

# A comparative analysis of three community-based rangeland management cases

Taking successes in land restoration to scale project



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ILRI PROJECT REPORT



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## Abbreviations and acronyms

ACC	African Conservation Centre
AGM	Annual general meeting
CBNRM	Community-based natural resource management
ICRAF	World Agroforestry Centre
IFAD	International Fund for Agricultural Development
ILRI	International Livestock Research Institute
LWF	Laikipia Wildlife Forum
NGO	Nongovernmental organization
NRT	Northern Rangelands Trust
PRIME	Pastoralist Areas Resilience Improvement through Market Expansion
RESET	Resilience Building and Creation of Economic Opportunities in Ethiopia
SORALO	South Rift Association of Land Owners

# I Background

The case studies considered in this report were compiled as part of the project “Restoration of degraded land for food security and poverty reduction in East Africa and the Sahel: Taking successes in land restoration to scale”. The work of the International Livestock Research Institute (ILRI) in the project focuses on rangeland management as an intervention option for management of land that avoids degradation, restores land where it has already been degraded, and improves productivity. ILRI’s research effort in these cases was focused on understanding what we refer to as “community-based rangeland management” as an option or approach.

Community-based rangeland management is considered a subset of the community-based natural resource management (CBNRM) approach, adapted and applied to rangeland settings. It is undertaken in varying ways and with various labels. However, despite differences in labels, there is a core set of characteristics that are common including participatory approaches, the creation of a new or strengthening of an already existing community organization at a medium to large rangeland scale (larger than “village level”), and a fairly common suite of technical practices that a community committee implements and enforces. On the other hand, there can be important differences in the details of how the approach is implemented and in the social and biophysical context in which it is implemented. This report summarises findings from a case in north-central Kenya (Il’Ngwesi group ranch conservancy), a case from southern Kenya in two adjacent group ranches (Shompole and Olkiramatian) and another case from southern Ethiopia (Dirre in the Borana area).

This report provides useful lessons to guide choices for policymakers and development actors in the drylands by contributing to the pool of knowledge and evidence on what is likely to succeed and what is not in different dryland situations and contexts.

## 2 The cases

### 2.1 The case study approach

It is important to remember that natural resource management is, by its nature, a process that occurs at multiple levels. Questions of scale and level are particularly important for the design of natural resource management and governance systems in pastoralist rangelands. One consideration here is that pastoralists typically use and manage forage resources across a rangeland landscape that is much vaster than, for example, a community forest. Community-based rangeland management typically operates over community territories that are larger than the operational territories in CBNRM initiatives in most other ecosystems. Another consideration is that government-defined jurisdictions are based on permanent settlements rather than on actual pastoral ranges and mobility patterns. In such cases, management of pastoral rangelands by pastoralist communities can intersect, overlap and sometimes conflict with administrative boundaries in complex ways.

Our case studies do not cover the full range of possible approaches to supporting rangeland management with meaningful participation and ownership on the part of community members. For instance, supporting the development of inter-community and inter-tribal grazing agreements is an approach that does not necessarily put the community governance and management structures front and centre. Another approach is to support land use planning. This too, is a strategy that does not necessarily require the creation and/or strengthening of governance structures at the level of rangeland units.

These are valid strategies for supporting rangeland management. However, our case studies were conceived more narrowly with each case being an instance of community-based rangeland management, which we defined as having three main elements: a set of community governance and management structures, the geographic rangeland unit which those structures are managing, and a development agent that is supporting the community. A “community” as understood here, is not necessarily a single settlement or village. In fact, the communities that made up our case studies each contained more than one settlement. The development agent is typically one or more government agencies and/or non-government organizations (NGOs) which are assisting communities to establish their own governance and management structures for rangelands they control. It may also be assisting communities to strengthen those governance and management structures if they already exist.

### 2.2 Introduction to the three cases

In this report, we compare three cases—one in Ethiopia and two in Kenya. The Ethiopian case study relates to Dirre, one of five traditional dheeda territories of Borana in southern Ethiopia. Each of the five dheedas have been supported in recent years by the Pastoralist Areas Resilience Improvement through Market Expansion (PRIME) and Resilience Building and Creation of Economic Opportunities in Ethiopia (RESET) projects. A second case study was located in Laikipia County on the lower slopes of the north side of Mount Kenya and focuses on Il’Ngwesi group ranch and conservancy. The third case involves two pastoralist communities—the adjacent group ranches of Shompole and Olkiramatian. Shompole and Olkiramatian do much of their planning together and have both been supported by the

South Rift Association of Land Owners (SORALO) and the African Conservation Centre (ACC). For these reasons, we have treated them as a single case for the purpose of our research. They are situated in Kajiado County in the southern Kenyan rangelands.

