



The Northern Rangelands Trust  
**RANGELANDS STRATEGY**

2019 -  
2022

## SUMMARY

---

This strategy draws on key lessons of NRT's engagement in rangeland management over the past decade, including learning visits to other pastoralist areas in Kenya, Ethiopia and Zimbabwe and an in-depth review of NRT's Rangelands Programme which was carried out in partnership with Grevy's Zebra Trust (GZT), NRT's long-term partner in this programme. NRT's Rangelands Programme has been supported for many years by the US Agency for International Development – Kenya (USAID), Danish International Development Agency (DANIDA) and The Nature Conservancy (TNC); and more recently the US Forest Service (USFS), Swedish International Development Cooperation Agency (SIDA) and the US Department of Interior (DOI). The purpose of this strategy is to clearly set out the context of the Rangelands Programme in the NRT landscape, document the lessons learnt, challenges, and the key objectives and priorities for the Programme. This document provides a framework for engagement and collaboration with other partners and to support fundraising proposals.

The Rangelands Programme is a core pillar of NRT's current Strategic Plan (2018-2022). Rangelands underpin pastoralist livelihoods and the health of the rangelands has a direct impact on the socio-economic wellbeing of these communities; without healthy rangelands there can be no lasting peace or sustainable pastoralist development. Building a sustainable pastoralist and wildlife economy, which is the foundation of the majority of NRT member community conservancies, cannot be achieved without addressing the declining health of the rangelands.

At the heart of the Rangelands Strategy is a **respect for traditional livelihoods, traditional governance systems and the coexistence of livestock, people and wildlife**. NRT's approach to rangeland management builds on traditional institutions combined with modern practices, technologies and governance concepts. We are working towards long-term behavioural change in pastoralist communities in order to achieve better management and recovery of the rangelands. Pastoralist communities in northern Kenya face complex and interlinked challenges including poverty, insecurity, severe degradation of rangelands, human and livestock population growth and climate change; this requires innovative, holistic, and sustained (long-term) approaches to address these challenges. The Rangelands Programme works alongside other NRT programmes including peace, security, livestock marketing, enterprise development, water resource management, wildlife conservation and conservancy governance; which collectively aim to address these challenges.

NRT's rangelands management approach **does not promote hard boundaries, the restriction of livestock movements or exclusion of livestock**, nor does it promote a ranching model with high-input non-indigenous livestock breeds. We recognise that while high and increasing livestock numbers, particularly of sheep and goats, pose a continued challenge to recovery of the rangelands, promoting a reduction in livestock numbers is not viable without simultaneously investing in alternative solutions to replace the savings and cash functions of livestock at a household level. Without these alternatives, pastoralists have no choice but to continue investing in livestock. Investing in alternatives requires commitment from National and County Governments to diversify pastoralist livelihoods and savings strategies. We must be cognisant to the reality of the scale to which NRT can achieve this in the areas in which we work, with a population of hundreds of thousands of people across 4 million hectares of northern Kenya. NRT's Rangelands Programme therefore focuses on improving management of existing livestock, through improved governance, and creating awareness and understanding among pastoralist communities of the root causes and solutions to rangeland degradation.

The long-term (20+ year) vision of the Rangelands Programme is to *stabilise and improve the productivity of rangelands that underpin the pastoralist economy, reduce competition and conflict for water and grazing resources, and improve forage for livestock and wildlife* and to achieve this through *successful conservancy-level rangeland management with effective planning of regional livestock movements*. There are seven key objectives to achieve this Strategy:

- 1. AWARENESS AND CAPACITY:** to create awareness in all stakeholders to understand and seek solutions to degradation of natural resources, using innovative approaches to generate collective action and respect for land ownership, settlement plans, livestock grazing plans, by-laws, traditional knowledge and ecosystem functions.
- 2. CONSERVANCY RANGELANDS GOVERNANCE:** Investment into local decision making structures, by-laws and enforcement incentives, agreed by every stakeholder group, built on traditional knowledge and governance systems and with strong policy, legal and political support from County Governments.
- 3. GRAZING PLANNING & MANAGEMENT:** Grazing plans built up from each settlement, aggregated at conservancy level, and shared across the region and will include development of learning sites & grass banks to show best practice methods in healing rangelands through improved grazing management. Compliance and enforcement will be achieved through strong community ownership of plans, based on traditional governance structures, norms and rules.
- 4. RANGELAND REHABILITATION:** recognizing that rehabilitation efforts give a quick return on investment and have strong community support, but are short-term, costly, and may only address symptoms of land degradation and not the root cause; to be successful in the long-term they must be integrated into the overall grazing management plan of a conservancy and be carried out in such a way as to maintain heterogeneity in the landscape.
- 5. SETTLEMENT PLANNING:** settlement planning in each conservancy is urgently needed to prevent further fragmentation of the land and disruption of dry season grazing areas in particular.
- 6. GRASSLAND CARBON PROJECT:** The Grasslands Carbon Project has been under development since 2010 and aims to increase carbon sequestration through incentivising behavioral change towards improved rangeland management; and to develop a sustainable financing mechanism for conservancy operations and rangeland management activities through sales of carbon credits.
- 7. RESEARCH & MONITORING:** review best practice in community rangeland management across East Africa; strengthen and improve community-based and scientific rangeland monitoring and feedback systems to ensure we are adaptively managing rangelands based on evidence of the impact of different strategies. Further research is also needed to better understand the attitudes and barriers to behaviour change for improved rangeland management in different pastoralist groups.

This strategy is a living document that will be reviewed and updated as needed based on our continued experience and lessons learnt.



## 1. BACKGROUND

### 1.1 Pastoralism & Rangelands in the NRT landscape

The majority of NRT Community Conservancies (80%) encompass pastoralist communities who are dependent on livestock rearing for their livelihoods. These pastoralist communities come from different ethnic groups including Samburu, Maasai, Borana, Somali, Turkana, Rendille, Gabbra, Pokot, Lchamus, Orma and Wardei. Traditional rangeland management strategies inherent in all these different cultures are adapted to the arid and semi-arid lands inhabited by these communities. These traditional strategies allowed pastoralists to adapt to the variability in rangelands resources and climate that is inherent in the pastoralist production systems. Livestock themselves have evolved to be highly adapted to these arid environments and represent a low-input model; high numbers of small, low quality livestock are more resilient to climatic variation and droughts, than herds of fewer, higher quality (especially non-indigenous) breeds<sup>1</sup>.

Over the past 30 years, however, the rangelands upon which pastoralists depend have become less productive as human and livestock populations have increased, and climate has become more variable and unpredictable. Concurrently traditional knowledge and systems are being lost as younger generations seek to modernise their way of life and pastoralist communities have become more sedentary in order to access water, education, healthcare, food aid and other development services. Policies and interventions by Governments and development agencies historically undermined these traditional systems with a dominant view that pastoralism was '*inefficient, backward and needed to be modernised*'<sup>1,2</sup>. Nomadic and mobile pastoralism is also viewed by many people through a '*prism of myths and half-truths*'<sup>1</sup> which continue to dominate many donor perceptions and pastoralist development programmes. However, there is growing recognition that mobile pastoralism remains the most efficient and viable livelihood strategy in dryland regions, is culturally irreplaceable, and that development should build on the traditional knowledge and strategies of pastoralist communities and their customary institutions. Science now has a better understanding of vegetation dynamics of drylands, the genetic potential of indigenous breeds and how customary institutions work. However, the lack of alternatives for pastoralists beyond investing in livestock and the poor return on livestock and livestock products leads to continued cycle of poverty and declining state of natural resources.

1. <https://www.iied.org/misconceptions-drylands-pastoralism>

2. IUCN Global Drylands Initiative (2003) Pastoralism and Mobility in the Drylands

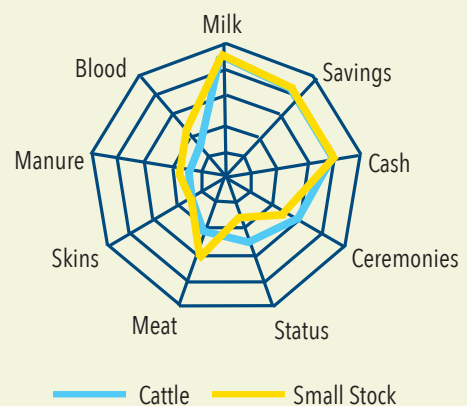
There is evidence of decreasing rainfall and increasing temperatures that have occurred in the NRT landscape over the past 30 years (Annex 1). These climatic changes are having an impact on declining health of the rangelands including loss of grasses. There is also a change in vegetation composition towards woody vegetation and invasive species. Studies have shown that in dryland savannas vegetation growth and biomass production is mainly determined by rainfall that year, rather than grazing pressure the previous year. This is in contrast to the view and practice of standard range management in western ranching systems which focus on determining land carrying capacities for livestock in closed systems; this continues to influence donor and Government perceptions, policies and development interventions. Where rainfall is highly variable from year to year, vegetation production will also vary and where annual grasses dominate, the definition of a precise carrying capacity becomes impossible. However, localised impacts of settlements and intensive and sustained grazing pressure cannot be ignored and are having a detrimental impact on the rangelands. Unplanned and expanding settlements are encroaching on traditional seasonal grazing areas exacerbating land degradation by increasing the grazing pressure on vegetation which is never allowed to rest and recover in these areas.

