The diversification of pastoralist herding: navigating socio-climatic risk via mobile technologies

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ABSTRACT

This paper examines the diversification of pastoralist herding practices in the context of socio-climatic change and the ways in which mobile technologies shape this diversification. It does so to offer a plural perspective on the relation between climate change and human mobility, showing the heterogenous and socially embedded ways in which it unfolds. Pastoralists have been moving in response to rains and droughts for centuries. This mobility is, however, faced with numerous challenges, related to privatisation of land, processes of urbanisation impacting on pastoralist livelihoods and changing rainfall patterns making decision-making on livestock mobility increasingly complex. This paper examines how pastoralists are navigating these challenges through the use of basic phones, smartphones and social media, via a case study of the Kenyan Laikipia Highlands. It demonstrates how these mobile technologies enable herding practices to endure and for them to be reshaped by taking on a mix of physical and digital forms. This happens through social media platforms, virtual herding and through pluralised networks of information exchange on grazing strategies navigating the socio-climatic limitations imposed on them.

Introduction

This article examines the diversification of pastoralist herding practices in Kenya in the context of socio-climatic change, and how this diversification takes shape in the digital age. It does so from both a historic and contemporary perspective in response to recent calls to open up research on the nexus between human mobility and climate change (Baldwin 2014; Baldwin, Fröhlich, and Rothe 2019; Boas et al. 2019; Wiegel, Boas, and Warner 2019), as further developed in this issue (Boas et al., 2022; also Farbotko, 2022 and Zickgraf, 2022 on this interplay). The aim of these calls is to move beyond the conception that climate change factors cause fundamentally new climate change-induced human migrations; a conception that conflicts with the understanding of human mobility as co-shaped by socio-economic, political and historical factors (Black et al. 2011; Sheller 2018; Whyte, Talley, and Gibson 2019), or by other socio-

material mobilities (Urry 2007; Sheller 2018; Blondin, 2022) – such as digital flows (Durand-Delacre, 2022). Scholars have, therefore, argued for the need to 'pluralise' our understanding of this relation (Baldwin 2014). This, amongst others, means paying greater attention to the varied forms in which mobility in the context of climate change takes shape and how this intersects with other historic and contemporary processes.

It is within this broader context that this article places itself. It examines a case where mobility in the context of environmental dynamics is, or at least used to be, the norm: pastoralist moving with livestock in Kenya. This case is chosen to exemplify how climate change-related mobility is not per se new or out of the ordinary, but instead is embedded in larger processes of change and shaped by existing mobility practices (Whyte, Talley, and Gibson 2019). I examine how this well-established form of mobility by pastoralists unfolds and possibly diversifies within a context of change, risk and restrictions: with climate changes increasing the unpredictability of the rainy seasons, adding to the extremity of droughts (Huho et al. 2012; Wakachala et al. 2015; Semplici 2019; Muchiri et al. 2020; Ndiritu 2021); with urbanisation processes and increasing access to education stimulating the pastoralist youth to look for other lifestyles and livelihoods in the city (Bruyere et al. 2018); and in the context of imposed restrictions on land access and livestock mobility (Lesorogol 2008; Galaty 2013; Pas Schrijver 2019; Ndiritu 2021). I study this with a focus on the *digital age*, examining the role of basic phones and smartphones in shaping pastoralist herding practices in the context of these challenges. In doing so, this article seeks to understand how physical and digital mobilities shape each other in the effort of pastoralists to 'navigate'[1] the risks and challenges that affect their mobility decisions.

The rest of the article is structured as follows: the next section outlines the existing literature on the use of digital technologies amongst pastoralists in their management of, and mobility with, livestock in the context of a fluctuating climate. This is followed by a methods section offering a background of the case study and the methods used. The subsequent section analyses the case study demonstrating how physical and digital mobilities intersect with the efforts of pastoralists to adapt to socio-climatic changes, and to land restrictions impeding their mobility and livestock management. The final section discusses these findings and concludes that mobile technologies enable herding identities to endure by taking on a mix of physical and digital forms, allowing pastoralists to navigate the social and climate change-related limitations imposed on them.

The digital age and pastoralist herding in an uncertain climate

Mobile phones are playing a growing role in the herding by pastoralist communities (Rutten and Mwangi 2012; Nilsson and Salazar 2017; Baird and Hartter 2017). Pastoralists are highly mobile in their search for grazing areas for their livestock, especially in times of drought. Communication, social networking and knowledge exchange are inherent to these mobility practices (Galaty 2013), and mobile technologies have come to play an important role in that information fabric (Djohy, Edja, and Schareika 2017; Nilsson and Salazar 2017). Several studies have, for example, found mobile phones to enable safe financial transfers in the purchasing, selling and trading of livestock

(Rutten and Mwangi 2012; Nilsson and Salazar 2017; Baird and Hartter 2017) and in sharing information about good pasture for grazing (e.g. Baird and Hartter 2017; Djohy, Edja, and Schareika 2017). Vang Rasmussen et al. (2015) and Djohy, Edja, and Schareika (2017) in their analysis of pastoralist herding in Burkina Faso and Benin, respectively, provide evidence of active phone communication with geographically distant contacts for the gathering of information about weather and grazing conditions. In their study, Vang Rasmussen et al. (2015) found that 67% of the pastoralists they interviewed used a mobile phone as the primary tool to obtain meteorological information. Physically surveying the area to gather such information came second place with 28%.

