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## Re-creating the commons and re-configuring Maasai women's roles on the rangelands in the face of fragmentation

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**Abstract:** Throughout the world pastoralists today face a particularly daunting challenge of intensified rangeland fragmentation combined with human population growth and climate change. In many pastoral settings, rangelands are undergoing processes of fragmentation due to tenure transformations, as previously communal lands are privatized into individual holdings. Such processes of enclosure have raised concerns over the long-term costs on pastoral communities and on rangeland eco-systems. This paper explores pastoral responses and adaptations to enclosure based on long-term ethnographic engagement in a Maasai community in Southern Kenya that has recently privatized. Detailed family case studies and herd tracking illuminate the ways in which families try to re-create the commons by relying on social networks for free access to resources. In particular, women's social networks (for example, their kin, affines, friends, or religious associates) seem to play an important role. This paper calls attention to the need to better understand women's changing roles in pastoral governance and production and the implications these new roles have for women's well-being and for pastoralism in the face of fragmentation.

**Keywords:** Fragmentation, gender, governance, pastoralism, rangelands

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## I. Introduction

Pastoralists have long had to adapt their livestock husbandry in response to changing environmental, economic and socio-political forces. Today, pastoralists throughout the world face a particularly daunting challenge of intensified rangeland fragmentation combined with human population growth and climate change. In many pastoral settings, rangelands are undergoing processes of fragmentation either due to tenure transformations, as previously communal lands are privatized into individual holdings, and/or changes in land use, where pastoralists take up new forms of livelihood diversification, such as cultivation or conservation. Fragmentation of rangelands is encouraged not only by persistent policy narratives that predict more efficient and productive outcomes of exclusive land use but also by pastoralists themselves who are searching for security, enhanced livelihoods, and improved well-being. While perhaps offering important short-term advantages, it is feared by many that rangeland compartmentalization will have significant long-term costs on pastoral communities and on rangeland ecosystems. What will become of pastoralism as a livelihood strategy under such changing conditions? Are pastoralists responding to such changes in ways that ultimately increase their adaptive capacities or exacerbate their vulnerabilities?

Such questions are pertinent to the Maasai of Southern Kenya, who are undergoing dramatic fragmentation of rangelands as previously held communal group ranches are being privatized into individual holdings. Such tenure reforms are taking place at a time when many Maasai are diversifying their livelihoods and when families feel the stress of increased competition for natural resources and greater climatic instability. Many communities that have undergone privatization have subsequently experienced the erection of fences to mark, define, defend and enclose individual holdings. Such new enclosures carry the potential for dramatic impacts to livestock mobility and, in the least, require new arrangements for accessing grazing and other natural resources. Based on long-term ethnographic engagement and mixed qualitative and quantitative insights, this study explores the ways in which the adaptation to enclosure and efforts to retain the viability of pastoralism may be importantly impacting women's roles in pastoral production and beyond in the community of Elangata Wuas in Southern Kenya. A lengthy process of privatization and one riddled with corruption and uncertainty has facilitated both residential relocations to allocated lands and enclosure of private parcels with fencing. While a market for selling access to pasture and water has arisen from privatization, few residents rely on paying for resources. Instead, it appears that people are relying, more than ever before, on their social networks to access free grazing. By doing so they can be seen as recreating a *de facto* commons under a system of *de jure* private holdings. While residents rely on a whole range of social relations, there appears to be a significant dependence on or recognition of the importance of women's social networks, drawn through wives, sisters, daughters, and mothers. Combined with concurrent forces of diversification, educational expansion, and demographic changes such as family nuclearization,

among others, such forces also appear to have shifted herding responsibilities onto women. Combined, these adaptations to enclosure have intensified women's position in pastoralism, both in terms of labour and as central nodes in resource governance and access. This paper calls for more attention to these gendered transitions, with careful consideration not only on the impacts on pastoralism and its future viability but also on whether or not such reconfigured roles for Maasai women overburden them and/or empower them in other domains of social and political life.

## 2. Setting

Elangata Wuas, the predominantly Maasai community which features as the central site of this study, is a former group ranch that stretches over 200,000 acres in the southern district of Kajiado and is home to approximately 18,000 residents.<sup>1</sup> Typical of a semi-arid rangeland, Elangata Wuas is characterized by low altitudes, variable and little rainfall, and poor soils, which combine to produce an environment with little agricultural potential. Consequently, the community depends largely on livestock husbandry as their primary economic activity. Residents keep cattle, goats, sheep, and a few camels.