Over the same period, livestock demographics have also changed, with decreasing cattle numbers and increasing sheep, goats and camels as pastoralists adapt to the changing vegetation of their rangelands and climate variability (Annex 2), as well as potentially other socio-economic drivers. Overall between 1977/78 to 2015 cattle numbers declined by 37 to 42% across Samburu, Marsabit and Isiolo Counties, whereas small stock increased by 54 to 220% and camels increased by 39 to 600%<sup>3</sup>. Small stock and camels are more adapted to low rainfall and increased availability of browse, than cattle, however small stock tend to be more destructive eating plants down to their roots. They also tend to be more sedentary, living permanently or staying for longer periods around homesteads than cattle, which puts more pressure on the vegetation as it is not given a chance to rest and recover.

### Values of Pastoralist Livestock

Livestock is the backbone of the pastoralist's social, cultural and economic life; it is a multidimensional asset that holds different values. These values are ranked for both cattle and small stock (figure below), e.g. milk, cash and savings are considered the most important values of livestock among Maasai communities. Small stock are liquid and used as a 'current account' whereas cattle are kept to face unexpected and high expenditures, i.e. they are used as 'savings' and have a higher ceremonial and status function than small stock. Understanding these values is critical when developing strategies to modify or improve pastoralist production systems. For instance, de-stocking is unlikely to be achieved unless the cash and savings function of livestock is replaced with alternatives. Similarly interventions should not undermine the milk value of livestock which is critical for food security and child nutrition in particular.

Relative values of Maasai pastoralist livestock in Laikipia



Malleret-King, D (2009) Socio-economic survey of Laikipia Maasai communities, unpublished report, Laikipia Wildlife Forum

3. Ogutu, J. (2018) Livestock and Wildlife Trends in Samburu, Isiolo and Marsabit Counties based on DRSRS surveys. Report to NRT.

While livestock health is as a potential challenge in many pastoralist communities, many government and donor interventions in pastoralist development focus on introducing new animal husbandry techniques, modern veterinary medicine and new genetic material into pastoral systems. However, *'most experiments and projects have failed. Replacing local breeds or cross-breeding with high productivity stock, and introducing new management systems which try to eliminate the need for nomadism, have rarely brought benefits to herders'*<sup>1</sup>. As NRT, we need to be conscious of what has failed in the past and avoid repeating the same mistakes.

Human populations continue to increase; the last national population census was done in 2009 and is due to be done again in 2019 which will provide a more accurate picture of the rate of population growth in the NRT region. Coupled with this is an increase in the abundance and availability of firearms; pastoralist communities have become heavily armed in the past 25 years resulting in increased violent inter-community conflict. The proliferation of arms also undermines the principles of reciprocity and negotiation that characterised traditional pastoralist systems, with herders now able to gain access to water and grazing resources by force. Severe land degradation and associated reduction in fodder production is forcing herders to venture further in search of food and water for their livestock. As a result inter-tribal conflict is rife as herders from different tribes converge on the last remaining grazing – competition over these resources continues to be the cause of perennial conflict in the region.

Several studies commissioned by NRT over the past few years have quantified the level of degradation. In 2014, about 70% of the rangelands in NRT-centre conservancies were highly degraded with over 50% of the area heavily eroded. Rates of erosion have increased in recent decades with 37% of the NRT conservancy landscape having over 10% increases in erosion between 2002 and 2012. Similarly, soil carbon stocks, a key indicator of soil health and regeneration potential, were critically low (below 3.5 kg/m<sup>2</sup>) in over 40% of the NRT rangelands<sup>4</sup> (Annex 3). Further studies of soil and vegetation health as part of NRT's Soil Carbon Project showed that 53% of the NRT-centre landscape is either experiencing ongoing erosion or at high risk of erosion. A decline in NDVI (a measure of greenness and land productivity) of over 30% in 40% of the NRT-Centre landscape was recorded between 2002 to 2016<sup>5</sup>. Surface run-off of water following the rains is excessive as a result of the capped, bare land. This is causing further erosion as water channels into gullies and luggas causing flash floods; when it rains the majority of water is lost via surface run-off rather than being absorbed into the soil.

The changes in rangeland health across the NRT Landscape are evident, and pastoralist communities are also changing and evolving their traditional practices. However, the drivers of rangeland degradation are complex and inter-twined; some of these drivers, including climate change and human population growth, are beyond the control or reach of community conservancies. Through the Rangelands Programme, NRT and conservancies aim to address those issues they are able to influence.

---

4. Vågen, T.G. & Winowiecki, L.A. (2014) Northern Rangelands Trust Baseline assessment of rangeland health - Kalama and Namunyak conservancies. World Agroforestry Centre (ICRAF), International Center for Tropical Agriculture (CIAT)

5. Richie, M.E. (2017) Vegetation Classification and Vegetation Monitoring in the Core Northern Rangelands Trust Conservancies. Soils for the Future, Report to NRT.

## 1.2 Evolution of NRT's Rangelands Programme

The NRT rangelands engagement was initiated in 2006 when small-scale efforts were made to clear invasive *Acacia reficiens* and re-seed indigenous perennial grasses in West Gate and Kalama conservancies. In 2008 TNC led a Conservation Action Plan (CAP) process for NRT which identified rangeland degradation as one of the major threats to human livelihoods and wildlife in the NRT landscape. This stimulated the need for NRT to develop a focused rangelands programme which has been running since 2009, with a long-term partnership with Grevy's Zebra Trust (GZT). The programme has drawn on principles of holistic management (HM) and initial training included several visits by NRT and conservancy staff, and community members to the Africa Centre for Holistic Management in Zimbabwe. HM principles were adapted to local conditions and the traditional pastoralist grazing systems to develop the various components of what is now NRT's Rangelands Programme. Prior to establishing a Rangeland Programme, grazing management in conservancies initially focussed on controlling livestock use in core (livestock exclusion zones/privacy areas associated with tourism facilities) and buffer (controlled livestock use/dry season grazing areas) zones. However, by 2009 it was apparent that this needed to change as grazing management was perceived by communities as being only for the benefit of tourism and wildlife, rather than to address the declining health of the rangelands at a meaningful scale and the needs of pastoralist communities and their livestock. Conservancy-wide grazing planning was introduced through the development of wet and dry season grazing plans and rangeland rehabilitation efforts were extended beyond the core and buffer zones. Intensive efforts supported by GZT in West Gate Conservancy established a learning site in the West Gate buffer zone where bunched herding, use of mobile bomas, management of *Acacia reficiens*, grass reseeding and detailed grazing planning was carried out using HM principles. Similar efforts led by Laikipia Wildlife Forum in Il Ngwesi and Naibunga Conservancies were also successful. These conservancies became the models for the expansion of NRT's Rangelands Programme, which has built on the successes and lessons learnt in these conservancies.

Learning visits to other parts of Kenya and East Africa have been an integral part of NRT's Rangelands Programme and lessons learnt from other sites have informed the approach we use. This included a visit to Southern Ethiopia in 2015 to understand the traditional Dheedha system of grazing and water management among Borana pastoralists (see text box overleaf) and the role of Government in supporting these plans. More recently NRT and conservancy representatives have made several visits to Ol Kirimatian Group Ranch in Amboseli, Southern Kenya where the community have effectively zoned and managed their grazing and settlement areas.

