The strategic use of private property in a rangelands environment: The political ecology of pastoralist land use dynamics and property rights in Laikipia County, Kenya

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Abstract

This thesis explores the unintended effects of land subdivision in a semi-arid rangelands environment in Laikipia County, Kenya. It is argued that property relations where multiple types of property exist side by side are complex, especially where adjacent land users are engaged in different production strategies (i.e., mobile livestock production vs. stationary boundaries of private ranches). It is argued that the state of private property represented by subdivided areas occupied and used by pastoralists in Laikipia fails to perform according to widely held assumptions of private property theory. Rather than creating inviolable boundaries, the introduction of small-scale property in this environment has created opportunities for the overflow of land user activities across property boundaries. Often, rather than one form of property replacing another, property types are combined by land users. Instead of replacing common property as an institution, private property is added to a repertoire of property types that allows flexible access to pasture by pastoralists. In this case, private property becomes the enabling factor in perpetuating common property arrangements.

Abstract français

Cette thèse explore les effets involontaires de la subdivision des terres dans un environnement de pâturages semi-arides dans le comté de Laikipia, Kenya. Il est argumenté que les rapports de propriété où plusieurs types de propriétés existent côte à côte sont complexes, en particulier lorsque les utilisateurs des terres adjacentes produisent selon des stratégies différentes (par exemple, la production d'élevage mobile vs limites fixes de ranchs privés). Selon cette étude, la propriété privée telle que pratiquer par les pasteurs à Laikipia, représentée par les zones subdivisées occupées et utilisées, ne se conforme pas aux hypothèses largement répandues de la théorie de la propriété privée. Plutôt que de créer des frontières inviolables, l'introduction de la propriété à petite-échelle dans cet environnement a créé des opportunités de débordement des activités par les utilisateurs des terres hors des limites de leur propriété. Souvent, plutôt que d'être substitués, les types de propriétés sont combinés par les utilisateurs des terres. Au lieu de remplacer la propriété commune, la propriété privée est ajouté à un répertoire de types de propriété qui permet un accès flexible aux pâturages par les pasteurs. Dans ce cas, la propriété privée devient le facteur de facilitation afin de perpétuer les arrangements de propriété commune.

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Research permissions and clearances

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Chapter One: Introduction

The research conducted for this thesis is a qualitative case study in human-environment interaction focusing on the connections between land tenure and property rights in Laikipia County of north-central Kenya. This thesis investigates the political ecology of land use dynamics in a semi-arid rangeland with high value, since it is wildlife habitat. Issues of resource access, allocation, and ecological effects are explored by examining the interactions between land use actors on two types and scales of property juxtaposed throughout Laikipia's landscape. The study investigates the interaction and relationship between former large-scale ranches that have been subdivided and are now used as "informal grazing areas" (Kinnaird and O'Brien 2012: p1029; LWF 2012) by semi-nomadic pastoralists, and large-scale ranches. Large-scale ranches provide contiguous wildlife habitat to the highest density of large mammals in Kenya outside of the Maasai Mara National Reserve (Georgiadis 2007a). Large areas of Laikipia, which operate as "informal grazing areas," are composed of a mixture of former large-scale ranches that were subdivided, remain largely unoccupied and are known as "abandoned lands," private properties where ownership is disputed known as "contested lands," and government lands (Kinnaird and O'Brien 2012: p1029). This thesis focuses on the first category of lands and their relationship to large-scale ranches. The 2012 Laikipia Conservation Management Strategy (LWF 2012) identifies Laikipia's "abandoned lands" as a priority area for research in order to understand and address issues of land tenure security and sustainable land use in areas functioning as pastoralist "informal grazing areas."

Organization of the thesis: a road map

The thesis is introduced by a literature review situating the development of two prominent land uses in Laikipia that together comprise more than 60 percent of the land area: large-scale cattle ranches and "informal pastoralist grazing areas" that grew out of subdivided large-scale ranches following independence. These disparate pathways taken by private land in Laikipia illustrate important lessons for property rights and land use in semi-arid lands. They also hold strong lessons for wildlife conservation in the context of a policy environment that constrains wildlife-related financial returns to large-scale lands having

well-defined ownership and management regimes. The juxtaposition of subdivided pastoralist occupied “informal grazing areas” and “conservation compatible” ranches is a narrative of two land use pathways borne out of history and political processes impacting ecology. In short, this is a political ecology case study of human-environment interaction.

The body of the thesis is comprised of findings from field research that illustrate some of the effects of land subdivision on adjacent large-scale ranches. This thesis develops a case study investigating property rights issues on large-scale ranches and surrounding areas by attending to three questions:

- How do pastoralists gain access to resources using “abandoned land”?
- How do "abandoned lands" impact property rights dynamics on large-scale ranches?
- How do private large-scale ranches defend their property rights against pastoralist incursions?

A discussion chapter connects patterns emerging from my research regarding “informal grazing areas” with broader issues of land use, property rights, and conservation in the rangelands. A final concluding chapter reviews the main findings of the research and summarizes the significance of this thesis to our knowledge of property rights.

Problem statement

Laikipia's "abandoned lands" are former large-scale ranches that were purchased and sub-divided, and by creating sub-economical small-holdings led to abandonment of agricultural production activities by the majority of the legal owners (Kohler 1987, Flury 1988, Huber and Opondo 1995, Mburu et al. 2013). These areas have subsequently been occupied by pastoralist groups (Letai 2011; LWF 2012, Letai and Lind 2013, Mburu et al. 2013). Due to exclusion and/or elimination, wildlife is less prevalent on communally used areas of private property affected by high rates of owner absenteeism (Graham 2007 unpublished Ph.D. Thesis; Georgiadis 2007a, Kinnaird and O’Brien 2012; LWF 2012). "Spill-over effects" of land use activities in "conservation incompatible" areas into "conservation compatible" areas, which may erode both private resources and private property rights, raise concerns for wildlife tolerant properties, and thus conservation potential, in Laikipia (Georgiadis 2007a, LWF 2012).

It is known that pastoralists occupy and use formal large-scale ranches that were fragmented into smaller units of private property, and are now known as "abandoned lands", in ways that are assumed to negatively affect wildlife conservation efforts in Laikipia. However, the social relationships related to property rights existing between large-scale ranches and subdivided, nominally "private" areas is not well documented. There is little information available about how these areas of private property contribute to pastoralist livelihoods. The property rights challenges to large-scale ranches created by this type of adjacent land use are often alluded to but are rarely discussed in detail.

Theoretical statement

Implicit to private property theory are several assumptions about how property operates. However, multiple elements found in the Laikipia case of "informal grazing areas" (Kinnaird and O'Brien 2012) do not conform to these expectations. The Laikipia case suggests that primary assumptions of private property do not hold for some scales of subdivided property in certain semi-arid rangeland environments. I will argue that property relations where multiple types of property exist side by side are complex, especially where adjacent land users are engaged in different production strategies (i.e., mobile livestock production vs. stationary boundaries of private ranches). I will discuss how the situation observed challenges certain aspects of the economic theory of private property. I argue that the state of private property represented by subdivided areas occupied and used by pastoralists fails to perform according to widely held assumptions of private property theory. Specifically, this situation does not conform to expectations of how private property functions in relation to adjacent and surrounding areas of private property. Rather than creating inviolable boundaries that are honored and respected, the introduction of small-scale property in this environment has created opportunities for the overflow of land user activities across boundaries. Often, rather than one form of property replacing another, property types are combined by land users. Instead of replacing common property as an institution, private property is added to a repertoire of property types that allows flexible access to pasture by pastoralists. In this case, private property becomes the enabling factor in perpetuating common property arrangements.

Research objectives

The purpose of this qualitative human geography study is to contribute to the knowledge of land tenure and land use challenges related to biodiversity conservation in Laikipia by developing an increased understanding of interactions between users of "abandoned" subdivided properties and large-scale ranches. The former category of properties have been described as wildlife "sinks" (Georgiadis 2007a, Kinnaird and O'Brien 2012, Kinnaird et al. 2012: p2, LWF 2012).

The primary objective of this study was to contribute to a better understanding of challenges to property rights on private lands holding high conservation potential. Securing large, open ranges of habitat that is "conservation-compatible" is crucial to successful wildlife conservation in Kenya. This research sought to investigate how the absentee land ownership dynamic prevalent throughout Laikipia impacts private large-scale ranches and how these properties respond to this impact. By investigating these dynamics, I hoped to contribute to an enhanced understanding of the characteristics and drivers of rangeland resource conflicts in order to contribute to their resolution and prevention.

Research approach

Rather than being hypothesis-driven, this research project was directed by the three central research questions that were pursued using an ethnographical case study approach. By living in the social and ecological context of properties surrounded by absentee owned land I was able to examine interactions between land users in areas of Laikipia impacted by the dynamics of "abandoned land." By taking on the role of observer, combined with data collection using key informant interviews, I conducted research using a mixture of qualitative research approaches and compiling data from a variety of published sources to develop a case study.

Mixed qualitative methods

Denzin and Lincoln (2011: p4) describe the qualitative researcher as a "bricoleur" and "quilt-maker." The space of qualitative research is identified as "the world of lived experience...where individual belief and action intersect with culture" (Denzin and Lincoln 2011: p2). Qualitative research does not privilege a particular methodology or approach (Denzin and Lincoln 2011: p6). Often the qualitative researcher must be capable of a wide variety of techniques to perform data collection, analysis, and interpretation (Denzin and Lincoln 2011: p5). Actual research practice is dependent on the questions and context involved (Nelson et al. 1992: p2 cited in Denzin and Lincoln 2011 p4) and "what is available in the context and what the researcher can do in that setting" (2011: p4). Based on these considerations, I decided to focus my investigation of the "abandoned lands" issue through a lens of how these affected property rights on adjacent large-scale ranches. I combined observation with interviews, photography, and "living in the context" to pursue the primary research questions.

Fieldwork: research methods and data collection

With a "case study approach" (Creswell 2013: 97) fieldwork took place over the period of approximately three months between July 23, 2013 and October 19, 2013. During this time I was based primarily on two large-scale ranches in Laikipia. Both ranches have significant portions of their boundaries adjacent to "abandoned lands" and play an important role in biodiversity conservation through provision of large areas of wildlife habitat. One of these ranches plays an integral role in the dispersal of wildlife in central Laikipia between the southern and northern Laikipia rangelands.

Data gathered during the fieldwork period consisted primarily of observations and was supplemented by interviews with key informants. Living in the social context of the environment created by these contested lands also provided valuable and unique opportunities for observation of the interactions between large-scale ranches and pastoralist occupiers of adjacent lands. I observed interactions in the context of pastoralist occupiers seeking to access resources both informally and through formal arrangements, such as grazing agreements.

Other valuable experiences that contributed to data collection through observation during fieldwork included:

- Attending three meetings each involving eight or more large-scale ranch managers.
- Participating in routine activities, such as dipping of cattle on two different ranches, and assisting in repair and maintenance of vandalized fencing on one ranch.
- Observing numerous security patrols of a large-scale ranch attempting to defend the property against encroachment by livestock keepers attempting to access pasture and water resources.
- Observing pastoralists seeking return of animals confiscated after being found trespassing onto private property.
- Observing requests by pastoralists to enter into paid grazing agreements with ranches.
- Observing forage assessments conducted by pastoralists and ranch management in order to plan future allocations of grazing on leased grazing blocks.

Interviews were both semi-structured and conversational in nature, with the latter comprising the majority of the data collected. Development of the case study required key aspects of ethnographic fieldwork, such as participant observation. This technique played a critical role in understanding the context being investigated (Denzin and Lincoln 2011). Over the period of approximately three months I held conversational interviews with long-term residents, administrators, conservationists, and local land users concerning topics related to "abandoned lands" and large-scale ranches including general land use, animal husbandry, pastoralist risk-spreading strategies, security issues, livelihood diversification, and wildlife conservation issues in the context of land management. Conversational interviews were tailored to the specific knowledge or insights that individuals might provide about property rights and land use in Laikipia. As such, I did not pursue a standard interview guide, but responded with flexibility to each encounter and the information I might glean through discussions with individual holders of knowledge.

Sampling

Purposive sampling was used in order to identify key informants who could provide valuable insight into the "abandoned lands" issue. In this sampling approach, individuals are intentionally identified as sources of information in a non-random sample. Informants are purposefully selected based on their specialized knowledge of a topic or issue. The snowball method was used to obtain subsequent referrals to key informants by compiling working lists of possible sources of information from current contacts. This thesis draws on approximately 40 conversational interviews, along with numerous informal conversations, observations, and various other encounters. Among the interviews that took place, I count conversations with ranch management about developments and incidents that occurred, sometimes on a near-daily basis, while I was based on private properties. Numerous informal conversations supplied additional valuable data that linked these formal and informal interviews or provided background to formulate insightful angles to the topic of study.

Ranches were contacted where "abandoned land" was known to be a significant issue of concern on the periphery or in the general area. I conducted semi-structured interviews to understand the potential impact on security arrangements and expenses with enforcing exclusion, causes and sources of insecurity, and various costs incurred to large-scale private ranches due to proximity to absentee owned land. I interviewed members of the local government administration and the Ministry of Lands to understand the land administration dynamics of "abandoned land." Several individuals from organizations engaged in conservation or tourism in Laikipia were also interviewed. I also spoke with pastoralists and land management professionals to understand how absentee land is accessed and utilized in the pastoralist portfolio of resources.

Data processing and analysis

Data were collected in the form of extensive field notes documenting observations, conversations, meetings attended, and interview notes and records combined with photographs that documented interactions or issues related to land use and wildlife conservation. Written notes were recorded while interviewing, or if possible in some cases typed verbatim during the interview. A tape recorder was not used as it was determined

this would be disruptive and create an artificial environment for interaction with the sources providing information. A manual textual analysis was undertaken and emerging themes were then identified. Selected themes then formed a suite of complementary chapters for this thesis based on the main research questions. These themes are a discussion of: subdivided absentee-owned land and its role in pastoralist resource access; impacts on private ranches; and an exploration of one of the main management responses to these impacts.

Limitations

The topic of absentee land ownership and occupation of "abandoned land" by pastoralists is a sensitive one. The researcher chose to keep the sources of information anonymous due to the sensitive nature of these topics and information provided by those interviewed.

Study area: Laikipia County, located in Kenya's Rift Valley Province

Laikipia County (Sundaresan and Riginos 2010: p19), part of the Ewaso ecosystem (Georgiadis 2011: p2), is approximately 9,666 sq km in extent and is surrounded by the Aberdares Mountains to the west, Samburu County to the north, and Mount Kenya to the south. Much of the land falls into agro-ecological zones IV and V (Flury 1988), and is generally more suitable for livestock production than for crop agriculture (Kohler 1987, Flury 1988, Huber and Opondo 1995). Rainfall is weakly trimodal and falls in April-May, August, and November (Georgiadis et al. 2007a: p463). Rainfall ranges from 400 to 1000 mm annually, with the area surrounding Rumuruti, where this study took place, receiving on average less than 650 mm (Thenya 2001: p108). Flury (1988) describes Laikipia as being an area of moderate arability in the extreme west and which gradually follows a continuum to land characterized as semi-arid in the south, north, and east of the region.

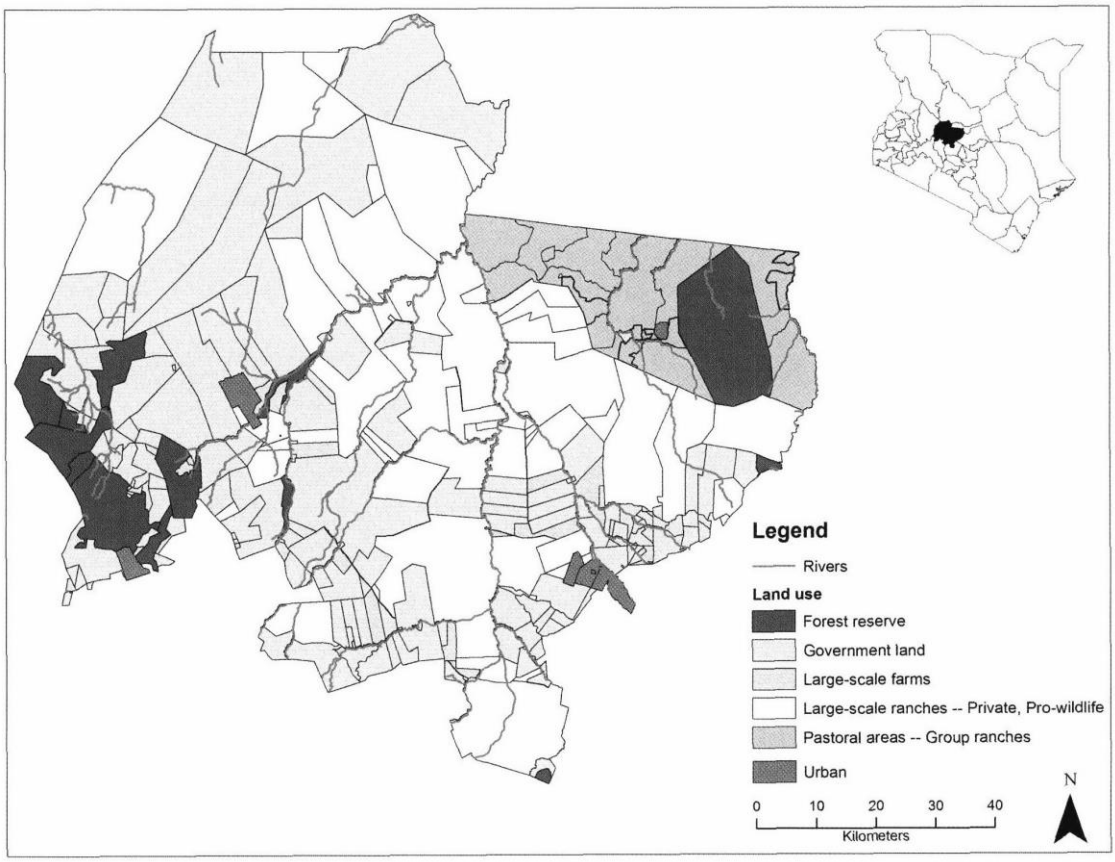


Figure 1. Map of Laikipia District showing the major land-use types. Government land includes settlement areas where small-scale agriculture and livestock husbandry are practiced. Source: Property boundaries and land use data from Mpala Research Center.

In this map, the category "large-scale farms" includes areas that were subdivided and left unsettled, or which experienced land abandonment. (Map Source: Sundaresan and Riginos 2010: p19; originally published in Great Plains Research Vol. 20, No. 1 by the Center for Great Plains Studies.)

Approximately 37% of the land is currently used for large-scale ranching, while 25% of the land is used for pastoralist grazing (LWF 2013), including 11% of land under the category of group ranches (Graham et al. 2010). Vast areas of Laikipia, amounting to approximately 240,000 acres, have been left idle by the approximately 85,000-100,000 legal owners (Zeitz 2013, LWF 2013). The way these areas are used as pastoralist grazing areas deviates drastically from the way they are depicted from a statutory perspective on a cadastral survey as subdivided, small-holder farms (LWF 2012).

Framing the thesis: political ecology

Political ecology is an approach with roots in common property theory (Robbins 2012: p51). This scholarly lens examines environmental scenarios by placing emphasis on issues

of access and allocation while linking political and historical factors with processes of environmental change (Little 2003: p177). Blaikie and Brookfield (1987: p17 in Agrawal 2005: p210) describe political ecology as combining matters of ecology with those of a political economy in ways that examine relationships between society, or portions of society, and land-based resources. Inquiry into the connections between social marginality and resource access, the political context of resource allocation, and attentiveness to the cultural, economic, and political factors that impact resource access, use, and control (Agrawal 2005: p210) are three commonalities of the various approaches to the field of political ecology that arose in the 1980s and 1990s (Bryant and Bailey 1997 cited in Agrawal 2005: p210).

Political ecology studies often take the form of a narrative, and employ a case study format (Robbins 2012) to tell a story about how social and political factors may determine access, use, and control of resources (Little 2003) and explain environmental outcomes. Political ecology uses historical analyses and ethnographic approaches while investigating politics of the environment (Agrawal 2005: p210). Political ecology has been widely used in field research contexts similar to that investigated in this study. For example, Little (2003: p64) notes: "Particular areas of politico-ecological research in savanna zones include: "(i) herder and farmer conflicts; (ii) the emergence of absentee herd ownership and waged herders; (iii) the effects of state policies on local institutions" (Little 2003: p164). The elements of the political ecology approach advocated by Little (2003: p165), who proposes a re-emphasis on "access, allocation (or management), and ecological impacts and processes" which he ties to the corresponding categories of "political, social/economic, and ecological" (Little 2003: 165) also correspond closely to the context of the research presented here. Political ecology is increasingly used to frame scholarly works on biodiversity conservation in Africa (Brockington 2002, Jones 2006, Adams and Hutton 2007, Brockington et al. 2008a, b; Kabiri 2010, Brockington and Duffy 2011).

The field of political ecology frames human-environment interaction studies through recognition of the inherently political contexts of environmental decisions and ecology (Robbins 2012). The fact that pastoralist societies have historically managed their

resources as common property (Galaty 1994, Homewood 2008) connects political ecology with issues of pastoralist ecology and resource access examined in this study. The human-environment interaction frame is also appropriate since "pastoral specialization" (Bonte 1981: p34) made possible through "intensive grazing" and "judicious use of fire," (Jacobs 1975: p40 in Bonte 1981: p34) has been responsible for creating some of East Africa's most suitable grasslands for livestock and wildlife, many of which are now important wildlife conservation areas. Similarly, the human-environment interaction frame is relevant considering that land use management decisions such as the privatization and subdivision of former communal pastoral rangelands (Galaty 1994, Seno and Shaw 2002, Mwangi 2007, 2009; Mwangi and Ostrom 2009, Groom and Western 2013) have had devastating effects on both pastoralist livelihoods and wildlife populations (Lamprey and Reid 2004, Ogutu et al. 2009, Ogutu et al. 2011, Galaty 2013) in Kenya. The threads of access and allocation, and their impact on the environment, connect the main findings outlined here with the political ecology framework (Little 2003). This understanding of political ecology as one that examines intersections of history and politics with an emphasis on access to, and allocation of resources in producing ecological outcomes frames the narrative of resource use dynamics that unfolds in this thesis.

Chapter Two: Literature review

This section covers diverse areas pertinent to a discussion of how private and common property are utilized in Laikipia's semi-arid rangelands environment. I provide a broad contrast between these property systems, and how they are used in the context of Laikipia. Although a wide breadth of literature is covered, the confluence of these topics is relevant to setting the stage for the findings and discussion sections.

African pastoralism

Notenbaert et al. (2012: p2) use the term pastoralism "to refer to extensive production of herbivorous livestock using pasture (or browse) in which herd mobility is a central management strategy". By relying on livestock for their subsistence needs, pastoralist peoples inhabit and exploit arid and semi-arid lands characterized by unpredictable, sporadic rainfall and patchy resources where rain-fed agriculture is either unviable or has a high risk of failure (Homewood 2008: p50-51). Galaty (1981: p69) notes, "The forces of pastoral production involve resources of pastoral labor, water, pasture, and livestock" but Galaty (1981: p21) identifies pasture as "the ultimate pastoral resource." Pastoralist use of resources in the arid and semi-arid lands is one of the primary uses of this land asset, and is one that is not only highly productive, but also highly efficient (Davies 2008, Homewood 2008, Notenbaert et al. 2012, Flintan et al. 2013). Both the drylands and pastoralist production are threatened by subdivision of land and land use change resulting in fragmentation of resources (Boone et al. 2005, Flintan et al. 2013). These dynamics often have negative impacts on mobility and flexibility strategies required by pastoralists (Curtin and Western 2012).