Most residents of Elangata Wuas live in traditional homesteads (“*inkangitie*”) scattered across the landscape. These homesteads typically comprise of multiple families and multiple houses with a shared central paddock where the livestock are kept. While residential life is traditionally (and ideally) arranged along patrilineal residence patterns, with a father and his wives sharing a homestead with their sons and their son's wives and children, many homesteads bring together other relatives and friends. Co-residence is often based on accessing nearby pasture and natural resources, social services, as well as pooling herds and sharing labour.

Social services and transport infrastructure in Elangata Wuas are rather limited. There is no electricity and no paved roads. There are only a few major dirt roads that traverse the community and come together in the central town of Mile 46, which is the site of the weekly livestock and goods market. This town is equipped with a recently expanded health clinic, a new secondary school (the only one in the area), a community library and resource centre, a police post, and over a dozen small shops, churches, and residential houses. Only recently, in 2012, Mile 46 was equipped with a telecommunication tower which allowed for widespread mobile phone and Internet connectivity.

## 3. Methods

This study follows from more than twelve years of ethnographic engagement in the community of Elangata Wuas through various projects related to land dynamics,

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<sup>1</sup> The estimate is calculated using the survey data from 2005 and extrapolating to 2016 using an annual growth rate (5%) calculated from Kajiado county at large between 2009 and 2012 (Government of Kenya 2016).

gender and social change. From 2003 to 2005, two years of doctoral fieldwork was conducted exploring issues of education, gender, and social change. As part of the methods employed in this study, a survey of 49 homesteads, which comprised of 135 families and included interviews with 157 wives and 119 husbands, was conducted in 2005. The survey collected a series of basic socio-economic and demographic characteristics along with a focus on education and attitudes toward schooling.

This study was followed by an 8-year inter-disciplinary research program investigating the causes and consequences of tenure change in nine communities, including Elangata Wuas and neighboring Kilonito and Torosei, across the Maasai rangelands of Southern Kenya. This program was initiated in 2007 and was completed in 2016. A variety of methods of data collection have been utilized, including the use of a household survey administered in 2008/2009. In Elangata Wuas this survey attempted to track and interview families that were part of the 2005 survey. This survey included 87 homesteads, which comprised of 168 families and included interviews with 199 wives and 139 husbands. Information was again collected on a series of basic socio-economic and demographic characteristics, with additional data on time use information, and a much more elaborate focus on livestock assets, land holdings and characteristics, land use, land sales and conflicts, as well as attitudes toward privatization.

A third research initiative, conducted from 2010 until 2015, looked specifically at gender dimensions of tenure transformation. A number of different methods have been undertaken, including individual qualitative interviewing on a variety of subjects, livelihood listing, small business census, and most centrally, family case studies. Twelve families in the community of Elangata Wuas have been specially selected to represent the diversity of livelihoods and familial circumstances within the community. These families have been chosen to represent variation in socio-economic status, family size, marital status, livelihood strategies, and land holdings. Families have also undertaken a series of more focused interviews around a variety of topics centred on experiences and opinions of land tenure change. Most importantly for this paper, 10 of the case study families participated in a herd-tracking exercise and interview. This questionnaire traced the movements of a family's livestock over the previous day, collecting detailed information on land use and how access to land was negotiated. In addition, this questionnaire included explicit questions exploring the changes in grazing strategies and land use patterns due to land privatization. Respondents were asked specifically on which social relations they now rely on for accessing grazing and whether this has changed as a result of sub-division.

Finally, this paper also draws on insights from two other research programs conducted in 2010–2011. The first was a research on stress and economic decision-making using the same sample as the 2008/2009 household survey. Among other issues, the 138 men and 171 women in this study were asked a series of

questions identifying sources and experiences of stress.<sup>2</sup> The other research conducted alongside and with the same group of respondents explored and measured resource sharing and perceived social distance among different social categories through a questionnaire and a behavioural game.

#### 4. Enclosure

Globally rangelands are becoming increasingly fragmented (Hobbs et al. 2008). Much of rangeland fragmentation can be linked to dissection through tenure change. While most rangelands have been governed formally or informally as communal lands, there has been a steady trend towards the privatization of grasslands into individual holdings (Zhoali et al. 2005; Lesorogol 2008; Galvin 2009; Mwangi 2009). This push to privatize has in part been a product of (often) misguided policy on the efficiencies of exclusive land tenure regimes for pastoralism. However, it is also a tenure trend that has come about from pastoralists' own efforts to secure their rights and improve their well-being.