Each case has been documented in separate reports. For detailed information on any of the cases, please refer to the specific reports: Abdu and Robinson (2017)<sup>1</sup> for the Dirre case, Nganga and Robinson (2018)<sup>2</sup> for the Il'Ngwesi case, and Ontiri and Robinson (2018)<sup>3</sup> for the Shompole-Olkirmatian case. In addition, a study that involved participatory scoring of rangeland condition (Senda 2019)<sup>4</sup> provided further information on the Dirre case. Information on the Dirre case was also enriched through comparison with an earlier study (Alemu 2015) which examined a neighbouring rangeland community that was supported by the same development projects. Similarly, the Il'Ngwesi case study also benefited from earlier research by ILRI (Moiko 2015; Ontiri and Robinson 2015; Ontiri and Robinson 2016; Robinson et al. 2017).

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1 <https://hdl.handle.net/10568/89714>

2 <https://hdl.handle.net/10568/91559>

3 <https://hdl.handle.net/10568/92963>

4 <https://hdl.handle.net/10568/101628>

## 3 Methodology

### 3.1 Options by context analysis

Characteristics of dryland systems often vary and are context specific. To avoid failures of past development and agricultural research efforts that can be traced to lack of appreciation for context specificity, our research on this topic uses a systems approach that is place-based and embedded in the local reality. For each case study, it involved understanding the unique social, economic, political and biophysical characteristics of the context. We treated community-based rangeland management as an option that can be implemented in various ways. For each case, the research aimed to establish the particular way the approach has been implemented and the relevant features of the context, as well as to explore successes and challenges in implementation and, to the extent possible, outcomes and impacts.

The research was guided by a common protocol (Robinson et al. 2018). The protocol outlines key characteristics and variables for describing the option (the particular way in which community-based rangeland management has been implemented), the context (social, economic, political and biophysical), and aspects of implementation, outcomes, and impact.

### 3.2 Methods

For Dirre and Olkiramatian/Shompole, key informant interview and focus group discussion guides were developed based on the protocol mentioned above. For the Il'Ngwesi study, the case report (Nganga and Robinson 2018) was based primarily on a review of earlier research. Initial field research for Nganga and Robinson (2018) by Moiko (2015) was based on an earlier draft of the same case study protocol, and the study produced most of the information needed. We returned to the area several times through other research projects and were able to acquire the remaining information to complete the protocol for the Il'Ngwesi case. Each of the cases also used methods such as review of documentation and transect walks. For a more detailed description of methods, see the original case reports (Abdu and Robinson 2017; Ontiri and Robinson 2017; Nganga and Robinson 2018; and Senda 2019).

Table 1: Summary of research methods

Method	Dirre	Olkiramatian and Shompole	Il'Ngwesi <sup>5</sup>
Key informant interviews	14	9	12
Focus group discussions	11	12	3
Further details on methods	Abdu and Robinson (2017); Senda (2019)	Ontiri and Robinson (2017)	Moiko (2015); Nganga and Robinson (2018)

<sup>5</sup> The number of key informant interviews and focus group discussions for Il'Ngwesi refers to the initial study by Moiko (2015). Information in the case study by Nganga and Robinson (2018) also drew on other primary research (e.g. Ontiri and Robinson 2016 and Robinson et al. 2017).

## 4 Comparison of the three cases

### 4.1 Social-ecological context

The Ethiopian case is situated in Borana Zone of the Oromia Region in southern Ethiopia. The average rainfall in the Dirre Dheeda area is 614 mm per year. While much of the area was very productive grassland in the past, bush encroachment is currently severe, greatly reducing the amount of available forage. Dirre is one of five dheedas in the Ethiopian portion of a larger traditional system which previously also included large areas of what is now northern Kenya and incorporated a number of other ethnic groups. The Borana are traditionally cattle keepers who also hold sheep and goats. However, to adopt to changing conditions, they are increasingly adding camels to their herds. In recent times, most Borana people have also taken up crop farming on a small scale, partly to diversify their livelihoods and partly as a way of laying individual claim to a plot of land.

Table 2: Summary of the social-ecological context for the three cases

Dimension	Variable/ characteristic	Dirre	Olkiramatian and Shompole	Il'Ngwesi
Biophysical	Mean annual precipitation (mm/year)	614 mm	Shompole: 511 mm Olkiramatian: 569 mm	810 mm
	Rainfall variability (coefficient of variation in annual rainfall)	31.3%	Shompole: 27.9% Olkiramatian: 26.8%	28.8%
	Rangeland condition at initiation of intervention	Bush encroachment was already rampant at the time of the interventions and there was overgrazing around permanent settlements.	The rangeland was degraded and prolonged drought existed. The grass natural seed bank was depleted and there were physical gullies due to wind and surface runoff erosion. Areas closer to seasonal water sources were degraded more than those near permanent sources of water.	Overgrazed lands with diminished preferable species