A contrast of pastoralist production and commercial production

Large-scale ranchers and pastoralists in Kenya's rangelands have been described as culturally distinct "people of cattle" operating on notions of land use and animal husbandry and environmental stewardship that are fundamentally different (Duder and Simpson 1997, Anderson 2002). Pastoralist production differs markedly from commercial livestock ranching in terms of its strategies, constraints, and production functions (Galaty 1981,

Davies 2008, Homewood 2008,). Pastoralist livestock, though increasingly marketed, can be thought of as a dairy system (Davies 2008). The strategy of pastoralist accumulation of livestock assets contributes to the resilience of maintaining a nucleus herd following drought periods. Emphasis is placed on animal survival, not necessarily keeping all animals in prime condition as would be the case for the meat production function in a ranching system (Davies 2008). Pastoralist notions of property ownership and resource access differ from those of the private property rights system (Homewood 2008). Pastoralist rangeland resource tenure has been managed through methods such as "negotiable and continuously evolving systems of access and use that do not correspond easily with Western notions of property" (Galaty 1994, Homewood 2008: p148, citing Thebaud 1995a). Historically, pastoralists have governed resource access and use through systems of common property management based on clan and lineage relations (Homewood 2008). Notions of "rights of priority" rather than "exclusive" definitions of access are commonly witnessed in African pastoralist systems (Homewood 2008: p146). "Fuzzy" tenure arrangements, where rights are not exclusively defined, and temporally shifting rights of access to key areas were important primary components of such systems (Homewood 2008: p149). Pastoral production hinges on access, mobility, and flexibility in utilizing patchily distributed resources spread over vast spaces (Homewood 2008: p72-74).

Regarding Maasai pastoralists, Galaty (1981: p69-70) explains that a conventional definition of ownership of pasture or cattle among pastoralists can be problematic "since individual exclusive proprietary rights associated with 'ownership' do not strictly obtain." Homewood (2008: p72) notes, "Indigenous African pastoralist tenure systems for grazing land, water, or other natural resources, have generally worked as common property resource management systems regulated by different user groups." (For further discussion see Homewood 2008: p72-73 regarding access, user groups, and property rights.)

In contrast, commercial ranches rely on well-defined tenure, formal management, and conservative stocking rates (Gilles and Gefu 1990). Koster and Chang (1994: p4) draw on definitions established by Stickon (1965: 230) and used by Ingold (1980: p231 in Koster

and Chang 1994: p4) to distinguish ranching from pastoralism. Ranching is defined as "a production system that tends toward individual access to animals and individual appropriation of a grazing territory" (Koster and Chang 1994: p4). Stickon (1965: 230 in Koster and Chang 1994: p4) defined ranching as "that pattern of land use which is based upon the grazing of livestock, chiefly ruminants, for sale in a money market. This pattern of land use is characterized by control over large units of land, extensive use of that land, and extensive use of labour on the land." This differs from pastoralism which employs "a system of social relations which combines the principles of divided access to animals and common access to pasture" (Ingold 1980: p207 in Koster and Chang 1994: p5).

Common and flexible access to pasture enables dividing herd assets between multiple locations (Niamir-Fuller and Turner 1999: p21) and is likened to maintaining a diversified portfolio (Galaty 1981). Such an arrangement provides the flexibility to adjust to uncertainty *ex post* and provides spatial mobility (van den Brink et al. 1995: p376) between different areas where grazing may be accessed. Having bases in multiple locations provides for the possibility of "temporal resolution of risk" (van den Brink et al. 1995: p384). When forage is limited, ranches are often confined to their own statutory boundaries unless they have a formal arrangement to rent pasture from a neighboring property. Pastoralist production has in a number of comparative cases with commercial ranching been demonstrated to be a more efficient system of production (Niamir-Fuller and Turner 1999, Davies 2008, Kratli et al. 2013).

Recent evidence has challenged traditional views of pastoral production and the "low" potential of the arid and semi-arid lands, and has shed light on the true contribution of livestock sector in the rangelands to the Kenyan economy (Behnke and Scoones 1993, Barrow and Mogaka 2007, Davies 2008, Notenbaert et al. 2012,). Pastoralism has received renewed attention as an efficient livelihood strategy and is increasingly recognized as a significant contributor to national economies (Barrow and Mogaka 2007, Davies 2008, Notenbaert et al. 2012). Moving away from views that contributions by pastoralism to GDP are "very scant" (Opschoor p25 in Salih et al. 2001: p26, citing in the order of 10%), new interpretations of pastoralist production identify pastoralism as a highly efficient and

appropriate form of land use that makes significant contributions to both food security and national economies' livestock production outputs (Barrow and Mogaka, Davies 2008, 2007, Notenbaert et al. 2012). Furthermore, the advancement of disequilibrium theory (Bartels et al. 1993, Behnke et al. 1993, De Leeuw et al. 1993, Little 2003, Homewood 2008) now challenges the long held notions that pastoralist production strategies associated with herd build-ups were inherently environmentally degrading (Anderson 2002). Work by Ostrom (1990) has also challenged incorrect but enduring notions that common property ultimately and inevitably led to resource overuse, exploitation, and degradation through a "tragedy of the commons" famously, but fallaciously, described by Hardin (1968).

Despite being the most productive and efficient production strategy in areas of high ecological variability and low rainfall (Homewood 2008), pastoralism continues to suffer from long held prejudices that challenge it as a legitimate or productive form of land use (Davies 2008, Notenbaert et al. 2012). Pastoralist production suffers from prejudice largely because the strategy it employs, based on opportunistic use of land and the build up of herds between drought periods, is misunderstood by outside interests as antiquated and irrational (Bartels et al. 1993, De Leeuw et al. 1993, McCabe 1994, Anderson 2002, Davies and Hatfield 2008 in Davies 2008, Homewood 2008). It is also maligned because its true contribution to national economies and the transnational and international livestock trade goes largely un-quantified because it generally evades official oversight or regulation (Davies 2008). Another major reason that pastoralism is often misunderstood is that pastoralists compete with, and sometimes come into conflict with, other land use actors (Lengoiboni et al. 2010, Lengoiboni et al. 2011; Letai and Lind 2013) as they track ephemeral resources in space and time (Homewood 2008). Mobility, that very instrument that both defines pastoralists (McCabe 1994: p204) and enables them to access and utilize variable, marginal environments, brings those otherwise unproductive environments into productivity in ways that other production strategies, such as crop agriculture, cannot (Barrow and Mogaka 2007, Davies 2008, Homewood 2008, Kratli et al. 2012). This often leads pastoralists into conflict with other land users that also make claims to wide areas of resources that contribute to pastoralist strategies of resource access (Anderson 2002, Lengoiboni et al. 2010, Lengoiboni et al. 2011, Notenbaert et al. 2012, Letai and Lind 2013).

A comparison of private and common property management dynamics

The management of private property requires an array of costly, but often hidden, financial inputs for land administration not associated with a common property regime (Bromley 1989, Ostrom 1990); these expenses include boundary surveys, ownership transfers, land tax, and other administration costs, including fencing, in order to ensure exclusion of other resource users (Bromley 1989: p869). Some of these expenses can be thought of as the cost of exclusion of other claimants (Schlager and Ostrom 1992) from resources. Assigning private property rights to natural resources must justify the expenses involved in managing private property (Bromley 1989).

The notion of common property is of relevance to the way pastoralists access resources in Laikipia. The community of scholarship on the commons arose in response to the famous and now discredited notion of "The Tragedy of the Commons" popularized by Garret Hardin (1968). This academic body recognizes the political aspect of institutions and differential power arrangements between users of a resource held in common, and has tended to rely upon case studies to elucidate how resources that are neither private nor state-managed have been governed in various settings (Agrawal 2003). An early literature on commons asserted that privatization and government regulation are not the only effective methods of managing resources, showing that the common property concept exists in both formal and informal arrangements (Ciriacy-Wantrup and Bishop 1975). Agrawal (2003: p244) explains that an "allied preoccupation of commons scholars has been to demonstrate that markets or private property arrangements and public ownership or state management do not exhaust the range of plausible institutional mechanisms to govern natural resource use." Galaty (1994: p200) asserts that the rangelands of Kenya are no exception in possessing a "myriad of interstitial property forms" existing along the broad continuum of property defined as either private or state.

The origin of common property management can be traced back to hunter-gatherer societies, which relied on communal stewardship of natural resources (Ciriacy-Wantrup and Bishop 1975: p717). Common property may be defined as the "distribution of property

rights in resources in which a number of owners are co-equal in their rights to use the resource" (Ciriacy-Wantrup and Bishop 1975: p714). Property rights institutions are viewed by scholars of common property as "sets of rules" governing societal behavior in relation to resources and their use (Agrawal 2003: p244, citing Schlager and Ostrom 1992). Some common property management systems have developed systematic rules for access, allocation, and sanctions for acting outside of stipulated guidelines for resource use over the course of centuries (Ostrom 1990). Rather than resulting in depletion or degradation of resources, the presence of such institutions actually provides the framework for effective management and regulation of resource use (Ostrom 1990).

The resiliency of these institutions demonstrates that a common property management regime "is capable of satisfactory performance in the management of natural resources, such as grazing and forest land, in a market economy" (Ciriacy-Wantrup and Bishop 1975: p721). Formal and informal institutions provide similar outcomes for resource use: access rights for some and exclusion for other users (Ciriacy-Wantrup and Bishop 1975).

An important assertion in the property literature, which is supported by examples of subdivision and issuance of individual title deed for communally managed pastoral lands in Kenya's rangelands (Galaty 1994; Mwangi 2007, 2009) is the claim that "the substitution of private ownership for common ownership is not in itself a socially desirable change" (Ciriacy-Wantrup and Bishop 1975: p720-721). The economic logic of not assigning individual property rights to land of marginal productivity is well articulated by Bromley (1989: p870; 1992), who argues that each particular land management regime in place is an effect of the type of resource under management. Productivity observed is not a result of the presence of private property, but rather highly productive resources tend to be assigned private property management regimes (Bromley 1989: p870). As Ciriacy-Wantrup and Bishop (1975: p720) point out, the application of private property led to a breakdown in the productivity of former commons areas in Europe once they had been divided into uneconomical and inefficient plot sizes. Where private titling has been applied to such pastoral rangelands it has rarely achieved the promise of development on which it was premised (Galaty 1994).

Hybrid property arrangements: intermediate forms of property

East African rangelands demonstrate a wide variety of intermediate property forms and institutions between the extremes of private and communal land (Galaty 1994). Responses by land users to complex property dynamics can result in a "both/and" scenario of pluralism, rather than an "either/or" approach to property. The existence of multiple forms of property side by side allows opportunities for strategic selection and use by pastoralists (Scoones 1993, 1999). Western conceptions of property might expect a statutory system of private property to replace customary forms and notions of tenure. In reality, the presence of additional forms of property operating beside each other simply increases the number of choices and flexibility available to land users to adapt to varying situations of land tenure complexity, increased resource pressure, financial requirements of property, and legal or normative prescriptions about how it should be "appropriately" used. Rather than functioning as mutually exclusive tenurial arrangements, in pastoralist systems across Africa a pluralistic, adaptive, and flexible view of tenure arrangements is observed (Homewood 2008). Homewood identifies that in reality, "Customary systems often continue to operate alongside formal national legal frameworks" (Homewood 2008: p73). Rather than being mutually exclusive, "levels of access, from communal to private and/or state-controlled, often come together as a nested system" (Homewood 2008: p147). Musembi (2007: p1460-61) claims that the type of formal ownership outlined in Kenya's Registered Land Act "co-exists, and is constantly in tension, with broader and dynamic social processes and institutions that shape property relations by constantly balancing between various competing claims and values, rights and obligations."

Scoones (1999: p218) notes that resource tenure debates tend to oversimplify tenure categories across landscapes by failing to recognize the inherent heterogeneity of natural resource distribution, which can affect property management regimes. As Musembi (2007: p1462) argues: "A property system is a social system and it takes shape according to the cultural context in which it is rooted. The content and shape of formal title varies with local context, and can be very different from what the officials and proponents of formalization have in mind." Scoones (1999) also points out that resource tenure should be viewed as

embedded in local context (p219). Rather than being mutually exclusive, Scoones (1999: p225-229) shows that in African semi-arid environments, a range of tenure regimes, from open access to private, may apply to different types of resources accessed for grazing based on the quality and availability of the particular resource. Privileging a particular tenure regime, such as private property, without an appreciation of the complexity of the patchiness of a semi-arid landscape, or its quite marginal production, can result in the application of a resource tenure regime on an uneconomical and inappropriate scale (Bromley 1989, Galaty 1994).

A plethora of ingenuity, adaptation, and creativity is employed in finding ways to legitimize land use and property rights throughout Africa (Benjaminsen and Lund 2003). Rural, developing world contexts, where a mixture of co-existent norms govern resource use and tenure security can promote the adoption of institutional innovation toward achieving increased land tenure security (Delville 2003). Strategies for achieving land tenure security frequently draw on an amalgamation of notions of property rights institutions and evidence, including statutory, customary, religious, physical occupation and proving prior use, and notions of legitimated user rights (Unruh 2006). The selective use of institutions, and their corresponding rules of access and privilege, has been described as "institutional bricolage" (Benjaminsen and Lund 2003: p5, referring to Cleaver 2003: p11-25). This process "implies that people may assemble and adapt norms, values, and arrangements from various backgrounds and identities to suit a new purpose" (Benjaminsen and Lund 2003: p5; see p5-9; Cleaver 2003: p11-25).

An evolutionary theory of private property often assumes that private property is an end-point on a continuum of property evolution (Bromley 1989, Bruce et al. 1994, de Soto 2000). On the other hand, proponents of common pool resource (CPR) theory view different forms of property, and environments, as being variably suited to a variety of management regimes that may exist on a not-necessarily mutually exclusive continuum between private property and common property regimes (Bromley 1989, 1992; Ostrom 1990; Ostrom et al. 1994; Schlager and Ostrom 1992, Scoones 1999). Delville (2003: p90) notes:

> "A large number of current tenure practices are hybrid, cross-bred, and flourish 'in the shadow of modern law.' Rather than linear evolution towards individual private ownership, we find partial developments within composite local land-use systems, based on variable evolving mixtures of individual prerogatives and collective regulations, which differ for the various land and natural resources."

In some cases, resource appropriators have chosen to intentionally maintain private and communal property in a juxtaposed manner to suit particular resource management requirements of the environment at hand (Ostrom 1990: p61, 63; Scoones 1993, 1999). Van den Brink et al. (1995: p378) explain this logic succinctly: "Property rights that allow [pastoralists] to secure the benefits derived from a strategy based on flexible response to environmental variability have positive economic value." CPR recognizes evidence (Netting 1976: p140 cited in Ostrom 1990: p63) that land users make decisions about the "advantages and disadvantages of both private and communal tenure systems and have carefully matched particular types of land tenure to particular types of land use." As Unruh (2006: p759, citing Delville 2003) persuasively argues, "evolutionary theory assumes that customary landholders do not innovate or derive solutions and are essentially powerless, which of course is not the case."

Galaty (2013: p143) notes, "Formal shifts in tenure have made landholding vulnerable, but informal factors initiated by population growth and land scarcity have led enterprising individuals to move to landholding frontiers, building on networks, friends or opportunities to gain slivers of land by leasing or purchasing small farms or simply squatting in areas seen as 'underutilized'" (Galaty 2013: p143 citing Berry 2009).
The use of such "slivers" of 'underutilized' land as an adaptive innovation to access multiple pasture options in an enterprising land use livelihood strategy is the central topic of this thesis. In preparation for a discussion about how pastoralists in Laikipia use subdivided land, I will now turn to examining some pastoralist responses to land subdivision.

Pastoralist experiences with subdivision elsewhere in Kenya

Subdivision of land that is of low arable potential has posed a number of problems for both policy makers and land users of rangelands. It is important to note that where subdivision

has taken place, it has not necessarily resulted in more efficient resource use through private property, and in some cases has led to unanticipated problems like those observed in East Africa. The private nature of resources resulting from land subdivision has resulted in exclusion from formerly accessible resources and increased impoverishment, and has enabled processes of land acquisition that have culminated in the loss of land by pastoralists (Galaty 1992, 1994, 2013a, 2013b; Mwangi 2007, 2009). Lessons from other rangeland areas that have undergone subdivision can provide valuable insights into the outcomes of assigning private property rights to arid and semi-arid areas that would arguably be more productive if defined by a system of common property or managed privately on a large scale (Galaty 1994, Mwangi 2007, 2009; Mwangi and Ostrom 2009).

Privatization and individualization of plots, a process assumed to secure property rights for title holders (Mwangi 2007), has led to a series of specific social consequences among some pastoralist groups (Boone et al. 2005, Groom and Western 2013). The legal fragmentation of land through subdivision processes has led to curtailed mobility and diminished access for pastoralists in many parts of Kenya's rangelands (Galaty 1990, 1994, 2013a, 2013b; Lamprey and Reid 2004, Boone et al. 2005, Mwangi 2007, 2009; Mwangi and Ostrom 2009; Groom and Western 2013). In Maasailand, for example, and other rangeland areas, a move toward privatization means individuals must defend and control individual parcels, and possibly look toward developing them, which often results in fencing and exclusion of other land users and wildlife (Lamprey and Reid 2004, Groom and Western 2013). Social consequences, in turn, have led to increased fragmentation of the range, also with its own set of ecological consequences that have negatively impacted land productivity, livestock production, and food security (Boone et al. 2005, Thornton et al. 2006).

Subdivision of Africa's rangelands has resulted in decreased mobility due to the protection of and settlement on individual plots, more heavily grazed areas around permanent settlements, wildlife population reductions, and unsustainable use of some areas of the rangelands (Mwangi 2007, 2009; Groom and Western 2013). In southern Kenyan rangelands, Groom and Western (2013) observe a declining quality of range due to herds being confined in and around private plots, as opposed to seasonal movement across the

landscape and use of the range as common property. The process of assigning individual property rights has often resulted in declining benefits from the larger rangelands resource, and as a result, the wider community of users who benefit from the ecosystem services supported by pastoralist land use (Galaty 1994). Dividing the range and assigning "strong" property rights can weaken pastoralism and the resilience of the range for those users who once relied upon it in a more flexible, culturally mediated way prior to privatization (Mwangi 2007, 2009; Flintan et al. 2013).

At times, pastoralists have employed private property rights strategically to secure their tenure. Land has sometimes been subdivided not due to the desire for individual private use but rather for securing property rights in the face of possible land appropriation (Mwangi 2007, 2009). Therefore, outright proprietary ownership may not have been the ultimate goal, but rather, security of access and defense against land being privatized by others. The adoption of private property has not precluded common property arrangements, or pluralistic notions of land use, among pastoralists in the Kenyan rangelands. Land privatization and subdivision was not always motivated by the assumptions presented by property theory, and in some cases it has been desirable to continue using land communally even though shares or title may be held privately (Mwangi 2007: p906). In some cases, where it was possible, there has been a shift back to communal use and amalgamation, at times after the negative effects of subdivision were felt. This trend indicates that there may be hope for areas that were inappropriately subdivided and that pathways exist to reclaim areas that suffered from land privatization.

Land that is held privately can still be managed communally (Groom and Western 2013) and experiences from the rangelands show that subdivided areas can be managed as a large integrated land unit, but this requires significant collective action and administration. Subdivided areas can be leased for grazing rights where landowner associations are paid grazing fees, for example (Boone et al. 2005). Where individual titling occurs, landowners can do so with the goal of collective land management (Mwangi 2007), rather than individual development of plots, and with specific rules and sanctions for collective use.

I now turn to the historical context of Laikipia's property transitions in order to set the stage for a presentation of my findings about the use of Laikipia's property mosaic by pastoralists.

Laikipia's property transitions

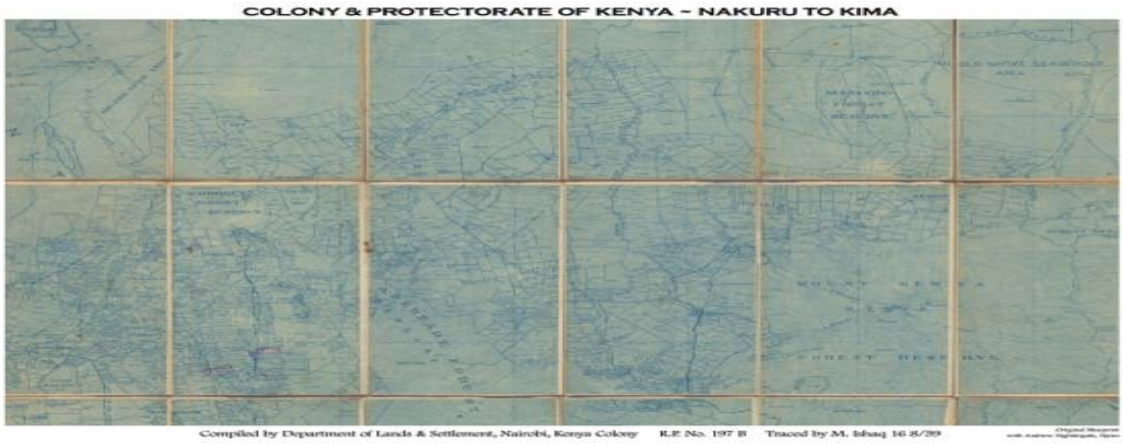
"Every country south of the Sahara is to greater or lesser extent still wrestling with the legacy of attempts made in colonial times to provide a new legal basis for land tenure" (Ellis 2011: p80).

Laikipia's land tenure and land use property arrangements have undergone two fundamental transitions over the past 100 years (Kohler 1987, Hughes 2005, 2006). The contemporary land tenure mosaic is the result of these profound property transitions. The first involved transition from communally managed customary tenure to large-scale private property predicated on statutory tenure (Duder 1993, Duder and Simpson 1997, Hughes 2006). Another involved a transition to small-scale subdivided plots created from some of these former large-scale ranches in the post-independence period (Kohler 1987).

The transition from customary to statutory tenure in Laikipia

In the early 20th century, property in Laikipia transitioned from a pastoral rangeland governed by customary tenure to large-scale private ownership in the form of cattle ranches (Kohler 1987, Hughes 2006). The historical background contributing to the development of Laikipia's current land tenure arrangement, with large and small-scale properties juxtaposed, dates back to the Anglo-Maasai Treaties of 1904 and 1911 (Hughes 2005, 2006). Prior to European settlement in the early 1900's, Laikipia formed a large portion of the northern extent of a vast territory controlled by Maasai pastoralists (Hughes 2006). By the mid-1800's the Maasai had secured grazing rights to large parts of the Rift Valley from the Laikipia and Leroghi Plateaux in the north to the border of modern day Tanzania in the south (Hughes 2006). Through the Anglo-Masai Treaty of 1904, the Maasai were removed from some their most productive grazing areas around Naivasha and Nairobi and placed in two reserves, one in the north on the Laikipia Plateau and another in the south of the British East Africa Protectorate (Hughes 2006). In a subsequent treaty between the British and the Maasai in 1911, the Maasai were moved out of Laikipia to a

permanent southern reserve, clearing the way for European settlement in the Rift Valley (Duder 1993, Duder and Simpson 1997, Hughes 2005, 2006; Kantai 2007). In Laikipia, this settlement resulted in the establishment of large, consolidated land holdings under European ownership (Kohler 1987), mostly in the form of private cattle ranches. Although owned individually, by families or by companies, these large-scale ranches are still centrally important to the Laikipia economy in that they comprise 37% of Laikipia County's land area (LWF 2013). These are also the areas where wildlife is currently most concentrated (Georgiadis 2007a, Kinnaird and O'Brien 2012).