Both forces have been evident in the case of Elangata Wuas. Colonial and post-colonial government directives as well as international donors have long tried to develop Maasai pastoralism through tenure experiments aimed at more exclusive property rights (Mwangi 2007a). The group ranch model, which was first introduced in Kenya in the early 1960s, was seen by the state as a first step in the eventual transition from communal to private ownership. The failures and frustrations of this governance system have also played an important role in facilitating pastoralist support for subdivision (Kimani and Pickard 1998). In Elangata Wuas other forces have also played a part in influencing residents to embrace and vote favourably to privatize their group ranch. Among them, decades of Maasai displacement and a drastic reduction in the overall territory held by Maasai pastoralists have led many Maasai to seek secure property rights in the form of private holdings. Private holdings are seen as offering protection against the continued encroachment by neighbouring ethnic groups into the more fertile rangelands or the annexation by the state of large areas for conservation, agriculture, or industry. Private holdings may also offer families new livelihood options, such as cultivation, or may offer the promise of a more sedentary "modern" lifestyle (Archambault et al. 2014). For such reasons, and in following earlier trends throughout the Southern Kenyan rangelands, Elangata Wuas group ranch membership decided to subdivide their land.

Like elsewhere, the process of subdivision in Elangata Wuas, which began in 1989, was rife with conflict (Mwangi 2007a,b). The process itself took decades

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<sup>2</sup> The stress survey combined a number of international instruments meant to capture information on emotional states, including the WHO ICD-10, the Duttweiler LOC Scale, and the Rosenberg self-esteem scale, among others. The data used in this paper, however, comes from a question that listed a series of potential stressors and asked respondents to assess the extent to which they worried (or not) about each. They were also invited to free list any sources of concern not mentioned on that list.

because of repeated allegations of corruption in land surveying and land allocation. Members of the first allocation committee, entrusted with fairly distributing equal sized parcels to each member of the former group ranch, were accused of allocating larger and more valued parcels to their kin, clansmates, and age-mates and of taking bribes and stealing money from community coffers. This committee was eventually replaced and the entire process of subdivision and allocation redone. Even today, accusations of corruption in the process persist. Many families complain of misallocation of their land. This is, in part, inherent to the process in which the large Group Ranch is sub-divided through a grid system, where each registered member is allocated 270 acres. While these parcels may be largely equal in size, they differ dramatically in their quality, both in terms of their resource cover (vegetation and water) and their locations (proximity to water points, infrastructure, and social amenities and as places of belonging).

The uncertainty and conflict surrounding land sub-division appears to have exacerbated two responses central to this analysis. The first is residential relocation. As is currently being explored in much greater detail, between 2005 and 2008/2009 it appears that many homesteads in Elangata Wuas (and to a lesser extent neighboring Torosei) experienced splitting, with families leaving to live elsewhere, when compared to the adjacent former Group Ranch, Kilonito, which privatized much earlier (Archambault 2010). It has been suggested by survey respondents, and still must be empirically confirmed, that much of this movement in Elangata Wuas was to reside on their allocated parcels. In Torosei, it is believed that many people have begun to move to land they wished to claim in anticipation of future sub-division. A cross-sectional view of the survey data in 2008/2009 also suggests that privatized sites tend to have fewer families within a given homestead, which would be consistent with this relocation hypothesis. Kilonito had an average of 2.4 families per *enkang*, followed by Elangata Wuas with 2.7, and by Torosei with 3.5 families per homestead. Privatization status also seems to correlate with a higher percentage of single-family homesteads, with Elangata Wuas and Kilonito significantly higher (47% and 43% respectively) than Torosei (only 25%). It should be noted, however, that family nuclearization and homestead fragmentation is not merely the result of privatization. Changes in marriage patterns, decreases in polygyny, out migration, and increasing exposure to modernization narratives through schooling, are among the many other important forces at play.

The second response of focus to this analysis concerns the practice of fencing. Following the allocation of parcels many landowners in Elangata Wuas quickly fenced their parcels to mark their territory. In the adjacent group ranch of Torosei, which is in the midst of heated conflict over whether or not to subdivide, residents have also started fencing land in anticipation of privatization and as a means to make their claims. According to the 2008 survey, 86% of titled private lands in Elangata Wuas had some degree of fencing. Among those fenced, well over half (63%) had completely fenced the entire periphery of the parcel. A detailed analysis of fencing across all nine sites (Archambault and de Laat 2014) revealed that

erecting fences was not associated with a stronger sense of ownership over the land, nor with cultivation practices, or age but instead seemed to be more readily practiced among those who owned larger and more productive (for pastoralism) lands and who relied on their own lands more readily during the wet season. This raises important equity concerns about whether enclosure excludes the poor.