Dimension	Variable/ characteristic	Dirre	Olkiramatian and Shompole	Il'Ngwesi
Demography, livelihoods and social structure	Population density	24.4 persons/km <sup>2</sup>	Shompole: 29 persons/km <sup>2</sup> Olkiramatian: approximately 42 persons/km <sup>2</sup>	29.2 persons/km <sup>2</sup> living within the group ranch <sup>6</sup>
	Competition/ pressure on land	Extremely competitive on prime lands, particularly bottomlands with greater soil retention capacity.  Human population is growing due to in-migration and natural growth. Loss of pasture to agriculture and bush encroachment creates great competition on remaining land.	The available pasture is not enough for livestock and wildlife. Livestock numbers have increased recently. Water is a scarce resource except closer to the Nguruman escarpment and the southern Ewaso Nyiro River. Large ungulates and crop farmers are in continual conflict over the water and grazing land for wildlife.	High competition and increased pressure on land
	Ethnic description of unit	Ethnically homogenous	Ethnically homogenous	Ethnically homogenous
	Ethnic description of broader region	Ethnically homogenous	Ethnically homogenous	Ethnically heterogeneous
	Percentage of land within the rangeland unit under cultivation	Not available	Approximately 10 %	20% of the group ranch area is reserved for settlement and farming. The percentage of land actually cultivated is somewhat less than that.
	Percentage of land within the broader region unit under cultivation	Not available	Approximately 10 %	More land is cultivated in some other areas on the slopes of Mount Kenya to the south. There is little to no cultivation in the north and west of Il'Ngwesi in the lowland areas.
	Predominant livelihoods	Pastoralist livelihoods dominate	Pastoralist livelihoods dominate	Agropastoralist livelihoods dominate
Governance and tenure	Type of land tenure	De jure state property but not enforced, with de facto communal tenure <sup>7</sup>	Secure communal tenure	Secure communal tenure
	Security of land tenure	Somewhat secure	Somewhat secure	Secure communal tenure
	Is there elected local government (commune, municipality, village)?	No	No	No
	Strength of customary institutions	This is declining over time. Currently, they have limited formal authority regarding decisions although still possess moderately strong moral authority.	The customary system is fairly strong but is not the main governing body for the management of natural resources. The council of elders is consulted in the event there is conflict over the management, access or use of the natural resources.	Weak

<sup>6</sup> Most of the group ranch members live outside the group ranch boundaries.

<sup>7</sup> This describes the situation at the time of our research. Since then, Ethiopia's new communal land certification program has begun and Dirre Dheeda has been registered and received its certificate under that system.

Dimension	Variable/ characteristic	Dirre	Olkiramatian and Shompole	Il'Ngwesi
Neighbouring communities and intercommunity relations	Extent to which other communities/ rangeland units within the region have similar community-based management and governance structures	Most communities have similar governance and management structures.	Less than 50% of the neighbouring communities have group ranches.	Between 10% and 50% of neighbouring communities have similar governance and management structures.
	Strength of community organization within region	Community organization in Dirre is slightly better than in adjacent communities.	Other SORALO member group ranches are not as organized as Shompole and Olkiramatian.	Il'Ngwesi is one of the most organized communities in the wider region.
	Intercommunity conflict severity and source	Severe conflict mainly between Garri and Borana	Theft of livestock amongst the Maasai of Shompole and Olkiramatian is not pronounced, although there are occasional reported incidences where armed robbers from Tanzania attack the communities and steal huge herds of livestock. In isolated cases, people have lost livestock during movement to dry season grazing areas during drought.	Serious intercommunity clashes with neighbouring communities such as the Samburu from the north and others from further out. The source of this conflict is from livestock theft and invasion by neighbouring communities into areas reserved for drought or dry season grazing by the Il'Ngwesi community.

The Borana have an elaborate traditional governance system which includes types of territories at different levels and traditional institutions for managing resources and other aspects of Borana life. In that traditional system, grazing rights were essentially unrestricted on certain pasture categories but more closely regulated on others. Rather than conforming to a conventional governance model for commons, it has been suggested that the traditional Borana land and resource governance system was a complex mosaic regime (Robinson 2019). This system is characterized by varying degrees of clarity on overlapping property rights over different resources. However, the customary system has eroded over recent decades.

Our second case study is Il'Ngwesi group ranch and conservancy in Laikipia county at the southernmost part of the vast dryland region of northern Kenya. Being part way up the slopes of Mount Kenya, Il'Ngwesi has a higher level of rainfall than areas further north—an average of 810 mm per year. This rainfall gradient also approximately coincides with a transition in land tenure. Whereas most of the land in Laikipia county is demarcated and belongs to private, state and group ranch owners, most land further north has been in the category of Trust Land. This means that the land was officially held in trust by the state but in practical terms was under partial control of eroding customary governance systems, arguably an open access resource. These differences have contributed to different sorts of livelihood and mobility patterns among different pastoralist ethnic groups in northern Kenya. For instance, the herds of Samburu, Turkana and Borana livestock owners tend to move much further than those of the Maasai of Il'Ngwesi. Moreover, many Maasai have small farms or vegetable gardens, something that is much less common among pastoralists further out into the drier lowlands. Il'Ngwesi itself is a group ranch, which in the Kenyan context accords it a relatively strong degree of communal tenure security at least in theory even if it's not consistently enforced.



