods with OPC staff and 12 enumerators (6 men, 6 women) drawn from focal communities	Y1 activity
2.4 Conduct baseline household surveys to establish current water accessibility and demand by WRUA members on Mutara and Sugoroi rivers	Y1 activity
2.5 Stakeholder dialogue and consultation meetings with WRUA members (with both women and men including leaders to promote positive attitudes towards women's participation in project activities)	<p>16 stakeholder dialogue and consultation meetings have been conducted by project partners and stakeholders in Y2 Q1-4.</p> <p>A total of 232 individuals (168 men and 64 women) from WRUAs, Community water projects, WRA, Pastoralist communities, farming communities, service providers and local leaders were engaged (Section 3.1 and Annex 9.9a).</p> <p>The output of the meetings included: establishment of current status of WRUA membership; review of the SCMPs; implementation of restoration of riverine habitat initiatives (Section 3.1 and Annex 5.2a).</p> <p>The WRUAs functionality observed in year 2 as evidenced by various self-initiated meetings to address emerging issues (Annex 5.2 a).</p>
2.6 Capacity needs assessment for Mutara and Sugoroi Water Resource Use Associations (WRUA)	Y1 activity
2.7 Capacity development of Mutara and Sugoroi Water Resource Use Associations (WRUA) informed by needs assessment	Y1 activity
2.8 Assessment of existing infrastructure within and upstream of MCA	Y1 activity
2.9 Review and update existing sub-catchment management plans for Mutara and Sugoroi rivers	It was not feasible to review Mutara and Sugoroi SCMPs due to the related high costs (approximately 8000 dollars per SCMP). To address this challenge, in agreement with WRA a preliminary study report on effective management of Mutara and Sugoroi Sub-Catchments report was



	developed to advise the future review of Mutara and Sugoroi sub catchments and highlight priority areas of action based on identified challenges. (See Section 3.1 and Annex 8.5)
2.10 Publish revised sub-catchment management plans for Mutara & Sugoroi rivers	Publication of the preliminary report to inform review of the Mutara and Sugoroi rivers SCMPs done in Y2 Q4 (See Section 3.1 Annex 8.5)
2.11 Rehabilitate existing water infrastructure within and upstream of MCA	Tangi-Nyeusi borehole repairs undertaken in Y2 Q3. Rehabilitation of water infrastructure within MCA done in Y2 Q4; One borehole piping system rehabilitated to connect water to two water troughs and two tanks distributed across Mutara conservation area; The two tanks and two troughs listed above were also rehabilitated (See Section 3.1 Annex 6.3a).
2.12 Ensure appropriate water storage infrastructure and conservation technologies are operational within both MCA and neighbouring communities	Y3 Activity
2.13 Quarterly web and media updates on water management activities to broader Laikipia audience through MKEWP	6 project web updates published during the project period <sup>13</sup> (See Section 3.1)
2.14 Bi-annual upstream-downstream water user meeting for Mutara and Sugoroi rivers	Mutara WRUA cluster established as a platform to advance water access dialogue between upstream and downstream water users and meetings held (See Section 3.1 and Annex 5.3a).
2.15 Drafting of lessons learned & guidance document on WRUA water management	Scheduled for year 4
2.16 Publication of lessons learned & guidance document on WRUA water management	Scheduled for year 4

<sup>13</sup> <http://laikipia.org/wp-content/uploads/2018/10/MUTARA-STUDY-REPORT.pdf>;

<http://laikipia.org/lessons-farmers-field-day-laikipia-meru-counties/>

<https://www.youtube.com/watch?v=QSVcj6nVqsk&t=268s>

<https://laikipia.org/ol-pejeta-fauna-flora-international-mkewp-concert/>

<https://www.youtube.com/watch?v=E1ftmGDrFgw>

<https://laikipia.org/opc-fauna-and-flora-and-mkewp-joined-in-support-of-mutara-communities/>

2.17 Dissemination of lessons learned & guidance document on WRUA water management	Scheduled for year 4	
<p><b>Output 3.</b> Community cattle to market system that supports pastoralist livelihoods and reduces stocking densities in 4 focal community areas, is in place on MCA.</p>	<p>3.1 By 2017 eligibility criteria for community cattle project developed (including targets for inclusion of cattle owned by women's groups), using participatory approaches pastoralists, including women, in 4 focal community areas</p> <p>3.2 By mid-2018 grazing plan designed and implemented that takes into account the majority of stakeholder's needs and opinions, while enabling controlled increase of cattle numbers to a maximum of 2000.</p> <p>3.3 By 2021, livestock extension services &amp; training provided to men and women (at least 20%) in 400 households in 4 focal community areas</p> <p>3.5 By 2021, people representing 400 households, including at least 20% women, have participated in the community cattle to market scheme.</p> <p>3.6 By 2021 average price paid for pastoralist livestock grazed on MCA is at least Ksh 50,000</p>	<p>Eligibility criteria for livestock to access MCA has been agreed on and a community livestock committee established to facilitate engagement with focal communities (see Section 3.1 and Annexes 5.5 and 5.4a).</p> <p>Agreed assured purchase prices of cattle between OPC and community grazing committees with the 15 livestock committee members was achieved (See Section 3.1 and Annex 5.4 a).</p> <p>Grazing plan for Mutara Conservation Area (MCA) developed in Y2 Q4 (see Annex 8.6)</p> <p>Development and publication of livestock husbandry extension services manual conducted in a participatory manner to inform community extension support from Y3 Q1 with the aim of improving livestock production to safeguard pastoralist livelihoods (see Section 3.1 and Annexes 7.5 and 9.13).</p> <p>Scheduled for year 4</p> <p>Scheduled for year 4</p>