Despite this, several studies consider the impact of the digital to be less than what might be expected (Butt 2015; Asaka and Smucker 2016; Baird and Hartter 2017). Baird and Hartter (2017), in researching livelihood diversification strategies amongst the Maasai in Northern Tanzania, find that the mobile phone *supports* existing pastoralist activities but is not *transforming* them, in the sense of creating new social connections, new types of activities or new norms governing pastoralist rangelands. Asaka and Smucker (2016) go even a step further. Based on their assessment of drought-related livestock mobility amongst Samburu Pastoralists in Kenya between 1999 and 2009, they argue that mobile technology has had 'limited impact on grazing strategies and drought-related mobility patterns' (Asaka and Smucker 2016, 15), in the sense of accessing information via a wider set of social networks, in finding new sites or in navigating risk. The interviewed pastoralists found it difficult to use mobile technology to make sense of grazing environments, such as the state of pasture or weather conditions. Another reason was the lack of trust in the information transmitted via mobile phone technology (Butt 2015). Interestingly, however, Nilsson and Salazar (2017, 451) find the opposite in arguing that 'the distrust in mobile phone technology is rather limited in Maasailand and is not necessarily experienced as an inferior form of sociability than direct contact'. Whilst they do recognise concerns and mistrust in some of the information digitally transmitted, they do not conclude that it, therefore, has a limited effect. They instead highlight how certain norms or 'institutions' common to pastoralist practice are being reshaped in a digital context. As an example, they refer to rituals that guide the exchange of information. Traditionally, the elders of the community are in charge of transmitting important information, such as information about the death of a family member. With the introduction of mobile phones, news travels fast and reaches the families before the elders have heard about it or have been able to verify the information. So even though elders can be critical of these changes, they do have an effect on the customary ways in which pastoralist communities are governing themselves.

Literature has furthermore emphasised how wider socio-political and societal developments are shaping mobile phone use (Horst and Miller 2006; Butt 2015; Nilsson and Salazar 2017; Boas 2020). For example, increasing access to education, land restrictions and climatic changes has made many young pastoralists less inclined to engage in herding (German, Unks, and King 2017; Bruyere et al. 2018). This has contributed to a need for pastoralist families to hire shepherds to take care of their livestock. Hired herders can come from other areas and are less familiar with local environments, which increases their need for phone communication to obtain information (Butt 2015). Phone use is, therefore, informed by 'specific domains of the everyday (e.g.

workplace, social life, daily routines, etc.)' (Tsatsou 2011, 74). For that reason, the local context is central in the study of mobile technologies, to understand how ongoing mobility practices and existing forms of communication and information exchange are informing the role that mobile phones play in pastoralist practice (Horst and Miller 2006; De Bruijn et al. 2016; Nilsson and Salazar 2017).

Based on these insights, I start my analysis with the understanding that the impact of mobile technology goes beyond the mere *support or facilitation* of *existing* practices of pastoralism. My approach is as such in line with Nilsson and Salazar (2017, 458; see also De Bruijn, Nyamnjoh, and Brinkman 2009) who argue that mobile technologies 'are embedded, rationalized and re-purposed' in the context of pastoralist practice and culture. I will study how mobile technologies merge with, and modify, pre-existing social relations and ways of communication (De Bruijn, Nyamnjoh, and Brinkman 2009; De Bruijn et al. 2016; Nilsson and Salazar 2017), and examine how these emerging digital practices in turn shape herding practices that are themselves adapting to contemporary changes such as global warming and urbanisation (Bruyere et al. 2018; Pas Schrijver 2019; Semplici 2019).

Methods and background

The Maasai in Laikipia

The research concentrates on the Laikipia–Isiolo–Samburu area in the North of Kenya. Specifically, I focused on the Laikipia Maasai pastoralists residing in Laikipia county's highlands – concretely, in the Mukogodo ward. I use the term Laikipia Maasai to reflect how the research participants self-identified themselves. In practice, they are often highly mixed groups (e.g. through intermarriage with the Samburu), and are by origin a mix of hunter-gatherers and Maa-speaking pastoralists who switched to pastoralism as the predominant livelihood between 1925 and 1936 (Shaughnessy 2019; Unks et al. 2019; Cronk 2004). Amongst the Laikipia Maasai in Mukogodo, the level of herding mobility varied per section (or 'tribe', see discussion in Galaty 2013), their location (whether they, for instance, face much-restricted access to grazing areas) and on the size of the herd. Many of the Laikipia Maasai have adopted mixed lifestyles, with several having non-herding jobs or living in nearby cities, with several owning goats or a few cattle, and others still owning large herds and moving around with livestock more often.