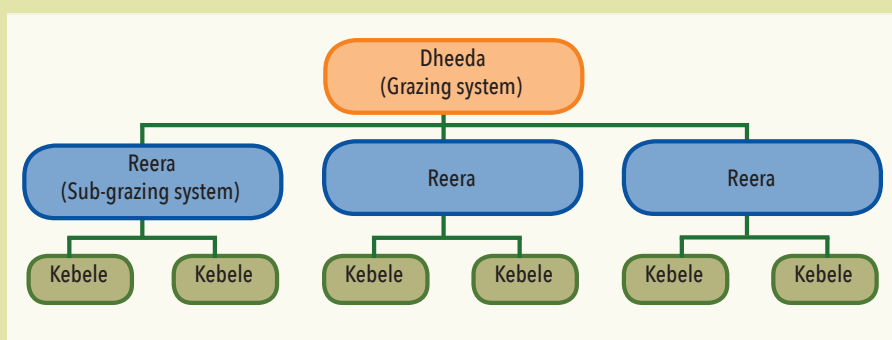


## Dheedha Grazing System of Borana Communities in Southern Ethiopia

**Dheedha** - A Dheedha is one grazing system that brings together representatives from all the Reera. It is the highest decision making body in the grazing system. Its duties include: coordinating efforts between the Reeras, making decision on mass movement of livestock, conflict resolution, soil and water conservation, link with partners and Government.

**Reera** - Made up of representatives from the Kebeles (locations) to form the Reera council. A Reera is a sub-grazing system equivalent to a conservancy. The council implements recommendations from the Dheedha. Locational leaders are members of the Reera, they include the political and the administrative leaders.

**Kebele** - A Kebele is like a location/village or a zone of a conservancy. The council at the location level deals with settlement, development and rangeland management and utilization, conflict resolution among others. The Kebele brings together the villages in the location. Women are also represented in the Kebele council.



### Recommendations for NRT grazing management:

1. Grazing planning should be done on a regional level (County or sub-County) with conservancies becoming a sub-grazing system of the larger grazing system; villages/conservancy zones should form the lowest level of the grazing system
2. County Government should be involved in all levels of grazing management
3. Areas outside of conservancies need to be included in regional grazing plans
4. Regional Grazing Councils to be formed including (but not restricted to) representation of Conservancy Chairpersons, Grazing Chairpersons, Provincial administration and County Government officials
5. Where grazing systems overlap or include different tribes/clans, representatives from all should be involved and management of these areas mutually agreed
6. Each regional grazing system should have a signed agreement between the members and partners including County Government, with National Government (through Sub-County Commissioners) a witness to agreements
7. Water points should be managed as part of the grazing system, with water management committees working closely with the Conservancy and regional grazing council; water points are used to determine both wet and dry season grazing areas
8. Water development must be done in line with rangelands management/grazing plans
9. County governments with support of conservancy management to ensure settlement plans are developed and followed and to use social pressure to move settlements that are not allowed.



### 1.3 Successes, Challenges & Lessons Learnt

Effective rangeland management at scale remains one of the toughest challenges for NRT and member conservancies. Over the 10 years of NRT's Rangelands Programme, valuable lessons have been learnt and the program has evolved and adapted in response to challenges, successes and failures. While proof-of-concept has been established, successes remain localised and in many cases have not been sustained. Conservancies have not been able to withstand the pressures of landscape-level livestock movements, often led by armed herders, especially in times of drought; change of conservancy leadership has impacted support and emphasis on rangeland issues in some conservancies; conservancies have not been able to achieve sustained support for grazing plans and rotational grazing in high human population density areas and management of small stock has not been given a priority; the level of external oversight by partner organisations or funding has reduced; and support from County Governments towards rangeland management and settlement planning has not been achieved. Strong leadership and good governance of rangeland management overall by conservancies has been difficult to achieve.

Other key challenges include:

- The drivers of rangeland degradation are often not well understood by pastoralists and there is little incentive to change grazing management practices whilst guns are prevalent and access to grazing resources can be taken 'by force'.
- High levels of poverty means most community members live in a state of day-to-day survival which is a barrier to long-term planning.
- The strength of conservancies to develop and enforce settlement and grazing plans is limited in the absence of County or National legislation to support this (or conservancy and County planning is not well aligned).
- The loss of traditional knowledge and authority undermines the governance and communal management of rangelands.
- Encroachment from communities outside of conservancies unaware of the conservancy plans disrupts and undermines conservancy grazing plans.
- External factors beyond the control of Conservancies including population growth, illegal guns and climate change (declining and unpredictable rainfall, increasing temperatures), directly impact rangeland health and the ability of Conservancies and communities to manage their rangelands effectively.
- Creating a link between the NRT-Trading LivestockWORKS business and conservancy rangeland management has not been achieved despite intentions for this early on in the design of the LivestockWORKS business. This could also include an element of livestock disease management as well as fattening and marketing of livestock, and marketing of small stock.

**Table 1: Outcome of the review of NRT Rangelands Programme 2016/2017**

What's Working	What's Not Working	Way Forward
<p><b>Conservancy Governance &amp; Leadership of Rangeland Management</b></p> <ul style="list-style-type: none"> <li>Engaging morans and women to be effective in grazing issues (success depends on local leadership)</li> <li>Leadership of grazing management by Boards/ Grazing committees is improving</li> <li>Conservancy rangeland coordinators are working well in some Conservancies, shows that the model of having a dedicated rangeland personnel has the potential to work</li> </ul>	<ul style="list-style-type: none"> <li>Split conservancy governance structure (Board &amp; Grazing Committee)</li> <li>Lack of support from conservancy management</li> <li>Grazing politics/political interference</li> <li>Minimal support from national and county government due to lack of understanding</li> <li>Conservancy rangeland coordinators are underutilised or in some cases the wrong people (e.g. educated youth instead of elders)</li> <li>Conservancy rangeland coordinators are poorly mentored by their managers</li> <li>Insufficient investment and training on grazing management at the village level</li> </ul>	<ul style="list-style-type: none"> <li>Parallel committees of board and grazing committee to be phased out</li> <li>Manager responsible for all aspects of conservancy management, including rangelands</li> <li>Conservancy rangelands programme and grazing planning to be led by Conservancy, not NRT</li> <li>Rangelands budgets to be devolved to conservancies</li> <li>Deeper engagement at a village level and with youth/herders to build capacity and understanding of rangeland issues</li> <li>Engage politicians and MCAs to manage grass politics and develop grazing policies</li> <li>Ensure grazing management by-laws draw on new legislation of Community Land Act</li> <li>MoUs between conservancies and NRT/other partners on rangelands</li> <li>Conservancy should invest in rangelands (e.g. income from NRTT, Carbon revenue, encroachment fines, etc.)</li> </ul>
<p><b>Conservancy Zones</b></p> <ul style="list-style-type: none"> <li>Core areas and buffer zones</li> <li>Core and buffer zones provide dry season refuge for wildlife and livestock, despite encroachment</li> <li>Core areas important refuge for predators</li> </ul>	<ul style="list-style-type: none"> <li>Livestock displace and compete with wildlife for forage and water in buffer zone during the dry season</li> <li>Core and buffer zones are "green magnets" - encroached by surrounding communities during the dry season, undermining success of good grazing planning</li> <li>Livestock encroach into core areas, tourism privacy areas during the dry season</li> <li>Grazing by-laws for core and buffer zones are weak and not enforced by conservancies</li> </ul>	<ul style="list-style-type: none"> <li>Use buffer zone model to connect to LTM and link to livestock health</li> <li>Consider reversing the seasonal use of grass banks/buffer zones by livestock (i.e. livestock to graze in the wet season and save for wildlife during dry season so they become a refuge)</li> <li>More grass banks to provide refuges for wildlife and livestock, diffusing the "green magnet" effect</li> <li>Consider a hard-edged boundary for wildlife areas e.g. the Il Ngwesi model</li> </ul>
<p><b>Grazing Plans</b></p> <ul style="list-style-type: none"> <li>Designating small blocks and opening them sequentially (works where there has been strong community ownership)</li> <li>Restricting access to water points to protect grazing</li> <li>Regional planning is a work in progress</li> <li>Grazing management is having a positive impact on some wildlife species</li> </ul>	<ul style="list-style-type: none"> <li>Grazing plans not effective (especially for small stock) at conservancy and regional levels</li> <li>Inter-conservancy livestock movement not anticipated or coordinated</li> <li>Movement of livestock from non-conservancy areas disrupting plans and causing conflict</li> <li>Grazing by-laws not adopted or enforced</li> <li>Failure to include small stock in grazing plans</li> <li>Fear of collapse of traditional grazing reciprocity between different ethnic groups</li> </ul>	<ul style="list-style-type: none"> <li>Standardized grazing by-laws to remain in place</li> <li>Village/Zone-level grazing plans</li> <li>Conservancy-level grazing plans based on strong zonal plans</li> <li>Regional/Sub-County/County grazing plans based on strong conservancy plans</li> <li>Wet season planning to maximize grass production</li> <li>Dry season planning that considers wildlife needs</li> <li>Timely planning (mobilization ahead of wet and dry seasons)</li> <li>Conservancies keep in touch with their herders, build trust with morans so that livestock movement is easily understood, anticipated and planned for in advance</li> <li>Incentivize small stock grazing plans through access to livestock markets - link to NRTT</li> <li>Adoption and implementation of localized by-laws</li> <li>Inter-conservancy/community dialogue</li> <li>Develop annual grazing calendar</li> <li>Consider wildlife in grazing planning</li> </ul>