3.1 Development of socio-economic monitoring guidance (approach, ethics & methods)	Y1 activity
3.2 Publication of socio-economic monitoring guidance (approach, ethics & methods)	Y1 activity
3.3 Delivery of training on socio-economic survey methods with OPC staff and 12 enumerators (6 men, 6 women) drawn from focal communities	Y1 activity
3.4 Baseline socio-economic survey conducted including wellbeing indicators (material, subjective and relational) and cattle price in 4 participating community areas	Y1 activity
3.5 Stakeholder dialogue and consultation meetings with focal pastoralist communities (with both women and men including leaders to promote positive attitudes towards women's participation in project activities)	Engagement with Tangi-Nyeusi, Mutara and Ex Erok pastoralist/ agro pastoralist communities on establishing the community livestock scheme at MCA is on-going with 5 stakeholder meetings held in Y2 Q1-4. Total of 169 (113 men and 56 women) community members were engaged stakeholders involved in the MCA (See Section 3.1 and Annex 5.4a).
3.6 Develop awareness scheme for holistic management (wildlife-livestock integration and optimal stocking densities)	Y1 activity
3.7 Deliver awareness scheme for holistic management (wildlife-livestock integration and optimal stocking densities)	An exposure visit to Maasai Mara Community Conservancies was undertaken by 2 project representatives from to borrow lessons and experiences in establishing conservancies where communities are benefiting from controlled grazing and wildlife protection. 15 (10 men and 5 women) livestock committee members and 4 (2 men and 2 women) members of project staff from OI Pejeta Conservancy and FFI attended training to Pioneer feedlots located at Kiganjo in Central Kenya where they were made aware of livestock management options to dress challenges related reduction in the size of the land previously used for nomadic pastoralism due to population increase and land resulting in overgrazing and poor forage productivity (see Section 3.1 and Annex 5.7a).
3.8 Develop eligibility criteria for community cattle project using participatory approaches with pastoralists from focal community areas (including women's groups)	Y1 activity

3.9 Establish representative community grazing committees drawn from focal pastoralist communities	A 15 member (10 men and 5 women) representative livestock committee from three communities. The team will drive the process of community engagement such as implementation of a community livestock scheme within MCA (see Section 3.1 and Annex 5.4 a).
3.10 Agree assured purchase prices of cattle between OPC and community grazing committees	Pricing agreed on with 15 livestock community committee (see Section 3.1 and Annex 5.4 a).
3.11 Purchase of focal community cattle by OPC - fattening of cattle on OPC land	Initial purchase of community cattle made by OI Pejeta Conservancy (see Section 3.1 and Section 9)
3.12 Participatory development and implementation of local grazing plans for MCA (including identification of critical areas and periods where conflict between pastoralist livestock and wildlife is likely)	To start in year 3
3.13 Integrate local grazing plans with ecological monitoring data and sub-catchment water management plans	To start in year 3
3.14 Purchase of focal community cattle by OPC - fattening of cattle on MCA with mobile corral system	To start in year 3
3.15 Develop extension and training services for livestock husbandry participating livestock keepers	A total of 152 (85 men and 67 women) community members engaged in the development of extension and training services for livestock husbandry manual (see Section 3.1 and Annexes 7.5 and 9.13).
3.16 Publish training manual for livestock husbandry, in appropriate format(s) to ensure accessibility for all target users (men, women, elderly & youth)	Training manual for livestock husbandry published in Y2 Q4 (see Section 3.1 and Annex 7.5).
3.17 Implement extension and training services for participating livestock keepers	Scheduled in year 4
3.18 Drafting of lessons learned & guidance document on WRUA water management	Scheduled in year 4
3.19 Publication of lessons learned & guidance document on WRUA water management	Scheduled in year 4
3.20 Dissemination of lessons learned & guidance document on WRUA water management	Scheduled in year 4