The Laikipia–Isiolo–Samburu area is one facing many challenges. For one, in the context of worsening climate changes (Muchiri et al. 2020; Ndiritu 2021), it has been struck by a series of droughts, with severe ones in 2009, 2016–2017 (Pas 2018; Asaka and Smucker 2016; Galaty 2013), and still struggles with increasing unpredictability of the rainy seasons and intense droughts, with again a long and severe drought in 2021/2022. In addition, the region has also been struck by periods of excessive rains (e.g. early 2020). The recent locust outbreak is a consequence of such excessive rain, which haunted East Africa's rangelands as a result of prolonged rains and other extreme weather events (see for the exact details on the relations with climate change Salih et al. 2020). Moreover, the Laikipia–Isiolo–Samburu is an area that has been greatly influenced by (post)colonial rule in relation to land ownership and access (Lesorogol

2008; Galaty 2013; Pas 2018; Pas Schrijver 2019; Ndiritu 2021). As noted by Pas Schrijver (2019, 3): 'Most of the good-quality and well-rained lands are allocated to either restricted community based conservancies, private ranches and conservancies, agricultural small holdings and national parks, or are subjected to violent conflict between different pastoralist groups'. In the Laikipia highlands, this situation is highly visible. In the early twentieth century, the colonial powers in Laikipia appropriated large pieces of Maasai land for the use of British settlers (Galaty 2013; Pas Schrijver 2019; Shaughnessy 2019; Ndiritu 2021). Most of the Maasai were evicted to reserves in the south of Kenya, though a substantial segment managed to remain in what was named the 'Mukogodo Reserve', meant for the hunter-gatherers from the area (see Shaughnessy 2019 for the historic details on how this took place).

After colonial times, much of the British-acquired land was turned into private ranches. These are owned by former settlers, other Europeans, wealthy Kenyans and private investors (Pas Schrijver 2019), or by relatively affluent pastoralists (Fox 2018). The Laikipia Maasai from Mukogodo became organised into group ranches – legalised by the authorities in the 1970s with the aim to reduce livestock numbers, to improve land management and to limit pastoral herding (Pas 2018; Unks et al. 2019; Rutten 1992). The group ranches were in the time of my presence in the area in the process of turning into community lands, securing the ownership and rights of its community members (Wiley 2018). Still, the division of land and land boundaries in Mukogodo thus far remains the same. These community lands (the former group ranches) in Mukogodo are locked in between these private ranches that are fenced and monitored by rangers or police, leaving the Laikipia Maasai with restricted space for their livestock to graze (Galaty 2013; Pas Schrijver 2019; Unks et al. 2019; Ndiritu 2021). Such restrictions only increased through the many national and conservation parks that emerged in the Laikipia–Isiolo–Samburu area. As a consequence, as well summarised by Galaty (2013, 501), 'the unrealistic restrictions that formalised land-tenure places on pastoral land use are constantly evaded, ignored, or bargained over, as herd owners use time-tried strategies of flexibility and negotiation'. Pastoralists, therefore, often enter these private lands when herding, considered as part of their ancestral land – at times with, but often without 'permission' by the modern-day owner. Moreover, in their efforts to regain access and influence over ancestral lands, there has been much resistance towards, and political protest against, restrictions in access and the ways in which land tenure and conservation efforts are being organised, ignoring customs, ways of herding and conservation practices used by Maa-speaking pastoralists for centuries (Galaty 2013).

Data collection

The research consisted of a scoping visit to the area in November 2016, followed up through field observations, short walks with pastoralists, informal conversations and over 50 in-depth interviews in January and February 2020. It also involved exchanges with interviewees via WhatsApp, during my stay in Kenya and in the months following it. I also followed up on relevant contacts or storylines if these involved going to Nanyuki or Nairobi for interviews with pastoralists who moved there.[2] I went to Isiolo County to observe one of the herds owned by one of my interviewees from Laikipia (now residing in

Nairobi). During this period, I have also stayed with a pastoralist family in Mukogodo (specifically, in the Kijabe community land, at the time of research still called Kijabe Group Ranch) to get a sense of their daily lives and grazing strategies, whilst doing interviews with them and other community members nearby.