The map above, though traced in 1939, shows land allocations in 1919. Laikipia sits northwest of Mount Kenya. Many properties were later consolidated, leading to higher concentrations than indicated above, by enterprising individuals. These individuals bought up neighboring properties of other ranchers and farmers who were unable to make the areas profitable due to the limited agro-ecological potential, low rainfall, and variable climate. (Map copy provided courtesy of Nightingale Family Archives.)

The transition from large-scale/extensive, to small-scale/intensive land use

A second property transformation occurred when a large portion of land formerly under the category of large-scale ranching in Laikipia changed from consolidated European ownership to small-holdings distributed to indigenous Africans following independence. This redistribution took place through the institutions of settlement schemes and land buying companies (Carey-Jones 1965, Harbeson 1971, Flury 1987, 1988; Kohler 1987, Huber and Opondo 1995, Letai 2011 unpublished, Letai and Lind 2013). While government initiated settlement schemes frequently took land productivity into account when making allocations, land-buying companies often did not (Kohler 1987, Huber and Opondo 1995).

As Kenya moved toward independence, large portions of land in the "White Highlands," an area reserved solely for European use, was redistributed to indigenous Africans through various land redistribution programs (Carey-Jones 1965, Kohler 1987; Flury 1988; Boone 2011). In Laikipia, this reallocation of land was carried out through through government administered settlement schemes (Carey-Jones 1965, Kohler 1987) and through land buying companies operated by wealthy, influential, and well-connected, entrepreneurs (Kohler 1987; Flury 1988, Onoma 2010, Boone 2011, Letai 2011 unpublished, Letai and Lind 2013). This redistribution took place largely through "willing-buyer/willing-seller" arrangements that accommodated European landowners who were leaving Kenya and wished to sell out, as well as meeting the land ownership aspirations of indigenous Kenyans (Kohler 1987, Flury 1988, Onoma 2010). The transition toward independence created a situation of uncertainty amongst the European farming and ranching population, resulting in some individuals selling their properties; other properties were sold as individuals became elderly, or died, and their children were either unable or unwilling to take on the property (Flury 1988). Indigenous Kenyans from densely populated, highly arable, and intensively cultivated areas in the central highlands experiencing high land pressure were able to obtain plots of varying size in Laikipia (Kohler 1987, Huber and Opondo 1995). Kohler (1987) identifies individuals from Nyeri District and squatters on ranches in Laikipia as two primary sources of small-scale settlers who were attracted to investment in land assets in Laikipia's subdivided areas. Many of Laikipia's "abandoned

lands" have their origin in land purchases made by land buying companies between Kenya's independence in 1963 and the 1970s; these properties were later subdivided between the 1970s and 1980s (Kohler 1987, Flury 1988, Huber and Opondo 1995).

Land subdivision: origins of contemporary property dynamics in Laikipia

Large portions of Laikipia have been subdivided and following sub-division many of these areas were left unsettled or were vacated by the legal owners for a variety of reasons, including crop failure, insecurity, human-wildlife conflict, and a general lack of services (GoK 1983, Flury 1987, 1988; Kohler 1987, Huber and Opondo 1995, Georgiadis 2007a). This has resulted in large areas of Laikipia existing outside a formal ownership management context (LWF 2012). These areas are now used in a communal fashion as "informal grazing areas" by pastoralist groups (Huber and Opondo 1995, Georgiadis 2007a, Letai 2011 unpublished, Kinnaird and O'Brien 2012, Letai and Lind 2013).

Current patterns of resource use in these areas are viewed as largely incompatible with wildlife conservation efforts (Thenya 2001, Graham 2007 unpublished PhD thesis, Georgiadis 2007a, Kinnaird and O'Brien 2012, Kinnaird et al. 2012, LWF 2012, 2014). These subdivided areas are interspersed among the 37% of Laikipia's land that continues to operate as large, consolidated land units, and which now provide the contiguous habitat which is critically important to Laikipia's wildlife conservation success. Thus, "conservation-compatible" and "conservation-incompatible" environments, defined according to a combination of factors including stocking rates, wildlife abundance, human population density, degree of wildlife tolerance by land owners, and strength of property rights, are juxtaposed throughout Laikipia's ecosystem and form a "checkerboard" pattern across the landscape (Georgiadis 2007a, Kinnaird and O'Brien 2012, LWF 2012, 2013).

Absentee land ownership

At least 17% of Laikipia's land across an annual rainfall gradient of 550-900 mm underwent subdivision starting in the 1970s (Georgiadis et al. 2007a: p463). The subdivision of large-scale ranches resulted in the sale of small land parcels to thousands of individuals, many of whom never occupied the plots or only cultivated when precipitation

allowed (Georgiadis et al. 2007a: p463). The individuals who purchased the land likely had several motivations for securing small-holder plots in Laikipia's subdivided areas (Huber and Opondo 1995). To a large extent, these motivations originated from population pressure, and land scarcity, in their central Kenyan homelands (Carey-Jones 1965, Kohler 1987) and were attached to cultural value and notions of land ownership (Bohannon 1963). This contributed to a desire to find new land markets for agricultural production, investment and future use (which may include, but does not necessarily imply, economic speculation), and inheritance purposes. It has been suggested that titles to subdivided land may have been used as collateral to obtain loans, especially after discovering that the land was not suitable for agriculture, a topic discussed in detail below. Letai (2011, unpublished) implies that large portions of private land lie idle due to their use as collateral.[1]

The current context of pastoralist access to areas of subdivided land is made possible due to this absentee land ownership, where areas are unoccupied and unsettled by titled owners or shareholders in blocks of subdivided land (Huber and Opondo 1995, Letai 2011, Letai and Lind 2013, LWF 2013). A land management vacuum then resulted in these unoccupied areas with resources left undefended by the legal owners, allowing pastoralists to utilize large tracts of land as "informal grazing areas" because they are not formally occupied by the titled owners. Land was abandoned due to crop failure, crop-raiding by wildlife, concerns regarding insecurity, such as banditry and cattle rustling, or a combination of these factors (GoK 1983, Huber and Opondo 1995, Kohler 1987). Oversubscription for shares among land-buying company shareholder bases, unregulated and illegal land subdivision, and a lack of consideration for the actual potential of Laikipia's land played central roles leading to the current scenario of absenteeism (Kohler 1987, Flury 1988, Huber and Opondo 1995, Onoma 2010). The tenure complexities created by extensive land subdivision and the attempted transition to intensive small-scale farming have been highlighted by several studies examining these issues in the context of Laikipia's land use (Kohler 1987, Flury 1988, Huber and Opondo 1995).

[1] During the research period I was unable to establish the historical prevalence of this dynamic. If using titles for collateral was ever a large-scale trend, my discussions with administrators indicated that many lending agencies are largely no longer willing to provide loans using small-holder plots in Laikipia as collateral due to their abundance and difficulties in selling these plots in the case of foreclosure.

Land buying companies sometimes suffered from mismanagement (Kohler 1987, Onoma 2010). While some land buying companies were noted to have distributed land in an appropriate manner, and in scale according to the agro-ecological potential of subdivided areas, many did not (Kohler 1987). This resulted in plots being subdivided into sub-economic units. Land buying companies could also be employed to leverage political rights of shareholders who had not yet been issued their individual title deeds (Onoma 2010). In some cases individuals could be persuaded to pledge their political support in exchange for their not yet formally allocated land rights, which they had purchased through investment in shares (Boone 2011, Onoma 2010).

Government initiated schemes considered "land-carrying capacities" and land productivity potential, whereas initiatives by land-buying companies often did not (Huber and Opondo 1995: p7). By 1995, land-buying companies accounted for four-fifths of the 28% of Laikipia's land area categorized as areas of "small scale farming" (Huber and Opondo 1995: p25). Huber and Opondo (1995: p25) note, "settlement in most other areas of the country is government controlled and sometimes includes compulsory production schedules and/or government intervention, while in Laikipia there seems to have been little interest in supporting settlement schemes on the part of the Government." As a result, land redistribution in Laikipia was effected to a large degree in a manner that was not reflective of the productivity or potential of the land.

This is well illustrated by the fact that "the minimum farm size has been reduced far below five acres, in fact to as small as one acre" (Huber and Opondo 1995: p39) in subdivided areas. This inappropriate scaling of private plots held unintended consequences for land management in Laikipia. The situation presented opportunities for those who were willing to settle in subdivided areas, especially pastoralists, because they could move onto and use land unoccupied by the newly titled absent owners.

Extensive subdivision leads to the "abandoned lands" of Laikipia

Supply and demand economics led to opportunistic behavior on the part of speculating entrepreneurs that pushed land past the ecological limits for the intended use:

> "Since about 1970 the high demand for the land has, however, created tremendous land speculation which has led to the illegal subdivision of farms and ranches regardless of the production potential and needs of the small holders. Uneconomic small plots (2-5 acres; .8-2 hectares) often situated in very marginal areas have resulted from this process, a process that is still going on (see Kohler 1985: 1). This change of land use signifies a tremendous intensification. Where the pastoralists expected to get the food for one person out of the production from 25 acres (10 hectares, livestock production: meat, milk, blood; figures for Mukogodo Division in North Laikipia), small-scale mixed agriculture with crop production and animal husbandry produces the food for one person, in an average year, from about 4 acres (1.6 hectares)" (Flury 1988: p1).

In most areas where large scale land subdivision took place, livestock production on ranches would have been a more appropriate land use option since it was less prone to climatic risks than agricultural production (Flury 1988: p1, 17; see also maps in Figure 2.2 on p15, showing agro-ecological potential and Figure 4.4 on p32 showing suitability for small-scale farming). A confluence of factors under which agriculture was not ideal, but under which livestock production was resilient, dominated in subdivided areas (Kohler 1987). Subdivision was carried out on a large scale in areas even where it was not advisable to fragment land-holdings. Very high risk of crop failure, unreliable rains, and scarce water resources coupled with small plots due to an "uncontrolled process of land subdivision" (Flury 1988: p II Preface) led to precarious livelihoods. For example, only one third of the required food for a family could, on average, be produced on the resulting land holdings in 50% of the area zoned for small-scale farming (Flury 1988: p32). An inability to adequately meet household food requirements resulted in individuals abandoning their production strategies and in some cases the land itself.

A lack of physical residence and active management presence on subdivided unoccupied plots resulted in land without ownership presence being utilized by others in pursuit of viable livelihood activities, such as extensive livestock production. The process of subdivision, and transition from extensive holdings to subdivided intensive holdings, led to land being used communally: "The category of larger agro-pastoralists and pastoralists have a common need for the land of the absentee owners which they use as communal land" (Huber and Opondo 1995: p31). Some subdivided areas were prone to large degrees of absenteeism, up to 80 and 90 percent, especially in areas not suitable for agriculture (Huber and Opondo 1995: p31). Huber and Opondo (1995:p31) note that lack of physical presence by title-holders resulted in unchecked resource use by opportunistic users.

Extensive land subdivision, coupled with low occupancy of owners, led to a situation in which there was a disparity between the amount of land a person owned and the amount that could be used for grazing. Flury (1988: p30) explains that the situation was characterized by "generally too small plots," but adds "although for a certain period the acreage de facto available still exceeds the single plot because not all families have already settled down." Huber and Opondo (1995) note that since a low percentage of the plots were settled, the entire, larger subdivided area comprised of a former large-scale ranch could be utilized freely by those who had settled on their plots. Huber and Opondo (1995: p42) explain that,

> "Due to the fact that only 10 to 15% of the area is settled, a large area is not occupied and considered as common land. It is mainly used for uncontrolled grazing. Therefore, farms are often larger than plots owned. Especially pastoralists would use up to eleven times the area which they own."

Although legally assigned rights to plot sizes were not capable of supporting the livestock present, individuals made informal use of surrounding lands that were unoccupied by those who had purchased the land: "the livestock population exceeds the carrying capacity of the land owned by the holders, and has therefore to be grazed on the yet unsettled tracts within the small scale farming area" (Kohler 1987: p15). Because of plot sizes that were misaligned with agro-ecological potential or production outputs, individuals expanded the

land under production beyond their own holdings to those unoccupied plots surrounding their own (Huber and Opondo 1995). "However it would seem that due to the slow settlement process (only 10-15 % of the area has been settled to date; 1995 see figure 13) most of the land has reverted to communal use" (Huber and Opondo 1995: p26). This is succinctly illustrated by the profound observation that "only 10% of the plots are settled but 100% of the land is utilized" (Huber and Opondo 1995: p67).

Various recommendations have been suggested in the past to resolve the issue of subdivided land that was never formally settled, or was settled and later abandoned, by the owners. A pre-investment study for Laikipia District in 1983 recommended placing a moratorium on further subdivision of land and forming a land bank to buy land back that had already undergone sub-economic fragmentation for re-sale for use on a large scale (GoK 1983). It was also suggested that pastoralists using such areas might be levied a "grazing fee" for using the pasture on these unoccupied plots scaled for crop agriculture. It has also been proposed that land could be amalgamated by forming a company and consolidating the titles to form one corporate title for use either as a large-scale ranching enterprise or group ranch (Huber and Opondo 1995), either of which may be used in part or full for wildlife conservation purposes. These areas continue to be used in ways that reflect communal land use, rather than as individual units of private property. Absentee land ownership of "abandoned land" persists as one of the most tenacious land use and management dilemmas of Laikipia.

Opportunistic pastoral settlement and use of resources on properties held by absentee land owners has emerged as one of the most significant geographical issues in the rangelands of Laikipia (Georgiadis 2007a, Letai 2011, unpublished: p3, 5, 10; Kinnaird and O'Brien 2012, Letai and Lind 2013: p167, Mburu et al. 2013). The term "abandoned land" gained prominence to refer to lands legally held by absentee owners where the legal owner is not present to prevent trespass onto the property or to secure and defend the natural resources of the property from use by others.

Norton-Griffiths and Said (2010) discuss the relationship between private property rights arrangements and the status and decline of wildlife in Kenya, noting that where strong property rights exist and individuals can derive economic benefits from wildlife, it has remained stable, and in the case of Laikipia some populations of species have increased. It is problematic that absentee owned land has caused a collapse of exclusive property rights and that abandoned land and its negative repercussions are spilling over into private lands that are of high value to conservation in Laikipia (Kinnaird and O'Brien 2012, Kinnaird et al. 2012, LWF 2012).

Land use on "transitional properties"

Semi-nomadic pastoralists and smallholder farmers have settled on lands with a high degree of absentee owners to graze cattle and pursue subsistence livelihoods (Huber and Opondo 1995, Letai 2011, Letai and Lind 2013). It is suggested that many of these areas operate as open-access patches (LWF 2012). The lack of permanent agricultural production, various degrees of occupancy, and heavy grazing by pastoralists led Georgiadis et al. (2007a: p463) to refer to these as "transitional" properties. These "transitional" areas, once subdivided and unoccupied, can be understood as developing as alternative grazing areas for pastoralists from both within and outside Laikipia (Georgiadis 2007a, Lengoiboni et al. 2011, Kinnaird and O'Brien 2012). This is supported by varying biomass densities of livestock on group ranches and transitional properties according to season and following climatic shocks. For example, Georgiadis et al. (2007a: p469) indicate "pastoralist livestock move between group ranches and transitional properties, seeking grazing on a seasonal basis. During droughts, pastoralist livestock move longer distances both into and out of the District." Wide seasonal variations of livestock density occur on transitional properties, "where estimates in June [following the main rains] were about one fifth of estimates in February [conclusion of the dry season]," and "on group ranches, where wet and dry season estimates bore no resemblance to each other. These patterns reflect movements by pastoralists between group ranch and transitional properties, and between Districts, on a seasonal basis" (Georgiadis et al. 2007a: 464).

Georgiadis (et al. 2007a: p463 citing Huber and Opondo, 1995; Thenya, 2001) explain that this subdivision process resulted in large areas "in varying stages of transition from larger-scale ranching to small-scale holdings that are used in ways that have displaced or eliminated wildlife." Livestock biomass stocking densities on these transitional properties have historically been higher than on large-scale ranches and have increased over time (Georgiadis 2007a; Kinnaird et al. 2012). At times, biomass density from livestock on "transitional" properties in Laikipia has been double that observed on group and private, pro-wildlife ranches (Georgiadis et al. 2007a: p466). Essentially, pro-wildlife ranches maintain low stocking densities, which allows co-existence with a significant biomass of wildlife populations. On "transitional" properties the density of livestock prevents significant populations of wildlife from using the land (Georgiadis 2007a, Kinnaird and O'Brien 2012). The following selection of excerpts explains the relationship between livestock and wildlife on the Laikipia's properties clearly:

> Georgiadis et al. (2007a: 467) explain, "Sheep and goats maintained lowest densities on pro-wildlife ranches throughout, and at least initially their densities were similar on group and transitional properties. Following the drought in 1999–2001, sheep and goat densities more than doubled on transitional properties. Cattle biomass density was lowest on group ranches, and highest on transitional properties, but showed no trend over time. Total biomass density of livestock was indistinguishable on group and pro-wildlife ranches, but greater on transitional properties by a factor of almost two."
>
> Georgiadis et al. (2007a: 466) also note: "Summing values for wildlife and livestock, total herbivore biomass density on pro-wildlife ranches increased to levels approaching those on the livestock-dominated transitional properties. This applied until after a major drought in 1999– 2001, when livestock on transitional properties and group ranches increased dramatically, but remained stationary or declined on pro-wildlife ranches."

Georgiadis et al. (2007a: p469) conclude that, "Immigration from the north contributed to the dramatic increase of sheep and goats on transitional properties following the drought in 2001." Indeed, Lengoiboni et al. (2011: 480) show that seasonal migration continues to take place between community areas in Isiolo and Samburu and parts of Laikipia's landscape. Specifically, "late year migrations" occur from Samburu directly into the middle of an area of "transitional" properties abandoned by small-holders and clustered around several large-scale ranches in central Laikipia (Lengoiboni et al. 2011: maps B and C on page 480).

Property Arrangements in Laikipia

Laikipia sits at an intersection of Kenya's property systems between areas where agriculture is highly productive and individual land rights are well defined and an area to the north where land productivity is marginal. In such areas rights of access and use are more often determined according to collective community use of common property than by exclusive use (Galaty 1994, Homewood 2008, Lesorogol 2008, Mwangi and Ostrom 2009).

Laikipia has been described as a land use "mosaic" (Graham et al. 2009, Graham et al. 2010). Property arrangements in Laikipia are dynamic, with some property categories, such as subdivided small-holder farms and large-scale ranches, being misleading because they are used in ways that are not directly implied by their tenure categories. For example, some large-scale ranches function primarily as wildlife conservancies, and many small-holder farm plots have been left idle or vacated by their legal owners and are used for grazing by pastoralists.

A recent economic survey of Laikipia (LWF 2013) provides a breakdown of property types according to land uses as follows:

- 37%: Large-scale ranches
- 32%: Pastoralist grazing
- 21%: Small-scale farming
- (10%: Other)

I will proceed to explain some of the dynamics surrounding the use of large-scale ranches and pastoralist grazing areas, since they are the focus of this study.

An overview of different large-scale ranch production strategies in Laikipia

Large-scale ranches occupy approximatley 37% of Laikipia's landscape (LWF 2013). Increasingly, large-scale ranches have ventured into wildlife conservation and tourism due to the increasing awareness of the financial benefits that wildlife can generate (Georgiadis 2007a, Georgiadis 2011). This move was associated with a need to generate revenue from alternative sources due to declining profit margins in the beef ranching industry (Heath 2000, in Georgiadis 2011).

Within the category of large-scale ranches exist several management strategies along a continuum of wildlife tolerance. Some properties favor wildlife while others completely exclude it. These management strategies impact outside perceptions regarding the extent to which the ranches are used "productively." These strategies also affect the extent to which some properties enforce exclusion on their boundaries.

On one extreme are wildlife conservancies, which operate with the direct intention of protecting wildlife and conducting tourism businesses. Such conservancies often keep a reduced herd of livestock in order to meet legal "productive use" requirements attached to agricultural land. On such properties, the priority and emphasis is on wildlife conservation, while other activities are considered peripheral. Another management approach is that of moderate stocking rates coupled with a pro-wildlife attitude. The herd size of domestic herbivores might be reduced in order to provide space for wildlife, which is generally tolerated to the extent that it does not interfere with livestock ranching activities. For example, herbivores are generally tolerated, while carnivores (though now more tolerated than ever before) have historically been eliminated if found killing livestock (Denney 1972 in Georgiadis 2007a, Georgiadis 2011). In a third category of large-scale ranches is the property owned by a single owner who is largely absent, or who does not invest sufficiently in exclusionary measures, and such properties appear to lack strong management and

exclusion strategies. Finally, there are large-scale ranches that are completely intolerant of wildlife and exclude it, and other land users, to every extent possible.

Wildlife conservancies often maintain electric fences in order to manage, and in some cases contain, wildlife populations on their land. Similarly, some wildlife-intolerant properties maintain electric fences to exclude wildlife from their properties. Properties between these two extremes often do not maintain fences, partially because of constant damage by wildlife (Georgiadis 2007b). Such properties make soft-targets for pastoralists seeking grazing inside the boundaries of large-scale ranches.

An overview of pastoralist land use in Laikipia

By formal land tenure reckoning, pastoralists hold through statutory tenure approximately 11% of Laikipia's land area in the form of group ranches that exist in one of the most arid areas of the County. This area is occupied largely by pastoralists of Mukogodo or Laikipiak ancestry. Throughout Laikipia exist large areas of unutilized or underutilized land that has attracted grazing activity from a number of pastoralist groups including Samburu, Pokot, Turkana, Somali, Mukogodo, and Laikipiak Maasai. Over the course of time, because these properties were left idle by their owners, subdivided and not occupied by the legal owners, or left unutilized by the government, pastoralists have incorporated these areas into their land use strategies (Kinnaird and O'Brien 2012). Because they are composed of a mixture of statutory tenure categories, and are not legally recognized as officially belonging to pastoralist groups, these have been given the title "informal grazing areas" (Kinnaird and O'Brien 2012). Such areas comprise over 20 percent of the County (LWF 2012). Being scattered throughout the County, and wedged between private properties operating under formal management control, they provide a stark contrast to formal land use and create a plethora of opportunities for individual herders to access pasture on private lands throughout Laikipia.

Pastoralism in Laikipia has been described as "in a state of flux" (Hauck 2013). Pastoralist livelihoods in Laikipia rely on diversification from various income streams and group ranches are partially dependent on relief food during parts of the year (Hauck 2013).