The third case study, made up of Shompole and Olkiramatian group ranches, is located in Magadi subcounty of Kajiado county in Kenya's southern rangelands. This area is rich in natural resources including forests, grassy plains and the southern Ewaso Nyiro River which includes the alkaline Lake Magadi and the Nguruman escarpment. Shompole borders on Tanzania in the south. The mean annual rainfall is 511 mm per year in Shompole and 569 mm per year in Olkiramatian. The main degradation challenges when community-based rangeland management interventions began included overgrazing and erosion. The population is mostly made up of people of the Il Lodokilani subgroup of the Maasai. Unlike some other group ranches in Kenya's southern rangelands, Shompole and Olkiramatian have thus far avoided being subdivided.

## 4.2 Approach

Table 3: Summary of the community-based rangeland management approach in the three cases

Dimension	Variable/ characteristic	Dirre	Olkiramatian and Shompole	Il'Ngwesi
I. General information	Development agent(s)	SOS Sahel and CARE	ACC and SORALO	Northern Rangelands Trust, Laikipia Wildlife Forum and Lewa Wildlife Conservancy
	Name of program/project	PRIME and RESET	Various	Various
	Terminology used by development agents to describe approach	Participatory rangeland management	Community-based natural resource management	Laikipia Wildlife Forum (LWF) uses the term "holistic management".
	Extent of rangeland unit	728,762 ha	Shompole 62,700 ha Olkiramatian 24,000 ha	9,296 ha
	Key community governance structures and/or processes for the case	Dheeda council and councils at lower levels	Group ranch committee plus various subcommittees	Group ranch committee, which has also delegated part of its functions to two other committees—Il'Ngwesi Community Trust and Il'Ngwesi Company Limited.
2. Specification of the approach	Short description of approach	Building on customary institutions and territorial definitions, PRIME helped to establish councils at arda, reera and dheeda levels and supported them with various rangeland management and rehabilitation interventions.	The two group ranches strengthened the capacity of their community governance structures and began more rigorous implementation of seasonal grazing plans. With neighbouring communities, they incorporated conservation, research and joint rangeland management planning.	A multi-level planning approach is followed in which operations at the group ranch level are guided by a constitution where the secretariat and coordination framework are established and neighbourhood forums take central roles at a lower level.
	Country/region/locations of specific case	Ethiopia/Oromia region/Borana zone, cutting across four districts (woredas): Dirre, Miyo, Arero and Dhas.	Kenya/Kajiado county/Kajiado west constituency	Kenya, Laikipia county, Mukogodo constituency

Dimension	Variable/ characteristic	Dirre	Olkiramatian and Shompole	Il'Ngwesi
3. Methods used by development agents	Community entry process and participatory activities	PRIME experts conducted meeting with elders at reera level, which included problem identification exercises.	ACC was invited by the local community which wanted to earn ecotourism income. At the same time, ACC sent a researcher to the community. The findings provided guidance in the establishment of ecotourism activities and improved management of pasture and water.	Entry by organizations such as NRT and LWF is through the Il'Ngwesi group ranch committee. Both these organizations also involve Il'Ngwesi in network activities and forums at larger scales. Some staffing such as a grazing coordinator and scouts/rangers is also provided.
	Capacity building approach	Short term training on hay making, seasonal grazing, early warning, governance and destocking	Capacity building took place through strengthening the community governance mechanisms. ACC assisted with the establishment of SORALO.	Both NRT and LWF have conducted training workshops in the community. Development of bunched grazing and other techniques of holistic rangeland management were initiated through participatory action research.
	Nature of incentives and business model	Mainly, materials support. Refreshments and minimal payments for labour (for pond establishment) that is based on a cost sharing approach	The community did not receive direct monetary incentives but received training in business development and management of ecotourism lodges. The group ranches also collect cess tax from all business transactions.	The group ranch earns incomes from its ecotourism operation. It has also recently started contract grazing and renting out pastures to livestock owners from other communities. It is also using some of its territory for fodder farming.
	Types of technical rangeland management options	1. Bush clearing/thinning 2. Seasonal planned grazing 3. Creation and rehabilitation of community exclosures 4. Pond construction	1. Rotational grazing 2. Ecological monitoring	1. Seasonal planned grazing management 2. Intensive bunched grazing 3. Reseeding
	Advisory services	Yes	Yes	Yes
	Monitoring and evaluation	Yes: community-agent joint monitoring and evaluation approach	Yes	Yes
4. Governance design for the rangeland unit	Governance type	Collaborative/shared	Communities	Communities
	Community participation/representation	Based on communities and/or jurisdictions	Based on group ranch membership	Based on group ranch membership
	Regular election of representatives	No	Yes	Yes
	Involvement of women and minorities	In Dirre, the ethnic minority population is very small. Women are active participants in the arda level councils.	Women are involved in decision-making processes. The minority tribes are consulted when making decisions but do not have special representation on the committees.	Yes, two slots reserved for women in the committee. Slots are shared on a rotational basis across the neighbourhoods.
5. Basis of structures/processes in customary institutions	Decision-making structures/processes	Are a hybrid of customary and new institutions and procedures	Involve elders or customary leaders as members of decision-making bodies but do not otherwise formally include customary institutions and decision-making procedures	Do not formally include customary institutions and decision-making procedures
	Hereditary/customary leaders in leadership structure	Yes (informally, but not in terms of written rules)	No	No