These interviews and observations concentrated on herding practices, cultural practices (e.g. the role of different age-sets), the use of mobile technologies and the available digital infrastructure, local contexts (such as experienced grazing restrictions or the impact of the locust invasion, which was relatively limited in Laikipia), rural–urban exchanges, and the impact of heavy rains and droughts that happened recently and long ago. I held interviews with several older pastoralists, to have a better sense of how current pastoral herding, the role of information exchange and the state of pasture compares to earlier times. My results do contain a certain bias towards the perspective of males, as they were usually the ones doing the herding or making decisions about the herding, as customary to the local culture (Lesorogol 2003). This means that a gendered perspective is still an important gap to be filled in future research on this subject.

The examples in the analysis below are reconstructed on the basis of multiple interviews and observations. The real names of the interviewees have been replaced with pseudonyms. All interviews were done with the informed consent of those involved. I am still in touch with several interviewees via WhatsApp to inquire on their interpretations of certain findings, to keep informed about each other's lives and to share search results (Hahn 2020). The study has been conducted prior to the Covid-19 outbreak – its effects have as such not been taken into account in this analysis.

Results: the digital in pastoralist herding

Information gathering in times of drought

Most of the pastoralist families I met, stayed around a place (mostly semi-permanent or permanent settlements) in times of rain and good pasture. But when it gets dry the cattle need to move to find better pasture (Pas 2018). The unmarried boys of the community who obtained the age-set of a *moran* – usually between 15 and 30 years of age – are in charge of such cattle herding. Yet, many of the *moran* in Mukogodo are often no longer actively present and able to perform their *moran* responsibilities, as they left for school or got another job. In these cases, to preserve the herd, several of the families I met decided to hire someone who does the herding instead, often in collaboration with the older members of the family, who are still with the livestock.

When moving, the sharing of information – such as insights, news or rumours – becomes key. Locally, amongst the Laikipia Maasai, this is called *serian* – the sharing of news. As explained by a Laikipia Maasai: 'You greet a person, you ask: have you seen my people', or you ask how the weather is at home or where good grazing areas are, and other relevant information. 'Mostly it is during the evening. We settle, we talk and get info, as during the day people are busy looking after livestock'.[3] This way you pass on information, based on trust, friendship and kinship (Galaty 2013; Pas 2018, on the importance of these social networks). People often move in groups – for example, with fellow neighbours or people from neighbouring areas they meet them along the

way. In the night, you rest, talk and interact with others you meet, which forms a trust-worthy web of information.

Another key source of information is the physical surrounding itself (Semplici 2019). Elderly pastoralists explained how they 'follow the grass' to find the best pasture and use the evening and morning starts to get information about rains. They look for clouds and thunder which are easy to spot in the mountainous areas around the Laikipia–Isiolo–Samburu county borders. These elders often do not own smartphones (though they often have a basic mobile phone) and prefer to stick to the information they hear face-to-face or by physically surveying areas for good pasture (Asaka and Smucker 2016). This is less strictly so for the younger generations. The younger generations (including those who are illiterate, though mostly male) frequently call each other, and in case of owning smartphones, they actively share pictures and videos via WhatsApp – of cattle, the state of pasture, etc.

The experience of Daniel and his family[4] well illustrates the dynamic of how mobile phone technologies interplay with customs of *serian* and practices of finding good grazing areas. Daniel is a Laikipia Maasai in his early thirties who works as a high school teacher in the Mukogodo area. His family owns about 60 cattle who usually stay around their homestead. During the 2016–2017 drought, Daniel's father and a hired shepherd had to temporarily take their cattle elsewhere in search of better pasture. Daniel could not join due to his work, though officially he was still a *moran*. His father and the hired shepherd left for about 9 months. During this period, Daniel and the hired shepherd exchanged videos and pictures via WhatsApp – of the cattle, so that Daniel could see the state of their health; and of vegetation, for example, when Daniel wanted to show how the pasture at their homestead was improving. In this way, the assessments of the physical surroundings were no longer just based on direct assessments but became entangled with what was recorded, seen and shared virtually. In a similar vein, phone calls between Daniel, the hired shepherd and Daniel's father, and their WhatsApp exchanges, pluralised practices of *serian* and of how pasture was being assessed. At the same time, it enabled Daniel to continue some of his *moran* duties as the digital exchanges allowed him to inform and shape the discussions taking place at night between Daniel's father, the shepherd and the other pastoralists they were with.[5]

The phone also enabled *serian* to continue whilst on the move. Due to the severity of the drought, many pastoralists grazed in private areas that have restricted access and are guarded by rangers and at times even by Kenyan police. For such cases, there is a web of connections to warn each other in case a guard is coming. This can be done via gestures (like waving from the hilltops) but also by making quick phone calls:

> You see, we are with many next to the river there. Group A may have seen the soldiers, so they may be like guys be careful, things are not good. So us, we make another call, you guys up there, the soldiers are like there. Guys take caution, so take the cows further inside or run out. So we are like a forum.