In other pastoral contexts in Asia and Africa, the erection of fences on the rangelands has had important implications on pastoral systems, severing migratory routes and changing vegetation cover (Miller 2000; Boone and Hobbs 2004; Zhaoli et al. 2005). Fencing has demanded new forms of resource governance. Even though the fences in Elangata Wuas are made from thorn bush and are easily opened, livestock mobility in the area has been dramatically impacted. Livestock must now use heavily eroded public corridors to access major communal water points and seasonal grazing. Most significantly, however, fencing has physically marked a new governance system where permission is now required to move animals onto or through other people's property. This new system has brought about new anxieties. According to the 2010 stress survey, over two-thirds (69%) of residents interviewed reported having some worry about not being able to access grazing and 57% had experienced an inability to access grazing in the 12 month period prior to the survey. More generally, many residents express deep concerns about the impact of privatization on pastoralism and the future viability of the livelihood (Archambault 2007).

## 5. Gendered adaptations to enclosure

A recent special issue on women as agents of change on the global rangelands, highlights how gender inequalities in natural resource ownership, management, labour, and benefits, persist in pastoral settings (Stewart-Phelps et al. 2013). Men typically have greater ownership and control over productive assets such as livestock and land. Women are usually not primary decision makers when it comes to resource management and they often shoulder a disproportionate burden in terms of labour. However, in many contexts, women's roles are changing as they are playing greater roles in production and marketing. Out-migration of men in search of wage employment is also providing women with opportunities for leadership and greater managerial roles.

That Maasai women are playing an active role in pastoralism is not new. Although previously little attention was paid to women's roles in pastoral production, scholars such as Hodgson (2000) and Talle (1988) have illuminated women's importance in this domain. Persistent contemporary gender ideologies that cast Maasai women as exclusively responsible for the domestic domain and reproduction, while men are given political and economic responsibilities, is neither an accurate representation of gendered divisions of labour today nor of traditional assignments. Hodgson (1999) has shown quite convincingly how the division of roles and responsibilities into separate spheres or domains have been a product of colonial and post-colonial development interventions, which effectively stripped

women of their “traditional” economic, political, and religious roles, transferring these to men as the “real” pastoralists, the household heads, and political and religious authorities. While this ideology of separation still persists today, the reality is less distinction and much overlap. Women seem to be taking on greater economic responsibilities that have followed from family diversification and higher levels of male outmigration. In Elangata Wuas, this is certainly true. Women's roles in economic, social, and political life are changing and among these changes, women also appear to be playing a greater role in animal husbandry alongside and not in replacement of other roles. At the intersection of a whole constellation of forces, which include but are not limited to, livelihood diversification, family nuclearization, the expansion of schooling, and enclosure, women's roles in pastoral production seem to have intensified both in terms of herding labour and as recognized central nodes in resource governance and access.

### 5.1. Diversification

Even though pastoralism is still the mainstay of economic life for most families in Elangata Wuas, less than a quarter of families (20%) rely exclusively on pastoralism as the only means of income generation. Diversifying livelihoods, although a practice with a very long history among certain Maasai groups, has been a prevalent coping strategy in response to the fragmentation of East African rangelands. Among the Maasai, numerous studies have explored and documented the extent of diversification (Coast 2002; McCabe 2003; Homewood et al. 2009; Archambault et al. 2014).

Where favourable climatic conditions allow, many Maasai pastoralists have integrated cultivation into their livelihoods (O'Malley 2000; McCabe et al. 2010). Only 16% of houses in Elangata Wuas did some form of cultivation and such activities were very small-scale initiatives and were primarily for home consumption. Noteworthy, however, is that women in Elangata Wuas take charge of such agricultural pursuits and are primarily responsible for marketing any surplus. Such opportunities were among the commonly cited benefits for women of subdivision as reported in the 2008/2009 household survey.

Seeking wage employment or pursuing small business or petty trade is another form of diversification that has become increasingly common among Maasai. In 2008/2009, 68% of families had reported an income generating activity not derived from either pastoralism or agriculture, by at least one of its members in the past one month. These activities excluded the sale of livestock or other animal by-products, such as milk, as well as the sale of farm produce. The most common non-pastoral or non-agricultural income generating activities reported were burning and selling charcoal, cutting and selling grass, owning or working in a shop, working as a teacher, and working in the nearby quarries. Interestingly, with the exception of the quarry work, women dominate the other popular income-generating activities in Elangata Wuas. According to the 2008/2009 survey, 41% of wives reported an income generating activity along with 62% of husbands. A 2011