According to formal tenure arrangements, pastoralists in Laikipia are restricted to the group ranches existing in the arid northern parts of Laikipia (Letai and Lind 2013). In reality, pastoralists also make use of subdivided and underutilized patches of "private" land which surround other properties, and were unoccupied by the titled owners (Graham et al. 2010, LWF 2012, Letai and Lind 2013,). During periods of drought in Laikipia, livestock may be moved over large ranges of up to 200 kilometers in order to access pasture and water in adjacent areas (Letai and Lind 2013), and as a result sometimes pass through private properties or encounter areas of underutilized pasture which they can use opportunistically (Lengoiboni et al. 2011).

Hauck (2013) states that pastoralists in Laikipia's group ranches move east toward Rumuruti to make use of access options; pastoralists move toward Northern Approaches to access Eland Downs, and toward Rumuruti to subdivided areas in order to access grazing options on large-scale ranches such as Segera and Mpala. Lengoiboni et al. (2011) imply that areas in Laikipia represent pasture access options for pastoralists from outside Laikipia. Georgiadis et al. (2007a) note that pastoralists move into and out of "transitional" properties at various times of the year according to pasture quantities in other areas where they graze. From this we have a picture that forage composition and distribution, rainfall levels, and relative abundance of livestock from other areas can influence pastoralists from both group ranches and surrounding counties to exercise strategic and opportunistic access options situated on the periphery of large scale ranches.

The scale of the phenomenon

The Wildlife Conservation Strategy for Laikipia 2012-2030 indicates that "23 sub-divided ranches covering 1,331 km2 and that have not been settled and are effectively abandoned" form part of "approximately 3,118 km2 in Laikipia used for informal grazing by semi-nomadic pastoralists" (LWF 2012: p18). This occurs in a landscape with great potential as "conservation-compatible" wildlife habitat (LWF 2012). Many properties in Laikipia receive 500-800mm of rainfall. This is the medium rainfall zone where wildlife in Kenya has remained constant or increased provided land users have strong property rights,

amidst declines in other rainfall zones above and below this threshold and in areas where property rights are weak (Norton-Griffiths and Said 2010).

If property rights (Norton-Griffiths 1996, 1998, 2000; Norton-Griffiths and Said 2010) to subdivided land or large-scale private properties are being weakened due to occupation by or frequent incursions by adjacent land users, this theoretically creates challenges to successful conservation outcomes in Laikipia. "Rights" to property rely on others fulfilling their "duty" to respect those property rights and the capacity for enforcing exclusion; in the absence of the fulfillment of duty, others might make use of "privileges" to expand their activities onto adjacent lands (Bromley 1992, Heller 1999, Sjaastad and Bromley 2000: p366-368). Notions of property rights attached to large-scale ranches that enforce exclusion and "informal grazing areas" used by pastoralists who operate on notions of common property (Galaty 1994, Homewood 2008) strongly contrast each other (Kinnaird and O'Brien 2012), and create property rights tension where these forms of tenure meet throughout the landscape.

Chapter Three: Findings

Section I: "Pastoralist Resource Access"

First Guiding Question: How do pastoralists gain access to resources using "abandoned lands"?

"Formal shifts in tenure have made landholding vulnerable, but informal factors initiated by population growth and land scarcity have led enterprising individuals to move to landholding frontiers, building on networks, friends or opportunities to gain slivers of land by leasing or purchasing small farms or simply squatting in areas seen as 'underutilized'" (Galaty 2013a: p143 citing Berry 2009).

Summary

In this chapter I present data from grey literature and my research findings which I will use to make the case that pastoralists are embracing private title to subdivided land primarily as a measure to achieve tenure security. This security of tenure is important for two reasons. It prevents their eviction from "abandoned lands" and enables pastoralists to continue using them as "informal grazing areas." In the discussion section I will argue that this is an improvisation, or twist, on the use of private property that is neither anticipated nor adequately dealt with by a conventional economic theory of private property.

Introduction

"Abandoned lands" have had magnet effects in attracting pastoralists to vacant, unmanaged spaces which they then use as "informal grazing" areas. The phrase "informal grazing" has gained prominence in Laikipia because it is a politically neutral, objective reference to areas where pastoralists, irrespective of their varying degree of formal and informal rights and claims to the locations, graze livestock on land that is legally owned by other individuals through statutory tenure. Patches of land used for "informal grazing" contribute in significant ways to pastoralist access to resources across Laikipia's private property landscape in both "abandoned" subdivided areas of nominally "private property" and inside private, large-scale ranches. In these findings, I assemble a mosaic from the elements of this land use case study that portrays pastoralists as responding to a complex,

multifaceted land tenure scenario resulting from land subdivision with strong agency and calculated strategy.

Insights into pastoralist land ownership

During the early part of my research I learned that pastoralists had begun purchasing land in subdivided "abandoned lands" to secure their tenure and in order to formalize their access to surrounding rangeland resources. Based on observations and conversations that also confirmed these reports, I pursued my fieldwork interviews using this kernel of insight to better understand how the phenomenon of "abandoned land" functions in relation to property rights.

Tenure insecurity

Historically, many of the pastoralists residing in and using subdivided areas with high levels of absenteeism as "informal grazing areas" have been "tenure insecure" due to the possibility of their removal from these areas through government eviction. This is because they were not landowners. At various times in the past, including during the research period, pastoralists in various areas of "abandoned lands" have received threats of eviction from government authorities (i.e., Citizen News, August 16, 2013). While many of the pastoralists reportedly continue to reside on "abandoned lands" as squatters, and migrant pastoralists use the lands in an itinerant and transient way, others have purchased land and have become landowners to increase their security of tenure. Local authorities are encouraging pastoralists to observe the law by respecting private property and acknowledging that it belongs to individual owners. To some extent local authorities have also encouraged pastoralists to purchase title if they wish to continue occupying these areas.

I spoke to pastoralists who claimed that they or their families had purchased land in Laikipia's subdivided areas in the early 1990's. However, interviews indicated that the current trend of pastoralists purchasing subdivided land by acquiring title deeds began around the year 2000 and became even more common between 2010 and 2013. Actual evictions allegedly took place at various times, including during the periods 1991-1993 and

2000-2001. During this latter period, which corresponds with a drought period in the region, an influx of pastoralists into Laikipia led to an attempt by the authorities to evict non-resident pastoralists and their cattle in areas occupied informally by them. Purchase of land by pastoralist land users has reportedly been on an upward trend since that time.

Response of state administration to the increase of pastoralist livestock in Laikipia

As pastoralist groups continued to migrate into Laikipia following the subdivision of land, and in response to various drought periods, the presence of livestock from surrounding counties, including Baringo, Samburu, and Isiolo, became problematic in that herd numbers could not always be sustained on available pasture resources in "abandoned lands". Frequent trespassing on private, large-scale ranches, rising conflict and tension with agriculturalists and owners or large-scale ranches, and "illegal grazing" were frequent occurrences, all of which became major concerns for the government administration. There is little regulation that can prevent additional pastoralists entering abandoned lands and grazing on them until the pasture is exhausted. According to an area administrator, the amount of livestock in abandoned lands increased dramatically due to the in-migration of pastoralists seeking pasture during and following the drought of 2000-2001 (c.f. Georgiadis 2007a, Kinnaird et al. 2012). At the same time, insecurity also became an issue. According to this local official, the effort to remove pastoralist migrant cattle from Laikipia failed due to the declaration of a disease outbreak, resulting in a quarantine period. This resulted in a moratorium being placed on livestock movements, which permitted pastoralists to continue grazing in Laikipia.

As the administration responded to the problem by attempting to remove pastoralists and return pastoralist livestock to their "home areas," the administration began encouraging individuals to become land owners if they wished to remain in Laikipia. They also started encouraging pastoralists to seek access to pasture by requesting formal permission, through payment of a token fee and the use of grazing agreements (to be discussed in a subsequent chapter) rather than by trespassing. Essentially, the administration promoted measures which they believed would, 1) facilitate the rule of law regarding sanctity of private property, 2) assist in governance and controlling access to private property, 3)

increase the ability to manage mobile populations, 4) encourage the adoption of private property by pastoralist livestock keepers who were otherwise informal occupiers of absentee patches, and 5) reduce conflict and defuse tension among pastoralist and non-pastoralist land users competing for resources.

Land ownership as a pastoralist access strategy

Interviews during the research indicate that a number of pastoralists are adopting private title in Laikipia's subdivided areas with the intention of protecting themselves against potential eviction. The fact that vast areas of the landscape were subdivided at a scale that was intended for agricultural production means that an extensive contiguous mass of individual plots appearing on a cadastral map like "chicken-wire" or a chessboard now cut across large swathes of formerly open rangeland. This situation facilitates pastoralist land users becoming tenure secure through the purchase of very small units of land. This private property base serves as a fulcrum that enables access to grazing resources within "abandoned lands," "contested" areas, underutilized government properties, and private large-scale ranches in the surrounding landscape. Although conventional use of private property would assume that one would stay within the confines of one's own plot, this is neither the intention nor the resulting action among pastoralists. Grazing activities are often extended far beyond the boundaries of the land they have purchased and on which they situated their livestock.

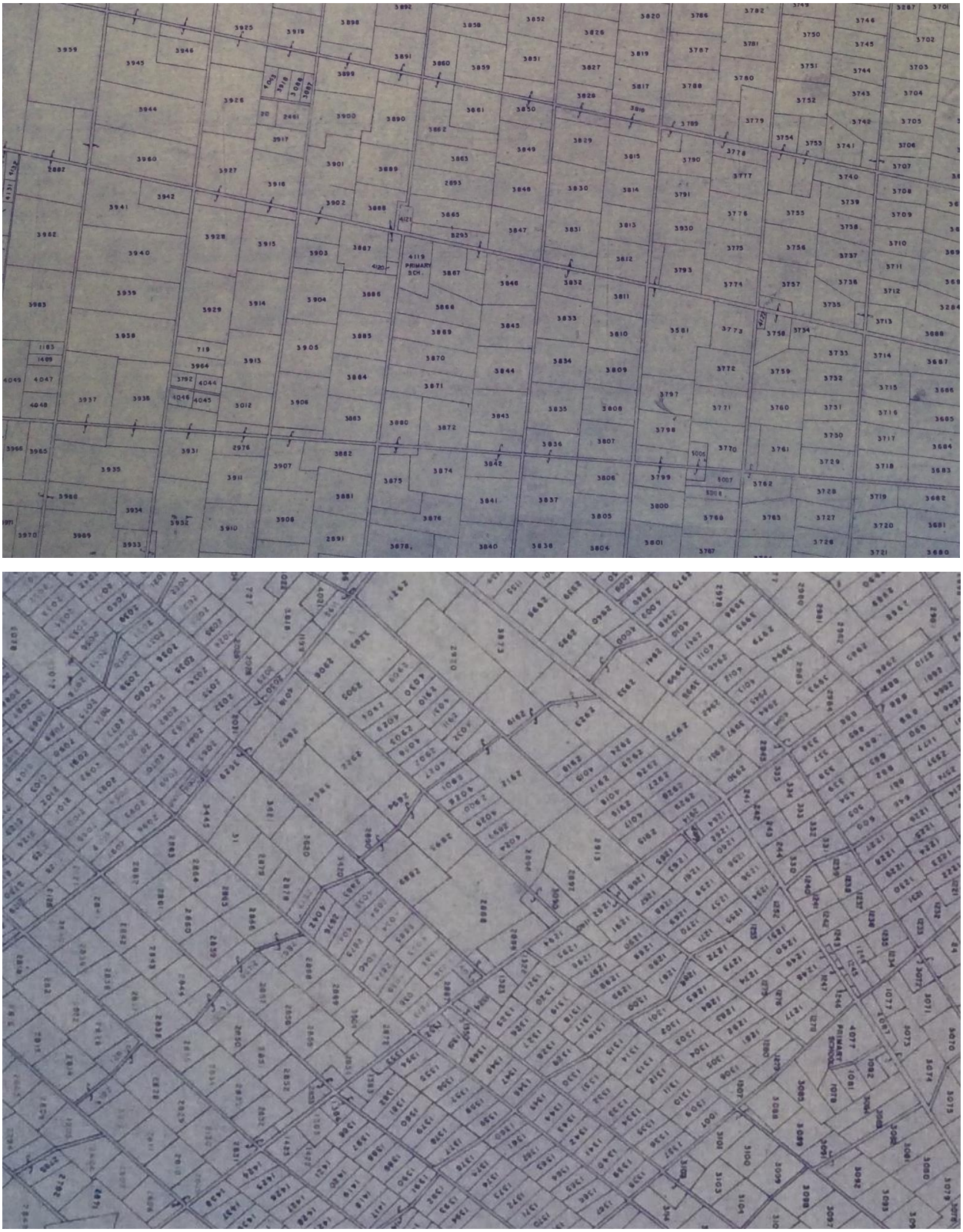
It is not clear whether there was an already-present trend toward land ownership among pastoralists who bought land before the government suggested it, or whether the administration encouraged them to do so if they wished to continue living on and using "abandoned lands." What is clear from fieldwork data is that there existed some tenure secure pastoralists already living on, or grazing in, the "abandoned lands" by the early 1990s. The Zeitz Foundation newsletter from April 2013 indicates that pastoralist occupants of one of the "abandoned lands" had reportedly been residing there since the 1970s and at an unspecified point in time bought land from the former manager of the subdivided ranch. Regardless of whether the local administration was responsible for catalyzing the actual purchase of land, pastoralists responded adaptively by choosing to

formalize their relationship to the land through the purchase of small-holder plots. These are often in the range of 3-6 acres, though sometimes pastoralists purchase much less and at other times far more. I spoke to some pastoralists who are seeking to extend their land-holding bases beyond this, however it is not clear whether they are buying additional land because they were able to locate the owner who wished to sell all of the land assets he held in an area, or whether these individuals simply want additional land holdings. In some cases where pastoralists wishing to buy land found it difficult to locate the legal title-holders of land, pastoralists bought shares of 6 acres, or more, from those landowners who could be identified and contacted. Essentially, regardless of the catalyst or chronology, formalizing their presence gave pastoralist individuals from both inside and outside Laikipia a legal, statutory standing in a relationship to the land, providing the requisite legal footing to avert eviction. By virtue of their land holding they are able to remain in areas where they have been grazing their herds on unoccupied "abandoned land."

Access to pasture in "abandoned lands"

Some pastoralists use vacant small-holder parcels strategically to establish their livestock production activities within a vast stretch of formally adjudicated subdivided land that is unoccupied by hundreds, and sometimes thousands, of absentee owners. This is achieved by creating a livestock enclosure using acacia thorn trees, known locally as a "boma." This "boma" serves as a pivotal base in the areas previously described. Being situated in this way, with a semi-permanent base but with mobile livestock, allows pastoralist opportunities to exploit resources on the surrounding lands where legal title-holders are absent.

These “bomas,” (thorn enclosures) are situated on a large-scale ranch (above), and a communal rangeland (below).



These extracts from two cadastral survey maps show examples of extensive subdivision carried out on a former large-scale ranch in Laikipia in the research area. The plots generally range in size from 1 to 6 acres. (Source of maps: Kenya Land Survey, Ministry of Lands)

In the map above, notice the top right corner (without numbering indicating subdivision), which is a large-scale ranch bordering the subdivided area. (Map Source: Kenya Land Survey, Ministry of Lands)

The following quotes from key informant interviews provide insight into a prevalent strategy evident among some of Laikipia's pastoralists who use "abandoned lands" to become small-scale landowners, but whose benefit from the resources on that land operates in a way that is disproportionate to the size of their formalized land holdings. This is enabled by large swathes of land that were vacated by the majority of title-holders, or left idle by owners who never fully established a residential presence there. The emerging pastoralist livelihood strategy enabled by the confluence of tenure security, strategic position on which to establish a pastoralist livestock production base, and access

to surrounding expanses of pasture is fleshed out when one considers the implications embodied in the following interview data:

Formalizing the "informal" using a base as a foothold:
"What has happened is that the pastoral communities try to get a 'foot-hold' by buying a small piece of land from those people who have the title deeds, which they use as a 'base' to graze in the extended area of the farm, where owners have left…so this person wants to legitimize the grazing rights; he is already grazing the land, but the amount of land the person has bought cannot really support the amount of animals the person has…" (interview, Ministry of Lands official, September 16, 2013)

Averting eviction through demonstration of tenure security using a title deed:
"We have been living here before the wazungu and when the wazungu came, we (pastoralists of Maasai-speaking origin) were evicted. So when they left, we thanked God and thought we got our land back. That is why I bought land." He added, "The second reason is… people were being evicted around 1991 and the years following, 1991-1993." He explained that he bought land to have a title to show to authorities in order to prevent his eviction. (interview, pastoralist land user, September 2013)

Leveraging a minimal land base toward access privileges and tenure security accorded by formal title:
"They buy land to get grass only. They are buying because there is a lot of free (i.e. unoccupied, idle, unsettled) land there." This source went on to explain that pastoralists use this subdivided area as a position from which to "pinch grass" on a nearby large-scale government ranch. "The one who has land is very much safe because he can't be evicted. If there is a time when the government wants to move people out who don't have land (i.e. "squatter" occupants), only the ones owning land are left." (interview, local government administrator 3, October 13, 2013)

Another key informant noted emphatically that one subdivided area where pastoralists purchase land has great value to their strategy for acquisition of pasture since from that

central location one could theoretically access pasture both formally and informally on a number of large-scale ranches in the surrounding area.

Title not for access to land itself, but for privileged grazing opportunities in surrounding areas:
One administrator noted that the local government administration was promoting land buying among pastoralists as a means to keep the peace and maintain private property rights. Although he acknowledged that the local government is encouraging the purchase of land by pastoralists who would otherwise be 'squatter' occupiers, with at best informal rights, he emphasized that pastoralists were capitalizing on the prevailing circumstances provided by the scale at which land was subdivided, and vast unoccupied areas where owners were absent, in order to employ titles to land strategically. He stated, "Wanatumia 'titles' kama ngao yao, ili wakule kila mahali," which translates in English to, "They use titles as their shield so they can 'eat' [graze livestock] everywhere."
(Discussion with a government administrator August 2013)

Why do pastoralists buy subdivided plots?
It cannot be denied that there are many advantages to private property ownership, as supported by the following reasons that were cited when I spoke with individuals about why pastoralists purchased land:

- To prevent eviction by government authorities (tenure security)
- Purchase or lease of land to engage in agricultural production (near water sources)
- For burial rights
- For inheritance purposes (which may explain why some individuals continue to buy land)
- Gaining a residential base near educational opportunities for children
- Gaining greater access to markets in Rumuruti through a base with close physical proximity to the township area
- Motivations related to claims of Laikipia being an ancestral land for Maa-speaking pastoralist groups, particularly various "forms" of Maasai. (This final reason should

not be overlooked or underemphasized as part of the larger narrative explaining why pastoralists buy land. However, the purpose of this thesis is to focus on pastoralist interaction with "abandoned lands" and the resulting impact on surrounding private large-scale ranches, *not* to explore claims of historical injustices.)

According to my observations and interviews, many pastoralists who do purchase land are often investing in property to provide themselves with a secure tenure base on which to situate their homestead and livestock assets. This leads to a situation where the quantity of livestock held by pastoralists in a particular location is highly disproportionate to the amount of land an individual pastoralist owns there. It is not unusual for an individual who owns a small piece of land to situate 50-200 cattle and between 50-200 small livestock (sheep or goats) on it. It was a recurrent comment by a wide spectrum of Laikipia residents that pastoralists often have "200 cattle but own only three acres of land." A long-term resident commented that "it's no secret that pastoralists are buying small plots of land" and putting large herds of cattle on them.

Conclusion

In this chapter I provided findings that reveal a narrative, based on personal observations, field interviews, and informal discussions with a variety of long-term Laikipia residents, including pastoralists, Ministry of Lands officials, local government administrators, and large-scale ranchers, that suggests private title is being adopted to create a "tenure-secure" base on a small unit of land to provide access to a surrounding range serving as a "commons," and facilitate access to private property. In the next chapter I will discuss the effects of "abandoned land" being situated adjacent to large-scale ranches.

Section II: "Pressure on Large-scale Ranches from 'Illegal Grazing'"

Second Guiding Question: How do "abandoned lands" impact property rights dynamics on large-scale ranches?

"Through binoculars I can watch a Samburu warrior across the valley in all his finery of beads and redness wondering if he can smuggle his flock in to poach our succulent pastures…"

Aidan Hartley, The Spectator, May 24, 2014

The area shown above sits near the confluence of state-owned land, a large-scale ranch/conservancy, and a subdivided area that was previously a large-scale ranch. During the research period, the use of this area created tension among land-users, including rival pastoralist groups who were attempting to access the same area of pasture over which there is contestation. Several thousand pastoralist cattle exhausted pasture on a piece of private property that was unfenced. This incident raised concerns over conflict between pastoralist groups who were moving ever-closer to each other in competition for the pasture, and over respect for private property rights in Laikipia. The situation resulted in a security meeting between local authorities and representatives from the pastoralist and ranching communities.

Summary

In this section I will elaborate on one of the primary impacts of "abandoned land" on adjacent large-scale ranches: "illegal grazing." The settlement by pastoralists on "abandoned lands" has resulted in constant pressure on adjacent privately held land

resources. This pressure is characterized by the challenge to defend private property rights and pasture resources on large-scale ranches. The juxtaposition of property and livelihood strategies predicated on very different cultural notions of property leads to a property rights tension between pastoralists and large-scale ranches that border each other in Laikipia. "Illegal grazing" is a widespread management issue. It constitutes one of the main management challenges and can be a significant portion of operating costs related to security measures on large-scale ranches. Key informants felt strongly that "abandoned lands," because they lacked an active management presence, were one of the main contributing factors leading to livestock trespassing on large-scale ranches. Using the data in this section, I expand on the previous chapter to argue that in addition to providing grazing on expansive areas of "abandoned land," subdivided areas also underpin a strategy to access resources on large-scale private properties.

Introduction

Subdivided land situated adjacent to large-scale ranches creates a complex land tenure arrangement. Extensive land subdivision has led to a general lack of land use regulation on "abandoned lands" located on the periphery of large-scale ranches. Subdivided areas in Laikipia play a critical role in providing access to 'underutilized' pasture on "abandoned lands," and to grazing opportunities on nearby large-scale private and government properties. The opportunity to purchase land in subdivided areas situates some pastoralists possessing small portions of tenure-secure land and owning large herds of livestock as a permanent fixture of the land user community. Thus, they become permanent and semi-permanent "neighbors" directly adjacent to large-scale ranches.

The unregulated land tenure situation and the inability of some large-scale ranches to fully defend boundaries presents challenges to the defense of private property rights. Pastoralists frequently make unauthorized incursions into private large-scale ranches to access pasture and water resources. "Abandoned lands" provide the possibility for tenure security and proximity culminating in the opportunity to enter into surrounding private large-scale ranches in order to access available grazing opportunities.

Subdivided areas and trespassing opportunities

The most profound, ubiquitous, and near constant effect of "abandoned lands" situated on the periphery of large-scale ranches is the challenge of enforcement of private property rights through physical exclusion of pastoralists. There is constant pressure on resources such as fuel wood, building and fencing materials, grass, water, and minerals within large-scale ranches situated adjacent to "abandoned lands." This pressure on resources is more intense during the dry season, or when pasture forage is exhausted on surrounding "abandoned lands" and in surrounding counties where pastoralism is the primary land use and livelihood strategy. The most frequently observed evidence of this pressure is "illegal grazing," which poses a constant resource management challenge to private large-scale ranches bordering "abandoned lands". For the purpose of this thesis, I define "illegal grazing" as the act of pastoralist trespassing with livestock with the intention of accessing grazing on a large-scale private property (that attempts to exclude trespassers) without prior authorization. Therefore, I do not refer to the occupants and transient users of "abandoned lands" as "illegal grazers," because in many cases no one is managing for their exclusion.