<b>Rangeland Rehabilitation</b>	<ul style="list-style-type: none"> <li>Manual clearing of <i>Acacia reficiens</i> and grass re-seeding has worked (see box insert: Rangeland Rehabilitation Best Practice)</li> <li>Bio-control of <i>Opuntia</i> is showing early success</li> <li>Strong support from Conservancies and communities for clearing, provides good casual employment and involves women</li> </ul>	<ul style="list-style-type: none"> <li>Expensive, difficult to achieve at scale</li> <li>Clearing and re-seeding does not address the root-cause of degradation, not a long-term solution</li> <li>Alternative tools for rangeland rehabilitation are not being used in most conservancies, e.g. bunched herding, use of mobile bomas, gully healing</li> <li>Lack of innovation in trying different methods</li> </ul>	<ul style="list-style-type: none"> <li>Expand the rangeland rehabilitation sites and grass banks beyond core/buffer zones</li> <li>Post-rehabilitation management, enforce by-laws for management of these areas</li> <li>Investigate other methods for erosion control</li> <li>Develop ideas/models for sustainably continuing rangeland rehabilitation efforts without high costs involved</li> <li>Engage with County leadership for funding</li> <li>Develop long-term plans for management of alien invasive species including <i>Opuntia</i> and <i>Prosopis</i></li> </ul>
<b>Settlement Planning</b>	<ul style="list-style-type: none"> <li>Settlement planning identified as a priority in most 'Conservancy Management and Community Development Plans'</li> </ul>	<ul style="list-style-type: none"> <li>Conservancies and NRT not taking the lead or have limited ability to influence settlement planning in most cases</li> <li>Settlement distribution - lack of settlement planning</li> <li>Infrastructure development not considering impacts on rangelands (boreholes, roads, schools, etc.) – esp. by County and other development agencies</li> </ul>	<ul style="list-style-type: none"> <li>MCA, Ward Admin and Village Admin to be ex-officio on conservancy board to help with settlement planning</li> <li>Engagement with senior county leadership on spatial planning</li> <li>NRT and Conservancies to engage more strongly with Counties in settlement planning</li> </ul>
<b>Monitoring</b>	<ul style="list-style-type: none"> <li>Increased capacity of NRT and Conservancy RCs in use of monitoring tools: Veg-CoMMS designed as community-based monitoring tool</li> <li>Multi-year data sets on vegetation in core and buffer zones</li> <li>Baseline data on livestock and soils</li> <li>Engagement from multiple partners on Remote Sensing monitoring of rangelands (ICRAF, USFS, DOI, RCMRD)</li> </ul>	<ul style="list-style-type: none"> <li>Weak monitoring – livestock movement, Veg-CoMMS feedback, tracking grazing plans, rangeland rehabilitation sites</li> <li>Perceived as an NRT programme with minimal oversight by conservancy</li> <li>Monitoring data not informing decision making in conservancies or at NRT</li> <li>External partner support to monitoring not well aligned, potential duplication</li> </ul>	<ul style="list-style-type: none"> <li>More direct mentoring of Rangeland Coordinators in monitoring by NRT rangelands team</li> <li>Improve reporting within NRT and to donors/partners</li> <li>Increase information turnover (data collection, databases, analyses, feedback, RS)</li> <li>Ensure coordinated efforts to develop RS tools between different partners</li> <li>Rangeland monitoring plan to be developed</li> </ul>

Several independent research studies have shown that planned grazing at a conservancy level can result in enhanced vegetation cover, improved wildlife numbers and cattle condition<sup>6,7</sup>. These studies showed positive outcomes from large-scale communal implementation of planned grazing. While these successes are localised and focused on conservancy core areas or buffer zones; it shows the potential that planned grazing has to improve rangeland health and resultant improvement in livestock condition, and wildlife numbers if it can be achieved at a landscape scale.

An analysis of livestock grazing in NRT conservancies between 2002 to 2015<sup>8</sup> showed that the area of overgrazing between 2002 to 2008 had increased to over 40% of the landscape, most of the over grazed land was in areas of high human population density, near major roads, settlements and the Ewaso Nyiro river. In these areas, satellite remote sensing (NDVI) and livestock monitoring showed that overgrazing coupled with high livestock numbers led to persistent loss of forage production capacity. However the study also showed that grazing management by West Gate and Kalama Conservancies had a positive impact between 2011 to 2015, reducing the area of overgrazing to less than 20% (compared to 40% pre 2009), and to less than 10% in core and buffer areas in these 4 years. Overgrazing was lowest on Conservancies which had implemented some level of planned grazing since 2012.

The study clearly showed the positive impacts on rangeland productivity through improved grazing management, however, the study also showed that the rangelands had not recovered to productivity levels pre 2005 suggesting that interventions to improve grazing management are not keeping pace with increases in human population and increasing small stock numbers. Further monitoring of impact of grazing management over the past 4 years across the NRT landscape is needed.

Rangeland rehabilitation through management of invasive *Acacia reficiens* and grass re-seeding has also been successful. Research by both NRT and external researchers has shown that clearing invasive tree species and grass re-seeding results in increased perennial grass and forb cover, increased litter and reduced bare ground<sup>9</sup>. However, the scale of these rehabilitation efforts are limited due to the costs involved, and post-treatment management of rehabilitation sites is essential if the improvements are to be sustained. (See text box for *Rangeland Rehabilitation Best Practice*).

Successful planned grazing at conservancy and regional levels requires the buy-in and support from communities at a massive scale. Achieving coordinated planning and movement of livestock across this landscape requires behaviour change in individuals, reverting to and re-establishing traditional practices which have been lost, or building in new ideas for grazing management. For this to happen, conservancies need to have strong governance and leadership, and consistent and sustained engagement on grazing management with their communities at the village level and with herders.

Inherent in the Rangelands Programme is the recognition that there is no 'one-size-fits-all' approach to Conservancies' rangeland management and NRT needs to promote a suite of tools which communities adapt to their individual circumstances. It is essential for NRT to allow for and encourage continued innovation by Conservancy communities while promoting best-practice in rangeland management where we have successes to draw on.

---

6. Shibia, Mohamed, (2011). Effects of grazing management on forage production and rangeland condition in Il Ngwesi group ranch of Laikipia. MSc, Egerton University.

7. Odadi, W. & Rubenstein, D. (2017) vegetation, wildlife and livestock responses to planned grazing management in an african pastoral landscape: planned grazing enhances pastoral rangeland productivity. Land Degradation & Development.

8. Richie, M. (2016) Analysis of the history of livestock grazing in the Northern Rangelands Trust Conservancies, 2002-2015. Unpublished report to NRT. Soils for the Future.

9. Kimiti, D.W., Ganguli, A.C., Herrick, J.E & Bailey, D.W (in press) Evaluation of Restoration Success to Inform Future Restoration Efforts in *Acacia reficiens*.

## Best-Practice Rangeland Rehabilitation Methods

### Management of *Acacia reficiens*

Clearing should be undertaken in such a way as to maintain the heterogeneity of the landscape, with cleared areas interspersed with bushy areas and not clear-felling of all trees over large areas of land. To maximize the impact of the clearing and to prevent coppicing, clearing needs to be well supervised. Key principles are:

- a) Trees should be cut during the dry season with at least one month remaining before the rains;
- b) The trees should be cut at a medium height (not too high or too close to the base);
- c) Spreading the branches around in the bare patches helps to reduce erosion and promote grass regeneration;
- d) No burning of large trees – these should be left to provide shade.

### Temporary bomas

Bomas are important tools for rehabilitating bare areas and should be used to focus nutrient inputs and animal impacts in highly degraded areas and the tops of gullies. Bomas also work under *A. reficiens* as well. Using a boma for seven nights is the most common method and seems to bring rapid regeneration.

### Grass planting

Re-seeding is most effective when combined with bomas. The next most effective method is hand planting with a panga, and then with a jembe. Broadcasting the seeds by hand is less effective, and ploughing with the tractor is the least effective (and has the highest risk of increasing erosion as all the cover plants are removed). Effective grazing management to increase recovery times on the post re-seeding plots is essential. *Cenchrus ciliaris*, the grass species commonly used for re-seeding, is found in hilly areas and seems to persist in “run-on” areas, but seems to be disappearing in “run-off” areas. This may be a result of ineffective post clearing management, but it might also indicate that *Cenchrus* may best be used as a “pioneer” species that colonizes with good rain immediately after clearing to stabilize the soil and promote the regeneration of other local perennials. More research is needed here, but *Cenchrus* will be used for reseeded in the meantime.