<p><b>4. Women and men in 2 target communities adopt a community-based fodder production system that supports the diversification of small-scale farmer livelihoods in at least 200 households.</b></p>	<p>4.1 From 2018 to 2021, agricultural extension services and training, supporting fodder production, provided to 100 men and 100 women representing 200 households in 2 focal community areas</p> <p>4.2 By 2021, local buyers are contractually linked to 100 men and 100 women representing 200 households producing fodder (primarily hay)</p> <p>4.3 By 2021 men and women (50%) representing 200 households report increased well-being through community fodder markets</p> <p>4.4 By 2021 net income of 1200 Ksh per acre of hay achieved by participants in fodder production component</p> <p>4.5 By 2021 both male and female representatives of 200 households report an increase in agriculture related income of at least 15%</p>	<p>Conservation agriculture trainings initiated at village level in collaboration with the Ministry of Agriculture and Elegance dairy trainers, Nyala dairy and livestock department - 11 village level farmers trainings with a total 1197 farmers trained (613 women and 584 men) (see Section 3.1 and Annexes 9.14 &amp; 6.7).</p> <p>Smart fodder crops and hay adoption rate is increasing with the purchase of 180kgs of hay grass which translate to 60 acres under fodder crop (see Section 3.1 and Annex 6.7).</p> <p>In reference to year 2 household survey; Average self-reported farming income per declined in the past year from KSHs 26,650 to KSHs 20,595. However, there was a significant difference in level of average income for those who had received extension services support (KSHs 27,388) and those who hadn't (KSHs 11,359) (see Section 3.1 and Annex 6.4a).</p>
<p>4.1 Development of socio-economic monitoring guidance (approach, ethics &amp; methods)</p>	<p>Y1 activity</p>	
<p>4.2 Publication of socio-economic monitoring guidance (approach, ethics &amp; methods)</p>	<p>Y1 activity</p>	

4.3 Delivery of training on socio-economic survey methods with OPC staff and 12 enumerators (6 men, 6 women) drawn from focal communities	Y1 activity
4.4 Baseline socio-economic survey conducted included wellbeing (material, subjective and relational) and agricultural production in participating community areas (Ex-Erok and Withare, Kiamariga and Mutara)	See A3.4
4.5 Stakeholder dialogue and consultation meetings with focal communities (with both women and men including leaders to promote positive attitudes towards women's participation in project activities)	Y1 activity
4.6 Engage with smallholder farmers in focal communities to promote innovative climate-smart fodder crops (primarily hay, as a safeguard against drought)	Y1 activity
4.7 Develop extension and training services for conservation agriculture (including on-farm water management) in appropriate format(s) to ensure accessibility for all target users (men, women, elderly & youth)	Agricultural extension officer manual developed in line with the current agricultural policy and identified farmer trainings needs and currently being used to train farmers (see Section 3.1 and Annex 7.4)
4.8 Publish training manual for conservation agriculture (including on-farm water management) in appropriate format(s) to ensure accessibility for all target users (men, women, elderly & youth)	The manual was published in Y2 Q4 (see Section 3.1 and Annex 7.4)
4.9 Conduct conservation agriculture (including on-farm water management) trainings with participating smallholder households, ensuring that 50% are female participants	<p>Conservation agriculture trainings initiated at village level in collaboration with the Ministry of Agriculture and Elegance dairy trainers, Nyala dairy and livestock department - 11 village level farmers trainings with a total 1197 farmers trained (613 women and 584 men).</p> <p>An informal assessment based on 50 household visits as indicated a 30% adoption rate of conservation agriculture by trained farmers.</p> <p>Four demonstration water pans have been established in the community and five community members have purchased liners on their own. (see Section 3.1 and Annex 6.7)</p>
4.10 Facilitate market linkages between local fodder producers and local consumers (including MCA community cattle)	Four community meetings organized in collaboration with local service providers where a total of 174 hay farmers (64 men and 110 Women) attended. The outputs of the activity include: Market links established with Nyala dairies; a group established by at Kimariga men to jointly produce



		and sell hay; a women's group in Ex-erok are planning to buy a hand baler & chaff cutter to hire to other hay farmers (see Section 3.1 and Annex 6.7)
4.11 Integrate fodder production with sub-catchment water management plans		To start in year 3
4.12 Target agricultural extension to farmer groups who have chosen to participate in increased and sustainable production of fodder		To start in year 3
4.13 Drafting of lessons learned & guidance document on conservation agriculture and creation of market linkages		Scheduled for year 4
4.14 Publication of lessons learned & guidance document on conservation agriculture and creation of market linkages		Scheduled for year 4
4.15 Dissemination of lessons learned & guidance document on conservation agriculture and creation of market linkages		Scheduled for year 4
<b>Output 5.</b> Vulnerable and endangered species are under effective protection on MCA	<p>5.1 By 2018 onwards wildlife rangers conduct daily patrols throughout MCA</p> <p>5.2 By 2021 50% increase in wildlife movement between OPC and MCA</p> <p>5.3 By 2021 75% decrease in wildlife poaching incidents on MCA against baseline established in Y1</p> <p>5.4 From 2018 onwards data from ecological monitoring used to actively manage herbivores and predators</p>	<p>Daily patrols on-going and data on wildlife sightings livestock sightings, and rainfall is collated and sent through on a daily basis (Annex 6.3a)</p> <p>The 2018 wildlife movement at the corridors indicates high fence utilization by specific animal species including zebras, elephants, buffaloes, and hyenas (see Section 3.1 and Annex 6.3a).</p> <p>No poaching incidents were recorded on MCA in Y2 (Annex 6.3a)</p> <p>In Y2 data collected and analysed was currently being used to inform management of the conservation area on infrastructural development; grazing plans; habitat management; monitoring and surveillance (see Section 3.1 and Annex 6.3 a).</p>
5.1 Co-ordination meetings between OPC, AWF, Eland Downs and KWS to improve the quality and extent of wildlife corridors in the greater OPC landscape		Four coordination meetings to review the Management plan of MCA whose main objective is to secure wildlife corridor in the greater OPC landscape (see Section 3.1 and Annex 5.6a).