Dimension	Variable/ characteristic	Dirre	Olkiramatian and Shompole	Il'Ngwesi
6. Legal mandate	Is the main decision-making structure registered as a legal entity?	No	Yes	Yes
	Are the decision-making structures or processes of the rangeland unit recognized and given legal mandate by a legislative framework?	No	Yes	Yes
7. Authority and governance powers of rangeland unit's governance structures and processes	Governance powers of structures and processes	Governance powers are contested	Has full governance and management powers	Has full governance and management powers
	In cases where a rangeland unit's governance powers are limited, where instead does the bulk of authority lie?	Distributed at other levels (higher and lower)	Not applicable	Not applicable
	Who decides on technical options?	All relevant actors, as part of a participatory approach	Mainly land users, supported by rangeland specialists	Mainly land users supported by rangeland specialists
	Basis for decision-making on technical options	Evaluation of well-documented sustainable land management knowledge (evidence-based decision-making) Research findings Personal experience and opinions	Customary practices Traditional knowledge Research and monitoring findings	Personal experience and opinions expressed at AGMs knowledge/evidence based decision-making Research findings shared by collaborating partners
	Graduated sanctions	Yes	Yes	Yes
Conflict resolution mechanism	Yes	Yes	Yes	
8. Staffing	Secretariat	No	No	Yes
	Paid field staff	No	Yes	Yes
	Hired professionals for rangeland unit	No	Yes	Yes
9. Definition of rangeland unit	Definition of geographic extent of rangeland unit	Predefined	Predefined	Predefined
	Definition criteria	Traditional territories	Existing administrative unit: the group ranches	Traditional territories

Dimension	Variable/ characteristic	Dirre	Olkiramatian and Shompole	Il'Ngwesi
10. Nesting and multi-level planning approach	Are there clearly defined territories and associated institutions nested within the rangeland unit structure?	Yes	No	Yes
	Is rangeland unit formally nested in larger structure?	Yes	No (however, there is discussion of evolving SORALO to do lead joint grazing planning)	No (however, there is sometimes informal coordination with other nearby pastoral communities)
	Rangeland unit resource planning relation to levels above and below	Primarily at the rangeland unit level and then further details and planning are done at lower levels.	Planning is done primarily at the rangeland unit level; little to no further planning is done at lower levels.	Primarily at the rangeland unit level and then further details and planning are done at lower levels.

A major set of activities in all three cases relates to strengthening local governance. All three had local governance arrangements in place when the community-based rangeland management interventions began, but in all three cases these arrangements were not functioning well, and the development agents implemented activities to build governance capacity and worked with the community to make some revisions to governance structures.

The work of CARE and SOS Sahel among the Borana of southern Ethiopia, focusing on broad rangeland management at the level of dheedas, began in 2013. Their strategy was based on working with traditional territories and institutions. The approach has been a multi-level one in that there are also councils and meetings at the lower reera and arda levels (levels of customary social organizations below the dheeda). However, their approach has evolved since that time. The organizations struggled in the early stages because their intended support to the spatial organization of rangeland management based on traditional territories received little support in government circles, where an approach following administrative boundaries was preferred (Alemu 2015). CARE and SOS Sahel have continued to work according to the traditional territories of dheedas, reeras and ardas, but overtime put greater emphasis on coordinating with government and paying attention to decision-making at different levels and how it connects to dheeda level decision-making. There is government representation at each of these levels, and for this reason we have classified the governance type as “collaborative/shared” rather than decision-making power being solely community-based. The technical practices being implemented have included development of grazing plans at the larger scales, and site-specific activities such as rehabilitation of community exclosures at a lower level.

Shompole and Olkiramatian were formally established as group ranches in 1979. Eventually, a critical point came as community members were recognizing the weakness in governance of the group ranches. When ACC began working in the area in the mid-2000s, they made strengthening leadership central to their work with the communities. A pivotal step was the creation of SORALO as an organization representing and belonging to the communities of this part of Kenya. Made up of fifteen group ranches, SORALO has been able to support the communities in a more hands-on ways than ACC could have done on its own.