### Post-rehabilitation site management

Rehabilitation sites (bomas, cleared areas, reseeded sites, gully healing) need to be managed as part of a larger landscape/conservancy level grazing management plan. This will ensure that the sites have sufficient recovery time, as well as provide the framework for scaling-up pilot sites.

## 1.4 Rangelands Department Structure

In 2019, 20 conservancies have active rangelands programmes supported by NRT. Each of these conservancies has a Grazing Committee or sub-committee of the Board, and a full-time Rangeland Coordinator.

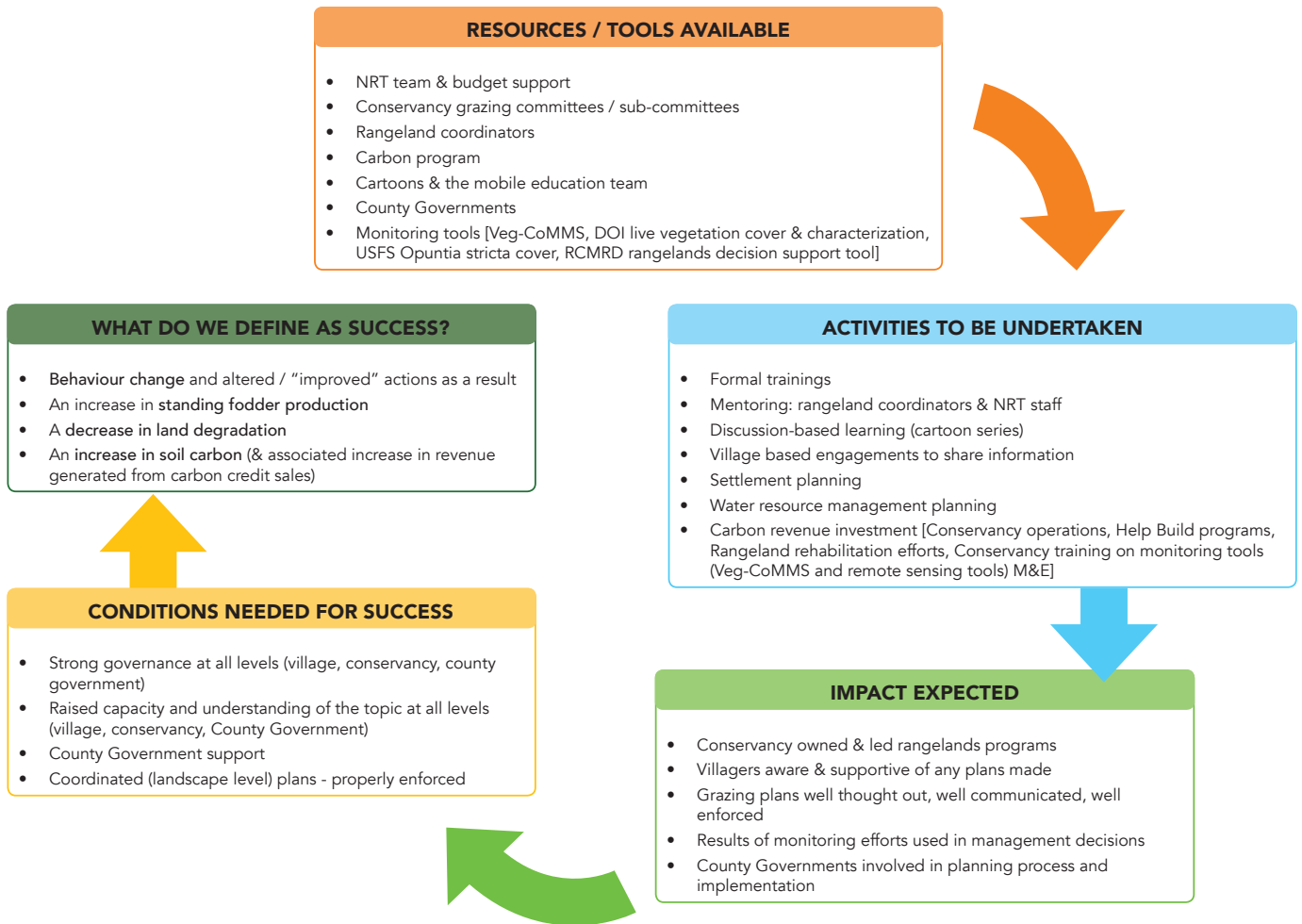
The Rangeland Coordinator, under supervision of the Conservancy Manager, provides support to the Grazing Committee, provides oversight of the Conservancy rangeland programme including reporting and monitoring, and is facilitated with a motorbike and other field equipment. The Grazing Committee is democratically elected by conservancy members every 3 years during the AGM. The Committee is facilitated to ensure grazing plans are in place and enforced; members sit quarterly to discuss issues related to grazing (settlement planning, by-laws, fodder availability, water sources, and encroachment) and other conservancy issues of concern.

NRT's rangelands department is staffed by six people, including the Director of Natural Resource Management, Senior Rangelands Officer and four Rangelands Officers who provide support and mentorship of Conservancy Rangeland Coordinators.



## 2. RANGELANDS STRATEGY

### 2.1 Theory of Change



## 2.2 What Does Success Look Like?

Successful rangeland management would result in covered soil (litter and plants), an increase in perennial grasses, reduced water run-off during the rains, reduced soil erosion, the presence of diverse and abundant wildlife species, and healthy livestock herds.

A Conservancy practicing successful rangeland management would have the following elements:

- Strong management, dedicated to successful outcomes for healthy rangelands
- Unified governance – one board responsible for conservancy stewardship, with rangelands as a primary focus
- Cohesive community as a result of strong leadership
- Strong community ownership of grazing management as a result of engaged and eco-literate herders, women, elders and children
- Collective effort to address root causes of rangeland degradation
- Settlement patterns that are well-organised around grazing
- Sound, consistent technical support from a long-term, dedicated partner (at least 5 years)

### **Vision – 20 Years**

To stabilise and improve the productivity of rangelands that underpin the pastoralist economy, reduce competition and conflict for water and grazing resources, and improve forage for livestock and wildlife

### **Mission**

Successful conservancy-level rangeland management with effective planning of regional livestock movements

## 2.3 Strategic Objectives & Activities

The objectives outlined below are aligned with NRT's overall strategic plan 2018-2022. Our goal is to achieve wide-scale behaviour change towards improved rangeland management in order to stabilize, recover and sustain the grasslands. This requires deeper and wider understanding and awareness, landscape-level grazing plans and governance systems that build on traditional knowledge, and strong Government regulation.

An external review of community-based rangeland management in East Africa, including NRT, planned for the second half of 2019 will further guide refinement of objectives and activities within this Rangelands Strategy.



## OBJECTIVE 1: AWARENESS & CAPACITY

Create awareness in all stakeholders to understand and seek solutions to degradation of natural resources, using innovative approaches to generate collective action and respect for land ownership, settlement plans, livestock and grazing plans, by-laws, traditional knowledge and ecosystem functions. This will be achieved through:

- Development and review of training materials and use of different media, including a series of 10 educational film cartoons around the pillars of rangeland health and causes of rangeland degradation (these may be translated into local languages)
- Support an NRT mobile education team, equipped with a vehicle, mobile film tools, to deliver interactive discussions and training at a village level alongside the Conservancy grazing teams
- Regular Conservancy-led awareness meetings to reinforce understanding of the causes of rangeland degradation, climate change and the need for grazing planning and management, targeting:
  - o Zonal and Village level, including elders, women, youth and herders
  - o Schools
  - o County Government officials and other local leaders
  - o Other NGOs/CBOs operating in conservancies
- Support learning visits by Conservancy community members to sites practicing successful rangeland management and innovative rangeland rehabilitation efforts on community land within and outside NRT.
- Invest in leadership training at all levels: village, Conservancy and County, to champion successful rangeland management and settlement planning.