5.2 Biodiversity conservation awareness 1-day module developed	Implemented in Y1
5.3 Biodiversity conservation exposure visits by participating households to OPC	A total of 196 (122 men and 74 women) community members (Annex 9.5a) participating in the project visited OPC in Y2 Q2 and Q4. The focus on the visits was building knowledge on OPC's holistic conservation model and endangered species conservation (See Section 3.1 and Annex 5.7a).
5.4 Monthly camera trapping of wildlife corridors to monitor wildlife movement between OPC and MCA	In the reporting period the sorting of 2018 corridor images was completed, analysed and results documented in the annual ecological report (see Section 3.1 and Annex 6.3a).
5.5 Data from ecological monitoring (Activity 1.9) used to actively manage populations of grazing and browsing herbivore and predator species	Four pasture assessments were conducted on MCA to determine seasonal variation of pasture resource utilisation and MCA productivity during the dry and wet seasons; 3 rapid pasture assessments conducted in March, June, September 2018 and an intensive pasture assessment in December 2019 (see Section 3.1 and Annex 6.3a).
5.6 Expansion of wildlife ranger patrol units (90% locally recruited)	Y1 activity
5.7 Conduct regular wildlife ranger patrols on Mutara Conservation Area	Daily patrols on-going and data on wildlife sightings livestock sightings, and rainfall is collated and sent through on a daily basis. MCA rainfall data are recorded daily from four stations which are placed strategically at the different patrol camps (see Section 3.1 and Annex 6.3a).

**Annex 2: Project's full current logframe as presented in the application form (unless changes have been agreed)**

Project summary	Measurable Indicators	Means of verification	Important Assumptions
<p><b>Impact:</b> Natural resources across the Laikipia Plateau are conserved and used sustainably, maintaining environmental integrity for its people and wildlife, and providing a model for other areas.</p>			
<p><b>Outcome:</b> 8,000ha of dispersal area secured for rhino, elephant and predators; grazing and water resources managed for local community and pastoralist wellbeing; and resource conflict reduced across the wider OPC landscape.</p>	<p>0.1 By 2021 populations of elephant, wild dog and lion are increasing or stable against Y1 baselines on MCA</p> <p>0.2 By 2021 rangeland vegetation productivity increased on MCA by 50% from Y1 baseline</p> <p>0.3 By 2021 KWS authorisation given for expansion of rhino range to MCA.</p> <p>0.4 By 2021 both male and female (minimum 33%) respondents representing 600 households report increased well-being against Y1 baselines through project interventions</p> <p>0.5 By 2021 reports of natural resource conflict decline by 50% against Y1</p>	<p>1.1 Biomonitoring patrol data collected each year, analysis to generate baselines (Y1) and comparison against baselines (Y2-4), detailed in annual bio-monitoring reports; Aerial survey data (from October 2016) analysed and compared against Y4 aerial survey data</p> <p>0.2 Ecological survey data collected each year, analysis to generate baselines (Y1) and comparison against baselines (Y2-4), detailed in annual ecological survey reports</p> <p>0.3 Letter of authorisation for rhino range expansion on MCA from KWS</p> <p>0.4 Socio-economic survey data on well-being collected each year, analysis to generate baselines (Y1) and comparison against baselines (Y2-4), detailed in annual socio-economic survey report</p> <p>0.5 Socio-economic survey data on resource conflict collected each year, analysis to generate baselines (Y1) and comparison against baselines</p>	<ul style="list-style-type: none"> <li>● Continued support from local government</li> <li>● Continued support and cooperation from neighbouring communities</li> <li>● Political situation around 2017 elections does not unduly affect project implementation</li> <li>● MOU between Monarch Group Ltd and OPC for management of MCA remains in place</li> <li>● Human in-migration into MCA that puts pressure on natural resources beyond the scope of this project and number of beneficiaries, does not happen</li> <li>● Increasing predator numbers do not impact viability of herbivore populations</li> <li>● Sustained drought conditions do not occur during the course of project implementation</li> </ul>

	baselines in MCA, OPC and focal community areas	(Y2-4), detailed in annual socio-economic survey report; Security incident data from Kenya Police Reserve Laikipia wildlife unit	
<b>Outputs:</b> <b>1.</b> 8000ha of restored rangeland under active sustainable management that meets the grazing needs of community livestock and wildlife	<p>1.1 By 2017 MCA Management Plan developed with and validated by stakeholders (with at least 30% women, using inclusive gender inclusive practices)</p> <p>1.2 Each year the MCA Management Plan is adapted and implemented based on annual ecological monitoring and social surveys.</p> <p>1.3 By 2021 50% of male and female respondents report increased satisfaction regarding access to grazing for their cattle compared with project baselines.</p>	<p>1.1 Stakeholder feedback on draft versions of management plan and validation of final version documented by written feedback and approvals and/or meeting minutes documenting decisions and attendance, gender disaggregated). Published MCA Management Plan acknowledging all contributors.</p> <p>1.2 Ecological and socio-economic survey data collected each year, analysis and yearly comparison detailed in annual ecological and socio-economic survey reports, Report detailing decisions, information sources used (survey reports) and reviewers involved in annual review of MCA management plan produced, MCA management plan updated in line with management plan review feedback</p> <p>1.3 Ecological and socio-economic data collected each year, analysis to generate baselines (Y1) and comparison against baselines (Y2-4), detailed in annual ecological, biomonitoring and socio-economic survey reports</p>	<ul style="list-style-type: none"> <li>• Continued support, as above.</li> <li>• Drought conditions do not result in additional pastoralists and their livestock using the area before conditions exist that can support increased use</li> </ul>