During interviews with large-scale ranch managers, "illegal grazing" was highlighted as a primary effect of "abandoned land" on adjacent large-scale ranches. This was also confirmed during informal conversations and by observation while conducting fieldwork. Some residents of "abandoned lands," during casual conversations, also cited the presence of pasture and water resources on adjacent large-scale ranches as critically important to the livelihoods of pastoralist livestock producers residing on "abandoned lands."

Both interviews with a variety of respondents and personal observations on several ranches confirmed this grazing pressure, as observed through frequent incidents of "illegal grazing," as one of the main effects of "abandoned land" situated on the periphery of a private large-scale ranch. Importantly, this response was not limited to large-scale ranch managers, but included several participants from local government administration and conservation-oriented organizations who identified pasture and water resources within large-scale ranches as attracting trespassing grazers. I also viewed administrative records

on three ranches in the form of ledger books and a large notebook binder full of "illegal trespassing" incidents documented by ranch management over the past several years. While I did not conduct a thorough analysis of these records, a glance through them and discussions with ranch management supported data from interviews that controlling "illegal grazing" was a constant and formidable challenge.

Sanctions imposed on "illegal grazers"

A common response to illegal trespassing with livestock is the confiscation of a prize animal, or a particularly young animal that will require milk from its mother, in order to create an audience with the responsible party. Such a confiscation compels the herd owner, who is often not the herder, to appear before the ranch management or security team to discuss the incident. A record of the trespassing incident will usually be recorded for official purposes in order to document the number of livestock found trespassing, the "grazing fee" levied as a de facto fine for the incident, and the acknowledgement of the owner of the incident and payment of a fine. Such records are important in documenting repeat offences and protecting private property from grazing forays by unauthorized individuals. If the owner fails to appear before the ranch management, he risks losing the animals that were confiscated. The number of animals confiscated as a penalty for trespassing and "illegal grazing" varies according to the history of the relationship of the owner to the private ranch and enforcement team conducting patrols and enforcing exclusion. The "grazing fee" levied is often the same fee that applies to monthly grazing agreements, but the owner will be expelled from the property without the right to graze for the duration of the month. This practice, often conducted with the knowledge of the local authorities, provides incentive for individuals to enter into formal arrangements to access grazing rather than to risk accessing grazing surreptitiously.

These three sheep have been confiscated from among the herd of approximately 50 livestock in the background and were taken back to the ranch headquarters.

The cattle above were confiscated from among a large herd that was declared to be trespassing onto a private large-scale ranch along a main road. The tension ran high between the security team pictured above, and the herders and herd owner below. The herders quickly contacted the herd owner by mobile phone, and simultaneously came chasing after the confiscated animals.

The four individuals above discuss how to respond to the confiscation of a portion of their herd of cattle declared to be "grazing illegally" on a large-scale ranch. The two herders on the left defended themselves by stating that they were taking the herd along a road reserve to access a pan of water situated between the road and the periphery of the ranch. The individuals, after being taken to the place where the cattle were confiscated and viewing the area that was grazed, later agreed that the cattle had crossed the border into the ranch and were grazing on pasture inside the private property.

In such situations as that depicted in the photos above, there are usually five possible outcomes: provision of grace and a warning; a fine paid on the spot; confiscation of animals and a "grazing fee" paid in lieu of "damages"; involvement of authorities and charges pressed for trespassing; or resistance and conflict between the accused trespassers and security detail. Official penalties for trespassing are light, often involving 500-1000 Kenyan Shillings (approx. 6-13 USD) and/or a short jail term. The time and resources involved in pursuing such legal action usually results in one of the other more practical solutions being pursued instead. Official channels may be pursued if the accused become violent or are found to be habitual repeat offenders.

Many of Laikipia's fences became too costly to maintain due to constant breakage by wildlife, and this has implications for marking boundaries, enforcing exclusion, and prevention of trespassing. Where ranches are able to maintain fences and walls against the dual risk of damage by wildlife and vandalism by trespassers, the use of a stone wall with an electric fence on top has been moderately effective. One rancher noted that by keeping such a barrier in-tact, one could more easily detect intrusions by trespassers, as well as elevate legal charges from the meager issue of trespassing to one of "breaking and entering." The latter charge carries much more severe legal penalties.

The scene above is from an outlying area of a large-scale ranch surrounded by "abandoned land." The individual on the left has been detected by a ranch patrol vehicle and is herding a large herd of sheep and goats across the ranch boundary (note the cut-line at top of the picture and tire tracks indicating the property boundary) back into a subdivided area of "abandoned land" on the right of the photo. Consider the vastness of the landscape, lack of measures besides patrolling to effect exclusion, and ease with which a mobile herd of livestock can move on and off of a large-scale ranch.

"Illegal grazing" framed as a property rights conflict

Both interviews and observations indicated that the gradual increase of pastoralist livestock on "abandoned lands" has led to tension between pastoralists and owners of

large-scale private property in Laikipia. The following perspectives from respondents frame the situation as a property rights conflict between land uses based on divergent and culturally distinct notions of land ownership and property. These divergent notions are related to the differences between stationary production and mobile livestock production regimes, and between statutory tenure and common property arrangements.

- A pastoralist land management professional involved in mediating the relationship between a large-scale ranch and several pastoralist communities seeking pasture stated, "The conception pastoralists have of how to own property is clashing with the conventional system." The source explained, “The way we are brought up in our land tenure system is completely different from this method of private ownership…the idea of ‘this is mine’ versus ‘this is communal.’ Why are pastoralists thinking like this, and why is this conventional world thinking like that…and which way is “the way” in reality and how can that way be…pastoralism and private entity ownership, how can that be understood and legalized? Because that is what is causing the misunderstanding on the greater depth.” (interview, September 05, 2013)

- A Ministry of Lands employee explained, “The idea of the pastoralist communities of legal rights and ownership of a piece of land, to a certain extent, many of them do not recognize these formalized rights. It is as good that some of them can get their pasture. For them, they would be more inclined to (have) the user rights than the legal rights; unfortunately, our legal system does not recognize user rights…our legal system borrowed too much [from the British legal tradition] and we did not pay much attention to the tenure of land user rights.” (interview, September 16, 2013)

Unsurprisingly, properties with the most effective measures at excluding pastoralists report fewer challenges with “illegal grazing”. Areas that are insulated by surrounding large-scale ranches with similar management objectives and properties capable of maintaining effective exclusion using barriers and electric fences report less frequent

incidents of "illegal grazing". These properties also generally decline to rent grazing out to pastoralists.

Unregulated areas

The lack of land management regulation in "abandoned lands" contributes to the property rights tension felt between pastoralists and private large-scale ranches. One pastoralist I spoke with noted that in past times there were fewer residents and livestock, especially sheep, in "abandoned lands." As a result, it is understood that pasture resources on "abandoned lands" are not always sufficient for the quantity of livestock currently being kept. Drought, dry season forage conditions, and declining quality of pasture in "abandoned lands" where pastoralist homesteads are permanently situated may also motivate more frequent trespassing incidents in order to access grazing opportunities within private property boundaries.

The lack of regulation in "abandoned lands" and "informal grazing areas" is supported by the following data from interviews and field observations:

- Unauthorized pastoralist-owned livestock was frequently observed grazing on pastures found within the borders of the underutilized large-scale ranch where I was based, and the same was reported as a historically prevalent management issue on ranches surrounding "abandoned lands." It was also reported as a problem on a higher level on private properties where management capacity had declined or become largely defunct.

- Maintaining exclusion of other resource users from "abandoned lands" during times of resource scarcity in surrounding districts is challenging. Low tenure security for pastoralists in "abandoned lands" means it is difficult for them to be viewed as legitimate excluders of other users from areas they utilize informally. A large-scale ranch manager explained, "It's hard for these guys to tell their mates that they can't come in (and graze) when they don't own the land themselves."

- Interestingly, interviews indicated that large-scale ranches have also made use of pasture on "abandoned lands" and ranches that suffered from low or absent management presence during times of resource scarcity due to the lack of measures preventing livestock from entering these areas. It was reported that in three separate locations throughout Laikipia, large-scale ranches have made opportunistic use of pasture left idle by its owners when resources on their own properties were insufficient for their livestock. This highlights the challenges that even large-scale ranches face in managing their herds within static boundaries in a variable climatic environment. It also demonstrates another layer of complexity present in areas where resources and tenure are contested.

- Multiple respondents noted that "abandoned lands" provided areas where livestock could be moved to without being questioned or authorized by livestock veterinary authorities. A long term resident stated that because "abandoned lands" contribute to the unregulated movement of people and their livestock, livelihoods of large-scale ranches may become insecure. When herd movement is not regulated through movement passes, which are issued by the Ministry of Livestock to authorize movement of domestic grazers from one location to another after they have been examined and determined to be healthy, diseases may be transmitted between herds, leading to increased livelihood insecurity for large-scale ranches.

- A resident of a neighboring large-scale ranch, referring to an incident where Samburu herders from outside Laikipia had walked onto a 4,000 acre piece of unfenced, private property nearby with hundreds of cattle, stated: "If someone can just walk onto your land and use it, then it means it's not yours." The legal landowner dealing with these trespassers explained that he chose not to fence this piece of land because it serves as a reservoir of plains game for the wider Laikipia landscape and is a critical corridor for wildlife transiting between Laikipia and Samburu Counties. The herders moved onto the land from positions on subdivided unoccupied rangeland and an unregulated piece of government land.

- Land managers from large-scale ranches also noted that "abandoned lands" constitute largely "ungoverned" spaces providing opportunity, cover, and passage for illicit activities such as charcoal burning, poaching, and stock theft—activities that do not necessarily involve the pastoralist residents of "abandoned lands." However, such activities cannot be effectively monitored by thinly spread authorities due to low resident occupancy rates in the subdivided areas. A local government administrator explained that in the past, a single government appointed chief might be required to cover an area of over 60 square kilometers.

"Abandoned land" as a "stepping stone"

Interview data and numerous personal field observations indicate that pastoralists frequently trespass onto private large-scale ranches to seek grazing for livestock using the "abandoned lands" as a starting point. From these bases, pastoralists may gain surreptitious access to pasture resources on surrounding nominally private or government owned properties, some of which have become "informal grazing" areas (Kinnaird and O'Brien 2012). This scenario is supported by data from the following field interviews demonstrating perspectives on **"**illegal grazing" from two large-scale ranch managers:

- One land manager explained, "'community areas' (meaning "abandoned lands") are excellent jumping off areas to access grass, grazing, and resources on the surrounding ranches and properties" (August 22, 2013).

Another land manager stated that the threat of illegal grazing for private large-scale ranches originates from abandoned lands (Sep 07, 2013):

- "…one of the most important things about Laikipia and security, and that means also the security of conservation, is the "absentee," what we used to call "lack of ownership representation." That means it becomes a "stepping stone" for pastoralists to come in and illegally graze. They overgraze and abuse it and there is no security so therefore…[conservation] wildlife gets hammered as well because there is no policing of anything. Meaning the neighboring large-scale ranches that

> are actively ranching and conserving wildlife [are affected]--it all poses insecurity. It really is one of the most important things here in Laikipia because it is the root cause of insecurity…"That's [absentee areas] where the threat comes from. It makes it a 'stepping stone' for pastoralists from outside this County to come in here and because they don't own it and have no responsibility they are recklessly overgrazing it but are [also] opportunists in killing the wildlife either for trophies or for bush meat trade. So when you have absentee ownership lands next to you that is where the threat is coming from. You have no one to talk to."

Tenure security intersects with access opportunities to large-scale private property

Livestock enclosures on abandoned lands are often situated in a strategic position to access water and pasture resources on adjacent large-scale ranches. Areas on large-scale ranches where water sources such as pans, scrapes, dams, and rivers are located are highly vulnerable to incursions as pastoralists seek water for their livestock. This access can be surreptitious, involving grazing during the cover of night. Areas that are unfenced or where it is difficult to exclude outside resource appropriators are also vulnerable to incursions with livestock. On some properties that have low management capacity, and thus often low security, pastoralists enter the property in broad daylight and once sighted quickly move their livestock back onto their base of neighboring "abandoned land."

Such incursions are more frequent in outlying areas that are seldom monitored or which due to their inaccessible locations are difficult for management to control. Due to the size and shape of large-scale ranches, some properties cannot easily defend boundaries or maintain arrangements that ensure exclusion. Large-scale ranches where management presence has declined or is absent, or that cannot actively enforce exclusion on distant boundaries, are especially susceptible to being accessed in this way by pastoralists.

A herd of pastoralist cattle crosses the boundary (from right to left) into a large-scale ranch in Laikipia. The section of the electric fence separating this ranch from the pastoralist occupied area on the right is frequently broken by pastoralists and elephants, creating a challenge to enforcing private property rights against trespassing pastoralist livestock.

Conclusion

This first findings chapter describes the fulcrum of a small, private subdivided piece of land purchased in the "abandoned lands." This plot serves as a "tenure-secure" point used as a strategic pivot providing access to pasture in surrounding areas. Using this strategy to maintain a legally secure foothold in the "abandoned lands," pastoralists may access several surrounding large-scale private properties from which they cannot be effectively excluded.

My research findings indicate that grazing opportunities on "abandoned lands" are not necessarily the only attraction for pastoralists to settle on subdivided "abandoned land." Rather, it is a combination of available opportunities for pasture resources on "abandoned lands" combined with the ability to enter surrounding large-scale ranches, some of which

have weak or absent management presence. Therefore, a property that does not actively and effectively exclude external resource appropriators in order to protect its property rights may contribute to a "pull" phenomenon attracting trespassing livestock. Difficulty in patrolling boundaries, enforcing exclusion, and lax management on the part of large-scale landowners, all contributes to increased "illegal grazing" pressure. Areas affected by these dynamics have been inundated by pastoralists seeking pasture and other resources either transiently or in a regular, systematic strategy. The largely unregulated spaces of the "abandoned lands" and lack of active management presence on parts of some large-scale ranches enable this access.

Some large-scale ranches have employed an innovative method to secure their boundaries. This is achieved using formalized access agreements with pastoralists. The next findings chapter will focus on this strategic response to the challenging property rights situation created for large-scale ranches by "abandoned lands."

Section III : "Grazing Agreements"

Third Guiding Question: How do private large-scale ranches defend their property rights against pastoralist incursions?

Summary

This findings section explores the grazing agreement contract, an institution that is being used for multiple and variable purposes by ranches and pastoralists. It is argued that ranchers are innovating on this existing institution to protect private property rights on some large-scale ranches in Laikipia. The resource pressure on large-scale ranches originating from land use patterns in "abandoned lands" leads some ranch managers to allow access to a number of pastoralists for specific periods of time through formal grazing agreement contracts. I will explain how these contracts contribute to prevention of unauthorized resource use by third parties. I will demonstrate how such a situation assists in preserving private property rights arrangements. I argue that grazing contracts do more than simply protect private property rights through a legal pathway of formal arrangements. I will describe how property owners have created land use buffers against trespassing and "illegal grazing" using contracted grazers as a land use "barrier." Those pastoralists who have been granted official users rights subsequently prevent access by others who have not gained permission to access grazing options on private property.

Introduction

In the previous section, I explained that pastoralists may access large-scale private properties through informal, unauthorized means. During the course of my research, I found that pastoralist access to private property is increasingly being mediated through formal, contractual arrangements. This section explores how formalizing access provisions through the grazing agreement contract provides significant benefits to both parties of the arrangement. The engagement of formal access agreements observed in this case study demonstrates institutional innovation on the part of both ranchers and pastoralists. This section contributes to the expansion of past work by others (Lind and Letai 2013 and Lengoiboni et al. 2011) that explored the innovation in herder-farmer agreements from the

perspective of pastoralists during periods of drought. Here I will expand on the grazing agreement and its benefits from the perspective of private property management.

Responses by ranch management to resource pressure

"Illegal grazing" pressure affects the way ranches allocate their resources. Properties respond in various ways to resource pressures on their boundaries according to a variety of factors, which include available financial resources, management strategy (whether for cattle production, wildlife conservation, tourism, farming, or a combination of production functions), and attitudes of the landowner toward property rights and surrounding communities. The presence of unmanaged or "abandoned land" on the periphery of a large-scale ranch was observed to result in an attempt by large-scale ranches to secure their boundaries against incursions originating from these areas. Large scale-ranches may also engage with communities in various ways to improve their social relationships with adjacent land users.

The following is not an exhaustive list, but provides insight into the variety of means a property owner may employ to manage resource pressure through exclusionary measures:

- Increasing security staff and frequency of patrols on areas adjacent to subdivided "abandoned land";
- Erecting barriers, such as stone walls, electric fences, or a combination of these to prevent intrusion;
- Becoming more tolerant of fencing, including the "Laikipia Wildlife Fence," which separates wildlife-tolerant properties from areas where wildlife is not tolerated, on their boundaries and investing more heavily in its repair and maintenance;
- Engaging in creative alternative forms of land use or management. This can be done through purchase of land, which is amalgamated with existing holdings; identifying interested parties to take over the operation of a struggling private property in jeopardy of becoming overrun by constant trespassers; allocating and renting land for military training areas inside ranch boundaries on areas that are unwieldy to manage thereby creating a disincentive for individuals to

trespass during times when it is used for training exercises; or, as will be explored next, by renting grazing in order to create a buffer between the property and unauthorized resource users.

Strategies that improve social relations with communities include:

- Turning a blind eye to trespassers collecting firewood or gaining access to water and pasture;
- Engaging communities in sanctioned harvesting of resources by allocating a particular day of the week when the community may collect firewood;
- Providing employment to individuals from surrounding communities to generate options for income;
- Assisting with requests for development activities (i.e., education, water provision).
- Allowing access to pasture and/or water during drought periods;
- Using contract access arrangements to manage the pressure on pasture from "abandoned lands."

Securing boundaries through grazing agreements

Large-scale ranches are increasingly mediating the access of pastoralists to graze on ranch pastures through formalized access arrangements generally known as "grazing agreements." These agreements grant formal access to enter large-scale ranches where the purchaser has "reserved" grass inside a private property boundary through a formal agreement.

During the research period, I found that one of the primary responses to "illegal grazing" adopted by the management of some large-scale ranches is to formalize access arrangements with particular livestock keepers or defined pastoralist communities. These agreements are often made with those living directly adjacent to their boundaries on formally unoccupied subdivided lands known as "informal grazing areas" or "abandoned lands." However, grazing contracts are also made with individuals of influence, or wealthy pastoralists, who might arrange for a large herd to rent grazing. Grazing agreements are

most common during the dry season (i.e. during times of resource scarcity) but these agreements are increasingly common on some large-scale ranches in Laikipia even outside of the dry season or drought periods. The grazing agreement contract defines user access and captures an economic benefit from pastures vulnerable to being forfeited to "illegal grazing" on boundaries that are difficult to defend effectively or patrol frequently.

In the past, grazing agreements functioned as a business agreement between land users providing the commodity of pasture for an economic profit. Grazing agreements have been reached between large-scale ranches during times of resource scarcity in the past. One rancher reported renting grazing from surrounding ranches during various drought periods since 1978. Pastoralists have also reached grazing agreements with multinational business corporations that own land or on government land that is seen as underutilized. Some pastoralists may purchase small plots in areas near opportunities for rented grazing which facilitates the movement of their livestock between bases that operate as "outspans," or holding grounds, from which to manage their operations.

Grazing agreements are being used to manage the conflict resulting from competition over pasture and other rangelands resources. The attempt at defending private property rights leads some large-scale ranches to engage in these agreements for reasons beyond the motivation for cash income from the rent paid for pasture. The permanent presence of livestock on "abandoned lands," the friction and inconvenience brought about by responding with force or by legal means, and the sheer difficulty in maintaining exclusionary arrangements to prevent trespassing incidents has led a growing number of large-scale ranches to adopt grazing agreements that permit pastoralists to access their properties through contractual arrangements.

Description of the grazing agreement "contract"

Grazing agreements can be leveraged to maintain and defend property rights on large-scale ranches even where fences, physical exclusion, and legal means, such as fines, fail to do so. This institutional arrangement involving resource allocation has implications for resource access in pastoralist production.

A grazing agreement is a contract between a land manager and a livestock keeper that authorizes access to pasture on a private property. Through such an agreement a herd owner is allowed entry onto a private property with a specific, pre-determined number of livestock. The amount of livestock permitted should not fluctuate. Approved livestock in the context observed was usually restricted to cattle and sometimes camels, though sheep and goats could also in theory be permitted. The "rent" paid is based on the number of animals and related animal husbandry services that may be included, not according to the acreage of land that is used. The costs for monthly rent per head of livestock on large-scale ranches in Laikipia ranges from 100 Kenyan Shillings to nearly 500 (USD 1.20-6.00), depending on services, such as herding, security, vaccination, and dipping that are included in the agreement.

Access and allocation

Livestock are expected to graze in a particular area allocated for their exclusive use of pasture for a specific period of time. According to the contracts, the duration was generally two to four weeks. In some of the situations observed, however, livestock may remain on the property as long as there is pasture and both parties wish to continue with the agreement. Rules for access, costs for resource utilization, and sanctions imposed for failure to abide by established guidelines comprise an important part of the contract. Some properties require that grazing committees, serving as de facto co-management bodies, are formed to handle grazing issues with communities (cf. Lengoiboni et al. 2011), while other properties deal with individuals on a case-by-case basis when they wish to rent grass. These committees assist in arbitration of disputes between properties and individuals. They also sometimes decide which individuals from the community will get access to grazing agreements, and for what number of livestock. In this sense, these committees may

be viewed as “gate-keepers” for access to resources.

Pastoralists observe a herd renting grazing during a forage assessment on a large-scale ranch.

An evolving and adaptable institution: protection of property rights through grazing agreements

Grazing agreements are being used in Laikipia to defend property rights in an unconventional way. It was observed that some ranches employed these arrangements strategically in order to protect vulnerable parts of their properties from unauthorized entry originating from adjacent lands lacking formal management structures. By allocating in a well-defined way who has access and user rights to a resource, a private property is able to derive profit from the grass commodity while creating a “property rights buffer” that acts as an invisible barrier against intruders. Therefore, a ranch might zone its rented grazing strategically in order to benefit from the buffer zone, renting grazing on areas that are primarily challenged in property rights enforcement. While a property may be

foregoing the grass resource on its periphery for a relatively low value, the alternative is to forfeit the peripheral grass resources due to "illegal grazing." One land manager, while explaining the various benefits and complications associated with renting grazing noted, "They just take the grass if you don't rent, so you may as well" (interview, September 21, 2013).

Property rights buffers established through re-assignment of the "bundle of user rights"

Observations from the field and interviews indicate that the beneficiary of the lease agreement often begins to protect the resources for which he has paid to obtain user rights. The leaser then creates an invisible "land use buffer" that blocks other trespassers and livestock from entering the property where he has been granted access and allocated pasture. By extending the bundle of user rights to a pastoralist placed in a strategic location on the private property, the land manager uses the grazing agreement to the effect of forming a buffer that excludes potential trespassers and "illegal grazers." A property manager may set aside specific blocks of grazing that create a series of buffers on the property to prevent incursions by the livestock of non-authorized pastoralists.