## OBJECTIVE 2: CONSERVANCY RANGELANDS GOVERNANCE

Investment into local decision making structures, by-laws and enforcement incentives, agreed by every stakeholder group, built on traditional knowledge and with strong policy, legal and political support from County Governments. Activities include:

- Review and streamline Governance structures for rangelands in each conservancy. Recognizing that Conservancies are ethnically, socially, ecologically and politically unique, a flexible governance model is necessary, and may include:
  - o All board members responsible for grazing management
  - o A sub-committee of the board responsible for grazing management
  - o An existing traditional institution, responsible for grazing management
- Training of Conservancy Boards, Sub-committees and Management staff in rangeland management
- Strengthening community ownership of rangeland management through piloting the establishment of gender and age-balanced village-based committees with their board representative as Chair.
- Strengthen Conservancy ownership of rangeland management through supporting Conservancy Managers & Rangeland Coordinators to develop quarterly/bi-annual/annual rangelands work plans and budget requests, enabling rangelands funding to be devolved to Conservancies.

- Ensure Managers provide oversight of implementation of rangeland activities (in some conservancies it may not be necessary to have a RC as all rangeland activities may be managed directly by the Conservancy Manager).
- Enforcement by Conservancies of standardized grazing by-laws, agreed by all stakeholders
- Development of local grazing by-laws at village/zonal levels, agreed by all stakeholders
- Engage with County Governments on rangeland policies, aiming to secure legal and political support for Conservancy grazing management and enforcement of by-laws. County governments are key to developing robust Regional grazing plans as well as addressing settlement and water planning.
- Review of the Community Land Act to ensure alignment of Conservancy grazing by-laws

### **OBJECTIVE 3: GRAZING PLANNING & MANAGEMENT**

Grazing plans will be built up from each settlement, aggregated at conservancy level, and shared across the region with a view to developing regional/sub-County or County grazing plans. The most important time for planning and managing grazing is during the wet season as this is when the most forage can be produced. By concentrating animals in blocks at a zone level within a conservancy, recovery time for plants can be maximized. NRT will support Conservancy and Regional grazing planning and management including:

- Conservancy-level grazing plans - a plan for all livestock throughout the conservancy:
  - o Bi-annual planning - November - March; April - October. November and April are planning months. Grazing plans will be reviewed in June and January at the start of the dry season, and adjusted as necessary.
  - o Planning will be done at a zonal/settlement level, with an emphasis on small blocks being opened sequentially to control livestock movement.
- Development of grass banks - areas set aside for rangeland recovery using various rehabilitation methods (e.g. management of woody vegetation, invasive species, mobile bomas, bunched herding and grass reseeding), and where grazing planning and use of these areas takes into account time for rest and recovery, forage availability and livestock numbers. Grass banks may also be used as grass seed production areas and to harvest and bale hay. The role of these sites is not only to show best practice methods in healing rangelands through improved land management, but potentially to finish cattle for the NRT Trading and other livestock markets, or as areas to graze milking animals in the dry season.
- Regional grazing plans – work with County Governments to develop regional/sub-County or County grazing plans which integrate Conservancy plans, and are communicated and shared through Regional Grazing meetings including representatives from Conservancies, County Government and local administration.
- Planning for regional livestock movements – Conservancy Managers and Boards, together with County representatives, will directly engage with and monitor livestock movements and the behavior of herders when they move to another location out of a conservancy. Mechanisms used to build a positive relationship between herders and communities in the host location will include:
  - o Advance dialogue with the host community before livestock and herders arrive
  - o Appoint leadership among the morans/herders who are moving with the livestock
  - o Cluster meetings where the host community sets the rules for incoming livestock and herders
  - o Engage County government leadership in dialogue with herders

- Addressing small-stock overgrazing:
  - o Grazing plans incorporate all livestock types across all seasons, and may include no-go zones for small-stock specifically
  - o Develop village/zonal level small stock grazing plans
  - o Conservancies facilitate disease control so that small stock herds can graze together

#### **OBJECTIVE 4: RANGELAND REHABILITATION**

Recognizing that intensive, small-scale rehabilitation efforts give a quick return on investment and have strong community support, but are short-term, costly, and only address symptoms of land degradation and not the root cause; to be successful in the long-term they must be integrated into the overall grazing management plan of a Conservancy. Support to rehabilitation will include:

- Management of *Acacia reficiens* in areas where dense stands are reducing productivity of the grasslands (see text box on Best Practice Rangeland Rehabilitation efforts); management will be done in a way that maintains the heterogeneity of the landscape, rather than clearing large swathes of bushland.
- Control of alien invasive plant species:
  - o Bio-control of *Opuntia spp.* using mass-rearing greenhouses for the cochineal insect and regular spreading of the insect by hand
  - o Explore other mechanisms for control and management of *Opuntia* where appropriate
  - o Investigate the options for control and management of *Prosopis juliflora* and pilot in Conservancies
- Promote use of innovative rehabilitation methods to reduce bare ground and control erosion, including mobile bomas and/or bunched herding, combined with grass re-seeding, gully healing etc. based on lessons learnt and best practice within NRT and elsewhere
- Support learning visits by Conservancy communities to areas where invasive species control/management and rehabilitation is being done successfully.

#### **OBJECTIVE 5: SETTLEMENT PLANNING**

Settlement planning in each conservancy is urgently needed to prevent further fragmentation of the land and disruption of dry season grazing areas in particular. NRT and Conservancies, however, have not been actively engaged in settlement planning. NRT will support:

- Community meetings to develop settlement and land-use plans (including defining extent of settlement, grazing, farming and conservation areas) that are agreed by all stakeholders.
- County Government endorsement of Conservancy settlement, water, grazing and land-use plans to ensure alignment and integration into County Spatial Plans and County Integrated Development Plans.
- Ensure plans for new infrastructure are aligned with conservancy settlement, land-use and grazing plans (water supplies, schools and health facilities).
- Implementation and enforcement of plans – County Government-led with support from Conservancies

## OBJECTIVE 6: GRASSLAND CARBON PROJECT

The Grasslands Carbon Project has been under development since 2010 in collaboration with support from TNC, Soils for the Future, and Native Energy. The project has been designed as a means to increase carbon sequestration through improved rangeland management and to develop a sustainable financing mechanism for conservancy operations and rangeland management activities through sales of carbon credits. The Carbon Project is aligned to the NRT and Conservancy Rangelands activities in 14 Conservancies within the NRT-Centre region (Laikipia, Isiolo, Samburu). NRT will continue to provide support and oversight to the project including:

- Development of a revenue-sharing agreement with the 14 conservancies, including clear penalties and incentives
- Support development and implementation of grazing plans in 14 conservancies
- Effective monthly reporting by Conservancies on livestock movements and grazing plans
- Effective communication with Conservancies on the expectations and impacts of the Soil Carbon Project
- Support Carbon project partners in social and ecological monitoring, and project verification and reporting
- Coordination with Native Energy and Conservancies to identify and implement 'Help Build' education projects for support from premium carbon credit sales
- Manage carbon credit payments to conservancies and ensure effective accountability of funds by conservancies

## OBJECTIVE 7: RESEARCH & MONITORING

Further research is needed to better understand the barriers to behaviour change for improved natural resource management in different pastoralist groups. Community-based and scientific rangeland monitoring and feedback systems also need to be strengthened and improved to ensure we are adaptively managing rangelands based on evidence of the impact of different strategies. Social surveys to assess community attitudes and behaviour change towards rangelands management need to be included as part of the monitoring plan. Specific activities include:

- Development of a Rangelands Monitoring Plan, outlining the specific tools to used/developed, indicators measured, map of monitoring sites, and time-frame for data collection
- Current monitoring tools in use and which will be supported by NRT include:
  - o Veg-CoMMS – community-based monitoring of rangeland health under different management regimes
  - o Monthly maps of livestock movements completed by RCs and Grazing Committees, based on local knowledge
  - o Grazing calendars showing planned and actual livestock movement between grazing blocks
  - o Social-CoMMS – adaptation of existing questionnaire to include more information on knowledge, attitudes and behavior change towards grazing management; additional resources to implement surveys more frequently
  - o Conservancy Governance Index – assessment of governance and management effectiveness of each conservancy in rangeland management