<p><b>2. Improved water availability for domestic use, livestock and wildlife in MCA and 75% of households in 6 focal community areas that is managed by representative local institutions.</b></p>	<p>2.1 By 2019 Sugoroi and Mutara River Water Resource Use Associations (WRUA) functional with quarterly meetings being held and planned activities being implemented.</p> <p>2.2 By 2020 Sugoroi and Mutara WRUAs represent a cross-sector of society (at least 33% women) with 75% of WRUA members aware of committee structure and responsibilities</p> <p>2.3 By 2021 Sugoroi and Mutara WRUA sub-catchment management plans (including livestock and agriculture need/use components) being implemented effectively</p> <p>2.4 By 2021 75% of both men and women (at least 33%) representing an estimated 1200 households in 6 focal communities report improved water availability for domestic, livestock and agricultural use</p> <p>2.5 By 2021 water available on MCA that meets the demands of wildlife</p>	<p>2.1 Review of published sub-catchment water management plans; quarterly meeting minutes and attendance reports, meeting photos; activity reports.</p> <p>2.2 WRUA membership survey data collected, WRUA membership survey report produced</p> <p>2.3 Annual review of WRUA sub-catchment management plans; field assessment of WRUA activities</p> <p>2.4 Socio-economic data collected, analysed in relation to previous years, detailed in annual socio-economic survey reports.</p> <p>2.5 Results of biomonitoring and ecological monitoring surveys detailed in annual MCA Management report showing health of indicator populations and health of vegetation / erosion.</p>	<ul style="list-style-type: none"> <li>Upstream water use levels remain constant or if changes occur, there is consultation with downstream users.</li> </ul>
<p><b>3. A community cattle to market system, that supports pastoralist livelihoods and reduces stocking densities in</b></p>	<p>3.1 By 2017 eligibility criteria for community cattle project developed (including targets for inclusion of cattle owned by women's groups), using participatory</p>	<p>3.1 Documentation of participatory approach taken to develop criteria (group meeting attendance, gender disaggregated, minutes, and photos), socio-economic data</p>	<ul style="list-style-type: none"> <li>Pastoralist households in focal community groups are willing to participate in cattle scheme after FPIC process</li> </ul>