Motivations for renting grazing

Large-scale ranches reportedly engage in grazing agreements for various reasons, indicating that innovation on this institution to suit variable, specific land management purposes is a common strategy. Administrators and key interview sources also described grazing agreements as a method of conflict resolution. It was reported that grazing agreements often reduced tension between ranches and pastoralists over pasture resources. This assertion is supported by the following ways grazing agreements were described:

- One source indicated they were a method of "conflict avoidance."
- Another source described them as "pressure relief points" during times of tension resulting from resource scarcity and competition for pasture.

- One administrator described them as payment of a "courtesy fee," which acknowledges the notion of private property, in exchange for pasture resources.

Symbiosis: creating benefits for ranches and pastoralists

Grazing contracts hold benefits for both large-scale ranches and pastoralists who manage to access them through formal agreements (to be elaborated further in the discussion section). Such interactions between large-scale ranches and pastoralists provide opportunities to discuss property management issues, resource allocation and management strategies (such as Holistic Management) and the likelihood of pasture availability for rent in the future. When renting grazing to communities, such opportunities provide an opportunity for individuals to hold each other accountable for the locations of their respective herds, and to view the extent to which others are abiding by the established regulations. By creating this kind of forum, a ranch might provide opportunities for greater community-level enforcement. It also increases accountability amongst the grass-renters, resulting in discussion and conversation about resource use rather than tension or conflict between herders themselves, and between pastoralists and ranches.

The following data from field observations and interviews yield important insights into how individuals view the grazing agreement and the land use dynamics it creates:

The true cost of "free" grass

One under-utilized ranch (where the stocking rate was around one tenth that expected by conventionally accepted stocking rates) experiencing extreme pressure from trespassing grazers managed to reverse the property rights situation using grazing agreements. By renting grazing to nearly 4,000 head of cattle through formal arrangements with individual pastoralists from settlements on surrounding subdivided lands, the ranch managed to regain some management traction on the property. The month this arrangement was established the ranch earned a significant income from leased pasture that was previously being "taken."

Although it is difficult to quantify the financial cost of the resource pressure on private properties when adjacent land users access "free" grass, this scenario is indicative of the

potential cost of resource incursions by mobile livestock. Considering that this property charged one of the lowest monthly per animal fees for renting pasture in the region, the potential total operating cost incurred by a private property owner due to the use of "free" grass resources by pastoralists, often dismissed as trivial, is actually a significant one.

The price pastoralists pay for leased pasture is far lower than the price required of them to purchase land. In most areas of Laikipia, one would need 10-15 acres to support one mature tropical livestock unit. The fact that ranches recover a portion of their operating costs and preserve property rights while pastoralists access pasture for such a "reasonable" price demonstrates that this arrangement is mutually beneficial.

Stewardship responsibility

Interview data obtained during the research period illustrated that establishing and allocating grazing agreements strategically can contribute to the defense of private property resources. The following examples drawn from two different large-scale ranches where pastoralists were renting grazing aptly demonstrate the changing property rights relationship between authorized, official users (who have paid grazing fees) and outsiders when grazing agreements are in place to govern access:

- "If someone comes in to illegal[ly] graze and I've rented then he's stealing my grass." (conversation with a pastoralist renting grazing on a large-scale ranch, October 01, 2013)
- "…the land belongs to the ranch, but we own the grass." (Pastoralist renting grazing on a large-scale ranch interviewed on September 16, 2013)
- "…people can't accept others eating the same grass they have already paid for…" This source explained how renting grazers frequently report trespassers to the ranch management. (interview with a security officer on a large-scale ranch on October 16, 2013)

This evidence demonstrates that placing a financial value on the grass resource and defining the access for user rights to a particular area through an official agreement bestows an increased element of stewardship tantamount to conferring "ownership" of the resource to the user. Resources at risk to "illegal grazing" represent a potential financial cost to the beneficiary of the grazing agreement. Thus, formalizing the arrangement to access pasture grants legitimacy for user rights of access and places a greater responsibility on grantees to defend the resource against incoming mobile livestock because of its newly assigned financial value.

Security and reciprocity

Some land managers I interviewed also voiced that renting grass to communities had improved their security and social relationships with communities over the course of the formalized relationship with pastoralist neighbors. Two properties reportedly observed a decrease in stock thefts and trespassing since entering into regular grazing agreements with surrounding communities.

- One source stated that general security issues had declined in recent years, following grazing agreements, and succinctly noted: "I give them grass, and they give me security." He explained that renting grass to surrounding communities was premised on the notion that you "will help your neighbor and your neighbor will then help you." (interview with a ranch manager, October 07, 2013)

- It was noted by grazers renting from two different ranches and property managers and their security agents that renting grazing helps secure resources, as demonstrated by the following observation: "Those who rent grass will not let others use it, and they will report on activities like illegal grazing and poaching to the ranch, so it helps protect ranch resources (paraphrased)." (interview with a ranch employee on October 16, 2013)

While the grazing agreement protects and preserves the borders of the private property, for those pastoralists who are able to secure such agreements, these contracts contribute to

additional strategic herd management options. I will elaborate on this in the discussion section.

Why do ranches rent grazing?

Level of willingness to rent grazing varies substantially between properties in Laikipia. Property managers have a wide variety of motivations for using these formal access arrangements to allow paying grazers onto their property. The likelihood of using grazing agreements appears to be correlated with a combination of factors, including:

- management objectives of the property (whether for cattle production, wildlife conservation, etc.);
- adjacent land use arrangements (i.e. large-scale ranch vs. "abandoned land");
- ability to actively and effectively defend property boundaries (through exclusion with fences or enforcement);
- size of the property, and ability to monitor it.

It was observed that some large-scale ranches may be more willing to rent grazing as a result of the scale of the illegal grazing pressures posed by adjacent absentee "abandoned land" patches. There appears to be a fairly strong correlation between the presence of adjacent absentee owned areas and the willingness of large-scale ranches to rent grazing. Based on the following observations and data, diversification of property income and availability of sufficient resources to effect exclusion of potential trespassers are two key variables that could determine whether a grazing agreements is present. The following dynamics suggest varying levels of willingness to rent grazing based on individual property characteristics.

- Large ranches with diversified incomes also appear more willing to rent grazing than small cattle ranches with few alternative sources of income.
- While it may not be stated conclusively that willingness by large ranch owners to rent pasture is determined by surrounding property arrangements, an apparent correlation exists between the presence of adjacent subdivided property, the

degree of wildlife intolerance felt by the large ranch owners, and the likelihood or feasibility of renting grazing to neighboring communities.

- Two commercial operations that were intolerant of wildlife were generally also not open to the idea of renting grazing. In other words, those properties generally capable of excluding wildlife also appear capable of excluding trespassers.
- It was also observed that those properties capable of maintaining an intact electrified perimeter barrier or that are bordered exclusively by commercial operations with similar management strategies claimed to rent out grazing only during drought, or not at all.

The reasons reported for renting grazing included the following:

- To generate income revenue
- As a humanitarian measure during drought
- To share resources with surrounding communities
- Develop a positive relationship with surrounding communities
- To encourage market integration and destocking among pastoralists
- As part of a holistic rangelands resource management strategy, including to consume dry/rank grass that needs to regenerate, and to increase bunched herd impact on bare land (see Savory and Butterfield 1999)
- To preserve private property rights
- To reduce "trespassing" incidents by establishing a framework governing access
- To "appease" would-be trespassers by inducing them to pay for grass
- To create buffers of rented grazing blocks where rented grazers prevent incursions from other trespassers.

Not all commercial ranches in Laikipia enter into grazing agreements with surrounding pastoralist communities. In fact, some ranch managers strongly disapprove of the arrangement. These individuals stated that that renting grass may be interpreted as signaling that private property resources were not being used judiciously and that ranches

had excess pasture resources. Meanwhile, others expressed concern about property rights protection and enforcement once herds were allowed entry to a property.

Risks of stock theft, grass fire, and other security issues, such as conflict between rented grazers were also raised as potential concerns when grazing agreements were present. Another problem is that if cattle are not kept on the property, they may trample pasture when traveling to and from water points, or when coming and going from the property on a daily basis. Interviews also revealed that livestock may be "swapped out," so that different animals are grazing on the property on different days (this can lead to higher number of cattle accessing the area around the ranch, which means higher pressure for the ranch's pasture, even if only the allowed amount of animals are actually on the ranch); likewise, one large-scale manager noted that sometimes individuals "fiddle their numbers" in order to graze more animals than they have paid for.

Some of the reasons reported for not renting grazing included the following:

- Owner wishes to use grass for ranch production requirements;
- Not interested in having leased grazers on the property (i.e. income is not worth the management "hassle");
- Firm belief in the sanctity of private property;
- Belief that renting grazing encourages pastoralist herd sizes to increase beyond available resources;
- Risks to property or security (theft, fire, poaching, conflicts between renting grazers);
- Concerns that livestock may not leave the property when the grazing contract period concludes.

While grazing agreements create cash revenue in return for the grass commodity, they also produce opportunity costs of meeting with potential grazers, risk to private property (poaching, property damage, fire, stock theft, access to property resulting in improved knowledge of security and access to areas on a property), and a management task (allocating resources, managing paying herds, and settling disputes or liabilities that may arise from accepting outsiders onto a property). These opportunity costs may decline as

the relationship between the paying grazer and the commercial ranch develops, resulting in an increase in bridging social capital. While an external view may focus on income as the primary benefit to large-scale ranches, in cases where large-scale ranches are surrounded by unoccupied subdivided lands, grazing agreements may be employed as an important land management instrument and property rights defense/enforcement tool.

The owner of these cattle had secured a grazing permit for these animals for the month, but the security team of the ranch found the cattle openly grazing in a section of the ranch that was "reserved" for the owner's sole and exclusive use and without the presence of a herder. Such an incident may result in a warning or a small fine being levied by the ranch management. In repeated incidences, the owner of offending livestock may be banned from accessing grazing agreements by the ranch for a period of time, or permanently.

S**ummary of how abandoned land works in tandem with grazing agreements to increase pastoralist access options through "hybrid" property arrangements**

The wide presence of "abandoned land" in Laikipia increases access options for pastoralists through the following fundamental property pathways:

- From a subdivided plot, a livestock keeper can gain access to the larger, surrounding grazing area provided by "abandoned land."
- In terms of access to the larger contiguous area of rangeland created by "abandoned land," this can be achieved through either occasional forays onto the land with mobile livestock, or through purchase of a plot of small acreage that formalizes and legally justifies occupancy and presence on that specific plot, and elevates the purchaser to the status of a formal resident of the larger area.
- This status of residency is important because it establishes the livestock keeper as a known entity to authorities (i.e. "legibility," Scott 1998), but also creates greater opportunity to access formal arrangements with commercial ranches. A review of grazing agreement contracts and interview data shows that often ranches would only consider renting grazing to immediate resident neighbors, and not long-distance migrants lacking formal residential status in Laikipia.
- The presence of "abandoned land" on the periphery of a large-scale ranch increases access opportunities for pastoralists to a constantly available source of pasture.
- From this same base, informal access to pasture on large-scale ranches can be achieved.
- More secure access to this resource can then be achieved through formal grazing agreement arrangements with commercial ranches.
- Individuals may move animals between various access options elsewhere, including multiple locations of abandoned land and multiple ranch locations where grazing agreements are offered.

Conclusion

In this findings section I have demonstrated that grazing agreements may be used in innovative ways by both ranches and pastoralists to suit their particular land tenure and production requirements. Rather than using grazing contracts solely for monetary income or pasture resources, both parties are using this institution for strategic purposes beyond what might be expected. Large-scale ranches engage with individual pastoralists and pastoralist communities to develop positive relationships that lead both to financial

revenue and property rights buffers. These buffers help protect private boundaries and exclude trespassers.

Throughout the findings sections, I have explored aspects of access and allocation resulting from the tenure arrangement involving subdivided land in Laikipia**.** In the next section I will discuss the implications of my findings for property management and pastoralist land use in Laikipia. I will elaborate on insights drawn from the findings into the nature and potential uses of private property that are often overlooked and largely unexamined by those who suggest privatization of land, which often involves subdivision, is a panacea for land management dilemmas. Specifically, I will explain how the adaptation of private property by pastoralists in Laikipia's subdivided areas challenges several key tenets of mainstream theories of private property.

Chapter Four: Discussion of Findings

Summary

In this section I will provide an interpretive discussion of the findings from my fieldwork. The discussion is divided into three interrelated sections. In the first portion of the discussion, I explain how the Laikipia case demonstrates elements of a hybridized land tenure arrangement characteristic of an adaptation, rather than replacement, of long-standing property systems. Rather than viewing property types as mutually exclusive or seeing private property as an evolutionary endpoint, I argue that this case is characterized by multiple property regimes co-existing and operating within a nested system of socially embedded property relations. I transition to a discussion focusing on how pastoralist use and improvisation of subdivided land in Laikipia departs significantly from the general expectations of how private property should, in theory, function. I will provide an explanation of how subdivided areas characterized by high levels of owner absenteeism provide unique opportunities for pastoralists to access rangeland resources in the context of Laikipia's semi-arid landscape. I conclude by presenting the implications of grazing agreements and subdivided areas in Laikipia for the pastoralist production system. Throughout these three sections, I provide an explanation of how the use of private property in the "abandoned lands" challenges a traditional understanding of private property in several fundamental and important ways.

Introduction

Laikipia's land users have responded with adaptation and agency to a situation of land tenure complexity. The unintended effects of land subdivision in Laikipia have provided opportunities for land users to improvise and innovate on property rights institutions.

The changing "landscape of access" that unfolds through the extensive subdivision of former large-scale ranches in Laikipia has led government administration, pastoralists, and ranchers to respond adaptively to a situation of tenure complexity in a semi-arid rangeland environment. This complexity involves large-scale private property in the form of ranches and farms; small-scale private property, in the form of subdivided former ranches under

varying degrees of occupancy by both the legal owners and pastoralists, some of whom are now landowners themselves; and forms of common property that exist either through trust lands or group ranches; all lying in close proximity to each other in a unified landscape.

The local government administration has promoted aspects of property arrangements that assist governance and "legibility" (Scott 1998) of mobile populations through adoption of private title and formal grazing agreements. Subdivision has led to opportunities for pastoralists to improvise on private property. For pastoralists, the challenge to avert eviction has led some of them to purchase private property holdings that facilitate access to far greater areas than they own individually. The resource pressure on the periphery of large-scale private properties has led some ranches to innovate on the grazing agreement institution to defend private property rights. In summary, the process of subdivision and the various challenges and opportunities it has created results in innovation by all parties involved in trying to use, defend, or manage land resources in Laikipia.

Part I: Hybrid land tenure outcomes

Unintended effects of juxtaposed property regimes: hybridized land tenure

The land tenure scenario presented in this research corresponds to a typology created from hybrid mixtures of land tenure practices involving a combination of individual rights and collective use arrangements (Delville 2003: p90). When hybrid situations appear, they may lead to complex dynamics that are unforeseen by those involved in creating the legal framework governing tenure systems.

Such complexities are often difficult to surmount (Unruh 2006). Informal processes, such as the decision about where livestock should graze, can intersect with formal arrangements, such as land demarcations and security of tenure. This intersection can create incongruities that would not be considered possible if approached from a conventional perspective on private property.

These developments emerge, however, because of an unconventional adaptation that the prevailing system of land tenure and environment of property relations enables. When

approached creatively by land users, these situations may spawn unwieldy land administration issues. In this case, one such incongruity is the situation where one can situate a large herd of livestock on a very small unit of land.

The ability to situate livestock on a base enjoying tenure security without exclusive rights to the extensive land areas required to provide grazing for them results in the necessity of using surrounding land areas for this specific purpose. Such a situation can lead to large-scale trespassing onto the private property of others, or use of government or trust lands that allow communal access for grazing livestock. The fact that the surrounding areas are largely vacant, or at least underutilized due to high levels of owner absenteeism, plays a central role in the decision to purchase only minimal land holdings.

This situation would influence a discerning land user to purchase no more land than is necessary to achieve the two objectives of tenure security and access to "underutilized" sources of pasture. The willingness to invest in the cost of minimal land appears to suggest that the value achieved by so doing is greater than the cost incurred. As Van den Brink et al. (1995: p378) explain more adeptly, "Property rights that allow [pastoralists] to secure the benefits derived from a strategy based on flexible response to environmental variability have positive economic value."

Examples of hybrid forms of property among East African pastoralists

Proponents of private property view privatization as the end-point of a continuum, with open access and exclusive private property situated on opposite ends (Bromley 1989, De Soto 2000, Ostrom 1990, Galaty 1994). Yet evidence indicates that pastoralists do not replace common property with private property (Anderson 2002, Mwangi 2007, 2009, Galaty 1994, Homewood 2008). Rather, pastoralists have been observed to add private property to a portfolio of property options, including common property and open-access, and employing both formal and informal arrangements (Scoones 1999, Homewood 2008, Anderson 2002, Little 1985).

Pastoralists tend to use various types of property to complement one other rather than as mutually exclusive resource management regimes. In such situations, hybrid forms of property emerge as convention. Rather than arriving at an evolved state of private property, we find a hybrid of private property merged with customary access arrangements and informal notions of land use. What is more problematic is that official land use regulations do not seem to provide for the possibility of gross incongruities resulting from this situation.

Here we see that Laikipia's pastoralists have made deliberate decisions about where and how to adopt private property in a way that enables access to communal "informal grazing areas." Some pastoralists have secured individual formal land rights inscribed in a small portion of private property nested in the matrix of unoccupied subdivided plots vacated by the titled owners. Such a combination of property and institutional elements complements the ability for livestock keepers to flexibly access resources for livestock production across wide areas (Niamir-Fuller and Turner 1999, Scoones 1999).

Pastoralists may access opportunities and comparative benefits available from private property, communal property, and unmanaged properties to form a portfolio of options incorporating property systems from which to spread their herds throughout a land tenure mosaic. Pastoralist production successfully exploits patchily distributed resources, erratic and unpredictable rainfall, and environments at disequilibrium through strategic livestock mobility (Homewood 2008, McCabe 1994, Behnke et. al. 1993, Scoones 1993, 1999; Little 2003).

Through informal conversations I learned that some pastoralists use absentee owned land in this way to capture resources in several locations. To do this, they draw on multiple access strategies that included unrestricted informal access, reciprocity and group membership access, grazing agreements with ranches or land buying companies, and "free" grazing on government lands. Pastoralists also use surreptitious access to private properties, and graze their livestock while on the move between locations, using road reserves as access corridors providing basic pasture resources. A key element to this is the

mobility of livestock, which allows several options to be exercised simultaneously as herds can be divided and re-amalgamated according to available pasture opportunities and labor resources. When newly available pasture options arise, livestock can be moved to exploit them.

Use of private and common property in pastoralist case studies

Three cases from Kenya illustrate that the expectation of private property replacing a communal form of use for pastoralists may not be a realistic one. Anderson (2002) documents the experiences of Tugen and Maa-speaking pastoralists with colonial land acquisition in Baringo and surrounding semi-arid rangelands from 1920-1963, finding that individuals who achieved enclosure of land still continued to use other lands communally. Likewise, Galaty (1994) and Mwangi (2007, 2009) find that in Kenya's southern rangelands those individuals who managed to gain private title to the best grazing lands excluded other users from them by evoking the rules of private property while continuing to graze their own livestock in the communal grazing areas through cultural norms of reciprocity and a culturally accepted understanding of common property. Lesorogol (2008) also notes that those individuals laying claim to the most fertile privatized areas continued to achieve access to communal grazing in the Sambu area of Samburu. It is not surprising, then, that the Laikipia case also shows individuals using multiple types of property to maximize access options and spread risk, while using their own private property, and that of others, very astutely.

The situation in Laikipia parallels that observed by Anderson (2002), who notes that owner absenteeism on some private properties provided opportunities for pastoralists to trespass onto other properties in Kenya's pastoral lands in the Baringo area. Similarly, opportunities for the purchase of private property and enclosure served as an additional access option rather than a replacement of common property access options. In much the same way, pastoralists in Laikipia appear to combine various forms of property to generate improved access to rangeland resources.

Pastoralist innovation has combined the various advantages and opportunities afforded by distinct property types and management arrangements in Laikipia toward increased access in livestock production. This demonstrates the adaptive capacity of pastoralism. Rather than a rejection of common property for private property or vice versa, this is an example of pastoralists employing specific forms of property toward the pursuit of strategic access to land based resources using a hybrid property system.

Locally embedded tenure relations define "rules of the game" for property relations

The rules and restrictions associated with forms of property are often assumed to override the agency of the land users who encounter them (Unruh 2006: p755). However, land users can modify rules of the game to serve specific objectives (Unruh 2006, citing Berry 1997 and Cleaver 2003). Land users can place a twist on accepted conventions by combining elements of institutions that a conventional approach would view as inconsistent. Pastoralists appear to have modified the use of private property to suit the realities of their mobile production system based on flexible temporal access to pasture, and the need for tenure security to enable this access. In this process, less convenient formalities, or "rules of the game," of private property are to some extent disregarded (Musembi 2007).

The "institutional bricolage" (Benjaminsen and Lund 2003: p5, referring to Cleaver 2003: p11-25) present in this case combines an extensive production system and strong cultural traditions of common property underpinned by the tenure security resulting from a statutory tenure arrangement devised at a scale imagined for intensive land use, but not appropriate for the environment in which it was applied. Pastoralists thus combine the legal benefits of private, statutory land tenure with advantages of the flexibility inherent to common property traditions.

Interaction of subdivision with surrounding forms of tenure

The opportunity to purchase titles in subdivided areas interacts with surrounding unoccupied small-holder plots and large-scale ranches in unexpected ways. This supports the idea that property systems are embedded in local contexts (Ostrom 1990, Scoones 1999, Musembi 2007).

Tenure systems cannot be viewed as separate from social systems, but are in fact a part of them. As Musembi (2007: p1461) points out:

> "When formal title is introduced it does not drop into a regulatory vacuum; it finds itself in a dynamic social setting where local practices are continually adapting to accommodate competing and changing relations around property. In these day-to-day local practices, the meaning of formal title gets transformed through the informal rules that people develop in their land relations. These informal rules and the concomitant expectations they produce become the immediate points of reference in people's land relations, more often than not relegating the formal laws and institutions to a marginal role, or modifying them to suit the reality of their lives."

In other words, no tenure system operates in isolation from the social practices that might influence it and give it a practical form. Property and resource management regimes are responsive to land tenure realities on the ground and can interact in unpredictable ways with other elements of land tenure present in the landscape. Thus, it cannot always be predicted how the concept of formal title will intersect with existing land user relationships.

Private property as an evolutionary "end-point"?

This case adds evidence to other documented cases where land, having been subdivided beyond a point where it can be used efficiently (Heller 1999), is being reconstituted by land users on larger scales that can function productively for pastoralism (Groom and Western 2013, Boone et al. 2005, Mwangi 2007, 2009, Mwangi and Ostrom 2009). In this case private property reached one end of the continuum and reverted back toward communal access because the legal owners could not use it productively for agricultural production, or were unwilling to occupy it due to other factors, including rampant insecurity. The subdivided areas created by Laikipia's former large-scale ranches demonstrate a

fascinating property transition where over the course of time private property has reverted to a form of commons.