The mobile network does fluctuate:

> In some parts it was ok. Now we are blessed with the new tower. But back then [in 2016], when you are lucky you have network. Or, you see when they catch my cattle, I can go to a

place with network, some hilly parts, and make a phone call: guys please be careful. You give a signal.[6]

This further exemplifies how, especially for the younger generations, mobile technologies have become entrenched in customary practices of information gathering. The phone enabled pastoralists to act as a collective to evade the monitoring and control of the large landholders. It gave them additional tools to navigate the restrictions and to more quickly collaborate to avoid being caught whilst aiding others in entering the terrain as well.

Virtual herding

The practice of herding has been subject to a number of societal changes, such as increasing access to education, the rise of urban centres and increasing flows of rural–urban migration, environmental degradation and climatic changes complicating livestock management, and more recently, the growth of digital connectivity (Nilsson and Salazar 2017; Vidal-González and Nahhass 2018; Bruyere et al. 2018). Within this larger context, livestock management has become more diversified over the years (Bassett 1994; Little et al. 2001; Butt 2015; Nilsson and Salazar 2017). As was mentioned, it has, for example, become a standard practice to outsource herding responsibilities (Bassett 1994; Little et al. 2001; Butt 2015; Nilsson and Salazar 2017). At the same time, those from a pastoralist community who have started different types of jobs (such as working as a high school teacher, lawyer, construction labourer, NGO work or a business job) often want to remain connected to pastoralist life and culture. Having a mobile phone allows them to combine their new 'more modern' life with that of being a pastoralist (Nilsson and Salazar 2017). A primary example of that is what I refer to as *virtual herding.* Especially those with well-paid jobs in the city like to preserve their herd and continue herding at the same time. They do not want to let go of that practice and their culture, and way of making a living and of what gives them status. As such, they merge their herding responsibilities with their lives in the city.

The above example of Daniel supporting his father was an indication of this dynamic. I will further illustrate it through exchanges I had with Sironka – a pastoralist, political activist and businessman in Nairobi and around Laikipia. After some WhatsApp exchanges, Sironka and I meet for an interview in a fancy hotel in Nairobi, near where he lives.[7] He comes in worried and distracted, constantly looking at his phone, making phone calls and reading WhatsApp. He has not slept all night. Last evening a pastoralist got shot in Laikipia by someone who was trying to steal cattle. This was near the area where Sironka's cattle reside. He has been following discussions on WhatsApp' groups (e.g. Laikipia North Professionals) on this topic all night and is constantly calling friends from the area, and the shepherd who manages his cattle in the Laikipia–Isiolo area. Sironka owns three herds – a herd of young cattle of about 1.5 years old, a herd of 4–8 years old and an older herd, each consisting of about 100–150 cattle. He keeps the youngest ones separate – they are mostly in Laikipia. The old and medium-aged ones are also kept separate but do stay around the same the boma (the area where the herdsmen made a temporary house and resting area). At the time of the interview (February 2020), these two herds were residing in the low areas of Isiolo. Given their location, still being close to the Laikipia border, Sironka is worried that

the attack could escalate and turn into a wider conflict in the area, which could put his herd at risk.

In the middle of it all, Sironka was also doing business. He had to email his friend with whom he is setting up a bio-char (biological charcoal) company. The email was urgent as his friend was boarding a plane and as such would be offline for some hours. In an attempt to continue with the interview, he was once again interrupted by an important phone call. This time it was one of the shepherds he hired to request Sironka to send them some money via M-Pesa. One of the cows was ill and in urgent need of antibiotics.

This exemplifies how from a distance, Sironka stays on top of his businesses via digital means, one of them being his cattle. This not only entails responding to crises like the above via phone, but also includes preventively strategising next moves together with the responsible herdsmen. Central to the latter is having a clear strategy as to how to cope with the environmental and climatic changes taking place in the Laikipia–Isiolo. After some years of drought in 2016–2017, the rain had returned to the area. In 2019/2020, the rain even continued in Laikipia for longer than it normally does. Whilst the rainy season is supposed to end in November/early December, it continued this time around. In Laikipia, there was even an unprecedented amount of rain in January and early February 2020, whilst these are dry months under normal circumstances. Given the need for his herd to breed and grow in number, Sironka – together with the senior shepherd who manages Sirokana's herd – had decided to move the herds at the end of December 2019 from the highlands of Laikipia to the lowlands of Isiolo. Isiolo has a warmer climate, more favourable to the breeding of cows. After the breeding period is over, they will go back to Laikipia as they assess the chances for cattle rustling to be lower there. Sironka and the senior shepherd call each other every morning and evening to discuss such strategies: on plans to move and to report on the number of cattle, the grazing circumstances (rains/drought/cattle rustling), and the cattle's health and safety. Constant interaction by phone is essential, especially when the cattle move from colder to warmer climates, which can make cattle sick, urgently requiring medicine, or when situations are tense as different groups compete over grazing areas, such as the area in the Isiolo lowlands where Sironka's herds resided during the time of our exchange.