<p>4 focal community areas, is in place on MCA.</p>	<p>approaches pastoralists, including women, in 4 focal community areas</p> <p>3.2 By mid-2018 grazing plan designed and implemented that takes into account the majority of stakeholder's needs and opinions, while enabling controlled increase of cattle numbers to a maximum of 2000.</p> <p>3.3 By 2021, livestock extension services &amp; training provided to men and women (at least 20%) in 400 households in 4 focal community areas</p> <p>3.5 By 2021, people representing 400 households, including at least 20% women, have participated in the community cattle to market scheme.</p> <p>3.6 By 2021 average price paid for pastoralist livestock grazed on MCA is at least Ksh 50,000</p>	<p>collected and analysis demonstrates participation of representative community groups, results detailed in annual socio-economic reports. Published MCA community-cattle eligibility criteria report acknowledging all involved.</p> <p>3.2 Documentation of grazing design process including stakeholder participation (records of feedback, attendance). Stakeholder needs and opinions collected and documented. Published grazing plan</p> <p>3.3 Livestock extension officer annual reports; published training manual; Collection of socio-economic data, data analysis (gender disaggregated), detailed in annual socio-economic survey reports</p> <p>3.5 Annual community-cattle sales reports generated by OPC livestock department</p> <p>3.6 Annual community-cattle sales reports generated by OPC livestock department</p>	<ul style="list-style-type: none"> <li>● Domestic markets for beef in Kenya remain vibrant and expanding</li> <li>● Livestock owners engaged by the project have influence or control on movements and make decisions on sales</li> </ul>
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<p>4. Women and men in 2 target communities adopt a community-based fodder production system that supports the diversification of small-scale farmer livelihoods in at least 200 households.</p>	<p>4.1 From 2018 to 2021, agricultural extension services and training, supporting fodder production, provided to 100 men and 100 women representing 200 households in 2 focal community areas</p> <p>4.2 By 2021, local buyers are contractually linked to 100 men and 100 women representing 200 households producing fodder (primarily hay)</p> <p>4.3 By 2021 men and women (50%) representing 200 households report increased well-being through community fodder markets</p> <p>4.4 By 2021 net income of 1200 Ksh per acre of hay achieved by participants in fodder production component</p> <p>4.5 By 2021 both male and female representatives of 200 households report</p>	<p>4.1 Agriculture extension officer annual reports detailing provision of services (location, number and gender of participants, photos); published training manual; Collection of socio-economic data to confirm recipients of extension services, data analysis (gender disaggregated), results detailed in annual socio-economic survey reports</p> <p>4.2 Collection of socio-economic data to monitor number and gender of participants linked to local buyers, data analysis (gender disaggregated), detailed in annual FFI socio-economic survey reports;</p> <p>4.3 Collection of socio-economic data to monitor change in wellbeing and cause, data analysis (gender disaggregated), detailed in annual socio-economic survey reports</p> <p>4.4 Collection of socio-economic data to monitor participants income sources, data analysis (gender disaggregated), detailed in annual socio-economic survey reports; Hay sales invoices &amp; receipts from survey participants</p> <p>4.5 Collection of socio-economic data to monitor change in participants income levels, data analysis (gender disaggregated), detailed in</p>	<ul style="list-style-type: none"> <li>• Smallholder farming households in focal community groups are willing to participate in hay scheme after FPIC process</li> <li>• Zero-grazing dairy industry continues to grow in Kenya</li> </ul>
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	an increase in agriculture related income of at least 15%	annual socio-economic survey reports; agriculture related sales invoices & receipts from survey participants	
5. Vulnerable and endangered species are under effective protection on MCA	<p>5.1 By 2018 onwards wildlife rangers conduct daily patrols throughout MCA</p> <p>5.2 By 2021 50% increase in wildlife movement between OPC and MCA</p> <p>5.3 By 2021 75% decrease in wildlife poaching incidents on MCA against baseline established in Y1</p> <p>5.4 From 2018 onwards data from ecological monitoring used to actively manage herbivores and predators</p>	<p>5.1 Daily patrol records, data used to develop monthly wildlife ranger patrol reports</p> <p>5.2 Monthly ecological monitoring corridor camera trap report; Change in indices of wildlife species in MCA drawn from biomonitoring patrol data.</p> <p>5.3 Daily patrol records, data used to develop monthly wildlife ranger patrol reports</p> <p>5.4 Ecological survey data collected each year, analysis detailed in annual ecological survey reports, inclusion of results, and subsequent relevant adaptations to management in annual wildlife management report</p>	<ul style="list-style-type: none"> <li>• Ongoing support from national government and the KWS, including facilitating ongoing protection and management operations for wildlife, including endangered species</li> <li>• Ongoing support from local government and security forces</li> </ul>

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

- 1.1 Establish baseline population estimates of key indicator game species using 2015 HD aerial survey imagery
- 1.2 Assessment and identification of key locations for restoration activities through field surveys and GIS analysis
- 1.3 Implementation of ecological restoration measures - mobile cattle corrals that create ecosystem 'hotspots' to significantly increase populations of browsing wildlife
- 1.4 Implementation of ecological restoration measures - restoration of riverine habitat through tree nursery development and planting on Mutara and Sugoroi Rivers upstream of MCA
- 1.5 Development of an ecological & bio monitoring system linked to existing monitoring across the landscape (including indicator species plan)



- 1.6 Publication of ecological & bio monitoring training manual
- 1.7 Training of field staff in ecological & bio monitoring methodology using training manual
- 1.8 Implementation of an ecological & bio monitoring system linked to existing monitoring across the landscape
- 1.9 Publication of annual MCA ecological report
- 1.10 Development of Mutara Conservation Area Management Plan
- 1.11 Publication of Mutara Conservation Area Management Plan
- 1.12 Annual review and update of Mutara Conservation Area Management Plan
- 1.13 Drafting of lessons learned & guidance document on sustainable land management and ecological restoration
- 1.14 Publication of lessons learned & guidance document on sustainable land management and ecological restoration
- 1.15 Dissemination of lessons learned & guidance document on sustainable land management and ecological restoration
  
- 2.1 Development of socio-economic monitoring guidance (approach, ethics & methods)
- 2.2 Publication of socio-economic monitoring guidance (approach, ethics & methods)
- 2.3 Training on socio-economic survey methods with OPC staff and 12 enumerators (6 men, 6 women) drawn from focal communities
- 2.4 Conduct baseline household surveys to establish current water accessibility and demand by WRUA members on Mutara and Sugoroi rivers
- 2.5 Stakeholder dialogue and consultation meetings with WRUA members (with both women and men including leaders to promote positive attitudes towards women's participation in project activities)
- 2.6 Capacity needs assessment for Mutara and Sugoroi Water Resource Use Associations (WRUA)
- 2.7 Capacity development of Mutara and Sugoroi Water Resource Use Associations (WRUA) informed by needs assessment
- 2.8 Assessment of existing infrastructure within and upstream of MCA
- 2.9 Review and update existing sub-catchment management plans for Mutara and Sugoroi rivers
- 2.10 Publish revised sub-catchment management plans for Mutara & Sugoroi rivers
- 2.11 Rehabilitate existing water infrastructure within and upstream of MCA
- 2.12 Ensure appropriate water storage infrastructure and conservation technologies are operational within both MCA and neighbouring communities
- 2.13 Quarterly web and media updates on water management activities to broader Laikipia audience through MKEWP
- 2.14 Bi-annual upstream-downstream water user meeting for Mutara and Sugoroi rivers
- 2.15 Drafting of lessons learned & guidance document on WRUA water management
- 2.16 Publication of lessons learned & guidance document on WRUA water management
- 2.17 Dissemination of lessons learned & guidance document on WRUA water management
  