Informal amalgamation of land by pastoralists

The case of Laikipia contributes to evidence challenging the logic of land subdivision in marginal areas with low agro-ecological potential where individualized tenure and stationary agricultural production often become untenable past certain scales of subdivision. In such areas, pastoral land users are reconstituting landscape level land use following sub-economical subdivision processes. The re-amalgamation of formerly uneconomical subdivided land units has been witnessed in areas of Kenya's southern rangelands (Mwangi 2007, 2009; Groom and Western 2013, Boone et al. 2005, Mwangi and Ostrom 2009, Osano et al. 2013) among Maasai pastoralists. In the Laikipia case, however, land users have returned the land to productivity on an extensive scale outside of formal channels. Essentially, these land users have reconstituted a commons from subdivided, underutilized private property belonging to absentee small-holder plot owners.

In both cases, pastoralist land users eschew laying exclusive formal claim to extensive areas in order to benefit from the advantages of being able to move flexibly between resources across a much wider spatial range. Emphasis is placed on "use rights" (Bromley 1989, Mwangi 2005, Groom and Western 2013; Schlager and Ostrom 1992, Boone et al. 2005) rather than on the notion of exclusive "ownership." This demonstrates a deeper interest in the system and requirements of pastoral production than in the institution of land ownership itself.

The case aptly illustrates that land subdivision may not be appropriate at a certain scale for specific agro-ecological conditions, such as the semi-arid zone in Africa's extensive rangelands, or on the periphery of such areas. Some advocates of private property view it as a land management regime suitable for any environment, at any scale (cf. Bromley 1989). In this case study, land was fragmented so extensively that it rebounded back toward an informally "consolidated" form. These "informal grazing areas" are used as a commons by livestock keepers whose resource management strategy ably copes with the

aridity of the land, and the mobility this necessitates (Homewood 2008, Niamir-Fuller and Turner 1999, Galaty 1994). Such a situation lends credence to more flexible views of property regimes, such as those held in common pool resource theory (Ostrom 1990, Ostrom et al. 1994; Schlager and Ostrom 1992, Bromley 1989).

Paradoxically, this is a situation that is enabled by the very processes of privatization: extensive land subdivision of large-scale property and the adoption of private property by livestock keeping land users. Formally unoccupied absentee owned lands underpin an evident diversification strategy in that they provide the land base, potential tenure security arrangement, and strategic location resulting in access to a variety of property arrangements that allow hybrid amalgamations of several forms of property. Pastoralists may negotiate access and legitimize their presence and use of such areas through both formal and informal arrangements. A process of negotiation of property institutions and institutional arrangements thus establishes a far wider platform of rangelands resources than would be achieved through actualized tenure or outright purchase of land.

Part II: Improvisation on private property by Laikipia's pastoralists

Pastoralist access and land subdivision

Ironically, in Laikipia, extensive land subdivision has resulted in a much different outcome for pastoralist land users than has been the case in their own subdivided lands in the southern rangelands. In this case, the subdivision processes and subsequent high rates of absenteeism have led to greater opportunities for access by pastoralists. These land users have gained access to resources that were inaccessible to them when previously scaled for extensive private ownership. Some of them have achieved this by embracing small-scale private property through the purchase of subdivided, "abandoned" small-holder land parcels.

While as a larger group, pastoralists have often felt the detrimental effects resulting from the subdivision of their own pastoral lands elsewhere, here we observe pastoralists benefiting from a political ecology of subdivision of the land of others; former large-scale ranches intended for small-scale production. The outcome of subdivision has allowed

pastoralists to adapt favorably to a complex tenure situation that placed small-scale agricultural production at a disadvantage.

This scenario involves the intersection of a statutory system and ecological environment poorly suited for stationary agricultural production, but which is conducive to livestock production. Due to the articulation of formal legal tenure, involving extensively subdivided lands that are largely vacant of the titled owners, and agro-ecological factors, involving low land productivity and insufficient rainfall, pastoralists have gained access to land zoned as private property for "informal use." This land has been managed for very different intentions than anticipated according to the zoning that took place during subdivision, however. Extensive areas that have been subdivided and are unoccupied by the statutory owners create opportunities to acquire tenure secure patches of private land nested within vacant subdivided spaces. These are situated surrounding and interspersed between large-scale ranches with conservative stocking rates associated with pro-wildlife management strategies and underutilized government and private properties where pasture resources, either left idle or stocked at very low densities, might be found. This confluence of factors has resulted in enhanced access to pasture for pastoralists.

Tenure security

The purchase of private property in Laikipia's subdivided areas provides the tenure security to avert being evicted from areas that have become important to livelihood access options as "informal grazing areas." Pastoralists may choose to formalize their relationship to small plots in Laikipia to gain tenure secure access that prevents their eviction. This move toward formalization provides a permanent base from which to operate mobile livestock production activities. Through buying a small slice of land one becomes tenure secure, which implies that one can then maintain access to surrounding lands which are unoccupied by departed small-holder agriculturalists or managed with laxity by large-scale owners. Such a strategy does not represent a mainstream view of how private property is expected to function. Many of those pastoralists who do purchase land effectively employ the legal advantages of private property ownership to graze communally on extensive unoccupied, vacant portions of the landscape.

Combining tenure security achieved from purchase of a land title to a small-holding with the wide availability of grazing land in surrounding areas creates an intermediary form of resource access characterized by "fuzzy" rights common in pastoralist ecology throughout Africa (Homewood 2008: p85). These "fuzzy" rights amalgamate formal tenure security with the practical circumstances resulting from the inability of pastoralists to exclude other resource users from the surrounding subdivided rangeland composed of former large-scale ranches and a customary notion of property rights that emphasizes rights of access over ownership to pasture through mobile livestock production.

The combination of property systems to access required production inputs by pastoralists in the context of Laikipia is an example of innovation that some might call the "indigenization of modernity" (e.g., Galaty 2013). Others have referred to it as "informal formalization" (Benjaminsen and Lund 2003). Whatever descriptive title one prefers, it is certainly an "adaptation" (Bruce et al. 1994, Unruh 2006) of conventional property systems, and not an "evolution" (Toulmin and Quan 2000) of property in a one-way direction toward privatization.

Adaptation to tenure arrangements

Unruh (2006: p754) claims one of the most pervasive dilemmas for geographers investigating landscape social relations in the context of international development is the apparent disconnect between statutory and customary arrangements attached to land. Specifically, how the reconciliation between formal and informal land tenure regimes might be achieved in an appropriate manner has been elusive (Unruh 2006: p754). The adoption of private title by pastoralists in Laikipia may be viewed as an adaptive response that combines formal land tenure arrangements with customary notions of tenure and land use. This adaptive response is related to strategies of tenure security and access that together provide a platform of property for highly efficient pastoralist production in Laikipia.

While the empirical difference between being "landless" and being a "landowner" in this context can be as little as one acre, the resulting outcome in securing a livelihood can be

profound. First, purchase of title is related to a strategy to achieve officially recognized formal, statutory tenure security. Through recognition as formal residents, pastoralists forestall eviction.

Second, adoption of title is central to a strategy of access to pasture. By purchasing title, land users are securing access to land areas that greatly exceed the small portions of property they own. Additionally, this provides the opportunity to diversify into agricultural production if a plot is purchased near water. If purchased near a ranch, this strategy increases options to obtain rented pasture, or to access grass through undetected forays across boundaries that are difficult for the ranch management to patrol, defend, and enforce.

Disconnections of formal and customary: obstacle or advantage?

While Unruh (2006) notes that the realms of formal and customary tend to result in disconnection, it is easy to assume that such disconnections necessarily disadvantage local land users relying on customary or informal concepts of land use. The ability for pastoralists in Laikipia to combine western notions of proprietary ownership with a collective use prerogative is of significance because it indicates that situations exist where, rather than being disadvantaged by the failure of the formal and informal to connect, local land users may be privileged by the result of such disconnections. In this situation, the creative combination of provisions of formal law and customary ideas of tenure and resource use places pastoralists at an advantage over those who operate exclusively in the realm of statutory and customary, or formal and informal.

This example supports Unruh's assertion that adaptation paradigms, which focus on the interaction between customary rights to property and formal systems of tenure (Unruh 2006: p758), are more persuasive than evolutionary models. Adaptation paradigms are more convincing in part because they recognize the agency and creativity of land users in finding solutions to their land tenure dilemmas (Unruh 2006: p759). In Laikipia, we observe modification and innovation on statutory property norms. This example is exceptionally illustrative of the creative agency of landholders to achieve solutions to their

land use dilemmas. This is initiated by coupling the formal with the informal to maximize resource access in a process of creative improvisation on the institution of private property. The outcome of land subdivision, a formal land tenure prescription, is a critical ingredient in this act of improvisation in Laikipia.

Pastoralist improvisation on private property

Laikipia's tenure arrangements involving pastoralists and subdivided areas challenge fundamental assumptions of private property theory. Pastoralists have improvised on the advantages of private property by employing formal tenure arrangements to make available underutilized surrounding pasture. In doing so, pastoralists have capitalized on their niche ability to make use of patchy resources. Access to pasture resources has been maximized by purchasing amounts of land that are fractional to the areas that can be accessed by using these small plots. Why would you want to tie up your financial resources in land, when you "only want the grass"? Private property has been used to communal ends in order to access additional areas of subdivided private property as grazing areas. Finally, rather than maximizing the amount of land under direct ownership in one location, private property may be used to spread pastoralist risk across the landscape.

Stationary tenure institutions intersect with mobile production intentions

Although conventional use of private property would assume that one would stay within the confines of one's own plot, this appears to be neither the intention nor the result among livestock keepers in Laikipia. Rather, grazing activities are extended far beyond the boundaries of the land one has purchased. A traditional view of private property would assume that creation of statutory boundaries implies a limitation on a landowner's liberty to pursue production activities on adjacent land. This view anticipates one will limit production activities to a specific area in which he or she enjoys formally allocated, specific, and individual rights.

Such conceptions of an efficient and internalized performance of private property are largely based on stationary production strategies (Sjaastad and Bromley 2000). In practice, that which compels an individual to restrict the activities of production is the interplay

between several factors. These include 1) the capacity for mobility of production, 2) the existence of competing activities on the surrounding plots that limits the ability to exercise that mobility, and 3) the extent to which exclusion can, or will be, enforced either by the landowner or the state. The ability to exclude others is one of the assumptions of well-performing private property (Sjaastad and Bromley 2000: p366-368, Schlager and Ostrom 1992, Heller 1999).

An unconventional use of private property

The adoption of private property as a tenure-secure base adjacent to large areas of "underutilized" land preserves the social arrangement of communal grazing on lands where legal owners are absent. One might conceptualize this as a strategic use of private property to achieve communal ends. That private property would be utilized with the intention of achieving communal access runs entirely counter to expectations of private property theory.

Those who unwaveringly advocate private property anticipate that an individual will settle on, defend, and protect an individually owned, specific plot of land, and thereafter remain within those boundaries. In this case we observe individuals who normally abide by the traditions of a common property system integrating private property into a commons scenario. Second, private property in this case is also used to access adjacent areas of private large-scale ranches, which often do attempt to exclude trespassers but are not always successful in doing so. The access to private property can be informal and surreptitious, or officially negotiated through access arrangements such as "grazing contracts."

Pastoralists are often not limited by boundaries, fences, imaginary lines and other "rules of the game" by which stationary production (ranching and crop agriculture) "plays" the game of conventional private property. In Laikipia, and elsewhere (Anderson 2002-Baringo; Duder and Simpson 1997-Leroghi Plateau) pastoralists have demonstrated that in semi-arid areas, private property, whether owned by themselves or by absentee landlords, can be employed successfully as an "outspan" from which to achieve access to pasture on

private property using mobile livestock. Conventional ideas of how private property should function do not anticipate that one piece of private property would spill over the boundaries into an adjacent private property. Rather than contributing to an increased consideration of private property of others (de Soto 2001: p33), private property may actually be used to facilitate the contestation of private property and its boundaries.

In some vacant areas pastoralists may or may not have formalized rights to use the surrounding land through formalized grazing agreements with either individual owners or representatives of land buying companies. In one subdivided area, pastoralists were reportedly at one stage paying grazing fees to a land buying company representative in order to graze their cattle on the pasture there. This demonstrates that, far from being a very simple tenure scenario, there are multiple types of access and various forms of land occupiers operating in a matrix of possibilities and along a continuum varying from informal to formal.

However, pastoralists are able to legally continue residing in a position of tenure security offering options to access grazing as a result of holding legal title to a small unit of the land, even if it is not the land that supports their livestock grazing activities. Meanwhile, pastoralist land owners may make use of the plot as a pivotal base, or fulcrum, from which to manage livestock production in areas of the surrounding landscape where they do not hold strong formal rights of access. These pastoralists benefit from access to the "privilege" of grazing opportunities since they are not actively excluded by the owners of the subdivided plots, who are absent, or by the local government administration which is incapable of effecting exclusion of pastoralists from such expansive areas.

The geographic positioning of the "base" in a subdivided area situated adjacent to a large-scale ranch also creates a pivot from which to access pasture resources on large-scale private properties and underutilized government lands that are incapable of preventing trespassers with mobile livestock. Subdivided plots, whether purchased by pastoralists or simply "squatted" on, are both literally and figuratively "pivotal" to pastoralist resource access strategies in such locations.

Private patches within a communally used rangeland

This case highlights the adaptability of the pastoralist system. The use of a private plot as a base for livestock production activities within a land tenure mosaic characterized by absentee land ownership and moderately stocked large-scale ranches underscores the adeptness of the pastoralist system in responding adaptively to environmental opportunities. Such opportunities include those presented by prevailing land tenure arrangements. It also highlights the ability to navigate and make use of "patchy" resources within a landscape (Homewood 2008).

Perhaps the most intriguing element of the Laikipia case is the use to which small-scale land owning pastoralists have put small portions of subdivided land. Research from this case study indicates that pastoralists in Laikipia are improvising on property and property relations to maximum effect. The pattern of land ownership evident among the small-scale land owning pastoralists in Laikipia appears not principally motivated by the advantages of private exclusive proprietary ownership (i.e. access to the specific piece of land inscribed in private property itself) or access to capital through loans as assumed by an economic theory (de Soto 2000) of private property. Rather, fieldwork data indicates that purchase of land is adapted to the pursuit of tenure security in order to facilitate access to pasture resources throughout the landscape. This might be conceptualized as a means of securing user "privileges" (Sjaastad and Bromley 2000) for areas that would otherwise be "idle" or underutilized, but over which "ownership" rights would be too costly for an individual or a community to obtain through purchase or hold through management as private property with exclusionary measures.

Part III: Implications for pastoralist systems: access to resources through adoption and adaptation of land tenure institutions

Maximum access, minimal investment

Pastoralists in Laikipia's "abandoned lands" have negotiated maximum access to pasture resources with minimal investment in land itself. Avoiding ownership of excess land results in minimal capital being tied up unnecessarily; it also results in an ability to

circumnavigate unnecessary input costs, such as land rate taxes, fencing, and exclusionary costs required for property to be "private." Often the only tax pastoralists are required pay on their production system is the "cess" tax collected when animals are bought or sold at the market (LWF 2013).

Time has demonstrated that small-holder farmers are very unlikely to settle in any significant number on the areas currently experiencing high levels of owner absenteeism. Thus, the calculation by pastoralists to part with a significant, but not extremely large, amount of money in order to buy land. Such land is "enough" to avoid eviction, but not "sufficient" for the newly-landed pastoralists' livestock assets.

Amplification of resources through combination of strategic options

Pastoralists exhibit extreme adeptness at production efficiency using subdivided lands and "grazing agreements" in tandem to amplify access to resources. The options for access presented by the subdivided landscape and grazing agreements dovetail to provide even further opportunities for pastoralists to access resources. This is especially so for those pastoralists with access to capital. By investing in just small portions of private property, some pastoralists using Laikipia's abandoned lands avoid many of the administrative costs (Bromley 1989) associated with owning larger areas of private property.

For example, purchasing a three acre plot, the continued absence of the titled landowners on hundreds of surrounding plots enables use of this land for pastoralists (communities, often bound by kinship networks and other social ties; Homewood 2008) as "informal grazing areas". While this provides tenure security to prevent eviction by government authorities, it does not create a situation of total exclusion against other land users. Such users, unless they also purchase legal land rights in the form of a title or shares in a block of land, do not enjoy legal tenure security, although they may continue to have access to grazing as claimants (e.g., Schlager and Ostrom 1992) of pasture resources.

Access through grazing agreements

Some pastoralists are leveraging grazing agreements toward gaining access to much larger areas and quality of pasture than would be possible by purchasing land assets. The "calculation" inherent to this statement is that conventional ranching systems calculate stocking rates at one tropical livestock unit (TLU) per 10 to 15 acres in most parts of Laikipia, and up to 17 acres in the drier areas. Grazing agreements are not paid on the basis of acreage utilized, but are based on the number of livestock that graze inside a property per month. Larger herd owners are privileged through this arrangement as they are with accessing commons pasture in communal areas (Galaty 1994, Mwangi and Ostrom 2009) because they are more easily able to liquidate a portion of their livestock assets to pay for leased grazing (Little 1985, Zaal and Dietz 1999). This is evidence of further commodification of rangelands resources throughout Africa (Letai and Lind 2013, Catley and Aklilu 2013, Zaal and Dietz 1999, Little 1985), a situation that privileges wealthy pastoralists over those with small herd assets (Mwangi 2009).

It also seems that some pastoralists are avoiding the competition for pasture in communally grazed areas by engaging in grazing agreements inside private property. Some do this by establishing relationships with ranchers that build social capital (Pretty and Smith 2004) they may require to access grass in a time of distress. Payment for grazing provides authorized entry to lands that are under formal resource management supervision; this creates opportunities to secure access to pasture resources that are not at risk of being consumed by other livestock keepers. Through grazing agreements, pastoralists make use of a resource over which they can legitimately claim to hold "user rights" (e.g., Bromley 1991, Schlager and Ostrom 1992), having secured this resource through payment and receipt. Also, the local chief/authority is often privy to the arrangement.

Some pastoralists are now "anchored" with tenure security in subdivided areas due to having purchased small-scale land assets. This research suggests that constant pressure on large-scale ranches may contribute to the willingness of ranch management to offer grazing concessions even outside of drought periods. As noted in the findings, once individuals have been assigned formal user rights over the pasture resource, grantees begin to defend

it against being consumed by outside resource appropriators. Therefore, the strategic use of grazing agreements may assist in protecting the property of large-scale ranches from unauthorized pastoralist incursions.

Implications of grazing agreements for pastoralist resource access and allocation

A variety of pastoralists from diverse ethnic groups, including but not limited to Samburu, Laikipiak Maasai, Ndorobo, Turkana, Pokot, Somali, and Tugen, was observed to be renting pasture at various locations in Laikipia. An array of pastoralists, ranging from land-wealthy to land-poor, and those with just small pieces of private property or access to communally managed rangelands have secured leased pasture on some of Laikipia's large-scale ranches.

The ability to engage in grazing agreements with ranches holds important implications for how pastoralists access and manage their resources. I discuss a combination of both hypothetical and observed advantages of these strategies below, followed by a brief commentary on how grazing agreements may imply unforeseen repercussions for pastoralism and large-scale ranches.

Improved resource management planning for pastoralists

Grazing agreements may create increased resource management planning options for pastoralists. One of the benefits of securing access through grazing agreements is that one secures guaranteed access to grass (and usually water) and is able to avoid competition for these resources in communally used areas.

Such an arrangement might allow an individual to reserve his own sources of grass for future hardship in drier times, assuming that he can find a way to exclude others from using his "grass reserve" in the interim. This in turn allows a pastoralist to plan for periods of uncertainty in the future by accessing rented grazing as a first option and using his own sources of grass at some strategic point in the future. Grass in communal areas may be allowed to recover while livestock graze on large-scale ranches. This also allows a livestock owner to divide his livestock between rented grazing and other available options

(discussed below). This situation can benefit both individuals and entire communities, depending on the nature of the arrangement for rented grazing.

Security of livestock

Pastoralists may achieve improved physical security of their herds through rented grazing since security guards, and sometimes game scouts, are employed to protect private properties offering rented pasture. Regular security patrols of ranches contribute to making immediate surrounding areas more secure. Because private properties attempt to exclude outside livestock, herds that are renting grass on a ranch may reduce risk of exposure to disease. Large-scale ranches can provide pastoralists a "quarantine area" prior to market sale. This may contribute to more secure livelihoods for pastoralists operating both market-oriented, and subsistence systems, of production.

Livestock production inputs and services

Pastoralists may access services like cattle dips and spray race infrastructure, and may be able to participate in herd vaccination and cattle "dipping" when these activities are being coordinated on a ranch. Such infrastructure may not be available in all the areas where an individual splits his herd assets. Vaccination is also less expensive when being purchased and provided for large numbers of livestock. In this way, pastoralists also benefit from the economies of scale present on large-scale ranches but which are not likely to be available on subdivided areas grazed communally.

Allocation of pastoralist pasture resources

Securing a grazing agreement plays into the pastoralist strategy for the purchaser by increasing his options for access to various geographic locations of pasture, potentially in different rainfall and agro-ecological gradients and at slightly different altitudes. Once he secures grass resources on a private property, it means he can plan to use other resources he has access to through formal ownership, actualized tenure, or grazing agreements in an increased variety of ways. In other words, it increases the number of options available in a portfolio of options that the pastoralist draws on in a complex and efficient strategy for livestock management. For example, herd owners can buffer against uncertain climatic

periods ahead by reserving their own grass in areas "closed" to grazing. The resource pressure on a herd owner's other available grass resource is reduced for the duration of the agreement during which guaranteed access to resources is secured.

Pastoralists who are successful in securing grazing agreements can set aside their grazing options on a group ranch, on community lands in surrounding counties, or even on larger areas of their own private property for the future as a "grass reserve" during the dry season. Also, an individual may turn a profit by renting out other sources of pasture to neighboring herd owners who fail to secure access agreements with ranches. One may even hypothetically sell this pasture resource for a higher price than one pays for access to pasture on large-scale ranches, especially during times of resource scarcity. Again, this is a dynamic that privileges wealthy pastoralists, who already have more secure livelihoods and access to land and pasture resources, over the subsistence level producer.

A portfolio of options: property in multiple locations

Informal conversations during the research period indicated that pastoralists make use of multiple locations and property regimes in their production strategies. Regardless of whether individuals are purchasing titles to secure their holdings, they are sometimes making use of subdivided areas to diversify their livestock holdings (e.g., Galaty 1981) among multiple locations (Niamir-Fuller and Turner 1999: p21). In addition to this there is also an observable strategy of securing pasture in one or more large-scale ranches through grazing agreements when pasture exhausts in common grazing areas. Some herd owners also request grazing agreements before times of hardship in order to secure resources for their livestock prior to the onset of others asking for grazing agreements.

Risk-spreading

There is an evident strategy to spread risk across subdivided areas. During the research period there was anecdotal evidence that it has become a pastoralist convention to use multiple locations of absentee-owned subdivided land in Laikipia to split herd assets among several locations. Pastoralists may purchase private property, as previously described, in more than one subdivided area distributed throughout Laikipia in order to

gain multiple "footholds" for access to grazing privileges. Thus, the maximum access made possible through the pivotal position provided by one small plot of private property may be realized and amplified at a landscape level through several, often minimal, investments in such plots where they are available.