The grazing planning in these areas has involved establishing different grazing zones with an attempt to lengthen resting periods, especially after rain. However, enforcement is based less on direct enforcement of a grazing schedule than it is on restrictions on the establishment of settlements, including seasonal controls on temporary settlements. An important dimension of the rangeland management activities has been a strong program of rangeland monitoring. Ecotourism is also a part of the overall strategy with two lodges bringing revenue into the communities.

The Il'Ngwesi case is somewhat different in that the current direction has been supported by a wider and more diffuse array of organizations, key among them being the Laikipia Wildlife Forum, the Northern Rangelands Trust and Lewa Wildlife Conservancy. The relationship with the Laikipia Wildlife Forum particularly has been a long-term one, going back to the group ranch's establishment in the mid-1990s. The fact that Il'Ngwesi has relationships with

several organizations but doesn't depending on any one of them, combined with their having quite secure and clearly defined land tenure through Kenya's legal framework for group ranches, seem to have contributed to a strong sense of community ownership of the rangeland management activities. Laikipia Wildlife Forum supported the community to think through and revise its governance structure in 2005 when their constitution was amended. Thereafter, the governance structure included two new structures to which the group ranch committee delegated some of its functions—the Il'Ngwesi Community Trust (ICT) responsible to lead natural resource management, and the Il'Ngwesi Company Ltd. responsible for raising revenue. The governance structure also includes grazing committees at neighbourhood level for more local level decision-making on some grazing matters within the group ranch. More recently, (approximately two years ago, after our study period) the structure was changed again, reabsorbing the community trust and the company back into the group ranch committee.

While external organizations have played important roles, the grazing management overall has been very community driven. Il'Ngwesi's interventions related to rangeland management and livestock feed are probably the most elaborate of the three cases. While they have not implemented all the aspects of a holistic management approach, their grazing planning has involved bunched herding and short duration intensive grazing based on the principles of holistic management. Other important parts of their strategy have included purchasing land outside of the group ranch itself in order to have access to additional pastures and provide settlement areas outside of the group ranch territory in order to maximize the amount of group ranch territory kept for grazing. The group ranch has also been doing fodder farming. Like Shompole and Olkiramatian, ecotourism is also part of the strategy.

## 4.3 Outcomes

Community-based rangeland management at Olkiramatian and Shompole has produced positive results reducing bare ground, ensuring the period resting of pastures and adequate forage for the community during dry periods. Community members attest to improved livestock body condition and greater access to milk. Some community members also benefit from employment as scouts or in the lodges. Improvements in ecological terms are evidenced by the return of big cat species to the area. Sense of ownership of the community has also improved. There are misgivings among some community members over the prominence of conservation objectives in the planning, and as in any local democracy people do not see eye to eye all the time. However, on the whole, support from the community has been strong. The successful management of grass bank reserves does attract other herders into the area, leading to disputes, but the geography of these two group ranches limits this problem. There is hope that SORALO will increasingly be able to facilitate coordinated mobility among its member group ranches as a way of avoiding such disputes.

Similarly, the rangeland management activities of Il'Ngwesi were impressively successful for several years, and perhaps the strongest piece of evidence to this is the extent to which improved rangeland condition at Il'Ngwesi has attracted herders from elsewhere in northern Kenya. Their success brought new challenges and with the droughts of 2015 and 2017, large numbers of livestock were trekked into Il'Ngwesi and other parts of Laikipia county. The challenge for Il'Ngwesi in this respect has been far greater than that of Shompole and Olkiramatian. In 2015 and 2017, there was violent conflict and loss of lives and reserved grass banks were decimated. Setting aside areas as grass banks involves a sacrifice on the part of group ranch members in the hope of a longer term benefit through easier access to forage during dry seasons and droughts. The bunched herding and other holistic management practices involve greater effort than the common herding practices and thus are similarly an investment in the future. The incursion of herds from elsewhere resulted in much of the benefits of these sacrifices and investments going to others. This has dampened the enthusiasm of community members for these rangeland management activities.

While these challenges, which have been described in more detail in Robinson et al. (2017), do not negate the community's success, they have greatly hampered its efforts in recent years. Nevertheless, there are signs that the

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community continues to learn and adapt. After more than 10 years with the organizational structure that had some key decision-making divided among the group ranch committee, the company and the community trust, they came to the conclusion that this structure was too unwieldy and decided to simplify the structure again by bringing authority back fully under the group ranch committee. On the other hand, given the challenges of incursion of herders from elsewhere in northern Kenya, the matter of how Il'Ngwesi manages in the coming years may depend as much on how community organization for rangeland management and implementation of Kenya's Community Land Act unfold in other parts of northern Kenya.