census of businesses in all the small towns of Elangata Wuas provided further evidence of women's roles in non-pastoral income generating opportunities. The census revealed that the overwhelming majority of small businesses were owned and operated by women. Local entrepreneurship is a growing and understudied diversification phenomenon among the Maasai with important implications on women's economic and productive roles. Men still make up the overwhelming majority of migrants to cities and towns outside of Maasailand in search of work (May and McCabe 2004; Archambault 2013). The large majority of families in Elangata Wuas have at least one child reported to be living outside of the homestead. While the large majority of these absentee children are daughters married into other homes or communities (65%), there are a significant number of younger people moving out for the purposes of schooling (24%) and employment (12%). The pursuit of education has had important gendered impacts on livelihoods and income pursuits. Residents have experienced a rapid and dramatic increase in school participation in Elangata Wuas with, according to the 2005 survey, over two-thirds (66%) of children aged 6–15 pursuing primary school compared with just more than a third (39%) of people having ever attended primary school among those aged 36–45 at the time of the survey (Archambault 2007). Recently gender parity has been achieved in the youngest grades. Many mothers with children in school have increasingly found themselves taking up herding duties, as has been found in other Maasai communities as well (Wangui 2008). Land fragmentation has also facilitated this shift in labour as livestock are less mobile and tend to spend more time grazing around the periphery of the home. This provides women with the “opportunity” to look after them while still tending to other responsibilities in the home.

According to a series of questions on time use in the 2008/2009 survey, 60% of wives took care of livestock the day prior to the survey. Among those that did, they spent on average 2.6 hours with a minimum of 15 minutes and a maximum of 10 hours. This compared with 64% of husbands who averaged 4 hours with a minimum of 30 minutes and maximum of 12 hours. In 34% of couples in Elangata Wuas, the wife spent more hours caring for livestock than her husband did. And this alongside other duties such as cooking, cleaning, and fetching water, etc.

## **5.2. Livestock movements**

Apart from efforts to diversify outside of pastoralism, rangeland fragmentation has also effected changes in how pastoralism itself is pursued. Some pastoral communities, Maasai included, have responded by intensifying animal husbandry and experimenting with cross-breeding for greater market value (BurnSilver 2007). Changing the composition of herds is also a common response. Including a greater diversity of species in herds is pursued, in some contexts, to minimize risk. In many pastoral communities in East Africa there has been a marked increase in small stock (goats and sheep) relative to cattle since the feed requirements for these animals are lower (Western 2002; McPeak and Little 2005; Osterle 2008).

In Elangata Wuas privatization has caused rather dramatic changes in how and where livestock are grazed. Very few families keep their animals on their own private parcels of land. The 2008/2009 survey captured information on seasonal land use and grazing strategies. Only 6% of families reported to have kept their livestock on their own private land through the previous wet and dry seasons. Even fewer (4%), although the difference is not statistically significant, kept their livestock on their own land during the last drought. Many factors may play into ones proclivity or ability to maintain livestock on their own private parcels. The quality and size of one's land holdings, the luck of the rains, and the size of the herd are obvious factors. The large majority of families depend on livestock mobility beyond their 270 acres. With all of the land subdivided, save for a few patches of communal public utility lands, this effectively means moving animals onto other people's private land. In the last wet season 95% of the families reported to be grazing on other private lands and 53% of families on communal lands. The results are very similar for the dry season (94% and 59% respectively).

What kind of arrangements do residents make when using other people's private lands for grazing? One strategy is to pay for access to grass. There now exists an informal market in Elangata Wuas for grazing animals on private holdings. Prices range and are often calculated in relation to the quantity of livestock that seeks access, the length of time they wish to graze their animals, and the nature of the relationship between buyer and seller. Prices are not fixed and are agreed upon often through face-to-face communication. Among the case study families specifically interviewed on this issue, one family quoted their last rate. They paid 5000 ksh (close to 50 USD), to gain access to 20 acres of land for 30 cattle to graze for 5–6 months. Some purchase access en route for a couple of days, while others pay, often monthly, for an entire season. Often payment is in the form of cash, but can also be in-kind or traded for future reciprocal access. According to the 2008/2009 survey, 12.5% of families purchased grass during the previous dry period and only 5% during the previous rains.

A much more common strategy is to rely for free access to grass on social networks and the ten families interviewed specifically on this subject agreed unanimously that sub-division has brought about a much greater reliance on social networks to access pastoral resources.