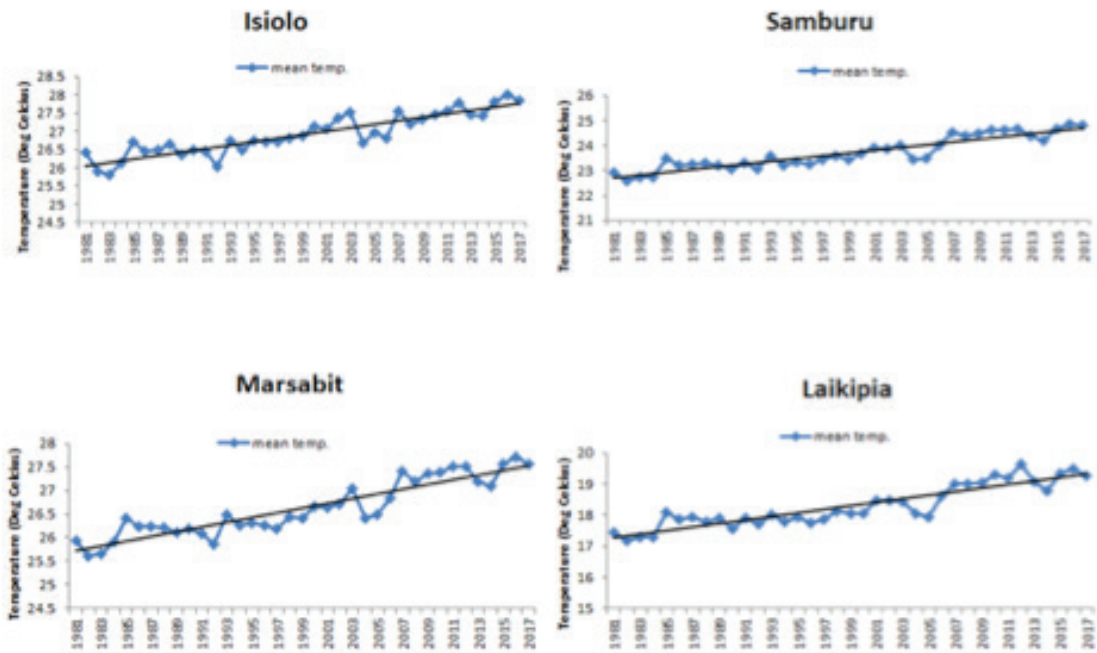
- o Mapping of rangeland rehabilitation areas – extent of areas cleared
- Ongoing collaborations with research partners include:
  - o US Forest Service (USFS) – development of community-based monitoring of impact of bio-control on Opuntia; Remote sensing mapping of extent and density of Opuntia to determine long-term change and impact of interventions
  - o US Department of Interior (DOI) – developing a model to map live vegetation cover and different vegetation types using high resolution remote sensing imagery; enabling NRT to determine historic and future changes in vegetation composition and condition
  - o Regional Centre for Mapping of Resources for Development (RCMRD) – remote sensing mapping tool designed to measure and track vegetation greenness in conservancy grazing blocks and rainfall patterns; Invasive species mapping tool
- NRT to explore potential for further research including: barriers to behaviour change towards improved rangeland management, effective governance systems, and changing traditional governance of rangelands.



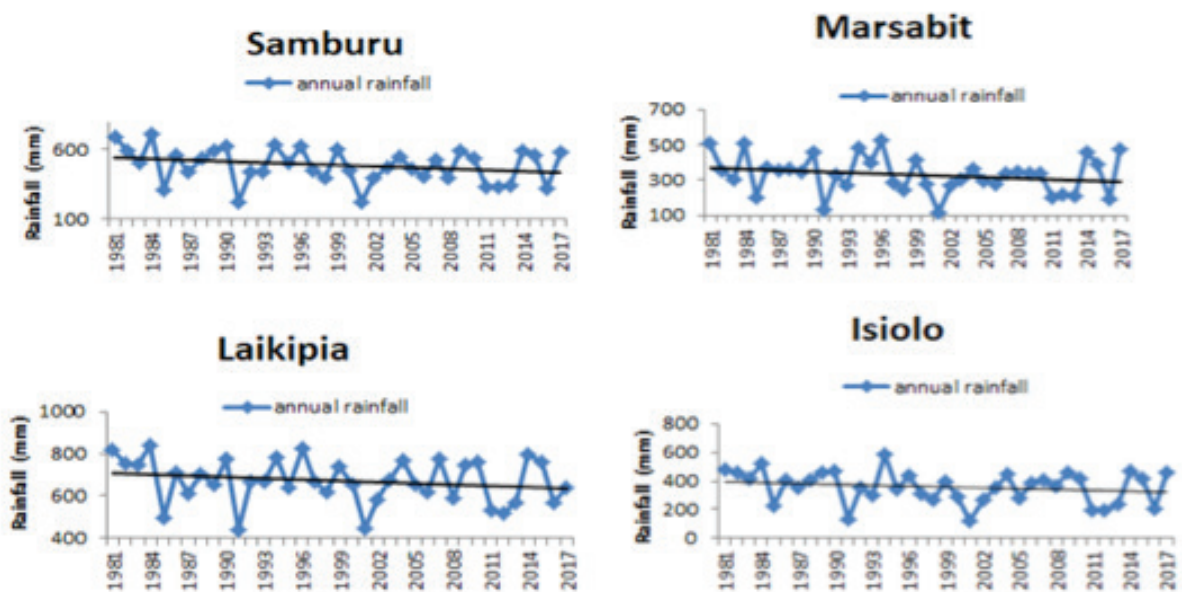
# ANNEX

## Annex 1

### Mean annual temperature records



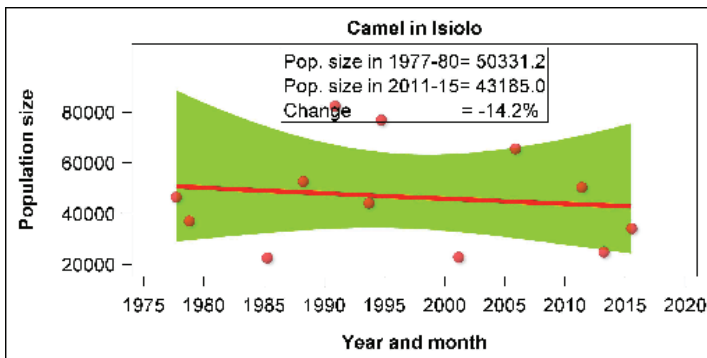
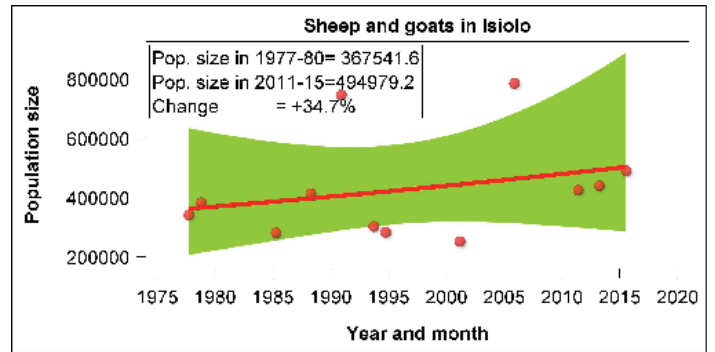
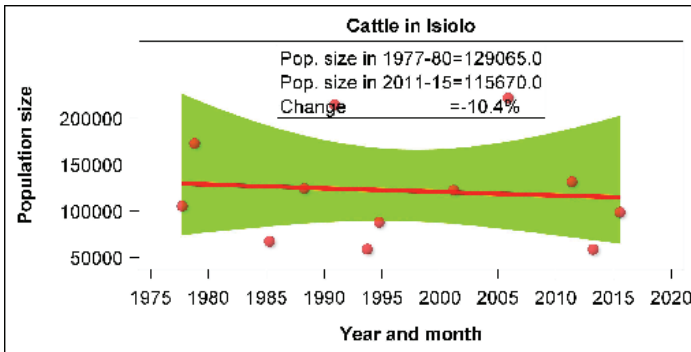
### Mean annual rainfall records