The interventions associated with the Dirre case are younger than those of the other two cases and overall improvements in rangeland condition, if any, are not as apparent. Within the PRIME project, activities in Dirre Dheeda got underway somewhat later than those in the neighbouring dheeda of Gomole and therefore benefited from lessons that had been learned along the way. Greater attention was given to coordination with government, decision-makers and management at multiple levels rather than just dheeda level. Nevertheless, the unclear allocation of governance powers among different centres of authority has still hampered decision-making, and while the projects have produced positive results for site-based interventions, particularly community enclosures, the development and enforcement of seasonal grazing plans had not progressed very far by the time of our research.

## 5 Discussion

### 5.1 Long-term interventions

One set of lessons to be drawn from these cases relates to the time frame needed for the implementation of the overall approach and the technical rangeland management techniques and practices. Given the social-ecological complexity of pastoral systems and the uniqueness of each situation, there will always be a need for experimentation and adaptation. Technically, simple interventions such as seasonal grazing plans can sometimes produce improvements in rangeland quality very quickly. However, time is needed in the run-up to such interventions as the community institutions and organizations working with them learn how to organize and work with the support of community members at large, lay a social foundation of community buy-in for the technical rangeland management practices and adapt their interventions to local conditions. This was seen in the Borana case, as the NGOs working with the communities through a process of learning and reflection as they implemented identified ways in which they needed to adapt their approach. Activities in Dirre benefited from lessons learned through earlier implementation in other dheedas. Continued adaptation may also be needed after implementation of the technical management practices as new challenges may arise. This was seen in the Il'Ngwesi case, when their success in improving rangeland condition attracted herders from distant locations in northern Kenya.

Experimentation, monitoring, reflection and learning are needed in the face of new challenges. But if there is to be sustained progress at some point, a clear strategy must emerge and pursued over the long term. Interventions based on project funding do not often have this kind of long-term engagement, and if there is any cycle of planning, action, reflection and learning, it tends to be a short one. Our case studies suggest that the creation of an effective community-based rangeland management system requires a planning-action-reflection-learning-planning cycle which operates at the time scale of a decade rather than three or four years.

The Shompole-Olkiramatian and Il'Ngwesi cases have benefitted from having received this kind of ongoing, long-term support, particularly from an indigenous organization which they co-own (SORALO), in which Shompole and Olkiramatian are members along with thirteen other group ranches. Although professional NGOs that are external to the communities they support can make important contributions to strengthening community institutions and natural resource management systems, it seems there is no substitute for being connected to an indigenous boundary organization that is owned by the community itself. Such organizations are better placed to provide sustained, long-term help than professional NGOs which are subject to the challenges of project funding cycles. It is to ACC's credit that it supported the creation of SORALO and treated its relationship with pastoral communities as a long-term partnership. Il'Ngwesi has similarly benefited from sustained support from the Laikipia Wildlife Forum and the Northern Rangelands Trust. These have certainly contributed to Il'Ngwesi's success over the years, despite huge challenges which emerged in 2015. Compared to these two cases, the interventions of CARE and SOS Sahel in Borana in southern Ethiopia are much younger and the success of their current efforts may depend in the long term on whether engagement, adaptation and learning with the communities are sustained long enough for a learning and action cycle to result in a well-adapted, Borana-specific approach and becoming embedded in local institutions and practices.

The above discussion should not be interpreted to mean that organizations supporting community-based rangeland management interventions can be comfortable waiting many years before seeing results. A key factor solidifying community support in the Shompole-Olkiramatian and Il'Ngwesi cases was that some rangeland management activities were implemented quickly and produced visible results. This may be quite difficult in southern Ethiopia because the type of degradation faced—bush encroachment—is technically so challenging and because it has progressed so far. The challenge in the Borana case is made more difficult by the vastness of a single rangeland unit—a dheeda. CARE and SOS Sahel have also supported communities with more local scale interventions, such as rehabilitation of community exclosures, for which “quick wins” are easier to achieve. Yet, there are valid reasons for opting to support the dheeda institution as the key unit for rangeland management. The challenges associated with managing a community-based management system at this scale and the main degradation issue faced at this scale further reinforce the principle of working for quick wins but within a framework of long-term commitment. It also suggests that a multi-level approach is needed. This is discussed in more detail in the next section.

## 5.2 Context is key: circumscribed versus open landscapes

Conventional CBNRM is informed by the “design principles” for effective governance of commons which have emerged from the scholarship of Elinor Ostrom (1990) and others. Among these design principles is the existence of clearly defined boundaries. The management of a communal resource is difficult if local community members, neighbours and others do not know where one community's land ends and another's begins. However, research on pastoralists has suggested that this principle does not seem to apply in many pastoral systems. The extreme spatiotemporal variability in rainfall and forage that characterizes most dry rangeland systems contributes to a livelihood pattern based on mobility in order to take advantage of forage wherever it may be, and to norms and institutions that prize right of access over clarity of borders and rights of management and ownership.