### **5.3. Re-creating the commons?**

Other studies looking at the social implications of land fragmentation, especially studies focusing on Maasai land subdivision, have highlighted how enclosure can cause significant conflict and social tension (Galaty 2005, 2013; Mwangi 2007b, 2010). Among the Maasai, the process of land subdivision itself has been rife with tension around decision-making, membership registration, land surveying, parcel allocations, and titling procedures. There have been numerous land cases brought to the courts in many different communities across Maasailand. Social friction over trespassing onto other people's lands or abusing or overusing communal

lands also appears to be widespread. Land fragmentation also seems to facilitate economic stratification among pastoralists, which some have argued appears to be weakening or undermining norms and customs around resource sharing (Thornton et al. 2007). “Fragmentation of grazing lands has put pressure on pastoral social networks and the use of reciprocal rights and obligations” (Galvin 2009, 191). In some contexts land privatization seems to be turning kin support into a semi-commercial relation (ibid). The impact of land fragmentation on social capital is a critical and pressing question.

As mentioned earlier, Elangata Wuas’ subdivision was mired by accusations of corruption and conflicts over land allocations. Concerns and social conflicts over trespassing have also featured prominently in residents’ experience with tenure change. The social conflict brought about by subdivision has not only been between neighbours or fellow community members over new boundaries. It has appeared in even more intimate settings as well, between parents and children, siblings, spouses, and co-wives over issues of inheritance, land sales, or resource use (Archambault et al. 2014). But concomitantly, land privatization also seems to lead to a much greater reliance on social networks and cooperation. In Elangata Wuas, like in other areas of Maasailand, social networks are being called upon to facilitate mobility, open up fences and, in a way, recreate the commons (Potkanski 1999; BurnSilver and Mwangi 2007; Lesorogol 2010a,b; Mwangi 2011). A profile of three of the ten case study families that participated in the herd tracking exercise illustrates well this process of recreating the commons under rather different circumstances as well as the central role of women, their labour and their social connections. This herd tracking exercise was undertaken between June and August 2013, a period that was considered neither wet nor dry but cold.

Jemimah is a widow in her late 70s. She was married monogamously and had 8 children with her husband. Neither she nor her husband attended school, although they did manage to provide a primary education to two of their sons. Jemimah’s husband was a full-time pastoralist and along with livestock keeping Jemimah herself is a traditional birth attendant. At the time of the interview, Jemima’s wealth status would be characterized as below average to poor. She lives in a traditional homestead with houses made of mud but reinforced with corrugated iron roofs, a recent addition. Her husband was a registered member of the Group Ranch and so was allocated a parcel of 270 acres in a place some 10 km from where she has been living. She lives on the parcel of her husband’s father, which has been entrusted to her brother-in-law, as the oldest son. Her brother-in-law also has his own parcel in the same place as Jemimah’s and lives there. Jemimah does not wish to move to her own parcel because she feels that it is too far away and inconvenient in terms of access to social services and important infrastructure, nor is it where she feels she belongs. If she would be asked to leave this parcel, she would rather request permission from her neighbour to reside with them than to move out to her allocated land. So far this has not been an issue.

She has only a small number of livestock: 4 cattle, 6 goats, and 4 sheep. At the time of the herd tracking exercise the cows “grazed on their own” but the sheep

and goats joined the small stock of her son, who lives in the same homestead. A herdsman grazes these animals during the school period and the children of the home take up grazing duties when school is out. Jemimah is far too old to be doing the herding herself.

The cows that graze on their own went only 3 minutes away from the home at the farthest point during their previous day of grazing. Nevertheless, they did traverse into their neighbour's private land. The neighbour is a clansmate of Jemimah and is also tied through marriage because his daughter married Jemimah's son. Based on this close relationship, she has been granted permission to let her animals graze on their land and she does not have to pay for access. Her other neighbours are not so agreeable and complain if Jemimah's animals trespass. The goats and sheep went no farther than 5 minutes walk from the home but they stayed in the brother-in-law's parcel, took water at their own dam, and returned for the night to the home.

Jemimah explains that the self-grazing strategy has been made possible by privatization. Prior to sub-division she had to hire a herdsman to look after the cattle as she owned many more at that time. She lost many cattle during the drought of 2009. Another interesting factor, as she highlights, is that in the past the human population was fewer and people lived in larger more concentrated and much more dispersed homesteads. Subsequently, there were many livestock predators roaming the area. With subdivision, she explains, homesteads have split and people have moved to their own lands. Predators have moved away because they fear people and so they now pose far less of a threat than they used to. The cattle appear safe on their own.