This interview, combined with a visit to his herd and WhatsApp interactions we had since then, had become a way to observe in practice how Sironka's life and the notion of pastoral herding are entangled with his phone and digital network connections: a life in Nairobi where his wife resides, whilst staying in constant connection with his herdsmen in Laikipia and Isiolo counties, not to even mention a tourist lodge he managed in the area and his aspirations to represent pastoralist views in Laikipia politics. As a pastoralist, he is well accustomed to a mobile life, consisting of a web of connections and relations, and mobile technology is allowing him to continue it in a different more 'virtual' form. His smartphone, and in particular WhatsApp, M-Pesa and simple calling functions, has become a central means for him to stay connected with multiple places and the people residing there. Above all, it enables him to continue herding, and in a renewed manner maintain a pastoralist lifestyle, whilst having another life in the capital city.

Digitalisation and short-distance livestock keeping

The Laikipia Maasai have faced increasing pressures to organise their livestock around the homestead and in the communal grazing areas located within the group ranches/community lands through short-distance mobility (Unks et al. 2019). In Mukogodo livestock mobility has become especially restrictive, given the many private ranches that surround Mukogodo. This has resulted in relatively low levels of livestock and livestock income in the Mukogodo area, given the limited space for grazing (Unks et al. 2019). In this context, several of the Laikipia Maasai I spoke to have switched from cattle to owning goats (see also Österle 2008; Galvin 2009). This further relates to the growing uncertainty over rainy reasons, complicating the upscaling of livestock. As noted by one of the interviewees from Mukogodo:

> Things are turned up. You can get heavy rains which are like a new situation to us. You can get rains in January, which are a new situation to us. You can get rain in June or July and while skipping the usual rains of August and October, so you just get rain when you are not expecting it. We used to stock a lot [cattle] towards October, but now things have changed, so we just fear to stock.[8]

In the context of ongoing grazing restrictions and uncertainties about the rainy and dry seasons, many of the Laikipia Maasai have, therefore, shifted to goats, so that they have to move less and can still have some livestock as several of the Laikipia Maasai talked about how goats can survive harsher climates (see also Österle 2008; Galvin 2009); although in times of severe drought, some still had no other choice than to take the goats elsewhere for grazing.

The mobile phone has come to shape this more localised form of livestock management and associated short-distance mobility for herding. Most notably, in Mukogodo, WhatsApp groups have become central in the communal management of local grazing areas, including the management of border patrolling of community lands (former group ranches), or the larger Mukogodo area, to keep local grazing areas secure. The *moran*, for example, connect via phone calls and WhatsApp in their duties to keep their communities and livestock safe via the controlling of the borders of community lands. As several of them are illiterate, they share voice messages and videos on their private WhatsApp group – for example, to quickly spread the message when other pastoralists groups are coming. The young elderly men (the age-set after being a *moran*, when allowed to marry) in turn are connected by their own private WhatsApp group managing local issues together with the oldest men of the community (the elders). For example, in the Kijabe Community Land of Mukogodo, the young elders and some of the elders use a WhatsApp group to monitor areas they are temporarily conserving. These grazing areas are temporarily restricted of use, to enable the local grazing of their livestock at this area during a dry period. Pictures are made and shared on WhatsApp in case herders evade these rules. This makes it easier to gather evidence of those who do not abide by the community rules.

Similar to the earlier given example on trust by Nilsson and Salazar (2017), these digital practices equally reshape customs in the sense that the young elders become empowered vis-à-vis the elders in the monitoring of grazing lands, whilst traditionally it is the elders who make the decisions on 'where to graze, established social norms, and doled out fines and punishments for infractions …' (German, Unks, and King

2017, 633). They still do, so there is no drastic alteration in that context. Still, their decision-making becomes increasingly influenced by the fast and high amount of digital information available. The example offered here further shows how heightened forms of mobile and digital surveillance play into, and further emphasise, matters of in/exclusion, land access and ownership, and concerns over so-called trespassers that have risen over the last 50 years ever since the introduction of group ranches. It feeds into the ways in which livestock management, short-distance herding, and associated forms of monitoring and patrol are taking shape.

Activism and politics through social media

Last but not least, social media has become a primary forum for pastoralist communities to define, and fight on, matters of injustice in Central and Northern Kenya, and to promote a greater use of indigenous knowledge in decision-making on land rights and herding (Nilsson and Salazar 2017). It has become amongst the primary avenues via which local politics is being played out. There are several WhatsApp groups (such as 'Errant Natives', 'Northern Errant Natives' or 'Laikipia North Professionals') and Facebook pages (such as Big White Lies by Firewalker Africa, led by a female activist since early 2017) through which this takes place. Many active on these networks are from pastoralist origin and are often well educated. Due to post-colonial experienced injustices when it comes to restrictions on land access and herding, many feel strongly motivated to act and speak up.