Because even the smallest subdivided plot can yield access to hundreds of acres surrounding it, there does not appear to be any significant benefit to purchasing large portions of land in one specific location. This would be the case unless additional plots of land provided proximity to a new source of water, or to a new source of pasture that cannot be reached within the daily grazing radius of a homestead base (see map in Anderson 2002: p52 from Spencer 1973: p15). In this case, it would be logical for an individual to attempt to secure plots located near several permanent sources of water and options of available pasture, situated a significant distance from each other, but not immediately adjacent to each other. This would provide the benefit of flexible and adaptive response to a variable environment (Van den Brink et al. 1995: p378).

Livestock could theoretically be moved in a rotational manner between different subdivided areas where individuals have access in order to capture new grass following rain. Alternatively, separate herds may be distributed to various subdivided areas, private land owned by the pastoralist, areas where grazing agreements can be accessed, and community or group ranch areas simultaneously. For example, one herd owner (September 16, 2013) requested access for 100 of his cattle on a ranch, thereby splitting his herd evenly between a nearby piece of "abandoned land" where he kept 100 of his cows, and a large-scale ranch. The individual explained that he was moving his mixed herd to the ranch ahead of the dry season to split his risk between multiple locations. Another herd owner (October 10, 2013) stated that he had his cattle in four groups on two commercial ranches, one area used informally, and a subdivided area where he has formal access to 50 acres in a large subdivided block of land, which provides access to a larger area unoccupied by other titleholders.

Market integration

Among the ways that diversification of pastoralism has taken place is that some pastoralists rent grazing exclusively for herds of steers that are being fattened in preparation for market sale. Renting grazing from a ranch close to a market location, such as Rumuruti, also facilitates closer physical proximity to livestock markets. Ranch prices offered for sale-ready steers can be higher than selling to the usual town-based markets during times of drought. This develops relationships between communities and ranches that stimulates good will, and builds trust, reciprocity, and social capital (e.g., Pretty and Smith 2004) for future interactions. Such interactions can build linkages between livestock production and wildlife conservation (Elliot and Sumba 2009), and create opportunities for some of the unrealized synergies (Homewood et al. 2012) and co-benefits (Davies 2008) between pastoralism and wildlife conservation efforts.

Reducing labor inputs

Livestock keepers may also reduce their labor inputs for herding through use of grazing agreements. For example, one pastoralist reached an agreement to combine his bull herd indefinitely with that of a large-scale ranch under the supervision of the ranch's hired herder. Through use of the grazing agreement, this pastoralist was able to externalize the cost of a herder's monthly wage (5,000 Kenyan Shillings, or 60 USD) by amalgamating his herd with that of the ranch. Some of the more expensive grazing agreements include the cost of herding as part of the fee paid for access to pasture.

The increased prevalence of payment for the inputs, including pasture, minerals, and water, necessary for livestock production in the rangelands is indicative of a trend toward increasingly commoditized resources (e,g., Catley and Aklilu 2013, Letai and Lind 2013, Zaal and Dietz 1999: p163, Galaty 1994, Little 1985). This is a trend that disadvantages owners of small herds. Such a system favors individuals who can afford to liquidate a small portion of their herd assets in order to pay for access to sources of pasture.

Political ecology and access to pasture

A political ecology of resource access among pastoralists was evident in Kenya's Baringo rangelands neighboring Laikipia beginning in the mid-1980s (Little 1985). Pastoralists

were discernibly part of several groups including pastoralist "drop-outs", destitute herd owners, subsistence level herd owners, and fully integrated market-oriented producers who were absentee herd owners (Little 1985). Increased opportunities for access to paid pasture resources inside large-scale ranches might encourage a degree of clientelism (as noted by Little 1985) between wealthy herd owners and impoverished pastoralists who could be contracted to herd livestock assets for them. Less wealthy herders, while not possessing significant livestock assets, for reasons of geographical positioning, community membership, or various political affiliations, might have access to pasture resources outside the reach of wealthier, absentee herd owners.

Where individuals cannot themselves access pasture renting arrangements, they may seek to access these arrangements through reciprocal pasture access arrangements (e.g., Galaty 1981, Sperling and Galaty 1990) or by creating a business relationship with relatives, friends, or strategic partners who do have access but who are not able to afford to pay for it. Individuals of wealth or influence, who may themselves be absentee herd owners but who can negotiate stock raising arrangements with less successful or destitute pastoralists whose herds have declined or who are themselves stockless (Little 1985), might also take advantage of increased access to pasture by blending their herds into those of residents in "informal grazing areas" in both areas of "free" pasture and in areas where pasture is "rented." Heath (2001) notes that most of the cattle that managed to gain access to large-scale ranches in Laikipia during the drought in the year 2000 actually belonged to influential individuals and politicians. In reality, it may be difficult to know who actually owns individual livestock, and whether these are the same livestock that remain in specific locations year-round, or whether they are rotated between and among areas where pasture can be accessed through opportunism.

Connections between grazing agreements and livestock densities in "informal grazing areas"
The fact that grazing agreements are more prevalent now than in the period before 2001 has implications for wildlife populations in Laikipia. While renting pasture to pastoralists provides distinct advantages to large-scale ranches in the form of property rights protection, there is the possibility that this dynamic might create additional space in the

"abandoned lands" for livestock that would otherwise not be supported on the heavily grazed pastures found there.

Such a possibility has implications for wildlife conservation because wildlife distributions in Laikipia correspond to livestock densities on the different types of property present in the landscape (Georgiadis 2007a, Kinnaird and O'Brien 2012). This situation may imply that increased opportunities to access grazing on private properties create the opportunity to scale up livestock densities on "abandoned lands" in proportion to the number of livestock that move out of these lands when they access pasture on private ranches. This could create a form of livestock "leakage" (i.e., Osano et al. 2013, Maasai Mara) where, rather than replacing their access options on "informal grazing areas" with options inside large-scale ranches, pastoralists would use this as an additional option to spread their assets from other locations into private ranches. Similarly, pastoralists might also move additional livestock (from group ranches or from outside the County) into "abandoned lands" for the duration of the period that a portion of their herd enters into a grazing agreement with a large-scale ranch.

This scenario, rather than contributing to wildlife conservation objectives on contiguous land areas in Laikipia, may result in greater displacement of wildlife by livestock. As the densities of the latter increase far beyond what was previously possible before grazing agreements were commonplace (i.e., prior to 2001, as noted by Heath 2001), wildlife populations across the landscape may face increased harassment, displacement, or exclusion (i.e., Kingdon 1996, Ogutu et al. 2009, Ogutu et al. 2011) in areas where this was previously not the case.

There is also the possibility that using large-scale ranches as grazing schemes (Heath 2001) can produce a source of livestock that is then shifted into communal areas at a later time (Anderson 2002). In Baringo, an adjacent county, "grazing schemes" during the colonial period effectively served as "incubation" areas to rear young livestock, which was then transferred into surrounding areas of rangeland under communal tenure where authorities were attempting to regulate and minimize stocking rates (Anderson 2002). Rather than

replacing pastoralist options in communal rangelands that were seen as being used "unsustainably," this served as a method of channeling an increased volume of livestock into these areas. In the situation Anderson describes, this led to an increase of livestock rather than the intended objective of land rest in the affected areas.

These two examples of how flows of livestock between paid grazing areas on ranches and "informal grazing areas" indicate that while pastoralist-ranch partnerships might hold positive outcomes for pastoralist production strategies and property rights arrangements on ranches, they could have potentially negative impacts on wildlife populations in Laikipia. Due to increased stock density on both large-scale ranches and within and between "informal grazing areas" and communal rangelands, wildlife populations could face increased pressure both directly and indirectly.

Chapter Six: Conclusion

The "parallel life" of property?

One of the most popular reasons put forth for the adoption of private title is to access collateral through formal lending institutions. De Soto imagines that property can lead an "invisible parallel life" (2000: p39). In Laikipia, abandoned small-holder properties have literally taken on a different "parallel life." Vast areas of Laikipia, amounting to approximately 240,000 acres, have been left idle by the approximately 85,000-100,000 legal owners (LWF 2013, Zeitz newsletter 2013). The ways these areas are used deviates drastically from the way they are depicted from a statutory perspective on a cadastral survey as subdivided, small-holder farms (LWF 2012). Rather than being used intensively, for crop-production, they have reverted to extensive use for livestock production used on a largely informal basis by a variety of pastoralist groups.

This is a "parallel life" vastly different from the "imaginary" one that de Soto (2000: p39) claims property is capable of living. This is the parallel life of "actualized" tenure. In this alternative "parallel life," property might be used indefinitely on an informal basis by persons other than those legally assigned the formal, statutory property rights to these areas. Rather than using titles as collateral to access credit to produce monetary capital, some pastoralists have identified an innovative way to make use of title deeds. They use these for a much different form of surety, tenure security, which enables their use of expanded areas of land. This allows them a different form of access to monetary capital, as these lands provide access to a form of "natural capital" (Savory and Butterfield 1999), grass, that allows pastoralists to produce and reproduce livestock, the world's oldest form of currency (Goldschmidt 1981).

This takes place on large areas where many of the owners, agriculturalists with stationary production strategies requiring regular rainfall, abandoned after concluding they were "unproductive." In this parallel life, the property of absentee landowners enters into the production strategy portfolio of pastoralists due to the combination of the semi-arid ecology, small and inappropriate plot sizes allocated to the small-holders, and a production

system that easily incorporates newly available areas of pasture into a mobile production system that specializes in harnessing risk (Kratli 2013) rather than avoiding it.

Land tenure lessons evident from Laikipia's subdivided landscape

Three important lessons about land tenure are illustrated by the case study material in this thesis. Although it is not always acknowledged, private property can produce both perverse results and true inefficiency resulting in dysfunctional property management (Heller 1999, Bromley 1989). This fact is demonstrated by the vast number of plots that were never settled, or if they were settled were later abandoned, by the allocated title-holders in Laikipia's subdivided ranches. Second, private property does not always function as expected. The land tenure arrangement in which it is situated (Musembi 2007, Delville 2003, Scoones 1999, Ostrom 1990) and the intended production pursuits are critical determinants of the ends to which private property may be used. Finally, private property in such an environment requires active management. Both large-scale and small-scale properties might come into the production portfolio of other land users if they appear to be underutilized by the formal owners.

A conventional perspective on benefits of private property would view securing exclusive rights to a specific piece of property as the motivation for purchasing land. This view largely ignores the existence of the prevailing land tenure arrangement in which that piece of land is situated. In other words, it disregards what is happening on the adjacent plot of land and in the general surrounding area.

This view of private property relies on the assumption that exclusion is an achievable objective (Schlager and Ostrom 1992) and that exclusionary arrangements will be upheld by authorities (Sjaastad and Bromley 2000). Such a view, while expecting the effects of land user decisions to be internalized, downplays the possibility for spillover effects to occur (Sjaastad and Bromley 2000). What this case study exemplifies is the fallacious logic of expecting private property to perform efficiently in all situations, regardless of the environmental and land user relationship contexts. Externalities (Heller 1999) of private property do exist, as demonstrated by the ability to use one piece of privately owned

property to gain access to grazing privileges on numerous surrounding unoccupied plots of private land (Huber and Opondo 1995). If exclusion is not enforced and the duty of surrounding land users of respecting the boundaries of private property is not enforced, then the "privileges" of land users remain in the place of the "rights" of landowners (Sjaastad and Bromley 2000).

The political ecology of subdivided land and pastoralist resource access in Laikipia

This case study is the embodiment of a political ecology (Little 1985, 2003) involving access, allocation, and resulting environmental consequences. A complex confluence of political history, social and tenurial practices, and understandings of the meaning of land (Bohannon 1963) intersect with an ecological setting more suitable for mobile livestock production than for stationary crop agriculture (Kohler 1987, Flury 1988, Huber and Opondo 1995). This result is increased pastoralist access to resources where historical land allocations prevented their prior access, and from which they were excluded through colonial land acquisition. This increased access is also placing pressure on ranches to allocate resources through grazing agreements and other resource sharing arrangements, effectively opening up additional access to land-based resources on private property in an area where pastoralists embrace a strong narrative about historical land loss.

In a situation such as the one observed in this case study, the scale of subdivided land (3-6 acre plots), the mostly vacant expanses of land situated distantly from water, and mobility of livestock create a confluence of ecological factors that allow the system of pastoralism to thrive. In this scenario, once an individual gains access to tenure security through purchasing a small plot, he or she effectively realizes grazing privileges in the surrounding unoccupied rangeland. This may be realized through informal arrangements or formal contracts with surrounding property rights holders. An individual makes use of a private property for a base on which to situate a dwelling and livestock enclosure, but with intentions of using the surrounding area for pasture.

A flag of caution to subdivision in extensively managed semi-arid rangelands

The situation observed in this case study raises a flag of caution to the blanket application of small-scale private property due to development interventions in Africa's rangelands where vastly different scales of private property are juxtaposed. Where different scales of land are applied and made use of by land users with disparate cultural notions of land (Bohannon 1963), appropriate land use and husbandry (Duder and Simpson 1997, Anderson 2002) property rights (Bromley 1989, Sjaastad and Bromley 2000, Schlager and Ostrom 1992), and statutory tenure (Musembi 2007, Migot-Adholla and Bruce 1994), the result can create deep complexity for land user relationships. Far from providing solutions to all economic development problems (de Soto 2000), this case study suggests that the assignment of private property rights to semi-arid areas where extensive management would be more appropriate may lead to unintended consequences resulting in protracted property rights dilemmas.

Two of these effects are the abandonment of land and the crafting of property institutions to achieve unexpected ends. This particular case illustrates how the legal statutory tenure framework provided by land subdivision can be used as the medium for sustaining an environment sharing more characteristics with a commons than what might be expected of private property. Such a situation underlines the fundamental premise that land tenure scenarios are as much about social realities, cultural perspectives, variable ecology, and land user relationships as they are about legal provisions and statutory assignment of rights attached to land (Musembi 2007, Sjastaad and Bromley 2000).

The collapsing and emerging platforms of pastoralism: a different evolution of land tenure

The Laikipia case illustrates that the path that property will take once subdivided is not easily foreseen. The pathways for private property are neither unidirectional nor necessarily beneficial to the landowners assigned "exclusive" property "rights." In the case of the southern Maasai rangelands, land loss, reduced access, and a collapsing platform for pastoralism are witnessed (Galaty 2013, Lamprey and Reid 2004). Meanwhile, in Laikipia the inability of one production strategy, small-scale agriculture, to use a "platform" once it has been subdivided has created the space for pastoralists to utilize that same land as their own production platform on an extensive basis.

In this case study, we observe systems operating side by side (Scoones 1999, Ostrom 1990), but also systems of property merging (Homewood 2008, Galaty 1994) and emerging in what is best described as a hybrid (Delville 2003) property system. Such evidence provides additional support to the plausibility of the "adaptation paradigm" (Bruce et al. 1994; Unruh 2006), as opposed to a "replacement paradigm" based on the concept of a linear evolution of property.

The evidence presented here, and its profound implications for access to pastoralist resources, appears to partially support predictions (Sperling and Galaty 1990, Galaty 1992) that pastoralist identity may one day be reliant on land ownership rather than ownership of cattle. While in some areas pastoralists have lost their land due to tenure shifts involving subdivision and land fragmentation (Galaty 1992, 1994, 2013), shifts in land use in Laikipia caused by subdivision have increased opportunities for pastoralists to gain access to, and use, land based resources. Pastoralists have brought extensive parts of underutilized land in Laikipia into their land use portfolio, ironically by embracing private property and using nominally private areas as common property. This takes place even as the "pastoralist platform collapses" in other parts of the Kenyan rangelands (Galaty 2013, Mwangi and Ostrom 2009), facilitated in part by the adoption of private property by pastoralists, leading to land loss and dispossession by pastoralist groups. In this scenario we see that subdivision of land can result in unanticipated and unpredictable consequences that privilege pastoralists while placing formal landholders at a disadvantage.

While the informal amalgamation of public, private, common property, and open-access resources and the social and ecological effects that result is controversial, it is a formidable achievement demonstrated by the pastoralists grazing on Laikipia's lands "informally." This example attests to the adaptability and flexibility of the pastoralist system. The resulting portfolio of land access produced by this combination of property arrangements demonstrates a form of pluralistic adoption of institutions that contributes to increased access to the primary requirements (water, minerals, and grass) of pastoral production.

Even if I have imperfectly answered some of the questions I set out to investigate during my fieldwork, I believe I have put forth an explanation to another. I will conclude this thesis by returning to a question that was asked rhetorically of me at the beginning of my field research: "What is someone going to do with three acres?"

CATTLE GRAZING AGREEMENT Serial No.....

"WITHOUT PREJUDICE"

An Agreement is Hereby made between Mr.....ID no.....on behalf of.....Community " across the fence neigbour" (Permit Tickets No: ..... to.....) and [redacted] **(The operator)** on behalf of [redacted] Whereby it is mutually Agreed as follows:-

1. That the Company agrees to let.....cattle grazing for one Month from.....to..... at the rate of ksh.100 per Head of Cattle.
2. That the Permit Holder will only graze the permitted stock in the area allocated for the period.
3. That access to the ranch shall be at designated points and entry will be at 7.30 am and exit before 5.30 pm.
4. **RESTRICTIONS:**
   a) No children and women herders. Only MEN are allowed
   b) No Dogs
   c) No spears bows, arrows or firearms.
   d) No calves or excess
5. **SANCTIONS:**
   a) For permit holder either breaching 2 or 4 will be 100/= per Head per Offence per Day
   b) For Non Permit Holders accessing the Ranch illegally will be 200/= per Head to The Operator and **SANCTION** by the Community.
6. Grazing committees agree to help Police and sanction offenders.
7. That each person(s) allocated a block will be responsible for;
   a. Electric fence surveillance. Any damage should be reported immediately and if it is intentional the person responsible identified and handed over to the Police for Legal action.(If fence is present)
   b. Acting as game scouts and report to the Company any poachers, or injured game and all matters concerning Wildlife Conservancy.
   c. Report to the Company on any matter touching on the Ranch Security e.g. Assist in tracing any stolen livestock e.t.c
8. All incidents involving wildlife will be referred to KWS for action and possible compensation by the community; the Company is not liable whatsoever for any damage resulting to any loss, theft, injury or death to persons or livestock.
9. Any person found killing Game or hunting will be evicted immediately and will forfeit any grazing fees paid and will be handed over to KWS.
10. That contravention of the whole or part of this Agreement will lead to immediate cancellation of the Agreement and immediate eviction; no monies will be refunded whatsoever for any un-used period.
11. That the company exclusively reserves the right to renew this Agreement upon its expirely and that the community will immediately vacate the Ranch upon the same.
12. That the Agreement will automatically be terminated two (2) weeks after the onset of rains. All livestock will be required to vacate the Ranch.
13. Payment received Kshs: .....on.....2013.

This Agreement is executed at [redacted] this.....Day of.....2013.

Signed: .....
(CHAIRPERSON)

Signed: .....
(FOR: [redacted] –The Operator)

Witnessed: .....

CC: DO, OCS, Chief[redacted]

[redacted] 2013

Specific Terms and Conditions of the agreement:

1) There will be common terms for the separate agreements across all three areas, with variations specific to each area added as appropriate – eg specific grazing area. Each section agreement will be signed separately by the respective Chief's and Grazing Committee.

2) The agreements are valid for the specific time frame mentioned on the agreement.

3) The total number of cattle to be grazed on the ranch will be agreed before each implementation of the agreement. These numbers will be decided by the ranch, the individual allocations made by the Chiefs and Grazing Committee's in compliance with the terms & spirit of the agreement.

4) Where an agreement is declared void for whatever reason, the cattle allocated to that section will be removed immediately, and no further grazing will take place in that area until such time as a new agreement is signed.

5) In such cases, the overall number of cattle grazing on the ranch will be reduced by the number allocated to that section ie the other areas will not be able to increase their agreed number to make up the difference.

6) These agreements are intended to benefit our immediate 'across the fence' neighbours. By signing them, the signatories accept this as a condition of the agreement.

7) These agreements are a drought relief and humanitarian response to extreme conditions. They will only be implemented in such circumstances, and are not intended to be longer term nor automatically revolving grazing agreements.

8) The beginning date of each grazing period will be decided by [redacted] and dependent on specific conditions prevailing at that time and will be fixed for a specific time period.

9) The participants agree to actively prevent others from entering and grazing on [redacted].

[redacted]

10) There will be a charge of 100/- per head per month, payable in advance for the agreed stipulated grazing period. Where the agreement ends earlier than the period paid for, a pro-rated refund will be paid to the respective Chiefs for distribution to their community, with a 30 day month being used for calculations ie 1/30th of the monthly fee per head per day. Official receipts will be issued for any payments made either way.

11) Illegal grazing will be grounds for termination of the agreement.

12) This is a communal agreement – no individual settlements or agreements will be entertained between the ranch and communities.

13) The respective Chiefs agree to administer with the respective grazing committee's and take responsibility for the correct functioning of the agreements.

14) Named and designated herders are to herd the cattle, no more than two herders per hundred head. Any variations should be agreed with the ranch in advance.

15) No night grazing will be permitted – the cattle are to be counted in and out of the ranch at designated points morning and evening.

16) [redacted] has insufficient water to meet its current needs and therefore the cattle will have to water at the traditional points outside the ranch.

17) There should be no honey gathering, wood or grass cutting or gathering, nor harvesting of any other natural resources of the ranch

18) Any diseases in the grazing stock should be reported to the Estate manager or Coordinator immediately, and that livestock excluded from the ranch – failure to do so will result in immediate suspension of that agreement.

19) No structures of any sort may be erected on the ranch, and no cooking fires are to be started.

20) [redacted] will not be held liable for any loss, damage or predation suffered by participants whilst on the ranch.

[redacted]

21) Any illegal activity or vandalism will not be accepted and will lead to an automatic termination of this agreement.

22) No firearms, spears or Bows and Arrows may be brought onto the ranch under any circumstances.

23) The [redacted] Rangers have the responsibility of monitoring activities on the ranch and will patrol with members of the grazing committee . They are to be respected and obeyed. Complaints should be directed through the Chief and Grazing Committee.

24) The Community will address complaints and grievances through the Grazing Committee who will then talk to Ranch Management.

25) In the event of fire or other circumstances that adversely impact the ranch's stock carrying capacity, during the application of the agreement [redacted] reserves the right to vary or terminate the agreement for that period.

26) No long term rights or claims are intended or implied by these agreements, and [redacted] reserves the right to end them at its discretion, as the goals, usage or conditions on the ranch may well change.

27) By signing and participating in this agreement, acceptance of all its terms and conditions is implied, and where no specific clause is specified, it is agreed that a solution in the spirit of the agreement be reached.

28) Any act of Vandalism and or Poaching shall result in all agreements being terminated and those responsible being handed over to the relevant authorities.

29) Only Adults will be allowed to accompany Cattle onto [redacted] for grazing.

30) Receipt of Payment of grazing fees should be carried by individuals accompanying their Cattle on [redacted] at all times to show proof of payment and number of Animals paid for. Lack of this documentation will result in Cattle being refused entry to [redacted] or being removed if already on the property.

[redacted]

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