This may help to explain the challenges faced in the Dirre and Il'Ngwesi cases. Although approaches being pursued were informed by conventional models of CBNRM in which a clearly defined community manages a clearly defined territory, they encountered challenges associated with borders, access to grazing land by outsiders and decisions being made at other smaller and larger scales. In the Dirre case, the organizations involved had begun to take account of the need for a multi-level approach, but too recently for our research there to assess the outcomes and the revised strategy.

The challenging nature of multi-level resource management was also apparent in the Il'Ngwesi case. For many years, Il'Ngwesi was seen as an exemplary success story of rangeland management by a pastoralist community in Kenya, and rightly so. However, Il'Ngwesi sits within a larger landscape that includes several different pastoralist ethnic groups. For many of these communities, the northern foot slopes of Mount Kenya are seen as a reserve with reliable source of forage when other drier areas in northern Kenya are afflicted with drought. In 2015 and 2017, herders from other parts of northern Kenya were determined to access grazing for their livestock in Il'Ngwesi and other places in Laikipia county by force. Violent conflict was the result. Unless the Kenyan government is prepared to help these group ranches defend their property rights and have significant control over who is permitted to access their pastures, the question must be asked of how the current arrangements and strategy can adapt to the social realities of very mobile, armed herders belonging to multiple ethnicities within a large and very open landscape.

Of the three cases, Shompole-Olkiramatian is arguably the most successful, or perhaps more accurately, faced the lowest degree of external challenges. The difference here appears to arise from context as much as from the approach used. Il'Ngwesi and Dirre both exist within much larger and very open pastoral rangeland landscapes. The external borders of their respective territories are, in a biophysical sense, somewhat arbitrary. On the other hand, Shompole and Olkiramatian, if the two are considered together as a unit, are partly insulated from the wider landscape by the escarpment and the Magadi salt flats. An international boundary also forms part of their external border, and while international boundaries are not necessarily an effective barrier to pastoralists, they are less porous and more significant than group ranch or county boundaries or, in the case of the Borana, dheeda boundaries.



This suggests that a conventional CBNRM approach in which a clearly defined community manages a clearly defined territory will tend to be more effective in a setting like that of Shompole and Olkiramatian where the physical and political landscape reinforces the community's boundaries. On the other hand, when the biophysical characteristics of a dry and highly variable ecosystem, a socioeconomic characteristics of mobile livelihoods and norms, and institutions that value flexibility and access are combined with large, open landscapes, a conventional CBNRM approach may be difficult to implement; at least not without major modifications and adaptation to the pastoralist rangeland reality.

### 5.3 A multi-level, open landscape approach

The kind of land tenure system that corresponds to conventional CBNRM is one that recognizes community property rights and the collective resources that communities govern—their commons. However, recent research on pastoralism has suggested that traditional pastoral cultures have evolved into resource governance systems that do not correspond to the conventional categorization of property into private property, state property, community property (commons), or non-property (open access). Some pastoral systems are open property regimes in which open access is not a lack of rules but the rule (Moritz 2016). Others are complex mosaics in which there are gradations in the strength and enforcement of property rights over different resources and rights that overlap in time and space (Robinson 2019). For the Borana of southern Ethiopia, the kind of social-ecological characteristics which result in these unconventional property rights may be so profound as to make conventional CBNRM impossible. This does not mean that there are no roles to be played by a territorial unit such as a dheeda and its corresponding institution, the dheeda council. But it may mean that in management and governance of the rangeland there will never be a neat and clearly defined affair which can be reflected on maps having simple and clear boundaries. Spot interventions such as community enclosure rehabilitation which CARE and SOS Sahel have supported are needed, but these do not address the extent of rangeland used by Borana livestock owners. There is also a need for dialogue and planning at large scales such as the dheeda, and beyond that between dheedas and even across the international border to Kenya. At Il'Ngwesi, incongruity between group level management and governance being implemented by the group ranch and the pattern of governance and rangeland use by pastoralists in the larger landscape has been at the heart of the challenges they have faced since 2015 (Robinson et al. 2017). Both of these two cases highlight the need for interventions at multiple levels. Whether the approach to community-based rangeland management adopted in a particular place works with a rangeland unit that is small or large in an open landscape such as southern Ethiopia or northern Kenya, the management being implemented at the rangeland unit level needs to be nested within some kind of negotiation, joint planning or shared rules at the scale of the larger landscape.

The multi-level approach also needs to be multi-pronged. Seasonal grazing plans may be part of the suite of management interventions, but subject to negotiation and flexibility and perhaps not applying to all pastures with some areas left for open access. Such an approach may also need to involve more indirect forms of management. Rather than being based primarily on rules that directly prohibit grazing in particular places at particular times, this indirect approach may involve (a) rules that restrict access to water or establishment of settlements; and (b) interventions that attract herders away from pastures which need rest—for example, by providing mobile water, veterinary, marketing and other services. Overall, the approach needed may be one that is participatory but not necessarily “community-based”, at least not as that term is normally understood.

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