As was unanimously expressed by all 10 families participating in the herd-tracking exercise, subdivision has greatly reduced livestock mobility and now requires people to negotiate access on a frequent basis for grazing and water access. Jemimah clearly expresses this:

*"Before subdivision my livestock used to move anywhere they wanted because land was public. But nowadays they can't move because of privatization. And if they trespass to other people's land it will bring a conflict. So I decided to ask for permission from my neighbour to allow our livestock to move onto his land and we allow his livestock to come onto our land..."*

Jemimah insists that social relationships are key to accessing grazing. As the other herd tracking reports also reveal, residents typically rely on a wide range of relations: neighbours, kin, clansmates, agemates, and friends from church, school, and work. Jemimah herself regularly relies on her daughter-in-law to access the grass next door. Their connection (through marriage) is so strong that it is very difficult on either side to deny access. Nor would it be appropriate to charge them for the use.

Catherine and James, however, have a harder time negotiating access to grazing and water with their neighbours. Catherine was 35 years old at the time of

these interviews and is the third wife to her husband James, who is 40 years her senior. James and Catherine are both pastoralists but Catherine also engages in a number of small-scale business opportunities, like charcoal burning, selling used clothes, and selling occasional surplus from their small vegetable plot at the local market. As a member of the former group ranch, James was allocated 270 acres of land where they currently live. They are considered to be quite average in wealth. They live in a traditional homestead with a mix of mud houses with iron roofing, and one house fully constructed from iron sheets (walls and roof) belonging to James' second wife. Together James and his wives had 42 cattle, 57 goats, and 30 sheep at the time of the interview. James himself herds the cattle and his wives alternate for the herding of the goats and sheep. When schools are closed the children take primary responsibility.

According to the herd tracking from the previous day, James took the cattle no further than a 30 minute walk from home and Catherine took the goats and sheep no farther than 20 minutes away. Both herds managed to stay within their own land and they both were watered at the family's private dam, a few steps away from the homestead. However, as James explained, it is hard to keep their livestock always on their land. They were allocated a piece of land that is located on a hill. Cattle can not climb this steep hill and the grasses dry up and take longer to re-grow than on the plains. They often have a shortage of grazing and need to either purchase grass or move to other people's lands. This was not a concern prior to subdivision when they felt free to move their animals anywhere, as James relays:

*"Now people have their own land unlike before when the land was communal. No one had to borrow. But now you have to borrow grass from people like relatives and friends. [I] too now rely on relatives to get grass. But before sub-division I used the land freely without relying on anyone."*

Unlike Jemimah, James and Catherine cannot rely on their immediate neighbour for access to grazing. The two families initially fought over land allocation at the time of sub-division. James claims to have built a dam that was then wrongly allocated to the neighbour. For years they fought over access and eventually the dam dried up and was covered by sand. James had to hire someone to build a new dam on his parcel and this is where his animals now take water. When the animals do stray over to the neighbour, there will be complaints and problems. The neighbours had also recently denied Catherine's request for grass for one of her charcoal kilns. They apparently refused because they claimed that Catherine's livestock trespassed and ate grass without their permission.

When asked who James typically relies on to access grazing, he highlights the importance of his wives relations, in particular the brothers of his wives. "Now I borrow grass from my wives' relatives and they give me. And also they borrow from me and I give them because of my wives." Mary, from another participating family in the herd tracking exercise, suggests that marital connections and requests by women are somehow more reliable or stronger:

*“Yes [my relations are very important to access grazing] because if my husband goes to borrow grass from my family they will give him easily. And if I go to my brothers-in-law to access grazing I would be given easily because of the social relationship. More husbands use their wives to access grazing because they will be given easily and for free and if they have to pay they will pay less unlike when the husband goes to access grazing. I was the one who accessed grazing for our livestock in 2010 and 2012 from a family friend on my mother's side and another person who was my mother's clansmate.”*

For Noah, his wife's relations are the first people he turns to when seeking access to grazing. Noah, who was 48 years old at the time of the interview, and his wife Margaret, who is only a few years younger, are considered to be a rather wealthy family within the context of Elangata Wuas. Noah completed secondary school and he is self-employed as a livestock trader and pastoralist. Margaret finished primary school and she pursues pastoralism combined with selling cloths and beads for the local market. They have 270 acres of land on which they live and have built a large permanent brick house. At the time of the interview they had 78 cattle, 181 goats, and 47 sheep. Their livestock holdings fluctuate considerably since they are in the business of buying and selling. Noah started working as a livestock trader only after he received his own parcel of land, which allowed him to manage his grazing.

*“Before subdivision I couldn't preserve grass for my livestock because people used to graze everywhere they want and I couldn't plan for the grass because land was public... [But now] I preserve and plan for the grass by fencing some portion on my land for future use. My livestock don't graze everywhere on my land... I don't keep many livestock in order to preserve my grass. I am a livestock trader so I will sell the other cattle and remain with 10 cattle only. I buy cattle herds then I sell the cattle after 2 months.”*

His herd tracking recollection reveals this strategy. His entire parcel is fenced and he leaves his cattle to graze on the land by themselves. On the reported day, the cattle didn't go farther than 10 minutes walk from home and at a certain point he joined them to take them to water at his own private dam situated on his land. The small stock were herded by an employee from Tanzania and they too went for water and stayed within 5 minutes from the home and within the confines of his property.