One of these active online pastoralists is Mingati. He is a Maasai from Laikipia and moved to Europe in his twenties from which he recently returned. When in Europe he used his phone to stay connected with his family and social media to stay tuned into local politics affecting his birthplace, especially during turbulent times – for instance, during elections or severe droughts. He, for instance, actively followed the 2016/2017 drought via WhatsApp and Facebook. The groups he is active on in his own words take 'a postcolonial neomarxist view and especially critique the white settlers, also during the drought when they deny access'. He sees it as his duty to his people to be active on these forums and to write blogs seeking to change local politics: 'From 92–2003, I was a spear *moran*. Since I am a young elder, I am a pen *moran*. We fight with fingers and words, we need to stand up for our rights, otherwise we are just an object'.[9]

His story exemplifies how social media has become a key avenue for pastoralist communities to stay connected and to organise themselves. For example, in part resulting from these online discussions and alliances formed on WhatsApp groups 'ErrantNatives' and 'Northern Errant Narratives', is a fact-finding report that targets the practices of Northern Rangelands Trust (NRT) – a big conservation body that coordinates and guides on conservation activities amongst local community conservancies.[10] The report – focussing on a community conservancy in Isiolo – critiques NRT for disfavouring and maltreating the local population, whilst protecting foreign interests, valuing tourism (and, therefore, wildlife) over local populations and restricting access to grazing lands (WBP and BCE 2019). It has led to protests, discussion and media coverage, including a response by NRT itself denying the accusations (NRT 2019).

Whilst these developments go far beyond the issue of climate change or herding per se, they do intersect with one another, as questions of access often rise to the surface during

times of drought. Ideas about pastoralist life, rights and identity are actively being shaped, reshaped and negotiated on these digital fora – such as in the case of Mingati who was able to continue his *moran* identity online whilst in Sweden and whilst 'officially' being beyond the *moran* age-set; or in case of the organised WhatsApp and Facebook actions critiquing NRT's conversation practices seeking to influence political questions of ownership of land, rights and access.

This does not imply that these debates are necessarily uniform. As highlighted by Fox (2018), we should be careful not to represent the local politics of land access as a simple divide between the large landowners and White settlers on the one hand, and the pastoralists on the other. In the Laikipia–Isiolo–Samburu border area, there are often frictions between the Laikipia Maasai and the Samburu, and with other pastoralist groups, which include hostile references to one another and laying conflicting claims on one other's land.

Discussion: merging forms of online and offline pastoralist mobilities

The above has demonstrated an active interplay of offline and online pastoralist mobilities: between the physical mobility of the shepherds and their face-to-face information exchange (*serian*) on the one hand, and the virtual gathering and exchange of information about pasture, water or issues of danger, on the other hand. Together these inform decision-making by pastoralists on where to move next with their livestock in the context of hurdles they face; ranging from climatic changes to the diminishing number of *moran* able to herd or the restricted access to private ranches in ancestral lands. The sharing of photos and videos via WhatsApp of locational information about pasture, water points or the cattle, for example, demonstrates how pastoralists no longer physically there 'can travel *virtually* and be present in another location on an *imaginative* level' (Ozkul 2013, italics in the original). As noted by one of my interviewees, not able to physically join the herding activities: 'I would get photos from them to see how they are, photos from the livestock I got to see, so many things'. The digital sharing of locational information on the state of pasture, or on the location of incoming rangers, and the subsequent 'imagined presence', becomes a source of bonding, of making connections and in that way a source of trust (Urry 2007; Ozkul 2013). In this context, as opposed to simply identifying digital information shared amongst pastoralists as considered trustworthy or untrustworthy, this paper shows how digital technologies allow trust-building, the sharing of information and practices of assessing pasture to become pluralised and extended through a mix of physical and digital forms (Urry 2007; De Bruijn et al. 2016).

Imaginative co-presence also characterises the case of Sironka showing how distance herding is digitally enabled. Sironka is able to virtually travel to the place where the herd resides, and virtually keeps himself and the shepherds informed of the dangers, politics and droughts affecting the area via his digital network and information sources on the ground with whom he keeps an active phone contact. In that way, as argued De Bruijn et al. (2016), mobile technologies help to maintain the mobile *identities* of pastoralists – even if socio-political factors are increasingly limiting the mobile *livelihood* of pastoralism in the traditional sense of the word. The example of political activism via Facebook and WhatsApp also mirrors this dynamic of imaginative co-

presence. Digital connectivity allows those no longer practising 'traditional' herding or *moran* activities to continue protecting pastoralist practices via their online presence.