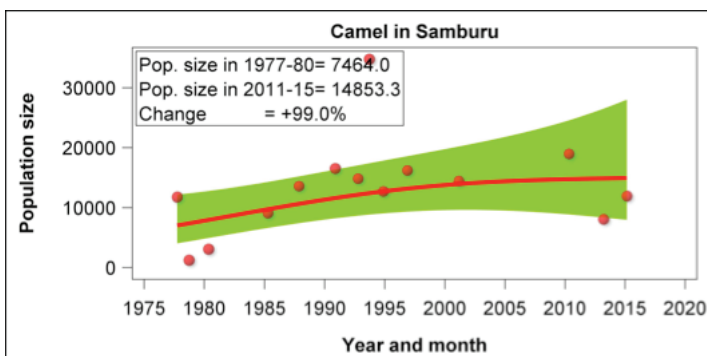
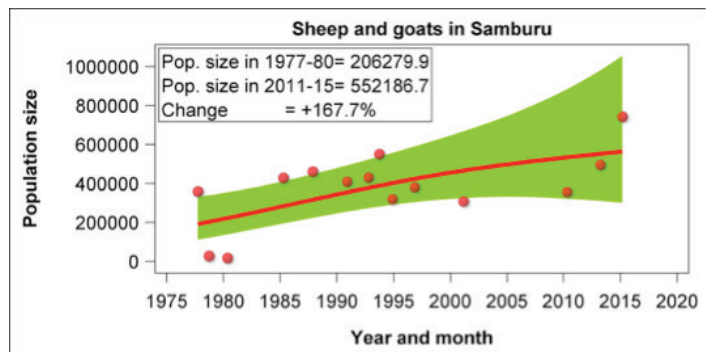
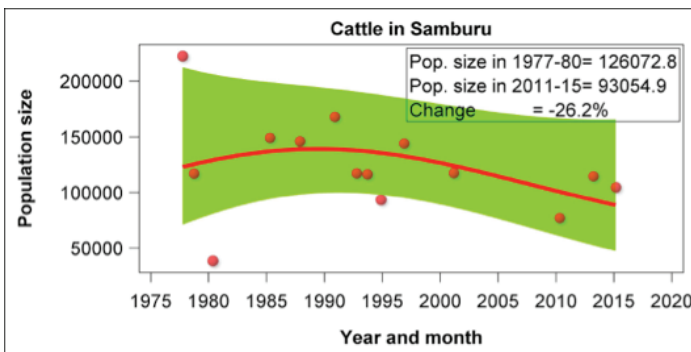
Source: Vulnerability Impact and Adaptation Assessment in Northern Kenya Rangelands (2018), CARE International, USAID Kenya, NRT

## Annex 2

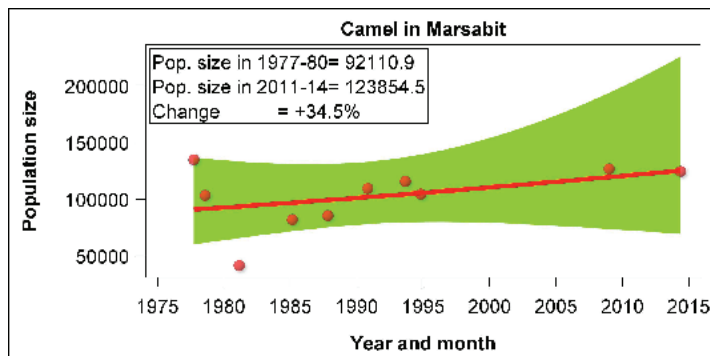
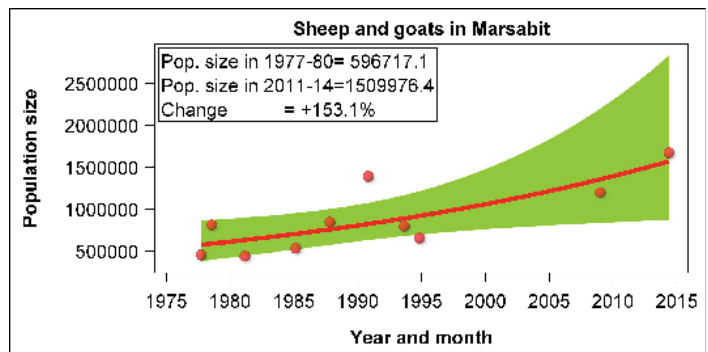
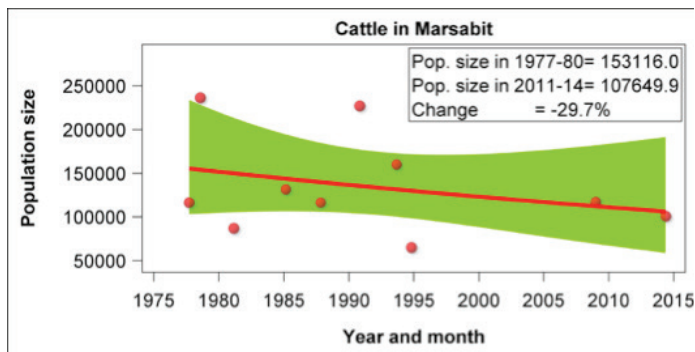
### Livestock demographic changes in Isiolo County using DRSRS aerial count data



### Livestock demographic changes in Samburu County using DRSRS aerial count data

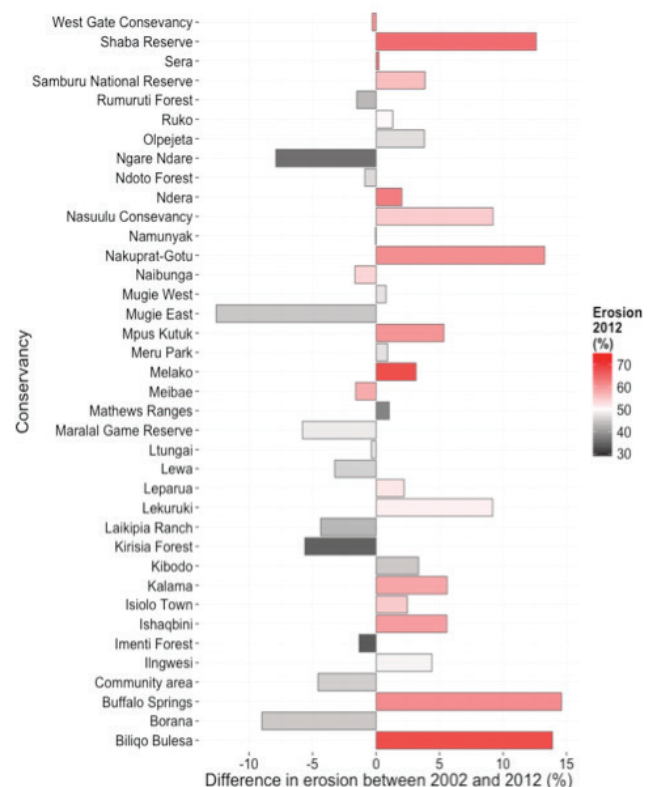
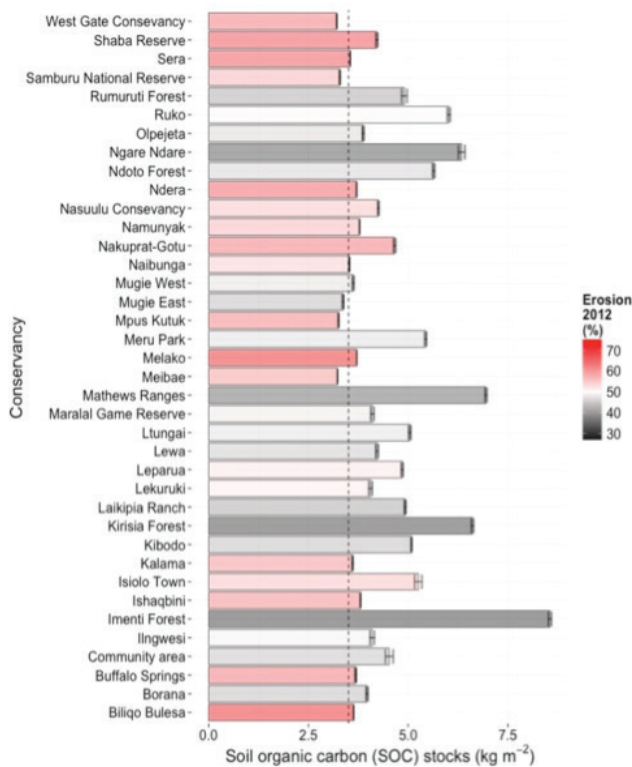


## Livestock demographic changes in Marsabit County using DRSRS aerial count data



Source: Ogotu, J. (2018) Livestock and Wildlife Trends in Samburu, Isiolo and Marsabit Counties based on DRSRS surveys. Internal report to NRT.

**Annex 3:** Estimates of erosion prevalence based on 2013 Land Degradation surveys in NRT conservancies show that erosion increased in a majority of the conservancies during the period 2002 to 2012. High erosion prevalence was found in 69% of the NRT conservancy area in 2012. Assessments of soil organic carbon (SOC) stocks to 30cm depth in the conservancies show ranges between 1.9 and 13.5 kg m<sup>-2</sup>, with almost 40% of the conservancy area having critically low SOC values below 3.5 kg m<sup>-2</sup>.



Source: Vågen, T.G. & Winowiecki, L.A. (2014) Northern Rangelands Trust Baseline assessment of rangeland health - Kalama and Namunyak conservancies. World Agroforestry Centre (ICRAF), International Center for Tropical Agriculture (CIAT)





Keiran Avery



ROYAL DANISH EMBASSY  
Danida