Noah recognizes, however, that such a strategy only works in the absence of drought. When a dry spell hits, such as the tough drought of 1999/2000 or the most recent of 2009, he relies on friends and family to access grass and water for free.

*“During 1999–2000 drought I moved my livestock to J. who has married my sister in KMQ, then to T. whose father is married to my aunt, then to N. who was just my friend by then but now my son has married his daughter. In the 2009 drought I moved to N's family in Kilonito. He is just my friend and then I moved to N's family, who is my age mate in Naudot.”*

Prior to privatization, he explains, he used to move his livestock around and he would have to borrow a place to stay and sleep, but never the grass. The land was public and he didn't need anybody's permission to graze. Now, when moving your livestock out of your own property you not only have to negotiate a place to stay but you have to make agreements over grass and sometimes even water access. Unlike James and Catherine, Noah and Margaret have good relations with their immediate neighbors. They can borrow from each other. Noah claims to be most often reliant on his brother-in-laws because he "knows them the best" and he explicitly claims that Margaret is part of the process in deciding where to seek access: "[I] usually sit down with my wife and discuss with her. So she also takes part in coming up with the decision [on who to ask]."

## 6. Conclusion: resilience or vulnerability?

Elangata Wuas residents are responding to land fragmentation from privatization of formally communal rangelands in interesting ways. In addition to diversifying their livelihoods they are making important adaptations to how they practice pastoralism. Some are making changes to herd sizes and composition, but the most prominent change has been social accommodations to a new governance system, one that now requires that pastoralists seek permission from landowners to access resources and to move their animals across the landscape. While a market for selling rights to private holdings has arisen, most residents are not willing or able to pay the associated costs. More than ever before, they report, they must rely on social networks to recreate a commons of free access and mobility for their herds. Grazing interviews and herd tracking exercises have revealed that residents typically rely on a whole range of relations for free access but, notably, marital connections and women's social networks seem to be recognized as central and reliable. Many families call on the kin, clansmates, agemates, and/or friends of their wives, daughters, sisters, or mothers and they recognize their wives as central nodes in accessing pastoral resources. These observations, confirmed only on a small sample of case studies, demand more research attention and in particular invite an investigation into the implications on both pastoralism and gender roles, relationships, and women's well-being.

Fragmentation has had profound impacts on livestock mobility, a critical dimension of successful pastoralism in the harsh climatic conditions of East African rangelands. Relying on social networks, and in particular on women's expanding networks seems to be an important adaptation to fragmentation, which facilitates continued mobility. But is it enough? Are these "new commons" dependable and sustainable? What other transformations in social capital are occurring alongside this new system of land governance and do they enable efficient, productive, and reliable pursuit of pastoralism? For example, what if young, educated, and employed Maasai increasingly choose to marry partners from outside Elangata Wuas with no connections to land and resources? What if norms around resource sharing weaken? Presumably, if the dynamism of the current

situation is any indication, new networks of connection and forms of cooperation will emerge or old ones will be revitalized. These dynamics merit close attention, however, as they will shape the future of pastoralism and will determine who is included and excluded from new constellations of recreated commons.

The gendered impacts also deserve further research attention. Maasai women in Elangata Wuas are experiencing rapid change in their roles and responsibilities and are building thriving networks through various economic, social, political, and religious pursuits. Many women have embraced economic and social opportunities fostered by enclosure, for example, selling charcoal or farmed products, building more permanent homes or starting small businesses. They also appear to be more clearly recognized as central nodes in pastoral resource access and governance. Residential relocation, family nuclearization, and the expansion of schooling have also shifted herding responsibilities onto women. What these new roles in pastoral production mean for women's well-being has yet to be understood. Does their new contribution to resource governance translate into more decision-making authority in their households or more control over valued household resources? Will such social networking roles spur women to take up more positions of leadership within the community or lead men to more readily accept women as community leaders? Could these critical connections to female networks and the stronger ties and dependence on women's family and friends play a part in improving women's treatment in the home, for example, protecting them against exploitative labour or domestic violence? Or do these new roles overburden women, misallocate their labour, and threaten to emasculate men causing increased social tension in families? Further research is needed to understand how enclosure and the building of new commons contributes to the resilience or exacerbates the vulnerabilities of pastoral systems and pastoral women.

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