This does not mean we should ignore pre-digital communication, such as *serian*. Existing communication practices often shape digital practice (Horst and Miller 2006; Boas 2020). For example, a one-to-one mobile phone exchange in the search for good pasture with someone you already know or a WhatsApp discussion with a closed group of trustworthy parties is considered more reliable and in line with *serian*, than a large WhatsApp group (of which they also use many) in which the source of the information is hard to track. In that context, several Laikipia Maasai mentioned how large WhatsApp groups are just about 'politics' – with different parties putting forward their views and pieces of information, seeking to influence the next elections – making it difficult to filter out vital information that can be used for decision-making in the search for grazing areas (see also Nilsson and Salazar 2017). This interplay between pre-digital mobilities (mobility practices and information exchange) and new digital technologies is what Keightley and Reading (2014, 286) refer to as 'mediated mobilities', being:

> the broad emergent cluster of ways in which different kinds of mobilities, including the mobility of people, the mobility of material artefacts and the mobility of data are themselves experienced and articulated through particular historically situated media ecologies. These ecologies can refer to pre-digital contexts in which various kinds of mobility were mediated through earlier forms and practices as well as digital media ecologies … . (Keightley and Reading 2014, 286)

In summary, digital technologies do not merely support or facilitate the herding of livestock, nor do they enable a drastic shift in pastoralist livestock management or in the central norms or customs. Instead, digital forms of communication and information sharing *merge with* pastoralist mobility and the customs interplaying with it, pluralising the ways in which pastoralists mediate the ongoing restrictions and the changes coming their way.

Conclusion

To conclude, this paper has shown how physical and digital pastoralist mobilities come together in pluralising the efforts to navigate a complex web of socio-climatic changes and land restrictions shaping mobility decisions in livestock management. Whilst Asaka and Smucker (2016) found limited evidence of that in their analysis of grazing strategies during the 2009 drought, this study finds more of these integrated practices due to its focus on more recent droughts, younger generations and their usage of smartphones. This study has shown this in four ways: (1) there is a hybrid mix of online and offline forms in which information about grazing areas is being gathered, shared and interpreted; (2) distance-based herding has become virtually enabled; (3) digitalisation is co-shaping the monitoring and organisation of short-distance herding and livestock management; and (4) digital communication has become central to the ways in which pastoralists are defining, and fighting for, herding practices and indigenous rights, which is reshaping *moranhood* in the process.

In demonstrating this, the paper shows how we can study a wider spectrum of mobilities – e.g. including digital mobilities – to understand and pluralise how the nexus between

climate change and human mobility is taking shape (see also Blondin, 2022; Durand-Delacre, 2022; and Farbotko, 2022). For many indigenous communities, such as the Laikipia Maasai, moving in the context of seasonal changes and drought has historically been the norm. This mobility has, however, become increasingly diversified in the face of imposed land restrictions, processes of urbanisation and the increasing challenges imposed by climate change making herding livelihoods a more uncertain endeavour. Mobile technologies enable herding identities to endure (De Bruijn et al. 2016), yet in diverse and mixed forms. This happens through social media platforms, virtual herding, and through pluralised networks of information exchange on grazing strategies via which pastoralists navigate existing land restrictions and the socio-climatic changes entering their path.

Notes

1. The concept 'navigate' refers to the ways in which migrants, or in this case pastoralists, move around and make sense of changes, barriers and windows of opportunity that come their way (Schapendonk 2018).
2. For contextual purposes, I also made a short field visit to Samburu's West Gate Conservancy to better understand differences between the Samburu and Laikipia areas and the pastoralists residing here.
3. Quote from an interview held on 1 February 2020.
4. The narrative below is derived from interviews held with Daniel and his father in January and February 2020.
5. Another emerging platform is Afriscout. It offers crowd-sourced information on grazing locations, water points and conflict zones. The app is mostly active in the south of Kenya and was not yet used in Laikipia when I was there.
6. The two quotes come from an interview with a young Laikipia Maasai held on 2 February 2020.
7. The interview took place on 11 February 2020, and also included several pre-conversations and follow-ups on WhatsApp. The information is also based on a visit to the herd residing in Isiolo later in February where I also interviewed his most senior hired shepherd responsible for the local management of Sirkonka's herds.
8. Quote comes from an interview with a Laikipia Maasai held on 30 January 2020, from Musul. The other information in this sub-section is based on field observations and interviews held in the Kijabe, Musul and Tiemamut community lands held in January–February 2020.
9. Quote from the interview with Mingati on 26 January 2020.
10. See the Big White Lies Facebook page on 25 August 2019 describing this process in detail. With thanks to Sara van der Hoeven who initially pointed me to this conversation.

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