- 3.1 Development of socio-economic monitoring guidance (approach, ethics & methods)
- 3.2 Publication of socio-economic monitoring guidance (approach, ethics & methods)

- 3.3 Delivery of training on socio-economic survey methods with OPC staff and 12 enumerators (6 men, 6 women) drawn from focal communities
- 3.4 Baseline socio-economic survey conducted including wellbeing indicators (material, subjective and relational) and cattle price in 4 participating community areas
- 3.5 Stakeholder dialogue and consultation meetings with focal pastoralist communities (with both women and men including leaders to promote positive attitudes towards women's participation in project activities)
- 3.6 Develop awareness scheme for holistic management (wildlife-livestock integration and optimal stocking densities)
- 3.7 Deliver awareness scheme for holistic management (wildlife-livestock integration and optimal stocking densities)
- 3.8 Develop eligibility criteria for community cattle project using participatory approaches with pastoralists from focal community areas (including women's groups)
- 3.9 Establish representative community grazing committees drawn from focal pastoralist communities
- 3.10 Agree assured purchase prices of cattle between OPC and community grazing committees
- 3.11 Purchase of focal community cattle by OPC - fattening of cattle on OPC land
- 3.12 Participatory development and implementation of local grazing plans for MCA (including identification of critical areas and periods where conflict between pastoralist livestock and wildlife is likely)
- 3.13 Integrate local grazing plans with ecological monitoring data and sub-catchment water management plans
- 3.14 Purchase of focal community cattle by OPC - fattening of cattle on MCA with mobile corral system
- 3.15 Develop extension and training services for livestock husbandry participating livestock keepers
- 3.16 Publish training manual for livestock husbandry, in appropriate format(s) to ensure accessibility for all target users (men, women, elderly & youth)
- 3.17 Implement extension and training services for participating livestock keepers
- 3.18 Drafting of lessons learned & guidance document on WRUA water management
- 3.19 Publication of lessons learned & guidance document on WRUA water management
- 3.20 Dissemination of lessons learned & guidance document on WRUA water management
  
- 4.1 Development of socio-economic monitoring guidance (approach, ethics & methods)
- 4.2 Publication of socio-economic monitoring guidance (approach, ethics & methods)
- 4.3 Delivery of training on socio-economic survey methods with OPC staff and 12 enumerators (6 men, 6 women) drawn from focal communities
- 4.4 Baseline socio-economic survey conducted included wellbeing (material, subjective and relational) and agricultural production in participating community areas (Ex-Erok and Withare)
- 4.5 Stakeholder dialogue and consultation meetings with focal communities (with both women and men including leaders to promote positive attitudes towards women's participation in project activities)
- 4.6 Engage with smallholder farmers in focal communities to promote innovative climate-smart fodder crops (primarily hay, as a safeguard against drought)

- 4.7 Develop extension and training services for conservation agriculture (including on-farm water management) in appropriate format(s) to ensure accessibility for all target users (men, women, elderly & youth)
  - 4.8 Publish training manual for conservation agriculture (including on-farm water management) in appropriate format(s) to ensure accessibility for all target users (men, women, elderly & youth)
  - 4.9 Conduct conservation agriculture (including on-farm water management) trainings with participating smallholder households, ensuring that 50% are female participants
  - 4.10 Facilitate market linkages between local fodder producers and local consumers (including MCA community cattle)
  - 4.11 Integrate fodder production with sub-catchment water management plans
  - 4.12 Target agricultural extension to farmer groups who have chosen to participate in increased and sustainable production of fodder
  - 4.13 Drafting of lessons learned & guidance document on conservation agriculture and creation of market linkages
  - 4.14 Publication of lessons learned & guidance document on conservation agriculture and creation of market linkages
  - 4.15 Dissemination of lessons learned & guidance document on conservation agriculture and creation of market linkages
- 
- 5.1 Co-ordination meetings between OPC, AWF, Eland Downs and KWS to improve the quality and extent of wildlife corridors in the greater OPC landscape
  - 5.2 Biodiversity conservation awareness 1-day module developed
  - 5.3 Biodiversity conservation exposure visits by participating households to OPC
  - 5.4 Monthly camera trapping of wildlife corridors to monitor wildlife movement between OPC and MCA
  - 5.5 Data from ecological monitoring (Activity 1.9) used to actively manage populations of grazing and browsing herbivore and predator species
  - 5.6 Expansion of wildlife ranger patrol units (90% locally recruited)
  - 5.7 Conduct regular wildlife ranger patrols on Mutara Conservation Area

### Annex 3: Standard Measures

**Table 1 Project Standard Output Measures**

Code No.	Description	Gender of people (if relevant)	Nationality of people (if relevant)	Year 1 Total	Year 2 Total	Year 3 Total	Total to date	Total planned during the project
6	Training of field staff in ecological & bio-monitoring	23 male 12 female	Kenyan	35			35	35
6	Training of OPC staff and enumerators on socio-economic survey methods	20 male 16 female	Kenyan	20	16		36	20
6	Training of conservation agriculture techniques with small-holder farmers	584 male 613 female			1197		1197	200
6	Training on livestock husbandry	100 male 100 female				200	0	0
7	Biodiversity conservation awareness training module			1			1	1
7	Conservation Agriculture and on-farm water management training manual				1		1	1
7	Training manual for livestock husbandry				1		1	1
7	Socio-economic monitoring guidance			1			1	1
7	MCA annual ecological report			1	1	1	2	3

9	Mutara Conservation Area Management Plan				1		0	1
9	Study report on effective management of Mutara and Sugoroi sub catchments				1		1	2
10	Ecological & bio-monitoring training manual			1			1	1
14A	Annual stakeholder dissemination workshop			1	1	1	1	3
20	Estimated value (£'s) of physical assets to be handed over to host country(ies)							
23	Value of resources raised from other sources for project work							

**Table 2 Publications**

<b>Title</b>	<b>Type</b> (e.g. journals, manual, CDs)	<b>Detail</b> (authors, year)	<b>Gender of Lead Author</b>	<b>Nationality of Lead Author</b>	<b>Publishers</b> (name, city)	<b>Available from</b> (e.g. weblink or publisher if not available online)
Cattle, Water and wildlife : enhancing Socio-ecological resilience in Laikipia - Agriculture Training Manual	Manual	Mwangi, B., Small, R., Komen, A. & Muthoki, M. 2019	Male	Kenyan	OPC, Nanyuki	To be uploaded to partner websites in Y3 Q1
Cattle, Water and wildlife : enhancing Socio-ecological resilience in Laikipia - Mutara Conservation Area Ecological report	Report	Waithira, M., Small, R., Gituku B., Mutisya, S., Komen, A. & Muthoki, M. 2019	Female	Kenyan	OPC, Nanyuki	To be uploaded to partner websites in Y3 Q1
Cattle, Water and wildlife : enhancing Socio-ecological resilience in Laikipia – Livestock Husbandry Manual	Report	Paul, P., Komen, A. & Muthoki, M.	Male	Kenyan	OPC, Nanyuki	To be uploaded to partner websites in Y3 Q1

## **Annex 4 [blank]**

### **Annex 5: Activity reports**

- 5.1a Mutara and Sugoroi sub –catchments riverine habitat restoration activity report
- 5.2a Y2 Stakeholder dialogues and consultation meetings with WRUA member’s activity report
- 5.3a Y2 Bi-annual upstream-downstream water user meetings activity report
- 5.4a Livestock Communities dialogue meetings report
- 5.5 Livestock Eligibility guide
- 5.6a Stakeholder summary on MCA management plan review
- 5.7a Biodiversity exposure visits activity report
- 5.8 Establishment of community Livestock committee report
- 5.9 Exposure visit to Maasai Mara report

### **Annex 6: Assessment and survey reports**

- 6.3a Year 2 annual MCA ecological and bio monitoring report
- 6.4a Year 2 household survey report
- 6.7 Annual extension officer agricultural report

### **Annex 7: Training Manuals and other materials**

- 7.4 Extension officer agricultural manual
- 7.5 Livestock husbandry manual
- 7.6 Grievance and Redress Mechanism

### **Annex 8: Management plans**

- 8.3a Reviewed MCA management plan 2019
- 8.4 KWS management plan guidance
- 8.5 Study Report On Effective Management of Mutara and Sugoroi Sub-Catchments
- 8.6 Mutara Conservation Area Grazing Plan

### **Annex 9: Attendance lists**

- 9.5a Biodiversity Visits attendance lists
- 9.7a Y2 Bi annual upstream-downstream water user meeting attendance list
- 9.9a WRUAs dialogue meetings attendance lists
- 9.13 Farmers trained on agriculture extension services attendance lists
- 9.14 Pastoralists stakeholder dialogue attendance lists
- 9.15 Development of livestock husbandry manual attendance lists

Checklist for submission

	Check
<b>Is the report less than 10MB?</b> If so, please email to <a href="mailto:Darwin-Projects@ltsi.co.uk">Darwin-Projects@ltsi.co.uk</a> putting the project number in the Subject line.	X
<b>Is your report more than 10MB?</b> If so, please discuss with <a href="mailto:Darwin-Projects@ltsi.co.uk">Darwin-Projects@ltsi.co.uk</a> about the best way to deliver the report, putting the project number in the Subject line.	X
<b>Have you included means of verification?</b> You need not submit every project document, but the main outputs and a selection of the others would strengthen the report.	X
<b>Do you have hard copies of material you want to submit with the report?</b> If so, please make this clear in the covering email and ensure all material is marked with the project number.	N/A
Have you involved your partners in preparation of the report and named the main contributors	X
Have you completed the Project Expenditure table fully?	X
Do not include claim forms or other communications with this report.	